

Field Application Document (FA)

DIGITAL	FCO	CATEGORY [F]	PAGE 1 OF 11
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FIELD CHANGE ORDER	NUMBER: KA45-F002 KA47-F002
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APPLICABILITY: This "F" coded FCO should be installed in all Microvax 3100 Model 30, 40, and 80 which contain part rev below M02 or M03 for FRU 54-20654-01 (Model 30 and Model 40) and part rev below J02 or J03 for FRU 54-20652-01 (Model 80). This FCO incorporates ECO No. 54-20654-TWO007 for Model 30 and Model 40 and ECO No.5420652-TWO006. Please do not make a separate trip just to install FCO unless customer is down. Install the FCO next time you go to the Customer site.

PROBLEM & SYMPTOM: Previous revision FRU would not see RZ26L and RZ28 drives (If system has it) when Booting the system. This problem is caused by SCSI RESET too short. This FCO will also correct 1. MOP SYSID broadcasting alternates MOP3/MOP4 message, 2. SCSI Verify command now with greater than 64K block count size, 3. New VMB addresses MOP4 response time issues.

SOLUTION: Replace two Firmware ROMS located on FRUs 54-20654-01 and 54-20652-01.

For FRU 54-20654-01:

Replace ROM 23-266E8-00 or ROM 23-223E8-00 or ROM 23-149E8-00 at location E167 with new ROM 23-284E8-00 and replace ROM 23-267E8-00 or ROM 23-224E8-00 or ROM 23-150E8-00 at location E168 with new ROM 23-285E8-00.

For FRU 54-20652-01

Replace ROM 23-266E8-00 or ROM 23-223E8-00 or ROM 23-149E8-00 at location E15 with new ROM 23-284E8-00 and replace ROM 23-267E8-00 or ROM 23-224E8-00 or ROM 23-150E8-00 at location E16 with new ROM 23-285E8-00.

QUICK CHECK:

For FRU 54-20654-01:

KA45-A V1.4-38D-V4.2 appears on screen during power up self test.

For For FRU 54-20652-01:

KA47-A V1.4-38D-V4.2 appears on screen during power up self test

PRE/COREQUISITE FCO:

N/A

MFIT HRS

1.5

TOOL/TEST EQUIPMENT: Field service maintenance tool kit.

FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS	EQ KIT VARIATION APPLICABILITY
EQ-01704-01	ROMS 23-284E8-00 and 23-285E8-00 36-19208-03 "3" Brady Marker 36-19208-02 "2" Brady Marker 36-19209-10 "J" Brady Marker 36-19209-13 "M" Brady Marker	
FA-05041-01	FCO Document	

APPROVALS

TECH. ENGINEER Bharat S. Shah	ENG. BUSINESS MGR. Jack Zemcik	DS LOGISTICS Barry Weinstein	DS PRODUCT SAFETY Robert Brister
	PARTS AVAILABILITY	FCO REVISION A	FCO RELEASE DATE

FIELD APPLICATION DOCUMENT (FA), Continuation Page

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FCO KA45/47-F002

PAGE 2 OF 11

Field Installation Synopsis

** NOTE **

Read these instructions completely before attempting installation of this FCO.

If problems are encountered during the procedures described herein, refer to the documentation listed in Step 21.

```

*****
*
*                               CAUTION                               *
*
* The internal Field Replaceable Units (FRU's) handled during this      *
* procedure are sensitive and can be damaged by electrostatic discharge *
* (ESD). Wear a wrist strap and place an anti-static mat under the      *
* system unit when working with the internal parts of the system unit. *
*****

```

1. Shut down the operating system: Have the customer notify all affected system users and shutdown the operating system.
2. Verify the firmware version and system configuration:
 - a. Halt the system: Once the operating system has been shutdown, press the Halt button on the back of the system unit or use the break key to put the system in into console mode.
 - b. Enter the command "SHOW CONFIG" at the console prompt.

A sample system response follows for a system with a KA45 CPU board with 8 MB memory and version V1.2 firmware, an RZ24 system disk and

TZ30 tape drive, a DSW42 synchronous communications option and a DHW42 asynchronous communications option.

The following configuration display indicates a healthy system because:

- * All devices indicate an " OK " status
- * No soft errors (" ? ") are indicated
- * No hard errors (" ?? ") are indicated

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FCO KA45/47-F002

PAGE 3 OF 11

KA45-A V1.2-343-V4.0
08-00-2B-16-44-48
8MB

DEVNBR	DEVNAM	INFO
1	NVR	OK
3	DZ	OK
4	CACHE	OK
5	MEM	OK
		8MB = SY=8MB, S0/1=0MB, S2/3=0MB, S4/5=0MB
6	FPU	OK
7	IT	OK
8	SYS	OK
9	NI	OK
10	SCSI	OK
		3-RZ24 5-TZ30 6-INITR
12	COMM	OK
		DSW41/42 2 CHANNEL V3.11-47
14	ASYNC	OK
		DHW41/42 V1.6

The top line of the display reveals the firmware version as follows:

KA45-A V1.2-343-V4.0 for Model 30 or 40
KA47-A V1.2-343-V4.0 for Model 80
^^^^

|
|____ Firmware version V1.2 shown here.

Make a note of the firmware version and system configuration for reference later in Step 18. If revision does not match as mentioned in "Quick Check" then this FCO must be installed.

3. Set up velostat kit

- a. Unfold the VELOSTAT mat to full size (24" x 24").
- b. Attach the 15 foot ground cord to the VELOSTAT snap fastener on the mat.
- c. Attach the alligator clip end of the ground cord to a good ground.
- d. Attach the wrist strap to either wrist and the alligator clip to a convenient portion of the mat.

```
*****
*      C A U T I O N      *
*              *
* If using a module in an ESD box, insure wrist strap is      *
* connected to the box and the box is connected to chassis    *
* of the device being upgraded.                                *
*****
```

- 4. Power-down the system: Turn off the following in the order shown:
 - a. Console terminal
 - b. All connected peripheral devices
 - c. All connected expansion boxes
 - d. The system unit

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FCO KA45/47-F002
PAGE 4 OF 11
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5. Remove all connections from the system unit's rear panel: Disconnect from the system unit the power cord, cables, loopback connectors and terminators.

6. Remove the system unit's enclosure cover: Loosen the two captive Philips screws (12-30338-05) on the back of the system unit. Slide the cover forward and lift it up from the system unit.

**** NOTE ****

You can remove the drive-mounting shelf/shelves with all the mass storage devices attached and without disconnecting the power cable and SCSI cable from the mass storage devices.

```
*****
*
*              CAUTION              *
*
* When you disconnect the SCSI cable from the CPU board, ensure that you *
* not damage or disturb the MS44 memory modules (SIMM).                *
*
* Be careful not to disturb any green wire connections on the CPU board. *
*****
```

7. Remove the mass storage drive mounting shelf/shelves:

a. For the model 30, there is one drive mounting shelf.

1. On the power supply unit, disconnect the 'flying lead' power cable that supplies power to the mass storage devices.

2. Loosen the three captive screws that secure the drive mounting shelf to the enclosure (2 screws) and power supply unit (1 screw).

3. Loosen the two captive Philips screws (90-09984-07) on the right of the enclosure.

4. Slide the drive mounting shelf towards the front of the enclosure as far as it will go.

5. Disconnect from the CPU board the 'flying lead' SCSI cable that extends from the drive mounting shelf. Refer to Figure 1 for the location of the SCSI connector.

6. Lift the drive mounting shelf up from the enclosure and set it aside.

b. For Models 40 and 80, there are two drive mounting shelves; these can be removed as one unit.

1. On the power supply unit, disconnect the two 'flying lead' power cables that supply power to the mass storage devices.

2. Loosen the two captive screws that secure the upper drive mounting shelf to the power supply unit.

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FCO KA45/47-F002

PAGE 5 OF 11

3. Loosen the two captive screws that secure the lower drive mounting shelf to the enclosure.

4. Loosen the two Philips screws (90-09984-07) that secure the lower drive mounting shelf to the enclosure.

5. Slide the upper and lower drive mounting shelf combination towards the front of the enclosure as far as it will go.

6. Disconnect from the CPU board the 'flying lead' SCSI cable that extends from the drive mounting shelf combination. Refer to Figures 1 and 2 for the location of the SCSI connector.

7. Lift the drive mounting shelf combination up from the enclosure and set it aside.

8. Decision point:

- a. If the system does not have a DHW41-AA, DHW41-BA, DHW42-AA, DHW42-BA or DHW42-CA, go to Step 10.
- b. If the system has a DHW4x-xx asynchronous communications option installed and is a Model 80 system, the DHW4x option MUST be removed to gain access to the firmware ROM's. Go to Step 9.

9. Remove the 54-20662-01 logic board:

- a. Refer to Figure 2 (Model 80) which shows the location of the 54-20662-01 logic board.
- b. Press the latch on one of the stand-off pillars and push up the corner of the 54-20662-01 logic board until the 54-20662-01 logic board is released from the stand-off pillar.
- c. Press the latch on the other stand-off pillar and push up the corner of the 54-20662-01 logic board until the latch releases the 54-20662-01 logic board from the stand-off pillar.
- d. Push up the 54-20662-01 logic board until the connectors on the 54-20662-01 logic board disengage from the connectors on the CPU board.
- e. Remove the 54-20662-01 logic board from the enclosure.

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FCO KA45/47-F002

PAGE 6 OF 11

10. Remove and replace the firmware EPROM's:

- a. Refer to Figure 1 if your system is a Model 30 or 40, or Figure 2 for a model 80 for the location of the firmware EPROM's that need to be replaced.

```

*****
*                                     *
*                               CAUTION                               *
*                                     *
* If the EPROM's are installed in the wrong location or orientation, *
* power-up self-test will not pass and the components may be damaged. *
*****

```

- b. Locate the firmware EPROM with either part number 23-150E8-00, 23-224E8-00, or 23-267E8-00 (High Byte). Use an IC remover or small screw driver to remove the EPROM from the socket. Replace with EPROM 23-285E8-00 supplied in the kit. Observe the orientation of the notch in the ROM package.

c. Locate the firmware EPROM with either part number 23-149E8-00, 23-223E8-00, or 23-266E8-00 (Low Byte). Use an IC remover or small screw driver to remove the EPROM from the socket. Replace with EPROM 23-284E8-00 supplied in the kit. Observe the orientation of the notch in the ROM package.

11. Affix the CPU board revision level: When upgraded with V1.4 firmware, the CPU boards take on a new revision level as follows:

Model 30/40: KA45-AA (54-20654-01) becomes revision level M02 or M03
Model 80 : KA47-AA (54-20652-01) becomes revision level J02 or J03

Four brady markers are supplied in the EQ kit; J, M, 2, and 3. Place the appropriate brady markers over the bar code label revision sticker. The approximate label location is shown in Figures 1 and 2.

12. Decision point:

a. For a system with a DHW4X option, go to Step 13.

b. For a system without a DHW4X option, go to Step 14.

13. Re-install the 54-20662-01 logic board if the option had been removed in order to gain access to the firmware ROMs on Model 80 systems.

14. Re-install the mass storage drive mounting shelf/shelves: Follow Step 7 in reverse, then go to Step 15.

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FCO KA45/47-F002

PAGE 7 OF 11

15. Re-install the system unit's enclosure cover: Follow Step 6 in reverse, then go to Step 16.

16. Re-install all connections on the system unit's rear panel: Connect the terminators, loopback connectors, cables and the power cord to the system unit.

17. Power-up the system: Turn on the following in the order shown:

- a. All connected expansion boxes
- b. All connected peripheral devices
- c. Console terminal
- d. The system unit

18. Verify the Firmware revision as mention in "Quick Check" for respective FRU.

19. System verification test: Wait for the system unit's power-up self-test to complete.

a. Enter the command "SHOW CONFIG" at the console prompt. Verify that:

- * The power-up self-test is successful (ie, no hard errors)
- * The firmware version is V1.4-38D-V4.2
- * The status for all devices is the same as indicated from Step 2b.

b. Enter the command "SET DIAGENV 2" at the Console prompt
Enter the command "T 101" at the Console prompt

This will run the system test in the Customer Services Environment for two passes. Verify that no errors have occurred.

If problems are indicated, refer to the documentation listed in Step 23 for troubleshooting information.

20. Reboot the operating system: Follow the system reboot procedures.

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FCO KA45/47-F002

PAGE 8 OF 11

21. Old ROMS, defective (non complying) material has to be scrapped according to local procedures.

22. Report this FCO activity on the LARS form in the "Fail Area/Module/FCO/Comments" column as follows: FCO KA45/47-F002
(See the following LARS example).

LARS

CATEGORY F	USA	APA	EUROPE
Activity - Coverage Code			
(a)Contract	W	U	K
Warranty	W	U	W
Inhouse			A
Invoiced per Call			F
(b)IN-DEC Contract	K	U	
Non Contract/Non Warranty	F	F	
(c)RTD/Off-site Agreement	F	U	
Hardware Segment Code	111	111	
Product Line	01		
BBC Cobe for K, W, A			111
BBC Cobe for F			031

Option ID	X	N/A	N/A
Type of Call	M	M	
Request Type			I
Action Taken	D	D	Y
Quality Codes			M,L,J,R,X,A,Y,Z
Fail Area-Module-FCO-Comments	FCO#	FCO#	FCO-KA45-F002 or FCO-KA47-F002
Material Used	EQ-01704-01	EQ-01704-01	EQ-01704-01

- (a) Warranty Optimum, Warranty Standard and Warranty Basic (on-site) Agreements; * Note material (only) free of charge for all customers.
- (b) Applies to IN-DEC Area Only
- (c) RTD=Return to Digital or Off-site Agreements; If Field Engineer On-site, use Activity Code "O".

FCO CHARGING INFORMATION

WARRANTY/CONTRACT				NONWARRANTY/NONCONTRACT				
ON-SITE		OFF-SITE		ON-SITE		OFF-SITE		MATERIAL ONLY
TRAVEL/ INSTALL	EQ KIT	INSTALL	EQ KIT	TRAVEL/ INSTALL	EQ KIT	INSTALL	EQ KIT	ORDER-ADMIN, HANDLING PKG, SHIPPING & EQ KIT
DEC	DEC	DEC	DEC	CUST	CUST	CUST	CUST	DEC

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FCO KA45/47-F002

PAGE 9 OF 11

23. MicroVAX 3100 Platform Maintenance Information Kit:

For more information, refer to the MicroVAX 3100 Platform Maintenance Information Kit (MIK) - part number QZ-K44AC-GZ - which contains the following documents:

Volume 1:

- EK-A0512-MG Guide to the MicroVAX 3100 Platform Maintenance Information Kit
- EK-A0541-CL Cover Letter for MicroVAX 3100 Platform Internal Options
- EK-A0510-MG BA42-A Enclosure Maintenance
- EK-A0511-MG BA42-B Enclosure Maintenance
- EK-A0519-MG Options
- EK-MV310-IP Illustrated Parts Breakdown

Volume 2:

EK-A0513-MG
EK-A0514-MG
EK-A0574-HR

KA45 CPU System Maintenance
KA47 CPU System Maintenance
CPU Reference Information

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```

FCO KA45/47-F002

PAGE 10 OF 11

Figure 1 - Diagram of KA45-AA CPU Board used in MicroVAX 3100-30, -40

{Latest version EPROM's are shown}

Back of the system - I/O panel

External connectors

KA45-AA CPU board
(54-20654-01)

```
+-----+
| MS44 SIMM 3L |
+-----+
| MS44 SIMM 2L |
+-----+
| MS44 SIMM 1L |
+-----+
```

```
+-----+
| MS44 SIMM 3H |
+-----+
| MS44 SIMM 2H |
+-----+
| MS44 SIMM 1H |
+-----+
```

```
+-----+
| SCSI connector |
+-----+
```

+-----+ *

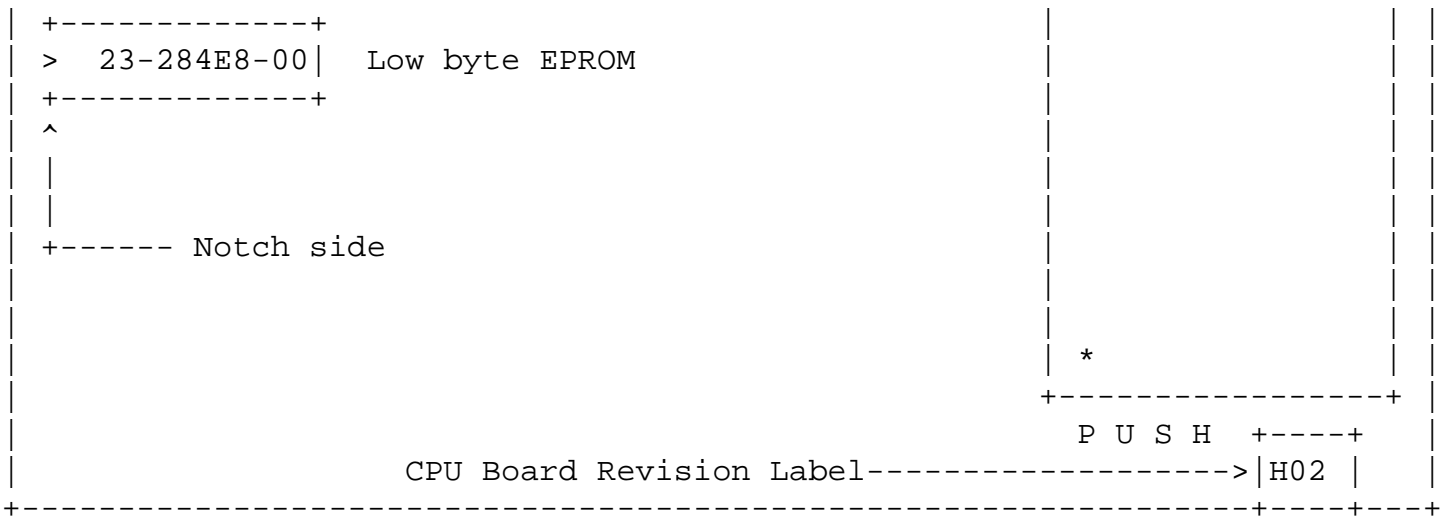
DHW4x
Logic board
54-20662-01

```
+-----+
> 23-285E8-00 | High byte EPROM
+-----+
```

P
o
w
e
r

S
u
p
p
l
y

U
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t



Front of the system

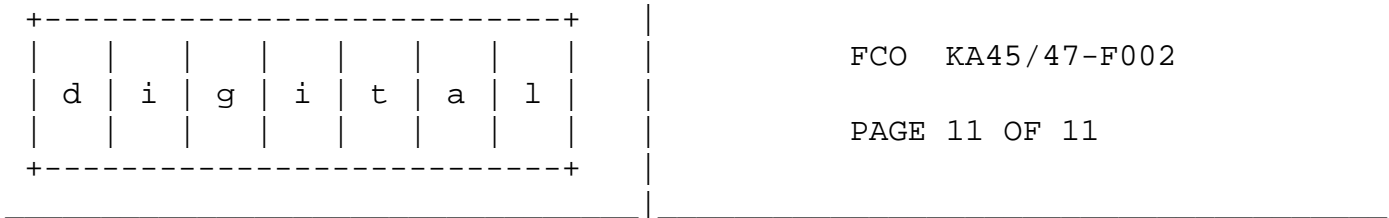
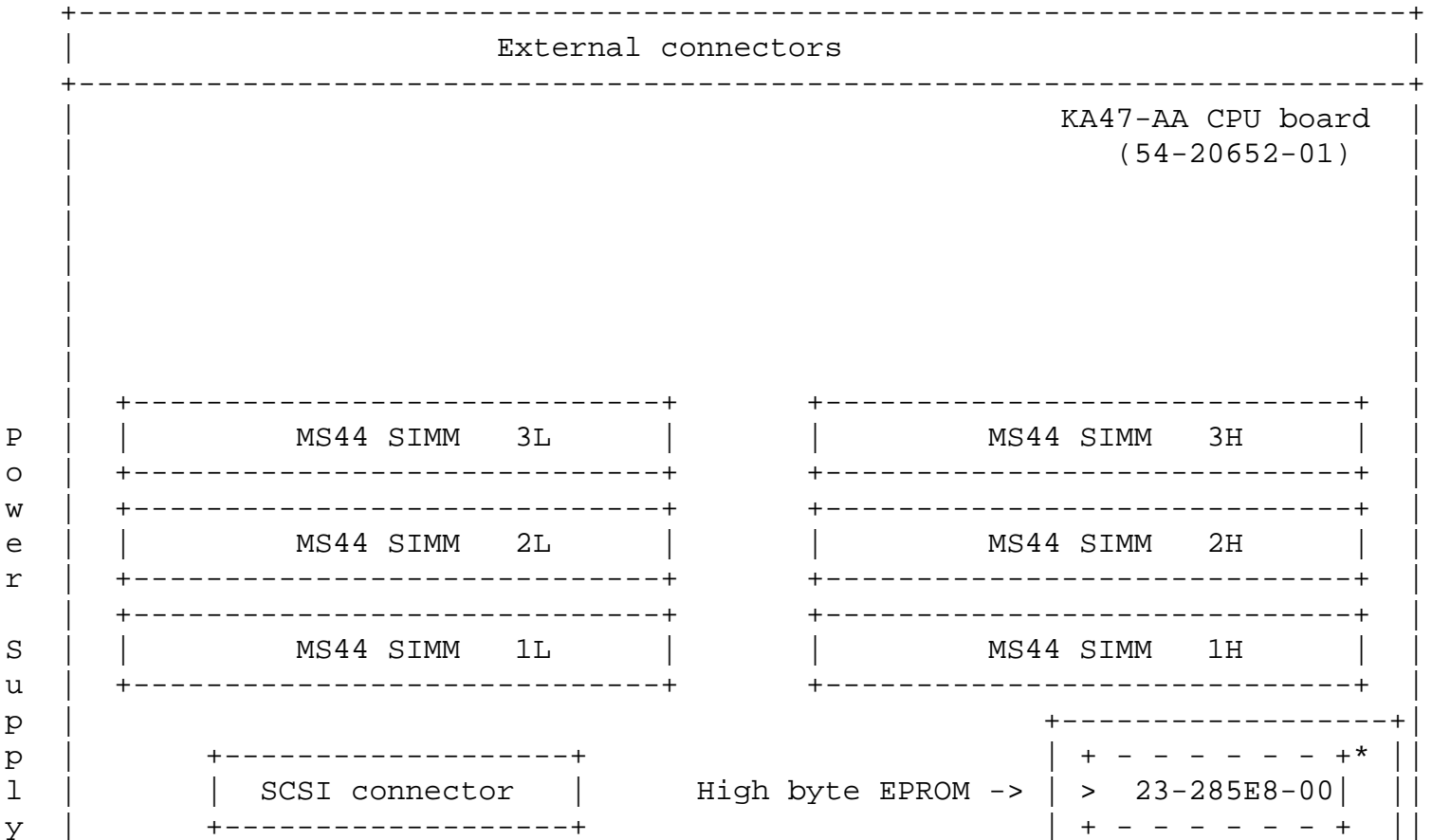


Figure 2 - Diagram of KA47-AA CPU Board used in MicroVAX 3100-80

{Latest version EPROM's are shown}

Back of system - I/O panel



P
O
w
e
r

S
u
p
p
l
y

U
n
i
t

Both EPROM's are
located under the
54-20662-01 logic board

Low byte EPROM ->

```
+ - - - - - +  
> 23-284E8-00|  
+ - - - - - +  
^  
|  
+---- Notch side
```

DHW4x
Logic board
54-20662-01

*

```
+-----+  
P U S H +-----+
```

CPU Board Revision Label----->|E02 |

Front of the system