

**User Manual**

# **HPC-7282**

**2U Rackmount Chassis for a  
Micro/ATX Server Board with  
8 Hot Swappable Drive Bays and  
7 Low Profile Expansion Slots**

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5. Write the RMA number clearly on the outside of the package and ship it prepaid to your dealer.

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# Safety Instructions

1. Read these safety instructions carefully.
2. Retain this user manual for future reference.
3. Disconnect this equipment from any AC outlet before cleaning. Use only a damp cloth for cleaning. Do not use liquid or spray detergents.
4. For pluggable equipment, the power outlet socket must be located near the equipment and easily accessible.
5. Protect this equipment from humidity.
6. Place this equipment on a reliable surface during installation. Dropping or letting the equipment fall may cause damage.
7. Do not leave this equipment in an unconditioned environment where the room temperature fluctuates below 0 °C (32°F) or above 40 °C (104°F). This may damage the equipment.
8. The openings on the enclosure are for air convection. Protect the equipment from overheating. Do not cover the openings.
9. Ensure the power source voltage is correct before connecting the equipment to a power outlet.
10. Position the power cord away from high traffic areas. Do not place anything over the power cord.
11. All cautions and warnings on the equipment should be noted.
12. If the equipment is not used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.
13. Never pour liquids into an opening. This may cause fire or electrical shock.
14. Never open the equipment. For safety reasons, the equipment should be opened only by qualified service personnel.
15. If one of the following occurs, have the equipment checked by service personnel:
  - The power cord or plug is damaged.
  - Liquid has penetrated the equipment.
  - The equipment has been exposed to moisture.
  - The equipment is malfunctioning or does not operate according to the user manual.
  - The equipment has been dropped and damaged.
  - The equipment has obvious signs of breakage.
16. The computer is equipped with a battery-powered real-time clock circuit. Batteries are at risk of exploding if incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Discard used batteries according to the manufacturer's instructions.
17. The CD drives provided with the computer are compliant with relevant safety standards, including IEC 60825.

CLASS 1 LASER PRODUCT  
KLASSE 1 LASER PRODUKT
18. This device complies with Part 15 of the FCC Regulations. Operation is subject to the following two conditions:
  - (1) This device may not cause harmful interference.
  - (2) This device must accept any interference received, including interference that may cause undesired operation.
19. Always completely disconnect the power cord from the chassis before manually handling the hardware. Do not make connections while the power is on. Sudden power surges can damage sensitive electronic components.

20. Always ground yourself to remove any static charge before touching the motherboard, backplane, or add-on cards. Contemporary electronic devices are very sensitive to static electric charges. As a safety precaution, wear a grounding wrist strap at all times. Place all electronic components on a static dissipative surface or in a static-shielded bag when not in the chassis.
21. Any unverified component may cause unexpected damage. To ensure correct installation, always use the components (screws) provided in the accessory box.

## A Message to the Customer

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### Technical Support

We want all customers to get the best performance possible from our products. Should you experience technical difficulties, we are available to help. Answers to the most frequently asked questions can be easily found in the product documentation. Because these answers are normally a lot more detailed than those provided over the phone, we recommend consulting this manual first. If you are still unable to find a solution, gather all information or questions that apply to your problem, and with the product in hand, call your dealer. Our dealers are well trained and ready to provide the support you need to get the most from your Advantech products. Generally, most of the problems reported are minor and can be easily solved over the phone.

Additionally, Advantech engineers are available to provide free technical support every business day. We are always ready and willing to give advice about application requirements or specific information regarding the installation and operation of any of our products.

## Initial Inspection

Before system installation, please ensure that the following items have been included in your shipment:

- Chassis
  - 1 x HPC-7282 chassis
- Components
  - 3 x 80\*25 mm 4-pin PWM fan
  - 8 x HDD tray
  - 1 x SAS/SATA hard drive backplane
- Accessories
  - 1 x accessory box with a package of screws
  - 2 x HDD tray key

If any of these items are missing or damaged, contact your distributor or sales representative immediately. The HPC-7282 has been mechanically and electrically inspected before shipment. Thus, the system should be free from blemishes and scratches and in perfect working order upon receipt. While unpacking, double check the system for signs of shipping damage (for example, a damaged box, scratches, dents, etc.). If the system is damaged or fails to meet the specifications, notify our service department or your local sales representative immediately. Additionally, please notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection, we will make arrangements to repair or replace the unit.



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# Chapter 1

General Information

## 1.1 Introduction

HPC-7282 is a 2U rackmount industrial computer chassis for high-performance and high-capacity computing applications. The equipment meets a variety of application requirements for filing, printing, e-mail, and web access. This powerful computing platform is suitable for mission-critical computer telephony applications, industrial automation, and factory management. A wide range of standard computing peripherals can be integrated with the chassis to satisfy the demands of various applications and need for 24/7 operation under harsh conditions.

## 1.2 Specifications

- **Construction:** Heavy-duty steel
- **Disk Drive Capacity:** One slim ODD bay
- **Front Panel LED Indicators:** Power, HDD activity, LAN status, and system information
- **Front Panel Switch and Button:** Power switch, system reset button
- **Front Panel I/O Interfaces:** Two USB2.0 ports, one COM port
- **Cooling System:** Three 80 x 25 mm hot swappable cooling fans
- **Weight:** 15 kg
- **Dimensions (W x H x D):** 437 x 88 x 533.4 mm

## 1.3 Environmental Specifications

**Table 1.1: Environmental Specifications**

<b>Environment</b>	<b>Operating</b>	<b>Non-Operating</b>
<b>Temperature</b>	0 °C ~ 40 °C	-40 °C ~ 70 °C
<b>Humidity</b>	10 ~ 85% @ 40 °C non-condensing	10 ~ 95% @ 40 °C non-condensing

# 1.4 Dimensions Diagram

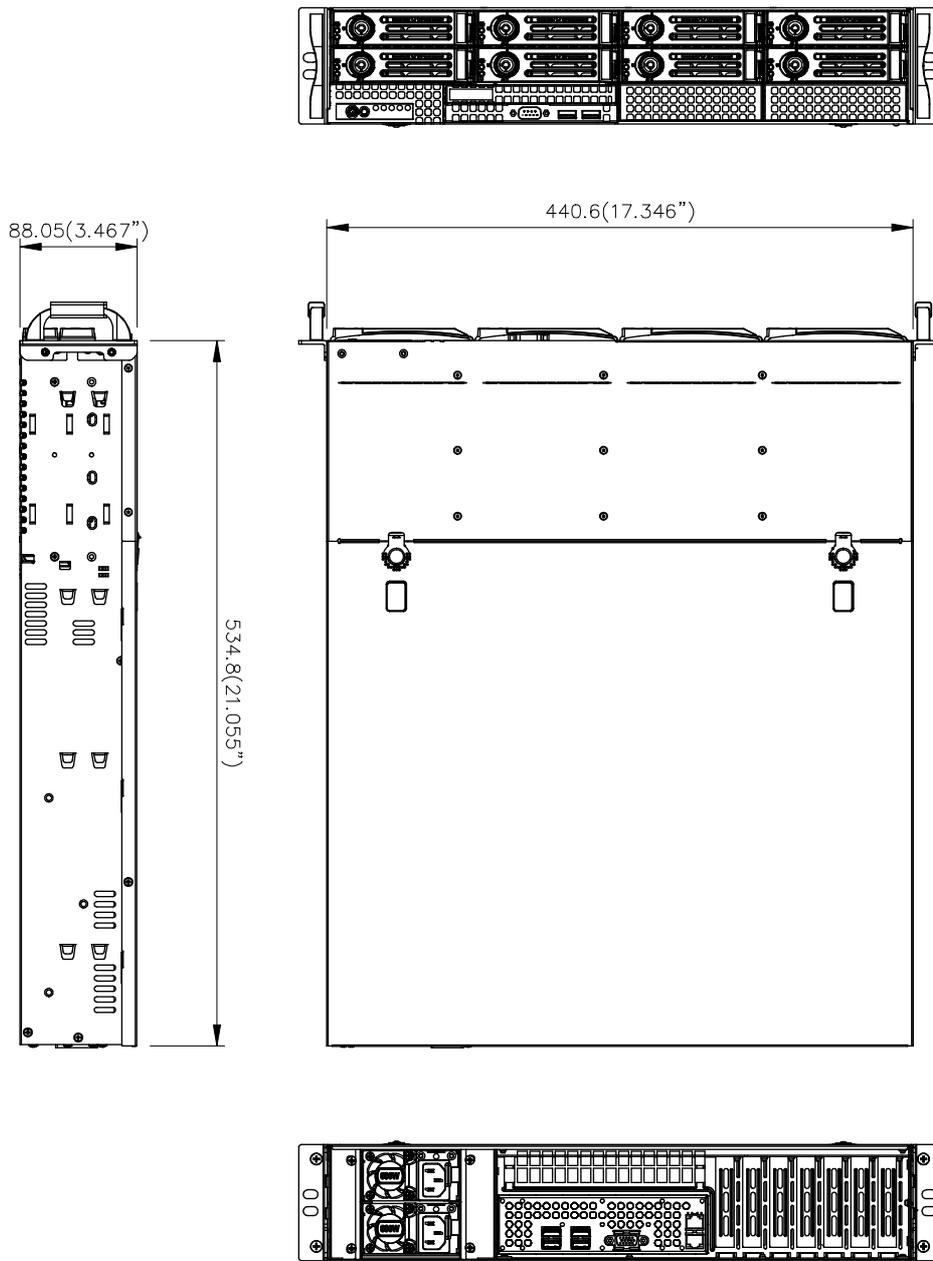


Figure 1.1 Dimensions Diagram



# Chapter 2

## System Setup

## 2.1 Overview

The following instructions explain the procedures for installing a motherboard, add-on cards, and disk drives into the HPC-7282.

**Caution!** Use caution when installing or operating the components with the chassis open. Always turn off the power, unplug the power cord, and ground yourself by touching the metal chassis before handling any components inside the machine.



## 2.2 Removing the Chassis Cover

### 2.2.1 Disconnecting the Chassis from the Power Source

1. Turn off all peripheral devices and turn off the power supply to the HPC-7282.
2. Disconnect the AC power cords from the system.
3. Disconnect all cables and label the cables for easy identification.

**Warning!** Use a grounding wrist strap designed to prevent static discharge when handling components.



After completing the above steps, remove the chassis cover and install components and devices into the chassis by following the instructions provided in this chapter.

### 2.2.2 Removing the Chassis Cover

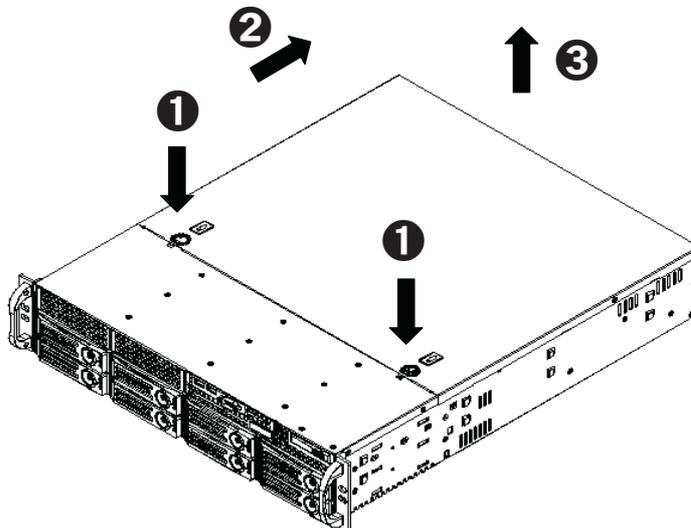
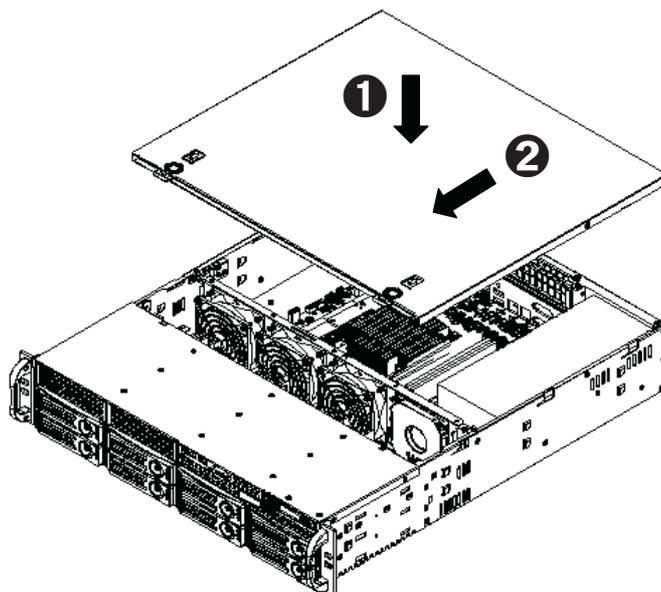


Figure 2.1 Top Cover Removal



**Figure 2.2 Top Cover Reattachment**

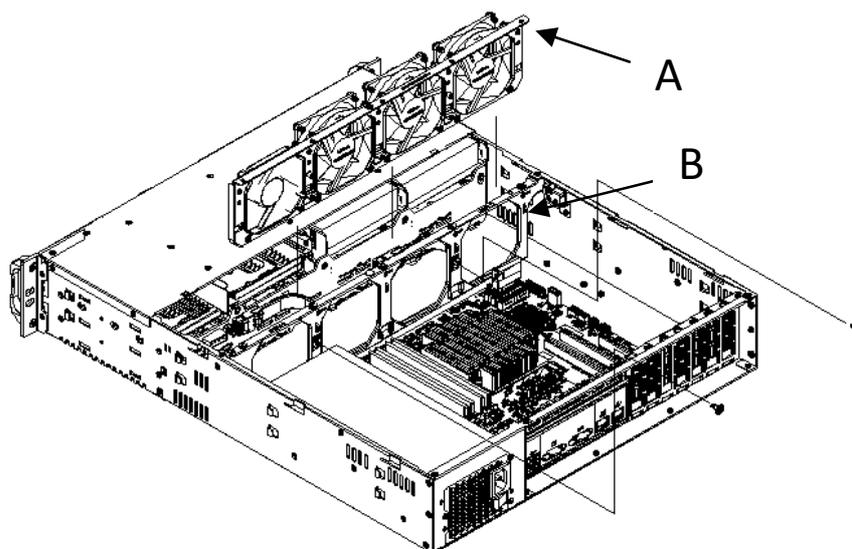
**Note!** *Press the metal button to remove the top cover (see Figure 2.1). After installing any additional components, reattach the top cover (see Figure 2.2).*



## 2.3 Removing and Replacing the System Fans

Before installing a motherboard into the chassis, or accessing the motherboard after installation, the system fans must be removed. One set of fans is located at the rear of the chassis, the other set is located in the middle of the chassis.

### 2.3.1 Fan Installation

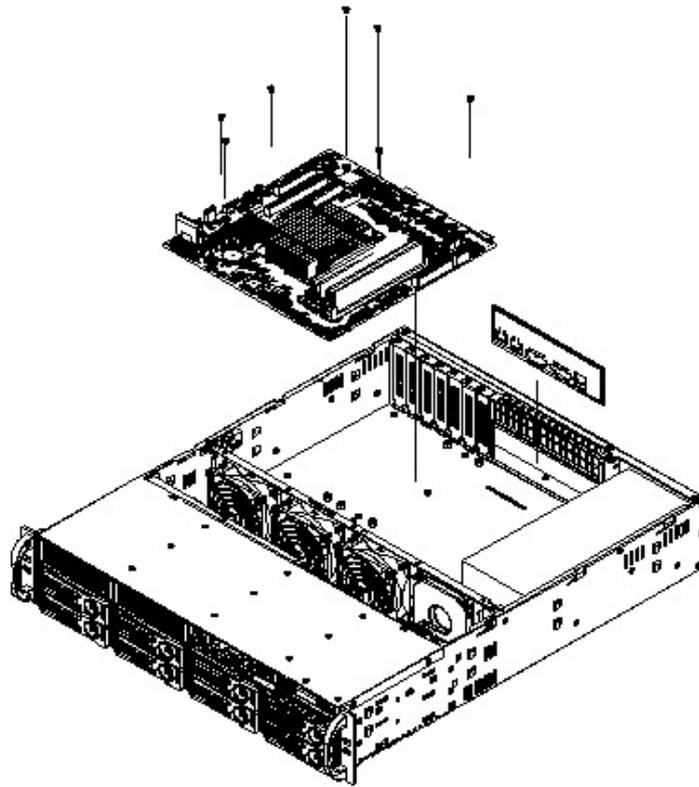


**Figure 2.3 Fan Removal and Installation**

**Note!** *Slide module A into fan bracket B then affix in place using the screws provided.*



## 2.4 Installing a Motherboard



**Figure 2.4 Motherboard Installation**

**Note!** *Install I/O shielding in the rear window opening.*



*Next, install the motherboard into the chassis and affix in place with the 9 screws provided.*

## 2.5 Installing a Power Supply Unit

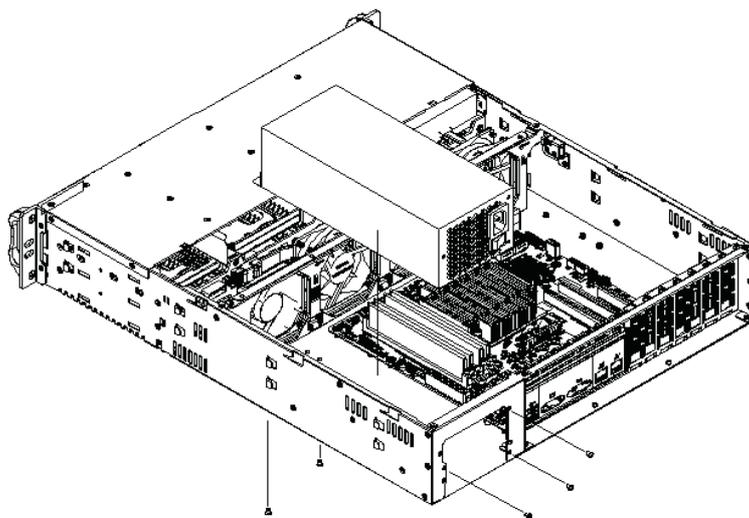


Figure 2.5 Single Power Supply Unit Installation

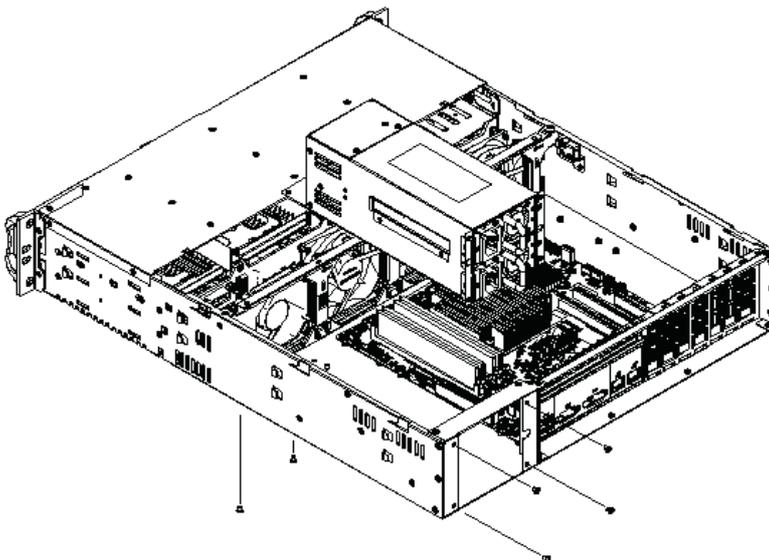


Figure 2.6 2U Redundant Power Supply Unit Installation

**Note!**



Install the single power supply unit in the chassis and affix it in place with 3 screws in the rear window and 2 screws in the chassis. Next, install the 2U redundant power supply unit in the chassis and affix it in place with 4 screws in the rear window and 2 screws in the chassis.



# Chapter 3

Operation

## 3.1 Overview

Several LEDs are provided on the control panel and the drive carriers to keep users informed of the overall system status, as well as the activity and health of specific components. The HPC-7282 chassis control panel features two buttons - a power on/off switch and a reset button. This chapter describes the LED indicator meanings and the appropriate response potentially required.

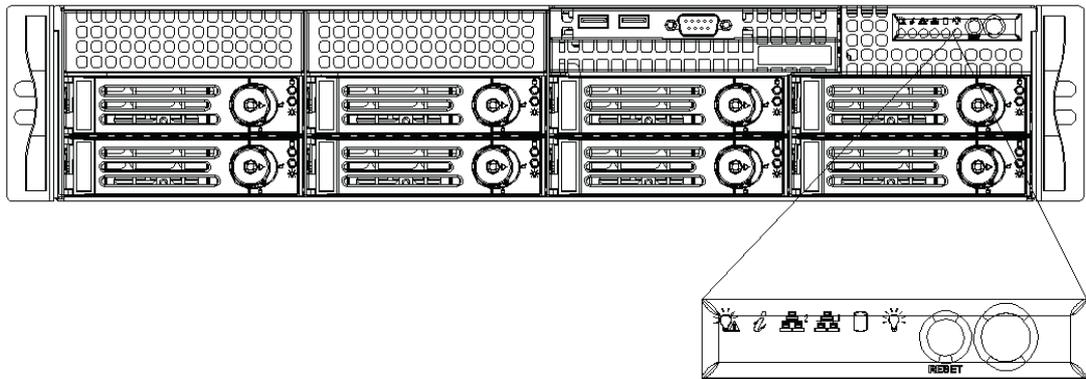


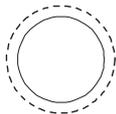
Figure 3.1 Chassis User Interface

## 3.2 Control Panel Buttons

Two push-buttons are located on the front of the chassis - a reset button (located on the left) and a power on/off button (located on the right).



**Power:** The main power switch is used to supply or disconnect power to the server system. Turning off the system power using this button disconnects the main power supply but retains the standby power supplied to the system. Therefore, the power cable must be disconnected from the power outlet before the system is serviced.



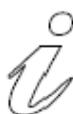
**Reset:** The reset button is used to reboot the system.

### 3.3 Control Panel LEDs

The control panel located on the front of HPC-7282 chassis features six LEDs. These LEDs provide users with critical information related to different parts of the system. This section explains what each LED indicates when illuminated and any corrective action that may be required.



**Power failure:** When this LED flashes, a failure in the power supply is indicated.



Informational LED	
Status	Description
Solid red	An overheat condition has occurred. (This may be caused by cable congestion).
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue (300 msec)	Remote UID is on. Use this function to identify the server from a remote location.



**NIC2:** Indicates network activity on GLAN2 when flashing.



**NIC1:** Indicates network activity on GLAN1 when flashing.

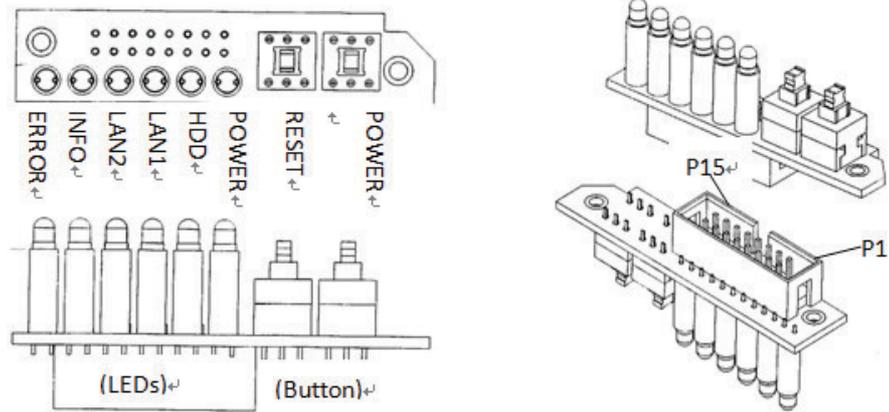


**HDD:** Indicates IDE channel, SAS/SATA drive, and/or DVD-ROM drive activity when flashing.

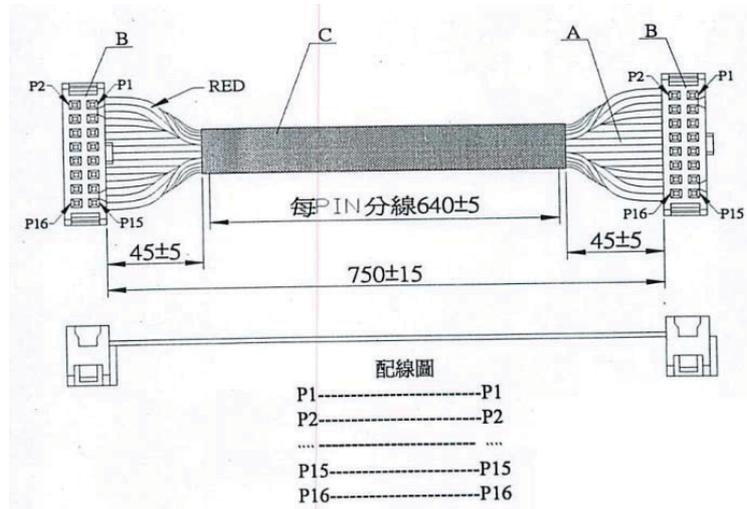


**Power:** Indicates power is being supplied to the system's power supply units. This LED should be illuminated when the system is operating normally.

### 3.4 Front Control Board



#### Front Control Cable

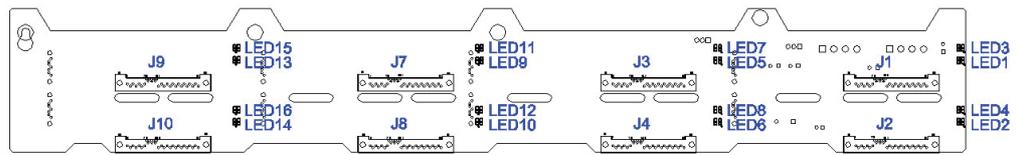


Pin	Name	Pin	Name
1	PWR_SW+	2	PWR_SW-
3	RESET+	4	RESET-
5	PWR_FAIL+	6	PWR_FAIL-
7	INFO+	8	INFO-
9	LAN2+	10	LAN2-
11	LAN1+	12	LAN1-
13	HD+	14	HD-
15	PWR+	16	PWR-

# Chapter 4

2U 8-Bay SAS  
Backplane

## 4.1 HDD Backplane Top View



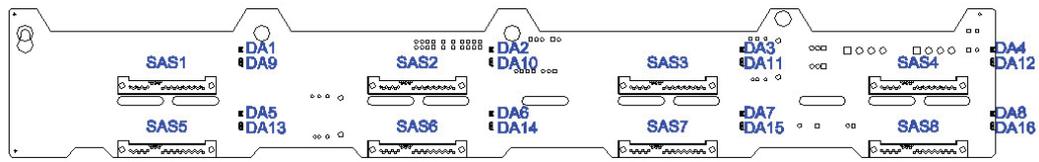
**Table 4.1: Rear SAS/SATA Connectors**

Rear Connector	SAS Drive Number	Rear Connector	SAS Drive Number
SATA#1 (J1)	SAS/SATA HDD#0	SATA#5 (J7)	SAS/SATA HDD#4
SATA#2 (J2)	SAS/SATA HDD#1	SATA#6 (J8)	SAS/SATA HDD#5
SATA#3 (J3)	SAS/SATA HDD#2	SATA#7 (J9)	SAS/SATA HDD#6
SATA#4 (J4)	SAS/SATA HDD#3	SATA#8 (J10)	SAS/SATA HDD#7

**Table 4.2: Rear LED Indicators**

Rear LED	Hard Drive Access Indicator (Green/Red LED)	Hard Drive Power Indicator (Blue LED)
SATA#0	LED3	LED1
SATA#1	LED4	LED2
SATA#2	LED7	LED5
SATA#3	LED8	LED6
SATA#4	LED11	LED9
SATA#5	LED12	LED10
SATA#6	LED15	LED13
SATA#7	LED16	LED14

### 4.1.1 HDD Backplane (Mini-SAS) Top View (optional)



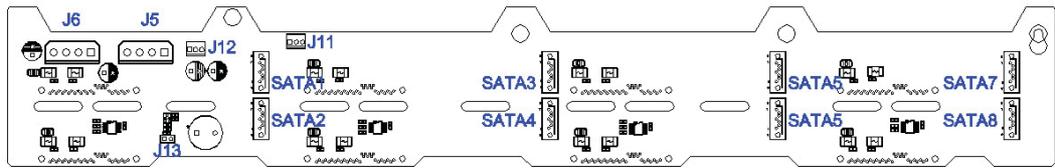
**Table 4.3: Rear SAS/SATA Connectors**

Rear Connector	SAS Drive Number	Rear Connector	SAS Drive Number
SATA#1 (SAS1)	SAS/SATA HDD#0	SATA#5 (SAS5)	SAS/SATA HDD#4
SATA#2 (SAS2)	SAS/SATA HDD#1	SATA#6 (SAS6)	SAS/SATA HDD#5
SATA#3 (SAS3)	SAS/SATA HDD#2	SATA#7 (SAS7)	SAS/SATA HDD#6
SATA#4 (SAS4)	SAS/SATA HDD#3	SATA#8 (SAS8)	SAS/SATA HDD#7

**Table 4.4: Rear LED Indicators**

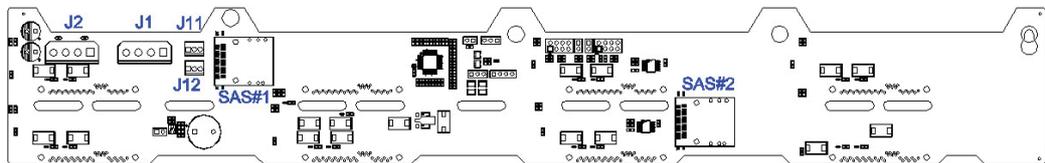
Rear LED	Hard Drive Access Indicator (Green/Red LED)	Hard Drive Power Indicator (Blue LED)
SATA#0	DA1	DA9
SATA#1	DA2	DA10
SATA#2	DA3	DA11
SATA#3	DA4	DA12
SATA#4	DA5	DA13
SATA#5	DA6	DA14
SATA#6	DA7	DA15
SATA#7	DA8	DA16

## 4.2 HDD Backplane Rear View



1. Power connectors (4-pin): J5, J6
2. Fan connectors (3-pin): J11, J12
3. Redundant power supply fail alarm connector (2-pin): J13
4. SATA connectors (7-pin): SATA1, SATA2, SATA3, SATA4, SATA5, SATA6, SATA7, SATA8

### 4.2.1 HDD Backplane (Mini-SAS) Rear View (optional)



1. Power connectors (4-pin): J1, J2
2. Fan connectors (3-pin): J11, J12
3. Mini-SAS connectors: SAS#1, SAS#2

## 4.3 Rear Connector and Pin Definitions

### 4.3.1 Backplane Main Power Connectors

The 4-pin connectors, designated as J5 and J6, provide power to the backplane. See the table below for pin definitions.

**Table 4.5: Backplane Main Power 4-Pin Connector**

Pin#	Definition
1	+12V
2 and 3	Ground
4	+5V

### 4.3.2 Fan Connectors

The extra fan connectors, designated as J11 and J12, offer full speed (3-pin) function for chassis system fans.

**Table 4.6: 3-Pin Fan Connectors**

Pin#	Definition
1	N/A
2	+12V
3	Ground

### 4.3.3 Redundant Power Supply Fail Alarm Connector

The 2-pin connector, designated as J13, provides the alarm function for redundant power supply. See the table below for pin definitions.

**Table 4.7: Redundant Power Supply 2-Pin Connector**

Pin#	Definition
1	+12V
2	Ground

### 4.3.4 SATA Ports

The SATA ports are used to connect SATA drive cables. The eight connectors are designed as SATA Connector 1 to 8. Each of the eight connectors has one port, for a total of eight ports. These eight ports are designated 1 to 8 and are compatible with SAS/SATA drives.

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