Tank GT25

B5381

Service Engineer's Manual

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PREFACE

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Version 1.0

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Notice for the USA Compliance Information Statement (Declaration of Conformity Procedure) DoC FCC Part 15: This device complies with part 15 of the FCC Rules

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 conforme aux norms de Classe B d'interference radio tel que specifie par le Ministere Canadien des Communications dans les reglements d'ineteference 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 Tank GT25. This manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts:

Chapter 1: Provides an introduction to the GT25 B5381 barebones, 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, an optional PCI-X card, and hard drives.

Chapter 3: Covers removal and replacement procedures for pre-installed components.

Appendix: Provides information on installing SMDC cards and describes the differences between mainboard BIOS and system BIOS. The cable connection tables are also provided for reference of system setup.

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 Tank GT25, 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 and opening on the unit, which are provided for ventilation.

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

- The unit uses a three-wire ground cable, which is equipped 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 kind of plug, contact your electrician to replace your obsolete outlet.

- Do not place anything on the power cord. Place the power cord where it will not be in the way of foot traffic.

- 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 done, 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.

Chapter 1: Overview

1.1   About the Tank GT25 B5381

Congratulations on your purchase of the TYAN Tank^{TM} GT25 B5381, a highly-optimized rack-mountable barebone system. The Tank GT25 B5381 is designed to support dual Intel$^{®}$ Dempsey and Woodcrest processors, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel$^{®}$, the Tank GT25 B5381 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 Tank^{TM} GT25 B5381 not only empowers your company in today's demanding IT environment but also offers a smooth path for future application usage.

TYAN is also proud to deliver the Tank^{TM} GT25 B5381 in SATA flavor while supporting up to four (4) hot-swap hard drives, one (1) slim DVD-ROM, and one (1) optional slim floppy disk drive (not included). The Tank^{TM} GT25 B5381 uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of this provides the Tank^{TM} GT25 B5381 the power and flexibility to meet the needs of nearly any server application.

1.2   Features

Enclosure
- Industry 19" rack-mountable 1U chassis storage bay
  - (4) 3.5" HDD bays
  - (1) slim line DVD-ROM bay
  - (1) slim line FDD bay
- Dimensions: D 27.87 x W 17.17 x H 1.71 inch (708x436x43.5mm)

Processor
- Two 771 sockets
- Supports up to two Intel® Dempsey (1066MHz FSB) and Woodcrest (1333MHz FSB) processors

Chipset
- Intel 5000P Memory Controller Hub
- Intel ESB2-E I/O Controller Hub
- Winbone W83627DHG Super I/O chip
- ADT7463 Hardware Monitoring IC (on fan board)

Memory
- 12 dual ranked DDRII 533/667 FBD sockets
- Supporting up to 48GB memory size
- Four channels of Fully Buffered DIMM (FBD)
- Supports 256MB, 512MB, 1GB, 2GB, and 4GB FB-DDRII DIMM

Expansion Slots
- Aligned (1) 64-bit/133MHz PCI-X slot and (1) x8 PCI-E slot, supporting (1) ful height/full length add-on PCI-X(M2055) or PCI-E(M2082 card
- Aligned (1) 64-bit/133MHz PCI-X slot and (1) x16 PCI-E slot (x8 lane), supporting (1) low-profile PCI-X(M2057) or PCI-E(M2086) add on card
- 2 usable expansion slots

Back I/O Ports
- (1) PS/2 mouse & keyboard port
- (1) 9-pin UART serial port
- (1) 15-pin VGA port

- (2) RJ-45 10/100/1000 ports
- (2) USB 2.0 ports
- (1) 4-port SAS connector (SSF-8470)

Front Panel Features
- I/O
  - (2) USB 2.0 ports
- LED indicators
  - Power LED
  - (2) LAN LEDs
  - HDD active LEDs
  - System warning LED
  - ID LED
- Switches
  - Power
  - Reset
  - NMI
  - ID

Integrated Storage Controller
- Embedded 4-port SATA-II from ESB2-E for models B5381G25V4H
  - Supports four SATA-II ports run ning at 3.0Gb/s
- On board LSI1068E SAS controller for model B5381G25W4H/R
  - Supports 8-port SAS ; 4 ports for internal connection and 4 ports for external storage connection

Storage
- Pre-installed slimtype DVD-ROM
- HDD support
  - B5381G25V4H: Supports (4) hot-swappable SATA-II HDD with RAID 0, 1, 5, 10
  - B5381G25W4H/R: Supports (4) hot-swappable SAS/SATA-II HDD with RAID 0, 1, 5, 10

Networking
- Intel 82563 GbE PHY supports dual GbE ports

Video
- ATI ES1000 with 16MB frame buffer

Motherboard
- TYAN S5381 system board
- Customized 15"x16" (381x406mm

BIOS
- PHOENIX BIOS on 8Mbit LPC Flash ROM
- Serial console redirect
- Supports APM 1.2 and ACPI 2.0
- PnP, DMI 2.0, WfM 2.0 power management

Server Management
- System fan speed control and monitoring
- Chassis intrusion alert
- Supports Tyan Server Management (TSM)
- TYAN SMDC, IPMI 2.0 compliant remote server management kit (optional)

System Cooling
- (7) 40*40*56mm 15000rpm heavy-duty fans
- (2) passive CPU heatsinks

Power Supply
- EPS 12V, 1U, 650W (1+1) redundant hot-swap or 650W single
- 100V~240V AC input

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

Environment Temperature
- Operating temperature (5°C~35°C)
- Non-operating temperature (-40°C ~ 70°C)

1.3   Unpacking

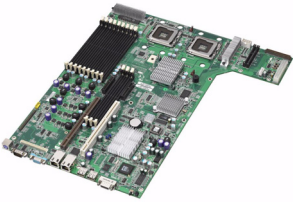This section describes the Tank GT25 B5381 package contents and accessories.
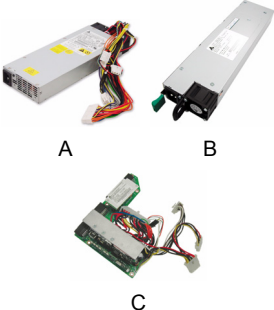
1.3.1   Opening the Box

Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

Packaged accessories

1.3.2   Box Contents

Component	Description
	Industry standard 1U chassis, (4) hot-swap HDD bays
	Tyan S5381 system board (pre-installed)
	8x slim DVD-ROM drive (pre-installed)
	LED and USB control board (pre-installed)
A B C	(A) EPS 1U 650W PSU model for single power (pre-installed) (B) EPS 1U 650W 1+1 PSU model for redundant power (C) Redundant PSU power board
	(7) System fans (40 mm x 56 mm)

Component	Description
	M1210 Adapter board
	M5002 Note: In the future, an FPC cable, as shown below, will be supplied instead of the M5002.

1.3.3 Accessories

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

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

1 x Tyan Barebone Driver CD

2 x Heatsink

HDD Screws

**Power Cables
Left to right: Europe, US**

Mounting Ears & Screws

Barebone Manual

Riser Card

Rail Kit
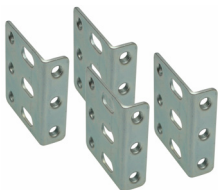
Mounting Bracket x 4

Screw Kit

Sliding Rail x 2

Sliding Brackets
Front L-Bracket x 2
Rear L-Bracket x 2

FDD Kit

FDD Backplane Cable

FDD Cable

FDD Rails & Screws

1.4   About the Product

The following views show you the product.

1.4.1   Front View

Reset switch

NMI switch

ID Switch

Warning LED

HDD activity LED

Power LED

DVD-ROM Drive

USB ports

ID LED

2 x LAN LEDs

Power switch

Hard Drive Bay x 4
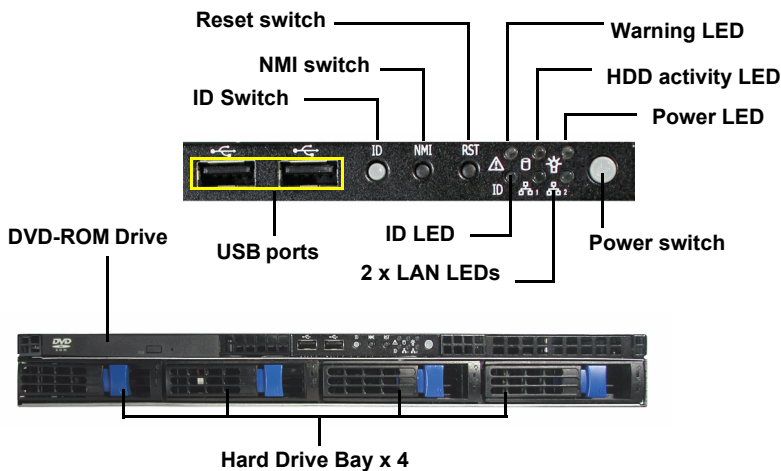
1.4.2   Rear View
Case A (Single Power)

COM1 VGA
Port Port

USB Ports

PCI-X Slot

Power Supply Socket

PS/2
Key-
board
Port

PCI-E
Slot

SAS B5381G25W4H (Optional)

LAN Port (NIC2)

LAN Port (NIC1)

Case B (Redundant Power)

COM1 VGA
Port Port

USB
Ports

PCI-X
Slot ID LED Power Supply Sockets

PS/2
Key-
board
Port

PCI-E
Slot

ID Switch Power Supply Fans

SAS B5381G25W4H (Optional)

LAN Port (NIC2)

LAN Port (NIC1)
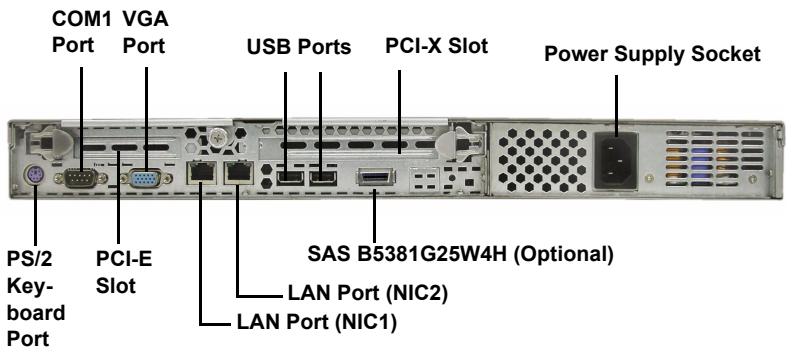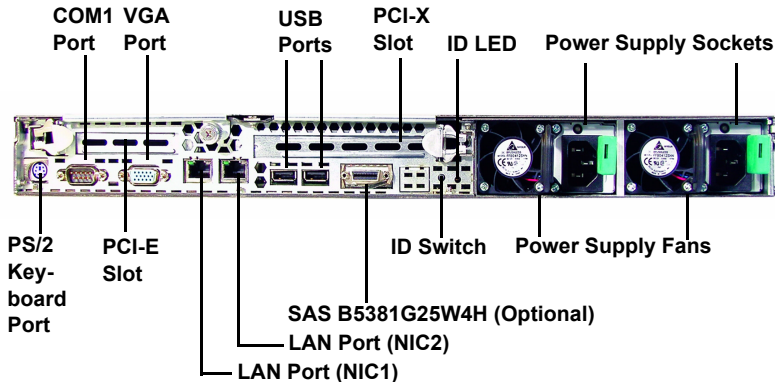
1.4.3   LED Definitions

Front Panel

LED	Color	State	Description
Power	Green OFF	ON OFF	Power ON Power OFF
HDD Activity	Amber OFF	Random Blink OFF	HDD access activity No disk activity
LAN1/LAN2 Linkage	Green Green OFF	ON Blinking OFF	Linked to LAN Accessing LAN No LAN link
Warning	Red OFF	ON OFF	Fan failiure Normal
Hot Swappable HDD Tray Power LED	Green OFF	ON OFF	Power connected Power disconnected
Hot Swappable SATA HDD Access LED	Amber OFF	Random Blinking OFF	HDD access activity No disk activity
Hot Swappable SAS HDD Access LED	Amber Amber OFF	On Random Blinking OFF	HDD ready HDD access activity HDD not ready
ID LED	Blue	ON	System identified

Rear I/O LED

LED	Color	State	Description
RJ45 NIC1 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	Linked to LAN Accessing LAN No LAN link
RJ45 NIC1 Mode (Right Side)	Yellow Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
RJ45 NIC2 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	Linked to LAN Accessing LAN No LAN link
RJ45 NIC2 Mode (Right Side)	Yellow Green OFF	ON ON OFF	Gigabit mode 100M mode 10M mode
ID LED	Blue OFF	ON OFF	System identified System not identified

1.4.4 Internal View

Case A - Single Power
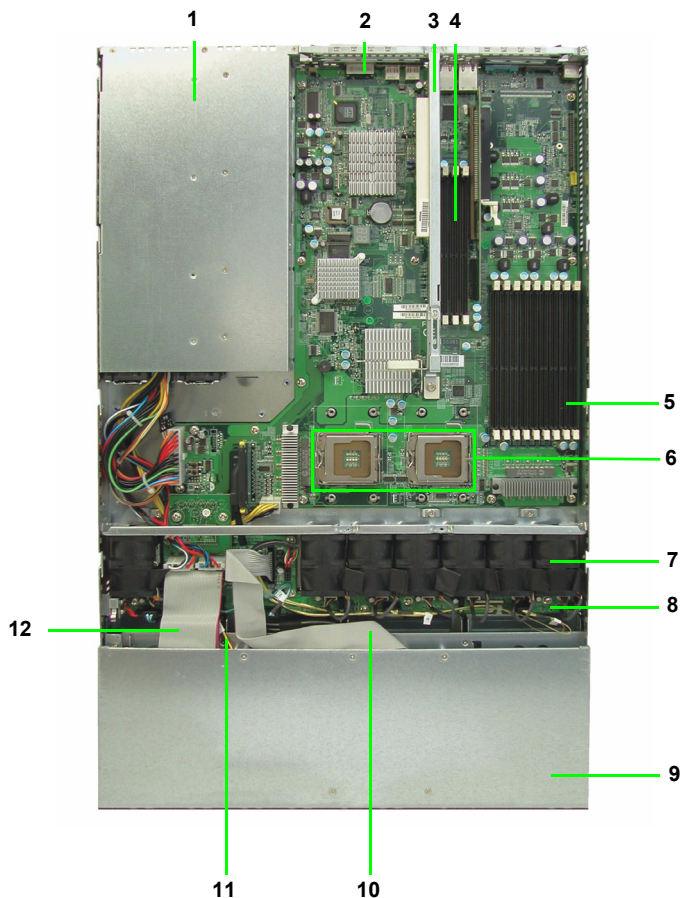
1. Power Supply
2. SAS Connector
3. Link Bar
4. Fully Buffered DIMM Memory Slots
5. Fully Buffered DIMM Memory Slots
6. CPU Sockets
7. Fans
8. M1210 Adapter Board
9. Four SATA / SAS HDD Bays
10. LED Control Board Cable
11. DVD-ROM Power Cable
12. DVD-ROM Cable

Case B - Redundant Power
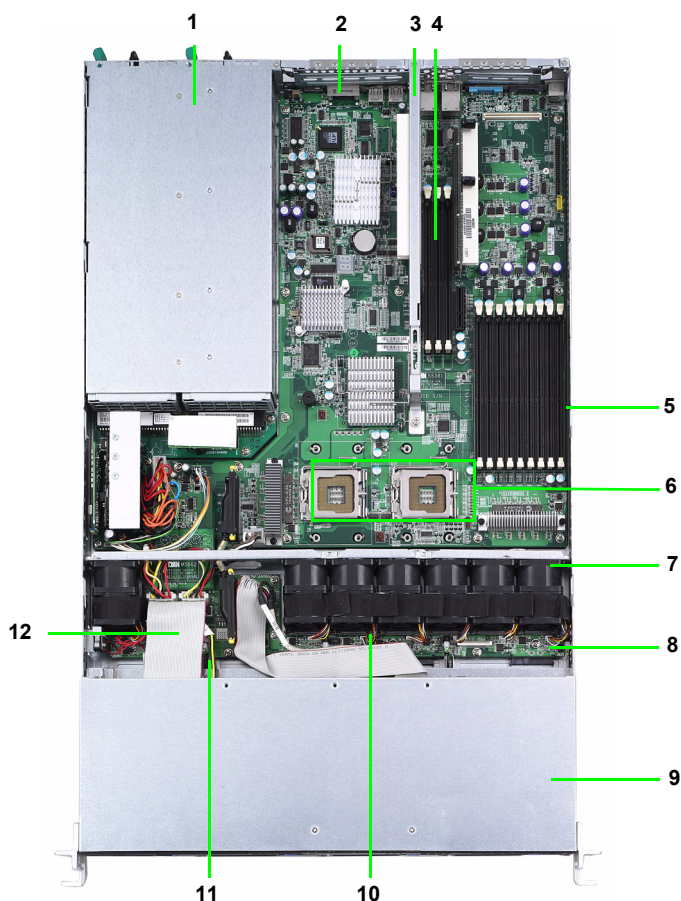
1. Power Supply
2. SAS External Connector
3. Link Bar
4. CPU2 Fully Buffered DIMM Memory Slots
5. CPU1 Fully Buffered DIMM Memory Slots
6. CPU Sockets
7. Fans
8. M1210 Adapter Board
9. Four SATA / SAS HDD Bays
10. LED Control Board Cable
11. DVD-ROM Power Cable
12. DVD-ROM Cable

1.4.5 Motherboard Block Diagram
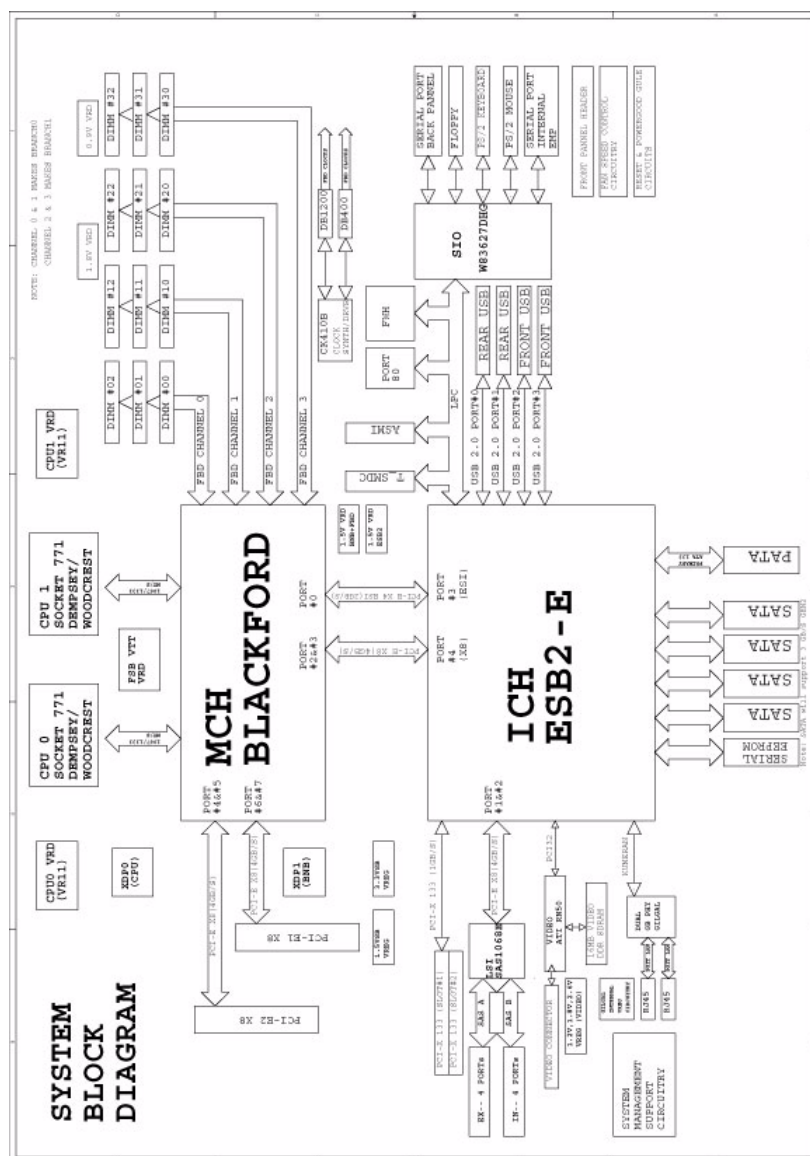
1.4.6 Motherboard Layout
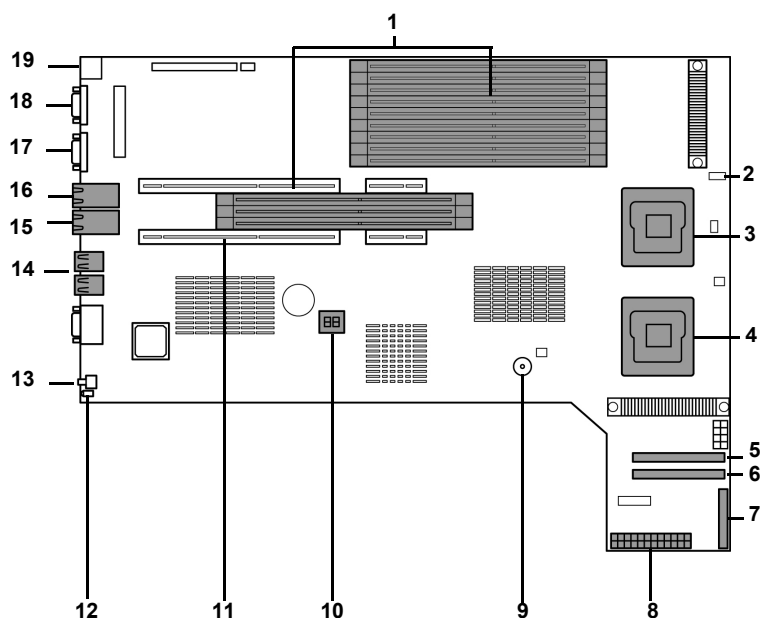
1. DIMM Slots
2. TEMP Sensor
3. CPU1
4. CPU2
5. SATA Connector
6. SAS 2 Connector
7. FPIO Connector
8. Power Connector
9. Buzzer
10. Debug LED
11. PCI-X Slot
12. ID LED
13. ID SW
14. USB
15. LAN 2
16. LAN 1
17. VGA Port
18. COM1 Port
19. PS/2 Port

Jumpers & Connectors

Jumper /Connector	Function
JP1	Clear CMOS Jumper (Close 1-2) Default (Close 2-3) Clear CMOS
CN4	SMDC Connector
SAS 2	SAS Connector
J8	SATA Connector
J11	Front Panel Connector

NOTE

Chapter 2: Setting Up

2.0.1 Before You Begin

This chapter explains how to install the CPU, CPU heatsink, memory modules, and hard drives. Instructions on inserting a PCI card are also given.

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

2.0.2 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 prevents them from becoming lost. Adequate lighting and proper tools can prevent you from accidentally damaging the internal components.

2.0.3 Tools

The following procedures 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.

2.0.4 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 Tank GT25 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, 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.

2.1 Rack Mounting

After installing the necessary components, the Tank GT25 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2:

Sliding Brackets x 4 (Front x 2, Rear x 2)

Mounting Ears x 2

Screws Kit x 1

Mounting Brackets x 4

2.1.1 Installing the Server in a Rack

Follow these instructions to mount the GT25 into an industry standard 19" rack.

NOTE: Before mounting the Tank GT25 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 (including screws for SMDC)

A: Flat 6#-32 x4~x16

B: B-type 6#-32 x4

C: M4-4L x8

D: M4-5L x4

E: M4-8L x8

F: M4-15L x2

G: 13.5mm stand-off x1
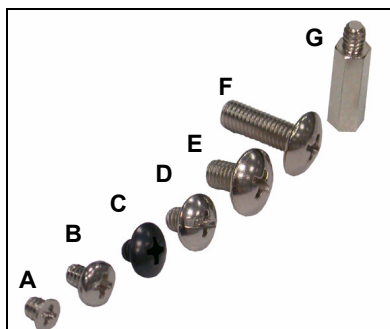
Installing the Inner Rails to Chassis

1. Screw the mounting ear to each side of GT25 as shown using 2 screws from the supplied screws kit.

Mounting Ears
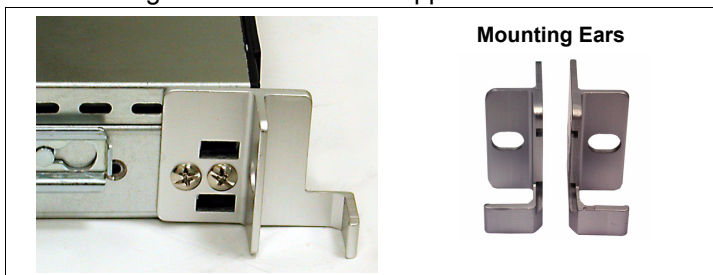
2. Draw out the inner rails from rail assembly. Install inner rails to left and right sides of chassis using 2 M4-5L(D) screws for each side.

Installing Outer Rails to the Rack

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

2. Locate the front and rear brackets.

Rear Bracket x2
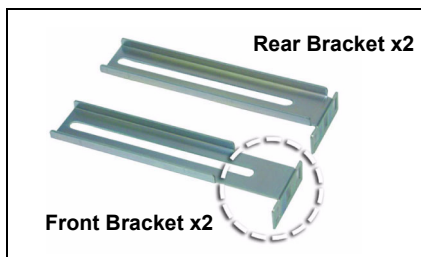
Front Bracket x2

3. Reserve 90mm for GT25 on the front bracket. Secure the front bracket to outer rail with 2 M4-4L(C) screws.

GT25

90mm

M4-4L(C) Screw

*Remember to add washer.**
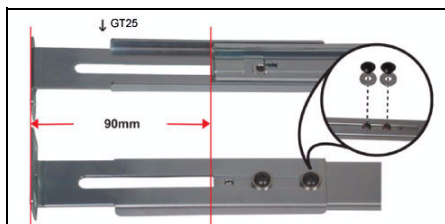
4. Reserve the distance same as in Step 2 on rear bracket. Secure the rear bracket to outer rail with 2 M4-4L(C) screws.

Remember to add washer

Front Side

Rear Side
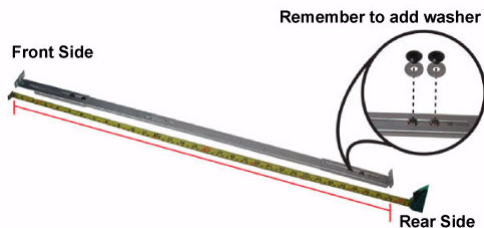
5. Secure the outer rail to the rack using 2 brackets and 4 M4-8L(E) screws for each side (A). Secure the mounting brackets from inside, not outside, of the rack (B).

A

Mounting Bracket

B

Rackmounting the Server

6. Draw out the middle rail to the latch position.

7. Lift the chassis and then insert the inner slide rails into the middle rails.
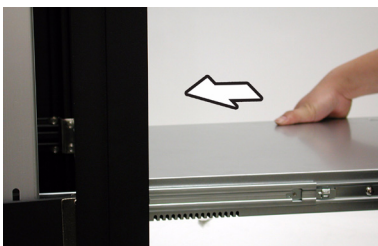
8. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).
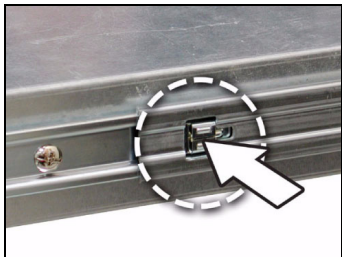
A   B

9. Secure the mounting ears of chassis to the rack with 2 M4-15L(F) screws.
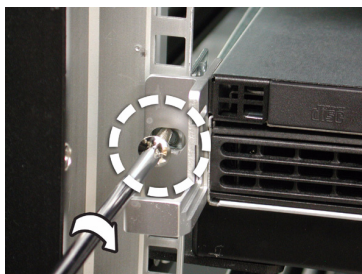
Note: To avoid injury, it is strongly recommended that two people lift the GT25 into the place while a third person screws it to the rack.

2.2   Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPU, memory modules, and PCI card.

2.2.1 Removing the Chassis Cover

Follow these instructions to remove the Tank GT25 chassis cover.

1. Remove the screw on the back side. Then slide the chassis cover in the direction of arrow.

2. Remove the cover.
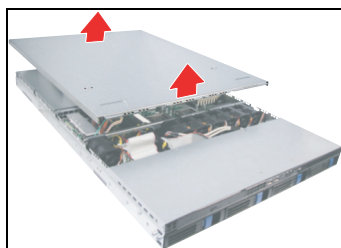
2.2.2 Installing the Memory

Follow these instructions to install the memory modules on the motherboard.

Note: There are 12 DIMM memory slots available. When installing RAM in both slots, begin installation from DIMM1 and install in sequence according to the slot number.

1. Remove the air duct covering the memory slots as shown.
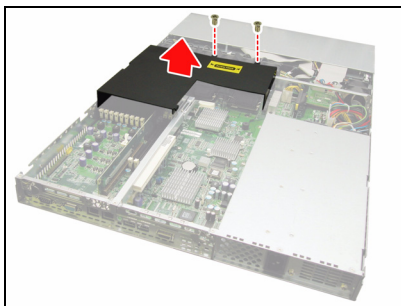
2. Locate the memory slots on the motherboard.
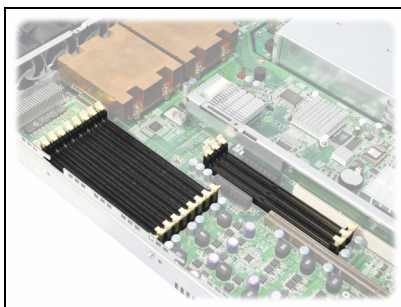
3. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.
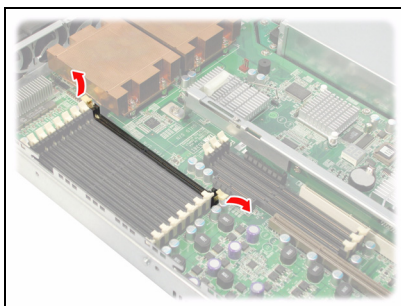
4. Align the memory module with the slot. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module. For optimal system operation, please install memory **in pairs**.
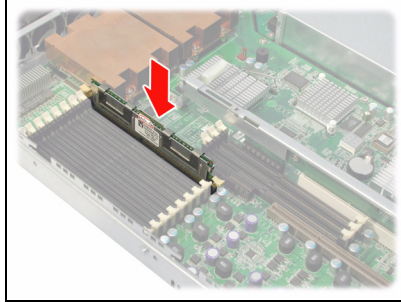
2.2.3 Installing the CPU and Heatsink

1. Follow these instructions to install CPU1, CPU2 and the CPU heatsink.

2. Locate the CPU sockets.
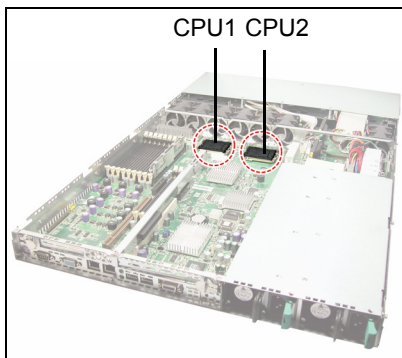
3. Unlatch the CPU lever to release the CPU cover.
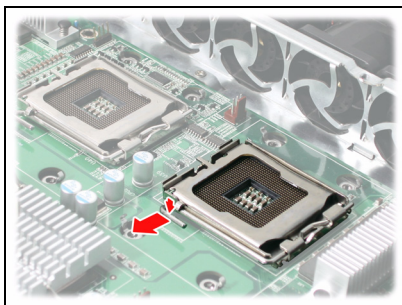
4. Pull the lever arm up to unlock the CPU cover.
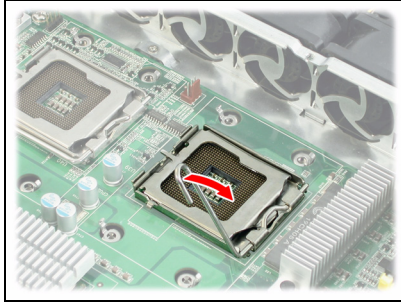
5. Gently lift up the cover.
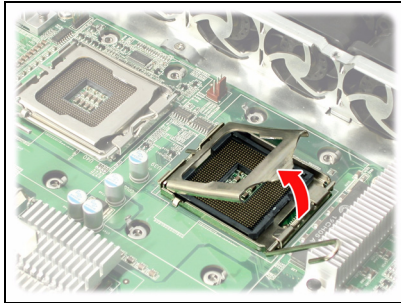
6. Place the CPU in the CPU socket, ensuring that Pin 1 is correctly aligned.
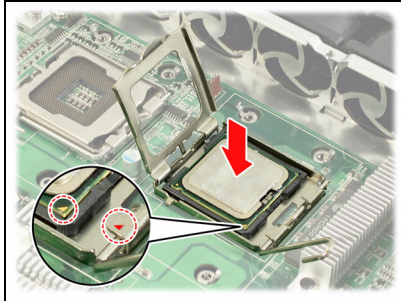
7. Close the cover and attach the latch to secure.
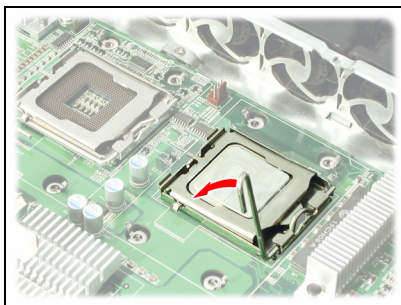
8. Align the heatsink screw holes with the holes on the motherboard and insert heatsink screws as shown.
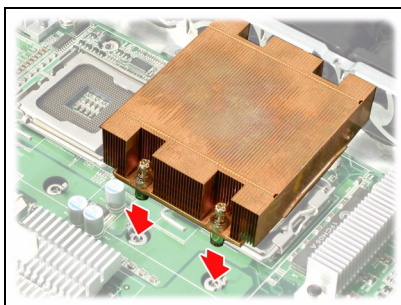
9. Secure the heatsink to the motherboard using four screws.
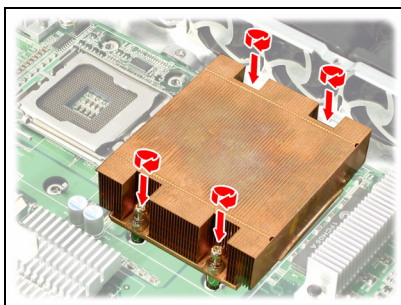
10. Replace the steps above to install a second CPU and re-attach the link bar.

2.2.4 Installing the PCI-X Card

Follow these instructions to install a PCI-X card.

1. Push the tab of PCI-X slot on the rear panel in the direction as shown to release the I/O shield.
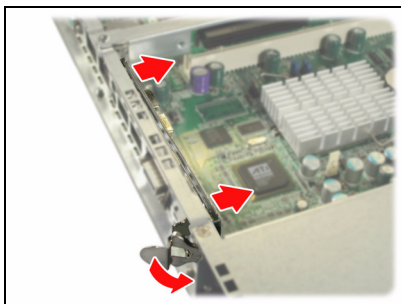
2. Move the I/O shield to right as shown and take off the I/O shield.

3. Insert the PCI-X card in the slot as indicated.
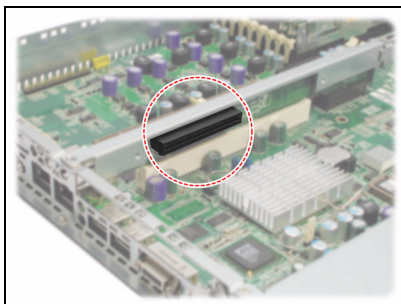
4. Replace the I/O shield and reattach the slot latch.

2.3   Installing the External Hard Drive

The GT25 chassis kit supports external SATA/SAS hard drives.

Follow these instructions to install an external SATA or SCSI hard drive.

1. Press the locking lever latch in the direction of arrow (**A**) and then pull the locking lever open (**B**).
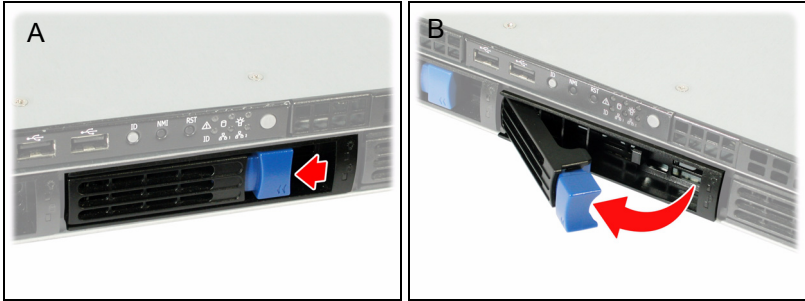
2. Slide the drive tray out.
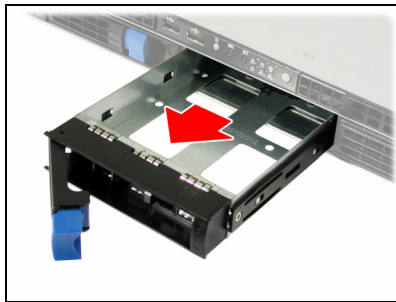
3. Place a hard drive into the drive tray and turn the tray over.

4. Using 4 HDD screws to secure the HDD.
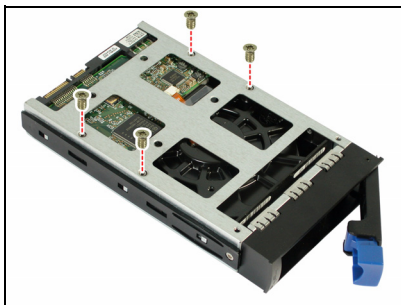
5. Reinsert the drive tray into the chassis (A), ensuring that the drive tray is completely inserted into the chassis (B).
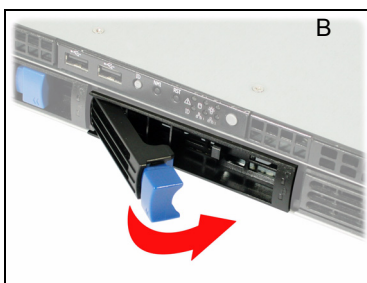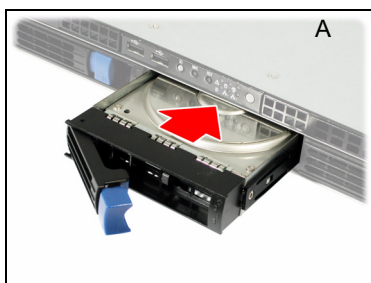
6. Pressing the locking lever to secure the hard drive tray.
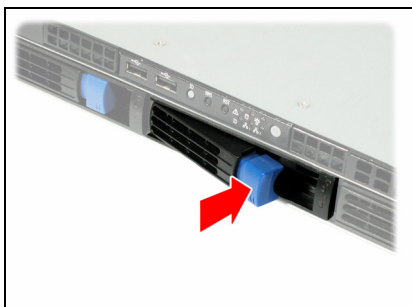
2.4   Installing the Slim FDD (Optional)

1. Locate the two FDD rails and screws from the FDD kit.
    Secure the two rails to the FDD using four screws.

FDD Rails & Screws
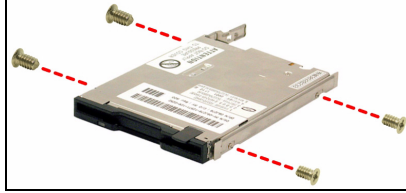
2. Connect the FFC cable to the FDD.
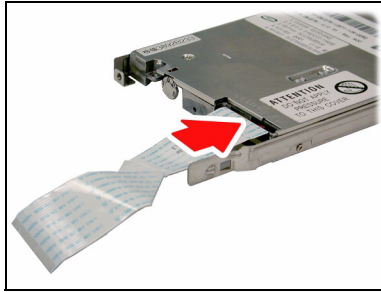
3. Using a screw driver to pull open the door of the FDD
    tray.
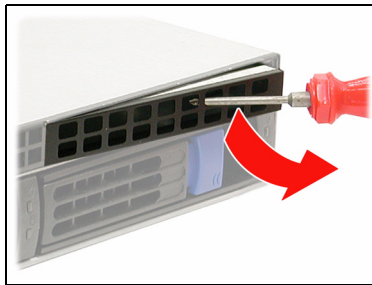
4. Insert FDD module into the tray.
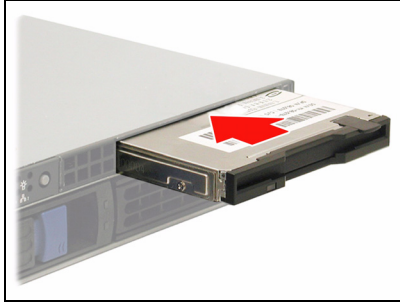
5. Connect the FFC cable to the connector on the M1210 adapter board.
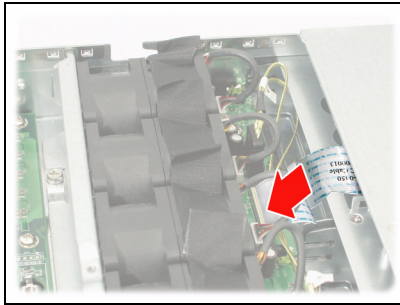
6. Locate the FDD cable from FDD kit. Connect the wrinkle side to the connector on M1210 adapter board.

NOTE

Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre-installed components including the motherboard, LED control board, HDD, and DVD-ROM drive.

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 GT25 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     │                    │       DIMMs          │
└─────────────────────┘                    └──────────────────────┘
         │                                           │
         ▼                                           ▼
┌─────────────────────┐              ┌──────────────────────────────┐
│ Chassis rear cover  │              │   CPU/heatsink assembly      │
└─────────────────────┘              └──────────────────────────────┘
         │                                           │
         ▼                                           ▼
┌─────────────────────┐              ┌──────────────────────────────┐
│     Mainboard       │              │         PCI card             │
└─────────────────────┘              └──────────────────────────────┘
         │                                           │
         ▼                                           ▼
┌─────────────────────┐              ┌──────────────────────────────┐
│   Power supply      │──────────────│         Mainboard            │
└─────────────────────┘              └──────────────────────────────┘


              ┌─────────────────────┐
              │  Front Components    │
              └─────────────────────┘
                        │
                        ▼
              ┌─────────────────────┐
              │  Chassis rear cover │
              └─────────────────────┘
                        │
         ┌──────────────┼──────────────┐
         ▼              ▼              ▼
   ┌──────────┐   ┌──────────┐   ┌──────────┐
   │ DVD-ROM  │   │   PCBs   │   │   FAN    │
   └──────────┘   └──────────┘   └──────────┘
                        │
              ┌─────────┴─────────┐
              ▼                   ▼
        ┌──────────┐        ┌──────────────┐
        │ Control  │        │   M1210      │
        │ Board    │        │ Adapter Board│
        └──────────┘        └──────────────┘
```
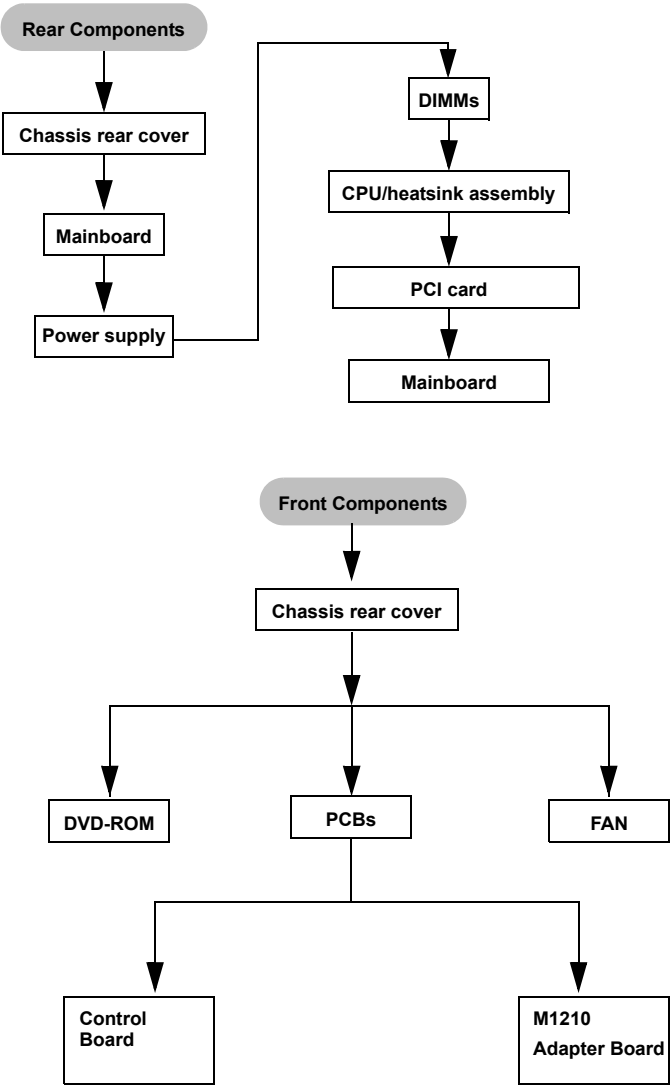
3.3   Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Tank GT25 chassis cover.

1. Remove the screw on the back side. Then slide the chassis cover in the direction of arrow.
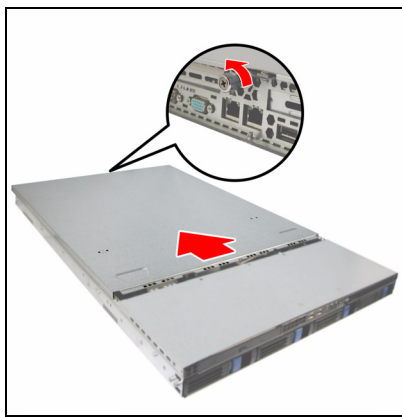
2. Remove the cover.
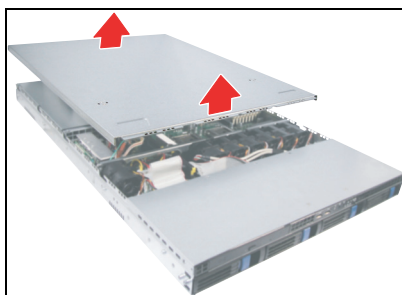
3.4   Replacing Motherboard Components

Follow these instructions to replace motherboard compo-
nents, including the motherboard.

3.4.1 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 power
    cables.
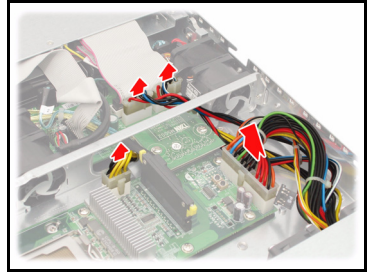
2. Disconnect the SAS
    cable.
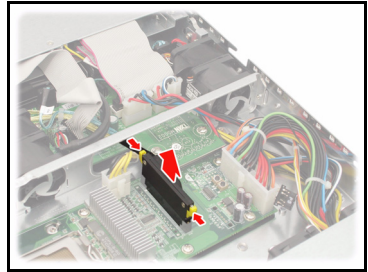
3. Disconnect all cables from the front panel, USB, fans,
    DVD-ROM and SATA connectors.

3.4.2 Removing the Motherboard

After removing all of the aforementioned cables, follow these instructions to remove the motherboard from the chassis.

1. Remove the link bar.
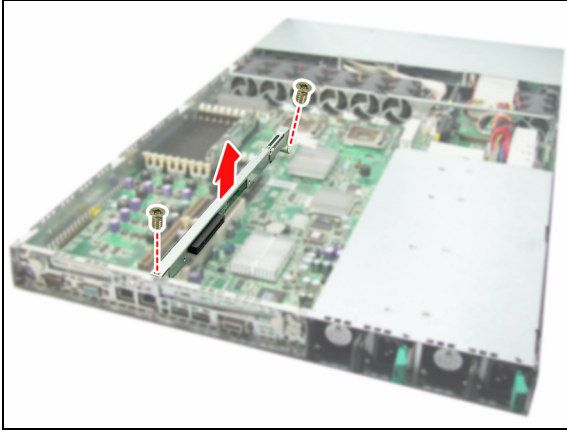
2. Remove the fifteen screws securing the motherboard to the chassis.
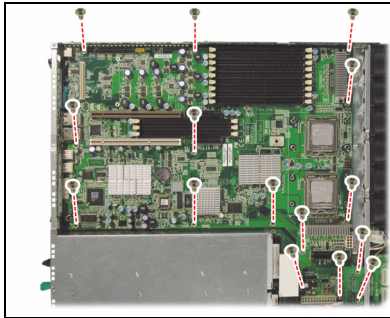
3. Remove the motherboard.

3.5   Replacing the Slim DVD-ROM

Follow these instructions to replace the DVD-ROM.

1. Remove power and data cables from the slim DVD-ROM adapter.
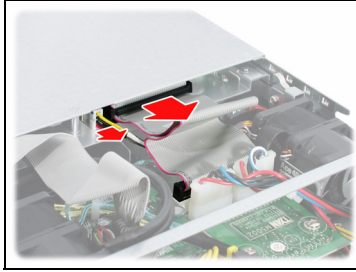
2. Press the tab in the directions as shown to release the DVD-ROM drive.
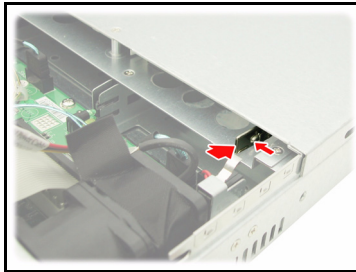
3. The DVD-ROM drive will be freed from the drive bay after pressing the tab.

4. Remove the two screws that secure DVD-ROM drive to the bracket.
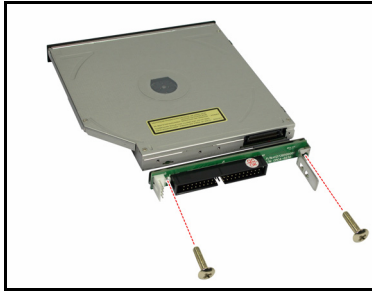
5. Replace the DVD-ROM drive and secure to the bracket using two screws. Then replace the unit into the drive bay and connect the DVD-ROM power and data cables as in steps 1 and 2.

3.6   Replacing the LED Control Board

Follow these instructions to replace the LED control board.

1. Remove the two screws securing the LED control board unit to the chassis.

2. Lift the LED control board unit free of the chassis.
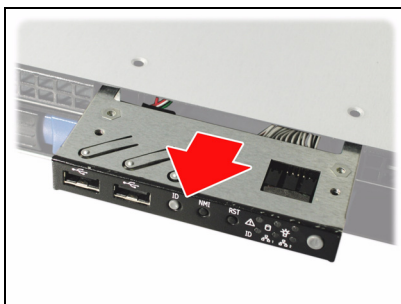
3. Remove three screws securing LED control board to the bracket.
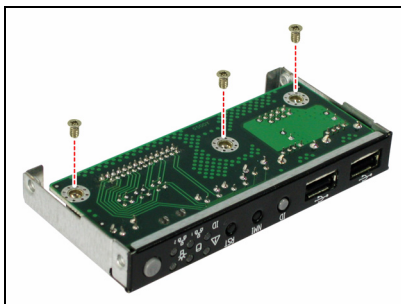
4. Lift the LED control board free from the chassis. After replacement, insert the unit into the chassis.
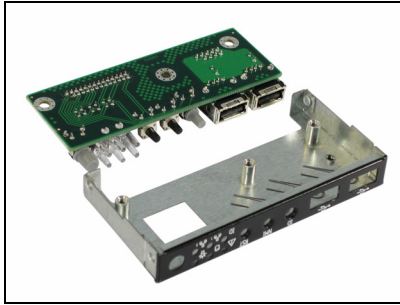
3.7　Replacing the M1210 Adapter Board

1. Remove all of those cables connected to the adapter
    board, including fan cables, DVD-ROM power cable,
    front LED panel cable, power cables, and SATA cables.
    Refer to the photos below for locations.
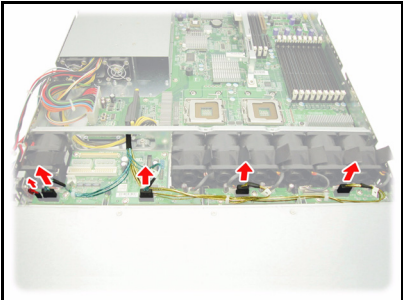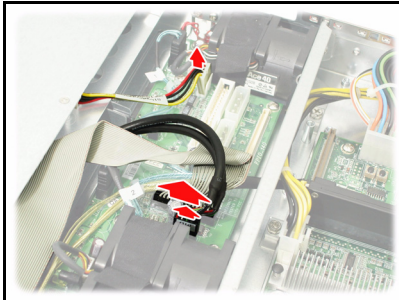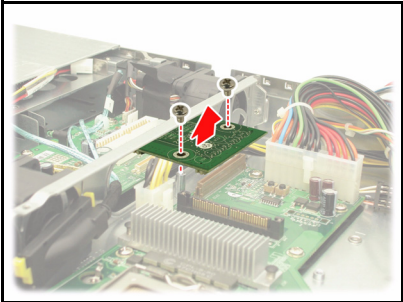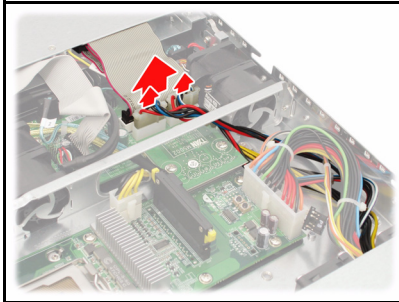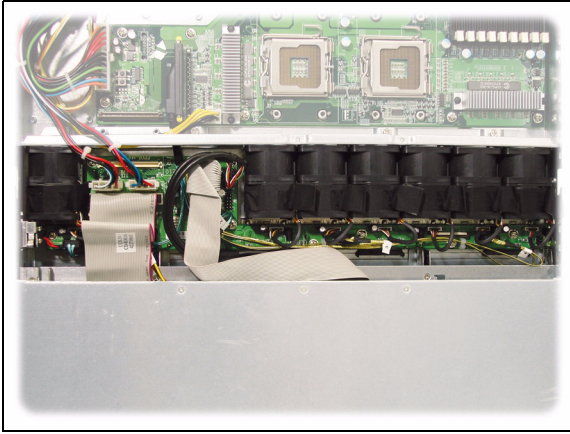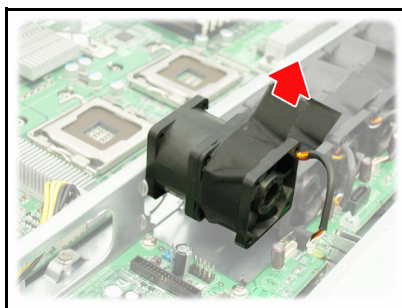
2. Remove six screws to release the adapter board.
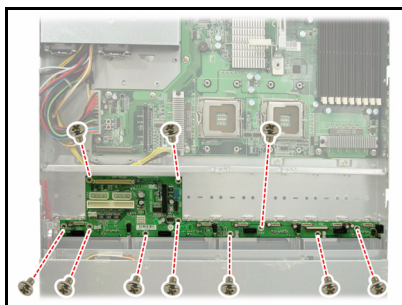
3.7.1 M1210 Adapter Board Features for B5381

Case Open Connector

Fan 13, 14 Connector

CD-ROM Power

SAS/SATA HDD Connector

Power Connectors

HDD Power LED (Green)
HDD Activity LED (Yellow)

FPIO Connector

IDE Connector

Front Panel Connector

Front USB Connector

SAS/SATA HDD Connector

Front COM Connector

HDD Power LED (Green)
HDD Activity LED (Yellow)

Fan 11, Fan 12 Connector

Fan 9, Fan 10 Connector

SAS/SATA HDD Connector

Fan 7, Fan 8 Connector

HDD Power LED (Green)
HDD Activity LED (Yellow)

Fan 5, Fan 6 Connector

FDD Connector

Fan 3, Fan 4 Connector

SAS/SATA HDD Connector

Fan 1, Fan 2 Connector

HDD Power LED (Green)
HDD Activity LED (Yellow)

3.7.2   System Fan Layout

The following table provides the information for system fan layout.

System Fan Speed Control Signal

M1210 Adapter Board	Connect to	Motherboard
J16 (PWM Signal)	→	J11 (PWM Signal)

3.7.3   M1210 Adapter Board Connector Pin Definitions

J14 Front Panel Connector

1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED -
9	ICH_SMBDAT	10	ICH_SMSCLK
11	EXT_INT	12	VOLTAGE5
13	NC	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED -
19	LAN2_LED+	20	LAN2_LED-
21	NC	22	NC
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW-
27	KEY PIN	28	NC

J3 Chassis Instruction Pin Header

1	INTRU#
2	GND

FAN Signal Related Connector Pin Definitions

NOTE: The FAN signal naming is based on HW circuit design only. It might be different from the system fan naming.

J4 Fan Connector

1	PWM1
2	VCC12
3	FAN1_TACH
4	GND
5	GND
6	FAN2_TACH
7	VCC12
8	PWM2

J5 Fan Connector

1	PWM1
2	VCC12
3	FAN3_TACH
4	GND
5	GND
6	FAN4_TACH
7	VCC12
8	PWM2

J6 Fan Connector

1	PWM1
2	VCC12
3	FAN5_TACH
4	GND
5	GND
6	FAN6_TACH
7	VCC12
8	PWM2

J7 Fan Connector

1	PWM1
2	VCC12
3	FAN7_TACH
4	GND
5	GND
6	FAN8_TACH
7	VCC12
8	PWM2

J8 Fan Connector

1	PWM1
2	VCC12
3	FAN9_TACH
4	GND
5	GND
6	FAN10_TACH
7	VCC12
8	PWM2

J9 Fan Connector

1	PWM1
2	VCC12
3	FAN11_TACH
4	GND
5	GND
6	FAN12_TACH
7	VCC12
8	PWM2

J10 Fan Connector

1	PWM1
2	VCC12
3	FAN13_TACH
4	GND
5	GND
6	FAN14_TACH
7	VCC12
8	PWM2

J1 LCM Connectors

1	LCM_+5V	2	LCM_SIN
3	KEY PIN	4	GND
5	LCM_+5VSB	6	LCM_SOUT

3.8   Replacing the Redundant to Single Power Supply

To replace the power supply follow these instructions.

1. Remove the first row of screws from the top of the power supply casing. Slide the bracket to the right.
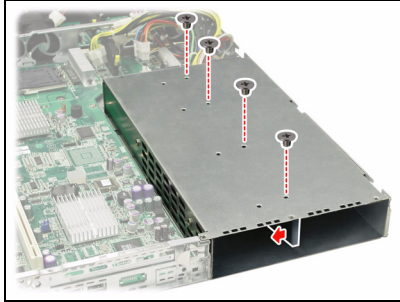
2. Remove the second row of screws from the top of the power supply casing.
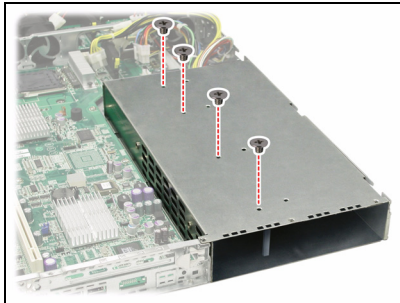
3. Slide in the power supply unit.

4. Replace the power supply cover and attach to the chassis using five screws as shown. Re-insert the screws in the top of the supply casing as in steps 1 and 2.

5. Re-attach all power cables.
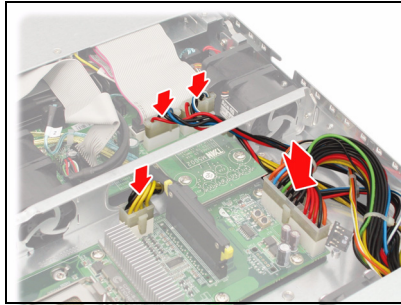
3.8.1 Replacing A Redundant Power Supply

    1. Push the power supply unit latch inwards.
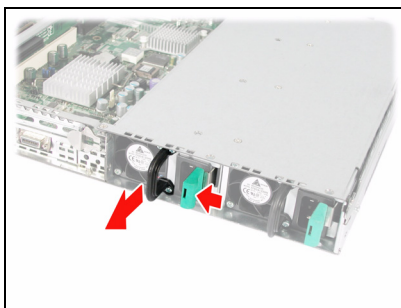
    2. Pull out the power supply unit as shown.
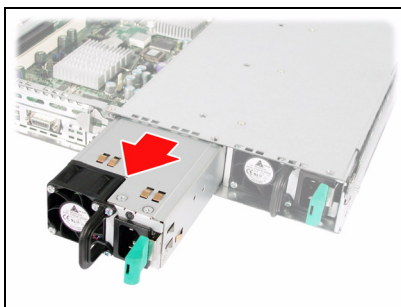
    3. Replace the unit with the new power supply following the steps above in reverse.

Appendix I: BIOS Details

The following screenshots display the BIOS details for the B5381 Barebone. Refer to the screenshots for further information on each BIOS screen.

BIOS Main Menu
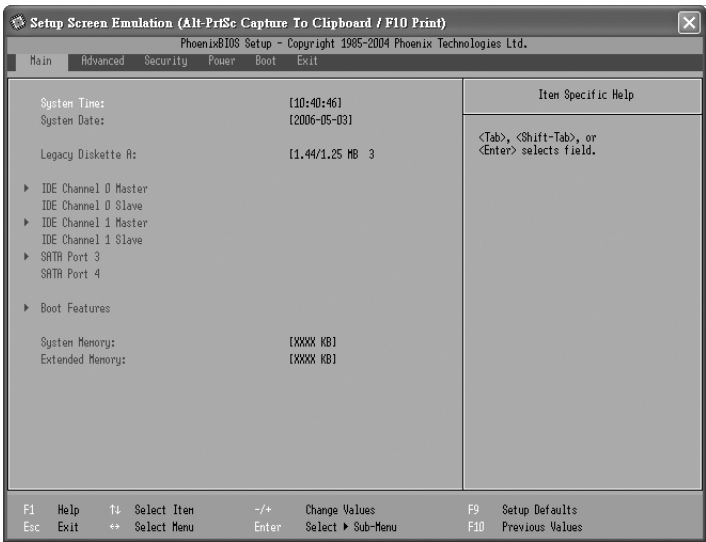
IDE Primary Menu
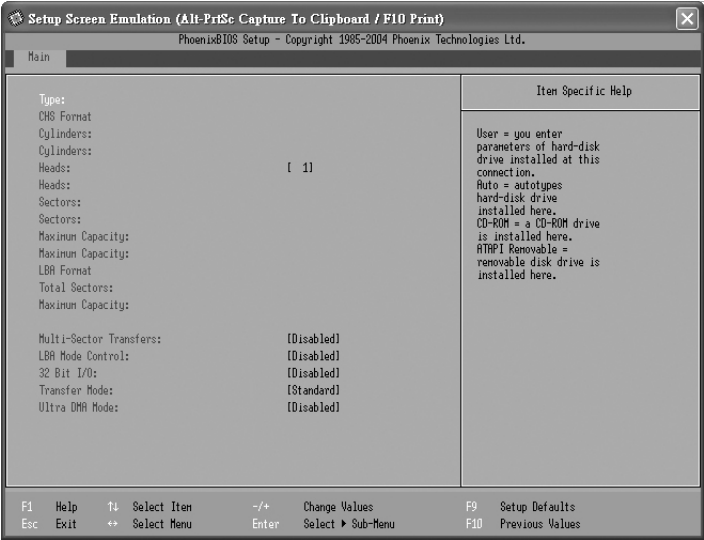
Boot Features Menu

62
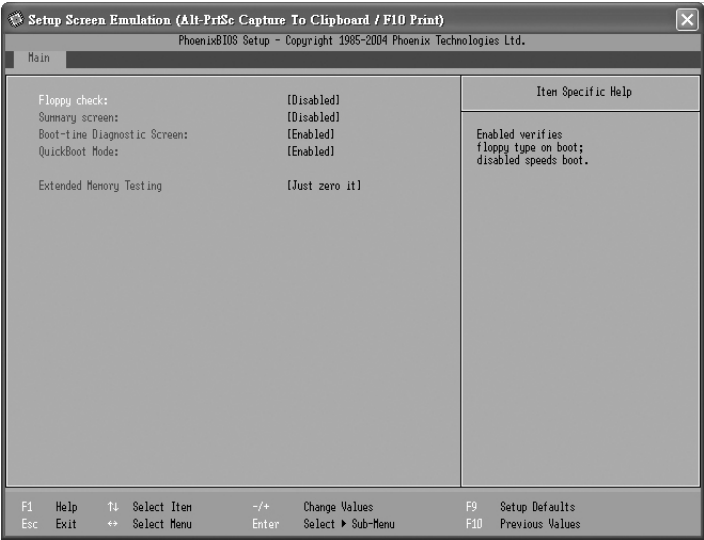
Advanced Main Menu
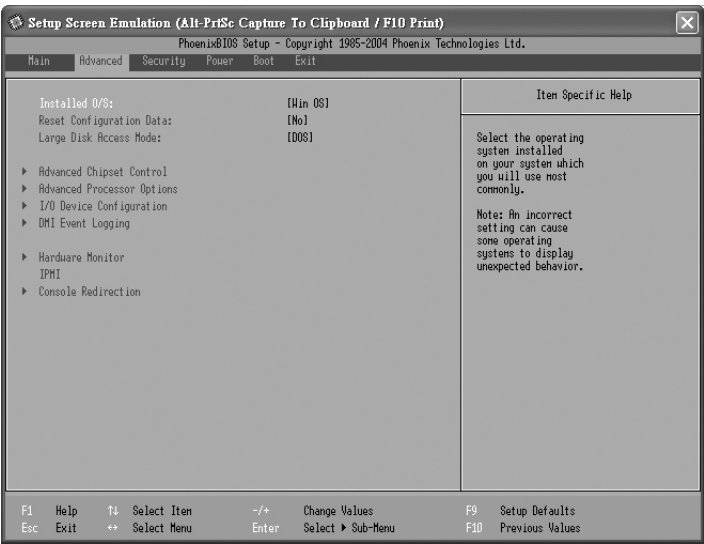
Advanced Chipset Control Menu

FBD Memory Configuration Menu

PCI & PCIE Control Menu

USB Control Menu

PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.

Advanced

		Item Specific Help
OnChip USB Controller	[Enabled]	
OnChip USB 2.0 Controller	[Enabled]	[Enabled]:Enabled On-Chip USB Controller.
		[Disabled]:Disabled
Legacy USB Support:	[Enabled]	On-Chip USB Controller.

F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	↔	Select Menu	Enter	Select ▶ Sub-Menu	F10 Previous Values

Advanced Processor Control Menu

PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.

Advanced

		Item Specific Help
Hyperthreading:	[Enabled]	
		Enabling Hyperthreading
Numbers of Stop Grant	[Per Core]	activates additional
Intel(R) Virtualization Technology	[Disabled]	CPU threads. These
Machine Checking	[Disabled]	threads may appear as
		additional processors
Thermal Management 2	[Enabled]	but will share some
C1 Enhanced Mode	[Disabled]	resources with the
No Execute Mode Mem Protection	[Enabled]	other threads within
Set Max Ext CPUID = 3	[Disabled]	the physical package.
Discrete MTRR Allocation	[Disabled]	
Intel EIST support:	[Disabled]	

F1	Help	↑↓	Select Item	-/+	Change Values	F9 Setup Defaults
Esc	Exit	↔	Select Menu	Enter	Select ▶ Sub-Menu	F10 Previous Values

Device Configuration Menu

```
┌─ Setup Screen Emulation (Alt-PrtSc Capture To Clipboard / F10 Print) ──────── [X] ┐
│              PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.      │
│ ┌──────────┐                                                                         │
│ │ Advanced │                                                                         │
│ └──────────┘                                                                         │
│                                                          Item Specific Help         │
│   Floppy disk controller:       [Enabled]                                           │
│   Serial port A:                [Enabled]                                           │
│   Base I/O address:             [3F8]          Configure using these                │
│   Interrupt:                    [IRQ 4]        options:                              │
│   Serial port B:                [Enabled]                                           │
│   Mode:                         [Normal]       [Disabled]                           │
│   Base I/O address:             [2F8]            No configuration                   │
│   Interrupt:                    [IRQ 3]                                              │
│   Restore On AC Power Loss      [Power Off]    [Enabled]                            │
│                                                  User configuration                │
│                                                                                     │
│                                                [Auto]                               │
│                                                  BIOS or OS chooses                 │
│                                                  configuration                      │
│                                                                                     │
│                                                (OS Controlled)                      │
│                                                  Displayed when                      │
│                                                  controlled by OS                    │
│                                                                                     │
│  F1   Help    ↑↓  Select Item    -/+   Change Values        F9   Setup Defaults    │
│  Esc  Exit    ↔   Select Menu    Enter Select ▶ Sub-Menu    F10  Previous Values   │
└─────────────────────────────────────────────────────────────────────────────────┘
```

DMI Event Logging Menu

```
┌─ Setup Screen Emulation (Alt-PrtSc Capture To Clipboard / F10 Print) ──────── [X] ┐
│              PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.      │
│ ┌──────────┐                                                                         │
│ │ Advanced │                                                                         │
│ └──────────┘                                                                         │
│                                                          Item Specific Help         │
│   Event log validity                                                                │
│   Event log capacity                           Report the validity of               │
│                                                the DMI event log                     │
│   View DMI event log                                                                │
│                                                                                     │
│   Event Logging               [Enabled]                                             │
│   ECC Event Logging           [Enabled]                                             │
│                                                                                     │
│   Mark DMI events as read                                                           │
│   Clear all DMI event logs    [No]                                                  │
│                                                                                     │
│                                                                                     │
│  F1   Help    ↑↓  Select Item    -/+   Change Values        F9   Setup Defaults    │
│  Esc  Exit    ↔   Select Menu    Enter Select ▶ Sub-Menu    F10  Previous Values   │
└─────────────────────────────────────────────────────────────────────────────────┘
```

Hardware Monitor Menu

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Advanced

		Item Specific Help
Chassis Intrusion Detect:	[Disabled]	
▶ Voltage Monitoring		If enable,system stops
▶ Fan Speed Monitoring		at POST if Chassis
▶ Temperature Monitoring		intrusion is detected.
		By entering the BIOS
		the Chassis intrusion
		Flag should be cleared.

F1	Help	↑↓	Select Item	-/+	Change Values	F9	Setup Defaults
Esc	Exit	↔	Select Menu	Enter	Select ▶ Sub-Menu	F10	Previous Values

Voltage Monitoring Menu

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Advanced

		Item Specific Help
CPU1 Vcore =		
CPU2 Vcore =		
+1.5 V =		
+ 5 V =		
+ 12 V =		
+3.3 V =		
5VSB =		
Vbat =		

F1	Help	↑↓	Select Item	-/+	Change Values	F9	Setup Defaults
Esc	Exit	↔	Select Menu	Enter	Select ▶ Sub-Menu	F10	Previous Values

Fan Speed Monitoring Menu

Temperature Monitoring Menu

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Console Redirection Menu


```
Setup Screen Emulation (Alt-PrtSc Capture To Clipboard / F10 Print)        [X]
                PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
        Advanced

    Com Port Address              [Disabled]              Item Specific Help

    Baud Rate                     [19.2K]                 Cannot_Find_String
    Console Type                  [VT100]
    Flow Control                  [None]
    Console connection:           [Direct]
    Continue C.R. after POST:     [Off]




 F1   Help    ↑↓  Select Item   -/+    Change Values    F9    Setup Defaults
 Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu   F10   Previous Values
```

Security Menu


```
Setup Screen Emulation (Alt-PrtSc Capture To Clipboard / F10 Print)        [X]
                PhoenixBIOS Setup - Copyright 1985-2004 Phoenix Technologies Ltd.
   Main     Advanced    Security    Power    Boot    Exit

    Supervisor Password Is:                              Item Specific Help
    User Password Is:

    Set Supervisor Password
    Set User Password

    Password on boot:             [Disabled]




 F1   Help    ↑↓  Select Item   -/+    Change Values    F9    Setup Defaults
 Esc  Exit    ↔   Select Menu    Enter  Select ▶ Sub-Menu   F10   Previous Values
```

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Power Menu

Boot Menu

Exit Menu

Setup Screen Emulation (Alt-PrtSc Capture To Clipboard / F10 Print)

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| Main | Advanced | Security | Power | Boot | Exit |

Exit Saving Changes
Exit Discarding Changes

Load Setup Defaults
Discard Changes
Save Changes

Item Specific Help

Exit System Setup and
save your changes to
CMOS.

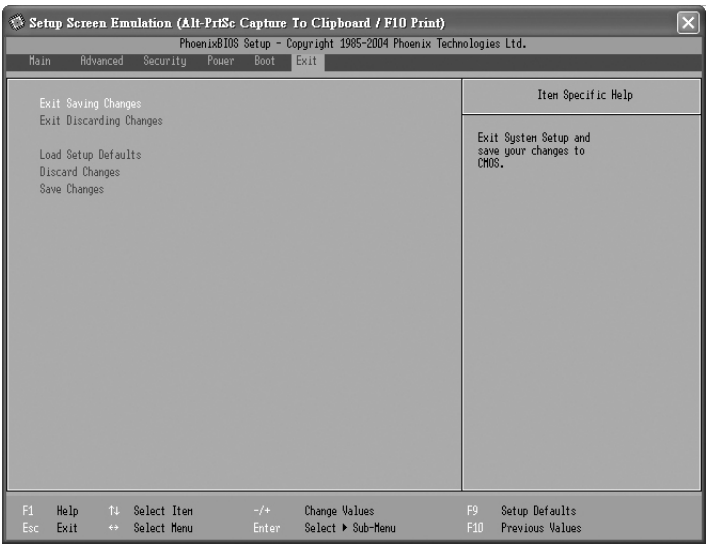| F1 | Help | ↑↓ | Select Item | -/+ | Change Values | F9 | Setup Defaults |
| Esc | Exit | ↔ | Select Menu | Enter | Select ▶ Sub-Menu | F10 | Previous Values |

Appendix II: Cable Connection Tables

SAS / SATA Cables

Table 1: B5381(with LSI SAS controller)

M1210 Adapter Board	Connect to	Motherboard
SAS 1 (J21)	→	SAS Connector (SAS2)
SAS 2 (J22)		
SAS 3 (J23)		
SAS 4 (J24)		

Table 2: B5381 (without LSI SAS controller)

M1210 Adapter Board	Connect to	Motherboard
SAS 1 (J21)	→	SATA Connector (J8)
SAS 2 (J22)		
SAS 3 (J23)		
SAS 4 (J24)		

Power Supply Cables

Table 3: Power Supply to Motherboard

Power Supply	Connect to	Motherboard
P1 24-pin power cable	→	CN5 24-pin connector
P2 8-pin power cable	→	CN6 8-pin connector

Table 4: Power Supply to M1210 Adapter Board

Power Supply	Connect to	M1210
P4 4-pin power cable	→	PW1 4-pin connector
P5 4-pin power cable	→	PW2 4-pin connector

Other Cables

Table 5: M1210 Adapter Board to Motherboard

M1210	Connect to	Motherboard
J16 (FPIO_140) connector	→	J1

Table 6: M1003 Front Panel Control Board Related Cable

M1003 J1 USB connector	→	M1210 J15 connector

Table 7: DVD-ROM Related Cable

M1210 IDE1 (DVD-ROM) connector	→	DVD-ROM Backplane
M1210 J11 power connector	→	DVD-ROM Backplane

Table 8: FDD Related Cable (Optional)

M1210 J2 (FDD) connector	→	Slim FDD drive

Appendix III: Memory Population Rules

Channel DIMM	Single	Dual	Four	Four	Four
DIMM1 (A0)	X	X	X	X	X
DIMM2 (A1)				X	X
DIMM3 (A2)					X
DIMM4 (B0)		X	X	X	X
DIMM5 (B1)				X	X
DIMM6 (B2)					X
DIMM7 (C0)			X	X	X
DIMM8 (C1)				X	X
DIMM9 (C2)					X
DIMM10 (D0)			X	X	X
DIMM11 (D1)				X	X
DIMM12 (D2)					X

NOTE**: Please always install memory beginning with DIMM1.**

You can choose to install single, dual or four channel population.

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.

Tank GT25, B5381 Service Engineer's Manual v1.0

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