Digital AlphaStation™ 400 Series

CPU Module Information

Order Number: EK-PCDSA-CI. A01

Digital Equipment Corporation
Maynard, Massachusetts

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Information - Class B

FCC ID: AO9-PB50

This device complies with Part 15 of the FCC rules. Operation is subject to the following conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. Any changes or modifications to this equipment may void the user's authority to operate this equipment.

This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna
- Increase the separation between the equipment and the receiver
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected
- Consult the dealer or an experienced radio/TV technician for help

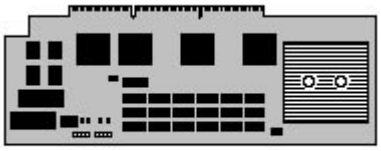
The keyboard and video ports should be connected only with shielded datacables with an external ferrite bead over the cable. When either of these ports is connected with cables without such a ferrite bead, the additional ferrite beads shall be clamped over these cables next to the cable connector.

Contents

Preface **vii**

Welcome vii
Audience vii
Organization of the Information vii
Special Notices vii
Additional Information Resources viii

PB50C-BA **1-1**



Introduction 1-1
PB50C-BA Features 1-1
Removing the PB50C-BA 1-2
Configuring the PB50C-BA 1-4
PB50C-BA Jumpers and Indicators 1-4
Installing the PB50C-BA 1-6

Figures

1-1 Removing the PB50C-BA CPU Module 1-3
1-2 CPU Module Jumper Locations 1-5
1-3 Installing the PB50C-BA CPU Module 1-7

Table

1-1 CPU Module Jumper Settings 1-5

Preface

Welcome

The booklet describes how to:

- Remove the CPU module.
- Configure the CPU module jumpers.
- Install the CPU module.

Audience

If you will be removing, configuring, or installing an Alpha AXP CPU module in your Digital AlphaStation 400 Series system, you will find the information included here helpful.

Organization of the Information

This information in this booklet covers the following topic:

- Topic 1, Removing, configuring, and installing the PB50C-BA CPU module.

As future CPU modules become available, this booklet will be revised to include appropriate new topics.

Special Notices

Four kinds of notices emphasize specific information:

- A **WARNING** indicates the presence of a hazard that can cause personal injury.
- A **CAUTION** indicates the presence of a hazard that can cause damage to hardware or that might corrupt software.
- A **NOTE** gives general information, such as compatibility with other products or pointers to other information.
- A **HINT** includes suggestions to make your computing tasks easier.

Additional Information Resources

You may wish to consult the following information resources relating to your Digital AlphaStation 400 Series system:

- *Digital AlphaStation 400 Series Installation Information* (order number EK-PCDSA-II) presents a graphical overview of the Digital AlphaStation 400 Series installation.
- *Digital AlphaStation 400 Series User Information* (order number EK-PCDSA-UI). This guide introduces the Digital AlphaStation 400 Series personal computer (PC) system. The information is used to start, use, upgrade, troubleshoot, and configure your Digital AlphaStation 400 Series system. The manual also contains general system information, including console commands and system care.

Contact your Digital representative for other available product-related information.

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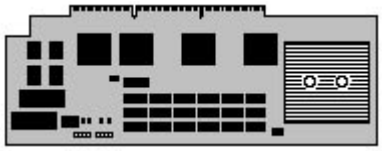

PB50C-BA

Introduction

This topic describes the features, removal, configuring, and installation of the PB50C-BA CPU module.

PB50C-BA Features

The PB50C-BA CPU module has the following features:

- **CPU.** 233 MHz DECchip 21064A (EV4S) with 16 KB (kilobytes) of instruction cache and 16 KB of data cache.
- **Core Logic.** DECchip 21071-AA chipset provides memory and cache control, and a bridge to the PCI bus.
- **Secondary Cache.** 512 KB organized as direct-mapped and writeback.
- **Console Firmware.** 1 MB (megabyte) of flashROM containing the ARC and SRM console firmware, PALcode, and diagnostics.
- **DROM.** The diagnostic ROM contains 64 KB of power-on self test code.
- **NVRAM.** 8 KB of nonvolatile memory used for the storage of setup and configuration information.
- **Indicators.** 8-bit diagnostic LED display.

Removing the PB50C-BA

To remove the CPU module, refer to Figure 1-1 and follow these steps:

CAUTION

Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. A static discharge from your fingers can result in permanent damage to electronic components.

1. Power off the system and disconnect the power cord.
2. Unlock and remove the left side cover.
3. Remove the screw holding the CPU module retaining bar.
4. While supporting the CPU module, gently pull the rear end of the retaining bar outward and rearward until the tab in the fan housing comes out.
5. Remove the CPU module and place it in an ESD-protected bag.
6. Check that the jumpers on the new CPU module are correctly configured. (See the next section, Configuring the PB50C-BA.)

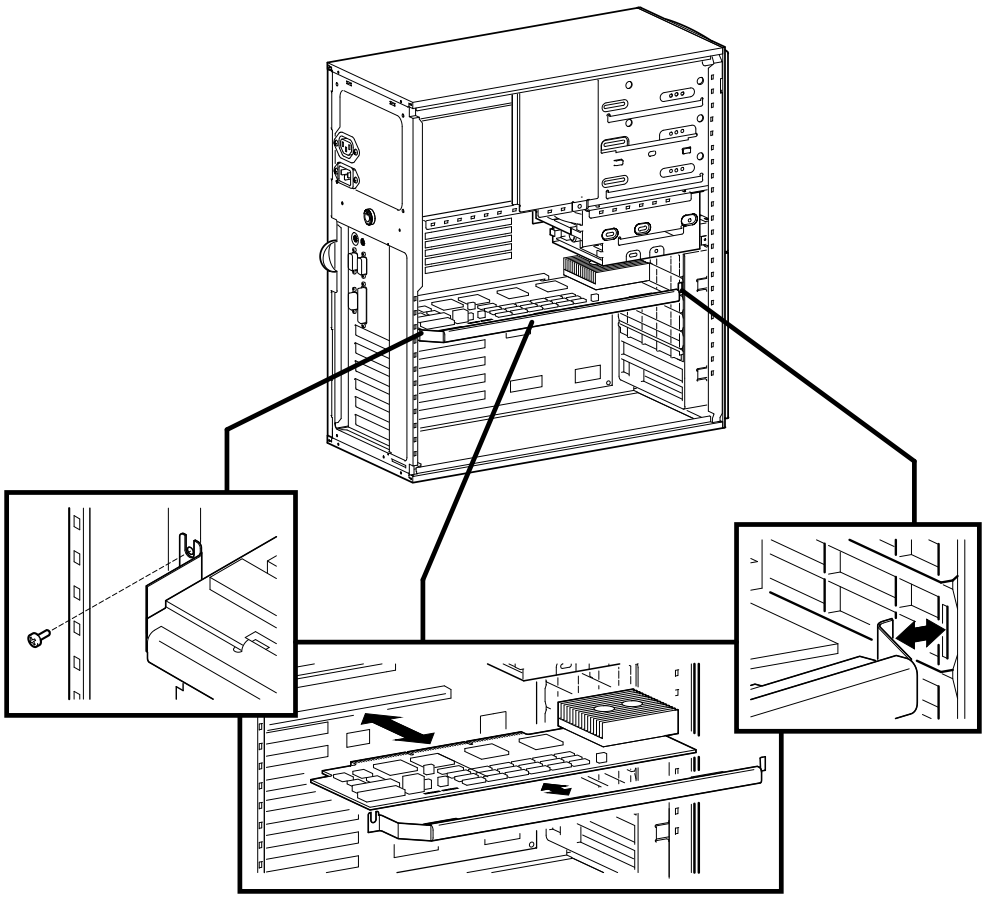

Figure 1-1. Removing the PB50C-BA CPU Module

Configuring the PB50C-BA

PB50C-BA Jumpers and Indicators

Jumper pins allow you to set specific system parameters. Set them by changing the pin location of jumper blocks. A jumper block is a small plastic-encased conductor (shorting plug) that slips over the pins. To change a jumper setting, remove the jumper from its current location with your fingers or small needle-nosed pliers. Place the jumper over the two pins designated for the desired setting. Press the jumper evenly onto the pins. Be careful not to bend the pins.

LED indicators are provided for diagnostic use. The side cover must be removed to view the indicators. Refer to the Chapter 4 of the *AlphaStation 400 Series User Information* for the indicator code meanings.

Figure 1-2 shows the locations of the CPU module jumper pins and the LED indicators. Table 1-1 lists the CPU module jumpers and factory-default settings. Note that the square pin of each jumper block is pin 1.

CAUTION

Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. A static discharge from your fingers can result in permanent damage to electronic components.

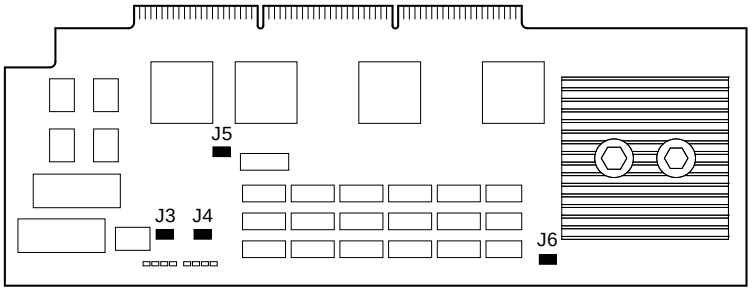

Figure 1-2. CPU Module Jumper Locations

Table 1-1. CPU Module Jumper Settings

Jumper	Description	Setting	
J3	SROM Control	J3 (1 to 2) J3 (2 to 3) (D)	Stay at SROM prompt Pass control to image
J4	flashROM write enable (for firmware update)	J4 (1 to 2) (D) J4 (2 to 3)	Write Enabled Write Disabled
J5	DROM Control	J5 (1 to 2) J5 (2 to 3) (D)	DROM loads floppy DROM loads flashROM
J6	Pushbutton function	J6 (1 to 2) (D) J6 (2 to 3)	Reset Unsupported

(D) = Default position

Installing the PB50C-BA

To install the CPU module, refer to Figure 1-3 and follow these steps:

CAUTION

Do not touch any electronic component unless you are safely grounded. Wear a grounded wrist strap or touch an exposed metal part of the system unit chassis. A static discharge from your fingers can result in permanent damage to electronic components.

1. After checking the configuration jumpers are properly set, remove the CPU module from its ESD-protected bag and gently install it in the motherboard.
2. While supporting the CPU module with one of your hands, replace the retaining bar by inserting the tabbed end into the slot in the fan housing.
3. Carefully swing the retaining bar inward while catching the edge of the CPU module in the clips.
4. Fasten the retaining bar in place with the screw.
5. Replace and lock the side cover.
6. Connect the power cable and power on the system.

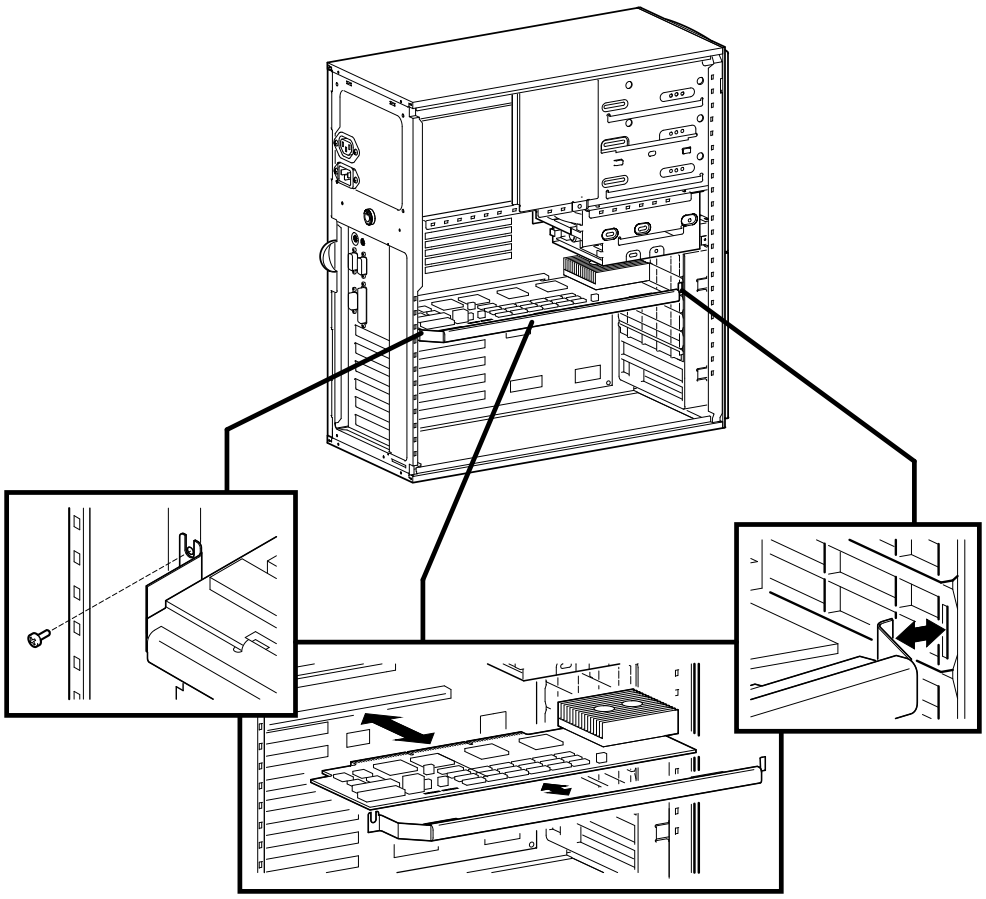

Figure 1-3. Installing the PB50C-BA CPU Module