



**StorTrends 1300
Hardware Platform
Specific
User's Guide**

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Limited Warranty

The buyer agrees that if this product proves to be defective, American Megatrends is only obligated 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.

Technical Support

AMI provides technical support for AMI products purchased directly from AMI or from an AMI-authorized reseller only.

If...	Then...
You purchased this product from AMI or from a certified AMI reseller,	Call AMI technical support at 770-246-8645. Please be prepared to specify the serial number of the product.
This AMI product was installed as part of a system manufactured by a company other than AMI or you purchased an AMI product from an unauthorized reseller,	Call the technical support department of the computer manufacturer or the unauthorized reseller. AMI does not provide direct technical support in this case.

If the American Megatrends StorTrends® 1300 fails to operate as described or you are in doubt about a configuration option, please call technical support at 770-246-8645.

Web Site

We invite you to visit the StorTrends website at:

<http://www.stortrends.com/>

Disclaimer

This manual describes the basic operation of the American Megatrends StorTrends® 1300 storage appliance. This document does not describe the software features or usage.

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

Product Compliance Information

The StorTrends 1300 chassis is compliant with the following safety standards/requirements:

Electromagnetic Emissions

FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic

EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety

EN 60950/IEC 60950-Compliant, UL Listed (USA), CUL Listed (Canada), TUV Certified (Germany), CE Marking (Europe)

Chapter 1 Safety Information

STOP!

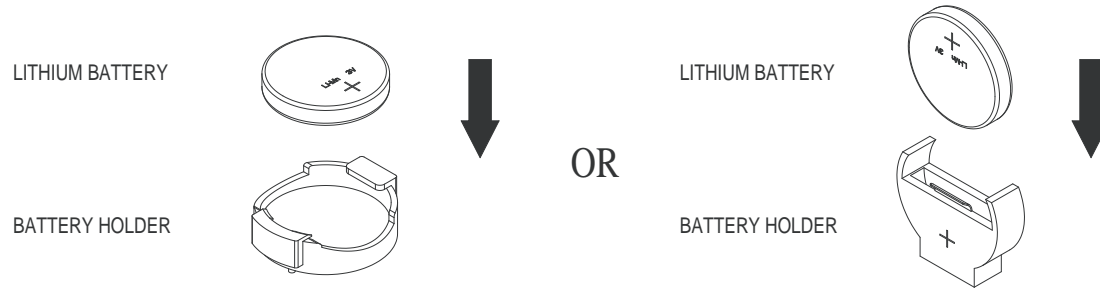
Only remove the Chassis Cover when instructed to do so by an American Megatrends support technician.
Doing so at any other time may VOID your warranty.

WARNING!

BASIC ELECTRICAL SAFETY PRECAUTIONS SHOULD BE FOLLOWED TO PROTECT YOURSELF FROM HARM AND THE STORTRENDS 1300 FROM DAMAGE:

- **BE AWARE OF THE LOCATIONS OF THE POWER ON/OFF SWITCH ON THE CHASSIS AS WELL AS THE ROOM'S EMERGENCY POWER-OFF SWITCH, DISCONNECTION SWITCH OR ELECTRICAL OUTLET. IF AN ELECTRICAL ACCIDENT OCCURS, YOU CAN THEN QUICKLY REMOVE POWER FROM THE SYSTEM.**
- **DO NOT WORK ALONE WHEN WORKING WITH HIGH VOLTAGE COMPONENTS.**
- **POWER SHOULD ALWAYS BE DISCONNECTED FROM THE SYSTEM WHEN REMOVING OR INSTALLING MAIN SYSTEM COMPONENTS, SUCH AS THE SERVER BOARD, MEMORY MODULES AND THE DVD-ROM DRIVE. WHEN DISCONNECTING POWER, YOU SHOULD FIRST POWER DOWN THE SYSTEM WITH THE OPERATING SYSTEM AND THEN UNPLUG THE POWER CORDS FROM ALL THE POWER SUPPLY MODULES IN THE SYSTEM.**
- **WHEN WORKING AROUND EXPOSED ELECTRICAL CIRCUITS, ANOTHER PERSON WHO IS FAMILIAR WITH THE POWER-OFF CONTROLS SHOULD BE NEARBY TO SWITCH OFF THE POWER IF NECESSARY.**
- **USE ONLY ONE HAND WHEN WORKING WITH POWERED-ON ELECTRICAL EQUIPMENT. THIS IS TO AVOID MAKING A COMPLETE CIRCUIT, WHICH WILL CAUSE ELECTRICAL SHOCK.**
- **USE EXTREME CAUTION WHEN USING METAL TOOLS, WHICH CAN EASILY DAMAGE ANY ELECTRICAL COMPONENTS OR CIRCUIT BOARDS THEY COME INTO CONTACT WITH.**
- **DO NOT USE MATS DESIGNED TO DECREASE ELECTROSTATIC DISCHARGE AS PROTECTION FROM ELECTRICAL SHOCK. INSTEAD, USE RUBBER MATS THAT HAVE BEEN SPECIFICALLY DESIGNED AS ELECTRICAL INSULATORS.**
- **THE POWER SUPPLY POWER CORD MUST INCLUDE A GROUNDING PLUG AND MUST BE PLUGGED INTO GROUNDED ELECTRICAL OUTLETS.**
- **SERVER BOARD BATTERY: CAUTION – THE ONBOARD BATTERY MUST BE INSTALLED BY A TRAINED TECHNICIAN ONLY. THERE IS A DANGER OF EXPLOSION IF THE ONBOARD BATTERY IS INSTALLED UPSIDE DOWN, WHICH WILL REVERSE ITS POLARITIES. THE SAME RISK APPLIES IF THE INCORRECT BATTERY TYPE IS BEING INSTALLED. THIS BATTERY MUST BE REPLACED ONLY WITH THE SAME OR AN EQUIVALENT TYPE RECOMMENDED BY THE MANUFACTURER. DISPOSE OF USED BATTERIES ACCORDING TO THE MANUFACTURER'S INSTRUCTIONS.**
- **DVD-ROM LASER: CAUTION - THIS SERVER HAS COME EQUIPPED WITH A DVD-ROM DRIVE. TO PREVENT DIRECT EXPOSURE TO THE LASER BEAM AND HAZARDOUS RADIATION EXPOSURE, DO NOT OPEN THE ENCLOSURE OR USE THE UNIT IN ANY UNCONVENTIONAL WAY.**

Installing the Onboard Battery



General Safety Guidelines

WARNING!

FOLLOW THESE RULES TO ENSURE GENERAL SAFETY:

- **KEEP THE AREA AROUND THE STORTRENDS 1300 CHASSIS CLEAN AND FREE OF CLUTTER.**
- **THE STORTRENDS 1300 WEIGHS APPROXIMATELY 50 LBS WHEN FULLY LOADED. WHEN LIFTING THE SYSTEM, TWO PEOPLE AT EITHER END SHOULD LIFT SLOWLY WITH THEIR FEET SPREAD OUT TO DISTRIBUTE THE WEIGHT. ALWAYS KEEP YOUR BACK STRAIGHT AND LIFT WITH YOUR LEGS.**
- **PLACE THE CHASSIS TOP COVER AND ANY SYSTEM COMPONENTS THAT HAVE BEEN REMOVED AWAY FROM THE SYSTEM OR ON A TABLE SO THAT THEY WON'T ACCIDENTALLY BE STEPPED ON.**
- **WHILE WORKING ON THE SYSTEM, DO NOT WEAR LOOSE CLOTHING SUCH AS NECKTIES AND UNBUTTONED SHIRT SLEEVES, WHICH CAN COME INTO CONTACT WITH ELECTRICAL CIRCUITS OR BE PULLED INTO A COOLING FAN.**
- **REMOVE ANY JEWELRY OR METAL OBJECTS FROM YOUR BODY, WHICH ARE EXCELLENT METAL CONDUCTORS THAT CAN CREATE SHORT CIRCUITS AND HARM YOU IF THEY COME INTO CONTACT WITH PRINTED CIRCUIT BOARDS OR AREAS WHERE POWER IS PRESENT.**
- **AFTER ACCESSING THE INSIDE OF THE SYSTEM, CLOSE THE SYSTEM BACK UP AND SECURE IT TO THE RACK UNIT WITH THE RETENTION SCREWS AFTER ENSURING THAT ALL CONNECTIONS HAVE BEEN MADE.**

CAUTION!

Electrostatic discharge (ESD) is generated by two objects with different electrical charges coming into contact with each other. An electrical discharge is created to neutralize this difference, which can damage electronic components and printed circuit boards. The following measures are generally sufficient to neutralize this difference before contact is made to protect your equipment from ESD:

- *Use a grounded wrist strap designed to prevent static discharge.*
- *Keep all components and printed circuit boards (PCBs) in their antistatic bags until ready for use.*
- *Touch a grounded metal object before removing any board from its antistatic bag.*
- *Do not let components or PCBs come into contact with your clothing, which may retain a charge even if you are wearing a wrist strap.*
- *Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or contacts.*
- *When handling chips or modules, avoid touching their pins.*
- *Put the Server Board and peripherals back into their antistatic bags when not in use.*
- *For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the Server Board.*

Operation Safety Guidelines

WARNING!

FOR PROPER COOLING, MAKE SURE TO INSTALL ALL CHASSIS COVERS BEFORE TURNING ON THE SYSTEM. IF THIS RULE IS NOT STRICTLY FOLLOWED, WARRANTY MAY BECOME VOID. DO NOT OPEN THE CASING OF A POWER SUPPLY. POWER SUPPLIES CAN ONLY BE ACCESSED AND SERVICED BY A QUALIFIED TECHNICIAN OF THE MANUFACTURER.

WARNING!

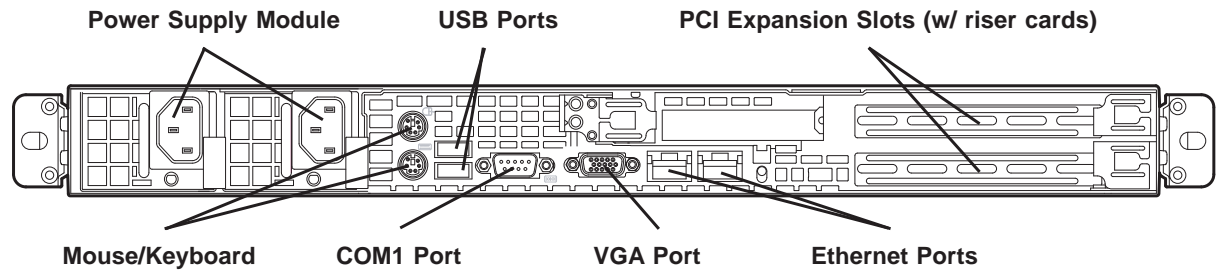
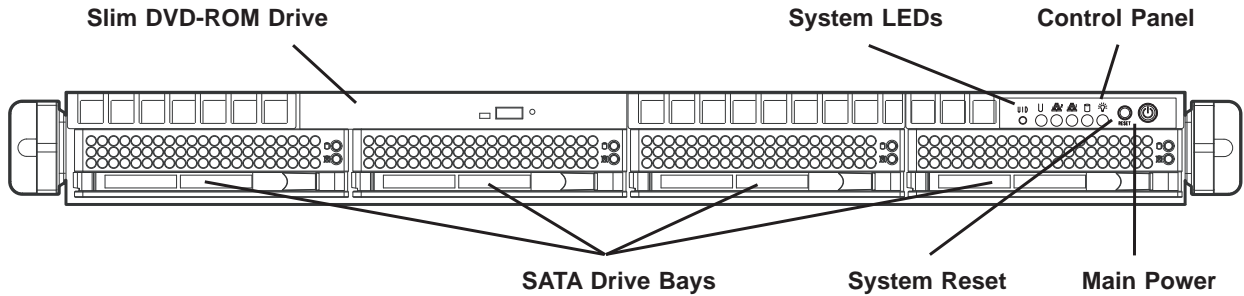
TO AVOID PERSONAL INJURY AND PROPERTY DAMAGE, READ THE FOLLOW SAFETY STEPS LISTED IN THIS SECTION.

Before Installing the Chassis into a Rack

Step	Action
1	Make sure that the rack is securely anchored onto an unmovable surface or structure before installing the chassis into the rack.
2	Unplug the power cord(s) of the rack before installing the chassis into the rack.
3	Make sure that the system is adequately supported. Make sure that all the components are securely fastened to the chassis to prevent components falling off from the chassis.
4	Be sure to install an AC Power Disconnect for the entire rack assembly and this Power Disconnect must be clearly marked.
5	The rack assembly shall be properly grounded to avoid electric shock.
6	The rack assembly must provide sufficient airflow to the chassis for proper cooling.

Chapter 2 Chassis Overview

Chassis Front and Rear Views








System Interface

There are three push-buttons located on the front of the chassis: a reset button, a UID button and a power on/off button.

Illustration	Name	Description
	UID Button	Depressing the UID (unit identifier) button illuminates an LED on both the front and rear of the chassis for easy system location in large stack configurations. The LED will remain on until the button is pushed a second time. Another UID button on the rear of the chassis serves the same function.
	System Reset	Use the reset switch to reboot the system.
	Power Button	The main power switch is used to apply or remove power from the power supply to the server system. Turning off system power with this button removes the main power but keeps standby power supplied to the system.

Control Panel LEDs

The control panel located on the front of the StorTrends 1300 chassis has five LEDs. These LEDs provide you with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action you may need to take.

Illustration	Name	Description
	Universal Information LED	When this LED blinks red quickly, it indicates a fan failure and when blinking red slowly a power failure. This LED will be blue when used for UID (Unit Identifier). When on continuously it indicates an overheat condition, which may be caused by cables obstructing the airflow in the system or the ambient room temperature being too warm. Check the routing of the cables and make sure all fans are present and operating normally. You should also check to make sure that the chassis covers are installed. Finally, verify that the heatsinks are installed properly. This LED will remain flashing or on as long as the indicated condition exists. See the table below for descriptions of the LED states.
	NIC2 LED	Indicates network activity on LAN2 when flashing.
	NIC1 LED	Indicates network activity on LAN1 when flashing.
	HDD LED	Indicates IDE channel activity. On the StorTrends 1300 this light indicates SAS and/or DVD-ROM drive activity when flashing.
	Power LED	Indicates power is being supplied to the system's power supply units. This LED should normally be illuminated when the system is operating.

Universal Information LED States

State	Indication
Fast Blinking Red (1x/sec)	Fan Fail
Solid Red	CPU Overheat
Slow Blinking Red (1x/4sec)	Power Fail
Solid Blue	Local UID Button Depressed
Blinking Blue	IPMI-Activated UID

Drive Carrier LEDs

Each SAS drive carrier has two LEDs:

LED Color	Description
Green	When illuminated, the green LED on the front of the SAS drive carrier indicates drive activity. A connection to the backplane enables this LED to blink on and off when that particular drive is being accessed.
Red	The SES2 compliant backplane activates the red LED to indicate a drive failure. If one of the SAS drives fail, you will be notified by the StorTrends iTX software. Replace the failed SAS drive(s).

Removing the Chassis Cover

STOP!

Only remove the Chassis Cover when instructed to do so by an American Megatrends support technician. Doing so at any other time may VOID your warranty.

Static-Sensitive Devices

Electric Static Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully. The following measures are generally sufficient to protect your equipment from ESD discharge.

Precautions

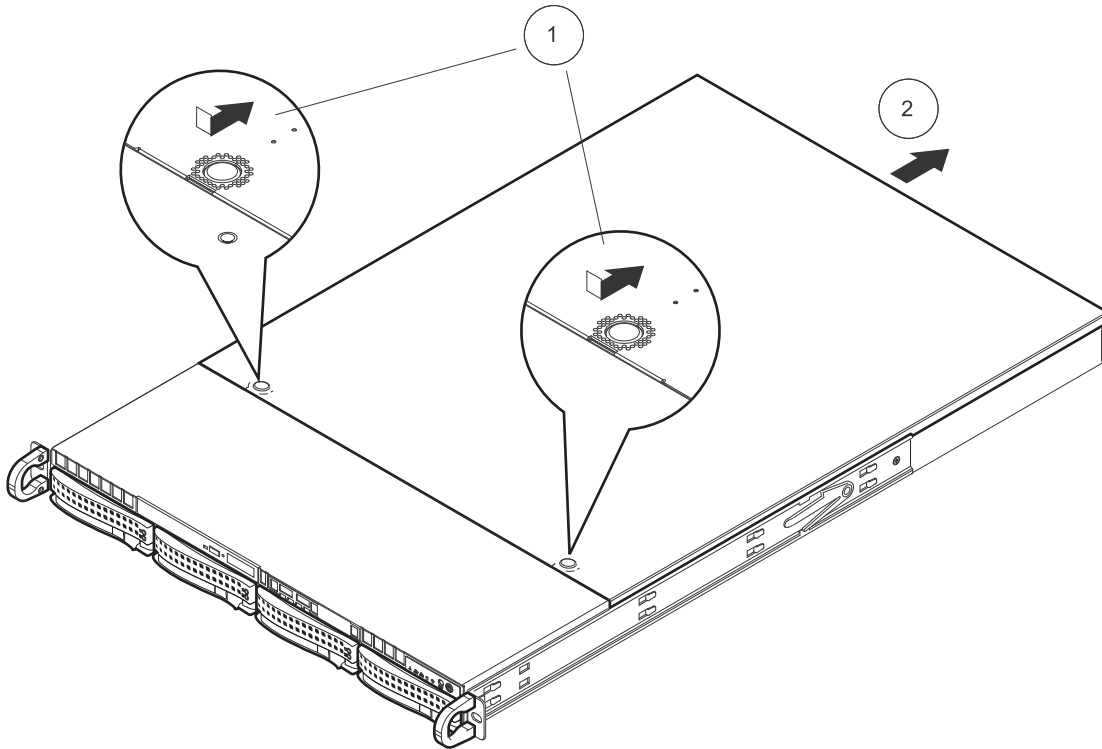
- *Use a grounded wrist strap designed to prevent static discharge.*
- *Touch a grounded metal object before removing any board from its antistatic bag.*
- *Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.*
- *When handling chips or modules, avoid touching their pins.*
- *Put the Server Board, add-on cards and peripherals back into their antistatic bags when not in use.*
- *For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the Server Board.*

Before Accessing the Chassis

1. Turn off all peripheral devices connected to the StorTrends 1300 chassis.
2. Press the power button to power off the system.
3. Unplug all power cords from the system or the wall outlets.
4. Disconnect all the cables and label the cables for easy identification.
5. Use a grounded wrist strap designed to prevent static discharge when handling components.

Removing the Chassis Cover

After completing the above steps, you can remove the covers and install components/peripheral devices into the chassis as described in this user's guide.



1. Push the unlock tabs to remove the cover or components.
2. Push towards the rear of the chassis.
3. Lift the chassis cover off.

WARNING!

EXCEPT FOR SHORT PERIODS OF TIME, DO NOT OPERATE THE SERVER WITHOUT THE COVER IN PLACE. THE CHASSIS COVER MUST BE IN PLACE TO ALLOW PROPER AIRFLOW AND PREVENT OVERHEATING.

Reinstalling the Chassis Covers

To maintain proper system cooling and airflow, do not operate the system without installing all chassis covers back to the chassis. To reinstall the chassis covers, please follow the steps listed below:

1. Make sure that all components and devices are securely fastened on the chassis and there are no loose parts/screws inside the chassis.
2. Make sure that all cables are properly connected to the connectors and ports.
3. Place the cover back on the chassis.
4. Slide the cover forward towards the front of the chassis until it snaps into place.

Before Installing the Chassis into a Rack

1. Make sure that the rack is securely anchored onto an unmovable surface or structure before installing the chassis into the rack.
2. Unplug the power cord(s) of the rack before installing the chassis into the rack.
3. Make sure that the system is adequately supported. Make sure that all the components are securely fastened to the chassis to prevent components falling off from the chassis.
4. Be sure to install an AC Power Disconnect for the entire rack assembly and this Power Disconnect must be clearly marked.
5. The rack assembly shall be properly grounded to avoid electric shock.
6. The rack assembly must provide sufficient airflow to the chassis for proper cooling.

System Fans

STOP!

Only remove the Chassis Cover when instructed to do so by an American Megatrends support technician. Doing so at any other time may VOID your warranty.

Three 4-cm heavy duty counter-rotating fans provide the cooling for the StorTrends 1300. Each fan unit is actually made up of two fans joined back-to-back, which rotate in opposite directions. This counter rotating action generates exceptional airflow and works to dampen vibration levels. It is very important that the chassis top cover is properly installed and making a good seal in order for the cooling air to circulate properly through the chassis and cool the components.

System Fan Failure

Fan speed is controlled by system temperature via a BIOS setting. If a fan fails, the remaining fans will ramp up to full speed and the Universal Information LED on the control panel will blink quickly. Replace any failed fan at your earliest convenience with the same type and model (the system can continue to run with a failed fan). Remove the top chassis cover while the system is still running to determine which of the fans has failed. Then power down the system before replacing a fan. Removing the power cords is also recommended as a safety precaution.

Replacing System Fans

Removing a fan

After turning off the power to the system, first remove the chassis cover and unplug the fan cable from the server board. Unscrew the failed blower fan from the chassis and pull it completely out from the server board.

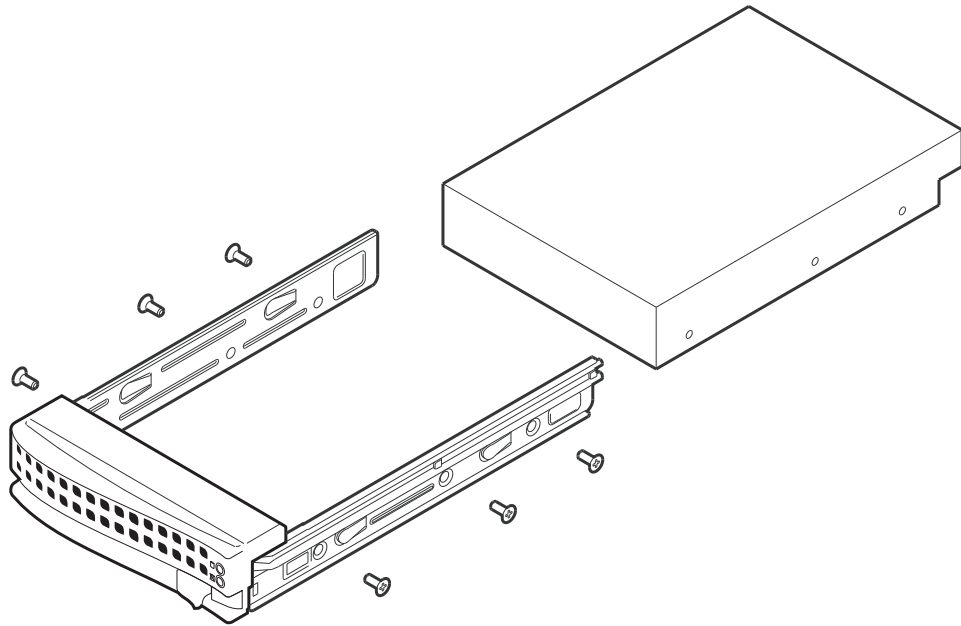
Installing a new fan

Replace the failed fan with an identical 4-cm, 12 volt fan (available from American Megatrends Inc.:p/n FAN-0086L). Push the new fan into the vacant space in the housing while making sure the arrows on the top of the fan (indicating air direction) point in the same direction as the arrows on the other fans. Reposition the fan housing back over the two mounting posts in the chassis, then reconnect the fan wires to the same chassis fan headers you removed them from. Power up the system and check that the fan is working properly and that the LED on the control panel has turned off. Finish by replacing the chassis cover.

SATA Drive Installation

Mounting a SATA drive in a drive carrier

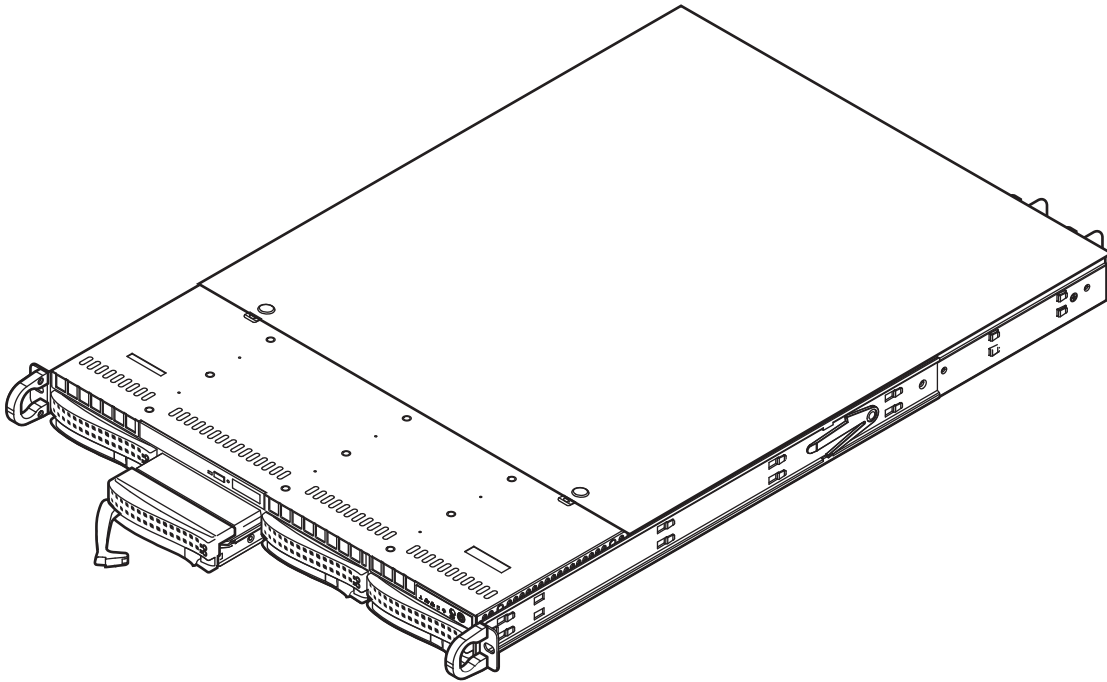
The SATA drives are mounted in drive carriers to simplify their installation and removal from the chassis. These carriers also help promote proper airflow for the drive bays. For this reason, even empty carriers without drives installed must remain in the chassis. To add a new drive, install a drive into the carrier with the printed circuit board side facing down so that the mounting holes align with those in the carrier. Secure the drive to the carrier with six screws.



Regardless of how many SATA drives are installed, all drive carriers must remain in the drive bays to maintain proper airflow.

Installing/removing hot-swap SATA drives

The SATA drive carriers are all easily accessible at the front of the chassis. These hard drives are hot-pluggable, meaning they can be removed and installed without powering down the system. To remove a carrier, push the release button located beside the drive LEDs. Then swing the colored handle fully out and use it to pull the unit straight out.



Power Supply

The StorTrends 1300 has a 450 watt redundant power supply configuration consisting of two hot-swap power modules. The power supply modules have an auto-switching capability, which enables them to automatically sense and operate with a 100V - 240V input voltage.

Power Supply Failure

If either of the two power supply modules fail, the other module will take the full load and allow the system to continue operation without interruption. The Universal Information LED on the control panel will blink red slowly and remain so until the failed module has been replaced. Replacement modules can be ordered directly from American Megatrends Inc. The power supply modules have a hot-swap capability, meaning you can replace the failed module without powering down the system.

Removing/Replacing the Power Supply

You do not need to shut down the system to replace a power supply module. The redundant feature will keep the system up and running while you replace the failed hot-swap module. Replace with the same model, which can be ordered directly from American Megatrends Inc.

Removing the power supply

First unplug the power cord from the failed power supply module. To remove the failed power module, push the release tab (on the back of the power supply) to the side and then pull the module straight out. The power supply wiring was designed to detach automatically when the module is pulled from the chassis.

Installing a new power supply

Replace the failed power module with another PWS-451-1R power supply module. Simply push the new power supply module into the power bay until you hear a click. Finish by plugging the AC power cord back into the module.

Removing/Replacing the Power Supply

WARNING!

DO NOT OPEN THE CASING OF A POWER SUPPLY. POWER SUPPLIES CAN ONLY BE ACCESSED AND SERVICED BY A QUALIFIED TECHNICIAN FROM THE MANUFACTURER.

CAUTION!

Unplug the Power Cord before removing the Power Supply.

Removing the power supply

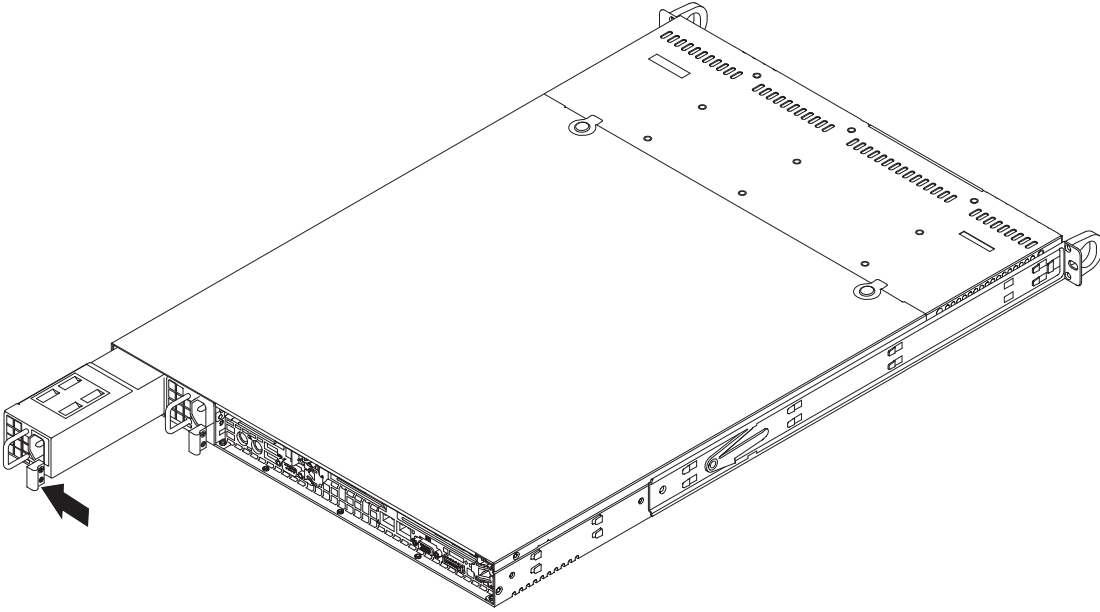
First turn the power switch on the control panel off, then unplug the power cord from the system. Replace with the same model (p/n PWS-561-1H20).

To remove the failed power module, first remove the screws that secure the power supply to the chassis. Locate the colored release tab, push it to the right then pull the module straight out with the handle provided. The power supply wiring was designed to detach automatically when the module is pulled from the chassis.

Installing a new power supply

Replace the failed power supply with another identical power supply module. Carefully insert the new power supply into the open bay and push it completely into the chassis until you hear a clicking sound, meaning it has been fully inserted. Secure it to the chassis with the screw you removed previously, then reconnect the AC power cord and depress the power button on the control panel to restart the system.

Removing/Replacing the Power Supply



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