
X-Double Deep Tower Server Manual

MICRONICS

Document Number: 06-40285-01

June 1997

45365 Northport Loop West, Fremont, CA. 94538-6417

Copyright Notices

© 1997, Micronics Computers, Inc. All Rights Reserved. No part of this document may be photocopied, reproduced, translated, or reduced to any medium or machine form without prior written consent from Micronics.

The information contained in the X-Double Deep Tower Server Manual has been carefully checked and is believed to be accurate. Micronics assumes no responsibility for any inaccuracies that may be contained in this document. Micronics makes no commitments to update or to keep the information in this manual at a current level when changes are made to the product.

Micronics reserves the right to make improvements to this document and/or product at any time and without notice.

Trademarks

Intel and PCI are registered trademarks of Intel Corporation. MS-DOS, Windows 95 and Windows NT are registered trademarks of Microsoft Corporation. Other product names referenced in this manual are the property of their respective owners.

Table of Contents

Introduction	3
X-Double Deep Tower Server	4
Features	4
Before You Begin	6
Section 1: Assembling the Server	7
Unpacking the Server	7
Tools Required	7
Hardware	7
Software	8
Documentation	8
Environment Considerations	9
Electrical Considerations	9
Installing Options During Setup	10
Cables	10
Connecting Peripherals	11
Power Supply	13
Starting the Server	14
Finishing the Installation	14
Section 2: Custom Installations	15
Adding Options	15
Before You Begin	15
Static-Sensitive Devices	16
Removing the Cover Panels	17
Installing Options	18
Option Bays	19
Installing the Cover Panels	20

Appendix A: Technical Data	21
Specifications	21
Power Supply	21
Input Characteristics	22
Output Characteristics	22
Power Supply Installation	24
Removing a Power Supply	24
Installing a Power Supply	25
Appendix B: Warranties and Notices	27
Limited Warranty	27
Non Warranty Service	28
Glossary	29
Index	30

List of Figures

X-Double Deep Tower Server Front View	4
X-Double Deep Tower Server Rear View	12
Power Supply Bays	13
Removing the Cover Panels (Side View)	17
Option Bays	19
Redundant Power Supply	23
Removing the Power Supply Screws	24

Introduction

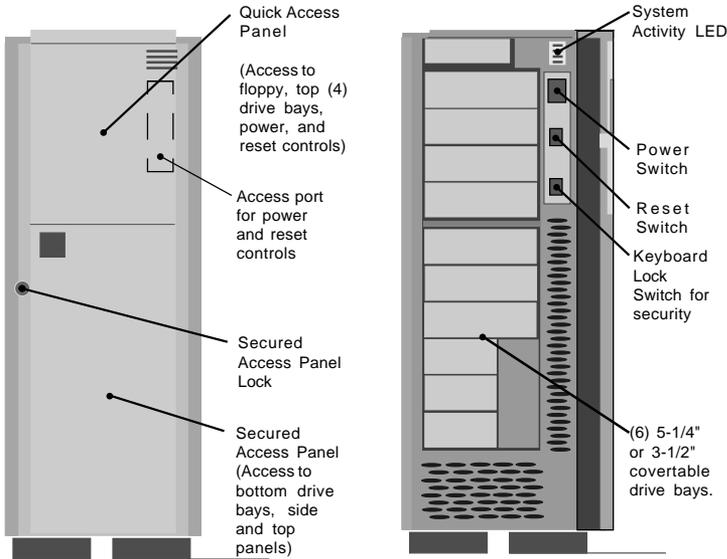
The X-Double Deep Tower is a high-performance server that targets demanding network applications to powerful workstations. It offers fault-tolerant features that ensure data integrity and low system downtime to meet the high-availability, mission critical demands of many applications.

The multiple processor performance and large data-I/O capabilities make the X-Double Deep Tower a powerful multifunction server. It is designed to run 32-bit code designed for Pentium Pro systems, as well as providing the backward compatibility needed by the 16-bit applications designed for Pentium, 80486 and 80386 based systems.

Your X-Double Deep Tower server runs a variety of software created for use with the MS-DOS, Novell (Netware), OS/2, UNIX and Windows NT operating systems. It will provide the raw power to feed the process hungry applications today and well into the future.

Before using your new server, please read this user's guide to become more familiar with the server. Whenever possible, read the appropriate operating system user manuals to learn the basic functions and commands of the specific operating system. You can avoid common problems while setting up and using your server.

X-Double Deep Tower Server



X-Double Deep Tower Server (Front View)

Features

X-Double Deep Tower case with:

- ▲ Two hot swappable redundant power supply units - 300 watts each (total 600 Watts).
- ▲ Dual cooling fans standard with 4 additional mounts (optional).
- ▲ One 3 1/2" external floppy disk drive
- ▲ Four 5 1/4" externally accessible half height drive bays
- ▲ Six 5 1/4" (convertible to 3.5") secured bays
- ▲ Twelve expansion card back plate slots

- ▲ AT form factor
- ▲ I/O ports - (4) DB-9, (2) DB-25, (4) SCSI-2 and (1) SCSI-1.
- ▲ Drives mount on easy to service "snap-in" drive rails
- ▲ Locking front panel with integrated RF shield, to ensure data security.
- ▲ Removeable front and side panels, for easy access while performing service, maintenance or upgrades.
- ▲ Control panel concealed by sliding door
- ▲ Front Panel LEDs: Power, Hard Disk Drive and Keylock
- ▲ Front Panel Switches: Power, Reset and Keylock

Before You Begin

This guide provides you with the information needed to assemble and install options for the X-Double Deep Tower. Additional documentation is provided based on your system configuration. The sections included in this guide are as follows:

- ▲ Introduction
- ▲ Section 1: Assembling The Server
- ▲ Section 2: Custom Installations
- ▲ Appendix A: Technical Data
- ▲ Appendix B: Warranties and Notices

Section

1

Assembling the Server

This section will assist in the general assembly of the X-Double Deep Server. This operation involves connecting the keyboard, mouse, monitor and main power cords of your server. Before you begin setting up your server, you may want to consider the appropriate environment in terms of space, power, environment and cabling requirements.

Unpacking the Server

Inspect the package before you unpack the server. In case of visible damage, please contact your shipping company immediately. Save the packing materials to use in case of future service requirements.

Tools Required

Make sure you have the following tools and store them in an easily accessible location:

- Small Phillips screwdriver
- Tweezers or a pair of needle-nose pliers
- Tray (to hold loose screws)

Hardware

The X-Double Deep Tower server contains the following components. Check to make sure that all the items are included:

- Server
- Power cord(s)
- Extra hardware for the case
- Small box to package loose components

Software

The X-Double Deep Tower Server may contain the following optional software. Refer to the individual manuals for installation instructions.

- Sound Driver Diskette (optional)
- Video Driver Diskette (optional)
- SCSI Drivers Diskette (optional)

Documentation

There are two manuals provided with the X-Double Deep Tower. The optional manuals are included based on your system configuration.

- X-Double Deep Tower Server Manual (this manual)
- System Board Manual
- Adaptec AHA-2940Ultra/2940Ultra Wide User's Guide (optional)
- Adaptec 7800 Family Manager Set User's Guide (optional)

Environment Considerations

- The server should be installed in a cool dry location and out of direct sunlight. As with any electrical equipment, moisture or spilled liquids inside the server may cause permanent damage.
- The server needs an adequate ventilation. Leave a minimum of 2 inches (50 mm) clearance to allow the server's cooling system to operate normally.
- Use a properly grounded AC power outlet.
- In consideration to sound, use magnetically shielded speakers and position them away from the monitor. The monitor should be moved away from any other magnetic or radio device. These devices can distort your picture and cause permanent damage to the equipment.

Electrical Considerations

Your X-Double Deep Tower server has a voltage-selection switch for each power supply. Before you plug the server into a power source, make sure that the voltage switch (located on the back panel on either side of the AC power connector) is set to the correct voltage; 110 volts or 220 volts. (Leave the voltage setting at 110 volts for use in the United States.) NOTE: Turning the server on with an incorrect voltage setting could permanently damage the server.

Connect the power cords only to grounded electrical outlets when powering the server, a display and any other electrical components (such as speakers) that you plan to attach to the server. *You may want to consider using an uninterruptable power supply (UPS) to safeguard your system in case of a power failure.*

Installing Options During Setup

If you have additional options to install such as adapters, hard disk drives or memory modules, continue with "Connecting System Components." If you have options to install, you may install them now. (Refer to Chapter 2 for more information.)

If you are not familiar with the features of your server, you may want to set up your server first and learn about its features before you install options.

Cables

The following cables are provided with the X-Double Deep Tower, unless otherwise specified. During installation, be sure to connect the power cable to a properly grounded AC power outlet to avoid electrical shock.

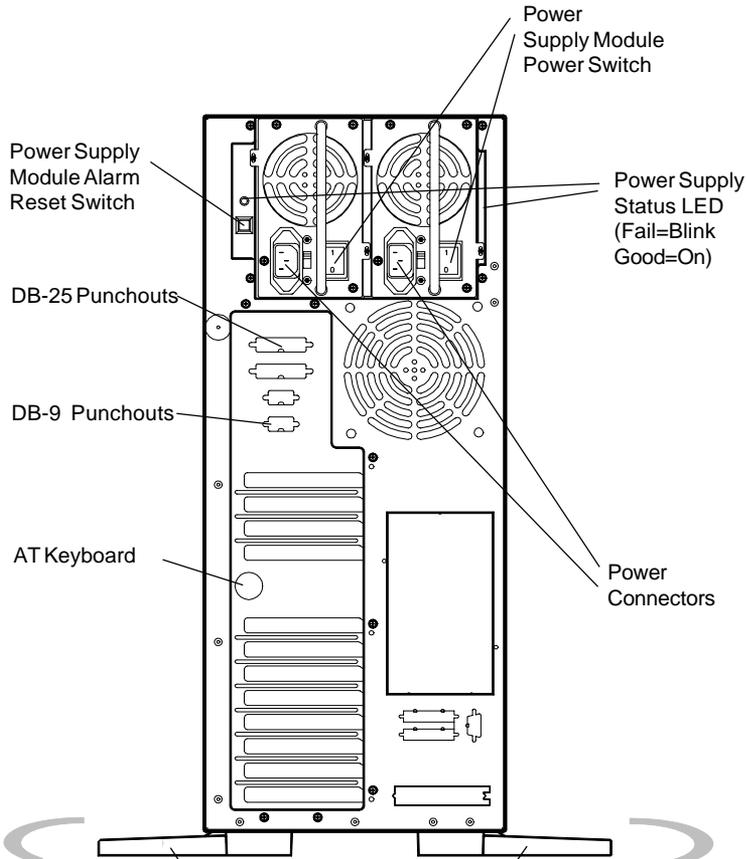
- Power cable
- Floppy Drive cable
- Parallel Port cable
(depends on system board installed)
- Serial Port cable (2)
(depends on system board installed)
- 8-bit SCSI cable (optional)
- 16-bit SCSI cable (optional)

Connecting Peripherals

The connections for standard peripherals on the back panel of the X-Double Deep Tower server are outlined in Figure 1.1.

- Verify that all system components are compatible with the voltage and frequency of the local AC power outlet before making any connections.
- Verify that the server and monitor power switches are turned off before connecting the monitor.
- Connect the display signal cable (provided with the display) to your video adapter card.
- Connect your external sound devices (optional). For details on the optional onboard sound, refer to the system board manual.
- Connect the keyboard to the keyboard connector. The keyboard's cable must be lined up with the holes in the port for installation.
- Connect the mouse (or pointing device) to the mouse connector. The mouse's cable must be lined up with the holes in the port for installation.
- Connect the printer to the 25-pin parallel port. This is where the signal cable for a parallel printer or other parallel device connects to the X-Double Deep Tower server.

If you have a serial printer, connect the printer to the 9-pin serial port. This is where the signal cable for a serial printer or other serial device connects to the X-Double Deep Tower server.



Power Supply

The X-Double Deep Tower comes with two 300W hot swappable power supplies in a redundant configuration. Both power supplies operate at half of its output capacity. In the event of a single power supply failure, the other power supply prevents power failure by carrying the entire load until the failed unit is replaced. The alarm reset switch is easily accessible on the back of the unit next to the on/off switches for the power supplies.

If a power or cooling fault occurs, the alarm sounds and triggers the fault LED to flash (see Figure 1.3). To remove the failed power supply, unscrew the two mounting screws as shown below.

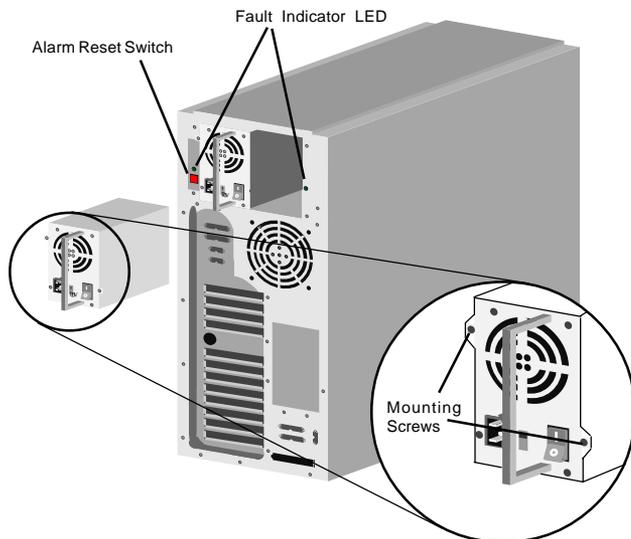


Figure 1.2: Power Supply Bays

NOTE: You may also want to consider an external UPS (battery backup) that provides limited time power to the server in case of a power failure. The function of a UPS is quite different from a dual power supply within the server. With a redundant power supply, you are backing up the failure of the primary power supply. With a UPS, you are backing up the failure of the power company.

Starting the Server

- Remove any shipping materials from the floppy disk drives.
- Turn on all external devices, such as your monitor, printer or an external modem.
- Turn on your server.
- When the power-on self test finishes, run the Setup utility. Refer to the BIOS Setup Utility chapter of the system board manual for information about setting up the BIOS.

In many cases, the default BIOS settings will be adequate. However, you may want to view the BIOS settings and make a note of them in case you later want to verify or change them to their default values.

Finishing the Installation

- Before continuing, an operating system must be installed in your server. Use the instructions supplied with your operating system and install it now.
- Install the system device drivers according to the instructions in the appropriate documentation.
- Make backup copies of the configuration and utility disks.

Custom Installations

Adding Options

The X-Double Deep Tower server allows you to add options to the basic configuration. Some options may require the installation of an adapter card that plugs into the system board.

Installing an option requires opening the server case to gain access to the inside of the server. If you have options to install, you can install them when you first setup the server, or at any time later. You should add only one option at a time, and verify that it is working properly, before adding another option. This allows you to incrementally verify the system integrity and isolate potential problems more easily.

If you are not familiar with the features of a server, you might want to set up the server first and learn about its features before you install option cards. It's a good idea to make sure that the basic functionality of the server is working before adding an option.

Before You Begin

Avoid possible harm to you and your server by observing the following precautions.

- Verify that the server and its peripherals are switched OFF and the AC power is disconnected from system components before connecting or disconnecting a unit, or removing the cover from the system module.
- Do NOT attempt to remove the cover from the power supply unit.
- Do NOT attempt to remove the cover of your video monitor, as it contains high-voltage components. Remove only the screws you are instructed to remove.

Static Sensitive Devices

Static electricity can seriously damage computer components or options. Before installing or touching any exposed printed circuit boards, computer parts, chips, etc, be certain that you are properly grounded (such as wearing a wrist grounding strap). This is extremely important as most computer components are highly susceptible to damage from electrostatic discharge.

If you do not have an antistatic wrist strap (available from any electronics supply store) that is connected to an electrical ground, you can ground yourself to dissipate any electrostatic buildup by doing the following:

- Connect the computer's power cord to a three-prong grounded electrical outlet.
- Make sure the power to the computer is off.
- Touch, and maintain contact with the chassis, such as the framing surrounding the disk drives or the unpainted part of the back panel.
- Limit your movement (which tends to generate static electricity).
- Do not place printed circuit boards on non grounded surfaces.

Removing the Cover Panels

To install an adapter card or other component such as additional memory, you must remove the cover of the server to gain access to the inside of the server. To remove the panel:

1. Unplug the server from the power source. Also unplug any other cables that may interfere with removing the panel.
2. Slide the top cover towards the front of the chassis then remove the top panel.
3. Use a screwdriver to remove the three (3) panel mounting screws located on the server's front panel.
4. Grasp the sides of the cover, lift slightly and push forward.
5. Remove the cover gently.

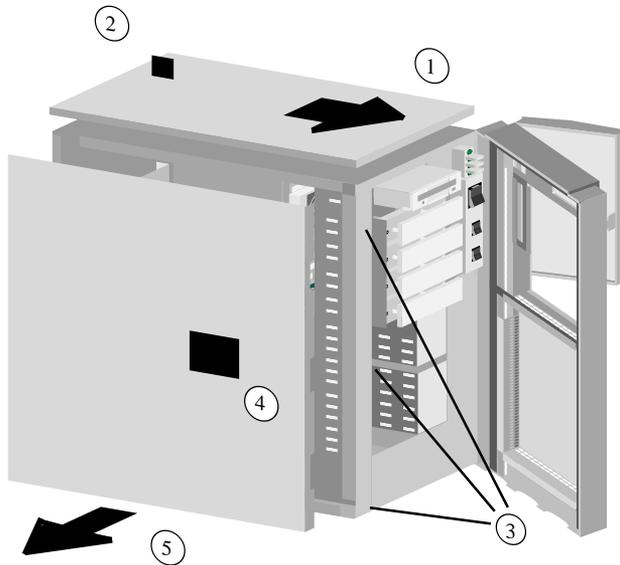


Figure 2.1: Removing the Panels (Side View)

Installing Options

Refer to the system board manual and the documentation that comes with the adapter card, memory upgrade, or CPU upgrade for instructions relevant to the individual option. Typically, installing an option involves selecting the slot where the option is to be placed, setting jumpers on the card, and seating the card into the slot on the system board.

Memory and/or CPU upgrades require that the pin alignment be correct (i.e., determine that pin 1 on the card or chip match the pin 1 on the system board). The positions are embossed directly on the system board.

You should test the operation of each adapter, one at a time, to ensure that it works properly. Making sure that one option works before attempting to install another option saves time and helps to isolate potential problems.

Option Bays

The server chassis contains one (1) half-height 3.5" bay, four (4) external half-height 5.25" bays and six (6) half-height 5.25" (convertible to 3.5") hidden bays for adding additional industry standard components such as hard disks, CD-ROM drives and tape backup drives. Consult the documentation that comes with each component for installation and configuration information.

Drive bay cover plates cover the front of most bays. Some components, such as a CD-ROM or tape backup, may require you to remove the bezel.

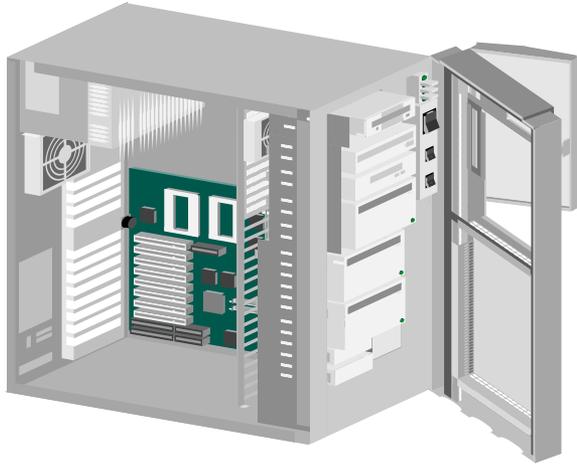


Figure 2.2: Option Bays

Some optional magnetic/optical devices must be set up for operation with the system before they are installed. Consult the documentation that comes with each component for installation and configuration information.

Installing the Cover Panels

Reinstall the panel reversing the process of removing the panel (refer to Figure 2.1). Make sure that the panel fits securely over the chassis. Insert and tighten the screws on the front of the panel. Reattach all cables, including power.

Specifications

A

Dimensions

- ▲ Width - 10"
- ▲ Height - 24.5"
- ▲ Depth - 26"

Operating Environment

- ▲ Temperature - 10°C (50°F) to 35°C (95°F)
- ▲ Relative Humidity - 20% to 80%, non condensing
- ▲ Altitude - Sea level to 3000 m (about 10,000 ft.)

Non-Operating Environment

- ▲ Temperature (packaged unit) - -40°C (-40°F) to +60°C (140°F)
- ▲ Relative Humidity - 5% to 95%, non condensing
- ▲ Altitude - Sea level to 9000 m (about 30,000 ft.)

Power Supply

The X-Double Deep Tower comes with two 300W redundant power supply modules. Each module is hot-swappable and provides safe redundant support for reliability while minimizing down time. (See Figure A.1).

Both power supply modules serve to backup one another in the event of a single module failure. The redundant support also provides a warning subsystem, such as LED displays, buzzer alarm and power defective signal.

Input Characteristics:

- ▲ Voltage: 90-132 VAC or 180-264 VAC Switchable
- ▲ Frequency: 47-63 HZ
- ▲ Input current: 3.4 A/ 1.7 A per unit (parallel)
6.2 A/3.1 A (one power supply)
- ▲ Inrush current: 40 A max. for 115 VAC, 80 A max. for 230VAC

Output Characteristics:

Output Voltage	Output Current		Regulation		Output
	Min. {A}	Max. {A}	Load	Line	Ripple & Noise Max. {P-P}
5	7.0*	25/50*	+ / - 5%	+ / - 1%	50mV
	3.0**	10/20**			
12	2.5	14/28	+ / - 5%	+ / - 1%	100mV
-5	0	0.5	+ / - 10%	+ / - 2%	150mV
-12	0	0.5	+ / - 10%	+ / - 2%	150mV
3.3***	3	20	+ / - 5%	+ / - 1%	50mV

*Peak for 1 minute

** Under with 3.3V output condition

*** 3.3 output is optional

- ▲ Temperature Range: Operating 0°C — 50°C storage -20°C — 80°C
- ▲ Transient Response: Output voltage returns in less than 1ms maximum following a 50% load change.
- ▲ Hold up time: 16ms minimum at full load and nominal input voltage
- ▲ Dielectric Withstand: Input/output 3000 vac for 1 minute input to frame ground 1500 vac for 1 minute.
- ▲ Humidity: 10 – 90% RH
- ▲ Efficiency: 70% typical at full load

- ▲ Power good signal: On delay 100 ms to 500 ms
Off delay 1 ms
- ▲ Overload protection: 130–150% maximum
- ▲ Over voltage protection: +5V output: 5.5V — 6.5V
+3.3V output: 3.8V — 4.2V
- ▲ Over current protection
- ▲ Alarm method:
 1. Audio alarm
 2. Fault LED
 3. Power defective signal
- ▲ EMI noise filter: AC input line filter for FCC class B on each unit.
- ▲ Safety: Each power unit is UL/CSA/TUV approved
- ▲ Hot-swappable & Hot pluggable capability
- ▲ Dimensions: Refer to the drawing
- ▲ Redundancy: Balanced share load method

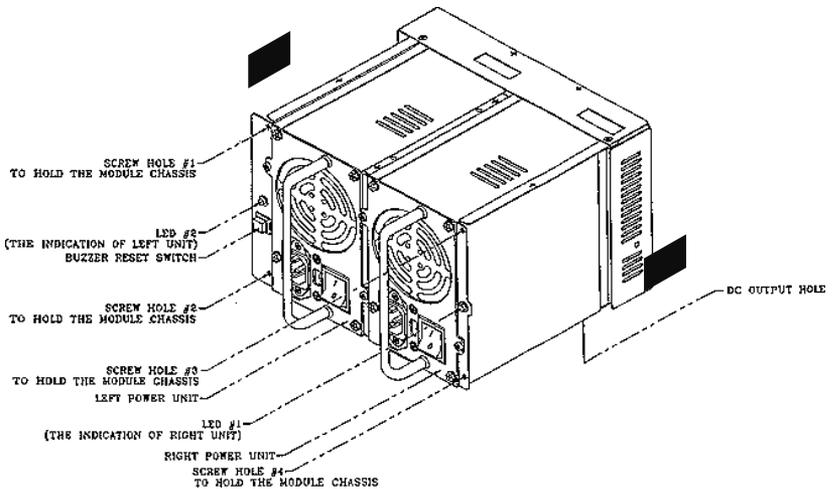


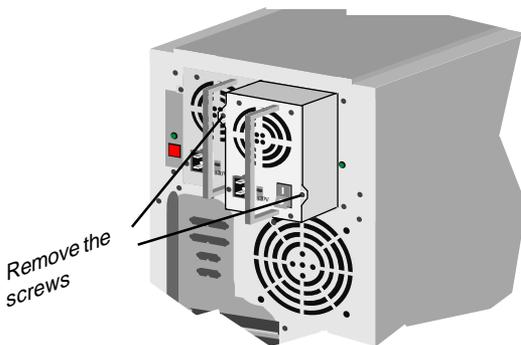
Figure A.1: Redundant Power Supply Modules

Power Supply Installation

If the power supply units are operating properly, the individual LEDs and external warning LEDs are lit green. Follow the steps below to remove and replace a power supply unit.

Removing a Power Supply

1. Locate the defective power supply by examining the individual LED or the LED on the front control panel. (If the LED is without light, it indicates the power unit is defective).
2. Turn off the main on/off switch and the individual power supply's on/off switches (refer to Figure 1.1).
3. Unplug the power cord that belongs to the defective power supply unit from the AC inlet.
4. Remove the screws that secure the defective power supply unit. There are only two screws that need to be removed for either power supply unit.



5. Remove the defective power supply unit by pulling it out by its handle.

Installing a Power Supply

1. Verify that the input voltage has been set to the correct voltage (110/220V). Insert the new power supply module into the system chassis.
2. Plug in the power cord, then turn on the new power supply module. NOTE: Make sure there are no loose or incorrect connections.
3. Check the LEDs that indicate the total power system status. They should be flashing light green or from red to green. If the LEDs show another type please check with your power supply vendor.
4. Secure the new power supply module in place with its screws.
5. Replace the computer cover and the power cord(s).

Appendix **Limited Warranty**

B

Except as described below, Micronics warrants the products to be free from defects in material and workmanship in normal use for a period of one (1) year from date of purchase. Should any product fail to perform according to this warranty at any time during the warranty period, except as provided below, Micronics or its authorized service centers will, at Micronics' option, repair or replace the product at no additional charge.

The warranty does not cover loss or damage which occurs in shipment or which is due to: (1) improper installation or maintenance, misuse, neglect or any cause other than ordinary commercial application, including without limitation, accidents or acts of God; (2) adjustment, repair, or modification by other than a Micronics authorized service center; (3) improper environment, excessive or inadequate heating or air conditioning, or electrical power failures, surges or other irregularities; (4) any statement about the product other than those set forth in this warranty; or (5) nonconformity to models or samples shown to the purchaser. Any models or samples were for the sole purpose of suggesting the character of the product and are not intended to form the basis of the bargain.

A receipt or copy of the invoice with the date of purchase from a Micronics reseller is required before any warranty service can be rendered. Service can be obtained by calling Micronics for a Return Merchandise Authorization (RMA) Number.

The RMA Number should be prominently displayed on the outside of the shipping carton of the returned product. Returned product should be shipped prepaid or hand carried to Micronics. The purchaser assumes risk of loss or damage in transit, and unless otherwise agreed to in writing by Micronics, will pay inbound shipping charges.

The exclusive remedy of the purchaser under this warranty above will be repaired or replaced at Micronic' option, but if for any reason that remedy should fail of its essential purpose, the exclusive remedy of the purchaser shall then be actual damages up to amounts paid for the defective product by the purchaser. This limited warranty shall be deemed to "fail of its essential purpose" if, after repeated efforts, Micronics is unable to make the product operate as warranted. Micronics' liability for damages to the purchaser for any cause whatsoever; regardless of the form of action and whether in contract or in tort, shall be limited to the purchase price in effect when the cause of action arose for the product that is the basis of the claim.

Micronics will not be liable for any lost profits or any indirect, special incidental or consequential damages in connection with the product, even if Micronics has been advised of the possibility of such damages.

Micronics makes no warranties or representations as to performance of products or as to service to distributor or to any person, except as set forth in Micronics; limited warranty accompanying delivery of product.

Micronics disclaims all other warranties whether oral, written, expressed, or implied, including without limitation, the warranties of design, merchantability, or fitness for a particular purpose, if applicable, or arising from a course of dealing, usage or trade practice.

Non-Warranty Service

After the three year warranty service is no longer in effect, repair service is still available for Micronics products. For more information, contact Micronics' RMA department at (510-661-3030). The RMA department is open between 8:30 A.M. and 4:45 P.M. Pacific Standard Time.

Glossary

Buzzer - A warning buzzer sounds when any one of the power supplies fails. The warning buzzer can be reset from either the front control panel or the switch on the rear side.

Compatibility - The enclosure of the power system is designed the same as the Big L form factor power supply, so under proper arrangement of the system chassis, the Big L form factor and the redundant power system are compatible.

Hot Swap Function - The power system provides a hot-swap function. When either one of the redundant power supplies fail or break down, you can easily replace the failed unit without any interference to the system.

LEDs - The LED will flash or blink if one of the two power supplies has failed.

Power Defective Signal - The unit provides a power defective signal through the power monitor card (PMC-21/22) to acknowledge the system.

Redundancy - Offers redundant function for the power system and mutually backs up the output. A zero transfer time when backup takes place.

Reliability - The power unit's on/off switch is controlled by the use of a very small DC current, which prevents a damage to the on/off switch and keeps the system from a total uncontrollable situation.

Safety - Since the power system used in the Disk Array/File Server is all DC current (including the I/O Switch operation and the power for the drive), it prevents you from being shocked by high AC voltage during the installation or Hot-swap procedure.

Index

A

Adding Options - 15

B

Back Panel Connections - 12

BIOS

Configuration and Setup - 14

C

Cables - 10

Connecting Peripherals - 11

D

Diagram (X-Double Deep Tower)

Back View - 12

Front View - 4

Drive Bays - 19

E

Electrical Considerations -9

Environment Considerations -9

F

Features - 4

H

Hardware Setup - 7

=====
I

- Installing
 - Cover Panels - 20
 - Options - 10
 - Power Supply - 25

=====
O

- Option Bays - 19

=====
P

- Power Supply - 13, 21

=====
R

- Removing
 - Cover Panels - 17
 - Power Supply - 24

=====
S

- Software - 8
- Specifications - 21
- Starting the Server - 14
- Static Sensitive Devices - 16

=====
U

- Unpacking the Server - 7