CONVEX

Field Support Tech Tip

Product: C-1
Tech Tip Number: GEN-001
Date: April 10, 1986
Subject: Bar Clamp
Submitted By: Dick Baker

There have been many requests from the field for a suitable tool to assist in pulling cabinets together during installation. Such a tool can be purchased for under ten dollars at your friendly Sears Roebuck store. It is a twelve inch bar clamp, Sears part number 66767. It consists of a 1/4"x3/4" bar 12 inches long with the fixed portion of the clamp attached to one end and an adjustable portion that can be moved along the bar. Any hardware store should have one of the same design.

Field Support Tech Tip

Product: C-1
Tech Tip Number: GEN-002
Date: March 30, 1987
Subject: Diagnostic Test Cables
Submitted By: Brad Jones

There is a Diagnostic Test Cables Kit available that contains all test cables required for diagnostics. It is suggested that one (1) kit should be stocked in each office.

- Diagnostic Test Cables Kit Part Number 902-000064-001 **includes**:

PART NUMBER	DESCRIPTION	QUANTITY	WHERE REQUIRED
601-330001-200	Hyperchannel Loopback	1	dev4510, Class 2
603-030012-200	Async Loopback	1	dev4300, Class 3
604-100004-001	DR-11W Parity Loopback	1	dev4600, Class 2
604-100004-002	DR-11W Data Loopback	2	dev4600, Class 1

Field Support Tech Tip

Product: C2XX Series
Tech Tip Number: GEN-003
Date: April 05, 1991
Subject: Compatibility Matrix
Submitted By: Dan Schoner

"C2XX SERIES SUPERCOMPUTER QUICK CHART"

THE " INDICATES THE SOFTWARE TO BE USED IS THE SAME AS IN THE PREVIOUS COLUMN.

DDB		1.3	1.4	1.5	2.0	2.1	2.2	3.0	3.1	3.2	3.3	3.4	3.4	3.5	3.7
SYS DIAGS		1.1	"	"	2.0	2.1	2.2	3.0	3.1	3.2	3.3	3.3	3.4	3.4	3.5
UNIX OS		6.11	"	"	6.2	"	7.0	"	7.1	"	8.0	8.0	8.1	9.0	9.0
SPU UNIX		5.0	"	"	"	"	"	5.1	"	"	"	"	"	"	"
COVUEnet					1.1/1.2	"	1.3*	"	"	"	"	2.0	2.1	"	"
COVUEbatch					1.1	"	1.1/1.2	"	"	"	"	2.0	2.1	"	"
FORTRAN COMP		4.0	4.1	"	"	"	5.0	"	5.1	"	6.0	"	"	"	"
VECLIB		3.0	"	"	"	4.0	"	"	5.0	"	"	"	"	"	"
LATEST REVISION	SYSTEMS														
1205-VPC==>"H	201-240					F+									
2205-VPC==>"H	201-240		·			F+									
1206-VPD==> M	201-240														
1208-DCU==> R	201-220					J+									
1219-EDC==>#J	210-240							D+							
2219-EDC==> J	210-240														J
1207-IPP==>$M	201-240			G-	H+										
2207-IPP==> M	201-240														
1209-ASP==> P	201-240		J-	J-	J+										
1210-SFU==> L	201-220														
1220-EFU==>#L	210-240							E+							
2220-EFU==>#M	210-240							E+							
3220-EFU==> N	210-240														N
2201-CPX==> L	210-220	G-	H+												
3201-MCPX=> L	201-202														
4201-CPX==> L	210-220														
5201-MCPX=> L	201-202														
1222-CUE==> D	210-240		'												
3222-CUE==>"D	230-240														
1221-CUO==> E	210-240														
3221-CUO==>"E	230-240														
1180-ESM==> R	230-240														
2180-ESMI=> T	C2XX-I														
0130-SCM==> AA	201-220														
0168-SCM==> K	201-220														
2218-MIOP=> B	201-240														
2149-VIOP=>%K	201-240		B-	C+											
2132-HSP==> L	210-240														
1228-IDC==>%P	210-240										E+				
1181-CXM==> A	230-240														
1223-SP4==>=J	210-240														
1200-SP2==> P	201-220														
1224-PI2==> D	230-240														
2224-PI2==> H	230-240														
1212-PIA==> N	210-220														
2212-PIA==> K	210-220														
3212-MPIA=> K	201-202														

"C2XX SERIES SUPERCOMPUTER QUICK CHART"

THE " INDICATES THE SOFTWARE TO BE USED IS THE SAME AS IN THE PREVIOUS COLUMN.

DDB		1.3	1.4	1.5	2.0	2.1	2.2	3.0	3.1	3.2	3.3	3.4	3.4	3.5
SYS DIAGS		1.1	"	"	2.0	2.1	2.2	3.0	3.1	3.2	3.3	3.3	3.4	3.4
UNIX OS		6.11	"	"	6.2	"	7.0	"	7.1	"	8.0	8.0	8.1	9.0
SPU UNIX		5.0	"	"	"	"	"	5.1	"	"	"	"	"	"
COVUEnet					1.1/1.2	"	1.3*	"	"	1.4	"	2.0	2.1	"
COVUEbatch					1.1	"	1.1/1.2	"	"	1.2	"	2.0	2.1	"
FORTRAN COMP		4.0	4.1	"	"	"	5.0	"	5.1	"	6.0	"	"	"
VECLIB		3.0	"	"	"	4.0	"	"	"	"	"	"	"	"
LATEST REVISION 1213-MCM==>@K	SYSTEMS 201-240													
3213-MCM==>@D	201-240							C+						
1226-MCM2=> C	230-240													
1204-MAM==> A	4Mb													
2148-MAM==> A	8Mb													
3148-MAM==> A	16Mb													
1220-BPL==> C	210-220													
1128-BPL==> J	210-220	C+		E-	F+									
1156-BPL==> J	210-220	C+		E-	F+									
2161-BPL==> H	R C2XX-W													
1162-BPL==> D	L C2XX-w													

(X- ...means this REV or lower, and X+ ...means this REV or higher.)

BLANKS ON CHART MEAN "DON'T MATTER".

------N O T E S------

*COVUEnet V1.3 runs on all cpus w/V7.0; C210a's use C1-V7.0 instruction set.
~ All VPC's, in a C202 or a C220, must have the SAME part number.
@ 4 MAX of the 1213 MCMs per system, 6 to 8 MCM counts should be 3213s.
@ 3213's work in C210/220's if sp2=revL+, ASP=revK+, pia=revH+, and V3.0 SD.
# The EFU/EDC will work on the C201-C220's if backplane= G+ & DDB 3.0.
(A cooling kit would also be required with these boards.)
1) All EFU's rev A to G are considered compatible
2) EFU's rev H and J are compatible with one another
3) EFU's K, L and to further notice are compatible.
= SP4 Rev E is a pre-requisite to 500-001162-200 Backplane Rev D.
~ 3222 CUE & 3221 CUO are required with the MCM2.
% VIOP rev F is required to run IDC without getting PBUS errors.

CONVEX

Field Support Tech Tip

Product: C2xx
Tech Tip Number: GEN-004
Date: March 21, 1989
Subject: Iscan's Win Queue
Submitted By: Rick Miller

The Win Queue- a memory path troubleshooting aid.

The Win Queue is a ram on each MCM that is used as a diagnostic "feature". This ram records the last 16 memory accesses to the MCM. In particular, which of the five memory ports doing the accessing and the bank accessed are recorded.

A proceedure to determine WHICH of the 5 ports to memory was active when a multiple-head machine pulls a "hard_error", one that is memory path related, could be useful. An sample error is illustated below:

```
hard_logger: Version:  1.16 (Aug 27 21:35:46 CDT 1988)
hard_logger: Memory subsytem. Hard error(s) present.
ME0/MCM:  Hard error detected.
ME0/MCM:  [#501] ECC unit 0: parity error:
ME0/MCM:  Write data: 3284aaaa, Parity: 04
errintd: Fatal error (status 25). Cleaning up ...
```

This error indicates a parity error in the input data to memory. This data could have come from any of the 5 ports to memory; the ASP (0/1/2/3 in a C240), or port #4 via the PIA and SP2. Which? (Yes, the MCM inputs could be bad.)

As a tool, the Win Queue ram on the MCM might provide a clue as to WHO had the "last & dirty" access to memory. This ram can be read by iscn. The function "dump_win_q" is exampled below: (WARNING: "Sysreset" zeros the ram.)

1- First change directories:

```
cd /hw/cputest
```

2- Then enter iscn command:

```
iscn mcm_func
```

3- Now that you're in iscn, select a memory board to look at: (default is 0.)

```
:901=n    (where n = 0,1,2,3...7.)
```

0,1,2,3...7. are slots even0, odd0, even1, odd1, even2, odd2, even3, odd3.

4- Finally, you are ready to print the Win Queue screen by entering:

```
dump_win_q
```

```
                - current register contents -
win_q_adr     qpx_win      qm_start       rpx_win       rm_start
    0             7             0             4             1

                - contents of the win queue -
                    adr     win    start
                     f       4       80    <- LAST ADDRESS ACCESSED
                     e       4       40       IS LOCATED HERE!
                     d       4       20
                     c       4       10
                     b       4        8
                     a       4        4
                     9       4        2
                     8       4        1
                     7       4       80
                     6       4       40
                     5       4       20
                     4       4       10
                     3       4        8
                     2       4        4
                     1       4        2
```

The two fields that concern us in this example are:

"adr" This is the address to the ram 4 bits wide for a total of 16 locations. The top line is the most recent access.

"win" Three bits representing the five memory ports:

(0)	000 CPU A
(1)	001 CPU B
(2)	010 CPU C
(3)	011 CPU D
(4)	100 E sp2/pia(ccu's)

In the win queue chart above the last address accessed indicates that port four was used. If you were trouble-shooting the [#501] error on page 1, then the PIA or SP2 would be a logical place to start...in this example.

Also, the last 16 memory accesses in the sample win queue chart were all via port 4. This is the most common type of display.

CONVEX

Field Support Tech Tip

Product: C-Series Computers
Tech Tip Number: GEN-005
Date: Update - JUNE 21, 1990
Subject: Known Diagnostic Problems
Submitted By: TAC-HW

NOTE - The following abbreviations are used in the table below:

SPU = SPU UNIX | **SYSDIAG** = System Diagnostics
DDB = Diagnostic Database | **UNIX** = Convex Unix
ANY = Any and all compatible versions

NAME OF DIAGNOSTIC	APPLICABLE VERSIONS				DESCRIPTION OF KNOWN PROBLEMS
	SPU	SYSDIAG	DDB	UNIX	
spu4000	ANY	4.1	ANY	ANY	Fails Subtest 701 if LMCU (410-002136-200) and LPCU (410-002137-200) are installed.
mem4000	ANY	4.1	ANY	ANY	Fails Subtest 300 if LMCU (410-002136-200) and LPCU (410-002137-200) are installed.
	ANY	5.0, 6.0, & 6.1	ANY	ANY	Class 5 Subtests do not support multiple failures per subtest (as set by dshell *log -s* command) or multiple bit errors.
					Best run at "-s 10-126,160-505,150-158"
cpu4000	ANY	4.1	ANY	ANY	Fails Subtests 963 and 964 with LMCU (410-002136-200) and LPCU (410-002137-200)
	ANY	4.1	ANY	ANY	Fails Subtest 550 in forced faults mode.
	ANY	Pre-4.1	Pre-1.11	ANY	Fails Subtests 807 and 808 in Rings 1-4. The default ring (0) works correctly.
	ANY	5.0, 6.0, & 6.1	Pre-2.1	ANY	Fails Subtests 395 and 552 when the standard ASU (410-001129-200) is installed.
cpu4010	ANY	6.3	V1.1 and above	ANY	Fails subtest 20 with 512Mb of memory. Fails all subtests above 1100.
cpu4040	ANY	4.1	ANY	ANY	Fails in forced faults mode.
	ANY	ANY	2.1	ANY	Fails in forced faults mode.
			2.0		Won't run Continuous Faults
			3.0		Fails subtest 20 in default mode.
cpu4231	ANY	ANY	V2.0	ANY	Fails subtest 30 when segment execution=3.
	V5.1	V3.0, 3.1	V3.0, 3.1	ANY	Fails subtest 40 run in chain mode.
		3.1 & older			Fails subtest 32.
		ANY	3.4		Minimun Rev. Levels for cpu4231: IPP - K or newer; older revs fail -s 31,42,44 DCU - L or newer; older revs fail -s 323-324 EDC - E or newer; older revs fail -s 323-324,400
		ANY	3.4		Fails subtest 42, 44, & 700-701 ring 0
cpu4232	ANY	ANY	V2.0	ANY	Subtest 211 fails at lower clk, sometimes.
		3.1 & older			Subtests 141,146,160,165

NAME OF DIAGNOSTIC	APPLICABLE VERSIONS				DESCRIPTION OF KNOWN PROBLEMS
	SPU	SYSDIAG	DDB	UNIX	
cpu4233	ANY	ANY	ANY	ANY	IPP Rev J or Older fails subtest 1010.
	ANY	V2.0	V2.0	ANY	Intermittenly fails test 1030.
		V2.0	V2.1		Fails 1030, 1035, 1045 .
		V2.2	V2.2		Fails 1010 if IPP is Rev J+. V3.1 SD fixes.
	V5.1	V3.0, 3.1	V3.0	ANY	Has a problem on C240 running successive invocations.
		3.1 & older			Subtests 271-284, 291-304
cpu4241	ANY	ANY	ANY	ANY	Fails subtest 1005 in ring 4.
	ANY V5.1	V2.2 V3.0, 3.1	ANY V3.0	ANY ANY	Requires DCU Rev. 'J' or later and VPC 1205 (Rev.'F') or VPC 2205 (Rev.'F' or later).
		3.2 & Above			DCU Rev K or Older fails -s 2505-2506 & 4505-4506.
		3.2 & Above			EDC Rev D or Older fails -s 2505-2506 & 4505-4506.
cpx4000	ANY	ANY	1.1	ANY	Fails subtest 160 on pcb revH or later. Fails subtest 195 on pcb revE or earlier. Fails subtest 217 on pcb revG or earlier.
	V5.1	V3.0, 3.1	V3.0	ANY	Intermittently fails subtest 185.
pia4000	ANY	V2.2	V2.2	ANY	Fails subtest 300 with 512Mb of memory.
io4000	ANY	4.1-2.0, 5.0, 6.0, 6.1	ANY	ANY	Fails Subtest 302 if the first block of memory is not present.
		4.1, 5.0, 6.0, 6.1	ANY	ANY	The PCM gets corrupted and **mminit** must be run to restore it after io4000 is run.
	ANY	6.3	ANY	ANY	Fails subtest 200 and never fails 600.
io4120	ANY	6.3	ANY	ANY	Fails subtest 241 on C1's.
	V5.1	V3.0	V3.0	ANY	HSP functional, supported only on C210/C220.
		V6.5			Fails all subtests above 5200 - error: **libtest: SIGIOT received using SIGIOT to core dump**
io5000	ANY	6.3	ANY	ANY	Fails subtest 400 and never fails 600.
	ANY	ANY	2.0	ANY	Fails subtest 261 if executed on multi VIOPs.

NAME OF DIAGNOSTIC	APPLICABLE VERSIONS				DESCRIPTION OF KNOWN PROBLEMS
	SPU	SYSDIAG	DDB	UNIX	
dev4110	ANY	6.2, 6.3	ANY	ANY	Can't format single track or put BBT.
dev4200	ANY	4.0, 4.1, 5.0, 6.0, and 6.1	ANY	ANY	Subtests 320, 420, 520, 560, and 561 fail *only* when the Tape Drive under test is a **1960** Series. Subtests **X20** report *Erase Gap Failed* and Subtests **560** and **561** report *Chaining Sync Error.*
	ANY	6.2, 6.3	ANY	ANY	Fails subtest 312 with blocks over 16K.
	ANY	ANY	ANY	ANY	Subtest 360 fails using 600' reel of tape on 196X drive.
	V5.1	V3.0,V3.1	V3.0	ANY	Subtest 520 fails intermittently on STC 1968's and 1963's.
	ANY	3.2 & 3.3			After FM0070 -s 430 & 530 will fail on rev B MBTC.
dev4300	ANY	5.0, 6.0, and 6.1	ANY	ANY	Fails Subtest 306 (*Block Input Test, Physical Loopback*)
dev5130					-c 1 Will not read flaw data correctly if 2 drives are chained on a controller port.
dev5200	V5.1	V3.0, 3.1	V3.0	ANY	VME tape test fails subtest 201. Fails subtest 520 intermittently on STC 1968's and 1963's.
dev 5210	ANY	ANY	Pre 3.4	ANY	-s 701 1960 Series Drives Sometimes fails End of Tape sense.
	ANY	ANY	ANY	ANY	If ^C is used to abort while in Data Chaining mode, it is possible to receive a 68020 Spurious Interrupt Error because the VBTC will hang the VME Bus. SYSRESET and MMINIT are required to clear the hang.
	ANY	ANY	ANY	ANY	-s 604 fails.
	ANY	3.2 & 3.3			-601 fails after FM0070 - run dev5210 -s 400-600,602-700
dev5300	ANY	ANY	ANY	ANY	VME Async will not run -s 115,116,209, & 210
dev5500	ANY	ANY	ANY	ANY	Does not recognize COV-003. The ioconfig entry must be changed to LAN-007 to run diagnostics. Remember to change ioconfig back when finished.

CONVEX

Field Support Tech Tip

Product: C-1
Tech Tip Number: GEN-006
Date: March 15, 1991
Subject: Hardware Documentation
Submitted By: Dan Schoner

Convex Part Numbers for hardware reference documentation are detailed in this Tech Tip. Updates will be sent out, as required, to reflect additional documentation as it becomes available.

HARDWARE IDENTIFICATION		MANUAL	CONVEX
PART NUMBER	DESCRIPTION	DESCRIPTION	PART NUMBER
201-000001-200	Adaptec Disc Controller	ACB-4000 User's Manual	900-000257-001
204-000001-200	Fujitsu M2351A (Eagle) Disc	Customer Engineering Manual	900-000208-001
204-000005-200	CDC 9766 SMD (300MB) Disc	Hardware Maintenance Manual Hardware Operations Manual Theory of Operation Manual	900-000292-000 900-000293-000 900-000294-000
204-000006-200	CDC 9715 FSD (515MB) Disc	Hardware Maintenance Manual, Vol. 1 Hardware Maintenance Manual, Vol. 2 Hardware Maintenance Manual, Vol. 3	900-000281-000 900-000282-000 900-000283-000
204-000007-200	Fujitsu M2235 (26MB) Disc	Customer Engineering Manual	900-000250-001
204-000008-200	NEC D2352 (520MB) Disc	Product Description Maintenance Manual Theory of Operation Circuit Diagrams & PWA Drawings	204-000008-009 One Part Number obtains all four (4) manuals
204-000010-200	Micropolis 1375 (SPU) Disc	Product Description SCSI Implementation Technical Manual	900-000303-001 900-000303-002 900-000303-003
204-000012-200	NEC D2363 (1.1GB) Disc	Product Description Maintenance Manual Theory of Operation Circuit Diagrams & PWA Dwgs.	900-000304-01 (Set of all 4)
204-000013-200	Hitachi DK514-38 (380MB) Disc	Service Manual	900-000327-003
204-000016-200 204-000017-200	Seagate ST81154K (6MB/sec) Disc Seagate ST81236K (3MB/Sec) Disc	User's Manual Maintenance Manual	900-000421-002 900-000421-005
204-000019-200	Hitachi DK515-78 (780MB) Disc	Service Guide	900-000347-001
204-000021-200	Seagate ST81236J (SMD-E) Disc	User's Manual Maintenance Manual	900-000348-001 900-000421-005
207-000001-200	Cipher 525 Floppy Tape	Product Description	900-000258-001
207-000001-201	Enhanced Cipher 525 Tape	Product Description	900-000258-001
207-000003-200	STC 1968 Tape Drive	1960 Tape Drive Maintenance 1960 Tape Drive Logic 1960 Product Specification	900-000253-001 900-000253-003 900-000253-004
207-000004-200	STC 1963 Tape Drive	1960 Tape Drive Maintenance 1960 Formatter Logic 1960 Tape Drive Logic 1960 Product Specification	900-000253-001 900-000253-002 900-000253-003 900-000253-004
207-000005-200	STC 2921 Tape Drive	2920 Maintenance, Vol. 1 2920 Maintenance, Vol. 2 2920 Product Specification	900-000252-001 900-000252-003 900-000252-002
207-000006-200	Fujitsu M243XL Tape	Maintenance Manual Illustrated Parts Breakdown Tape Drive Theory Formatter Theory Installation Instructions	900-000275-000 900-000277-000 900-000278-000 900-000279-000 900-000280-000

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HARDWARE IDENTIFICATION		MANUAL	CONVEX
PART NUMBER	DESCRIPTION	DESCRIPTION	PART NUMBER
207-000009-200 -201	Archive 2150S Cartridge Tape	Product Description	900-000322-001
207-000010-200 -201	STK 2922 Tape Drive	2920 Maintenance - Vol. 1	900-000252-001
207-000015-008	Fujitsu 3480 Formatter	CE Manual	900-000444-001
207-000015-200	Fujitsu 3480 Tape Drive	CE Manual	900-000443-001
207-000017-200	Archive DAT Tape Drive	Product Description Manual	900-000601-001
210-000005-200	TAB E-32 Terminal	User's Manual Reference Guide	900-000268-000 900-000268-001
210-000006-200	CIT-101XL Terminal	User's Guide Maintenance Manual	900-000301-002 900-000301-001
210-000008-200	NCD 19" X-Terminal	User's Manual X-Server Release Notes	900-000445-001 900-000445-002
211-000101-200	Excelan Ethernet Controller	EXOS 201 Reference Manual	900-000270-000
211-000102-200	Excelan 201-M4 Ethernet	EXOS 201 Reference	900-000270-000
211-000104-200	IKON 10077 DR11-W Emulator	Hardware/Software Reference	900-000274-000
211-000108-200	Ultra Net VMEbus Controller	Network Operations	900-000422-001
211-000110-200	IKON Hyperchannel VMEbus Controller	Hardware / Software Manual	900-000460-001
211-001403-200	IKON NSC Network Adapter	Hardware / Software Manual	900-001203-000
215-000001-200 215-000001-210	Printronix P-600 Printer	P-600 Maintenance Manual P-600 User's Manual	900-000249-001 900-000263-001
215-000004-200	Epson LX-90 Printer	LX-90 User's Manual Interface Cartridge Operation	900-000290-000 900-000289-000
215-000005-200	Fujitsu DX2100 Printer	User's Manual Maintenance Manual	900-000297-000 900-000297-001
215-000006-200	Printronics P6000 Printer	Maintenance User's Reference Operation Guide	900-000328-001 900-000329-001 900-000330-001
215-000007-200	Fujitsu DX2300 Printer	User's Manual	900-000332-001
220-000003-200	Systech MLP-2000 Printer Controller	Hardware/Software Manual	900-000255-001
220-000004-200	IKON Versatec Plotter Controller	Model 10085 Technical Manual	900-000269-000
220-000006-200	Xylogics 451 Disc Controller	User's Manual	900-000254-002
220-000008-200	Software Results HASP Host Comboard	MACH-1 Technical Manual	900-000302-001
220-000010-200	Interphase 4200 VME Disc Controller	User's Guide	900-000319-001
220-000011-200	Interphase 4201 ESDI Disc Controller	User's Guide	900-000326-001
220-000012-200	FedTech EXOS 302B Ethernet Controller FedTech EXOS 302 Controller	Reference Reference Release Notes	900-000331-002 900-000331-001 900-000331-003
220-000018-200	Ciprico 3516 VME SCSIbus Controller	Rimfire 3510 Reference	900-000428-001
221-000002-200	Systech 1650 Comm. Controller	Technical Manual	900-000291-000
420-000100-200	Convex Multibus Control Unit	Product Specification	None
420-000101-200	Convex Mag Tape Controller	Product Specification	420-000101-000

CONVEX

Field Support Tech Tip

Product: C1XX/C2XX
Tech Tip Number: GEN-007
Date: February 21, 1991
Subject: FMI History
Submitted By: Dan Schoner

FMI Number	*ECN Number*	*BRIEF DESCRIPTION*
0001	100110	Convex UNIX Utilities V1.3 update.
0002	100111	Convex Fortran Compiler V1.5 Release Notice.
0003	100187	Release of V2.0 SPU UNIX.
0004	100185	Release of System Diagnostics V2.0.
0005	100167	Release of Diagnostic Database V1.1.
0006	100190	Release of Convex UNIX V2.0.
0007	100193	Release of Convex 'C' V2.0.
0008	100194	Release of Convex UNIX Consultant V2.0.
0009	100192	Release of Convex Networking Utilities V2.0.
0010	None	Special for IOmega disc at Boeing.
0011	100167	Release of Diagnostic Database V1.2.
0012	100241	Release of Convex Fortran V1.6.
0013	100272	Special patch for tape allocation and deallocation problems and problems with math routines using exponential powers.
0014	100267	Release of Convex MTBF V2.0.
0015	100121	Release of Diagnostic Database V1.3.
0016	100287	Release of patch for Convex Fortran V1.6.
0017	100308	Release of Convex Fortran V1.6.
0018	100310	Release of Convex Fortran Compiler V1.6.2.
0019	100323	Release of Convex UNIX Utilities.
0020	100334	Release of Convex Consultant V2.1.
0021	100335	Release of Convex Networking Utilities V2.1.
0022	PP426	(Hardware, finally!) Up-rev C-1 Backplane 500-000127-200. FAB B went from B.4 to B.5.
0023	100278	Up-rev C-1 Backplane 500-000127-200. FAB B went from B.5 to B.6; FAB A went from A.4 to A.7.
0024	100317	Up-rev C-1 Backplane 500-000127-200. FAB B went from B.6 to B.7.
0025	100362	Patch to Convex UNIX Utilities V2.0 to correct misprinting null characters.
0026	100380	Release Convex Fortran V1.7.
0027	100376	Modify Line Printer Controller (to Rev B) to lengthen Multibus XACK Timeout.
0028	100422	Up-rev C-1 Backplane 500-000127-200. FAB B went from B.7 to B.8; FAB A went from A.7 to A.8.
0029	100461	Replace the metal standoffs used with the Adaptec Disc Controller with nylon standoffs.
0030	100461	Correction of procedures in FM0029.
0031	100392	Release System Diagnostics V3.0.
0032	100393 100468	Release: SPU UNIX V3.0; Convex UNIX V3.0; Convex Networking Utilities V3.0; and Convex Consultant V3.0.
0033	100475	Modify Racal-Vadic VA212LC Modem (211-000100-200) to ensure Data mode when powered-up.

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FMI Number	ECN Number	BRIEF DESCRIPTION
0034	100784	Patch for various Convex UNIX V3.0 system crashes.
0035	100742	Up-rev C-1 Backplane 500-000127-200. FAB A went from A.8 to A.9; FAB B went from B.8 to B.9.
0036	100628	Release Convex Consultant V3.1.
0037	100777	Replace fuses in the C-1 AC Power Controller to allow for greater load.
0038	101156	Install new firmware on the Systek MTI-800/1600 Comm. Controller (221-000001-202). Board went from Rev A to Rev B.
0039	100968	Up-rev IOP (410-001121-200) from Rev B or C to Rev D. Replaces SPOKE with EGOS for Convex UNIX V4.0.
0040	100808	Release: SPU UNIX V4.0; System Diagnostics V4.1; Convex UNIX V4.0; Convex Networking Utilities V4.0; Convex Consultant V4.0; Convex EMACS V2.0; and Convex Device Drivers V1.0.
0041	101300	Replace Multibus auxiliary voltage cable assembly with an improved version (higher contact retention force).
0042	101366	Release Sysex V4.1.
0043	101368	Release SPU UNIX V4.1 to allow different baud rates on SPU Modem (See also FM0044).
0044	101642	Up-rev SPU (410-001131-200) from Rev E to Rev F as a co-requisite to V4.1 SPU UNIX (see also FM0043).
0045	None	Replace the Standard Cipher 525 Tape Drive (207-000001-200) with the Enhanced Cipher 525 Tape Drive (207-000001-201).
0046	102171	Up-rev the HIA Backplane to enable future implementation of test microcode.
0047	102268	Optional up-rev of the C-1 Backplane (500-000127-200) from Rev A.9 or B.9 to, first, Rev C and, then, to Rev D. Up-rev is to accomodate 1 GB of main memory and/or usage of an IOP in the MAU7 slot.
0048	102195	Modify the C-1 Backplane (500-000127-200) and the Cobra Backplane (500-000170-200) from Rev C to Rev D. Allows for usage of an IOP in the MAU7 slot.
0049	102409 102410	Up-rev the C-1 Backplane (500-000127-200) and the Cobra Backplane (500-000170-200) to Rev E. Pre-requisite to Rev C FIPU, Rev U IPU, and Rev S ATU.
0050	102679 102706	Up-rev the MBCU (420-000100-200) from Rev D to Rev F. Modifies the thermistor mounting method to ensure reliable detection of a Multibus Fan failure condition.
0051	103099	Fixes an MBCU Bus contention problem.
0052	103455	Fix system hangs in C2 on long Unix jobs.
0053	none	Use loctite on RDS disc shield.
0054	none	Upgrade power supplies and SCM board.
0055	103831	C210 backplane upgrade.
0056	103854	Replaces MCU 410-001123-200 to Rev. N.
0057	103855	Replaces MCU 410-001136-200 to Rev. G.
0058	103856	Replaces MCU 410-002136-200 to Rev. G.

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FMI Number	*ECN Number*	*BRIEF DESCRIPTION*
0059	103873 104180 103973	Fixes design errors in VME and RDS units.
0060	103960	Replaces International Power control unit.
0061	103864	CPX revH is tied to DDB V1.4 tape.
0062	104411	COVUEnet upgrade & new controller
0063	104358	C210 Parallel Upgrade for V7.0 Unix
0064	104943	C1 SPU Disk/Tape Upgrade
0065	105253	VPC and DCU revision changes
0066	105026	C240 Warning Labels
0067	105444	C201/202/210/220 Cooling Upgrade
0068	105793	VBTC Upgrade **REPLACED BY FM0075**
0069	105818	DCU / EDC Upgrade
0070	105764	STK 2921 DP50 card firmware Upgrade
0071	105874	Replace ESM for microcode Upgrade
0072	105765	STK 2922 IF card microcode Upgrade
0073	N / A	Replace NEC 1.1G Drives with specific date codes
0074	N / A	Upgrade IMPRIMIS IDC Drive I/O Board
0075	106031	Replaces FM0068 - Corrects VIOP crash while reading tape
0076B	106014	Upgrade C-240 Backplane from A, B, or C to Rev. D **REPLACES FMI0076 & FMI0076A**
0077	106130 108128	SCM Up-Rev **REPLACED BY FM0077A**
0077A	106293 106294	SCM Up-Rev 1. Lower C2 Emergency Power Off Temperature 2. Disable monitoring of ACPOK on SCM
0078	105996	C2XX Widebody I/O Backplane Upgrade **REPLACED BY FMI0078A**
0078A	105998	C2XX Widebody I/O Backplane Upgrade
0079	106630	Interphase 050 Firmware for the 4201 ESDI Disk Controller
0080	106629	Interphase 050 Firmware for the 4200 SMD Disk Controller
0081	106702	C2XX I/O Backplane Upgrade (Rev F to G) **REPLACED BY FMI-0081A**
0081A	106702	C2XXW I/O Backplane Upgrade (Rev F to G)
0082	106995 106996	C2XX Backplane Upgrade (Rev F to G)
0083	106975 106976	EDC / EFU Upgrade to new RITA & VAL gate arrays

Field Support Tech Tip

Product: C-1
Tech Tip Number: Gen-008
Date: February 6, 1988
Subject: Static Control
Submitted By: C. Krause-Chicago FE

With the introduction of the ECL-C2 computer, all methods of static control are even MORE important. Carl has suggested that sliding some possible static-filled paperwork inside the anti-static bag is not a good idea. We agree! Please attach the paperwork for a PCB to the outside of the anti-static bag.

NOTE: Everyone got a wrist strap?..Static will add to your call load if you're not cautious.

CONVEX

Field Support Tech Tip

Product: C-1
Tech Tip Number: Gen-009
Date: May 15, 1988
Subject: Static Protection
Submitted By: Rick Miller

" ... many companies discovered that extending the static control process used in the manufacturing facility to include field service technicians, spares and handling, and depot repair facilities was a worthwhile investment..."
–Microservice Management, Sept. 1986

A. RULING OUT STATIC

Industry averages show about 50% of board failures are static-caused. A good static awareness will reduce DOA's, repeat service calls, and disgruntled customers.

∇ Below are two charts that summarize the technical values on static: ∇

CIRCUIT TYPE	KILL VOLTAGE
VMOS	30v
MOSFET	100v
EPROM	100v
OP-AMP	190v
C-MOS	250v
ECL	500v
SCR	680v
TTL	1000v

STATIC PRODUCERS
Walking on computer tile.
Silk tie w/wrist strap.
Paperwork or plastic folders.
Styrofoam coffee cups.
Nylon jackets or windbreakers.
Nylons (pantyhose).
Carpet (a brutal static source).
(Above may hold 100s to 1000s volts)

B. STATIC CONTROL RULES

1. *Field engineers should carry and use a portable static-dissipative kit.* This kit contains a special conductive mat that may be unfolded in the work area and grounded to the equipment. The mat offers a static-free area to lay electronic parts upon. Touching the machine frame occassionally is not enough static protection, therefore a wrist strap is provided in the kit to continuously ground the engineer.

(The kit's part # is 902-000065-001.)

2. *All PCB's (good or bad) should be stored & handled in static-shielding bags.* A wrist strap should worn whenever a card is to be physically touched.

CONVEX

Field Support Tech Tip

Product: C-2
Tech Tip Number: Gen-010
Date: May 16, 1991
Subject: Backplane Net Replacement
Submitted By: TAC/HW

Tools and Parts Required

1. Special backplane pin extraction/insertion tool
2. Extraction fixture extender
3. Long-nosed pliers
4. Wire strippers
5. Wire wrap tool
6. Soldering iron (60 watt or better)
7. C2 backplane replacement pins 314-000121-001
8. C2 backplane insulated pins 314-000120-500
9. C2 flex circuit replacement pins xxx-xxxxxx-xxx
10. C2 flex circuit insulated pins 314-000130-500
11. Wire 50-OHM co-axial 613-000019-001
12. Wire 30 gauge twisted-pair 613-000020-001

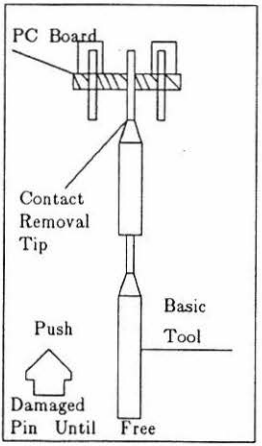

Figure 1.

Backplane Pin Removal

1. Identify the net(s) to be replaced.

********** WARNING **********
OBSERVE ALL GROUNDING AND STATIC SAFEGUARDS AND PROCEDURES

2. Remove the necessay boards to allow access to the pins to be removed. Place these boards in a static free bag.

3. Remove the exhaust air plenum (if old style.)

Note: Pins are removed from the rear of the backplane (pushed toward the front.) Pins are installed from the front of the backplane (pushed toward the rear.)

4. If the backplane has short pins, locate the pin to be removed, place the piano wire (provided by Logistics) in the hole with the pin, and tap the piano wire until pin is loose. Then, you should pull the pin out from the front of the backplane.

4A. If the backplane has "long" pins, you should use the black extension that attaches to the pin insertion tool to PUSH out the pin selected.

Note: If an insulated pin is removed, take care the insulation comes out with it. Heating the pin for about a minute with a soldering iron first, helps.

Pin Installation

1. Attach the insertion fixture to the installation tool.

2. Place the end of the new pin, with the shoulder on it, in the insertion fixture and orient it so the flats of the shoulder fit into the groove machined in the face of the insertion fixture.

3. From the front of the backplane locate the empty backplane pin holes by looking for ambient light from the rear of the cabinet shining through the empty hole.

4. Orient the pin/fixture so the pin shoulder is vertical and gently start the exposed end of the pin into its hole. Push the installation tool against the pin, compressing the installation tool's spring until the stored energy is released.

5. Withdraw the installation tool just far enough for the shoulders on the pin to clear the groove in the insertion fixture and rotate the tool 90 degrees so the face of the insertion fixture rests on the shoulders of the pin.

6. Ensure the tool is perpendicular to the backplane and push the installation tool against the pin, compressing the installation tool's spring until the stored energy is released. This should seat the pin. (Seating the pin twice is often necessary.)

7. Remove the installation tool and inspect the pin to ensure that it has been installed to the correct depth. Check the level of the pin with a finger to make sure it is installed to the same depth as its neighbors. Re-seat the pin if necessary.

8. Repeat for any other pins to be installed.

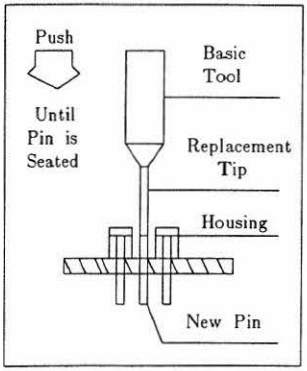

Figure 2.

Co-axial Wire Installation

The 50 ohm co-ax Convex uses (613-000019-001) has 6 layers of insulation and wire. Layers from the outside to the inside are as follows: See Figure 3.

1. Blue Teflon insulation
2. Gold foil shield (not shown)
3. Ground wire (shield)
4. White Teflon insulation
5. Gold insulation
6. 30 guage wire (signal)

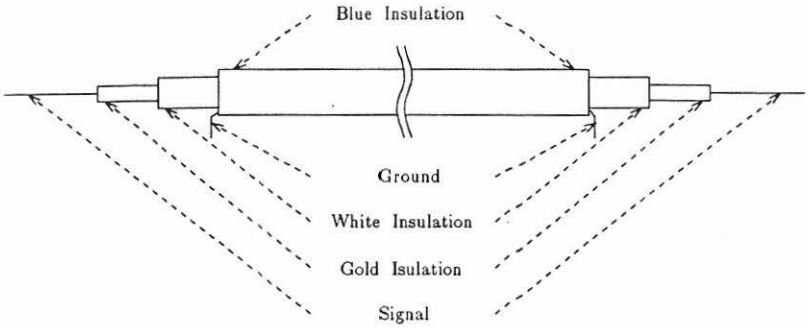

Figure 3.

1. Cut a piece of co-ax to fit from one pin to the next. Make sure you leave enough for wire wrapping (Approx. 50mm (2") longer than the distance between the pins to be connected.)

2. Carefully strip blue insulation and foil shield so the blue insulation is long enough to reach from one ground point to another.

3. Trim ground wire to 3mm. (1/8") and bend exposed ground wire perpendicular to the coax.

4. Trim white insulation to match blue insulation.

5. Strip gold insulation from the signal wire for wire wrapping (About 25mm (1") of exposed wire on each end.)

6. Insert solder into the ground point (specified in the FMI or rework instructions) and melt with soldering iron. Do this enough times to fill hole with solder.

7. Heat solder in the ground point and insert the ground wire. Do this for grounds at both ends of the co-ax (Use tweezers or small long nose pliers for easier installation.)

8. Wire wrap the signal portion of co-ax to the pins specified in the FMI or rework instructions.

Twisted Pair Wire Installation

The 30 gauge twisted-pair wire Convex uses (613-000020-001) is gold and black. The standard is to use the gold wire for signal and the black wire for ground.

1. Cut a piece of twisted-pair wire to fit from one pin to the next. Make sure you leave enough for wire wrapping (Approx. 50mm (2") longer than the distance between the pins to be connected.)

2. Strip gold insulation from the signal wire for wire wrapping (About 25mm (1") of exposed wire on each end.)

3. Strip 3mm. (1/8") of the black insulation from each end of the ground wire.

3. Insert solder into the ground point (specified in the FMI or rework instructions) and melt with soldering iron. Do this enough times to fill hole with solder.

4. Heat solder in the ground point and insert the ground wire. Do this for grounds at both ends of the wire (Use tweezers or small long nose pliers for easier installation.)

5. Wire wrap the signal portion of the twisted-pair to the pins specified in the FMI or rework instructions.

Co-axial or Twisted Pair Wire to Termination SIP

1. Ground connections at termination SIPs should be prepared and installed as directed in previous ground installation steps.

2. Strip 3mm. (1/8") of the insulation fron the SIP end of the signal wire.

3. Insert solder into the ground and signal points (specified in the FMI or rework instructions) and melt with soldering iron. Do this enough times to fill hole with solder.

4. Heat solder in the ground point and insert the ground wire. (Use tweezers or small long nose pliers for easier installation.)

5. Heat solder in the signal point and insert the signal wire. (Use tweezers or small long nose pliers for easier installation.)