Transport FT48

B4985

Service Engineer's Manual

Preface

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Version 1.0

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Operation is subject to the following conditions:

1) This device may not cause harmful interference, and

2) This device must accept any interference received including interference that may cause undesired operation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Plug the equipment into an outlet on a circuit different from that of the receiver.

Consult the dealer or an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class B limits for radio interference as specified in the Canadian Department of Communications Radio Interference Regulations. (Cet appareil est conformé aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'interférence radio.)

Notice for Europe (CE Mark) This product is in conformity with the Council Directive 89/336/EEC, 92/31/EEC (EMC).

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by manufacturer. Dispose of used battery according to manufacturer instructions and in accordance with your local regulations.

About this Manual

This manual provides you with instructions on installing your FT48-B4985, and consists of the following sections:

Chapter 1: Provides an Introduction to the FT48-B4985 barebone, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.

Chapter 2: Covers procedures on installing the CPU, memory modules, PCI cards and hard drives. The rackmounting instructions are also given.

Chapter 3: Covers removal and replacement procedures for pre-installed components, introduces the fan board, LED control board, SAS/SATA backplane, and provides tables for pin definition.

Appendix: Describes the differences between mainboard BIOS and system BIOS. Provides the cable connection tables for reference of system setup. Instuctions on installing the SMDC card and expansion hard drives are also provided.

For information on the mainboard, please refer to the attached mainboard user's manual. You can find the detailed description about jumper and BIOS settings from the motherboard manual.

Safety Information

Before installing and using the FT48-B4985, take note of the following precautions:

- Read all instructions carefully.

- Do not place the unit on an unstable surface, cart, or stand.

- Do not block the slots or openings on the unit which are provided for ventilation.

- Only use the power source indicated on the marking label. If you are not sure about your power source, contact the power company.

- The unit uses a three-wire grounded cable, which is supplied with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this type of plug, contact an electrician to replace the obsolete outlet.

- Do not place anything on the power cord. Place the power cord where it will not be stepped on.

- Follow all warnings and cautions in this manual and on the unit case.

- Do not push objects in the ventilation slots, as they may touch high voltage components and result in shock and damage to the components.

- When replacing parts, ensure that you use parts specified by the manufacturer.

- When service or repairs have been carried out, perform routine safety checks to verify that the system is operating correctly.

- Avoid using the system near water, in direct sunlight, or near a heating device.

- Cover the unit when not in use.

- Disassembly of this unit should not be attempted by unqualified persons. When the chassis cover is removed there is a danger of electric shock and risk of damage to the system.

- Do not attempt to lift or move this product alone. When moving this product, at least two people should lift it onto a suitable trolley or cart. When bolting the product into a rack, two people should hold the device in place while a third person bolts the device securely to the rack.

Table of Contents

Chapter 3:   Replacing Pre-installed Components

Appendix I: BIOS Differences

Appendix II: Cable Connection Tables

Appendix III: Installing the SMDC Card (Option)

Appendix IV: Installing Expansion Hard Drives (Option)

Technical Support

Chapter 1: Overview

1.1 About the TYAN Transport FT48-B4985

Congratulations on your purchase of the TYAN Transport^{TM} FT48-B4985, a highly-optimized rack-mountable barebone system. The Transport^{TM} FT48-B4985 is designed to support the latest four AMD® Opteron™ 8000 series 1207-pin processor, providing a rich feature set and incredible performance. Leveraging advanced technology from AMD®, the Transport^{TM} FT48-B4985 server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and a lightning-fast PCI-E bus implementation. The Transport^{TM} FT48-B4985 not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

Externally-accessible hot-swap SAS/SATAII hard drive bays provide high storage flexibility, while three Gigabit Ethernet ports deliver excellent network connectivity, and a 5.25" type 8x DVD-ROM drive comes as standard. These features make the Transport^{TM} FT48-B4985 a totally flexible solution for a wide range of advanced processing applications.

WARNING: This product is very heavy and should not be lifted by a single person. When installing this product in a rack, we recommend that at least two people lift the server while a third person guides it into place and tightens the fixings. Always use a suitable trolley or cart to transport the device.

1.2   Product Model

Model	Supported HDD type & quantity	Storage backplane	Power supply
B4985F48V8HR	SATA/SATA2 (8) (SAS ready)	8-port SAS/SATA	1140W (2+1) redundant, hot swap

B4985F48V8HR (Rackmount)

B4985F48V8HR (Tower)

1.3   Features

Enclosure
- Industry 19" rack-mountable 4U & Pedestal convertible chassis
- Storage bays
  -(3) 5.25" Driver bays
  -(8) 3.5" HDD bays
- Dimensions:
  -D 27.5 x W 16.8 x H 6.9 inch
  -D 700 x W 427 x H 176 mm

Processors
- Supports Quad AMD® 8000 Opteron™ Socket F processors

Chipset
- NVIDIA nForce Pro 2200 + 2050

Memory
- Sixteen (16) 240-pin DDR2 DIMM sockets (4 per CPU)
- Up to 64GB Registered DDR2 667/533/400 DIMMs
- Supports ECC and four rank memory modules

Expansion Slots
- Two (2) x16 PCI-E (x16 signal)
- Two (2) x16 PCI-E (x4 signal)
- One (1) PCI 32bit/33MHz slot
- Total five (5) usable expansion slots

Back I/O Ports
- Stacked PS/2 Mouse and Keyboard ports
- Stacked two (2) USB 2.0 ports
- One (1) COM1 connector
- One (1) 15-pin VGA port
- Stacked two (2) RJ-45 ports
- One (1) RJ-45 port

Front Panel Features
- I/O
  -(2) USB 2.0 ports
- LED indicators
  -Power LED
  -(2) LAN LEDs
  -HDD Active LED
  -ID LED
- Switches
  -Power, Reset, and ID switches

Integrated Storage Controller
- Supports eight (8) ports running up to 3.0Gb/s

Storage
- Supports eight (8) SATA/SATA2 HDD with RAID 1, 0, 1+0, 5
- Pre-installed (1) 5.25" type 8x DVD-ROM

Networking
- Total three (3) Gigabit Ethernet ports
  -Two (2) from Marvell 88E1111 GbE
  -One (1) from Intel 82541PI GbE

Video
- XGI XG20 graphics controller
- 16MB Frame Buffer of video memory

Motherboard
- TYAN Thunder S4985G3NR
- SSI footprint (13" x 16")

BIOS
- PhoenixBIOS 8Mbit LPC Flash ROM
- Serial Console Redirect
- USB device boot
- 48-bit LBA support
- ACPI 2.0 power management support
- Power management: S0, S1, S4, and S5

Server Management
- Automatic system fan speed control
- Chassis intrusion alert
- Supports TYAN Server Management (TSM) and TYAN LCM module
- TYAN SMDC M3291, IPMI v2.0 compliant remote server management kit (Option)

System Cooling
- (6) 120x120x38 mm, 4800rpm, hot-swappable redundant fans
- (4) Passive CPU heatsinks

Power Supply
- EPS 12V, 1140W (2+1) redundant
- 100V~240V AC input

Regulatory
- FCC Class B (Declaration of Conformity)
- CE (Declaration of Conformity)
- VCCI
- C-Tick

Environment
- Operating temperature 5ºC ~ 35ºC
- Non-operating temperature -40ºC ~ 70ºC

1.4   Unpacking

This section describes the FT48-B4985 package contents and accessories.Open the box carefully and ensure that all components are present and undamaged.

1.4.1   Box Contents

Component	Description
	Industry standard 4U chassis with eight HDD bays and three further 5.25-inch device bays
	Tyan Thunder n4250QE S4985G3NR motherboard (pre-installed)
	DVD-ROM drive (pre-installed)
	Two M1211-P SAS/SATA backplanes (pre-installed)
	M1007 LED control board (pre-installed)
	M1014 FAN control board (pre-installed)
	2+1 Redundant PSU / Total 1140W
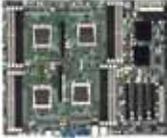
Component	Description
	(6) system cooling fans (pre-installed) 120 x 120 x 38 mm

1.4.2   Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN's Web site for service: http://www.tyan.com.

The Web site also provides information on other TYAN products, plus FAQs, compatibility lists, BIOS settings, and more.

TYAN Driver CD

**Power Cables
US x 3; Europe x 3**

4 x CPU Heatsinks

**4 x Chassis foot stands
(including four screws)**

**Barebone Manual &
Mainboard Manual**

Keys

TYAN Logo

FDD Cable

HDD Screws

FDD Front Panel

**5 x Long Card Holders
(including five screws)**

**Security Tab
(including two screws)**

Sliding Rail Kit

Rail assembly

**2 x Mounting Ears
(including six screws)**

**Screws &
Small Brackets**

1.5   About the Product

This section contains hardware diagrams and a block diagram of the FT48-B4985 system.

1.5.1   System Front View and Front Panel

See the diagram below for details of the front panel indicators and switches.

Power button

Reset button

ID button   USB ports

ID LED

LAN2 LED

LAN1 LED

Power LED

HDD/IDE LED

Hotswap HDD bays
(Left to right: HDD1~HDD8)

LED control panel

DVD-ROM

SAS Fail LED (reserved
for SAS add-on card)

HDD Power /
Access LED

5.25-inch
device
bays

1.5.2 System Rear View

Redundant power supply

Security slot

USB ports

VGA port

LAN1 port

ID LED

Expansion slots

Stacked keyboard and mouse ports **Serial port (COM 1)** **LAN2 port** **LAN3 port** **AC input**

Redundant PSU reset button

NOTE: The buzzer sounds during power failure or abnormal condition. Press the Redundant PSU reset button to return the power supply units to their default states.
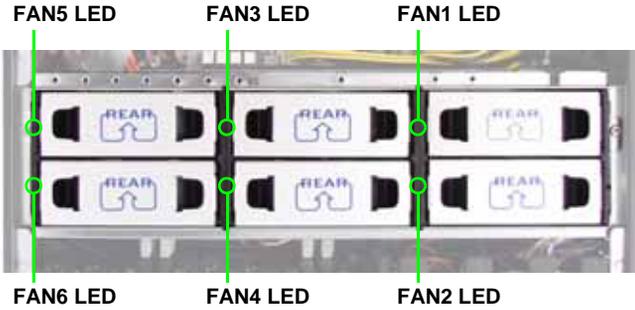
On the rear of the FT48-B4985, two screw holes are available for you to secure the chassis lid with two screws. By default, the unit has no screws secured from the rear.

1.5.3 System Top View for FAN LEDs

FAN5 LED   **FAN3 LED**   **FAN1 LED**

FAN6 LED   **FAN4 LED**   **FAN2 LED**

LED	Color	Description
FAN1/FAN2/FAN3/FAN4/FAN5/FAN6 LED	Green	Fan is functioning normally.
	Red	Fan fail.

1.5.4 Front LEDs

LED	Color	State	Description
Power	Green	ON	Power ON
	OFF	OFF	Power OFF
HDD/ IDE	Green	Blinking	HDD/ DVD-ROM access activity
	OFF	OFF	No disk activity
LAN1/ LAN2 Activity	Green	Blinking	LAN accessing
	OFF	OFF	No LAN linked
ID LED	Blue	ON	System is identified
	OFF	OFF	System is not identified
Hot Swappable HDD Power/ Access LED	Green	ON	Power connected
	Green	Blinking	SATAII/ SAS HDD access activity
	OFF	OFF	Power disconnected
Hot Swappable HDD SAS Fail LED	Amber	ON	SAS HDD fail (reserved for SAS add-on card)
	OFF	OFF	No failure found

1.5.5 Rear I/O LEDs

LED	Status	Color	Description
RJ45 Linkage/ Activity (Left Side)	Green	ON	10Mb/100Mb/1000Mb linked
	Green	Blinking	10Mb/100Mb/1000Mb activity
	OFF	OFF	No LAN linked
RJ45 Linkage/ Activity (Right Side)	Yellow	ON	1000Mb linked/ activity
	Green	ON	100Mb linked/ activity
	OFF	OFF	10Mb mode or No LAN linked
ID LED	Blue	ON	System is identified
	OFF	OFF	System is not identified

1.5.6 Motherboard Layout
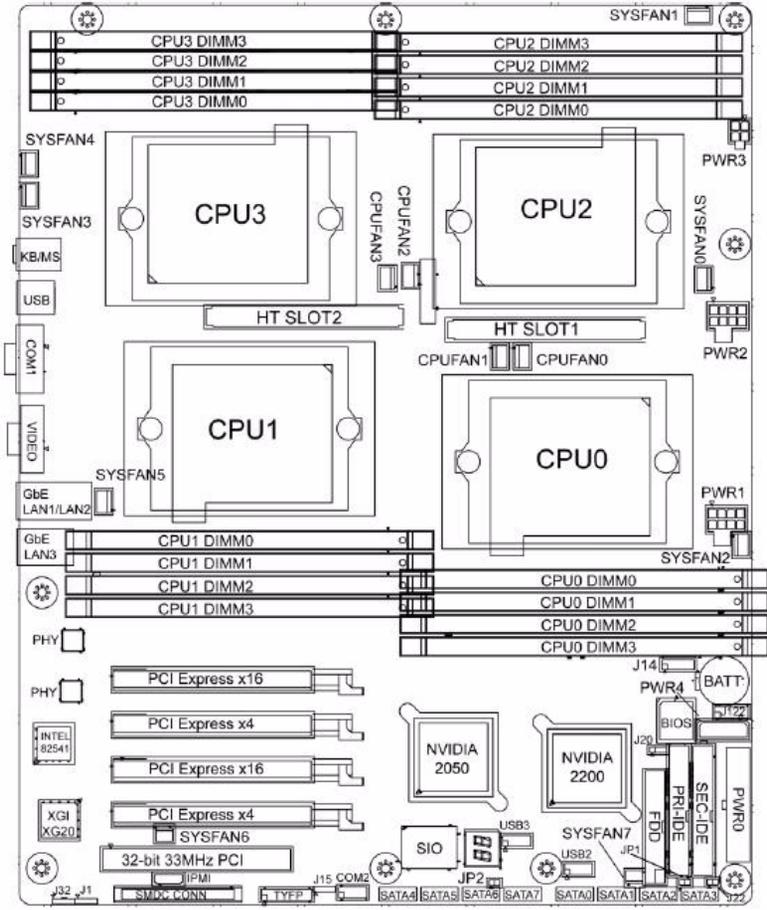
1.5.7   Jumpers & Connectors

| Jumper/Connector	Function
J1	SMBUS Connector
J14	Fan Connector (for barebone use only)
J20	Clear CMOS Jumper - Pin 2-3 closed: Normal (Default) - Pin 1-2 closed: Clear
J22	NMI Header
J30/J95	USB Front Panel Connector J30: USB2 J95: USB3
J101	COM2 Header
J115	Front Panel Header
JP1	RI Header
JP2	Intruder Header
CPUFAN0/1/2/3	CPU Fan Connectors
SYSFAN0/1/2/3/4/5/6/7	Chassis Fan Connectors
SATA0/1/2/3/4/5/6/7	Serial ATA RAID Connectors

1.5.8 Motherboard Block Diagram
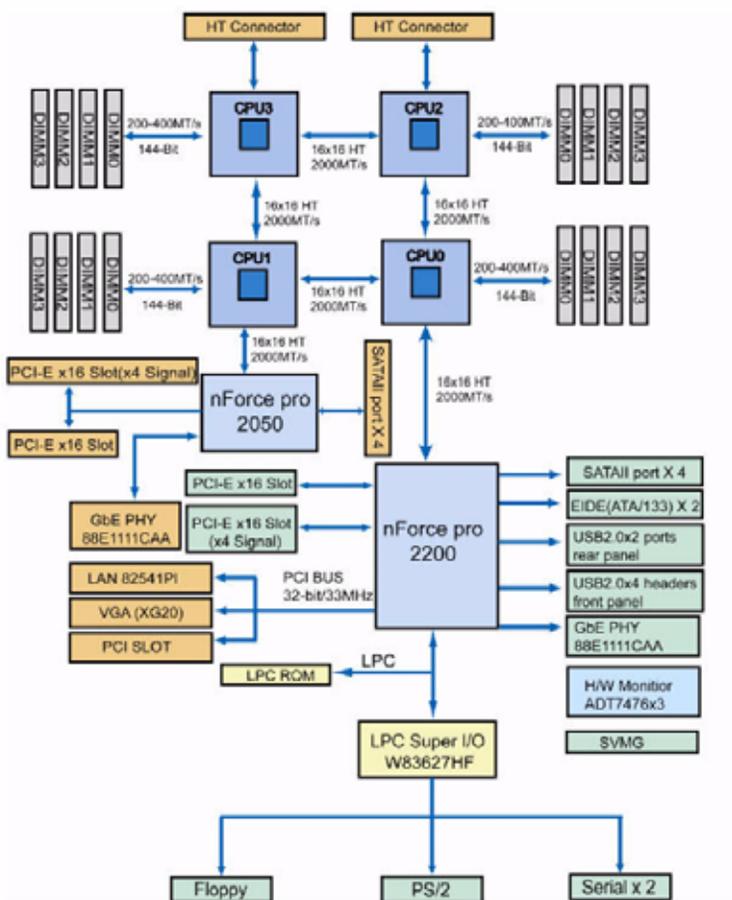
Thunder n4250QE S4985G3NR Block Diagram

1.5.9 System Internal View
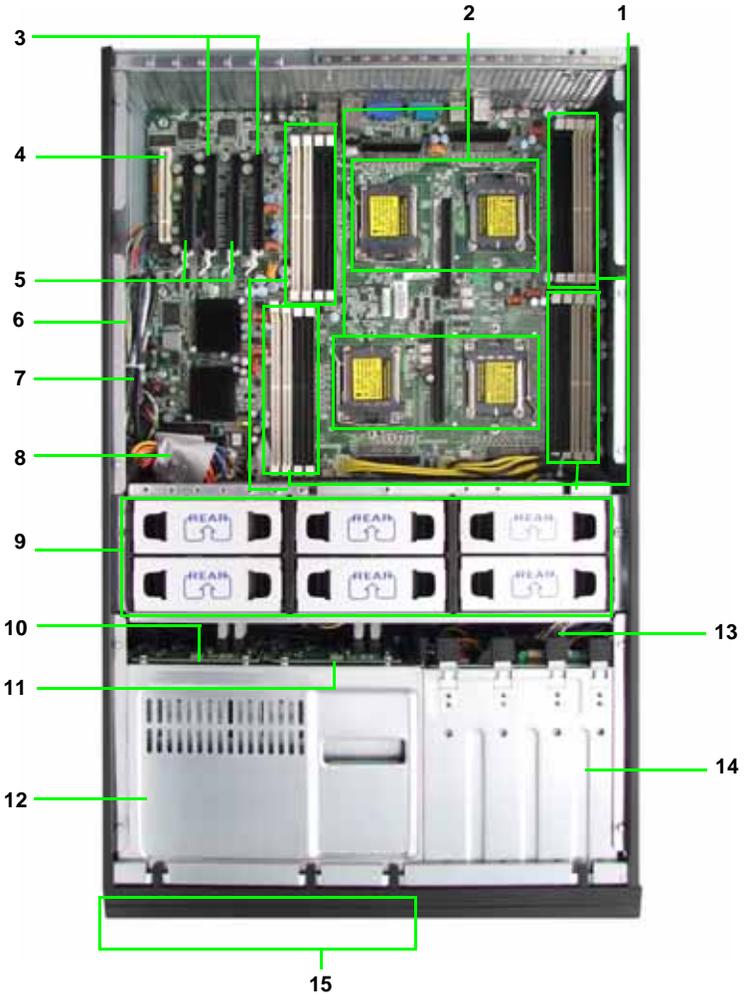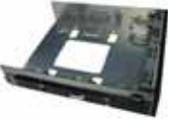

1. Memory slots
2. CPU sockets
3. PCI-E x16 slots
4. PCI slot
5. PCI-E x4 slots
6. SAS/SATA cables
7. USB cable
8. DVD-ROM Cable
9. System fans

Top (right to left): FAN1/3/5
Bottom (right to left):
FAN2/4/6
10. SAS/SATA backplane 1
11. SAS/SATA backplane 2
12. Hard disk drive cradle
13. Front panel control cable
14. Cradle for 5.25-inch devices
15. Eight (8) SAS/SATA HDD
    trays

1.5.10 FRU List

Item	Model Number	Picture	Quantity	Description
Standard Parts				
Motherboard	S4985		1	TF-Motherboard; Tyan S4985
Chassis Unit	CCHA-0180		1	TF-CHASSIS UNIT; FT48 for AMD 4P
Power Supply	CPSU-0135		3	FT-PWR ASSY; 600W, M1W-5600P, ZIPPY
	CPSU-0131		1	TF-PWR ASSY; 1140W, M1W3-5000, ZIPPY, PSU HOUSING
FAN	CFAN-0180		6	TF-FAN; FT-FAN ASSY; 120CM FAN, 12V, 4800RPM, DELTA, 4-pin
Heat Sink & Cooler	CHSK-0250		1	TF-HEATSINK; AL, CPU HEATSINK, WITH HEAT PIPE SOLUTION FOR
Air Duct	CADT-0150		1	TF-AIR DUCT; PC+ABS, FT48
Peripheral Drives & Parts	CDVD-0050		1	TF-DVD DRIVE; DV-516GA, TEAC
Backplane	M1007		1	TF-Front Panel Board
	M1211-P		2	TF-FT48 SAS back-plane, 4-port, dual host
	M1014		1	TF-FAN control board, M1014, Antrada

Item	Model Number	Picture	Quantity	Description
Rack Mounting Part	CRAL-0070		1	TF-28" RAIL ASSY; WITH PACKING for FT48
	CRBK-0021		1	TF-FT48_HANDLE _BKT_L_ASSY
	CRBK-0020		1	TF-FT48_HANDLE _BKT_R_ASSY
Cable Set	CCBL-0670		2	TF-CABLE ASSY; L=650MM, SAS CABLE 7PX4, FT48
	CCBL-0710		1	TF-LED CONTROL BOARD CABLE 28P TO 26PX1, 6PX2, L=850MM
	CCBL-0180		1	TF-CABLE ASSY; L=870MM, USB CABLE, 10 PIN TO 10 P, FT48
	CCBL-0441		1	TF-CABLE ASSY; FDD STANDARD 34-P CABLE, L=570MM
	CCBL-0437		1	TF-CABLE ASSY; CD-ROM FLAT CABLE 2H 40P/40P, L=650MM
	CCBL-0438		1	TF-CABLE ASSY; CD-ROM FLAT CABLE 3H 40P, L=850MM
	CCBL-1010		1	TF-CABLE ASSY; FAN CABLE 22P TO 14P
	CCBL-0310		3	TF-PWR CORD; US, 125V, 18AWGX3C
	CCBL-0300		3	TF-PWR CORD; EU, 250V, H05VV-FX3C

Item	Model Number	Picture	Quantity	Description
Optional Parts				
Peripheral Drives & Parts	CHDT-0100		1	TF-FT48 Dummy CD-ROM Tray Assy
	CFDD-0010		1	TF-3.5" FDD, black, Mitsumi D353M3D
LCD Module	CLCM-0060		1	TF-LCD module kit for FT series 4U chassis

Chapter 2: Setting Up

2.1   Before You Begin

This chapter explains how to install motherboard compo-
nents, including CPUs, CPU heatsinks, memory modules,
and PCI cards. There are also instructions in this section for
installing SATA/SAS hard drives.

Take note of the precautions mentioned in this section when
installing your system.

2.1.1 Work Area

Make sure you have a stable, clean working environment.
Dust and dirt can get into components and cause malfunc-
tions. Use containers to keep small components separated.
Putting all small components in separate containers prevents
them from becoming lost. Adequate lighting and proper tools
can prevent you from accidentally damaging the internal
components.

2.1.2 Tools

The following tools will be required to complete the installa-
tions described in this chapter.

- A cross head (Phillips) screwdriver
- A grounding strap and/or anti-static pad

Most of the electrical and mechanical connectors in your sys-
tem can be disconnected using your fingers. It is recom-
mended that you do not use needle-nosed pliers to remove
connectors as these can damage the soft metal or plastic
parts of the connectors.

2.1.3 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport FT48-B4985 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, or leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

- Always use the correct size screws and fixings when installing or replacing components.

Notes:
- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

2.2   Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPUs, memory modules and expansion cards.

2.2.1   Removing the Chassis Cover

Follow these instructions to remove the Transport FT48-B4985 chassis cover. This step is required before any other procedures in this chapter can be undertaken.

1. If the chassis lid is secured with two screws from the rear of the unit, remove them first. See "System Rear View" on page 9 for the screw locations.

2. Press the button on the release catch and lift the catch. Slide the chassis lid back slightly.

3. Lift the lid free from the chassis.

Follow the steps above in reverse to refit the chassis cover.

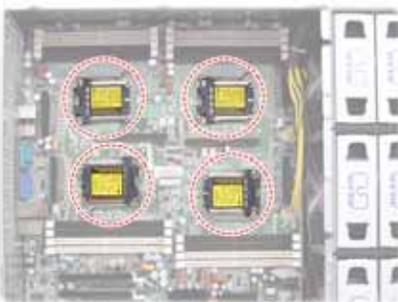### 2.2.2 Installing the CPUs and Heatsinks

Follow these instruction to install the CPU and CPU heatsink.

NOTE: The system supports up to four CPUs. CPU0 must be installed first followed by CPU1, CPU2, and CPU3.

1. Remove the two screws securing the pre-installed air duct.
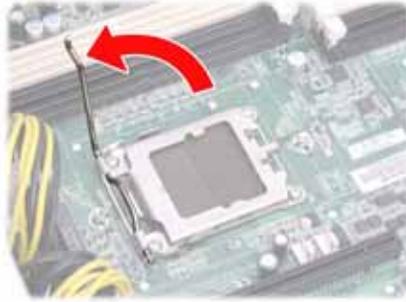

2. Remove the air duct and locate the four CPU sockets on the motherboard.

3. Take off the CPU protection cap.

4. Lift up the CPU lever to unlock the socket.

5. Open the socket in the direction as illustrated.

6. Place the CPU in the socket as shown, making sure that pin 1 is located correctly.

NOTE: The CPU will only fit in the socket one way. No force should be required to insert the CPU.
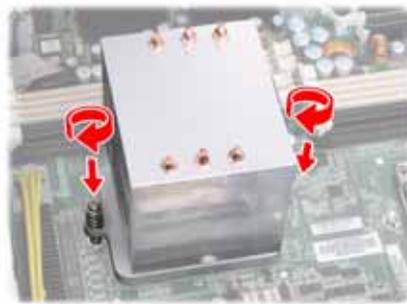
7. Close the socket cover to lock the CPU in place, and press the CPU lever down in the direction shown to secure the CPU.

8. Remove all packaging from the new heatsink while being careful of the pre-applied thermal grease.

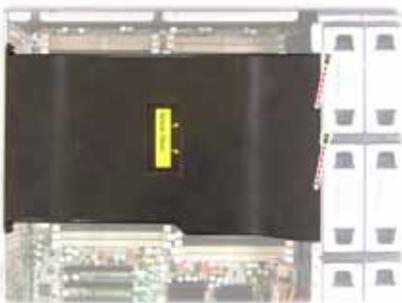9. Place the fan and heatsink on top of the CPU and attach with two screws as shown.

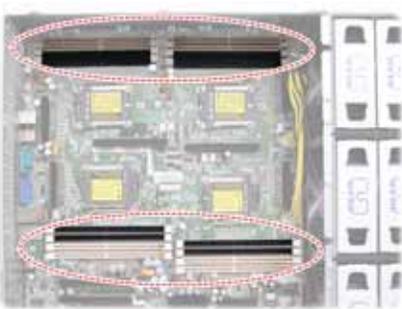10. Repeat these steps to install the other CPUs.

2.2.3 Installing the Memory

Follow the instructions in this section to install memory modules in your FT48-B4985 system.

1. Remove the two screws securing the pre-installed air duct.

2. Remove the air duct and locate the memory slots on the motherboard.

3. Press the memory slot locking levers in the direction of the arrows as shown below.

4. Align the memory module with the slot. The module has indentations that align with notches in the slots.
5. Insert the memory module into the slot as shown.

When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module.

NOTE: Each bank memory of sockets is associated with one CPU. Memory will be recognized only when installed in a socket associated with an installed CPU.

Attention When Installing the Memory!

Refer to the following table for supported DDR2 populations.

	Single (CPU0 only)		Dual (CPU 0 and CPU1)		Four (CPU0, CPU1, CPU2, and CPU3)	
CPU0DIMM0		X		X		X
CPU0DIMM1		X		X		X
CPU0DIMM2	X	X	X	X	X	X
CPU0DIMM3	X	X	X	X	X	X
CPU1DIMM0				X		X
CPU1DIMM1				X		X
CPU1DIMM2			X	X	X	X
CPU1DIMM3			X	X	X	X
CPU2DIMM0						X
CPU2DIMM1						X
CPU2DIMM2					X	X
CPU2DIMM3					X	X
CPU3DIMM0						X
CPU3DIMM1						X
CPU3DIMM2					X	X
CPU3DIMM3					X	X

NOTE:
1. X indicates a populated DIMM slot.
2. Always install memory DIMMs in pairs starting from the CPU0_DIMM2 and CPU0_DIMM3.
   You can choose to install single, dual or four memory modules.

2.2.4 Installing the PCI-E/PCI Cards

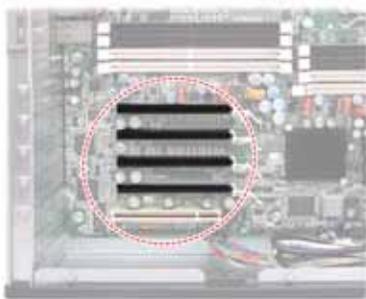The FT48-B4985 has seven PCI card slots:

2 x PCI-E x16 slots

2 x PCI-E x4 slots

1 x PCI slot

Follow the instructions in this section to install to install any of the above kinds of PCI cards in your FT48-B4985 system.

1. Locate the PCI-E/PCI card slots on the motherboard. See "System Internal View" on page 15 for the PCI-E/PCI slot locations.

2. Unscrew the blanking plate from the slot you want to use.

3. Lift up the blanking plate.

4. Insert a PCI-E/PCI card into an appropriate slot, making sure it is firmly seated. Secure it with the screw removed in step 2.

2.3   Installing Hard Drives

The FT48-B4985 supports eight, hot-swappable SAS or SATA hard drives. The unit is shipped with eight hot-swap bays and two SATA backplanes.

Hotswap HDD bays
(Left to right: HDD1, HDD2, HDD3, HDD4, HDD5, HDD6, HDD7, HDD8)
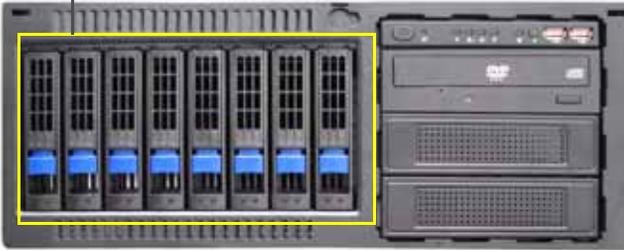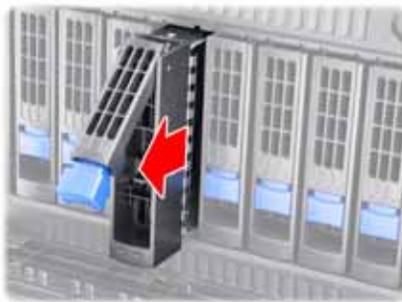
Follow these instructions to install a hard drive.

1.   Press the release clip (**A**) and pull the release lever up to unlock the drive tray from the chassis (**B**).

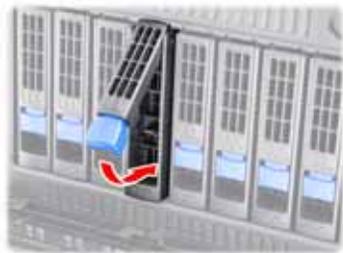2.   Pull the empty drive tray from the chassis.

3. Place a SAS or SATA hard drive in the drive tray.

4. Secure the hard drive in place using four HDD screws.

5. Insert the drive tray back into the chassis and push the locking lever into place to secure it.

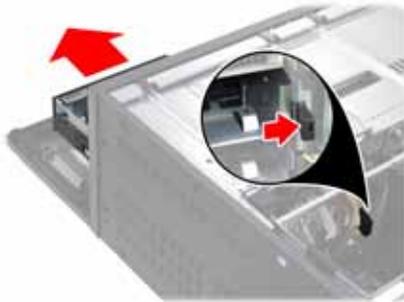## 2.4   Installing the Expansion DVD-ROM (Option)

To install the expansion DVD-ROMs, you need to remove the following four fans first. Follow the steps as instructed below.

1. Remove the FAN1, FAN2, FAN3, and FAN4 in the direction of the arrow from the chassis.
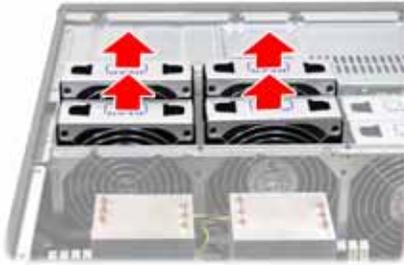
2. Unfasten an empty drive bracket from the chassis in the direction of the arrow shown.

3. Remove the two rails from the drive bracket.

4. Attach the two rails removed from the drive bracket to the DVD-ROM with eight screws.

5. Slide the second DVD-ROM into the chassis.

6. Connect the power and DVD-ROM cables reserved in the system to the rear of the second DVD-ROM drive.

7. To install the third DVD-ROM, repeat the steps 2 to 4.

8. Slide the third DVD-ROM into the chassis.

9. Connect the power and DVD-ROM cables reserved in the system to the rear of the third DVD-ROM drive.

2.5   Installing the Floppy Disk Drive (Option)

To install a floppy disk drive, you need to remove the following four fans first. Follow the steps as instructed below.

1. Remove all the fans in the direction of the arrow from the chassis.

2. Remove the two screws securing the fan cradle to the chassis.

3. Remove the fan cradle as instructed to reveal the fan control board.

4. Unfasten an empty drive bracket from the chassis in the direction of the arrow shown.

5. Use a thin tool such as a flat screwdriver to pry open the front panel of the drive bracket as indicated.

6. Remove the front panel and the inner piece as shown.

7. Install the FDD front panel to the front of the bracket.

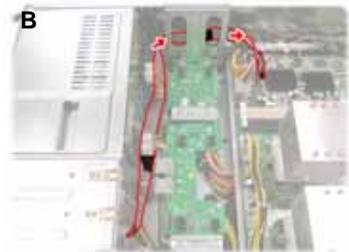8. Place a FDD in the drive bracket.

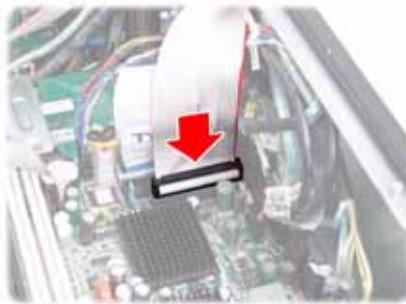9. Secure the FDD in place using four screws.

10. Slide the FDD with the drive bracket back into the chassis.

11. Connect one end of the supplied FDD cable and the power cable to the rear of the FDD (A). Pass the other end through the space behind the metal plate as shown below (B).

12. Connect the other end of the FDD cable to the connector on the motherboard.

2.6 Installing the LCM Kit (Option)

To install a LCM kit, you need to remove all the fans, fan cradle, and unfasten an empty drive bracket from the chassis first. Refer to the first four steps given in "2.5 Installing the Floppy Disk Drive (Option)". Then, do the following:

1. Install the LCD module as shown.

2. Connect the following cables to the M1000 LCD module as shown.

    a. 4-pin power supply cable to M1000 J6 connector.
    b. LCD cable to M1000 J3 2x3 pin connector.

NOTE: M1000 pin 2-3 of JP1 and JP2 should be closed.
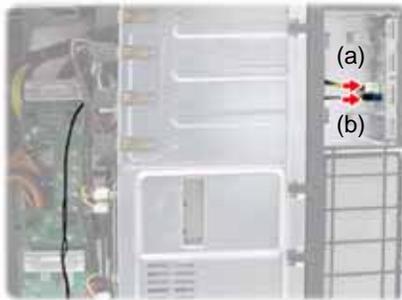
3. Slide the LCM kit into the chassis.

4. Connect the other end of the LCD cable to the COM2 header (J101) on the motherboard.

2.7   Installing the Long Cards

Follow these instructions to install the long card holders and long cards in your FT48-B4985.

1. Locate the holes to secure the long card holders on the fan cradle.

2. Secure the supplied long card holder to the fan cradle with one screw.

3. Insert a long card into the holder as shown.
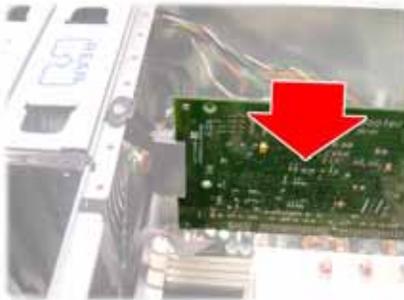
2.8   Tower

The FT48-B4985 can be used as a standalone device when fitted with the supplied plastic feet. When used as a standalone device, the feet must be fitted to prevent the unit from falling over. Follow the steps below to rotate all the drives to the tower position first.

2.8.1   Installing the 5.25" Devices in Tower Position

Before changing all the 5.25" devices to the tower position, you need to remove the following four fans first. Follow the steps as instructed below.

1. Remove the FAN1, FAN2, FAN3, and FAN4 in the direction of the arrow from the chassis.

2. Disconnect all the cables from the devices placed in the 5.25" bays as shown.

3. Unfasten the installed drives or the empty drive brackets from the chassis in the direction of the arrow shown.

4. Slide all the drives or the brackets out of the chassis.
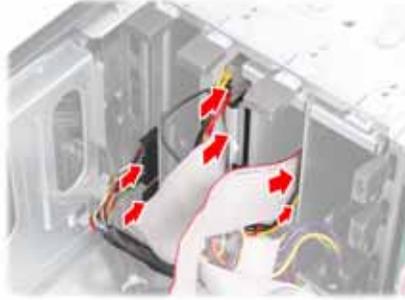
5. Slide all the drives or the brackets back into the chassis vertically.

6. Replace all the cables to the devices as shown.

7. Remove the front bezel from the door assembly and rotate it 90 degrees clockwise as shown.

8. Fit the front bezel back into position.

2.8.2   Installing Chassis Foot Stands

The four feet should be attached as follows:

1.   Each foot consists of two
     pieces. Insert the round piece
     of the foot into the larger foot
     section. The small plastic tab
     on the round piece should fit
     into the curved slot on the
     other piece.

Curved slot

**Tab fits in
curved slot**
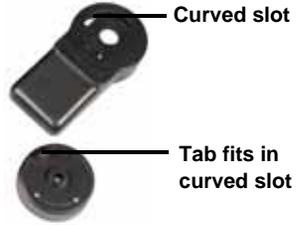
2.   Use a single screw
     through the center of the
     round section to fasten
     the foot assembly to the
     bottom of the chassis.
     The plastic tab that
     protrudes through the
     curved slot should fit into
     an indent in the chassis

case. When fitted, each foot should rotate about 90°.

3.   Fit all four feet in the same way.

NOTE: When using as a standalone unit, all four feet should
be fitted and extended fully to prevent instability.

2.9 Rack Mounting

After installing the necessary components, the Transport FT48-B4985 can be mounted in a standard rack using the sliding rail kit.

Sliding rail kit

Rail assembly x 2

Mounting ears x 2

Screws kit x 3

2.9.1 Installing the Server in a Rack

Follow these instructions to mount the FT48-B4985 into an industry standard 19" rack.

NOTE: Before mounting the Transport FT48-B4985 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. Maintenance can be performed on the unit while in a rack but it is preferable to install the device in a fully operational condition.

Screws List

No.	Screw	Size	Quantity
A		Bracket for M6 screw	10
B		M6	10
C		M4-L5	16

Installing the Inner Rails to the Unit

1. Remove the black panels from the left side of server to reveal the rail mounting screwholes beneath.

2. Screw the mounting ears to each side of the FT48-B4985 as shown using three M4-L5 screws (C) from the supplied screws kit.

3. Draw out the inner rails from each rail assembly. Install the inner sliding rails to each side of the server using five M4-L5 screws (C).

Installing the Outer Rails to the Rack

4. Measure the distance between inner side of the front and rear mounting brackets in the rack.

5. Adjust the outer rails to fit the length of the rack (the distance measured in step 4). The sliding brackets have long slits to allow them to be fixed to the other part of the rails in various positions.
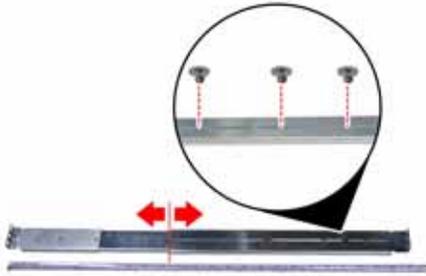
6. Install the two small brackets (A) to each mounting bracket (front x 2, rear x 2) in the rack.
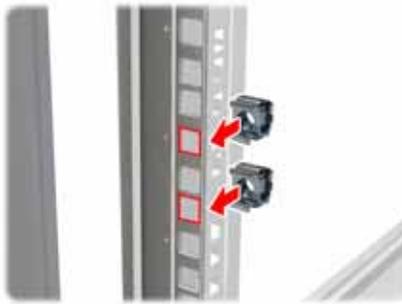
7. Secure the outer rails to the rack using four M6 screws (B) for each side. Secure the mounting brackets from outside, not inside, of the rack.

Rackmounting the Server

8. Draw out the middle rail to the latch position.
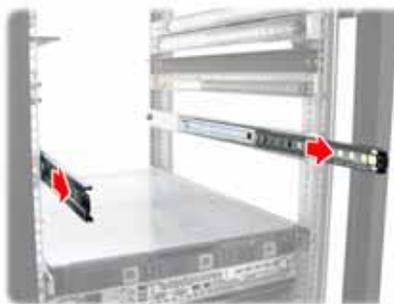
9. Lift the unit and then insert the inner slide rails into the middle rails.

10. Push the unit in and press the latch key.

11. Push the whole system into the rack.

12. Secure the mounting ears of the unit to the rack using two small brackets (A) and M6 screws (B).
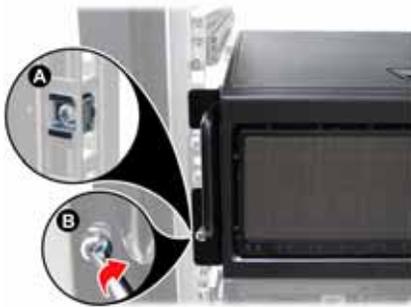
Notes:

• When the rails are extended, they will lock. To shorten the rails again, you will need to operate the release mechanism in each rail.

• To avoid injury, it is strongly recommended that two people lift the FT48-B4985 into the place while a third person screws it to the rack.

2.10   Opening the Chassis Front Bezel

1. Insert the front bezel key (packed in a bag in the accessory box) and rotate the key 90 degrees counterclockwise to unlock the front bezel.

2. Pull the front bezel in the direction of the arrow to open.

2.11   Installing the Security Tab

1. Insert the supplied security tab into the security slot from
    the rear of the FT48-B4985 as shown below.
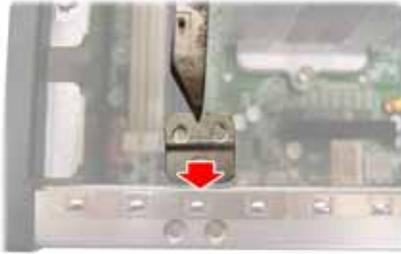
2. Secure the security tab with two screws.
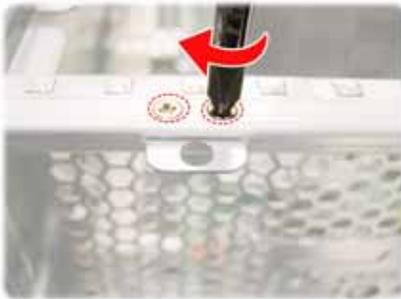
3. Now you can lock the FT48-B4985 chassis with a
    padlock using the opening from the security tab.

Chapter 3: Replacing Pre-installed Components

3.1   Introduction

This chapter describes how to replace all the pre-installed components of your FT48-B4985, including the motherboard, SAS/SATA backplane, LED control board, DVD-ROM, power supply, cooling fans, and fan control board.

Take note of the precautions in this section when installing your system.

3.1.1 Work Area

Make sure you have a stable, clean working environment. Dust and dirt can get into components and cause malfunctions. Use containers to keep small components separated. Putting all small components in separate containers keeps them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

3.1.2 Tools

The procedures that follow require only a few tools, including the following:

- A cross head (Phillips) screwdriver
- A grounding strap or an anti-static pad

Most of the electrical and mechanical connections can be disconnected using your fingers. It is recommended that you do not use needle-nosed pliers to remove connectors as these can damage the soft metal or plastic parts of the connectors.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the FT48-B4985 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.

- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.

- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.

- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.

- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.

- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

Notes:
- All connectors are keyed to only attach one way.
- Always use the correct screw size as indicated in the procedures.

3.2   Disassembly Flowchart

The following flowchart outlines the disassembly procedure.

```
        ┌──────────────────────┐
        │   Rear Components     │
        └──────────────────────┘
         │                    │                       ┌──────────────┐
         ▼                    ▼                        ▼              │
┌──────────────────┐  ┌──────────────────┐      ┌──────────┐         │
│ Redundant Power  │  │ Chassis top cover│      │  DIMMs   │         │
└──────────────────┘  └──────────────────┘      └──────────┘         │
                              │                        ▼              │
                              ▼                ┌──────────────────────┐│
                      ┌──────────────┐         │ Heatsink/CPU assembly││
                      │  Mainboard   │────┐    └──────────────────────┘│
                      └──────────────┘    │            ▼               │
                                          │    ┌──────────────────┐    │
                                          └────│    PCI card      │    │
                                               └──────────────────┘    │
                                                       ▼
                                               ┌──────────────────┐
                                               │   Mainboard      │
                                               └──────────────────┘
```

```
        ┌──────────────────────┐
        │   Front Components    │
        └──────────────────────┘
                    ▼
        ┌──────────────────┐
        │ Chassis top cover│
        └──────────────────┘
                    ▼
     ┌──────────────┼──────────────┐
     ▼              ▼              ▼
┌──────────┐  ┌──────────┐   ┌──────────┐
│ DVD-ROM  │  │  PCBs    │   │   FAN    │
└──────────┘  └──────────┘   └──────────┘
                    │
     ┌──────────────┼──────────────┐
     ▼              ▼              ▼
┌──────────────┐ ┌──────────────┐ ┌──────────────┐
│Control Board │ │  Fan Board   │ │  HDD Board   │
└──────────────┘ └──────────────┘ └──────────────┘
```
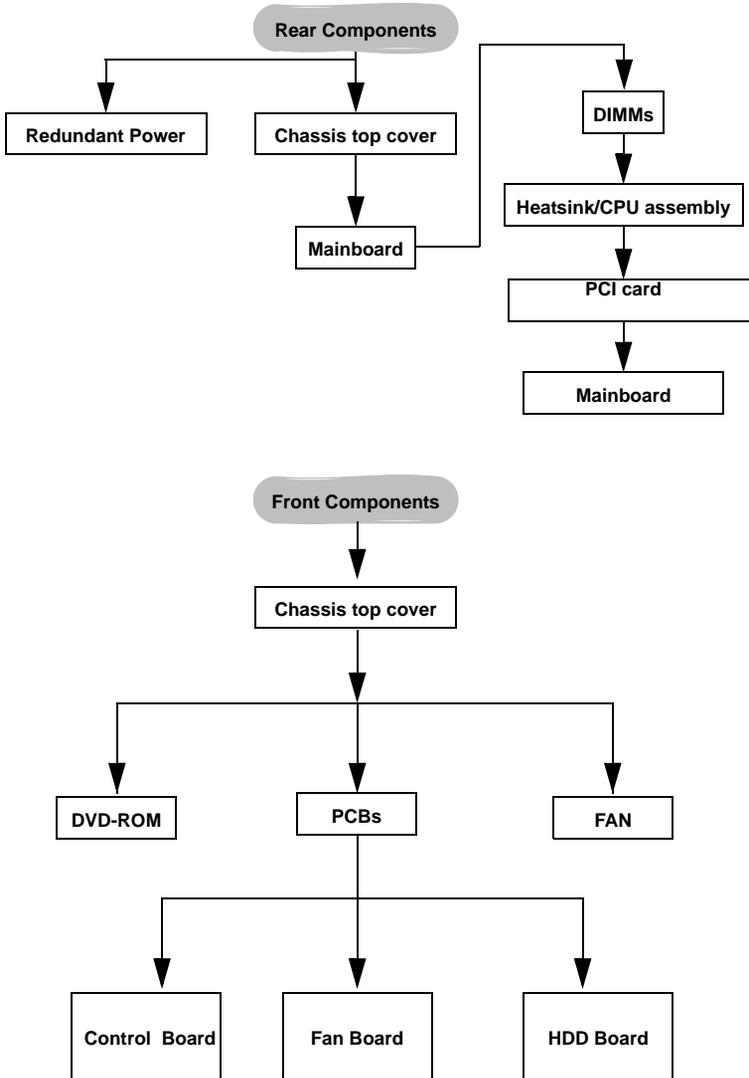
Note: The Transport FT48-B4985 should be always powered off before disassembly.

3.3   Removing the Chassis Cover

Follow these instructions to remove the Transport FT48-B4985 chassis cover. This step is required before any other procedures in this chapter can be undertaken.

1. If the chassis lid is secured with two screws from the rear of the unit, remove them first. See "System Rear View" on page 9 for the screw locations.
2. Press the button on the release catch and lift the catch. Slide the chassis lid back slightly.

3. Lift the lid free from the chassis.

Follow the steps above in reverse to refit the chassis cover.

3.4   Removing the Front Door Assembly

A door is supplied with the FT48-B4985 that can be used when the unit is rack mounted or standalone. Follow these instructions to remove the door.

1. Pull out the four fixing bars locking the door assembly onto the server.

2. Remove the door assembly from the four holes located on the lower edge of the server.

To replace the door assembly:

1. Tilt the door assembly and fit the four protruding tips into the holes located on the lower edge of the server.
2. Place the door assembly in place and make sure that the four fixing bars are locked onto the server.

3.5 Replacing Motherboard Components

Follow these instructions to remove motherboard components and replace the motherboard.

3.5.1 Disconnecting All Motherboard Cables

Before replacing the motherboard or certain components, remove cables connected to the motherboard. Follow these instructions to remove all motherboard cabling.

1. Disconnect all the power cables.

12V power

Main power

IDE power

EPS 12V power
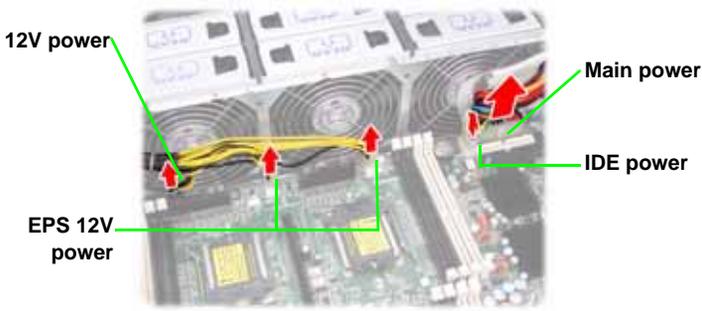
2. Disconnect the DVD-ROM drive cable, SAS/SATA hard drive cables, Fan cable, USB cable, and front panel LED cable.

SAS/SATA cables

DVD-ROM cable

Fan cable

USB cable

Front panel LED cable
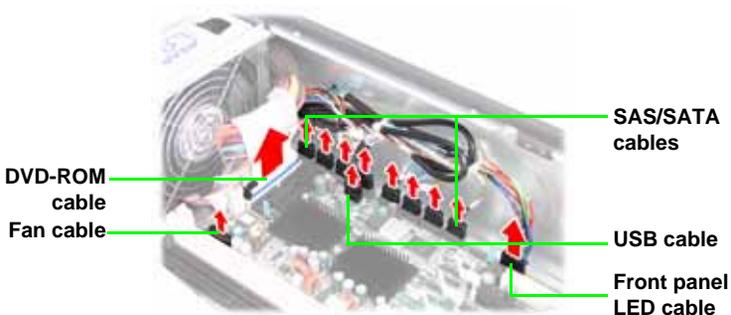
3.5.2 Replacing the Motherboard

After removing all of those cables, follow these instructions to replace the motherboard in your FT48-B4985.

1. Remove the heatsinks and processors if installed.
2. Remove the nine screws securing the motherboard to the chassis.

3. Carefully lift the motherboard from the chassis.

NOTE: The motherboard is fitted tightly into the chassis and will not lift straight out. You will need to lift one side of the board first and slide it out.

3.6   Replacing the Cooling Fans

The FT48-B4985 requires six chassis cooling fans. Follow these instructions to replace a cooling fan.

1. Remove the fan in the direction of the arrow from the fan cradle.

2. Replace a new fan into the fan cradle following the above steps in reverse.

3.7   Replacing the Fan Control Board

To replace a cooling fan, you need to remove all the fans and the fan cradle first. Refer to the first three steps given in "2.5 Installing the Floppy Disk Drive (Option)". Then, do the following:
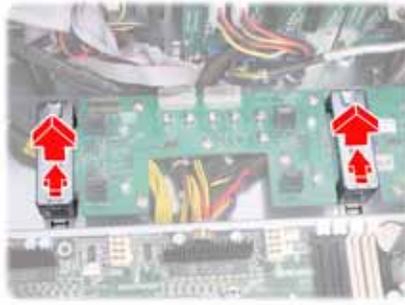
1. Disconnect the two power connectors and one fan tach cable from the fan control board.
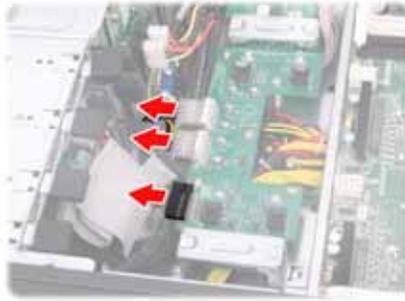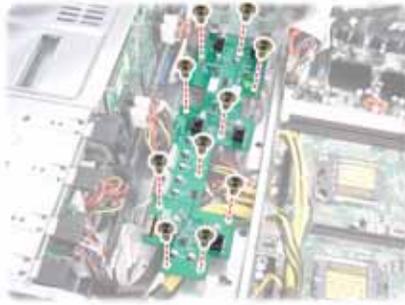
2. Remove the two screws securing the fixing brackets to the fan control board.

3. Remove the two fixing brackets as instructed for replacement of the fan control board.
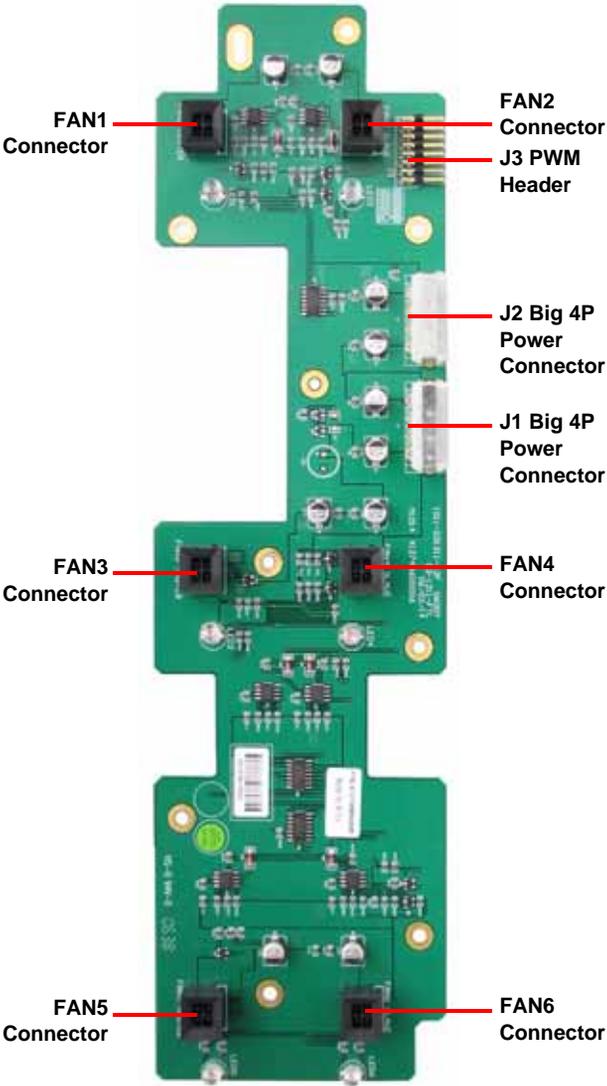

4. Remove the ten screws securing the fan board to the chassis.

5. After replacement, install the fixing brackets and secure the fan cradle in place following the above steps in reverse.

3.7.1   Fan Board Features

FAN1 Connector

FAN2 Connector

J3 PWM Header

J2 Big 4P Power Connector

J1 Big 4P Power Connector

FAN3 Connector

FAN4 Connector

FAN5 Connector

FAN6 Connector

3.7.2 Fan Board Connector Pin Definition

J3 and PWM Pin Header

1	FAN1 PWM	2	GND
3	FAN2 PWM	4	GND
5	FAN3 PWM	6	GND
7	FAN4 PWM	8	GND
9	FAN5 PWM	10	GND
11	FAN6 PWM	12	GND
13	FAN PWM INPUT	14	KEY PIN
15	MUTE+	16	GND

FAN1~FAN6 Fan Connector Pin Out

1	GND
2	VDD +12V
3	CLOCK
4	PWM

J1, J2 Big 4-pin Power Connector Pin Out

1	VDD +12V
2	GND
3	GND
4	VDD +5V

3.8   Replacing the SAS/SATA Backplane

To replace the SAS/SATA backplane, you need to remove all the fans and the fan cradle first. Refer to the first three steps given in "2.5 Installing the Floppy Disk Drive (Option)". Then, do the following:

1. Remove the SATA hot-swap HDD trays corresponding to the SAS/SATA backplane to be replaced from the FT48-B4985.

2. Disconnect all cables from the SAS/SATA backplane to be replaced.
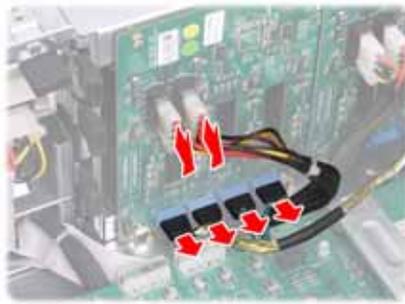
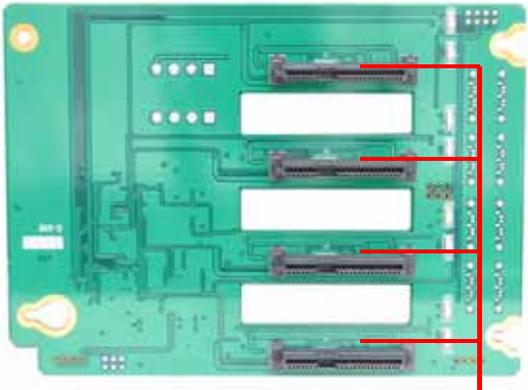3. Remove the screw holding the SAS/SATA backplane.

4. Lift the backplane from the chassis.

5. Place a new backplane in position and secure in place with one screw.
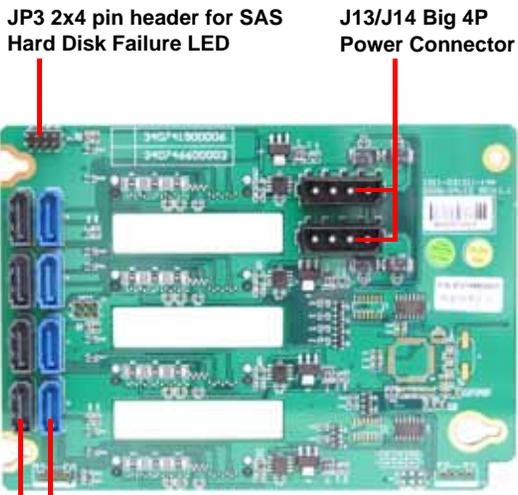6. Reconnect the power and data cables.

3.8.1 M1211-P SAS/SATA Backplane Features

Front View

**(Top to bottom) J1/J2/J3/J4 29 pin
SAS/SATA connectors**

Rear View

**JP3 2x4 pin header for SAS
Hard Disk Failure LED**

**J13/J14 Big 4P
Power Connector**

**(Top to bottom) J5/J6/J7/J8 (Default)
Primary 7 pin connectors**

**(Top to bottom) J9/J10/J11/J12 (SAS solution only)
Secondary 7 pin connectors**

3.8.2 M1211-P SAS/SATA Backplane Connector Pin Definition

JP3 SAS Hard Disk Failure LED Input (Reserved for SAS add-on card)

1	HDD AF+	2	HDD AF-
3	HDD BF+	4	HDD BF-
5	HDD CF+	6	HDD CF-
7	HDD DF+	8	HDD DF-

J13 and J14 Big 4-pin Power Connector Pin Out

1	VDD +12V
2	GND
3	GND
4	VCC +5V

3.9   Replacing the LED Control Board

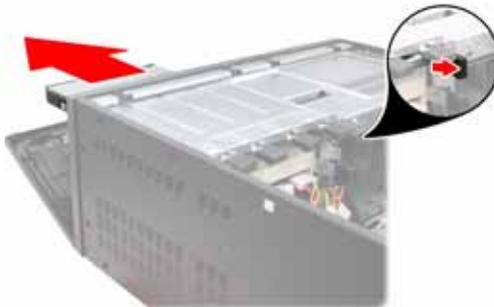Follow these instructions to replace the LED control board.

1. Remove the FAN2 in the direction of the arrow from the chassis.
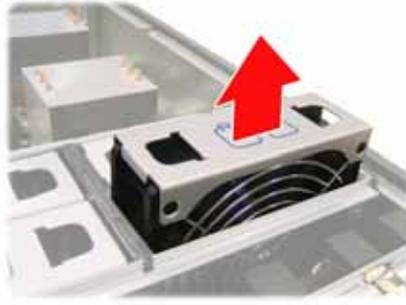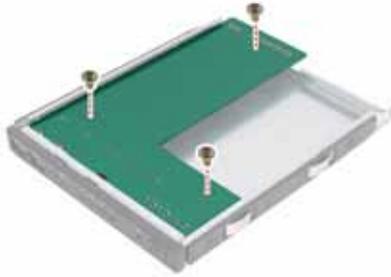

2. Remove all the cables from the LED control board.

3. Unfasten the LED module and slide it out as shown to lift it free of the chassis.

4. Remove the three screws securing the LED control board to the bracket.

5. Slide the LED control board from the bracket as shown.

6. After replacement, insert and secure the unit to the chassis following the above steps in reverse.
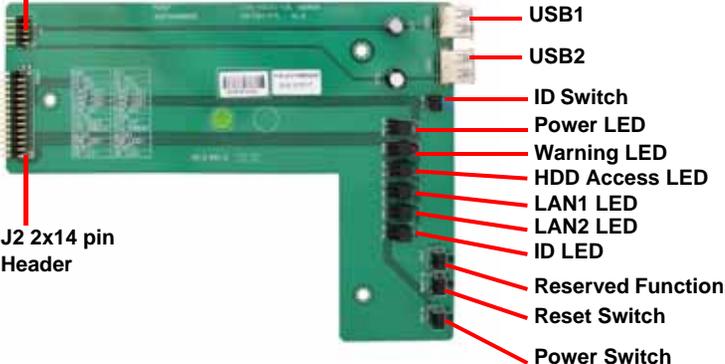
3.9.1 M1007 LED Control Board Features

J1 USB 2x5 pin Header

USB1

USB2

ID Switch

Power LED

Warning LED

HDD Access LED

LAN1 LED

LAN2 LED

ID LED

J2 2x14 pin Header

Reserved Function

Reset Switch

Power Switch

3.9.2   M1007 LED Control Board Connector Pin Definition

J1 2 x 5 Pin USB Header

1	VCC +5V	2	VCC +5V
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	GND	8	GND
9	KEY PIN	10	GND

J2 2 x 14 Pin Connector

1	HD_LED+	2	HD_LED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMBCLK
11	EXT_INT	12	VOLTAGES
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED+
19	LAN2_LED+	20	LAN2_LED+
21	LAN3_LED+	22	LAN3_LED+
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

3.10   Replacing the DVD-ROM

To replace the DVD-ROM, you need to remove the following
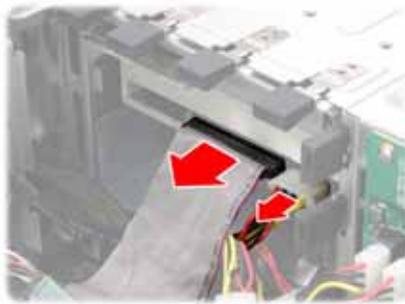four fans first. Follow the steps as instructed below.

1. Remove the FAN1, FAN2, FAN3, and FAN4 in the direc-
    tion of the arrow from the chassis.
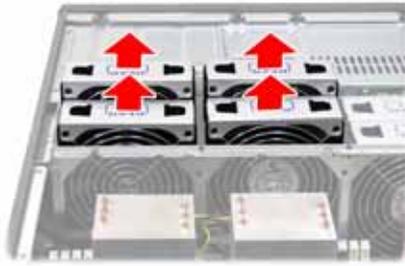
2. Remove the power and DVD-ROM cables from the rear
    of the DVD-ROM drive.

3. Unfasten the DVD-ROM drive and slide it out of the
    chassis in the direction of the arrow shown.

4. Remove the eight screws securing the two DVD-ROM rails to the drive.

5. After replacement, insert the unit to the chassis following the above steps in reverse.

3.11   Replacing the Redundant Power Supply

If the 2+1 redundant power supply is fitted, any of the three units can be hot swapped. Follow these instructions to replace a redundant power supply unit.

1. Release the redundant power supply by turning the thumb screw clockwise.

2. Press the latch and the handle together as shown.

3. Pull out the power supply unit.

4. Place the unit with the new power supply unit and secure by tightening the thumb screw.

Appendix I: BIOS Differences

The BIOS of B4985 is similar to the BIOS of S4985. There is only one menu different. You may refer to the attached motherboard manual for the complete BIOS information. The differences between B4985 and S4985 is on the "Advanced/Hardware Health Information" menu. See the following for the differences.

B4985 Advanced/Hardware Health Information

PhoenixBIOS Setup Utility		
Advanced		
Hardware Monitor:		Item Specific Help
CPU0 Temperature xxx ºC CPU1 Temperature xxx ºC CPU2 Temperature xxx ºC CPU3 Temperature xxx ºC sys1 Temperature xxx ºC sys2 Temperature xxx ºC sys3 Temperature xxx ºC sys4 Temperature xxx ºC sys5 Temperature xxx ºC System Fan 1 Speed xxxx RPM System Fan 2 Speed xxxx RPM System Fan 3 Speed xxxx RPM System Fan 4 Speed xxxx RPM System Fan 5 Speed xxxx RPM System Fan 6 Speed xxxx RPM CPU0 VDD voltage xxxx V CPU1 VDD voltage xxxx V CPU2 VDD voltage xxxx V CPU3 VDD voltage xxxx V +12V xxxx V +5V xxxx V HT1.2V xxxx V 3.3VSB xxxx V CK804 Vcore 1.5V xxxx V		All items on this menu cannot be modified in user mode. If any items require changes, please consult your system Supervisor.
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit		

S4985 Advanced/Hardware Monitor Information

PhoenixBIOS Setup Utility	
Advanced	
Hardware Monitor	Item Specific Help
CPU0 Temperature xxx ºC CPU1 Temperature xxx ºC CPU2 Temperature xxx ºC CPU3 Temperature xxx ºC Sys1 Temperature xxx ºC Sys2 Temperature xxx ºC Sys3 Temperature xxx ºC Sys4 Temperature xxx ºC Sys5 Temperature xxx ºC CPU0 Fan Speed xxxx RPM CPU1 Fan Speed xxxx RPM CPU2 Fan Speed xxxx RPM CPU3 Fan Speed xxxx RPM System Fan 0 Speed xxxx RPM System Fan 1 Speed xxxx RPM System Fan 2 Speed xxxx RPM System Fan 3 Speed xxxx RPM System Fan 4 Speed xxxx RPM System Fan 5 Speed xxxx RPM CPU0 VDD voltage xxxx V CPU1 VDD voltage xxxx V +12V xxxx V +5V xxxx V HT1.2V xxxx V 3.3VSB xxxx V CK804 Vcore 1.5V xxxx V	
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Previous Values	

Table of Differences

	S4985	**B4985**
Auto Fan Control	Disabled	Enabled
Hardware Monitor Fan	System Fan0 Speed System Fan3 Speed System Fan2 Speed System Fan4 Speed System Fan1 Speed System Fan5 Speed	System Fan1 Speed System Fan2 Speed System Fan3 Speed System Fan4 Speed System Fan5 Speed System Fan6 Speed

Appendix II: Cable Connection Tables

SAS/SATA Cables

Table 1: FT48-B4985 Model

M1211-P SAS/SATA Backplane 1	Connects to	Motherboard
J8 (HDD1)	→	J98
J7 (HDD2)	→	J99
J6 (HDD3)	→	J18
J5 (HDD4)	→	J19
M1211-P SAS/SATA Backplane 2	Connects to	Motherboard
J8 (HDD5)	→	J113
J7 (HDD6)	→	J114
J6 (HDD7)	→	J47
J5 (HDD8)	→	J48

FAN Cables

Table 2: Fan Board to Motherboard

M1014 FAN Board	Connects to	Motherboard
J3	→	J14

Power Supply Cables

Table 3: Power Supply to Motherboard

Power Supply	Connects to	Motherboard
P24 24-pin power cable	→	PWR0 24-pin connector
PA 8-pin power cable	→	PWR1 8-pin connector
PB 8-pin power cable	→	PWR2 8-pin connector
PC 4-pin power cable	→	PWR3 4-pin connector
PD 4-pin power cable	→	J121

Table 4: Power Supply to Backplane

Power Supply	Connects to	M1211-P SAS/SATA Backplane 1
PE 4-pin power cable	→	J13
PF 4-pin power cable	→	J14
Power Supply	Connects to	M1211-P SAS/SATA Backplane 2
PG 4-pin power cable	→	J13
PH 4-pin power cable	→	J14

Table 5: Power Supply to FAN Board

Power Supply	Connects to	M1014 FAN Board
PI 4-pin power cable	→	J1
PJ 4-pin power cable	→	J2

Table 6: Power Supply to DVD-ROM

Power Supply	Connects to	DVD-ROM
PK 4-pin power cable	→	DVD-ROM 1
PM 4-pin power cable	→	DVD-ROM 2 (option)
PO 4-pin power cable	→	DVD-ROM 3 (option)

Table 7: Power Supply to LCD Module (Option)

Power Supply	Connects to	M1000 LCD Module
PP 4-pin power cable	→	J6

Table 8: Power Supply to FDD (Option)

Power Supply	Connects to	FDD
PN 4-pin power cable	→	FDD drive

Other Cables

Table 9: LED Control Board to Motherboard

M1007 LED Control Board	Connects to	Motherboard
J1 (USB)	→	J30
J2 28-pin (TYFP1)	→	J115
J2 28-pin (TYFP2)	→	J122

Table 10: DVD-ROM Cable to Motherboard

DVD-ROM	Connects to	Motherboard
DVD-ROM 1	→	IDE 1
DVD-ROM 2 (option)	→	IDE 1
DVD-ROM 3 (option)	→	IDE 2

Table 11: LCD Module to Motherboard (Option)

M1000 LCD Module	Connects to	Motherboard
J3	→	J101
NOTE: M1000 Pin2-3 of JP1 and JP2 should be closed.		

Table 12: 3-to-4 conversion HDD cage (Option)

| M1216-P	Connects to	PCI-E RAID Card on Motherboard
J1	→	J1
J3	→	J2
J5	→	J3
J7	→	J4

Appendix III: Installing the SMDC Card (Option)

The following provides you with the information on installing M3291 SMDC card into any PCI slot in your FT48-B4985 system.

1. Secure M3291 on a PCI bracket as shown.

2. Connect the following cables to M3291 as shown.
   a. 2x25 pin SMDC cable to M3291 J1 connector.
   b. 2x5 pin serial cable to M3291 COM port (J2).
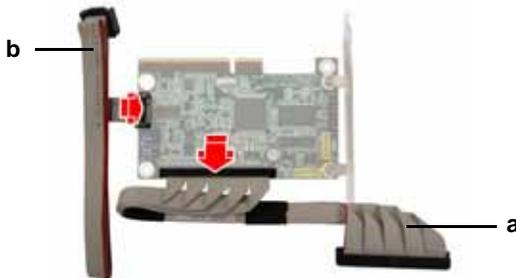
3. Unscrew the blanking plate from the slot as shown. Lift up the blanking plate.

4. Connect the other end of SMDC cable and serial cable to the SMDC connector and COM2 header (J101) on the motherboard.

5. Place the SMDC card in the PCI slot as shown.

6. Secure the PCI bracket with the screw you removed from the blanking plate.

Cable Connection Table

SMDC Card (M3291)	Connects to	Motherboard
J1 connector	→	SMDC connector
J2 COM port	→	J101 COM2 header

Appendix IV: Installing Expansion Hard Drives

The FT48-B4985 allows you to add up to four expansion hot swap drives. Use the supplied 3-to-4 conversion HDD cage (optional accessory) to install the expansion hard drives in either a horizontal or vertical position.

Before the installation, you need to remove all the fans and the fan cradle first. Refer to the first three steps given in "2.5 Installing the Floppy Disk Drive (Option)". Then, do the following:

1. Disconnect all the cables from the devices placed in the 5.25" bays as shown.

2. Unfasten the installed drives or the empty drive brackets from the chassis in the direction of the arrow shown.

3. Slide all the drives or the brackets out of the chassis.

Rackmount installation (step 4 to 9):

4. Install the 3-to-4 conversion HDD cage into the front of the FT48-B4985 as shown.

5. Install the SAS or SATA hard drives in the drive trays as instructed in the previous section.
6. Insert the drive trays into the chassis and push the locking lever into place to secure it.
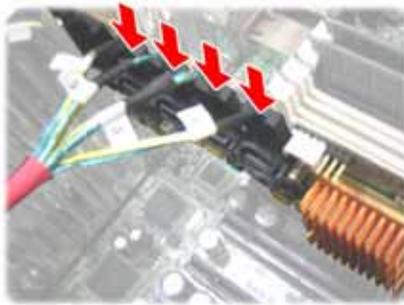
7. The expansion HDD numbering is indicated as below.
   Top to bottom: HDD9, HDD10, HDD11, HDD12

8. Connect the power and data cables to the SATA/SAS
   backplane. SATA/SAS connectors on the M1216-P
   backplane are indicated as below.
   Top to bottom: J1, J3, J5, J7

9. Connect the other end of the SATA/SAS cables to the
   connectors on the PCI-E RAID card.

Tower installation (step 10 to 15):

10. Install the 3-to-4 conversion HDD cage into the front of the FT48-B4985 as shown.

11. Install the SAS or SATA hard drives in the drive trays as instructed in the previous section.
12. Insert the drive trays into the chassis and push the locking lever into place to secure it.
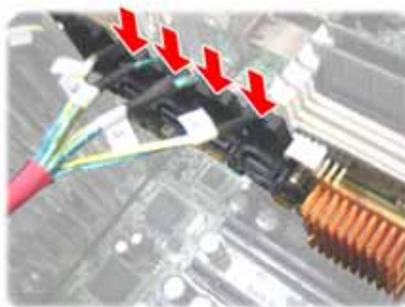

13. The expansion HDD numbering is indicated as below. Right to left: HDD9, HDD10, HDD11, HDD12

14. Connect the power and data cables to the SATA/SAS backplane. SATA/SAS connectors on the M1216-P backplane are indicated as below.
Left to right: J1, J3, J5, J7
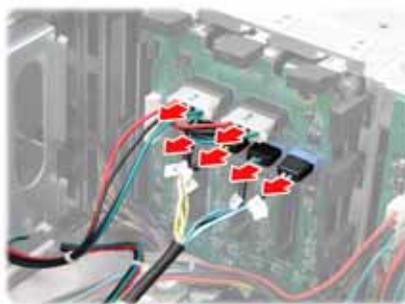
15. Connect the other end of the SATA/SAS cables to the connectors on the PCI-E RAID card.

Technical Support

If a problem arises with your system, you should first turn to your dealer for direct support. Your system has most likely been configured or designed by them and they should have the best idea of what hardware and software your system contains. Hence, they should be of the most assistance for you. Furthermore, if you purchased your system from a dealer near you, take the system to them directly to have it serviced instead of attempting to do so yourself (which can have expensive consequences).

If these options are not available for you then TYAN Computer Corporation can help.Besides designing innovative and quality products for over a decade, TYAN has continuously offered customers service beyond their expectations. TYAN's website (**www.tyan.com**) provides easy-to-access resources such as in-depth Linux Online Support sections with downloadable Linux drivers and comprehensive compatibility reports for chassis, memory and much more. With all these convenient resources just a few keystrokes away, users can easily find the latest software and operating system components to keep their systems running as powerful and productive as possible. TYAN also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, TYAN serves multiple market segments with the industry's most competitive services to support them.

"TYAN's tech support is some of the most impressive we've seen, with great response time and exceptional organization in general" - Anandtech.com

Please feel free to contact us directly for this service at **tech-support@tyan.com**

Help Resources:

1. See the beep codes section of this manual.

2. See the TYAN website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com

3. Contact your dealer for help BEFORE calling TYAN.

4. Check the TYAN user group: alt.comp.periphs.main-board.TYAN

Returning Merchandise for Service

During the warranty period, contact your distributor or system vendor FIRST for any product problems. This warranty only covers normal customer use and does not cover damages incurred during shipping or failure due to the alteration, mis-use, abuse, or improper maintenance of products.

NOTE: A receipt or copy of your invoice marked with the date of purchase is required before any warranty service can be rendered. You may obtain service by calling the manufacturer for a Return Merchandise Authorization (RMA) number. The RMA number should be prominently displayed on the outside of the shipping carton and the package should be mailed pre-paid. TYAN will pay to have the board shipped back to you.

TYAN Transport FT48-B4985 User's Manual v1.0

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