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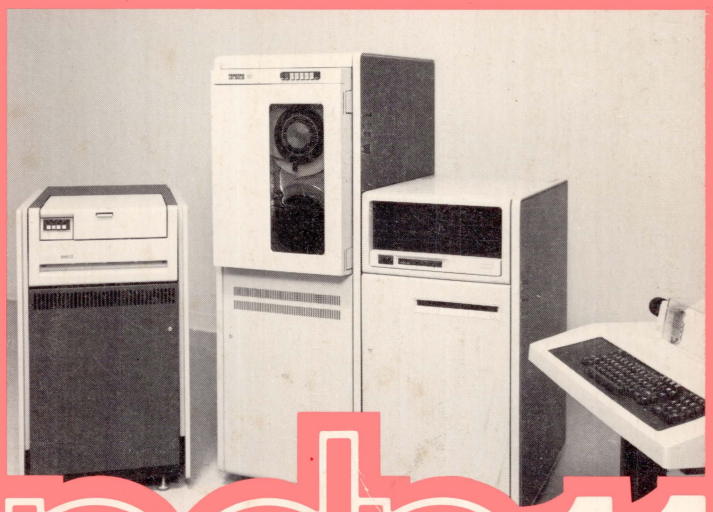

pdp-11

SYSTEMS AND OPTIONS SUMMARY

JULY–SEPTEMBER 1982

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INTRODUCTION TO PDP-11 SYSTEMS AND OPTIONS SUMMARY

JULY-SEPTEMBER 1982

Each quarter New Products Marketing produces a new corporate Product Summary. In the past, you have had to guess what changes were made. Starting with this edition, we will summarize the major changes to save you time.

The greatest change this quarter is the incorporation of the new **PDP-11 Operating System General License Packaged Systems**. These systems simplify the sales of our popular PDP-11 systems and offer our customers a more flexible packaged system base. General License Systems permit a choice of operating system, as well as a choice of console terminal. At present, we are offering nine General License systems: *SX-RXMMA* (PDP-11/23-PLUS processor); *SX-FXMMA*, *SX-FXHHA*, *SX-FXGMA* (PDP-11/24 processor); *SX-40MMA*, *SX-40HHA*, *SX-40GMA*, *SX-40GAA*, and *SX-40PAA* (PDP-11/44 processor).

In the Optional Software sections, RSX-11M and RSX-11M-PLUS now feature **RSX-PSI/M** and **RSX-PSI/M-PLUS**, respectively. These software options permit suitably configured systems to connect to Public Packet Switching Networks that conform to CCITT recommendations. **DIBOL-11/DECFORM** is a software package for RSTS/E and includes the DIBOL-11 language processor and the DECFORM screen formatting and file review utility. DIBOL is DIGITAL's own business oriented high-level language, and DECFORM is a data entry and file review system utility that enables the development of interactive data entry screen formatting and file review functions.

Some technical specifications have changed significantly in the **UNIBUS Communications Options** section. This should be checked whenever a system is configured.

A 1-MB, ECC MOS memory, the **MS11-PB**, which significantly enhances memory capacity for some of our new General License Packaged Systems, is introduced in this edition.

The **RUA60**, removable-media disk subsystem, features 205 MB of formatted capacity per drive and is excellent for mid-range PDP-11 systems. The **RUA81** fixed-disk subsystem offers high performance, Winchester technology, and 456 MB formatted capacity per drive. Both the RUA60 and the RUA81 subsystems use DIGITAL's UDA50 intelligent controller, as does our other fixed-disk subsystem, the RUA80.

This edition also contains the **VT125-WA(WB)** word processing version of our popular VT125 Graphics Terminal. The **VT131**, a block mode terminal, works only on non-DIGITAL systems. It is ideal for customers who do not have DIGITAL systems, but desire the versatility of a DIGITAL-manufactured terminal.

The **LQP02**, a full character, letter-quality printer, is ideal for applications requiring high-quality printing. The LQP02 can use not only fan-fold computer paper, but also regular office stationery. So, too, can the **LA50 Personal Printer**, which features selectable print speeds of 100 or 50 characters per second and a graphics mode. **GIGI**, an intelligent keyboard terminal, whose software is now supported by RSTS/E, and has been reinstated in this Product Summary.

Printing at a maximum speed of 1,220 lines per minute, the **LP11-GA/GB Lineprinter** offers high performance and high throughput ability. **DECmate I**, DIGITAL's stand-alone office system, is now available in dual and quad pedestal-style configurations.

Appendix C's comparison charts have been updated. Since some of the comparison charts were becoming unwieldy, they have been subdivided to make them easier to use. Product features not previously called out in some of the charts were added to allow customers to better compare products.

LEGEND

This legend gives expansion information for potential system expansion and defines add-on options available based on operating system support.

Note: It is important to remember that some memory, disk, and magtape add-ons will require the addition of an expansion box or cabinet to the system in order to provide the necessary amount of expansion space and/or power for the option. Please consult the *Expansion Mounting Hardware* and/or *Cabinet* sections for the correct expansion boxes, cabinets and/or expansion requirements for add-on options.

This legend also defines terms and abbreviations used throughout the book.

Model/Option Code

The option code designates voltage and cycle power requirements.

Example #1: SM-40UAB-CA(CD). CA indicates the 120 Vac, 60 Hz variation. CD indicates 240 Vac, 50 Hz variation.

Example #2: H7750-BA(BD). BA designates 120 Vac, 60 Hz power. BD designates the 240 Vac, 50 Hz power option.

Mounting Code (Backplane) - space in a CPU or expansion box to accommodate a specific type of prewired backplane.

Prewired Backplane

Hardware interface containing edge connector slots for insertion of double-, quad- or hex-sized modules for UNIBUS systems and double- or quad-sized modules for LSI-11 systems. These backplanes allow for the connection of the module to the UNIBUS and to a power supply source.
Example: DD11-CK, DD11-DK.

Expansion Space

The amount of expansion space available within the CPU and/or expansion boxes for additional backplanes or modules. It is important to remember that expansion space refers to physical space—for example: SU's or Hex Slots—and not DC power consumption or electrical bus loads required by a particular option.

SU

System Unit. Definition of space available in BA11-type boxes for mounting prewired backplanes(s) with associated modules. For example, a BA11-K box has 5 SUs worth of space that could accommodate up to 5 four-slot DD11-CKs (each requiring a SU) or 1 DD11-CK and 2 nine-slot DD11-DKs (each requiring two SUs).

LSI-11 Double Slot

Space in prewired backplane for a 5.22 in (13.25 cm) high module for PDP-11/23 systems.

LSI-11 Quad Slot

Space in prewired backplane for a 10.44 in (26.51 cm) high module for PDP-11/23 systems.
Note: The LSI-11 double module mounts in rows A and B of an LSI-11 quad slot. Therefore, only one double module may be mounted in an available quad slot.

Extended LSI-11 Quad Slot

Space in prewired backplane for a 10.44 in (26.51 cm) high module for PDP-11/23-PLUS systems. Please note that certain PDP-11/23 options are compatible with the Extended LSI-11 Bus and may be mounted in an Extended LSI-11 quad slot.
Note: Consult your local DIGITAL sales representative for further details.

Double Slot

Space in a prewired general purpose backplane which will accept a 5.22 in (13.25 cm) high module for UNIBUS PDP-11 systems.

Quad Slot

Space in prewired general purpose backplane for a 10.44 in (26.51 cm) high module for UNIBUS PDP-11 systems.

Hex Slot

Space in prewired general purpose backplane for a 15.6 in (39.62 cm) high hex module **or** a 10.44 in (26.51 cm) high quad module for UNIBUS PDP-11 systems.

MASSBUS Port

Space in prewired PDP-11/70 backplane for connection of high- speed peripheral options.

Mounting Code - indicates type of mounting or layout required for system hardware components.

SM PAN
Small panel. Front panel height is 5.25 in (13.3 cm).

SM DISTRIBUTION PAN
5.25 in (13.3 cm) high distribution panel.

DISTRIBUTION PAN
7.0 in (17.8 cm) high distribution panel.

PAN
Panel-mounted. Front panel height is 10.5 in (26.7 cm).

Bezel
Blank panel to cover unoccupied panel space in a cabinet.

CAB
Cabinet-mounted.

Dedicated CAB
Option is packaged in a specified cabinet.

FS
Freestanding unit.

TT
Tabletop unit.

Recommended Environment

The computer area environment (temperature and humidity) has a substantial effect on the overall reliability of a system and should be individually evaluated by a DIGITAL Field Service representative. For optimal system performance, DIGITAL recommends the following environment:

Temperature:	21°+3°C (70°+5°F)
Temperature rate of change:	3°C/hr (5.5°F/hr)
Relative humidity:	50%+10% (non-condensing)
Humidity rate of change:	6%/hr

Service Area

Area extending from front, rear, and sides of system cabinets required for operation, maintenance, and ventilation purposes.

Expansion

CPU Cabinet Expansion
Expansion space within the CPU cabinet for expansion boxes, distribution panels, and battery backup units. The SUs, Hex slots, Quad slots, or LSI-11 Quad slots available are shown in the matrix and in the backplane diagram for each system.

System Memory Expansion
Amount of memory that can be added to the system and maximum amount of memory the system can support.

System Disk Expansion
Number of like disks/disk subsystems that can be added to the system and maximum number of like disks/disk subsystems the system can support.

System Magtape Expansion
Number of like magtape transports/subsystems that can be added to the system and maximum number of like magtape transports/subsystems the system can support.

Current/Bus Load Availability

DC Amps Available
DC current available for system expansion @+5V, @+15V, and @-15V for UNIBUS systems; and @+5V and @+12V for LSI-11 systems.

AC Amps Available
AC current available for system expansion @120V within a specific system cabinet for peripheral expansion.

System Bus Loads Available
The number of electrical loads remaining on the system UNIBUS.

Current/Bus Loads Drawn

DC Amps Drawn
DC current drawn from the system @+5V, @+15V, and @-15V for UNIBUS systems; and @+5V and @+12V for LSI-11 systems.

AC Amps Drawn
AC current drawn by the option @120V or @ 240V.

System Bus Loads Drawn
The number of bus loads the option draws off the UNIBUS or LSI-11 bus.

System Software
The operating system(s) which support the option.

-xx Designation
Indicates that different length cables or other product variations are available and that the order code corresponding to the desired option must be specified. (See price insert.)

Units of Measurement
b/in = bits per inch (formerly bpi)
b/s = bits per second
in/s = inches per second (formerly ips)
cm/s = centimeters per second
l/min = lines per minute
l/in = lines per inch
l/cm = lines per centimeter
K = 1024
M = 1024^2
KB = Kbytes
MB = Mbytes
KB/s = Kbytes per second
MB/s = Mbytes per second

N/A
Not applicable

PRINCIPLES OF SOFTWARE LICENSE AGREEMENTS

Software is treated as proprietary information. Customers do not own it, but are licensed to use it under the terms and conditions of software license agreements. Key points of DIGITAL's software binary license agreements are:

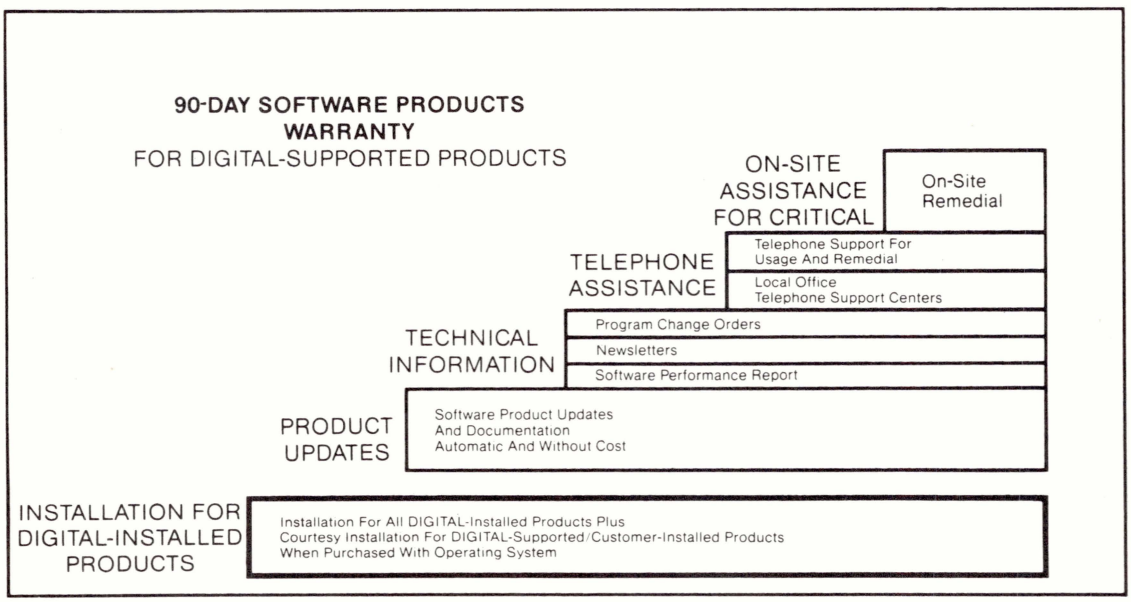
- Customers must have a binary license to use any of DIGITAL's binary software products.
- This license allows **one** customer to run **one** software product on the CPU it is first installed on.
- DIGITAL retains title and ownership.
- DIGITAL's licensing agreement does not allow the transfer of software from one end user to another or from one CPU to another without prior permission from DIGITAL. Software may only be transferred to another party with written permission from DIGITAL.
- A customer may reproduce the software , if necessary, but only for use on the specific CPU licensed to use it.
- The use of an update version of the software on the licensed CPU requires that the customer purchase a software update option if out of warranty or not covered by a software service contract.
- The software may be used on another single CPU on a temporary basis during a malfunction of the original CPU which causes the software to be inoperable.
- Any modification to DIGITAL-licensed software doesn't exempt the software product from DIGITAL licensing or sublicensing terms, conditions, or fees. Only those modifications that are not part of the original software are the customer's property.

SOFTWARE ORDERING OPTIONS

DIGITAL-SUPPORTED Binary License Option
This is a standard binary license that includes media, manuals, documentation, and warranty packaged together. A 90-day warranty, as specified in the Software Product Description (SPD) Addendum, is the support received (unless different warranty conditions are specified in the SPD.) Main features of the warranty include: product updates, technical information, telephone support, and on-site remedial support. Depending on complexity, DIGITAL-supported products are designed as either DIGITAL-installed or Customer-installed.

DIGITAL-Installed
DIGITAL provides installation services for products that are complex to install. Installation services include verification of complete product delivery and standard installation of the product. Hardware and the operating system are installed together.

Customer-Installed
Since many DIGITAL-supported software products require no special skills to install, the customer can install these using the comprehensive, step-by-step documentation sets provided with them. The documentation sets detail all procedures necessary for proper installation. Once the software products have been installed, they too qualify for warranty service.



Add-On Installation Fee
With the exception of operating systems, customers who buy DIGITAL-Supported/DIGITAL-Installed products as add-ons after the original system is installed will be quoted an installation fee.

CUSTOMER-SUPPORTED Binary License Option
This is a standard binary license which includes media, manuals, documentation but no warranty support. It is only offered when a DIGITAL-supported license option is not offered.

LICENSE-ONLY Option
A license-only option is a standard binary license, but has no media, manuals, documentation or support. Software products can be ordered at considerable cost reduction, but the customer must first purchase a license with media for that particular software product.
The license-only option is a one time right to copy. It is a license to run a single software product on one additional CPU using a copy of the software the customer made from the original licensed product. Customers may order additional copies of the documentation.

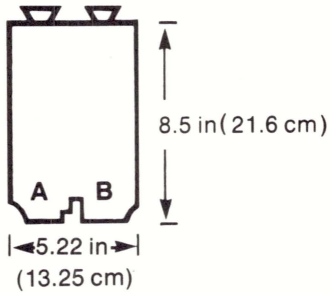
OUT-OF-WARRANTY Update Option
A customer with a binary license may order a product update for each licensed CPU. An additional license fee is charged for each product update and for each one-time right to copy the update for each previously licensed CPU.

MODULES

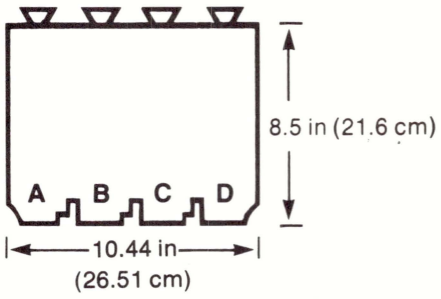
The illustrations below depict modules that mount in LSI-11, Extended LSI-11, or UNIBUS backplanes. Note that the letters appearing on the edge connectors serve as alignment guides for placement in their corresponding backplane slots.

LSI-11 MODULES

DOUBLE MODULE

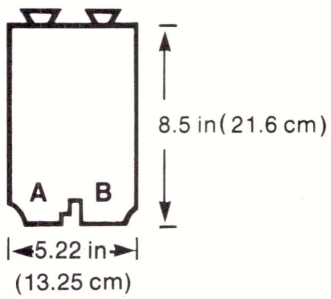


QUAD MODULE

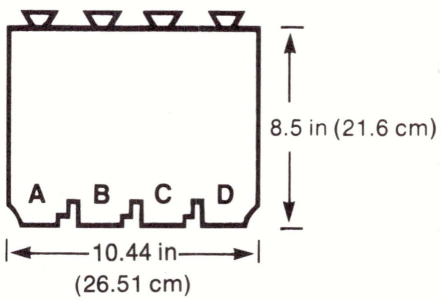


EXTENDED LSI-11 MODULES*

DOUBLE MODULE



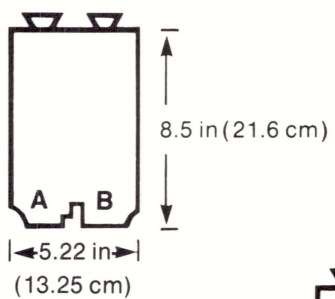
QUAD MODULE



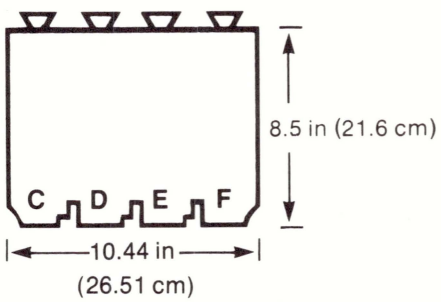
***NOTE:** Although Extended LSI-11 Double and Quad modules have the same appearance and size of LSI-11 Double and Quad modules, electronically the two groups are quite different.

UNIBUS MODULES

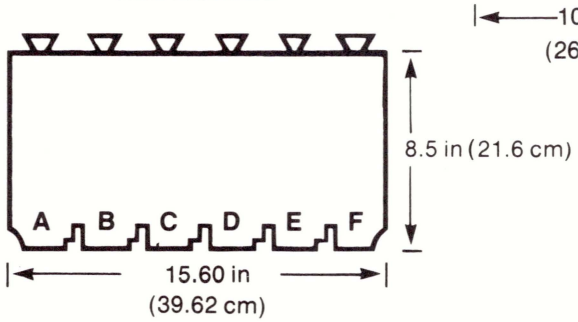
DOUBLE MODULE



QUAD MODULE

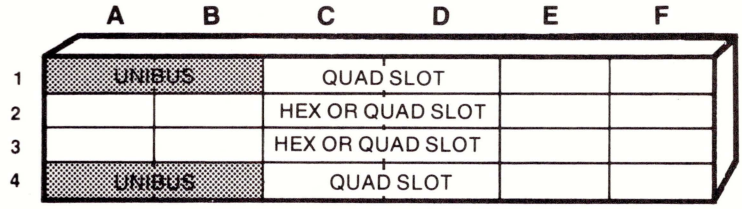


HEX MODULE



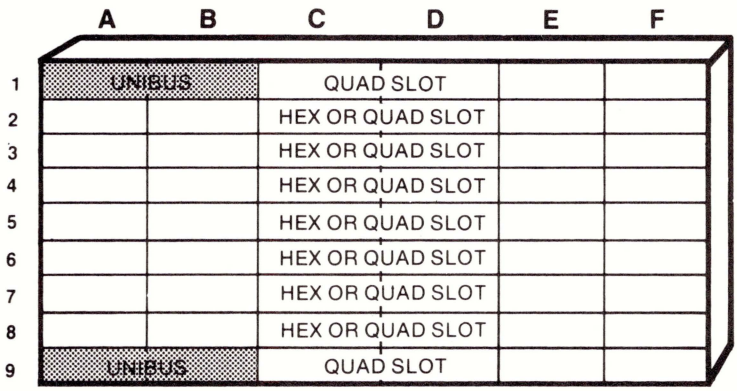
BACKPLANES

DD11-CK BACKPLANE



The DD11-CK is a one-system unit, four-slot expansion backplane for use in BA11-K and BA11-L expansion boxes. The DD11-CK also mounts in PDP 11/24, 11/34A, and 11/44 CPU boxes. Accommodates two hex and two quad modules.

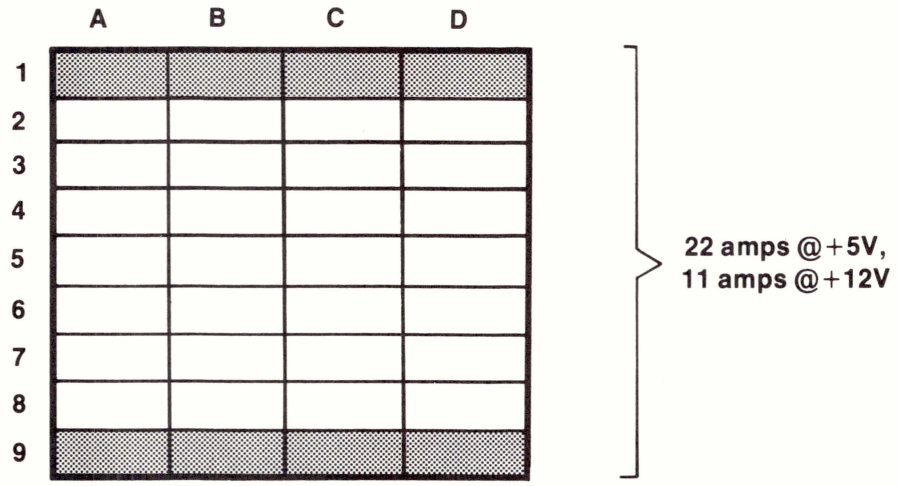
DD11-DK BACKPLANE



The DD11-DK is a two-system unit, nine-slot expansion backplane for use in BA11-K and BA11-L expansion boxes. The DD11-DK also mounts in PDP 11/24, 11/34A, and 11/44 CPU boxes. Accommodates seven hex and two quad modules.

LSI-11 EXPANSION BOXES

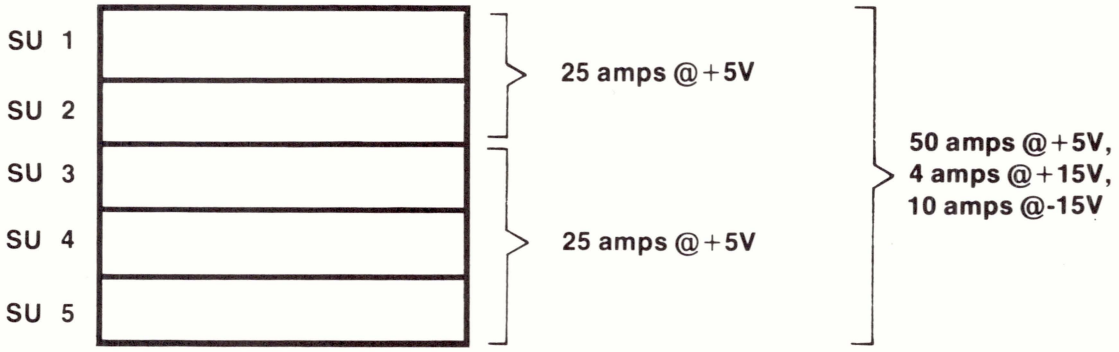
BA11-NE(NF) EXPANDER BOX



The BA11-NE(NF) is a cabinet-mountable expansion box with bezel for use with PDP-11/23 systems. It includes one nine-slot LSI-11 backplane that provides a net increase of seven LSI-11 quad slots of mounting space. DC power supply is rated at 22 amps @+5V and 11 amps @+12V.

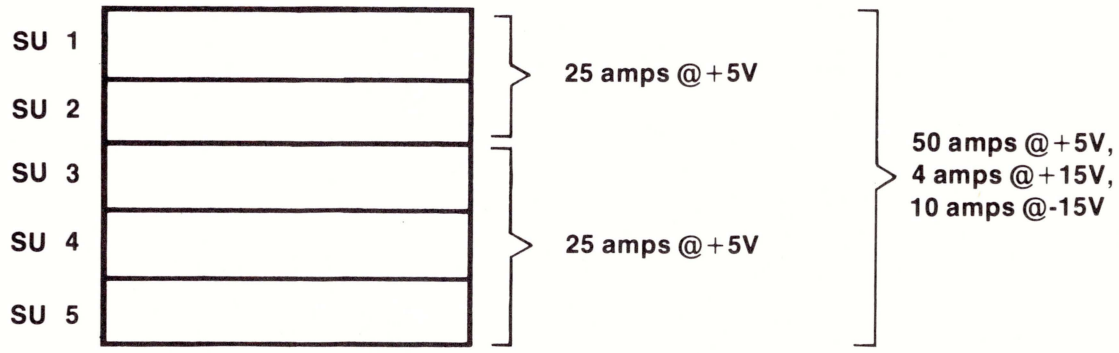
UNIBUS EXPANSION BOXES

BA11-KW(KX) EXPANDER BOX



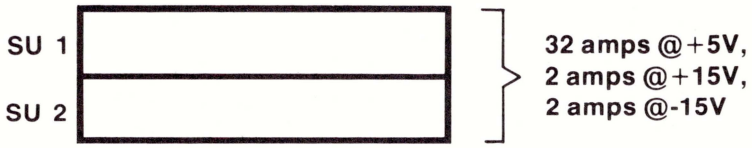
The BA11-KW(KX) is a cabinet-mountable expansion box with bezel and slides for use in H9642-DB(DC) cabinets for PDP-11/24 & PDP-11/44 systems; and for use in H9602-CC(CD) cabinets with PDP-11/70 systems. It provides five system units (SUs)of mounting space and is compatible with the DD11-CK/DK expansion backplanes. DC power supply is rated at 50 amps @+5V total, with 25 amps @+5V for SU 1-2, and 25 amps @+5V for SU 3-5, 4 amps @+15V for SU 1-5, and 10 amps @-15V for SU 1-5.

BA11-KE(KF) EXPANDER BOX



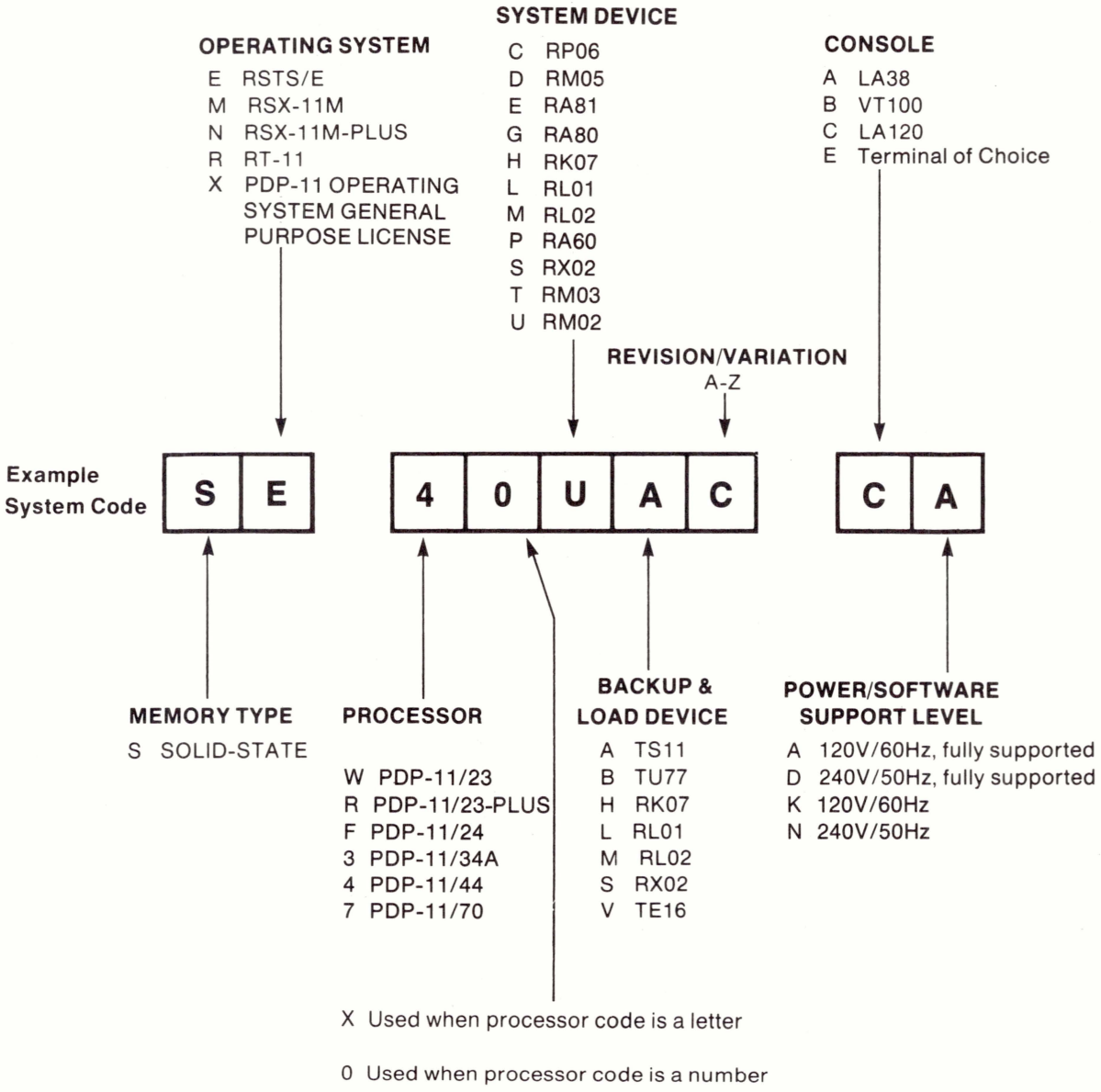
The BA11-KE(KF) is a cabinet-mountable expansion box with bezel and slides for use in H960 series cabinets. It provides five system units (SUs) of mounting space and is compatible with the DD11-CK/DK expansion backplanes. DC power supply is rated at 50 amps @+5V total, with 25 amps @+5V for SU 1-2, and 25 amps @+5V for SU 3-5, 4 amps @+15V for SU 1-5, and 10 amps @-15V for SU 1-5.

BA11-LE(LF) EXPANDER BOX



The BA11-LE(LF) is a cabinet-mountable expansion box with bezel for use in PDP-11/34A and PDP-11/44 systems. It provides two system units (SUs) of mounting space and is compatible with the DD11-CK/DK expansion backplanes. DC power supply is rated at 32 amps @+5V, 2 amps @+15V, and 2 amps @-15V.

PACKAGED SYSTEM NOMENCLATURE



PDP-11/44 SAMPLE SYSTEM EXPANSION

The system configuration shown below, SE-40UAC, will serve as the base system for this sample expansion of a PDP-11/44 packaged system.

BASE SYSTEM CONFIGURATION

PDP-11/44 RM02-BASED SYSTEM RUNNING UNDER RSTS/E

SE-40UAC

This PDP-11/44 RM02-based system includes:

- RSTS/E operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RJM02 disk subsystem (one controller and one 67MB RM02 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 60.5 in (153.67 cm) high H9646 bolt-on TS11 magtape cabinet, and one 39 in (99 cm) high freestanding RM02 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Seven more freestanding RM02 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet. However, if additional expansion is required, independent of U.L. certification, 15.75 in (40 cm) of peripheral mounting space and 12 AC amps @120V are available. Note that expansion of the TS11 requires the removal of the lower front door and its replacement with blank front bezel panels.

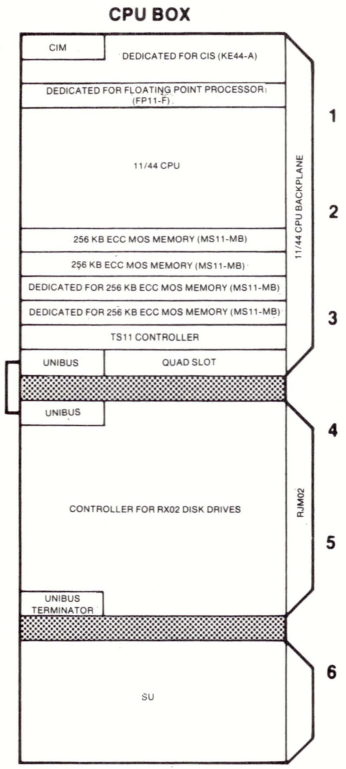
BASE SYSTEM SPECIFICATIONS

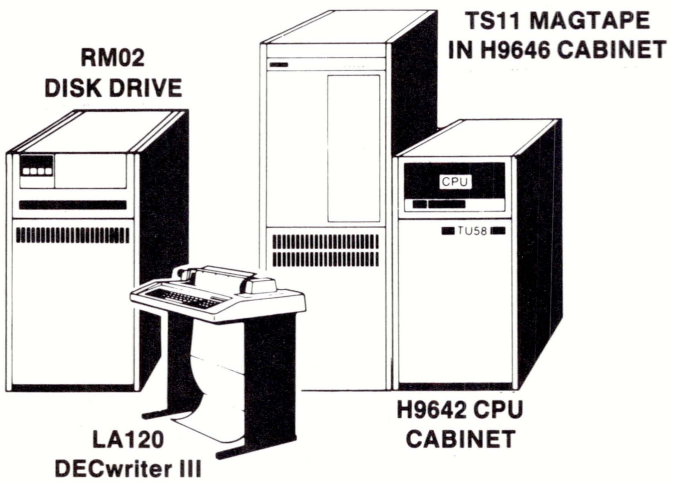
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-40UAC-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	1 RM02 1 TS11	CPU SU 1-6: 1 Quad slot 1 SU	61.4†	.95	.55	14*	13

* This figure represents AC amps available in the TS11 magtape cabinet only.

† Some of the unused current @+5V is available for use @+-15V. If additional +15V or -15V current is needed, up to a maximum of two additional amps each, five times the sum of the amount of additional +-15V current (in amps) needed must be subtracted from the +5V current available.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.





CONFIGURING SEQUENCE

Prior to choosing and expanding any packaged system, the customer's specific application and expansion requirements must be determined. In this example, a SE-40UAC packaged system operating under RSTS/E was selected as the base system best matching the hypothetical customer's overall requirements. In addition, the following desires were expressed for increased capabilities beyond those of the packaged system:

- Sixteen local terminals
- Requirement for 1 MB of memory
- Floating Point processor and a Commercial Instruction Set module
- Additional storage capacity
- A floppy disk drive
- A large printing capability
- Links to a second local PDP-11 and a VAX in network
- FORTRAN IV language capability

Given the customer needs listed above and the information contained in the PDP-11 Systems & Options Summary, the following options have been added to the base system, SE-40UAC, to produce an expanded system tailored to the customer's specific operational requirements:

1. The first additions to the system are the KE44-A Commercial Instruction Set (CIS) Processor and the FP11-F Floating Point Processor (FPP) modules which mount in their dedicated slots in the CPU backplane. Since the customer requires FORTRAN IV software, featured as an option with the RSTS/E operating system package, it is ordered separately.

2. Two additional MS11-MB memory modules are mounted in the two dedicated slots in the CPU backplane, adding 512 KB of memory for a total of 1 MB.

3. An RM02 freestanding disk drive with 67 MB of additional storage is added to the RJM02 disk subsystem for a total of two disk drives.

4. In addition to the sixteen VT100-AA terminals, one DZ11-E 16-line asynchronous multiplexer, sixteen BC22A or BC03M interconnect cables of appropriate length, and one four slot DD11-CK backplane are required. The DD11-CK backplane is mounted in the last system unit (SU) in the CPU box and provides two quad and two hex slots for expansion. Once the DD11-CK backplane is in place, the DZ11-E multiplexer modules are mounted in the two open hex slots. The DZ11-E distribution panel is be mounted in the 10.5 in (26.7 cm) of rear mounting space available in the CPU cabinet.

5. The next system additions are the two LP11-CA lineprinters to fulfill the need for a large printing capability. The printers themselves are freestanding. However, their controllers require a quad slot each and mount in the two open quad slots in the DD11-CK backplane.

6. A H9642-DB 40 in (101.6 cm) expansion cabinet without end panels is required for further system expansion. The H9642 cabinet mounts next to the PDP-11/44 CPU cabinet and provides 31.5 in (80 cm) of vertical mounting space. NOTE: DIGITAL approved configurations using the H9642-DB(DC) expansion cabinets for PDP-11/24 and PDP-11/44 systems can be found in Appendix A.

7. A BA11-KW cabinet mountable expansion box with bezel now must be ordered to accommodate the RX211 subsystem controller and the local network links. This expansion box mounts in the top 10.5 in (26.7 cm) panel space of the H9642 expansion cabinet and provides five system units of mounting space.

8. Before attaching the RX211 subsystem controller and the two DMR11-AC local point-to-point data links between processors, a DD11-DK nine slot backplane must be mounted in the first two system units of the BA11-KW expansion box to provide the necessary expansion slots.

9. The RX211 subsystem controller, requiring a quad slot, can be added to the system. The module mounts in the first quad slot in the DD11-DK backplane.

10. Now, the dual RX02 floppy disk drive can be mounted in the middle 10.5 in (26.7 cm) panel (PAN) space of the H9642 expansion cabinet.

11. Next, the two DMR11-AC local network link DDCMP microprocessor and line unit modules, requiring two hex slots each, can be mounted. These modules mount in the second through the fifth hex slots in the BA11-KW expansion box's DD11-DK backplane. The DMR11-AC also includes a distribution panel which occupies one half of a small distribution panel (SM DISTRIBUTION PAN) space. Since two DMR11-AC panels occupy one complete small distribution panel space, the panels are mounted in the rear of the bottom 10.5 in (26.7 cm) DISTRIBUTION PAN of the H9642 expansion cabinet. Four BC55N full-duplex cables for local connection along with DECnet Phase III software are needed to complete the DMR11 network package.

OPTIONS LIST

The following list summarizes the hardware and software options that have been added to the packaged system, SE-40UAC:

- KE44-A Commercial Instruction Set module: Draws 9.6 DC Amps @ +5V
- FP11-F Floating Point Processor module: Draws 7.3 DC Amps @ +5V
- 2 MS11-MB 256 KB ECC MOS memory module units: Draws total of 2 Bus Loads and 9.6 DC Amps @ +5V
- RM02 freestanding disk drive
- Sixteen EIA/CCITT VT100-AA terminals
- DZ11-E 16-line asynchronous multiplexer (includes 1 distribution panel): Draws 2 Bus Loads and 4.4 DC Amps @+5V, 0.20 Amps @ +15V, & 0.26 Amps @ −15V
- DD11-CK 4-slot backplane mounted in CPU box
- Sixteen BC22A interconnect cables for VT100 terminals and the DZ11-E multiplexer
- Two LP11-CA lineprinters with control units and cables included: Draws a total of 2 Bus Loads and 3.0 DC Amps @+5V
- H9642-DB expansion cabinet with power controller
- BA11-KW cabinet mountable expansion box with bezel and BC11A cable included for mounting in the H9642 expansion cabinet
- DD11-DK 9-slot backplane for mounting in the BA11-KW expansion box
- RX211-BA subsystem consisting of 1 controller, a dual RX02 floppy disk drive, and interconnect cabling: Draws 1 Bus Load and 1.5 DC Amps @ +5V
- Two DMR11-AC local network link DDCMP microprocessor and line unit modules (includes 2 distribution panels): Draws 1 Bus Load and 8.0 DC Amps @ +5V, 0.11 Amps @ +15V, & 0.20 Amps @ −15V
- Four BC55N twinaxial cables, with AMP connectors, for local connection of DMR11's
- FORTRAN IV/RSTS/E
- DECnet/E Phase III software

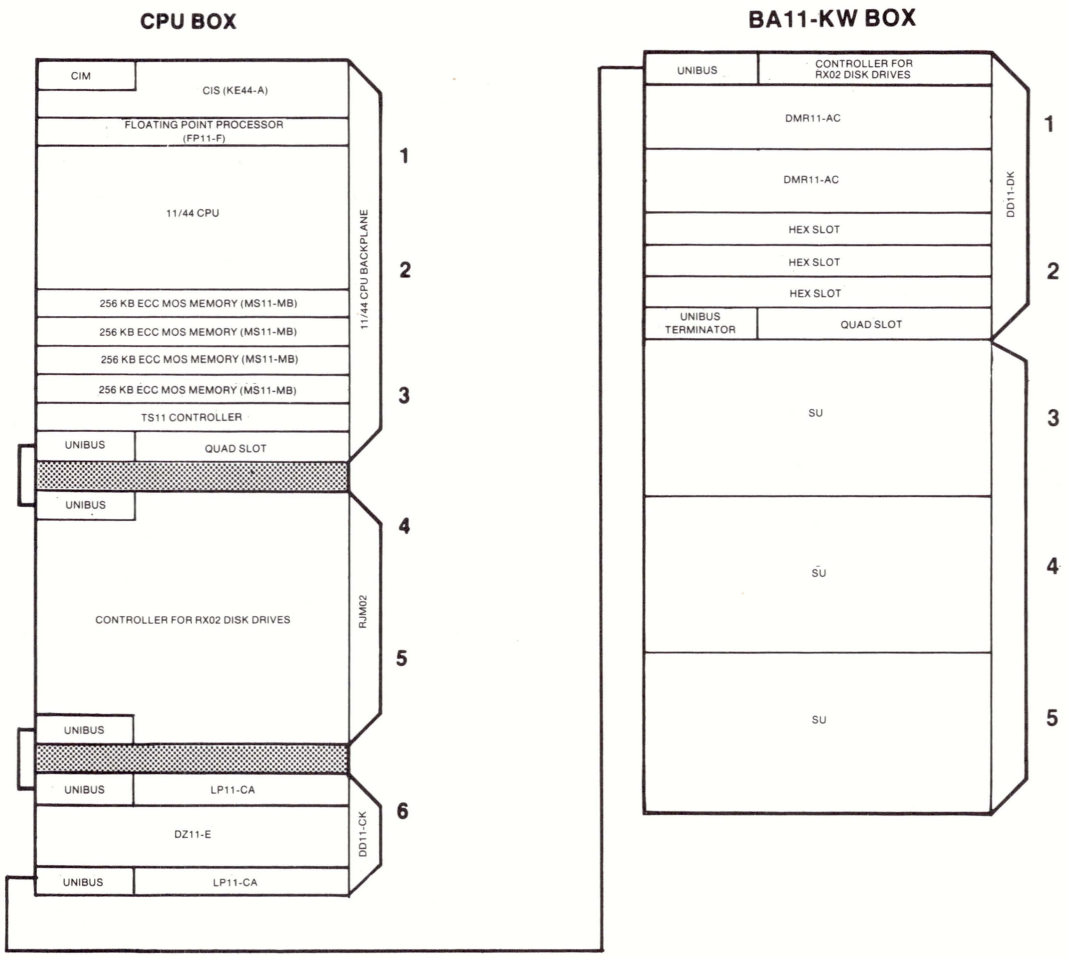
EXPANDED SYSTEM SPECIFICATIONS

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+15V	DC AMPS AVAILABLE @-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-40UAC-CA(CD)	LA120 DECwriter III	1 MB ECC MOS	2 RM02 1 TS11	CPU SU 1-6: 1 Quad slot BA11-K SU 1-2: 3 Hex slots 1 Quad slot SU 3-5: 3 SUs SU 1-6:	28.8† 6.2† 25† 	.75 3.8	.29 9.6	TS11 14* H9642 8**	4

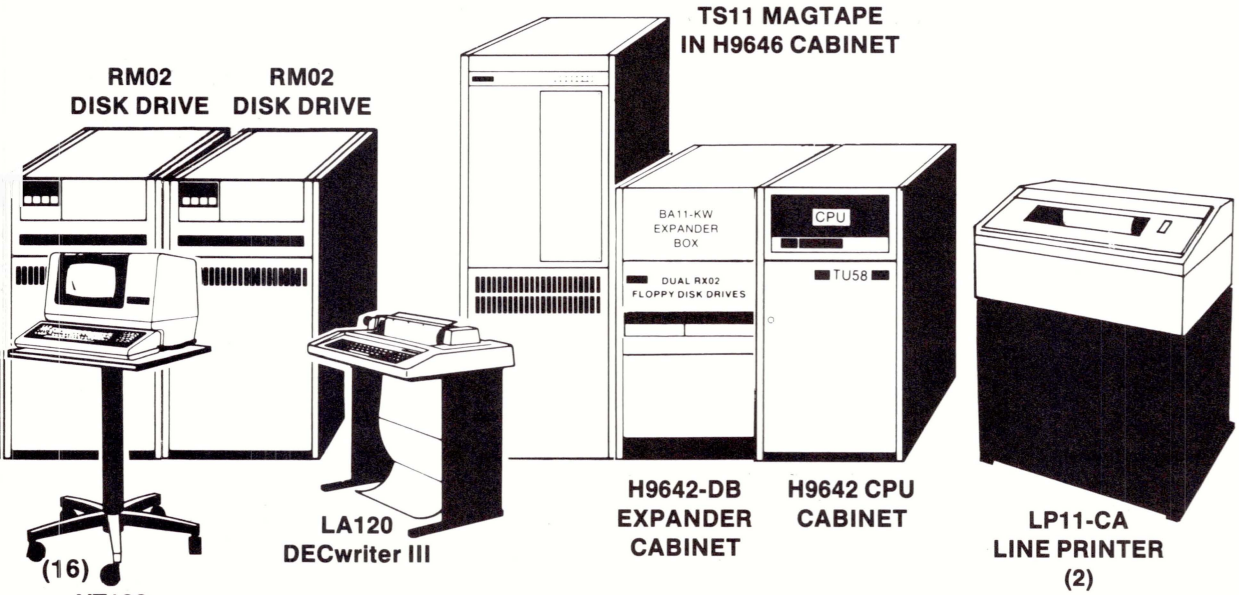
* This figure represents AC amps available in the TS11 magtape cabinet.

** This figure represents AC amps available in the H9642 cabinet.

† Some of the unused current @+5V is available for use @±15V. If additional +15V or -15V current is needed, up to a maximum of two additional amps each, five times the sum of the amount of additional ±15V current (in amps) needed must be subtracted from the +5V current available.



EXPANDED SYSTEM COMPONENTS



OTE: Stand is not included with VT100.

PDP-11 OPERATING SYSTEM GENERAL LICENSE

Systems in this section include the *PDP-11 Operating System General License*. This license permits the use of any of the following PDP-11 Operating Systems: RT-11, RSX-11M, RSX-11M-PLUS, RSX-11S, RSTS/E, CTS-300, DSM-11. These systems include only the license, and are particularly well-suited to quantity customers. Software media, documentation and support services for each operating system may be ordered as needed. Refer to the **PDP-11 Operating System Ordering Information** on the following page.

These systems do not include a console terminal, allowing customers to order the console terminal which best suits the application. Use the **Terminal Selection Chart** on the following page. The systems include the cable (BC22A-25) for connection of the console terminal.

Refer to the *Operating System Software Product Descriptions* to determine suitability of the systems in this section for the intended application. In particular, compliance with the stated hardware requirements in the *Software Product Description (SPD)* is a prerequisite for Installation and Warranty Period Services.

Example:

A customer wishes to purchase a PDP-11/23-PLUS system running RSX-11M-PLUS. If he needs console terminal, software installation and warranty, and software distribution, he would order the following:

1. **SX-RXMMA-EK** — PDP-11 Operating System General License, 11/23-PLUS, 512 KB, 2 RL02s

2. **VT102-WA** — CRT Console Terminal with Word Processing Keyboard

3. **QR503-HH** — RSX-11M-PLUS on RL02 Media plus Documentation

4. **QR500-AZ** — RSX-11M-PLUS Installation, Warranty Period Services, and 3 Training Credits



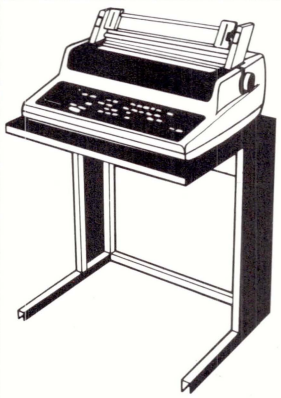
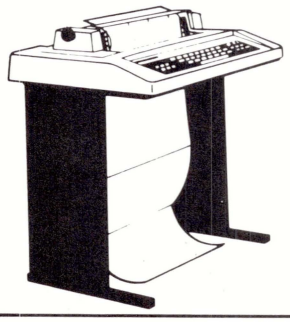
PDP-11 OPERATING SYSTEM ORDERING INFORMATION

	RT-11	RSX-11M	RSX-11M-PLUS	RSTS/E	CTS-300	DSM-11
Installation, Warranty Period Services including:	QJ013-AZ	QJ628-AZ	QR500-AZ	QR430-AZ	QJ354-AZ	QJ821-AZ
Training Credits (TC)	1 TC	3 TC	3 TC	3 TC	None	4 TC
Media and Documentation						
RL02 Media	QJ013-HH	QJ738-HH	QR503-HH	QR430-HH	QJ354-HH	QJ821-HH
RK07 Media	N/A	QJ629-HV	QR500-HV	QR430-HV	QJ354-HV	QJ821-HV
Magnetic Tape Media(1600 b/in)	N/A	QJ676-HM	QR500-HM	QR430-HM	N/A	QJ821-HM
Documentation Set Only	QJ013-GZ	QJ628-GZ	QR500-GZ	QR430-GZ	QJ354-GZ	QJ821-GZ
Software Product Description Number	12.1.18	14.35.17	14.70.5	13.1.18	12.9.14	12.18.9

CONSOLE TERMINAL SELECTION CHART

The following terminals may be used as a console terminal with PDP-11 Operating System General License systems. Please include the console terminal on the system order.

VIDEO CONSOLE TERMINALS*	MODEL	WORD PROCESSING OPTION	GRAPHICS CAPABILITY	INTERNATIONAL POWER CORD AVAILABLE	INTERNATIONAL KEYCAPS/GRAPHICS AVAILABLE
	VT100	Yes	Optional	No	Yes[1]
	VT101	No	No	Yes	No
	VT102	Yes	No	Yes	Yes[2]
	VT125	Yes	Standard	No	No

HARDCOPY CONSOLE TERMINALS*	MODEL†	PRINT SPEED (Characters/s)	GRAPHICS CAPABILITY	INTERNATIONAL CHARACTER SETS	MULTIPLE FONT OPTIONS
	LA38	45	No	Yes[4]	No
	LA100	240 80 30[3]	Standard Bit Map	Yes[5]	Yes[7]
	LA120	180	No	Yes[6]	No

[1] Currently available: American, Arabic, Bell Canada, Cyrillic (Russian), Danish/Norwegian, Dutch, Finnish/Swedish, French Azerty, Full French, German, Hebrew, Hobis, Icelandic, Katakana, Korean, Spanish, United Kingdom, and Yugoslavian.

[2] Currently available: American, Arabic, Bell Canada, Cyrillic (Russian), Danish/Norwegian, Dutch, Finnish/Swedish, French Azerty, Full French, German, Hebrew, Icelandic, Katakana, Korean, Spanish, United Kingdom, and Yugoslavian.

[3] Throughput speed

[4] Order VT100 line drawing set.

[5] Currently available: American, APL, Danish/Norwegian, Finnish/Swedish, French Canadian, French, German, and United Kingdom.

[6] Currently available: American, Danish/Norwegian, Finnish, French Canadian, French, German, Italian, Spanish, Swedish, and United Kingdom.

[7] Currently available: APL, Danish/Norwegian, Finnish/Swedish, French, and German. American and United Kingdom are standard.

[8] Currently available: Courier-10, Courier-12, Gothic-12, and Orator-10.

* For more details, refer to the *Video Terminal* and *Hardcopy Terminal* sections of this Product Summary.
† Only KSR versions of these terminals can be used as a console terminal.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/23-PLUS RL02-BASED SYSTEM

SX-RXMMA

This PDP-11/23-PLUS RL02-based system includes:

- PDP-11 Operating System General License
- 11/23-PLUS CPU, including bootstrap with diagnostics
- 512 KB MOS memory
- 22-bit memory addressing
- Two single line asynchronous EIA/CCITT interfaces: one for console terminal and one available for expansion
- System distribution panel for serial line and options interconnect
- One RLV22 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 cabinet
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal

CPU CABINET EXPANSION: There is a 5.25 in high (13.2 cm) by 26.8 in deep (68 cm) area of mounting space available below the CPU box for expansion.

SYSTEM MEMORY EXPANSION: This system has 512 KB of MOS memory expansion available in 256 KB or 512 KB increments.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-RXMMA-EK(EN)	512 KB MOS	Dual RL02s	6 Extended LSI-11 Quad slots	24.4	4.6	N/A*	17	See Terminal Selection Chart

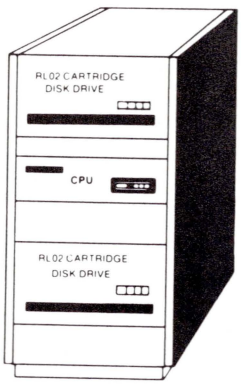
* For 120 Volt systems, the 874-C power controller may be required for cabinet expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Extended LSI-11 Quad indicate available expansion space.

CPU BOX

A	B	C	D
11/23-PLUS CPU			
512 KB PARITY MOS MEMORY (MSV11-PL)			
CONTROLLER FOR RL02 DISK DRIVES			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			

SX-RXMMA-EK(EN)



H9642 CPU CABINET

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See the Site Preparation Section in this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/24 RL02-BASED SYSTEM

SX-FXMMA

This PDP-11/24 RL02-based system includes:

- PDP-11 Operating System General License
- 11/24 CPU (10.5 inch box)
- KT24, Physical Address Extension (PAX) module
- 256 KB parity MOS memory
- 22-bit memory addressing
- ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet and one 41.75 in (106 cm) high H9642 bolt-on RL02 disk drive cabinet
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal.

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels. The disk drive cabinet includes space for one more RL02 disk drive.

SYSTEM MEMORY EXPANSION: Memory expansion for this system is available in 256 KB increments up to 1 MB.

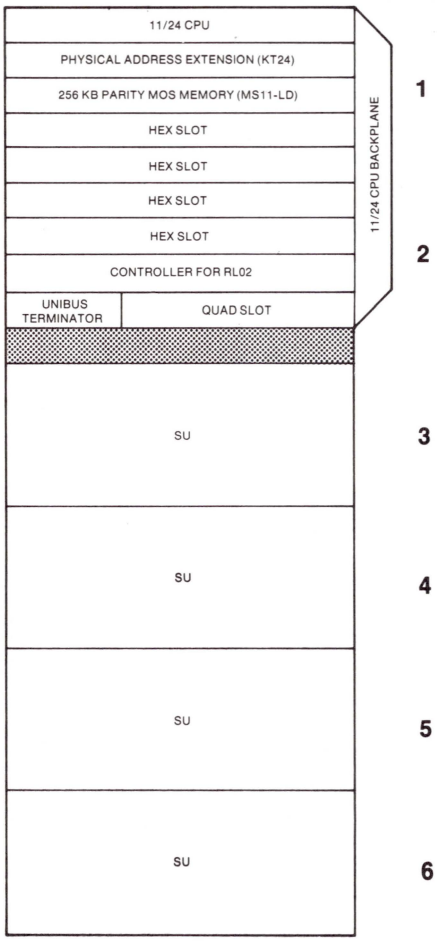
SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-FXMMA-EK(EN)	256 KB MOS	Dual RL02s	CPU SU 1-6: 4 Hex slots 1 Quad slots 4 SUs	81.5	1.9	2.4	N/A*	15	See Terminal Selection Chart

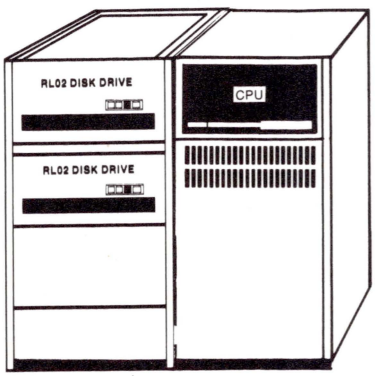
* There is sufficient AC power for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SX-FXMMA-EK(EN)



H9642 CABINET **H9642 CPU CABINET**

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/24 RK07-BASED SYSTEM

SX-FXHHA

This PDP-11/24 RK07-based system includes:

- PDP-11 Operating System General License
- 11/24 CPU (10.5 inch box)
- KT24, Physical Address Extension (PAX) module
- 256 KB parity MOS memory
- 22-bit memory addressing
- ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet with one 41.75 in (106 cm) high H9642 bolt-on RK07 disk drive and one freestanding H9642 RK07 disk drive
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal

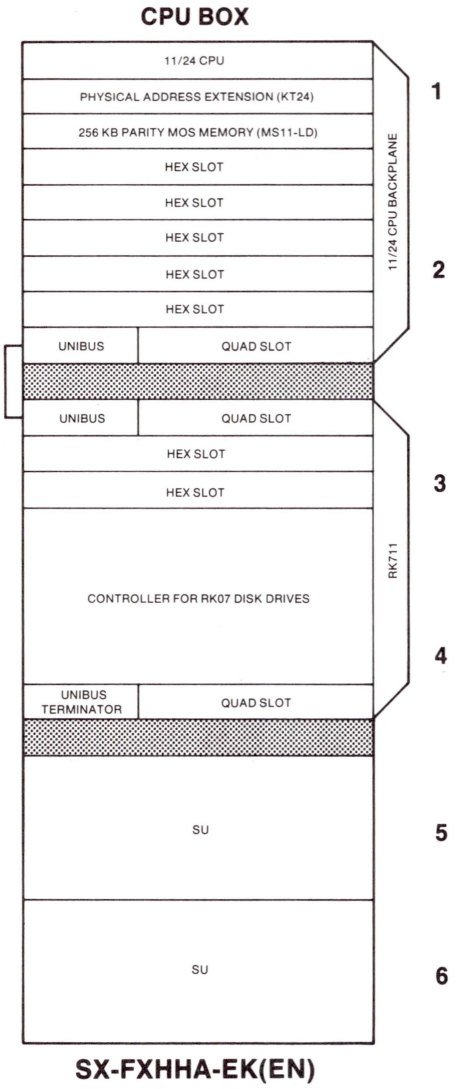
CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

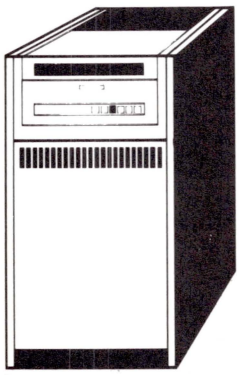
SYSTEM MEMORY EXPANSION: Memory expansion is available in 256 KB increments up to 1 MB.

SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

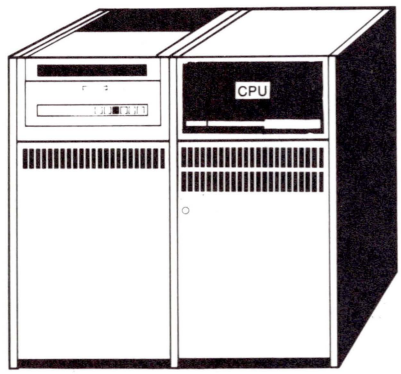
MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-FXHHA-EK(EN)	256 KB MOS	Dual RK07s	CPU SU 1-6: 7 Hex slots 2 Quad slots 2 SUs	74.5	1.6	2.5	N/A	15	See Terminal Selection Chart

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.





RK07-PA(PD) DISK DRIVE



RK07-PA(PD) DISK DRIVE

H9642 CPU CABINET

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/24 RA80-BASED SYSTEM

SX-FXGMA

This PDP-11/24 RA80-based system includes:

- PDP-11 Operating System General License
- 11/24 CPU (10.5 inch box)
- KT24, Physical Address Extension (PAX) module
- 512 KB parity MOS memory
- 22-bit memory addressing
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RUA80 disk subsystem (one controller and one 121 MB RA80 disk drive) for use as the system device
- One 10.4 MB RL02 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9645 CPU cabinet
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal.

CPU CABINET EXPANSION: Cabinet expansion is limited to an H775 battery backup and two 7 in (17.8 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: Memory expansion for this system is available in 256 KB increments up to 1 MB.

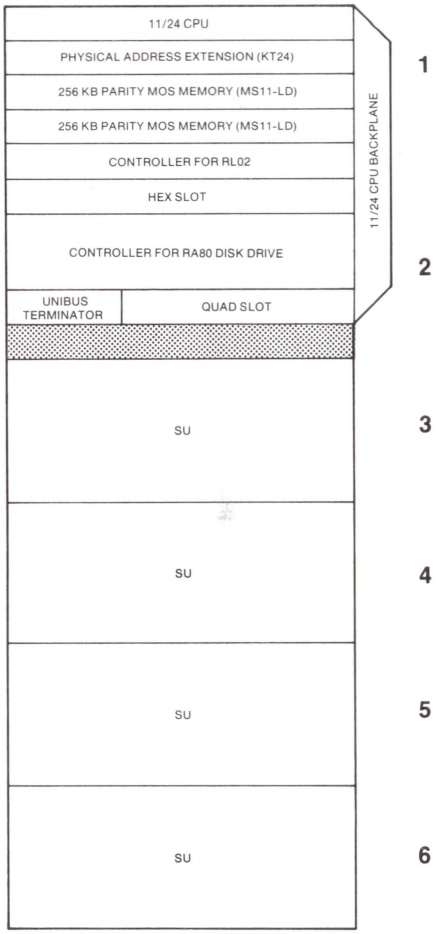
SYSTEM DISK EXPANSION: Three more RL02 removable cartridge disk drives may be added to this system for a total of four. Three more RA80 fixed-disk disk drives may be added to the system for a total of four.

MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-FXGMA-EK(EN)	512 KB MOS	1 RA80 1 RL02	CPU SU 1-2: 2 Hex slot 1 Quad slot 4 SU	69.5	1.9	1.0	N/A*	13	See Terminal Selection Chart

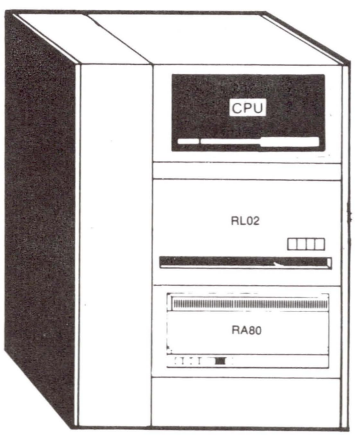
* This figure represents AC amps available in the RL02 disk cabinet only.
There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SX-FXGMA-EK(EN)



H9645 CPU CABINET

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/44 RL02-BASED SYSTEM

SX-40MMA

This PDP-11/44 RL02-based system includes:

- PDP-11 Operating System General License
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- 22-bit memory addressing
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet and one 41.75 in (106 cm) high H9642 bolt-on RL02 disk cabinet
- Console Terminal: Not included. Order from Console Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

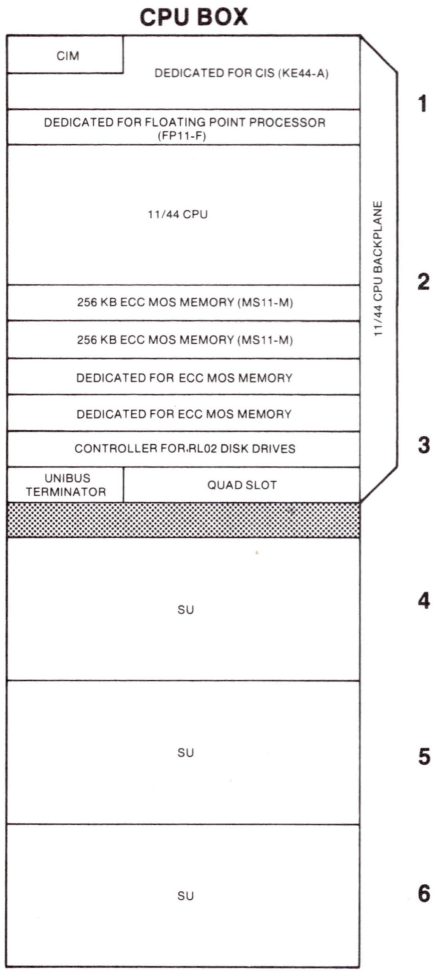
SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for memory expansion in 256 KB or 1 MB increments up to 4 MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four. The RL02 disk cabinet can contain two RL02 disk drives.

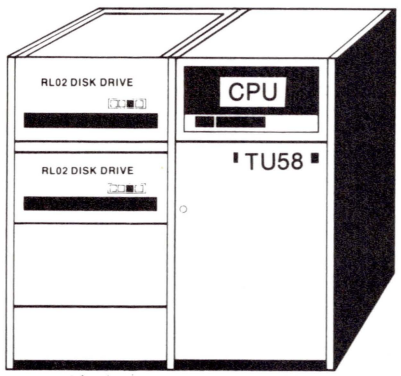
MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-40MMA-EK(EN)	512 KB ECC MOS	Dual RL02s	CPU SU 1-6: 1 Quad slot 3 SUs	49.9	2.45	2.45	9*	14	See Terminal Selection Chart

* This figure represents AC amps available in the RL02 disk cabinet only.
There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram belows shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SX-40MMA-EK(EN)



H9642 RL02 DISK CABINET

H9642 CPU CABINET

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/44 RK07-BASED SYSTEM

SX-40HHA

This PDP-11/44 RK07-based system includes:

- PDP-11 Operating System General License
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- 22-bit memory addressing
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 41.75 in (106 cm) high H9642 bolt-on RK07 disk drive, and one 41.75 in (106 cm) high freestanding RK07 disk drive
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable include for console terminal

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for memory expansion in 256 KB or 1 MB increments up to 4 MB.

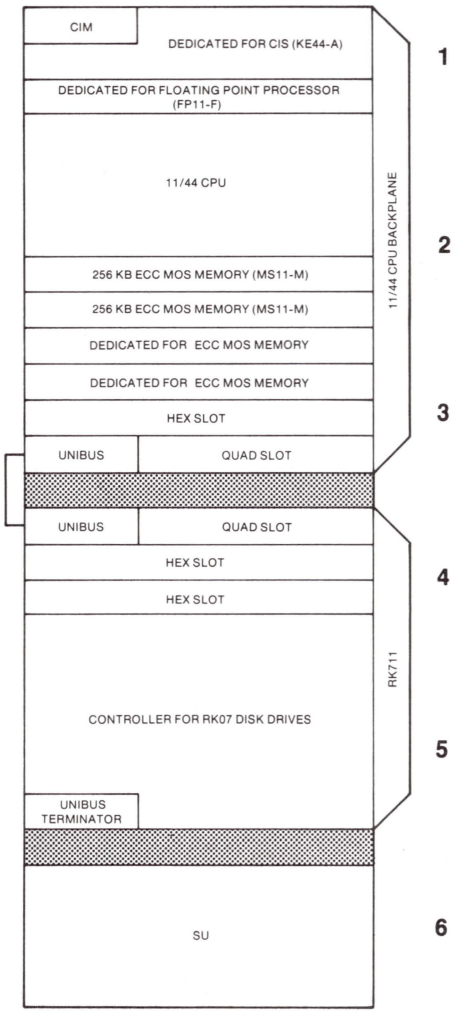
SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-40HHA-EK(EN)	512 KB ECC MOS	Dual RK07s	CPU SU 1-6: 2 Quad slots 3 Hex slots 1 SU	42.9	2.77	2.55	N/A*	14	See Terminal Selection Chart

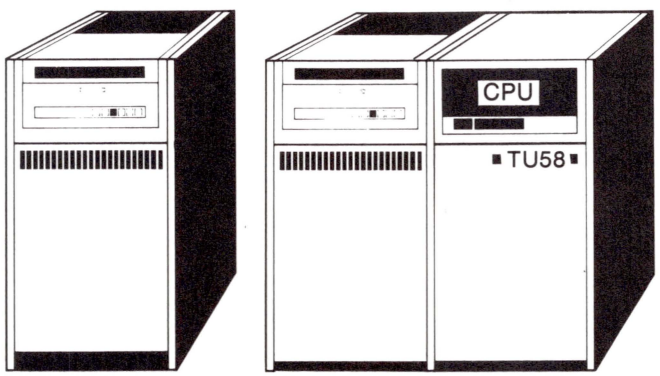
*There is sufficient AC power for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SX-40HHA-EK(EN)



RK07-PA(PD) DISK DRIVE **RK07-PA(PD) DISK DRIVE** **H9642 CPU CABINET**

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/44 RA80-BASED SYSTEM

SX-40GAA

This PDP-11/44 RA80-based system includes:

- PDP-11 Operating System General License
- 11/44 CPU
- 1 MB ECC MOS memory
- 8 KB parity cache memory
- 22-bit memory addressing
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RUA80 disk subsystem (one controller and one 121 MB RA80 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 41.75 in (106 cm) high H9642 bolt-on RA80 disk cabinet, and one 60.5 (153.67 cm) high H9646 bolt-on TS11 magtape cabinet.
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are three dedicated slots for memory expansion in 256 KB or 1 MB increments up to 4 MB.

SYSTEM DISK EXPANSION: Three more RA80 disk drives may be added to this system for a total of four. Note that the H9642 disk cabinet can accommodate up to three RA80 drives.

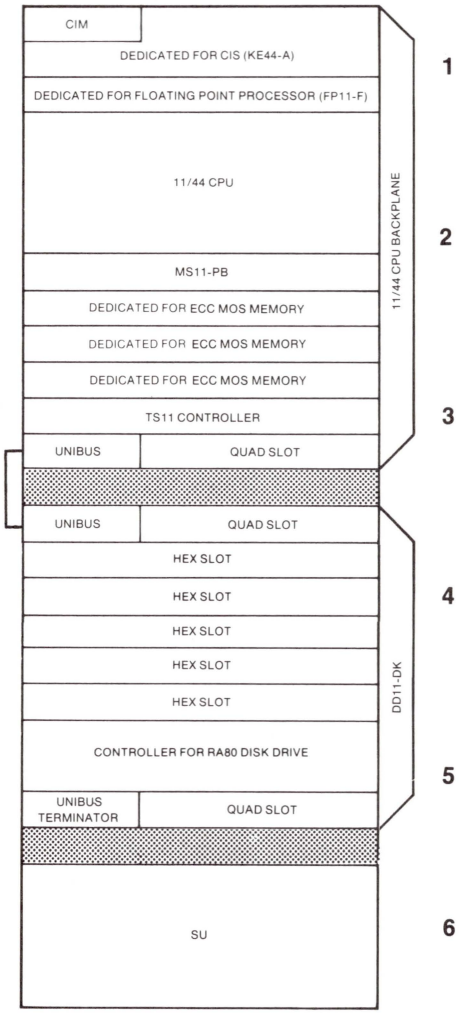
SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape must be bolted to the adjacent system cabinet.

MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-40GAA-EK(EN)	1 MB ECC MOS	1 RA80 1 TS11	CPU SU 1-6 3 Quad slots 5 Hex slots 1 SU	49.6	2.75	1.15	N/A*	16	See Terminal Selection Chart

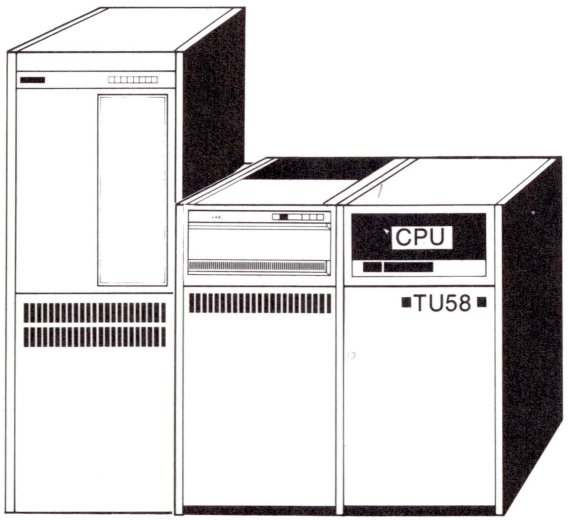
There is sufficient AC power for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SX-40GAA-EK(EN)



SEE CONSOLE TERMINAL SELECTION CHART

TS11 MAGTAPE IN H9646 CABINET **RA80 DISK DRIVE** **H9642 CPU CABINET**

NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/44 RA80-BASED SYSTEM

SX-40GMA

This PDP-11/44 RA80-based system includes:

- PDP-11 Operating System General License
- 11/44 CPU
- 1 MB ECC MOS memory
- 8 KB parity cache memory
- 22-bit memory addressing
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and the other for the backup/load device
- One RUA80 disk subsystem (one controller and one 121 MB RA80 disk drive) for use as the system device
- One 10.4 MB RL02 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the backup/load device
- Cabinetry: One 41.75 in (106 cm) high H9645 CPU cabinet
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and two 7 in (17.8 cm) areas of rear mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are three dedicated slots for memory expansion in 256 KB or 1 MB increments up to 4 MB.

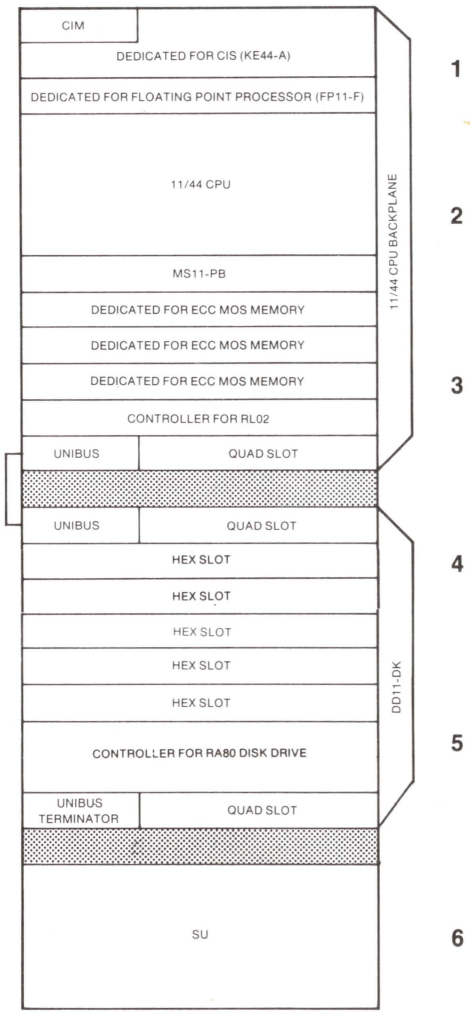
SYSTEM DISK EXPANSION: Three more RA80 disk drives may be added to this system for a total of four. Also three more RL02 disk drives may be added to this system for a total of four.

MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-40GMA-EK(EN)	1 MB ECC MOS	1 RA80 1 RL02	CPU SU 1-6 3 Quad slots 5 Hex slots 1 SU	41.3	2.25	0.65	N/A*	16	See Terminal Selection Chart

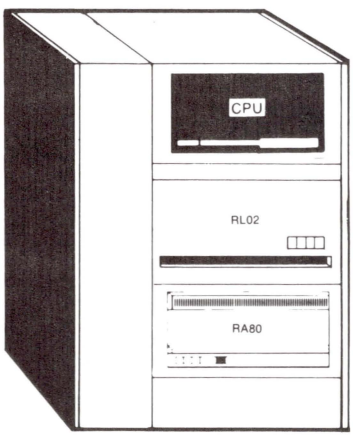
* There is sufficient AC power for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SX-40GMA-EK(EN)



H9645 CPU CABINET

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11 OPERATING SYSTEM GENERAL LICENSE: PDP-11/44 RA60-BASED SYSTEM

SX-40PAA

This PDP-11/44 RA60-based system includes:

- PDP-11 Operating System General License
- 11/44 CPU
- 1 MB ECC MOS memory
- 8 KB parity cache memory
- 22-bit memory addressing
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RUA60 disk subsystem (one controller and one 205 MB RA60 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 42 in (108.7 cm) high H9642-AP(AQ) bolt-on RA60 disk cabinet, and one 60.5 (153.67 cm) high H9646 bolt-on TS11 magtape cabinet.
- Console Terminal: Not included. Order from Terminal Selection Chart.
- Cable: BC22A-25 cable included for console terminal

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are three dedicated slots for memory expansion in 256 KB or 1 MB increments up to 4 MB.

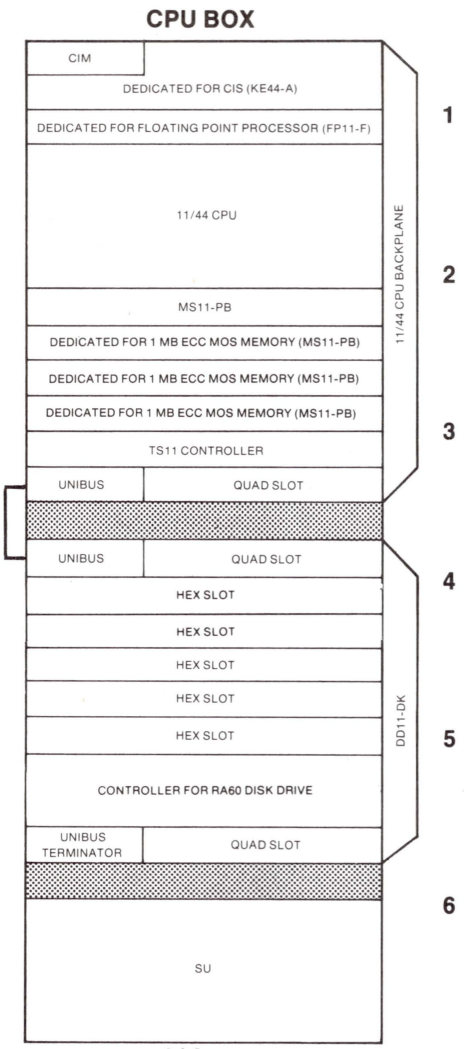
SYSTEM DISK EXPANSION: Three more RA60 disk drives may be added to this system for a total of four. Note that the H9642-AP(AQ) disk cabinet can accommodate up to three RA60 drives.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape must be bolted to the adjacent system cabinet.

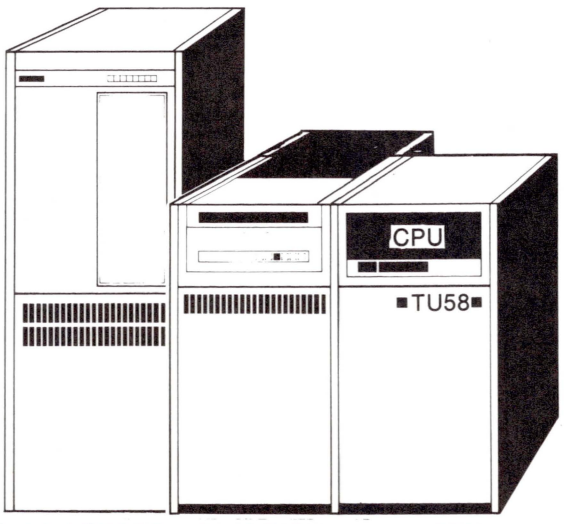
MODEL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE	CONSOLE TERMINAL
SX-40PAA-EK(EN)	1 MB ECC MOS	1 RA60 1 TS11	CPU SU 1-6 3 Quad slots 5 Hex slots 1 SU	49.6	2.75	1.15	N/A*	16	See Terminal Selection Chart

* There is sufficient AC power for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SX-40PAA-EK(EN)



TS11 MAGTAPE IN H9646 CABINET **RA60 DISK DRIVE** **H9642 CPU CABINET**

SEE CONSOLE TERMINAL SELECTION CHART

NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

RT-11 OPERATING SYSTEM

RT-11 is a compact, single-user, realtime operating system designed for interactive program development and/or online applications. Standard with all RT-11 systems are the MACRO-11 assembly language, the KED keypad editor, and the EDIT text editor. Optional software supported by RT-11 includes FORTRAN IV/RT-11, BASIC-11/RT-11, MU BASIC-11/RT-11, DECnet-RT, RT-11 2780/3780 Protocol Emulator and FMS-11/RT-11, DIGITAL'S Forms Management System.

Both single-job and foreground/background processing modes are supported by RT-11. In foreground/background mode, memory for user programs is divided into two separate regions. Two independent programs, therefore, can reside in memory and effectively share the resources of the system. The foreground program is given priority and executes until it relinquishes control to the background program. The background program then executes until the foreground program again requires control.

The indirect command file featured under RT-11 further simplifies system interaction. Users can construct indirect command files that contain strings of commonly issued keyboard monitor commands. By executing only the indirect file, users can invoke the stream of commands. Indirect command files provide capabilities similar to batch processing, yet do not require users to learn the complicated job control language. RT-11 also includes a batch facility.

Program development tools offered within RT-11 include a choice of three text editors, file and device maintenance utilities, an on-line debugger, and a number of patch utilities. With DECnet-RT, DIGITAL'S advanced networking software, RT-11 systems can be linked with other DIGITAL operating systems for network operation. Using the RT-11 2780/3780 Protocol Emulator, RT-11 can efficiently communicate with IBM mainframe systems or other systems that support Binary Synchronous Communication (BSC) protocols.



PDP-11/23 RX02-BASED SYSTEMS RUNNING UNDER RT-11

SR-WXSSA

These three PDP-11/23 RX02-based systems include:

- RT-11 operating system
- 11/23 CPU
- 128 KB MOS memory
- Memory management
- Bootstrap module with diagnostics
- 4-line asynchronous EIA/CCITT interface (DLV11-J)
- One RXV21 floppy disk subsystem: one controller, one 0.5 MB RX02 floppy disk drive for use as the system device, and one 0.5 MB RX02 floppy disk drive for use as the backup and load device
- Cabinetry: One 31 in (78.7 cm) high H9610 cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: A BA11-N expander box may be mounted in the CPU cabinet below the RX02s.

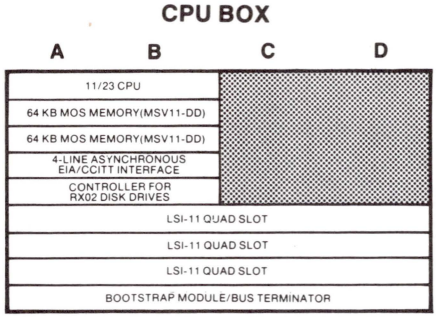
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: One more RXV21 floppy disk subsystem (one controller and dual RX02s) may be added to this system for a total of two RXV21 subsystems (4 RX02s).

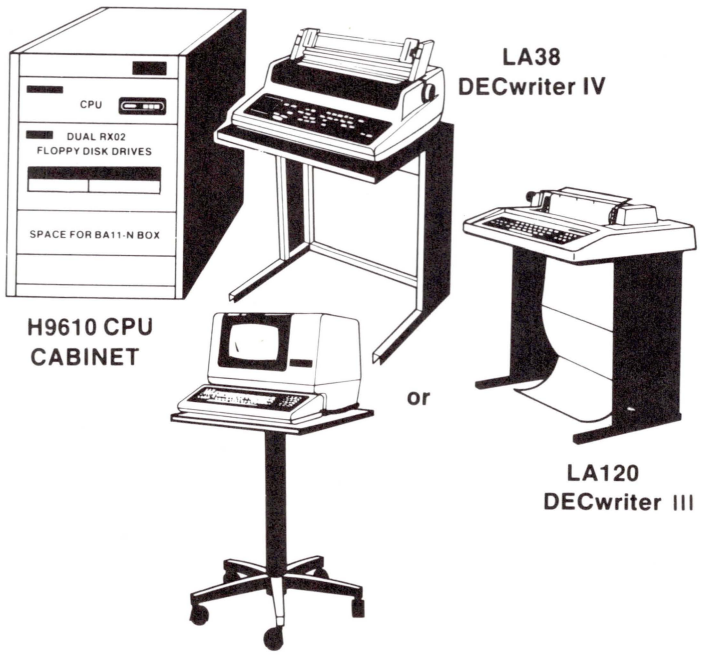
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SR-WXSSA-CA(CD)	LA120 DECwriter III	128 KB MOS	Dual RX02s	3 LSI-11 Quad slots	12.1	9.94	6*	14
SR-WXSSA-BA(BD)	VT100 Video Display							
SR-WXSSA-AA(AD)	LA38 DECwriter IV							

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled LSI-11 Quad indicate available expansion space.



SR-WXSSA-CA(CD)
SR-WXSSA-BA(BD)
SR-WXSSA-AA(AD)



NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/23 RL01-BASED SYSTEMS RUNNING UNDER RT-11

SR-WXLLA

These three PDP-11/23 RL01-based systems include:

- RT-11 operating system
- 11/23 CPU
- 128 KB MOS memory
- Memory management
- Bootstrap module with diagnostics
- 4-line asynchronous EIA/CCITT interface (DLV11-J)
- One RLV11 disk subsystem (one controller and one 5.2 MB RL01 removable cartridge disk drive) for use as the system device
- One 5.2 MB RL01 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41 in (104.1 cm) high H9612 cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: A BA11-N expander box may be mounted in the CPU cabinet below the lower RL01.

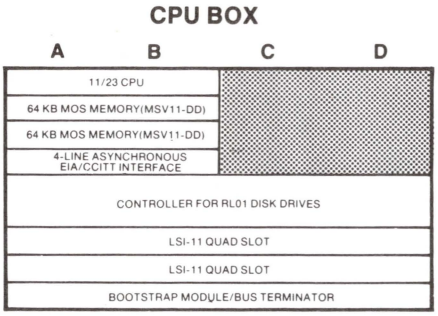
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: Two more RL01 removable cartridge disk drives may be added to this system for a total of four.

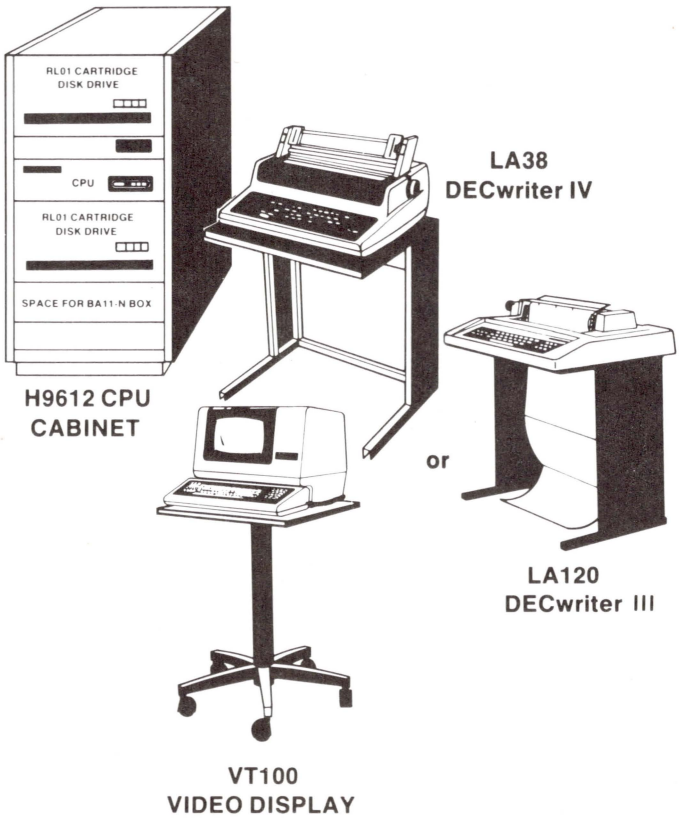
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SR-WXLLA-CA(CD)	LA120 DECwriter III	128 KB MOS	Dual RL01s	2 LSI-11 Quad slots	7.8	8.94	7*	14
SR-WXLLA-BA(BD)	VT100 Video Display							
SR-WXLLA-AA(AD)	LA38 DECwriter IV							

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled LSI-11 Quad indicate available expansion space.



SR-WXLLA-CA(CD)
SR-WXLLA-BA(BD)
SR-WXLLA-AA(AD)



NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/23 RL02-BASED SYSTEMS RUNNING UNDER RT-11

SR-WXMMA

These three PDP-11/23 RL02-based systems include:

- RT-11 operating system
- 11/23 CPU
- 128 KB MOS memory
- Memory management
- Bootstrap module with diagnostics
- 4-line asynchronous EIA/CCITT interface (DLV11-J)
- One RLV21 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41 in (104.1 cm) high H9612 cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: A BA11-N expander box may be mounted in the CPU cabinet below the lower RL02.

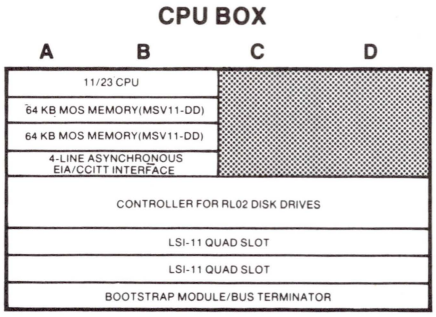
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

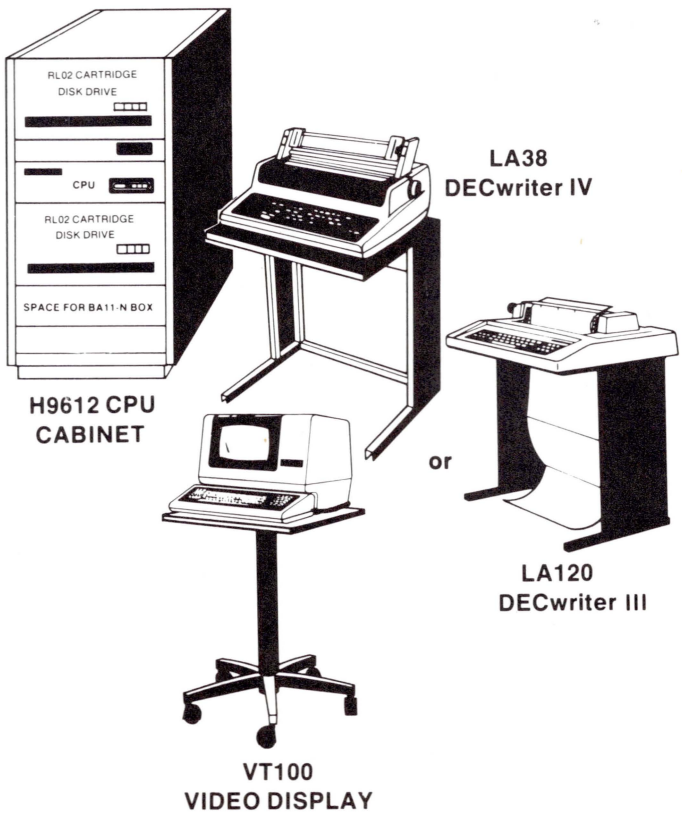
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SR-WXMMA-CA(CD)	LA120 DECwriter III	128 KB MOS	Dual RL02s	2 LSI-11 Quad slots	7.8	8.94	7*	14
SR-WXMMA-BA(BD)	VT100 Video Display							
SR-WXMMA-AA(AD)	LA38 DECwriter IV							

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled LSI-11 Quad indicate available expansion space.



SR-WXMMA-CA(CD)
SR-WXMMA-BA(BD)
SR-WXMMA-AA(AD)



NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/24 RX02-BASED SYSTEM RUNNING UNDER RT-11

SR-FXSSA

This PDP-11/24 RX02-based system includes:

- RT-11 operating system
- 11/24 CPU (5.25 inch box)
- 128 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RX211 floppy disk subsystem (one controller and one 0.5 MB RX02 floppy disk drive) for use as the system device
- One 0.5 MB RX02 floppy disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet
- Console Terminal: VT100 video display terminal with advanced video option or LA38 DECwriter IV

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H775 battery backup and 10.5 in (26.7 cm) of rear mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system has 128 KB of parity MOS memory expansion available for a maximum total of 256 KB, supported by the RT-11 operating system.

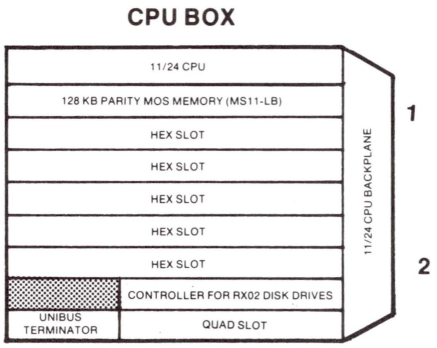
SYSTEM DISK EXPANSION: One more RX211 floppy disk subsystem (one controller and dual RX02s) may be added to this system for a total of two RX211 subsystems (4 RX02s).

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SR-FXSSA-BA(BD)	VT100 Video Display	128 KB MOS	Dual RX02s	CPU SU 1-2: 5 Hex slots † 1 Quad slot	21.2	1.40	2.90	2.5*	16
SR-FXSSA-AA(AD)	LA38 DECwriter IV								

* This figure represents AC amps available in the CPU cabinet only.

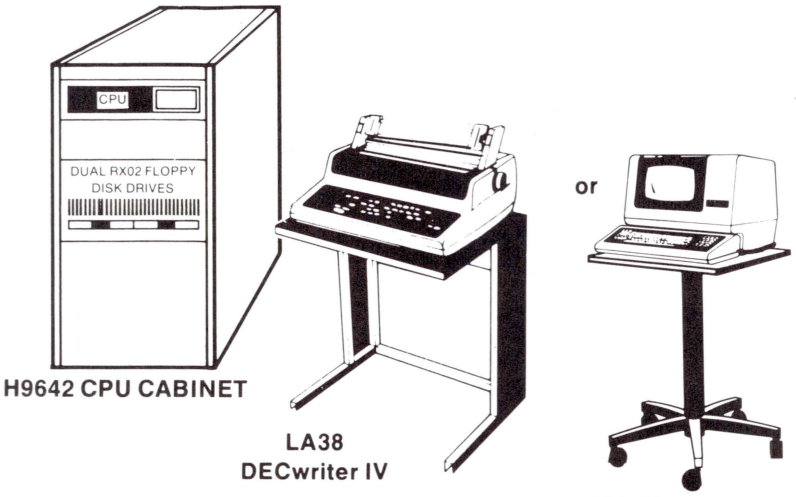
† The controller for the RX02s is mounted in slot 8 which is prewired for DMA options. The controller may be mounted in the open quad in slot nine, leaving six hex slots available for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SR-FXSSA-BA(BD)
SR-FXSSA-AA(AD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9642 CPU CABINET

LA38
DECwriter IV

VT100
VIDEO DISPLAY

NOTE: Stand is not included with VT100.

NOTE: Memory modules must be mounted contiguously in slots 2-3 in the CPU backplane.

See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/24 RL02-BASED SYSTEM RUNNING UNDER RT-11

SR-FXMMB

This PDP-11/24 RL02-based system includes:

- RT-11 operating system
- 11/24 CPU (5.25 inch box)
- 256 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9645 CPU cabinet
- Console Terminal: VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H775 battery backup and two 7 in (17.8 cm) areas of rear mounting space for distribution panels.

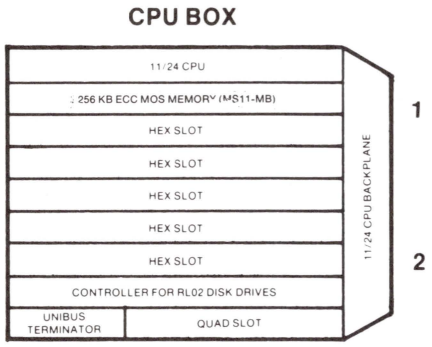
SYSTEM MEMORY EXPANSION: This system has the maximum memory expansion available of 256 KB, supported by the RT-11 operating system.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SR-FXMMB-BA(BD)	VT100 Video Display	256 KB MOS	Dual RL02s	CPU SU 1-2: 5 Hex slots 1 Quad slot	17.7	.90	2.40	3*	16

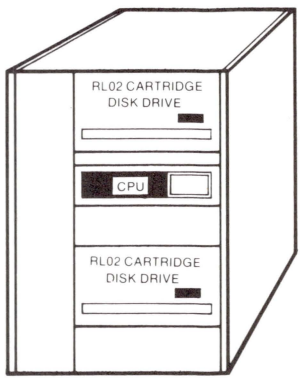
* This figure represents AC amps available in the CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

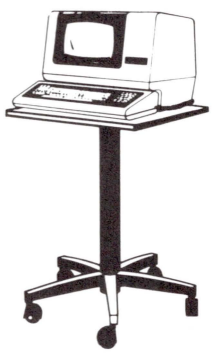


SR-FXMMB-BA(BD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9645 CPU CABINET†



VT100 VIDEO DISPLAY

NOTE: Stand is not included with VT100.

NOTE: Memory modules must be mounted contiguously in slots 2-3 in the CPU backplane.

See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/34A RL01-BASED SYSTEM RUNNING UNDER RT-11

SR-30LLB

These three PDP-11/34A RL01-based systems include:

- RT-11 operating system
- 11/34A CPU
- 128 KB parity MOS memory
- Memory management
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- Programmer's console interface
- One RL11 disk subsystem (one controller and one 5.2 MB RL01 removable cartridge disk drive) for use as the system device
- One 5.2 MB RL01 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to a BA11-L expander box mounted above the CPU or 10.5 in (26.7 cm) of mounting space for distribution panels above the CPU.

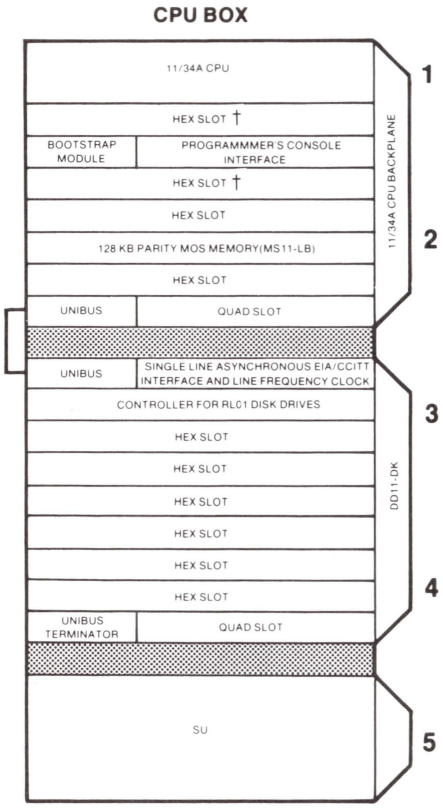
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: Two more RL01 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+15V	DC AMPS AVAILABLE @-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SR-30LLB-CA(CD)	LA120 DECwriter III	128 KB parity MOS	Dual RL01s	CPU SU 1-2: 4 Hex slots 1 Quad slot	13.7			9*	14
SR-30LLB-BA(BD)	VT100 Video Display			SU 3-5: 6 Hex slots 1 Quad slot 1 SU	22.4				
SR-30LLB-AA(AD)	LA38 DECwriter IV			SU 1-5:		3.45	9.29		

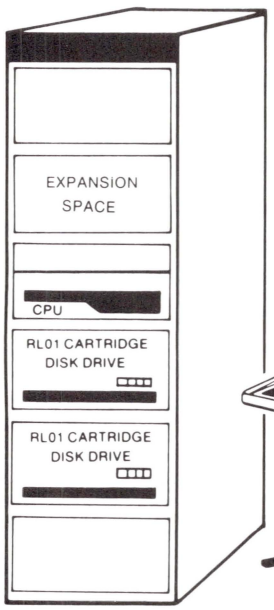
* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

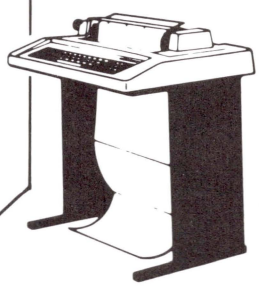


SR-30LLB-CA(CD)
SR-30LLB-BA(BD)
SR-30LLB-AA(AD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

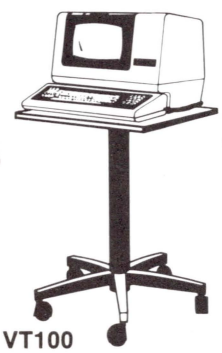


H960 CPU CABINET

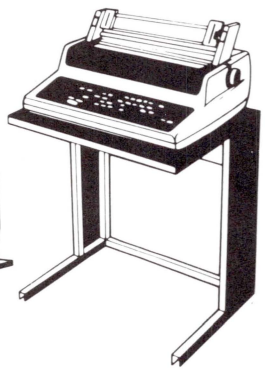


LA120 DECwriter III

or



VT100 VIDEO DISPLAY



LA38 DECwriter IV

NOTE: Stand is not included with VT100.

†The floating point processor (FP11-A), requiring a hex slot, must mount in the third slot next to the processor in the CPU backplane. The cache memory option (KK11-A), which also requires a hex slot, may be mounted in the third or fifth slot in the CPU backplane.

OPTIONAL SOFTWARE FOR RT-11 SYSTEMS

FORTRAN IV/RT-11

SPD NO. 12.10.xx

FORTRAN IV/RT-11 is an extended superset of the ANSI FORTRAN X3.9-1966 standard. Its features include fast, one-pass compilation, optimized code generation, and support for virtual arrays on systems with memory management directives. FORTRAN IV provides a set of object modules (Object Time System or OTS) that are selectively linked with compiler-produced object modules to produce an executable program. FORTRAN programs may be developed under RT-11 and output in absolute binary format for execution on a stand-alone PDP-11 system with minimal peripherals, or for loading into ROM or PROM memory. Using SYSLIB, the RT-11 FORTRAN system subroutine library, all features of the RT-11 monitor are available to FORTRAN programs. Additionally, SYSLIB provides subroutines which support extensive character string manipulations. Other features include general expressions in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; commenting at the end of each source line; and list-directed input/output.

Option Number	Distribution Medium	Support Category
QJ813-AD	Magtape (9-tr, 800 b/in)	
QJ813-AG	DECtape II (TU58)	DIGITAL Supported/
QJ813-AH	Disk Cartridge (RL02)	Customer Installed
QJ813-AQ	Disk Cartridge (RL01)	
QJ813-AY	Floppy Disk (RX01)	

BASIC-11/RT-11

SPD NO. 12.5.xx

BASIC-11/RT-11, based on Dartmouth College developed BASIC, is a conversational programming language utilizing simple English language-like statements and familiar mathematical notations to perform operations. It is an incremental, interactive, interpretive compiler with the following features: support for real, (single and /or double precision), integer, and string data types; immediate mode statements for debugging and desk calculator usage; sequential data storage using the RT-11 file system; string capability, including string arrays and functions; disk virtual arrays for string, integer and real data types; chaining with COMMON to accommodate large programs; CALL facility for invoking assembly language subroutines using a PDP-11 FORTRAN-compatible call interface; formatted output using the PRINT USING statement.

Option Number	Distribution Medium	Support Category
QJ913-AD	Magtape (9-tr, 800 b/in)	
QJ913-AG	DECtape II (TU58)	DIGITAL Supported/
QJ913-AH	Disk Cartridge (RL02)	Customer Installed
QJ913-AQ	Disk Cartridge (RL01)	
QJ913-AY	Floppy Disk (RX01)	

MU BASIC-11/RT-11

SPD NO. 12.20.xx

MU BASIC/RT-11, based on Dartmouth College developed BASIC, is a conversational programming language utilizing simple English language-like statements and familiar mathematical notations to perform operations. It is an interpreter running under the RT-11 operating system multiuser (up to eight) capability. MU BASIC/RT-11 contains the following features: a variety of program manipulation commands; support for real (single or double precision), integer, and string data types; sequential data storage using the RT-11 file system; program chaining and overlaying with COMMON to accommodate large programs; ability to run in either the foreground or background under the RT-11 FB monitor concurrently with another job; immediate mode execution for desk calculator operation and program debugging; and virtual arrays on disk.

Option Number	Distribution Medium	Support Category
QJ921-AG	DECtape II (TU58)	
QJ921-AH	Disk Cartridge (RL02)	DIGITAL Supported/
QJ921-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJ921-AY	Floppy Disk (RX01)	

DECnet-RT
SPD 10.72.xx

DECnet-RT is a Phase III network product that allows a suitably configured RT-11 Foreground/Background (FB) system to participate as a nonrouting (end) node in DECnet computer networks. DECnet-RT offers task-to-task communications, utilities for network file operations, and network resource-sharing capabilities using DIGITAL Network Architecture (DNA) protocols. DECnet-RT communicates with adjacent nodes over synchronous and asynchronous communication lines. Access to DECnet-RT is supported for RT-11FB user programs written in MACRO-11 and FORTRAN IV. DECnet-RT is warranted for use only with PHASE III DECnet products supplied by DIGITAL. The functions available to an RT-11FB user depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features to the user.

Option Number	Distribution Medium	Support Category
QJ687-AD	Magtape (9-tr, 800 b/in)	
QJ687-AH	RL02 Disk Cartridge	
QJ687-AQ	Disk Cartridge (RL01)	DIGITAL Supported/
QJ687-AX	Floppy Disk (RX02)	DIGITAL Installed

RT-11 2780/3780 Protocol Emulator
SPD NO. 10.16.xx

The RT-11 2780/3780 Protocol Emulator (PE) runs under the RT-11 Foreground/Background (FB) or Extended Memory (XM) monitor on a suitably equipped RT-11 system, providing emulation of an IBM 2780 or 3780 remote batch terminal. Any block addressable storage device supported by RT-11 can be used as a source of transmission files and any block addressable storage device or lineprinter supported by RT-11 can be used to receive files. Features supported by the RT-11 2780/3780 include commands for unattended operation, 2780 multiple record transmission option, transparent mode, 3780 space compression, variable horizontal forms control, and print and punch component selection on receive. A DUV11 or DUP11 synchronous communications interface is required.

Option Number	Distribution Medium	Support Category
QJD59-AD	Magtape (9-tr, 800 b/in)	
QJD59-AG	DECtape II (TU58)	
QJD59-AH	Disk Cartridge (RL02)	DIGITAL Supported/
QJD59-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJD59-AX	Floppy Disk (RX02)	
QJD59-AY	Floppy Disk (RX01)	

FMS-11/RT-11
SPD NO. 12.22.xx

FMS-11/RT-11 is a set of utilities and subroutines that provide a multiterminal video forms capability for programs written in FORTRAN IV/RT-11, BASIC-11/RT-11, or MACRO-11. Forms defined using FMS-11 utilize the following features of a VT100 Video Terminal: reverse video characters; bold characters; underline characters; blinking characters; 132-column lines; jump and smooth scrolling; split screen; and reverse screen. Software components include: Form Editor for creating and modifying video forms by typing them on a VT100 screen; Form Utility for manipulating FMS forms descriptions; Form Driver for performing screen processing; and Application Run-Time Supervisor for running application programs independently of the programs on the other terminals.

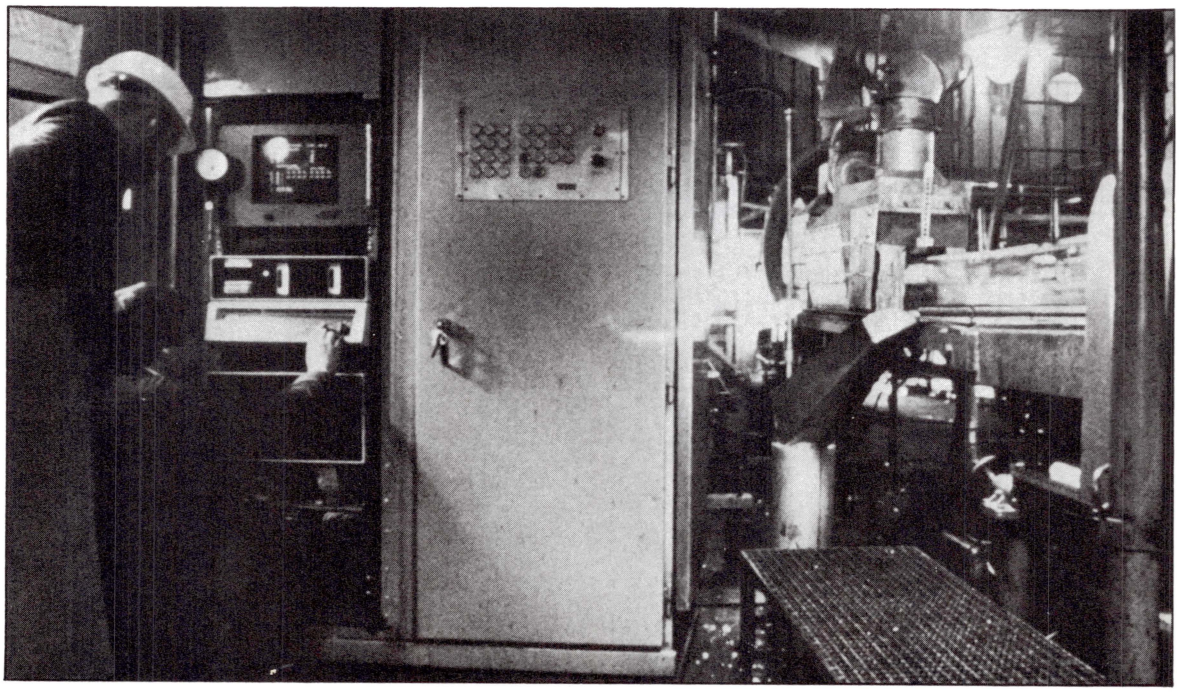
Option Number	Distribution Medium	Support Category
QJ713-AG	DECtape II (TU58)	
QJ713-AH	Disk Cartridge (RL02)	DIGITAL Supported/
QJ713-AQ	Disk Cartridge (RL01)	Customer Installed
QJ713-AY	Floppy Disk (RX01)	

RSX-11M OPERATING SYSTEM

RSX-11M is a multiuser, multiprogramming, realtime operating system designed to serve a broad range of applications. Standard on all RSX-11M systems are the MACRO-11 assembly language, the FILES-11 data management services file system that provides volume structuring and protection, FCS (File Control Services), a basic file handling system, RMS-11K, a superset of FCS, and the EDI and EDT editors. Optional software includes BASIC-PLUS-2, CORAL 66, FORTRAN IV/IAS-RSX, FORTRAN-77, PDP-11 COBOL, DECnet-11M (DIGITAL'S networking system), DX/11M, the SORT-11 utility, RSX-11 2780/3780 Emulator and RSX-11/3271 Protocol Emulator for connection to IBM systems, UN1004/RSX, a Univac terminal emulator and MUX200/RSX-IAS, a CDC terminal emulator. Also available is RSX-11 PSI/M which allows for connection to Public Packet Switching Networks. Optional data management services include FMS-11/RSX, a forms management system, DATATRIEVE-11, a record management services query language, and DBMS-11, a powerful data base management system. RSX-11M systems support up to thirty-two simultaneous users.

RMS-11K (Record Management Services) is a superset of FCS (File Control Services), the basic file handling system for RSX-11M/RSX-11M-PLUS systems, and is compatible with FCS written files. It adds important capabilities at a level above that of traditional file management services. RMS-11K permits relative, sequential, and multikey indexed sequential file organizations, and sequential, random, and record's file address access modes.

RSX-11M is designed to support factory automation, laboratory data acquisition and control, graphics, process monitoring and control, communications, and other applications that demand immediate response. In addition, because of its multiprogramming capabilities, RSX-11M permits realtime activities to execute concurrently with less time-critical activities such as program development, text editing, and data management. RSX-11M provides the environment for development and execution of multiple realtime tasks with a priority structured event-driven scheduling mechanism.



PDP-11/23 RL01-BASED SYSTEMS RUNNING UNDER RSX-11M

SM-WXLLA

These three PDP-11/23 RL01-based systems include:

- RSX-11M operating system
- 11/23 CPU
- 128 KB MOS memory
- Memory management
- Bootstrap module with diagnostics
- 4-line asynchronous EIA/CCITT interface (DLV11-J)
- One RLV11 disk subsystem (one controller and one 5.2 MB RL01 removable cartridge disk drive) for use as the system device
- One 5.2 MB RL01 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41 in (104.1 cm) high H9612 cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: A BA11-N expander box may be mounted in the CPU cabinet below the lower RL01.

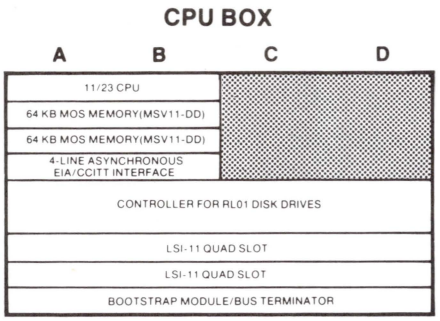
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: Two more RL01 removable cartridge disk drives may be added to this system for a total of four.

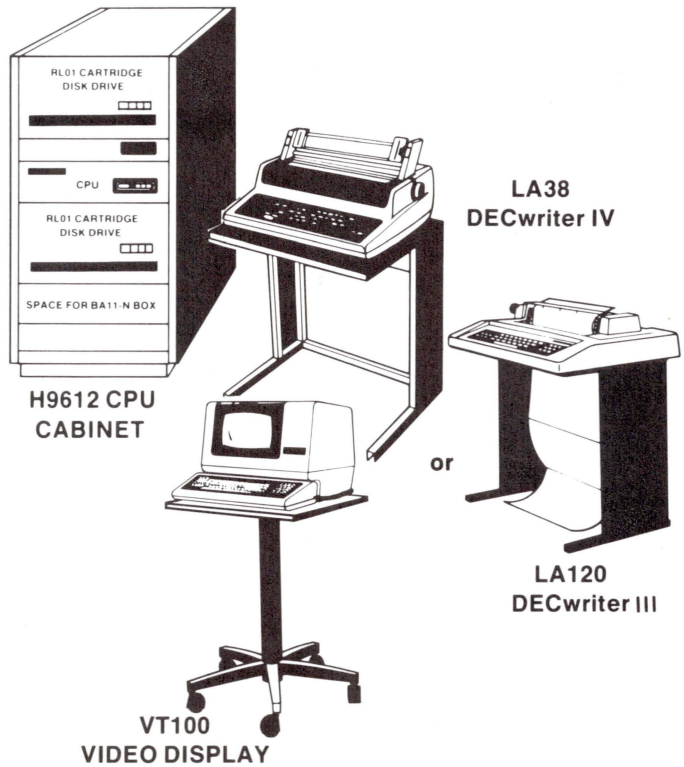
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-WXLLA-CA(CD)	LA120 DECwriter III	128 KB MOS	Dual RL01s	2 LSI-11 Quad slots	7.8	8.94	7*	14
SM-WXLLA-BA(BD)	VT100 Video Display							
SM-WXLLA-AA(AD)	LA38 DECwriter IV							

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Extended LSI-11 Quad indicate available expansion space.



SM-WXLLA-CA(CD)
SM-WXLLA-BA(BD)
SM-WXLLA-AA(AD)



NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/23 RL02-BASED SYSTEMS RUNNING UNDER RSX-11M

SM-WXMMA

These three PDP-11/23 RL02-based systems include:

- RSX-11M operating system
- 11/23 CPU
- 128 KB MOS memory
- Memory management
- Bootstrap module with diagnostics
- 4-line asynchronous EIA/CCITT interface (DLV11-J)
- One RLV21 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- **One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device**
- Cabinetry: One 41 in (104.1 cm) high H9612 cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: A BA11-N expander box may be mounted in the CPU cabinet below the lower RL02.

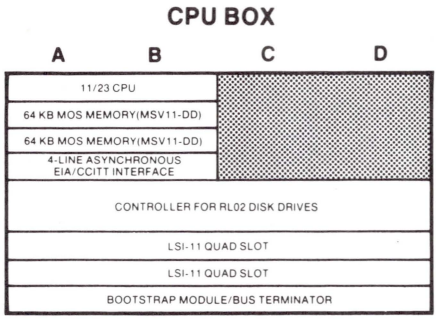
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

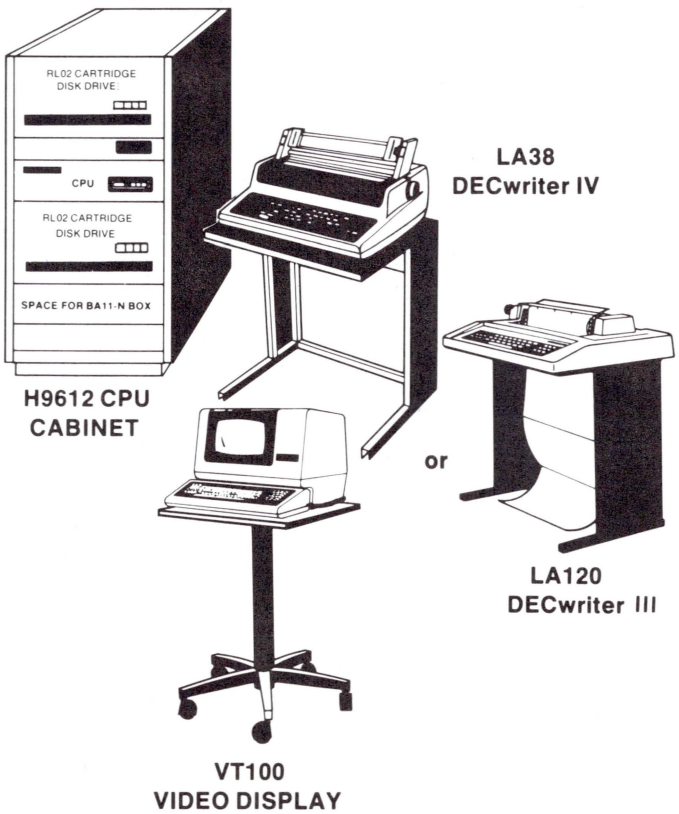
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-WXMMA-CA(CD)	LA120 DECwriter III	128 KB MOS	Dual RL02s	2 LSI-11 Quad slots	7.8	8.94	7*	14
SM-WXMMA- BA(BD)	VT100 Video Display							
SM-WXMMA-AA(AD)	LA38 DECwriter IV							

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled LSI-11 Quad indicate available expansion space.



SM-WXMMA-CA(CD)
SM-WXMMA-BA(BD)
SM-WXMMA-AA(AD)



NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/23-PLUS RL02-BASED SYSTEMS RUNNING UNDER RSX-11M

SM-RXMMB

These two PDP-11/23-PLUS RL02-based systems include:

- RSX-11M operating system
- 11/23-PLUS CPU, including bootstrap with diagnostics
- 256 KB MOS memory
- Memory management
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- System distribution panel for serial line and options interconnect
- One RLV22 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 cabinet
- Console Terminal: LA120 DECwriter III or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: There is a 5.25 in high (13.2 cm) by 26.8 in deep (68 cm) area of mounting space available below the CPU box for expansion.*

SYSTEM MEMORY EXPANSION: This system has 768 KB of MOS memory expansion available in 256 KB or 512 KB increments for a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-RXMMB-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RL02s	6 Extended LSI-11 Quad Slots	24.4	4.6	N/A*	17
SM-RXMMB-BA(BD)	VT100 Video Display							

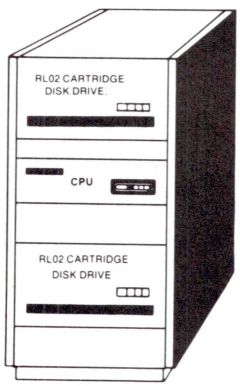
* For 120 Volt systems, an 874-C power controller may be required for cabinet expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled LSI-11 Quad indicate available expansion space.

CPU BOX

A	B	C	D
11/23-PLUS CPU			
256 KB PARITY MOS MEMORY (MSV11-PK)			
CONTROLLER FOR RL02 DISK DRIVES			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			

SM-RXMMB-CA(CD)
SM-RXMMB-BA(BD)



H9642 CPU CABINET



VT100 VIDEO DISPLAY

or



LA120 DECwriter III

NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/24 RL02-BASED SYSTEM RUNNING UNDER RSX-11M

SM-FXMMA

This PDP-11/24 RL02-based system includes:

- RSX-11M operating system
- 11/24 CPU (5.25 inch box)
- 256 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9645 CPU cabinet
- Console Terminal: LA120 DECwriter III or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H775 battery backup and two 7 in (17.8 cm) areas of rear mounting space for distribution panels.

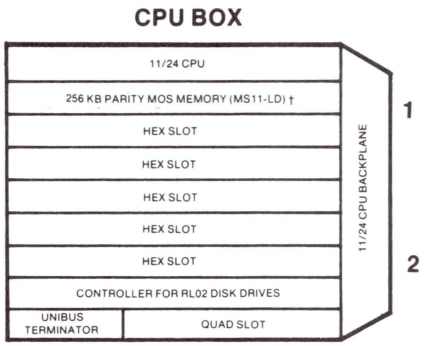
SYSTEM MEMORY EXPANSION: Memory expansion for this system requires the KT24 (Physical Address Extension module) option and is available in 128 KB or 256 KB increments up to a maximum total of 768 KB, limited by CPU box power.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-FXMMA-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RL02s	CPU SU 1-2: 5 Hex slots 1 Quad slot	17.7	.90	2.40	3*	16
SM-FXMMA-BA(BD)	VT100 Video Display								

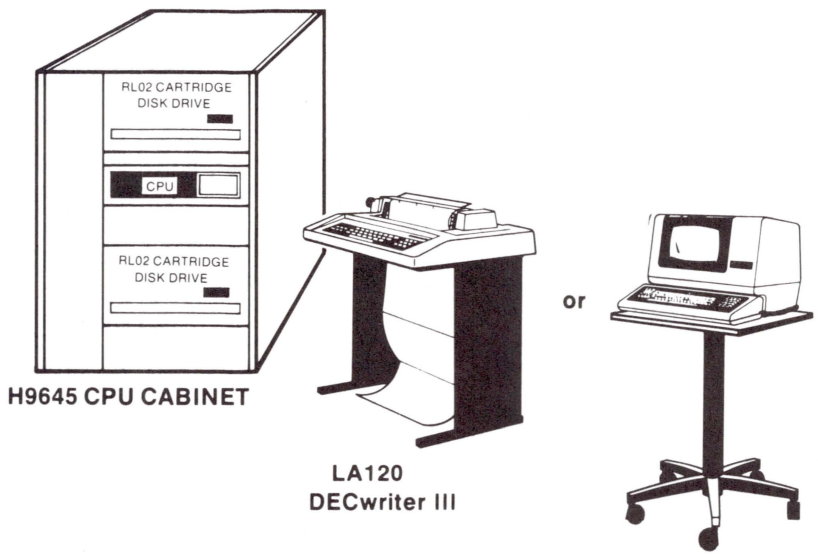
* This figure represents AC amps available in the CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SM-FXMMA-CA(CD)
SM-FXMMA-BA(BD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9645 CPU CABINET

LA120
DECwriter III

VT100
VIDEO DISPLAY

NOTE: Stand is not included with VT100.

† If the PAX (Physical Address Extension) module is added to this system, it must mount in the second hex slot in the CPU backplane, next to the processor and the MS11-LB or MS11-LD memory module will be mounted in the third hex slot. If the PAX module is not added to this system, the MS11-LB or MS11-LD memory module will be mounted in the second hex slot next to the processor. Note that all memory modules must be mounted contiguously in slots 2-3 (without PAX) or slots 3-5 (with PAX) in the CPU backplane.

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/24 RK07-BASED SYSTEM RUNNING UNDER RSX-11M

SM-FXHHA

This PDP-11/24 RK07-based system includes:

- RSX-11M operating system
- 11/24 CPU (10.5 inch box)
- 256 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet with one 41.75 in (106 cm) high H9642 bolt- on RK07 disk drive and one freestanding H9642 RK07 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

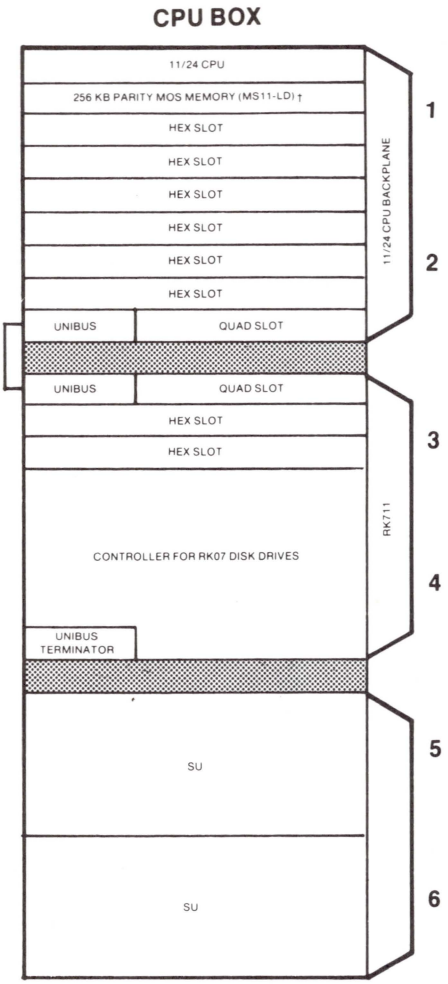
SYSTEM MEMORY EXPANSION: Memory expansion for this system requires the KT24 (Physical Address Extension module) option and is available in 128 KB or 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

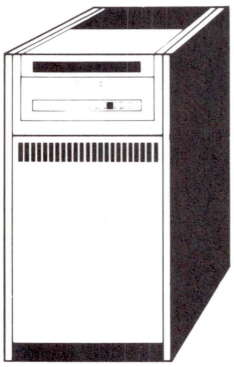
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-FXHHA-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RK07s	CPU SU 1-6: 8 Hex slots 2 Quad slots 2 SUs	78.7	2.22	2.50	N/A†	15
SM-FXHHA-BA(BD)	VT100 Video Display								

†There is sufficient AC power for the battery backup unit in the CPU cabinet.

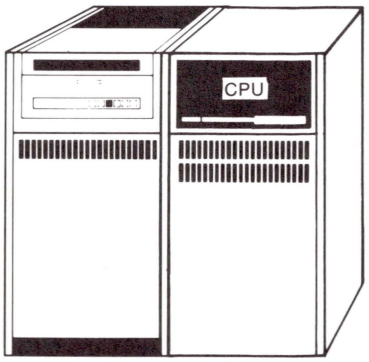
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

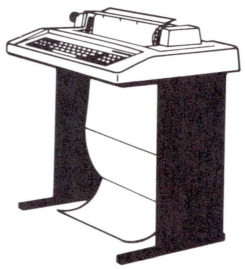


RK07-PA(PD)
DISK DRIVE



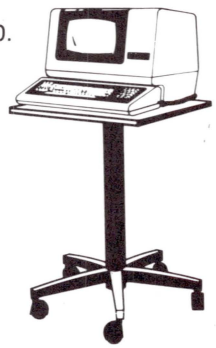
RK07-PA(PD) **H9642**
DISK DRIVE **CPU CABINET**

NOTE: Stand is not included with VT100.



LA120
DECwriter III

or



VT100
VIDEO DISPLAY

† If the PAX (Physical Address Extension) module is added to this system, it must mount in the second hex slot in the CPU backplane, next to the processor and the MS11-LB or MS11-LD memory module will be mounted in the third hex slot. If the PAX module is not added to this system, the MS11-LB or MS11-LD memory module will be mounted in the second hex slot next to the processor. Note that all memory modules must be mounted contiguously in slots 2-3 (without PAX) or slots 3-6 (with PAX) in the CPU backplane.

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/34A RL01-BASED SYSTEM RUNNING UNDER RSX-11M

SM-30LLC

These three PDP-11/34A RL01-based systems include:

- RSX-11M operating system
- 11/34A CPU
- 256 KB parity MOS memory
- Memory management
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- Programmer's console interface
- One RL11 disk subsystem (one controller and one 5.2 MB RL01 removable cartridge disk drive) for use as the system device
- One 5.2 MB RL01 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to a BA11-L expander box mounted above the CPU or 10.5 in (26.7 cm) of mounting space for distribution panels above the CPU.

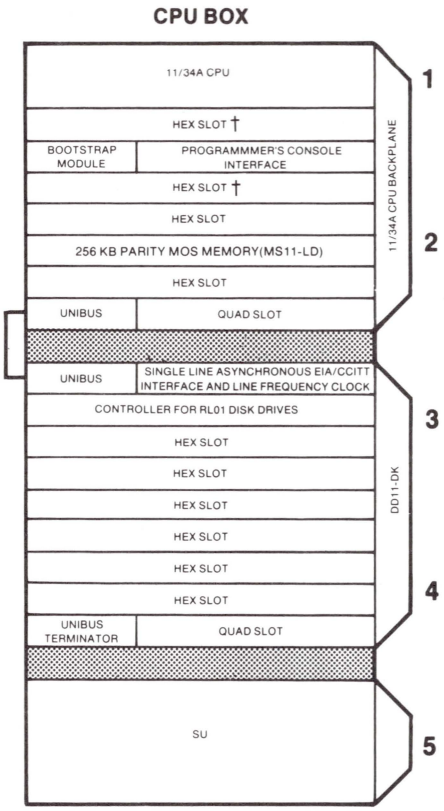
SYSTEM MEMORY EXPANSION: This system has the maximum amount of MOS memory (256 KB) on a PDP-11/34. No further memory expansion is possible.

SYSTEM DISK EXPANSION: Two more RL01 removable cartridge disk drives may be added to this system for a total of four.

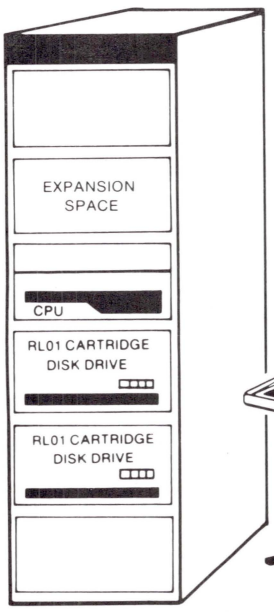
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+15V	DC AMPS AVAILABLE @-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-30LLC-CA(CD)	LA120 DECwriter III	256 KB parity MOS	Dual RL01s	CPU SU 1-2: 4 Hex slots 1 Quad slot	13.7			9*	14
SM-30LLC-BA(BD)	VT100 Video Display			SU 3-5: 6 Hex slots 1 Quad slot 1 SU	22.4				
SM-30LLC-AA(AD)	LA38 DECwriter IV			SU 1-5:		3.45	9.29		

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SM-30LLC-CA(CD)
SM-30LLC-BA(BD)
SM-30LLC-AA(AD)



H960 CPU CABINET

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

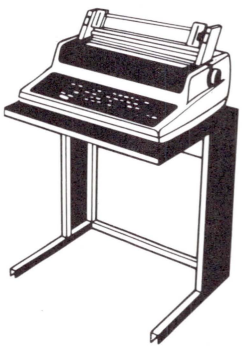


LA120 DECwriter III

or



VT100 VIDEO DISPLAY



LA38 DECwriter IV

NOTE: Stand is not included with VT100.

†The floating point processor (FP11-A), requiring a hex slot, must mount in the third slot next to the processor in the CPU backplane. The cache memory option (KK11-A), which also requires a hex slot, may be mounted in the third or fifth slot in the CPU backplane.

PDP-11/34A RL02-BASED SYSTEM RUNNING UNDER RSX-11M

SM-30MMA

These three PDP-11/34A RL02-based systems include:

- RSX-11M operating system
- 11/34A CPU
- 256 KB parity MOS memory
- Memory management
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- Programmer's console interface
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet
- Console Terminal: LA120 DECwriter III, LA38 DECwriter IV, or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to a BA11-L expander box mounted above the CPU or 10.5 in (26.7 cm) of mounting space for distribution panels above the CPU.

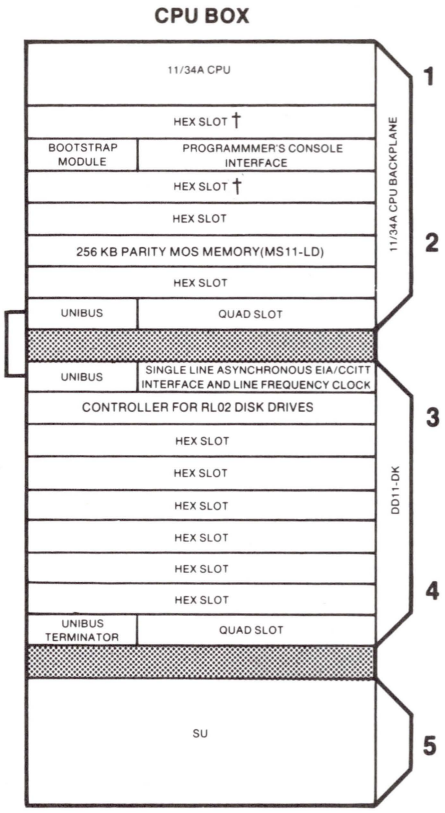
SYSTEM MEMORY EXPANSION: This system has the maximum amount of MOS memory (256 KB) on a PDP-11/34. No further memory expansion is possible.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-30MMA-CA(CD)	LA120 DECwriter III	256 KB parity MOS	Dual RL02s	CPU SU 1-2: 4 Hex slots 1 Quad slot	13.7			9*	14
SM-30MMA-BA(BD)	VT100 Video Display			SU 3-5: 6 Hex slots 1 Quad slot 1 SU	22.4				
SM-30MMA-AA(AD)	LA38 DECwriter IV			SU 1-5:		3.45	9.29		

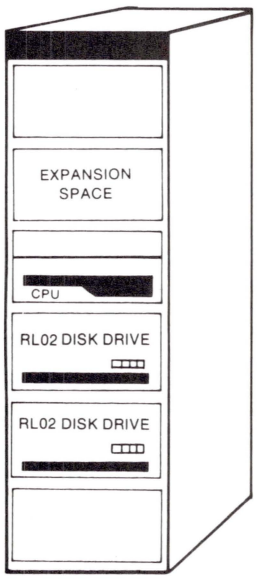
* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

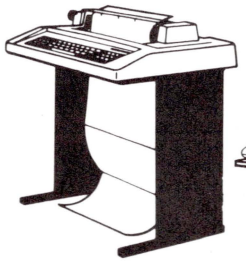


SM-30MMA-CA(CD)
SM-30MMA-BA(BD)
SM-30MMA-AA(AD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

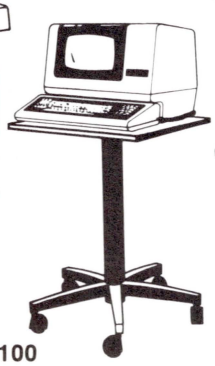


H960 CPU CABINET

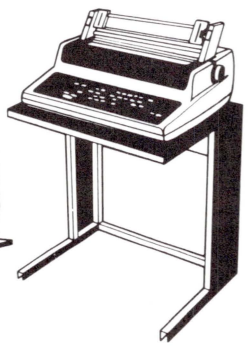


LA120 DECwriter III

or



VT100 VIDEO DISPLAY



LA38 DECwriter IV

NOTE: Stand is not included with VT100.

†The floating point processor (FP11-A), requiring a hex slot, must mount in the third slot next to the processor in the CPU backplane. The cache memory option (KK11-A), which also requires a hex slot, may be mounted in the third or fifth slot in the CPU backplane.

PDP-11/34A RK07-BASED SYSTEM RUNNING UNDER RSX-11M

SM-30HHB

This PDP-11/34A RK07-based system includes:

- RSX-11M operating system
- 11/34A CPU
- 128 KB parity MOS memory
- Memory management
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- Programmer's console interface
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet and two 39 in (99 cm) high freestanding RK07 disk drives
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: A BA11-KE(KF) expansion box may be mounted in the CPU cabinet directly above or below the CPU leaving two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

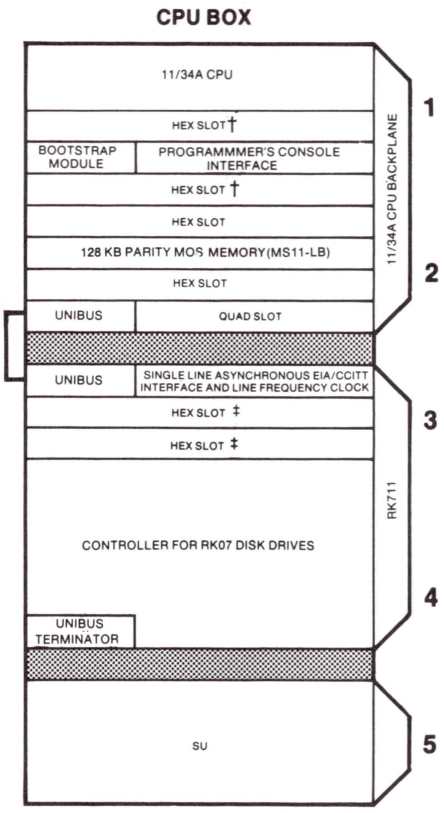
SYSTEM MEMORY EXPANSION: This system has 128 KB of MOS memory expansion available for a maximum total of 256 KB.

SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

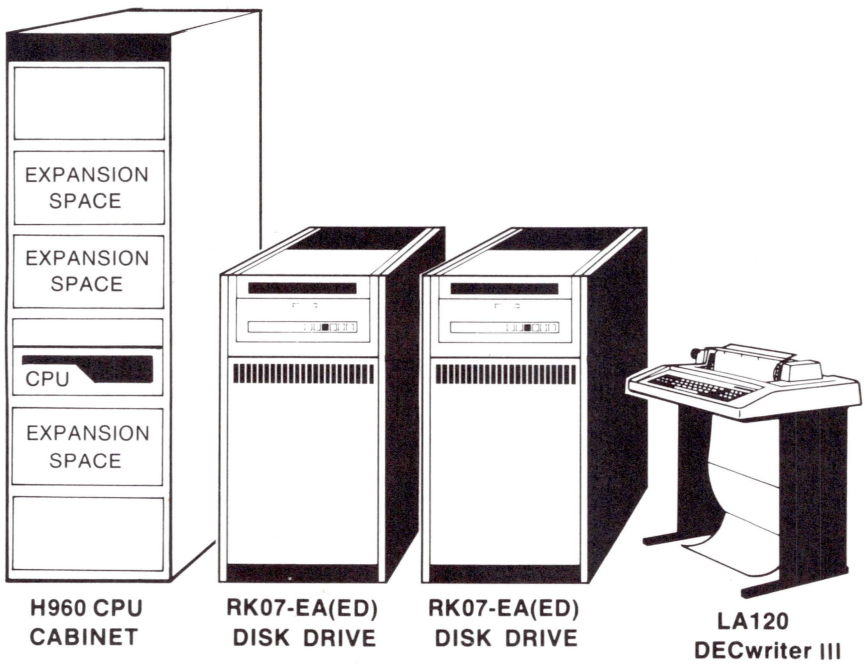
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-30HHB-CA(CD)	LA120 DECwriter III	128 KB parity MOS	Dual RK07s	CPU SU 1-2: 4 Hex slots 1 Quad slot SU 3-5: 2 Hex slots SU 1-5: 1 SU	12.4 16.7	3.77	9.39	12*	14

* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



†The floating point processor (FP11-A), requiring a hex slot, must mount in the third slot next to the processor in the CPU backplane. The cache memory option (KK11-A), which also requires a hex slot, may be mounted in the third or fifth slot in the CPU backplane.

‡ The two open hex slots in the RK711 backplane are positioned electrically after the disk drive controller on the UNIBUS.

PDP-11/44 RL02-BASED SYSTEM RUNNING UNDER RSX-11M

SM-40MMC

This PDP-11/44 RL02-based system includes:

- RSX-11M operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet and one 41.75 in (106 cm) high H9642 bolt-on RL02 disk cabinet
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

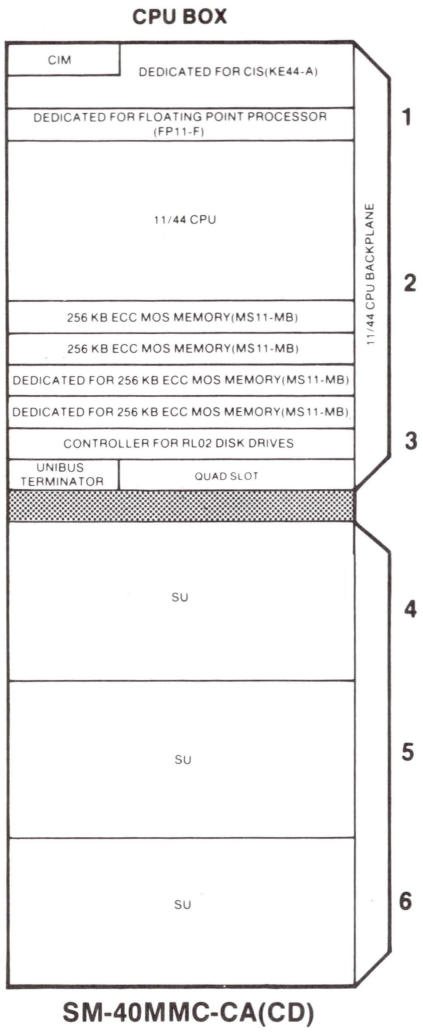
SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four. One additional drive can be mounted in the H9642 RL02 disk cabinet. With two drives mounted, the RL02 disk cabinet provides 9 AC amps @ 120V and 10.5 in (26.7 cm) of peripheral mounting space for expansion.

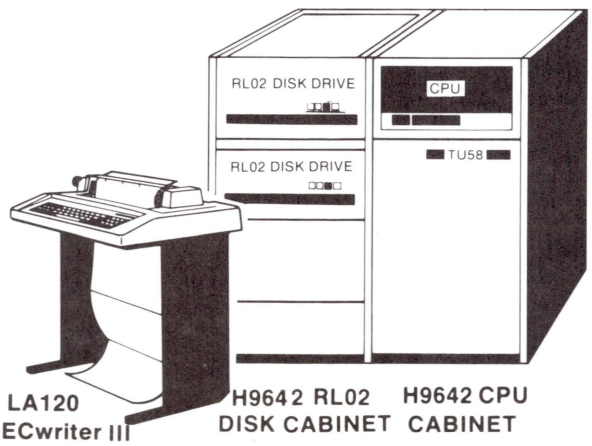
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-40MMC-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	Dual RL02s	CPU SU 1-6: 1 Quad slot 3 SUs	49.9	2.45	2.45	9*	14

* This figure represent AC amps available in the RL02 disk cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RL02-BASED SYSTEM RUNNING UNDER RSX-11M

SM-40MMD

This PDP-11/44 RL02-based system includes:

- RSX-11M operating system with FORTRAN IV-PLUS
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- FORTRAN IV-PLUS
- Floating point processor
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet and one 41.75 in (106 cm) high H9642 bolt-on RL02 disk cabinet
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

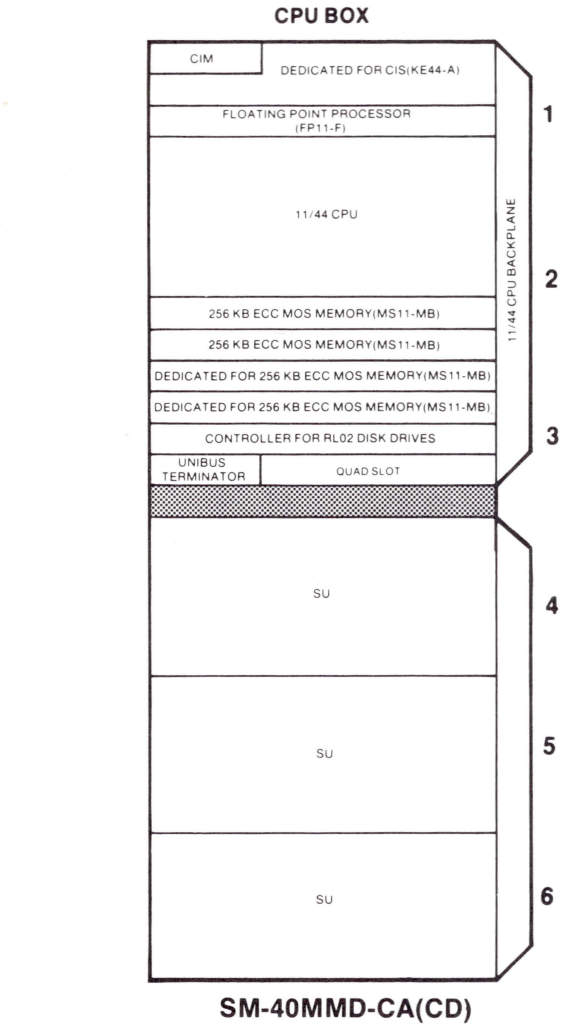
SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four. One additional drive can be mounted in the H9642 RL02 disk cabinet. With two drives mounted, the RL02 disk cabinet provides 9 AC amps @ 120V and 10.5 in (26.7 cm) of peripheral mounting space for expansion.

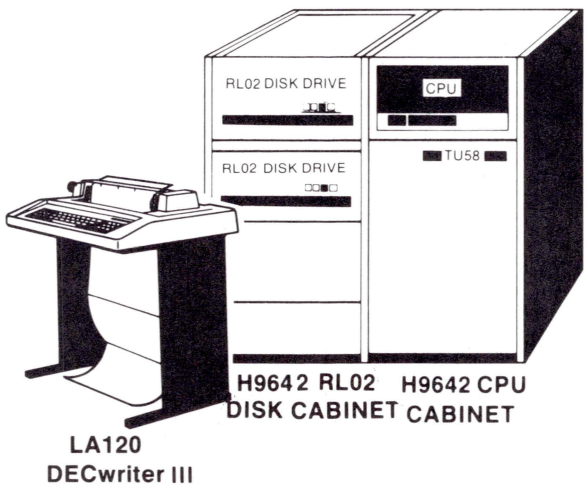
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-40MMD-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	Dual RL02s	CPU SU 1-6: 1 Quad slot 3 SUs	49.9	2.45	2.45	9*	14

* This figure represent AC amps available in the RL02 disk cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RK07-BASED SYSTEM RUNNING UNDER RSX-11M

SM-40HHB

This PDP-11/44 RK07-based system includes:

- RSX-11M operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 41.75 in (106 cm) high H9642 bolt-on RK07 disk drive, and one 41.75 in (106 cm) high H9642 freestanding RK07 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

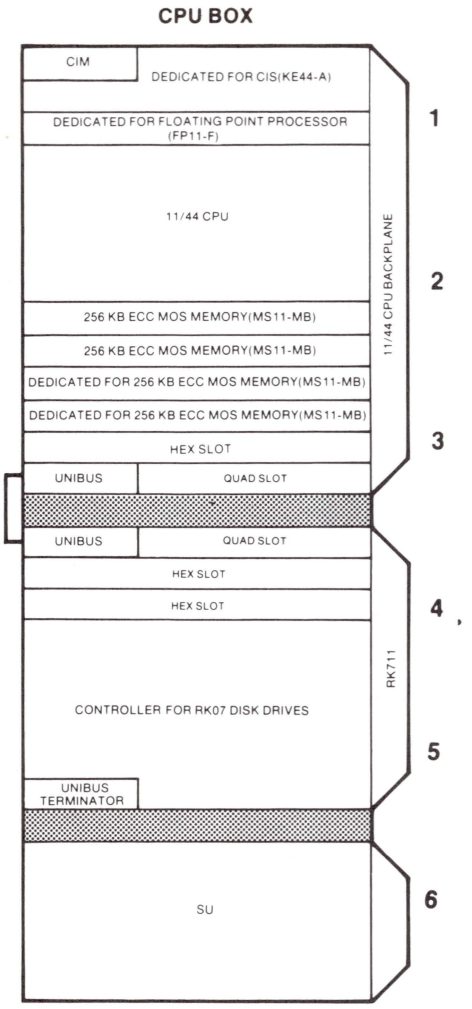
SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-40HHB-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	Dual RK07s	CPU SU 1-6: 3 Hex slots 2 Quad slots 1 SU	42.9	2.77	2.55	N/A †	14

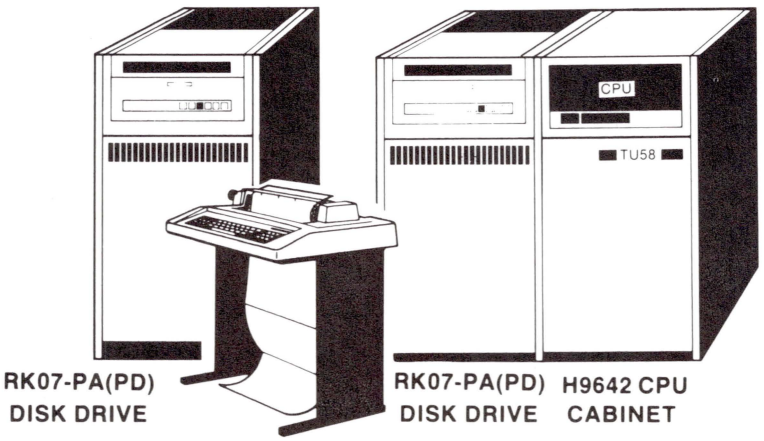
† There is sufficient AC power for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SM-40HHB-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RM02-BASED SYSTEM RUNNING UNDER RSX-11M

SM-40UAB

This PDP-11/44 RM02-based system includes:

- RSX-11M operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RJM02 disk subsystem (one controller and one 67 MB RM02 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 60.5 in (153.67 cm) high H9646 bolt-on TS11 magtape cabinet, and one 39 in (99 cm) high freestanding RM02 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

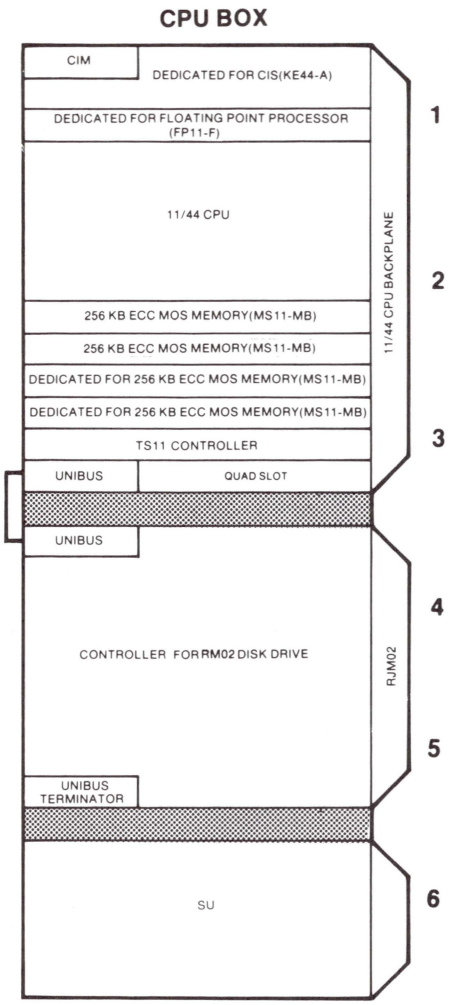
SYSTEM DISK EXPANSION: Seven more freestanding RM02 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-40UAB-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	1 RM02 1 TS11	CPU SU 1-6: 1 Quad slot 1 SU	41.4	2.95	2.55	14*	13

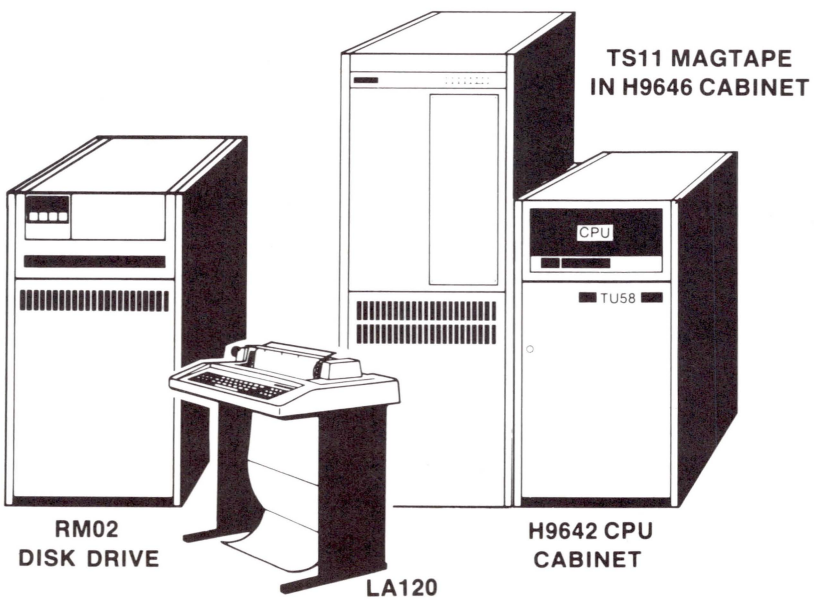
* This figure represents AC amps available in the TS11 magtape cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SM-40UAB-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RA80-BASED SYSTEM RUNNING UNDER RSX-11M

SM-40GAA

This PDP-11/44 RA80-based system includes:

- RSX-11M operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RUA80 disk subsystem (one controller and one 121 MB RA80 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 41.75 in (106 cm) high H9642 bolt-on RA80 disk cabinet, and one 60.5 (153.67 cm) high H9646 bolt-on TS11 magtape cabinet.
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Three more RA80 disk drives may be added to this system for a total of four. Note that the H9642 disk cabinet can accommodate up to three RA80 drives.

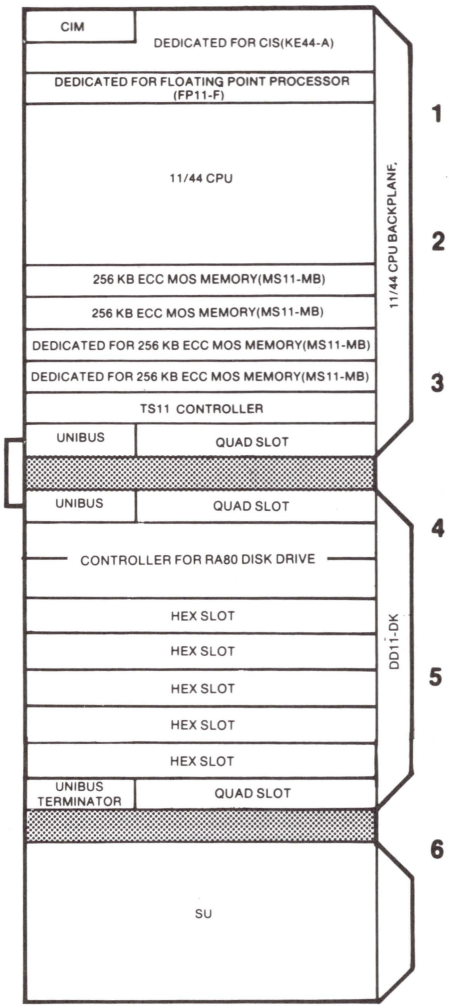
SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-40GAA-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	1 RA80 1 TS11	CPU SU 1-6 3 Quad slots 5 Hex slots 1 SU	44.8	2.75	1.15	12*	15

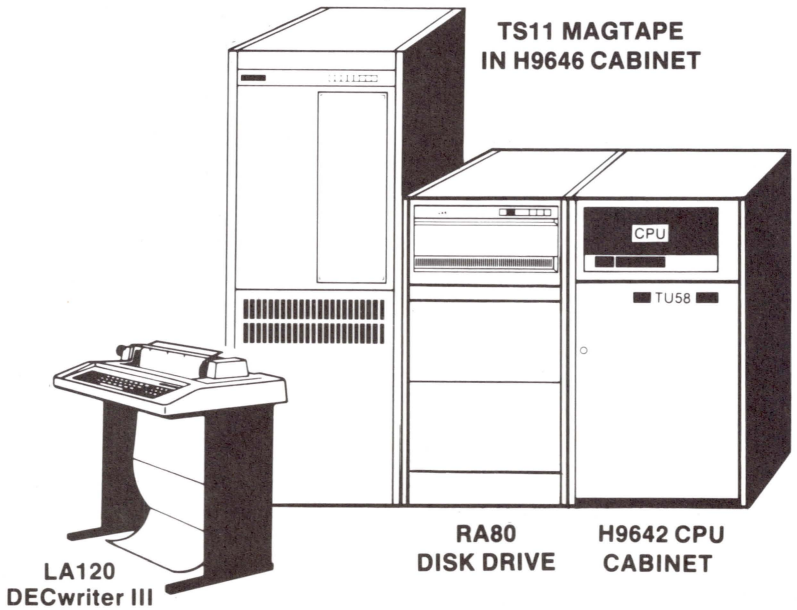
* This figure represents AC amps available in the TS11 magtape cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SM-40GAA-CA(CD)



PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSX-11M

SM-70TAA

This PDP-11/70 RM03-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU/memory cabinet, one 60 in (152.4 cm) high H9602 bolt-on TS11 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems in H9602 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

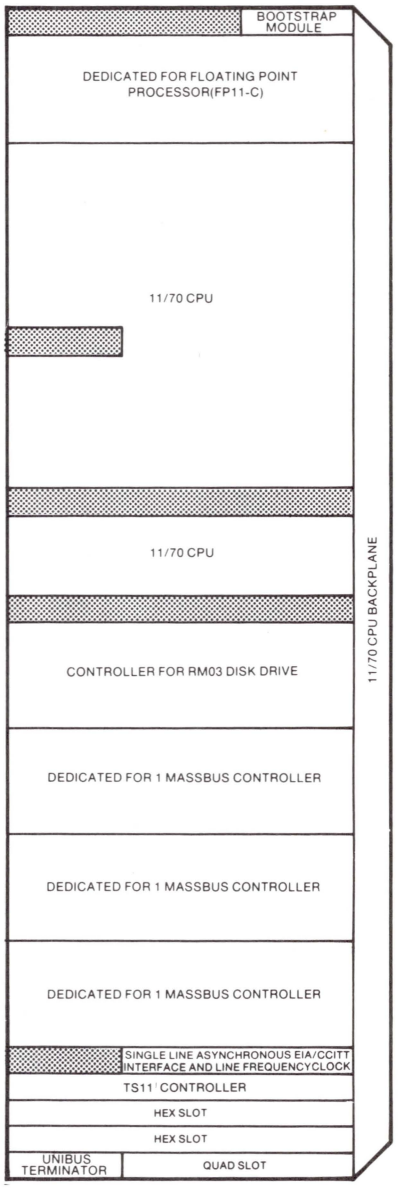
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70TAA-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TS11	CPU 2 Hex slots 1 Quad slot 3 MASSBUS ports	20.2† Dedicated	3.65	1.45	12*	11†

* This figure represents AC amps available in the TS11 magtape cabinet only.

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

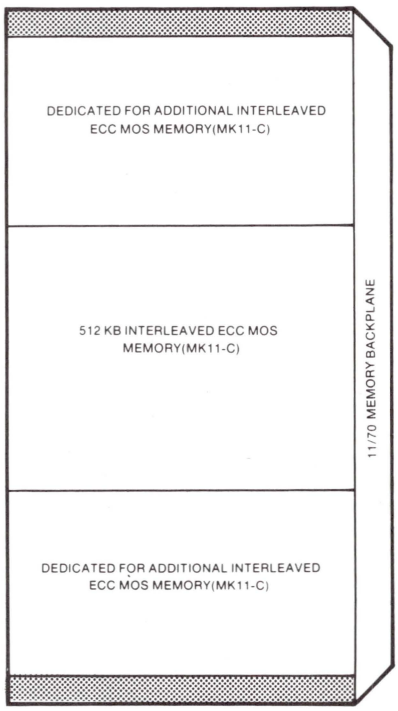
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

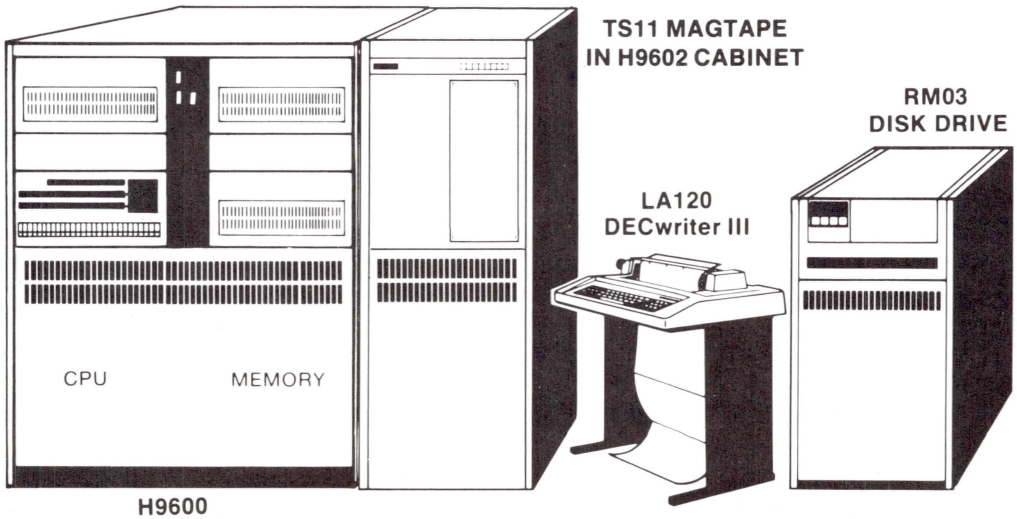


SM-70TAA-CA(CD)

MK11-C MEMORY BOX



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



TS11 MAGTAPE IN H9602 CABINET

RM03 DISK DRIVE

LA120 DECwriter III

H9600 CPU/MEMORY CABINET

PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSX-11M

SM-70TVB

This PDP-11/70 RM03-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2KB cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet, one 72 in (182.9 cm) high H960 memory cabinet, one 72 in (182.9 cm) high H960 bolt-on TE16 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

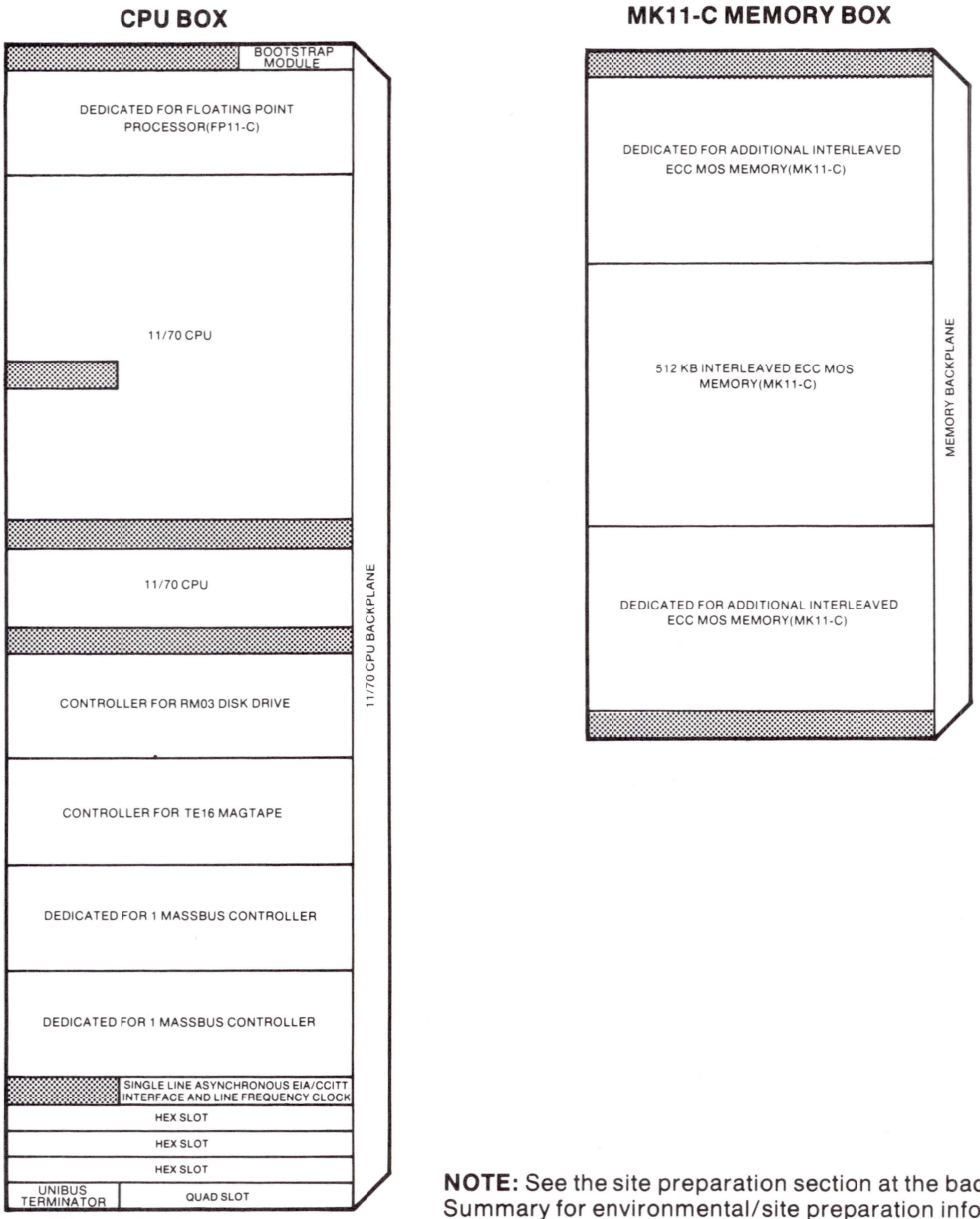
SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H960 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

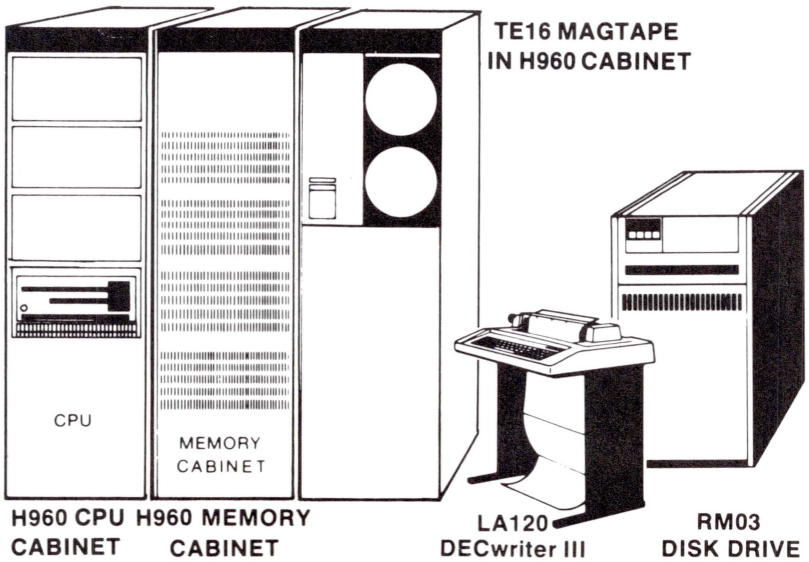
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70TVB-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7†	3.65	1.45	N/A	12†
					Dedicated				

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSX-11M

SM-70TVC

This PDP-11/70 RM03-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 CPU/memory cabinet, one 60 in (152.4 cm) H9602 high bolt-on TE16 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

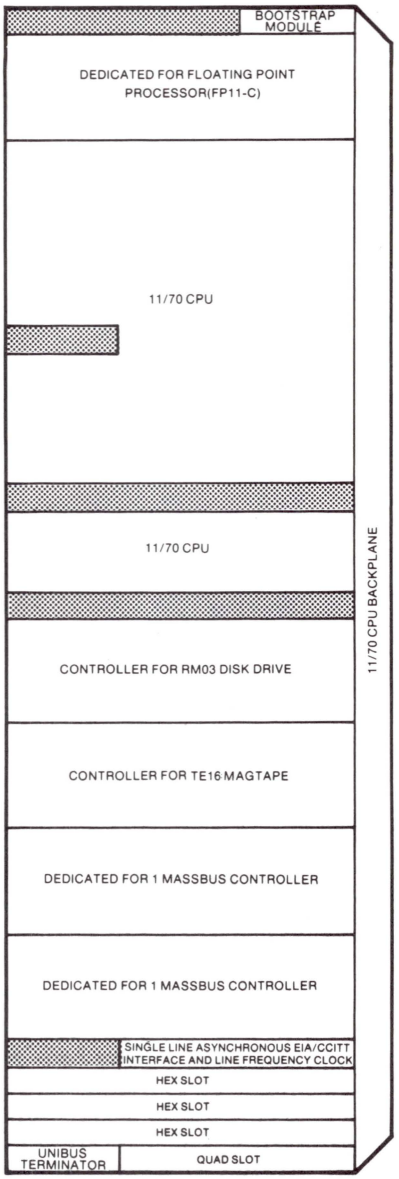
SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H9602 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70TVC-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7†	3.65	1.45	N/A	12†
					Dedicated				

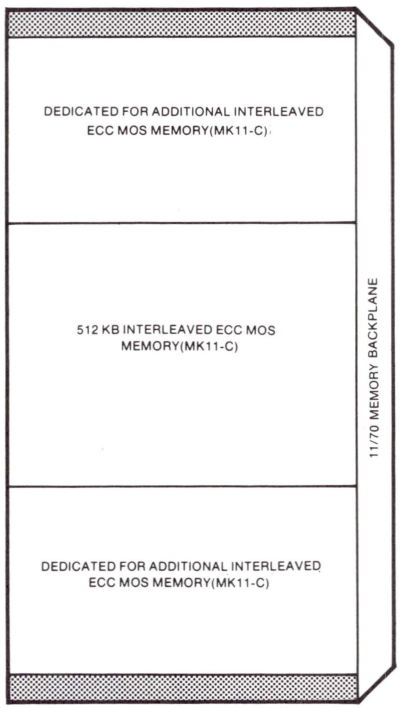
† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

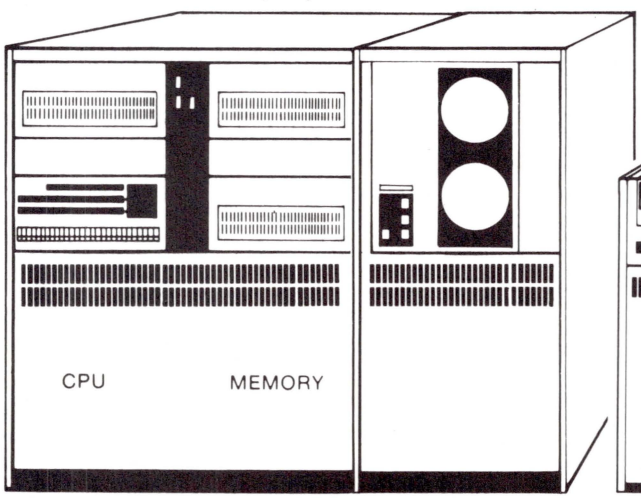


MK11-C MEMORY BOX



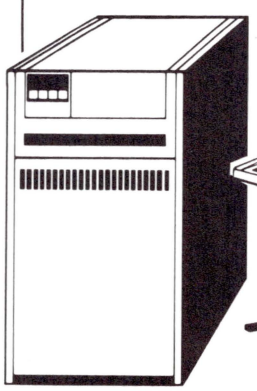
NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

SM-70TVC-CA(CD)



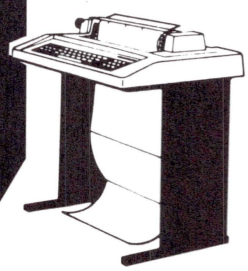
H9600
CPU/MEMORY CABINET

TE16 MAGTAPE
IN H9602 CABINET



RM03
DISK DRIVE

LA120
DECwriter III



PDP-11/70 RP06-BASED SYSTEM RUNNING UNDER RSX-11M

SM-70CVD

This PDP-11/70 RP06-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWP06 disk subsystem (one controller and one 176 MB RP06 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet, one 72 in (182.9 cm) H960 high memory cabinet, one 72 in (182.9 cm) high H960 bolt-on TE16 magtape cabinet, and one 47 in (119cm) high freestanding RP06 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

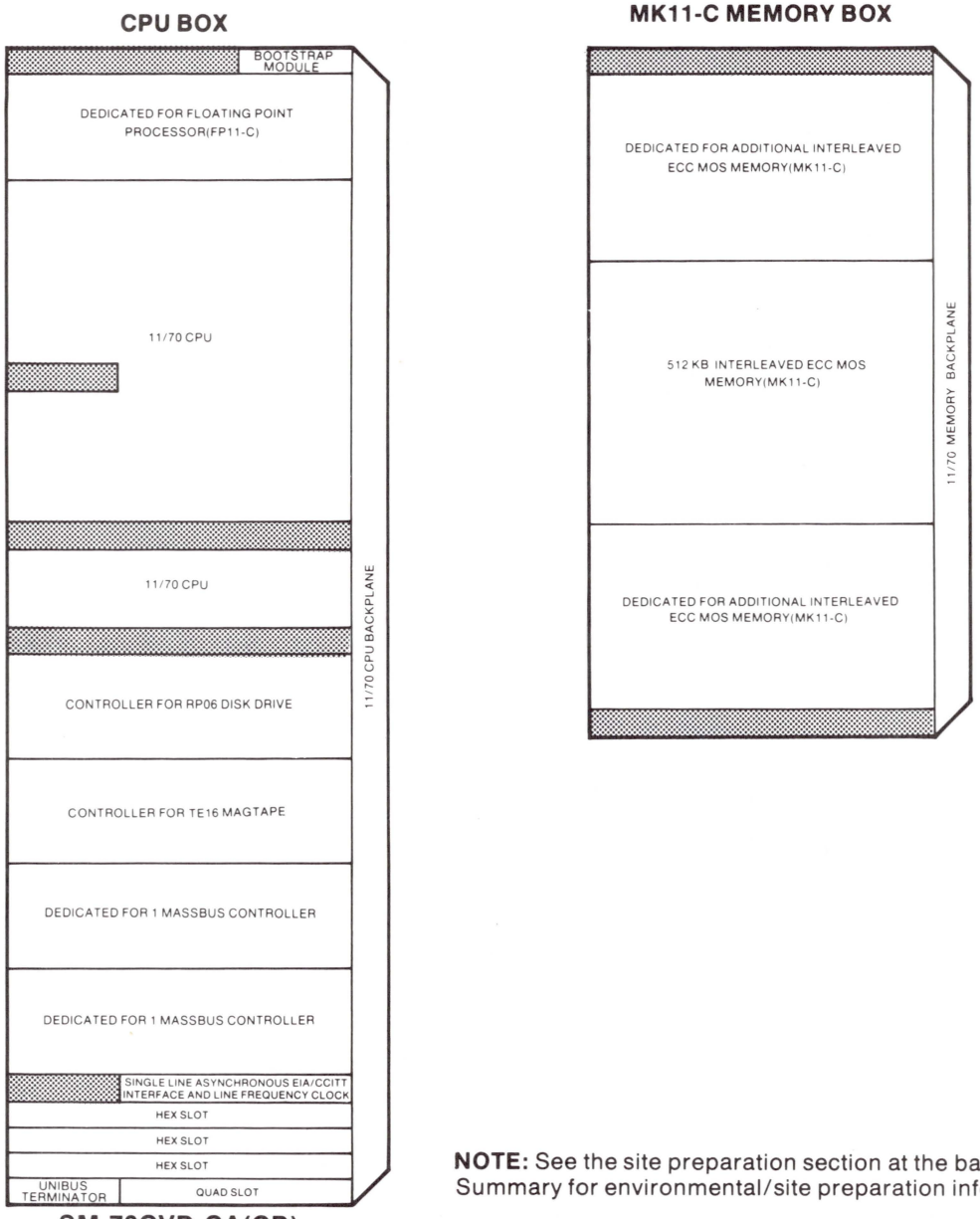
SYSTEM DISK EXPANSION: Seven more freestanding RP06 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H960 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

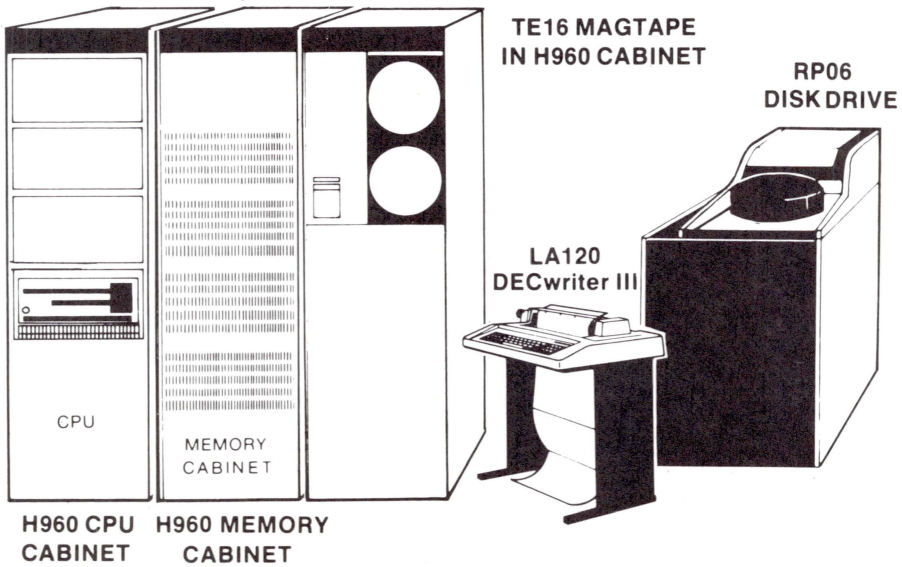
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70CVD-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RP06 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7†	3.65	1.45	N/A	12†
					Dedicated				

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



PDP-11/70 RP06-BASED SYSTEM RUNNING UNDER RSX-11M SM-70CVE

This PDP-11/70 RP06-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWP06 disk subsystem (one controller and one 176 MB RP06 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU/memory cabinet, one 60 in (152.4 cm) high H9602 bolt-on TE16 magtape cabinet, and one 47 in (119 cm) high freestanding RP06 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

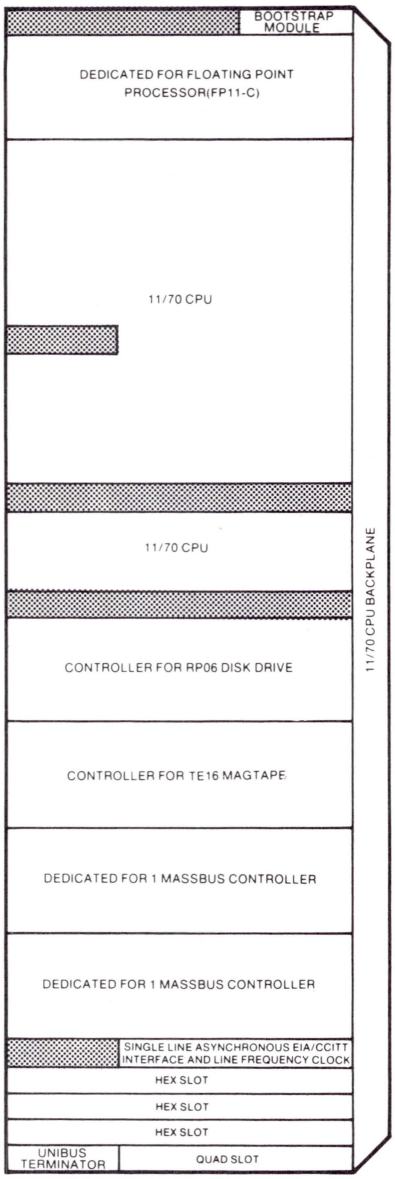
SYSTEM DISK EXPANSION: Seven more freestanding RP06 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H9602 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70CVE-CA(CD)	LA120 DECwriter III	512KB interleaved ECC MOS	1 RP06 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7† Dedicated	3.65	1.45	N/A	12†

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

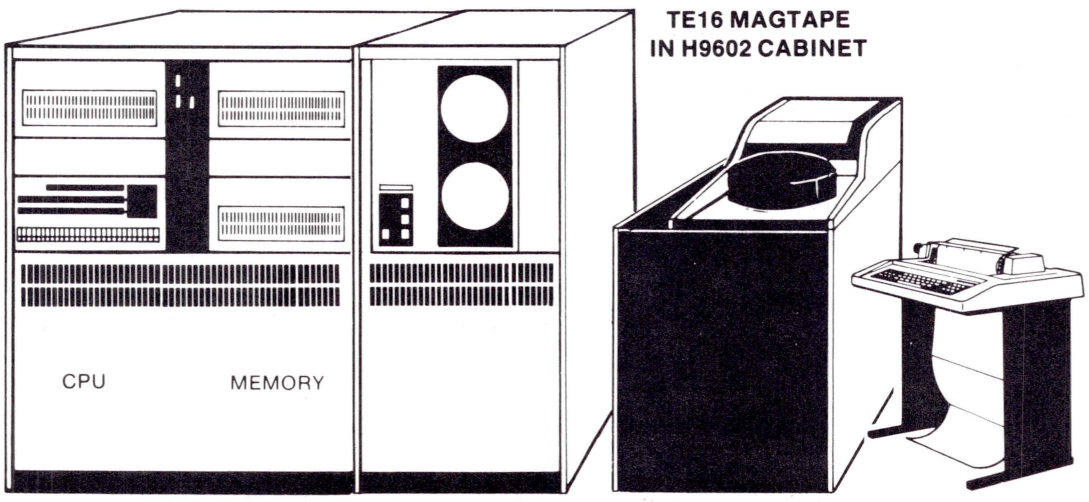
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SM-70CVE-CA(CD)



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9600 CPU/MEMORY CABINET

RP06 DISK DRIVE

LA120 DECwriter III

PDP-11/70 RP06-BASED SYSTEM RUNNING UNDER RSX-11M

SM-70CVB

This PDP-11/70 RP06-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 1024 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWP06 disk subsystem (one controller and one 176 MB RP06 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet, one 72 in (182.9 cm) high H960 memory cabinet, one 72 in (182.9 cm) high H960 bolt-on TE16 magtape cabinet, and one 47 in (119 cm) high freestanding RP06 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 2.5 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RP06 disk drives may be added to this system for a total of eight.

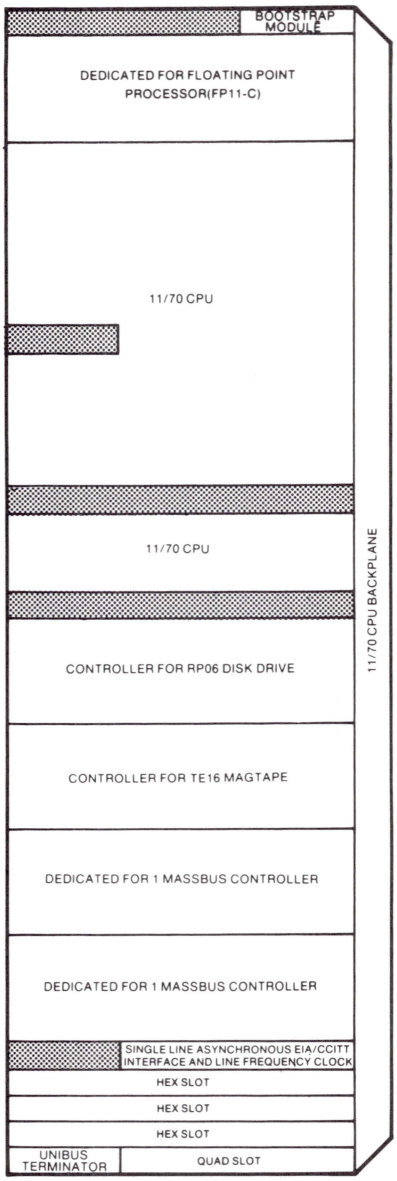
SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H960 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70CVB-CA(CD)	LA120 DECwriter III	1024 KB interleaved ECC MOS	1 RP06 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7†	3.65	1.45	N/A	12†
					Dedicated				

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

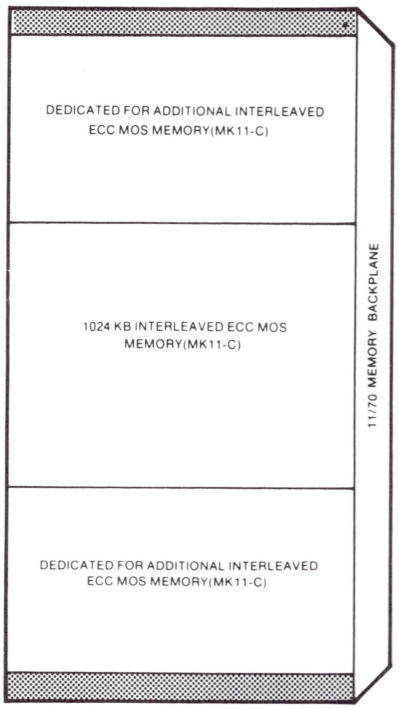
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

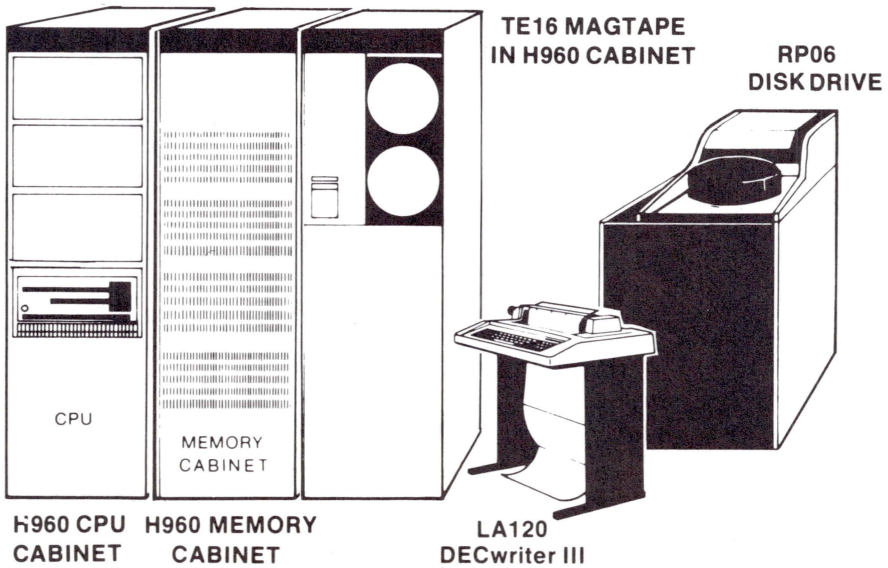


SM-70CVB-CA(CD)

MK11-C MEMORY BOX



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



PDP-11/70 RP06-BASED SYSTEM RUNNING UNDER RSX-11M

SM-70CBA

This PDP-11/70 RP06-based system includes:

- RSX-11M operating system
- 11/70 CPU
- 1024 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWP06 disk subsystem (one controller and one 176 MB RP06 disk drive) for use as the system device
- One TWU77 magtape subsystem (one controller and one TU77 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU cabinet/memory, one 60 in (152.4 cm) high H9602 TU77 magtape cabinet, and one 47 in (119 cm) high freestanding RP06 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 2.5 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RP06 disk drives may be added to this system for a total of eight.

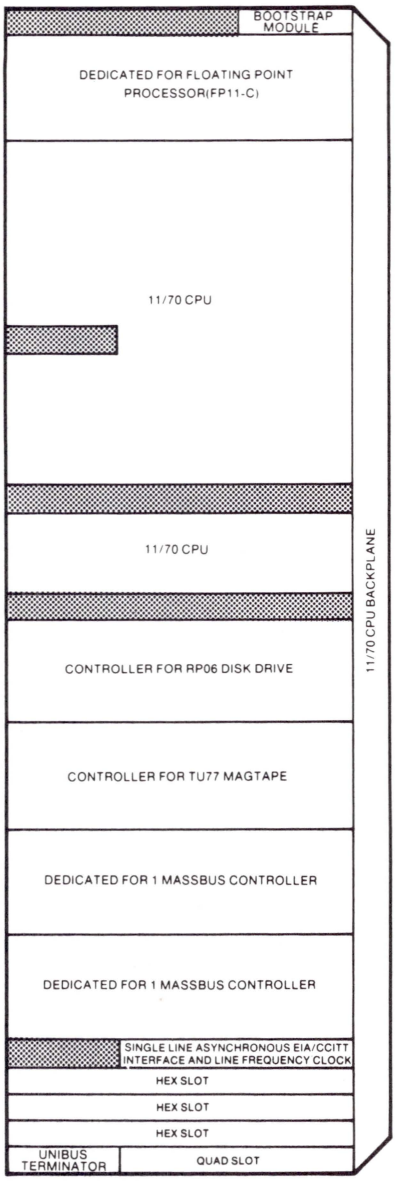
SYSTEM MAGTAPE EXPANSION: Three more freestanding TU77 magtape transports in H9602 cabinets may be added to this system for a total of four. The TU77 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SM-70CBA-CA(CD)	LA120 DECwriter III	1024 KB interleaved ECC MOS	1 RP06 1 TU77	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7† Dedicated	3.65	1.45	N/A	12†

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

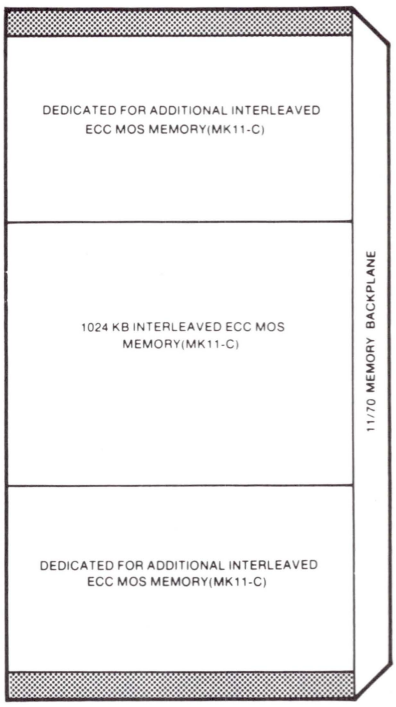
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

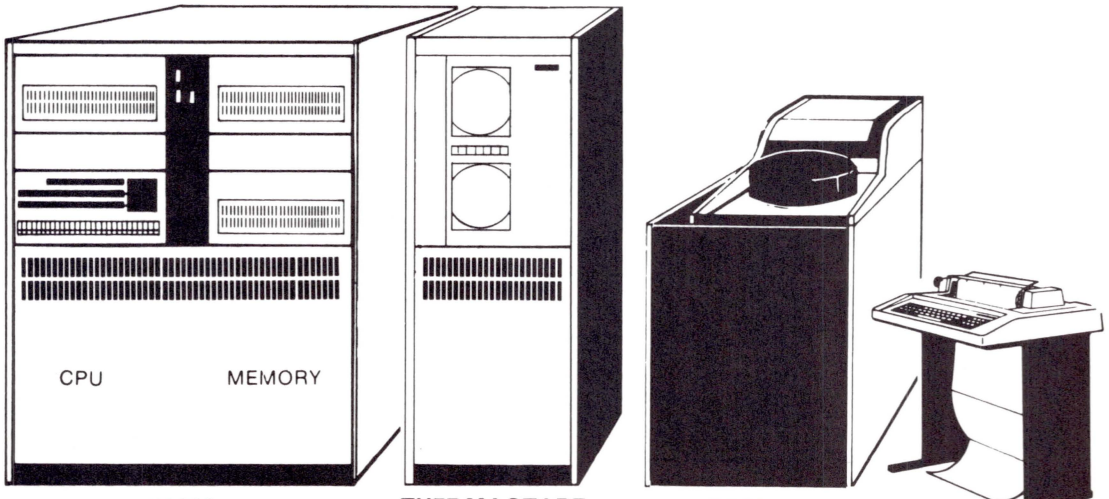


SM-70CBA-CA(CD)

MK11-C MEMORY BOX



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9600 CPU/MEMORY CABINET

TU77 MAGTAPE IN H9602 CABINET

RP06 DISK DRIVE

LA120 DECwriter III

OPTIONAL SOFTWARE FOR RSX-11M SYSTEMS

PDP-11 BASIC-PLUS-2

SPD NO. 14.11.xx

BASIC-PLUS-2 is a superset of the BASIC-PLUS and Dartmouth BASIC languages which use simple English language-like statements and familiar mathematical notations to perform operations. The language processor is composed of a compiler and an Object-Time System/Library that contains the following run-time routines: performing library and arithmetic functions; handling dynamic allocation of string storage and I/O buffers; handling I/O operations; and processing errors in arithmetic, I/O, and system operations. Other features include extensive string manipulation functions; terminal-format files; virtual arrays; matrix package handling operations; RMS I/O; and external subprograms such as SUB, CALL, CHAIN and COMMON; and other user-defined functions.

Option Number	Distribution Medium	Support Category
QJ918-AD	Magtape (9-tr, 800 b/in)	
QJ918-AH	Disk Cartridge (RL02)	
QJ918-AM	Magtape (9-tr, 1600b/in)	DIGITAL Supported/
QJ918-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJ918-AT	Disk Cartridge (RK06)	
QJ918-AV	Disk Cartridge (RK07)	

PDP-11 COBOL

SPD NO. 12.40.xx

PDP-11 COBOL is a precise, well-defined language for business data processing and is based on ANSI COBOL, X3.23-1974. PDP-11 COBOL language processor is composed of a compiler and an Object Time System/Library. The compiler produces an object module from a source program and, following program line checks and compilation, an object module can be linked and executed at the operating system command level. File I/O operations are controlled through the RMS data management software which supports sequential, relative, and indexed file organizations. Other features include an interactive debugger that allows a user to set and remove breakpoints and examine and change program variables; support for the Commercial Instruction Set (CIS); and CALL statements for writing subprograms in both COBOL or MACRO-11 assembly languages. Any configuration must include a user area of at least 56 KB of memory, and at least 4000 free blocks of on-line disk storage on the public disk structure.

Option Number	Distribution Medium	Support Category
QP012-AD	Magtape (9-tr, 800 b/in)	
QP012-AH	Disk Cartridge (RL02)	
QP012-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP012-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP012-AT	Disk Cartridge (RK06)	
QP012-AV	Disk Cartridge (RK07)	

CORAL 66

SPD NO. 14.56.xx

CORAL 66 is a high-level block-structured programming language. It is the standard general purpose language prescribed by the British Government for realtime and process control applications. This language is designed to replace assembly level programming in modern industrial and commercial applications. It is used for long-life products where ease of maintenance and flexibility are required. Features of CORAL 66 include BYTE, LONG (32-bit integer) and DOUBLE (64-bit floating point) numeric types; re-entrant code at the procedure level; executable generated code; switchable options to select target PDP-11 computer instruction sets, optimize generated code, check the bounds of array-type variables, control listing output, or read card format; and conditional compilation of defined parts of source code. The PDP-11 CORAL compiler is implemented according to the British government's official definition for the language.

Option Number	Distribution Medium	Support Category
QP066-AD	Magtape (9-tr, 800 b/in)	
QP066-AQ	Disk Cartridge (RL01)	Customer Supported†
QP066-AT	Disk Cartridge (RK06)	
QP066-AV	Disk Cartridge (RK07)	

† In Europe only: DIGITAL Supported/DIGITAL Installed.

FORTRAN IV/IAS-RSX
SPD NO. 14.63.xx

FORTRAN IV/IAS-RSX is an extended superset of the ANSI FORTRAN X3.9-1966 standard. Systems with memory management directives provide support for virtual arrays. PDP-11 FORTRAN IV provides fast, one-pass compilation, and compiler optimizations include common subexpression elimination; local code tailoring; array vectoring; and optional in-line code generation for integer and logical operations. FORTRAN IV provides a set of object modules (Object Time System or OTS) that are selectively linked with compiler-produced object modules to produce an executable program. Other features include general expressions in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; commenting at the end of each source line; and list-directed input/output.

Option Number	Distribution Medium	Support Category
QP230-AD	Magtape (9-tr, 800 b/in)	
QP230-AH	Disk Cartridge (RL02)	
QP230-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP230-AQ	Disk Cartridge (RL01)	Customer Installed
QP230-AT	Disk Cartridge (RK06)	
QP230-AV	Disk Cartridge (RK07)	

PDP-11 FORTRAN-77/RSX
SPD NO. 14.31.xx

PDP-11 FORTRAN-77 is an extended implementation of the ANSI subset FORTRAN-77 X3.9-1978 standard. Extensions to the ANSI standard include language elements for keyed and sequential access to RMS multikey ISAM files; DEFINE, FILE, FIND, DELETE, REWRITE, and UNLOCK statements; TYPE and ACCEPT input/output statements; BYTE data type; hexadecimal and octal consultants. Virtual memory array support for systems with memory management directives. Two Object Time Systems (a set of object modules selectively linked with compiler-produced object modules by the operating system's task builder to produce a task, or program, ready for execution) are available with FORTRAN-77: the File Control Services-based OTS or the RMS-based OTS. The FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with a floating point processor.

Option Number	Distribution Medium	Support Category
QJ668-AD	Magtape (9-tr, 800 b/in)	
QJ668-AH	Disk Cartridge (RL02)	
QJ668-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ668-AQ	Disk Cartridge (RL01)	Customer Installed
QJ668-AT	Disk Cartridge (RK06)	
QJ668-AV	Disk Cartridge (RK07)	

DATATRIEVE-11
SPD NO. 12.48.xx

DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for the less sophisticated computer user. It uses a set of English language-like commands for data retrieval, modification, and display. It provides automatic prompting for both command and data entry. DATATRIEVE-11 utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming overhead. Data dictionaries, which are shared by DATATRIEVE-11 users, can be used to store frequently used sequences of commands to be recalled and processed later. DATATRIEVE-11 also provides the Application Design Tool (ADT) to assist novice users in creating domain and recording definitions.

Option Number	Distribution Medium	Support Category
QP301-AD	Magtape (9-tr, 800 b/in)	
QP301-AH	Disk Cartridge (RL02)	
QP301-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP301-AQ	Disk Cartridge (RL01)	Customer Installed
QP301-AT	Disk Cartridge (RK06)	
QP301-AV	Disk Cartridge (RK07)	

FMS-11/RSX
SPD NO. 12.27.xx

FMS-11/RSX is a forms-oriented, video I/O management system which functions as an independent, software front-end that logically off-loads the complexities of interactive video I/O management from the application program. Forms defined using FMS-11/RSX utilize the following features of a VT100 Video Terminal: reverse video characters; bold characters; underline characters; blinking characters; 132-column lines; jump and smooth scrolling; split screen; and reverse screen. Software components include: Form Editor for creating and modifying video forms by typing them on a VT100 screen; Form Utility for manipulating FMS/RT-11 forms descriptions; Form Driver for controlling screen processing; and Video Keypad Editor for general purpose text editing of standard ASCII files.

Option Number	Distribution Medium	Support Category
QJ715-AD	Magtape (9-tr, 800 b/in)	
QJ715-AH	Disk Cartridge (RL02)	
QJ715-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ715-AQ	Disk Cartridge (RL01)	Customer Installed
QJ715-AT	Disk Cartridge (RK06)	
QJ715-AV	Disk Cartridge (RK07)	

FMS-11/RSX Upgrade
SPD NO. 12.27.xx

FMS-11/RSX Upgrade option permits currently-licensed users of FMS-11/RT to purchase the license to a FMS-11/RSX upgrade kit for use on the same CPU as their previous license. This option includes binaries, license, and full support services.

Option Number	Distribution Medium	Support Category
QJ718-AD	Magtape (9-tr, 800 b/in)	
QJ718-AH	Disk Cartridge (RL02)	DIGITAL Supported/
QJ718-AM	Magtape (9-tr, 1600 b/in)	Customer Installed
QJ718-AQ	Disk Cartridge (RL01)	
QJ718-AT	Disk Cartridge (RK06)	
QJ718-AV	Disk Cartridge (RK07)	

SORT-11
SPD NO. 12.7.xx

SORT-11 is an optional utility that can accept as input any RMS-11 format file and output a reordered RMS-11 format file. Input files can contain data stored in binary, EBCDIC, or ASCII format, and the file organization can be sequential, relative, or indexed sequential. Records can be sequenced by key fields in ascending and descending order. SORT-11 cannot be used to merge two separate files. SORT-11 provides four different user-selectable, sorting processes: Record Sort (manipulates records in their entirety); Tag Sort (produces a reordered file by manipulating only the key position of each record); Address Routing Sort (produces a file for the data and multiple address files that are used to access the data in the desired sequences); and Index Sort (produces a separate index file that contains the record SORT key field and a pointer to the record's location in the data file).

Option Number	Distribution Medium	Support Category
QP602-AD	Magtape (9-tr, 800 b/in)	
QP602-AH	Disk Cartridge (RL02)	
QP602-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP602-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP602-AT	Disk Cartridge (RK06)	
QP602-AV	Disk Cartridge (RK07)	

DECnet-11M
SPD NO. 10.75.xx

DECnet-11M allows a suitably configured RSX-11M system to participate as a routing or non-routing (end) node in DECnet computer networks. DECnet-11M offers task-to-task communications; utilities for network file transfer; homogeneous network command terminal support; and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-11M communicates with adjacent nodes over synchronous and asynchronous communications lines and parallel interfaces. Communications using x.25 circuits over selected Public Packet Switching Networks is also possible. This requires that DECnet-11M be configured with the RSX-11 PSI/M product. Access to DECnet-11M is supported for RSX-11M user programs written in MACRO-11, FORTRAN IV, BASIC-PLUS-2, and COBOL. RSX-11M users should note that the functions available depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features.

Option Number	Distribution Medium	Support Category
QJ684-AD	Magtape (9-tr, 800 b/in)	
QJ684-AH	Disk Cartridge (RL02)	
QJ684-AM	Magtape (9-tr, 1600 bfin)	DIGITAL Supported/
QJ684-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJ684-AT	Disk Cartridge (RK06)	
QJ684-AV	Disk Cartridge (RK07)	

MUX200/RSX-IAS Multiterminal Emulator
SPD NO. 10.77.xx

MUX200/RSX-IAS is a software package that provides communication with a CDC 6000 CYBER series or other system using the 200 UT Mode 4A communications protocol. The PDP-11 user can communicate at command level with a host system, submitting jobs for batch processing and receiving results from the host. The software package can be configured to support either ASCII or external BCD versions of the communications protocol.
MUX200/RSX-IAS enables several users to communicate simultaneously with a host system over a single line. The PDP-11 system, while using a single physical drop appears to the host as a number of multidrops and terminals on the circuit.

Option Number	Distribution Medium	Support Category
QJ070-AD	Magtape (9-tr, 800b/in)	
QJ070-AH	Disk Cartridge (RL02)	DIGITAL Supported/
QJ070-AM	Magtape (9-tr, 1600b/in)	DIGITAL Installed/
QJ070-AQ	Disk Cartridge (RL01)	
QJ070-AT	Disk Cartridge (RK06)	

RSX-11M/IAS RJE/HASP
SPD NO. 10.51.xx

RJE/HASP is a software package for performing the standard functions of an IBM HASP Remote Job Entry Workstation. RJE/HASP provides multileaved (pseudosimultaneous, bidirectional) communication of up to seven input and seven output data streams. Standard HASP protocol features include data compression of repeated sequential characters including blanks; full EBCDIC transparency; multileaving; and support of printer vertical forms to skip to channel 1 (top of form). Communications line control is performed directly by one of the RJE/HASP task. Concurrent use of the communications device by other RSX-11M tasks is precluded. Any mass storage or unit record device supported by RSX-11M can be used as a source or destination of data for a HASP data stream.

Option Number	Distribution Medium	Support Category
QJS60-XD	Magtape (9-tr, 800 b/in)	
QJS60-XH	Disk Cartridge (RL02)	
QJS60-XM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJS60-XQ	Disk Cartridge (RL01)	DIGITAL Installed
QJS60-XT	Disk Cartridge (RK06)	
QJS60-XV	Disk Cartridge (RK07)	

RSX-11M/SNA Protocol Emulator

SPD NO. 14.4.xx

The RSX-11M/SNA Protocol Emulator (PE) provides an RSX-11M system with the ability to participate in an IBM Systems Network Architecture (SNA) network. RSX-11M/SNA PE enables the RSX-11M user application programs to communicate with IBM application programs or system services on a task-to-task basis. Three modes of application programming support are offered to fit varied customer expertise and requirements: Emulator Control (EC), Extended Emulator Control (XEC) and Application Control (AC).

RSX-11M/SNA PE supports up to 4 half-duplex or full-duplex synchronous lines at speeds up to 9600 b/s. The emulator will allow up to a maximum of 32 user sessions. The supported communications devices are DUP11 or KMC11 with DUP11's. Co-residency with DECnet-11M or with RSX-11/3271 is not supported.

Option Number	Distribution Medium	Support Category
QJD69-AD	Magtape (9-tr, 800 b/in)	
QJD69-AH	Disk Cartridge (RL02)	
QJD69-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJD69-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJD69-AT	Disk Cartridge (RK06)	
QJD69-AV	Disk Cartridge (RK07)	

RSX DLX-11

SPD NO. 10.6.xx

RSX DLX-11 is a low-overhead software communications line interface which provides users of DIGITAL microcomputers access to Phase III DECnet networks. The product is available on the RSX-11M system for interfacing with a DECnet-11M or DECnet-11M-PLUS Phase III node.

RSX DLX-11 supports a single physical line in a point-to-point or multipoint connection. A user-written MACRO-11 program at each end of the line controls the communication line directly. The integrity and sequentiality of data sent over the line are maintained by the use of DECnet Digital Data Communication Message Protocol (DDCMP).

Option Number	Distribution Medium	Support Category
QJ689-AD	Magtape (9-tr, 800 b/in)	
QJ689-AH	Disk Cartridge (RL02)	
QJ689-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ689-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJ689-AT	Disk Cartridge (RK06)	
QJ689-AV	Disk Cartridge (RK07)	

RSX-11 2780/3780 Emulator

SPD NO. 10.1.xx

The RSX-11 2780/3780 Emulator emulates the communications protocol of an IBM 2780/3780 device while running as a user job under a suitably equipped RSX-11M or RSX-11M-PLUS system. It appears as an IBM 2780 or 3780 data transmission terminal on a point-to-point switched or non-switched synchronous data link with standard 2780/3780 protocol, and can transmit and receive data and/or job control files with an IBM System/370, including 303x processor systems. On a mapped system, the RSX-11 2780/3780 Emulator also supports a spooling feature which allows users to queue one or more files for subsequent transmission or printing. Features include transmission from disk storage devices; transmission of queuing requests during unattended operation; binary or EBCDIC transmission; support of line speeds up to 9600 b/s; automatic retry of unattended mode transmissions; error log recording and loopback facilities; and vertical and horizontal print format control.

Option Number	Distribution Medium	Support Category
QJD82-AD	Magtape (9-tr, 800 b/in)	
QJD82-AH	Disk Cartridge (RL02)	
QJD82-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJD82-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJD82-AT	Disk Cartridge (RK06)	
QJD82-AV	Disk Cartridge (RK07)	

RSX-11/3271 Protocol Emulator (PE)

SPD NO. 10.88.xx

The RSX-11/3271 Protocol Emulator (PE) permits user tasks running on a PDP-11 to communicate interactively with user jobs running on an IBM 360, 370, or 303X host system. The user task presents itself to the IBM system as an IBM 3277 display unit attached to an IBM 3271 control unit operating in slave mode. The protocol emulator operates as a device driver under RSX-11M and RSX-11M-PLUS, maintaining the synchronous line discipline on one side and interfacing with the user tasks on the other. The Protocol Emulator module supports up to six synchronous lines, each of which can be viewed by the 360 or 370 as a 3271 controller. The maximum number of RSX-11M user tasks up to a maximum of 32 user sessions. The supported communications devices are DUP11 or KMC11 with DUP11's. Co-residency with DECnet-11M or with RSX-11M/SNA is not supported.

Option Number	Distribution Medium	Support Category
QJD69-AD	Magtape (9-tr, 800 b/in)	
QJD69-AH	Disk Cartridge (RL02)	
QJD69-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJD69-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJD69-AT	Disk Cartridge (RK06)	
QJD69-AV	Disk Cartridge (RK07)	

UN1004/RSX/UNIVAC 1004 TERMINAL EMULATOR

SPD NO. 10.79.xx

UN1004/RSX is a software package which provides communication between a UNIBUS-based RSX-11M system and a UNIVAC 1100 series, or other system using the UNIVAC 1004 RMS-1 communications protocol. The software provides remote job entry (RJE) terminal emulation through which the user can send data in 80-column card format and receive data in line or card format. UN1004/RSX supports one synchronous communications circuit to a host computer, a single switched or dedicated lease line, 2-wire or 4-wire common carrier facility at transmission rates up to 4800 b/in, and ASCII line communications code. Only full-duplex console terminals may act as emulator terminals.

Option Number	Distribution Medium	Support Category
QJ170-AD	Magtape (9-tr, 800b/in)	DIGITAL Supported/
QJ170-AT	Disk Cartridge (RK06)	DIGITAL Installed/

DX/11M

SPD NO. 10.96.xx

DX/11M is a software package that makes asynchronous communications possible between an RSX-11M host and a current WPS-8 Word Processing System, such as DECmate. Communication between the two systems uses the DX error-correcting protocol. The WPS-8 system appears to the host computer to be a normal terminal. DX/11M effectively enables distributed stand-alone WPS-8 systems and the host RSX-11M system to be linked together for better system utilization and data sharing. This package includes utility programs that convert RSX-11M files stored in word processing formats to RSX-11M files stored in ASCII formats and vice versa.

Option Number	Distribution Medium	Support Category
QJ704-CD	Magtape (9-tr, 800 b/in)	
QJ704-CM	Magtape (9-tr, 1600 b/in)	Customer Supported/
QJ704-CQ	Disk Cartridge (RL01)	Customer Installed
QJ704-CT	Disk Cartridge (RK06)	
QJ704-CV	Disk Cartridge (RK07)	

RSX-11 PSI/M

SPD NO. 10.42.xx

RSX-11 PSI/M allows a suitably configured RSX-11M system to connect to Public Packet Switching Networks (PPSNs) conforming to the CCITT recommendation of June 1980. The PSI product supports task-to-task communication via the network and remote terminal communication through a Packet Assembler Disassembler (PAD) facility provided by the network. Terminals connected to a host RSX-11M system cannot act as network terminals to other systems connected to the network.

Access to RSX-11 PSI/M is supported for RSX-11M user programs written in MACRO-11, FORTRAN-IV and FORTRAN-77. The communications discipline used is the CCITT V.24 (EIA - RS232) at the hardware level, the symmetric LAPB varient of the X.25 frame level protocol and the X.25 packet level protocol.

RSX-11 PSI/M can coexist with, or operate as a layered product under, DECnet-11M, allowing the use of DECnet facilities over PPSNs as well as private leased-lines or switched telephone networks. The Packetnet System Interface supports a subset of DIGITAL's Network Architecture's management features including loading and unloading software, defining lines, and providing access to error counters and other maintenance functions.

RSX-11 PSI/M has been certified and is warranted on the following networks:

France	TRANSPAC
Germany	Datex-P
United Kingdom	PSS
U.S.A.	Telenet

Option Number	Distribution Medium	Support Category
QJD91-AD	Magtape (9-tr, 800 b/in)	
QJD91-AH	Disk Cartridge (RL02)	Customer Supported/
QJD91-AM	Magtape (9-tr, 1600 b/in)	Customer Installed
QJD91-AQ	Disk Cartridge (RL01)	
QJD91-AT	Disk Cartridge (RK06)	
QJD91-AV	Disk Cartridge (RK07)	

RSX-11M-PLUS OPERATING SYSTEM

RSX-11M-PLUS is a high-performance superset of the RSX-11M operating system. It takes advantage of the expanded addressing capability of the PDP-11/23-PLUS, PDP-11/24, PDP-11/44 and the larger PDP-11/70, while maintaining the superior reliability and the successful architecture of the proven RSX-11M operating system. RSX-11M-PLUS supports up to fifty simultaneous users and provides facilities for batch job execution, interactive program development and execution, and timesharing.

Standard on all RSX-11M-PLUS systems are the MACRO-11 assembly language and the FILES-11 data management services file system that provides volume structuring and protection, FCS (File Control Services), a basic file handling system, RMS-11K, an expanded file handling system, and the EDI and EDT editors. Optional software includes BASIC-PLUS-2, FORTRAN IV/IAS-RSX, FORTRAN-77, PDP-11 COBOL, DECnet-11M-PLUS (DIGITAL'S networking system), and the SORT-11 utility. Optional data management services include FMS-11/RSX, a forms management system, DATATRIEVE-11, a record management services query language, and DBMS-11, a powerful data base management system. Also available are communications protocols such as RSX-11 2780/3780 Emulator and RSX-11/3271 Protocol Emulator for connection to IBM systems, and RSX-11 PSI/M-PLUS for connection to Public Packet Switching Networks. In addition, RSX-11M-PLUS supports DCL, DIGITAL'S standard, easy to use command language, multistream batch processing, accounting, dynamic dualported disks, and an extensive memory management capability.



PDP-11/23-PLUS RL02-BASED SYSTEMS RUNNING UNDER RSX-11M-PLUS

SN-RXMMC

These two PDP-11/23-PLUS RL02-based systems include:

- RSX-11M-PLUS operating system
- 11/23-PLUS CPU, including bootstrap with diagnostics
- 512 KB MOS memory
- Memory management
- Two single line asynchronous EIA/CCITT interfaces: one for console terminal and one available for expansion
- System distribution panel for serial line and options interconnect
- One RLV22 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 cabinet
- Console Terminal: LA120 DECwriter III or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: There is a 5.25 in high (13.2 cm) by 26.8 in deep (68 cm) area of mounting space available below the CPU box for expansion.*

SYSTEM MEMORY EXPANSION: This system has 512 KB of MOS memory expansion available in 256 KB or 512 KB increments for a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-RXMMC-CA(CD)	LA120 DECwriter III	512 KB MOS	Dual RL02s	6 Extended LSI-11 Quad Slots	24.4	4.6	N/A*	17
SN-RXMMC-BA(BD)	VT100 Video Display							

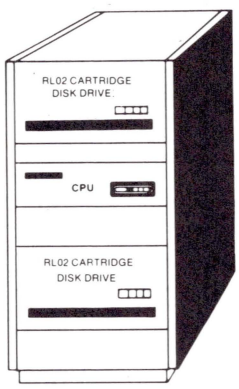
* For 120 Volt systems, an 874-C power controller may be required for cabinet expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Extended LSI-11 Quad indicate available expansion space.

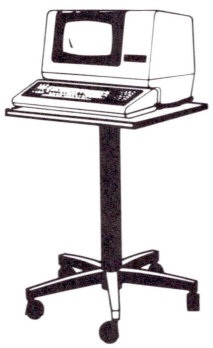
CPU BOX

A	B	C	D
11/23-PLUS CPU			
512 KB PARITY MOS MEMORY (MSV11-PL)			
CONTROLLER FOR RL02 DISK DRIVES			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			

SN-RXMMC-CA(CD)
SN-RXMMC-BA(BD)



H9642 CPU CABINET



VT100 VIDEO DISPLAY

or



LA120 DECwriter III

NOTE: Stand is not included with VT100.

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/24 RL02-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-FXMMA

These PDP-11/24 RL02-based systems include:

- RSX-11M-PLUS operating system
- 11/24 CPU (5.25 inch box)
- KT24, Physical Address Extension (PAX) module
- 256 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9645 CPU cabinet
- Console Terminal: LA120 DECwriter III or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H775 battery backup and two 7 in (17.8 cm) areas of rear mounting space for distribution panels.

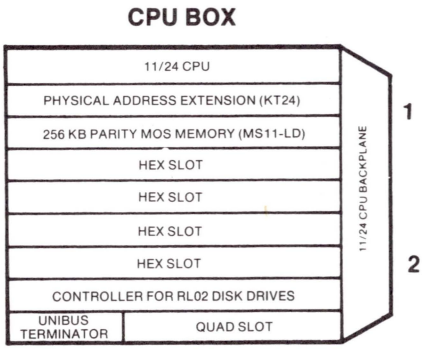
SYSTEM MEMORY EXPANSION: Memory expansion for this system is available in 128 KB or 256 KB increments up to a maximum total of 768 KB, limited by CPU box power.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

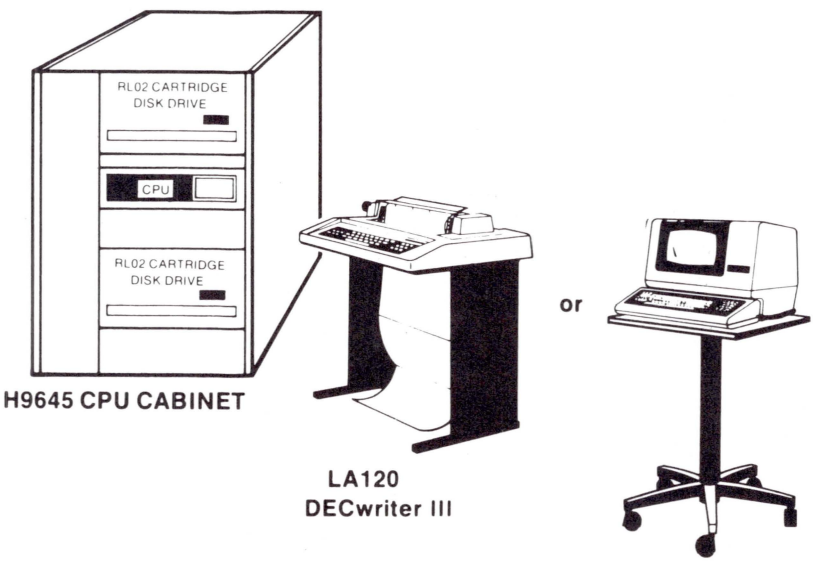
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-FXMMA-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RL02s	CPU SU 1-2: 4 Hex slots 1 Quad slot	13.2	.89	2.39	3*	15
SN-FXMMA-BA(BD)	VT100 Video Display								

* This figure represents AC amps available in the CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: Stand is not included with VT100.

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/24 RK07-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-FXHHA

This PDP-11/24 RK07-based system includes:

- RSX-11M-PLUS operating system
- 11/24 CPU (10.5 inch box)
- KT24, Physical Address Extension (PAX) module
- 256 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet with one 41.75 in (106 cm) high H9642 bolt-on RK07 disk drive and one freestanding H9642 RK07 disk drive
- Console Terminal: LA120 DECwriter III

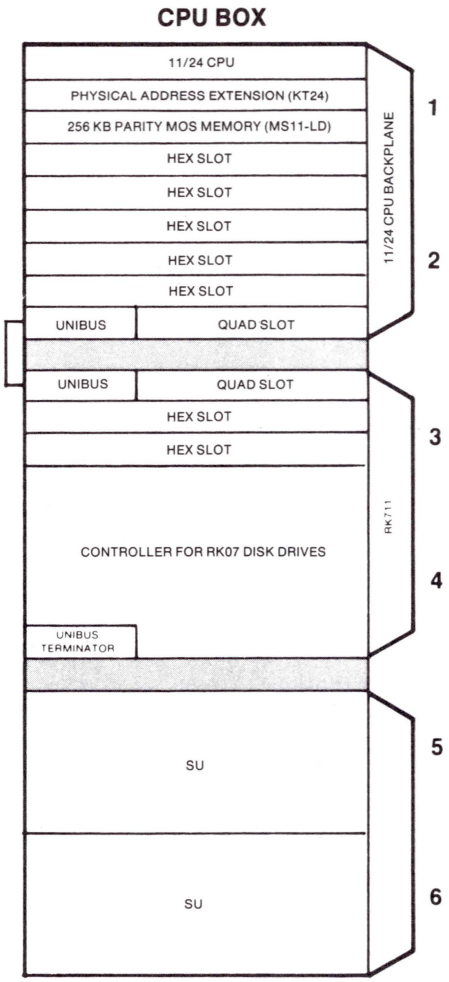
CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: Memory expansion for this system is available in 128 KB or 256 KB increments up to a maximum total of 1 MB.

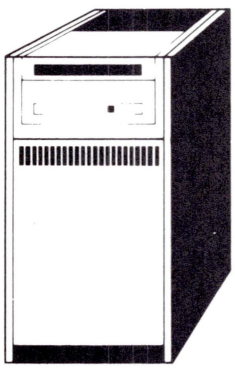
SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-FXHHA-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RK07s	CPU SU 1-6: 7 Hex slots 2 Quad slots 2 SUs	74.2	2.21	2.49	N/A†	14
SN-FXHHA-BA(BD)	VT100 Video Display								

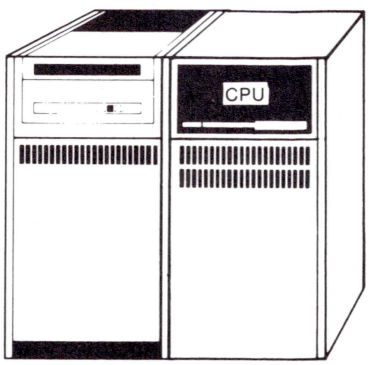
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

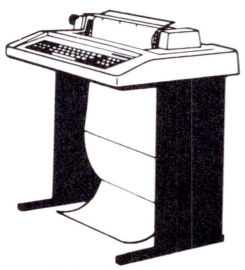


RK07-PA(PD)
DISK DRIVE



RK07-PA(PD) **H9642**
DISK DRIVE **CPU CABINET**

NOTE: Stand is not included with VT100.



LA 120
DECwriter III
or
VT100 VIDEO DISPLAY

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/44 RM02-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-40UAB

This PDP-11/44 RM02-based system includes:

- RSX-11M-PLUS operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RJM02 disk subsystem (one controller and one 67 MB RM02 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 60.5 (153.67 cm) high H9646 bolt-on TS11 magtape cabinet, and one 39 (99 cm) high freestanding RM02 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

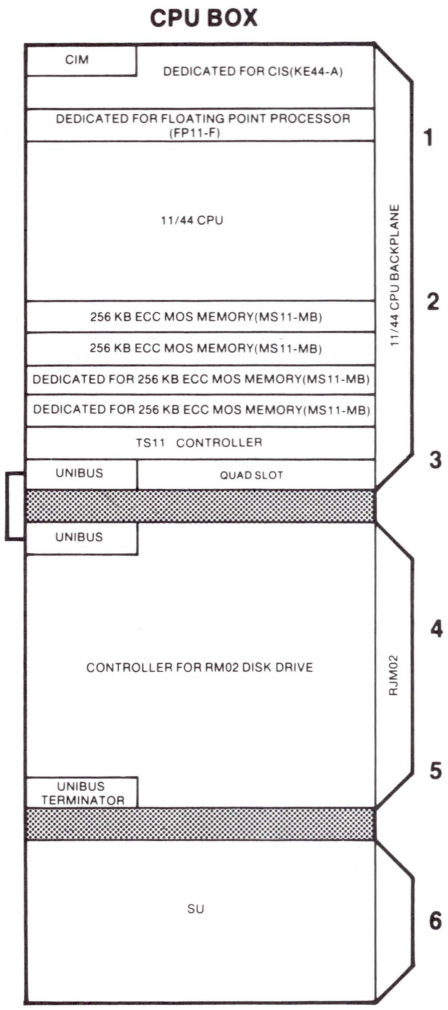
SYSTEM DISK EXPANSION: Seven more freestanding RM02 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

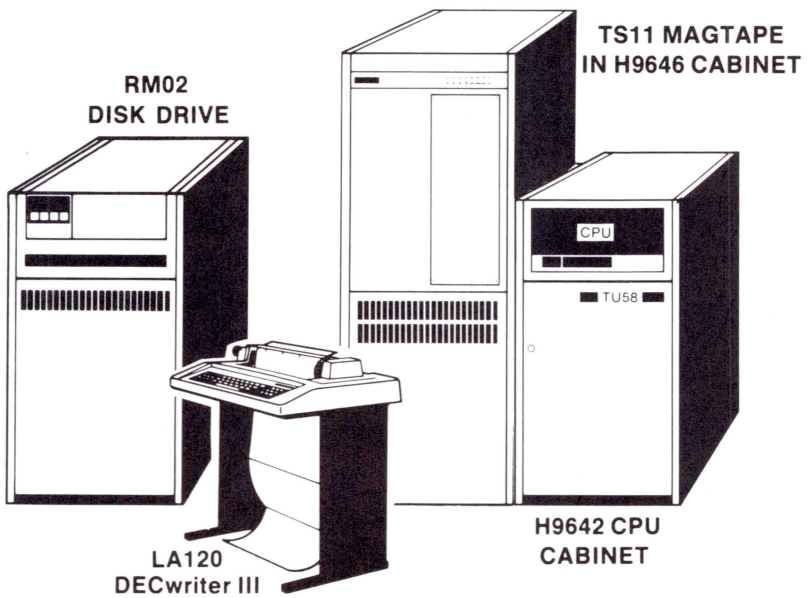
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-40UAB-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	1 RM02 1 TS11	CPU SU 1-6 1 Quad slot 1 SU	41.4	2.95	2.55	12*	13

* This figure represents AC amps available in the TS11 magtape cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RA80-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-40GAA

This PDP-11/44 RA80-based system includes:

- RSX-11M-PLUS operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RUA80 disk subsystem (one controller and one 121 MB RA80 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 41.75 in (106 cm) high H9642 bolt-on RA80 disk cabinet, and one 60.5 (153.67 cm) high H9646 bolt-on TS11 magtape cabinet.
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Three more RA80 disk drives may be added to this system for a total of four. Note that the H9642 disk cabinet can accommodate up to three RA80 drives.

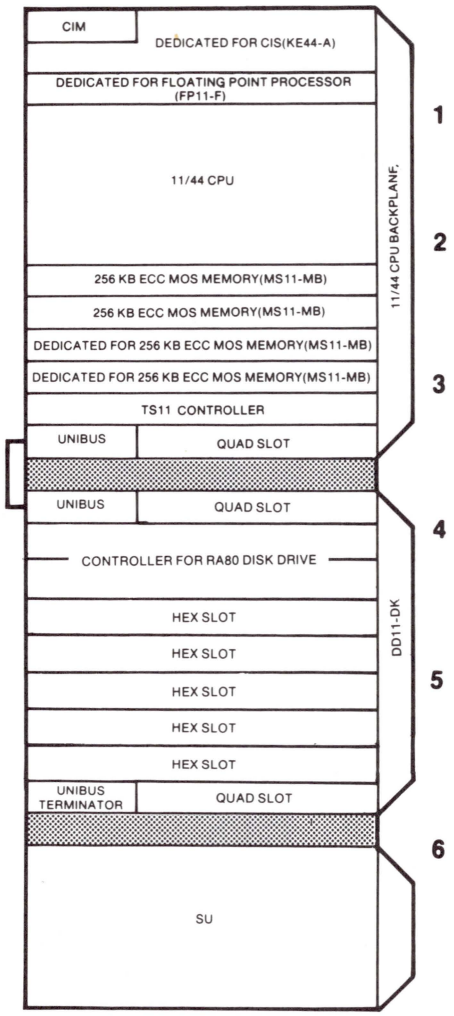
SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-40GAA-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	1 RA80 1 TS11	CPU SU 1-6 3 Quad slots 5 Hex slots 1 SU	44.8	.2.75	.1.15	12*	15

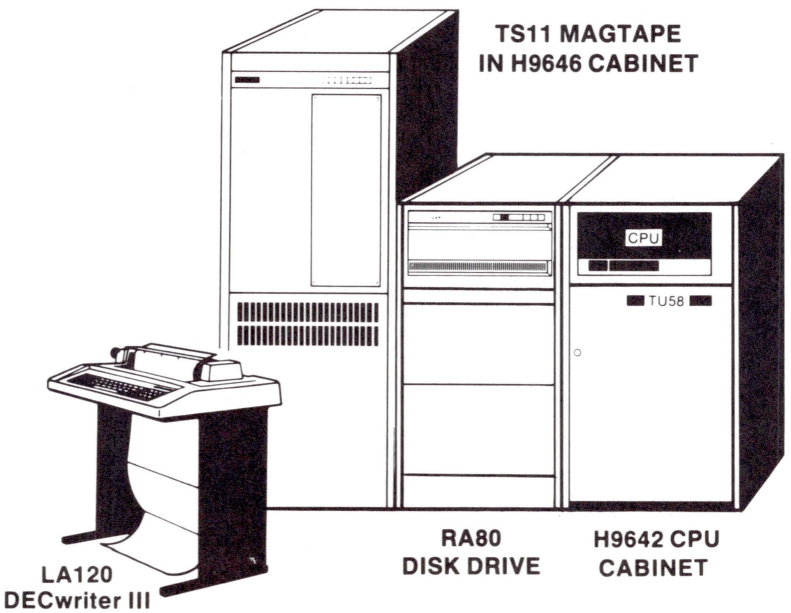
* This figure represents AC amps available in the TS11 magtape cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SN-40GAA-CA(CD)



PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-70TAA

This PDP-11/70 RM03-based system includes:

- RSX-11M-PLUS operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU/memory cabinet, one 60 in (152.4 cm) high H9602 bolt-on TS11 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9602 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

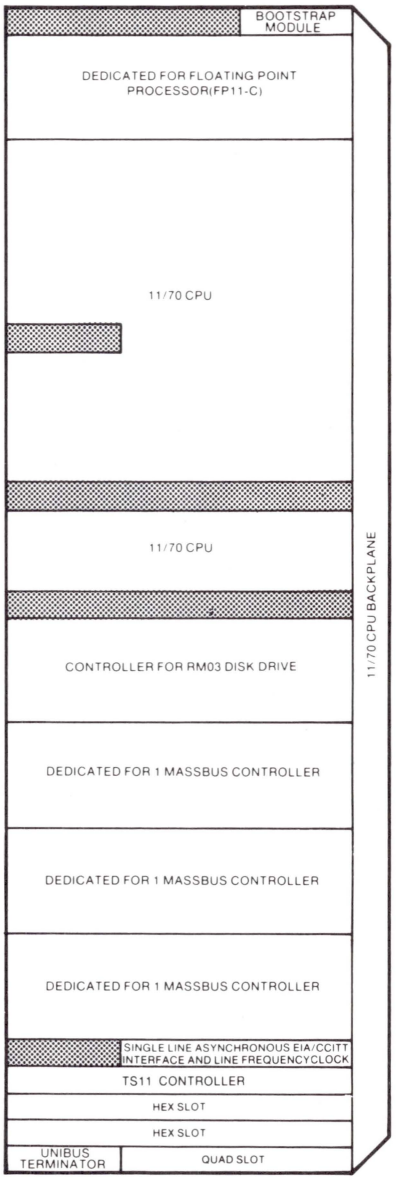
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-70TAA-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TS11	CPU 2 Hex slots 1 Quad slot 3 MASSBUS ports	20.2† Dedicated	3.65	1.45	12*	11

* This figure represents AC amps available in the TS11 magtape cabinet only.

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

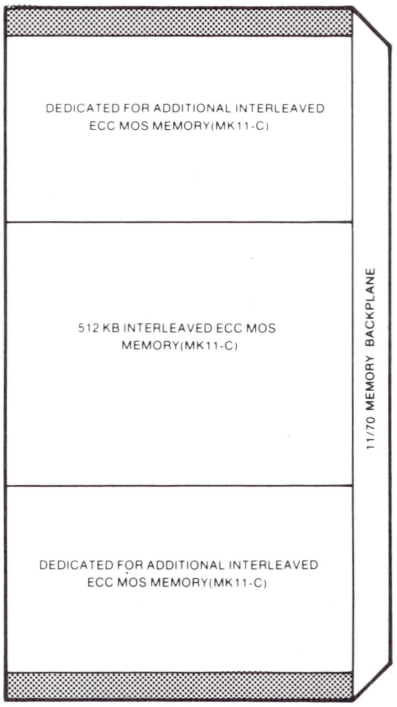
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

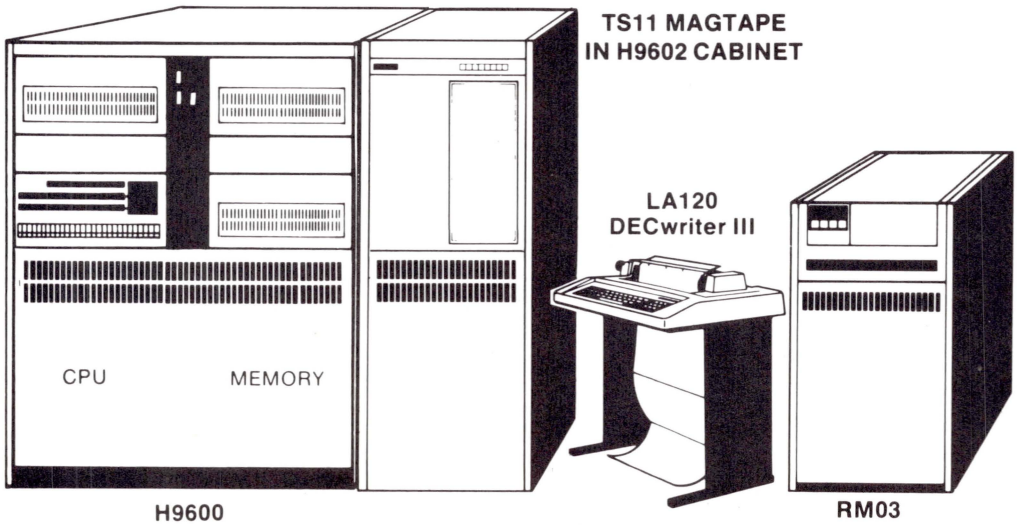


SN-70TAA-CA(CD)

MK11-C MEMORY BOX



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



TS11 MAGTAPE IN H9602 CABINET

LA120 DECwriter III

H9600 CPU/MEMORY CABINET

RM03 DISK DRIVE

PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-70TVA

This PDP-11/70 RM03-based system includes:

- RSX-11M-PLUS operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU/memory cabinet, one 60 in (152.4 cm) high H9602 bolt-on TE16 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

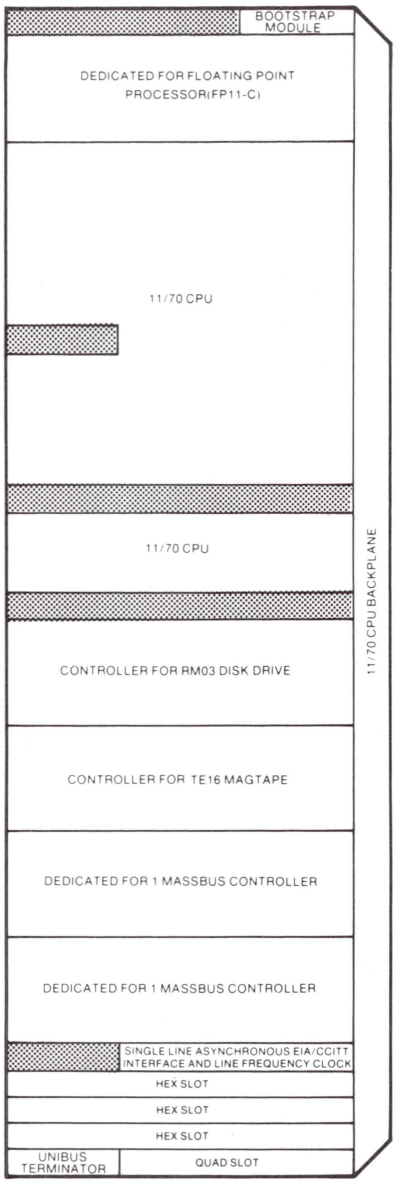
SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H9602 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-70TVA-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7†	3.65	1.45	N/A	12
					Dedicated				

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

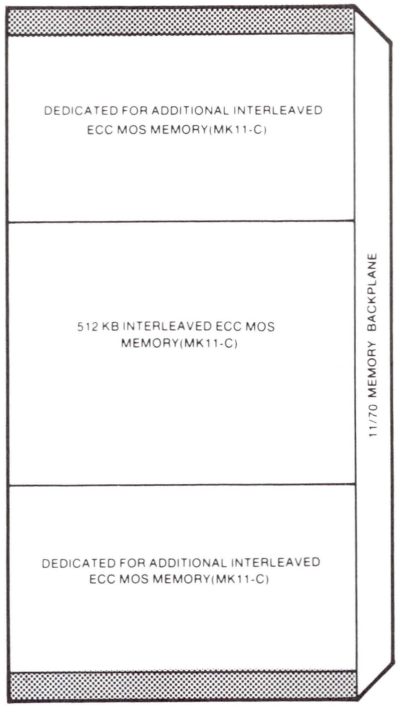
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

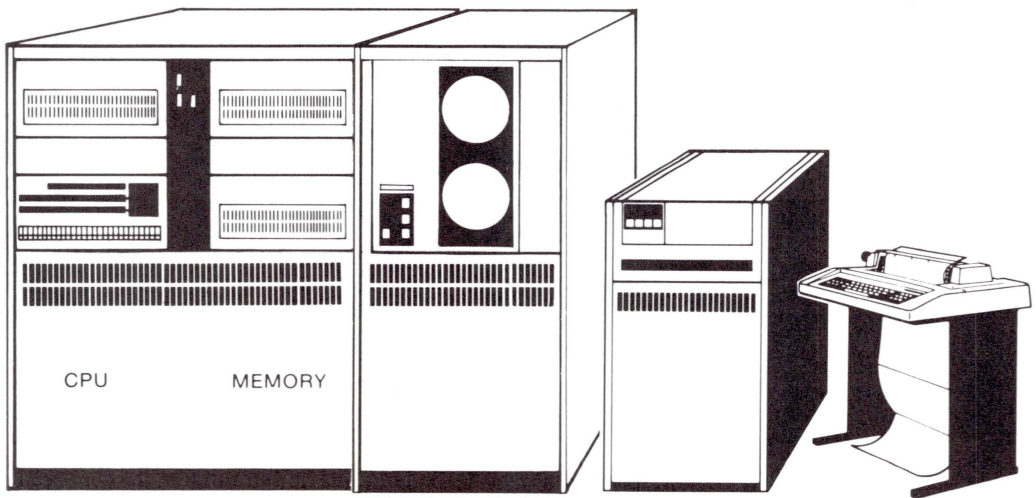


SN-70TVA-CA(CD)

MK11-C MEMORY BOX



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9600 CPU/MEMORY CABINET | **TE16 MAGTAPE IN H9602 CABINET** | **RM03 DISK DRIVE** | **LA120 DECwriter III**

PDP-11/70 RM05-BASED SYSTEM RUNNING UNDER RSX-11M-PLUS

SN-70DBA

This PDP-11/70 RM05-based system includes:

- RSX-11M-PLUS operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM05 disk subsystem (one controller and one 256 MB RM05 disk drive) for use as the system device
- One TWU77 magtape subsystem (one controller and one TU77 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU cabinet/memory, one 60 in (152.4cm) high H9602 TU77 magtape cabinet, and one 36 in (91.4 cm) high freestanding RM05 disk drive, and one 36in(91.4cm) high utility cabinet
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RM05 disk drives may be added to this system for a total of eight.

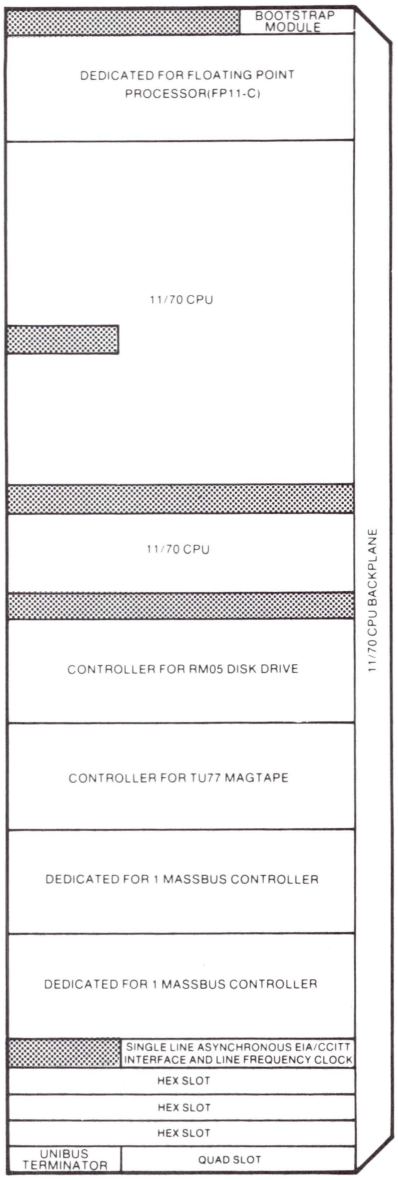
SYSTEM MAGTAPE EXPANSION: Three more freestanding TU77 magtape transports in H9602 cabinets may be added to this system for a total of four. The TU77 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SN-70DBA-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM05 1 TU77	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7† Dedicated	3.65	1.45	N/A	12

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX

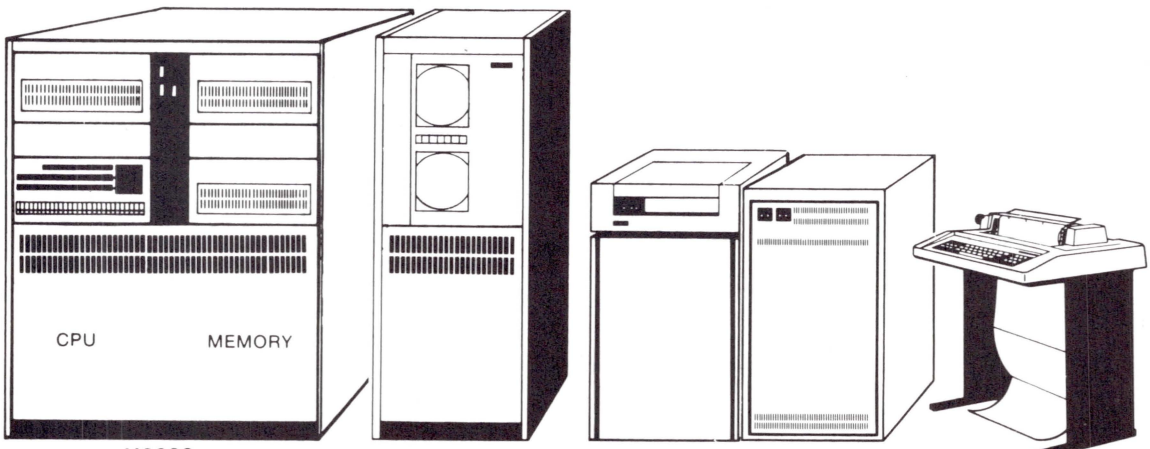


SN-70DBA-CA(CD)

MK11-C MEMORY BOX



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9600 CPU/MEMORY CABINET

TU77 MAGTAPE IN H9602 CABINET

RM05 DISK DRIVE

RM05 UTILITY CABINET

LA120 DECwriter III

OPTIONAL SOFTWARE FOR RSX-11M-PLUS SYSTEMS

PDP-11 BASIC-PLUS-2

SPD NO. 14.14.xx

BASIC-PLUS-2 is a superset of the BASIC-PLUS and Dartmouth BASIC languages which use simple English language-like statements and familiar mathematical notations to perform operations. The language processor is composed of a compiler and an Object-Time System/Library that contains the following run-time routines: performing library and arithmetic functions; handling dynamic allocation of string storage and I/O buffers; handling I/O operations; and processing errors in arithmetic, I/O, and system operations. Other features include extensive string manipulation functions; terminal-format files; virtual arrays; matrix package handling operations; RMS I/O; and external subprograms such as SUB, CALL, CHAIN and COMMON; and other user-defined functions.

Option Number	Distribution Medium	Support Category
QR514-AD	Magtape (9-tr, 800 b/in)	DIGITAL Supported/
QR514-AM	Magtape (9-tr, 1600b/in)	DIGITAL Installed

PDP-11 COBOL

SPD NO. 12.40.xx

PDP-11 COBOL is a precise, well-defined language for business data processing and is based on ANSI COBOL, X3.23-1974. PDP-11 COBOL language processor is composed of a compiler and an Object Time System/Library. The compiler produces an object module from a source program and, following program line checks and compilation, an object module can be linked and executed at the operating system command level. File I/O operations are controlled through the RMS data management software which supports sequential, relative, and indexed file organizations. Other features include an interactive debugger that allows a user to set and remove breakpoints and examine and change program variables; support for the Commercial Instruction Set (CIS); and CALL statements for for writing subprograms in both COBOL or MACRO-11 assembly languages. Any configuration must include a user area of at least 56 KB of memory, and at least 4000 free blocks of on-line disk storage on the public disk structure.

Option Number	Distribution Medium	Support Category
QP012-AD	Magtape (9-tr, 800 b/in)	
QP012-AH	Disk Cartridge (RL02)	
QP012-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP012-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP012-AT	Disk Cartridge (RK06)	
QP012-AV	Disk Cartridge (RK07)	

FORTRAN IV/IAS-RSX

SPD NO. 14.63.xx

FORTRAN IV/IAS-RSX is an extended superset of the ANSI FORTRAN X3.9-1966 standard. Systems with memory management directives provide support for virtual arrays. PDP-11 FORTRAN IV provides fast, one-pass compilation, and compiler optimizations include common subexpression elimination; local code tailoring; array vectoring; and optional in-line code generation for integer and logical operations. FORTRAN IV provides a set of object modules (Object Time System or OTS) that are selectively linked with compiler-produced object modules to produce an executable program. Other features include general expressions in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; commenting at the end of each source line; and list-directed input/output.

Option Number	Distribution Medium	Support Category
QP230-AD	Magtape (9-tr, 800 b/in)	
QP230-AH	Disk Cartridge (RL02)	
QP230-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP230-AQ	Disk Cartridge (RL01)	Customer Installed
QP230-AT	Disk Cartridge (RK06)	
QP230-AV	Disk Cartridge (RK07)	

PDP-11 FORTRAN-77/RSX

SPD NO. 14.31.xx

PDP-11 FORTRAN-77 is an extended implementation of the ANSI subset FORTRAN-77 X3.9-1978 standard. Extensions to the ANSI standard include language elements for keyed and sequential access to RMS multikey ISAM files; DEFINE, FILE, FIND, DELETE, REWRITE, and UNLOCK statements; TYPE and ACCEPT input/output statements; BYTE data type; hexadecimal and octal consultants. Virtual memory array support for systems with memory management directives. Two Object Time Systems (a set of object modules selectively linked with compiler-produced object modules by the operating system's task builder to produce a task, or program, ready for execution) are available with FORTRAN-77: the File Control Services-based OTS or the RMS-based OTS. The FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with a floating point processor.

Option Number	Distribution Medium	Support Category
QJ668-AD	Magtape (9-tr, 800 b/in)	
QJ668-AH	Disk Cartridge (RL02)	
QJ668-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ668-AQ	Disk Cartridge (RL01)	Customer Installed
QJ668-AT	Disk Cartridge (RK06)	
QJ668-AV	Disk Cartridge (RK07)	

DATATRIEVE-11

SPD NO. 12.48.xx

DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for the less sophisticated computer user. It uses a set of English language-like commands for data retrieval, modification, and display and provides automatic prompting for both command and data entry. DATATRIEVE-11 utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming overhead. Data dictionaries, which are shared by DATATRIEVE-11 users, can be used to store frequently used sequences of commands to be recalled and processed later. DATATRIEVE-11 also provides the Application Design Tool (ADT) to assist novice users in creating domain and record definitions.

Option Number	Distribution Medium	Support Category
QP301-AD	Magtape (9-tr, 800 b/in)	
QP301-AH	Disk Cartridge (RL02)	
QP301-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP301-AQ	Disk Cartridge (RL01)	Customer Installed
QP301-AT	Disk Cartridge (RK06)	
QP301-AV	Disk Cartridge (RK07)	

DBMS-11/RSX-11M-PLUS

SPD NO. 12.66.xx

DBMS-11/RSX-11M-PLUS provides many capabilities to enhance and extend productivity including: multiple data base support (allows up to five data bases to be active concurrently); variable-sized data dictionaries (permits basing dictionary size on the number of records and sets defined and number of subschemes); improved journaling (ability to restrict the kinds of page images journaled); and utility enhancements (improved command formats and documentation).

Option Number	Distribution Medium	Support Category
QR515-AD	Magtape (9-tr, 800 b/in)	DIGITAL Supported/
QR515-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Installed

DBMS-11/RSX-11M-PLUS UPGRADE
SPD NO. 12.66.xx

This upgrade option is available to upgrade DBMS installations from RSX-11M to RSX-11M-PLUS.

Option Number	Distribution Medium	Support Category
QR516-AD	Magtape (9-tr, 800 b/in)	DIGITAL Supported/
QR516-AM	Magtape (9-tr, 800 b/in)	DIGITAL Installed/

FMS-11/RSX
SPD NO. 12.27.xx

FMS-11/RSX is a forms-oriented, video I/O management system which functions as an independent, software front-end that logically off-loads the complexities of interactive video I/O management from the application program. Forms defined using FMS-11/RSX utilize the following features of a VT100 Video Terminal: reverse video characters; bold characters; underline characters; blinking characters; 132-column lines; jump and smooth scrolling; split screen; and reverse screen. Software components include: Form Editor for creating and modifying video forms by typing them on a VT100 screen; Form Utility for manipulating FMS/RT-11 forms descriptions; Form Driver for controlling screen processing; and Video Keypad Editor for general purpose text editing of standard ASCII files.

Option Number	Distribution Medium	Support Category
QJ715-AD	Magtape (9-tr, 800 b/in)	
QJ715-AH	Disk Cartridge (RL02)	
QJ715-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ715-AQ	Disk Cartridge (RL01)	Customer Installed
QJ715-AT	Disk Cartridge (RK06)	
QJ715-AV	Disk Cartridge (RK07)	

SORT-11
SPD NO. 12.7.xx

SORT-11 is an optional utility that can accept as input any RMS-11 format file and output a reordered RMS-11 format file. Input files can contain data stored in binary, EBCDIC, or ASCII format, and the file organization can be sequential, relative, or indexed sequential. Records can be sequenced by key fields in ascending and descending order. SORT-11 cannot be used to merge two separate files. SORT-11 provides four different user-selectable, sorting processes: Record Sort (manipulates records in their entirety); Tag Sort (produces a reordered file by manipulating only the key position of each record); Address Routing Sort (produces a file for the date and multiple address files that are used to access the data in the desired sequences); and Index Sort (produces a separate index file that contains the record SORT key field and a pointer to the record's location in the data file).

Option Number	Distribution Medium	Support Category
QP602-AD	Magtape (9-tr, 800 b/in)	
QP602-AH	Disk Cartridge (RL02)	
QP602-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP602-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP602-AT	Disk Cartridge (RK06)	
QP602-AV	Disk Cartridge (RK07)	

DECnet-11M-PLUS
SPD NO. 10.66.xx

DECnet-11M-PLUS allows a suitably configured RSX-11M-PLUS system to participate as a routing or non-routing (end) node in DECnet computer networks. DECnet-11M-PLUS offers task-to-task communications; utilities for network file transfer; homogeneous network command terminal support; and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet-11M-PLUS communicates with adjacent nodes over synchronous and asynchronous communications lines and parallel interfaces. Communications using x.25 circuits over selected Public DECnet Switching Networks is also possible. This requires that DECnet-11M-PLUS be configured with the RSX-11 PSI/M-PLUS product. Access to DECnet-11M-PLUS is supported for RSX-11M-PLUS user programs written in MACRO-11, FORTRAN IV, and BASIC-PLUS-2. RSX-11M-PLUS users should note that the functions available depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features.

Option Number	Distribution Medium	Support Category
QR580-AD	Magtape (9-tr, 800 b/in)	DIGITAL Supported/
QR580-AM	Magtape (9-tr, 1600 bfin)	DIGITAL Installed

RSX-11 2780/3780 Emulator
SPD NO. 10.1.xx

The RSX-11 2780/3780 Emulator emulates the communications protocol of an IBM 2780/3780 device while running as a user job under a suitably equipped RSX-11M or RSX-11M-PLUS system. It appears as an IBM 2780 or 3780 data transmission terminal on a point-to-point switched or non-switched synchronous data link with standard 2780/3780 protocol, and can transmit and receive data and/or job control files with an IBM System/370, including 303x processor systems. On a mapped system, the RSX-11 2780/3780 Emulator also supports a spooling feature which allows users to queue one or more files for subsequent transmission or printing. Features include transmission from disk storage devices; transmission of queuing requests during unattended operation; binary or EBCDIC transmission; support of line speeds up to 9600 b/s; automatic retry of unattended mode transmissions; error log recording and loopback facilities; and vertical and horizontal print format control.

Option Number	Distribution Medium	Support Category
QJD82-AD	Magtape (9-tr, 800 b/in)	
QJD82-AH	Disk Cartridge (RL02)	
QJD82-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJD82-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJD82-AT	Disk Cartridge (RK06)	
QJD82-AV	Disk Cartridge (RK07)	

RSX-11/3271 Protocol Emulator (PE)
SPD NO. 10.88.xx

The RSX-11/3271 Protocol Emulator (PE) permits user tasks running on a PDP-11 to communicate interactively with user jobs running on an IBM 360, 370, or 303X host system. The user task presents itself to the IBM system as an IBM 3277 display unit attached to an IBM 3271 control unit operating in slave mode. The protocol emulator operates as a device driver under RSX-11M and RSX-11M-PLUS, maintaining the synchronous line discipline on one side and interfacing with the user tasks on the other. The Protocol Emulator module supports up to six synchronous lines, each of which can be viewed by the 360 or 370 as a 3271 controller. The maximum number of RSX-11M-PLUS user tasks that can be supported by each pseudo controller is 32. The maximum number of supported lines and user tasks is a function of application requirements and buffer constraints. Co-residency with DECnet-11M-PLUS is not supported.

Option Number	Distribution Medium	Support Category
QJD76-AD	Magtape (9-tr, 800 b/in)	
QJD76-AH	Disk Cartridge (RL02)	
QJD76-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJD76-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJD76-AT	Disk Cartridge (RK06)	
QJD76-AV	Disk Cartridge (RK07)	

DX/11M
SPD NO. 10.96.xx

DX/11M is a software package that makes asynchronous communications possible between an RSX-11M-PLUS host and a current WPS-8 Word Processing System, such as DECmate. Communication between the two systems uses the DX error-correcting protocol. The WPS-8 system appears to the host computer to be a normal terminal. DX/11M effectively enables distributed stand-alone WPS-8 systems and the host RSX-11M-PLUS system to be linked together for better system utilization and data sharing. This package includes utility programs that convert RSX-11M-PLUS files stored in word processing formats to RSX-11M-PLUS files stored in ASCII formats and vice versa.

Option Number	Distribution Medium	Support Category
QJ704-CD	Magtape (9-tr, 800 b/in)	
QJ704-CM	Magtape (9-tr, 1600 b/in)	Customer Supported/
QJ704-CQ	Disk Cartridge (RL01)	Customer Installed
QJ704-CT	Disk Cartridge (RK06)	
QJ704-CV	Disk Cartridge (RK07)	

RSX-11 PSI/M-PLUS
SPD NO. 10.43.xx

RSX-11 PSI/M-PLUS allows a suitably configured RSX-11M-PLUS system to connect to Public Packet Switching Networks (PPSNs) conforming to the CCITT recommendation of June 1980. The PSI product supports task-to-task communication via the network and remote terminal communication through a Packet Assembler Disassembler (PAD) facility provided by the network. Terminals connected to a host RSX-11M-PLUS system cannot act as network terminals to other systems connected to the network.
Access to RSX-11 PSI/M-PLUS is supported for RSX-11M-PLUS user programs written in MACRO-11, FORTRAN-IV and FORTRAN-77. The communications discipline used is the CCITT V.24 (EIA - RS232) at the hardware level, the symmetric LAPB varient of the X.25 frame level protocol and the X.25 packet level protocol.
RSX-11 PSI/M-PLUS can coexist with, or operate as a layered product under, DECnet-11M-PLUS, allowing the use of DECnet facilities over PPSN's as well as private leased-lines or switched telephone networks. The Packetnet System Interface supports a subset of DIGITAL's Network Architecture's management features including loading and unloading software, defining lines, and provides access to error counters and other maintenance functions.
RSX-11 PSI/M-PLUS has been certified and is warranted on the following networks:

France	TRANSPAC
Germany	Datex-P
United Kingdom	PSS
U.S.A.	Telenet

Option Number	Distribution Medium	Support Category
QJD92-AD	Magtape (9-tr, 800 b/in)	
QJD92-AH	Disk Cartridge (RL02)	Customer Supported/
QJD92-AM	Magtape (9-tr, 1600 b/in)	Customer Installed
QJD92-AV	Disk Cartridge (RK07)	

RSX-11M/IAS RJE/HASP
SPD NO. 10.51.xx

RJE/HASP is a software package for performing the standard functions of an IBM HASP Remote Job Entry Workstation. RJE/HASP provides multi-leaved (pseudosimultaneous, bidirectional) communication of up to seven input and seven output data streams. Standard HASP protocol features include data compression of repeated sequential characters including blanks; full EBCDIC transparency; multileaving; and support of printer vertical forms to skip to channel 1 (top of form). Communications line control is performed directly by one of the RJE/HASP task. Concurrent use of the communications device by other RSX-11M-PLUS tasks is precluded. Any mass storage or unit record device supported by RSX-11M-PLUS can be used as a source or destination of data for a HASP data stream.

Option Number	Distribution Medium	Support Category
QJS62-XD	Magtape (9-tr, 800 b/in)	DIGITAL Supported/
QJS62-XM	Magtape (9-tr, 1600 b/in)	DIGITAL Installed

RSTS/E OPERATING SYSTEM

RSTS/E, Resource Sharing Timesharing System/Extended, is a highly interactive, multiuser, multitasking, general purpose operating system. Standard with all RSTS/E systems are BASIC-PLUS, MACRO-11 assembly language, RMS (Record Management Services) data management subsystem, the DIGITAL standard editor EDT, and the SORT-11 utility. Optional software includes PDP-11 BASIC-PLUS-2, PDP-11 COBOL, COBOL-81, FMS11/RSTS/E, FORTRAN IV, FORTRAN-77, DIBOL/DECFORM, DATATRIEVE-11 data inquiry and report writing package. RSTS/E can be used as a node in a network of DIGITAL computer systems using DECnet/E (DIGITAL's networking system) or with IBM computers using RSTS/E/3271 or RSTS/E High Performance 2780/3780. RSTS/E systems support concurrent interactive timesharing, transaction processing, word processing, batch processing, and program development.

RSTS/E dynamically allocates system resources such as processor time, memory space, file space, and peripherals on a best fit/ best throughput basis to continually keep processing efficient. Shared common code, shared data, and intertask communication save memory space and increase performance, while disk data cache, overlapped seeks, and file placement control speed up disk access times and optimize system throughput.

RSTS/E application development tools include a wide range of high-level languages, powerful easy-to-use data management and file processing facilities, program development aids, and communication capabilities. RMS and SORT-11 provide extensive file processing and data management services, i.e. sequential, relative, and multikey ISAM support, file sharing, and protection mechanisms. Using facilities that support multiple terminals, some RSTS/E systems may be able to support up to 127 concurrent terminal users, despite the fact that the maximum number of simultaneous jobs per RSTS/E system is limited to 63.

Additional features of the RSTS/E operating system include disk file and device backup and restore utilities, system management operations and access control utilities, user-definable terminal commands, multistream batch processing facilities, lineprinter spooling, and extensive system maintenance tools, including automatic device error logging and automated patch facility.



PDP-11/23-PLUS RL02-BASED SYSTEMS RUNNING UNDER RSTS/E

SE-RXMMB

This PDP-11/23-PLUS RL02-based system includes:

- RSTS/E operating system
- 11/23-PLUS CPU, including bootstrap with diagnostics
- 256 KB MOS memory
- Memory management
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- System distribution panel for serial line and options interconnect
- One RLV22 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 cabinet
- Console Terminal: LA120 DECwriter III or VT100 video display terminal with advanced video option

CPU CABINET EXPANSION: There is a 5.25 in high (13.2 cm) by 26.8 in deep (68 cm) area of mounting space available below the CPU box for expansion.*

SYSTEM MEMORY EXPANSION: This system has 768 KB of MOS memory expansion available in 256 KB or 512 KB increments for a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+12V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-RXMMB-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RL02s	6 Extended LSI-11 Quad Slots	24.4	4.6	N/A*	17

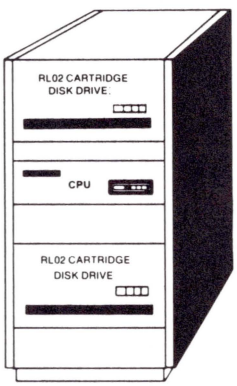
* For 120 Volt systems, an 874-C power controller may be required for cabinet expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Extended LSI-11 Quad indicate available expansion space.

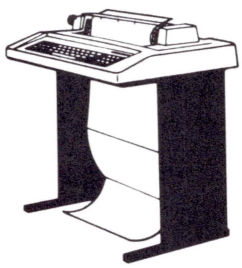
CPU BOX

A	B	C	D
11/23-PLUS CPU			
256 KB PARITY MOS MEMORY (MSV11-PK)			
CONTROLLER FOR RL02 DISK DRIVES			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			
Extended LSI-11 Quad Slot			

SE-RXMMB-CA(CD)



H9642 CPU CABINET



LA120 DECwriter III

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.

PDP-11/24 RL02-BASED SYSTEM RUNNING UNDER RSTS/E

SE-FXMMA

This PDP-11/24 RL02-based system includes:

- RSTS/E operating system
- 11/24 CPU (5.25 inch box)
- 256 KB parity MOS memory
- Memory management
- ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the console terminal and one available for expansion
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9645 CPU cabinet
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H775 battery backup and two 7 in (17.8 cm) areas of rear mounting space for distribution panels.

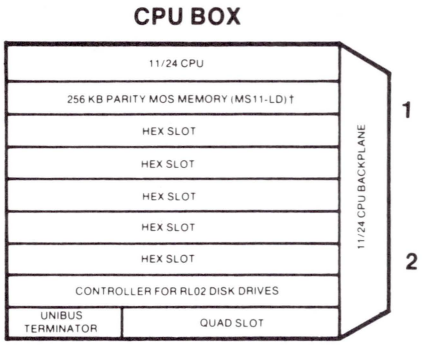
SYSTEM MEMORY EXPANSION: Memory expansion for this system requires the KT24 (Physical Address Extension module) option and is available in 128 KB or 256 KB increments up to a maximum total of 768 KB, limited by CPU box power.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four.

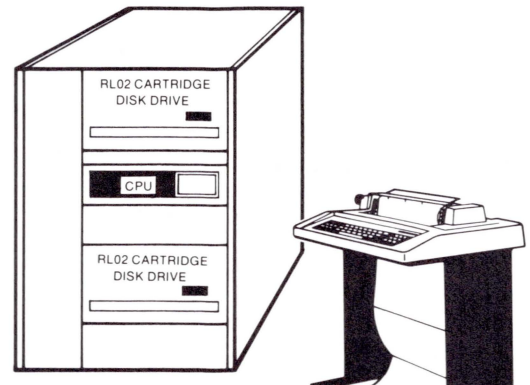
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-FXMMA-CA(CD)	LA120 DECwriter III	256 KB MOS	Dual RL02s	CPU SU 1-2: 5 Hex slots 1 Quad slot	17.7	.90	2.40	3*	16

* This figure represents AC amps available in the CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



† If the PAX (Physical Address Extension) module is added to this system, it must mount in the second hex slot in the CPU backplane, next to the processor and the MS11-LB or MS11-LD memory module will be mounted in the third hex slot. If the PAX module is not added to this system, the MS11-LB or MS11-LD memory module will be mounted in the second hex slot next to the processor. Note that all memory modules must be mounted contiguously in slots 2-3 (without PAX) or slots 3-5 (with PAX) in the CPU backplane.

NOTE: See Appendix A for DIGITAL approved PDP-11/24 system expansion configurations.

PDP-11/34A RK07-BASED SYSTEM RUNNING UNDER RSTS/E

SE-30HHB

This PDP-11/34A RK07-based system includes:

- RSTS/E operating system
- 11/34A CPU
- 256 KBparity MOS memory
- Memory management
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- Programmer's console interface
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet and two 39 in (99 cm) high freestanding RK07 disk drives
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: A BA11-KE(KF) expansion box may be mounted in the CPU cabinet directly above or below the CPU leaving two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

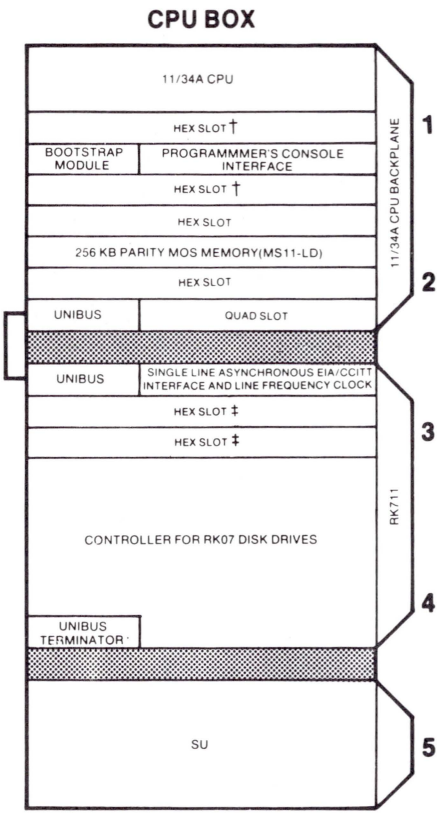
SYSTEM MEMORY EXPANSION: This system has the maximum amount of MOS memory (256 KB) on a PDP-11/34. No further memory expansion is possible.

SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-30HHB-CA(CD)	LA120 DECwriter III	256 KB parity MOS	Dual RK07s	CPU SU 1-2: 4 Hex slots 1 Quad slot SU 3-5: 2 Hex slots SU 1-5: 1 SU	12.4 16.7			12*	14
						3.77	9.39		

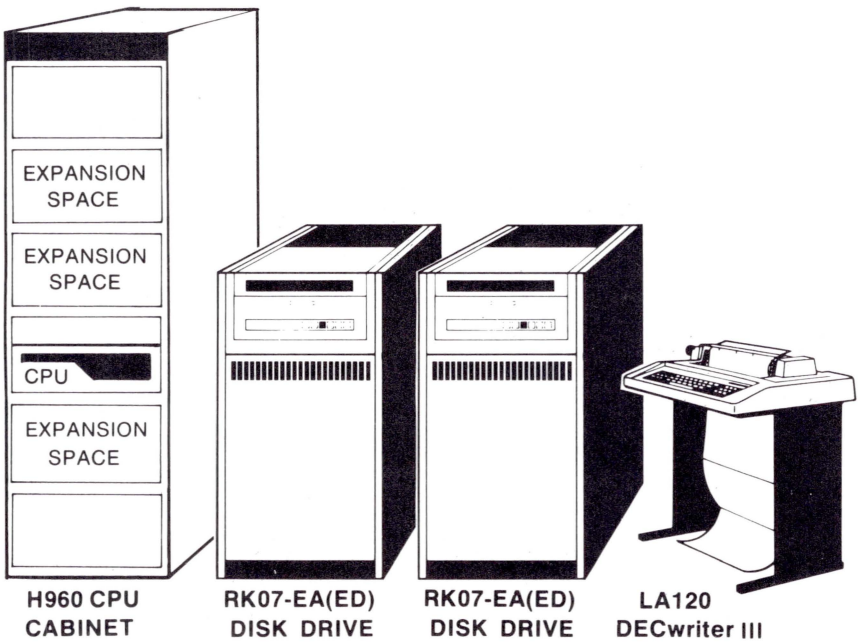
* This figure represents AC amps available in the system CPU cabinet only.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SE-30HHB-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



†The floating point processor (FP11-A), requiring a hex slot, must mount in the third slot next to the processor in the CPU backplane. The cache memory option (KK11-A), which also requires a hex slot, may be mounted in the third or fifth slot in the CPU backplane.

‡The two open hex slots in the RK711 backplane are positioned electrically after the disk drive controller on the UNIBUS.

PDP-11/44 RL02-BASED SYSTEM RUNNING UNDER RSTS/E

SE-40MMB

This PDP-11/44 RL02-based system includes:

- RSTS/E operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RL211 disk subsystem (one controller and one 10.4 MB RL02 removable cartridge disk drive) for use as the system device
- One 10.4 MB RL02 removable cartridge disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet and one 41.75 in (106 cm) high H9642 bolt-on RL02 disk cabinet
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

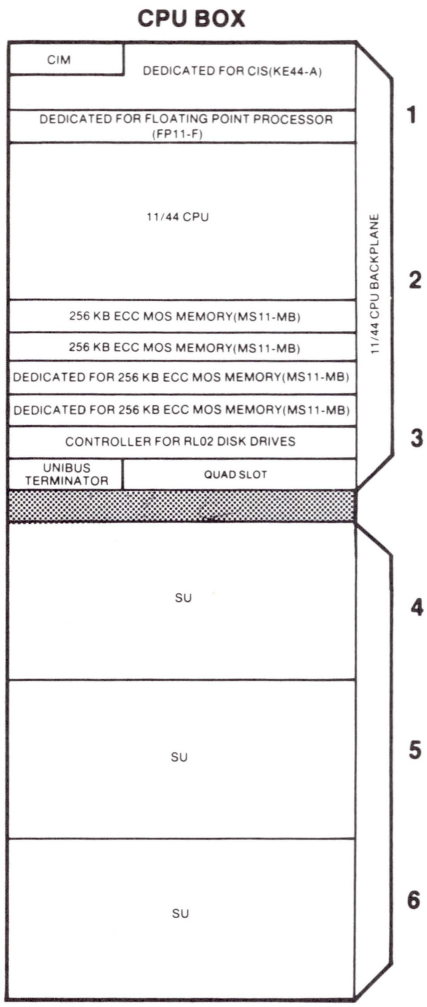
SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Two more RL02 removable cartridge disk drives may be added to this system for a total of four. One additional drive can be mounted in the H9642 RL02 disk cabinet. With two drives mounted, the RL02 disk cabinet provides 9 AC amps @ 120V and 10.5 in (26.7 cm) of peripheral mounting space for expansion.

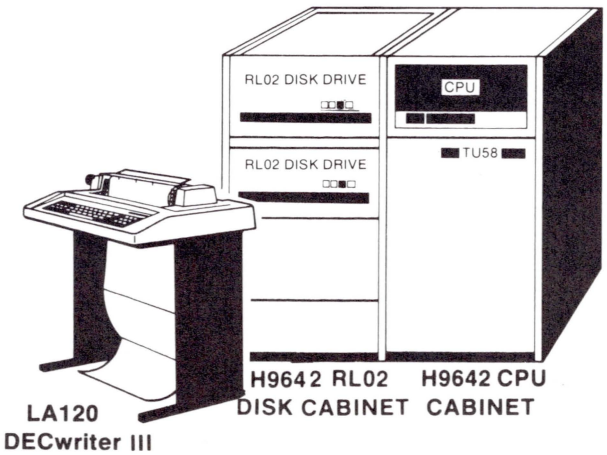
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	DC AMPS AVAILABLE @+15V	DC AMPS AVAILABLE @-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-40MMB-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	Dual RL02s	CPU SU 1-6: 1 Quad slot 3 SUs	49.9	2.45	2.45	9*	14

* This figure represent AC amps available in the RL02 disk cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RK07-BASED SYSTEM RUNNING UNDER RSTS/E

SE-40HHB

This PDP-11/44 RK07-based system includes:

- RSTS/E operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RK711 disk subsystem (one controller and one 28 MB RK07 disk drive) for use as the system device
- One 28 MB RK07 disk drive for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 41.75 in (106 cm) high H9642 bolt-on RK07 disk drive, and one 41.75 in (106 cm) high H9642 freestanding RK07 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

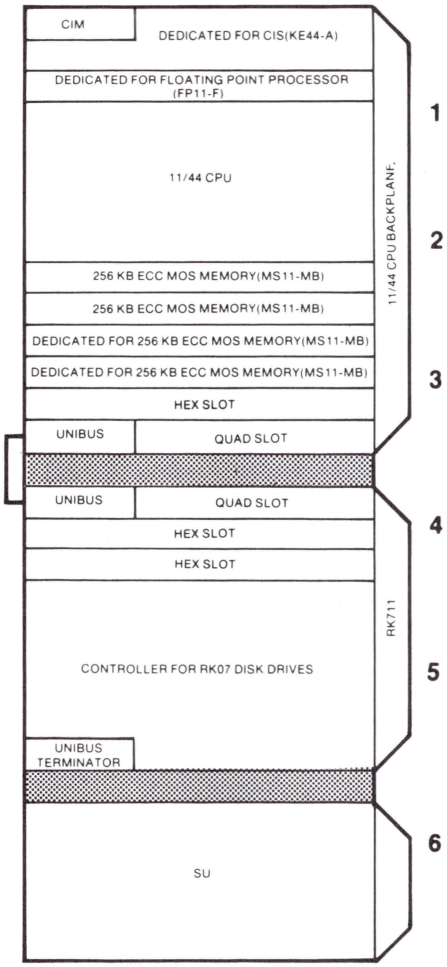
SYSTEM DISK EXPANSION: Six more freestanding RK07 disk drives may be added to this system for a total of eight.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-40HHB-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	Dual RK07s	CPU SU 1-6: 3 Hex slots 2 Quad slots 1 SU	42.9	2.77	2.55	N/A †	14

†There is sufficient AC power for the battery backup unit in the CPU cabinet.

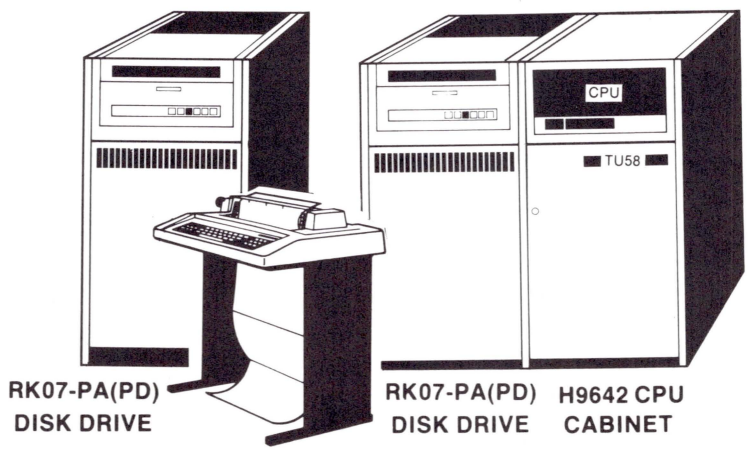
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SE-40HHB-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/44 RM02-BASED SYSTEM RUNNING UNDER RSTS/E

SE-40UAC

This PDP-11/44 RM02-based system includes:

- RSTS/E operating system
- 11/44 CPU
- 512 KB ECC MOS memory
- 8 KB parity cache memory
- Memory management with physical address extension
- Microprocessor-controlled ASCII console
- Bootstrap module with diagnostics
- Line frequency clock
- Two single line asynchronous EIA/CCITT interfaces: one for the LA120 console terminal and the other for the TU58 cartridge tape subsystem
- Dual TU58 cartridge tape subsystem (256 KB per cartridge)
- One RJM02 disk subsystem (one controller and one 67MB RM02 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 41.75 in (106 cm) high H9642 CPU cabinet, one 60.5 in (153.67 cm) high H9646 bolt-on TS11 magtape cabinet, and one 39 in (99 cm) high freestanding RM02 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: In the CPU cabinet expansion is limited to an H7750 battery backup and 10.5 in (26.7 cm) of mounting space front and rear for distribution panels.

SYSTEM MEMORY EXPANSION: In the CPU backplane there are two dedicated slots for interleaved memory expansion in 256 KB increments up to a maximum total of 1 MB.

SYSTEM DISK EXPANSION: Seven more freestanding RM02 disk drives may be added to this system for a total of eight.

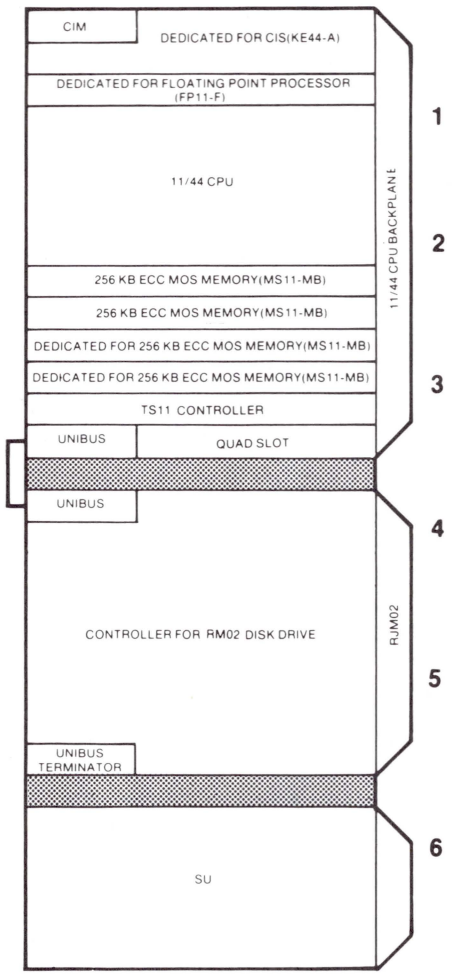
SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems (one controller and one TS11 magtape transport) in H9646 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-40UAC-CA(CD)	LA120 DECwriter III	512 KB ECC MOS	1 RM02 1 TS11	CPU SU 1-6: 1 Quad slot 1 SU	41.4	2.95	2.55	14*	13

* This figure represents AC amps available in the TS11 magtape cabinet only. There is sufficient AC power, however, for the battery backup unit in the CPU cabinet.

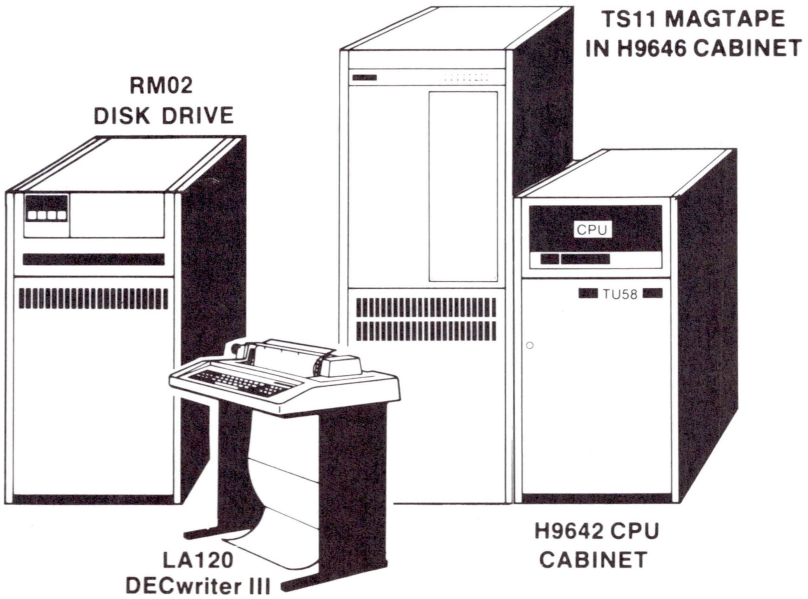
The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.

CPU BOX



SE-40UAC-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



NOTE: See Appendix A for DIGITAL approved PDP-11/44 system expansion configurations.

PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSTS/E

SE-70TAA

This PDP-11/70 RM03-based system includes:

- RSTS/E operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TS11 magtape subsystem (one controller and one TS11 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU/memory cabinet, one 60 in (152.4 cm) high H9602 bolt-on TS11 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more bolt-on TS11 magtape subsystems in H9602 cabinets may be added to this system for a total of four. The TS11 magtape, which must be bolted to the adjacent system cabinet, is U.L. certified as only containing the tape in the cabinet.

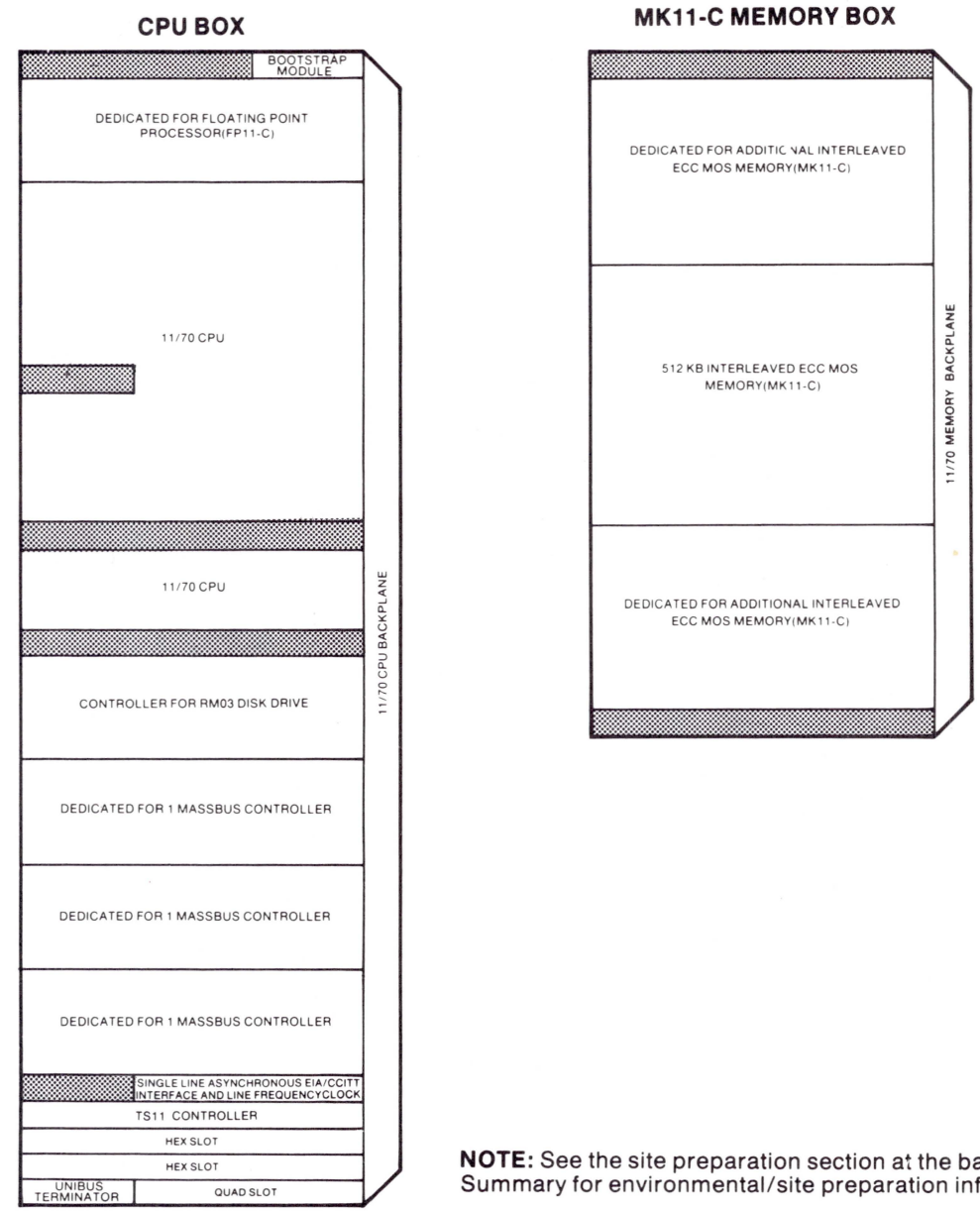
MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-70TAA-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TS11	CPU 2 Hex slots 1 Quad slot 3 MASSBUS ports	20.2†	3.65	1.45	12*	11†
					Dedicated				

PDP-11/70
RSTS/E
RM03

* This figure represents AC amps available in the TS11 magtape cabinet only.

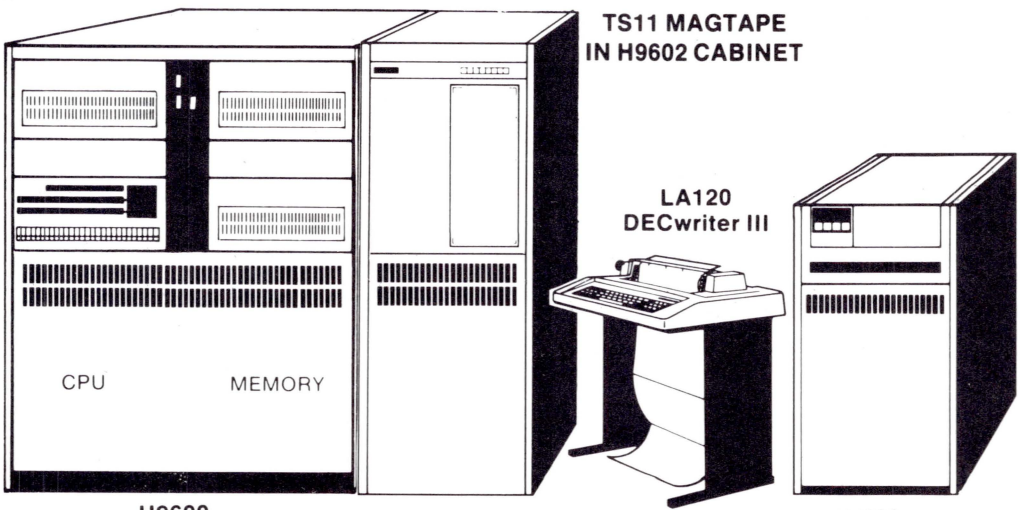
† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SE-70TAA-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



PDP-11/70 RM03-BASED SYSTEM RUNNING UNDER RSTS/E

SE-70TVB

This PDP-11/70 RM03-based system includes:

- RSTS/E operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM03 disk subsystem (one controller and one 67 MB RM03 disk drive) for use as the system device
- One TWE16 magtape subsystem (one controller and one TE16 magtape transport) for use as the backup and load device
- Cabinetry: One 72 in (182.9 cm) high H960 CPU cabinet, one 72 in (182.9 cm) high H960 memory cabinet, one 72 in (182.9 cm) high H960 bolt-on TE16 magtape cabinet, and one 39 in (99 cm) high freestanding RM03 disk drive
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

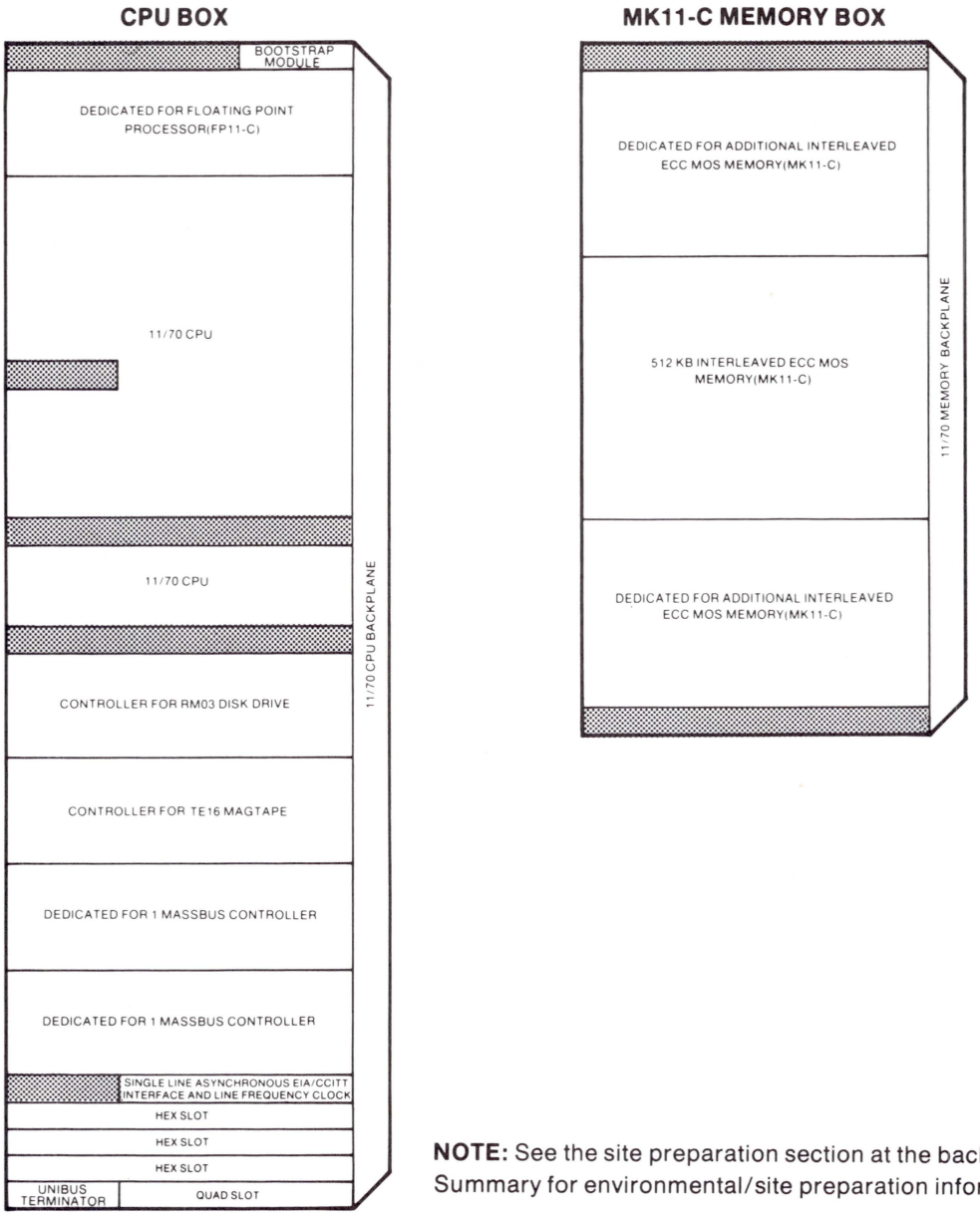
SYSTEM DISK EXPANSION: Seven more freestanding RM03 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Seven more bolt-on TE16 magtape transports in H960 cabinets may be added to this system for a total of eight. The TE16 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-70TVB-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM03 1 TE16	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7† Dedicated	3.65	1.45	N/A	12†

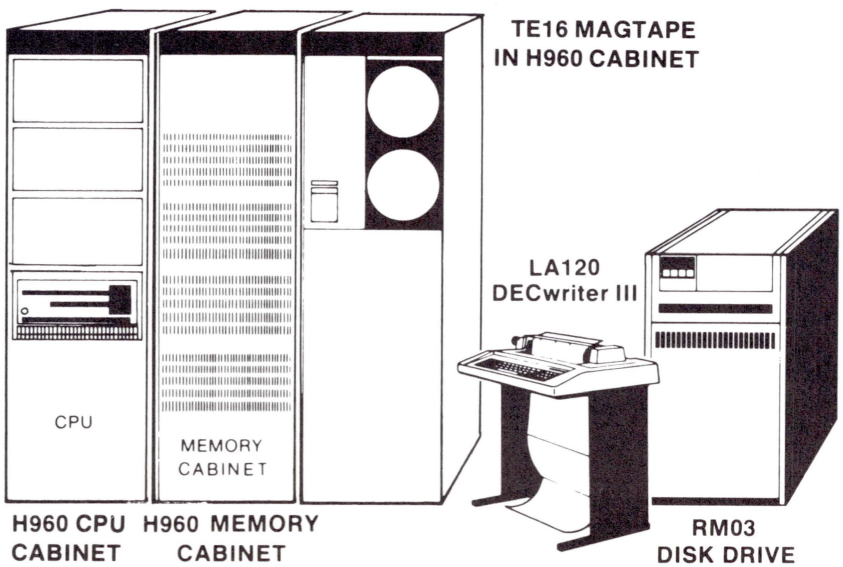
† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

The diagram below shows the location of modules in the backplanes within the CPU box while the areas labeled Hex, Quad, or SU indicate available expansion space.



SE-70TVB-CA(CD)

NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



PDP-11/70 RM05-BASED SYSTEM RUNNING UNDER RSTS/E

SE-70DBA

This PDP-11/70 RM05-based system includes:

- RSTS/E operating system
- 11/70 CPU
- 512 KB interleaved ECC MOS memory with battery backup
- 2 KB parity cache memory
- Memory management with physical address extension
- Bootstrap module with diagnostics
- Single line asynchronous EIA/CCITT interface & line frequency clock
- One RWM05 disk subsystem (one controller and one 256 MB RM05 disk drive) for use as the system device
- One TWU77 magtape subsystem (one controller and one TU77 magtape transport) for use as the backup and load device
- Cabinetry: One 60 in (152.4 cm) high H9600 double width highboy CPU/memory cabinet, one 60 in (152.4 cm) high H9602 TU77 magtape cabinet, and one 36 in (91.4 cm) high freestanding RM05 disk drive, and one 36 in (91.4 cm) high utility cabinet
- Console Terminal: LA120 DECwriter III

CPU CABINET EXPANSION: Expansion in the CPU cabinet is limited to two 10.5 in (26.7 cm) areas of mounting space for distribution panels.

SYSTEM MEMORY EXPANSION: This system includes dedicated space for a total of 3.0 megabytes of additional interleaved MK11-C memory within the memory box.

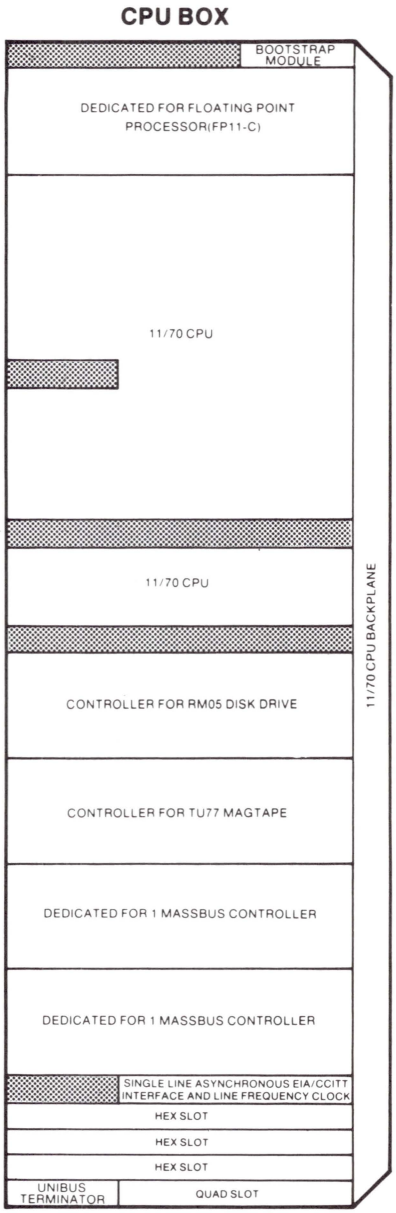
SYSTEM DISK EXPANSION: Seven more freestanding RM05 disk drives may be added to this system for a total of eight.

SYSTEM MAGTAPE EXPANSION: Three more freestanding TU77 magtape transports in H9602 cabinets may be added to this system for a total of four. The TU77 is U.L. certified as only containing the tape in the cabinet.

MODEL	CONSOLE TERMINAL	MEMORY	MASS STORAGE	EXPANSION SPACE	DC AMPS AVAILABLE @+5V	@+15V	@-15V	AC AMPS AVAILABLE @120V	BUS LOADS AVAILABLE
SE-70DBA-CA(CD)	LA120 DECwriter III	512 KB interleaved ECC MOS	1 RM05 1 TU77	CPU 3 Hex slots 1 Quad slot 2 MASSBUS ports	21.7†	3.65	1.45	N/A	12†
					Dedicated				

† All PDP-11/70 systems have space for up to four MASSBUS controllers. If the last one is used, 18.5 amps @+5V and 1 bus load must be subtracted from the available amps and bus loads for system expansion.

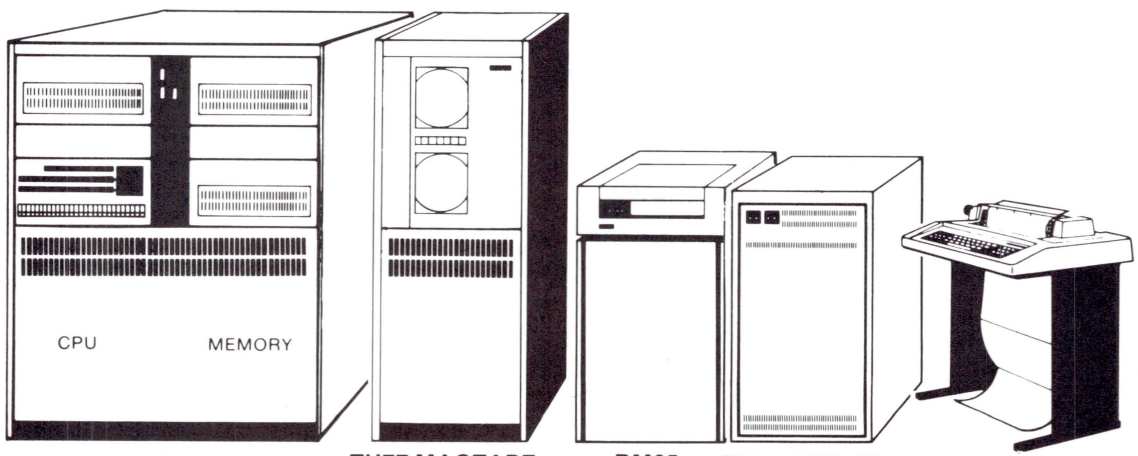
The diagram below shows the location of modules in the backplanes within the CPU box. The shaded areas indicate unusable space while the areas labeled Hex, Quad, or SU indicate available expansion space.



SE-70DBA-CA(CD)



NOTE: See the site preparation section at the back of this Summary for environmental/site preparation information.



H9600 CPU/MEMORY CABINET

TU77 MAGTAPE IN H9602 CABINET

RM05 DISK DRIVE

RM05 UTILITY CABINET

LA120 DECwriter III

OPTIONAL SOFTWARE FOR RSTS/E SYSTEMS

PDP-11 BASIC-PLUS-2
SPD NO. 14.54.xx

BASIC-PLUS-2 is a superset of the BASIC-PLUS and Dartmouth BASIC languages which use simple English language-like statements and familiar mathematical notations to perform operations. The language processor is composed of a compiler and an Object-Time System/Library that contains the following run-time routines: performing library and arithmetic functions; handling dynamic allocation of string storage and I/O buffers; handling I/O operations; and processing errors in arithmetic, I/O, and system operations. Other features include terminal-format files; virtual arrays; matrix handling; RMS Record I/O; string arithmetic; and external subprograms such as SUB, CALL, CHAIN and COMMON, and other user-defined functions.

Option Number	Distribution Medium	Support Category
QJ916-AD	Magtape (9-tr, 800 b/in)	
QJ916-AH	Disk Cartridge (RL02)	
QJ916-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ916-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QJ916-AT	Disk Cartridge (RK06)	
QJ916-AV	Disk Cartridge (RK07)	

PDP-11 COBOL
SPD NO. 12.40.xx

PDP-11 COBOL is a precise, well-defined language for business data processing and is based on ANSI COBOL, X3.23-1974. PDP-11 COBOL language processor is composed of a compiler and an Object Time System/Library. The compiler produces an object module from a source program and, following program line checks and compilation, an object module can be linked and executed at the operating system command level. File I/O operations are controlled through the RMS data management software which supports sequential and relative file organizations. Other features include an interactive debugger that allows a user to set and remove breakpoints and examine and change program variables; support for the Commercial Instruction Set (CIS); and CALL statements for for writing subprograms in both COBOL or MACRO-11 assembly languages. Any configuration must include a user area of at least 56 KB of memory, and at least 3000 free blocks of on-line disk storage on the public disk structure.

Option Number	Distribution Medium	Support Category
QP011-AD	Magtape (9-tr, 800 b/in)	
QP011-AH	Disk Cartridge (RL02)	
QP011-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP011-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP011-AT	Disk Cartridge (RK06)	
QP011-AV	Disk Cartridge (RK07)	

COBOL-81
SPD NO. 13.16.xx

COBOL-81 is a COBOL language processor which operates under control of the RSTS/E operating system. It is based on the 1974 ANSI COBOL standard. COBOL-81 provides an efficient entry-level COBOL for small business systems where small size, high performance, and ease of use are prime considerations. By fully utilizing the Commercial Instruction Set (CIS) options available on the PDP-11/24 and PDP-11/44, COBOL-81 produces compact, high-performance code.

Option Number	Distribution Medium	Support Category
QJ993-AD	Magtape (9-tr, 800b/in)	
QJ993-AH	Disk Cartridge (RL02)	
QJ993-AM	Magtape (9-tr, 1600b/in)	DIGITAL Supported/
QJ993-AQ	Disk Cartridge (RL01)	Customer Installed
QJ993-AT	Disk Cartridge (RK06)	
QJ993-AV	Disk Cartridge (RK07)	

FORTRAN IV/RSTS/E
SPD NO. 12.41.xx

FORTRAN IV/RSTS/E is an extended superset of the ANSI FORTRAN X3.9-1966 standard. PDP-11 FORTRAN IV provides fast, one-pass compilation. Compiler optimizations include common subexpression elimination; local code tailoring; array vectoring; and optional in-line code generation for integer and logical operations. FORTRAN IV provides a set of object modules (Object Time System or OTS) that are selectively linked with compiler-produced object modules to produce an executable program. Other features include general expressions in all meaningful contexts; mixed-mode arithmetic; BYTE data type for character manipulation; commenting at the end of each source line; and list-directed input/output. FORTRAN programs may be developed under RSTS/E and output in absolute binary format for execution on a stand-alone PDP-11 system with minimal peripherals or for loading into ROM or PROM memory.

Option Number	Distribution Medium	Support Category
QR435-AD	Magtape (9-tr, 800 b/in)	
QR435-AH	Disk Cartridge (RL02)	
QR435-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QR435-AQ	Disk Cartridge (RL01)	Customer Installed
QR435-AT	Disk Cartridge (RK06)	
QR435-AV	Disk Cartridge (RK07)	

PDP-11 FORTRAN-77/RSTS/E
SPD NO. 14.49.xx

PDP-11 FORTRAN-77/RSTS/E is an extended implementation of the ANSI subset FORTRAN-77 X3.9-1978 standard. Extensions to the ANSI standard include language elements for keyed and sequential access to RMS multikey ISAM files; DEFINE, FILE, FIND, DELETE, REWRITE, and UNLOCK statements; TYPE and ACCEPT input/output statements; BYTE data type; hexadecimal and octal consultants; and virtual memory array support for systems with memory management directives. Two Object Time Systems (a set of object modules selectively linked with compiler-produced object modules by the operating system's task builder to produce a task, or program, ready for execution) are available with FORTRAN-77: the File Control Services-based OTS or the RMS-based OTS. The FORTRAN-77 compiler produces direct PDP-11 machine code optimized for execution time efficiency on a PDP-11 with a floating point processor.

Option Number	Distribution Medium	Support Category
QR100-AD	Magtape (9-tr, 800 b/in)	
QR100-AH	Disk Cartridge (RL02)	
QR100-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QR100-AQ	Disk Cartridge (RL01)	Customer Installed
QR100-AT	Disk Cartridge (RK06)	
QR100-AV	Disk Cartridge (RK07)	

DIBOL-11/DECFORM
SPD NO. 14.8.xx

DIBOL-11/DECFORM is a software package for RSTS/E. The package includes the DIBOL-11 language processor and the DECFORM screen formatting and file review utility.
DIBOL is DIGITAL's own business oriented high-level language. DIBOL provides the ability to do data manipulation, arithmetic expression evaluation, subscripting of tables, redefinition of records, external calls to other programs, and both sequential and random access to files. Exception conditions cause control to transfer to a user-specified statement that can query status registers to deterine the cause of the condition. A comprehensive on-line debugging system permits the program developer to isolate and correct programming errors quickly.
DECFORM is a data entry and file review system utility that enables the development of interactive data entry screen formatting and file review functions. DECFORM lets the system designer select the functions needed to implement a particular data entry and/or file review application. In addition to defining screen formats, DECFORM enables the programmer to define field protection, autoduplication, alphabetic or decimal checking, range checking, field totaling, crossfield validation, and autoincrement characteristics. DECFORM facilitates additions, reviews, changes, and verification (to files) of records.

Option Number	Distribution Medium	Support Category
QP528-AD	Magtape (9-tr, 800 b/in)	
QP528-AH	Disk Cartridge (RL02)	
QP528-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP528-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP528-AT	Disk Cartridge (RK06)	
QP528-AV	Disk Cartridge (RK07)	

DATATRIEVE-11

SPD NO. 12.48.xx

DATATRIEVE-11 is an interactive query, report, and data maintenance system designed for the less sophisticated computer user. It uses a set of English language-like commands for data retrieval, modification, and display and provides automatic prompting for both command and data entry. DATATRIEVE-11 utilizes the RMS-11K record management services to access data contained in files of sequential, indexed, or relative organization. It also provides facilities for selective data retrieval, sorting, formatting, updating, and report generation without the need for programming overhead. Data dictionaries, which are shared by DATATRIEVE-11 users, can be used to store frequently used sequences of commands to be recalled and processed later. DATATRIEVE-11 also provides the Application Design Tool (ADT) to assist novice users in creating domain and record definitions.

Option Number	Distribution Medium	Support Category
QP300-AD	Magtape (9-tr, 800 b/in)	
QP300-AH	Disk Cartridge (RL02)	
QP300-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QP300-AQ	Disk Cartridge (RL01)	Customer Installed
QP300-AT	Disk Cartridge (RK06)	
QP300-AV	Disk Cartridge (RK07)	

DECWORD/DP

SPD NO. 13.14.xx

DECword/DP is layered software that allows high-level word processing on RSTS/E systems. It offers a wide range of advanced system capabilities such as automatic footnoting, computer-aided instruction, spelling error detection and list processing. You get all the industry-standard word processing features: menu-driven function selection; cut and paste; forward and reverse scrolling; search and replace; and word wrap. All DECword/DP configurations are based on the assumption that the RSTS/E environment is a mixture of DECword/DP word and data processing, not word processing only. Word processing applications alone will quickly use RSTS/E resources.

Option Number	Distribution Medium	Support Category
QR480-AD	Magtape (9-tr, 800 b/in)	
QR480-AH	Disk Cartridge (RL02)	
QR480-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QR480-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QR480-AT	Disk Cartridge (RK06)	
QR480-AV	Disk Cartridge (RK07)	

FMS-11/RSTS/E

SPD NO. 13.1.xx

FMS-11/RSTS/E is a forms-oriented, video I/O management system which functions as an independent, software front-end that logically off-loads the complexities of interactive video I/O management from the application program. Forms defined using FMS-11/RSTS/E utilize the following features of a VT100 Video Terminal: reverse video characters; bold characters; underline characters; blinking characters; 132-column lines; jump and smooth scrolling; split screen; and reverse screen. Software components include: Form Editor for creating and modifying video forms by typing them on a VT100 screen; Form Utility for manipulating FMS-11/RT forms descriptions; Form Driver for controlling screen processing; and Video Keypad Editor for general purpose text editing of standard ASCII files.

Option Number	Distribution Medium	Support Category
QJ716-AD	Magtape (9-tr, 800 b/in)	
QJ716-AH	Disk Cartridge (RL02)	
QJ716-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QJ716-AQ	Disk Cartridge (RL01)	Customer Installed
QJ716-AT	Disk Cartridge (RK06)	
QJ716-AV	Disk Cartridge (RK07)	

DECnet/E
SPD NO. 10.73.xx

DECnet/E allows a suitably configured RSTS/E UNIBUS-based system to participate as a routing or non-routing (end) node in DECnet computer networks. It offers task-to-task communications, utilities for network file transfer, homogeneous network command terminal support, multi-point line support, and network resource-sharing capabilities, using the DIGITAL Network Architecture (DNA) protocols. DECnet/E V2.0 communicates with adjacent nodes over synchronous interfaces. Access to it is supported for RSTS/E user programs written in MACRO-11, FORTRAN IV, FORTRAN-77, BASIC-PLUS-2, PDP-11 COBOL, and COBOL-81. RSTS/E users should note that the functions available depend, in part, on the configuration of the rest of the network. Each DECnet product offers its own level of functionality and its own set of features.

Option Number	Distribution Medium	Support Category
QP692-AD	Magtape (9-tr, 800 b/in)	
QP692-AH	Disk Cartridge (RL02)	
QP692-AM	Magtape (9-tr, 1600 bfin)	DIGITAL Supported/
QP692-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QP692-AT	Disk Cartridge (RK06)	
QP692-AV	Disk Cartridge (RK07)	

RSTS/E-2780
SPD NO. 10.50.xx

The RSTS/E-2780 Emulator software emulates the communications protocol of an IBM 2780 device while running a user job under a suitably configured UNIBUS-based RSTS/E system. It will transmit files stored on any input medium (video or hardcopy terminals, lineprinters, disks, tapes, and card readers) and store files on any output medium supported by RSTS/E. Files can print on any lineprinter supported by an RSTS/E Operating System, excluding the LS11 printer.

Option Number	Distribution Medium	Support Category
QPD10-AD	Magtape (9-tr, 800 b/in)	
QPD10-AH	Disk Cartridge (RL02)	
QPD10-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QPD10-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QPD10-AT	Disk Cartridge (RK06)	
QPD10-AV	Disk Cartridge (RK07)	
QPD10-AY	Floppy Disk (RX01)	

RSTS/E High Performance 2780/3780 Emulator
SPD NO. 10.49.xx

The RSTS/E 2780/3780 Emulator emulates the communications protocol of an IBM 2780/3780 device while running a user job under a suitably equipped RSTS/E UNIBUS-based system. It appears as an IBM 2780 or 3780 data transmission terminal on a point-to-point switched or non-switched synchronous data link operating with standard 2780/3780 protocol, and can transmit and receive data and/or job control files with an IBM System/370, including 303x processor systems. Features include multiple record transmission; automatic retransmission and retry; CPU offloading of modem/line control and BSC protocol; short record (EM) detection for received files; and vertical and horizontal print format control. The RSTS/E 2780/3780 Emulator uses the KMC11 microprocessor to lower significantly the CPU overhead normally associated with BISYNC communications. This option requires a DUP11-DA and a KMC11-A.

Option Number	Distribution Medium	Support Category
QRD06-AD	Magtape (9-tr, 800 b/in)	
QRD06-AH	Disk Cartridge (RL02)	
QRD06-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QRD06-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QRD06-AT	Disk Cartridge (RK06)	
QRD06-AV	Disk Cartridge (RK07)	

RSTS/E 3271 Protocol Emulator

SPD NO. 10.83.xx

The RSTS/E 3271 Protocol Emulator permits user jobs running on a RSTS/E UNIBUS-based operating system to communicate interactively with user tasks running on an IBM 370 or 303x host system. The RSTS/E user program can be written in either BASIC-PLUS, BASIC-PLUS-2, COBOL, or DIBOL. The IBM application program must run under either the IMS/VS or CICS/VS DB/DC systems. The package makes it possible for users to have remote, on-line access to IBM data bases, for the purposes of information entry, retrieval, update, or file transfer. This option requires a DUP11-DA synchronous line interface and a KMC11-A communications processor.

Option Number	Distribution Medium	Support Category
QRD05-AD	Magtape (9-tr, 800 b/in)	
QRD05-AH	Disk Cartridge (RL02)	
QRD05-AM	Magtape (9-tr, 1600 b/in)	DIGITAL Supported/
QRD05-AQ	Disk Cartridge (RL01)	DIGITAL Installed
QRD05-AT	Disk Cartridge (RK06)	
QRD05-AV	Disk Cartridge (RK07)	

DX/RSTS

SPD NO. 10.95.xx

DX/RSTS is a software package that makes asynchronous communications possible between an RSTS/E timesharing system and a current WPS-8 Word Processing System, such as DECmate. Communication between the two systems uses the DX error-correcting protocol. The WPS-8 system appears to the host computer to be a normal terminal. DX/RSTS effectively enables distributed stand-alone WPS-8 systems and the host RSTS/E timesharing system to be linked together for better system utilization and data sharing. This package includes utility programs that convert RSTS/E files stored in word processing formats to RSTS/E files stored in ASCII formats and vice versa.

Option Number	Distribution Medium	Support Category
QJ703-CD	Magtape (9-tr, 800 b/in)	
QJ703-CT	Disk Cartridge (RK06)	Customer Supported/ Customer Installed

PDP-11 OPTIONS

SITE PREPARATION/ENVIRONMENTAL INFORMATION

INTRODUCTION

This section of the Summary is intended to serve as an aid in the evaluation and preparation of a proposed site for a PDP-11 system. For more detailed site preparation/environmental information, consult the DIGITAL Site Preparation Guide, available from DIGITAL Printing and Circulation Services (order number EK-OCORP-SP-003). Please remember that all PDP-11 system environments should be fully evaluated by a DIGITAL Field Service representative to ensure best system performance.

SITE PLANNING

Proper site planning and preparation can simplify the installation process and produce efficient, reliable system operation. Although each system site is different, the following points should be evaluated in order to ensure maximum system efficiency:

- Space for system components with an area for operation, maintenance and ventilation. (DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinets.)
- Access to adequate system power (voltage, current, and frequency) which is free from power line disturbances.
- Installation of a dedicated power distribution panel for the computer system.†
- Proper fire and safety precautions (including emergency shutdown capability).
- Adequate air conditioning and humidifying equipment.
- Construction requirements (raised floors, floor loading and grounding, cable location, etc.)
- Efficient workflow pattern; ease of visual observation of input/output devices.
- Sufficient storage space for supplies necessary to the operation of the system.
- Operational requirements that determine the specific location of freestanding system peripherals.
- Location of peripheral devices so that the length of the connecting cable will not exceed maximum limits.
- Availability of additional space and power service for future system expansion.

†See the description of the Power Distribution System (PDS) in this Summary.

SYSTEM ENVIRONMENT/RELIABILITY

Control of the system environment generally results in more reliable system operation. A marginal system environment may produce marginal system performance. An ideal computer room environment has an air distribution system which provides cool, well-filtered, and humidified air. Air pressure should be kept higher than the pressure of adjacent areas in order to prevent dust infiltration. All windows and doors should be made weather tight. The use of slow-operating door closers should be avoided. Double glass is recommended for large window areas. DIGITAL systems are air cooled. The air is circulated internally by blowers in each unit. Generally, air enters the unit through a filter and blower in the top or front of the cabinet and exits through the bottom or rear of the cabinet. In view of the fact that some equipment generates more heat than others, an efficient method for distributing and balancing the air conditioning is desirable. Other factors to consider are static electricity and electro-magnetic interference, both of which, if not properly controlled, may affect system operations.

POWER AND GROUNDING

Computer systems require a quality power source with minimum voltage and frequency disturbances. Fluctuations in line voltage, for instance, can cause system errors and less than optimum performance. Power conditioning equipment may be necessary should an analysis of the power source determine that it does not meet DIGITAL specifications. In addition, installation of a dedicated power distribution panel for the computer system will prevent interference and disturbances from other equipment in the computer room. Along with the obvious need for an adequate supply of power to handle the present computer system, sufficient power to accommodate future system expansion should also be considered.

Proper grounding keeps electrical noise under control by providing a low impedance to earth for static discharge and induced electrical current. Grounding also prevents electric shock in the event of a power fault. DIGITAL recommends a single point earth reference and a separate circuit for all major system components other than terminals and lineprinters. Each cabinet and disk drive should be on a separate circuit with a dedicated neutral and safety ground conductor. These safety ground conductors must be insulated wire and should terminate at one point in the distribution panel. This termination point should be the only earth reference for the system. The purpose of single point grounding is to preserve signal integrity between elements of the system by providing a common system reference. Isolated ground receptacles will facilitate a single point earth reference system and minimize the effect of ground noise.

RECOMMENDED ENVIRONMENT

The computer area environment (temperature and humidity) has a substantial effect on the overall reliability of a system and should be individually evaluated by a DIGITAL Field Service representative. For optimal system performance, DIGITAL recommends the following environment:

- **Temperature:** 21°+-3°C (70°+-5°F)
- **Temperature rate of change:** 3°C/hr (5.5°F/hr)
- **Relative humidity:** 50%+-10% (no-condensation)
- **Humidity rate of change:** 6%/hr

SYSTEM COMPONENTS SITE PREPARATION INFORMATION

Throughout this Summary, important site preparation information on all components and systems appears. Drawings, layout, receptacles needed, dimensions, and other specifications are included. Appendix A, for example, contains information for all CPU and/or memory cabinetry. Each cabinet references the model number(s) of all systems using that particular cabinet. Appendix B gives information on DIGITAL approved cabinet configurations for PDP-11/24 and PDP-11/44 Packaged Systems. Site preparation information for mass storage, soft copy and hard copy terminals options is also included on the same page as the description of the option appears. To find site preparation information on a particular system component, simply look up the component under the appropriate section.

EXPANSION MOUNTING HARDWARE

System Unit Expansion Backplanes

DD11-CK Four-slot expansion backplane for use in BA11-K and BA11-L expansion boxes. Also mounts in PDP-11/24, PDP-11/34A, and PDP-11/44 CPU boxes. Accommodates two hex and two quad modules.

Mounting Code	DC Amps Available @+5V	@+15V	@-15V
1 SU	0.00	0.00	0.00v

DD11-DK Nine-slot expansion backplane for use in BA11-K and BA11-L expansion boxes. Also mounts in PDP-11/24, PDP-11/34A, and PDP-11/44 CPU boxes. Accommodates seven hex and two quad modules.

Mounting Code	DC Amps Available @+5V	@+15V	@-15V
2 SU	0.00	0.00	0.00v

UNIBUS Expansion Boxes

BA11-KW(KX) The BA11-KW(KX) is a cabinet-mountable expansion box with bezel and slides for use in H9642-DB(DC) or H9602-CC(CD) cabinets. Fans located between the power supply and modules produce front to back cooling. It provides five system units of mounting space and is compatible with the DD11-CK/DK expansion backplanes. The power supply is rated at 50 amps @+5V total, with 25 amps @+5V for SU 1-2, and 25 amps @+5V for SU 3-5, 4 amps @+15 for SU 1-5, and 10 amps for @-15V for SU 1-5. Includes BC11A cable. **NOTE:** *Backplanes not included.*

Mounting Code	DC Amps Available @+5V	@+15V	@-15V	AC Amps Drawn @120V
PAN	50.0	4.00	10.00	12.0

BA11-KE(KF) The BA11-KE(KF) is a cabinet-mountable expansion box with bezel and slides for use in H960 series cabinets. Fans located between the power supply and modules produce front to back cooling. It provides five system units of mounting space and is compatible with the DD11-CK/DK expansion backplanes. The power supply is rated at 50 amps @+5V total, with 25 amps @+5V for SU 1-2, and 25 amps @+5V for SU 3-5, 4 amps @+15 for SU 1-5, and 10 amps for @-15V for SU 1-5. Includes BC11A cable. **NOTE:** *Backplanes not included.*

Mounting Code	DC Amps Available @+5V	@+15V	@-15V	AC Amps Drawn @120V
PAN	50.0	4.00	10.00	12.0

BA11-LE(LF) The BA11-LE(LF) is a cabinet-mountable expansion box with bezel for use in PDP-11/24, PDP-11/34A and PDP-11/44 systems. Cooling is from front to back. It provides two system units of mounting space and is compatible with the DD11-CK/DK expansion backplanes. Includes BC11A cable. **NOTE:** *Backplanes not included.*

Mounting Code	DC Amps Available @+5V	@+15V	@-15V	AC Amps Drawn @120V
SM PAN	32.0	2.00	2.00	5.0

EXTENDED LSI-11 BUS Expansion Box

Consult your local DIGITAL sales representative for details.

LSI-11 BUS Expansion Box

BA11-NE(NF) The BA11-NE(NF) is a cabinet-mountable expansion box with bezel for use with PDP-11/23 systems. It includes one nine-slot LSI-11 backplane that provides seven LSI-11 quad slots of mounting space. The power supply is rated at 22 amps @+5V and 11 amps @+12V. **Note:** *Cable not included.*

Mounting Code	DC Amps Available @+5V	@+15V	@-15V	AC Amps Drawn @120V
SM PAN	22.0	11.0		6.0

LSI-11 BUS Cables

BCV1B-xx LSI-11 BUS cable for connecting the CPU box to the first expansion box. Available in the following standard lengths: 2 ft. (0.6m), 4 ft. (1.2m), 6 ft. (1.8m), 10ft. (3m).
PREREQUISITE: PDP-11/23

BCV1A-xx LSI-11 BUS cable for connecting the first expansion box to the second expansion box. Available in the following standard lengths: 2 ft. (0.6m), 4 ft. (1.2m), 6 ft. (1.8m), 10ft. (3m).
PREREQUISITE: PDP-11/23

UNIBUS Cable

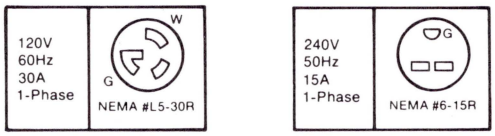
BC11A-xx UNIBUS cable available in the following standard lengths: 2 ft. (0.6m), 5 ft.(1.5m), 8 ft. (2.4m), 10ft.(3m), 15 ft. (4.6m), 25 ft. (7.6m).
PREREQUISITE: UNIBUS PDP-11

CABINETS

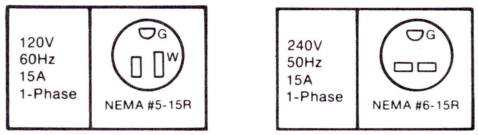
H9640 Series Cabinets

The H9640 Series Cabinets meets the requirements of a wide range of systems designed primarily for the office environment. Features of the H9640 cabinets include front to rear cooling; fixed mounted wheel assemblies for suspension; and all-steel frame coated with zinc-chromate to ensure optimal grounding continuity; and locking front and rear doors. These cabinets can be configured as either front-loading or top-loading. Includes 872 power controller providing 24 AC amps @120V. **Note:** DIGITAL recommends a maximum of three DISTRIBUTION PANELS per cabinet.

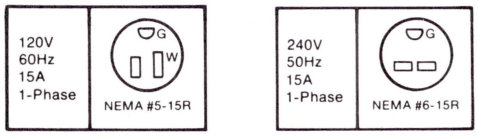
H9642-DB(DC) Expansion cabinet without end panels. Provides 31.5 in (80.0 cm) vertical mounting space.
Receptacles required: NEMA #L5-30R (120V); NEMA #6-15R (240V)



H9642-BD(BE) Top-loading expansion cabinet for RL01/RL02. Provides 21 in (53.3 cm) mounting space beneath RL01/RL02.
Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



H9642-BK(BL) Expansion cabinet for RX02. Provides 21 in (53.3 cm) mounting space beneath RX02.
Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



SITE PREPARATION SPECIFICATIONS:

- Height: 41.8 in (106 cm)
- Width: 21.3 in (54.1 cm)
- Depth: 30 in (76.2 cm)
- Maximum standing weight: 540 lbs (244.5 kg)
- Receptacles required: See above

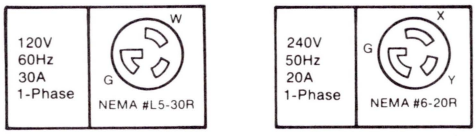
H960 Series Cabinets

The H960 Series Cabinets is a medium-to large-systems cabinet ideally suited for expanding existing systems. Features of the H960 cabinets include a cooling mechanism which operates top to bottom; rigid-mounting casters and levelers for suspension; extension feet; front bezel panels; and locking devices for all doors and covers. Includes 861 power controller providing 24 AC amps @120V. **Note:** DIGITAL recommends a maximum of three DISTRIBUTION PANELS per cabinet.

H960-CF(CG) Standard PDP-11 expansion cabinet without end panels.

SITE PREPARATION SPECIFICATIONS:

- Height: 72 in (182.9 cm)
- Width: 21 in (53.3 cm)
- Depth: 31 in (76.2 cm)
- Maximum standing weight: 600 lbs (272.2 kg)
- Receptacles required: NEMA #L5-30R (120V); NEMA #L6-20R (240V)



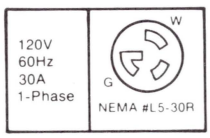
H9600 Series Cabinets

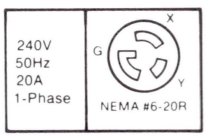
The H9600 Series Cabinets for use with PDP-11/70 systems. It incorporates many design features for increased reliability and safety. Features of the H9600 Series include an improved grounding mechanism; a cooling system which operates from front to rear (upper) and front to bottom (lower); an automatic-integral-lock system to prevent any device from sliding out until the stabilizer leg(s) are extended; an integral shock isolation wheel assembly which eliminates any special handling equipment (i.e. skids); and lock devices for all doors and covers. Includes 861 power controller providing 24 AC amps @120V. **Note:** DIGITAL recommends a maximum of three DISTRIBUTION PANELS per cabinet.

H9602-CC(CD) Single width, highboy expansion cabinet. Includes slide mounts to accept 19 in (48.7 cm) or 25 in (63.5 cm) cabinet-mountable devices.

SITE PREPARATION SPECIFICATIONS:

- Height: 60 in (152.4 cm)
- Width: 28 in (71.1 cm)
- Depth: 30 in (76.2 cm)
- Maximum standing weight: 1000 lbs (453.6 kg)
- Receptacles required: NEMA #L5-30R (120V); NEMA #L6-20R (240V)





Power Distribution System

The Power Distribution System (PDS) is designed for medium- to large-sized (15-100 KVA) DIGITAL computer systems.[1] The PDS is classified as a power distribution peripheral to the computer. It contains all the AC power components necessary to provide AC power to the CPU cabinet, expansion cabinets, and peripheral devices, and to connect the entire computer system to the building power source. It is designed not only to distribute power, but also to monitor power to the computer system.

Whether purchasing a new DIGITAL computer system, moving a present system, adding to or reconfiguring a present system, the addition of the PDS can simplify installation and provide greater flexibility in layout. The PDS unit is about the size of a typical, freestanding disk drive. Everything the user needs to install the system[2] is furnished with the PDS — power junction box, input cable and attachment plug, input main circuit breaker, main transformer, output power cables[3], output panelboards and circuit breakers, common ground reference, and safety ground connector.

The installation requires four basic steps:

1. Connect the building power supply to the PDS junction box (J-box).
2. Plug PDS input cable into the J-box.
3. Uncoil and place output distribution cables[4] in appropriate location.
4. Plug computer and peripherals into appropriate receptacles.

The PDS provides electrical and safety requirements within the restrictions of the National Electrical Code, and is U.L. listed.[5]

Two options are available with the PDS:

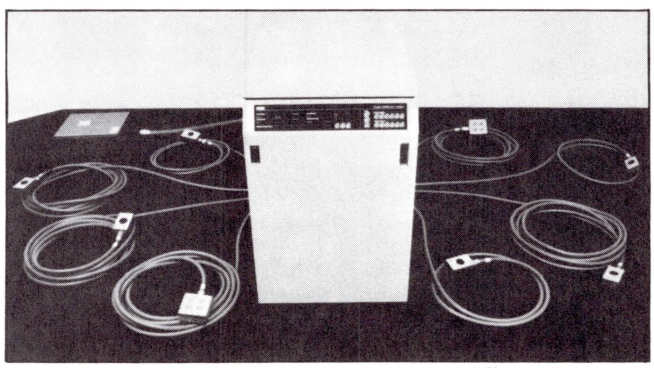
H7224-KA **Remote Emergency Power Off (REPO)**
The Remote Emergency Power Off option enables a user to shut down the power to the system from remote wall-mounted switches. Multiple stations "daisy chain" so that any operating REPO switch immediately trips the main circuit breaker in the PDS. When these switches are activated, the entire system shuts down. Each REPO option comes with 50 feet (15.2 m) of cable. Additional 50 ft lengths are available (Option code H7224-KC). **NOTE:** DIGITAL requires that this option be installed by an electrical contractor or plant engineer.

H7224-KB **Building Interface Alarms (BIA)**
The Building Interface Alarm option enables the user to interface the PDS to security systems, such as fire protection, air conditioning, and liquid detection systems. In the event of a malfunction or actual emergency, the PDS can take immediate action, delayed action, or sound an alarm to alert computer room personnel or building security to the situation. Building Interface Alarm hook-ups are 24 Vac. **NOTE:** DIGITAL requires that this option be installed by an electrical contractor or plant engineer.

Notes:
[1] Recommended for use with PDP-11/44 and PDP-11/70 systems. The PDS must be ordered when the packaged system is ordered. Consult your DIGITAL sales representative.
[2] Consult your plant engineer or electrical contractor.
[3] Each cable is pre-assembled with the receptacles needed to fit the DIGITAL products in the installation. Consult your DIGITAL representative for further details.
[4] Cables are available in 10 ft (3.0 m), 20 ft (6.1 m), 30 ft (9.1 m), 40 ft (12.2 m), 50 ft (15.2 m), 60 ft (18.3 m), and 75 ft (22.9 m) lengths. Somes cables are available in 100 ft (30.4 m) length.
[5] For PDS installation outside the United States, consult your DIGITAL sales representative.

Site Preparation Specifications:

- Height: 40.5 in (102.9 cm)
- Width: 25 in (63.5 cm)
- Depth: 35 in (88.9 cm)
- Weight: 530 lbs (240.9 kg) 15 KVA
  675 lbs (289.5 kg) 30 KVA
  800 lbs (363.6 kg) 50 KVA
- Power Capacity: 15, 30, 50, 75, or 100 KVA
- BTU/hr: 1020, 2040, or 3400



Power Distribution System

POWER DISTRIBUTION SYSTEM

PDS Option Designation	Input Voltage	Power Capacity
H7224-AA	208	15 KVA
H7224-AB	208	30 KVA
H7224-AC	208	50 KVA
H7224-BA	220	15 KVA
H7224-BB	220	30 KVA
H7224-BC	220	50 KVA
H7224-CA	600	15 KVA
H7224-CB	600	30 KVA
H7224-CC	600	50 KVA
H7224-DA	240	15 KVA
H7224-DB	240	30 KVA
H7224-DC	240	50 KVA
H7224-EA	440	15 KVA
H7224-EB	440	30 KVA
H7224-EC	440	50 KVA
H7224-FA	460	15 KVA
H7224-FB	460	30 KVA
H7224-FC	460	50 KVA
H7224-HA	480	15 KVA
H7224-HB	480	30 KVA
H7224-HC	480	50 KVA

PDS CABLE CHART

Receptacle	Cable Type	Cable Lengths
NEMA #5-15R	BC24J-xx	10,20,30,40,50,60,75, or 100 feet
NEMA #5-15R(2)[1]	BC24K-xx	10,20,30,40,50,60,75, or 100 feet
NEMA #5-15R(4)[2]	BC24L-xx	10,20,30,40,50,60,75, or 100 feet
NEMA #5-20R	BC24M-xx	10,20,30,40,50,60, or 75 feet
NEMA #5-20R(2)[3]	BC24N-xx	10,20,30,40,50,60, or 75 feet
NEMA #5-20R(4)[4]	BC24P-xx	10,20,30,40,50,60, or 75 feet
NEMA #5-20R(8)[5]	BC24R-xx	10,20,30,40,50,60, or 75 feet
NEMA #L-5-30R	BC24S-xx	10,20,30,40,50,60, or 75 feet
NEMA #L-6-20R	BC24T-xx	10,20,30,40,50,60, or 75 feet
NEMA #I-6-30R	BC26E-xx	10,20,30,40,50,60, or 75 feet
NEMA #L-14-20R	BC24U-xx	10,20,30,40,50,60, or 75 feet
NEMA #L-21-20R	BC24V-xx	10,20,30,40,50,60, or 75 feet
NEMA #L-21-30R	BC24W-xx	10,20,30,40,50,60, or 75 feet
Pyle National #H874A	BC26D-xx	10,20,30,40,50,60, or 75 feet
Russell and Stoll #740	BC26D-xx	10,20,30,40,50,60, or 75 feet

[1] BC24K can be used where 2 (5-15R) are used (within 8 feet).
[2] BC24L can be used where 4 (5-15R) are used (within 8 feet).
[3] BC24N can be used where 2 (5-20R) are used (within 8 feet).
[4] BC24P can be used where 4 (5-20R) are used (within 8 feet).
[5] BC24R can be used where 8 (5-20R) are used (within 16 feet).

PROCESSOR OPTIONS & MEMORY

PDP-11/23-PLUS Processor Options

KEF11-AA

Single- and double-precision floating point option for use with PDP-11/23-PLUS. The microcode to implement this option resides in two chips on one 40-pin package. Performs hardware options on 32-bit and 64-bit floating point numbers. Provides up to 17 digits of precision, as well as integer to floating point conversions. Mounts on the CPU board.
PREREQUISITE: PDP-11/23-PLUS

FPF11

Single- and double-precision floating point option for use with PDP-11/23-PLUS. The microcode to implement this option resides on one quad module mounted adjacent to the CPU. Performs hardware options on 32-bit and 64-bit floating point numbers. Provides up to 17 digits of precision, as well as integer to floating point conversions. Executes instructions approximately six times faster than the KEF11-AA.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 Quad slot in CPU backplane	5.0	0.0	N/A

KEF11-BB

Commercial Instruction Set (CIS) for the PDP-11/23-PLUS. Implements a set of 47 commercial instructions on a variety of data types, including character strings, packed decimal and numeric formats.
PREREQUISITE: PDP-11/23-PLUS CPU

PDP-11/23 Processor Options

KEF11-AA

Single- and double-precision floating point option for use with PDP-11/23-PLUS. The microcode to implement this option resides in two chips on one 40-pin package. Performs hardware options on 32-bit and 64-bit floating point numbers. Provides up to 17 digits of precision, as well as integer to floating point conversions. Mounts on the CPU board.
PREREQUISITE: PDP-11/23

FPF11

Single- and double-precision floating point option for use with PDP-11/23. The microcode to implement this option resides on one quad module mounted adjacent to the CPU. Performs hardware options on 32-bit and 64-bit floating point numbers. Provides up to 17 digits of precision, as well as integer to floating point conversions. Executes instructions approximately six times faster than the KEF11-AA.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 Quad slot in CPU backplane	5.0	0.0	N/A

PDP-11/23-PLUS Memory

MSV11-PK 256 KB dynamic Random Access Memory with parity.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 Extended LSI-11 Quad slot	4.0	0.07	1

MSV11-PL 512 KB dynamic Random Access Memory with parity.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 Extended LSI-11 Quad slot	4.0	0.00	1

PDP-11/23 Memory

MCV11-DA 8 KB MOS dynamic Random Access Memory with on-board battery backup. This battery backup provides minimum data retention time of 2,647 hours.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 LSI-11 Double slot	1.9	0.00	1

MCV11-DC 32 KB MOS dynamic Random Access Memory with on-board battery backup. This battery backup provides minimum data retention time of 1,180 hours.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 LSI-11 Double slot	2.0	0.00	1

MSV11-DD 64 KB dynamic Random Access Memory.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 LSI-11 Double slot	1.7	0.37	1

MRV11-BA 256 x 16-bit memory module that contains 8 sockets for MRV11-BC UV PROM chips. No memory chips are included.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 LSI-11 Double slot	0.58	0.34	1

PDP-11/24 Processor Options

KEF11-AA Single- and double-precision floating point option for use with the PDP-11/24. The microcode to implement this option resides in two chips on one 40-pin package. Performs hardware options on 32-bit and 64-bit floating point numbers. Provides up to 17 digits of precision, as well as integer to floating point conversions. Mounts on the CPU board.
PREREQUISITE: PDP-11/24

FPF11 Single- and double-precision floating point option for use with PDP-11/24. The microcode to implement this option resides on one quad module mounted adjacent to the CPU. Performs hardware options on 32-bit and 64-bit floating point numbers. Provides up to 17 digits of precision, as well as integer to floating point conversions. Executes instructions approximately six times faster than the KEF11-AA.
PREREQUISITE: PDP-11/24

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn
1 Quad slot in CPU backplane	5.0	0.0	N/A

KEF11-BB Commercial Instruction Set (CIS) for the PDP-11/24. Implements a set of 47 commercial instructions on a variety of data types, including character strings, packed decimal and numeric formats.
PREREQUISITE: PDP-11/24

PDP-11/24 Memory

MS11-LB 128 KB parity MOS memory.
PREREQUISITE: PDP-11/24

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	Bus Loads Drawn
1 Hex slot contiguous to existing memory through slot 6	1.8†	0.00	0.00	1

MS11-LD 256 KB of parity MOS memory.
PREREQUISITE: PDP-11/24 with KT24

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	Bus Loads Drawn
1 Hex slot contiguous to existing memory through slot 6	1.8†	0.00	0.00	1

PDP-11/24 Memory Options

H775-A Battery backup. This battery backup provides minimum data retention time of 30 minutes.
PREREQUISITE: 5.25 in (13.3 cm) PDP-11/24 CPU

Mounting Code	AC Amps Drawn @+120V
Dedicated space in PDP-11/24 System cabinet	0.0

† This amperage differs from that of the PDP-11/34A due to memory regulator differences.

H7750-BA(BD) Battery backup. This battery backup provides minimum data retention time of 20 minutes.
PREREQUISITE: 10.5 in (26.7 cm) PDP-11/24 CPU

Mounting Code	AC Amps Drawn @+120V
Dedicated space in PDP-11/24 CPU cabinet	1.0

KT24 Physical Address Extension (PAX) module allows memory expansion up to 768 KB with a 5.25 in (13.3 cm) CPU box and up to 1 MB with a 10.5 in (26.7 cm) CPU box. **NOTE:** The KT24 must mount in the second hex slot in the CPU backplane, next to the processor.
PREREQUISITE: PDP-11/24

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Hex slot	4.5	0.01	0.01	1

PDP-11/34A Processor Options

FP11-A Floating point processor for the PDP-11/34A with set of 46 instructions. Performs hardware operations on 32-bit and 64-bit floating point numbers as well as integer to floating point conversions. **NOTE:** The FP11-A must mount in the third hex slot in the CPU backplane, next to the processor.
PREREQUISITE: PDP-11/34A

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Hex slot	7.0	0.00	0.00	1

KK11-A 2 KB high-speed cache memory for the PDP-11/34A. **NOTE:** If both the KK11-A and the FP11-A options are added to a system, the KK11-A must mount in the fifth hex slot in the CPU backplane. However, if only the KK11-A is added, it can mount in either the third or the fifth hex slot in the CPU backplane.
PREREQUISITE: PDP-11/34A

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Hex slot	4.0	0.00	0.00	1

PDP-11/34A Memory

MS11-LB 128 KB of parity MOS memory.
PREREQUISITE: PDP-11/34A

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Hex slot	3.1†	0.00	0.00	1

† This amperage differs from that of the PDP-11/24 due to memory regulator differences.

MS11-LD 256 KB of parity MOS memory.
PREREQUISITE: PDP-11/34A system with existing memory removed

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Hex slot	3.1†	0.00	0.00	1

PDP-11/34A Memory Option

H775-CA(CB) Battery backup. This battery backup provides minimum data retention time of 20 minutes.
PREREQUISITE: 10.5 in (26.7 cm) PDP-11/34A CPU

Mounting Code	AC Amps Drawn @+120V
SM PAN	1.5

PDP-11/44 Processor Options

KE44-A Commercial Instruction Set (CIS) processor for the PDP-11/44. Implements a set of 27 commercial instructions on a variety of data types, including character strings, packed decimal and numeric formats.
PREREQUISITE: PDP-11/44.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated PDP-11/44 slots	9.6	0.00	0.00	N/A

FP11-F Floating point processor for the PDP-11/44 with 46 floating point instruction set. Performs hardware operations on 32-bit and 64-bit floating point numbers providing up to 17 digits of precision as well as integer to floating point conversions.
PREREQUISITE: PDP-11/44

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated PDP-11/44 slot	7.3	0.00	0.00	N/A

Memory PDP-11/44

MS11-MB 256 KB ECC MOS memory.
PREREQUISITE: PDP-11/44

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated PDP-11/44 slot	4.8	0.00	0.00	1

MS11-PB 1 MB ECC MOS memory. This memory is backwards compatible with MS11-MB memory.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated PDP-11/44 slot	7.6	0.00	0.00	1

PDP-11/44 Memory Option

H7750-BA(BD) Battery backup. This battery backup provides minimum data retention time of 20 minutes.
PREREQUISITE: PDP-11/44 CPU

Mounting Code	AC Amps Drawn @+120V
Dedicated space in PDP-11/44 CPU cabinet	1.0

PDP-11/70 Processor Option

FP11-C Floating point processor for PDP-11/70 with set of 46 instructions. Performs hardware operations on 32-bit and 64-bit floating point numbers providing up to 17 digits of precision as well as integer to floating point conversions.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated PDP-11/70 slots		Dedicated		N/A

PDP-11/70 Memory

MK11-CE 512 KB ECC MOS expansion memory.
PREREQUISITE: ECC MOS PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated slots in PDP-11/70 memory backplane		Dedicated		N/A

MK11-CF 1024 KB ECC MOS expansion memory (2 MK11-CEs). Mounts in MK11-CA(CB).
PREREQUISITE: ECC MOS PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
Dedicated slots in PDP-11/70 memory backplane		Dedicated		N/A

PDP-11/23-PLUS (EXTENDED LSI-11 BUS) COMMUNICATION OPTIONS

Extended LSI-11 Bus communication options are compatible with the cable management scheme of PDP-11/23-PLUS systems. **NOTE:** PDP-11/23-PLUS Communication Options are **not** for use with PDP-11/23 systems. Consult your local DIGITAL sales representative for more details.

DLV11-ED

Asynchronous EIA line interface module with full modem control. Selectable stop data bits. Even, odd, or no parity. Full- or half-duplex. Data rates from 50 to 19,200 bits per second. Compatible with Bell 103, 113, 202C, 202D, and 212 modems. Includes internal cabling from the option module to the H349 System Distribution Panel. **NOTE:***External cables not included.* Recommended cable is the BC22B-25.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 Extended LSI-11 Double slot H349 DISTRIBUTION PAN	1.0	0.15	1	RT-11, RSX-11M RSX-11M-PLUS, RSTS/E

DLV11-JA

Four-line asynchronous EIA/CCITT serial line unit without modem control. Character formats: 7- or 8- data bits, 1- or 2- stop bits, even, odd or no parity. Data rates from 150 to 38,400 bits per second. Includes internal cabling from the option module to the H349 System Distribution Panel. **NOTE:***External cables not included.* Recommended cable is one BC22A-25 cable per line.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 Extended LSI-11 Double slot H349 DISTRIBUTION PAN	1.0	0.15	1	RT-11, RSX-11M RSX-11M-PLUS

DMV11-AA

A synchronous line controller that is an intelligent, micro-processor based, communication device. It supports FDX or HDX Direct Memory Access (DMA) data transfer in either point-to-point or multipoint operation. Depending on operating system and layered software implementation, the DMV11-AA will support up to 12 multipoint tributaries. The controller microcode handles all DDCMP protocol processing. In point-to-point operation the DMV11-AA can communicate with a DMC11, DMR11, DMP11, or DMV11 device operating in the same mode. In multipoint operation the complementary devices must be DMP11's or DMV11's. The maximum data rate for EIA RS-423A operation is 56KB/s and for EIA RS232-C, CCITT V.24, or CCITT V.28 it's 19.2 KB/s. Internal cabling from the option module to the H349 System Distribution Panel is included. **NOTE:***External cables not included.* Recommended cable is the BC22B-25.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 Extended LSI-11 Quad slot H349 DISTRIBUTION PAN	3.41	0.38	1	All DECnets

DMV11-AC

A synchronous line controller that is an intelligent, micro-processor based, communication device, with integral modem. It supports FDX or HDX Direct Memory Access (DMA) data transfer in either point-to-point or multipoint operation. Depending on operating system and layered software implementation, the DMV11-AC will support up to 12 multipoint tributaries. The controller microcode handles all DDCMP protocol processing. In point-to-point operation the DMV11-AC can communicate with a DMC11, DMR11, DMP11, or DMV1 device operating in the same mode. In multipoint operation the complementary devices must be DMP11's or DMV11's. The DMV11-AC supports a fixed data rate of 56,000 b/s. Internal cabling from the option module to the H349 System Distribution Panel is included. **NOTE:***External cables not included.* Recommended cable is the BC55M-98 for half-duplex operation. Full-duplex operation requires two BC55M-98 cables.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 Extended LSI-11 Quad slot H349 DISTRIBUTION PAN	3.41	0.26	1	All DECnets

DZV11-C

Asynchronous 4-line multiplexer for EIA/CCITT terminals or modems. Programmable speeds (up to 9600 bits per second) and formats on a per-line basis. Includes data set control for use with Bell 103 or 113 or equivalent modems. Includes internal cabling from the option module to the H349 System Distribution Panel. Four external cables are required.**NOTE:***External cables not included.* Recommended cables are BC22B-25 and BC22A-25.
PREREQUISITE: PDP-11/23-PLUS

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 Extended LSI-11 Double slot H349 DISTRIBUTION PAN	1.2	0.39	1	RT-11, RSX-11M RSX-11M-PLUS, RSTS/E

EXTENDED LSI-11 BUS Cables and Accessories

BC22A-xx

Null modem EIA cable RS-232C, 3 twisted-pair shielded, molded connectors allows local connection of asynchronous terminals having EIA interfaces. The following standard lengths are available: 10 ft (3.0 m), 25 ft (7.6 m).

BC22B-xx

A null modem cable assembly especially designed for connections to asynchronous EIA terminals. Female RS232 connectors are located at each end. These permit the cable to connect to a male connector on the distribution panel of a communications option or to the cable from a serial processor interface. It can also be used as an extension cable for terminals. The braided shielded cable minimizes cross-talk. The following standard lengths are available: 10 ft (3.0 m), 25 ft (7.6 m).

BC55M-98

98 ft (29.9 m) triaxial cable, with AMP connectors, for local connection of DMR11-AC and DMV11-AC units. Two cables are needed for full-duplex operation. Use for speeds of 250K b/s and above.

H349

Multi-function 10.5 in (26.5 cm) System Distribution Panel that is an integral part of each PDP-11/23-PLUS system. The H349 is 10.5 in (26.5 cm) panel offered in customized systems to facilitate integration of PDP-11/23-PLUS options and improve cable management. Eight cutouts of various sizes are provided for mounting connector assemblies of the PDP-11/23-PLUS options listed above. Includes cabling from the PDP-11/23-PLUS CPU Module (KDF11-B) to two 25-pin "D" connectors mounted in dedicated openings. The recommended external cable for each of these two serial lines is the BC22A-25.

PDP-11/23 (LSI-11 BUS) COMMUNICATIONS OPTIONS

PDP-11/23 communications options are for use with PDP-11/23 systems. They are **not** for use with PDP-11/23-PLUS systems.

Single Line Asynchronous Interfaces

Single line asynchronous interfaces provide local and remote interconnection of the LSI-11 bus to terminals and other computer systems.

DLV11

Serial interface unit. Operates at full- or half-duplex. Optically-isolated 20mA current loop or EIA/CCITT interface levels. Selectable stop and data bits. Data rates from 50 to 9600 bits per second. *Does not provide modem control.* **Note:** *Cables not included.* BC05M is recommended for 20 mA operation; BC01V-25 or BC05C-xx is recommended for EIA operation.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RSX-11M, RT-11, RSX-11M-PLUS

DLV11-E

Asynchronous line interface module with EIA interface levels. Selectable stop and data bits. Even, odd or no parity. Operates at full- or half-duplex. Data rates from 50 to 19,200 bits per second. Compatible with Bell 103, 113, 202C, 202D, 212. Provides full modem control. **Note:** *Cable not included.* BC05C-xx is recommended.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS RSX-DECnet

DLV11-EB

Asynchronous line interface module with EIA interface levels. Selectable stop and data bits. Even, odd or no parity. Operates at full- or half-duplex. Data rates from 50 to 19,200 bits per second. Compatible with Bell 103, 113, 202C, 202D, 212. Provides full modem control. **Note:** Includes BC01V-25 cable.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS

DLV11-F

Asynchronous line interface module. Operates at full- or half-duplex. Supports 20mA current loop or EIA/CCITT interface levels. Selectable stop and data bits. Data rates from 50 to 19,200 bits per second. *Does not provide modem control.* **Note:** *Cable not included.* BCO5M-xx is recommended for 20mA operation; a BCO1V-25 or BC05C-xx is recommended for EIA operation.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS DECnet-11M

DLV11-FA

20mA asynchronous line interface module. Operates at full- or half-duplex. Selectable stop and data bits. Data rates from 50 to 19,200 bits per second. *Does not provide modem control.* **Note:** Includes BC05M-04 cable.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS

DLV11-FB

EIA/CCITT asynchronous line interface module. Operates at full- or half-duplex. Selectable stop and data bits. Data rates from 50 to 19,200 bits per second. *Does not provide modem control.* **Note:** Includes BC03L-05 cable.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS

Four Channel Asynchronous Serial Line Unit

DLV11-J

4-line asynchronous EIA/CCITT serial line unit. Character formats: 7 or 8 data bits; 1 or 2 stop bits; parity or no parity; and even or odd parity. Operates full- or half-duplex. Data rates from 150 to 38,400 bits per second. Bidirectional data input/output lines, up to 16 bit interrupts. *Does not provide modem control.* **Note:** *Cables not included.* Recommended cables are: BC20N-05, an EIA null modem cable to directly interface with a terminal; BC21B-05, an EIA modem cable to interface with modems and acoustic couplers; and a BC20M-50 for high-speed transmission between two DLV11-Js.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.0	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS

DLV11-KA

EIA to 20mA converter with BC21A-03 cable for connection to the DLV11-J. **Note:** *Cables not included for connection to equipment.* Use standard DIGITAL 20mA cabling such as BC05F.
PREREQUISITE: DLV11-J

Asynchronous Multiplexer (Programmed I/O)

An asynchronous multiplexer interconnects the LSI-11 bus with up to four asynchronous serial data communications lines.

DZV11-B

Asynchronous 4-line multiplexer for EIA/CCITT terminals or lines. Features programmable speeds (up to 9600 bits per second) and formats on a per line basis. Includes data set control for use with BELL 103 or 113 modems or equivalent. **Note:** Includes BC11U cable.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.2	0.39	1	RT-11, RSX-11M, RSX-11M-PLUS DECnet-11M

Single Line Synchronous Interface

Single line synchronous interfaces are buffered, program-controlled, communications options used to connect the LSI-11 bus and a Bell 201 synchronous modem or equivalent. They support a wide variety of protocols including those that are bit-oriented and byte-oriented.

DPV11-DB

Single line synchronous interface for connecting LSI-11s to synchronous modems. Full modem control for half- or full-duplex operation. It is also capable of transmitting data at speeds up to 56,000 bits per second.
Note: Includes BC26L-25 cable.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	1.2	0.3	1	RSX-11M, RSX-11M-PLUS

Network Link Modules

Network link modules are designed for high-performance interconnection of LSI computers in local or remote applications.

DMV11-AA

A synchronous line controller that is an intelligent, micro-processor based, communication device. It supports FDX or HDX Direct Memory Access (DMA) data transfer in either point-to-point or multipoint operation. Depending on operating system and layered software implementation, the DMV11-AA will support up to 12 multipoint tributaries. The controller microcode handles all DDCMP protocol processing. In point-to-point operation the DMV11-AA can communicate with a DMC11, DMR11, DMP11, or DMV11 device operating in the same mode. In multipoint operation the complementary devices must be DMP11's or DMV11's. The maximum data rate for EIA RS-423A operation is 56KB/s (requires a cable not available through DIGITAL) and for EIA RS232-C, CCITT V.24, or CCITT V.28 it's 19.2 KB/s. **NOTE:***External cables not included.* Recommended cable is the BC22B-xx or the BC55D-xx.

PREREQUISITE: PDP-11/23 system

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 QUAD slot	4.7	0.38	1	RT-11, RSX-11M DECnet-11M

DMV11-AB

A synchronous line controller that is an intelligent, micro-processor based, communication device. It supports FDX or HDX Direct Memory Access (DMA) data transfer in either point-to-point or multipoint operation. Depending on operating system and layered software implementation, the DMV11-AB will support up to 12 multipoint tributaries. The controller microcode handles all DDCMP protocol processing. In point-to-point operation the DMV11-AB can communicate with a DMC11, DMR11, DMP11, or DMV11 device operating in the same mode. In multipoint operation the complementary devices must be DMP11's or DMV11's. The maximum data rate for CCITT V.35/DDS operation is 56KB/s. **NOTE:***External cables not included.* Recommended cable is the BC55D-xx

PREREQUISITE: PDP-11/23 system

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 QUAD slot	4.7	0.38	1	RT-11, RSX-11M DECnet-11M

DMV11-AC

A synchronous line controller that is an intelligent, micro-processor based, communication device, with integral modem. It supports FDX or HDX Direct Memory Access (DMA) data transfer in either point-to-point or multipoint operation. Depending on operating system and layered software implementation, the DMV11-AC will support up to 12 multipoint tributaries. The controller microcode handles all DDCMP protocol processing. In point-to-point operation the DMV11-AC can communicate with a DMC11, DMR11, DMP11, or DMV1 device operating in the same mode. In multipoint operation the complementary devices must be DMP11's or DMV11's. The DMV11-AC supports a fixed data rate of 56,000 b/s. **NOTE:***External cables not included.* Recommended cable is the BC55M-98 for half-duplex operation. Full-duplex operation requires two BC55M-98 cables.

PREREQUISITE: PDP-11/23 system

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 QUAD slot	4.4	0.38	1	RT-11, RSX-11M DECnet-11M

LSI-11 BUS Communications Cables

BC01V-25

This is an EIA input/output cable assembly. It is used for asynchronous serial line unit interfacing to connect the interface to the modem device or null modem EIA extension cable. This round, 15-conductor, RS232C cable comes with a 44-position H856 connector and 25-pin RS232 male connector. Available in a standard 25 ft (7.6 m) length. Used with DLV11 for limited modem control.

BC03L-xx

A round, 15-conductor cable with 44-position H856 connector and a filtered EIA RS232(M) male connector for serial interfacing applications. The following standard lengths are available: 5 ft (1.5 m), and 10 ft (3.0 m).

BC05C-xx

This is an EIA input/output cable used for asynchronous, serial line unit interfacing. The cable can be used for full or limited modem control applications. The round, 25-conductor cable features the H856 and RS232 male connectors. The following standard lengths are available: 9 ft (2.7 m), 25 ft (7.6 m), 35 ft (10.6 m), and 50 ft (15.2 m).

BC05F-xx

This round, 4-conductor cable assembly features male 8-pin connectors at each end for use with 20mA input/output devices. The following standard lengths are available: 15 ft (4.6 m), 50 ft (15.2 m), and 100 ft (30.5 m).

BC05M-xx

This is a round, 6-conductor current loop input/output cable assembly. It is used with 20mA current loop interfacing applications. Its 3-twisted pairs make it ideal for applications where minimizing cross-talk is necessary. It features H856 and MATE-N-LOK female connectors. The following standard lengths are available: 2 ft, 3 in (0.7 m), 4 ft (1.2 m), and 25 ft (7.6 m). Used with DLV11 and DL11-WA.

BC20M-50

RS232 I/O cable with 10-pin AMP connectors at both ends. Available in a standard 50 ft (15.2 m) length. For use in high-speed communication between two DLV11-Js.

BC21B-05

Round, 6-conductor cable assembly featuring a male EIA RS232 connector with built-in strain relief at one end and a 10-pin keyed socket at the other end. This 3-twisted wire pairs, shielded cable is for use with the DLV11-J. Available in a standard 5 ft (1.5 m) length. For use with the DLV11-J.

UNIBUS COMMUNICATION OPTIONS

Single Line Asynchronous Interfaces

Single line asynchronous interfaces provide local and remote interconnection of the UNIBUS to terminals and other computer systems.

DL11-WB
DL11-WC

EIA/CCITT serial line interface and line frequency realtime clock. Switch-selectable character size, parity, stop bit(s), and speed of operation. Operates at full- or half-duplex. The line frequency clock is used when this option is the console interface on a PDP-11/34A. The DL11-WB and DL11-WC require a null modem with local devices. For remote communication, modems are also required. **Note:** DL11-WB includes 25 ft (7.6m) cable for connection to modem. DL11-WC includes 10 ft (3 m) cable for connection to modem.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot	2.0	0.05	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DL11-WA

20mA serial line interface and line frequency realtime clock. Switch-selectable character size, parity, stop bit(s), and speed of operation. Operates at full- or half-duplex. Switch- selectable active or passive transmitter and receiver. The line frequency clock is used when this option is the console interface on a PDP-11/34A. **Note:** Includes 2.25 ft (0.7 m) cable.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot	2.0	0.05	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DL11-E

Modem controlling EIA/CCITT serial line interface with jumper- selectable speed, character size, parity, and stop bit(s). Operates at full- or half-duplex. Compatible with Bell 103, 113, 202 or equivalent. **Note:** Includes 25 ft (7.6 m) of cable for connection to modem.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot	1.8	0.05	0.15	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

Notes:

1. The following alternatives must be specified for DL11s:
   Character size: 5, 6, 7, or 8 data bits.
   Parity: even, odd, or none.
   Stop bits: 1, 1.5 (5-bit characters only), or 2 (6- to 8-bit characters only).
2. DL11-E customers must specify data rate from the following speeds: 50, 75, 134.5, 200, 300, 600, 1200, 1800, 2400, 4800, or 9600 bits per second.
3. DL11-WA and DL11-WB data rates are switch-selectable and must be specified from the following speeds: 110, 150, 300, 600, 1200, 2400, 4800, or 9600 bits per second. Character formats are switch-selectable.

Asynchronous Multiplexers (Programmed I/O)

Asynchronous serial communications lines can be used for local and remote interconnection of the UNIBUS to a maximum of 16 terminals.

DZ11-A

Asynchronous 8-line multiplexer for EIA/CCITT terminals or lines. Features programmable speeds (up to 9600 b/s) and formats on a per-line basis. Operates at full-duplex. Can expand to 16 lines with the addition of a DZ11-B and includes 16-line DISTRIBUTION PAN. Includes data set control for use with Bell 103 or 113 modems or equivalent. **Note:**For modems, BC22B-xx cables are needed. For local connection of EIA/CCITT terminals, order BC22A-xx cables.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot DISTRIBUTION PAN space	2.2	0.10	0.13	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DZ11-B

Eight-line EIA/CCITT expansion multiplexer for the DZ11-A.
PREREQUISITE: DZ11-A.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot	2.2	0.10	0.13	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DZ11-C

Asynchronous 8-line multiplexer for 20mA current loop terminals. Features programmable speeds (up to 9600 b/s) and formats on a per-line basis. Operates at full-duplex. Can expand to 16 lines with the addition of a DZ11-D. Includes 16-line DISTRIBUTION PAN. **Note:** *Cables not included.* Order a BC04R-12 cable for DIGITAL 20mA terminals.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot DISTRIBUTION PAN space	2.1	0.12	0.40	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DZ11-D

8-line 20mA current loop expansion multiplexer for the DZ11-C.
PREREQUISITE: DZ11-C.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot	2.1	0.12	0.40	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DZ11-E

Asynchronous 16-line multiplexer for EIA/CCITT terminals or lines. Features programmable speeds (up to 9600 b/s) and formats on a per-line basis. Operates at full-duplex. Includes 16-line DISTRIBUTION PAN. Includes data set control for use with Bell 103 and 113 modems or equivalent. **Note:** For modems, BC22B-xx cables are needed. For local connection of EIA/CCITT terminals, order BC22A-xx series of cables.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 Hex slots DISTRIBUTION PAN space	4.4	0.20	0.26	2	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

DZ11-F

Asynchronous 16-line multiplexer for 20mA current loop terminals. Features programmable speeds (up to 9600 b/s) and formats on a per-line basis. Operates at full-duplex. Includes 16-line DISTRIBUTION PAN. **Note:** *Cables not included.* Order BC04R-12 cables for DIGITAL 20mA terminals.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 Hex slots DISTRIBUTION PAN space	4.2	0.24	0.80	2	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

Asynchronous Multiplexers (NPR Output)

Asynchronous multiplexers can be used for local and remote interconnection of the UNIBUS to terminals with 16 asynchronous serial communications lines. These are high-performance units with programmable character formats and operating speeds.

DH11-AD Complete programmable asynchronous EIA/CCITT 16-line multiplexer. Operates full- or half-duplex. Includes modem control. **Note:** *Cables not included.* For modems BC22B-25 cables are needed. For local connection of EIA/CCITT terminals, use BC22A-xx cables.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 SUs SM DISTRIBUTION PAN	10.8	0.40	0.65	3	RSX-11M, RSX-11M-PLUS, RSTS/E

DH11-AE Complete programmable EIA/CCITT asynchronous 16-line multiplexer. Operates full- or half-duplex. Does not include modem control. For local connection of EIA/CCITT terminals use BC22A-xx series cables. **Note:** *Cables not included.*

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 SUs SM DISTRIBUTION PAN	8.6	0.10	0.34	2	RSX-11M, RSX-11M-PLUS, RSTS/E

Single Line Synchronous Interface

DUP11-DA Full- or half-duplex synchronous interface. Can be programmed to handle 8-bit character-oriented protocols such as DDCMP and BISYNC and bit-oriented protocols such as SDLC and HDLC. Hardware calculates CRC-16 when using DDCMP protocol (not BISYNC) and CRC/CCITT when using bit-oriented protocols. Interfaces to Bell 200 series modems or equivalent at speeds up to 9600 b/s. **Note:** Includes 25 ft (7.6 m) modem cable and data set control.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot	3.6	0.08	0.08	1	RSX-11M, RSX-11M-PLUS, DECnet-RT,DECnet-11M

Network Link Modules

Network link modules are designed for high-performance interconnection of PDP-11 computers in local or remote applications.

DMR11-AC Network link DDCMP microprocessor and line unit modules for operation support. Provides high-speed connection to another DMR11 or DMC11 using twin-axial, co-axial, or tri-axial cables up to 18,000 ft (5,486 m). Operates full-duplex with two cables and half-duplex with a single cable. Includes integral modem. Switch-selectable speeds of 56K b/s (max. cable length of 18,000 ft /5,486 m); 250K b/s (max. cable length of 9,000 ft /2,743 m); 500K b/s (max. cable length of 9,000 ft /2,743 m); 1 M b/s (max. cable length of 6,000 ft /1,829 m). **Note:** *Cables not included.* A BC03N-AO, BC55M-98, or BC55N-98 cable is recommended. For use only on local networks.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 Hex slots*	12.0	0.11	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

***Configuring Requirement:** The DMR11 includes a 5.25 in (13.3 cm) H x 4 in (10.2 cm) W distribution panel which occupies one half of a SM DISTRIBUTION PAN space. Two DMR11 distribution panels would occupy both halves, or a total of one SM DISTRIBUTION PAN space.

DMC11-AR

Network link DDCMP microprocessor module (remote). DDCMP protocol implemented in hardware for remote operation. Operates full- or half-duplex. NPR input and output transfers. Includes firmware for unattended operation (remote load detect). **Note:** Requires DMC11-DA or DMC11-FA line unit.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot	5.0	0.00	0.00	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMC11-DA

Network link line unit module (remote). Interfaces to EIA/CCITT synchronous modems (Bell series 200 compatible) at speeds up to 19,200 b/s. Operates full- or half-duplex. Includes data set control for switched network operations. Can be used to communicate over common carrier facilities to another DMC11 or to a synchronous interface with software implementation of DDCMP version 3.2. **Note:** Includes 25 ft (7.6 m) modem cable.
PREREQUISITE: DMC11-AR.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot (next to DMC11-AR)	3.0	0.03	0.31	N/A	All DECnets, RSX-11M, RSX-11M-PLUS

DMC11-FA

Network link line unit module (remote). Interfaces to CCITT V.35/DDS synchronous modems (Bell 500A L1/5 or equivalent) at speeds up to 250,000 b/s. Includes data set control for full- or half-duplex, private-wire operation. Can be used to communicate over common carrier facilities to another DMC11 or to a synchronous interface with software implementation of DDCMP version 3.2. **Note:** Includes 25 ft (7.6 m) modem cable.
PREREQUISITE: DMC11-AR.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot (next to DMC11-AR)	3.0	0.03	0.31	N/A	All DECnets, RSX-11M, RSX-11M-PLUS

DMP11-AA

Multipoint or point-to-point network link DDCMP microprocessor and line unit modules for remote communication. Includes data set control for switched network operations and operates at full- or half-duplex. Can be used to communicate over common carrier facilities to another DMP11 or equivalent synchronous interface with software implementation of DDCMP version 3.1 or 4.0. Depending on operating system and layered software implementation, the DMP11-AA will support up to 32 tributaries. In multipoint operation, the complementary devices must be DMP11's or DMV11's operating in the same mode. The maximum data rate for EIA RS432-A is 56 KB/s and for EIA RS232-C, CCITT V.24 or CCITT V.28 it's 19.2 KB/s. **NOTE:** *Cable not included.* Recommended cable is the BCO5D-25. RS432-A operation requires a cable not available through DIGITAL.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 HEX slots SM DIST PAN space	12.0	0.10	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMP11-AB

Multipoint or point-to-point network link DDCMP microprocessor and line unit module for remote communication. Data transfer at speeds up to 56,000 b/s while operating at full- or half-duplex. Can be used to communicate over common carrier facilities to another DMP11 or equivalent synchronous interface with software implementation of DDCMP version 3.1 or 4.0. Depending on operating system and layered software implementation, the DMP11-AB will support up to 32 tributaries. In multipoint operation, the complementary devices must be DMP11's or DMV11's operating in the same mode. Interfaces to CCITT V.35/DDS synchronous modems (Bell 500A L1/5 or equivalent). **NOTE:**Includes 25 ft (7.6) modem cable.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 HEX slots SM DIST PAN space	12.0	0.10	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMP11-AC

Network link DDCMP microprocessor and line unit module for local communication. Provides high speed connection to another DMP11, DMR11, or equivalent using a twin-axial or tri-axial cable. Operates at full-duplex with two cables and at half-duplex with one. Includes integral modem. Maximum switch-selectable speeds of 500,000 b/s (full-duplex—maximum cable length of 7,000 ft/2,100 m) and one million b/s (half-duplex—maximum cable length of 6,000 ft/1,800 m). Depending on operating system and layered software implementation, the DMP11-AC will support up to 32 tributaries. In multipoint operation, the complementary devices must be DMP11's or DMV11's operating in the same mode.**Note:** Cables not included. A BC55M-98 or BC55N-98 is recommended.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 HEX slots SM DIST PAN	12.0	0.10	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMP11-AE

Network link DDCMP microprocessor and line unit module for remote communication. Data transfer at speeds up to one million b/s (half-duplex) and 500,000 b/s (full-duplex). Can be used to communicate over common carrier facilities to another DMP11 or equivalent synchronous interface with software implementation of DDCMP version 3.1 or 4.0. Depending on operating system and layered software implementation, the DMP11-AE will support up to 32 tributaries. In multipoint operation, the complementary devices must be DMP11's or DMV11's operating in the same mode. **NOTE:***Cable not included.* Operation requires a cable not available through DIGITAL.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 HEX slots SM DIST PAN	12.0	0.10	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMR11-AA

Network link DDCMP microprocessor and line unit modules for remote support. Speeds up to 19,200 b/s. Operates at full- or half-duplex. Includes data set control for switched network operations. Can be used to communicate over common carrier facilities to another DMR11, DMC11, or to a synchronous interface with software implementation of DDCMP version 3.1 or 4.0.
Interfaces to EIA RS232-C/CCITT V.24 synchronous modems (Bell series 200 compatible). **Note:** *Cable not included.* BC22B-xx is recommended. Also interfaces to EIA RS423/CCITT V.24 synchronous modems. *(Requires cable which is not available through DIGITAL).*

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 Hex slots* SM DISTRIBUTION PAN space	12.0	0.11	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMR11-AB

Network link DDCMP microprocessor and line unit modules for remote support. Interfaces to CCITT V.35/DDS synchronous modems (Bell 500A L1/5 or equivalent) at speeds up to 1,000,000 b/s. Includes data set control for full- or half-duplex, private-wire operation. Can be used to communicate over common carrier facilities to another DMR11, DMC11 or to a synchronous interface with software implementation of DDCMP version 3.1 or 4.0. **Note:** Includes 25 ft (7.6 m) modem cable.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 Hex slots* SM DISTRIBUTION PAN	12.0	0.11	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

DMR11-AE

Network link DDCMP microprocessor and line unit modules for remote support. Speeds up to 1,000,000 b/s. Operates at full- or half-duplex. Includes data set control for switched network operations. Can be used to communicate over common carrier facilities to another DMR11, DMC11, or to a synchronous interface with software implementation of DDCMP version 3.1 or 4.0.
Interfaces to EIA RS422/CCITT V.24 synchronous modems. *(Requires cable which is not available through DIGITAL).*

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 Hex slots* SM DISTRIBUTION PAN	12.0	0.11	0.20	1	All DECnets, RSX-11M, RSX-11M-PLUS

***Configuring Requirement:** DMR11s include one 5.25 in (13.3 cm) H x 4 in (10.2 cm) W SM DISTRIBUTION PAN which occupies one side of a DIST PAN space. Two DMR11 distribution panels would occupy both sides, or a total of one SM DISTRIBUTION PAN space.

PCL11-B

Multidrop communication link used to connect up to 16 processors in a local distributed processing network. Transmits data in block mode with Direct Memory Access (DMA) via a time division multiplexed (TDM) 16-bit parallel bus. Total TDM bus bandwidth ranges up to 1 MB/s. The total bandwidth between any transmitter and receiver can be as high as 500 KB/s depending on the percentage of bandwidth that is allocated to the transmitter. Data is transmitted at full-duplex. CRC and word parity error detection supported by hardware. Maximum TDM bus length is 300 ft (91 m). **Additional internode cables may be purchased separately. Consult your local DIGITAL sales representative for information.**

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
2 SUs	14.0	0.00	0.50	1.5	RSX-11M, RSX-11M-PLUS DECnet-11M DECnet-11M-PLUS

Communications Arithmetic Option

KG11-A

Communications arithmetic option. Computes cyclic redundancy check (CRC), longitudinal redundancy check (LRC), and block check characters (BCC).

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot	1.2	0.00	0.00	1	N/A

Auxiliary Communications Processor

KMC11-A

High-speed general purpose micro-processor that interfaces between synchronous or asynchronous I/O options and the PDP-11 UNIBUS. NPR UNIBUS interface provides 8- or 16-bit direct memory access to data buffers or control blocks located in PDP-11 memory under microprogram control. External connector furnished to allow direct connection to peripherals such as DUP11 synchronous line unit or DZ11 asynchronous line unit.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot	5.0	0.00	0.00	1	RSX-11M, RSX-11M PLUS DECnet-11M DECnet-11M-PLUS

Auto Dial Interfaces

DN11-AA

Frame for up to 4 DN11-DA module sets.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V
1 SU	1.4	0.00	0.00

DN11-DA

Module set interface to Bell 801 ACU. **Note:** Includes 25 ft (7.6 m) cable.
PREREQUISITE: DN11-AA

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
DN11-AA	0.4	0.00	0.00	1

Modems

DF02-AA Direct connect, full-duplex, asynchronous modem with self-contained power supply operating at speeds of 0-300 bits per second. Allows terminals and processors to communicate over unconditioned, dial-up lines. Compatible with DF03 modem, Bell System 103J, 212A data sets, and all DIGITAL asynchronous data communication controllers that support EIA RS232-C interface standard and dial-up modem control. **NOTE:** Available in U.S. only.

DF02-AC Consists of a DF02 modem with serial Automatic Call Unit (ACU). ACU allows initiating calls without operator intervention, and uses an asynchronous ASCII input format at switch-selectable data rates of 110 or 300 bits per second. Can store up to 16 digits for dialing/redialing. **NOTE:** Available in U.S. only.

DF03-AA Direct connect, full-duplex, synchronous/asynchronous modem with self-contained power supply operating at speeds of 0-300 bits per second or 1200 b/s. Allows terminals and processors to communicate over unconditioned, dial-up lines. Low-speed operation (0-300 b/s) is asynchronous; high-speed operation (1200 b/s) can be either character-asynchronous or bit-synchronous. Compatible with DF02 modem, Bell System 103J, 212A data sets, and all DIGITAL data communication controllers that support EIA RS232-C interface standard and dial-up modem control. **NOTE:** Available in U.S. only.

DF03-AC Consists of a DF03 modem with serial Automatic Call Unit (ACU). ACU allows initiating calls without operator intervention, and uses an asynchronous ASCII input format at switch-selectable data rates of 110, 300, or 1200 bits per second. Can store up to 16 digits for dialing/redialing. **NOTE:** Available in U.S. only.

UNIBUS Communications Cables

BC03N-A0 100 ft (30.5 m) coaxial cable for use with local DMC11 line units. When interconnecting a pair of line units one cable is required for half-duplex operation and two cables are required for full-duplex operation. DMC11-MA or DMC11-MD. Use Belden cable type 8232 or equivalent for lengths greater than 100 ft.

BC04R-12 A round, 6-conductor general purpose module termination cable assembly for use with asynchronous, 20mA current loop terminals. Used with the DZ11-C and DZ11-F.

BC22A-xx Null modem EIA cable RS-232C, 3 twisted pair shielded molded connectors allows local connection of asynchronous terminals having EIA interfaces. The following standard lengths are available: 10 ft (3.0 m), 25 ft (7.6 m).

BC22B-xx A null modem cable assembly especially designed for connections to asynchronous EIA terminals. Female RS232 connectors are located at each end. These permit the cable to connect to a male connector on the distribution panel of a communications option or to the cable from a serial processor interface. It can also be used as an extension cable for terminals. The braided shielded cable minimizes cross-talk. The following standard lengths are available: 10 ft (3.0 m), 25 ft (7.6 m).

BC55M-98 98 ft (29.9 m) triaxial cable, with AMP connectors, for local connection of DMR11-AC units. Two cables are needed for full-duplex operation. Use for speeds of 250K b/s and above.

BC55N-98 98 ft (29.9 m) twinaxial cable, with AMP connectors, for local connection of DMR11-AC units. Two cables are needed for full-duplex operation. Use for 56K b/s transmission.

REALTIME I/O OPTIONS

PDP-11/23-PLUS (EXTENDED LSI-11 BUS) Realtime I/O Options

NOTE: Consult your local DIGITAL sales representative for details concerning these options.

PDP-11/23 (LSI-11 BUS) Realtime I/O Options

AAV11-C

12-bit 4-channel digital-to-analog converter and CRT control.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Quad slot	2.0	1.00	1	RSX-11M, RSX-11M-PLUS

DRV11

General purpose program-controlled parallel line interface unit. Permits program-controlled data transfers at rates up to 40K words per second. **Note:** *Cables not included.* BC04Z or BC07D are recommended.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Double slot	0.9	0.00	1	RSX-11M

DRV11-B

General purpose direct memory access (DMA) parallel line interface unit. It permits data transfers at rates up to 250K words per second in single cycle mode and up to 500K words per second in burst mode. **Note:** *Cables not included.* BC04Z or BC07D are recommended.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Quad slot	1.9	0.00	1	N/A

KWV11-C

16-bit programmable realtime clock. Four programmable modes and five crystal-controlled frequencies are user-selectable.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	Bus Loads Drawn	System Software
1 LSI-11 Quad slot	1.8	0.01	1	RSX-11M, RSX-11M-PLUS

UNIBUS Realtime I/O Options

LPA11-KK

Package of LPA11-K Direct Memory Access (DMA) microprocessor subsystem, ADK11-KT analog-to-digital converter package, and DD11-CK backplane. The LPA11-K peripheral accelerator is an intelligent, high-speed, direct memory access (DMA) microprocessor subsystem for realtime I/O devices. It is designed to relieve the host CPU of the high-interrupt load normally associated with realtime data handling involving laboratory devices, and to increase realtime I/O throughput. Added functionality can also be built into the subsystem, simplifying user programming tasks. The LPA11 subsystem allows concurrent multiuser control of analog-to-digital (ADC), digital-to-analog converters (DAC), and parallel digital I/O devices. It operates in two modes, dedicated and multirequest. In dedicated mode it performs data transfers from ADCs or DACs for the single user. In multirequest mode up to eight users can perform I/O at independent rates to and from ADCs, DACs, and I/O digital devices. Three types of channel address selection are provided: single-channel, sequential-channel, and random-channel mode. The LPA11-KK subsystem has the capability of diagnosing faults within its I/O peripherals. Request verification and error reporting are provided by the microprocessor during data acquisition. Multiple LPA11-KK subsystems can be used on a UNIBUS PDP-11 system with the total number depending on the individual application. As many as four subsystems can be active simultaneously. FORTRAN, FORTRAN-77, BASIC-PLUS-2, and MACRO pro-

gramming languages are supported under RSX-11M and RSX-11M-PLUS operating systems. A library of FORTRAN subroutines is included with the LPA11-KK option.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 SU, 1 adjacent UNIBUS Hex slot, SM PAN*	19.5	0.00	0.05	1	RSX-11M, RSX-11M-PLUS

***Configuring Requirement:** In a typical application, the LPA11 master microprocessor board is mounted in the last open hex slot of a UNIBUS CPU or UNIBUS backplane. The DMA feature of the LPA11 subsystem requires that it be mounted as close to the CPU as possible. This effectively ends the UNIBUS backplane (there is one UNIBUS quad slot left). Additional backplane space, for add-on peripherals, is made possible by removing the UNIBUS terminator and adding a UNIBUS extension cable. The slave microprocessor board and interprocessor buffer board occupy the first quad and hex slots of the (DD11-CK) backplane. Additional mounting slots in the LPA11 backplane are used for mounting the AD11-K, KW11-K, or I/O interfaces. When these options are mounted in the LPA11 backplane, the bus loads are not applicable. Bus loads for these options apply only when adding them directly to the UNIBUS. Power requirements for the options are drawn from the BA11 type expander box in which the LPA11 subsystem is mounted.

AA11-KT Package of AA11-K, 12-bit 4-channel digital-to-analog converter and CRT control, distribution panel, and BC08R cable.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot (UNIBUS or LPA11-KK bus), SM DISTRIBUTION PAN	2.5	0.00	0.05	1	RT-11, RSX-11M, RSX-11M-PLUS

AD11-K 12-bit,16-channel single-ended/8-channel true differential analog-to-digital converter with self-test and software-controlled vernier offset.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot (UNIBUS or LPA11-KK bus)	3.5	0.00	0.00	1	RT-11, RSX-11M RSX-11M-PLUS

ADK11-KT Package of AD11-K analog-to-digital converter, KW11-K realtime clock, distribution panel, and two BC08R cables.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot, 1 Hex slot (UNIBUS or LPA11-KK bus), SM DISTRIBUTION PAN	6.5	0.00	0.05	2	RT-11, RSX-11M, RSX-11M-PLUS

AM11-K 48-channel single-ended or 24-channel differential expander switch gain multiplexer. 6 gain levels per 16 channels.
PREREQUISITE: AD11-KT

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
SM DISTRIBUTION PAN	0.0	0.00	0.00	N/A	RT-11, RSX-11M, RSX-11M-PLUS

AR11-KT Package of AR11 analog realtime subsystem, which includes 10-bit analog-to-digital, 16-channel multiplexer, sample hold, two 10-bit digital-to-analog converters, CRT control, and crystal clock with programmable frequencies. Includes distribution panel and two BC08R cables.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot (UNIBUS or LPA11-KK bus), SM DISTRIBUTION PAN	3.5	0.00	0.05	2	RT-11, RSX-11M

DR11-C

General purpose digital interface. Permits bidirectional 16-bit parallel transfers between the user's device and the UNIBUS. Includes all necessary interrupt, address, and control signals and all required cable connectors. **Note:** *Cables not included.* BC08R is recommended.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot	1.5	0.00	0.00	1	N/A

DR11-KT

DR11-K general purpose digital interface package. This general purpose digital interface permits bidirectional 16-bit parallel transfers between the user's device and the UNIBUS. Features includes recoverable over-voltage protection. Can accommodate both pulse and buffered data input. Each line can generate an interrupt. Includes all necessary interrupt, address, and control signals. Includes distribution panel and two BC08R cables.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot (UNIBUS or LPA11-KK bus), SM DISTRIBUTION PAN	2.5	0.00	0.00	1	RSX-11M, RSX-111M-PLUS

DR11-W

General purpose direct memory access (DMA) controller which interfaces user devices to the PDP-11 UNIBUS. In addition, the DR11-W provides a half-duplex interprocessor link between PDP-11 UNIBUS, VAX, and LSI-11 bus systems when connected to another DR11-W (for PDP-11 or VAX) or DRV11-B (for LSI-11). Features include: transfer of up to 32,768 16-bit words up to 500,000 words per second; word or byte transfers; and burst data transfers. **Note:** BC06R-xx or equivalent cables are required for interconnect, the maximum length being 50 ft (15.2 m).

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot	3.7	0.00	0.00	1	N/A

Realtime Clocks

KW11-K

Dual programmable realtime clock. One 16-bit clock and one 8-bit clock, 5 crystal-controlled frequencies, 1 external, 1 line frequency, and 1 special frequency, 3 Schmitt triggers and 4 modes of operation.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Hex slot (UNIBUS or LPA11-KK bus)	3.0	0.00	0.00	1	RT-11, RSX-11M, RSX-11M-PLUS

KW11-P

Programmable realtime clock. Program-selectable interrupts of 100 kHz, 10 kHz, line frequency or external signal.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn	System Software
1 Quad slot	1.0	0.00	0.00	1	RT-11, RSX-11M, RSX-11M-PLUS

I/O Cables and Accessories

BC04Z-xx This is a 40-conductor, flat, multi-purpose cable with one pre-assembled terminated end. The one open end allows the user to configure this cable to specific system requirements, providing compatibility with customer supplied equipment and instruments. Also features one H855 connector. The following standard lengths are available: 1 ft (0.3 m), 6 ft (1.8 m), 10 ft (3.0 m), 15 ft (4.6 m), 25 ft (7.6 m), and 50 ft (15.2 m). May be used with DRV11.

BC07D-xx This is a 20-conductor, flat, ribbon cable assembly features a 40-pin female H856 connector. The one open end allows the user to configure this cable to specific system requirements, providing compatibility with customer supplied equipment and instruments. Also features one H856 connector. The following standard lengths are available: 10 ft (3.0 m), 15 ft (4.6 m), and 25 ft (7.6 m). May be used with DRV11.

BC08R-xx 40-conductor, flat, ribbon cable designed for multiple interfacing applications. Because the cable is shielded, it provides low noise and can be used input/output module interconnections. Features H855 connectors at each end. The following standard lengths are available: 1 ft (0.31 m), 2 ft (0.6 m), 3 ft (0.9 m), 4 ft (1.2 m), 6 ft (1.8 m), 8 ft (2.4 m), 10 ft (3.0), 12 ft (3.7 m), 20 ft (6.1 m), 25 ft (7.6 m), 50 ft (15.2 m), 60 ft (18.3 m), and 130 ft (39.6 m). May be used with DR11.

BC06R-xx 40-conductor, flat, shielded cable with connectors at both ends. The following standard lengths are available: 6 ft (1.8 m), 10 ft (3 m), 25 ft (7.6 m), or 50 ft (15.2 m). May be used with the DR11-W.

MASS STORAGE

FLOPPY DISK DRIVES

RXV21/RX211 Floppy Disk Subsystems

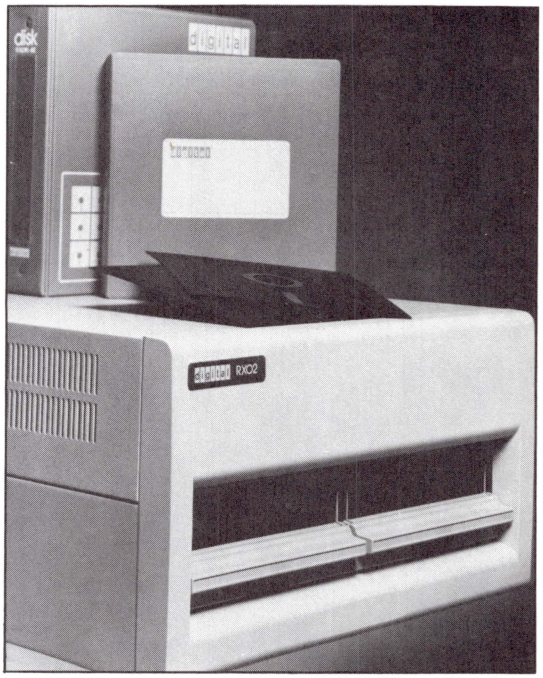
The RXV21 and RX211 double-density dual floppy disk subsystems are industry-compatible, highly reliable mass storage devices. Direct memory access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. These subsystems consist of two RX02 0.5 MB (for a total of 1 MB) drives and a controller with interconnect cabling. It is packaged as a standard cabinet-mountable or tabletop unit.

Expansion Specifications:

- Drives per controller: 2

Performance Specifications:

- Formatted capacity per drive: 0.5 MB
- Peak transfer rate: 61 KB/s
- Average access time*: 262 msec
- Average seek time: 154 msec
- Average settling time: 25 msec
- Average latency time: 83 msec
- Dual-port option: No
- Media surfaces: 1 data
- Tracks per surface: 77
- Sectors per track: 26
- Bytes per sector: 256 (8-bit format)
- Track-track seek: 6 msec
- Rotational speed: 360 rpm



RX211 Floppy Disk Drive

SUBSYSTEMS

RXV21-BA(BD) RXV21 dual floppy disk drive and controller to interface to the LSI-11 bus.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 LSI-11 Double slot PAN	2.2	0.00	3.5	1	RT-11, RSX-11M

RXV21-EA(ED) Table-top RXV21 dual floppy disk drive and controller to interface to the LSI-11 bus.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
TT	2.2	0.00	3.5	1	RT-11, RSX-11M

RXV21-EC Table-top RXV21 dual floppy disk drive and controller to interface to the LSI-11 bus.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	AC Amps Drawn @240V	Bus Loads Drawn	System Software
TT	2.2	0.00	0.00	3.5	1	RT-11, RSX-11M

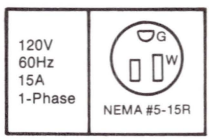
*Average Access Time is defined as the sum of the average seek time plus the average settling time plus the average latency.

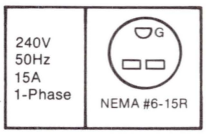
RX211-BA(BD) RX211 dual floppy disk drive and controller to interface to the PDP-11 UNIBUS.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 Quad slot PAN	1.5	0.00	0.00	3.5	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

RXV21/RX211 FLOPPY DISK DRIVE SITE PREPARATION SPECIFICATIONS:

- Height: 10.5 in (26.7 cm)
- Width: 19 in (48.3 cm)
- Depth: 17 in (43.2 cm)
- Weight: 60 lbs (27.2 kg)
- Watts: 500
- Btu/hr: 1700
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





CARTRIDGE DISK SUBSYSTEMS

RLV11/RL11 Cartridge Disk Subsystems

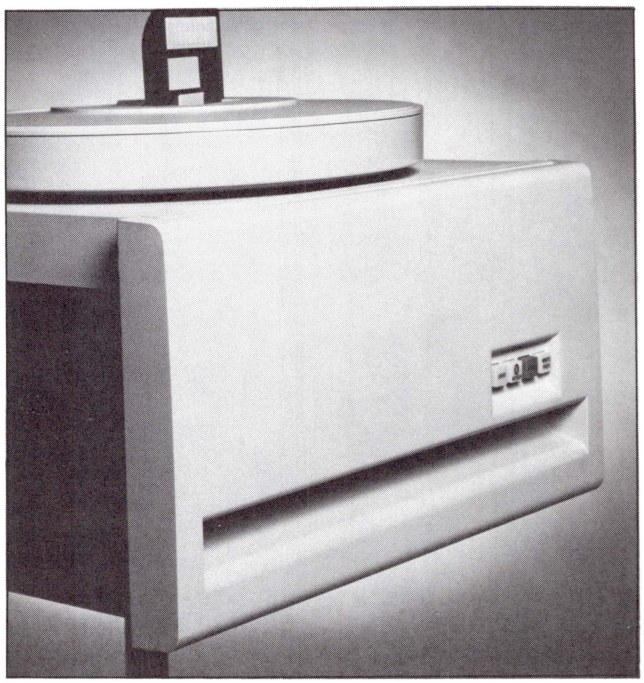
The RLV11 and RL11 single-drive buffered subsystems combine reliability and maintainability in a low-cost, small-capacity mass storage device. An embedded closed-loop servo positioning system improves data integrity by continuously sampling servo information with the same head that reads and writes the data. To further ensure data integrity, a cyclic redundancy check (CRC) is performed on data transfers between the drive and controller. Also, a phase-locked-loop clock system and modified frequency modulation (MFM) recording provide reliable reading and recording. Direct memory access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. These subsystems consist of an RL01 5.2 MB disk drive and controller with interconnect cabling, packaged in a standard cabinet-mountable unit.

Expansion Specifications:

- Drives per controller: 4
- Maximum controllers per CPU: 2

Performance Specifications:

- Formatted capacity per drive: 5.2 MB
- Peak transfer rate: 512 KB/s
- Average access time*: 67.5 msec
- Average seek time: 55 msec
- Average latency time: 12.5 msec
- Dual-port option: No
- Media surfaces: 2 data
- Tracks per surface: 256
- Sectors per track: 40
- Bytes per sector: 256
- Track-track seek: 15 msec
- Rotational speed: 2400 rpm



RL01-AK Cartridge Disk Drive

SUBSYSTEMS

RLV11-AK

Top-loading removable cartridge disk drive and controller to interface to the LSI-11 bus.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 LSI-11 Quad slots PAN	6.5	1.00	1.5	1	RT-11, RSX-11M

RL11-AK

Top-loading removable cartridge disk drive and controller to interface to the PDP-11 UNIBUS.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 Hex slot PAN	5.0	0.50	0.50	1.5	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

*Average Access Time is defined as the sum of the average seek time plus the average latency.

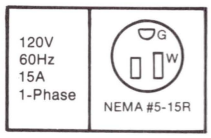
ADD-ON CARTRIDGE DISK DRIVE

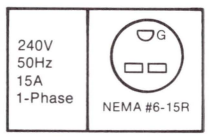
RL01-AK Add-on cartridge disk.
PREREQUISITE: RL11-AK, RLV11-AK, RL211-AK, or RLV21-AK.

Mounting Code	AC Amps Drawn @+120V
PAN	1.5

RL01 CARTRIDGE DISK DRIVE SITE PREPARATION SPECIFICATIONS:

- Height: 10.5 in (26.7 cm)
- Width: 19 in (48.3 cm)
- Depth: 25 in (63.5 cm)
- Weight: 75 lbs (34.1 kg)
- Watts: 150
- Btu/hr: 600
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





DISK CARTRIDGE

RL01K-DC 5.2 MB disk cartridge for the RL01.

RLV21/RL211 Cartridge Disk Subsystems

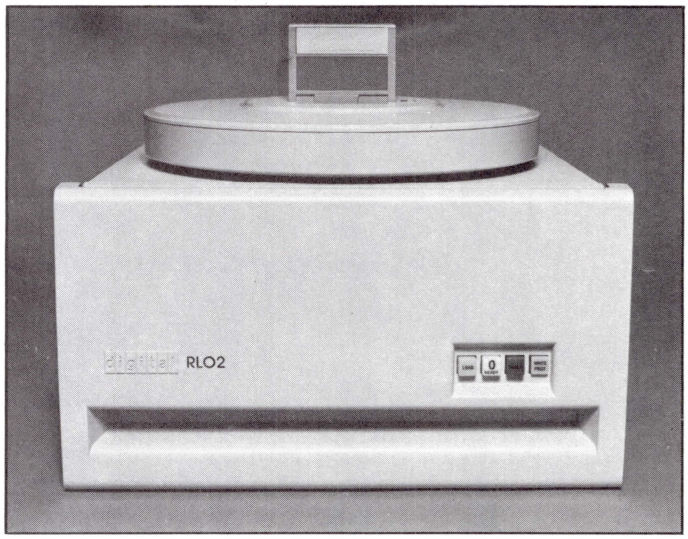
The RLV21 and RL211 single-drive buffered subsystems combine reliability and maintainability in a low-cost, medium-capacity mass storage device. An embedded closed-loop servo positioning system improves data integrity by continuously sampling servo information with the same head that reads and writes the data. To further ensure data integrity, a cyclic redundancy check (CRC) is performed on data transfers between the drive and controller. Also, a phase-locked-loop clock system and modified frequency modulation (MFM) recording provide reliable reading and recording techniques. Direct memory access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. These subsystems consist of an RL02 10.4 MB disk drive and controller with interconnect cabling and are packaged in a standard cabinet-mountable unit.

Expansion Specifications:

- Drives per controller: 4
- Maximum controllers per CPU: 2

Performance Specifications:

- Formatted capacity per drive: 10.4 MB
- Peak transfer rate: 512 KB/s
- Average access time*: 67.5 msec
- Average seek time: 55 msec
- Average latency time: 12.5 msec
- Dual-port option: No
- Media surfaces: 2 data
- Tracks per surface: 512
- Sectors per track: 40
- Bytes per sector: 256
- Track-track seek: 15 msec
- Rotational speed: 2400 rpm



RL02-AK Cartridge Disk Drive

SUBSYSTEMS

RLV21-AK

Top-loading removable cartridge disk drive and controller to interface to the LSI-11 bus.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 LSI-11 Quad slots PAN	6.5	1.00	1.5	1	RT-11, RSX-11M

RL211-AK

Top-loading removable cartridge disk drive and controller to interface to the PDP-11 UNIBUS.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 Hex slot PAN	5.0	0.50	0.50	1.5	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

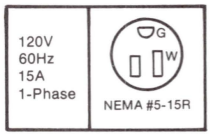
ADD-ON CARTRIDGE DISK DRIVE

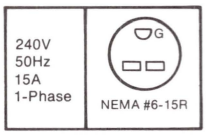
RL02-AK Add-on cartridge disk.
PREREQUISITE: RL211-AK, RLV21-AK, RL11-AK or RLV11-AK

Mounting Code	AC Amps Drawn @+120V
PAN	1.5

RL02 CARTRIDGE DISK DRIVE SITE PREPARATION SPECIFICATIONS:

- Height: 10.5 in (26.7 cm)
- Width: 19 in (48.3 cm)
- Depth: 25 in (63.5 cm)
- Weight: 75 lbs (34.1 kg)
- Watts: 150
- Btu/hr: 600
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





DISK CARTRIDGE

RL02K-DC 10.4 MB disk cartridge for the RL02.

RK711 Disk Subsystem

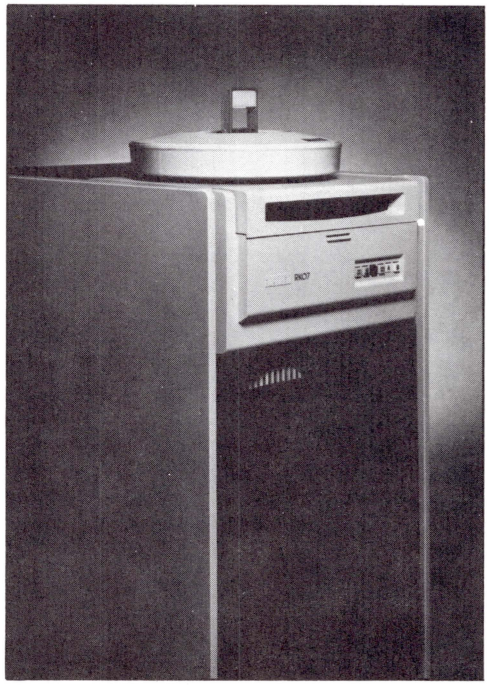
The RK711 single-drive, buffered subsystem is a reliable, medium-capacity storage device, and controller. Data integrity features include a phase-locked-loop clock system and a modified frequency modulation (MFM); an error correction code (ECC); a hardware write-check capability and verification of sector, track, and cylinder positioning; and a software-controlled diagnostic mode (DMD) for extensive status/error reporting. Direct Memory Access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. These subsystems consist of an RK07 28 MB top-loading disk drive with disk cartridge and controller with interconnect cabling and are available mounted in either a 41.75 in (106 cm) high freestanding H9642 cabinet or a 39 in (99 cm) freestanding H969 cabinet. The RK711 controller requires two system units of mounting space. An additional two hex slots and 1 quad slot of expansion spaces are available in the RK711 backplane. Memory cannot be mounted in the additional expansion space provided by the RK711 backplane.

Expansion Specifications:

- Drives per controller: 8

Performance Specifications:

- Formatted capacity per drive: 28 MB
- Peak transfer rate: 538 KB/s
- Average access time*: 49 msec
- Average seek time: 36.5 msec
- Average latency time: 12.5 msec
- Dual-port option†: Yes (Note: not software-supported)
- Media surfaces: 3 data, 1 servo
- Tracks per surface: 815
- Sectors per track: 22 (16-bit format), 20 (18-bit format)
- Bytes per sector: 512 (16-bit format), 576 (18-bit format)
- Track-track seek: 6.5 msec
- Rotational speed: 2400 rpm



RK07 Cartridge Disk Drive

SUBSYSTEMS

RK711-EA(ED) RK711 disk drive and controller to interface to the PDP-11 UNIBUS. Mounted in a 39 in (99 cm) high H969 freestanding cabinet.
PREREQUISITE: UNIBUS PDP-11 system configured in H960

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 SUs FS Drive	15.0	0.18	0.40	4.5	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

RK711-PA(PD) RK711 disk drive and controller. Mounted in a 41.75 in (106 cm) high freestanding cabinet.
PREREQUISITE: UNIBUS PDP-11 system configured in H9640 series cabinets

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 SUs FS Drive	15.0	0.18	0.40	4.5	1	RSX-11M, RSX-11M-PLUS, RSTS/E

*Average Access Time is defined as the sum of the average seek time plus the average latency.

†The dynamic (simultaneous access) dual-port capability of disk subsystems is not supported by DIGITAL operating system software or diagnostics. Subsystems can be statically shared by two processors or connected to one processor through two controllers for maximum system availability. The only exception to this is when both ports are connected to the same processor under RSX-11M-PLUS.

ADD-ON CARTRIDGE DISK DRIVES

RK07-EA(ED) RK07 28 MB top-loading cartridge disk drive with disk cartridge mounted in a 39 in (99 cm) high freestanding H969 cabinet.
PREREQUISITE: RK711-EA(ED)

Mounting Code	AC Amps Drawn @+120V
FS Drive	4.5

RK07-PA(PD) RK07 28 MB top-loading cartridge disk drive with disk cartridge mounted in a 41.75 in (106 cm) high freestanding H9642 cabinet.
PREREQUISITE: RK711-PA(PD)

Mounting Code	AC Amps Drawn @+120V
FS Drive	4.5

RK07-ZA(ZD) Dual disk option. Includes two RK07-EA(ED).
PREREQUISITE: RK711-EA(ED)

Mounting Code	AC Amps Drawn @+120V
FS Drive	9.0

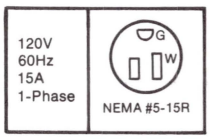
RK07-ZE(ZJ) Dual disk option. Includes two RK07-PA(PD)
PREREQUISITE: RK711-PA(PD)

Mounting Code	AC Amps Drawn @+120V
FS Drive	9.0

RK07 CARTRIDGE DISK DRIVE SITE PREPARATION SPECIFICATIONS

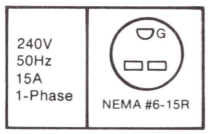
RK07 in H969 Cabinet:

- Height: 39 in (99 cm)
- Width: 21.7 in (55.1 cm)
- Depth: 30 in (76.2 cm)
- Weight: 326 lbs (148 kg)
- Watts: 500
- Btu/hr: 1700
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



RK07 in H9642 Cabinet:

- Height: 41.75 in (106 cm)
- Width: 21.25 in (53.9 cm)
- Depth: 30 in (76.2 cm)
- Weight: 339 lbs (153.9 kg)
- Watts: 500
- Btu/hr: 1700
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



DISK CARTRIDGES

RK07K-DC 28 MB disk cartridge for the RK07 disk drive.

RK07K-AC 28 MB alignment disk cartridge for the RK07 disk drive.

RK07K-EF Error-free 28 MB disk cartridge for the RK07 disk drive.

DISK PACK DRIVE SUBSYSTEMS

RJM02 Disk Subsystem

The RJM02 single-drive subsystem is moderate in speed and capacity for PDP-11 UNIBUS systems. Increased throughput is obtained on multidrive subsystems by allowing the simultaneous transfer of control information and data, thus enabling overlapped and optimized seeking. Direct memory access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. This subsystem consists of an RM02 67 MB top-loading disk drive, disk pack, and controller with interconnect cabling. It is available mounted in a 39 in (99 cm) high freestanding H969 cabinet.

Expansion Specifications:

- Drives per controller: 8

Performance Specifications:

- Formatted capacity per drive: 67 MB
- Peak transfer rate: 806 KB/s
- Average access time*: 42.5 msec
- Average seek time: 30 msec
- Average latency time: 12.5 msec
- Dual-port option†: Yes (Note: not software supported)
- Media surfaces: 5 data, 1 servo
- Tracks per surface: 823
- Sectors per track: 32 (16-bit format)
- Bytes per sector: 512
- Track-track seek: 6 msec
- Rotational speed: 2400 rpm



RM02-AA Cartridge Disk Drive

SUBSYSTEM

RJM02-AA(AD) RM02 disk drive and controller to interface to the PDP-11 UNIBUS.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 SUs FS Drive	12.0	0.00	0.40	12.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

ADD-ON DISK PACK DRIVE

RM02-AA(AD) RM02 disk drive.
PREREQUISITE: RJM02-A

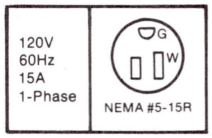
Mounting Code	AC Amps Drawn @+120V
FS Drive	12.0

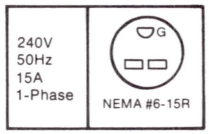
*Average Access Time is defined as the sum of the average seek time plus the average latency.

†The dynamic (simultaneous access) dual-port capability of disk subsystems is not supported by DIGITAL operating system software or diagnostics. However, subsystems can be statically shared by two processors or connected to one processor through two controllers for maximum system availability. The only exception to this is when both ports are connected to the same processor under RSX-11M-PLUS.

RM02 DISK PACK DRIVE SITE PREPARATION SPECIFICATIONS:

- Height: 39 in (99 cm)
- Width: 21.7 in (55.1 cm)
- Depth: 33.5 in (85.1 cm)
- Weight: 430 lbs (195 kg)
- Watts: 1050
- Btu/hr: 3600
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





DISK PACK

RM03-P 67 MB disk pack for either the RM02 or RM03 disk drives.

RWM03 Disk Subsystem

The RWM03 single-drive subsystem for the PDP-11/70 MASSBUS offers high speed and moderate capacity. Increased throughput is obtained on multidrive subsystems by allowing the simultaneous transfer of control information and data on the MASSBUS, thus enabling overlapped and optimized seeking. Direct memory access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. This subsystem consists of an RM03 67 MB top-loading disk drive, disk cartridge, and controller with interconnect cabling. It is available mounted in a 39 in (99 cm) high freestanding H969 cabinet.

Expansion Specifications:

- Drives per controller: 8

Performance Specifications:

- Formatted capacity per drive: 67 MB
- Peak transfer rate: 1200 KB/s
- Average access time*: 38.3 msec
- Average seek time: 30 msec
- Average latency time: 8.3 msec
- Dual-port option†: Yes (Note: not software supported)
- Media surfaces: 5 data, 1 servo
- Tracks per surface: 823
- Sectors per track: 32 (16-bit format)
- Bytes per sector: 512
- Track-track seek: 6 msec
- Rotational speed: 3600 rpm



RM03-AA Cartridge Disk Drive

SUBSYSTEMS

RWM03-AA(AD) Single-ported RM03 disk drive and controller to interface to the PDP-11/70 MASSBUS.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port FS Drive	Dedicated			12.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

RWM03-BA(BD) Dual-ported† RM03 disk drive and two controllers to interface to two PDP-11/70 systems.
PREREQUISITE: One or two PDP-11/70s

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
Two PDP-11/70 MASSBUS Ports FS Drive	Dedicated			12.0	1 per controller	RSX-11M-PLUS

*Average Access Time is defined as the sum of the average seek time plus the average latency.

†The dynamic (simultaneous access) dual-port capability of disk subsystems is not supported by DIGITAL operating system software or diagnostics. However, subsystems can be statically shared by two processors or connected to one processor through two controllers for maximum system availability. The only exception to this is when both ports are connected to the same processor under RSX-11M-PLUS.

ADD-ON DISK PACK DRIVES

RM03-AA(AD) Single-ported RM03 disk drive.
PREREQUISITE: RWM03-A

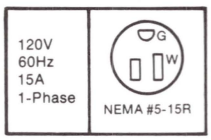
Mounting Code	AC Amps Drawn @+120V
FS Drive	12.0

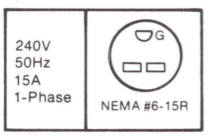
RM03-BA(BD) Dual-ported RM03 disk drive.
PREREQUISITE: RWM03-B

Mounting Code	AC Amps Drawn @+120V
FS Drive	12.0

RM03 DISK PACK DRIVE SITE PREPARATION SPECIFICATIONS:

- Height: 39 in (99 cm)
- Width: 21.7 in (55.1 cm)
- Depth: 33.5 in (85 cm)
- Weight: 430 lbs (195 kg)
- Watts: 1050
- Btu/hr: 3600
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





DUAL-PORT OPTIONS

RWM03-C RM03 dual-port kit containing drive logic, cables, and second controller to convert RWM03-A to RWM03-B.
PREREQUISITE: One additional MASSBUS Port

Mounting Code	DC Amps Drawn @+5V	Bus Loads Drawn
MASSBUS Port	Dedicated	1

RM03-C RM03 dual-port kit containing drive logic and cables to convert RM03-A to RM03-B.

DISK PACK

RM03-P 67 MB disk pack for either the RM02 or RM03 disk drives.

RUA60 Disk Subsystems

The RUA60 removable-media disk subsystem features medium-capacity storage for mid-range PDP-11 systems, the RA60 disk drive, and includes the UDA50 controller. The UDA50 controller provides several levels of performance optimization to improve disk throughput. A seek-ordering algorithm will reorder up to twelve I/O requests in the UDA50's command queue to minimize seek time, in single- or multidrive subsystems. The use of the UDA50 controller allows the user to mix RA60 disk drives with RA80 or RA81 disk drives.

The innovativeness of the RA60 disk drive lies in the use of enhanced servo technology which eliminates the need for alignment packs; new recording methods; microprocessor controlled diagnostics; 170-bit error correcting code; and modular design for easy maintenance. RA60 disk packs can be interchanged among RA60 disk drives without restriction or degradation in data reliability. To minimize the performance loss on a multisector transfer crossing track boundaries, RA60 cylinders are defined horizontally as opposed to vertically. Hence the delay on a multisector transfer crossing track boundaries is reduced.

Up to three RA60 drive units may be mounted in the 42 in (108.7 cm) high H9642-AP(AQ) deep cabinet.

Expansion Specifications:

- Drives per controller: 4

Performance Specifications:

- Formatted capacity per drive: 205 MB
- Peak transfer rate: 1.98 MB/s
- Average access time*: 50 msec
- Average seek time: 41.7 msec
- Average latency time: 8.33 msec
- Dual-port option: Standard
- Media surfaces: 6 data
- Tracks per surface: 1,600
- Sectors per track: 43 (16-bit words)
- Bytes per sector: 512
- Track-track seek: 6.7 msec
- Rotational speed: 3600 rpm



RA60 Cabinet-mounted Disk Drive

SUBSYSTEMS

RUA60-CA(CD) RA60-AA cabinet-mounted disk drive and UDA50 controller.
PREREQUISITE: PDP-11/44

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
Dedicated CAB 2 Hex slots	8.0	1.5	1.0	7.5	1	RSX-11M, RSX-11M-PLUS RSTS/E

RUA60-JA(JD) RA60-AA cabinet-mounted disk drive and two UDA50 controllers.
PREREQUISITE: PDP-11/44

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
Dedicated CAB 4 Hex slots	8.0	1.5	1.0	7.5	1	RSX-11M, RSX-11M-PLUS RSTS/E

* Average Access Time is defined as the sum of the average seek time plus the average latency.

ADD-ON DISK DRIVE

RA60-CA(CD) RA60-AA H9642-AP(AQ) cabinet-mounted disk drive.
PREREQUISITE: RUA60-CA(CD), RUA60-JA(JD)

Mounting Code	AC Amps Drawn @+120V
Dedicated Cab	7.5

RA60-AA RA60 rack-mounted disk drive. (No cabinet.)
PREREQUISITE: RUA60-CA(CD), RUA60-JA(JD)

Mounting Code	AC Amps Drawn Universal @120/240V
PAN	7.5

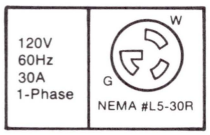
RA60 FIXED-DISK DRIVE SITE PREPARATION SPECIFICATIONS:

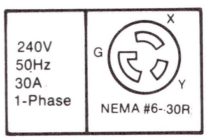
DRIVE ONLY:

- Height: 10.4 in (26.5 cm)
- Width: 19 in (48.3 cm)
- Depth: 33.5 in (83.7 cm)
- Weight: 165 lbs (75 kg)
- Watts: 1000 (running)
- Btu/hr: 2485

DRIVE IN CABINET:

- Height: 41.8 in (106 cm)
- Width: 21.3 in (54.1 cm)
- Depth: 36 in (91.4 cm)
- Weight: 409 lbs (185.7 kg)
- Watts: 1000 (running)
- Btu/hr: 2485
- Receptacles required: NEMA #L5-30R (120V); NEMA #L6-30R (240V)





RUA80 Fixed-Disk Subsystems

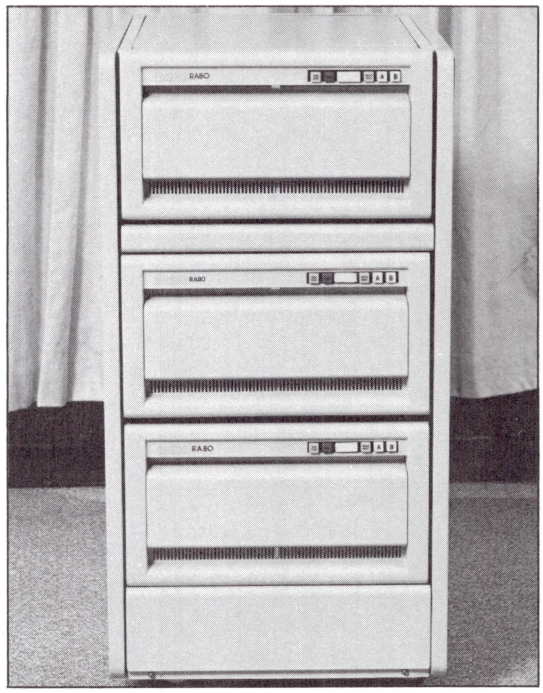
The RA80 disk subsystem introduces the advantages of Winchester fixed-disk technology combined with a high-performance, high-reliability microprocessor-based controller, the UDA50. The RA80 disk subsystem offers exceptional through-put performance, which is the result of an advanced mechanical design which incorporates a rotary servo-motor, computer-designed positioner arms, and lightweight Winchester head suspension.
The UDA50 controller provides several levels of performance optimization to improve disk throughput. A seek-ordering algorithm will reorder up to twelve I/O requests in the UDA50's command queue to minimize seek time in single- or multidrive subsystems. When requests are present for several disks, the controller will perform overlapped seek operations. Throughput on multidrive subsystems is increased since one disk can be track-seeking while another disk drive is transferring data. In addition, if two drives are both on cylinder, the UDA50 controller will select the drive nearest its beginning block to perform data transfers. This process is known as rotational optimization.
Up to three RA80 drive units may be mounted in the 42 in (108.7 cm) high H9642 cabinet.

Expansion Specifications:

- Drives per controller: 4

Performance Specifications:

- Formatted capacity per drive: 121 MB
- Peak transfer rate: 1.2 MB/s
- Average access time*: 33.3 msec
- Average seek time: 25 msec
- Average latency time: 8.33 msec
- Dual-port option: Standard
  (Second I/O cable and controller is a prequisite.)
- Media surfaces: 7 data, 1 servo
- Tracks per surface: 546
- Sectors per track: 31 (16-bit words)
- Bytes per sector: 512
- Track-track seek: 6 msec
- Rotational speed: 3600 rpm



RA80 Cabinet-mounted Disk Drive

SUBSYSTEMS

RUA80-CA(CD) RA80 cabinet-mounted disk drive and UDA50 controller.
PREREQUISITE: PDP-11/24, PDP-11/34A, PDP-11/44, or PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
Dedicated CAB 2 Hex slots	10.7	0.03	1.3	7.5	1	RSX-11M, RSX-11M-PLUS RSTS/E

RUA80-AA(AD) RA80 rack-mounted disk drive (no cabinet) and UDA50 controller.
PREREQUISITE: PDP-11/24, PDP-11/34A, PDP-11/44, PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
PAN 2 Hex slots	10.7	0.03	1.3	7.5	1	RSX-11M, RSX-11M-PLUS RSTS/E

*Average Access Time is defined as the sum of the average seek time plus the average latency.

ADD-ON DISK DRIVE

RA80-CA(CD) RA80 H9642 cabinet-mounted disk drive..
PREREQUISITE: RUA80-AA(AD)

Mounting Code	AC Amps Drawn @+120V
Dedicated Cab	7.5

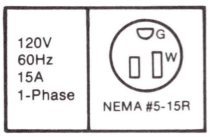
RA80-AA(AD) RA80 rack-mounted disk drive. (No cabinet.)
PREREQUISITE: RUA80-CA(CD)

Mounting Code	AC Amps Drawn @+120V
PAN	7.5

RA80 FIXED-DISK DRIVE SITE PREPARATION SPECIFICATIONS:

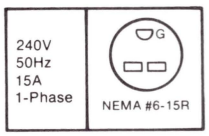
DRIVE ONLY:

- Height: 10.5 in (26.7 cm)
- Width: 18.9 in (48.0 cm)
- Depth: 28.1 in (71.4 cm)
- Weight: 148 lbs (67 kg)
- Watts: 720 (running)
- Btu/hr: 2485
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



DRIVE IN CABINET:

- Height: 41.8 in (106 cm)
- Width: 21.3 in (54.1 cm)
- Depth: 30 in (76.2 cm)
- Weight: 285 lbs (130 kg)
- Watts: 720 (running)
- Btu/hr: 2485
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



RUA81 Fixed-Disk Subsystems

The RUA81 subsystems feature a high performance, Winchester technology disk drive and an intelligent controller, the UDA50, that accelerates I/O throughput, performs expanded error recovery, and contains a twelve sector data buffer to match the disk's 2.2 megabyte per second burst data rate to the host system.

The RA81's high capacity is achieved through innovative engineering in the read/write and positioner control systems. The read/write system employs an encoding/decoding scheme which yields a third more storage capacity than drives using conventional MFM encoding. Positioning information on a dedicated (servo) surface enables high-speed seeking. Additional positioning information is embedded between sectors on every track for high precision positioning.

The RUA81 subsystem features outstanding data reliability characteristics including an industry leading error correction code (ECC), automatic sector relocation, error detecting code (EDC), quadruplicated header addresses, data compare commands, access command, and error reporting. All error recovery routines are initiated and completed in the subsystem off-loading the host system.

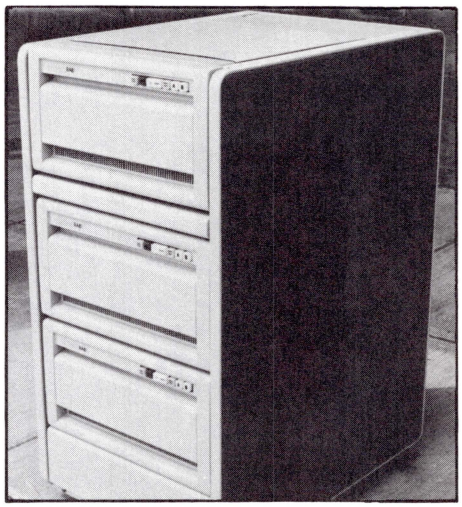
Up to three RA81 drive units may be mounted in the 42 in (108.7 cm) high H9642 cabinet.

Expansion Specifications:

- Drives per controller: 4

Performance Specifications:

- Formatted capacity per drive: 456 MB
- Peak transfer rate: 2.2 MB/s
- Average access time*: 36.3 msec
- Average seek time: 28 msec
- Average latency time: 8.33 msec
- Dual-port option: Standard
- Media surfaces: 7 data, 1 servo
- Tracks per surface: 1248
- Sectors per track: 52 (16-bit words)
- Bytes per sector: 512
- Track-track seek: 6 msec
- Rotational speed: 3600 rpm



RA81 Cabinet-mounted Disk Drives

SUBSYSTEMS

RUA81-CA(CD) RA81 cabinet-mounted disk drive and UDA50 controller.
PREREQUISITE: PDP-11/44 or PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
Dedicated CAB 2 Hex slots	11.0	0.03	1.3	7.8	1	RSX-11M, RSX-11M-PLUS RSTS/E

*Average Access Time is defined as the sum of the average seek time plus the average latency.

ADD-ON DISK DRIVE

RA81-CA(CD) RA81 H9642 cabinet-mounted disk drive..
PREREQUISITE: RUA81-CA(CD)

Mounting Code	AC Amps Drawn @+120V
Dedicated Cab	7.8

RA81-AA(AD) RA81 disk drive. (No cabinet.)
PREREQUISITE: RUA81-CA(CD)

Mounting Code	AC Amps Drawn @+120V
PAN	7.8

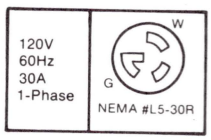
RA81 FIXED-DISK DRIVE SITE PREPARATION SPECIFICATIONS:

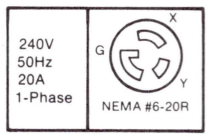
DRIVE ONLY:

- Height: 10.4 in (26.4 cm)
- Width: 17.5 in (44.5 cm)
- Depth: 26.5 in (67.3 cm)
- Weight: 148 lbs (67.3 kg)
- Watts: 644 (running)
- Btu/hr: 2200

DRIVE IN CABINET:

- Height: 41.8 in (106 cm)
- Width: 21.3 in (54.1 cm)
- Depth: 36 in (91.4 cm)
- Weight: 392 lbs (178.8 kg)
- Watts: 644 (running)
- Btu/hr: 2200
- Receptacles required: NEMA #L5-30R (120V); NEMA #L6-20R (240V)





RJP06/RWP06 Disk Subsystems

The RJP06 and RWP06 disk subsystems are large-capacity systems designed for reliability and data integrity. A phase-lock-loop clock system and modified frequency modulation (MFM) recording provide reliable reading and recording techniques. Program-controlled head offset positioning corrects slight mechanical misalignment between the heads and the disk pack. Error detection and correction hardware in each drive provides an error correction code; also the drive hardware provides a write-check capability and verification of sector, track, and cylinder positioning; and parity checking on both data and control information. Direct memory access (DMA) is used to provide rapid data transfer and efficient utilization of the host processor. These subsystems consist of an RP06 176 MB top-loading disk drive, disk pack, and controller with interconnect cabling. They are packaged in a 47 in (119.4 cm) high freestanding disk drive cabinet.

Expansion Specifications:

- Drives per controller: 8

Performance Specifications:

- Formatted capacity per drive: 176 MB
- Peak transfer rate: 806 KB/s
- Average access time*: 38.3 msec
- Average seek time: 30 msec
- Average latency time: 8.3 msec
- Dual-port option†: Yes (Note: not software supported)
- Media surfaces: 19 data,1 servo
- Tracks per surface: 815
- Sectors per track: 22 (16-bit format), 20 (18-bit format)
- Bytes per sector: 512
- Track-track seek: 10 msec
- Rotational speed: 3600 rpm



RP06-AA Disk Pack Drive

SUBSYSTEMS

RJP06-AA(AB) Single-ported RP06 disk drive and controller to interface to the PDP-11 UNIBUS.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 SUs FS Drive	12.0	0.00	0.40	11.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

RWP06-AA(AB) Single-ported RP06 disk drive and controller to interface to the PDP-11/70 MASSBUS.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port FS Drive	Dedicated			11.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

*Average Access Time is defined as the sum of the average seek time plus the average latency.

†The dynamic (simultaneous access) dual-port capability of disk subsystems is not supported by DIGITAL operating system software or diagnostics. However, subsystems can be statically shared by two processors or connected to one processor through two controllers for maximum system availability. The only exception to this is when both ports are connected to the same processor under RSX-11M-PLUS.

RWP06-BA(BB) Dual-ported RP06 disk drive and two controllers to interface to two PDP-11/70 systems.
PREREQUISITE: One additional MASSBUS Port

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port per 11/70 FS Drive	Dedicated			11.0	1 per controller	RSX-11M-PLUS

ADD-ON DISK PACK DRIVES

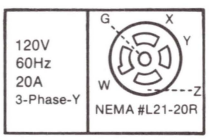
RP06-AA(AB) Single-ported RP06 disk drive.
PREREQUISITE: RJP06-A or RWP06-A subsystem

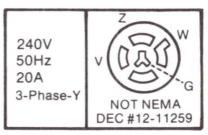
Mounting Code	AC Amps Drawn @+120V
FS Drive	11.0

RP06-BA(BB) Dual-ported RP06 disk drive.
PREREQUISITE: RWP06-B subsystem

Mounting Code	AC Amps Drawn @+120V
FS Drive	11.0

RP06 DISK PACK DRIVE SITE PREPARATION SPECIFICATIONS:





- Height: 47 in (119.4 cm)
- Width: 33 in (83.8 cm)
- Depth: 32 in (81.3 cm)
- Weight: 600 lbs (273 kg)
- Watts: 2100
- Btu/hr: 7000
- Receptacles required: NEMA #L21-20R (120V); Not NEMA—DEC #12-11259 (240V)

DUAL-PORT & UPGRADE OPTIONS

RWP06-C RP06 dual-port kit containing drive logic, cables, and second controller to convert RWP06-A to RWP06-B.
PREREQUISITE: One additional MASSBUS Port

Mounting Code	DC Amps Drawn @+5V	Bus Loads Drawn
MASSBUS Port	Dedicated	1

RP06-C RP06 dual-port kit containing drive logic, hardware, and cables to convert RP06-A to RP06-B.

DISK CARTRIDGE

RP06-P 176 MB disk pack for RP06.

RWM05 Disk Subsystem

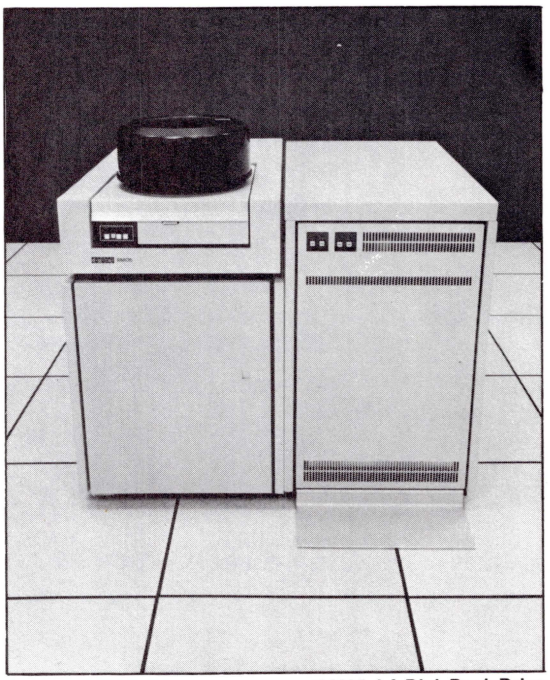
The RWM05 disk subsystem for the PDP-11/70 MASSBUS accommodates I/O-intensive applications by providing high throughput. This is accomplished with features such as overlapped seeks (control information and data is transferred simultaneously on the MASSBUS); mid-transfer seeks (automatic addressing of the next data block whether on the same cylinder or the next highest cylinder); implied seeks; and blocked data transfers. Other features include direct memory access (DMA) and a dual-port hardware option. DMA is used to provide rapid data transfer and efficient utilization of the host processor. This subsystem consists of an RM05 256 MB top-loading disk drive, disk pack, and controller with interconnect cabling. It is packaged in one 36 in (91.4 cm) high freestanding disk drive cabinet plus one 36 in (91.4 cm) high utility cabinet which houses the RM05 drive adapter and contains space for one additional RM05 drive adapter.

Expansion Specifications:

- Drives per controller: 8

Performance Specifications:

- Formatted capacity per drive: 256 MB
- Peak transfer rate: 1200 KB/s
- Average access time*: 38.3 msec
- Average seek time: 30 msec
- Average latency time: 8.3 msec
- Dual-port option†: Yes (Note: not software supported)
- Media surfaces: 19 data, 1 servo
- Tracks per surface: 823
- Sectors per track: 32 (16-bit format)
- Bytes per sector: 512 (16-bit format)
- Track-track seek: 6 msec
- Rotational speed: 3600 rpm



RM05-AA Disk Pack Drive

SUBSYSTEMS

RWM05-AA(AB) Single-ported RM05 disk drive and drive adapter packaged in separate utility cabinet to interface to the PDP-11/70 MASSBUS.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port FS Drive	Dedicated			4.2	1	RSX-11M-PLUS, RSTS/E

RWM05-BA(BB) Dual-ported RM05 disk drive and drive adapter packaged in separate utility cabinet to interface to two PDP-11/70 systems.
PREREQUISITE: One additional MASSBUS Port

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port per 11/70 FS Drive	Dedicated			4.2	1 per controller	None

*Average Access Time is defined as the sum of the average seek time plus the average latency.

†The dynamic (simultaneous access) dual-port capability of disk subsystems is not supported by DIGITAL operating system software or diagnostics. However, subsystems can be statically shared by two processors or connected to one processor through two controllers for maximum system availability. The only exception to this is when both ports are connected to the same processor under RSX-11M-PLUS.

ADD-ON DISK DRIVES

RM05-AA(AB) Single-ported RM05 disk drive and drive adapter. Packaged in one 36 in (91.4 cm) high freestanding disk drive cabinet and one 36 in (91.4 cm) high utility cabinet which houses the RM05 drive adapter and contains space for one additional drive adapter.
PREREQUISITE: RWM05-A subsystem

Mounting Code	AC Amps Drawn @+240V
FS Drive	9.0

RM05-BA(BB) Dual-ported RM05 disk drive and drive adapter. Packaged in one 36 in (91.4 cm) high freestanding disk drive cabinet and one 36 in (91.4 cm) high utility cabinet which houses the RM05 drive adapter and contains space for one additional drive adapter.
PREREQUISITE: RWM05-B subsystem

Mounting Code	AC Amps Drawn @+240V
FS Drive	9.0

RM05-AC(AD) Single-ported RM05 disk drive and drive adapter. Packaged in one 36 in (91.4 cm) high freestanding disk drive cabinet only.
PREREQUISITE: RWM05-AA(AB) or RM05-AA(AB)

Mounting Code	AC Amps Drawn @+240V
FS	9.0

CONFIGURING REQUIREMENT: The RM05 drive adapter for this option must be mounted in the available space in the utility cabinet included with the RWM05-AA(AB) or RM05-AA(AB).

RM05-BC(BD) Dual-ported RM05 disk drive and drive adapter. Packaged in one 36 in (91.4 cm) high freestanding disk drive cabinet only.
PREREQUISITE: RWM05-BA(BB) or RM05-BA(BB)

Mounting Code	AC Amps Drawn @+240V
FS	9.0

CONFIGURING REQUIREMENT: The RM05 drive adapter for this option must be mounted in the available space in the utility cabinet included with the RWM05-BA(BB) or RM05-BA(BB).

RM05-ZA(ZB) Dual drive option. Includes a RM05-AA(AB) and a RM05-AC(AD)
PREREQUISITE: RWM05-AA(AB)

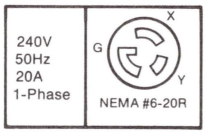
Mounting Code	AC Amps Drawn @+240V
FS Drive	18.0

CONFIGURING REQUIREMENT: The RM05 drive adapter for this option must be mounted in the available space in the utility cabinet included with the RWM05-AA(AB) or RM05-AA(AB).

RM05 DISK PACK DRIVE SITE PREPARATION SPECIFICATIONS

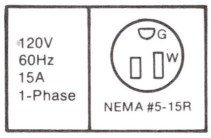
RM05 Disk Drive Cabinet:

- Height: 36 in (91.4 cm)
- Width: 22.5 in (57.2 cm)
- Depth: 36 in (91.4 cm)
- Weight: 556 lbs (252.7 kg)
- Watts: 1460
- Btu/hr: 4983
- Receptacle required: NEMA #6-20R (240V only)



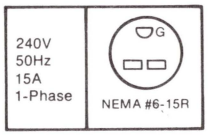
RM05 Utility Cabinet (with one drive adapter):

- Height: 39 in (99 cm)
- Width: 22.5 in (57.2 cm)
- Depth: 36 in (91.4 cm)
- Weight: 190 lbs (86.3 kg)
- Watts: 252
- Btu/hr: 860
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



RM05 Utility Cabinet (with two drive adapters):

- Height: 39 in (99 cm)
- Width: 22.5 in (57.2 cm)
- Depth: 36 in (91.4 cm)
- Weight: 261 lbs (118.5 kg)
- Watts: 504
- Btu/hr: 1720
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



DUAL-PORT OPTIONS

RWM05-C RM05 dual-port upgrade kit containing drive logic, cables, and second controller to convert RWM05-A to RWM05-B.
PREREQUISITE: One additional MASSBUS Port.

Mounting Code	DC Amps Drawn @+5V	Bus Loads Drawn
MASSBUS Port	Dedicated	1

RM05-C RM05 dual-port kit containing drive logic and cables to convert RM05-A to RM05-B.

DISK PACKS

RM05-P 256 MB removable disk pack for RM05.

RM05-PX 256 MB hard error-free removable disk pack for RM05.

CARTRIDGE TAPE TRANSPORT

TU58 Cartridge Tape Subsystem

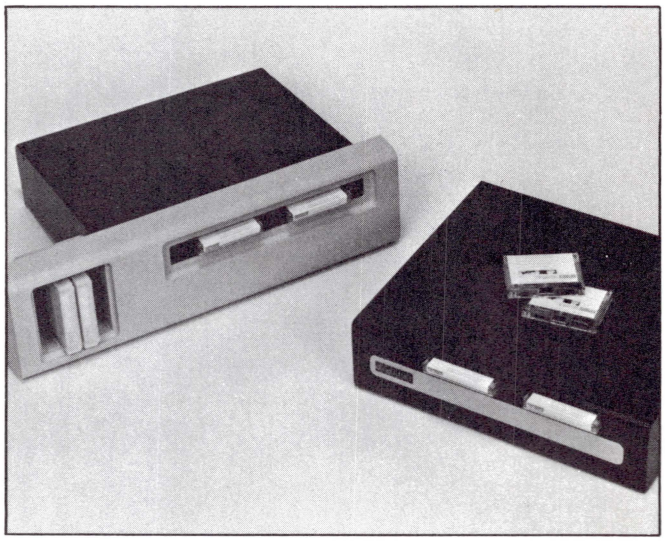
The TU58 dual-drive cartridge tape subsystems are random access, mass memory storage devices which read and write data on block addressable, preformatted tape cartridges. Data integrity features include automatic read retries initiated by the controller to ensure accurate data recording and retrieval. This feature eliminates the host computer over-head normally associated with rereading soft errors. Each transport also has a high-quality read/write head. The TU58 can be used for software updates, loading diagnostics or as a convenient medium for private file storage. These subsystems consist of a controller, two drives, universal power cords, boot chip, 18 ft (5.5 m) I/O cable to interface with UNIBUS (DL11-E, DL11-W) processors, and two TU58-K media.

Expansion Specifications:

- Transports per controller: 2 (only one may operate at a time)

Performance Specifications:

- Record density: 800 b/in
- Read/write speed: 30 in/s
- Capacity per cartridge: 262 KB (formatted in 512 blocks of 512 bytes each)
- Maximum data transfer speed: 3.7 KB/s (38.4 Kbaud) maximum
- Rewind speed: 60 in/s
- Rewind time: 30 seconds per 140 ft cartridge



TU58 Cartridge Tape Subsystems

SUBSYSTEMS

TU58-DA TU58 cabinet-mountable dual-drive cartridge tape subsystem including the necessary hardware for mounting in standard cabinetry.
PREREQUISITE: Dedicated line

Mounting Code	AC Amps Drawn @+120V	Bus Loads Drawn	System Software
SM PANEL	0.5	N/A	RT-11, RSX-11M, RSX-11M-PLUS,

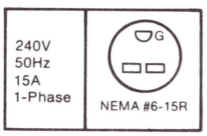
TU58-EB TU58 tabletop dual-drive cartridge tape subsystem.
PREREQUISITE: Dedicated line

Mounting Code	AC Amps Drawn @+120V	Bus Loads Drawn	System Software
TT	0.5	N/A	RT-11, RSX-11M, RSX-11M-PLUS,

TU58-K One 256 KB TU58 data cartridge for the TU58-DA and TU58-EB.

TU58 CARTRIDGE TAPE SITE PREPARATION SPECIFICATIONS:

- Height: 5.25 in (13.3 cm)
- Width: 19 in (48.3 cm)
- Depth: 17 in (43.2 cm)
- Weight: 20 lbs (9 kg)
- Watts: 11
- Btu/hr: 38
- Receptacle required: NEMA #5-15R (120V); NEMA #6-15R (240V)



MAGNETIC TAPE TRANSPORTS

TS11 Magnetic Tape Subsystem

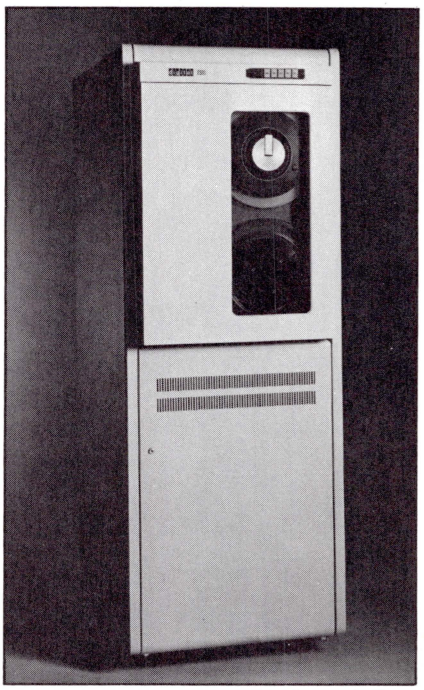
The TS11 is an industry-compatible nine-track magnetic tape subsystem. It consists of a controller and a tape transport with an integrated formatter. The TS11 is available mounted in either a 72 in (182.9 cm) high H960 cabinet, a 60 in (152.4 cm) H9602 single-width highboy cabinet, or a 60.5 in (153.7 cm) high H9646 cabinet. ANSI standard recording format allows data to be transferred easily between computer systems. The TS11 must be bolted to the adjacent system cabinet and is U.L. certified as only containing the tape in the cabinet.

Expansion Specifications:

- Transports per controller: 1

Performance Specifications:

- Record density: 1600 b/in
- Read/write speed: 45 in/s
- Capacity per 2400 ft reel: 40 MB with 8 KB blocks
- Maximum data transfer speed: 72 KB/s
- Rewind speed: 150 in/s
- Rewind time: 2 minutes per 2400 ft reel



TS11-CA Magnetic Tape

SUBSYSTEMS

TS11-CA(CB) TS11 magnetic tape subsystem mounted in a 60.5 in (153.7 cm) high H9646 cabinet. 15.75 in (40 cm) of peripheral mounting space is available.
PREREQUISITE: PDP-11/24 or PDP-11/44

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 Hex slot Dedicated CAB	1.5	0.00	0.00	10.0	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

TS11-DA(DB) TS11 magnetic tape subsystem mounted in a 72 in (182.9 cm) high H960 cabinet. 26.25 in (66.7 cm) of peripheral mounting space is available.
PREREQUISITE: UNIBUS PDP-11 system configured in H960 series cabinets

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 Hex slot Dedicated CAB	1.5	0.00	0.00	10.0	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

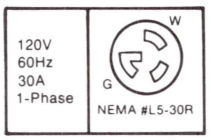
TS11-BA(BB) TS11 magnetic tape subsystem mounted in a 60 in (152.4 cm) H9602 single-width highboy cabinet. 21 in (53.3 cm) of peripheral mounting space is available.
PREREQUISITE: UNIBUS PDP-11 system configured in H9600 series cabinets

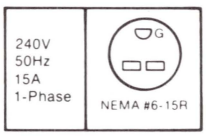
Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
1 Hex slot Dedicated CAB	1.5	0.00	0.00	10.0	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

TS11 MAGNETIC TAPE TRANSPORT SITE PREPARATION SPECIFICATIONS:

Transport in H9646 Cabinet:

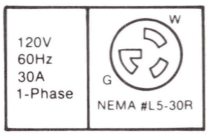
- Height: 60.5 in (153.7 cm)
- Width: 21.25 in (54.1 cm)
- Depth: 30 in (76.2 cm)
- Weight: 382 lbs (173.4 kg)
- Watts: 1200
- Btu/hr: 4092
- Receptacles required: NEMA #L5-30R (120V); NEMA #6-15R (240V)





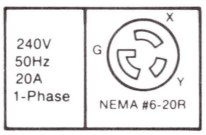
Transport in H960 Cabinet:

- Height: 71.5 in (181.3 cm)
- Width: 21.5 in (54.6 cm)
- Depth: 30 in (76.2 cm)
- Weight: 348 lbs (158 kg)
- Watts: 1200
- Btu/hr: 4092
- Receptacles required: NEMA #L5-30R (120V); NEMA # 6-20R (240V)



Transport in H9602 Cabinet:

- Height: 60 in (152.4 cm)
- Width: 28 in (71.1 cm)
- Depth: 30 in (76.2 cm)
- Weight: 555 lbs (251.9 kg)
- Watts: 1200
- Btu/hr: 4092
- Receptacles required: NEMA #L5-30R (120V); NEMA # 6-20R (240V)



TJE16/TWE16 Magnetic Tape Subsystems

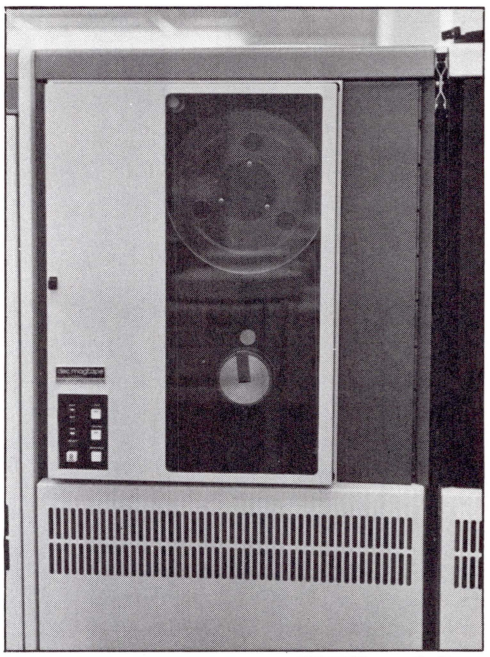
The TJE16 and TWE16 magnetic tape subsystems include the controller, a tape formatter, and one nine-track TE16 tape transport. The TE16 tape transport uses industry-compatible recording densities of 1600 b/in (Phase Encoded) and 800 b/in (Non-Return to Zero Inverted) selectable under program control. The subsystem is available with controllers for the PDP-11 UNIBUS or the PDP-11/70 MASSBUS. The TE16 tape transport is available mounted in either a 72 in (182.9 cm) high H960 cabinet, or a 60 in (152.4 cm) H9602 single-width highboy cabinet.

Expansion Specifications:

- Transports per controller: 8

Performance Specifications:

- Record density: 1600 b/in, 800 b/in
- Read/write speed: 45 in/s
- Capacity per 2400 ft reel:
  40 MB with 8 KB blocks @ 1600 b/in
  20 MB with 8 KB blocks @ 800 b/in
- Maximum data transfer speed:
  72 KB/s @1600 b/in
  56 KB/s @800 b/in
- Rewind speed: 150 in/s
- Rewind time: 3.7 minutes per 2400 ft reel



TE16 Magnetic Tape

SUBSYSTEMS

TJE16-AA(AD) TE16 magnetic tape transport and controller to interface with to the PDP-11 UNIBUS. Mounted in a 60 in (152.4 cm) H9602 single-width highboy cabinet.
PREREQUISITE: UNIBUS PDP-11 system configured in H9600 series cabinets

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 SUs Dedicated CAB	12.0	0.00	0.40	9.0	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

TWE16-AA(AD) TE16 magnetic tape transport and controller to interface with to the PDP-11/70 MASSBUS. Mounted in a 60 in (152.4 cm) H9602 single width highboy cabinet.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port Dedicated CAB	Dedicated			9.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

TJE16-EA(ED) TE16 magnetic tape transport and controller to interface with to the PDP-11 UNIBUS. Mounted in a 72 in (182.9 cm) high H960 cabinet.
PREREQUISITE: UNIBUS PDP-11 system configured in H960 series cabinets

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
2 SUs Dedicated CAB	12.0	0.00	0.40	9.0	1	RT-11, RSX-11M, RSX-11M-PLUS, RSTS/E

TWE16-EA(ED) TE16 magnetic tape transport and controller to interface with to the PDP-11/70 MASSBUS. Mounted in a 72 in (182.9 cm) high H960 cabinet.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn	System Software
MASSBUS Port Dedicated CAB	Dedicated			9.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

TAPE TRANSPORTS

TE16-AE(AJ) TE16 magnetic tape transport mounted in a 60 in (152.4 cm) H9602 single-width highboy cabinet.
PREREQUISITE: TJE16-A or TWE16-A subsystem

Mounting Code	AC Amps Drawn @+120V
Dedicated CAB	6.5

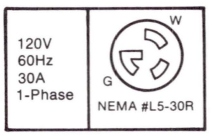
TE16-EE(EJ) TE16 magnetic tape transport mounted in a 72 in (182.9 cm) high H960 cabinet.
PREREQUISITE: TJE16-E or TWE16-E subsystem

Mounting Code	AC Amps Drawn @+120V
Dedicated CAB	6.5

TE16 MAGNETIC TAPE TRANSPORT SITE PREPARATION SPECIFICATIONS:

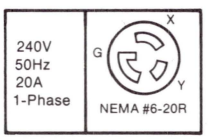
Transport in H9602 Cabinet:

- Height: 60 in (152.4 cm)
- Width: 28 in (71 cm)
- Depth: 30 in (76.2 cm)
- Weight: 500 lbs (227 kg)
- Watts: 900
- Btu/hr: 3100
- Receptacles required: NEMA #L5-30R (120V); NEMA # 6-20R (240V)



Transport in H960 Cabinet:

- Height: 72 in (182.9 cm)
- Width: 21 in (53.3 cm)
- Depth: 31 in (78.7 cm)
- Weight: 500 lbs (227 kg)
- Watts: 900
- Btu/hr: 3100
- Receptacles required: NEMA #L5-30R (120V); NEMA # 6-20R (240V)



TJU77/TWU77 Magnetic Tape Subsystem

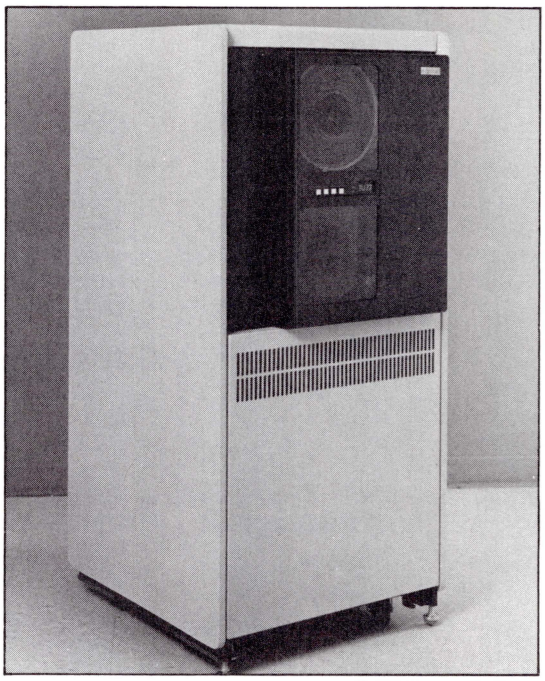
The TU77 magnetic tape subsystem includes the controller, a tape formatter, and one nine-track TU77 tape transport. The TU77 tape transport uses industry-compatible recording densities of 1600 b/in (Phase Encoded) and 800 b/in (Non-Return to Zero Inverted) selectable under program control. The subsystem is available with controllers for the UNIBUS PDP-11 or the PDP-11/70 MASSBUS. The TU77 tape transport is available mounted in a 60 in (152.4 cm) H9602 single-width high cabinet.

Expansion Specifications:

- Transports per controller: 4

Performance Specifications:

- Record density: 1600 b/in,800 b/in
- Read/write speed: 125 in/s
- Capacity per 2400 ft reel:
  40 MB with 8 KB blocks @1600 b/in
  20 MB with 8 KB blocks @800 b/in
- Maximum data transfer speed: 200 KB/s
- Rewind speed: 440 in/s
- Rewind time: 70 sec per 2400 ft reel



TU77 Magnetic Tape

SUBSYSTEMS

TJU77-AB(AD) TU77 magnetic tape transport and controller to interface to the PDP-11 UNIBUS.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @240V	Bus Loads Drawn	System Software
2 SUs Dedicated CAB	Dedicated			11.0	1	RSX-11M, RSX-11M-PLUS, RSTS/E

TWU77-AB(AD) TU77 magnetic tape transport and controller to interface to the PDP-11/70 MASSBUS.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @240V	Bus Loads Drawn	System Software
MASSBUS Port Dedicated CAB	Dedicated			11.0	1	RSX-11M, RSX-11M-PLUS RSTS/E

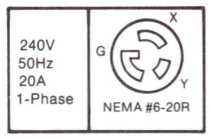
TAPE TRANSPORTS

TU77-AF(AJ) TU77 magnetic tape transport.
PREREQUISITE: TJU77-A or TWU77-A subsystem

Mounting Code	AC Amps Drawn @+240V
Dedicated CAB	8.5

TU77 MAGNETIC TAPE TRANSPORT SITE PREPARATION SPECIFICATIONS:

- Height: 60 in (152.4 cm)
- Width: 28 in (71 cm)
- Depth: 30 in (76.2 cm)
- Weight: 560 lbs (254 kg)
- Watts: 2250
- Btu/hr: 7690
- Receptacle required: NEMA #6-20R (240V only)



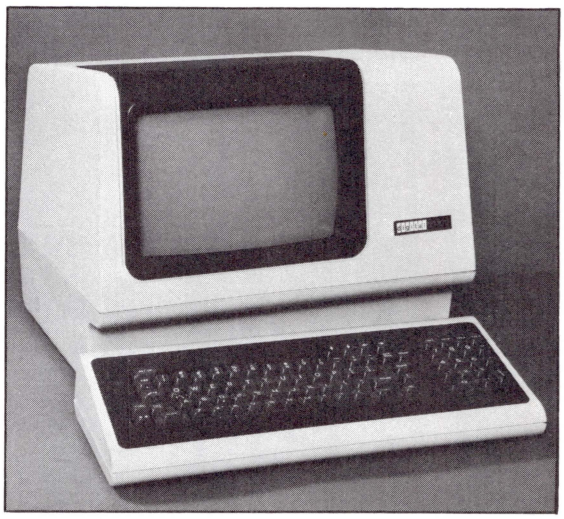
VIDEO TERMINALS

VT100 Video Terminal

The VT100 tabletop video display terminal features a sculptured typewriter-like detachable keyboard that attaches to the video display unit by means of a 6 ft (1.9 m) coiled cord. The VT100 operates on full-duplex asynchronous communications lines and is equipped with a standard EIA interface.
NOTE: *Communication cables are not provided with the VT100 terminal and must be ordered separately.* The recommended cables are BC22A-xx for local connection of the VT100 to a line unit and BC22B-xx for connection of the VT100 to a modem.

Performance Specifications:

- Baud rate: 50 to 19,200 b/s
- Format: 24 lines x 80 characters or 14 lines x 132 characters (selectable)
- Characters: 7 x 9 dot matrix with descenders
- Character set: 94-displayable character ASCII set and 32-character special graphics set
- Double-width/double-size characters
- Standard numeric/function keypad
- Bidirectional smooth scrolling
- Split-screen capability
- Normal or reversed screen image
- Adjustable tabs and line drawing graphics characters



VT100 Video Terminal

VT100-AA(AB) VT100 tabletop video display terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	3.0

VT100-WA(WB) VT100 tabletop video display terminal with advanced video option and word processing keyboard.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	3.0

SITE PREPARATION SPECIFICATIONS:

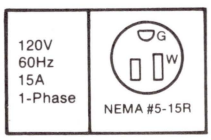
DIMENSIONS

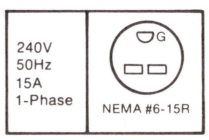
Monitor:
- Height: 14.5 in (36.8 cm)
- Width: 18 in (45.7 cm)
- Depth: 14.2 in (36.2 cm)

Keyboard:
- Height: 3.5 in (8.9 cm)
- Width: 18 in (45.7 cm)
- Depth: 8 in (20.3 cm)

Combined Monitor and Keyboard
- Depth: 20.3 in (51.4 cm)
- Shipping weight: 41 lbs (18.6 kg)

Power:
- Watts: 150
- Btu/hr: 512
- Receptacles required: NEMA #L5-15R (120)
  NEMA #L6-15R (240)





VT101 Video Terminal

The tabletop VT101 video display terminal features a sculptured, typewriter-like detachable keyboard that attaches to the video display unit by means of a 6 ft (1.9 m) coiled cord. The VT101 offers basic VT100 functionality plus local echo. This local echo feature allows the user to attach the VT101 to non-DIGITAL computer systems. The VT101 operates on full-duplex, asynchronous communication lines, and is equipped with a standard EIA interface.

Note: *Communication cables not included and must be ordered separately.* The recommended cables are BC22A-xx for local connection of the VT101 to a line unit and BC22B-xx for connection of the VT101 to a modem. Can also be ordered with U.S. or European power cords. (See International Power Cord Ordering Table.) **NOTE:** *Stand not included.*

Performance Specifications:

- Baud rate: 50 to 19,200 b/s
- Format: 24 lines x 80 characters, or 14 lines x 132 characters (selectable)
- Characters: 7 x 9 dot matrix with descenders
- Character set: 94-displayable character ASCII set, and 32-character special graphics set
- Double-width/double-size characters
- Standard numeric/function keypad
- Bidirectional smooth scrolling
- Split-screen capability
- Normal or reversed screen image
- Adjustable tabs and line drawing graphic characters



VT101 Video Terminal

VT101-AA(AB) VT101 tabletop video display terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	0.80

SITE PREPARATION SPECIFICATIONS:

DIMENSIONS

Monitor:

- Height: 14.5 in (36.8 cm)
- Width: 18 in (45.7 cm)
- Depth: 14.2 in (36.2 cm)

Keyboard:

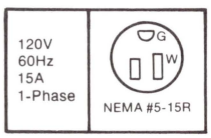
- Height: 3.5 in (8.9 cm)
- Width: 18 in (45.7 cm)
- Depth: 8 in (20.3 cm)

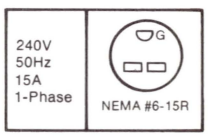
Combined Monitor and Keyboard:

- Depth: 20.3 in (51.4 cm)
- Shipping weight: 41 lbs (18.6 kg)

Power:

- Watts: 70
- Btu/hr: 240
- Receptacles required: NEMA #L5-15R (120)
  NEMA #L6-15R (240)





VT102 Video Terminal

The VT102 terminal is a fully optioned VT100 video terminal which offers a new level of functionality. VT100 advanced video and printer port features are built into the VT102 video display terminal to provide greater functionality at a lower cost. In addition, the VT102 terminal features U.S. and European half- and full-duplex communication and modem controls, as well as local echo. Advanced editing features allowing character and line insert and delete are standard. The VT102 video display terminal is an extremely versatile product.

Note: *Communication cables not included with the VT102 terminal and must be ordered separately.* The recommended cables are BC22A-xx for local connection of the VT102 to a line unit and BC22B-xx for connection of the VT102 to a modem. Can be ordered with U.S. or European power cords. (See International Power Cord Ordering Table.) **NOTE:** *Stand not included.*

Performance Specifications:

- Baud rate: 50 to 19,200 b/s
- Format: 24 lines x 80 characters or 132 characters
- Characters: 7 x 9 dot matrix with descenders
- Character set: 94-displayable character ASCII set and 32-character special graphics set
- Double-width/double-size characters
- Standard numeric/function keypad
- Bidirectional smooth scrolling
- Split-screen capability
- Normal or reversed screen image
- Adjustable tabs and line drawing graphic characters
- Normal or reverse video, blinking, underline, and bold characters on a character-by-character basis.
- Local print functions without host intervention.
- Enhanced terminal editing features



VT102 Video Terma

VT102-AA(AB) VT102 tabletop video terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	0.80

VT102-WA(WB) VT102 tabletop video terminal, with word processing keyboard.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	0.80

SITE PREPARATION SPECIFICATIONS:

DIMENSIONS

Monitor:

- Height: 14.5 in (36.8 cm)
- Width: 18 in (45.7 cm)
- Depth: 14.2 in (36.2 cm)

Keyboard:

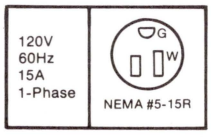
- Height: 3.5 in (8.9 cm)
- Width: 18 in (45.7 cm)
- Depth: 8 in (20.3 cm)

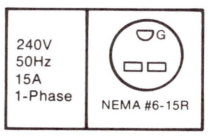
Combined Monitor and Keyboard

- Depth: 20.3 in (51.4 cm)
- Shipping weight: 41 lbs (18.6 kg)

Power:

- Watts: 70
- Btu/hr: 240
- Receptacles required: NEMA #L5-15R (120) NEMA #L6-15R (240)





VT125 Graphics Terminal

The VT125 is an intelligent alphanumeric video terminal with data plotting extensions, which combine bit map graphics architecture, automatic vector and general curve generation, as well as the alphanumeric features. The VT125 is a microprocessor-based terminal that directly executes DIGITAL's general purpose graphics descriptor ReGIS (Remote Graphics Instruction Set.) ReGIS commands are easy-to-remember, single mnemonics and are easily inserted in programs written in any language such as BASIC, COBOL, FORTRAN, or PASCAL. The VT125 operates on full-duplex, asynchronous serial communication lines with either an EIA or 20mA interface.

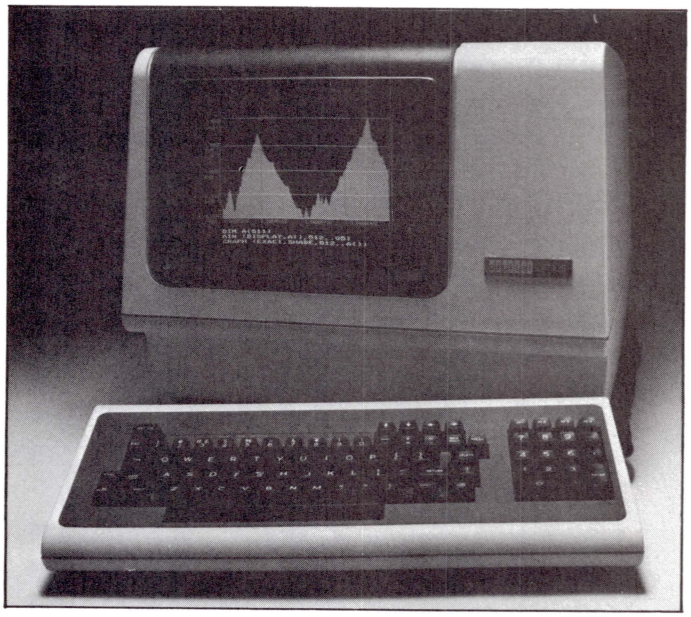
Note: *Communications cables not included.* The recommended cables are BC22A-xx for local connection of the VT125 to a line unit and BC22B-xx for connection of the VT125 to a modem.

Performance Specifications:

- Baud rates: 50 to 19,200 b/s
- Format: 24 lines x 80 characters or 14 lines x 132 characters (selectable)
- Character: 7 x 9 dot matrix with descenders
- Character set: 94-displayable character ASCII set and 32-character special graphics set
- Double-width/double-size characters
- Standard numeric/function keypad
- Bidirectional smooth scrolling
- Split-screen capability
- Normal or reversed screen image
- Adjustable tabs and line drawing graphic characters
- Keyboard-selectable cursor type
- Printer port for text output

Graphics Features

- Graphics resolution: 768 x 240 pixels
- Two full graphics planes
- Firmware for direct execution of ReGIS commands
- Printer port for graphics mode
- Visual attributes: Color output of 4 colors at a time, out of a possible 64 (on detached monitor)
  Black and white output with 4 gray levels



VT125 Graphics Terminal

VT125-AA(AB) VT125 tabletop graphics terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	3.0

VT125-WA(WB) VT125 tabletop graphics terminal with advanced video option and word processing keyboard.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	3.0

SITE PREPARATION SPECIFICATIONS:

DIMENSIONS

Monitor:

- Height: 14.5 in (36.8 cm)
- Width: 18 in (45.7 cm)
- Depth: 14.2 in (36.2 cm)

Keyboard:

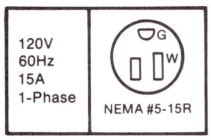
- Height: 3.5 in (8.9 cm)
- Width: 18 in (45.7 cm)
- Depth: 8 in (20.3 cm)

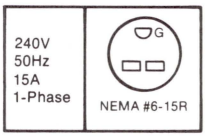
Combined Monitor and Keyboard:

- Depth: 20.2 in (51.3 cm)
- Shipping weight: 41 lbs (18.6 kg)

Power:

- Watts: 150 watts
- Btu/hr: 512
- Receptacles required: NEMA #L5-15R (120 Vac)
  NEMA #L6-15R (240 Vac)



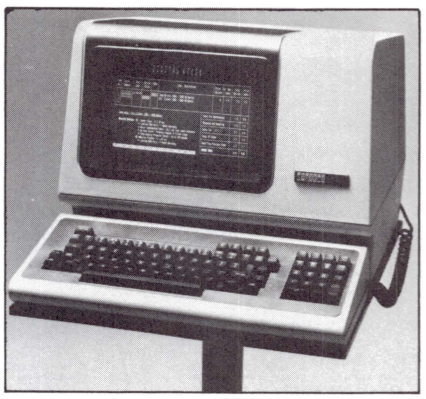


VT131 Video Terminal

The VT131 video display terminal is a high functionality model which can be used in the interactive mode on Digital computer systems and in block mode on non-Digital systems. It features local echo, built-in advanced video and printer port. Also, U.S./European half- and full-duplex communications, modem controls, and local edit/block mode transmission. Local editing allows the operator to enter and edit a full screen of data before transmitting it as a block to the host.
Note: Block mode transmission is not supported on Digital operating systems.*Communication cables not included and must be ordered separately.* The recommended cables are BC22A-xx for local connection of the VT131 to a line unit and BC22B-xx for connection to a modem. Can be ordered with U.S. or European power cords. (See International Power Cord Ordering Table.) Stand not included.

Performance Specifications:

- Baud rate: 50 to 19,200 b/s
- Format: 24 lines x 80 characters or 132 characters (selectable)
- Characters: 7 x 9 dot matrix with descenders
- Character set: 94-displayable character ASCII set and 32-character special graphics set
- Double-width/double-size characters
- Standard numeric/function keypad
- Bidirectional smooth scrolling
- Split-screen capability
- Normal or reverse screen image
- Adjustable tabs and line drawing graphic characters
- Normal or reverse video, blinking, underline, and bold characters on a character-by-character basis.
- Local print functions without host intervention.
- Enhanced terminal editing features


VT131 Video Terminal

VT131-AA(AB) VT131 tabletop video terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	0.80

SITE PREPARATION SPECIFICATIONS:

DIMENSIONS
Monitor:

- Height: 14.5 in (36.8 cm)
- Width: 18 in (45.7 cm)
- Depth: 14.2 in (36.2 cm)

Keyboard:

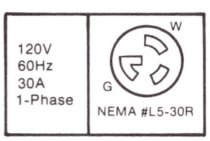
- Height: 3.5 in (8.9 cm)
- Width: 18 in (45.7 cm)
- Depth: 8 in (20.3 cm)

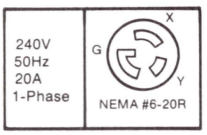
Combined Monitor and Keyboard

- Depth: 20.3 in (51.4 cm)
- Shipping weight: 41 lbs (18.6 kg)

Power:

- Watts: 70
- Btu/hr: 240
- Receptacles required: NEMA #L5-15R (120)
  NEMA #L6-15R (240)





INTERNATIONAL POWER CORD ORDERING TABLE

MODEL	U.S./GIA*	UNITED KINGDOM	CONTINENTAL EUROPE	SWISS	AUSTRALIA	JAPAN
VT100 —EIA CRT terminal —Expandable **VT100-W** —Built-in A.V.O. plus above items	**VT100-AA** (120v) **VT100-AB** (240v) **VT100-WA** (120v) **VT100-WB** (240v) All have U.S. plugs.	N/A	N/A	N/A	N/A	N/A
VT101 —EIA CRT terminal —Non-expandable base level	**VT101-AA** (120v) **VT101-AB** (240v) All have U.S. plugs.	**VT101-A2** Includes 240v power cord & U.K. plug.	**VT101-A3** Includes 220v power cord & Continental Europe plug.	**VT101-A4** Includes 220v power cord & Swiss plug.	**VT101-A5** Includes 250v power cord & plug.	**VT101-AC** Includes 100v power cord & U.S. plug.
VT102 —EIA CRT terminal —Non-expandable —Built-in A.V.O. and printer port	**VT102-AA** (120v) **VT102-AB** (240v) **VT102-WA** (120v) **VT102-WB** (240v) All have U.S. plugs.	**VT102-A2** **VT102-W2** Includes 240v power cord & U.K. plug.	**VT102-A3** **VT102-W3** Includes 220v power cord & Continental Europe plug.	**VT102-A4** **VT102-W4** Includes 220v power cord & Swiss plug.	**VT102-A5** **VT102-W5** Includes 250v power cord & plug.	**VT102-AC** **VT102-WC** Includes 100v power cord & U.S. plug.
VT125 —EIA CRT terminal —Expandable —Built-in printer port —Standard bit-map graphics **VT125-W** —Built-in A.V.O. plus above items	**VT125-AA** (120v) **VT125-AB** (240v) **VT125-WA** (120v) **VT125-WB** (240v) All have U.S. plugs.	N/A	N/A	N/A	N/A	N/A
VT131 —EIA CRT terminal —Non-expandable —Built-in A.V.O. and printer port	**VT131-AA** (120v) **VT131-AB** (240v) All have U.S. plugs.	**VT131-A2** Includes 240v power cord & U.K. plug.	**VT131-A3** Includes 220v power cord & Continental Europe plug.	**VT131-A4** Includes 220v power cord & Swiss plug.	**VT131-A5** Includes 250v power cord & plug.	**VT131-AC** Includes 100v power cord & U.S. plug.

*GIA - General International Area. Those countries not included in the list above, are members of GIA. For details as to power cord plugs available for GIA countries, please contact your local DIGITAL representative for details.

VIDEO TERMINAL OPTIONS

VT1XX-AA 20mA adapter for the VT100. Allows VT100 terminal to convert from an EIA interface to a 20mA current loop interface for communications lengths exceeding 50 ft (15.2 m). Includes BC05F-15 cable.

VT1XX-AB Advanced video option for the VT100/VT125. Provides four additional character attributes (bold, blink, underline, and reverse video) in any combination; space and connections for an alternate character set memory; converts screen memory from 14 lines of 132 columns to 24 lines of 132 columns.

VT1XX-AC Printer port option. Allows connection of a VT100 to a hardcopy printer.
PREREQUISITE: Advanced video option.

VT1XX-CA 20mA interface adapter option for VT101/VT102/VT125/VT131. Allows for conversion from the EIA interface to a current loop interface for communications lengths exceeding 50 ft (15.2 m). Includes BCO5F-15 cable.

VT1XX-CB Upgrade kit. Converts VT100 to VT125 graphics functionality.

VT1XX-CE Upgrade kit. Converts VT100 and VT125 to word processing functionality.

VT1XX-SA Tilt/swivel base assembly providing an upward tilt of 15° and a downward tilt of 7.5°, plus 180° swivel capability for the VT100 family of video terminals.

VT1XX-ST Five leg terminal stand with casters.(*Requires customer assembly.*) Can be used for VT100 family.

VT1XX- Anti-glare panel. Reduces glare, enhances character contrast, and improves screen readability. Can be used with VT100 family. Available in three colors. Order by following codes:

VT1XX-FA Grey anti-glare panel

VT1XX-FB Green anti-glare panel

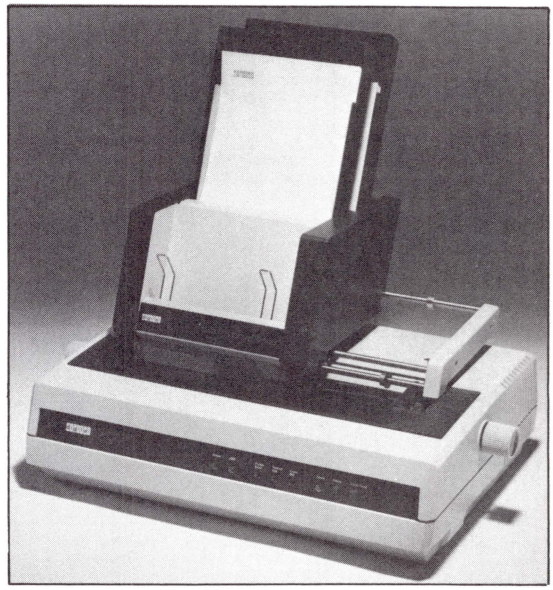
VT1XX-FC Bronze anti-glare panel

LQP02 - Full Character Letter-Quality Printer

The LQP02 Letter-Quality Printer is a desktop, full character impact printer incorporating daisy wheel print technology. It features high-quality print, high reliability, increased functionality and customer installability. It will print hard copy on regular office stationery as well as fan-fold paper. Various characters fonts can be used by simply changing printwheels. The bidirectional LQP02 Letter-Quality Printer is ideal for word processing requirements. It operates on full-duplex, asynchronous communication lines and includes universal power supply, standard EIA interface and BC22A-xx null modem cable.

Performance Specifications:

- Baud rate: 110 to 9600 b/s
- Print speed: 32 characters/s
- Print method: Impact, daisy wheel
- Print columns: 132 at 10 characters/in
  158 at 12 characters/in
- Character set: 128-character ASCII set
- Characters per inch: 10/12/Variable, software-selectable
- Lines per inch: 6/8/Variable, software-selectable
- Variable horizontal tabs and margins
- Universal power supply, user-selectable
- Parity: Switch-selectable to odd, even, mark, or space;
  7 bits per character



LQP02-AA with Cut Sheet Feeder Option

LQP02-AA(AD) 32 characters per second letter-quality printer with Courier-10 font.

Mounting Code	AC Amps Drawn @+120V
TT	3.0

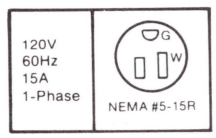
LQPX2-AA Bidirectional forms-tractor option permits use of fan-fold paper.

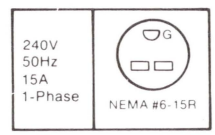
LQPXX-AC Dual tray cut sheet feeder for use with regular office stationery.

LQPXX-AD Dual tray cut sheet feeder for use with A4 size paper for European applications.

SITE PREPARATION SPECIFICATIONS:

- Height: 7 in (17.8 cm)
- Width: 25 in (63.5 cm)
- Depth: 16 in (40.6 cm)
- Weight: 48 lbs (21.8 kg)
- Watts: 120, average RMS
- BTU/Hr: 410
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





Correspondent Portable Printing Terminal

The "Correspondent" is a lightweight, portable, interactive terminal that offers significantly improved communication power, functionality, and reliability over available terminals. It will print hard copy on all types of plain bond paper. A variety of user-selectable features allows the terminal to be adapted to a number of applications in many locations. This versatility also includes the ability to switch among the various integral communication modes for terminal connection to the database from virtually any location. These flexible communication ports allow more location independence to the terminal professional than ever before.

Performance Specifications:

- Baud rate: 50 to 9600 b/s
- Print speed: 150 characters/s (Text mode)
- Slew speed: 5 in (12.7 cm)/s
- Print columns: 40 to 132, user-selectable
- Character set: 128-character ASCII set
- Characters per inch: 5/6/6.6/8.25/10/12/13.2/16.5
- Characters: 9 x 9 dot matrix impact printing in text mode
- Lines per inch: 2/3/4/6/8/12, host-selectable
- Universal power supply, user-selectable
- Parity: Switch-selectable to even, odd, or none; 7 or 8 bits per character selectable
- VT100 video terminal line drawing graphics set
- Print density: 132 dots per inch horizontal; 72 dots per inch vertical (Graphics mode)
- Extensive self-contained user diagnostics



Correspondent Portable Printing Terminal

LA12-A Includes EIA interface, 300/1200 baud modem, 300 baud acoustic coupler, and accessories (carry case, shoulder strap, paper roll (100 ft.), ribbon cartridge, instruction card, loop-back connector, line cord, and modem cable).

Mounting Code	AC Amps Drawn @+120V
TT	0.9

LA12-B Includes EIA interface and 300/1200 baud modem, plus accessories (carry case, shoulder strap, paper roll (100 ft.), ribbon cartridge, instruction card, loop-back connector, line cord, and modem cable).

Mounting Code	AC Amps Drawn @+120V
TT	0.9

LA12-C Includes EIA interface and 300 baud acoustic coupler, plus accessories (carry case, shoulder strap, paper roll (100 ft.), ribbon cartridge, instruction card, loop-back connector, and line cord).

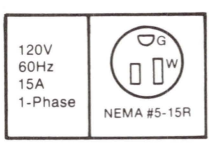
Mounting Code	AC Amps Drawn @+120V
TT	0.9

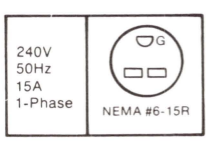
LA12-D EIA interface and accessories (carry case, shoulder strap, paper roll (100 ft.), ribbon cartridge, instruction card, loop-back connector, and line cord).

Mounting Code	AC Amps Drawn @+120V
TT	0.9

SITE PREPARATION SPECIFICATIONS:

- Height: 5.7 in (14.4 cm)
- Width: 18.3 in (46.4 cm)
- Depth: 15.5 in (39.4 cm)
- Weight: 18 lbs (8.2 kg)
- Watts: 55 (maximum printing)
- Btu/hr: 188
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



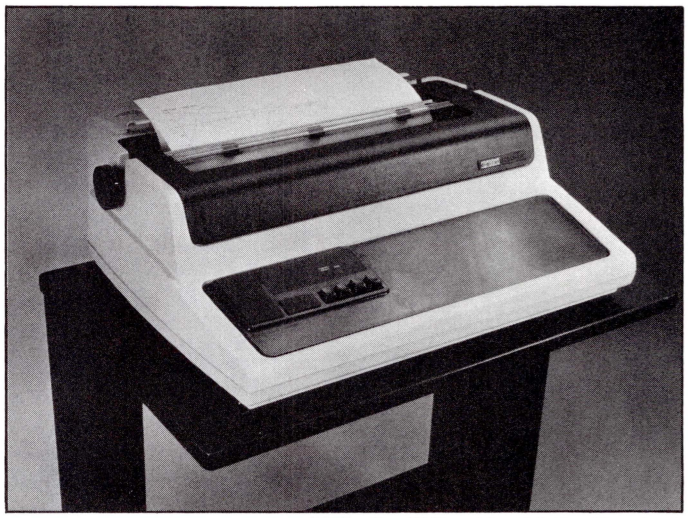


DECwriter IV Graphics Printing Terminal

The DECwriter IV Graphics Printers are tabletop, receive-only (RO) versions of the DECwriter IV. Consequently, the Graphics Printers do not have a keyboard. The Graphics Printers are designed to be both a character printing terminal and a graphics output device. They are designed to produce hardcopy graphics and text from printer ports installed in the host central processing unit. They can be used with the VT125 Graphics Terminal or the as an output device for the GIGI (VK100) Terminal. Graphics Printers operate on full-duplex (or full-duplex with local echo) asynchronous communications lines and includes universal power supply, standard EIA interface, and EIA null modem cable (BC22A-xx). **Note:** *Stand not included.*

Performance Specifications:

- Baud rate: 110 to 9600 b/s
- Print speed: 45 characters/s (Text mode)
  320 columns/s or 960 dots/s (Graphics mode)
- Slew speed: 5 in/s (12.7 cm/s)
- Print columns: 132
- Character set: 128-character ASCII set
- Characters per inch: 5/6/6.6/8.25/10/12/13.2/16.5, host-selectable
- Characters: 9 x 7 dot matrix impact printing in text mode
- Lines per inch: 2/3/4/6/8/12, host-selectable
- Universal power supply
- Parity: Switch-selectable to even, odd, mark or space



DECwriter IV Graphics Printing Terminal

LA34-RA Basic printer. **Note:** *Options or supplies not included.*
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.3

LA34-VA Systems Graphics Printer, including roll paper holder, paper low detector option, BC22A-25 cable, ribbon cartridge, and one roll of paper.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

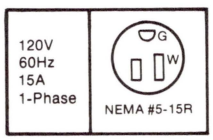
Mounting Code	AC Amps Drawn @+120V
TT	1.3

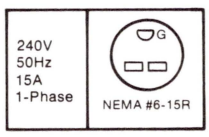
LA34-WA Receive-only printer, including tractors, paper out switch option, BC22A-25 cable, ribbon cartridge and tractor feed paper sample.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.3

SITE PREPARATION SPECIFICATIONS:

- Height: 6.5 in (18.3 cm)
- Width: 22 in (55.9 cm)
- Depth: 16.4 in (41.7 cm)
- Weight: 22 lbs (10 kg)
- Watts: 45 (maximum printing)
  25 (maximum non-printing)
- Btu/hr: 154
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





LA38 DECwriter IV Printing Terminal

The LA38 tabletop printing terminal features a contoured, typewriter-styled keyboard with N-key roll-over and has been designed to meet requirements for a console or timesharing terminal with forms-handling capability. The LA38 operates on full-duplex (or full-duplex with local echo) asynchronous communications lines and includes universal power supply, standard EIA interface and EIA null modem cable (BC22A-xx). **Note:** Stand not included.

Performance Specifications:

- Baud rate: 110 or 300 b/s
- Print speed: 30 characters/s
- Lines per inch: 2/3/4/6/8/12
- Characters per inch: 10/12/13.2/16.5
- Characters: 9 x 7 dot matrix
- Character set: 7-bit ASCII plus ANSI-compatible escape sequences
- Variable horizontal tabs and margins
- Font sizes: 4
- Line spacings: 6
- Parity: Odd, even, mark or space



LA38-HA DECwriter IV Printing Terminal

LA38-GA Tabletop DECwriter IV printing terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

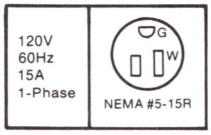
Mounting Code	AC Amps Drawn @+120V
TT	1.3

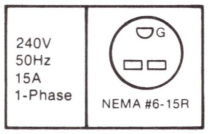
LA38-HA Freestanding DECwriter IV printing terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
FS	1.3

SITE PREPARATION SPECIFICATIONS:

- Height (with stand): 37 in (93.9 cm)
- Width: 22 in (55.9 cm)
- Depth: 16.4 in (41.7 cm)
- Weight (with stand): 51 lbs (23.2 kg)
- Watts: 45 (maximum printing)
- Btu/hr: 154
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



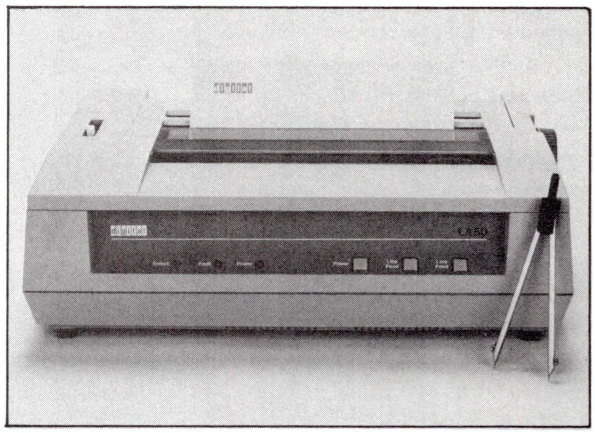


LA50 Personal Printer

The LA50 Personal Printer is a lightweight, desktop, dot-matrix printer. It features a text mode, and an enhanced print quality mode, as well as a graphics mode. It can use regular office stationery, fan-fold paper, or multipart forms*. It is customer installable and a multinational character set is resident in this terminal.

Performance Specifications:

- Baud rate: 110 to 4800 b/s
- Print speed: 100 characters/s (text mode)
  50 characters/s (enhanced print mode)
- Print columns: 80 to 132
- Character set: 191-character ASCII set, multinational character set, and control characters
- Characters per inch: 10/12/16.5
- Characters: 9 x 9 dot matrix impact printing in text mode
- Lines per inch: 2/3/4/6/8/12
- Parity: Switch-selectable to odd, even, mark or space;
  7 or 8 bits per character (selectable)
- VT100 video terminal line drawing graphics set
- Katakana character set option
- Print density: 144 or 180 dots per inch horizontal (switch-selectable) and 72 dots per inch vertical in graphics mode



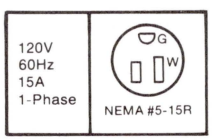
LA50 Personal Printer

LA50-RA(RB) Tabletop LA50 printing terminal with tractor-feed.
PREREQUISITE EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.5

SITE PREPARATION SPECIFICATIONS:

- Height: 5 in (12.7 cm)
- Width: 15.7 in (39.8 cm)
- Depth: 11.2 in (28.5 cm)
- Weight: 20 lbs (9.1 kg)
- Watts: 180, maximum
- Receptacles required: NEMA #5-15R (120V); CEE Type #7 (240V)



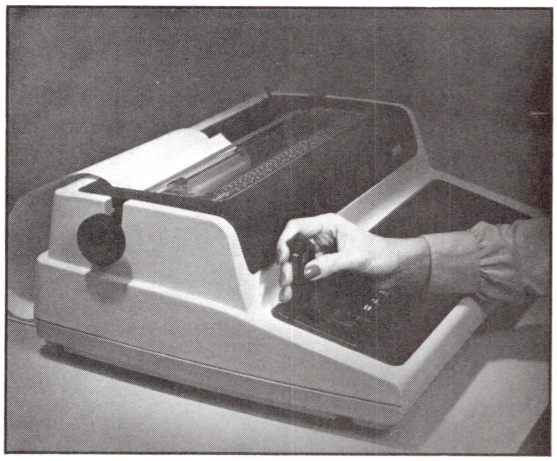
* DIGITAL recommends that multipart forms not exceed 0.011 inches (0.028 cm) in thickness. This is usually equivalent to a three-part form.

Letterprinter 100/Letterwriter 100 Printing Terminals

The Letterprinter 100/Letterwriter 100 are desktop, microprocessor-controlled hardcopy terminals. The Letterprinter 100 is a receive-only version while the Letterwriter 100 is a keyboard send and receive (KSR) terminal. These printers offer three print modes, a graphics mode, as well as the ability to print on fanfold computer paper, roll paper, and office stationery. These printers permit the user to select from a variety of internal ROM fonts and external plug-in cartridge ROM fonts for maximum creativity in document design. Highly versatile, low-cost, and multimode, these terminals are ideal for use with video workstations and small business systems. These printers can handle a wide variety of applications in distributed data processing, word processing, graphic imaging, communications, and electronic mail. Both operate on full-duplex, asynchronous communications lines and each includes universal power supply, standard EIA interface, and EIA null modem cable (BC22A-xx).

Performance Specifications:

- Baud rate: 50 to 9600 b/s
- Print speed: 240 characters/s (data mode)
  80 characters/s (optional memo mode)
  30 characters/s (correspondence mode)
  132 x 72 dots/s (graphics mode)
- Slew speed: 5 in/s (12.7 cm/s)
- Print columns: 217
- Character set: 7-bit ASCII, plus ANSI-compatible escape sequences
- Characters per inch: 5/6/6.6/8.25/10/12/13.2/16.5
- Characters: 9 x 7 dot matrix impact printing in EDP printer
  33 x 9 dot matrix impact printing in memo printer
  33 x 18 dot matrix impact printing in correspondence printer
  133 x 72 dot matrix impact printing in graphics printer
- Lines per inch: 2/3/4/6/8/12
- Universal power supply
- Parity: Even, odd, or none; 7- or 8-bits per character selectable



LA100-ZA Printing Terminal

LA100-RA English language Letterprinter 100 receive-only (RO) with COURIER-10 and ORATOR-10 Fonts.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.1

LA100-YA Basic receive-only (RO) printer plus tractors, BC22A-10 cable , ribbon cartridge, and one roll of paper.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.1

LA100-ZA LA100-YA plus multiple font option.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.1

LA100-AA Basic Letterwriter 100.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.1

LA100-BA Letterwriter 100 with numeric keypad, tractors and BC22A-10 cable.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

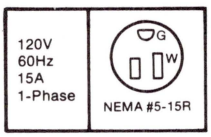
Mounting Code	AC Amps Drawn @+120V
TT	1.1

LA100-CA LA100-BA plus multiple font capability.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.1

SITE PREPARATION SPECIFICATIONS:

- Height: 7 in (17.8 cm)
- Width: 22 in (55.9 cm)
- Depth: 15.5 in (39.4 cm)
- Weight: 25 lbs (11.4 kg)
- Watts: 55 (maximum printing)
  20 (maximum non-printing)
- Btu/hr: 188
- Receptacles required: NEMA #5-15R (120V)



LA120 DECwriter III Printing Terminal

The LA120 freestanding printing terminal features a contoured, typewriter-styled keyboard with N-key roll-over. Throughput is increased by combining bidirectional smart printing (seeks shortest path to next print position) with a 1K character buffer with fast horizontal and vertical skipping over white space. The LA120 operates on 5 half- and full- duplex asynchronous communications lines and standard EIA/CCITT interface. Includes universal power supply.
NOTE: *Communication cables are not provided with the LA120 terminal and must be ordered separately.* The recommended cables are BC03M-xx or BC22A-xx for local connection of the LA120 to a line unit and BC05D-xx for connection of the LA120 to a modem.

Performance Specifications:

- Baud rate: 50 to 9600 b/s
- Print speed: 180 characters/s
- Lines per inch: 2/3/4/6/8/12
- Characters per inch: 5/6/6.6/8.25/10/12/13.2/16.5
- Characters: 7 x 7 dot matrix
- Character set: 7-bit ASCII plus ANSI-compatible escape sequences
- Tabs: 217 horizontal, 168 vertical
- Font sizes: 8
- Line spacings: 6
- Parity: Odd, even, or none



LA120-DA DECwriter III Printing Terminal

LA120-DA Free-standing DECwriter III hardcopy terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

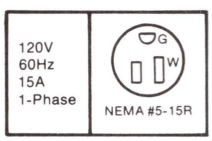
Mounting Code	AC Amps Drawn @+120V
FS	3.0

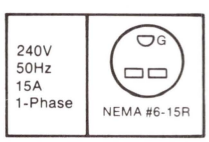
LA120-RA Free-standing DECprinter III receive-only version of the LA120-DA hardcopy terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
FS	3.0

SITE PREPARATION SPECIFICATIONS:

- Height: 33.5 in (85.1 cm)
- Width: 27.5 in (69.9 cm)
- Depth: 24 in (61 cm)
- Weight: 102 lbs (46.3 kg)
- Watts: 440 (maximum printing)
- Btu/hr: 1500
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





TERMINALS

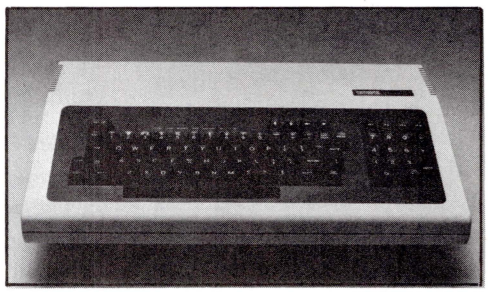
GIGI Terminal

GIGI is a low cost, portable, modular, microprocessor-based keyboard. GIGI supports a wide range of professional user needs, from program development to application software execution, and from simple alphanumeric functionality to full color graphics. The tabletop GIGI (General Imaging Generator and Interpreter) can be connected to a user supplied black and white or color monitor.

GIGI's functionality includes: graphics, multiple character sets, local intelligence, local ROM BASIC, 8 level color support, graphics printer interface, screen control functions and graphics tablet support. GIGI operates over full-duplex, asynchronous serial communication lines and on either EIA or 20mA communications interfaces.

Highlights

- Baud rate: Keyboard-selectable data rate from 110-9,600 baud
- Easy-to-use interactive applications software, including: interactive graphics-text editor, character set editor, data plotting package and slide projection system.
- Graphics library for developing custom applications
- Multiple character sets
- Programmable auxiliary keypad
- Self-paced, CAI (computer-aided instruction) customer training



GIGI Terminal

Text

- Text format: 24 lines x 84 characters
- Character: 8 x 10 character dot matrix
- Character set: 95-ASCII character set
- Keyboard: 65-key main keyboard, 18-key keypad, key click/bell, 3 key rollover
- Text cursor: Blinking, reversed video block

Graphics

- Graphics resolution: 768 x 240 pixels
- Remote Graphics Instruction Set (ReGIS), a new DIGITAL standard graphics protocol containing high-level graphics features and efficient line utilization
- Graphics cursor: Blinking, open diamond
- Blink

Visual Attributes

- Color output: 8 colors including black, blue, red, magenta, green, cyan, yellow, white
- Black and white output: 8 grey levels

Communications

- Independent transmit and receive data rates
- Special transmission modes: Single character mode, local echo mode, programmable keypad codes
- Special receive modes: "Display all" mode, new line mode, graphics debugging mode

VK100-AA(AB) VK100 tabletop keyboard terminal.
PREREQUISITE: EIA/CCITT serial line interface or equivalent

Mounting Code	AC Amps Drawn @+120V
TT	1.3

SITE PREPARATION SPECIFICATIONS:

- Height: 3.9 in (9.8 cm)
- Width: 19.4 in (49.3 cm)
- Depth: 12.3 in (31.1 cm)
- Weight: 15 lbs (6.8 kg)
- Btu/hr: 532

LINEPRINTERS

LXY11/LXY21/LXV11 Lineprinter/Plotters

LXY11/LXY21/LXV11 lineprinter/plotters feature unique plotting capabilities, such as standard line drawings (e.g. graphs, histograms, or charts) along with plots requiring shaded or solid areas (e.g. bar graphs) made possible with the PLXY-11 graphics software package. These lineprinter/plotters can accommodate complex, intricate plots as well as simple designs, and provide hardcopy output of designs formulated on a graphics terminal. The LXY11/LXY21/LXV11 systems include a controller, a 25 ft (7.6 m) cable, and the PLXY-11 graphics software.*



LXY11/LXY21/LXV11 Lineprinter/Plotter

Performance Specifications:

- Printing Speed:

LXY11/LXV11: 300 l/min
LXY11/LXV11: 240 l/min (underlines or upper/lower case characters)
LXY11/LXV11: 170 l/min (double-height characters)
LXY21: 600 l/min (64 upper case characters)
LXY21: 465 l/min (underlines or upper/lower case characters)
LXY21: 320 l/min (double-height characters)

- Plotting Speed:

LXY11/LXV11: 16.7 in/min (42.4 cm/min)
LXY21: 33.3 in/min (84.6 cm/min)

- Character Set: 96 ASCII standard (expansion to 160 characters optional)

- Paper Slew Speed:

LXY11/LXV11: 8 in/s (20.3 cm/s)
LXY21: 16 in/s (40.6 cm/s)

- Buffer Capacity: 132 characters

LXV11-xx Lineprinter/plotter.
PREREQUISITE: PDP-11/03L, PDP-11/23

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+12V	AC Amps Drawn @120V	Bus Loads Drawn
LSI-11 Double slot FS	0.8	0.0	4.0	1

LXY11-xx Lineprinter/plotter.
PREREQUISITE: UNIBUS PDP-11

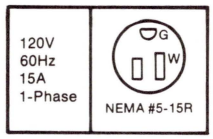
Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	4.0	1

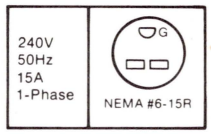
LXY21-xx Lineprinter/plotter.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	DC Amps Drawn @+15V	DC Amps Drawn @-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	4.0	1

* See description on following page.

SITE PREPARATION SPECIFICATIONS:





- Height: 46.5 in (118.1 cm)
- Width: 30 in (76.2 cm)
- Depth: 24.3 in (61.7 cm)
- Weight (with pedestal): 210 lbs (95.3 kg)
- Watts: 450
- Btu/hr: 1535
- Receptacle required: NEMA #5-15R (120V); NEMA #6-15R (240V)

DISTRIBUTION MEDIA	OPTION NUMBER RT-11	RSX-11M	RSX-11M-PLUS	RSTS/E
Magtape (9-tr, 800 b/in)	LXY11-HD(JD) LXY21-HD(JD)	LXY11-AD(BD) LXY21-AD(BD)	LXY11-MD(ND) LXY21-MD(ND)	LXY11-ED(FD) LXY21-ED(FD)
Magtape (9-tr, 1600 b/in)	LXY11-HM(JM) LXY21-HM(JM)	LXY11-AM(BM) LXY21-AM(BM)	LXY11-MM(NM) LXY21-MM(NM)	LXY11-EM(FM) LXY21-EM(FM)
Disk Cartridge (RL01)	LXY11-HQ(JQ) LXY21-HQ(JQ) LXV11-HQ(JQ)	LXY11-AQ(BQ) LXY21-AQ(BQ) LXV11-AQ(BQ)		LXY11-EQ(FQ) LXY21-EQ(FQ)
Disk Cartridge (RK06)	LXY11-HT(JT) LXY21-HT(JT)	LXY11-AT(BT) LXY21-AT(BT)		LXY11-ET(FT) LXY21-ET(FT)
Floppy Disk (RX01)	LXY11-HY(JY) LXY21-HY(JY) LXV11-HY(JY)	LXY11-AY(BY) LXY21-AY(BY) LXV11-AY(BY)		

NOTE: Suffix in parentheses ( ) represents 240 V, 50 Hz systems.
Support category for the above is DIGITAL Supported/Customer Installed.

PLXY-11 GRAPHICS SOFTWARE

PLXY-11 is a software package designed to provide RT-11, RSX-11M, RSX-11M-PLUS, and RSTS/E users with access to the plotting capabilities of the LXY or LXV printer/plotter. The package consists of a library of FORTRAN callable graphic subroutines and a postprocessing task (to create a plot file.)

The PLXY-11 user writes FORTRAN application programs using the graphic facilities provided by the PLXY-11 subroutine library. These subroutines convert the user's graphic requests into a series of vectors stored on an intermediate (vector) file. Vector data from this file are sorted and formatted into LXY or LXV printer/plotter plottable data (raster format) by the postprocessing task. This plottable data is normally stored in an intermediate file where it can be subsequently transferred via a system utility (i.e., PIP) to the LXY or LXV printer/plotter. Output to the LXY or LXV printer/plotter is directed through the standard LP11 lineprinter driver.

The PLXY-11 subroutine library includes routines for character and line drawing. As all operations are program controlled, either one axis or both axes can be addressed in positive or negative incremental steps.

LP11-AA/LP11-BA/LPV11-AA/LPV11-BA Lineprinters*

The LP11-AA/LP11-BA and LPV11-AA/LPV11-BA band printers feature easily interchanged, user-replaceable, font bands including optional bands for a compressed printing mode, and European and Japanese character sets. The LP11-AA/LP11-BA and LPV11-AA/LPV11-BA lineprinters are equipped with a control unit, a 30 ft (9.2 m) cable and include a universal power supply. A long line version of the LP11-BA, the LSP25-CA, is available for operation of the printer up to 900 ft. (280 m.) from the CPU. Contact your local DIGITAL sales representative for information.



LP11-A, B Lineprinter

Performance Specifications:

- Printing speed (64-character set): 300 l/min
- Printing speed (96-character set): 215 l/min
- Printing speed (numeric): 327 l/min
- Number of columns: 132
- Horizontal spacing: 0.1 in (0.25 cm) (0.067 in, 0.17 cm with compressed font)
  NOTE: Compressed font decreases throughput by 30%
- Vertical spacing: 6 or 8 l/in (12 or 16 l/cm) (switch-selectable)
- Vernier adjustment for both horizontal and vertical paper tension
- Slew speed: 15 in/s (37.5 cm/s)
- Buffer capacity: 132
- Program status display
- Self-test capability

LPV11-AA Band printer operating at speed of 300 l/min for 64-character ASCII set.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	@+12V	AC Amps Drawn @120V	Bus Loads Drawn
LSI-11 Double slot FS	0.8	0.00	3.0	1

LPV11-BA Band printer operating at speeds of 300 l/min for 64- character ASCII set or 215 l/min for 96-character ASCII set.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	@+12V	AC Amps Drawn @120V	Bus Loads Drawn
LSI-11 Double slot FS	0.8	0.00	3.0	1

LP11-AA Band printer operating at speeds of 300 l/min for 64-character ASCII set.
PREREQUISITE: UNIBUS PDP-11

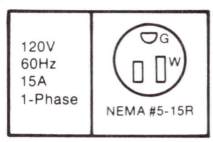
Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	3.0	1

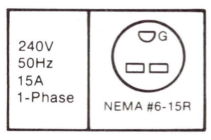
LP11-BA Band printer operating at speeds of 300 l/min for 64-character character set or 215 l/min for 96-character ASCII set.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	3.0	1

SITE PREPARATION SPECIFICATIONS:

- Height (with stand): 43.7 in (111 cm)
- Width: 29.9 in (76 cm)
- Depth: 33.5 in (85 cm)
- Weight (with pedestal): 196 lbs (89 kg)
- Watts: 350
- Btu/hr: 1200
- Receptacle required: NEMA #5-15R (120V); NEMA #6-15R (240V)





*LP11-AA/LP11-BA and LPV11-AA/LPV11-BA lineprinters are shipped under the "LP25" logo.

LP11-EA/LP11-EB and LPV11-EA/LPV11-EB Lineprinters*

The LP11-EA/LP11-EB and LPV11-EA/LPV11-EB are free standing band printers featuring easily interchanged, user-replaceable font bands with optional bands for American and European character sets. It utilizes a flat, steel band with raised letters and a hammer bank with 132 hammers (one for each column). As the selected character appears on the moving band, each hammer strikes one character to produce a clear printed line. The LP11-E lineprinter is equipped with a control unit and a 30 ft (9.2 m) cable, as well as universal power supply. A long line version of the LP11-EB, the LSP26-CA, is available for operation of the printer up to 900 ft. (280 m.) from the CPU. Contact your local DIGITAL sales representative for information.

Performance Specifications:

- Printing speed (64-character set): 600 l/min
- Printing speed (96-character set): 445 l/min
- Number of columns: 132
- Horizontal spacing: 0.1 in (0.25 cm)
- Vertical spacing: 6 or 8 l/in (12 or 16 l/cm),switch-selectable
- Vernier adjustment for both horizontal and vertical paper tension
- Slew speed: 15 in/s (37.5 cm/s)
- Line advance time: 25 msec
- Buffer capacity: 132
- Self-test capability
- Paper type: Pin-feed, continuous, fan-fold forms
- Copies: One to six part plus cabon paper
- Paper thickness: 0.022 in (0.056 cm) (maximum thickness)
- Modular design for easy parts removal/replacement during routine servicing and maintenance.
- Reliable, medium-load performance



LP11-E Lineprinter

LPV11-EA Lineprinter operating at speeds of 600 l/min for 64-character set.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	@+12V	AC Amps Drawn @120V	Bus Loads Drawn
LSI-11 Double slot FS	0.8	0.00	4.5	1

LPV11-EB Lineprinter operating at speeds of 600 l/min for 64-character set or 445 l/min for 96-character set.
PREREQUISITE: PDP-11/23

Mounting Code	DC Amps Drawn @+5V	@+12V	AC Amps Drawn @120V	Bus Loads Drawn
LSI-11 Double slot FS	0.8	0.00	4.5	1

LP11-EA Lineprinter operating at speeds of 600 l/min for 64-character set.
PREREQUISITE: UNIBUS PDP-11

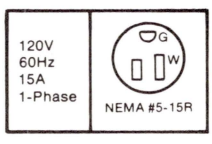
Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	4.5	1

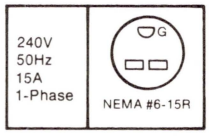
LP11-EB Lineprinter operating at speeds of 600 l/min for 64-character set or 445 l/min for 96-character set.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	4.5	1

SITE PREPARATION SPECIFICATIONS:

- Height: 43.8 in (111 cm)
- Width: 30.3 in (76 cm)
- Depth: 33.6 in (85 cm)
- Weight(with pedestal): 205 lbs (93 kg)
- Watts: 475 (maximum printing)
- Btu/hr: 1619
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)





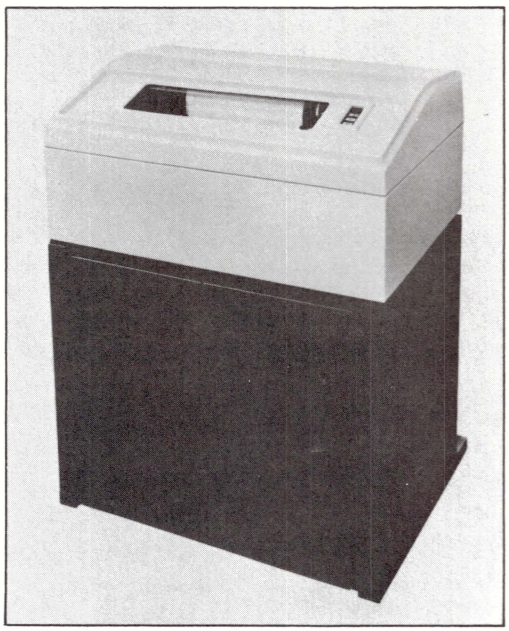
*The LP11-EA/LP11-EB and LPV11-EA/LPV11-EB lineprinters are shipped under the "LP26" logo.

LP11-C/LP11-D Lineprinters

The LP11-C and LP11-D impact lineprinters are fast, reliable drum printers which reduce operation noise. They have variable forms control with the top of the form, in addition to single- or multipart form availability for expanded application capabilities. The LP11-C and LP11-D lineprinters are equipped with a control unit and 25 ft (7.6 m) cable.

Performance Specifications:

- Printing speed (64-character set): 900 l/min
- Printing speed (96-character set): 660 l/min
- Number of columns: 132
- Horizontal spacing: 0.1 in (0.25 cm)
- Vertical spacing: 6 or 8 l/in (12 or 16 l/cm) (switch-selectable)
- Vernier adjustment for both horizontal and vertical paper tension
- Slew speed: 30 in/s (76.2 cm/s)
- Static eliminator
- Buffer capacity: 132
- Self-test capability



LP11-C, D Lineprinter

LP11-CA(CD) Lineprinter operating at speeds of 900 l/min for 64-character ASCII set.
PREREQUISITE: UNIBUS PDP-11

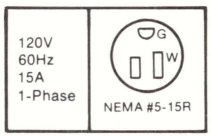
Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	7.0	1

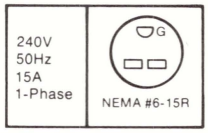
LP11-DA(DD) Lineprinter operating at speed of 660 l/min for 96-character ASCII set.
PREREQUISITE: UNIBUS PDP-11

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot FS	1.5	0.00	0.00	7.0	1

SITE PREPARATION SPECIFICATIONS:

- Height: 44.5 in (113 cm)
- Width: 33.1 in (84 cm)
- Depth: 27.6 in (70 cm)
- Weight: 433.4 lbs (197 kg)
- Watts: 825 (maximum printing)
- Btu/hr: 2833
- Receptacles required: NEMA #5-15R (120V); NEMA #6-15R (240V)



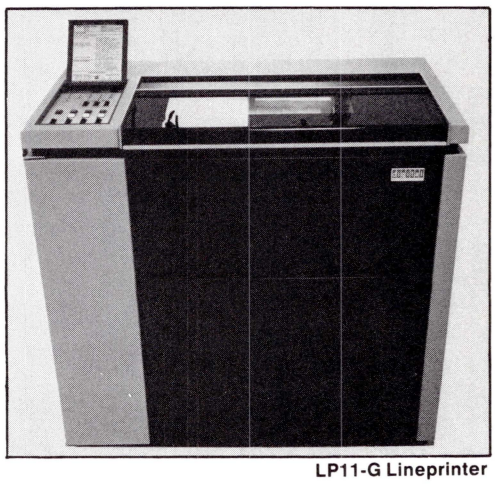


LP11-GA/LP11-GB Lineprinters

The LP11-GA/LP11-GB are freestanding, heavy duty, high performance, Charaband printers designed for use in data processing environments. These lineprinters offer excellent quality print-out and the ability to handle a high-volume throughput. The print rate is selectable when extra high-quality copy is required. The LP11-GA/GB also features optional fonts for foreign languages. An interesting feature of these lineprinters is the tape vertical format unit that is built into the printer, which provides for a selectable form length up to 143 print lines. The LP11-G lineprinter is equipped with a control unit and a 12 ft (3.7 m) cable.

Performance Specifications:

- Printing speed (64-character set): 990 or 1220 l/min, switch selectable
- Printing speed (96-character set): 715 or 905 l/min, switch selectable
- Number of columns: 132
- Horizontal spacing: 0.1 in (0.25 cm)
- Vertical spacing: 6 or 8 l/in (2.4 or 6.3 l/cm), selectable
- Vernier adjustment for both horizontal and vertical paper tension
- Slew speed: 60 l/s
- Line advance time: 12.5 msec
- Buffer capacity: 132
- Self-test capability
- Paper type: Pin-feed, continuous, fan-fold forms
- Copies: One to six part plus carbon paper
- Paper thickness: 0.022 in (0.056 cm) (maximum thickness)



LP11-G Lineprinter

LP11-GA

Lineprinter operating at speeds of 905 l/min for 96-character set.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot	1.5	0.00	0.00	0.0	
FS					1

LP11-GB

Lineprinter operating at speeds of 1200 l/min for 64-character set.
PREREQUISITE: PDP-11/70

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	AC Amps Drawn @120V	Bus Loads Drawn
1 Quad slot	1.5	0.00	0.00	0.0	
FS					1

SITE PREPARATION SPECIFICATIONS:

- Height: 46.0 in (117 cm)
- Width: 48.5 in (123.2 cm)
- Depth: 24.5 in (62.3 cm)
- Weight: 800 lbs (368 kg)
- Watts: 3,000 (maximum printing)
- Btu/hr: 10,000
- Receptacles required: NEMA #L6-20R (240V)

OFFICE SYSTEMS

DECmate System

The DECmate System is a stand-alone work station that solves many of today's office automation needs. The user has the option of utilizing DECmate as a word processor or as a small business system in a stand-alone mode or as a data processing terminal in an interactive mode with the host system. This system takes advantage of DIGITAL's WPS-DECmate software package, as well as DIGITAL's General Accounting System to accomplish these tasks.

Since DECmate is a fully functional computer, the user can perform word processing without tying up valuable host CPU time. DECmate systems run an enhanced version of DIGITAL's proven Word Processing Software. This software lets the user create, edit, format, print, cut, paste, store and delete text in a number of ways.

Taking advantage of an optional word processing software communication package, DECmates throughout the office can communicate with each other or with other DIGITAL computer. They can use the computer as an electronic file cabinet and share word processing documents. As a data processing terminal talking to PDP-11s, data can be handled interactively and captured on DECmate's video display, floppy diskettes, or printer. This flexible communication capability means that the user isn't limited to the information stored in DECmate's memory alone, but has access to the host's resources as well.

DECmate offers a variety of application software packages including Financial Modeling, Math/Sort, Applicant Tracking System, Executive Office Management System, Accounts Receivable, Accounts Payable, Payroll, General Ledger, Invoicing and Inventory Control, Construction Management, Dental Management, Lawyers' Client Accounting, and CPA Client Writeup System.

Note: Additional communications software for the host is necessary for certain types of interaction with the host system. There are also other software options available. Contact your local DIGITAL Sales Representative for details.

Performance Specifications:

- Baud rate: 50 to 4,800 b/s
- Format: 24 lines x 132 characters
  24 lines x 80 characters
- Characters: 7 x 7 upper-case, 7 x 9 lower-case
- Character set: 96-character ASCII set and
  61-character special graphics set
- Adjustable tabs and line drawing graphic characters
- Underline and bold characters on a character-by-character basis.



DECmate System, Pedestal Style

DESKTOP CONFIGURATIONS

278-AA(AB) DECmate system consisting of a video terminal, desktop dual floppy disk drive with cable, and Owner's Guide (containing installation and start-up procedures).

Mounting Code	AC Amps Drawn @+120V
FS	15

278-AC(AD) 278-AA with LA34-WA graphics mode matrix printer with tractor feed.

278-AE(AF) 278-AA with LA120-RA bidirectional matrix printer.

278-AH(AJ) 278-AA with LQPSE-FA letter-quality printer with forms tractor.

278-BH(BJ) 278-AA with LQP02-AA letter-quality printer.

Mounting Code	AC Amps Drawn @+120V
FS	30†

278-AM(AN) 278-AA with communications hardware, a factory-installed DP278-AA two channel interface and three-foot modem cable, for use with a DF02 or DF03 modem.

278-AP(AR) 278-AM with LA34-WA graphics mode matrix printer and tractor feed.

278-AS(AT) 278-AM with LA120-RA bidirectional matrix printer.

278-AU(AV) 278-AM with LQPSE-FA letter-quality printer with forms tractor.

278-BU(BV) 278-AM with LQP02-AA letter-quality printer.

Mounting Code	AC Amps Drawn @+120V
FS	30†

DUAL PEDESTAL CONFIGURATIONS

278A-AA(AB) DECmate system consisting of a video terminal, RX02 dual floppy disk drive with cable in pedestal cabinet, and Owner's Guide (containing installation and start-up procedures).

Mounting Code	AC Amps Drawn @+120V
FS	15

278A-AC(AD) 278-AA with LA34-WA graphics mode matrix printer with tractor feed.

278A-AE(AF) 278-AA with LA120-RA bidirectional matrix printer.

278A-AH(AJ) 278-AA with LQPSE-FA letter-quality printer with forms tractor.

278A-BH(BJ) 278-AA with LQP02-AA letter-quality printer.

Mounting Code	AC Amps Drawn @+120V
FS	30†

278A-AM(AN) 278A-AA with communications hardware, a factory-installed DP278-AA two channel interface and three-foot modem cable, for use with a DF02 or DF03 modem.

278A-AP(AR) 278A-AM with LA34-WA graphics mode matrix printer and tractor feed.

278A-AS(AT) 278A-AM with LA120-RA bidirectional matrix printer.

278A-AU(AV) 278A-AM with LQPSE-FA letter-quality printer with forms tractor.

278A-BU(BV) 278A-AM with LQP02-AA letter-quality printer.

Mounting Code	AC Amps Drawn @+120V
FS	30†

QUAD PEDESTAL CONFIGURATIONS

278B-AA(AB) DECmate system consisting of a video terminal, two RX02 dual floppy disk drive with cable in quad drive pedestal cabinet, and Owner's Guide (containing installation and start-up procedures).

Mounting Code	AC Amps Drawn @+120V
FS	15

278B-AC(AD) 278B-AA with LA34-WA graphics mode matrix printer with tractor feed.

278B-AE(AF) 278B-AA with LA120-RA bidirectional matrix printer.

278B-AH(AJ) 278B-AA with LQPSE-FA letter-quality printer with forms tractor.

278B-BH(BJ) 278B-AA with LQP02-AA letter-quality printer.

Mounting Code	AC Amps Drawn @+120V
FS	30†

278B-AM(AN) 278B-AA with communications hardware, a factory-installed DP278-AA two channel interface and three-foot modem cable, for use with a DF02 or DF03 modem.

278B-AP(AR) 278B-AM with LA34-WA graphics mode matrix printer and tractor feed.

278B-AS(AT) 278B-AM with LA120-RA bidirectional matrix printer.

278B-AU(AV) 278B-AM with LQPSE-FA letter-quality printer with forms tractor.

278B-BU(BV) 278B-AM with LQP02-AA letter-quality printer.

Mounting Code	AC Amps Drawn @+120V
FS	30†

SITE PREPARATION SPECIFICATIONS:

DIMENSIONS

Monitor:
- Height: 14.5 in (36.8 cm)
- Width: 18 in (45.7 cm)
- Depth: 14.2 in (36.2 cm)

Keyboard:
- Height: 3.5 in (8.9 cm)
- Width: 18 in (45.7 cm)
- Depth: 8 in (20.3 cm)

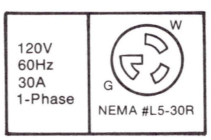
Combined Monitor and Keyboard
- Depth: 20.3 in (51.4 cm)
- Weight: 39 lb (17.7 kg)

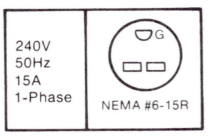
Power:
- Watts: 650
- Btu/hr: 2216
- Receptacles required: NEMA #5-15R (120)
  NEMA #6-15R (240)

DISKETTE STORAGE SYSTEM

Desktop:
- Height: 10.5 in (26.7 cm)
- Width: 19 in (48.3 cm)
- Depth: 23.5 in (59.7 cm)
- Weight: 60 lb (27 kg)

Pedestal:
- Height: 29.8 in (75.6 cm)
- Width: 18 in (45.7 cm)
- Depth: 19.5 in (49.5 cm)
- Weight - Dual Drive: 108 lb (49 kg)
- Weight - Quad Drive: 140 lb (63 kg)





†Operation of DECmate requires a 15-amp dedicated service line. The letter-quality printers and the dot matrix printers each require their own 15-amp dedicated service line.

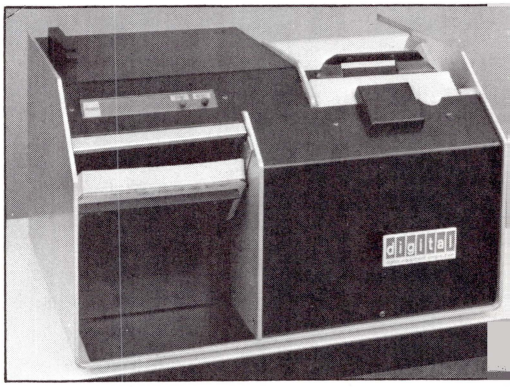
CARD READERS

CR11 Card Reader

The CR11 photoelectric card reader system, designed for laboratory and industrial applications, reads hole punched cards and features two data formats (selectable under program control): non-packed (standard Hollerith code) and packed (compressed Hollerith code). A riffle air mechanism and a short, straight card track prevent card jams, and six attempts are made to read a card before rejecting it. A self-contained tabletop unit, the CR11 consists of an input hopper for loading cards, a photoelectric read station for reading data from cards, an output stacker for stacking cards after reading, a motorized mechanism for moving the cards from the input hopper via the read station to the output stacker, a controller, and 25 ft (7.6 m) cable.

Performance Specifications:

- Card speed: 285 cards/min
- Card capacity: 550
- Card type: Standard 12-row 80-column EIA (Hollerith code) hole punched cards
- Data formats: Non-packed and packed (program-selectable)
- Riffle air system
- Vacuum pick mechanism



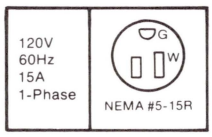
CR11-A Card Read

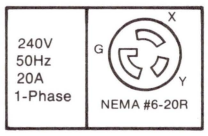
CR11(A) Tabletop card reader and controller.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Quad slot TT	1.5	0.00	0.00	1

SITE PREPARATION SPECIFICATIONS:

- Height: 11 in (27.9 cm)
- Width: 19.3 (48.9 cm)
- Depth: 14 in (35.6 cm)
- Weight: 60 lbs (27.2 kg)
- Watts (CR11): 600
- Btu/hr: 2046
- Receptacles required: NEMA #5-15R (120V); NEMA #6-20R (240V)



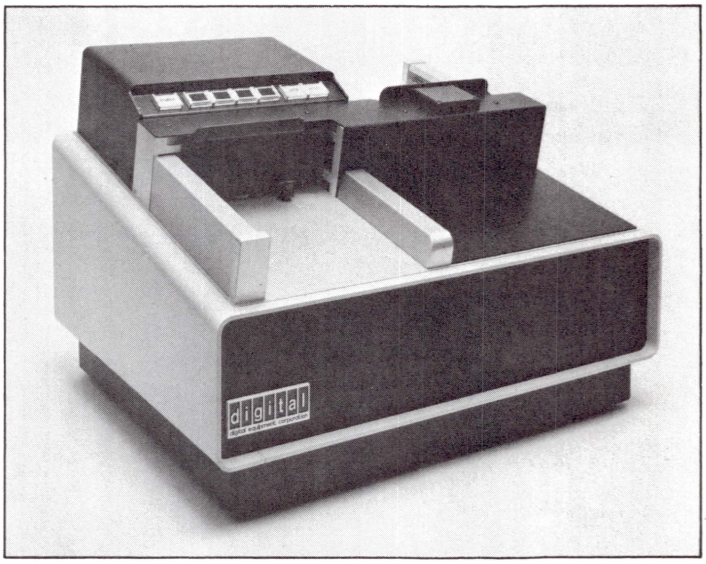


CR11-B Card Reader

The CR11-B photoelectric card reader system, designed for engineering and industrial applications, reads hole punched cards and features two data formats (selectable under program control): non-packed (standard Hollerith code) and packed (compressed Hollerith code). A riffle air mechanism and a short, straight card track prevent card jams, and six attempts are made to read a card before rejecting it. Data resynchronization logic allows punched holes to be read that are misaligned by 50% greater than the ANSI deviation standard. A self-contained tabletop unit, the CR11-BC(BD) consists of an input hopper for loading cards, a photoelectric read station for reading data from cards, an output stacker for stacking cards after reading, a motorized mechanism for moving the cards from the input hopper via the read station to the output stacker, a controller, and 25 ft (7.6 m) cable.

Performance Specifications:

- Card speed: 600 cards/min
- Card capacity: 1000
- Card type: Standard 12-row 80-column EIA (Hollerith code) hole punched cards
- Data formats: Non-packed and packed (program-selectable)
- Riffle air system
- Vacuum pick mechanism



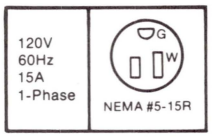
CR11-B Card Reader

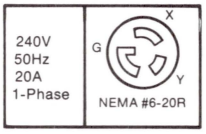
CR11-BC(BD) Tabletop card reader and controller.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Quad slot TT	1.5	0.00	0.00	1

SITE PREPARATION SPECIFICATIONS:

- Height: 16.3 in (41.3 cm)
- Width: 23 (58.4 cm)
- Depth: 18 in (45.7 cm)
- Weight: 75 lbs (34 kg)
- Watts: 700
- Btu/hr: 2387
- Receptacles required: NEMA #5-15R (120V); NEMA #6-20R (240V)



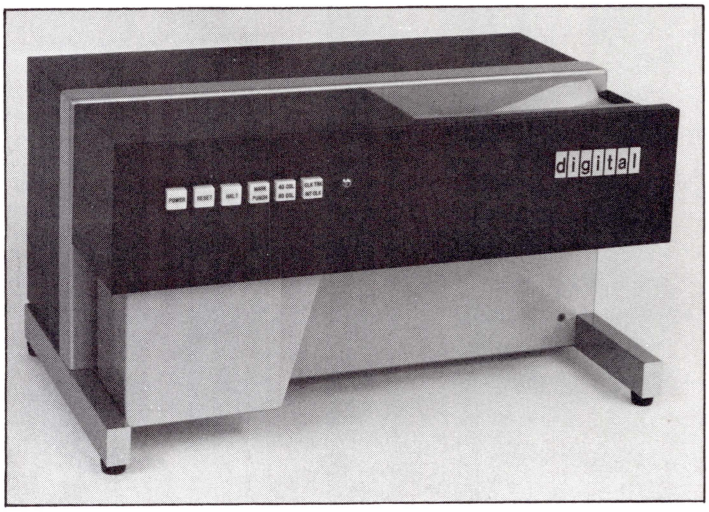


CMS11-K Card Reader

The CMS11-K photoelectric card reader system, designed for educational and telephone applications, reads hole punched and mark sense cards and features two data formats (selectable under program control): non-packed (standard Hollerith code) and packed (compressed Hollerith code). A short, straight card track prevents card jams, and six attempts are made to read a card before rejecting it. Data resynchronization logic allows punched holes to be read that are misaligned by 50% greater than the ANSI deviation standard. A self-contained tabletop unit, the CMS11-K consists of an input hopper for loading cards, a photoelectric read station for reading data from cards, an output stacker for stacking cards after reading, a motorized mechanism for moving the cards from the input hopper via the read station to the output stacker, a controller, and 25 ft (7.6 m) cable.

Performance Specifications:

- Card speed: 250 cards/min
- Card capacity: 250
- Card type: Standard 12-row 80-column EIA (Hollerith code) hole punched cards
- Data formats: Non-packed and packed (program-selectable)
- Riffle air system
- Vacuum pick mechanism



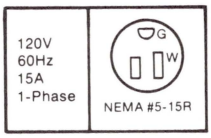
CMS11-K Card Reader

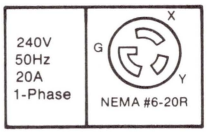
CMS11-KA(KB) Tabletop card reader and controller.

Mounting Code	DC Amps Drawn @+5V	@+15V	@-15V	Bus Loads Drawn
1 Quad slot TT	1.5	0.00	0.00	1

SITE PREPARATION SPECIFICATIONS:

- Height: 10.8 in (27.3 cm)
- Width: 19.3 (48.9 cm)
- Depth: 11.8 in (29.8 cm)
- Weight: 32 lbs (14.5 kg)
- Watts: 185
- Btu/hr: 630
- Receptacles required: NEMA #5-15R (120V); NEMA #6-20R (240V)



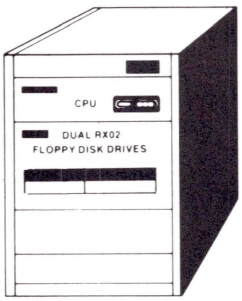


APPENDIX A
CPU CABINETRY

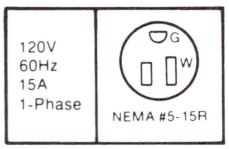
PDP-11/23

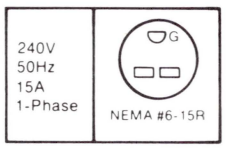
SR-WXSSA

H9610 CPU CABINET



RECEPTACLES USED



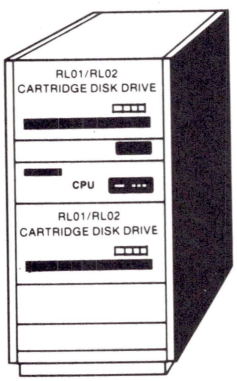


Height: 31 in (78.7 cm)
Width: 21 in (53.3 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 21 in (53.3 cm)
Weight: 377 lbs (171.2 kg)
Watts: 1080
Btu/hr: 3682.8

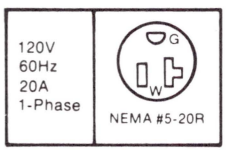
PDP-11/23

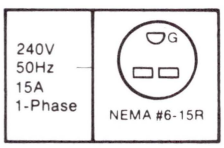
SR-WXLLA
SR-WXMMA
SM-WXLLA
SM-WXMMA

H9612 CPU CABINET



RECEPTACLES USED





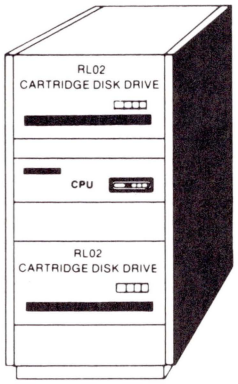
Height: 41 in (104.1 cm)
Width: 21 in (53.3 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 21 in (53.3 cm)
Weight: 437 lbs (198.4 kg)
Watts: 984 watts
Btu/hr: 3355.4

NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

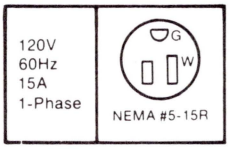
PDP-11/23-PLUS

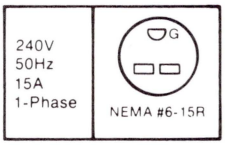
SX-RXMMA
SM-RXMMB
SN-RXMMC
SE-RXMMB

H9642 CPU CABINET



RECEPTACLES USED



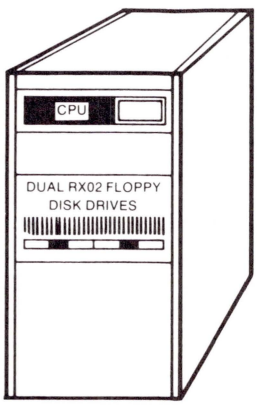


Height: 41.75 in (106 cm)
Width: 21.25 in (54 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 19 in (48.3 cm)
Weight: 375 lbs (170.3 kg)
Watts: 840
Btu/hr: 2864

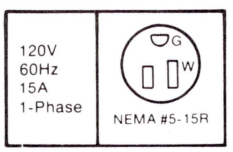
PDP-11/24

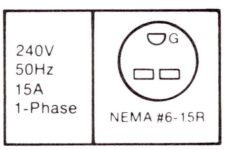
SR-FXSSA

H9642 CPU CABINET



RECEPTACLES USED



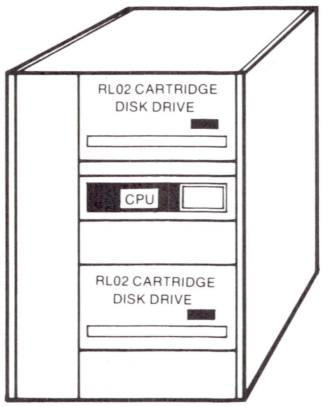


Height: 41.75 in (106 cm)
Width: 21.25 in (54 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 19 in (48.3 cm)
Weight: 312 lbs (142 kg)
Watts: 850
Btu/hr: 2910

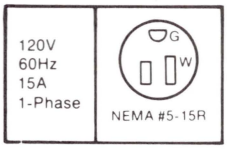
NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

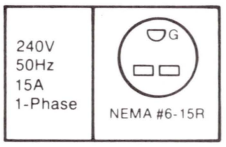
SR-FXMMB
SM-FXMMA
SE-FXMMA
SN-FXMMA

H9645 CPU CABINET



RECEPTACLES USED

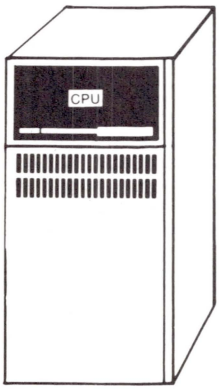




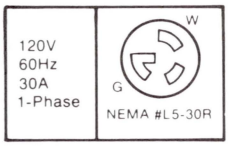
Height: 41.75 in (106 cm)
Width: 29 in (73.6 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 27 in (68.6 cm)
Weight: 470 lbs (214 kg)
Watts: 875
Btu/hr: 3000

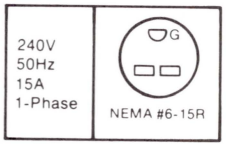
SX-FXHHA
SX-FXMMA
SX-FXGMA
SM-FXHHA
SE-FXHHA

H9642 CPU CABINET



RECEPTACLES USED



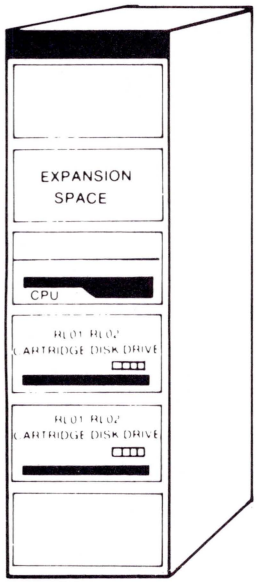


Height: 41.75 in (106 cm)
Width: 21.25 in (54 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 19 in (48.3 cm)
Weight: 300 lbs (137 kg)
Watts: 1450
Btu/hr: 4960

NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

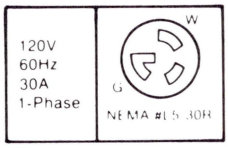
H960 CPU CABINET

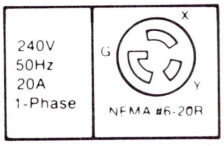
SR-30LLB
SM-30LLC
SM-30MMA



Height: 72 in (182.9 cm)
Width: 21 in (53.3 cm)
Depth: 31 in (78.7 cm)
Rear door clearance: 21 in (53.3 cm)
Weight: 545 lbs (247.4 kg)
Watts: 1944
Btu/hr: 6629.0

RECEPTACLES USED

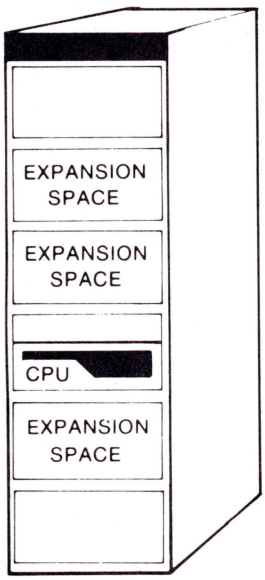




NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

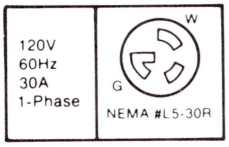
H960 CPU CABINET

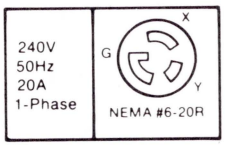
SM-30HHB
SE-30HHB



Height: 72 in (182.9 cm)
Width: 21 in (53.3 cm)
Depth: 31 in (78.7 cm)
Rear door clearance: 21 in (53.3 cm)
Weight: 435 lbs (197.5 kg)
Watts: 1400
Btu/hr: 4910.4

RECEPTACLES USED

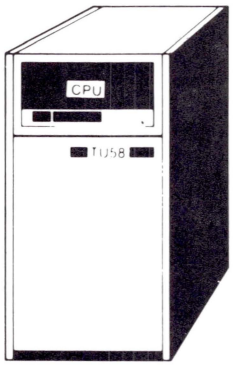




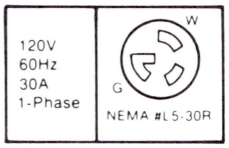
PDP-11/44

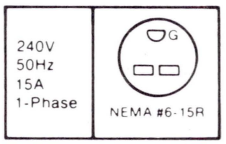
SX-40MMA
SX-40GMA
SX-40HHA
SX-40GAA
SX-40PAA
SM-40MMC
SM-40MMD
SM-40HHB
SM-40UAB
SM-40GAA
SN-40UAB
SN-40GAA
SE-40MMB
SE-40HHB
SE-40UAC

H9642 CPU CABINET



RECEPTACLES USED





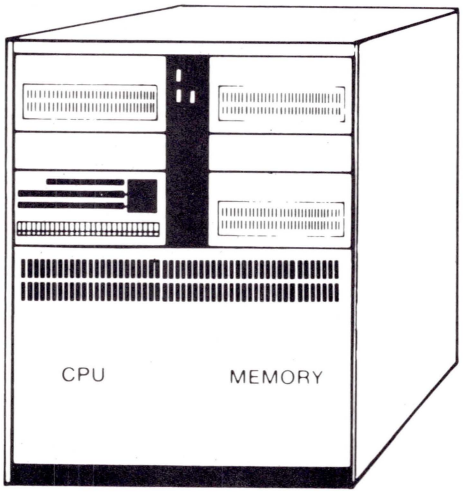
Height: 41.75 in (106 cm)
Width: 21.25 in (54 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 19 in (48.3 cm)
Weight: 310 lbs (140.7 kg)
Watts: 1512
Btu/hr: 5155.9

NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

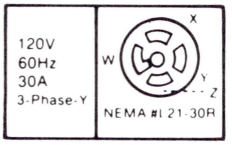
PDP-11/70

SM-70TAA
SM-70TVC
SM-70CVE
SM-70CBA
SN-70TAA
SN-70TVA
SN-70DBA
SE-70TAA
SE-70DBA

H9600 CPU/MEMORY CABINET



RECEPTACLE USED

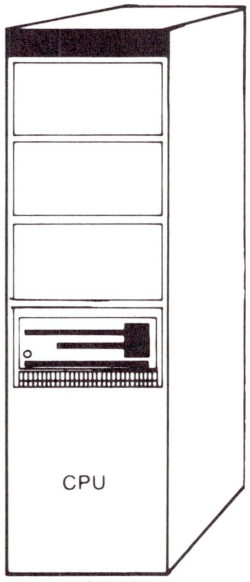


Height: 60 in (152.4 cm)
Width: 47 in (119.4 cm)
Depth: 30 in (76.2 cm)
Rear door clearance: 28 in (71.1 cm)
Weight: 730 lbs (331.4 kg)
Watts: 4080
Btu/hr: 13912.8

NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

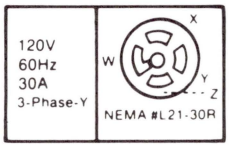
SM-70TVB
SM-70CVD
SM-70CVB
SE-70TVB

H960 CPU CABINET



Height: 72 in (182.9 cm)
Width: 21 in (53.3 cm)
Depth: 31 in (78.7 cm)
Rear door clearance: 21 in (53.3 cm)
Weight: 655 lbs (297.4 kg)
Watts: 3120
Btu/hr: 10639.2

RECEPTACLE USED

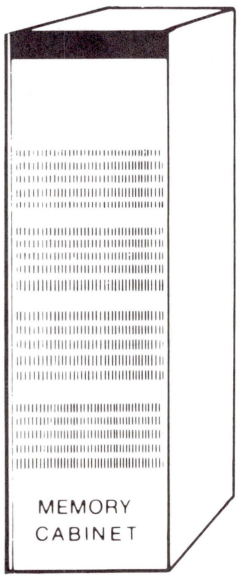


NOTE: DIGITAL recommends a 39 in (1 m) front, rear and side service area for cabinet units.

PDP-11/70

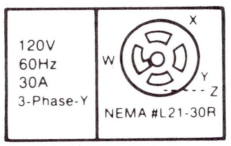
SM-70TVB
SM-70CVD
SM-70CVB
SE-70TVB

H960 MEMORY CABINET



Height: 72 in (182.9 cm)
Width: 21 in (53.3 cm)
Depth: 31 in (78.7 cm)
Rear door clearance: 21 in (53.3 cm)
Weight: 425 lbs (193 kg)
Watts: 2880
Btu/hr: 9820.8

RECEPTACLE USED



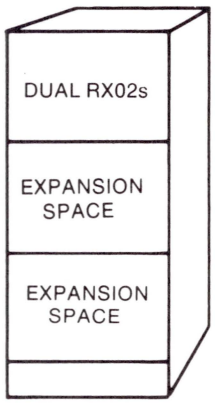
NOTE: DIGITAL recommends a 39 in (1 m) front, rear, and side service area for cabinet units.

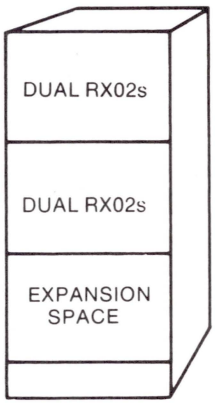
APPENDIX B

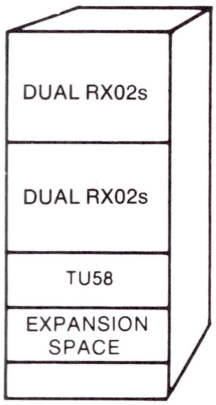
PDP-11/24 AND PDP-11/44 SYSTEM EXPANSION CONFIGURATIONS

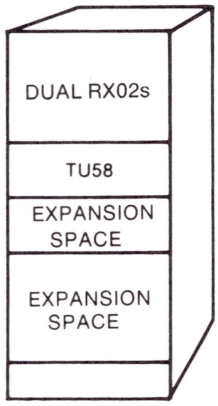
These drawings show all of the DIGITAL approved configurations using the H9642-DB(DC) expansion cabinet for PDP-11/24 and PDP-11/44 systems.

CONFIGURATIONS WITHOUT EXPANSION BOXES

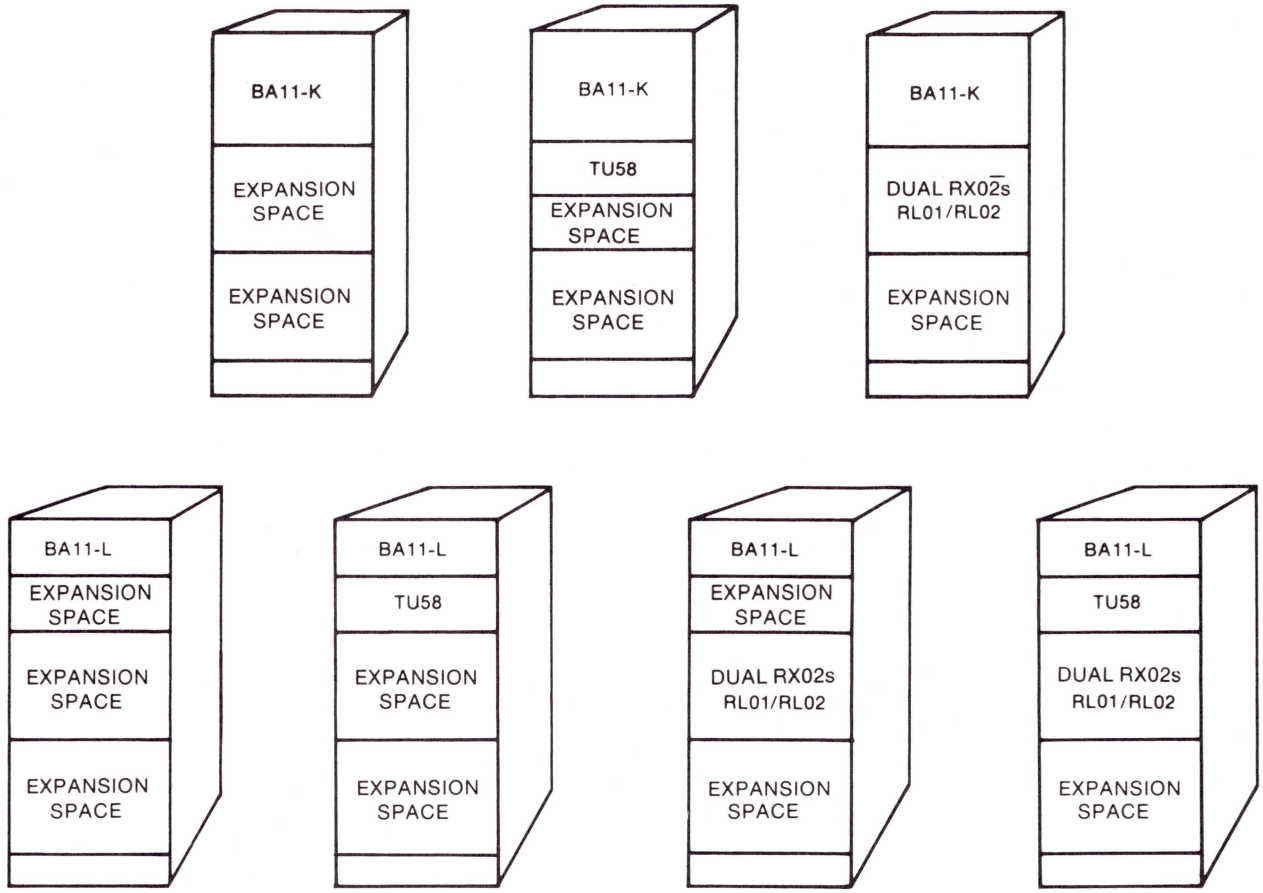








CONFIGURATIONS WITH EXPANSION BOXES



EXTENDED LSI-11 COMMUNICATIONS HARDWARE COMPARISON CHART

MODEL	NUMBER OF LINES	DUPLEX MODE	MAX. LINE SPEED (b/s)	LINE INTERFACE[1]	MODEM CONTROL	CRC PROCESSING	PROTOCOL PROCESSING	DIRECT MEMORY ACCESS	MULTIDROP MASTER	EXTERNAL CABLING INCLUDED
DMV11-AA	1	H/F	19,200	EIA: RS-232-C	Yes	Yes	Yes	Yes	Yes	No
			19,200	CCITT: V.24/V.28	Yes	Yes	Yes	Yes	Yes	No
			56,000	EIA: RS-432-A	Yes	Yes	Yes	Yes	Yes	No
DMV11-AC	1	H/F	56,000	Integral Modem	Yes	Yes	Yes	Yes	Yes	No
DLV11-ED	1	H/F	19,200	EIA	Yes	No	No	No	No	No
DLV11-JA	4	H/F	38,400	EIA/CCITT	No	No	No	No	No	No
DZV11-C	4	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	No

[1] Unless otherwise specified, EIA/CCITT indicates conformance to EIA RS-232-C/CCITT V.24.

LSI-11 COMMUNICATIONS HARDWARE COMPARISON CHART

MODEL	NUMBER OF LINES	DUPLEX MODE	MAX. LINE SPEED (B/s)	LINE INTERFACE[1]	MODEM CONTROL	CRC PROCESSING	PROTOCOL PROCESSING	DIRECT MEMORY ACCESS	MULTIDROP MASTER	EXTERNAL CABLING INCLUDED
DPV11-DB	1	H/F	56,000	EIA	Yes	Yes	No	No	No	BC26L-25
DLV11	1	H/F	9,600	EIA/CCITT 20 mA	No	No	No	No	No	No
DLV11-E	1	H/F	19,200	EIA	Yes	No	No	No	No	No
DLV11-EB	1	H/F	19,200	EIA	Yes	No	No	No	No	BC01V-25
DLV11-F	1	H/F	19,200	EIA/CCITT 20 mA	No	No	No	No	No	No
DLV11-FA	1	H/F	19,200	20 mA	No	No	No	No	No	BC05M-04
DLV11-FB	1	H/F	19,200	EIA/CCITT	No	No	No	No	No	BC03L-05
DLV11-J	4	H/F	38,400	EIA/CCITT	No	No	No	No	No	No
DZV11-B	4	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	BC11U

[1] Unless otherwise specified, EIA/CCITT indicates conformance to EIA RS-232C/CCITT V.24.

UNIBUS COMMUNICATIONS HARDWARE COMPARISON CHART: SYNCHRONOUS TRANSMISSION MODE

MODEL	NUMBER OF LINES	DUPLEX MODE	MAX. LINE SPEED (B/s)	LINE INTERFACE[1]	MODEM CONTROL	CRC PROCESSING	PROTOCOL PROCESSING	DIRECT MEMORY ACCESS	MULTIDROP MASTER	EXTERNAL CABLING INCLUDED
DMC11-AR/DA	1	H/F	19,200	EIA CCITT	Yes	Yes	Yes	Yes	No	No
DMC11-AR/FA	1	H/F	250,000	CCITT V.35/DDS	Yes	Yes	Yes	Yes	No	No
DMP11-AA	1	H/F	19,200	EIA CCITT[3]	Yes	Yes	Yes	Yes	Yes	No
DMP11-AB	1	H/F	56,000	CCITT V.35	Yes	Yes	Yes	Yes	Yes	No
DMP11-AC	1	H F	1,000,00 500,000	Integral Modem	Yes	Yes	Yes	Yes	Yes	No
DMP11-AE	1	H F	1,000,000 500,000	EIA RS-422-A	Yes	Yes	Yes	Yes	Yes	No
DMR11-AA	1	H/F	9,600 19,200 20,000 56,000	ISO 4902 EIA/CCITT EIA RS-449 EIA RS-423-A	Yes	Yes	Yes	Yes	No	No
DMR11-AB	1	H/F	1,000,000[2]	ISO 2593 CCITT V.35	Yes	Yes	Yes	Yes	No	No
DMR11-AC	1	H/F	1,000,000[2]	Integral Modem	Yes	Yes	Yes	Yes	No	BC05Z-25
DMR11-AE	1	H/F	1,000,000[2]	EIA RS-422-A	Yes	Yes	Yes	Yes	No	No
DUP11-DA	1	H/F	9,600	EIA CCITT	Yes	Yes	No	No	No	BC05C-25

[1] Unless otherwise specified, EIA/CCITT indicates conformance to EIA RS-232-C/CCITT V.24.
[2] Speed is dependent upon externally supplied modem.
[3] Also supports CCITT V.28.

UNIBUS COMMUNICATIONS HARDWARE COMPARISON CHART: ASYNCHRONOUS TRANSMISSION MODE

MODEL	NUMBER OF LINES	DUPLEX MODE	MAX. LINE SPEED (b/s)	LINE INTERFACE[1]	MODEM CONTROL	CRC PROCESSING	PROTOCOL PROCESSING	DIRECT MEMORY ACCESS	MULTIDROP MASTER	EXTERNAL CABLING INCLUDED
DL11-E	1	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	BC22A
DL11-WA	1	H/F	9,600	20 mA	No	No	No	No	No	BC05M-04
DL11-WB	1	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	BC05C-25
DL11-WC	1	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	BC03L-10
DH11-AE	16	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	No
DH11-AE	16	H/F	9,600	EIA/CCITT	Yes	No	No	No	No	No
DZ11-A	8	F	9,600	EIA/CCITT	Yes	No	No	No	No	No
DZ11-A/B	16	F	9,600	EIA/CCITT	Yes	No	No	No	No	No
DZ11-C	8	F	9,600	20 mA	No	No	No	No	No	No
DZ11-C/D	16	F	9,600	20 mA	No	No	No	No	No	No
DZ11-E	16	F	9,600	EIA/CCITT	Yes	No	No	No	No	No
DZ11-F	16	F	9,600	20 mA	No	No	No	No	No	No
KMC11[2] + DZ11-A	8	F	9,600	EIA/CCITT	Yes	Yes	Yes	Yes	Yes	No
KMC11[2] + DZ11-A + DZ11-B	16	F	9,600	EIA/CCITT	Yes	Yes	Yes	Yes	Yes	No
KMC11[2] + DZ11-C	8	F	9,600	20 mA	No	Yes	Yes	Yes	Yes	No
KMC11[2] + DZ11-C +DZ11-D	16	F	9,600	20 mA	No	Yes	Yes	Yes	Yes	No

[1] Unless otherwise specified, EIA/CCITT indicates conformance to EIA RS-232-C/CCITT V.24.
[2] The KMC11 is a microprocessor and requires a communication option to function as an Input/output device.

TAPE COMPARISON CHART

MODEL	TRANSPORTS/ FORMATTER	NUMBER OF TRACKS	DENSITY (B/IN)	SPEED (in/sec)	CAPACITY /REEL (MB) (8 KB blocks)	PEAK TRANSFER (KB/sec)	MEDIA TYPE	REWIND TIME/REEL	OFF-LINE DIAGNOSTICS	BUS SUPPORT	TAPE BUFFERING
TJE16 TWE16	8	9	800-1600	45	40	72	½ in TAPE REEL-TO-REEL	3 min	NO	UNIBUS MASSBUS	VACUUM COLUMN
TS11	1	9	1600	45	40	72	½ in TAPE REEL-TO-REEL	2 min	YES	UNIBUS	TENSION ARM
TJU77 TWU77	4	9	800-1600	125	40	200	½ in TAPE REEL-TO-REEL	65 sec	NO	UNIBUS MASSBUS	VACUUM COLUMN
TU58	N/A	2	800	30	0.5/ CARTRIDGE	3.7	CASSETTE CARTRIDGE	N/A	N/A	UNIBUS LSI-11 BUS	N/A

DISK COMPARISON CHART

DISK SUBSYSTEM	DISK DRIVE	MB/DRIVE	DRIVES PER CONTROLLER	MEDIA TYPE	AVERAGE ACCESS TIME (msec)	PEAK TRANSFER (KB/s)	TRACKS PER SURFACE	TRACK - TRACK SEEK (msec)	DUAL PORT OPTION	BUS SUPPORT
RXV21 RX211	RX02	0.5	2	Floppy Diskette	262	61	77	6	No	LSI-11 UNIBUS
RLV11 RL11	RL01	5.2	4	Disk Cartridge	67.5	512	256	15	No	LSI-11 UNIBUS
RLV21 RL211	RL02	10.4	4	Disk Cartridge	67.5	512	512	15	No	LSI-11 UNIBUS
RK711	RK07	28	8	Disk Cartridge	49	538	815	6.5	Yes	UNIBUS
RJM02	RM02	67	8	Disk Pack	42.5	806	823	6	Yes	UNIBUS
RWM03	RM03	67	8	Disk Pack	38.3	1200	823	6	Yes	MASSBUS
RUA60	RA60	205	4	Disk Pack	50	1980	1600	6.7	Standard	UNIBUS
RUA80	RA80	121	4	Fixed Disk	33.3	1200	546	6	Standard	UNIBUS
RUA81	RA81	456	4	Fixed Disk	36.3	2200	1248	6	Standard	UNIBUS MASSBUS
RJP06 RWP06	RP06	176	8	Disk Pack	38.3	806	815	10	Yes	UNIBUS MASSBUS
RWM05	RM05	256	8	Disk Pack	38.3	1200	823	6	Yes	MASSBUS

VIDEO TERMINALS COMPARISON CHART

MODEL	COL X LINES	COMMUNICATIONS	EDITING FEATURES	EXPANDABLE	GRAPHICS[2]	PRINTER PORT[3]	EUROPEAN FEATURES
VT100	80 x 24 132 x 14 132 x 24 with A.V.O. Option[1]	Full-duplex	Options —A.V.O.	Yes	VT125 Option	Option	National character set option
VT101	80 x 24 132 x 14	Local echo Full-duplex	Options —None	No	No	No	International power cord
VT102	80 x 24 132 x 24	Local echo Full/Half-duplex U.S. and European modem controls	Standard —Advanced video option —Line insert/delete —Character insert/delete —Word processing variation VT102WA/WB supports DECword	No	No	Standard	International power cord National character set option European modem controls
VT125	80 x 24 132 x 14 132 x 24 with A.V.O. option	Full-duplex	Options —A.V.O.	Yes	Standard Bit Map	Standard[4]	National character set option
VT131	80 x 24 132 x 24	Local echo Full/Half-duplex	Options —Local edit/block mode transmission	No	No		International power cord National character set option European modem controls

Note:

[1] Advanced Video Option (A.V.O.) provides character highlights (bold, blink, underline, reverse), additional 14 lines with 132 column display hooks for European character sets.

[2] All products have "line drawing" characters as standard.

[3] As an option, the printer port also adds local echo, line insert/delete, and character insert/delete to the VT100.

[4] Screen copy in graphic mode only.

PRINTER/PLOTTERS

MODEL	PRINTING SPEED L/min	NUMBER OF COLUMNS	PRINTING CHARACTERS	PRINTING TYPE	PFVU
LXY11	300/240/170	132	96	Dot Matrix	Standard
LXY21	600/465/320	132	96	Dot Matrix	Standard
LXV11	300/240/170	132	96	Dot Matrix	Standard

LINEPRINTERS

LINEPRINTERS

MODEL	PRINTING SPEED (L/min)	NUMBER OF COLUMNS	PRINTING CHARACTERS	PRINTING TYPE	PVFU*	POWER REQUIREMENT
LP11-AA **LPV11-AA**	300	132	64	Band	None	Universal
LP11-BA **LPV11-BA**	300 215	132	64 96	Band	None	Universal
LP11-EA **LPV11-EA**	600	132	64	Band	None	Universal
LP11-EB **LPV11-EB**	600 445	132	64 96	Band	None	Universal
LP11-GA	1200/905	132	64/96	Band	TCVFU*	240v/60Hz
LP11-GB	1200/905	132	64/96	Band	TCVFU*	240v/50Hz
LP11-CA	900	132	64	Drum	None	Adjustable
LP11-DA	660	132	96	Drum	None	Adjustable

* PVFU - Programmable vertical format unit
TCVFU - Tape control vertical format unit

CARDREADER COMPARISON CHART

MODEL	CARD SPEED	CARD CAPACITY	CABLE INCLUDED	RIFFLE AIR SYSTEM VACUUM PICK MECHANISM
CR11(A)	285 cards/min	550	Yes	Yes
CR11-BC(BD)	600 cards/min	1000	Yes	Yes
CMS11-KA	250 cards/min	250	Yes	Yes
CMS11-KB	200 cards/min	250	Yes	Yes

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SYSTEMS AT A GLANCE

July-September 1982

GENERAL LICENSE SYSTEMS	CPU	MEMORY	SYSTEM DEVICE	BACKUP/LOAD DEVICE
SX-RXMMA	11/23-PLUS	512KB	RL02	RL02
SX-FXMMA	11/24	256KB	RL02	RL02
SX-FXHHA	11/24	256KB	RK07	RK07
SX-FXGMA	11/24	512KB	RA80	RL02
SX-40MMA	11/44	512KB	RL02	RL02
SX-40HHA	11/44	512KB	RK07	RK07
SX-40GAA	11/44	1 MB	RA80	TS11
SX-40GMA	11/44	1 MB	RA80	RL02
SX-40PAA	11/44	1 MB	RA60	TS11
RT-11 SYSTEMS				
SR-WXSSA	11/23	128 KB	RX02	RX02
SR-WXLLA	11/23	128 KB	RL01	RL01
SR-WXMMA	11/23	128 KB	RL02	RL02
SR-FXSSA	11/24	128 KB	RX02	RX02
SR-FXMMB	11/24	256 KB	RL02	RL02
SR-30LLB	11/34A	128 KB	RL01	RL01
RSX-11M SYSTEMS				
SM-WXLLA	11/23	128 KB	RL01	RL01
SM-WXMMA	11/23	128 KB	RL02	RL02
SM-RXMMB	11/23-PLUS	256 KB	RL02	RL02
SM-RXMMC	11/23-PLUS	512 KB	RL02	RL02
SM-FXMMA	11/24	256 KB	RL02	RL02
SM-FXHHA	11/24	256 KB	RK07	RK07
SM-30LLC	11/34A	256 KB	RL01	RL01
SM-30MMA	11/34A	256 KB	RL02	RL02
SM-30HHB	11/34A	128 KB	RK07	RK07
SM-40MMC	11/44	512 KB	RL02	RL02
SM-40MMD	11/44	512 KB	RL02	RL02
SM-40HHB	11/44	512 KB	RK07	RK07
SM-40UAB	11/44	512 KB	RM02	TS11
SM-40GAA	11/44	512 KB	RA80	TS11
SM-70TAA	11/70	512 KB	RM03	TS11
SM-70TVB (H960)	11/70	512 KB	RM03	TE16
SM-70TVC (H9600)	11/70	512 KB	RM03	TE16
SM-70CVD (H960)	11/70	512 KB	RP06	TE16
SM-70CVE (H9600)	11/70	512KB	RP06	TE16

RSX-11M-PLUS SYSTEMS	CPU	MEMORY	SYSTEM DEVICE	BACKUP/LOAD DEVICE
SN-RXMMC	11/23-PLUS	512 KB	RL02	RL02
SN-FXMMA	11/24	256 KB	RL02	RL02
SN-FXHHA	11/24	256 KB	RK07	RK07
SN-40UAB	11/44	512 KB	RM02	TS11
SN-40GAA	11/44	512 KB	RA80	TS11
SN-70TAA	11/70	512 KB	RM03	TS11
SN-70TVA	11/70	512 KB	RM03	TE16
SN-70DBA	11/70	512 KB	RM05	TU77
RSTS/E SYSTEMS				
SE-RXMMB	11/23-PLUS	256 KB	RL02	RL02
SE-FXMMA	11/24	256 KB	RL02	RL02
SE-30HHB	11/34A	256 KB	RK07	RK07
SE-40MMB	11/44	512 KB	RL02	RL02
SE-40HHB	11/44	512 KB	RK07	RK07
SE-40UAC	11/44	512 KB	RM02	TS11
SE-70TAA	11/70	512 KB	RM03	TS11
SE-70TVB	11/70	512 KB	RM03	TE16
SE-70DBA	11/70	512 KB	RM05	TU77

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