_ FCO 7XXX-O004, Mem Config Restrict/Cache Err Correction Routine

DIGITAL	FCO	CATEGORY [O]	PAGE 1 OF 7

FIELD CHANGE ORDER — NUMBER: (DEC) 7XXX-O004/ (DEC) 10XXX-O001

APPLICABILITY: This "O" coded FCO should be installed on all DEC 7XXX and DEC 10000-6XX systems, replacing all E2040-AA(all revs),E2040-AB (all revs) and E2040-YA (rev. A01, B01, C01, and D01) CPU modules with new E2040-YA rev. E01 CPU module.
These FCOs incorporate the following ECOs:(1) E2040-AB-TWO001 and (2) E2040-YA-TWO003.
This FCO will also upgrade all 182 MHZ systems to 200 MHZ performance.

PROBLEM & SYMPTOM:

(1) System currently has certain memory configuration restrictions that are checked by console prior to booting the system. The console will display the following message "INVALID MEMORY INTERLEAVING- boot disallowed", when a boot is attempted on the system.

(2) The Cache error correction routine does not properly correct cache signal bit errors. This problem has the potential to severly disrupt normal system operation.

SOLUTION:
Replace the E2040-AA(all revs); E2040-AB(all revs) and E2040-YA(rev. A01, B01,C01,D01) CPU modules as per a procedure (see below) with new E2040-YA rev. E01 module, minimum revision must be E01.
NOTE: All modules at rev. E01 need a minimum Console version V2.5

QUICK CHECK: Verify that all System modules are E2040-YA at the minimum Rev E01 and the Spares kits are at rev E01.

PRE/CO-REQUISITE FCO:	MFIT HRS
N/A	1.0

TOOL/TEST EQUIPMENT: Std FS tool kit and ESD kit

FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS
EQ-01694-01	1 E2040-YA CPU module at revision E01 or higher
FA-05031-01	1 Field Application (FA) Document

FCO CHARGING INFORMATION (see last page)

APPROVALS

TECH.ENGINEER	BUSINESS Manager	DSHQ Logistics	DS Product Safety
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MICROMEDIA	PARTS AVAILABILITY	FCO REVISION	FCO RELEASE DATE
Brenda Rogers	APRIL 1994	C	11-APR-94

UPGRADE PROCEDURE FOR THE E2040-AA, AB and E2040-YA CPU MODULE.

This rework procedure gives step by step instructions on how to replace the E2040-AA, AB or YA processor module from the system, Upgrade/verify firmware revisions and set the system parameters depending upon how customer wants the system configured.

1. Shut down the operating system: Have the customer notify all affected system users and shutdown the operating system.

   When replacing the processor in the system you must store the system serial number and customer boot path. For DEC10000 systems take special note of the "SYSTEM_VARIANT" environment variable.
   If the customer changed console environment variables from the default values, you will want to set them as the customer wishes.

   Consider the next two factors when replacing a CPU:

   a) The desire to retain the system environment.

   b) The possibility that one CPU is at a higher Firmware revision than other CPUs in the system. If there is a firmware revision mismatch, you will want to update the FLASH ROMs on the older CPUs.

      NOTE: For additional information use ALPHA AXP
            DEC 7000 SYSTEM SERVICE MANUAL
            Order number: EK-7002B - SV.002

            DEC 10000 SYSTEM SERVICE MANUAL
            Order number: EK-1002A - SV.002

2. Record system parameters: Show the environment variables. Record these for future use.

   >>> SHOW *
   >>> SHOW EEPROM SERIAL

NOTE: Some system parameters may require setting depending upon how the customer wants the system configured. The environment variables are stored in the EEPROM. The "SYSTEM_VARIANT" environment variable is used to identify the system type as either a DEC7000 or DEC10000.

3. Power down system: Turn the keyswitch on the front control panel to the disable position and wait for the control panel yellow fault LED to stop flashing. When the fault LED stops flashing, power has been removed from the LSB backplane and you may safely proceed.

```
**************************************************************
*                  ***   C A U T I O N  ***                   *
*   This module, as all other modules, contains               *
* electrostatic discharge sensitive devices (ESDS).          *
*       The use of the VELOSTAT kit is essential to prevent  *
* damage which may not be noticed immediately.               *
**************************************************************
```

4. 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 on the cabinet.
d. Attach the wrist strap to either wrist.
e. Remove the module from the spares kit and place it on 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.                             *
**************************************************************
```

5. Release the plate covering the LSB card cage at the front of the system by loosening the two phillips screws on the end of the plate. The plate is connected to the card cage by a cable; push the plate to one side.

6. Remove the E2040-AA ,AB or YA CPU module:
On the CPU module, use your thumbs to pull the two black restraining clips out and to the right. The clips snap when they are open.

Pull both levers out at the same time until they are perpendicular to the front of the module. This frees the module from the backplane.

Remove the module and place on the velostat mat.

7. Install the new E2040-YA, rev E01 CPU module:
Pull out the two black
restraining clips to the right and pull the two levers out until they are perpendicular to the front edge of the module. The clips snap open.

   Holding the module level, gently guide it into the card cage. If you encounter any resistance, check the alignment of the tracks and reinsert.

   When the module is fully inserted, the front of the module will be flush with the card cage. Note that the module does not click when it is fully inserted.

   Holding the two metal tabs, push both of them toward the edges of the module simultaneously. Check that the ends of the metal tabs are fitting into the guides of the card cage slot. Push the levers toward the module case.

   Snap the black restraining clips across the levers to secure the module.

8. Replace the plate covering the card cage by tightening the two phillips screws.

9. Verify system: Power up the system by turning the keyswitch from DISABLE to either the ENABLE or RESTART position. Power sequencing begins and the system runs self tests. Observe console terminal for the results of the self tests. If the self tests indicate that everything passed (+ on the ST lines indicates pass, - indicates failure) proceed to next step. If errors are indicated, try reseating the new CPU and/or refer to the following manual for further information:

   ADVANCED TROUBLESHOOTING Part number EK-7701A-TS

```
**************************************************************
*              ***  CAUTION  ***                             *
*  After the firmware update is complete the EEPROM and      *
*  Non-Volatile Ram  may need to updated, use the             *
*  "build eeprom" and "build nvr"      *
*  console command on each cpu in system prior to setting the   *
*  console environment variables.                             *
*               Console     LFU                              *
*                 rev.    Version                           *
*               -------         -----------                  *
*                 V2.5   AXP7000_V07                         *
**************************************************************
```

10. Restore system specific configurations: Using the appropriate console commands, restore the system specific configurations.

- Set the system serial number:
  >>> Set eeprom serial

  System serial number>GAO1234567 (Enter system serial number which can be found on the barcode label at the back of the system cabinet just below the AC input box).

- Show current environment parameters and compare to the information recorded earlier in step 2.

  >>> SHOW *

- Restore Environmental parameters to their original settings. This is done using the "SET" command as shown in the following example:

  >>> SET auto_action halt [return]
  >>> SET bootdef_dev DUA5.0.0.2.0 [return]

  NOTE: For DEC10000 systems the "SYSTEM_VARIANT" environment variable must be set.

  >>> SET system_variant 1 [return]

11. Use the set eeprom field command to enter the 8 digit LARS number and a short message (up to 68 characters) stating the date and reason for service (Replaced CPU , out of rev) into the EEPROM.

```
>>> set eeprom field

LARS> 01234567  (enter the LARS number)
Message> Replaced CPU, out of rev.  (enter message)
```

12. Once the console environment is set up, verify the repair by booting the system. If there are alternative boot paths, you will want to make sure that all boot paths function properly.

13. Boot the system and return control to the customer.

```
>>> BOOT
```

14. Package the E2040-AA,AB or YA into the container and return through normal Logistics channels.

15. Report this FCO activity on the LARS form in the "Fail Area/ Module/FCO/Comments"column as follows: FCO 7XXX-O004 or 10XXX-O001. (See Appendix A).

LARS

CATEGORY F	USA	GIA	EUROPE
Activity -			
(a)Contract	W	U	K
Warranty	W	U	W
(b)IN-DEC Contract	K	U	A
Non Contract/Non Warranty	F	F	F
(c)RTD/Off-site Agreement	F	U	F
Hardware Segment Code	111	111	111
Product Line	031	031	031
DEC Option	7XXX	7XXX	7XXX
Option ID	X	N/A	N/A
Type of Call	M	M	M
Action Taken	D	D	I/V
Fail Area-Module-FCO-Comments	7XXX-O004	7XXX-O004/	7XXX-O004/

		10XXX-O001	10XXX-O001
Material Used	EQ-01694-01	EQ-01694-01	EQ-01694-01

(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 "F".

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	CUS	CUS	CUS	CUS	CUS