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FIELD CHANGE ORDER	NUMBER: 9XXX-0003
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APPLICABILITY: This "O" coded FCO replaces the P1009 VAP MCU on all VAX 9000-XXX systems. All field spares should also be upgraded at this time.

PROBLEM & SYMPTOM: 1. Keep Alive Failures due to TB Arbitration. 2. Varying symptoms due to the wrong cache set being selected after delayed PTE write into TB. 3. SBE and DBE during cache writebacks invoked via ERROR_SWEEP signal from EBOX.

SOLUTION: The fix is to the CCSQ MCA

QUICK CHECK: Insure that P1009 is at revision "L02".

PRE/COREQUISITE FCO: N/A

MTTI HRS 3 hrs.

TOOL/TEST EQUIPMENT:

EK-KA901-MG VAX 9000 System Maintenance Guide, Vol 1
VAX 9000 Connector Torque Tool Kit (p/n 29-28230-01)

FCO PARTS INFORMATION

FCO KIT NO.	DESCRIPTION OF CONTENTS	EQ KIT VARIATION APPLICABILITY
EQ-01610-01	P1009-AA VAP MCU, Rev. L02	
EQ-01610-02	AQ-A5491-JS B6 VAP Software Update Tape	N/A
FA-04942-01	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 Tom Krehel	FSHQ LOGISTICS Dick Joseph	FS PRODUCT SAFETY Robert Brister
CSSE MANAGER Dino Genova	This document is published on multiple media including hardcopy, Customer Services	FCO RELEASE DATE 3 May 1991
MICROMEDIA Diane MacDonald	Microfiche Libraries, Customer Services CD-ROM and	FCO REVISION B

POPULATION 398	MDS Microfiche Libraries. It is also available electronically via TIMA.	PARTS AVAILABILITY April, 1991
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The B6 VAP software update may be copied via the ENET. Refer to the Corporate Implementation Plan (CIP) for instructions.

Related Documents:

MRCSSSE::NONAME:[PUBLIC]VAX9000_BUGLIST.PS
VAX9000 "BUG" list

Minimum revisions:

CPU: B5

VMS: V5.4A for VAX 900-210 and VAX 9000-410
V5.4-1 for VAX 9000-420/430/440

SPU: BL12

General Comments:

This document contains many procedures and these procedures require steps to be performed in specific sequences to be successful. Please take the time to review and understand this document before attempting to install this FCO.

This FCO requires 3 hours for installation on a single CPU. In addition to this time, 6 hours of UETP are recommended prior to returning the system to the customer.

If more than one CPU will be upgraded during the same system outage, 1 hour of UETP is recommended between CPU upgrades.

Console software requirements:

This FCO requires BL12 console software. If the console is not at BL12, you must upgrade the console software before this FCO

is installed. It is recommended that the console software upgrade be performed independent of the B6 VAP FCO.

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VAX 9000 420/430/440 configurations:

In multiple CPU kernels, VAX 9000-420/430/440, it is strongly recommended that this FCO be implemented in phases.

Install the FCO in one of the CPUs by following the procedures outlined below. After each CPU has been upgraded and tested, the machine can either be returned to the customer for normal production use, or the FCO can be continued on the next CPU in the kernel. Each CPU upgrade should be tested fully as outlined in the procedure before the next CPU is upgraded.

Steps 1-4 in this FCO need to be done only once for the first CPU to be upgraded. Each subsequent CPU upgrade can be accomplished by starting at step 5 in the procedure below.

Update Notes:

As of this release of the SCAN Pattern data files (ie, SPDI files) the SPU will no longer support the /MCU=mmm qualifier on the TEST command. When these new SPDI files are used with BL12 (or earlier) SPU software the /MCU=mmm qualifier will be accepted by the TEST command, but the desired testing will not be performed. In future releases of SPU software the /MCU=mmm qualifier will not be accepted. The only valid TEST options are /CPU=nnn and /SCU.

Installation procedure:

1. Create [B6] and [INSTALL] directories on the SPU's RD54.

First verify that these directories do not already exist.

```
>>>DIR [000000]*.DIR
```

If INSTALL.DIR;1 and B6.DIR;1 do not appear you must create them with the following command(s):

```
>>>CREATE/DIRECTORY [B6]  
>>>CREATE/DIRECTORY [INSTALL]
```

2. Install the new B6 software in the [B6] directory.

Load the BL12/B6 (AQ-A5491-JS) update tape into the TK50 drive and execute the following commands:


```
C_AVA_VBX06_9011160055.SPDI;1
C_AVA_VBX07_9101050843.SPDI;1
C_EDKDLJFJEHDFKFFH_DFEEFE.SPDI;1
C_EDKDLJHJEHDFKFFH_DFEEFE.SPDI;1
C_EEKDLJFJEHDFKFFH_DFEEFE.SPDI;1
C_EEKDLJHJEHDFKFFH_DFEEFE.SPDI;1
C_FDKDLJFJEHDFKFFH_DFEEFE.SPDI;1
C_FDKDLJHJEHDFKFFH_DFEEFE.SPDI;1
```

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```
C_FEKDLJFJEHDFKFFH_DFEEFE.SPDI;1
C_FEKDLJHJEHDFKFFH_DFEEFE.SPDI;1
FRAM.LOD;1
FRAM_NO_VBOX.LOD;1
INIT.CMD;1
IO.CMD;1
JCODE.LOD;1
LWCODE.LOD;1
SCUHIST.DAT;1
SITEINIT.CMD;1
SITESPECIFIC.CMD;1
```

Total of 53 files.

3. Copy the new SPDF, SPDI, and CDB files into the appropriate directories.

```
>>>COPY [B6]*.SPD* [SYSMAINT]*/LOG
>>>COPY [B6]*.CDB [UCODE]*/LOG
```

4. Before replacing the VAP MCU, the following tests should be executed to ensure the proper execution of the tests that will be used to verify the functionality of the new VAP MCU:

Where "n" is the CPU in which the new VAP MCU will be installed:

```
>>>SENSE CPU n
>>>SHOW CONFIG/RINGS/CPU:n
```

(Verify that no mismatches occur)

```
>>>TEST/SCAN/LOG/TRACE/ISOLATION/CPU:n
>>>SET CLOCK/SCU/CPU:ALL OFF
>>>TEST/SCU/CPU:n
>>>TEST/STRUCTURE/ALL/LOG/CPU:n
>>>I/K
>>>@[TOOLS]CPU_n_ZFLEX
>>>I/K
>>>SET BOOTSET/PRIMARY=n
```

```

>>>LOAD [SYSMAINT]EVKAA
>>>ST 200
>>>^P
>>>HALT/CPU:ALL
>>>I/K/B
>>>@[CONSOLE]CLEAR_MEMORY
>>>SET BOOTSET/PRIMARY=n

```

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Load VDS and run the following MACRO level Diagnostics:

```

EVKAQ
EVKAR
EVKAS
EVKAT
EVKAU
EVKAV
EWKAX
EWKMP

```

```

DS> EXIT
>>>HALT/CPU:ALL
>>>

```

5. Proceed to step 8 if one or more CPUs in the kernel have already been upgraded to B6.

Rename SITEINIT.CMD and SITESPECIFIC.CMD

```

>>>RENAME [SYSEXE]SITESPECIFIC.CMD [SYSEXE]B5_SITESPECIFIC.CMD
>>>RENAME [SYSEXE]SITEINIT.CMD [SYSEXE]B5_SITEINIT.CMD

```

6. Copy the new SITESPECIFIC.CMD and SITEINIT.CMD files from the [B6] directory to the [SYSEXE] directory. This command will also copy new IO.CMD and INIT.CMD files to [SYSEXE].

```

>>>COPY [B6]*.CMD [SYSEXE]*/LOG

```

7. Edit [SYSEXE]SITESPECIFIC.CMD

Change the configuration masks in [SYSEXE]SITESPECIFIC.CMD so that they match the hardware configuration. Refer to [SYSEXE]B5_SITESPECIFIC.CMD for the correct values.

Do not modify CDB\$DEFAULT, SYS\$CPU_REVISION, SYS\$SCU_REVISION, or SYS\$KERNEL_REVISION. These reflect changes that are necessary for the B6 update.

Continue with the edits in step 8 if you are upgrading a multi CPU


```

CPU REV here
|
DEFINE/SYSTEM CDB$DEFAULT_CPU0 B6_CPU.CDB ! CDB for CPU0
^
|
CPU # here

```

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NOTE: The changes you make in SITESPECIFIC.COMD should reflect what the configuration will look like after you replace the VAP MCU in the CPU to be upgraded.

- If any CPU in the kernel will still be at B5 after the FCO is installed in this CPU, proceed to step 10.

Copy the microcode files from the [B6] directory to the [UCODE] directory only if all CPUs will be at B6 after the B6 VAP FCO is installed in this CPU.

```

>>>COPY [B6]*.LOD [UCODE]*/LOG
>>>COPY [B6]*.DAT [UCODE]*/LOG
>>>COPY [B6]*.SYN [UCODE]*/LOG

```

- Replace the VAP MCU

Turn the system power off by putting the Operator Control Panel power switch in the "Off 0" position.

Remove VAP MCU and install new VAP MCU (F6-P1009-AA) REV L02 in accordance with the MCU removal and replacement procedures. This procedure is documented in the VAX 9000 Family System Maintenance Guide, Volume 1 (Document Number EK-KA901-MG).

Restore power to the system by putting the Operator Control Panel power switch in the "On 1" position.

- Verify the new VAP MCU.

Where "n" is the CPU in which the new VAP MCU will be installed:

```

>>>SENSE CPU n
>>>SHOW CONFIG/RINGS/CPU:n

```

(Verify that no mismatches occur)

```

>>>TEST/SCAN/LOG/TRACE/ISOLATION/CPU:n
>>>SET CLOCK/SCU/CPU:ALL OFF
>>>TEST/SCU/CPU:n

```

```

>>>TEST/STRUCTURE/ALL/LOG/CPU:n
>>>I/K
>>>@[TOOLS]CPUn_ZFLEX
>>>I/K
>>>SET BOOTSET/PRIMARY=n
>>>LOAD [SYSMAINT]EVKAA
>>>ST 200
>>>^P
>>>HALT/CPU:ALL
>>>I/K/B
>>>@[CONSOLE]CLEAR_MEMORY
>>>SET BOOTSET/PRIMARY=n

```

```

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```

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Load VDS and run the following MACRO level Diagnostics:

```

EVKAQ
EVKAR
EVKAS
EVKAT
EVKAU
EVKAV
EWKAX
EWKMP

```

```

DS> EXIT
>>>HALT/CPU:ALL
>>>I/K

```

12. Boot VMS and run UETP

NOTE: While UETP is running, execute ADMIN.CMD for the MCU that was removed from the kernel. Every MCU that is returned must have a TK50 tape created by the ADMIN.CMD procedure. Assuming that the VAP MCU just removed from the kernel was in good working order, it should be clearly identified as; "RETURN FOR UPGRADE".

VAX 9000 210/410 configurations:

If the system will be returned to the customer after this phase of the FCO, a 6 hour UETP run is recommended.

VAX 9000 4XX multiple CPU configurations:

If the system will be returned to the customer after this phase of the FCO, a 6 hour UETP run is recommended.

If another CPU is to be upgraded immediately following the UETP test, a minimum of 1 hour of UETP is recommended between CPU upgrades.

13. Go to step 4 if you wish to upgrade another CPU in the kernel.
14. Cleanup DUA50 (only after all CPUs in the configuration have been upgraded to B6).

When the B6 FCO has been completed and all CPUs in the kernel are at the B6 revision, you can eliminate files and directories that are no longer required.

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NOTE: You may want to retain these files until you are comfortable that the machine is stable as a B6 kernel.

DUA50:[SYSMAINT]

>>>DELETE [SYSMAINT]XB5*.SPDF;*

DUA50:[SYSEXE]

>>>DELETE [SYSEXE]B5_SITESPECIFIC.CMD

>>>DELETE [SYSEXE]B5_SITEINIT.CMD

DUA50:[UCODE]

>>>PURGE [UCODE]*.LOD

>>>PURGE [UCODE]*.DAT

>>>PURGE [UCODE]*.SYN

DUA50:[B6]

>>>DELETE [B6]*.*;*

>>>DELETE [000000]B6.DIR;*

15. Remove workarounds (if implemented) for problems resolved by the B6 VAP FCO.

On the SPU's RD54:

In [SYSEXE]SITEINIT.CMD

Comment out the line "D/CPU=('CPU') CTU.CTMV.SET_SEL_H<1> 1"
if not already commented out.

!DISABLE SET 0

!SHUTS OFF HALF OF CACHE

!D/CPU=('CPU') CTU.CTMV.SET_SEL_H<1> 1

16. Report this FCO activity on the LARS form in the "Fail Area/Module/FCO/Comments" column as per the example on page 11.

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LARS FORM

	USA	GIA	EUROPE
Activity -			
(a)Contract and Warranty	W	U	Y
(b)IN-DEC Contract	K		
Hardware Segment Code	111		
Non Contract/Non Warranty	F	F	F
(b)RTD/Off-site Agreement	F		
Product Line	01		
DEC Option	9XXX	9XXX	9XXX
Type of Call	M	M	M
Action Taken	D	D	I
Fail Area-Module-FCO-Comments	9XXX-0003	9XXX-0003	9XXX-0003
Material Used	EQ-01610-01	EQ-01610-01	EQ-01610-01
	EQ-01610-02	EQ-01610-02	EQ-01610-02

- (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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