COMPAQ   EK–KN7CG–IN. A01

KN7CG CPU INSTALLATION CARD

This card is a quick reference to two types of installation:

- **Case 1**: Install additional KN7CG CPU modules (E2063) in an AlphaServer GS60/140 system (p. 1).

- **Case 2**: Upgrade an AlphaServer 8200/8400 system from KN7CC (E2056) or KN7CD (E2061), KN7CE (E2062), or KN7CF (E2065) modules to KN7CG modules (p. 8).

NOTE: Combinations of KN7CC, KN7CD, KN7CE, KN7CF, and KN7CG modules are not supported. All must be the same type, because they operate at different speeds:

KN7CC	*System 5/300*	*300 MHz*
KN7CD	*System 5/350*	*350 MHz*
KN7CE	*System 5/440*	*440 MHz*
KN7CF	*System 5/625*	*625 MHz*
KN7CG	*System 6/525*	*525 MHz*

For details on each step in the procedures outlined in this card, refer to the AlphaServer 8200/8400 Service Manual (EK–T8030–SV).
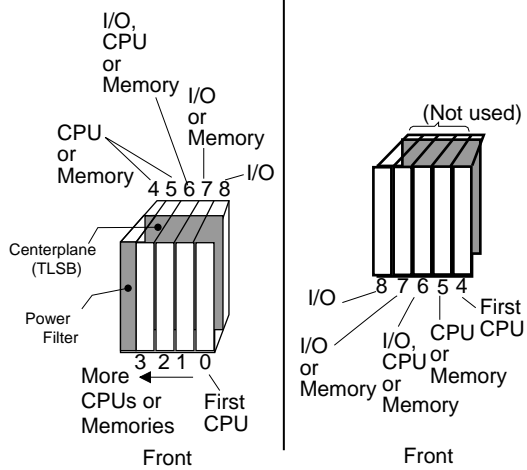
To upgrade from a VAX or DEC 7000 system, use the *AlphaServer 8400 Upgrade Manual* (EK–T8430–UI*).*

Case 1: Install Additional KN7CG CPU Modules

Note the configuration of CPU modules in the TLSB card cage. In a GS140 and an AlphaServer 8400, CPUs are installed beginning at slot 0, and so forth, until all CPUs are installed. In a GS60 and an AlphaServer 8200, CPUs begin at slot 4, and proceed with slot 5 until all CPUs are installed. (See figure on page 2.)

1

AlphaServer GS140 and 8400

I/O, CPU or Memory

I/O or Memory

CPU or Memory

I/O

4 5 6 7 8

Centerplane (TLSB)

Power Filter

3 2 1 0

More CPUs or Memories

First CPU

Front

AlphaServer GS60 and 8200

(Not used)

I/O

8 7 6 5 4

First CPU

I/O or Memory

I/O, CPU or Memory

CPU or Memory

Front

BX-0111C-98

NOTE: All CPU modules must have the same version of firmware. Results are unpredictable if processor modules have different firmware revisions. The console firmware must be V5.3 or greater.

1. Note the console firmware version of the system and determine the environment variables (do a **show ***). You will use this information to rebuild EEPROMs on the newly installed modules.

2. Turn off the system at the control panel. On a GS140 (8400), wait for the yellow Fault LED to stop flashing. When the LED stops flashing, power has been removed from the TLSB backplane and you may safely proceed.

3. Open the cabinet door and ground yourself to the cabinet with the antistatic wrist strap.

4. Remove all modules at the point and to the right of where you want to install the new module.

    CAUTION: Modules must be inserted from left to right to avoid damaging EMI gaskets on the modules or damaging backplane pins.

5. Disconnect all CPU modules from the centerplane.

6. Inspect the KN7CG module's top row of pins on the large gray connector. If the plastic portion of the connector obstructs the connector pin hole(s), the damage MUST be repaired or the plastic will bend backplane pins. Inspect all modules removed during the upgrade for damage. Any connector damage and any bent pins in the backplane MUST be repaired before a module is inserted.

7. Inspect the KN7CG module to be installed to see that the EMI gasket does not extend beyond the endplate. Also inspect top and bottom. If the gasket has moved, slide it back in position.

BX-0768B-95
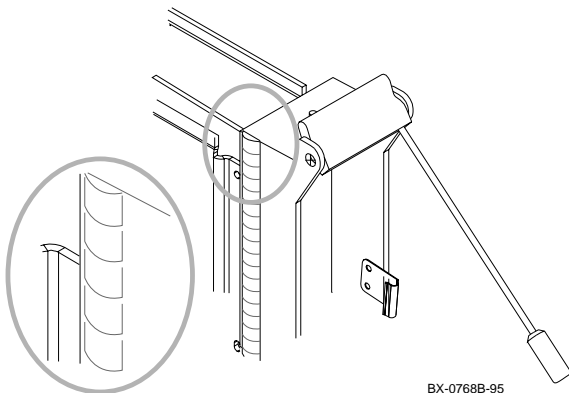
8. Release the spring-loaded handles from the stops. To do this, push both handles toward the module endplate and away from the stops.

Support the module with one hand and with the other hand grasp the endplate. Align the module with the card guide and the cover with the rail.

9. Starting from the leftmost backplane slot, slide the module into the card cage as far as it will easily go. A metal "key" at the bottom of the endplate fits into a small slot in a metal bar in the front of the enclosure to ensure proper alignment.

10. Push both handles at the same time until they touch the module endplate. You will feel the module make contact with the connectors. Release the handles gently so they spring back into the stops.

11. If there are no memory modules now in the machine, replace the memory module you removed in step 4 in the next higher-numbered slot. (Remove the terminator module for space needed to replace the memory module first.)

12. Power up the system and note the console version given in the last line of the self-test display.

13. If the new module console firmware is the same version as was on the system and no other CPU modules need to be installed, go to step 15. If you need to install another module, go to step 14.

    If the console firmware is a different version than that of the system:

    a. Run LFU to upgrade the firmware (page 7).

    b. Rebuild the EEPROM and the NVRAM (page 7).

    CAUTION: Determine the environment variables before you rebuild the EEPROM (page 7).

If no other CPU modules need to be installed, go to step 15.

CAUTION: If you have a new console CD with a later version of the console firmware than is currently resident on existing CPUs, you should update the existing CPUs as well as any new ones.

14. If you need to install another KN7CG module, power down the system, disconnect the newly installed CPU module, and repeat steps 6 to 14 for each additional module.

CAUTION: All CPU modules other than the one whose console version is being checked should be disconnected from the backplane.

15. When you have updated the console version of all the KN7CG CPU modules, power down the system and reconnect all the disconnected modules. Starting from the leftmost backplane slot and working to the rightmost slot, reinstall all KN7CG and memory modules pulled out during the procedure. Check that terminator modules are installed in all unused slots.

16. Power up and verify the system (page 6).

17. Reset the environment variables. From the primary processor issue **set <envar>** commands to restore customized environment variables.

18. Close the cabinet door.

Verify the System

1. Power up the system. Power sequencing begins, and the system runs self-test.

2. Check the self-test display to make sure that the system recognizes the new modules. In Example 1 two dual-processor modules are in slots 0 and 1 (see ❶).

3. Check the ST lines to see that the KN7CG modules passed testing (see ❷).

Example 1

```
F  E  D  C  B  A  9  8  7  6  5  4  3  2   1   0  NODE #
                     A  A  M  .  .  .  M   P   P  TYP    ❶
                     o  o  +  .  .  .  +  ++  ++  ST1    ❷
                     .  .  .  .  .  .  .  EE  EB  BPD
                  o  +  +  .  .  .  +  ++  ++  ST2    ❷
                     .  .  .  .  .  .  .  EE  EB  BPD
                  +  +  +  .  .  .  +  ++  ++  ST3    ❷
                     .  .  .  .  .  .  .  EE  EB  BPD
                  .  +  +  +  +  +   +   +  C0 PCI +
+  +  .  +  .  +  +  +  .  .  .  +  +  +   +      C1 XMI +
                  .     +  .  .  .  .  +  +  +   +   +  C4 PCI +
                  .  +  .  .  .  .  .  +  +  +   +   +  C5 PCI +
                  .  +  .  .  .  .  .  +  +  +   +   +  C6 PCI +
                  .  .  .  .  .  .  .  +  +  +   +   +  C7 PCI +
                  .  .  A1  .  .  .  A0  .   .     ILV
                  .  .1GB  .  .  .1GB  .   .     2GB
Compaq AlphaServer GS140 4-6/525, Console V5.3-1 24-SEP-1998 11:43:17
SROM V1.1, OpenVMS PALcode V1.39-1. Digital UNIX Palcode V1.40-1
System Serial=tNI84177052 OS = OpenVMS, 13:53:38 September 24, 1998
Configuring I/O adapters…
     .
     .
     .
P00>>>
```

Running LFU

Boot LFU and enter the **update** command.

```
P00>>> boot boot-disk (example: boot dka400)
     .
 [follow instructions on screen to start LFU]
     .
UPD> update kn7cg*
WARNING:  updates may take several minutes to complete for
each device


Confirm update on: kn7cg-ab0_arc  [Y/(N)]y
                        DO NOT ABORT!
kn7cg-ab0_arc  Updating to V5.3-1...Verifying V5.3-1...
PASSED.
Confirm update on kn7cg-ab0  [Y/(N)] y
                       DO NOT ABORT!
kn7cg-ab0  Updating to V5.3-1 …                PASSED
UPD> exit
Initializing...
                [self-test display appears]
```

Building the EEPROM

Whenever you update the console firmware on a KN7CG
module, you should build the EEPROM on that module.

Enter the **build -e** command.

*NOTE: You will lose environment variable settings when
doing a **build -e** . To preserve a copy, attach a printer and
do a **show *** before you perform the **build -e** command.*

```
P00>>> build -e
Build EEPROM on kn7cg-ab0 ? [Y/N]> y
   EEPROM built on kn7cg-ab0
P00>>> init
```

## Building the NVRAM

Enter the **build -n** command.

```
P00>>> build -n
Build NVR on kn7cg-ab0 ? [Y/N]> y


   NVR built on kn7cg-ab0
P00>>> init
```

Case 2: Upgrade the System with KN7CG CPUs

To upgrade an AlphaServer 8200 or 8400 system to an AlphaServer GS60 or GS140 system with KN7CG CPU modules, proceed as follows:

1. Determine the environment variables (do a **show ***). You will use this information to restore the environment variables following the upgrade.

2. Power down the system.

3. Open the cabinet door and ground yourself to the cabinet with the antistatic wrist strap.

4. Remove all CPU modules. If the upgrade is from KN7CC modules, you will also need to remove the clock module. First remove any memory modules from the front of the 8400 card cage so that you can reach the clock module. (For the 8200, you do not need to remove memory modules, since the clock module is inside the rear door of the system.) (Note that the KN7CG uses the same clock module settings as the KN7CD, KN7CE, and KN7CF, so it does not require a change to the clock module.)

5. If the upgrade is from KN7CC modules, remove the clock module (see ❺).   If the upgrade is from KN7CC modules, proceed to steps 6 and 7. Otherwise, proceed to step 8.
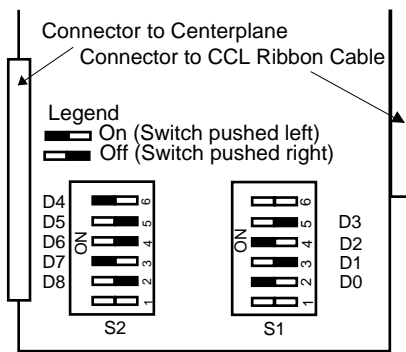

BX-0747E-96

8
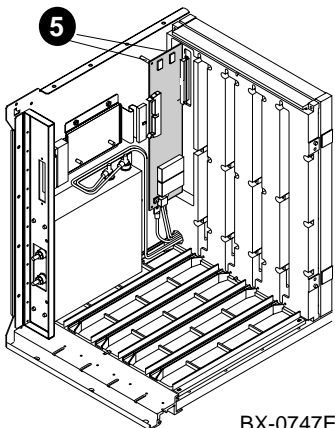
6. Check the DIP switch settings on the clock module to ensure proper settings for the bus for the KN7CG.
7. Install the KN7CG clock module.

DIP Switch Settings for KN7CG Clock Module

Connector to Centerplane
Connector to CCL Ribbon Cable

Legend
■□ On (Switch pushed left)
□■ Off (Switch pushed right)

D4
D5
D6
D7
D8
ON

S2

D3
D2
D1
D0
ON

S1

BX-0101-97

8. On an AlphaServer GS60, install two E2034-AB terminator cards at the rear of the card cage, if they are not already present.

Clock Module
(8200)

Terminator Card

BX-0636a-96

9
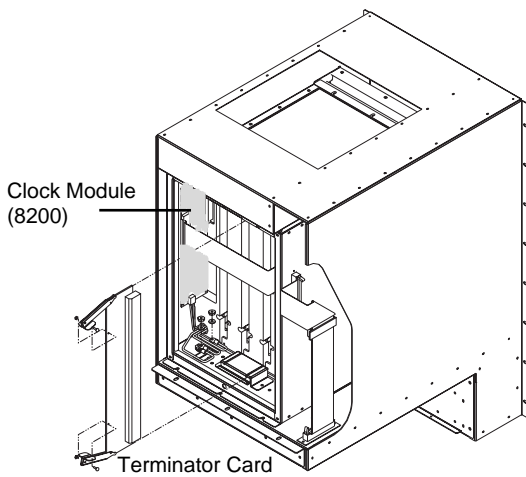
9. If necessary, remove the terminator or memory module from the slot where you will be installing a new KN7CG module.

10. Inspect the KN7CG module's top row of pins on the large gray connector. If the plastic portion of the connector obstructs the connector pin hole(s), the damage MUST be repaired or the plastic will bend the pins on the backplane. Inspect all modules removed during the upgrade for damage. Any connector damage and any bent pins in the backplane MUST be repaired before the module is inserted.

11. Inspect the KN7CG module to be installed to see that the EMI gasket does not extend beyond the endplate. Also inspect top and bottom. If the gasket has moved, slide it back in position.

BX-0768B-95
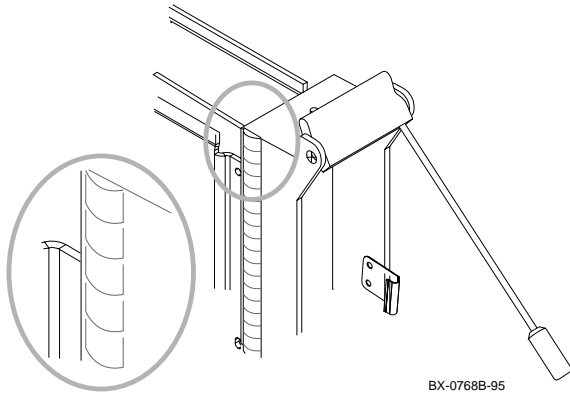
12. Release the spring-loaded handles from the stops. To do this, push both handles toward the module endplate and away from the stops.

13. Support the module with one hand and with the other hand, grasp the endplate. Align the module with the card guide and the cover with the rail.

14. Slide the module into the selected slot (slot 0 for the first CPU module on an AlphaServer GS60 and slot 4 for the first CPU module on an AlphaServer GS140) of the card cage as far as it will easily go. A metal

"key" at the bottom of the endplate fits into a slot in a bar in front of the enclosure for proper alignment.

15. Push both handles at the same time until they touch the module endplate. You will feel the module make contact with the connectors. Release the handles gently so they spring back into the stops.

16. If there are no memory modules now in the machine, replace the memory module you removed in step 9 in the next higher slot from where you inserted the new KN7CG module. (Remove the terminator module for space needed to replace the memory module first.)

17. Power up the system. Check the console display to ensure that the new module passes self-test.

18. Note the console version given in the last line of the display and compare it with the LFU version. If the console version is different:

   • Run LFU to upgrade the firmware (page 7).
   • Rebuild the EEPROM and the NVRAM (page 7).

19. If another CPU module is to be installed, power down the system and disconnect the newly installed CPU module from the backplane by releasing its handles, and repeat steps 9 to 19. Else, go to step 20.

20. Power down the system and reconnect all the disconnected modules. Reinstall any memory modules pulled out during the procedure. Check that terminator modules are installed in all unused slots.

   CAUTION: Modules must be inserted from left to right to avoid damaging EMI gaskets on the modules.

21. Power up the system, and verify from the console display that all modules pass self-test.

22. Change the system model number:
   ```
   P00>>> set sys_model_num GS60  (or GS140)
   ```

23. From the primary processor, issue **set <envar>** commands to restore customized environment variables.

24. Close the cabinet door.

11