

DIGITAL	FCO	CATEGORY [0]	PAGE 1 OF 5
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FIELD CHANGE ORDER	NUMBER: 9XXX-0008
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APPLICABILITY: This "O" FCO should be installed on all VAX 9XXX systems and all field spares should be upgraded at the same time. This FCO incorporates ECOs #P1003-A-MR003 and P1004-A-MR002. These ECOs change the revision of both the P1003-AA MCU Multi Chip Unit and the P1004-AA MCU to revision H02.

PROBLEM & SYMPTOM: The problem symptoms may range from undetected intermittent, incorrect results, to non-recoverable data parity errors. The symptoms resulting from these anomalies are difficult to define or model specifically. They are caused by ALPHA particle effects. These changes simulate the exposure due to ALPHA particles and add further circuit stability by use of dual feedback latch.

## SOLUTION:

1. Retrofit all current customer systems to reflect usage of MCUs and revisions indicated on Page 2.

QUICK CHECK: See Page 2.

PRE/COREQUISITE FCO: 9XXX-0003	MTTI HRS 4.0 Hrs.
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TOOL/TEST EQUIPMENT: 1. Console software must be at BL14.2 minimum.  
2. VAX9000 Maintenance Guide Vol II for MCU Removal/Replacement Procedure.

## FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS	EQ KIT VARIATION APPLICABILITY
EQ-01623-01	F6-P1003-AA;H02 MUL, EBOX MULTIPLY MCU	
EQ-01623-02	F6-P1004-AA;H02 FAD, EBOX FLOATING UNIT MCU	
FA-04958-01	FCO Document	

## 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	N/A	N/A	N/A	N/A	N/A

## APPROVALS

CSSE Chris Demos	CSL LOGISTICS Dick Joseph	CS PRODUCT SAFETY Robert Brister
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CSSE MANAGER	This document is published	FCO RELEASE DATE
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Dino Genova	on multiple media including Customer Services Microfiche	24 September 1991
MICROMEDIA Diane MacDonald	Libraries and MDS Microfiche Libraries. It is also available electronically on the Customer Services SSD CD-ROM and via TIMA.	FCO REVISION A
POPULATION 695		PARTS AVAILABILITY September, 1991

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SOLUTION (Continued)

NOTE: ONLY RETROFIT P1003-AA, MUL MCUs AT OR BELOW REVISION "D". THE P1003-AA, MUL MCUs AT REVISION "E" AND "F" ARE OF ACCEPTABLE REVISION DUE TO THE FACT THEY HAVE BEEN IMPLEMENTED WITH NEW ENCAPSULANT ON THE MULX MARCO CELL ARRAYS.

Part #	Description	OLD REV	NEW REV
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F6-P1003-AA	MUL, EBOX MULTIPLY MCU	D	H
F6-P1004-AA	FAD, EBOX FLOATING UNIT	E,F	H

2. Update logistics spares to reflect the latest revision of MUL MCU and FAD MCU, indicated above.

NOTE: ALTHOUGH THE P1003-AA, MUL MCUs AT REVISIONS "E" AND "F" ARE ACCEPTABLE WITHIN OUR CURRENTLY INSTALLED SYSTEMS, ALL SPARES SHOULD BE UPDATED ON THE P1003-AA, MUL MCUs TO REVISION "H". MUL MCU SPARES AT REVISION "H" WILL IDENTIFY A SCREEN TESTED MUL MCU SPARE.

QUICK CHECK (Continued)

Look for the following revisions on the MUL MCU and FAD MCU within current VAX9000 customer systems;

Part #	Description	Acceptable Revision
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P1003-AA	MUL, EBOX MULTIPLY MCU	E, F, H
P1004-AA	FAD, EBOX FLOATING UNIT	H

MTTI (Continued)

This FCO will take approximately 4.0 Hrs. (includes shutdown, removal, installation, and test time) for a UNI CPU configuration.

Field Installation Synopsis

1. Perform Normal Operating System Shutdown Procedures.
2. Turn Operator's Console "STARTUP" Switch to "HALT" position.
3. Show configuration of MCUs via VAX9000 console within each CPU that exists within system.

>>>SHOW CONFIGURATION/CPU:ALL

<CR>

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4. Identify if any of the P1003-AA, MUL MCUs are at or below revision "D".
5. Identify if any of the P1004-AA, FAD MCUs are at or below revision "F".

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| NOTE: THE FOLLOWING SET OF STEPS ARE TO BE DONE ON EACH CPU |
| SEPARATELY IN A MULTI CPU CONFIGURATION AND NOT CONCURRENTLY |
| ACROSS MULTIPLE CPU PLANARS!!!!                               |
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6. Power off the system, disconnect power and lock out the system from AC power source.
7. Replace the identified P1003-AA, MUL MCU with the P1003-AA revision "H" supplied in the FCO kit # EQ-01623-01.
8. Replace the identified P1004-AA, FAD MCU with the P1004-AA revision "H" supplied in the FCO kit # EQ-01623-02.

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| NOTE: REFERENCE THE MCU REMOVAL AND REPLACEMENT PROCEDURE |
| CONTAINED WITHIN THE VAX9000 MAINTENANCE GUIDE.           |
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9. Re-connect power and remove all lock out from the system's AC power source.
10. Power on the system and wait for the System Initialization to complete.
11. Verify that all the CPU Diagnostics run without error.

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| NOTE:THE "x" IN THE FOLLOWING COMMAND LINES REPRESENT THE TARGET CPU|
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>>>SET LOGGING/FILE=[CONSOLE]MUL_FAD.LOG ON    <CR>
>>>SHOW TIME                                     <CR>
>>>!CUSTOMER =      "customer name"            <CR>
>>>!ADDRESS =        "street address"           <CR>
>>>!                  "city,state/country"     <CR>
>>>!SERIAL#=         "system serial # "         <CR>
>>>SHOW VERSION                                     <CR>
>>>SHOW CONFIGURATION/CPU:ALL                   <CR>
>>>SET CLOCK/SCU/CPU:ALL OFF                   <CR>
>>>SHOW CLOCK/FULL                               <CR>

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### 11. (Continued)

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>>>SENSE SYSTEM                                   <CR>
>>>SHOW CONFIGURATION/RINGS/CPU:x              <CR>
>>>SET DEFAULT [SYSMAINT]                       <CR>
>>>COPY C_EDKDLJF*.SPDI CPUx_DEFAULT.SPDI     <CR>
>>>SET DEFAULT [CONSOLE]                       <CR>
>>>TEST/SCAN/CPU:x/LOG/TRACE/ISOLATION        <CR>
>>>TEST/STRUCTURE/ALL/CPU:x                   <CR>
>>>TEST/CPU:x                                   <CR>
>>>INITIALIZE/KERNEL                           <CR>
>>>@[TOOLS]CPUx_ZFLEX.CMD                      <CR>
>>>INITIALIZE/KERNEL                           <CR>
>>>@[CONSOLE]CLEAR_MEMORY                     <CR>
>>>SET BOOTSET/PRIMARY:x                      <CR>
>>>LOAD [SYSMAINT]EVKAA.EXE                   <CR>
>>>START/CPU:x 200                             <CR>

```

"type Control P after about 1 minute or about 15E0(X) passes"

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>>>HALT/CPU:x                                   <CR>
>>>INITIALIZE/KERNEL                           <CR>
>>>@[CONSOLE]CLEAR_MEMORY                     <CR>
>>>SET BOOTSET/PRIMARY:x                      <CR>
>>>BOOT VDS                                    <CR>
DS>SET VERIFY,TRACE,QUICK                    <CR>
DS>RUN EVSBA.EXE                              <CR>
DS>SELECT ALL                                 <CR>
DS>RUN EVKAQ.EXE                              <CR>
DS>RUN EVKAR.EXE                              <CR>
DS>RUN EVKAS.EXE                              <CR>
DS>RUN EVKAT.EXE                              <CR>

```

NOTE: IF YOUR VAX9000 IS RUNNING WITH EBOX MICROCODE VERSION A338 OR HIGHER, IGNORE THE ERROR REPORTED WHEN RUNNING EVKAT.EXE, TEST 25, SUBTEST 1, HALT ON ERROR AT PC 00009718 (HEXADECIMAL). THIS IS DUE TO A KNOWN "EVKAT.EXE" DIAGNOSTIC DEFICIENCY AND MICROCODE VERSIONS A338 OR HIGHER.

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!-----!  
DS>RUN EVKAU.EXE <CR>  
DS>RUN EVKAV.EXE <CR>  
DS>EXIT <CR>  
>>>SET LOGGING/FILE=[CONSOLE]MUL_FAD.LOG OFF <CR>  
>>>@[SYSMAINT]ADMIN.CMD <CR>
```

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NOTE::WHEN ADMIN.CMD PROMPTS FOR A "REASON CODE" ENTER "O" THEN  
ENTER "FCO 9XXX-0008" .

WHEN ADMIN.CMD PROMPTS FOR ANY "PREVIOUSLY PREPARED FILE"  
ENTER "[CONSOLE]MUL\_FAD.LOG"

MAKE AN ADDITIONAL COPY OF THE FRU RETURN TAPE IF BOTH A  
MUL AND FAD WERE REPLACED IN THE TARGET CPU AND PACKAGE  
THEM WITH THE RETURNING MCUs

>>>DELETE [CONSOLE]MUL\_FAD.LOG.\* <CR>

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NOTE:  
IF THIS FCO NEEDS TO BE DONE TO AN ADDITIONAL CPU WITHIN  
THE SYSTEM, REPEAT STEPS STARTING WITH STEP # 6.  
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12. Initialize system.

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>>>INITIALIZE/KERNEL <CR>  
>>>@[CONSOLE]CLEAR_MEMORY <CR>
```

13. Perform Normal Operating System Boot Procedures.

14. Check the console error log.

15. Complete site management guide and report this FCO activity on the  
LARS form in the "Fail Area/Module/FCO/Comments" column as follows:  
FCO 9XXX-0008

LARS

USA

GIA

EUROPE

Activity -

(a)Contract and Warranty	W	U	Y
(b)IN-DEC Contract	K		
Hardware Segment Code	111	031	
Non Contract/Non Warranty	F	F	F
(b)RTD/Off-site Agreement	F		
Product Line	031	031	
DEC Option	9XXX	9XXX	9XXX
Type of Call	M	M	M
Action Taken	D	D	I
Fail Area-Module-FCO-Comments	9XXX-0008	9XXX-0008	9XXX-0008
Material Used	EQ-01623-0*	EQ-01623-0*	EQ-01623-0*

- (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".

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