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INFORMATION

NO: 1A

DEVICE: M7258 LINE PRINTER INTERFACE

PROBLEM DESCRIPTION:

CONFIGURATION OF M7258 TO BE USED WITH COMMON PRINTERS E.G. PRINTRONIX, DATAPRODUCTS, DEC LA180 ETC.

CHANGE:

	ADDRESS LINKS										VECTOR LINKS				ADD	VEC				
	A	A	A	A	A	A	A	A	A	A	V	V	V	V	V	V	V			
	3	4	5	6	7	8	9	10	11	12	2	3	4	5	6	7	8			
LP0	0	1	1	0	1	0	0	0	0	0	0	0	0	0	0	1	0	777514	200	
LP1	1	1	1	1	1	1	1	1	0	1	0	1	1	1	1	0	0	764004	170	
LP2	0	1	1	1	1	1	1	1	0	1	1	1	1	1	1	0	0	764014	174	
	J	J	J	J	J	J	J	J	J	J	J	J	J	J				W	W	W
	1	2	3	4	5	6	7	8	9	10	11	12	13	14				1-4	5	6-15
* LP11	0	1	1	0	1	1	0	0	1	0	1	0	0	1				1	0	1
LS11	0	1	1	0	1	1	0	0	1	0	1	0	0	1				1	0	1
LA11	1	0	1	0	1	1	0	0	1	0	1	0	0	1				1	0	1
LV11	1	0	1	0	1	0	1	1	1	1	0	0	0	1				1	1	1

1=LINK IN 0=LINK OUT
* THIS IS THE MOST COMMON CONFIGURATION *

- 1) W10 IS USED TO INVERT THE DATA STROBE
- 2) J1 IN, J2 OUT = LOWER CASE
- 3) J1 OUT, J2 IN = NO LOWER CASE

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DEVICE: CIPHER MICROSTREAMER AND CACHETAPES

PROBLEM DESCRIPTION:

SWITCH SETTINGS FOR F880, M890-I/II, M891-I/II

*TO ENABLE 3200 BPI THIS SWITCH MUST BE ON WITH TC03/TC13 AND OFF WITH TC02

CHANGE:

6. DIP SWITCH UBYW

POSITION FUNCTION

S1	FORMATTER ADDRESS (SEE TABLE)
S2	TRANSPORT ADDRESS SEE TABLE
S3	RESERVED
S4	TRANSPORT ADDRESS SEE TABLE
S5	C*EXTERNAL PARITY SELECT (S6 OPEN)
S6	C*INTERNAL PARITY GENERATION (S5 OPEN)
S7	RESERVED
S8	RESERVED

C = CLOSED

ADDRESS LINE DECODING TABLE

IFAD	ITAD 0	ITAD 1	S1	S2	S4	ADDRESS
0	0	0	0	0	0	0
0	0	0	0	0	1	1
0	0	0	0	1	0	2
0	0	0	0	1	1	3
0	0	0	1	0	0	4
0	0	0	1	0	1	5
0	0	0	1	1	0	6
0	0	0	1	1	1	7

0 = FALSE INTERFACE LEVEL 0 = OPEN
1 = TRUE INTERFACE LEVEL 1 = CLOSED

SWITCH	POSITION			FUNCTION	
	1 TAD0*	2 TAD1*	3 FAD*	Unit Address Select	
USW	ON	ON	ON	FAD0*	0
	ON	OFF	ON		1
	OFF	ON	ON		2
	OFF	OFF	ON		3
	ON	ON	OFF	FAD1*	4
	ON	OFF	OFF		5
	OFF	ON	OFF		6
	OFF	OFF	OFF		7
	4	ON		Streaming EOT and DOUBLE FILEMARK enabled	
	4	OFF		Streaming EOT and DOUBLE FILEMARK disabled	
	5	ON		3200 BPI IDENT enabled	
	5	OFF		3200 BPI IDENT disabled	
	6-8			NOT USED	

Table 1-2. Unit Address Select/Option Switch

SWITCH	POSITION		FUNCTION				
U3T	1	ON	EOT LOCATION enabled				
	1	OFF	EOT LOCATION disabled				
	2	ON	External Parity				
	2	OFF	Internal Parity				
	3	4	Select max. block size				
	OFF	OFF	9K Bytes				
	ON	OFF	16K Bytes				
	OFF	ON	24K Bytes				
	ON	ON	32K Bytes				
	5	OFF	Not Used				
	6	7	8	Selected Simulated Speed (ips)	Data Rate (KBS)	Ramp Delay (ms)	
	OFF	OFF	OFF	12.5	20	30	
ON	OFF	OFF	25	40	15		
OFF	ON	OFF	37.5	60	10		
ON	ON	OFF	45	72	8.3		
OFF	OFF	ON	75	120	5.0		
ON	OFF	ON	75	120	5.0		
OFF	ON	ON	75	120	5.0		
ON	ON	ON	75	120	5.0		

Table 1-5A. M890 Configuration Switches

SWITCH	POSITION		FUNCTION				
U3T	1	ON	EOT LOCATION enabled				
	1	OFF	EOT LOCATION disabled				
	2	ON	External Parity				
	2	OFF	Internal Parity				
	3	4	Select max. block size				
	OFF	OFF	9K bytes				
	ON	OFF	16K bytes				
	OFF	ON	24K bytes				
	ON	ON	32K bytes				
	5	OFF	Enable ramp delay				
	5	ON	Disable ramp delay				
	6	7	8	Selected Simulated Speed -IPS- (Avg & Min/Max)	Data Burst Transfer Rate -KBS- (Avg & Min/Max)	Ramp Delay -msec- (Enabled)	
	OFF	OFF	OFF	45	72	8.3	
	ON	OFF	OFF	75	120	5.0	
	OFF	ON	OFF	100	160	3.7	
	ON	ON	OFF	112 (103/120)	180 (165/192)	3.0	
OFF	OFF	ON	125 (108/140)	200 (172/225)	2.6		
ON	OFF	ON	155 (138/170)	250 (220/272)	2.2		
OFF	ON	ON	185 (160/206)	295 (256/330)	1.5		
ON	ON	ON	250 (200/300)	400 (320/480)	1.0		

Table 1-5B. M891 Configuration Switches

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DEVICE: CIPHER MICROSTREAMER AND CACHETAPES

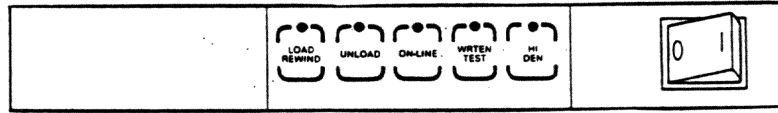
PROBLEM DESCRIPTION:

SHEET 1 - LIST OF GENERAL ERRORS INDICATED BY FRONT PANEL
SHEET 2 - POWER UP SELF TEST FAILURES FOR CACHETAPES ONLY (M890, M891).
HIGHER LEVELS ARE ACCESSED BY PRESSING THE LOAD BUTTON.

CHANGE:

**KEY NUMBERING
FOR ENTERING
SERVICE AIDS**

1 2 3 4 5



**KEY NUMBERING
FOR READING
ERROR CODES**

1 2 4 8 16

Error	Error Type
3 Tape length greater than 3700 feet for 1-mil tape	Med 2
4 Arm out of limits during autoloading	Hard
5 Sequence error, Read forward, internal status self-check fault	Med 1
6 Write/Erase to file-protected tape	Soft
7 Illegal command on interface	Soft
8 Unexpected done status in structure; internal status self-check fault	Med 1
10 Write Edit error, edited length greater than original length	Med 2
11 Excessive retries - Write fault	Med 2
13 Illegal status found in structure; internal status self-check fault	Med 1
14 18 feet past EOT	Med 2
15 Excessive block length, greater than 32 KB	Med 2
16 Sequence error, Read reverse, internal status self-check fault	Med 1
17 Operational arm fault or during load the absence of BOT marker	Hard
18 Tape speed variation greater than ±10%	Med 1
19 Vertical parity error on retries	Med 2
20 DMA failure or no start of block	Med 1
21 Write fault, excessive retries on write filemarks	Med 2
22 EOT mark location out of tolerance (switch U3T - 1 option)	Med 2
*23 Load - no tape or hub seat failure	Soft
Unload - hub not locked, too much slack tape	Soft
Manual load - reel seat/file-protect sensor failure	Med 1
24 Cache RAM parity error or transfer rate mismatch at the interface	Med 1
25 Not enough tape on takeup reel for manual load	Soft
26 Tape stuck on the supply reel during autoloading	Soft
27 Door interlock check	Soft
28 Servo failure or hub is jammed during manual load	Soft
29 Reel upside down during load or failure to get tape into tape path during autoloading	Soft
31 Autoloading failure after 4 retries, check tape end	Soft

Table 3-6. Error Type Description

*Error code 23 is a multi-error type and error codes 9, 12, and 30 are not used.

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DEVICE: CIPHER CACHETAPE

CHANGE:

PUST TEST	FAILURE	LEVEL 1 DISPLAY	LEVEL 2 DISPLAY	REMARKS
1	Low ROM (U3L)	1 0 0 0 0	—	Checksum error
2	High ROM (U3L)	0 1 0 0 0	—	Checksum error
3	Low RAM (U3N)	1 1 0 0 0	—	Data test error
4	High RAM (U3N)	0 0 1 0 0	—	Data test error
5	CIO TEST	1 0 1 0 0	—	Press LOAD
	CIO - Z1		0 0 0 1 0	IC-U9L fails
	CIO - Z2		0 0 0 0 1	IC-U11L fails
	CIO - Z3		0 0 0 1 1	IC-U13L fails
6	Early Test Exit	0 1 1 0 0		Generally indicates a failure in tests 1 thru 5, above. Tests for early PUST exit when TEST pressed and held during power up.

LEVEL 1 DISPLAY	LEVEL 2		LEVEL 3		LEVEL 4		LEVEL 5		REASON
	LOW	HIGH	LOW	HIGH	LOW	HIGH	LOW	HIGH	
7	11100								DMA/Cache circuits
		10000	00001						DMA failure
			10000	00001					Base address error
			01000	00001					Word count error
			11000	00001					No count rollover
			00100	00001					Addition not 0
			10100	00001					No terminal count
		01000	00001						Cache RAM circuits
			10000	00001					Address error (low to high)
			01000	00001					Address error (high to low)
				10000	00001				RD7 - U10T
				01000	00001				RD6 - U11R
				00100	00001				RD5 - U11T
				00010	00001				RD4 - U9P
				00000	10001				RD3 - U9R
				00000	01001				RD2 - U10P
				00000	00101				RD1 - U11P
				00000	00011				RD0 - U10R
				00000	00001				RD0 - U10R
				10000	00001				Read parity error (U9T)
				01000	00001				Write parity error (U9T)

PUST TEST	LEVEL 1 DISPLAY	LEVEL 2 BYTE		REASON
		LOW	HIGH	
8	0 0 0 1 0			CIO initialization failure
9	1 0 0 1 0			DAC/ADC test failed
		1 0 0 0 0	0 0 0 0 1	DAC failed auto-zero
		0 1 0 0 0	0 0 0 0 1	Reference voltage (VIN5) error
10	0 1 0 1 0			Servo motor test failed
		1 0 0 0 0	0 0 0 0 1	Unexpected drive voltage
		0 1 0 0 0	0 0 0 0 1	Unexpected EMF on takeup motor
		1 1 0 0 0	0 0 0 0 1	Unexpected EMF on takeup motor
		0 0 1 0 0	0 0 0 0 1	takeup motor EMF out of tolerance
		1 0 1 0 0	0 0 0 0 1	Takeup motor rotation out of tolerance
11	1 1 0 1 0			Tachometer test failed
		1 0 0 0 0	0 0 0 0 1	Either of the two phases missing
		0 1 0 0 0	0 0 0 0 1	
		1 1 0 0 0	0 0 0 0 1	Both phases missing
	0 0 1 0 0	0 0 0 0 1	Phase separation out of tolerance	
13	1 0 1 1 0			Compliance arm voltage not in tolerance
		1 0 0 0 0	0 0 0 0 1	Reset voltage too low
		0 1 0 0 0	0 0 0 0 1	Reference voltage (VIN6) error

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NO: 4

DEVICE: FUJITSU 2361 ON EMULEX QD32

PROBLEM DESCRIPTION:

EMULEX HAVE INFOMED US OF HDA PROBLEMS ON THE 2361.THE SPINDAL LUBRICANT APPEARS TO CLAG UP AFTER A PERIOD OF SEVERAL WEEKS.THIS CAUSES THE DRIVE TO LOG EXCESSIVE DATA ERRORS . THE PROBLEM HAS APPARENTLY BEEN RECTIFIED ON DRIVES REV B5 OR ABOVE.THE REV NUMBER IS POSITIONED ON THE LOGIC RACK.

INTERMITENT DISK ERRORS HAVE ALSO BEEN ATTRIBUTED TO THE SECTOR BEING SLIGHTLY TOO SHORT.EMULEX RECOMMEND INCREASING THE SECTOR SIZE FROM 593 TO 594 BYTES.ALL OTHER PARAMETERS REMAIN UNCHANGED.

CHANGE:

<u>SWITCH</u>	<u>POSITION</u>	<u>593 BYTES</u>	<u>594 BYTES</u>
2^1	1	OFF	OFF
	2	OFF	OFF
	3	OFF	OFF
	4	OFF	OFF
	5	OFF	OFF
	6	OFF	OFF
	7	ON	ON
	8	OFF	OFF
2^0	1	OFF	OFF
	2	ON	ON
	3	OFF	OFF
	4	ON	ON
	5	OFF	OFF
	6	OFF	OFF
	7	OFF	ON) REVERSE
	8	ON	OFF) THESE SWITCHES

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Diagnostic Information

NO: 5A

DEVICE: PDP 11/23,23+,73,24,34,44,84

PROBLEM DESCRIPTION:

11/24 SWL (SP) 173050G

TKSO HUCHENBERG

LIST OF PROCESSOR AND MEMORY DIAGNOSTICS

OUTSET
8 173204G

OPTION: BOOT MODS

10 Boot 84
Systems ← \$ 17772522 / 100001
without \$ — " —
MS Boot Room \$ 40G

ox not
11/73 MS: GOLDSMITHS
ZMSP??

Singer
Volvo Ipswich TAFE DRIVE
ZTMB?? BA-1; 11; BOAT

most SW's after new test ^c Boot MSQ:

CHANGE:

PROCESSOR	DIAGNOSTIC	MODULE TESTED	NOTES
11/23	JKDA??	MEMORY MANAGEMENT	
	JKDB??	CPU	
	JKDC??	FLOATING POINT/1	FAILS IF NOT INSTALLED
	JKDD??	FLOATING POINT/2	FAILS IF NOT INSTALLED
	ZQMC??	MEMORY	
11/23+	JKDH??	CIS	} ALL DIAGS. THE SAME AS 11/23 EXCEPT THESE
	VMSA??	MEMORY	
11/73	ZKDJ??	CPU	
	ZKDK??	MEMORY MANAGEMENT	
	ZKDL??	FLOATING POINT	
	ZKDM??	CACHE	
	VMJA??	MEMORY	
11/24	JKDA??	MEMORY MANAGEMENT	
	JKDP??	CPU	
	JKDC??	FLOATING POINT/1	FAILS IF NOT INSTALLED
	JKDD??	FLOATING POINT/2	FAILS IF NOT INSTALLED
	JKDH??	CIS	FAILS IF NOT INSTALLED
	KKUA??	UBI MAP	FAILS IF NOT INSTALLED
11/34	ZMSD??	MEMORY	
	FKAA??	INSTRUCTION TEST	
	FKAB??	TRAPS TEST	
	FKAC??	EIS TEST	
	FKTG??	MEMORY MANAGEMENT/1	
11/44	FKTH??	MEMORY MANAGEMENT/2	
	ZQMC??	MEMORY	
	KKAA??	CPU/EIS	NEEDS CIS OPTION
	KKAB??	TRAPS	
	KKTA??	MEMORY MANAGEMENT/1	FAILS IF NOT CORRECT REV
	KKTB??	MEMORY MANAGEMENT/2	
	KKUA??	UBI MAP	
	KFPA??	FLOATING POINT	FAILS IF NOT INSTALLED
KFPB??	FLOATING POINT	FAILS IF NOT INSTALLED	
11/84	KFPC??	FLOATING POINT	FAILS IF NOT CORRECT REV
	ZMSD??	MEMORY	
	OKDA??	CPU	SEE ENG.NOTE 11
11/84	OKTA??	MEMORY MANAGEMENT	
	VMJA??	MEMORY	

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Diagnostic Information

NO: 6A

DEVICE: EMULEX QD32 MSCP DISK CONTROLLER

PROBLEM DESCRIPTION:

- 1) PROCEDURE TO LOAD NOVRAM, FORMAT AND TEST DRIVES ON PDP USING EMULEX DIAGNOSTIC SXX8B.
- 2) PROCEDURE TO PATCH UEVM, LOAD NOVRAM, FORMAT AND TEST DRIVES ON MICROVAX II USING EMULEX DIAGNOSTIC FVD32M.

NOTE :- YOU MUST USE AN ANTI STATIC KIT WHEN REMOVING AND REPLACING MICRO VAX MODULES!! .

CHANGE:

PDP PROCESSOR | - TO LOAD THE NOVRAM, RUN EMULEX DIAGNOSTIC 'SXX8B' AND INPUT THE PARAMETERS FROM THE TABLE BELOW. FORMATTING AND TESTING CAN ALSO BE DONE WITH THIS PROGRAM.

MICROVAX II | - BOOT UEVM.
(THIS MUST BE PATCHED AS FOLLOWS WHEN USING MEDIA REV G)

```

PATCH | -      UEVM> DEBUG <CR>                ! ENTER DEBUG MODE
                DBG> DEF A=24EF1 <CR>           ! DEFINE CONSTANT A
                DBG> M/B A+4B6 <CR>             ! MODIFY BYTE
                A+4B6  14  ? 3F <CR>           ! DEPOSIT NEW VALUE
                DBG> M/B A+55A <CR>           ! MODIFY BYTE
                A+55A  12  ? 11 <CR>         ! DEPOSIT NEW VALUE
PATCH END | -  DBG> EXIT
    
```

```

                UEVM> LOAD FVD32M              ! LOAD DIAGNOSTIC
                UEVM> START                    ! RUN DIAGNOSTIC
    
```

THE CONTENTS OF THE NOVRAM CAN BE READ AND/OR MODIFIED, USING 'FVD32M'. INPUT THE PARAMETERS FROM THE TABLE BELOW. FORMATTING AND TESTING CAN ALSO BE DONE WITH THIS PROGRAM.

NOVRAM PARAMETERS (ALL VALUES IN DEC)

MAKE OF DRIVE TYPE MAPPED	FUJI. M2351	FUJI. M2361	FUJI. M2361	FUJI. M2333	FUJI. M2322
	NO	NO	YES	NO	NO
NO. OF DRIVES	1	1	1	1	1
HEADS	20	20	20	10	10
PHYS. CYLINDERS	842(840)	842(840)	842(840)	823(821)	823(821)
SPARE CYLINDERS	2	2	2	2	2
PHYS. SEC/TRACK	48(47)	68(67)	68(67)	68(67)	34(33)
SPARE SEC./TRACK	1	1	1	1	1
SPLIT CODE	0	0	2	0	0
REMOV. MED. FLAG	0	0	0	0	0
CONFIG. BITS	6	6	6	6	6
GAP0 PARAMETER	259	259	259	259	259
GAP1 PARAMETER	4112	4112	4112	4112	4112
GAP2 PARAMETER	268	268	268	268	268
SPIRAL OFFSET	0	1	1	1	1
NOVRAM CHECKSUM(HEX)	4E	37	B8	AE	A3

NOTE : USE VALUES IN BRACKETS FOR SXX8B + HARDWARE FORMATTING, (SEE TECHTIP ON QD32 HARDWARE PROGRAMMING).

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Diagnostic Information

NO: 6B

DEVICE: EMULEX QD32 MSCP DISK CONTROLLER

PROBLEM DESCRIPTION:

1) SECTOR SETTINGS FOR DRIVES. USE IN CONJUNCTION WITH TABLE.

CHANGE:

FUJITSU M2351A SECTOR SETTING (587 BYTES/SECTOR)

LOCATION	JUMPER
BC7	3-4, 5-6, 10-11, 12-13
BD7	3-4, 6-7, 9-10, 13-14
BE7	3-4, 5-6, 10-11, 13-14
BF7	3-4, 6-7, 10-11, 13-14
AE7*	3-4, 6-7, 10-11*

* THIS SELECTS SMD-0 INTERFACE

FUJITSU M2361A SECTOR SETTING (594 BYTES/SECTOR)

SWITCH	POSITION	SETTING	SWITCH	POSITION	SETTING
2^1	1	OFF	2^0	1	OFF
	2	OFF		2	ON
	3	OFF		3	OFF
	4	OFF		4	ON
	5	OFF		5	OFF
	6	OFF		6	OFF
	7	ON		7	ON
	8	OFF		8	OFF

FUJITSU M2333 SECTOR SETTING (594 BYTES/SECTOR)

SWITCH	POSITION	SETTING	SWITCH	POSITION	SETTING
2	1	OFF	3	1	OFF
	2	OFF		2	ON
	3	OFF		3	OFF
	4	ON		4	OFF
	5	OFF		5	OFF
	6	ON		6	OFF
	7	OFF		7	OFF

FUJITSU M2322 SECTOR SETTING (586 BYTES/SECTOR)

SWITCH	POSITION	SETTING	SWITCH	POSITION	SETTING
2	1	OFF	3	1	OFF
	2	ON		2	OFF
	3	OFF		3	ON
	4	ON		4	OFF
	5	OFF		5	OFF
	6	OFF		6	OFF
	7	ON		7	OFF

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Device Information

NO: 7

DEVICE: DEC DEUNA - Boards M7792 and M7793

INFO:

This device interfaces the DEC ETHERNET to a UNIBUS, and consists of two modules M7792 and M7793. The M7792 is known as the PORT MODULE and requires the NPG link removed, and the M7793 is known as the LINK MODULE and has the NPG link made on the board.

The standard CSR for the device is 774510 and is set as follows:-

Switch bank at E40 on M7792 = 2,3,5,7,8 = ON

The standard VECTOR is 120 and is set as follows:-

Switch bank at E62 on M7792 (Only switches 1 thru 7) = 1,2,4,6,7 = ON

Refer to the USER MANUAL if more than one DEUNA is installed for the CSR and VECTOR settings. Other options available are as follows:-

Switch pack E62 on M7792 poles 8 and 9 set up the autoboot facility and are only used if the DEUNA is installed in a machine working as a terminal server.

E62	Pole 8	Pole 9	
	On	On	- Remote boot disabled, always set like this in a VAX
	Off	On	- Remote boot with system load
	On	Off	- Remote boot with ROM
	Off	Off	- Remote boot with power up boot and system load

E62 Pole 10 if set OFF will cause DEUNA to execute continuous self test.

VAX diagnostics for testing the DEUNA are :-

- EVDWA - Level 3 (ie standalone DS) DEUNA Repair Level Diagnostic.
- EVDWB - Level 2R (ie under VMS only) VAX11 Functional Diagnostic.
This tests all facilities used by the DECNET Software
- EVDWC - Level 2R Network Exerciser - Tests data path between nodes.

To run any of these diagnostics the following attaches must be performed:-

```
DS> ATTACH DW750 HUB DW0 ! ATTACH UNIBUS, MAY BE DW730,DW750 OR DW780
DS> ATT UNA11 DW0 XEA0 774510 120 5 ! ATTACH DEUNA TO UNIBUS
DS> SEL XEA0 ! SELECT DEUNA FOR TESTING
```

Note:- The DEUNA is not picked up by the AUTOSIZER diagnostic so the manual attaches must be made.

EVDWA - Requires the DEUNA connected to a terminated ETHERNET cable, if no cable is available only tests 1-4 and 6-7 will run. All others will fail with a message " NO DNI AFTER UNIBUS INIT ". Remember this can only be run under standalone Diagnostic Supervisor.
(Located on TU58 No 38)

EVDWB - DEUNA must be connected to ETHERNET plus the following commands must also be entered:-
\$ SET DEF SYS\$SYSROOT:[SYSEXE]
\$ RUN AUTHORIZE
UAF> MODIFY FIELD/BYTLM=30000 ! Your username may not be FIELD
UAF> EXIT
\$ LO ! Continued on next sheet

FROM: TECH SUPPORT (M HODGE)

DATE: 23-SEP-1986

PAGE: 2 OF 3

Device Information

NO: 7

DEVICE: DEC DEUNA - M7792/M7793

(Continued from page 1)

INFO:

```

$ MC SYSGEN
SYSGEN> SET MAXBUF 1600
SYSGEN> WRITE ACTIVE
SYSGEN> EXIT
$
    
```

DEUNA (BASE ADDRESS)
 E106 34689 LHS
 ON
 E69 6,8 RHS
 OFF

Note:- Consult the system manager before performing both these operations as you may not have sufficient privilege. DECNET must not be running otherwise the diagnostic will not gain access to the DEUNA and will fail.

EVDWC - This is a network exerciser and can be used to check the data path between 2 or more nodes. By typing help at the NIE> prompt all the diagnostic facilities can be listed.

Example of pattern test run to one remote node :-

```

DS> ! PERFORM PREVIOUSLY MENTIONED ATTACHES
DS> RUN EVDWC
NIE> NODE 08-00-0E-25-60-C0      ! ENTER ETHERNET ADDRESS OF REMOTE
                                ! NODE TO BE TESTED.
NIE> RUN PATTERN/PASS=4         ! RUN 4 PASSES OF THE PATTERN TEST
                                ! ERRORS WILL BE REPORTED IF NO
                                ! RESPONSE IS DETECTED.
    
```

Note to run EVDWB & EVDWC , VMS must be running but DECNET MUST NOT BE RUNNING and must not have even been started else the DEUNA will have been put in a run state. Therefore VMS must be brought up without starting DECNET

DEUNA SELF TEST LED'S ON THE M7792 PORT MODULE :-

The LED'S are numbered D1 TO D7 and D1 is the LED nearest the Ribbon Cable connector.

D1 - Cable verify , this LED should always be on . If the LED is off it indicates a fault with either of the link cables between the two modules.

D2 thru D7 - should initially all flash on upon power up then they should cycle thru an incrementing binary count as the self tests complete and finally end up all being on . If a failiure occurs then the LED'S will halt on the failing test number.

To evaluate the test number from the LED'S :-

Interpret a LED on equal to a 1 and then generate an octal number ie.

D7	D6	D5		D4	D3	D2		D1 >	Link cable verify
ON	OFF	ON		OFF	ON	ON	=	53	in octal
OFF	OFF	OFF		ON	ON	ON	=	07	" "

If all LED'S come on and remain on at power up the self tests never started ,the fault could be either module.

Tests 1 thru 13 are M7792 failiures (Test 6 could also be a unibus problem)

Tests 40 thru 72 are M7793 failiures (Test 72 could be an H4000 problem)

All other tests except 77 could be either module.

Test 77 ie all LED'S on means successful self test completion.

FROM: TECH SUPPORT (M HODGE.)

DATE: 9-SEP-1986

PAGE: 3 OF 3

Device Information

NO: 7

DEVICE: DEC DEUNA - M7792/M7793 (Continued from page 2)

INFO:

Self test LED'S continued :-

If test 72 (External loopback test) fails ie D3,D5,D6,D7 = On , this may mean that the DEUNA is not connected to the ETHERNET , or there is a fault with the H4000 or DELNI .

When the DEUNA is put into a run state by starting up DECNET LED D7 will flash at the rate of about once a second.

To cause the DEUNA to initiate its self test the machine power can be cycled on and off or 3 can be deposited into the DEUNA register PCSR0 ie:-

>>> D/W/P FFF948 3 ! This will work on a 730 or 750 with DEUNA set at
! the standard address.

To conclude SELF TEST LED'S :-

Correct sequence is :

1. Power on - all LED'S flash on. D1 stays on but all the rest increment until they are all on.
2. Decnet starts - this causes DEUNA to re-execute self test and puts DEUNA into run state with D7 flashing.

FROM: TECH SUPPORT (M HODGE.)

DATE: 28-NOV-86

PAGE: 1 OF 2

Device Informaton

NO: 8

DEVICE: CIPHER GCR TAPE DECK (M990)

INFO:

TO CHECK FIRMWARE REVISION

 EXECUTE TEST 125. ENTER: 45 125 5
 DISPLAY SHOULD SHOW : 762675-005

RECALIBRATION ROUTINE

 ONLY PERFORM THIS WITH A GOOD QUALITY TAPE AND VERY CLEAN HEADS.

- 1) POWER UP DRIVE
 EXECUTE TEST 542 ENTER: 45 542 5
 DRIVE DISPLAYS "PASS WD" ENTER: 54524
 " " "MODE" ENTER: 1
 " " "INTERNAL" ENTER: 5 *DRIVE NOW IN INTERNAL MODE
- 2) EXECUTE TEST 525 ENTER: 45 525 5
 DRIVE DISPLAYS "INITIALIZE NOVAM TO" ENTER: 2
 " " "INTERNAL" ENTER: 5
- 3) LOAD TAPE AND EXECUTE TEST 513 ENTER: 45 513 5
 WRITE ENABLE FLASHES WHILE TEST IS EXECUTING. ON COMPLETION DRIVE
 DISPLAYS EITHER "PASS" OR "FAIL" ENTER: 4 TO EXIT
- 4) SELECT 6250 BPI
 EXECUTE TEST 223 ENTER: 45 223 5
 DRIVE DISPLAYS "WRITING"
 AFTER ABOUT 15 SECONDS ENTER: 1
 DRIVE DISPLAYS "READ REV"
 WHEN TAPE REACHES BOT IT REVERSES
 DRIVE DISPLAYS "READ FWD"
 AFTER ABOUT 10 SECONDS ENTER: 4
 DRIVE WILL REWIND AND DISPLAY "STATUS" ENTER: 4
 DRIVE DISPLAYS NO. OF 6250 BPI ERRORS - ENSURE THIS IS NOT EXCESSIVE
 ENTER: 5 TO EXIT TEST
- 5) EXECUTE TEST 542 ENTER: 45 542 5
 DRIVE DISPLAYS "SET FIELD MODE?YES NO" ENTER: 1
 " " "YES" ENTER: 5
- 6) THE NOVAM PARAMETERS MUST NOW BE SET.

ROUTINE TO SET SERVO OFFSET

 DRIVE MUST BE IN SERVICE POSITION WITH NO TAPE LOADED.
 ATTACH DVM TO TEST POINTS 7 AND 10 (FOR SUPPLY MOTOR) ON SERVO BOARD
 ATTACH DVM TO TEST POINTS 8 AND 11 (FOR TAKE UP MOTOR) ON SERVO BOARD
 READING SHOULD BE 0.0 + OR - 0.035 VOLTS

IF ADJUSTMENT IS REQUIRED PROCEED AS FOLLOWS

- 1) EXECUTE TEST 515 ENTER: 45 515 5
- 2) DRIVE DISPLAYS "PASSWD" ENTER: 54524
 DRIVE DISPLAYS "SDAC +000"
- 3) PRESS LOAD SWITCH TO INCREASE VOLTAGE
 PRESS UNLOAD SWITCH TO DECREASE VOLTAGE
- 4) PRESS WRITE ENABLE/TEST TO ENABLE TAKE UP MOTOR
 DRIVE DISPLAYS "TDAC +000"
 ADJUST AS BEFORE
- 5) PRESS WRITE ENABLE/TEST AGAIN TO EXIT
- 6) SWITCH DRIVE OFF FOR 10 MINS. AT LEAST TO SAVE VALUES.

FROM: TECH SUPPORT (S GROVE.)

DATE: 28-NOV-86

PAGE: 2 OF 2

Device information

NO: 8

DEVICE: CIPHER GCR TAPE DECK (M990)

INFO:

ROUTINE TO SET UP PARAMETERS IN NOV RAM

1) EXECUTE TEST 142 (OR 242 WITH TAPE LOADED) ENTER: 45 142 5

PARAMETERS	DESCRIPTION	USUAL VALUE
1	DELETED	
2	HOST SUPPLIED PARITY	NO
3	ECHO READ STROBES ON WRITES	YES
4	EOT MODE	NORMAL
5	FWD HITCH ENABLE	YES
6	ECHO 3200 BPI ID BURST	NO
7	DELETED	
8	ABORT ACTIVE WRITES ON OVERWRITES	YES
9	INTERFACE TRANSFER RATE (SEE NOTE 1)	INTERFACE DEPENDENT
10	DEFAULT DENSITY ONPWR UP	6250
11	MAXIMUM BLOCK SIZE	16K
12	INTERFACE RAMP DELAY	0
13	FLE MARK WRITE SYNC	WRT SYNC ON DOUBLE FILE MARK
14	READ ERROR RETRYS	3
15	WRITE ERROR RETRYS	15
16	READ ERROR CORRECTION ON	YES
17	UNIT NUMBER	0
18	LOCK OUT 3200 BPI WRITES	NO
19	REMOTE DENSITY SELECT ENABLE	NO
20	CORRECTED ERRORS REPORTED	NO
21	ALLOW SINGLE WRITE ERRORS	NO
22	GCR WRITE CURRENT --	
23	PE 1600 WRITE CURRENT	
24	PE 3200 WRITE CURRENT	
25	GCR RAW THRESHOLD	-- * SEE NOTE
26	PE 1600 RAW THRESHOLD	
27	PE 3200 RAW THRESHOLD --	
28	3200/6250 BPI SELECTED AS 6250	NO
29	DISPLAY FT. FROM EOT	YES

* THESE PARAMETERS SHOULD NOT BE CHANGED MANUALLY UNLESS ABSOLUTELY NECESSARY. IF PROBLEM OCCURS RESET TO DEFAULT VALUES (TEST 525).

NOTE 1 : SET TRANSFER RATES AS FOLLOWS :-

TC02/TC12/DU130/DU132/DQ130/DQ132 = 158.2 KBS
 TC03/TC13 = 316.5 KBS
 DU142/DQ142/TC7000 = 632.8 KBS

- 2) PRESS LOAD TO DISPLAY NEXT PARAMETER.
PRESS UNLOAD TO DISPLAY PREVIOUS PARAMETER.
- 3) PRESS DENSITY SELECT TO ENTER EDIT MODE TO CHANGE VALUES.
- 4) PRESS WRITE ENABLE AND DENSITY SELECT TOGETHER TO SAVE ALL VALUES AND EXIT.
PRESS WRITE ENABLE TO EXIT WITHOUT CHANGING VALUES.

FROM: TECH SUPPORT (S GROVE.)

DATE: 1-DEC-86

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Firmware Update

NO: 9

DEVICE: CIPHER GCR TAPE DECK (M990)

INFO:

FIRMWARE UPDATE AND CHANGES

NEW FIRMWARE NO.	PROM LOCATION
962666-005	U20K
962669-005	U22K
962672-005	U23K
962675-005	U25K

TO CHECK FIRMWARE REVISION EXECUTE TEST 125 ie 45 125 5.DISPLAY SHOULD SHOW " 962675-005 " .

** THE FIRMWARE SHOULD NOT BE UPGRADED UNLESS THERE IS A PROBLEM.

SERVICE AID CHANGES IN NEW FIRMWARE

- 1) TEST 143 IS NOW INCORPORATED IN THE P.U.S.T.
- 2) TEST 123 IS NOW PART OF TEST 131.
- 3) TEST 211 HAS BEEN DELETED.
- 4) TEST 241 HES BEEN DELETED.
- 5) TEST 124/224 NOW DISPLAYS THE COMPLIANCE ARM VOLTAGE (+/- 20%) ONLY.

NOVRAM CHANGES IN NEW FIRMWARE

- 1) PARAMETER 13 HAS BEEN MODIFIED.THE OPTIONS ARE:
 - A)WRITE SYNC ON DOUBLE FILE MARK.(THE ONLY OPTION INPREVIOUS REVS.)
 - B)WRITE SYNC ON SINGLE FILE MARK.
 - C)WRITE SYNC AFTER EACH WRITE CMD.
 - D)NO AUTO. WRITE SYNC.
- 2) PARAMETER 28 HAS BEEN MODIFIED TO ELIMINATE INTERMITTENT SPEED ERRORS.

OTHER CHANGES IN NEW FRMWARE

- 1) READ REVERSE IMPROVED TO READ SMALL RECORDS WITH GREATER RELIABILITY.
- 2) A FILE SEARCH BEYOND EOT DID NOT OUTPUT EOT STATUS.THIS HAS BEEN CORRECTED.
- 3) THE READING OF DATA WHILE PERFORMING A FILE SEARCH CAUSED 'IFEN' TO BE MISSED.THIS HAS BEEN CORRECTED.
- 4) A MEDIUM ERROR WOULD NOT CLEAR BY PERFORMING A REWIND FROM THE FRONT PANEL.THIS HAS BEEN CORRECTED.
- 5) 'IDBY' WAS ASSERTED WHILE 'ILD' (BOT) WAS STILL ASSERTED.THIS OVERLAP HAS BEEN ELIMINATED.
- 6) COMPLETION OF A SECURITY ERASE CAUSED AN OVERLAP OF 'IEOT' AND 'ILD' (BOT) CAUSING ERRONEOUS ERRORS SUCH AS BROKEN TAPE.

NOTE: IF OLD FIRMWARE IS REV.-003 OR BELOW AND THE CONTROLLER IS EITHER A TC13 OR TC03 THEN THE FIRMWARE IN THE CONTROLLER MUST BE REV.F OR REV.B RESPECTIVLY (SEE TC13/TC03 TECH TIP).IF IT IS NOT THEN THE CONTROLLER MUST BE SET TO STREAMING MODE UNTIL THE FIRMWARE CAN BE UPGRADED.

FROM: TECH SUPPORT (S GROVE.)

DATE: 6-JAN-87

PAGE: 1 OF 1

Firmware Update

NO: 9A

DEVICE: Cipher M990 GCR Tape Deck

PROBLEM DESCRIPTION:

Rev 5 firmware: If data is read that cannot be corrected by read retries or error correction, the firmware does not report the error to the interface. This problem only exists on the Data Read and not on the Read-after-Write checking. There is no possible way to have written bad data on any tape with this firmware. All other functions of this firmware are correct.

CHANGE:

New Eprom Part Number

PWB CPU/MMU Location

962666-006

U20K

962669-006

U22K

962672-006

U23K

962675-006

U25K

Modifications to the GCR Firmware's Read Data routine have been made to correct a potential problem to some users. All other routines and parameters remain the same.

Do not forget to check the Set Up Parameters before using the drive.

DATE: 1-DEC-86

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Firmware Update

NO: 10

DEVICE: CIPHER CACHE TAPE DECK (M890/891)

INFO:

DEVICE	PCB NO.	NEW FIRMWARE	LOCATION
M890-I	PWB 961019-003	962610-007	U3L
	or PWB 962235-001	962610-008	U5L
M890-II	PWB 961018-004	962602-007	U3L
	or PWB 962234-001	962602-008	U5L
M891-I	PWB 961020-003	962622-007	U3L
	or PWB 962233-001	962622-008	U5L
M891-II	PWB 961017-004	962618-007	U3L
	or PWB 962236-001	962618-008	U5L

** THE FIRMWARE SHOULD NOT BE UPGRADED UNLESS THERE IS A PROBLEM.

NEW POWER BOARDS

 NEW POWER BOARDS HAVE BEEN INTRODUCED (NO. PWB 9622??-001) ON ALL MODELS OF CACHE TAPES. THE NEW BOARD DOES NOT HAVE THE 5V ADJUSTMENT AND POLE 6 OF SWITCH U5W IS NOW USED:

U5W POS. 6

OFF

IRWD, IONL, ISPEED, FPT ARE ASSERTED ON THE INTERFACE ANYTIME THE UNIT IS ADDRESSED. (AS ON OLD BOARD)

ON

IRWD, IONL, ISPEED, FPT ARE NOT ASSERTED ON THE INTERFACE UNLESS THE UNIT IS ONLINE AND ADDRESSED.

CHANGES IN FIRMWARE

-
- 1) BLANK TAPE HANDLING HAS BEEN IMPROVED.
 - 2) ERROR CODE "20" OCCURRED WHEN WRITING 32K RECORDS AT 3200bpi. THIS HAS BEEN CORRECTED.
 - 3) ERROR CODE "18" OCCURRED DURING LOADING OF NON-PHASED ENCODED TAPE OR AN IMPROPERLY DEGAUSSED TAPE. THIS HAS BEEN CORRECTED.
 - 4) ERROR CODE "17" OCCURRED AT BOT DURING REW. CAUSED BY SERVO MOTORS RAMPING AT DEFFERENT RATES. THIS HAS BEEN CORRECETD.

NOTE: SOME PROBLEMS HAVE BEEN ENCOUNTERED WITH THIS FIRMWARE ie

a) DRIVE INTERMITTENTLY FAILING P.U.S.T.

b) INTERMITTENT LOADING PROBLEMS.

THESE PROBLEMS HAVE NOT BEEN DEFINITELY PROVED TO BE CAUSED BY THIS FIRMWARE SO BEWARE!!

FROM: TECH SUPPORT (S GROVE.)

DATE: 11-JAN-88

PAGE: 1 OF 1

Firmware Update

NO: 10A

DEVICE: Cipher Cache Tape (M891)

PROBLEM DESCRIPTION:

Some of the later revs of firmware have displayed intermittent problems. A list of firmware and problems is given below. The recommended rev is:- 962120-001, 962120-002. The firmware should not be changed if the tape drive is working correctly.

CHANGE:

Firmware	Problem	Comments
* 962120-001 * 962120-002	Intermittent pawl unlock failure.	Ok on all drives and controllers
962618-001 962618-002	Does not work with DILOG DU130 controller.	Ok on all drive revs
962618-005 962618-006	Various servo faults, does not work on DU130.	Very bad
962618-007 962618-008	Servo faults, error code 10 on PUST, fails on DU130.	Not very good
962618-11 962618-12	Servo faults, device hung error on TC13, does not work on DU130.	Not very good either

FROM: Tech Support (S Grove)

DATE: 1-DEC-86

PAGE: 1 OF 1

NO: 11

DEVICE: 11/84/83 PROCESSOR (DCJ11)

PROBLEM DESCRIPTION:

- 1) FAILIURE OF DIAGNOSTIC "OKDA??" ON SOME DCJ11 PROCESSOR CHIPS.
- 2) FAILIURE OF DIAGNOSTIC "OKDA??" ON NEW REV. OF DCJ11 PROCESSOR CHIPS.
- 3) PROBLEM WITH DCJ11 AND FLOATING POINT ACCELERATOR CHIP (FPJ11)

CHANGE:

- 1) FAILIURE OF "OKDA??" ON SOME 1184/83 SYSTEMS.

THE ERROR IS:

FIRST CHARACTER WAS NOT OVERRUN BY SECOND			
TEST	ERROR	EXPECTED	RECEIVED
£	PC	DATA	DATA
000053	122526	140177	140021

THE LED PART OF THE TEST PASSES WITHOUT ERROR.

** THERE IS NO CORRECTION FOR THIS ERROR.

- 2) FAILIURE OF "OKDA??" ON REV.09 OF DCJ11 PROCESSOR CHIP IN 11/84/83.

THE ERROR IS:

BASIC INSTUCTION SET ERROR	
TEST	ERROR
£	PC
000001	026220

AS YET THERE IS NO CORRECTION FOR THIS.

- 3) AT THE MOMENT THE DCJ11 PROCESSOR CHIP WILL NOT SUPPORT THE FPJ11 FLOATING POINT ACCELERATOR. IF THIS CHIP IS INSTALLED ODD ERRORS CAN OCCUR WHEN RUNNING RSTS BELOW V9.1. RSTS V9.1 HAS TWO ERROR MESSAGES THAT WILL BE PRINTED WHEN THE FPJ11 IS DETECTED.

THE FIRST IS:

"The floating point exception ECO is missing from the FPJ11."

THE SECOND IS:

"This DCJ11 cannot be used in conjunction with an FPJ11 accelerator."

- * THESE ERRORS WILL ONLY APPEAR ON PDP 11/73, PDP 11/83, PDP 11/84 SYSTEMS WITH FPJ11 CHIP INSTALLED.
- THE SHORT TERM SOLUTION IS TO REMOVE THE FPJ11 CHIP UNTIL THE NEW DCJ11 CHIPS ARE AVAILABLE. FULL FLOATING POINT FUNCTIONALITY WILL REMAIN BECAUSE THE FLOATING POINT INSTUCTION SET IS IMPLEMENTED IN THE DCJ11.

*** DO NOT FORGET TO USE ANTI-STATIC KIT WHEN HANDLING THESE BOARDS ***

DATE: 28-NOV-1986

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Rank Xerox Configuration NO: 12

DEVICE: DILOG 202A Disk Controller - Formatting Instructions + Rsx Rebuilding

INFO:

To configure a drive for use on a Dilog DU202A disk controller the Dilog Diagnostic DP12D must be used , this is on all diagnostic tapes. This emulates an RP03 controller and has a CSR of 776714 and VECTOR of 254 . The Diagnostic requests format parameters and writes these onto the disk , so if the drive has already been formatted using DP12D then the diagnostic will read the format parameters off the disk .

To format an 80MB drive as 2 RP03's proceed as follows :-

Note :- The drive to be formatted must be set to unit zero !!

. R DP12D??

DILOG UNIVERSAL FIRMWARE AND DIAGNOSTIC PROGRAM

ARE YOU RUNNING THE DIAGNOSTIC VIA A C.R.T (Y OR N) ? N

IF YOUR DRIVE HAS BEEN FORMATTED USING A DILOG RP02/RP03

EMULATING DISK CONTROLLER AND YOU WOULD LIKE TO KNOW YOUR DRIVES

FORMAT PARAMETERS TYPE (Y) ? Y

! Note: If the drive has not previously been formatted then enter N to the previous question and then enter the following parameters :-

```
! PARTITIONING           = VERTICAL
! SECTORS                 = 32
! HEADS                   = 5
! ALTERNATES              = 5
! SIZE OF LOGICAL UNIT    = 65440
! NUMBER OF LOGICAL UNITS = 2
```

! The controller leaves spare or alternate tracks free , which are used ! when bad blocks are detected on the disk.

FORMAT ALTERNATE CYLINDERS ? Y

ARE YOU SURE ? Y

WRITING HEADERS.....

FORMAT DP0 (Y OR N) ? Y

ARE YOU SURE ? Y

WRITING HEADERS.....

! Record any errors that occur during format.

DP0 FORMAT AND VERIFICATION COMPLETE

FORMAT DP1 (Y OR N) ? Y

ARE YOU SURE ? Y

WRITING HEADERS.....

! Record any errors that occur during format.

! Note the drive has now been formatted Ok all the following tests will ! perform additional tests and allow for reassigning bad tracks

SEQUENTIAL READ (ALL CYL AND HEADS) ? Y ! This will read the whole disk

READ DP0 (Y OR N) ? N ! Allows reading of first logical disk

READ DP1 (Y OR N) ? N ! Allows reading of second logical disk

RANDOM SEEK, READ OF DRIVE (ALL CYLS'S AND HEADS) ? N

! Non destructive random read test of the whole disk

! Type <space> to exit this test.

RANDOM SEEK, WRITE DATA, READ DATA, COMPARE TEST ? N

! This allows random read/writes on one logical unit - to exit this test

! type <space> .

ASSIGN ALTERNATE TRACK FOR DEFECTIVE TRACK (Y OR N) ? Y

! This allows a defective track to be reassigned to one of the free tracks.

CYLINDER ADDRESS (0 TO 822) ? 764

! Enter cylinder of defective track

HEAD ADDRESS (0 TO 4) ? 0

! Enter head number

MAP OUT CYLINDER 764 HEAD 0

ARE YOU SURE ? Y

ALTERNATE ASSIGNED

USE (R) TO REPEAT TEST

! This reruns the diagnostic

USE (O) TO TRANSFER TO ODT

! This transfers to a special Dilog Odt

USE (L) TO REBOOT YOUR SYSTEM

! Do not use this option

FROM: TECH SUPPORT (M HODGE)

DATE: 28-NOV-1986

PAGE: 2 OF 2

Rank Xerox Configuration

NO: 12

DEVICE: Dilog DU202A Disk Controller - Formatting Instructions + Rsx rebuilding

INFO:

When performing a system restore from a standalone BRU tape on RSX to a disk that has a non standard size , the system must firstly be restored to another target disk . This disk must be booted and online BRU used to restore the actual system disk , because standalone BRU will not be patched for the non standard size and will leave the disk in a state that causes RSX to think the drive is larger than it really is .If no scratch disk is available then you will have to backup a disk using standalone BRU and then restore it after the system has been restored .

To rebuild RSX on a drive on a DU202A controller with a non standard drive size proceed as follows :-

1. Boot the standalone BRU tape

Enter first device : DP0:/CSR=776714/VEC=254 ! Select drive as req

Enter second device : MT0:/CSR=772522/VEC=224

HIT RETURN AND TYPE TIM....

! If you need to save a disk then :-

> RUN BRU

BRU>/REW/VER

From: DP0:

To: MT0:

Starting tape 1 on MT0

! To restore a tape then continue :-

>RUN BRU

BRU>/REW/VER

From: MT0:

To : DP0:

Initialize output disk <Y/N> ? Y

Starting tape 1 on MT0.....

2. When restore completes , boot DP0

Type ctrl ^Z at ENTER DATE AND TIME

! Now restore tape back to original system disk using online BRU

>INS \$BRU

>BRU

BRU>/REW/VER

From: MT0:

To: DP0:

Initialize output disk <Y/N> ? Y

Starting tape 1 on MT0.....

3. Reboot on the actual system and restore any other disks as required. Once a system can be booted then all further restores continue Ok as online BRU knows that the drive is a non standard size.

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Firmware information

NO: 13

DEVICE: Emulex CS21/F - Firmware Rev Level + Bugs (DMF32 Emulating Module)

INFO:

The Emulex CS21/F is a 16 line unibus terminal interface which emulates two DEC DMF32 8 line interfaces.

The CS21/F Firmware = 848X - 853X = where X is the Rev level .
The current rev level of the firmware is 'F' .

Problems corrected by rev 'F' firmware :-

1. Under VMS version 4.0 and above the CS21/F controllers may show signs of line errors , device timeouts or random line hangs due to improper handling of XON/XOFF flow control . DEC included a flow control option in VMS version 4.0 and above that emulex had not included in their firmware , so this problem normally occurs when a customer upgrades from Version 3 to Version 4 .

Note :- After installing the rev 'F' firmware SW2-7 must be closed or the CS21/F will not work correctly . This switch increases the Micro program ROM size .

FROM: TECH SUPPORT (M HODGE.)

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Firmware Information

NO: 14

DEVICE: Emulex CS11/F - Firmware Rev Level + Bugs (DMF32 Emulating Module)

INFO:

The Emulex CS11/F is unibus terminal interface which emulates up to six DEC DMF32 8 line interfaces , giving a possible total of 48 lines.

The CS11/F Firmware = 736X - 747X = where X is the Rev level .
The current rev level of the firmware is 'G' .

Problems corrected by rev 'G' firmware :-

1. Under VMS version 4.0 and above the CS11/F controllers may show signs of line errors , device timeouts or random line hangs due to improper handling of XON/XOFF flow control . DEC included a flow control option in VMS version 4.0 and above that emulex had not included in their firmware , so this problem normally occurs when a customer upgrades from Version 3 to Version 4 .

FROM: TECH SUPPORT (M HODGE.)

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Device Information

NO: 15

DEVICE: SMV15 disk controller formatting procedure.

INFO:

The SMV15 disk controller is a unibus device which can control up to two drives under the VMS operating system . The size of the drives connected to it are not hardware selectable but are defined in the VMS device driver. The only switches on the board define its CSR and VECTOR . The normal state of the switches is as follows :-

Switch pack at B2 = All in the off position = 766000 Device CSR
 Switch pack at K1 = 6 , 7 off - the rest on = 174 Device VEC

Before the formatter can be run a link must be made on the controller :-

```

  o   o   o       o
  |       |
  -----
  
```

Link between these two pins on the edge of the controller.

The Formatting program (SMVFMT) runs in standalone mode , to start it boot the TU58 labelled SMVFMT :-

>>>B DDA0

%%

BOOT58>B

! Type 'B' at Boot58 prompt to load
 ! default command file.

LOAD CMM.EXE/START:0

! Command executed by command file.

LOAD SMVFMT.EXE/START:0

! Command executed by command file.

CMM INITIALIZING.....

>

! SMVFMT is now running.

! A device type must now be entered , the commonest types are listed below:

Device	Type Code
160MB MMD(9730),2284,2322	MMM160
80MB MMD	MMM80
80MB Removable	SM80
300MB Removable	SM300

Proceed as follows

>TYPE/177777 MMM160

>DRIVE/000000 0 ! Unit Number of drive , can be only 0 or 1 .

A test is performed by typing the test number followed by <ESC>.

Tests are as follows :-

- 1 Thru 4 = Controller tests - drive must not be write protected
All these tests should be run before formatting.
- 10 = Formatter
- 12 = Bad block checker - requires operator intervention as each
flaw is detected.(not recommended for use)

A normal test sequence is as follows :-

>1<ESC>

>2<ESC>

>3<ESC>

>4<ESC>

>10<ESC>

! This will obviously take several minutes .

>

! Formatting complete.

FROM: TECH SUPPORT (M HODGE.)

DATE: 2-DEC-1986

PAGE: 1 OF 1

NO: 16

DEVICE: Problems running TC03 with latest rev's of Cipher Firmware 890/990

PROBLEM DESCRIPTION:

When running a TC03 with the latest rev's of Cipher firmware the first block of the tape is intermittently corrupted .This shows up particularly under VMS when initializing and mounting tapes . After initializing the tape the mount command cannot read the tape label . This fault shows up on both the cache tapes and the GCR deck .Under RSTS this fault shows up as being unable to read a save copy label.

CHANGE:

The TC03 firmware = A80X - A85X - Where X is the firmware Rev .

This problem has been corrected in REV 'B' firmware , but a temporary fix is to set the TC03 into streaming mode ie. open SW1-4 . This switch change does not seem to impair the operation of the tape deck's.

The Cipher firmware that fails :-

M990 firmware Rev 4 and above .

ie Firmware marked XXXXXX-004A and above where XXXXXX is the actual ROM number.

M89X Firmware marked XXXXXX-005 and XXXXXX-006 and above.

Note: The 89X series firmware consists of 2 roms each marked with an incrementing Rev number , therefore the following rev to the one shown above would be XXXXXX-007 and XXXXXX-008.

Note : Rev 'B' is the current TC03 firmware

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NO: 17

DEVICE: Problems with TC13 when using latest rev Cipher firmware in M89X/M990

PROBLEM DESCRIPTION:

When running a TC13 with the latest rev's of Cipher firmware the first block of the tape is intermittently corrupted .This shows up particularly under VMS when initializing and mounting tapes . After initializing the tape the mount command cannot read the tape label . This fault shows up on both the cache tapes and the GCR deck .Under RSTS this fault shows up as SAV/RES being unable to read a save copy label.

CHANGE:

The TC13 firmware = A00X-A05X where X is the firmware rev level.

This problem has been corrected in REV 'F' firmware , but a temporary fix is to set the TC13 into streaming mode ie. open SW1-4 . This switch change does not seem to impair the operation of the tape deck's.

The Cipher firmware that fails :-

M990 firmware Rev 4 and above .

ie Firmware marked XXXXXX-004A and above where XXXXXX is the actual ROM number.

M89X Firmware marked XXXXXX-005 and XXXXXX-006 and above.

Note: The 89X series firmware consists of 2 roms each marked with an incrementing Rev number , therefore the following rev to the one shown above would be XXXXXX-007 and XXXXXX-008.

Note :- Rev 'F' is the current TC13 Firmware

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DEVICE: Problems with TC13 firmware.

PROBLEM DESCRIPTION:

This is a summary of failiures in old sets of TC13 firmware, if any of these faults are evident then upgrade the board to the latest rev level.

CHANGE:

The TC13 firmware = A00X - A05X wher X is the firmware rev level .

Failiures caused by old TC13 firmware : -

1. Read reverse problem on CDC tape transports.
2. Data late errors on CDC 92185 tape transports.
3. VMS data overrun errors.
4. Rewind status errors on Telex drives, intermittent controller hangs when attempting to dismount tape when the tape is at BOT.

For any or all of the above errors occurring on a TC13 upgrade the module to Rev 'F' firmware . (See accompanying techtip on implications of 'F' firmware on latest rev cipher firmware)

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DEVICE: DEQNA (M7504)

PROBLEM DESCRIPTION:

- 1) UNDETECTED DATA CORRUPTION CAN OCCUR AND/OR A DEVICE "LOCK-UP" CAN BE SEEN WHEN THE DEQNA IS BUSY WITH A TRANSMIT PRE-FILL OPERATION AND A RECEIVE MESSAGE COMES IN. THE DEQNA WILL APPEAR TO BE HUNG AND REQUIRES A DEVICE OR SYSTEM RESET TO CLEAR THE "LOCK-UP".

QUICK CHECK:

- 1) THE PRESENCE OF CHIP 23-087K4-00 IN LOCATION E11.

CHANGE:

- 1) ANY MICRO-PDP11 OR MICRO-VAX LSI-BUS SYSTEM WHICH IS ATTACHED TO ETHERNET USING THE DEQNA AT REV. "D" OR EARLIER THAT DISPLAY THIS PROBLEM WILL NEED THIS CHANGE. REPLACE THE M7504 (DEQNA) MODULES BELOW REV "E1/E2" WITH NEW BOARD.
- 2) THERE ARE ALSO SOFTWARE CHANGES TO THE DEQNA DEVICE DRIVER. THESE ARE NOT LISTED HERE BUT BELOW IS A LIST OF SOFTWARE PACKAGE VERSIONS WHICH HAVE THE CHANGES IMPLEMENTED.

SOFTWARE	VERSION
MICROVMS	V4.4
ULTRIX-32M	V1.2
ULTRIX-11	V3.0
VAXELN	V2.1
RT-11	V5.3
MICROPOWER/PASCAL	V2.1
DECNET-MICRO/RSX	V4.2B
DECNET-11M,M	V4.2B
DECNET-11M,M-PLUS	V3.0B
DECNET-11S,S	V4.2B

THE NEW MODULES WILL WORK WITH THE UNCHANGED SOFTWARE, AND THE CHANGED SOFTWARE WILL WORK WITH THE OLD MODULES. IN BOTH CASES NO NEW PROBLEMS ARE INTRODUCED.

THE TOTAL SOLUTION IS TO IMPLEMENT BOTH HARDWARE AND SOFTWARE CHANGES.

NOTE: ALL MODULES (M7504) RELEASED SINCE JULY 1986 INCLUDE THIS UPDATE.

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NO: 20

DEVICE: TU80 (UNIBUS ADAPTER M7454)

PROBLEM DESCRIPTION:

- 1) TU80'S WILL NOT WRITE ON 11/84 SYSTEMS EQUIPPED WITH A UBA (M8191) REV. ETCH "E" CS REV."B".THE FAILIURES ARE WRITE ERRORS WHEN RUNNING DECX,RSTS AND RSX.

QUICK CHECK:

- M7454(DEC)-PRESENCE OF ECO WIRE FROM CHIP E74 PIN 5 TO E74 PIN 3.
 20M7454(DIALOG)-PRESENCE OF ECO WIRE FROM CHIP E7 PIN 5 TO E7 PIN 3.

CHANGE:

- 1) REMOVE THE M7454 OR 20M7454 FROM CPU BACKPLANE.
- 2) IF THE MODULE IS DILOG BUILT,20M7454 (I/O CONNECTORS J1 AND J2 ARE MOUNTED FLUSH WITH EDGE OF PCB) PROCEED TO STEP 7.

M7454:

- 3) CUT ETCH ON SIDE TWO OF THE MODULE BETWEEN CHIP E57 PIN 5 AND THE FEEDTHROUGH.
- 4) ADD WIRE FROM CHIP E74 PIN 5 CONNECTING TO CHIP E74 PIN 3.
- 5) ADD WIRE FROM CHIP E69 PIN 8 CONNECTING TO CHIP E74 PIN 2.
- 6) ADD WIRE FROM CHIP E74 PIN 1 CONNECTING TO CHIP E57 PIN 5.

20M7454:

- 7) CUT ETCH ON SIDE ONE OF THE MODULE AT CHIP D10 PIN 5.
- 8) ADD WIRE FROM CHIP E7 PIN 5 CONNECTING TO CHIP E7 PIN 3.
- 9) ADD WIRE FROM CHIP E7 PIN 2 CONNECTING TO CHIP D8 PIN 8.
- 10) ADD WIRE FROM CHIP E7 PIN 1 CONNECTING TO CHIP D10 PIN 5.
- 11) UPDATE REVISION MARKING ON THE MODULE ACCORDING TO THIS TABLE:

PART NO.	MFG.	FCO NO.	OLD REV.	NEW REV.
20M7454	DILOG	TU80-R0008	K	L
		TU80-S0010	L	M
		TU80-R-011	M	N
M7454	DEC	TU80-R0008	A1	B1
		TU80-S0010	B1	C1
		TU80-R-011	C1	D1

- 12) REINSTALL THE MODULE INTO THE BACKPLANE.
- 13) RETURN POWER.
- 14) MOUNT SCRATCH TAPE ON DRIVE AND TEST.

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NO: 21

DEVICE: TU81 TAPE DRIVE

PROBLEM DESCRIPTION:

1) Parity errors (ARA burst failiures) when initializing tapes in GCR mode.

QUICK CHECK: Rom part no. 77028450 in location D-3 on the Read Formatter.

2) Error code 72 displayed when running the operator test "01" with non write protected tape.

QUICK CHECK: Perform operator test "01" with tape without write ring.

CHANGE:

** REMEMBER TO WEAR A STATIC PROTECTIVE WRIST STRAP

1)--

- A) Remove power from the drive.
- B) Open the front door of the TU81. Release the tape pawl fastener. Release the tape deck latch and rotate the tape deck into the service position.
- C) Loosen the top and bottom logic cage lockscrews and slide the cage out until the top and bottom guards engage.
- D) Remove the ROM at location D3 on the formatter read module and replace it with ROM P/N 77028450.
- E) Re-label the formatter read module vendor part number from P/N 77041188 to 77028131.
- F) Reassemble the drive and return power to it.
- G) Test drive.

2)--

- A) Remove power from the drive.
- B) Repeat steps B and C of procedure 1 and remove servo control module.
- C) Remove the ROM at location B6 (FK3SV10R4) and replace it with ROM P/N 77025446.
- D) Re-label the servo control module vendor part no. from P/N 77042234 to 77042236.
- E) Replace servo module.
- F) Reassemble drive and return power to it.
- G) Test drive.

FROM: TECH SUPPORT (S GROVE.)

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NO: 22

DEVICE: FUJITSU EAGLE 2351

PROBLEM DESCRIPTION:

- 1) Device timeouts, intermittent drive unsafe errors when mixed with SMD's.

CHANGE:

- 1) This seems to be due to incorrect earthing of the Eagle. Within the Eagle the frame ground and signal ground are kept isolated, and are provided as FG1, FG2 and SG on the terminal block on the back of the unit. SG is the signal ground or DC ground and FG1 is the frame ground or AC ground which is the chassis. FG2 is a high impedance AC ground connected to FG1 through a 510K ohm resistor.

Some Eagles have SG strapped to FG2, this doesn't seem to cause any problems unless the Eagle is mixed with SMD's. If the A bus is terminated in the SMD then this grounds it to ac ground since AC and DC ground are linked in the SMD and this introduces noise on the A bus.

It is recommended that SG is strapped to FG1 on all Eagles. It is also recommended that all drives be STAR earthed to the processor chassis.

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Device Information

NO: 23

DEVICE: TK50/TQK50 DESCRIPTION

INFO:

The TK50 is a 95 megabyte, streaming tape drive. There are only two cables that have to be connected, the power supply and the interface. There are no switches or set up's to be done to the drive. Before inserting a tape cartridge, check the tape leader in the cartridge is in position by opening the door (release by lifting door lock with thumb).

To load a cartridge:

1) After the green light has come on, lift the cartridge release handle.

NOTE: Never move the cartridge release handle unless the RED light is off and the GREEN light is on. Never move the cartridge release handle while a light is flashing.

2) Insert the cartridge and push the cartridge release handle down.

3) Push the RED load/unload button in. The RED light comes on immediately. In a few moments the GREEN light also comes on indicating the tape is loaded.

4) To unload a tape release the RED button. The RED and GREEN lights flash as the tape rewinds. The RED light stays on and the GREEN light goes off as the tape unloads. When the tape has completely unloaded, the RED light goes off and the GREEN light comes on.

5) Lift the cartridge release handle and remove the cartridge. Push the cartridge release handle down again.

NOTE: If the RED light flashes rapidly, this means there is a fault, try pressing the load/unload button FOUR times.

NOTE: If both lights are flashing, the tape is rewinding.

The controller is a TQK50 (M7546). This is a Tape Mass Storage Control Protocol (TMSCP) device. The board has two DIP switches for unit number and hardware revision level and jumpers for the CSR address.

The Revision Level switch must be set to the revision level of the drive which is stamped on the back of the drive. The switches represent a binary weighted value (see table on sheet 2).

The Unit Number switch specifies the drives unit number. You do not have to change this if MicroVms operating system is installed, the system will see the drives on different controllers ie MUA0, MUB0 etc. The switch represents a binary weighted value (see table on sheet 2).

TQK50 Led indications

Led 2	Led 1	Definition
On	On	Failed to pass power up self test.
Off	On	Failed U/Q port initialization.
Blinking	Blinking	a) Interconnect cable, drive or controller. Fatal error detected by controller.
Off	Off	a) Interconnect cable (improperly keyed), controller or drive. Normal operation.

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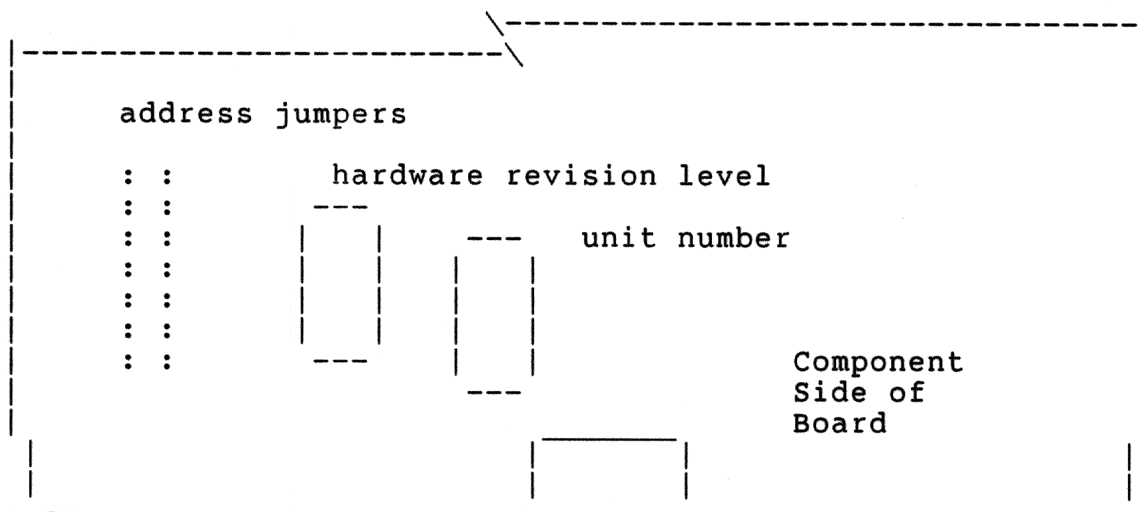
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Device Information

NO: 23

DEVICE: TK50/TQK50 DESCRIPTION

INFO:



CSR ADDRESS TABLE (1=IN 0=OUT)

CSR Address	A12	A11	A10	A9	A8	A7	A6	A5	A4	A3	A2	(add.bits)
17774500	1	1	0	0	1	0	1	0	0	0	0	(factory)
For second controller:												
17760404	0	0	0	0	1	0	0	0	0	0	1	
17760444	0	0	0	0	1	0	0	1	0	1	1	

NOTE: Jumper A2 is nearest the module edge.

REVISION LEVEL (1=ON 0=OFF)

Revision Level	Switches					
	1	2	3	4	--	8
0	0	0	0	0	--	0
1 (A)	1	0	0	0	--	0
2 (B)	0	1	0	0	--	0
3 (C)	1	1	0	0	--	0
etc.						

NOTE: Switch is nearest the module edge.

UNIT NUMBER (1=ON 0=OFF)

Unit Number	Switches					
	1	2	3	4	--	8
0	0	0	0	0	--	0
1	1	0	0	0	--	0
2	0	1	0	0	--	0
3	1	1	0	0	--	0
etc.						

NOTE: Switch 8 is nearest the module edge.

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DATE: 8-JAN-87

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Device Information

NO: 24

DEVICE: DEC UDA50 Disk Controller

INFO:

The UDA50 disk controller is a 2 board UNIBUS, Mass Storage Control Protocol (MSCP) device that can control up to 4 Standard Disk Interface (SDI) disk drives.

The controller has 2 resident processors known as the U and the D processors. The U processor controls the interface between the UDA50 and the UNIBUS. The D processor controls the interface between the UDA50 and the SDI disks.

There are 2 different versions of the controller. The 2 versions of boards CANNOT be mixed ie 1 board of the old version and 1 board of the new version. If the controller is to be replaced the boards must be replaced as a set. They can be identified by the board numbers:

Old UDA50 Modules: M7161 M7162

New UDA50 Modules: M7485 M7486

The UDA50 is a Direct Memory Access (DMA) device, therefore the M7161 or M7485 board must be installed in an SPC slot which has the NPG jumper removed. The SPC slot which contains M7162 or M7486 may also have the NPG jumper removed as the board will provide continuity.

There are 3 cables to be connected: 2 jumper cables between boards and 1 SDI cable.

There is only one switch pack on this device, which is used to set the device CSR Address. This is on the M7161 or M7485 board.

CSR Address	(add.) (sw.)	A12 S10	A11 S9	A10 S8	A9 S7	A8 S6	A7 S5	A6 S4	A5 S3	A4 S2	A3 S1	A2
-------------	--------------	---------	--------	--------	-------	-------	-------	-------	-------	-------	-------	----

772150		1	0	1	0	0	0	1	1	0	1	W4in
For second controller												
760334		0	0	0	0	0	1	1	0	1	1	W5in

1 = On 0 = Off

Only W4 or W5 can be in at one time

The other jumpers on the M7161 or M7485 board are used to set the delay which will prevent UNIBUS overloading. This is normally set to 6.2 usec. which is T5-T6. If underflow or overrun conditions are observed the delay can be set to 10 usec. which is T5-T7. It is unlikely this will have to be changed at any time.

- NOTE: 1) The UDA should not be installed on a UNIBUS system which has a bus repeater because the repeater slows the UNIBUS.
 2) The UDA must be installed after all non-buffered devices on the UNIBUS.
 3) On PDP-11 systems, there may be no more than 2 UDAs installed on the UNIBUS. However on VAX systems, no more than 1 UDA should be installed on a UNIBUS with non-buffered UNIBUS peripherals.

DIAGNOSTICS

PDP : ZUDC?? - UDA and Disk diagnostic.
 ZUDE?? - UDA Disk formatter (Disk packs come ready formatted).

VAX : EVRLA - UDA50 Disk subsystem diagnostic.
 EVRLB - UDA50 Disk formatter (Disk packs come ready formatted).
 EVRLC - Generic disk drive exerciser.

Note : Formatting a drive is not normally required , but if performed you should exercise extreme caution as the media can be made unuseable.

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Device Information

NO: 24

DEVICE: Dec UDA50 Disk Controller

INFO:

M7161 or M7485 : Led 8 is next to P3.
 M7162 or M7486 : Led 8 is next to P1.

Led error and symptom codes

M7161 or M7485 Led's 8 4 2 1	M7162 or M7486 Led's 8 4 2 1	Error Symptoms	Most Likely Failure
0 0 0 1	x x x x	Undefined	Undefined
0 0 1 0	0 0 0 0	ucode stuck in step2	M7161/M7485 or software
0 0 1 1	0 0 0 0	ucode stuck in step3	M7161/M7485 or software
0 1 0 0	0 0 0 0	ucode stuck in step4 or UNIBUS timeout.	M7161/M7485 or host inactive
0 1 0 *	0 0 0 0	Test complete	No problem
0 1 1 0	x x x x	Undefined	Undefined
x x x x	0 1 1 0		
0 1 1 1	x x x x	Undefined	Undefined
x x x x	0 1 1 1		
1 0 0 0	0 0 0 0	Wrap bit 14 set in SA register	M7161/M7485 or software
1 0 0 1	0 0 0 0	Board 1 error	M7161/M7485
0 0 0 0	1 0 0 1		
1 0 1 0	0 0 0 0	Board 2 error	M7162/M7486
1 0 1 0	1 0 1 0		
1 0 1 1	x x x x	Undefined	Undefined
x x x x	1 0 1 1		
x x x x	1 1 0 0	ROM parity error	M7161/M7485
1 1 0 0	x x x x		
1 1 0 1	x x x x	RAM parity error	M7162/M7486
x x x x	1 1 0 1		
1 1 1 0	x x x x	ROM or RAM parity error	M7161/M7485 M7162/M7486
x x x x	1 1 1 0		
1 1 1 1	1 1 1 1	Sequencer error	M7161/M7485
Cycling pattern	Cycling pattern	UDA responds to host if cycling pattern lasts less than 2 seconds.	No problem
		UDA does not respond to host if pattern lasts more than 2 seconds.	M7161/M7485

1 = On 0 = Off * = Blink

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DATE: 6-JAN-86

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Device Information

NO: 25

DEVICE: DEC RD51/52/53 and RX50 Drives

INFO:

The RD51 is a fixed disk drive with a formatted capacity of 10 megabytes. There are 3 cables to be connected: 2 signal cables and 1 power cable. The drive is factory configured with a DIP shunt jumper on the read/write PCB. The configuration is as follows:

Pin Numbers	Connection
1 to 16	Not used (nearest front of drive)
2 to 15	Intact
3 to 14	Intact
4 to 13	Intact
5 to 12	Broken
6 to 11	Intact
7 to 10	Broken
8 to 9	Broken (nearest rear of drive)

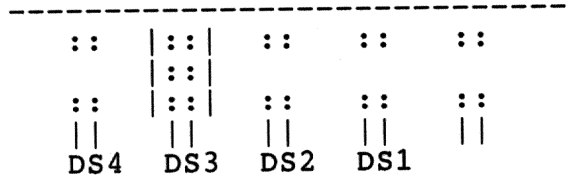
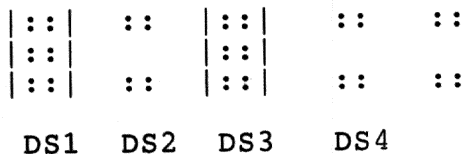
The RD52 is a fixed disk drive with a formatted capacity of 31 megabytes. There are 3 cables to be connected: 2 signal cables and 1 power cable. The drive has 5 pairs of select pins on the read/write PCB. These are viewed either from the base or the rear of the drive depending on the revision. To change a drive from unit 0 to unit 1: move the jumper from DS3 to DS4.

From base of drive

From rear of drive

Front of drive

HDA(Top)



Rear of drive

PCB(Base)

The RD53 is a fixed disk drive with formatted capacity of 71 megabytes. There are 3 cables to be connected: 2 signal cables and 1 power cable. There are 2 types of drive one which has a switch pack on the PCB at the back of the drive.

Drive number 0 is set by pressing switch 3.

Drive number 1 is set by pressing switch 4.

The 2nd type has 6 pairs of pins which are used to configure the drive.

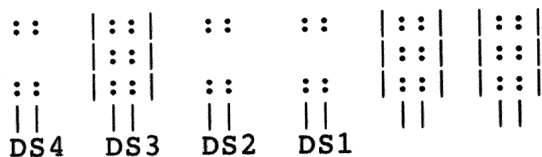
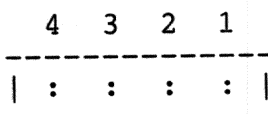
To change from drive 0 to drive 1 move the jumper from DS3 to DS4.

From rear of drive

From rear of drive

HDA(Top)

HDA(Top)



PCB(Base)

PCB(Base)

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Device Information

NO: 25

DEVICE: DEC RD51/52/53 and RX50 Drives

INFO:

Formatting the RD51/52/53 disk drives on a MicroVax II is done using the Maintenance diagnostics. This is quite easy to do:

- 1) Load the Maintenance diagnostics.
- 2) From the main menu select: "4" - Display Service Menu
- 3) From the Service Menu select: "3" - Display the device menu
- 4) From the Device Menu select: " " - RQDXA-Winchester/diskette controller
- 5) From Device RQDXA Menu select: "4" - Display the device utilities menu
- 6) From Utilities Menu select: "1" - Formatter for RD53, RD52 and RD51

Answer the questions asked and the Formatting will begin.

* RD52 11-17 minutes (approx)

* RD53 24-35 minutes (approx)

Once Formatting has completed the Exerciser can be run.

Formatting and exercising these drives on a PDP processor is done under XXDP. The diagnostics available are:

- a) ZRQA?? - This is for exercising RX/RD drives on either an RQDX (Qbus) controller or an RUX50 (unibus) controller.
- b) ZRQB?? - This is for formatting RD51 or RD52 disk drives on an RQDX1 (Qbus) controller.
- c) ZRQC?? - This is for formatting RD51, RD52 or RD53 disk drives on an RQDX3 (Qbus) controller.

Running these diagnostics is quite easy to do:

- 1) Boot XXDP
- 2) Run the required diagnostic. The "DR>" prompt will appear.
- 3) Type STA to start the diagnostic.
- 4) Type Y to change the hardware parameters and answer the questions.
- 5) Type Y to change the programme parameters and answer the questions.
- 6) The diagnostic should then start.

Once the drive has been formatted the exerciser can be run.

The RX50 diskette drive is a random access, dual-diskette storage device. It uses single-sided 13.3cm (5-1/4in) diskettes. Its total formatted capacity is 818kbytes (409 per diskette). You can use only 1 RX50 drive with each RQDX2/RQDX3.

There are 2 cables to be connected: 1 signal cable and 1 power cable. The controllers are Mass Storage Control Protocol (MSCP) devices. Each controller can control a maximum of 4 drives. Each RX50 counts as 2 drives and each fixed disk count as 1 drive. The RQDX2 (M8639) is a 4 slot board and the RQDX3 (M7555) is a 2 slot board. The drives connect to the controller via a cable distribution panel.

THE DRIVES ARE NOT FORMAT COMPATIBLE BETWEEN RQDX2 AND RQDX3 .

RQDX2/RQDX3 Controller Address selection

Starting Address	(RQDX2) (RQDX3)	A12 W11	A11 W10	A10 W9	A9 W8	A8 W7	A7 W6	A6 W5	A5 W4	A4 W3	A3 W2	A2 W1	add.bits (jumpers)
17772150		1	0	1	0	0	0	1	1	0	1	0	factory
Possibl setting for a second controller													
17760334		0	0	0	0	0	1	1	0	1	1	1	
17760354		0	0	0	0	0	1	1	1	0	1	1	
17760374		0	0	0	0	0	1	1	1	1	1	1	

1=Jumper in 0=Jumper out

DATE: 20-jan-87

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NO: 26A

DEVICE: 11/44 Processor module (M7096) switch definitions

INFO:

Switch pack - E6

- Pole 1 - Console stop bits On for 1 stop bit , Off for 2 stop bits.
- 2,3,4,5 - Console transmit speed (Values same as receive).
- 6,7,8,9 - Console receive speed as follows :-

Speed	E6 -	6	7	8	9
50		ON	ON	ON	ON
75		ON	ON	ON	OFF
110		ON	ON	OFF	ON
134.5		ON	ON	OFF	OFF
150		ON	OFF	ON	ON
200		ON	OFF	ON	OFF
300		ON	OFF	OFF	ON
600		ON	OFF	OFF	OFF
1200		OFF	ON	ON	ON
1800		OFF	ON	ON	OFF
2000		OFF	ON	OFF	ON
2400		OFF	ON	OFF	OFF
3600		OFF	OFF	ON	ON
4800		OFF	OFF	ON	OFF
9600		OFF	OFF	OFF	ON
19200		OFF	OFF	OFF	OFF

Switch pack - E7

- Pole 1,2,3 - TU58 Transmit speed (Values same as receive)
- 4,5,6 - TU58 Receive speed as follows :-

Speed	E7 -	4	5	6
38400		ON	OFF	OFF
9600		OFF	ON	OFF

- 7 - TU58 stop bits On for 1 stop bit , Off for 2 stop bits.

Switch pack - E70

Pole 1,2,3,4,5,6,7,8,9,10 - TU58 Address , On = 1

Address bits	-	12	11	10	9	8	7	6	5	4	3
Switches	-	1	2	3	4	5	6	7	8	9	10
Example	-	ON	ON	ON	OFF	ON	OFF	ON	OFF	OFF	OFF

= 776500

Switch pack - E79

- Pole 1 - TU58 Disable, Off = Disable , On = Enable
- 2 - Remote diagnostic use only , normally Off
- 3,4,5,6,7,8 - TU58 Vector address, On = 1

Vector bits	-	8	7	6	5	4	3
Switches	-	3	4	5	6	7	8
Example	-	OFF	ON	ON	OFF	OFF	OFF

= 300

FROM: TECH SUPPORT (M Hodge)

DATE: 26-Jan-1987

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NO: 27

DEVICE: Emulex QD32 Rev "C" Firmware change.

PROBLEM DESCRIPTION:

QD32 Firmware consists of one rom in U42 ,number A63X (Where X is the Rev)
The following problem is evident in rev's A and B :-
When using uVMS version 4.4 the QD32 bad block replacement routine does not work correctly , it generates bad block replacement errors and invalid header errors in the error log. Version 4.4 has been modified so that prior to replacing a bad block the software handler reads the replacement block and expects to see the forced error bit set . As this is not set during the Emulex format routine the replacement fails and all subsequent accesses cause invalid header errors to occur.

CHANGE:

The problem is rectified by installing rev "C" firmware , this causes a read of a replacement block to always return the forced error flag , so conforming with the updated 4.4 device driver.

To conclude :-

1. Remove current rom in location U42 .
2. Install new rom marked "A63C" in location U42 .

Note : - All novram parameters will be unchanged , and do not require re-programming.

The precise format of the error information is as follows :-

MSLG\$B_FORMAT	BAD BLOCK REPLACEMENT
MSLG\$B_FLAGS	ERROR DURING REPLACEMENT BAD BLOCK REPLACEMENT REQUIRED
MSLG\$W_EVENT	BAD BLOCK REPLACEMENT REPLACE CMD OR ITS ANALOGUE FAILED
MSLG\$W_RPL_FLGS	RE-FORMAT ERROR FORCE ERROR DATA NOT RECOVERED REPLACEMENT ATTEMPTED

This error information just shows the relevant messages. Subsequent accesses to this block will give "Invalid Header" errors.

The forced error flag is normally only set in a replacement block if the controller was unable to correct the data in the bad block prior to copying it to the replacement block , this is done so that the user will know that he cannot rely on the integrity of the data in the replacement block.

FROM: TECH SUPPORT (M Hodge)

DATE: 1-DEC-1986

PAGE: 1 OF 1

Emulex CSO2

NO: 28

DEVICE: CSO2 - Rev level + Firmware Upgrade Status

INFO:

The CSO2 is a 16 line Q-BUS Terminal interface , which can be set to run in either DHV11 mode or DH11 mode . In DHV11 mode the module emulates 2 x DEC DHV11 controllers .

CSO2 Firmware = 966X - 971X , where X is the firmware revision level.

Firmware rev level 'G' corrects following problems :-

1. DHV Mode - Fix possible Micro Vax DMA runaway problem (odd characters displayed) .
2. DHV Mode - Add diagnostic support on 11/73 processors.
3. DH Mode - Fix bug in set BAR bit with byte count equal to zero.
4. DH Mode - Remove 11/73 Read Modify Write fix causing problems with other fast devices (such as UC03 and UC04).
5. DH Mode - Add DECX11 support.

Note : Modules installed in Micro Vax II must be at least rev 'G'.

Firmware rev level 'J' corrects following problems :-

1. System crashes caused by bus timeouts due to lack of interrupt allows. This problem was evident only on Micro Vax I and II with CSO2 in DHV11 mode.
2. Micro VMS requires the CSO2 controller to run at priority BR4 in Micro Vax I and II systems . Older boards (Etch level 'E' and before) require a patch to the DHV11 driver (YFDRIVER.EXE) to allow for this but newer boards (Etch level 'F' and after) have upgraded artwork to allow for this . (See following note for patch info)
3. A terminal in XOFF state could cause the activity LED to light. This implies that the Q-BUS is hung . With rev 'J' firmware the LED will be in a dim flicker state . This is just a cosmetic change .

Patch to YFDRIVER.EXE info :-

```
$ SET DEFAULT SYSS$SYSTEM
$ PATCH YFDRIVER.EXE
  PATCH VERSION .....
%PATCH-I-NOLCL , image does not contain local symbols
PATCH>DEP/BYTE 2EB=15
old:   000002EB:  14
new:   000002EB:  15
PATCH>UPDATE
%PATCH-I-WRTFIL, updating image file SYSS$SYSROOT:[SYSEXE]YFDRIVER.EXE;2
PATCH>EXIT
$
```

Note : This patch causes the driver to raise the interrupt priority level (IPL) to 15 instead of 14 during a CSO2 interrupt. When the IPL is raised to 14 any device with a BR level of 4 cannot interrupt but as the old CSO2 is set at BR5 it can still interrupt . If an interrupt occurs from the CSO2 while the processor is servicing a CSO2 interrupt already the system will crash .

Firmware rev level 'K' corrects following problems :-

1. This firmware affects the Level Flow Control (LFC) option introduced in rev 'J' firmware .Rev 'J' allowed up to 3 characters to be transmitted after the negation of LFC .Some devices cannot store 3 characters , this causes odd characters to be lost , Rev 'K' reduces value to 2 .This problem has only be seen on devices with small buffers in DHV11 mode .

FROM: TECH SUPPORT (M HODGE) .

DATE: 29-JAN-87

PAGE: 1 OF 1

CacheTape Update

NO: 29

DEVICE: Cipher CacheTape (M89x)

PROBLEM DESCRIPTION:

Intermittent failiure to report data errors to the host system.This is only a problem on the new artwork powerboards.The problem has been identified as excessive ringing and noise induced on the PECLK signal line.

PWB's affected are : 962233-001
962234-001
962235-001
962236-001

CHANGE:

Adding filter caps to the affected read channels phase discriminators and a gate delay to the PECLK input to the serial-to-parallel output register eliminates the ringing effect on the line.Rerouting the PECLK signal line with a twisted-pair corrects the noise induced aspect of the problem.

This is a major modification to the power board and should NOT be attempted on site.Once the fault has been confirmed the drive should be returned to the workshop for modification.

The power boards that have these changes incorporated are rev.F and above.

*** See sheet No.10 for further information on the new power board.

FROM: TECH SUPPORT (S GROVE)

DATE: 12-MAR-87

PAGE: 1 OF 1

Device Information

NO: 30

DEVICE: Dataproducts LZR 2610 Printer

INFO:

Parallel interface switch setups for printer on M7258 controller

Switch number	Function	Setting	
		(rev B)	(rev A)
Sw 1-1	Buffer clr	off	on
Sw 1-2	paper instruction	off	on
Sw 1-3	7 or 8 bit data	off (for 7 bit)	on
Sw 1-4	Request latch status	off	off
Sw 1-5	Strobe polarity	on	on
Sw 1-6	Parity bit	off	off
Sw 1-7	Ident 0	off	off
Sw 1-8	Audible alarm	off (always)	off

Self test procedure

- 1) Press TEST.
- 2) Press SELECT until required font number is displayed.
- 3) Press TEST to load into controller memory.
- 4) press TEST.
- 5) Press SELECT until required cassette is displayed on front panel (8=upper 9=lower).
- 6) Press TEST to load into controller memory.
- 7) Press TEST.
- 8) Press SELECT until F (self test mode) is displayed.
- 9) Press ONLINE then TEST to start self test.
Press ONLINE to stop self test.

FROM: Chris Gallagher (LZR Super Hero)

DATE: 24-mar-87

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Device Information

NO: 31

DEVICE: Able Mux Master asynchronous cluster controller

INFO:

The Able Mux Master consists of a control board, a distribution panel, cables, at least one 8 or 16 line cluster controller and a power supply. The distribution panel contains 2 connectors, the cables connected to these are the high speed link to the cluster controllers. The end of the cables must be terminated if not connected to another cluster controller. Each link can be a maximum of 2000 feet long.

The only switch on the mux master is on the back of the cluster controller, the setup of the host interface is done via port zero of any of the cluster controllers. This procedure is done when the system is powered on and in a halt state. The terminal being used must be set for:

8-bit characters, no parity, 1 stop bit and either 300, 1200, 2400, 4800 or 9600 baud rate.

Switch pole 8 of the switch pack must be closed (on). The SETUP light on the front panel will come on and the ONLINE light will flash. To start:

- a) Press the RETURN key. The cluster controller will detect the baud rate of the terminal. The online light will flash at a reduced rate after autobaud.
- b) The cluster controller will then display the port address range, the current switch settings and the number of ports supported by this cluster controller.
- c) It will then prompt for setup information. Each setup will show its default base eg. %H=Hex, %D=Decimal, %O=Octal and %B=Binary. Type return to skip to the next setup.

Example of setup procedure

```

-----
<RETURN>
Cluster Lines 0-15           !Base line number=0
Switch = %B00000001        !Only pole 8 on
Port Count = 16             !Number of ports on controller
Rev 1/0                     !Microcode rev level

Password:[Enter Password] <ret> !Only if a password is set
Count%Dec <2>:              !Number of devices emulated
Address%Oct <160020>:       !Interface base address(DHU/DHV)
Vector%Oct <000300>:       !Interface vector
Option%Hex <0000>:         !Optimal features
Adr Inc%Oct <20>:          !Interface address increment
Vec Inc%Oct <010>:         !Interface vector increment
    
```

To set the password type Ctrl P. The controller prompts with:

```

Password:[enter password] <return>
Verify:[enter password again] <return>
    
```

** Once a password has been set it is not possible to enter the setup session without it.

To reset the password go through the previous procedure using Return in place of a password.

To exit set up mode set pole 8 off.

poles 6 and 7 are not used and must be open. Pole 8 is for mode.

Poles 1 to 5 are a binary representation of the base line number, pole 5 being bit 2 and pole 1 being bit 6 eg.

Bit position	6	5	4	3	2	Base line
Pole number	1	2	3	4	5	number
Switch state	off	off	off	off	off	0
	off	off	off	on	off	8
	off	on	off	on	on	44

FROM: Tech Support (S Grove)

DATE: 25-MAR-87

PAGE: 1 OF 1

Maintenance

NO: 32

DEVICE: Printronix P300/600

PROBLEM DESCRIPTION:

The cam rollers on the shuttle and counterweight are wearing out and causing damage to the flywheel.

CHANGE:

The rollers do wear out but if the wicks and rollers are kept oiled they should not wear out as quickly and should not damage the flywheel when they do wear out.

At the time of a P.M. the flywheel cover should be removed and the rollers lightly oiled, the wick should then be checked and oiled until the wick is saturated. This does not mean flooding the printer but leaving the wick well oiled. Please also check that the wick is touching the cam.

The oil should be medium weight (SAE 20 or equivalent).

The hammer tips should be cleaned very carefully with a brush.

The ribbon guides should be cleaned and the paper motion sensor should also be checked.

FROM: Tech Support (S Grove)

DATE: 3-JUL-87

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Emulex Update

NO: 33

DEVICE: QD32,QD33,QD21

PROBLEM DESCRIPTION:

Fatal bug checks, system crashes or DEQNA timeouts on UvaxII that contains a DEC DHV11 or a DEC DEQNA. The problem is most prevalent in clustered systems running UVMS 4.5 and above where the EMULEX QD?? device is installed after the DHV11 or DEQNA on the QBUS.

CHANGE:

This requires a hardware change which changes the priority of the QD?? device from BR5 to BR4.

*** THIS MUST NOT BE DONE ON SITE.

Rework Instructions:

Cut etch at edge connector (component side) between connector finger AB1 and feed thru.

Lift pin at: QD32 = IC 60 pin 8
QD33 = IC 61 pin 8
QD21 = IC 56 pin 8

Add jumper from: QD32 = IC 60 pin 8 (board) -
QD33 = IC 61 pin 8 (board) | - to feed thru above
QD21 = IC 56 pin 8 (board) - AB1 (component side).

FROM: TECH SUPPORT (S GROVE)

DATE: 6 - Aug - 87

PAGE: 1 OF 1

NO: 34

DEVICE: UD33 and Fujitsu 2344 installation at Hill Samuel.

INFO:

Because RSTS is not capable of addressing the full number of blocks on a 2344 the UD33's have been programmed to not fully use the drive capacity. It is essential when swapping the controller that it is reprogrammed with the same values.

2344's are set as follows :-

```
640 bytes per sector - SW 3 -    1,2,3,4,5,6 = On
                        SW 4 -    2 = On
```

UD33's are programmed as follows :-

```
Number of drives      -    3
Number of heads       -    27
Physical cylinders    -   617
Spare cylinders       -    2
Physical sectors per track - 64
Spare sectors per track - 1
Split code            -    0
Removable media flag  -    0
Configuration bits    -    6
Gap 0 parameter        -   259
Gap 1 parameter        -  4112
Gap 2 parameter        -   268
Spiral offset         -    1
```

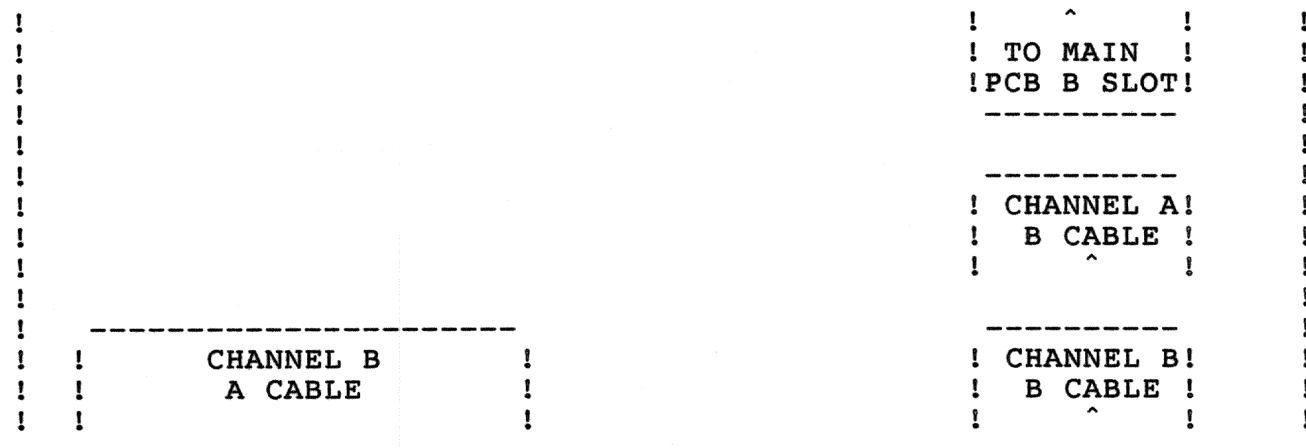
Note : If the XXDP program SXXM8B is used then the number of sectors must be entered as 63 (usable) and the number of cylinders as 615 . The diagnostic QXXM?? is now available on rev 6 diagnostic tapes , this uses the above values and allows reading of the NOVDRAM .

2344 Dual port kits :

The LED's on the dual port kits do not behave in the same way as the SC31's and 2351 drives . The LED's only illuminate when the drive is being accessed . Also once every 10 seconds the controller polls the drive to see if it still present and will cause the LED's to flash momentarily.

Dual channel card : (Viewed from above)

The 'A' cable for channel A plugs directly into the normal A cable slot.



FROM: Mark Hodge (Tech Support) .

DATE: 3-JUL-87

PAGE: 1 OF 1

Emulex Update

NO: 35

DEVICE: UD33 Disk controller

PROBLEM DESCRIPTION:

Format fails when writting the RCT or excessive bad LBN's are reported when verifying. Failing drive types are: CDC 9762/9766 and NEC 2257.

CHANGE:

This fault requires a hardware change.

*** THIS MUST NOT BE DONE ON SITE.

Rework instructions:

Lift pin 2 of IC U51. Add jumper from U51 pin 2 to U51 pin 15.

FROM: Tech Support (S GROVE)

DATE: 12-AUG-1987

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NO: 36

DEVICE: Cipher M990 (GCR)

PROBLEM DESCRIPTION:

A new calibration procedure is required when using the new tape heads , the new head can be identified as it has a label stuck to the top showing the write current values recorded at manufacture. This calibration routine must only be performed with rev 7 firmware installed , all the calculated values will be incorrect if a lower rev of firmware is used. Cipher have shipped some GCR's with the new heads and rev 6 firmware , these have been manually calibrated and can only be recalibrated if the firmware is upgraded to rev 7, but they will function correctly if left untouched.

CHANGE:

To perform the recalibration Rev 7 FIRMWARE MUST BE INSTALLED AND THE DECK MUST CONTAIN A NEW HEAD .

Rev 7 calibration routine :

- 1 - Jumper U1H pin 1 to Gnd (TP6) on read formatter (second board up).
 - 2 - Load a tape and enter internal mode. (455425 - PASSWD ? 54524)
 - 3 - Run test 513 (455135)
 - a. "HEAD - CAL" is displayed for 4 secs.
 - b. If drive displays "READY" proceed to step 6.
 - c. "-60 mV" is then displayed.
 - 4 - Connect DVM between U15U pin 7 and Gnd (TP1).
 - 5 - Using LOAD to decrement and ON-LINE to increment adjust DVM reading until -60 mV +/- 1.2 mV is obtained.
 - 6 - Press WRT EN , the value of the 6250 write current is then displayed on the front panel.
 - 7 - Press LOAD , the tape now starts moving.
 - 8 - Alter the front panel value using LOAD to increment and UNLOAD to decrement until the value is the same as the lowest value on the head label. Small changes can be made by holding the ADDRESS SELECT button down while using LOAD or UNLOAD. Make sure that the displayed value is PRECISELY the same as the value on the head.
 - 9 - Press ONLINE and the tape will stop . Change density to 1600 .
 - 10- Press LOAD and then ONLINE , it is unnecessary to change 1600 values.
 - 11- Change density to 3200 bpi and press LOAD .
 - 12- Use the procedure as outlined before to alter front panel value to PRECISELY the same as the highest value on the head label.
- The tape drive is now ready to perform the read threshold routine.
- 13- Press WRT EN , the tape now moves forward initially at 6250 , the density will then change to 3200 and then 1600 .
 - 14- The tape then rewinds and "THR DONE" is displayed.
 - 15- Press WRT EN , "SAVE NEW" is then displayed , press LOAD and "NEW DATA" is displayed , the test then exits automatically .
(Note : If after "SAVE NEW" is displayed UNLOAD is pressed "OLD DATA" is displayed and the values are not changed).
 - 16- Power off drive and wait 5 seconds to allow values to be saved permanently.

FROM: Tech Support (M Hodge) .

DATE: 20 - Aug -87

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NO: 37

DEVICE: XXDP + tapes revision 6.

INFO:

The revision 6 diagnostic tapes include the following diagnostic :-

1. QXMX?? - Universal Emulex MSCP disk formatter and preparer. This is a very flexible diagnostic which will run on the SC03/MS, SC41, QD32, QD33, UD33 and the UC and MD range of controllers. It allows the reading of the NOVRAM and format and verify routines. The diagnostic runs almost exactly the same as the microVax diag FVD32M , the only difference is that it allows the selection of the controller address from within the menu.

THISE DIAGNOSTIC USES THE VALUE OF THE NUMBER OF PHYSICAL SECTORS AND THE NUMBER OF PHYSICAL CYLINDERS LIKE FVD32M , AND NOT THE NUMBER OF LOGICALS AS FOR SXXM8B .

The UD33 and QD33 use the high order bits of the NOVRAM parameter CONFIG bits to enable Rotational Positional Sensing (RPS) .Always set these bits to zero.

FROM: Mark Hodge (Tech support).

DATE: 25-AUG-87

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NO: 38

DEVICE: Quick 11/84 EEPROM boot for MS devices on Emulex controllers only

INFO:

Device name = MS

Beginning address = 2000 - Must be at this location

Last byte address = 2036

Start address = 2002

Highest unit number = 3

Device description = TS11

```
>002000/ 46523      - Ascii "MS"
>002002/ 10001      - MOV R0,R1
>002004/ 6301       - ASL R1
>002006/ 6301       - ASL R1
>002010/ 62701      - ADD £172522,R1
>002012/ 172522
>002014/ 12711      - MOV £100001,(R1)
>002016/ 100001
>002020/ 12711      - MOV £100001,(R1)
>002022/ 100001
>002024/ 12704      - MOV £2020,R4
>002026/ 2020
>002030/ 105711     - TSTB (R1)
>002032/ 100376     - BPL
>002034/ 5007       - CLR R7
```

FROM: Tech Support (M Hodge).

DATE: 13 OCT 1987

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NO: 40

DEVICE: The Ferret

INFO:

On power up the Ferret will carry out its internal self test .On completion of this it will prompt you with "KEY A to advance through menu" . Keying "A" will cycle through the available modes :-

```
RS232
CURRENT LOOP
PARALLEL OUTPUT
RS232<>CURRENT LOOP
RS232<>PARALLEL
CURRENT LOOP<>PARALLEL
PROGRAM MODE
```

Keying "ENTER" will take you into the mode displayed .

Note : The ferrets shift key must be pressed and released before selecting the alternative character . White characters are unshifted and black are shifted.

RS232 Mode:

On entering this mode you will be prompted for the baud rate TX: RX: . Key in the required speed followed by "ENTER". Step through the remaining setups answering the questions as required (Data bits,Parity, Stop bits, DTR, Xon Xoff) .

PARALLEL Mode:

On entering the only question you are asked is "ACTIVE LOW Y/N".

After answering all the questions in either mode the ferret then displays "READY" .

OUTPUTING CHARACTERS:

Before sending anything make sure the line length,<CR> and <LF> parameters have been setup. Type "LL" then "ENTER" , answer the questions as prompted "CR?" , "LF?" and "LINE LENGTH=?" . On completion the ferret will again display "READY" .

To output a single character continuously type "O" the response will be "OUTPUT" type the desired character and then hit "ENTER" . To limit the number of characters sent , type the quantity before hitting "ENTER" . To send the alphabet , while still in output mode type "A" , "L" then "ENTER" .

Note: Normally by typing "C" a couple of times or "C" then "ENTER" will clear you back to the "READY" prompt .

FROM: Tech Support (M Hodge)

DATE: 13-jan-88

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NO: 41

DEVICE: DEC DEQNA - Module M7504

PROBLEM DESCRIPTION:

The DEQNA does not conform to the original Q Bus specification in the way that it handles bus requests . As the Q Bus has only one bus grant line each module should monitor the higher level request lines when a bus grant is issued , if a higher level module is requesting the grant signal should be passed on . The DEQNA does not do this , and as it is set at BR level 4 it may block a bus grant even when higher priority devices are also requesting . Most DEC modules are now set to BR level 4 as well so this does not present a problem , but most of the EMULEX boards are set to BR level 5 , the DEQNA can therefore generate crashes or bugchecks .

CHANGE:

The problem is most evident on micro Vaxes in a local area Vax cluster because this is when there is most DEQNA activity .

Because of this problem ALL DEQNA'S SHOULD BE PLACED LAST ON THE BUS .

Emulex have issued changes to all their boards to change the BR level from 5 to 4 , and all their new modules should have the change incorporated.

FROM: Tech Support (M Hodge).

DATE: 14-Jan-87

PAGE: 1 OF 1

NO: 42

DEVICE: MDB Power supply and mounting box.

PROBLEM DESCRIPTION:

1. Possible shorting problem if the wrong screws are used to mount the PSU PCB.
2. Premature failure of the supply when adjusting the +5V .
3. Premature failure of supply if a long enough time delay is not given between cycling the power off and on.

CHANGE:

1. The screws used to secure the power supply chassis are very short , if they are mixed up with the PCB mounting screws they may cause shorting of various points on the PCB with obvious drastic results. Make sure all screws are returned to their original locations during reassembly.
2. If the +5V voltage lies within 4.9V to 5.35V when the supply is loaded , do not adjust it as this may cause the current limiter to be triggered. This will cause premature supply failure .
3. When the supply is switched off , approximately one minute should be allowed to pass before switching on again , otherwise premature failure may occur . The delay allows the startup thermistor to cool to room temperature .

FROM: Tech Support (M Hodge)

DATE: 11-feb-88

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Device Information

NO: 43

DEVICE: Fujitsu M244x Tape Drive

INFO:

The setup parameters for these drives are saved in NOVRAM. The parameters are entered using TEST 97. To save them TEST 94 must be run.

To put the drive into test mode :-

- 1) Press TEST and START (The tape must be unloaded).
- 2) Use START to increment the test number and UNLOAD to decrement.
- 3) Press TEST and DENSITY SELECT to start the test.

To set the parameters :-

- 1) Select test 97 and start (the display = P0).
- 2) Press RESET to display the contents.
- 3) Press START or UNLOAD to change the contents.
- 4) Press TEST to move on to the next parameter (P1).
- 5) All parameters must be examined before you can exit the test.
- 6) Press TEST to exit.
- 7) Press UNLOAD until 94 is displayed (to save parameters)
- 8) Press TEST and DENSITY SELECT to save.
- 9) Press RESET to exit test mode.

Recommended parameters for Emulex tape controllers.

The TC13 and TC03 require switch 2 pole 9 to be closed in order to check which mode the tape drive is in.

Parameter & meaning	Setting	Contents
P0: Data transfer rate	09 0E	470 KB/s (TC13/TC03) 160 KB/s (TC12/TC02)
P1: Ramp delay	00	0.2 msec
P2: Write retry times by buffer adapter	02	4 times
P3: Read retry times by buffer adapter	02	4 times
P4: Buffer overwrite logical/physical EOT mode	02	Stop data transfer & wait for available buffer space & physical EOT mode.
P5: Buffer synchronizing	00	Write: double write tape mark Read: double tape mark
P6: Read strobe in write command	00	Read strobe issued in write mode
P7: Write bus parity check mode	00	Check write bus parity

Test 93 is used to set the device type emulation.

To run this test :-

- 1) Select TEST 93
- 2) Press TEST and DENSITY SELECT (display shows dT)
- 3) Press START/UNLOAD to select 02
- 4) Press RESET (display shows EL)
- 5) Press START/UNLOAD to select 13
- 6) DO NOT CHANGE THE FOLLOWING TWO PARAMETERS (BG / EG)
- 7) Press reset to exit

FROM: Tech Support (S Grove)

DATE: 30-NOV-87

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Device Information

NO: 44

DEVICE: Megatape MT750 Switch Settings

INFO:

MT-750 Formatter Board Switches

Switch	Position	Description
U86		
1	ON	Search for Alignment Track
2	OFF	Test Switch
3	ON	Test Switch
4	ON	Enable Blank Tape Detect
5	ON	Track Select (IRDY)
6	ON	Test Switch
7	OFF	Test Switch
8	ON	Normal Operation
U88		
1	ON	Normal Operation
2	OFF	Read Verify On
3	OFF	IFAD
4	OFF	ITAD0
5	OFF	ITAD1
6	OFF	Low Speed (1/2 Maximum)
7	ON	Host Sets Gap
8	ON	Short Gap

MT-750H (Half) Read/Write Board Configuration

Switch	Position
SW1	OFF
SW2	OFF
SW3	OFF
SW4	OFF

MT-750 (Full) Read/Write Board Configuration

Switch	Position
SW1	ON
SW2	ON
SW3	ON
SW4	ON

MT-750 Control Servo Board Configuration

Switch	Position
SW1-1	ON
SW1-2	OFF
SW1-3	OFF
SW1-4	ON

DATE: 30-NOV-87

PAGE: 2 OF 2

Device Information

NO: 44

DEVICE: Megatape MT750 Switch Settings

INFO:

- MT-750 Cache I/O Board Configuration

Switch	Position	Description
SW1-1	OFF	Transfer Rate (250 K bytes/sec)
SW1-2	OFF	Transfer Rate (250 K bytes/sec)
SW1-3	OFF	Transfer Rate (250 K bytes/sec)
SW1-4	ON	Transfer Rate (250 K bytes/sec)
SW1-5	ON	Not Used (must be ON)
SW1-6	ON	Not Used (must be ON)
SW1-7	ON	Not Used (must be ON)
SW1-8	ON	Not Used (must be ON)
SW2-1	ON	Test Mode Disable
SW2-2	ON	Ramp Delay Disable
SW2-3	OFF	ECC Enable
SW2-4	ON	Transport Tape Speed - LOW
SW2-5	ON	Not Used (must be ON)
SW2-6	ON	Not Used (must be ON)
SW2-7	ON	Not Used (must be ON)
SW2-8	ON	Not Used (must be ON)
SW3-1	ON	Test Switch
SW3-2	ON	Test Switch
SW3-3	ON	Test Switch
SW3-4	ON	Test Switch
SW3-5	ON	Normal
SW3-6	OFF	Corrected Error Report Enable
SW3-7	ON	Write Parity Check Disabled
SW3-8	ON	Write Immediate
SW4-1	Unit Select Address - see Table 2-12	
SW4-2	Unit Select Address - see Table 2-12	
SW4-3	Unit Select Address - see Table 2-12	
SW4-4	OFF	Read Strokes in Write Enable

MT-750 Unit Select Address Switches

Unit Address	SW4-1	SW4-2	SW4-3
0	OFF	OFF	OFF
1	ON	OFF	OFF
2	OFF	ON	OFF
3	ON	ON	OFF

DATE: 7 Jan 1987

PAGE: 1 OF 1

NO: 45

DEVICE: Fujitsu M3043X 1200 LPM Printer.

PROBLEM DESCRIPTION:

The printer gives the message ' BAND ERROR ' following the replacement of either the interlock micro switches . The interlock switches are for the band cover and the band unit . The switches have three connections , normally open , common and normally closed . If the connections are reversed following switch replacement a situation can arise where the interlocks are satisfied but the ' BAND ERROR ' is displayed.

CHANGE:

Make sure the wires and connections are marked prior to removal , to ensure correct replacement.

FROM: Tech Support (M Hodge)

DATE: 29-MAR-88

PAGE: 1 OF 1

NO: 46

DEVICE: Emulex disk controllers

PROBLEM DESCRIPTION:

Most Emulex disk controllers have a new release of firmware which allows the formatting and testing of disks using a firmware written menu driven program that can be invoked on either a uVAX II or a PDP . The program is run by simply depositing into several registers . The controllers which contain this new revision firmware cannot be tested or programmed using the VAX or PDP diagnostics but must be tested using the internal Field runnable diagnostics (FRD's). If a controller contains the new firmware it will also have an extra link in to select the larger prom size.

CHANGE:

Modules, firmware and additional link info :

Module	Firmware	Link
QD01	A62H	D - E
QD21	E65E	S - T
QD32	A63E	M - N
QD33	G16C	G - H
UC04M	E94E	E - F
UC04MO	E26E	E - F
UC14M	A94E	D - E
UC14MO	A26E	D - E
DM01	E52D	No link req
DM02	E43D	No link req

* Remember any modules containing the above firmware must have the indicated link installed and they will not run the standard diags FVD32M, QXMX etc.

Running the FRD,s :

on a uVAX II proceed as follows :-

Substitute HEX IP value as shown on right hand table.

	Substitute IP values	
	Octal PDP	Hex Vax
>>> I		
>>> D/P/W 20001F40 20	772150	20001468
>>> D/P/L 20088000 80000000	772154	2000146C
>>> D/P/L 20088004 80000001	760334	200000DC
>>> D/P/W IP 1	760340	200000E0
>>> E		
Returns 0900 = 18 bit addressing	760344	200000E4
or 0B00 = 22 bit addressing	760350	200000E8
>>> D * 3003	760354	200000EC
>>> D * 4401	760360	200000F0

! Wait a couple of seconds for diagnostic to down load.

>>> E *

Returns 0400 if diagnostic loaded ok.

>>> S 80

on a PDP proceed as follows :-

@IP/000000 1 <LF>

Returns 004400 = 18 bit addressing

or 005400 = 22 bit addressing

@SA/005400 30003

@/000400 42000

@/002000 ! 2000 = Diagnostic loaded ok

@200G

FROM: Tech Support (M Hodge)

DATE: 14-JUN-88

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LZR 2600 Information

NO: 47

DEVICE: Dataproducts LZR 2600 printers

INFO:

The following items should be replaced on the specified P.M. All other parts of the printer should be cleaned. When developer is replaced the old developer should be cleaned out completely.

Number of copies	Name of part	Quantity	Part number
40,000	Developer (bottle)	1	278923-001
	Fuser roller blade	1	278927-001
80,000	Drum cleaner blade	1	278928-002
	Coroner wire	3	278955-001
	Drum	1	278922-001
	+ all above		
120,000	Recovery blade kit	1	811505-001
	Lower fusing roller	1	278929-001
	Seperation claw ass kit	1	278967-001
	+ all above		
160,000	Filter	1	
	+ all above		
200,000	Upper fusing roller	1	278930-001
	+ all above		

FROM: TECH SUPPORT

DATE: 21-NOV-88

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Device Information

NO: 55A

DEVICE: Fujitsu 2249 / Emulex QD21

INFO:

Set up information for the Fujitsu 2249 disk drive:-

Ensure these links are inserted:

Link	Setup	Comments
CNH4	11-12	
CNH5	15-16	Enable ready LED
CNH6	1-2 15-16	Unit 0, Radial
CNH7	1-2	Start motor
	3-4	M2249 type
	7-8 11-12	35 sectors
	13-14	Soft sectored
	15-16	No attention at ready

Setup of QD21

Type code	- 1	
Physical sectors	- 35	
Physical heads	- 15	(10 for M2246)
Physical cylinders	- 1243	(823 for M2246)
Spare sectors	- 1	
Spare cylinders	- 2	
Config bits	- 5	
Split code	- 0	
Removable media flag	- 0	
Gap 0	- 3093	
Gap 1	- 3084	
Gap 2	- 3337	
Spiral offset	- 1	

The drive appears to take a long time to initialize the RCT table

FROM: Tach Support (S Grove)

DATE: 11-MAY-1989

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SETUPS & ONBOARD DIAGS

NO: 56

DEVICE: DILOG DQ 246 AND FUJI 2298

INFO:

TO INVOKE THE ONBOARD DIAGNOSTICS FOR THE DQ246 PROCEED AS FOLLOWS:-

INITIALISE THE BUS

```

>>> D/L/P 20088004 80000001 <CR>
>>> D/P/W 20001F40 20 <CR>
>>> D/P/W XXXXXXXX 3FFF <CR>
>>> E/P/W XXXXXXXX <CR>
>>> XXXXXXXX 800D ! THIS MUST BE 800D !
>>> S 200 <CR> ! THIS FOR A MICROVAX !
>>> S 218 <CR> ! THIS FOR A WORKSTATION !

```

WHERE XXXXXXXX IS THE ADDRESS OF THE SA REGISTER (IN HEX)

IP REG (OCTAL)	SA REG (OCTAL)	SA REG (HEX)
772150	772152	2000146A
760334	760336	200000DE
760340	760342	200000E2
760344	760346	200000E6
760354	760356	200000EE
760360	760362	200000F2
760374	760376	200000FE
760400	760402	20000102

THIS SHOULD INVOKE THE DIAGS AND, AFTER ASKING WHETHER YOU ARE USING A PRINTER OR A VDU, BRING UP A MENU .

THE FIRST THING YOU MUST DO IS SELECT A DRIVE IN ORDER THAT FUNCTIONS MAY BE CARRIED OUT ON THAT DRIVE.

THEREFORE CONSIDER WE ARE TO CONNECT DRIVE 0 (A FUJI 2298).

SELECT MENU OPTION 0.

SET THE VARIABLES AS FOLLOWS:-

```

HEADS          16
SECTORS        69
CYLINDERS     1024
LOGICAL UNITS   1
BASE DU        0

```

THIS SHOULD GIVE YOU A UNIT SIZE OF 1111936 BLOCKS, IF THE BYTES/SECTOR ARE SET CORRECTLY ON THE VOIM PCB ON THE DRIVE.

THE TOTAL NUMBER OF BYTES IN A CYLINDER IS 40960

TO ACQUIRE A SECTOR COUNT OF 69 THERE MUST BE 586 BYTES/SECTOR

TO SET THE BYTES/SECTOR PROCEED AS FOLLOWS:-

REMOVE THE VOIM PCB.

SET SW1 & SW2 AS A BINARY COUNT WITH SW1-1 AS LSB SW2-7 AS MSB TO GET A TOTAL OF 586

N.B. SW1-1 IS A COUNT OF 2 AND THEREFORE ODD NUMBERS OF BYTES/SECTOR CANNOT BE ACHIEVED.

```

FOR 568 SW1-1 ON (2)
        SW1-3 ON (8)
        SW1-6 ON (64)
        SW2_2 ON (512)

```

```

TOTAL          586

```

IF YOUR MATHS ARE INCORRECT EXPECT TO GET A FORMAT FAILURE WITH THE COMMENT 'SECTOR OVERRUN' OR 'SECTOR COUNT INVALID'.
THE DRIVE CAN NOW BE FORMATTED FROM THE MENU !

FROM: GRAHAM MARRITT. TECH. SUPPORT.

DATE: 9-MAY-1989

PAGE: 1 OF 1

NO: 57

DEVICE: DILOG AND EMULEX CONTROLLERS AND UVAX 3 BA213 CHASSIS

PROBLEM DESCRIPTION:

Installation of quad boards in the UVAX 3 BA213 chassis causes the CPU to fail its power-up self test; boards known to cause this problem are as follows :

Dilog DQ246 disc controller
Emulex QD34 disc controller
Emulex QT14 tape controller

CHANGE:

The problem occurs when quad boards are installed directly following UVAX3 memory. The CD slots which run through the entire BA213 backplane are arranged such that side 2 of one slot is linked to side 1 of the following slot. Most quad boards have no signal lines on their CD edge fingers, however the standard Q-BUS ground connections on the CD edge fingers conflict with signal lines produced by side 2 of the last memory board. If a one board gap is left between the last memory board and the first quad board then the problem does not occur. Obviously a grant card or a dual controller must be installed in the gap left in slots AB to maintain Q-BUS continuity.

FROM: Tech Support (Gerrard Graf)

DATE: 8-MAY-1989

PAGE: 1 OF 1

NO: 58

DEVICE: EMULEX UD33,QD32,QD33 DISK CONTROLLERS

PROBLEM DESCRIPTION:

When using split logical drive configurations, mis-seek errors can occur if both logical drives are active simultaneously.

CHANGE:

The following firmware changes should be made to the relative controllers:

UD33	UPGRADE TO E93F
QD32	UPGRADE TO A63G
QD33	UPGRADE TO G16F
QD21	UPGRADE TO E65G

Previous UD33 firmware would not allow testing of units 4 through 7, the new release of firmware corrects this.

Note: Ensure the following links are installed prior to upgrading the firmware:

QD32	M - N
QD33	G - H
QD21	S - T

QD21 board revision should be checked prior to upgrading the firmware. The revision should be QD21110402-00 Rev G or above. In the case of board modification a quick check is a 74LS163 in location U16 as opposed to a 74LS221 in the older boards.

NOTE :-

It has come to our attention that the format on disks formatted on pre FRD controllers may not be compatible with controllers containing the FRD ROM's . So please inform those sites where a firmware upgrade is required that the disk may need to be re formatted . Some upgrades seem ok , there are no hard and fast rules , Emulex are aware of this.

Also the FRD's may hang at the main menu , this fault is due to the way the terminal uses data bit 7 . The fault has been cured in the firmware rev's as shown above. If you detect the fault try another terminal , or playing with the parity and data bit settings on the terminal.

FROM: Tech Support (Gerrard Graf)

DATE: 7-JUL-89

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NO: 60

DEVICE: The Emulex SC7003 disk controller.

INFO:

The SC7003 is an Emulex Mass bus adapter which is installed either in a Vax 11/750 option slot , or within the 'V' master cardcage on an 11/780 or 11/785 . The transfer rates of all the massbus controllers are as follows :-

Controller	Max Transfer rates	Controller	Max Transfer rate
SC7003	3Mb/sec	SC7002	2.5Mb/sec
SC7000	1.9Mb/sec	SC780	1.9Mb/sec
SC788	1.9Mb/sec		

Fuji drive	Transfer rate	Fuji drive	Transfer rate
2382	3Mb/sec	2372	2.5Mb/sec
2344	2.5Mb/sec	2333	2.5Mb/sec
2361	2.5Mb/sec	2351	1.9Mb/sec
2322	1.5Mb/sec	2284	1.5Mb/sec
2294	1.5Mb/sec	2298	2.5Mb/sec
2312	1.5Mb/sec		

As can be seen from the above tables , the SC7003 is the only massbus adapter that can support the 2382. The controller can support upto 8 logical drives . So if the physical drives are mapped as two logicals then only 4 physicals can be connected , as this still gives 8 logicals. The SC7003 also differs from other adapters as when the drives are mapped instead of becoming say logical 0 and 4 they become logical 0 and 1 . The controller is similar to the other 7000 range controllers in that there is a different switch pack to configure each physical drive.

Switch Pack	Physical unit number	Logical unit numbers	
SW2	0	0 & 1	(Bottom switch)
SW3	1	1 & 2	
SW4	2	2 & 3	
SW5	3	3 & 4	
SW6	4	4 & 5	
SW7	5	5 & 6	
SW8	6	6 & 7	
SW9	7	7	(Top switch)

As can be seen if for example 4 physical drives are to be connected and are mapped as 8 logicals then the drives would be set as unit numbers 0,2,4 and 6 and only switch packs 2,4,6 and 8 will be used.

Some useful configurations are as follows :-

Emulation	Switch Pack	Settings	Emulation			Physical			Drive Type
			Cyl	Hd	Sec	Cyl	Hd	Sec	
1 x RM03	0 0 0 0 0 0		823	5	32	823	5	32	CDC 9762
1 x RM05	0 0 0 0 0 C		823	19	32	823	19	32	CDC 9766
2 x RM03	0 0 0 C 0 0		823	5	32	823	10	32	FUJ 2322
1 x Exp RM80	0 0 0 C C C		842	20	48	842	20	48	FUJ 2351
1 x Exp RM05	C 0 0 C 0 0		624	27	64	624	27	64	FUJ 2344
2 x RM05	C 0 0 C C C		823	19	32	624	27	64	FUJ 2344
1 x Exp RM80	C 0 C C 0 C		745	27	68	745	27	68	FUJ 2372
1 x Exp RM05	C 0 C C C 0		745	27	78	745	27	78	FUJ 2382
1 x Exp RM80	C 0 C C C C		745	27	78	745	27	78	FUJ 2382

To set the 2382 to 78 sectors set SW4-1,2,4,5,6 on & SW5-2 on. This also requires a config rom (Pno C06) of at least rev E.

FROM: Tech Support (M Hodge) .

DATE: 13-Nov-89

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NO: 61

DEVICE: EXSYS RACE UNITS.

INFO:

The EXSYS RACE Units are ESDI to SDI converters.
The two types we shall see are the RAC4000 and the RAC4004.
The RAC4000 is a single drive unit and the RAC4004 is a unit which can link up to four drives making them appear as one to the computer system. The drives normally used on these converters are Maxtor 8760's.
The drives are set up as follows:-

The first drive must be set as physical drive FOUR, the second as drive FIVE, the third as drive SIX and the last as drive SEVEN. To do this set links DS4, DS5, DS6 or DS7.
The drive has to be set for " Motor spin-up by command " (JP6 OUT) and " Hard sector mode & programmable sector size " (JP30 IN).

Connect the drive as follows :-

4 pin Power cable
34 pin Control cable
20 pin Data cable

To set on line :-

Set the rotary switches (S1, S2 and S3) to the Unit number. S1 is the MSB and S3 is the LSB in a Decimal count to a maximum of 250.
Select RUN.
Switch on the unit.

To check for errors:-

Set the unit OFFLINE by deselecting " A &/or B ".
Set 910 with S1, S2 and S3.
The last error occurred will be displayed by the numerical readout. (See manual for a list of errors).
Set 911 for the last twenty errors at one second intervals.

To enter the diagnostics:-

Set the unit Offline (deselect A &/or B).
Press the Write Protect button IN.
Select 876 with the rotary switches.

The letters " DIA/FOR " will be displayed in the windows.
WITHIN 30 seconds deselect the Write Protect.
Wait 3 to 4 seconds for a menu to appear on the VDU which can be connected to the rear panel (9600BD).

The menu is fairly self explanatory, but more details can be found in the manual.

If the Maxtor drive is set up correctly then the System should see it as follows:-

CYLINDERS	1632	BYTES IN ISG	5140
HEADS	15	BYTES IN PLO	14
SECTORS	45	XFER RATE	15 MB/SEC
BYTES/SECT	698	FORMATTED CAP'TY	550 MB
BYTES/TRA	31410		

FROM: Tech Support (G Marritt)

DATE: 27-Oct-89

PAGE: 1 OF 2

NO: 62

DEVICE: Problems detected with VMS Version 5.2

INFO:

Problem 1:

When a Q bus system containing a QD21, QD32 or QD33 is upgraded to 5.2 the new system will not boot but hangs just after displaying the VAX/VMS header.

Fix 1:

The controller probably does not have 22 bit addressing enabled or the 22 bit chip is not installed. Both of these requirements must be met to run 5.2 whereas 5.1 required neither. Please make a note of all sites that do not have the chip so that one can be installed at the next pm.

Problem 2:

On Vax 11/750 system running 5.2 the debugger crashes with access violation at SHARE\$DEBUG+2277 .

Fix 2:

The patchable control store needs to be upgraded to revision 103 (67 in hex) . To determine the rev examine the SID register
>>> E/I 3E should return 02006778 where the 67 is the PCS rev.

Problem 3:

When attempting to read a tape on a TU81+ which contains multiple savesets a tape positioning error may be encountered. The tape has overrun the start of a saveset and is now out of position.

Fix 3:

There is no real fix for this currently , but by issueing the command \$ SET MAGTAPE/SKIP=RECORDS:-1 MUA0: will cause the tape to backspace a record to the correct position.

FROM: Tech Support (M Hodge).

DATE: 27-Oct-89

PAGE: 2 OF 2

NO: 62

DEVICE: Changes noted to VMS Version 5.2

INFO:

Errorlog :

The file ERRLOG.SYS fromm a 5.2 system cannot be analysed using an earlier version of the system.

Backup:

Backup now supports Control T during execution. This will show the file currently being backed up.

Savesets backed up to tape cannot be copied back to disk (Using COPY) unless they were backed up using the /INTERCHANGE qualifier.

Backup no longer supports the /BUF switch , it is meant to perform much faster CRC checks and generally improve throughput. It requires the tailoring of several sysgen parameters to work efficiently though.

Clustering/Networking:

The number of nodes in a mixed interconnect cluster (ie both CI and LAVC) has been increased from 42 to 96 nodes.

A new ethernet interface is now supported it is called the DEBNI.

Show command:

The following new show commands are available :-

SHOW USERS/CLUSTER
SHOW USERS/ALL ! Gives more info
SHOW USERS/NETWORK

This is just a summary of some of the more interesting changes.

FROM: Tech Support (M Hodge)

DATE: 6-jul-89

PAGE: 1 OF 1

NO: 63

DEVICE: CDC Wren VI drive / QD21

INFO:

Parameter settings for wren VI drive on QD21 controller:-

Total physical	sectors per track	=	53
"	heads	=	15
"	cylinders	=	1632
	spare sectors	=	1
	config bits	=	2
	split	=	0
	fixid media	=	0
	gap 0	=	2318
	gap 1	=	2827
	gap 2	=	521
	spiral offset	=	0

FROM: Tech Support

DATE: 27-Oct-89

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NO: 64

DEVICE: CS02 Board and prom revisions

PROBLEM DESCRIPTION:

A number of CS02's give problems such as system crashing and hanging in Micro vax 2's , even though they have the latest rev firmware (Rev P) installed.

CHANGE:

There are two types of CS02 module , they will have either of the following part numbers CU0210401 or CU0210402 . The minimum revision of the etch for the board to work correctly is as follows:-

CU0210401 Rev J (The partnumber and rev can be found along one edge
CU0210402 Rev F of the board).

If the etch is below this rev then the board may well exhibit problems but may function ok in a PDP . The only solution is to return the board to HQ for it to be returned to Emulex for upgrade.

FROM: Tech Support (M Hodge)

DATE: 19-JAN-1990

PAGE: 1 OF 1

NO: 65

DEVICE: CDC 9766

INFO:

The following list shows which Pcb's should be in which drives:-

Location.	PCB.	Series Code.
A01	FTVV	1 & above.
A01	GTVV	1 & above.
A02	JRVV	1 & above.
A03 as 1		
A04 as 2		
A05	AKHV	1 to 4
A05	BKVV	5 to 7
A05	EKVV	8 & above.F
A05	FKHV	14 to 16
A05	GKVV	17 to 39
A05	HKVV	21 & above
A06	FLTV	1 & above.
A07	MLVV	1 & above.
A08	BQPV	1 to 5
A08	CQPV	6 & above.
A09	6SMV	1 & above.
A10	CLSV	1 & above.
A12	FLWV	1 & above.
A13	ELXV	1 & above without Index/Sector on A & B cable.
A13	FLXV	1 to 40 with I/S on A & B cable.
A13	LLXV	41 & above with I/S on A & B cable.
A14	HLRV	1 & above.
A14	KLRV	12 & above.
A15	BLZV	1 & above.
A17	CKFV	1 to 22
A17	MKFV	23 & above.
A18	HFRV	1 & above.
A19	AKGV	1 & above.
A20	DMSV	1 & above.
E01	4PKV	1 & above.
E02	5PJV	1 to 25 (BK7)
E02	BPJV	26 & above. (BK7)
E02	6PJV	1 & above (BK6)
E03	4PHV	1 & above.

FROM: Tech Support (G Marritt)