

AlphaServer 2000/2100 Series

KN450/KN460 CPU Module Installation and Configuration

Order Number: EK-EV450-IN. B01

October 1994

This document includes all information that is required to install and configure the KN450/KN460 CPU module in an AlphaServer 2000 or 2100/2100 RM/2100 CAB series system.

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Maynard, Massachusetts**

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S2754

Before Installing Additional CPU Modules

Note

Different CPU types cannot be used within the same system. Example: A KN450 CPU module and a KN460 CPU module cannot be used in the same system.

Before installing a CPU module, perform the following procedure to ensure that the current CPU configuration is working properly. After installing a new CPU, repeat this procedure to ensure that the new CPU configuration is working properly.

Step 1: Check for errors logged to the CPU.

Using the `show fru` and `show error` console commands, you can determine if errors are logged for a bad CPU. If an event is logged for any test other than test number 00, the CPU should be replaced.

1. Enter the `show fru` command at the SRM console prompt to check for test-directed (TDD) errors logged for a CPU. In the following example, a TDD error is logged for CPU0.

```
P00>>>show fru
```

Slot	Option	Part#	Rev		Serial #	Events		Logged	
			Hw	Sw		SDD	TDD	TDD	
0	IO	B2110-AA	H2	0	KA347DWV06	00		00	
2	CPU0	B2020-AA	B2	9	ML33900048	00		01	
3	CPU1	B2020-AA	B2	9	KA34509090	00		00	
6	MEM2	B2023-CA	A1	0	ML34100009	00		00	
7	MEM3	B2023-CA	A1	0	ML34100008	00		00	

CPU Module

2. Enter `show error cpu0` at the SRM console prompt to check if an error, other than for test number 00, is logged for that CPU.

```
P00>>>show error cpu0
```

```
CPU Module EEROM Event Log
```

```
Test Directed Errors
```

```
Entry: 0          Test number: 02          Subtest Number: 02
```

```
Parameter 1: 00000000,00000010
```

```
Parameter 2: ffffffff,fffffff
```

```
Parameter 3: fffffeff,fffffff
```

```
CPU Event Counters
```

```
C3_CA_NOACK      0
```

```
.
```

```
.
```

```
.
```

```
C3_DT_PAR_E     0
```

```
C3_DT_PAR_O     0
```

```
B-Cache Correctable Errors
```

```
Entry Syndrome   Offset L           Offset H           Count
```

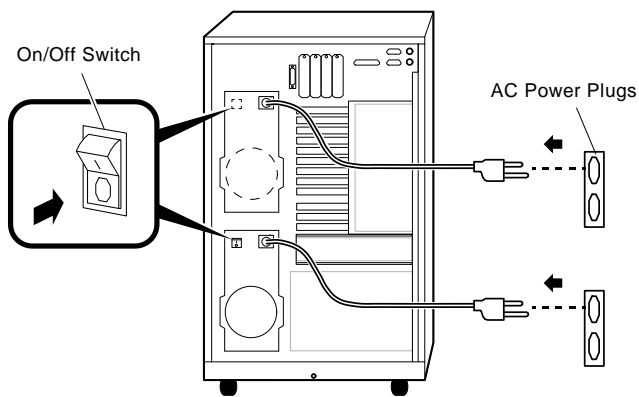
```
No Entries Found
```

```
P00>>>
```

Step 2: If the CPU has an error logged for other than test number 00, perform power shutdown and replace the failing CPU module.

Event logs for test number 00 do not indicate a bad CPU. Test number 00 indicates that a CPU failover occurred sometime in the past.

Step 3: Perform a power shutdown.



- Caution:** Before opening or removing system panels:
1. Perform orderly shutdown of the operating system.
 2. Set the DC power switch on the operator control panel to off.
 3. Shut off AC power by setting the AC On/Off switch on each power supply to Off.
 4. Unplug the AC power cord for each power supply.

CPU Module

Note: The power supply on your system may not have an AC On/Off switch.



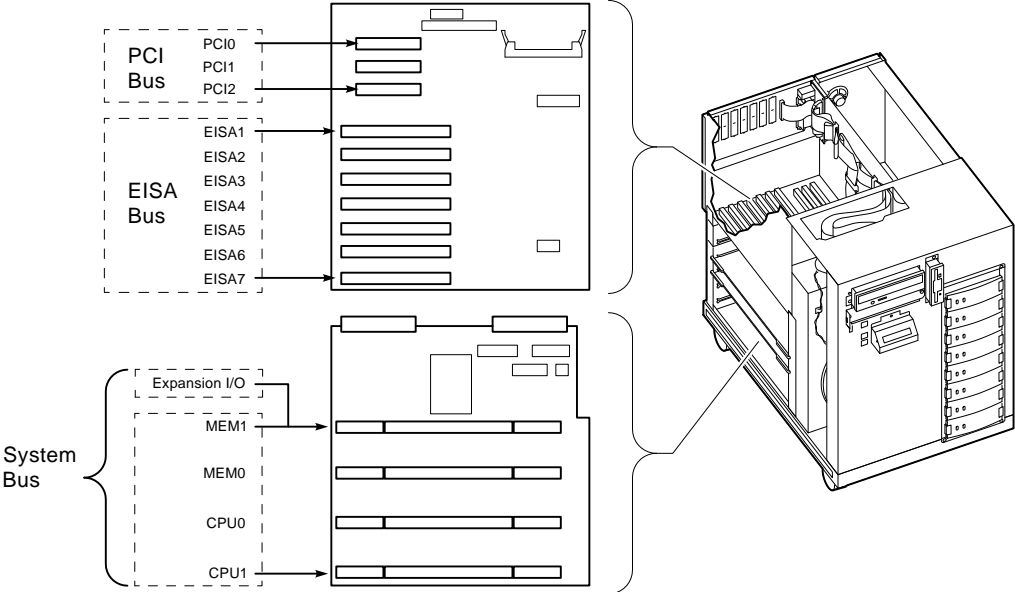
Warning: CPU and memory modules have parts that operate at high temperatures. Wait 2 minutes after power is removed before handling these modules.

Locating the CPU Slots

Refer to the appropriate figure to determine the location of available CPU slots on your system.

System Bus CPU Slots for the AlphaServer 2000 Model 4/2xx

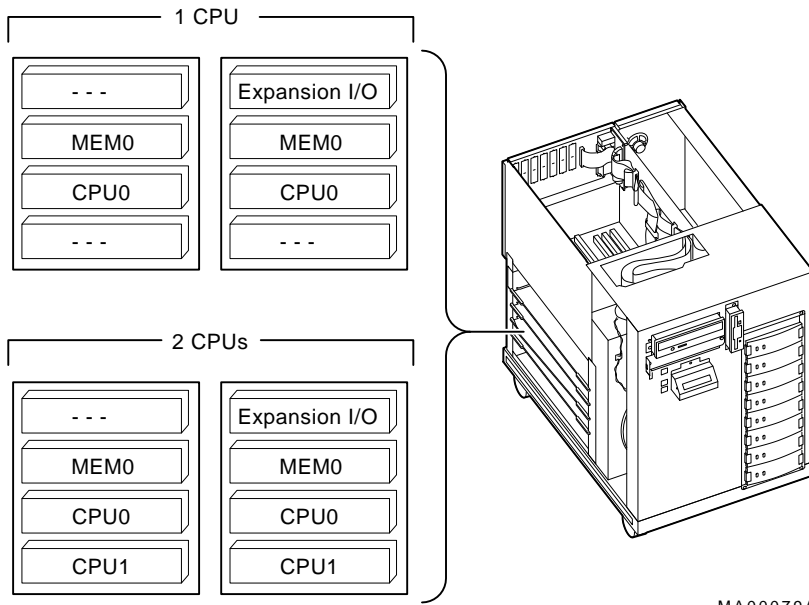
The following illustration shows the location of the system bus and the CPU slots.



MA00078A

CPU Configuration for the AlphaServer 2000 Model 4/2xx

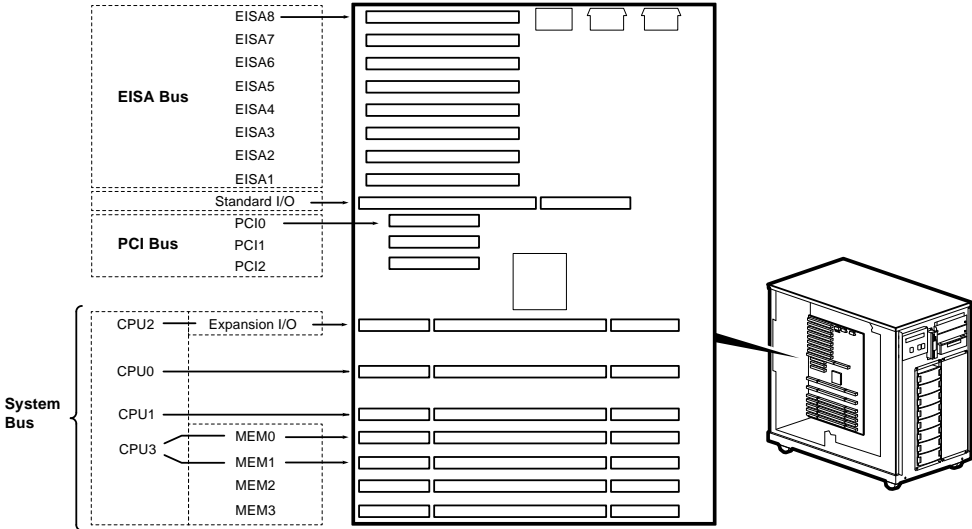
The following illustration shows all CPU configurations.



MA00079A

System Bus CPU Slots for the AlphaServer 2100 Model 4/2xx

The following illustration shows the location of the system bus and the CPU slots.



MA045693

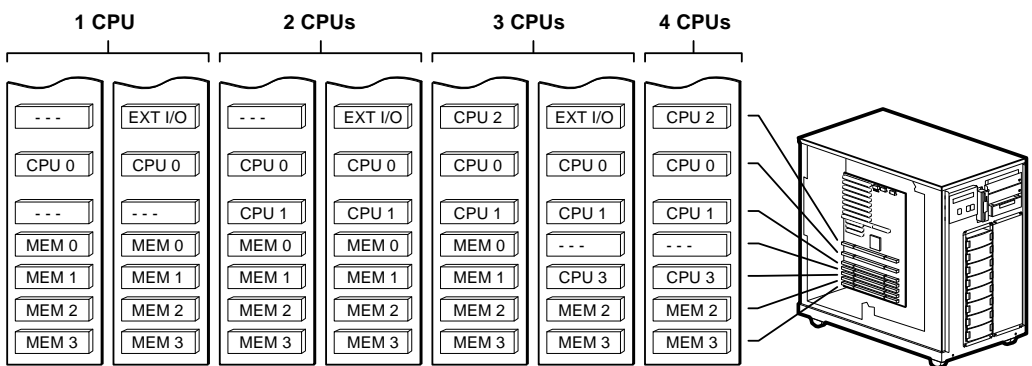
Note

CPU3 must be installed in MEM1 slot because CPUs take up two memory slots.

CPU Module

CPU Configuration for the AlphaServer 2100 Model 4/2xx

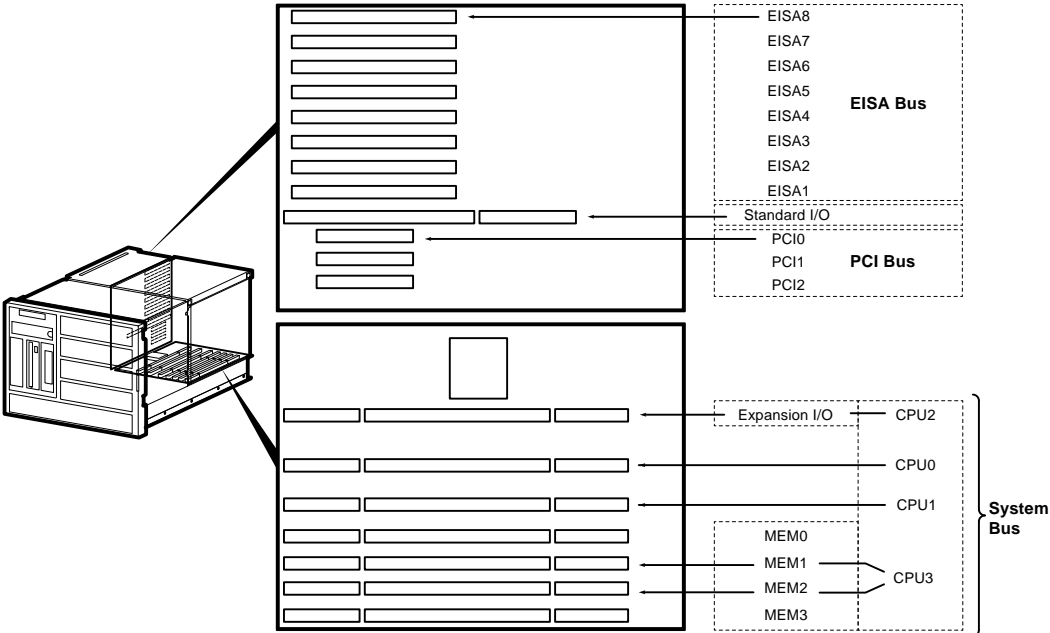
The following illustration shows all CPU configurations.



MA046293

System Bus CPU Slots for the AlphaServer 2100 Models 4/2xx RM and 4/2xx CAB

The following illustration shows the location of the system bus and the CPU slots.



LJ-03787-T10A

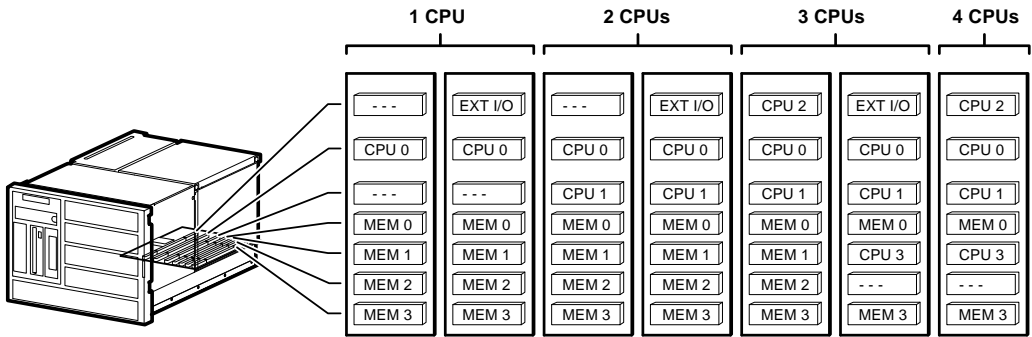
Note

CPU3 must be installed in MEM1 slot because CPUs take up two memory slots.

CPU Module

CPU Configuration for AlphaServer 2100 Models 4/2xx RM and 4/2xx CAB

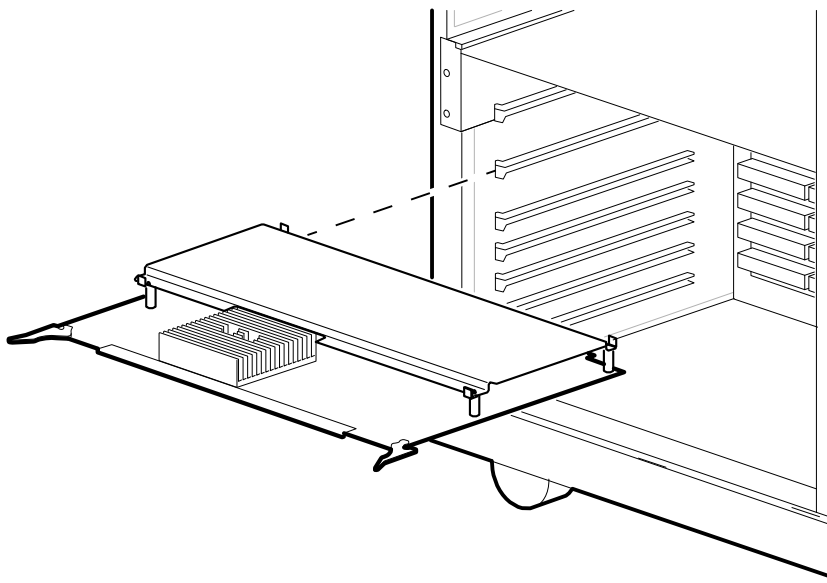
The following illustration displays all CPU configurations.



LJ-03788-T10

Installing the CPU Module

The following illustration shows how to install a CPU into a Model 4/2xx system bus slot.



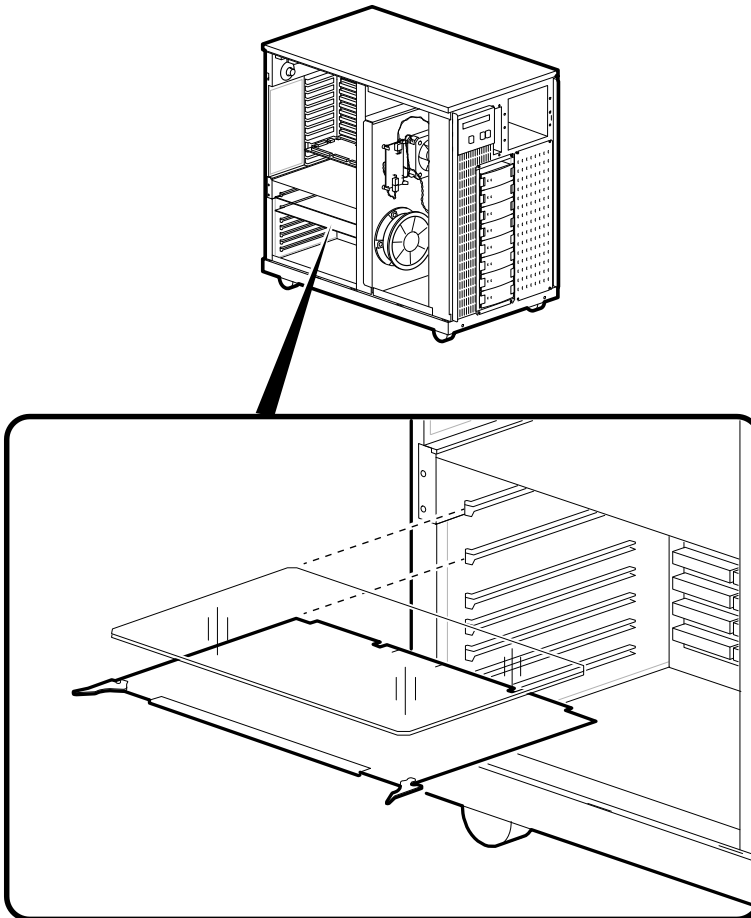
MA066893

Note

Modules must be installed in the Model 4/2xx RM and 4/2xx CAB with the components facing toward the right side of the enclosure.

Asuring Proper Airflow

All system bus slots must be populated with either a printed circuit board (PCB) module or a clear plastic module to assure proper airflow over each PCB module. The following illustration shows the installation of a clear plastic module and a PCB module.



MA042293B

CPU Specifications

CPU Module Specifications and Variations

Option and Module No.	CPU Chip/ I/DCache Size	Frequency	Cycle Time	Bcache Size	Cache Access	No. of CPUs Supported
KN450-AA B2020-AA	DECchip 21064 8K/8K	190 Mhz	5.26 ns	1 MB	26.3 ns	4
KN460-AA B2024-AA	DECchip 21064A 16K/16K	275 Mhz	3.64 ns	4 MB	25.4 ns	4

Maximum DC Power Requirements

CPU Option	3.3V \pm 5% DC Maximum Amps	5V \pm 5% DC Maximum Amps
KN450-AA	14.5	13.0
KN460-AA	0	25.0

Environmental Requirements

Parameter	Range
Temperature (storage)	-40°C – 66°C
Temperature (operating)	5°C – 35°C with 10°C rise from inlet to outlet air
Humidity (storage)	10% – 95%
Humidity (operating)	10% – 95% noncondensing at 304 meters of altitude

Ordering Information

CPU Ordering Information

CPU Module	Order Number
B2020-AA DECchip 21064	KN450-AA
B2024-AA DECchip 21064A	KN460-AA
Clear plastic module	74-48265-01

Documentation Ordering Information

Document	Order Number
<i>AlphaServer 2000/2100/2100 RM/2100 CAB Series Service Guide</i>	EK-KN450-SV
<i>AlphaServer 2000 Owner's Guide</i>	EK-400MP-OP
<i>H9A10 (600 mm) Cabinet Installation and Owner's Guide</i>	EK-H9A10-IN
<i>Digital 2100 Server Model 500MP-R Series Installation/Owner's Guide</i>	EK-KN450-RM
<i>Digital 2100 Server Model 500MP Series Owner's Guide</i>	EK-KN450-OP