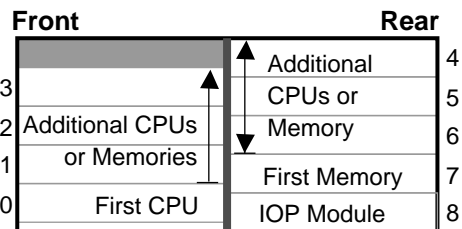## KA7AA CPU INSTALLATION CARD

Use this card as a quick reference to install the
KA7AA CPU module (E2045-AA) in a VAX 7000 or
VAX 10000 system. Refer to the appropriate *System
Service Manual* (EK–7002B–SV for VAX 7000 systems
or EK–1002A–SV for VAX 10000 systems) for more
information.

INSTALLATION GUIDELINES

1. Determine in which LSB centerplane slots to
    install the additional KA7AA CPU modules. The
    first CPU module is installed in slot 0. Additional
    CPU modules are installed in slots 1 through 3.
    Install remaining CPU modules in open slots
    with the highest node ID numbers.

Centerplane

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2. If CPU modules are to be installed in slots 1–
    5, remove any memory modules in these slots.
    Refer to the *MS7AA Memory Installation Card*
    (EK–MS7AA–IN) or the *System Service Manual*
   for more information.

1st Edition, December 1992
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INSTALLING A KA7AA CPU MODULE

1. Put on an antistatic wrist strap. You must wear a wrist strap when you handle any modules.

2. Perform an orderly shutdown of the system.

3. Open the cabinet door.

4. Release the plate covering the LSB card cage by loosening the two screws on the end of the plate. The plate is connected to the card cage by a cable; push the plate to one side, allowing the plate to be held by the cable.

5. Remove the filler modules from the slots where you will install additional CPU modules.

6. On the module to be installed, pull out the two black restraining clips to the right and pull the two levers out until they are perpendicular to the front edge of the module.

7. Pick up the module to be installed. Align the bottom tracks of the module with the tracks in the card cage slot. Align the top ridge of the module with the track at the top of the card cage slot.
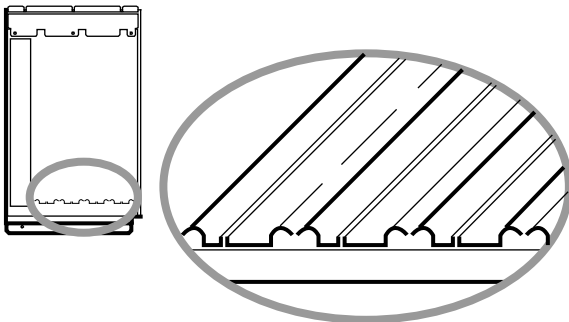
BXB-0091B-92

8. Holding the module level, gently guide it into the card cage. If you encounter any resistance, check the alignment of the tracks and reinsert the module. When the module is fully inserted, the front of the module will be flush with the card cage. The module does not click when it is fully inserted.

9. Holding the two metal tabs, push both of them toward the edges of the module simultaneously. Check that the ends of the metal tabs are fitting into the guides of the cage slot. Push the levers toward the module case.

10. Snap the black restraining clips across the levers to secure the module.

11. Check that filler modules are placed in all unused slots.

12. Replace the plate covering the card cage by tightening the two thumbscrews.

13. Close the cabinet door.

VERIFYING THE SYSTEM

Power up the system by turning the keyswitch from Disable to Enable or Restart. Power sequencing begins, and the system runs self-test.

Check the self-test display to make sure that the system recognizes the new modules. One processor and one memory module were added, at nodes 1 and 6, respectively.

```
E  D  C  B  A  9  8  7  6  5  4  3  2  1  0   NODE #
                  A  M  M  .  .  .  .  P  P   TYP    ❶
                  o  +  +  .  .  .  .  +  +   ST1    ❷
                  .  .  .  .  .  .  .  E  B   BPD
                  o  +  +  .  .  .  .  +  +   ST2    ❷
                  .  .  .  .  .  .  .  E  B   BPD
                  +  +  +  .  .  .  .  +  +   ST3    ❷
                  .  .  .  .  .  .  .  E  B   BPD

.  .  +  .  .  .  +  .  +  .  +  .  .  +      C0 XMI +
+  .  .  +  .  .  +  .  .  +  .  -  .  +      C1 XMI + ❸
.  .  .  .  .  .  .  .  .  .  .  .  .  .      C2
.  .  .  .  .  .  .  .  .  .  .  .  .  .      C3

                  .  A1  A0  .  .  .  .  .  .   ILV
                  .128 128  .  .  .  .  .  .   256Mb  ❹

Firmware Rev=V1.0-1625 SROM Rev=V1.0-0  SYS SN=GAO1234567
 P00>>>                                                    ❺
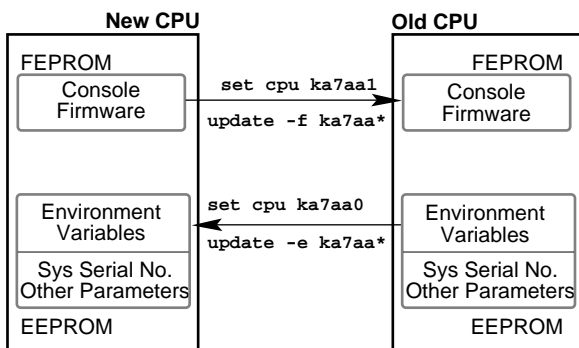```
                                              BXB-0087E-92

❶  The **P** indicates that processors are at nodes 0 and 1.  The **M** indicates that memory modules are at nodes 6 and 7.

❷  The + signs on the ST lines indicate that the modules passed their self-tests.

❸  The adapters connected on the first channel's XMI (line C0 XMI) passed self-test.  One adapter on the second channel's XMI (line C1 XMI) failed self-test.

❹  These lines show the memory interleave set and size.

❺  This line shows the system firmware revision level and serial number.

4

---

**Note**

If a CPU module fails self-test, refer to an *Advanced Troubleshooting* manual.

---

## UPDATING THE MODULE

Updating the module involves updating the console firmware and updating the EEPROM. This is done using the Loadable Firmware Update (LFU) Utility, **update** -**f**, and **update** -**e** commands.

```
              New CPU                         Old CPU
 ┌──────────────────────────┐   ┌──────────────────────────┐
 │ FEPROM                   │   │                   FEPROM │
 │ ┌──────────────┐         │   │         ┌──────────────┐ │
 │ │ Console      │ set cpu ka7aa1 │ Console      │ │
 │ │ Firmware     │────────────────▶│ Firmware     │ │
 │ └──────────────┘ update -f ka7aa* └──────────────┘ │
 │                          │   │                          │
 │ ┌──────────────┐ set cpu ka7aa0 ┌──────────────┐ │
 │ │ Environment  │◀────────────────│ Environment  │ │
 │ │ Variables    │ update -e ka7aa* │ Variables    │ │
 │ └──────────────┘         │   │         └──────────────┘ │
 │ ┌──────────────┐         │   │         ┌──────────────┐ │
 │ │ Sys Serial No.│        │   │        │ Sys Serial No.│ │
 │ │ Other Parameters│      │   │      │ Other Parameters│ │
 │ └──────────────┘         │   │         └──────────────┘ │
 │ EEPROM                   │   │                   EEPROM │
 └──────────────────────────┘   └──────────────────────────┘
```

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UPDATE THE FIRMWARE

Use LFU. A new CPU module may be at a higher firmware revision than other CPUs in the system. If there is a firmware mismatch, this message is shown:

```
KA7AA1: Firmware Revision Mismatch V2.00-1234
```

Use LFU to update the system firmware. Start LFU by booting the console CD on InfoServer on the Ethernet.

1. At the >>> prompt, enter the **boot** command from the InfoServer (for example, >>> **boot exa0** -**file ISL_LVAX_Vnn**). The ISL file name must be typed in upper case.

5

2. Enter 3, to select Choose Service from the Function menu.

3. Enter 1, to select Find Services from the Option menu.

4. Enter the number of the service named VAX7000_ Vnn.

5. LFU starts, displays a summary of its commands, and issues its prompt (Function?).

6. Use the **show** command to see the current revision of firmware and hardware for every module in the system that contains microcode.

7. Use the **list** command to display the inventory of update firmware.

8. Use the **update ka7aa*** command to write new firmware to the CPU modules.

9. Now exit LFU by using the **exit** command.

Use update -f. If LFU is not available, use **update -f** to update the FEPROMS (flash ROMs) from the new to the old CPUs. Use a wildcard to update all the old CPUs at the same time.

```
P00>>> set cpu ka7aa1
P01>>> update -f ka7aa*

Update ka7aa0's FLASH ROMs [Y/(N)]? y
Updating ka7aa0's FLASH ROMs ... done
```

UPDATE THE EEPROM

Use **update** **-e**. To update the environment variables stored in the EEPROM, do the following:

1. Note the firmware revision of the primary CPU as shown in the system self-test.

2. Use the **update** **-e** command to copy the EEPROM environment variables from the primary processor to the new CPU module.

   ```
   P00>>> update -e ka7aa*

   Updating ka7aa1's EEPROM done
   ```

3. Use the **set cpu** command to connect the console terminal to the new CPU.

   ```
   P00>>> set cpu ka7aa1
   P01>>>
   ```

   Enter the LARS information.

4. Use the **set eeprom field** command to enter into the EEPROM the 8-digit LARS number and a message stating the date and reason for service.

   ```
   P01>>> set eeprom field
   LARS> 01234567
   Message>
   ```

   Enter the system serial number.

5. The system serial number must be recorded in the EEPROM. Enter the system serial number as follows:

   ```
   P01>>> set system serial
   System Serial Number> GA02345678
   ```