P2 - P5 PowerStations: DRAM Replacement

Background

This document describes the procedure for adding or replacing the DRAM on P2-P5 PowerStations. All PowerStations use DRAM that is comparable to what is found in most laptop PCs. The CPU card provides two 144 pin SODIMM sockets, each of which accepts 8, 16, 32, 64 or 128 MB, 3.3 V power level SODIMMs.

> **Note** The CPU card only supports SDRAM SODIMM modules. EDO SODIMM is not supported.

This procedure requires the following tools:

- Slotted head (#2) screwdriver

- Phillips head (#0) screwdriver

- Quarter-inch nut driver

- Needle nose pliers

Electrostatic Discharge Precautions

Modern integrated electronic devices, especially CPUs and memory chips, are extremely sensitive to electrostatic discharges (ESD) and fields. Before you disassemble the PowerStation, be sure to follow these simple precautions to protect you and the PowerStation from harm resulting from ESD.

1. To avoid electric shock, always disconnect the power from the PowerStation before you remove the back cover or separate the back cover from the front panel. Do not touch any components of the CPU card or other cards while the PowerStation is on.

2. Disconnect power before making any hardware configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.

3. Only handle internal components in an ESD-safe location using appropriate grounding methods.

   • Always ground yourself to remove any static charge before you touch the CPU card.
   • Be particularly careful not to touch the chip connectors.
   • Keep DRAM in its anti-static packaging when it is not installed in the PowerStation, and place it on a static dissipative mat when you are working on it.
   • Wear a grounding wrist strap for continuous protection.

DRAM Replacement Procedure

If you have read and understand the ESD safety precautions, you are ready to disassemble the PowerStation. If you have a P2 PowerStation, continue to the next procedure, Disassembling a P2 PowerStation. If you have a P3, P4, or P5 PowerStation, skip the next procedure and proceed to Disassembling a P3-P5 PowerStation on page 4.
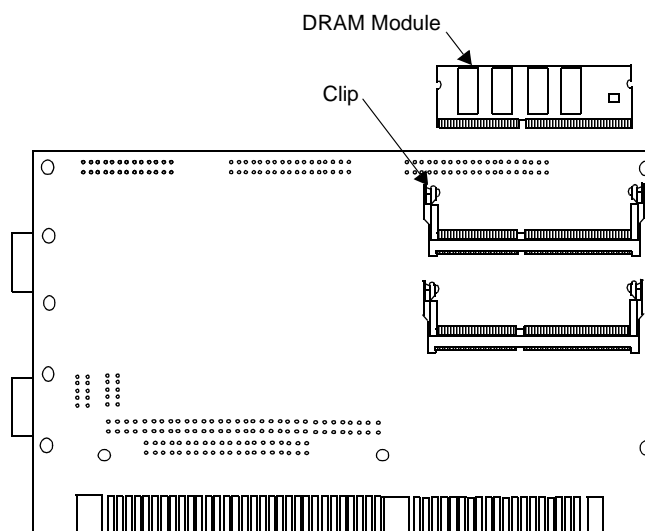
Disassembling a P2 PowerStation

1. Turn off power to the unit.

2. Disconnect the unit from the power source.

3. Remove the unit from its enclosure, if installed.

   Caution   You must wear an ESD wrist strap connected to a good, known, earth ground before completing the next step to avoid damaging the unit.

4. Place the unit on its display, on a static dissipative mat, in a location free from dirt and moisture and protected against static discharge.

5. Remove the screws securing the back cover.

6. Remove the back cover from the unit.

7. Remove the screw that secures the CPU card support bracket. This screw is located inside the unit, just above the VGA port.

8. Remove the screw that secures the CPU card to the supply board.

9. Disconnect the four ribbon cables shown below.

Disconnect these cables from the CPU Unit.

Disconnect these cables from the supply board.
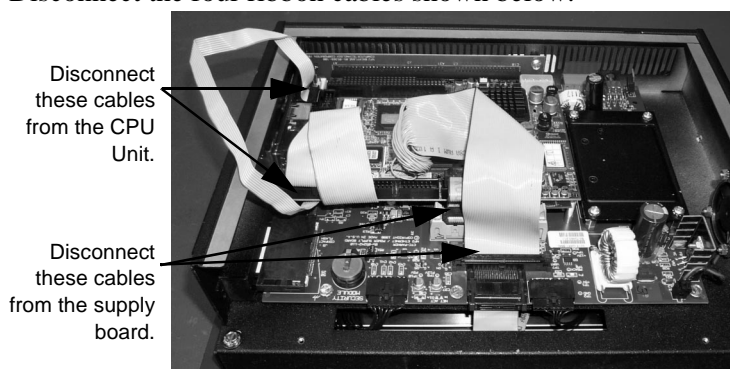
10. Carefully but firmly slide the CPU card out of its socket and turn it over. The two DRAM sockets are located on the back of the board. See the illustration below.
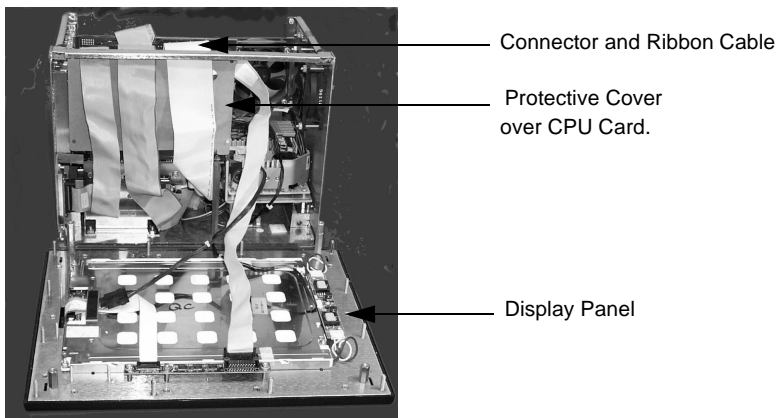

DRAM Module

Clip

You are now ready to remove the DRAM module. Continue with Removing a DRAM Module on page 6.

Disassembling a P3-P5 PowerStation

1. Turn off power to the unit.

2. Disconnect the unit from the power source.

3. Remove the unit from its enclosure, if installed.

Caution   You must wear an ESD wrist strap connected to a good, known, earth ground before completing the next step to avoid damaging the unit.

4. Place the unit face down on a static dissipative mat, in a location free from dirt and moisture and protected against static discharge.

5. Remove the screws securing the back cover.

6. Remove the back cover from the unit.

7. Loosen the fasteners that hold the display panel in place.

8. Carefully tilt the frame away from the display panel, placing the frame upright, and allowing the display panel to remain face down. The display panel will still be attached to the unit by connecting cables.

9. Disconnect the connector and move the connector and ribbon cable aside.

Connector and Ribbon Cable

Protective Cover over CPU Card.

Display Panel

10. Use a pair of needle nose pliers to squeeze the fasteners that hold the protective cover to the CPU Board. See the illustration below.


Protective Cover

Fastener

Connector and Ribbon Cable
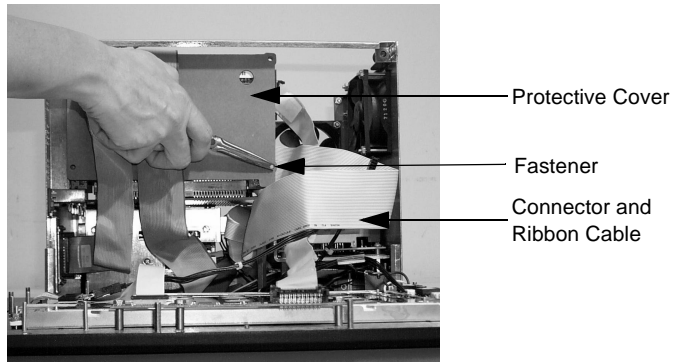
11. Remove the protective cover, carefully sliding it from beneath the remaining ribbon cables.

You are now ready to remove the DRAM module. Continue with Removing a DRAM Module on page 6.
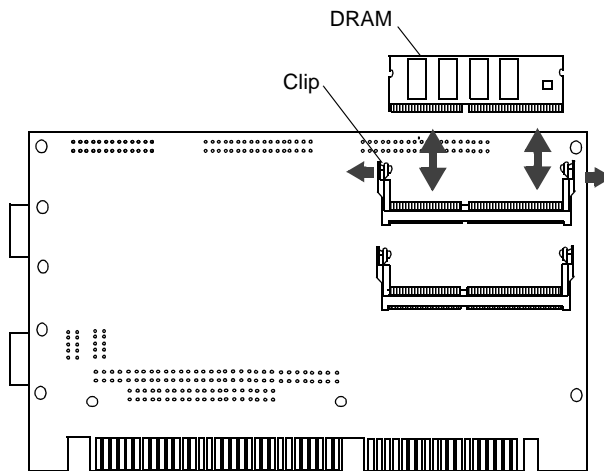
Removing a DRAM Module

Follow these instructions to remove a DRAM module from the CPU card.

1. Locate the DRAM socket(s) on your PowerStation. On the P2, P3 and P5 PowerStations, the DRAM slots are located in a similar position as the DRAM slots on the P4 PowerStation shown below.

DRAM Sockets
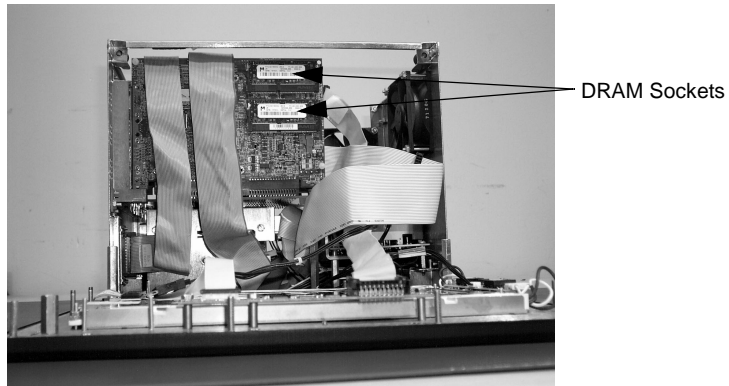
2. Push outward on the two clips holding the DRAM module in its socket as shown below. You may need to use a small screwdriver or the tip of a pen to push on the clips.

   Note If only one DRAM module is required, it can be installed in either socket.

DRAM

Clip

CTC Parker Automation

3. Tilt the DRAM module forward, slightly, and slide it up to remove it from the socket.

4. Place the DRAM module in an anti-static bag for storage if you do not plan to reinstall the DRAM module at this time.

Installing a DRAM Module

The following instructions explain how to install a DRAM module on the CPU card of a P2, P3, P4 or P5 PowerStation.

Important The PNY (manufacturer) type DRAM module will not fit properly on a P2 PowerStation. It blocks the Power Supply mounting screws.

1. Carefully insert the DRAM module into its socket at a 30-degree angle.

2. Gently but firmly push the module upright into the socket until the metal clips snap into place, securing the module.

3. Visually inspect the DRAM module to ensure that it is fully seated in the socket.

If you have a P2 PowerStation, continue with the following section, Reassembling a P2 PowerStation. If you have a P3-P5 Powerstation, skip the following section and continue with the next section, Reassembling a P3-P5 PowerStation on page 8.

Reassembling a P2 PowerStation

When you are finished installing the DRAM, follow these steps to reassemble the P2 PowerStation.

1. When you are certain the DRAM is properly and securely installed in the slots, turn the CPU card over and slide it into its slot.

2. Connect the ribbon cables to the unit.

3. Tighten the screw that secures the CPU card support bracket. This screw is located inside the unit, just above the VGA port.

4. Tighten the screw that secures the CPU card to the supply board.

5. Replace the back cover, tightening the two screws to secure the cover into place.

6. Reconnect power to the unit.

7. Turn on the unit.

> **Note** If the PowerStation begins to beep when you power up the unit, it means that the DRAM module(s) are not properly seated. If necessary, repeat the procedure and reseat the DRAM module(s).

8. If necessary, reinstall the PowerStation in its enclosure.

This completes the DRAM installation. The PowerStation will automatically recognize the amount of installed memory the next time you power it up.

Reassembling a P3-P5 PowerStation

When you are finished installing the DRAM, follow these steps to reassemble the P3-P5 PowerStation.

1. Press the protective cover into place over the CPU card, making sure the plastic fasteners are completely inserted through the holes.

2. Connect the connector.

3. Tilt the PowerStation back cover toward the display panel, making sure the cables are not pinched between the display and the back cover.

4. Tighten the fasteners to secure the display into place.

5. Replace the back cover and tighten the two screws to secure it into place.

6. Reconnect power to the unit.

7. Turn on the unit.

> **Note** If the PowerStation begins to beep when you power up the unit, it means that the DRAM module(s) are not properly seated. Disconnect the power and remove the display and board protector to verify that the DRAM is properly seated.

8. If necessary, reinstall the PowerStation in its enclosure.

This completes the DRAM installation. The PowerStation will automatically recognize the amount of installed memory the next time you power it up.