

DIGITAL	FCO	CATEGORY [0]	PAGE 1 OF 7
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FIELD CHANGE ORDER	NUMBER: 64XXM-0002
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APPLICABILITY: This FCO should be installed in all 64XXM systems and spares. It incorporates ECOs T2015-TW007, T2015-TW008, T2015-TW010, T2017-LTN04.

PROBLEM & SYMPTOM: See Page 2.

SOLUTION: Replace all T2015 modules below Revision "L", all T2015-YA modules below Revision "D" and all T2017 modules below Revision "J".

QUICK CHECK: T2015--component at location E29 is p/n 21-25087-09 for Rev "L"; T2015-YA--component at location E29 is p/n 21-25087-09 for Rev "D" and for T2017 PAL at location E6 is 23-210K4-00 for Rev "J".

PRE/COREQUISITE FCO:	N/A	MTTI HRS 1 Hr.
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TOOL/TEST EQUIPMENT: Field Service Tool Kit.

FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS	EQ KIT VARIATION APPLICABILITY
EQ-01591-XX FA-04921-01	See Page 2 for Contents of EQ Kits. FCO Document	YES

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	CUS	CUS	CUS	CUS	CUS

APPROVALS

CSSE Jim Vermette	FSHQ LOGISTICS Len Pellerin	FS PRODUCT SAFETY Robert Brister
CSSE MANAGER Ric Grogan	This document is published on multiple media including hardcopy, Customer Services Microfiche Libraries,	FCO RELEASE DATE 4 February 1991
MICROMEDIA Diane MacDonald	Customer Services CD-ROM and	FCO REVISION A

POPULATION 5,500	MDS Microfiche Libraries.	PARTS AVAILABILITY 4 February, 1991
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Problem/Symptoms: (Continued from Page 1)

This FCO solves the following problems with the T2015 module:

1. MOVC5 and CMPC5 Instructions with length values of zero may change an internal temporary register causing the next instruction to fail.
2. V1.0/V2.0 Console/Diag ROMs do not support Vector/dual Vector options respectively.
3. The PC may be misaligned by plus or minus 4 bytes during multi-processing operations.
4. The VC chip can, in certain instances, resend an instruction to an attached Vector Processor that has already been executed.
5. Dendritic growth on LDCCs can cause intermittent system interrupts.

This FCO solves the following problems with the T2017 module:

1. Load/Store chips could hang while executing a STORE class instruction due to INVALIDATE traffic in dual Vector configurations.
2. Excessive undershoot and ringing on duplicate tag address may cause reliability and timing problems.
3. Vect1 chip fix - a combination of instructions if used together break the architectural spec.
4. Dual Vector configurations may hang and abort processes under a particular Vector Parallel Decomposed application.
5. Dual Vector configurations under heavy system loads may align internal data movement events such that data integrity could be compromised.

FCO Parts Information (Continued from Page 1)

FCO KIT NO.	DESCRIPTION OF CONTENTS
EQ-01591-01	T2015 CPU Timeshare Module
FA-04921-01	FCO Document

EQ-01591-02	T2017 Vector Module
FA-04921-01	FCO Document
EQ-01591-05	T2015-YA CPU Server Module
FA-04921-01	FCO Document

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FIELD INSTALLATION AND TEST PROCEDURE FOR 64XMX-0002

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1. Shut down the operating system using the approved methods, such as @SYS\$SYSTEM:SHUTDOWN for VMS. If using SHUTDOWN, answer all prompts accordingly.

Here is a sample of a shutdown session:

```
$ @sys$system:shutdown
```

```
SHUTDOWN -- Perform an Orderly System Shutdown on node XXX
```

```
How many minutes until final shutdown [0]:
```

```
Reason for shutdown [Standalone]:
```

```
Do you want to spin down the disk volumes [NO]?
```

```
Do you want to invoke the site-specific shutdown procedure [YES]?
```

```
Should an automatic system reboot be performed [NO]?
```

```
When will the system be rebooted [later]:
```

```
Shutdown options (enter as a comma-separated list):
```

```

REMOVE_NODE      Remaining nodes in the cluster should adjust quorum
CLUSTER_SHUTDOWN Entire cluster is shutting down
REBOOT_CHECK     Check existence of basic system files
SAVE_FEEDBACK    Save AUTOGEN feedback information from this boot

```

```
Shutdown options [NONE]: reboot, remove
```

```
VMS will issue several messages indicating it is shutting down.
```

```
VMS will issue:
```

```
SYSTEM SHUTDOWN COMPLETE - USE CONSOLE TO HALT SYSTEM
```

2. At this point type a Control-P to halt the primary processor.
3. Move the lower key switch to the HALT position and record the original position.
4. Enter INITIALIZE at the >>> prompt. This will reset the whole

system and force all processors into console mode.

5. You should examine the console map to determine the location of each Rigel processor in your system. Record the location of each processor. The map denotes a processor by printing an uppercase letter P on the TYP line. Note which processors have been disabled from becoming the Boot Processor. The BPD line gives this information: an E indicates that the processor may be a Boot Processor, a D indicates that it may not.

```
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```

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```

6. Look at the console map and determine which nodes contain processors then connect the terminal to the processor at the lowest node or to a processor specifically designated as the primary by entering -

```
>>> SET CPU n          where n is the node number
```

7. Enter the SHOW BOOT command, and record the saved boot specifications. Here is a sample of the command output:

```
>>> SHOW BOOT  
DEFAULT /XMI:E /BI:4 DU3D  
R54A    /R5:00000001/XMI:E/BI:4 DU4A  
DIAG    /R5:00000010/XMI:E/BI:4 DU15  
R5      /R5:00000001/XMI:E/BI:4 DUD
```

If the SHOW BOOT command prints no information, that is okay. It means there was no stored boot specification.

8. Enter the <CTRL/3>SHOW SYSTEM SERIAL command, and record the system serial number. Here is a sample of the command output:

```
>>> $^?SHOW SYSTEM SERIAL  
System serial number: AG83701988
```

```
*****  
*                               C A U T I O N                               *  
*                               *                                           *  
*          All VAX modules contain electrostatic discharge                *  
*          sensitive devices (ESDS).  The use of an antistatic             *  
*          wrist strap attached to the cabinet is essential when          *  
*          when handling modules.                                         *  
*****
```

9. Before powering down the system, set the console terminal speed to 1200.

Do not worry if the console writes strange characters after issuing the command. This means your terminal is set to some baud rate other than 1200 baud.

10. Press the SETUP key on your terminal and set the baud rate of your terminal to 1200 baud. SAVE this setting. This allows you to issue console commands once the new T2015 is installed.
11. Power down the system by turning the upper key switch on the front control panel to the OFF position. Pull the circuit breaker on the AC power controller (H405) to the OFF position and unplug the system from the source.
12. Open the front cabinet door.

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13. Remove the clear plastic cover in front of the XMI cage.
14. Remove all T2015 CPU modules below revision "L" and all T2015-YA modules below revision "D" using all ESD procedures.

```
*****
*
*               **NOTE 1**
* THE T2015-00 REVISION "AL" CONTAINS THE V3.0 CONSOLE/DIAGNOSTIC*
* ROM. THE V3.0 ROM SUPPORTS MIXED VERSIONS OF THE CONSOLE/
* DIAGNOSTIC ROM. THEREFORE, IF THE SYSTEM CONTAINS A MIX OF
* REVISION "L" WHICH HAS THE V2.0 CONSOLE/DIAGNOSTIC ROM SET AND
* REVISION "AL", THERE WILL BE NO COMPATIBILITY ISSUES.
*
* YOU WILL SEE CONSOLE ROM MISMATCH MESSAGES PRINTED DURING
* SYSTEM INITIALIZATIUON. THESE DO NOT IDENTIFY A PROBLEM. THESE
* SHOULD BE CONSIDERED INFORMATIONAL FOR LISTING ROM REVISIONS.
*
* THERE IS ONE EXCEPTION TO HAVING CONSOLE ROMS AT DIFFERENT
* REVISIONS WITHIN THE SAME SYSTEM. THE VAX 6000 MODEL 400
* PROCESSOR CONSOLE ROM REVISION "V1" HAS A COMPATIBILITY PROBLEM*
* WITH REVISION "V2" OR "V3". THEY SHOULD NEVER BE MIXED IN THE
* SAME SYSTEM.
*
*               **NOTE 2**
* DO NOT USE "UPDATE ALL" COMMAND WITH MIXED VERSIONS OF CONSOLE/*
* DIAGNOSTIC ROMS. USE INSTEAD, "PATCH UPDATE UTILITY", EVUCA
*****
```

15. Replace all T2015 modules below revision "L" with EQ-01591-01 and all T2015-YA modules below revision "D" with EQ-01591-05

ensuring all new modules are placed in the same slots from which the originals were removed.

16. Remove all T2017 CPU modules below revision "J" using all ESD procedures.
17. Replace all T2017 modules below revision "J" with EQ-01591-02 ensuring all new modules are placed in the same slots from which the originals were removed.
16. Return the clear plastic cover of the XMI cage.
17. Power on the system by setting the upper front panel keyswitch to ENABLE. Ensure Self Test is completed successfully on all T2015 and T2017 modules. If some modules fail selftest, you may have to ensure the processor modules are seated correctly in the backplane. It is not uncommon to have to reseal the boards once or twice.

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18. Move the lower key switch to the Update position and restore the system serial number and boot specifications recorded in Steps 7 and 8, to the T2015's just installed. Do the following:

 >>>SET CPU n

 where n is the node number.
 19. Enter the <CTRL/3>SET SYSTEM SERIAL command, using the serial number you recorded in Step 8. Each T2015 must be done individually. Following is a sample output from the command:

```
>>> $^?SET SYSTEM SERIAL
System Serial Number>>> AG83701988
Serial number read as: AG83701988

Update EEPROM? (Y or N) >>> Y
?73 System serial number updated.
```

20. Now, enter the boot specifications you saved in Step 7, using the SET BOOT command. Here is sample output from the command:

```
>>> SET BOOT DEFAULT /XMI:E/BI:4 DU3D
```

It may be helpful to check the boot specification you just entered. Enter the SHOW BOOT command to check the boot specification or specifications. If your system contains more than one processor, entering the SET BOOT command causes the boot specification to be

copied to all processors, so this command does not need to be repeated on each processor.

21. In Step 5 you recorded which of the CPUs were prevented from becoming primaries. You need to set that condition again.

```
>>> SET CPU [n] /NOPRIMARY
```

where n equals the node number.

22. Press RESET on the control panel or enter the INITIALIZE command and ensure the console prints no error messages.
23. Return the lower front panel keyswitch to the position you recorded in Step 3.
24. Boot the VAX Diagnostic Supervisor (VAX/DS), ERSAA.
25. Load and run ERKAX, ERKMP, EVKAQ, EVKAR, EVKAS, EVKAT, EVKAV, EVKAV to test the T2015 modules. For the T2017, load and run EVKAG and EVKAH.
26. Upon successful completion of the diagnostics, exit the VAX/DS.

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27. Update the Site Management Guide to reflect this FCO.
28. Report this FCO activity on the LARS form in the "Fail Area/Module/FCO/Comments" column as described on Page 7.

LARS EXAMPLE

CATEGORY 0	USA	GIA	EUROPE
Activity -			
(a)Contract and Warranty	W	U	Y
(b)IN-DEC Contract & Warranty	K		
Hardware Segment Code	111		
Non Contract/Non Warranty	F	F	F
(c)RTD/Off-site Agreement	F		
Product Line	01		
DEC Option	64XXM	64XXM	64XXM
Type of Call	M	M	M
Action Taken	D	D	I

Fail Area-Module-FCO-Comments	64XMX-0002	64XMX-0002	64XMX-0002
Material Used	EQ-01591-01/	EQ-01591-01/	EQ-01591-01/
	EQ-01591-02/	EQ-01591-02/	EQ-01591-02/
	EQ-01591-05	EQ-01591-05	EQ-01591-05

- (a) Warranty Optimum, Warranty Standard and Warranty Basic (on-site) Agreements.
- (b) Applies to INDEC AREA ONLY
- (c) RTD=Return to Digital or Off-site Agreements; If Field Engineer On-site, use Activity Code "F".

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\64XX
\64XMX
\VERMETTE
\FCO_DOCS
\T2015
\T2015-YA
\T2017
\1991
\FEB