_ FCO 82XBX-R002, Revision of the kernel to "B1"

_ _ _ _ _ _ _ || | | | | | | ||d|i|g|i|t|a|l| ||_|_|_|_|_|_|_|	FCO	Level of Urgency +--+ |R | +--+	Page 1 Of 13

FIELD CHANGE ORDER — Number: 82XBX-R002

Applicability:
Retrofit all 82XX systems. This FCO changes Rev. of the kernel to "B1".
This FCO incorporates ECOs: T1001-MK008 and T1001-YA-MK002.

Problem/Symptom: 1) Cache invalidate, 2)Kernel Stack Invalid, 3) Incomplete Stack Invalid, 4) Incomplete Stack Frames, 5)Processes Stack in AST Delivery Loops and 6) Problem with new KDB50 diagnostic.

Quick Check:
E23 is 21-20850-BB

Compatibility/Prerequisite FCO:	Est. Time to Install:
N/A	1 hr.

Special Tools or Test Equipment: Chip Extraction tool, P/N 29-25915-00, contained in EQ-01480-02; Loctite 414, Field Service Tool Kit

FCO Parts Information

Order by FCO Kit#:	Quantity:	Part Number:	Description:
EQ-01480-XX			See page 2
FA-04769-01			See page 2
FA-04771-01			See page 2

EQ Kit Variation System/Option Applic: EQ-01480-01 through EQ-01480-05

Approvals

CSSE Engineer	F.S. Product Safety	F.S. Logistics
Jim Vermette	Jerry Gannelli	Ed Duggan
CSSE Manager	F.S. Microfiche Libraries	Affected Population:
Jan Sicard	EP-FSNVX-LB VAX	4,706
MicroMedia Pub		Initial Kitting:
Ray Leblanc	VAXnotes	4,706
Revision:	STARS	Hardcopy Publication:
A		7,500

FCO Release Date	Parts Availability:
19-AUG-87	August 1987

PARTS LIST CONTINUED:

****

* NOTE *

* The following kits will be used for both 82XBX-R002 and 83XBX-R002 *

* Order ONLY THOSE KITS THAT ARE REQUIRED for your system. *

****

Order by	Quantity:	Part Number:	Description:
EQ-01480-01	(2)	21-20850-BB	Mchips
	(1)	36-19209-02	"B" Brady marker
	(1)	36-19209-05	"E" Brady marker
	(1)	36-19208-01	"1" Brady marker
	(1)	36-19208-02	"2" Brady marker
	(1)	36-19208-03	"3" Brady marker
	(1)	36-19208-04	"4" Brady marker
FA-04769-01	(1)	FCO Document	(for 83XX systems)
FA-04771-01	(1)	FCO Document	(for 82XX systems)
EQ-01480-02	(1)	29-25915-00	Extraction tool
EQ-01480-03	(1)	T1001-00	8200/8300 CPU Module
FA-04769-01	(1)	FCO Document	(for 83XX systems)
FA-04771-01	(1)	FCO Document	(for 82XX systems)
EQ-01480-04	(1)	T1001-YA	8250/8350 CPU Module
FA-04769-01	(1)	FCO Document	(for 83XX systems)
FA-04771-01	(1)	FCO Document	(for 82XX systems)
EQ-01480-05	(1)	21-20850-BB	Mchip
	(1)	36-19209-02	"B" Brady marker
	(1)	36-19209-05	"E" Brady marker
	(1)	36-19208-01	"1" Brady marker
	(1)	36-19208-02	"2" Brady marker
	(1)	36-19208-03	"3" Brady marker
	(1)	36-19208-04	"4" Brady marker

FA-04769-01	(1)	FCO Document (for 83XX systems)
FA-04771-01	(1)	FCO Document (for 82XX systems)

TABLE OF CONTENTS

digital | FCO 82XBX-R002

FIELD INSTALLATION AND TEST PROCEDURE FOR 82XBX-R002 - Config. 1

****

* NOTE 1 *

* ALL MODULES SHOULD BE REWORKED. THE ONLY EXCEPTIONS ARE *

* T1001-00 REVS AB1, C1 AND D1. THESE CANNOT BE REWORKED AND *

* MUST BE REPLACED. *

*

* NOTE 2 *

* MODULES WITH PART REVS OF AB1 AND C1 SHOULD NOT BE RETURNED *

* FOR UPGRADE AND CREDIT. THEY SHOULD BE SCRAPPED IN THE FIELD. *
****

1. Shut down the system by executing the Shutdown Command Procedure.

   $ @SYS$SYSTEM:SHUTDOWN

2. At the console prompt examine the SID register in the following manner:

   >>>E/I 3E

3. Remove the processor cabinet front and rear doors and fully extend the cabinet stabilizer leg.

4. Turn the upper key switch on the console panel fully counterclockwise and slide the BA32 system box out of the cabinet. Set the main circuit breaker at the back of the BA32 box to the "OFF" (down) position.

****
*   CAUTION   *
*   All modules and chips contain electrostatic discharge sensitive   *
*   devices (ESDS). The use of a VELOSTAT kit, P/N 29-26246-00, is   *
*   essential to prevent damage which may not be noticed immediately.   *
****

5. Set up the VELOSTAT Kit:
   - Unfold the VELOSTAT mat to full size (24x24).
   - Attach the 15’ ground cord to the VELOSTAT snap fastener on the mat.
   - Attach the alligator clip end of the ground cord to a good ground on the 82XX.
   - Attach the wrist strap to either wrist and the alligator clip to a convenient portion of the mat.

6. Remove the CPU module (T1001-00 or T1001-YA) from slot J1 and place it on the mat.

7. Inspect the removed module and proceed as indicated below:

For T1001-00
---

a. Rev "E2" or higher - reinstall; (proceed to step 28).

b. Rev "D2-D5" - rework; (proceed to step 8).

c. Rev "D1" - swap module; (proceed to step 32).

d. Rev "AB1" or "C1" - swap module; (proceed to step 32).

NOTE: Module Part Revs "AB1" and "C1" cannot be returned for upgrade or credit.

For T1001-YA
---

e. Rev "B1" or "B2" - reinstall; (proceed to step 28).

f. Rev "A1" or "A2" - rework; (proceed to next step.)

MODULE REWORK
---

8. Place the box (EQ-01480-05) with the new Mchip on the VELOSTAT Mat.

9. Insure that the new Mchip is at revision "E", P/N 21-20850-BB.

10. If necessary, remove any epoxy (Loctite 414) from the wires surrounding the Mchip to prevent damage to the wires when removing the Mchip.

11. Place the tool over the Mchip making sure the tool is clear of a resistor (in the top right corner-adjacent to the Mchip) and wires. Ensure the tool is sitting completely on the board and not pinching wires or resistor leads.

12. Gently but firmly depress the handles of the tool to remove Mchip from location E23 (see Figure 1).

13. Inspect pins on removed Mchip to ensure no mark eyelets have been removed from the board. Also check to see if any pins were bent (in the case of a spare module.) There is the chance that the pins on the old Mchip were bent because the eyelets were filled with solder. If this is the case, the new Mchip will be destroyed if the solder is not removed from the eyelets. If this cannot be done,

the board must be returned for repair properly marked.

14. Check to see if mark eyelets have become loose from their socket on the board. If this has occurred, the module must be returned to the repair center for rework.

15. Remove the new Mchip from the box EQ-01480-05. Inspect to ensure all pins are straight and perfectly aligned with one another.

16. Ensure that the mark eyelets and the new Mchip are completely free of foreign particles before installing the new Mchip.

17. Align the new Mchip over the mark eyelets ensuring that the silver decoupling capacitors under the heat sink on the Mchip are facing the top edge of the module. The gold fingers will be on the bottom of the module.

18. Lightly depress chip making sure all corners are in evenly. After ensuring the corners are in evenly, depress the chip completely until the standoffs are touching the board surface.

19. Reapply epoxy (Loctite 414) on wires if previously removed.

20. Place appropriate brady markers over old bar code label to indicate the new part revision of the module.

21. Reinstall CPU module back into slot J1.

22. Boot the VAX Diagnostic Supervisor (VDS) and run one pass of EBKAX.

23. Run EBUCA.
    a. Answer first six questions with the default "NO" until you get to the microcode patch section. Reply "YES". When prompted for CPU rev change, reply with "YES" and increase the CPU rev by "1" as follows: KA820 - Rev 4 changes to Rev 5, KA825 - Rev 17 changes to Rev 18.
    b. Answer the next 11 questions with the default "NO".
    c. The 12th question will ask if you want to build the EEPROM.IMA file on CSA1. Reply "YES".
    d. The 13th question will ask if you want to write to the EEPROM. The reply is "YES".
    e. If the operation was successful, EXIT.

24. Powerfail the system.

25. Boot VDS.

26. Do attach sequence for CPU.

27. Run EBKAX to verify CPU rev change.

28. Power up the system by turning the main Circuit Breaker on the back of the BA32 to the "ON" position and turning the upper key switch to the "Enable" position.

29. Slide the BA32 box back into the cabinet and retract the stabilizer leg.

30. Update Site Management Guide to reflect this FCO.

31. Report FCO activity on LARS form in the "Module/fail area/FCO". (See attached examples.)

MODULE REPLACEMENT
---

32. Place the T1001-00 (EQ-01480-03) or the T1001-YA (EQ-01480-04) on the mat.

33. Ensure the new T1001-00 module is at revision "E2,"E3" or "E4" and/or the T1001-YA is at "B1" or "B2".

34. Install the new module in slot J1 and return ONLY a rev "D1" module to the Module Repair Center for upgrade and credit. The old module should be returned in the ESD container. Revs AB1 and C1 CANNOT BE UPGRADED or returned for credit.

35. Follow steps 22 through 34.

FIELD INSTALLATION AND TEST PROCEDURE FOR 82XBX-R002 - Config. 2

```
**********************************************************************
*                              NOTE 1                                *
*  ALL MODULES SHOULD BE REWORKED.  THE ONLY EXCEPTIONS ARE          *
*  T1001-00 REVS AB1, C1 AND D1. THESE CANNOT BE REWORKED AND        *
*  MUST BE REPLACED.                                                 *
*                                                                    *
*                              NOTE 2                                *
```

```
*  MODULES WITH PART REVS OF AB1 AND C1 SHOULD NOT BE RETURNED    *
*  FOR UPGRADE AND CREDIT.  THEY SHOULD BE SCRAPPED IN THE FIELD. *
**********************************************************************
```

1. Shut down the system by executing the Shutdown Command Procedure.

   ```
   $ @SYS$SYSTEM:SHUTDOWN
   ```

2. At the console prompt examine the SID register in the following manner:

   ```
   >>>E/I 3E
   ```

3. Remove the processor cabinet rear door.

4. Turn the upper key switch on the console panel fully counterclockwise and set the main circuit breaker at the back of each AC input assembly to the "OFF" (down) position.

5. Remove the four screws holding the plastic shield in front of the modules to allow access to the modules.

```
**********************************************************************
*                              CAUTION                               *
*  All modules contain electrostatic discharge sensitive devices     *
*  (ESDS). The use of the VELOSTAT kit, P/N 29-26246-00, is essential*
*  to prevent damage which may not be noticed immediately.           *
*                                                                    *
**********************************************************************
```

6. Set up the VELOSTAT Kit:
   - Unfold the VELOSTAT mat to full size (24x24).
   - Attach the 15’ ground cord to the VELOSTAT snap fastener on the mat.
   - Attach the alligator clip end of the ground cord to a good ground on the 82XX.
   - Attach the wrist strap to either wrist and the alligator clip to a convenient portion of the mat.

7. Remove the CPU module (T1001-00 or T1001-YA) from slot J1 and place it on the mat.

8. Inspect the removed module and proceed as indicated below:

For T1001-00
---

a. Rev "E2" or higher - reinstall; (proceed to step 29).

b. Rev "D2-D5" - rework; (proceed to step 9).

c. Rev "D1" - swap module; (proceed to step 35).

d. Rev "AB1" or "C1" - swap module; (proceed to step 35).

NOTE: Module Part Revs "AB1" and "C1" cannot be returned for upgrade or credit.

For T1001-YA
---

e. Rev "B1" or "B2" - reinstall; (proceed to step 28).

f. Rev "A1" or "A2" - rework; (proceed to next step).

MODULE REWORK
---

9. Place the box (EQ-01480-05) with the new Mchip on the VELOSTAT Mat.

10. Insure that the new Mchip is at revision "E", P/N 21-20850-BB.

11. If necessary, remove any epoxy (Loctite 414) from the wires surrounding the Mchip to prevent damage to the wires when removing the Mchip.

12. Place the tool over the Mchip making sure the tool is clear of a resistor (in the top right corner-adjacent to the Mchip) and wires. Ensure the tool is sitting completely on the board and not pinching wires or resistor leads.

13. Gently but firmly depress the handles of the tool to remove Mchip. (see Figure 1).

14. Inspect pins on removed Mchip to ensure no mark eyelets have been removed from the board. Also check to see if any pins were bent (in the case of a spare module.) There is the chance that the pins on the old Mchip were bent because the eyelets were filled with solder. If this is the case, the new Mchip will be destroyed if the solder is not removed from the eyelets. If this cannot be done, the board must be returned for repair properly marked.

15. Check to see if mark eyelets have become loose from their socket on the board. If this has occurred, the module must be returned to the repair center for rework.

16. Remove the new Mchip from the box EQ-01480-05. Inspect to ensure all pins are straight and perfectly aligned with one another.

17. Ensure that the mark eyelets and the new Mchip are completely free of foreign particles before installing the new Mchip.

18. Align the new Mchip over the mark eyelets ensuring that the silver decoupling capacitors under the heat sink on the Mchip are facing the top edge of the module. The gold fingers will be on the bottom of the module.

19. Lightly depress chip making sure all corners are in evenly. After ensuring the corners are in evenly, depress the chip completely until the standoffs are touching the board surface.

20. Reapply epoxy (Loctite 414) on wires if previously removed.

21. Place appropriate brady marker over old bar code label to indicate the new part revision of the module.

22. Reinstall CPU module back into slot J1.

23. Boot the VAX Diagnostic Supervisor (VDS) and run one pass of EBKAX.

24. Run EBUCA.
    a. Answer first six questions with the default "NO" until you get to the microcode patch section. Reply "YES". When prompted for CPU rev change, reply with "YES" and increase the CPU rev by "1" as follows: KA820 - Rev 4 changes to Rev 5, KA825 - Rev 17 changes to Rev 18.

    b. Answer the next 11 questions with the default "NO".

    c. The 12th question will ask if you want to build the EEPROM.IMA file on CSA1. Reply "YES".

    d. The 13th question will ask if you want to write to the EEPROM. The reply is "YES".

    e. If the operation was successful, EXIT.

25. Powerfail the system.

26. Boot VDS.

27. Do attach sequence for CPU.

28. Run EBKAX to verify CPU rev change.

29. Power up the system by turning both Circuit Breakers on each AC input assembly to the ON (1) position and turning the upper keyswitch on the front console panel to ENABLE.

30. Replace plastic shield securing the four screws.

31. Replace and latch the processor cabinet rear door.

32. Bring up the operating system.

33. Update Site Management Guide to reflect this FCO.

34. Report FCO activity on LARS form in the "Module/fail area/FCO". (See attached example).

MODULE REPLACEMENT

35. Place the T1001-00 (EQ-01480-03) or the T1001-YA (EQ-01480-04) on the mat.

36. Ensure the new T1001-00 module is at revision "E2,"E3" or "E4" and/or the T1001-YA is at "B1" or "B2".

37. Install the new module in slot J1 and return ONLY a rev "D1" module to the Module Repair Center for upgrade and credit. The old module should be returned in the ESD container. Revs AB1 and C1 CANNOT BE UPGRADED or returned for credit.

38. Follow steps 22 through 34.

FIGURE I

LARS

	USA	GIA	EUROPE
Activity -			
Contract and Warranty	W	U	Y
Non Contract/Non Warranty	W	U	F
DEC Option	KA820/KA825	KA820/KA825	KA820/KA825
Type of Call	M	M	M
Action Taken	D	D	I
Fail Area-Module-FCO-Comments	82XBX-R002	82XBX-R002	82XBX-R002
Material Used	EQ-01480-01	EQ-01480-01	EQ-01480-01
	and/or	and/or	and/or
	EQ-01480-02	EQ-01480-02	EQ-01480-02
	EQ-01480-03	EQ-01480-03	EQ-01480-03
	EQ-01480-04	EQ-01480-04	EQ-01480-04
	EQ-01480-05	EQ-01480-05	EQ-01480-05

\^ 82XBX
\\82XBX
\\VERMETTE
\\1987
\\AUG
\\FCO_DOCS