RM414 User's Manual

Preliminary Release

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Acknowledgements

Part No.
Preliminary Edition Printed in Taiwan Nov. 2003

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Chapter 1 Introduction

1.1 Checklist

Chenbro Rackmount are designed with the utmost attention to detail to provide you with the highest standards in quality and performance. Please check that the following items have been included with your chassis. If you discover damaged or missing, contact your sales representative immediately.

RM414 Chassis (90-341400-001) ---------- ×1

Accessory Box (84-341410-001) ---------- ×1

Includes :

- Screw Packing for HDD (70-000000-150) ---------- ×1
- Screw Packing for M/B (70-331100-101) ---------- ×1
- Screw Packing for CD-ROM / FDD (70-311900-101) ---------- ×1
- Cable for FDD (26-073123-001) ---------- ×1
- Cable for HDD (26-073123-004) ---------- ×1
- Cable for HDD 1 TO 2 (26-073118-007) ---------- ×1
- BIG 4P TO BIG 4P/SMALL 4P Cable (26-113215-001) ---------- ×1
- BIG 4P TO BIG 4P+250MM BIG 4P Cable (26-113215-003) ---------- ×1

26” General Device Rail (Optional) ---------- ×1

Power Cord (Optional) ---------- ×1

1.2 Chassis Layout

1.2.1 Major Components

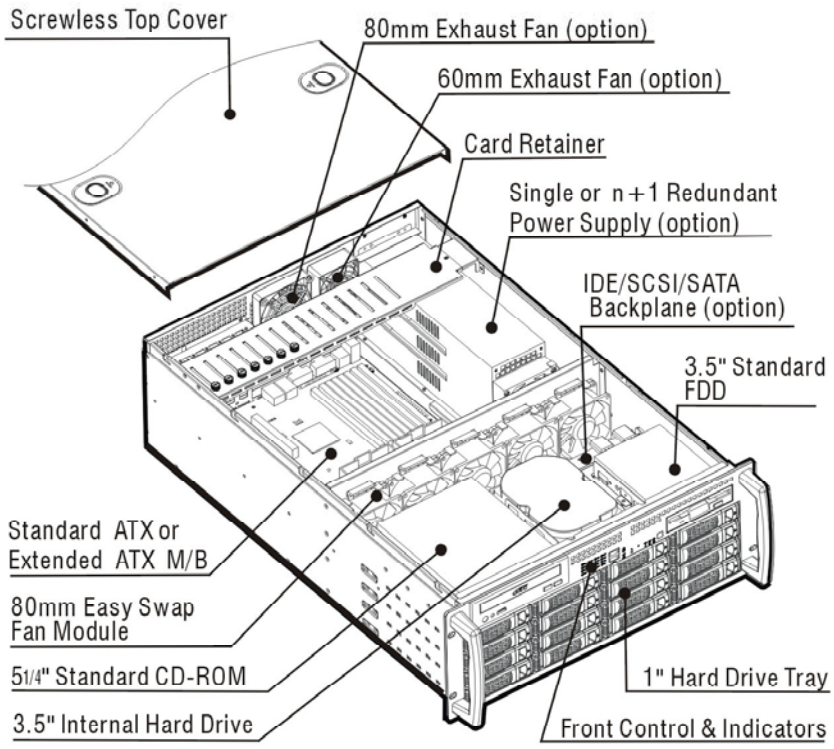

Figure 1-1 Chassis Layout

1.2.2 Front Panel Controls and Indicators

A. HDD Tray Activity LED
B. USB 2.0 Port
C. System Reset Button
D. Alarm Mute Button
E. System HDD Activity LED
F. Power LED
G. Failure LED
H. LAN1 & LAN2 LED
I. Power Switch

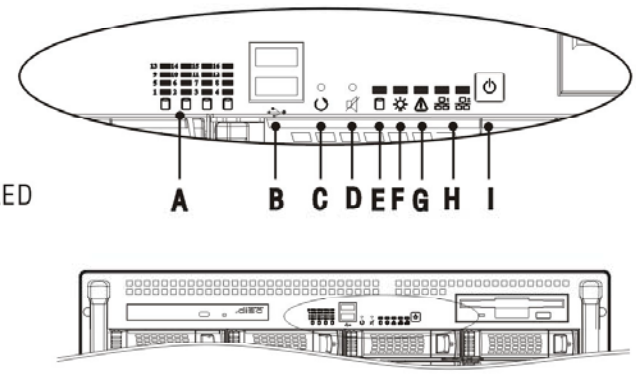

Figure 1-2 LED & Switch

1.2.3 Rear Window configuration

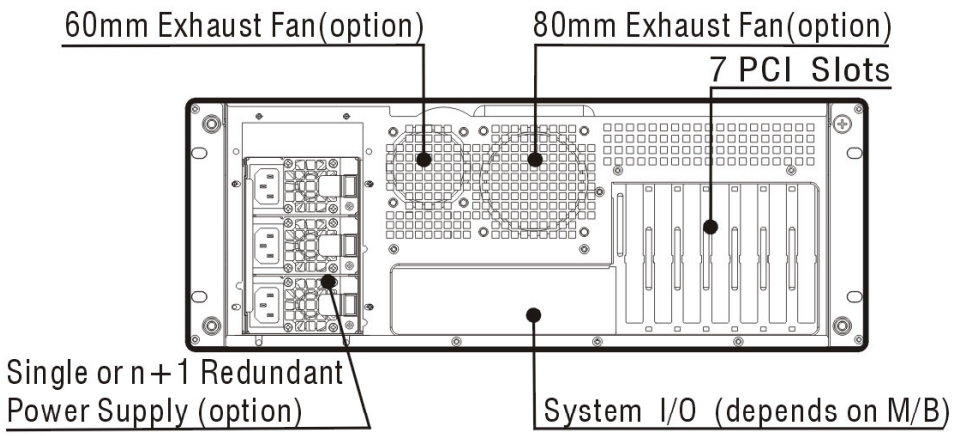

Figure 1-3 Standard Rear Window

1.3 Specifications and Features

Chenbro's Rackmount chassis supports a variety of high-density system configurations with the latest server-chassis technology. Right now, we would like to present new generation of Rackmount case – RM414 that coupled with Serial ATA backplane to enhance overall performance. It also accepts up to extended ATX Motherboard, powered by Intel Xeon processor running up to 3.06 GHz. The expansion options can be implemented through up to 7 PCI slots for versatile applications.

RM414 offers premium cooling technology and scalable storage capability to meet the most demanding eWorld solutions. All make this chassis satisfy a host of business criteria, such as affordability, performance, scalability, space- optimization and support.

The specifications and features of RM414 are listed as following.

Model Name			RM414
Standard			EIA-RS310D
M/B Form Factor			Extended ATX (12"x13")
CPU Type			P4/ DP Xeon/ Athlon MP
Dimension (D×W×H)			662mmx430mmx176mm 26" x 16.9" x 6.9"
Drive Bays	**External**	**5.25"**	1+1 x slim CD/DVD ROM
		3.5"	1 x FDD
	Internal	**3.5"**	1
	HDD Trays		16
PSU	**Form Factor**		Single or Redundant
	Watts		350W ~ 800W
Indicators			Power ON/OFF, HDD/LAN activity, Fan failure and overheat warning
Front Controls			Power ON/OFF, System Reset, Alarm Reset and USB2.0 port x 2
System Security			N/A
Cooling Fan		**Standard**	5×80mm middle fans
		Optional	1×80mm rear fan / 1×60mm rear fan
Slot Opening			7
Riser Card			0
Material			SGCC
Sheet Metal Thickness (mm)			1.2
Net weight (chassis only)			18.7Kg
Cubic Feet			6.2
Ref,Container loading		**20'**	154
Single packing		**40'**	322
Backplane			IDE/SCSI/SATA

Table 1-1 RM414 Specification

Top Cover

- Screw-less top cover is easy for installation and maintenance
- There is a chassis quick reference attached on the back of top cover

Front Panel Controls and Indicators

- Front access USB2.0 ports are flexibility
- Alarm mute button for fan failure and overheat warning
- Reset button to disable audible warning
- LEDs for system signals (power, HDD access,LAN1,LAN2,and failure event)

Hard Drive Tray

- 16 hard drive trays are available and those can provide high density server for NAS,RAID,or media streaming application server.
- Hot-swap trays for easy maintenance

Drive Bays

- External bays are included for one standard CD-ROM/Tape drive, one slim CD-ROM and one standard FDD
- Internal HDD bay for operating system

Backplane

- Support 4 pcs of 4 in 1 IDE ATA133 / Ultra320 SCSI / SATA backplane
- Right angle COMM CON connectors for hot swappable IDE hard drive (IBM/WD/Maxtor)

Motherboard

- Support Extended ATX form factor up to 12”×13”
- Supports various MB from Intel / Supermicro / Tyan / Gigabyte / Asus

CPU

- Support Intel® P4, Intel® DP Xeon™ or AMD Athlon MP
- Excellent thermal solution for DP Xeon up to 3.06+GHz

PSU

- Support single PS/2 or redundant power supply
- Power output is up to 800W (depends on your power supply)

Cooling Fan

- 5 pcs of 80mm ball-bearing fan
- 1 pc of 80mm rear fan/1 pc of 60mm rear fan are optional

Slot Opening

- 7 PCI slots for rear window

1.4 Contact Information

CHENBRO MICOM CO., LTD.
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Fax: 86-10-82743035
E-mail: ccn@chenbro.com.tw

Chapter 2 Installation

2.1 Drive Installation

2.1.1 Installation Hard Drive

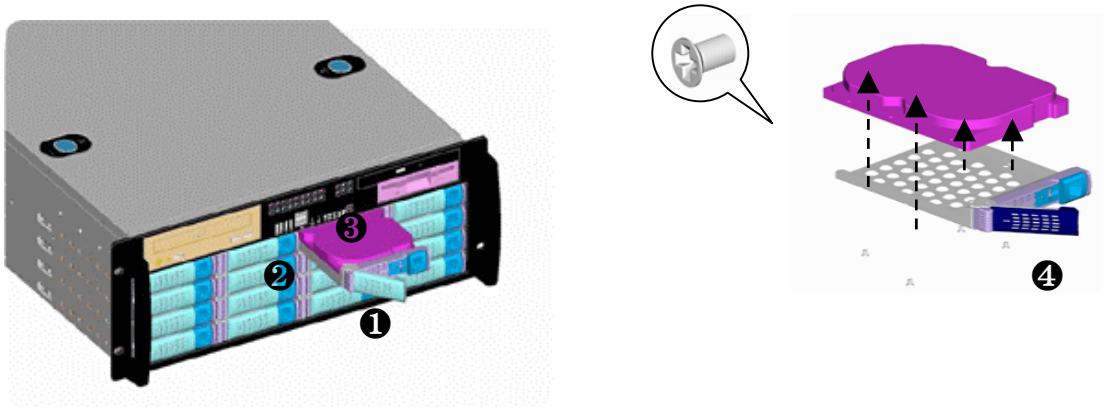
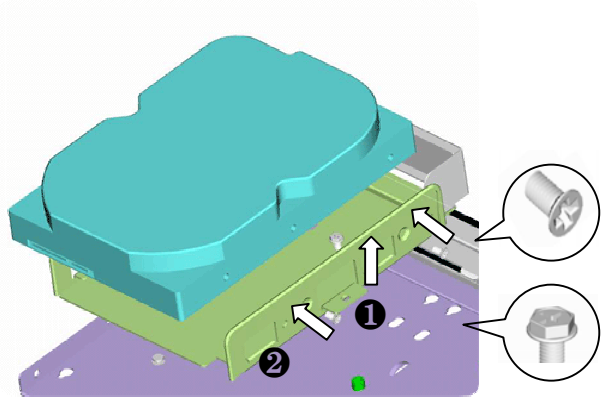


Figure 2-1 Install the hard drive

1. Push latch toward right to open lever all the way.
2. Slide tray out of the chassis.
3. Mount the hard drive onto the tray.
4. Attach with four screws (from screw pack: 70-000000-150) to fix HDD.
5. Slide the HDD tray into the case and push lever into the tray until fasten.

2.1.2 Installing Internal HDD



1. Release screw to move back and take out the bracket.
2. Attach with four screws to fix HDD on bracket.
3. Fit to two gauge pins and move forward until fasten.
4. Attach back original screw.

Figure 2-2 Install internal hard drive

2.1.3 Installing FDD & Slim CD-ROM

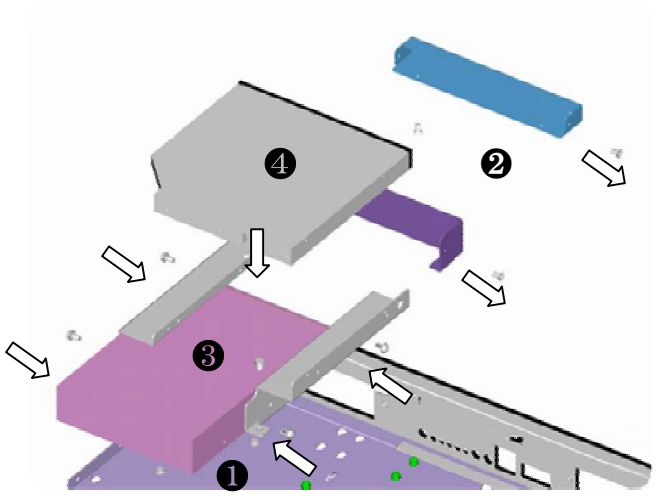


Figure 2-3 Installing FDD

1. Release screw to move back and take out the bracket.
2. Release screw to take out the FDD cover and Slim CD-ROM cover.
3. Attach with four screws to fix FDD on bracket.
4. Put slim CD-ROM onto the FDD and attach screws to fix it.
5. Fit to two gauge pins and move forward until fasten.
6. Attach back original screws.

2.1.4 Installing CD-ROM

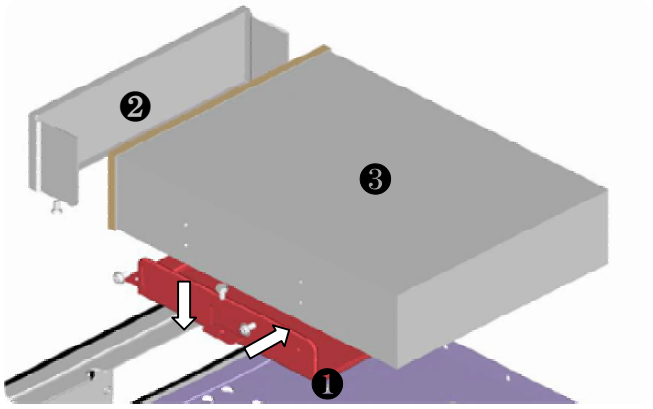


Figure 2-4 Install slim CD/DVD ROM

1. Release screw to move back and take out the bracket.
2. Release screw to take out the CD-ROM cover.
3. Attach with four screws (from screw pack: 70-311900-101) to fix CD-ROM on bracket.

2.2 Backplane Installation

RM414 supports three different backplanes: IDE, SCSI, and SATA

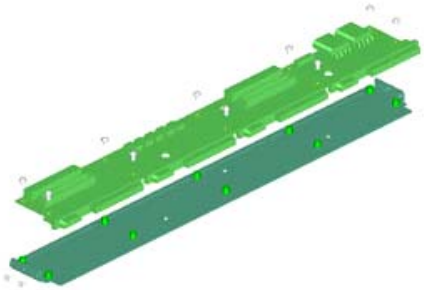


Figure 2-5 IDE backplane assembly

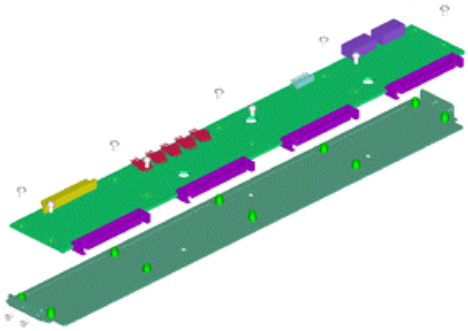


Figure 2-6 SCSI backplane assembly

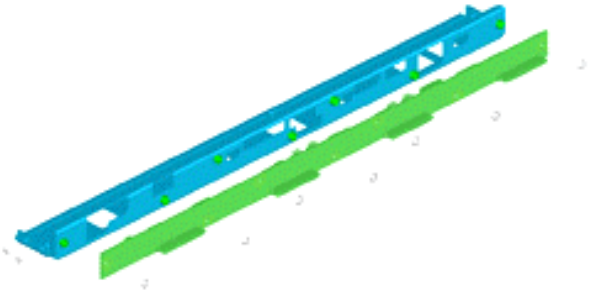


Figure 2-7 SATA backplane assembly

2.2.1 Installing SCSI Backplane into RM414

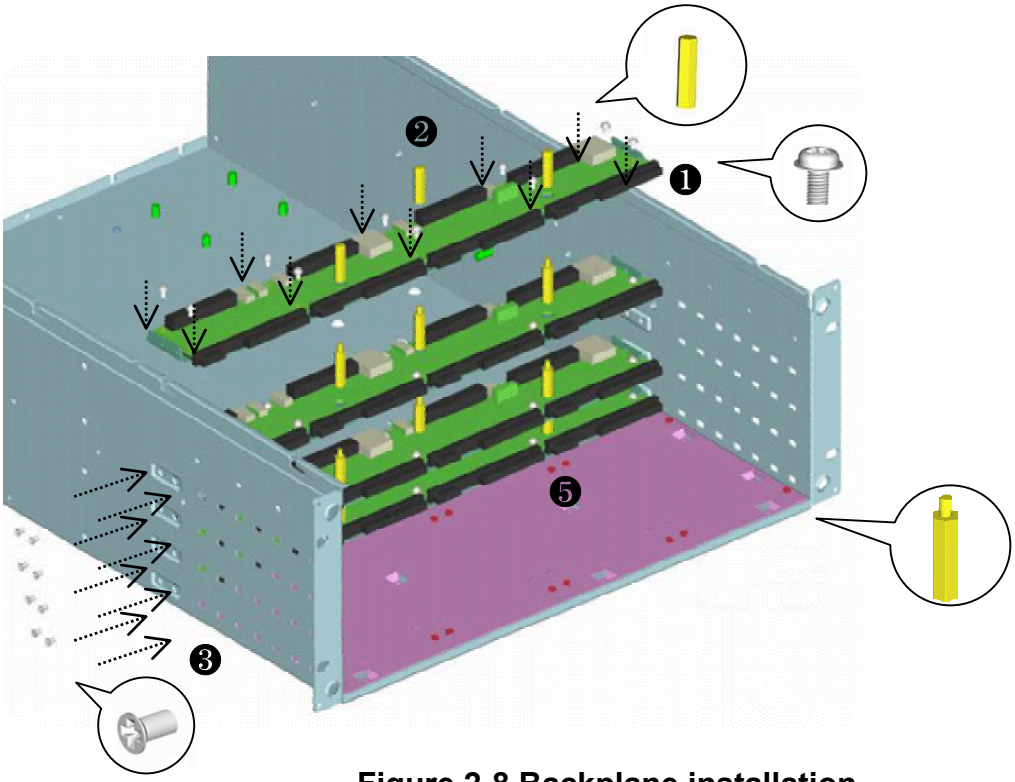


Figure 2-8 Backplane installation

1. Attach with ten screws to fix backplane on the bracket and place backplane assembly into chassis obliquely
2. Attach with three Hex.copper studs for next backplane assembly supporting by ring spanner.
3. Fit to four screw holes on the both side and attach with four screws to fix backplane assembly.
4. Repeat step 1～3 for other backplane assembly.
5. Attach with three Hex.copper studs for ending cap on the top.
6. Connect LED cable from backplane (JP1) to LED board. The lower one connects to 1U LED connector (J1) on LED board; the middle--low one connects to 2U connector (J2) on LED board; the middle--high one connects to 3U connector (J3) on LED board; and the upper one connects to 4U connector (J4) on LED board.
7. Connect Big 4p power cable from PSU to power connectors (J7&J8) on SCSI backplane.
8. Connect fan connector to fan pin header of the upper backplane to finish the installation, and make sure the fan sensor is enabled.

2.3 How to change 80mm system fans

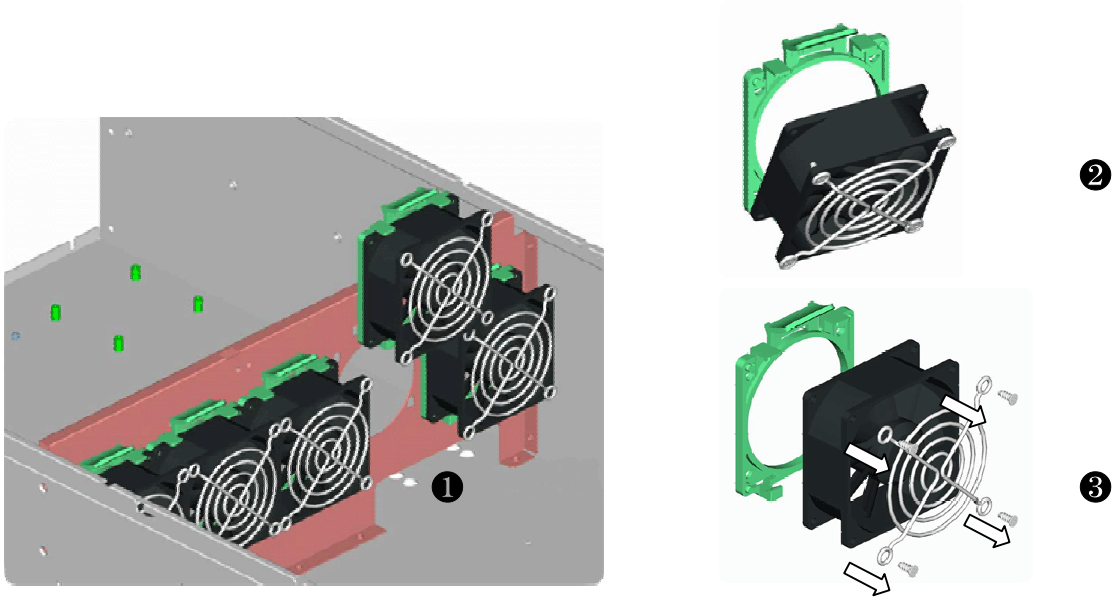


Figure 2-9 Change 80mm system fans

1. Push the press down to take the fan with fan holder out from middle fan bracket.
2. Pull the press up to take out the fan.
3. Release four screws of the fan to take out the finger guard.
4. Change the new fan instead of the failed one.
5. Connect the fan connector back to connector on backplane.

Note : Before change the fan, taking off fan connectors from backplane.

2.4 Motherboard Installation

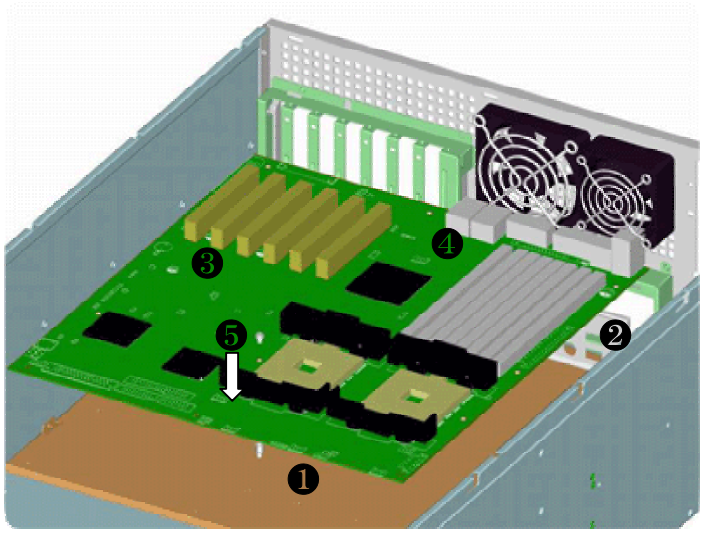


Figure 2-10 Install motherboard on RM414

1. According to the different holes of M/B, use standoff to support M/B.
2. Install I/O bracket goes with M/B to fix chassis.
3. Align the motherboard with the chassis and I/O gasket before installation.
4. The edge with I/O ports goes to the rear part of the chassis.
5. Place screws into holes indicated to secure the motherboard to the chassis.

2.5 PSU Installation

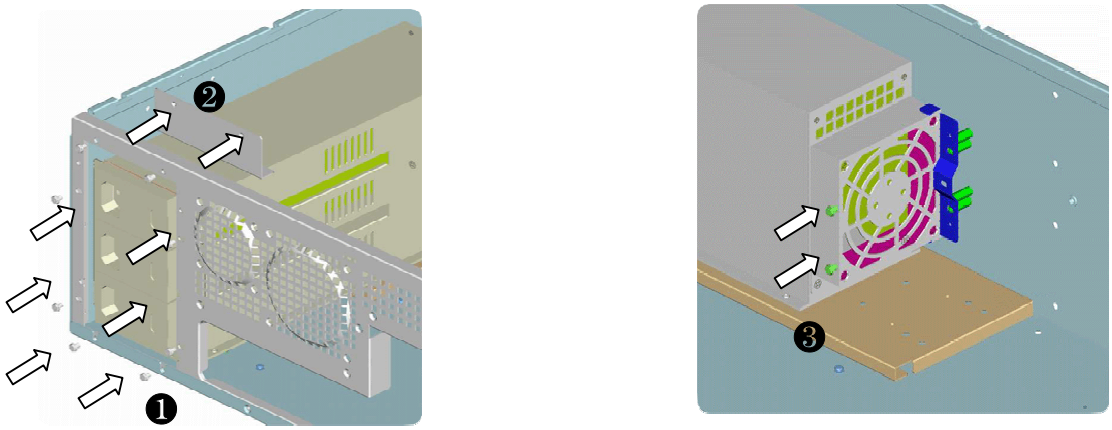


Figure 2-11 PSU Installation

1. Place PSU into chassis and attach with six screws to fix PSU.
2. Attach with two screws to fix bracket into chassis.
3. Attach with two screws from the other side to fix chassis.

2.6 Optional Parts Installation

2.6.1 Rack Rails Installation

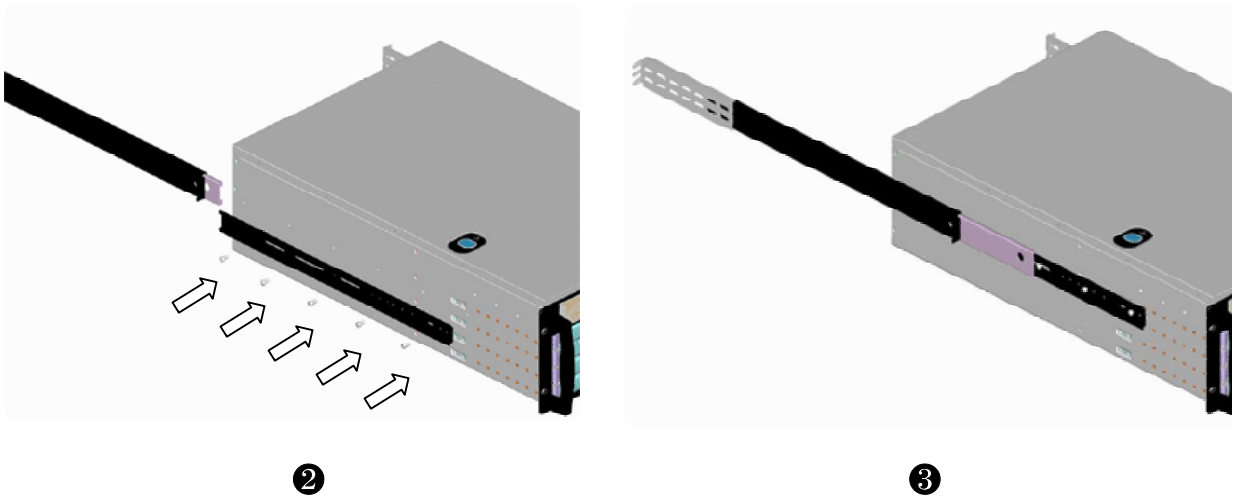


Figure 2-12 Rack Rails Installation

There are two rack rail assemblies with the RM414. Each of these assemblies consists of three sections: an inner fixed chassis rail & an outer fixed rack rail & a sliding rail guide.

1.Remove the fixed chassis rail; pull it out until hearing a “click” sound. Then depress the locking tab to pull the inner rail completely out. Do this for both the left and right side rack rail assemblies.

2.Position the fixed chassis rail sections you just removed along the side of the RM414 making sure the screw holes line up. Screw the rail securely to the side of the chassis. Repeat this procedure for the other rail on the other side of the chassis. You will also need to attach the rail brackets when installing into a cabinet rack.

3.Position the fixed rack rail / sliding rail guide assemblies at the desired location in the rack, keeping the sliding rail guide facing the inside or the rack. Screw the assembly securely to the rack using the brackets provided. Attach the other assembly to the other side of the rack, making both are at the exact same height and with the rail guides facing inward.

4.Lining up the rear of the chassis rails with the front of the rack rails. Slide the chassis rails into the rack rails, keeping the pressure even on both sides.

5.When the RM414 has been pushed completely into the rack, you should hear the locking tabs “click” to finish the installation.

2.7 Bezel Installation

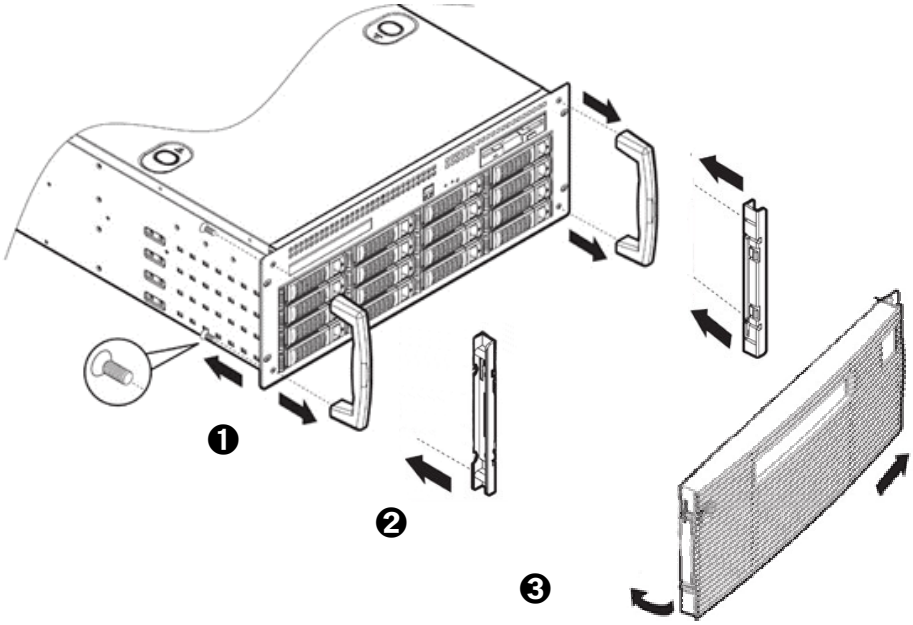


Figure 2-13 Bezel Installation

1. Remove two screws from each handle to detach handles.
2. Install and tighten screw to secure the new handles.
3. Align and slid right side of bezel in new handle.

2.8 Card Retention Installation

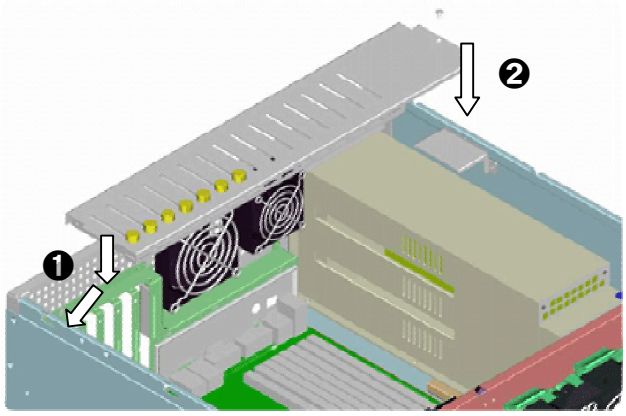


Figure 2-14 Card Retention Installation

1. Place card retention into chassis obliquely.
2. Attach with a screw from the other side to fix chassis.

Chapter 3 Backplane & LED Board

3.1 Backplane

3.1.1 Raid Backplane Specification

Support SCSI interface: Ultra 320/160 backward compatibility.

- Support hard disk drive 80pin SCA2 Ultra 320/160 backward compatibility.
- Support 4-bay hard disk drive inrush current control for Hot-swapping
- Support SCSI-IN and SCSI-OUT connector. (68 pin female 90 Deg).
- Support SCSI on board terminator on/off function and on/off LED.
- Support hard disk drive Delay_Start or Remote_Start mode function.
- Support SCA2 ID setting function default is ID0, ID1, ID2,ID3.
- Support 5pcs external fan speed monitoring, fan failure buzzer alarm and red LED active function.
- Support fan disable function.
- Support 1 point temperature sensor, temperature setting overheating50℃/60℃,when temperature overheating buzzer alarm function.
- Support 2 pcs power connectors in big 4-pin D-type 90 Deg.
- Support power on LED.
- Support 4 external LED,s monitoring for HDD installation & access and fan ,overheating fail and buzzer mute connector pin.

3.1.2 Connectors Layout

Dimension: 411.60 mm X 51.44 mm X 2.4 mm

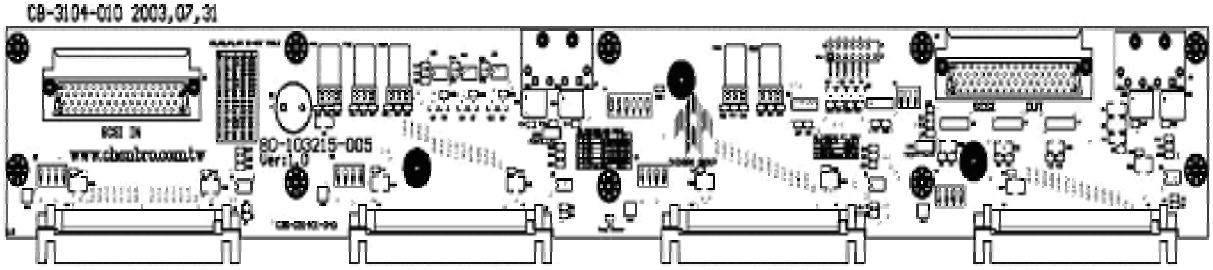


Figure 3-1 Top side of SCSI backplane

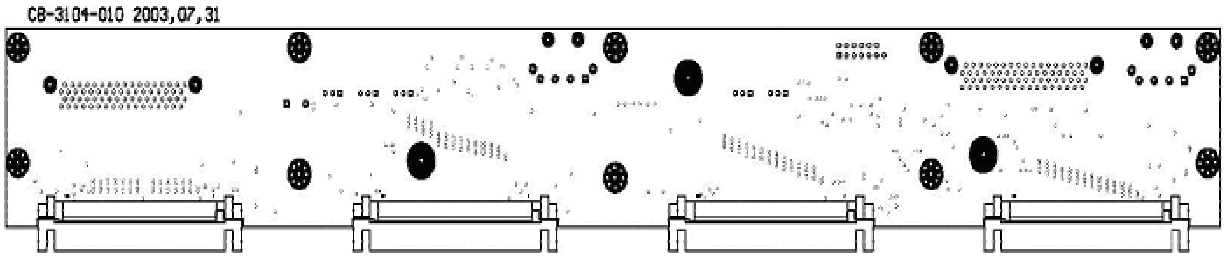


Figure 3-2 Bottom side of SCSI backplane

No.	Description	No.	Description
J1	HDD1 SCA2 CONNECTOR	S3	HDD2 ID-SET SWITCH
J2	HDD2 SCA2 CONNECTOR	S4	HDD3 ID-SET SWITCH
J3	HDD3 SCA2 CONNECTOR	S5	HDD4 ID-SET SWITCH
J4	HDD4 SCA2 CONNECTOR	S6	FUNCTION SET SWITCH
J5	SCSI IN 68PIN CONNECTOR	FAN1	FAN CONNECTOR
J6	SCSI IN 68PIN CONNECTOR	FAN2	FAN CONNECTOR
J7	DC POWER INPUT FOR BIG 4P	FAN3	FAN CONNECTOR
J8	DC POWER INPUT FOR BIG 4P	FAN4	FAN CONNECTOR
JP1	FOR LED OUTPUT HEADER	FAN5	FAN CONNECTOR
S1	FUNCTION SET SWITCH	BZ1	Buzzer
S2	HDD1 ID-SET SWITCH		

Table 3-1 Connector & switch

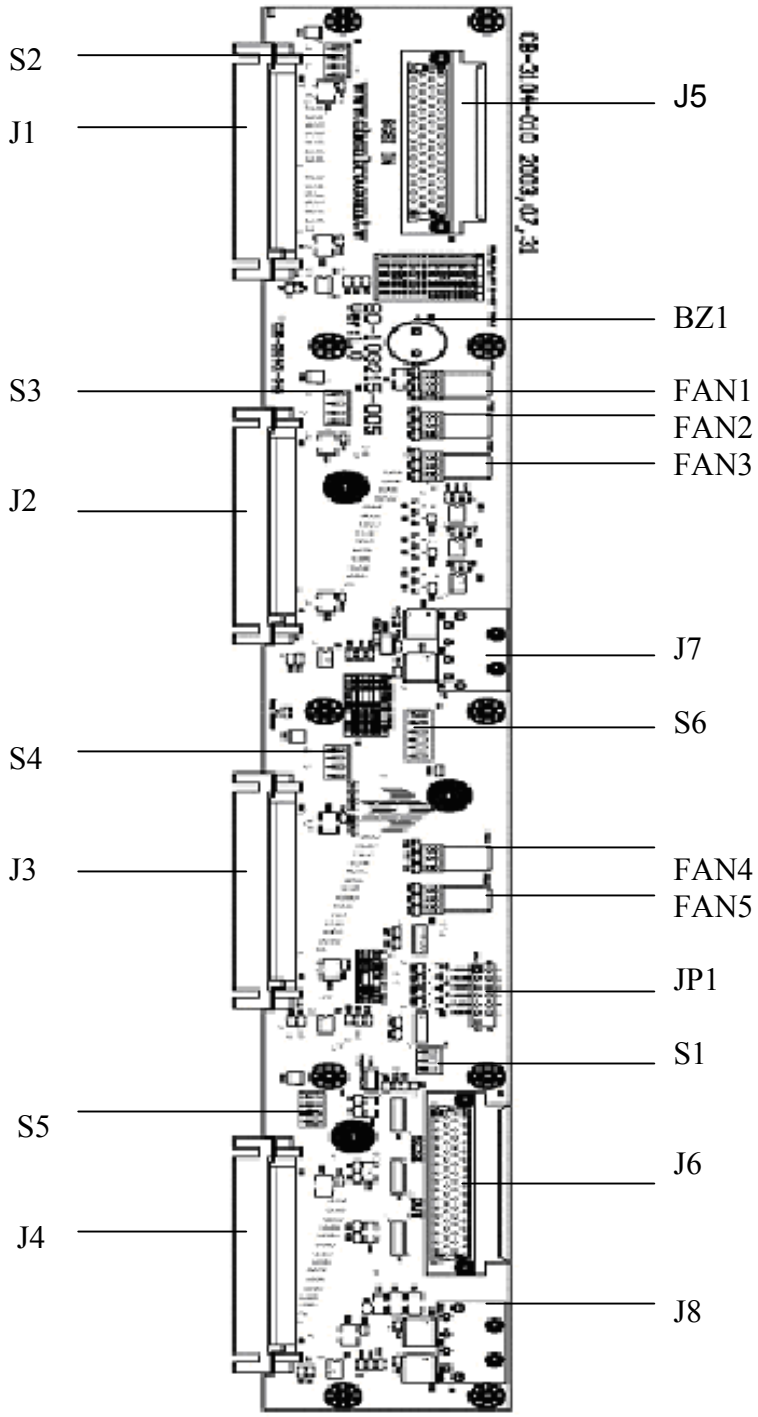


Figure 3-3 Connector & switch layout

3.1.3 Pin Assignment

S2,S3,S4,S5 : SCSI ID Settings

SCSI ID	Position1, ID=1	Position2, ID=2	Position3, ID=4	Position4, ID=8
0	OFF	OFF	OFF	OFF
1	ON	OFF	OFF	OFF
2	OFF	**ON**	**OFF**	OFF
3	ON	ON	OFF	OFF
4	OFF	OFF	ON	OFF
5	ON	OFF	ON	OFF
6	OFF	ON	ON	OFF
7	ON	ON	ON	OFF
8	OFF	OFF	OFF	ON
9	ON	OFF	OFF	ON
10	OFF	ON	OFF	ON
11	ON	ON	OFF	**ON**
12	OFF	OFF	ON	ON
13	ON	OFF	ON	ON
14	OFF	ON	ON	ON
15	ON	ON	ON	ON

Table 3-2 SCSI ID setting

- *Please avoid setting SCSI ID 7 for SCSI drive.*
- *It is normally occupied SCSI host adapter.*
- *The default setting on left SCSI backplane is from ID 0 , ID1, ID 2 and ID3.*

S1 : function setting

SWITCH	SWITCH ON	SWITCH OFF
SWITCH 1	HDD motor spin up Delay mode	Normal
SWITCH 2	HDD motor spin up remote mode	Normal
SWITCH 3	Terminator ON	Terminator OFF

Table 3-3 function setting

- By this jumper, user can set motor of SCSI HDD is started in sequence or random.

S6 : function setting

SWITCH	SWITCH ON	SWITCH OFF
SWITCH 1	FAN 1 sensor disable	FAN 1 sensor enable
SWITCH 2	FAN 2 sensor disable	FAN 2 sensor enable
SWITCH 3	FAN 3 sensor disable	FAN 3 sensor enable
SWITCH 4	FAN 4 sensor disable	FAN 4 sensor enable
SWITCH 5	FAN 5 sensor disable	FAN 5 sensor enable
SWITCH 6	Temperature Set 50℃	Temperature Set 60℃

Table 3-4 Fan & temp. Setting

JP1 : Display board signals Output

Pin 1	HDD1 LED +	Pin 2	HDD1 LED -
Pin 3	HDD2 LED +	Pin 4	HDD2 LED -
Pin 5	HDD3 LED +	Pin 6	HDD3 LED -
Pin 7	HDD4 LED +	Pin 8	HDD4 LED -
Pin 9	FAIL LED+	Pin 10	FAIL LED -
Pin 11	BUZZER MUTE SWITCH+	Pin 12	BUZZER MUTE SWITCH-

Table 3-5 Display Board Signal

FAN1,FAN2,FAN3,FAN4,FAN5 pin out

1	GND
2	VDD
3	SENSOR

Table 3-6 Fan Connector Pin Assignment

J7 and J8 big 4 P pin out

1	VDD
2	GND
3	GND
4	VCC

Table 3-7 Big 4P Pin Assignment

3.2 LED Board

3.2.1 Specification

- Dimension: 130.0 mm X 45.0 mm X 1.6 mm
- PCB Layers : 2 layers
- Support 80-103215-001, 80-1003215-002 and 80-103215-003 IDE LED display board function.
- Support 1 HDD power and access LED monitor.
- Support 1 buzzer alarm mute switch.
- Support 1 system reset switch.
- Support 1 system power switch.
- Support 1 power green LED indicator.
- Support 1 local HDD yellow LED indicator.
- Support 1 fails red LED indicator.
- Support 2 USB port.
- Support 2 LAN LED indicator.
- Support 4-pcs connector for 1U, 2U, 3U, 4U LED board.
- Support 2 x 5 pin connector for USB port.
- Support 1 system connector.

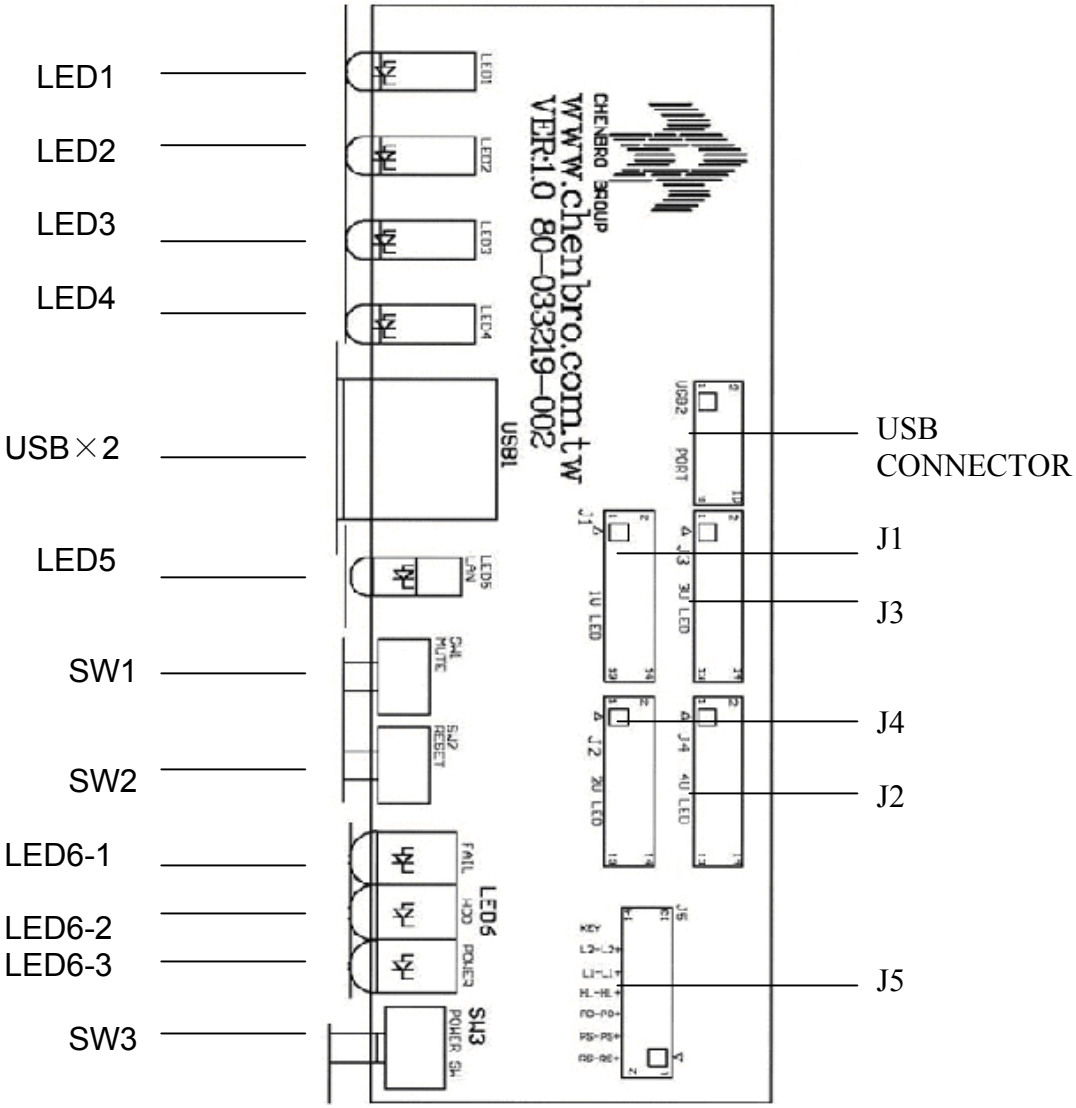


Figure 3-4 LED Board Layout

NO.	Description	NO.	Description
J1	1U LED	LED1	HDD1
J2	2U LED	LED2	HDD2
J3	3U LED	LED3	HDD3
J4	4U LED	LED4	HDD4
J5	TP SYSTEM	LED5	HDD5
SW1	MUTE	LED6-1	FAIL
SW2	RESET	LED6-2	HDD
SW3	POWER SW	LED6-3	POWER

Table 3-8 LED Board Switch & LED

3.2.3 Pin Assignment

USB PIN OUT

Pin #	Definition	Pin #	Definition
1	USB1 POWER	2	USB2 POWER
3	USB1 DATA -	4	USB DATA -
5	USB1 DATA +	6	USB2 DATA +
7	USB1 GND	8	USB2 GND
9	KEY	10	NONE

Table 3-9 USB Pin Out

J1 : LED BOARD PIN OUT

Pin #	Definition	Pin #	Definition
1	LED11+	2	GND
3	LED12+	4	GND
5	LED13+	6	GND
7	LED14+	8	GND
9	+5V VCC	10	FAIL
11	**MUTE**	12	GND
13	NONE	14	KEY

Table 3-10 1U LED Pin Out

J2 : LED BOARD PIN OUT

Pin #	Definition	Pin #	Definition
1	LED21+	2	GND
3	LED22+	4	GND
5	LED23+	6	GND
7	LED24+	8	GND
9	+5V VCC	10	FAIL
11	**MUTE**	12	GND
13	NONE	14	KEY

Table 3-11 2U LED Pin Out

J3 : LED BOARD PIN OUT

Pin #	Definition	Pin #	Definition
1	LED31+	2	GND
3	LED32+	4	GND
5	LED33+	6	GND
7	LED34+	8	GND
9	+5V VCC	10	FAIL
11	**MUTE**	12	GND
13	NONE	14	KEY

Table 3-12 3U LED Pin Out

J4 : LED BOARD PIN OUT

Pin #	Definition	Pin #	Definition
1	LED41+	2	GND
3	LED42+	4	GND
5	LED43+	6	GND
7	LED44+	8	GND
9	+5V VCC	10	FAIL
11	**MUTE**	12	GND
13	NONE	14	KEY

Table 3-13 4U LED Pin Out

J5 : SYSTEM PIN OUT

Pin #	Definition	Pin #	Definition
1	RESET	2	RESET GND
3	POWER SWITCH	4	POWER SWITCH GND
5	POWER LED +	6	POWER LED -
7	HDD LED +	8	HDD LDE -
9	LAN1 LED +	10	LAN2 LED -
11	**LAN2 LED +**	12	LAN2 LED -

Table 3-14 System Pin Out

Chapter 4 Cables

4.1 USB 2.0

Photo	Part no.	Length	Connector Type
	26-033219-001	750mm	INTEL SPEC

Table4-1 Intel Spec type USB2.0 Cable

Photo	Part no.	Length	Connector Type
	26-033219-002	750mm	UNIVERSAL SPEC

Table4-2 Universal Spec type USB2.0 Cable

4.2 IDE Cables

Photo	Part no.	Length	Connector Type
	26-073215-001	700mm	ATA-133

Table4-3 700mm IDE Cable

Photo	Part no.	Length	Connector Type
	26-073118-006	560mm	ATA-133

Table4-4 560mm IDE Cable

4.3 SATA Cable

Photo	Part no.	Length	Connector Type
	26-123215-001	700mm	SERIAL ATA

Table4-5 700mm SATA Cable

Photo	Part no.	Length	Connector Type
	26-123215-002	560mm	SERIAL ATA

Table4-6 560mm SATA Cable