



Megaplex II 9U Chassis Guide

MAN-782-CH9
2/21/00

© Copyright 1999 American Megatrends, Inc
All rights reserved
All rights reserved.
American Megatrends, Inc.
6145F Northbelt Parkway
Norcross, GA 30071

This publication contains proprietary information which is protected by copyright. No part of this publication can be reproduced, transcribed, stored in a retrieval system, translated into any language or computer language, or transmitted in any form whatsoever without the prior written consent of the publisher, American Megatrends, Inc. American Megatrends, Inc. acknowledges the following trademarks:

Sun, SunOS, and SPARCstation are trademarks of Sun Microsystems, Inc.
LSI Logic is a trademark of LSI Logic Corp.
Intel is a trademark of Intel Corp.
UNIX is a trademark of AT&T.
HP and Laserjet are registered trademarks of Hewlett Packard Company.
MicroVAX, DEC and DSSI are trademarks of Digital Equipment Corporation.

All other product names are trademarks of their respective companies.

Information contained in this document is current at time of print and is subject to change without notice.

Revision History

7/13/99	Initial release.
2/21/00	Revised information about default IDs of SCSI drives on page 4.

Table of Contents

1	General Information	1
	General Description of Chassis.....	1
	Front of Chassis.....	2
	Back of Chassis.....	2
	Specifications.....	3
	Cooling Fans.....	6
	Connectors on Back of Chassis.....	7
	Drive Bays on Front of Chassis.....	8
2	Installation	9
	Unpacking and Inspection.....	9
	Drive Installation.....	10
	Rack-Mount Installation.....	13
3	Field Replaceable Units	15
	Replacing a Power Supply.....	16
	Replacing a Fan Module.....	17
	Index	19

Preface

Limited Warranty The buyer agrees if this product proves to be defective, that American Megatrends is obligated only to repair or replace this product at American Megatrends' discretion according to the terms and conditions of the warranty registration card that accompanies this product. American Megatrends shall not be liable in tort or contract for any loss or damage, direct, incidental or consequential resulting from the use of this product. Please see the Warranty Registration Card shipped with this product for full warranty details.

Limitations of Liability American Megatrends, Inc. shall in no event be held liable for any loss, expenses, or damages of any kind whatsoever, whether direct, indirect, incidental, or consequential (whether arising from the design or use of this product or the support materials provided with the product). No action or proceeding against American Megatrends may be commenced more than two years after the delivery of product to Licensee of Licensed Software.

Licensee agrees to defend and indemnify American Megatrends from any and all claims, suits, and liabilities (including attorney's fees) arising out of or resulting from any actual or alleged act or omission on the part of Licensee, its authorized third parties, employees, or agents, in connection with the distribution of Licensed Software to end-users, including, without limitation, claims, suits, and liability for bodily or other injuries to end-users resulting from use of Licensee's product not caused solely by faults in Licensed Software as provided by American Megatrends to Licensee.

Technical Support If you need help installing, configuring, or using the Megaplex II system, call your American Megatrends OEM Technical Support representative.

Web Site We invite you to access the American Megatrends world wide web site at:
<http://www.ami.com>.

FTP Site The address of the American Megatrends FTP site is:
<ftp://ftp.megatrends.com>

Cont'd

Preface, Continued

Disclaimer

This manual describes the operation of the American Megatrends Megaplex II 9U chassis. Although efforts have been made to assure the accuracy of the information contained here, American Megatrends expressly disclaims liability for any error in this information, and for damages, whether direct, indirect, special, exemplary, consequential or otherwise, that may result from such error, including but not limited to the loss of profits resulting from the use or misuse of the manual or information contained therein (even if American Megatrends has been advised of the possibility of such damages). Any questions or comments regarding this document or its contents should be addressed to American Megatrends at the address shown on the cover.

American Megatrends provides this publication “as is” without warranty of any kind, either expressed or implied, including, but not limited to, the implied warranties of merchantability or fitness for a specific purpose.

Some states do not allow disclaimer of express or implied warranties or the limitation or exclusion of liability for indirect, special, exemplary, incidental or consequential damages in certain transactions; therefore, this statement may not apply to you. Also, you may have other rights which vary from jurisdiction to jurisdiction.

This publication could include technical inaccuracies or typographical errors. Changes are periodically made to the information herein; these changes will be incorporated in new editions of the publication. American Megatrends may make improvements and/or revisions in the product(s) and/or the program(s) described in this publication at any time.

Requests for technical information about American Megatrends products should be made to your American Megatrends authorized reseller or marketing representative.

Safety Summary

The following text describes the WARNINGS, CAUTIONS, and NOTES used throughout this document. Each description is followed by an example. You should become familiar with these procedures and always observe standard safety practices.

Warning Used to describe potential hazards to personnel. Follow directions carefully to avoid injury.

Warning

High voltage used in this equipment. To avoid injury or electrical shock, do not remove cover or reach into the unit when the power cord is connected.

Caution Used to describe hazards to equipment. Failure to comply with instruction may result in damage to the equipment.

Caution

Support the drive canister with both hands when removing it from the chassis. Failure to support the canister can result in the unit falling and striking the chassis causing damage to the canister or to the chassis.

Note: Provides information that will aid you in the interpretation of systems operations, procedures, or functions.

Note: Do not duplicate ID numbers within the same SCSI bus.

1 General Information

This manual provides general installation and maintenance information, including drive installation and power supply replacement for the Megaplex II 9U chassis. The material is arranged into the following sections.

General Description of Chassis

The Megaplex II rack-mount chassis supports up to eight 3.50" SCA (Single Connector Attachment) Low Voltage Differential (LVD) 16-bit SCSI drives. SCA drives provide simple installation via pluggable canisters. The SCA "no cable" design allows you to simply mount the drive into the canister and plug into the chassis. The Megaplex II chassis includes:

- mounts for up to eight drives,
 - mounts for up to three power supplies,
 - seven cooling fans,
 - four CPU activity LEDs, and
 - Alarm Mute LED and Alarm Mute switch.
-

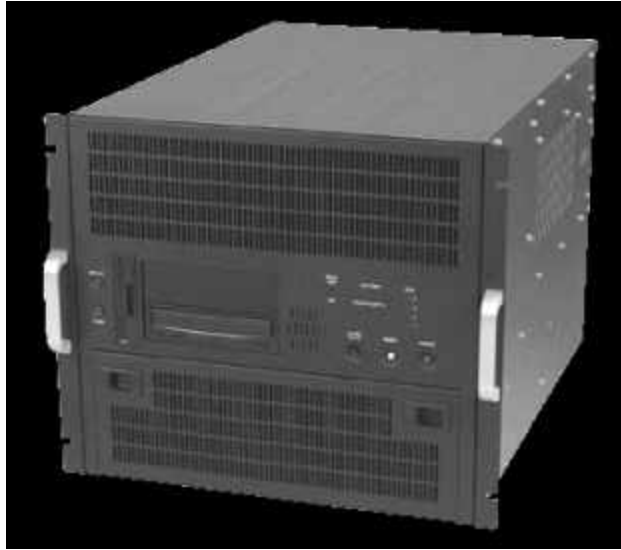
Peripheral Drives System peripherals include mountings for:

- two 5.25" half-high CD-ROM drives,
 - one 3.5" floppy drives, and
 - two 3.5" IDE (system drives).
-

Power Supplies The chassis is supported by three 450W hot-pluggable power supplies. The N+1 redundant arrangement allows the chassis to continue operation when one power supply fails. The power supply is a modular, pluggable design. Power supplies are mounted from the rear of the chassis. Each power supply plugs into the chassis power distribution board via a blind mate connector. The power supplies are hot-pluggable units that can be replaced while the system remains operational.

Cooling Cooling is front to rear via three separate removable modular fan assemblies. Three fan assemblies are provided in the front of the chassis. One external fan cools the rear of the chassis.

Front of Chassis



Back of Chassis



Specifications

This chassis is designed to be used in 19" rack configurations. This chassis has been designed to hold the Megaplex II motherboard configured with up to 4 GB of memory. The specifications of the chassis are:

Dimensions Height : 14" (9U), Width : 19", Depth : 26"

Weight: Approximately 100 pounds.

Controller I/O: Eight expansion slots in the rear of the chassis.

Power Supplies This chassis supports three 450W power supplies arranged in N+1 redundant configuration.

- A minimum of two power supplies are required.
 - The power supplies are hot plug and accessible from the back of the case.
 - Each power supply has its own AC input plug.
 - Power supplies are auto-ranging and have PFC
 - Up to three power supplies are handled by the built-in power distribution board that allows hot plug and redundancy.
-

AC input:

- 90 – 132 VAC @ 60 Hz (nominal 100 VAC) (Autoswitch) 10.0 Amps
 - 180 – 265 VAC @ 50 Hz (nominal 220 VAC) (Autoswitch) 5.0 Amps
-

DC Output: The power supply provides:

45A @ 5V
28A @ 3.3V
14A @ +12V
0.5A @ -12V
0.5A @ -5V

Cont'd

Specifications, Continued

SCSI Drives The 9U chassis supports eight hot plug 3.5" 16-bit single-ended SCA LVD SCSI drives.

- These drives are accessible from the front.
 - Each drive bay can take a full height SCSI LVD drive.
 - The eight drives are arranged on two separate back planes. Each back plane supports four drives. The default IDs of these drives are 0, 1, 2, and 4.
 - Access to the back planes is through two Wide SCSI cables. These cables can be connected, for example, to two channels on a RAID controller.
-

Cooling There are three fans mounted in the front of the chassis. These fans are hot plug and are monitored by the Megaplex II system BIOS Health screen and the management software shipped with Megaplex II.

- There are three blower fans in the power supply assemblies and one additional rear fan.
 - For cooling the CPU area, the CPU top plate must be installed and the Top Chassis cover must be closed.
-

Chassis Intrusion There is a chassis intrusion switch that detects when the top system cover is open. This switch is monitored through the management software provided with Megaplex II.

Chassis Alarm Indication There are some LEDs and alarms that are displayed on the chassis:

Each of the three power supplies has an alarm. When one of the power supply fails, the RED LED for that power supply comes on and the buzzer goes off.

Each of the three front mounted fans has an alarm. When one of the fans fail, the RED LED for that fan comes on and the buzzer goes off.

There is an alarm for the rear-mounted blower. When this fails, the RED LED for this blower comes on and the buzzer goes off.

Note: There is an Alarm Mute switch that will turn off the buzzer. While the buzzer is muted, the RED LED for the Alarm Mute is on.

Cont'd

Specifications, Continued

LEDs and Switches There are fan failure LEDs for all four fans.

There is an IDE Activity LED, a power-on LED, a reset switch, and a power on switch.

There are four CPU Activity LEDs.

There is an Alarm Mute LED.

There is an Alarm Mute switch.

Temperature: Operating: 0° C to 40° C
Storage: -20° to 75° C

Humidity: 0% to 95% non-condensing

Altitude: Operating: 0 feet to 10,000 feet
Storage: 0 feet to 40,000 feet

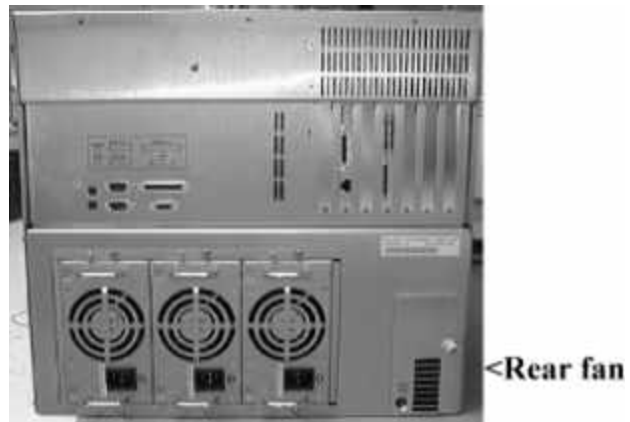
Cooling Fans

There are three fans behind the top grill on the front of the Megaplex II chassis.

Fan #2 Fan #1 Fan#0



There is one fan on the back of the chassis.



Connectors on Back of Chassis

The back of the chassis has connectors for the keyboard, mouse, serial ports (1 and 2), parallel port, and VGA port.

The Megaplex II has two sets of keyboard and mouse ports. The primary keyboard and mouse ports are located on the front of the chassis, to the left of the floppy disk drive. The keyboard and mouse ports on the back of the Megaplex II are maintenance ports.



Drive Bays on Front of Chassis

There are eight drive bays on the front of the chassis.



2 Installation

Unpacking and Inspection

Unpack the Megaplex II chassis and visually inspect it for damage that might have occurred during shipment. Retain the shipping carton in case reshipment is necessary.

Remove the top cover of the chassis and inspect for component damage. If any damage has occurred, notify American Megatrends immediately. See page ii of this manual for details.

Each shipping carton should contain the following:

- a Megaplex II chassis,
 - eight drive slides,
 - this manual,
 - three power cords, and
 - mounting hardware
-

Drive Installation

Before installing drives make sure that the chassis is powered down.

Step 1 Press both latches on the front cover to access the drive bays.



Step 2 Unscrew the thumbscrew at the top of the mounting bracket where the new drive is to be installed.

Step 3 Flip the black latch at the bottom of the bracket down.

Cont'd

Drive Installation, Continued

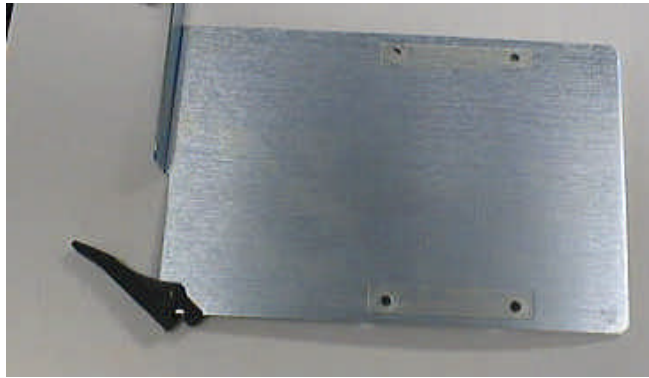
Step 4

Slide the bracket out, as shown below:



Step 5

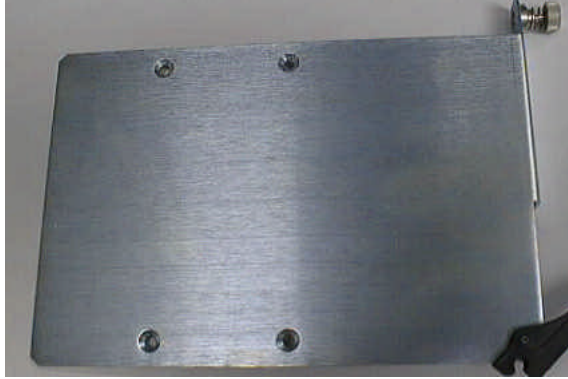
Mount the disk drive on the front side of the mounting bracket.



Cont'd

Drive Installation, Continued

- Step 6** Line up the holes in the brackets and the screw holes in the back of the drive. The back of the bracket is shown below.



-
- Step 7** Insert the screws through the screw holes and the brackets and tighten all four screws.
-
- Step 8** After the drive is securely attached to the bracket, slide the bracket into the slot in the drive bay.
-
- Step 9** Tighten the thumbscrew and flip the black latch up into a vertical position.
-

Rack-Mount Installation

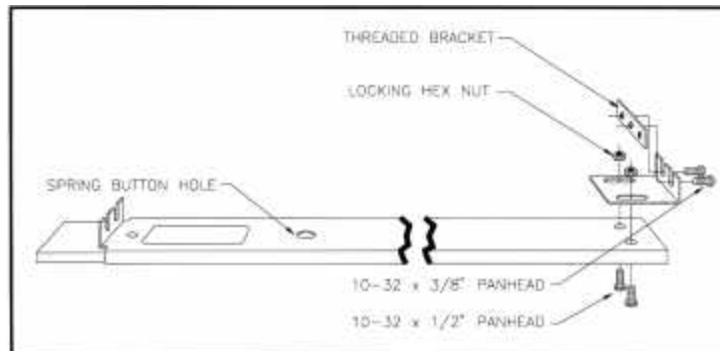
Before the unit is installed into a rack the following items should be taken into consideration:

- The maximum ambient temperature of this unit is 40°C. Internal temperatures of the rack assembly should be considered for safe operation.
 - Do not block power supply vents or otherwise restrict airflow when installing the unit into the rack.
 - Mechanical loading of the rack should be considered so that the rack remains stable and unlikely to tip.
 - Consideration to the overall loading of the branch circuit should be given before installing any equipment in a rack environment.
-

Installation Steps Use the following procedure to install the Megaplex chassis into a standard 19" RETMA rack and apply the AC input power.

Step 1 Remove the slides from the chassis by sliding the slides out until the rear retaining spring buttons engage. Depress the buttons and slip the slides completely free from the chassis. Set the chassis aside.

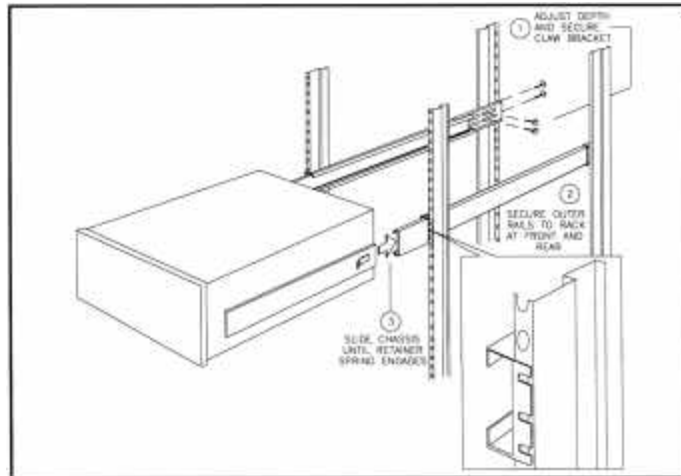
Step 2 Remove the small claw brackets from the package and loosely fasten them, with the teeth facing out, to the front and rear of the outer slides using 10-32 x 1/2" screws. Notice that the bracket has slotted holes for adjustment. Use the locking hex nuts provided to secure the screws.



Cont'd

Rack-Mount Installation, Continued

- Step 3** Position the outer rails in the rack, adjusting the claw brackets and marking the intended position of the mounting holes both on the front and rear of the rack. Tighten the screws on the claw brackets.
-
- Step 4** Bolt the front of the slides into place using 10-32 x 1/2" pan head screws. Flat head screws are also provided for racks with countersunk holes.
-
- Step 5** Bolt the rear of the slides to the rack side rails using four 10-32 x 3/8" screws. A threaded bracket is provided in case the rack does not have threaded holes. Hex nuts are often difficult to use at the rear of a rack to secure screws.
-
- Step 6** Install the chassis slides into the outer slides in the rack. Push the chassis into the rack until the rear retaining spring engages. Then press the retaining buttons and push the chassis the rest of the way into the rack.
-
- Step 7** Plug the AC power cord into the AC receptacle on the power supply module.



3 Field Replaceable Units

The field replaceable subassemblies within the Megaplex II chassis are described below. The subassemblies in this section are:

- the power supply assemblies and
- the fan module assemblies.

These assemblies can be ordered as spares from AMI.

Power Supply Modules Three 450 watt power supplies support the Megaplex II chassis. The power supplies are located at the rear of the chassis. Each power supply has a power sharing board, which interfaces to the power distribution board located internally in the chassis. DC power is distributed from the power supply module to the power distribution board inside the enclosure and throughout the chassis. Each power supply has an integrated fan.

These fans along with the additional chassis fans provide cooling for the chassis. Only the chassis mounted fans are replaceable. Failure of a power supply fan requires replacement of the affected power supply. To replace a power supply follow the procedure below.

Replacing a Power Supply

The power supply module is hot pluggable. You do not have to shut down the system to replace a power supply.

Step 1 Unplug the AC power cord connected to the failed power supply module.

Step 2 Loosen the thumbscrews that secure the power supply module.

Step 3 Using the handle, remove the power supply module from the chassis.



Power supply #0 #1 #2

Step 4 Replace the failed power supply module with a new power supply module and tighten the thumbscrews.

Step 5 Plug in the AC power cord.

Replacing a Fan Module

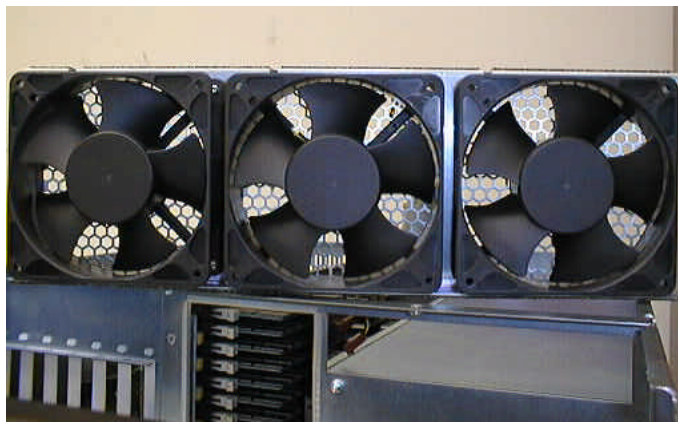
The chassis mounted fan assembly is easily removed and replaced. Should the fan assembly need replacement use the following procedure. The fan assembly is hot pluggable. You do not have to shut down the system to replace a fan.

Step 1 Open the top cover.

Step 2 Disconnect the wires and remove the fan assembly.

Step 3 Unscrew the fan to be replaced.

Step 4 Insert the new fan assembly into place and reconnect the wires.



Step 5 Install the top cover.

Index

A

AC input, 3
Alarm Mute LED, 5
Alarm Mute switch, 4
Altitude, 5

B

Back of Chassis, 2

C

Chassis Alarm Indication, 4
Chassis Intrusion, 4
chassis slides, 14
claw brac, 14
claw brackets, 13
Connectors on Back of Chassis, 7
Controller I/O:, 3
Cooling, 1, 4
Cooling Fans, 6
CPU Activity LEDs, 5

D

DC Output, 3
Dimensions, 3
Drive Bays on Front of Chassis, 7
Drive Installation, 10

F

field replaceable subassemblies, 15
Field Replaceable Units, 15
Front of Chassis, 2
FTP Site, iv

G

General Description of Chassis, 1

H

Humidity, 5

I

IDE Activity LED, 5
Installation, 9

L

LEDs and Switches, 5

O

outer rails, 14

P

pan head screws, 14
Peripheral Drives, 1
Power Supplies, 1, 3
Power Supply Modules, 15

R

rack side rails, 14
Rack-Mount Installation, 13
RED LED, 4
Replacing a Fan Module, 17
Replacing a Power Supply, 16
RETMA rack, 13

S

SCSI Drives, 4
Specifications, 3

T

Technical Support, iv
Temperature, 5
threaded bracket, 14

U

Unpacking, 9

W

Web Site, iv
Weight, 3