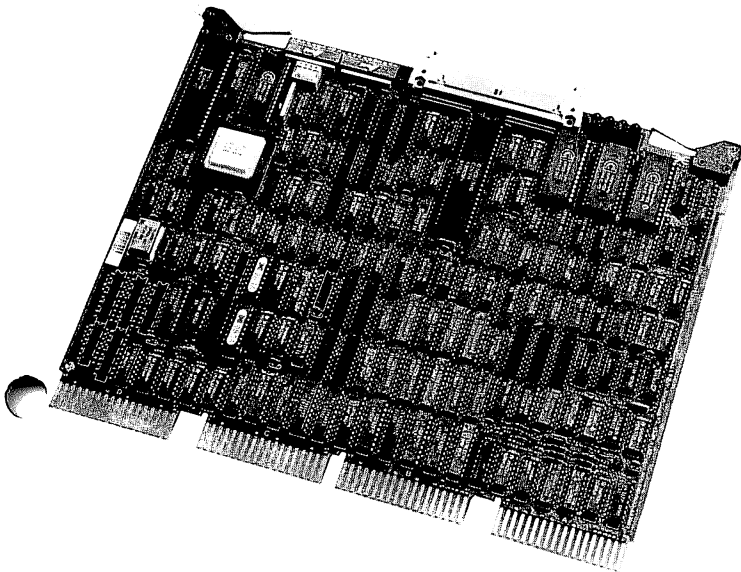


QBUS HOST ADAPTER



MODEL UC03 LSI-11, MICRO PDP-11, MICRO/VAX



GIVE YOUR QBUS THE POWER AND FLEXIBILITY OF MSCP...

Now you can reduce CPU overhead on your QBus while expanding storage and increasing efficiency! The new Emulex UC03 Host Adapter emulates DEC's MSCP (Mass Storage Control Protocol) and connects your DEC LSI-11, MICRO/PDP-11 and MICRO/VAX to the versatile, high-performance SCSI (Small Computer System Interface). The UC03 brings greatly expanded storage and backup capabilities to your QBus CPU — limited only by the size of available drives. And it still supports all standard DEC operating system software!

For a full selection of peripherals, the UC03 combines with Emulex ESDI or ST506 disk controllers and Emulex QIC-36 or Cipher 540 tape controllers. You can now choose from a wide variety of high-capacity 5¼" Winchester disk drives and/or 1/4" cartridge tape drives for your storage needs.

Emulex's new UC03 host adapter also offers another alternative for your QBus system! Connection to Emulex's SCSI-compatible disk and tape packaged subsystems gives you complete storage and backup in one compact unit. These new mass storage devices are available in a wide variety of configurations and include the Medley, SABRE, Javelin and Decathlon. For additional information, contact your local sales representative.

UNIQUE EMULEX DESIGNING GIVES YOU ALL THE ADVANTAGES...

MSCP COMPATIBILITY.

Self-Sizing. The Emulex UC03 Host Adapter emulates the powerful DEC MSCP protocol for high-performance and flexibility. MSCP supports virtually any drive capacity, providing limitless possibilities for storage

expansion of your QBus. It treats the drives as a class of devices rather than separate units, allowing the mixing of a variety of drives without patches or modifications to the operating system. The UC03 provides the CPU with the specific characteristics of the attached drives and through MSCP the operating system adjusts accordingly, eliminating the need for software changes.

Error-Free Media. Error control is handled by the UC03 in conjunction with the Emulex controllers. An error-free media is simulated because routine errors are never reported to the host CPU. When an error is encountered, the host adapter automatically attempts to correct it, and only uncorrectable errors are reported to the host.

Seek Optimization. Another important MSCP benefit is seek ordering. The UC03 is able to pool various seeks and determine the most efficient order in which to execute them. This time-saving feature is vital to heavily loaded systems.

SPECIAL EMULEX FEATURES.

Adaptive DMA. During each DMA data transfer burst, the UC03 monitors the bus for other pending DMA requests and suspends its own DMA activity to permit other DMA transfers to occur. In addition, burst length and burst delay are programmable, to ensure that CPU functions, including interrupt servicing, are not locked out for excessive periods of time by high-speed disk transfers.

Block Mode DMA. By using Block Mode DMA, the UC03 increases throughput on your QBus for improved data transfer performance and decreased CPU overhead.

Optical Support. The UC03 offers support for the Shugart Optimem 1000, a 1.2 GByte optical disk drive, for greatly increased on-line data storage in archival situations.

Boot Capability Options. Three different boot capability options are available with the UC03 to provide the appropriate support for your QBus system. You can choose power-on boot, booting with standard DEC boot PROMs or register manipulation.

Large Data Buffer. A 20 KByte buffer is contained on the host adapter for data storage. The large buffer enables the system to achieve smooth data transfers to and from the peripherals.

22-Bit Addressing. The UC03 supports full 22-bit addressing to utilize the 4 MByte memory capacity of the LSI-11/23 PLUS, MICRO/PDP-11 and MICRO/VAX.

Internal Self-Test. During power-up internal self-tests are automatically performed by the UC03 and it is available with an extensive set of diagnostics, developed and written by Emulex.

Compact Design. The UC03 is packaged on a single quad-wide printed circuit board which plugs directly into any standard QBus slot.

Pass-Through Mode. Another unique Emulex feature, the "pass-through mode," allows you to communicate directly to the SCSI bus in a non-emulating manner for full use of all SCSI applications, including those otherwise not supported by MSCP.

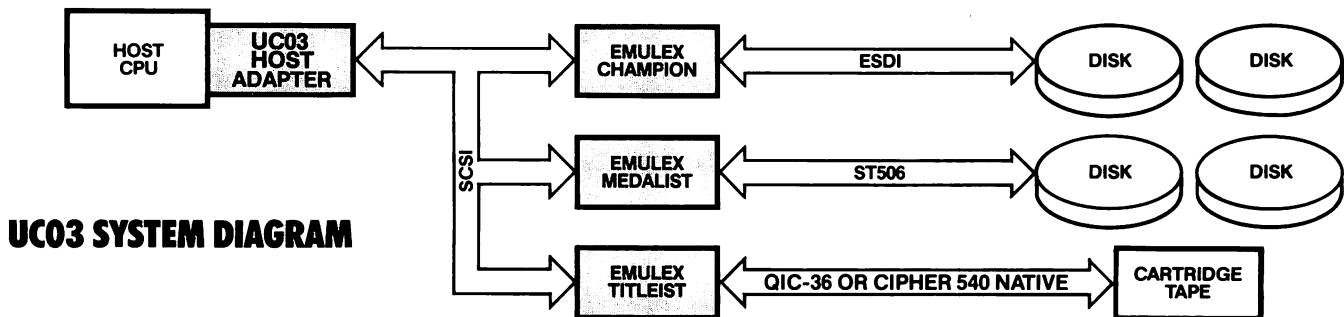
SCSI-Protocol Controller. The UC03 contains a protocol controller which provides the SCSI interface and relieves the QBus system of the overhead required to implement SCSI.

Maximum Application Flexibility. SCSI's combined intelligence and device independence allow for freedom of choice in the type and manufacturer of peripherals for a particular system configuration. The eight ports of the SCSI bus may support any combination of host systems, intelligent controllers, and intelligent peripherals with the addition of custom drivers and application software.

Full SCSI Arbitration. SCSI's advanced bus architecture also provides bus arbitration between connected devices with maximum efficiency. It supports multiple host systems, multithreading or overlapped operation of different I/O devices, disconnect/reselect of devices, and the assignment of peripheral bus priority.

WE OFFER MORE THAN JUST GREAT PRODUCTS.

You get superb quality and excellent support from the Emulex team with the UC03 Host Adapter or any other Emulex product. All final product assemblies are burned-in and environmentally cycled to ensure reliability. Emulex host adapters are backed by a full one-year warranty and supported worldwide by the company's technical applications group.



UC03 SYSTEM DIAGRAM

PRODUCT SPECIFICATIONS

FUNCTIONAL

Design:

High-speed microprocessor-based emulating host adapters for integration of mass storage devices to LSI-11, MICRO/PDP-11 and MICRO/VAX host computers. The UC03 incorporates unique design to achieve efficient operations with minimum hardware.

CPUs:

LSI-11, MICRO/PDP-11 and MICRO/VAX.

Bus Interface:

Standard QBus.

Controller Interface:

SCSI (ANSI X3T9.2 specification).
A maximum of four logical devices under MSCP.
Standard SCSI operation in Pass-Through Mode.

Emulation:

Emulates DEC MSCP
(Mass Storage Control Protocol).

Bus Address Range:

0-4 MBytes (22 bits).

Bus Register:

Two registers. Two preprogrammed start locations (772150 for IP register, 772152 for SA register), one alternate pair.

Vector Address:

Programmed by host CPU.

Priority Level:

Level 5.

Media Format:

Emulates MSCP format.

Status Display:

Edge mounted LEDs for activity/error/status display under micro-program control.

Option Switches:

On-board slide switches for selection of program-controlled operating/configuration options.

Command Buffer Memory:

Buffers up 13 MSCP commands.

Data Buffer Memory:

Buffers 20KB data.

Packaging:

Single quad-size board, standard QBus interface.

ELECTRICAL

Computer Interface:

Approved QBus line driver/receivers used exclusively; one load per bus signal line.

Disk Interface:

SCSI (ANSI X3T9.2 specification);
6 meters (18 feet) max. cable length.

Power:

+5V ($\pm 5\%$), 4.8 amps max.
4.4 amps typ.

ENVIRONMENTAL

Exceeds all environmental ranges and conditions specified for commercial LSI-11 and PDP-11 computers and applicable disk drives.

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