FIELD CHANGE ORDER

APPLICABILITY: This "O" coded FCO should be installed on all VAX 9XXX systems configured with any VECTOR ACCELERATOR CPU OPTIONS and all field spares should be upgraded at the same time. This FCO incorporates ECO #P1018-A-MR002. This ECO changes the revision of the P1018-AA MCU Multi Chip Unit, 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 VAX9000 systems with installed VECTOR ACCELERATOR OPTIONS to reflect usage of the MCU with the revision indicated on Page 2.

"Continued on Page 2"

QUICK CHECK: See Page 2.

PRE/COREQUISITE FCO:
9XXX-0003

TOOL/TEST EQUIPMENT: 1. Console software must be at BL14.2 minimum.

FCO PARTS INFORMATION

<table>
<thead>
<tr>
<th>FCO KIT NO.</th>
<th>DESCRIPTION OF CONTENTS</th>
<th>EQ KIT VARIATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>EQ-01623-03</td>
<td>F6-P1018-AA;H02 VML, VBOX MULTIPLY MCU</td>
<td></td>
</tr>
<tr>
<td>FA-04958-02</td>
<td>FCO Document</td>
<td></td>
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</tbody>
</table>

FCO CHARGING INFORMATION

<table>
<thead>
<tr>
<th>WARRANTY/CONTRACT</th>
<th>NONWARRANTY/NONCONTRACT</th>
</tr>
</thead>
<tbody>
<tr>
<td>ON-SITE</td>
<td>OFF-SITE</td>
</tr>
<tr>
<td>TRAVEL/INSTALL</td>
<td>EQ KIT</td>
</tr>
<tr>
<td>DEC</td>
<td>DEC</td>
</tr>
</tbody>
</table>

APPROVALS

CSSE | CSL LOGISTICS | CS PRODUCT SAFETY
Chris Demos | Dick Joseph | Robert Brister
SOLUTION (Continued)

NOTE: ONLY RETROFIT P1018-AA, VML MCU AT OR BELOW REVISION "F".

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>OLD REV</th>
<th>NEW REV</th>
</tr>
</thead>
<tbody>
<tr>
<td>F6-P1018-AA</td>
<td>VML, VBOX MULTIPLY MCU</td>
<td>E,F</td>
<td>H</td>
</tr>
</tbody>
</table>

2. Update logistics spares to reflect the latest revision of VML MCU indicated above.

QUICK CHECK (Continued)

Look for the following revision on the VML MCU within current VAX9000 customer systems;

<table>
<thead>
<tr>
<th>Part #</th>
<th>Description</th>
<th>Acceptable Revision</th>
</tr>
</thead>
<tbody>
<tr>
<td>P1018-AA</td>
<td>VML, VBOX MULTIPLY MCU</td>
<td>H</td>
</tr>
</tbody>
</table>

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

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>
4. Identify if any of the P1018-AA, VML MCUs are at or below revision "F".

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NOTE: THE FOLLOWING SET OF STEPS ARE TO BE DONE ON EACH CPU CONTAINING A VECTOR ACCELERATOR OPTION SEPARATELY, AND NOT CONCURRENTLY ACROSS MULTIPLE CPU PLANARS!!!!

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5. Power off the system, disconnect power and lock out the system from AC power source.

6. Replace the identified P1018-AA, VML MCU with the P1018-AA revision "H" supplied in the FCO kit # EQ-01623-03.

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NOTE: REFERENCE THE MCU REMOVAL AND REPLACEMENT PROCEDURE CONTAINED WITHIN THE VAX9000 MAINTENANCE GUIDE.

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7. Re-connect power and remove all lock out from the system’s AC power source.

8. Power on the system and wait for the System Initialization to complete.

9. 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

```plaintext
>>>SET LOGGING/FILE=[CONSOLE]VML.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>
```
9. (Continued from Page 3)

```plaintext
>>>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>
>>>TEST/INITIALIZE/KERNEL <CR>
>>>@[TOOLS]CPUx_ZFLEX.CMD <CR>
>>>TEST/VERIFY,TRACE,QUICK <CR>
>>>RUN EVKAT.EXE <CR>
>>>EXIT <CR>
```

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

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

```plaintext
DS>RUN EVKAU.EXE <CR>
DS>RUN EVKAV.EXE <CR>
DS>RUN EVKAG.EXE <CR>
DS>RUN EVKAH.EXE <CR>
DS>EXIT <CR>
>>>SET LOGGING/FILE=[CONSOLE]VML.LOG OFF <CR>
>>>@[SYSMAINT]ADMIN.CMD <CR>
```

**NOTE:** WHEN ADMIN.CMD PROMPTS FOR A "REASON CODE" ENTER "O" THEN ENTER "FCO 9XXX-0011".
WHEN ADMIN.CMD PROMPTS FOR ANY "PREVIOUSLY PREPARED FILE" ENTER "[CONSOLE]VML.LOG"

PACKAGE THE TK50 WITH THE RETURNING MCU.

>>>DELETE [CONSOLE]VML.LOG.*<CR>

NOTE:
IF THIS FCO NEEDS TO BE DONE TO AN ADDITIONAL CPU, DUE TO MULTIPLE VECTOR ACCELERATOR OPTIONS INSTALLED WITHIN THE SYSTEM, REPEAT STEPS STARTING WITH STEP # 5.

10. Initialize system.

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


12. Check the console error log.

13. 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-0011

   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
<table>
<thead>
<tr>
<th>Type of Call</th>
<th>M</th>
<th>M</th>
<th>M</th>
</tr>
</thead>
<tbody>
<tr>
<td>Action Taken</td>
<td>D</td>
<td>D</td>
<td>I</td>
</tr>
<tr>
<td>Fail Area-Module-FCO-Comments</td>
<td>9XXX-0011</td>
<td>9XXX-0011</td>
<td>9XXX-0011</td>
</tr>
<tr>
<td>Material Used</td>
<td>EQ-01623-03</td>
<td>EQ-01623-03</td>
<td>EQ-01623-03</td>
</tr>
</tbody>
</table>

(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".