Tank GT14

B5372-LC

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

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- 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 on 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 GT14. 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 Tank GT14 B5372-LC barebones, packing list, describes the external components, and provides block diagrams of the system.

Chapter 2: Covers procedures on installing the CPU, memory modules, a PCI Express card, and hard drives.

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

Appendix: Describes the differences between mainboard BIOS and system BIOS. Provides the FRU parts list and cable connection tables for reference of system setup. Instructions on installing the SMDC card and reversing the GT14 chassis 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 Tank GT14, 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.

Table of Contents

Chapter 1: Overview

1.1 About the Tank GT14 B5372-LC

Congratulations on your purchase of the TYAN Tank™ GT14 B5372-LC, a highly-optimized rack-mountable barebone system. The Tank GT14 B5372-LC is designed to support up to 2 Intel® Xeon 5000/5100LV/5300(80W)/5300LV series processors, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, the Tank GT14 B5372-LC server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and a lightning-fast PCI-Express bus implementation. The Tank™ GT14 B5372-LC 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™ GT14 B5372-LC in SATA flavor while supporting two (2) internal hard drives. The Tank™ GT14 B5372-LC uses TYAN's latest tooling-made chassis featuring a robust structure, tool-less and modularized design, and a solid mechanical enclosure. All of these provide the Tank™ GT14 B5372-LC the power and flexibility to meet the needs of nearly any server application.

1.2 Product Model

Model	HDD Bays	Hot-Swap Support
GT14 B5372-LC	Internal, 2 HDDs	No

1.3 Features

Enclosure
- Industry 19” rack-mountable 1U chassis
  - (2) 2.5” HDD internal tray
- Dimensions:
  - D 14.4 x W 17.2 x H 1.71 inch (D 365 x W 436 x H 43.5mm)

Processors
- Dual LGA771 sockets
- Supports up to 2 Intel® Xeon 5100/5100LV/5300(80W)/5300LV series processors
- 1066/1333MHz FSB

Chipsets
- Intel® 5000V (Blackford-VS) MCH
- Intel® ESB2 I/O Controller Hub
- SMSC SCH5017 Super I/O Chip
- SMSC EMC6D103 H/W monitoring IC

Memory
- Dual memory channels
- Supports six (6) Fully-Buffered DIMMs
- DDR2 667/533 memory

Expansion Slots
- Aligned (1) 64-bit/133MHz PCI-X slot and (1) x8 PCI-E slot, supporting PCI-E (x16 slot, M2082-2)
- Optional 133MHz PCI-X (M2055) riser card
- Supports (1) full height/full length add-in card

Back I/O Ports
- Stacked PS/2 mouse & keyboard ports
- Stacked two (2) USB 2.0 ports
- One (1) 15-pin VGA port
- One (1) 9-pin COM port
- Two (2) RJ-45 10/100/1000 Base-T ports

Front Panel Features
- I/O: (2) USB 2.0 ports
- LED indicators
  - Power LED
  - (2) LAN LEDs
  - ID LED
  - HDD active LED
  - Warning LED
- Switches
  - Power switch
  - ID switch

Integrated Storage Controller
- ESB2
- Single channel master mode supports two (2) IDE devices
- Supports up to four (4) ports running up to 3.0Gb/s

Storage
- Hard Disk Drives:
  - Supports two (2) SATA/SATA2 HDD with RAID 1, 0

Networking
- Two LAN ports
  - Dual Gigabit ports (ESB2 embedded) with i82563EB dual-PHY

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

Motherboard
- TYAN S5372 G2NR-LC system board
- SSI CEB v1.01 footprint (12 x 10.5 inch)

BIOS
- Phoenix BIOS® on 8Mbit Flash ROM
- Supports APM 1.2, ACPI 1.0
- Serial Console Redirect
- USB boot supported
- PnP, DMI2.0, WfM2.0 power management

Server Management

- System fan speed monitoring and control
- Supports Tyan Server Management (TSM)
- Optional TYAN M3291 SMDC kit, IPMI 2.0 compliant
- Supports TYAN LCM module

System Cooling

- (4) 40x40x28mm 15000rpm heavy-duty fans with fan speed monitor/control
- (2) Passive CPU heatsinks

Power Supply

- High efficiency (80+) EPS 12V, 1U, 400W with PFC
- 100V~240V AC input

Regulatory

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

Environment Temperature

- Operating temperature 5^{o}C~35^{o}C
- Non-operating temperature -40^{o}C ~ 70^{o}C

1.4 Unpacking

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.

1 x Tyan driver CD

Power Cables
Left to right: Europe, US

HDD Screws

Barebone & Mainboard Manual

Heatsink x 2

LCD Bracket x 1

Mounting Ear Kit

Rail Kit

Rail kit options: A, B, C

The following three rail kits are available to rackmount your GT14 B5372-LC.

A. Rail for 4-post rack

Sliding Rails x2
Sliding Brackets x4 (Front L-Bracket x2, Rear L-Bracket x2)
Mounting Brackets x 4
M4-4L screw x 18pcs
M5-8L screw x 10pcs
M5-15L screw x 4pcs

B. Rail for 2-post rack

Inner Rail Brackets x2 (including screws)
Mounting Brackets x2
M5-8L screw x 14pcs
M4-4L screw x 8pcs

C. Rail for 4-post rack

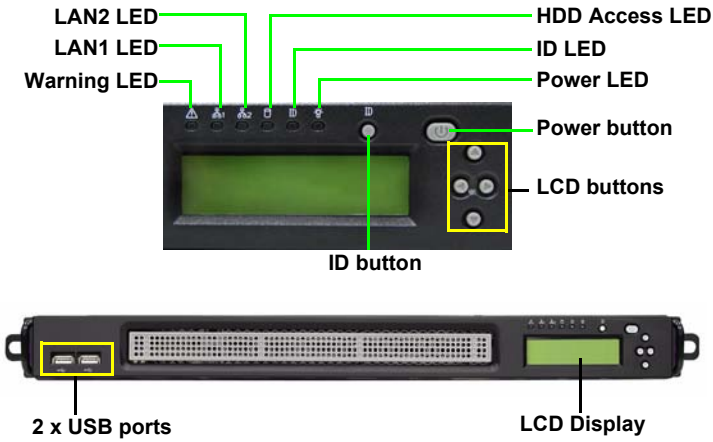
Inner Rails x2
Post Slide Mounting Brackets x4
Assembled Outer Sliding Rails x2
M4-4L screw x 30pcs
M5-8L screw x 10pcs
M5-15L screw x 4pcs

NOTE: For detailed information on rail kit of C, please contact our sales representative.

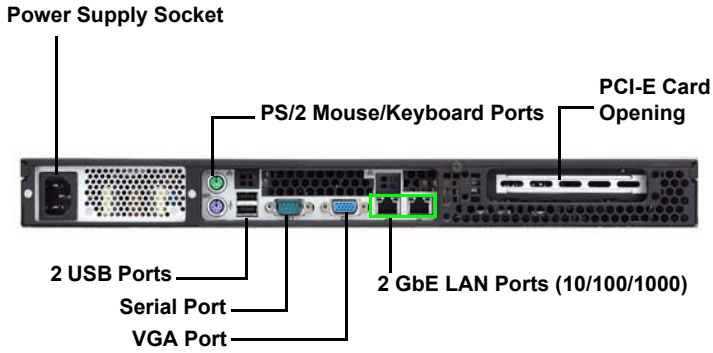
1.5 About the Product

The following views show you the product.

1.5.1 Front View



1.5.2 Rear View



1.5.3 LED Definition

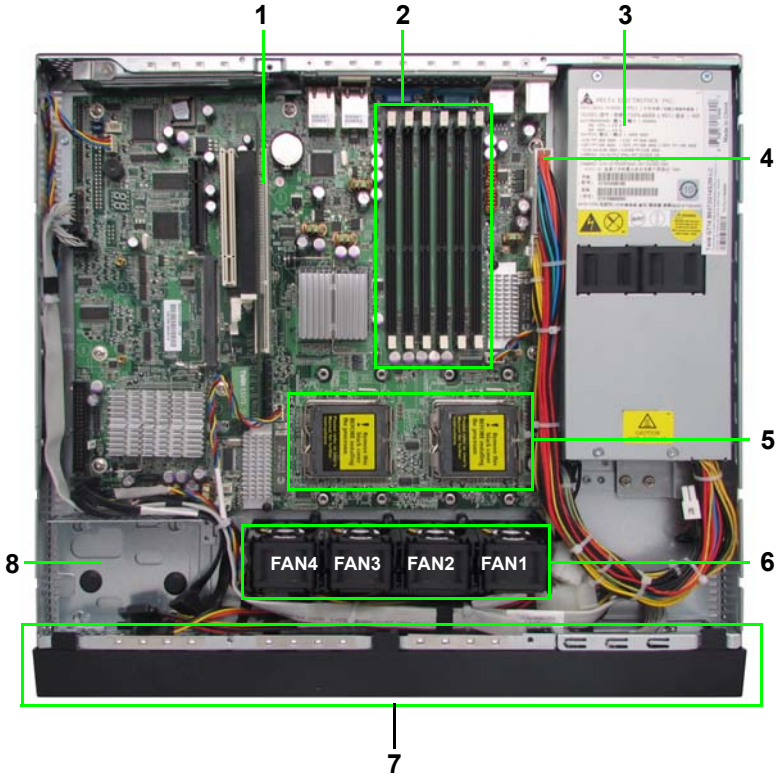
Front Panel

LED	Color	State	Description
Power	Green OFF	ON OFF	Power ON Power OFF
HDD Access	Amber OFF	Random Blink OFF	HDD access No disk activity
LAN1/LAN2 Activity	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
Warning	Red OFF	ON OFF	System fails (fan fail/ over voltage) Normal
ID LED	Blue OFF	ON OFF	System is identified System is not identified

Rear I/O LED

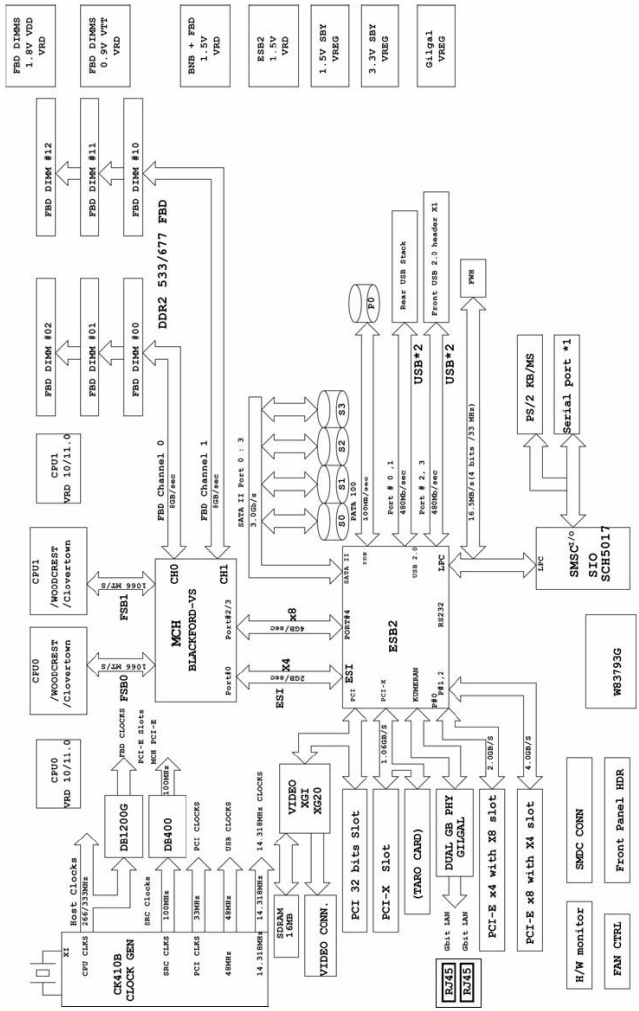
LED	Color	State	Description
LAN Linkage/ Activity (Left Side)	Green Green OFF	ON Blinking OFF	LAN linked LAN accessing No LAN linked
LAN Mode (Right Side)	Orange Green OFF	ON ON OFF	1000Mb mode 100Mb mode 10Mb mode or No LAN linked

1.5.4 Internal View

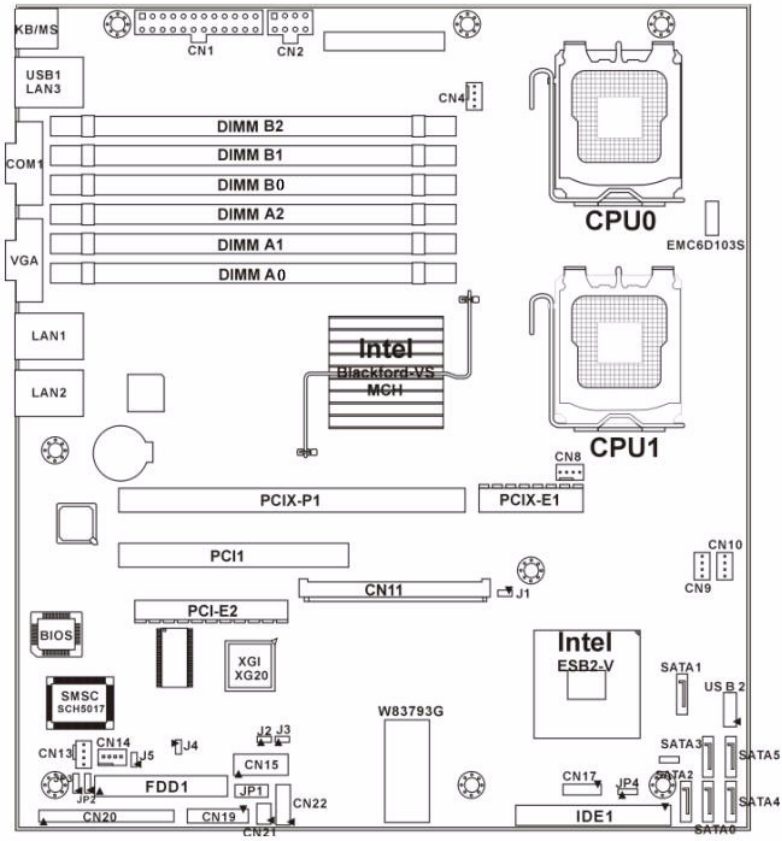


1. M2082-2 PCI-E (or M2055 PCI-X) Riser card
2. Memory slots
3. EPS Power supply
4. Power connector
5. CPU sockets
6. Fans (Right to Left: Fan1, Fan2, Fan3, Fan4)
7. Front LED panel
8. 2.5” Dual hard disk drive

1.5.5 Motherboard Block Diagram



1.5.6 Motherboard Layout



Jumpers & Connectors

Jumper /Connector	Function
JP2/JP3	ASF1.0/SMDC Select Header
JP4	Clear CMOS Jumper
CN1/CN2	ATX Power Connectors
CN4/CN8	CPU Fan Connectors (CN4: CPU0 Fan / CN8: CPU1 Fan)
CN9/CN10/ CN13/CN14	Chassis Fan Connectors (CN9: FAN2 / CN10: FAN1 / CN13: FAN3 / CN14: FAN4)
CN11	Tyan SO-DIMM Connector
CN12	Front Panel USB2.0 Connector
CN15	COM2 Header
CN19	Front Panel Header
CN20	SMDC Connector
CN21	LCM Header
CN17/CN22	Reserved

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-X 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 GT14 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 Installing Motherboard Components

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

2.1.1 Removing the Top Chassis Cover

Follow these instructions to remove the Tank GT14 top chassis cover.

1. Remove the screw on the back side and two on the top of the top chassis cover.

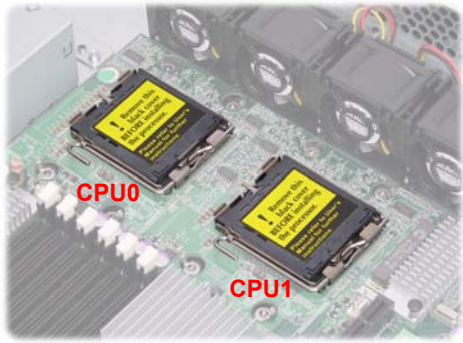
2. Slide the top chassis cover in the direction of arrow.

3. Lift the cover off.

2.1.2 Installing the CPU and Heatsink

Follow these instructions to install the CPU and CPU heatsink.

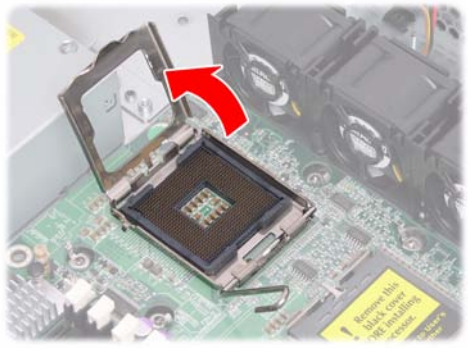
1. Locate the CPU sockets. Start installing the CPU with CPU0 socket first.



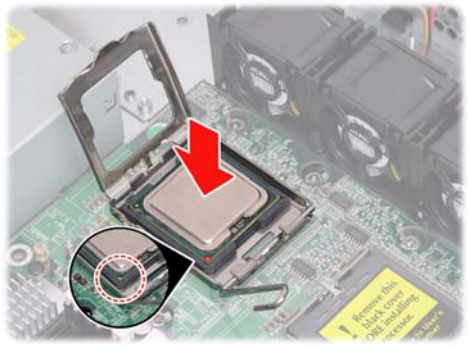
2. Take off the CPU protection cap.

3. Pull the CPU lever up to unlock the CPU socket.

4. Open the socket in the direction as shown.

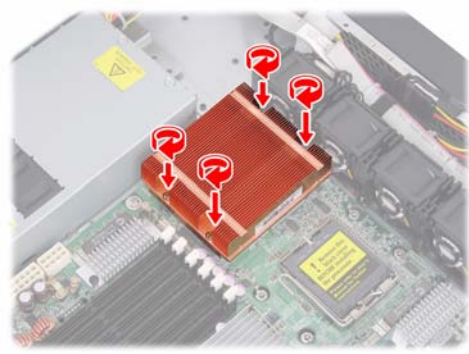


5. Place the CPU in the CPU socket, ensuring that pin 1 is located as shown below.



6. Close the CPU socket cover and press the CPU socket lever down to secure the CPU.

7. Place the heatsink on the top of the CPU and screw into place as shown.

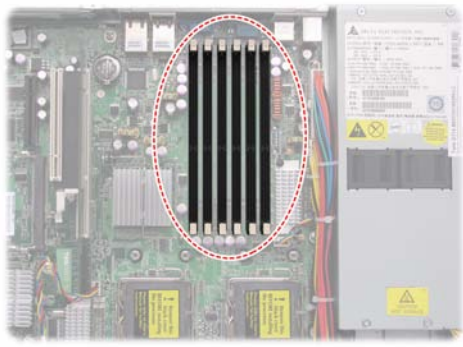


8. Repeat these steps to install CPU and heatsink for the second CPU socket.

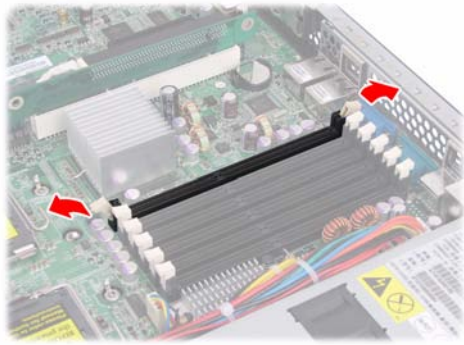
2.1.3 Installing the Memory

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

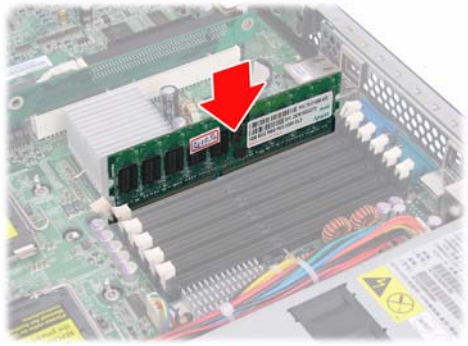
1. Locate the memory slots on the motherboard.



2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. The module has indentations that align with notches in the slots.
4. Insert the memory module into the slot as shown. See the memory population rules in the following table.



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**.

Memory Population Rules

DIMM / Channel	Single Channel	Dual Channel		
DIMM6 / DIMMA0	X	X	X	X
DIMM5 / DIMMA1			X	X
DIMM4 / DIMMA2				X
DIMM3 / DIMMB0		X	X	X
DIMM2 / DIMMB1			X	X
DIMM1 / DIMMB2				X

(X indicates a populated DIMM slot.)

NOTE:

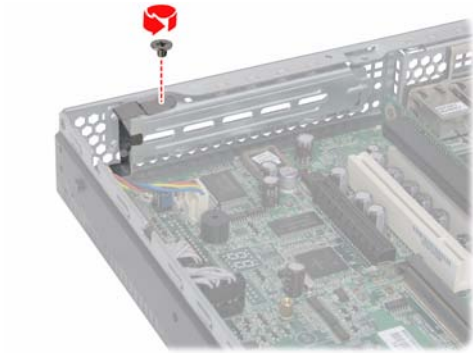
For optimal dual channel operations, always install memory in pairs beginning with DIMM6 and DIMM3. One pair of DIMM must be of the same type of DIMM.

For single channel mode: only one DIMM at DIMM6. Others must be in dual channel mode.

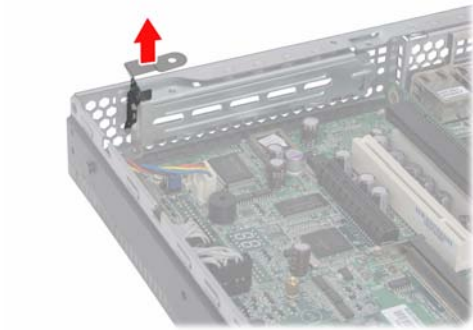
2.1.4 Installing the PCI-E Card

Follow these instructions to install a PCI-E card.

1. Remove the screw securing the tab of PCI-X slot from the rear side of your GT14 B5372-LC-LC system.

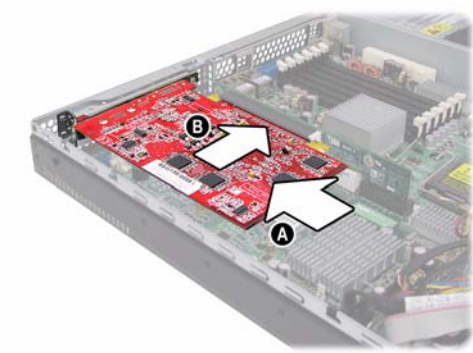


2. Pull the tab of PCI-X slot on the rear side in the direction as shown to release the I/O shield.

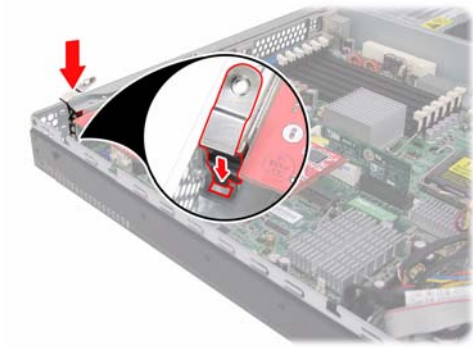


3. Move the I/O shield to left as shown and then take off the I/O shield.

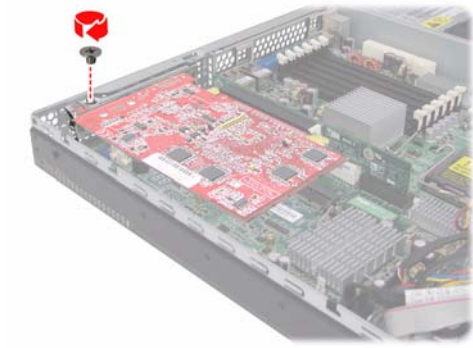
4. Insert the PCI-E card in the direction of arrows as shown.



5. Push the tab of PCI-X slot on the rear side in the direction as shown to secure the PCI-X card.



6. Secure the tab of PCI-X slot on the rear side with one screw as shown.

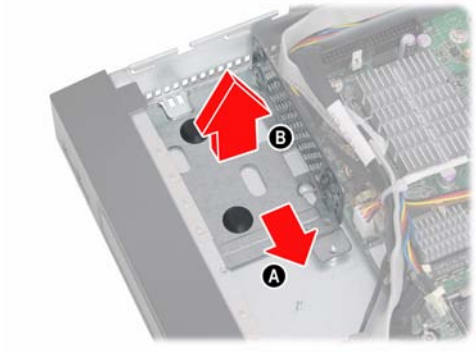


2.2 Installing Dual 2.5” Hard Drives

The GT14 chassis kit supports up to two internal SATA hard drives. Follow these instructions to install dual 2.5” internal hard drives.

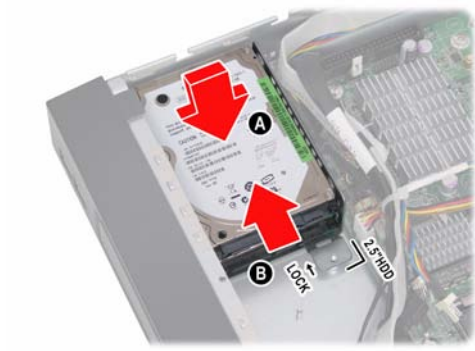
1. Remove the screw securing the 2.5” drive bracket in the GT14 chassis.

2. Slide the drive tray out (A) and lift the bracket out from the chassis (B).



3. Place the two 2.5” hard drives into the 2.5” drive bracket. Use 8 HDD screws to secure the hard drives.

4. Place the assembled hard drives with bracket in the spot you picked the 2.5” hard drive bracket from the GT14 chassis (A) and slide it into place (B). Make sure the assembled hard drives are placed correctly as the indication shown on the chassis.



5. Secure the assembled hard drives with the screw removed in step 1.

6. Connect the two SATA power connectors to the hard drives. Then connect the hard drives to the motherboard using two supplied SATA cables.

2.3 Rack Mounting

After installing the necessary components, the Tank GT14 can be mounted in a rack using the supplied rack mounting kit. The screw types are listed below for your reference.

Screws List

Rail for 4-post rack (Rail kit A)			
Item	Screw	Size	Quantity
A		M4-4L	18
B		M5-8L	10
C		M5-15L	4
Rail for 2-post rack (Rail kit B)			
Item	Screw	Size	Quantity
D		M5-8L	14
E		M4-4L	8
Mounting ear kit screws			
Item	Screw	Size	Quantity
F		M4-15L	2

For the complete contents in the rack mounting kit, see **"1.4 Unpacking"** on page 4 for more information.

2.3.1 Installing the Server in a Rack (with Rail kit A)

Follow these instructions to mount the GT14 into an industry standard 19" rack.

(Rail kit A)

NOTE: Before mounting the Tank GT14 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.

Installing the Inner Rails to Chassis

1. Screw the mounting ear to each side of GT14 as shown using 2 screws from the supplied mounting ear kit.

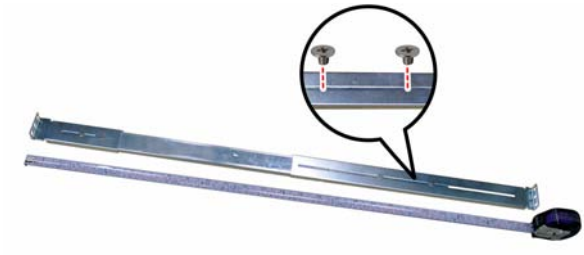
2. Press the latch and draw out the inner rails from rail assembly.

3. Install inner rails to left and right sides of chassis using 1 M4-4L(A) screw for each side.

Installing Outer Rails to the Rack

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

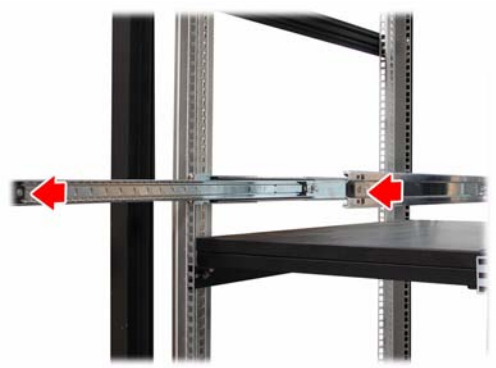
5. Reserve the distance same as in step 4 on rear racket. Secure the rear bracket to outer rail with 2 M4-4L(A) screws.



6. Secure the outer rails to the rack using 2 brackets and 5 M5-8L(B) screws for each side (2 at front side and 3 at rear side). Secure the mounting brackets from inside, not outside, of the rack.

Rackmounting the Server

7. Draw out the middle rails to the latch position.



8. Lift the chassis and then insert the inner slide rails into the middle rails.

9. Push the chassis in and press the latch key (A). Then push the whole system into the rack (B).

A

B

10. Secure the mounting ears of chassis to the rack with one M4-15L(F) screw for each side.

NOTE: To avoid injury, it is strongly recommended that two people lift the GT14 into the place while a third person screws it to the rack.

2.3.2 Installing the Server in an Open Rack (with Rail kit B)

In addition to rackmounting the GT14 in a 4-post rack, you can also mount it in a 2-post rack. You *must* use rail kit B to mount the GT14 in this type of rack.

2-post open rack

NOTE: Before mounting the Tank GT14 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.

1. Install the inner rail brackets to left and right sides of chassis using 3 M4-4L(E) screws for each side.

2. Lift the chassis and secure the mounting brackets to the front of rack using 3 M5-8L(D) screws for each side.

NOTE: To avoid injury, it is strongly recommended that two people lift the GT14 into the place while a third person screws it to the rack.

3. Locate the three small brackets at the rear of rack as shown. Adjust their positions to fit the mounting brackets to be secured in the following steps.

4. Slide the mounting brackets into the rear of inner rail brackets as shown.

5. Secure the mounting brackets with three M4-4L(E) screws for each side.

6. The GT14 has been mounted to the rack as shown.

2.4 LCD Software Setup

2.4.1 Configuring the System

After you have made the network and power connections, you can configure the network settings using the LCD console.

Before You Begin

Before you begin, make sure that you have the following information ready:

- IP address assigned to the system
- Subnet mask of your network'

2.4.2 M1000 Driver Installation for Windows

Step 1. Install TYAN TSM program.

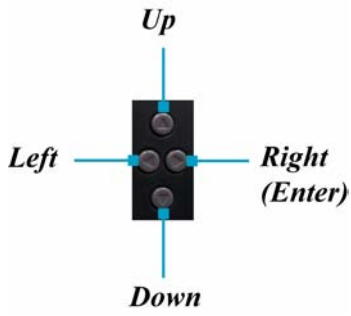
Step 2. Install M1000 driver for Windows.

2.4.3 M1000 Driver Installation for Linux

Step 1. Install M1000 driver for Linux

2.5 LCD Console

Here shows the LCD front panel and its four control buttons.



2.5.1 Key Definition

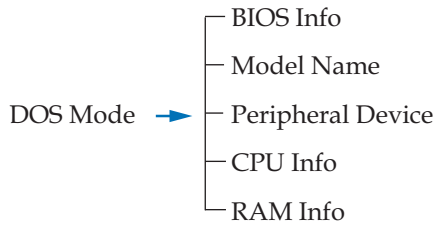
1. **Up**: Go to the previous selection.
2. **Left**: Go to the previous level selection.
3. **Right (Enter)**: Go to the next level selection; press again to execute command.
4. **Down**: Go to the next selection.

After you have installed the ***TYAN TSM*** and ***M1000 driver for Windows*** (for Windows OS) or the ***M1000 driver for Linux*** (for Linux OS), you can use the LCD front panel control buttons to get access to the information under each submenu.

2.5.2 DOS Mode and Windows Mode

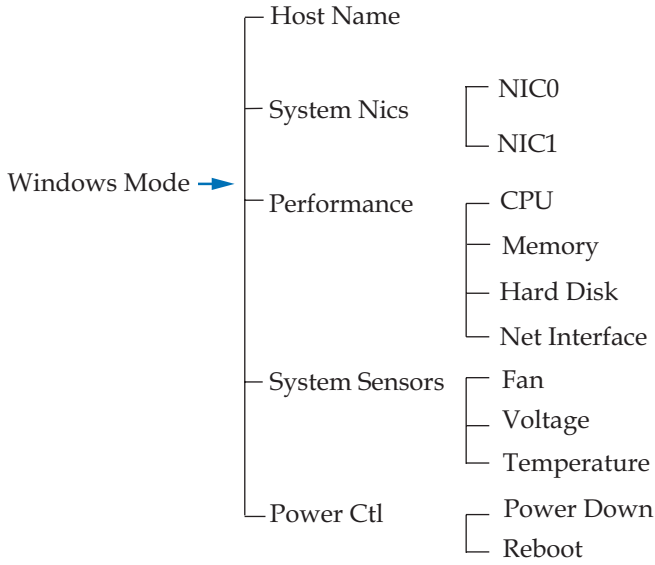
M1000 supports both **DOS Mode** and **Windows Mode**.

DOS Mode



No.	*Item*	*Screen Display*
1	BIOS Info	V0.08.B10 memory Init.
2	Model Name	Tank GT14 MODEL-B5372-LC
3	Peripheral Device	PCI Initialize & Resource Allocate
4	CPU Info	CPU: xxxx MHz
5	Memory Info	Memory: xxxx MB

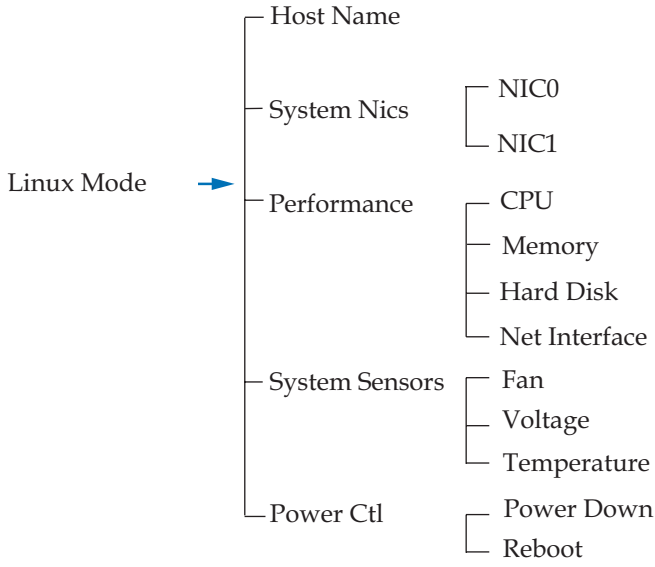
Windows Mode



Item		***Screen Display***	
Host Name		TYAN Computer GT14 B5372-LC	
1	**System Nics**		
	1.1	NIC0	DHCP IP Address: xx.xx.x.xxx Net Mask: xxx.xxx.xxx.0 Gateway: xxx.xxx.xxx.0
	1.2	NIC1	DHCP IP Address: xx.xx.x.xxx Net Mask: xxx.xxx.xxx.0 Gateway: xxx.xxx.xxx.0

Item	*Screen Display*		
Host Name	TYAN Computer GT14 B5372-LC		
2	**Performance**		
	2.1	CPU	CPU Usage x.xx%
	2.2	Memory	Memory Usage xx%
	2.3	Harddisk	Disk Usage xx.xx%
	2.4	Net Interface	NIC0 Flow Speed x Bps NIC1 Flow Speed x Bps
3	**System Sensors**		
	3.1	Fan	System Fan1 xxxxRPM System Fan2 xxxxRPM System Fan3 xxxxRPM System Fan4 xxxxRPM
	3.2	Voltage	VCPU0 x.xxV VCPU1 x.xxV FSB VTT x.xxV 1.5V (ESB) x.xxV 3.3V (SBY) x.xxV 3.3Vsb x.xxV VBat x.xxV V+5 x.xxV V+5 (SBY) x.xxV V+12 x.xxV
	3.3	Temperature	CPU 0 Temp.(PECI) xxºC CPU 1 Temp.(PECI) xxºC Ambient temp1 xxºC Ambient temp2 xxºC
4	**Power Ctrl**		
	4.1	Power Down	Power Down
	4.2	Reboot	Reboot

2.5.3 Linux Mode



Item		***Screen Display***	
Host Name		TYAN Computer GT14 B5372-LC	
1	**System Nics**		
	1.1	NIC0	DHCP IP Address: xx.xx.x.xxx Net Mask: xxx.xxx.xxx.0 Gateway: xxx.xxx.xxx.0
	1.2	NIC1	DHCP IP Address: xx.xx.x.xxx Net Mask: xxx.xxx.xxx.0 Gateway: xxx.xxx.xxx.0

Item		*Screen Display*		
Host Name		TYAN Computer GT14 B5372-LC		
2	**Performance**			
	2.1	CPU	CPU Usage	x.xx%
	2.2	Memory	Memory Usage	xx%
	2.3	Harddisk	Disk Usage	xx.xx%
	2.4	Net Interface	NIC0 Flow Speed NIC1 Flow Speed	x Bps x Bps
3	**System Sensors**			
	3.1	Fan	System Fan1 System Fan2 System Fan3 System Fan4	xxxxRPM xxxxRPM xxxxRPM xxxxRPM
	3.2	Voltage	VCPU0 VCPU1 FSB VTT 1.5V (ESB) 3.3V (SBY) 3.3Vsb VBat V+5 V+5 (SBY) V+12	x.xxV x.xxV x.xxV x.xxV x.xxV x.xxV x.xxV x.xxV x.xxV
	3.3	Temperature	CPU 0 Temp.(PECI) CPU 1 Temp.(PECI) Ambient temp1 Ambient temp2	xxºC xxºC xxºC xxºC
4	**Power Ctrl**			
	4.1	Power Down	Power Down	
	4.2	Reboot	Reboot	

Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre installed components including the motherboard, LCD module, LED board, cooling fans, and power supply.

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 Tank GT14 or injury to yourself.

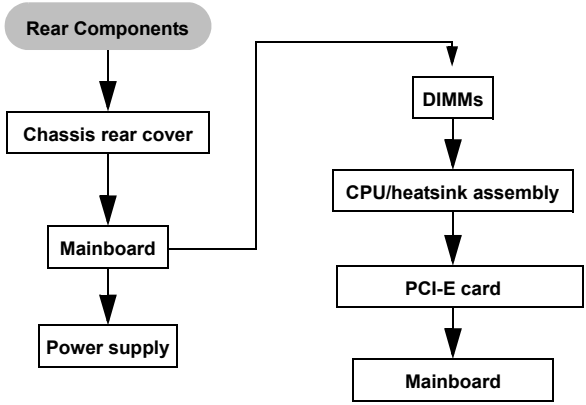
- Ground yourself properly before removing the top cover of the system. Unplug the power from your computer power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity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

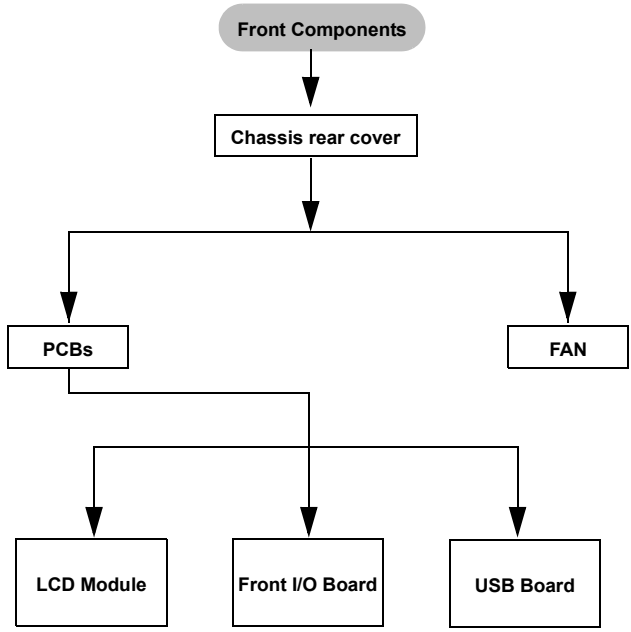
Notes:

- 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.





3.3 Removing the Top Chassis Cover

Before replacing any parts you must remove the top chassis cover.

Follow these instructions to remove the Tank GT14 top chassis cover.

1. Remove the screw on the back side and two on the top of the top chassis cover.

2. Slide the top chassis cover in the direction of arrow.

3. Lift the cover off.

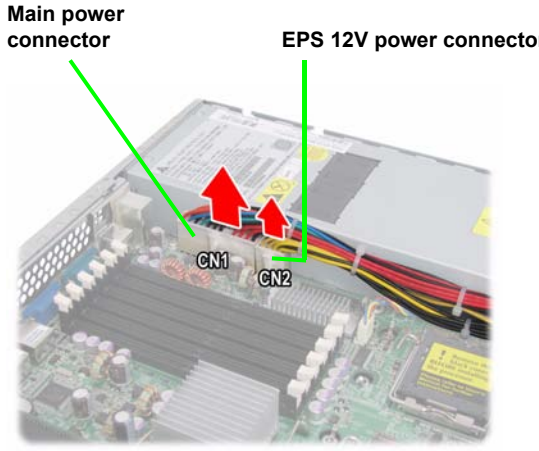
3.4 Replacing Motherboard Components

Follow these instructions to replace motherboard components, including the motherboard.

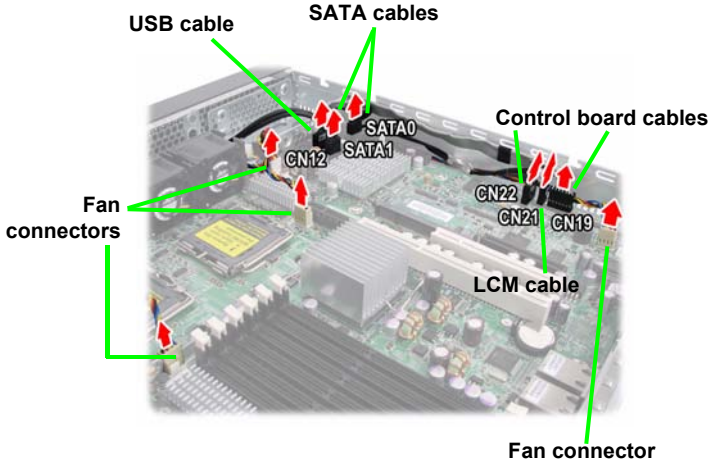
3.4.1 Disconnecting All Motherboard Cables

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

1. Disconnect power cables.



2. Disconnect the LCM cable connector, fan connectors, SATA cables, USB cable, and control board cables.



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 seven screws securing the motherboard to the chassis.

2. Remove the motherboard.

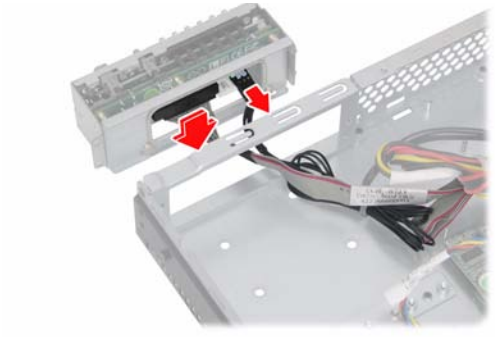
3.5 Replacing the LCD Module and LED Board

Follow these instructions to replace the LCD module in your GT14 B5372-LC system.

1. Remove the chassis front cover as shown.

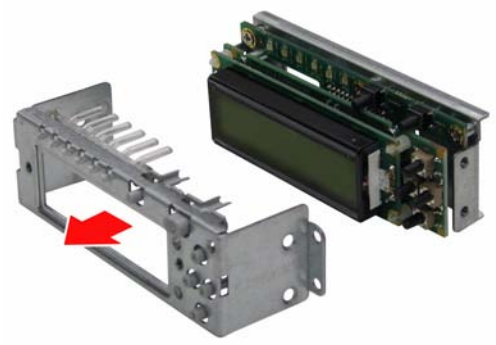
2. Remove the two screws securing to the LCD module.

3. Disconnect the LCM and control board cables.



4. Remove the four screws on both sides of the LCD module.

5. Remove the LCD front bracket from the LCD module.

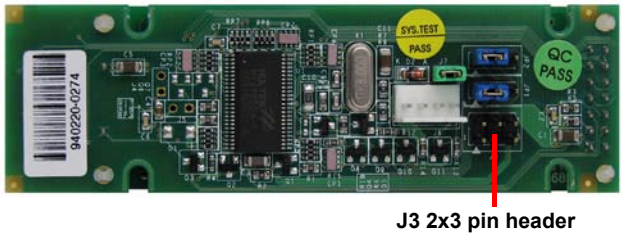


6. Remove the two screws from the rear LCD bracket.

7. Remove the three screws securing the LED board to the rear LCD bracket. Remove the LED board.

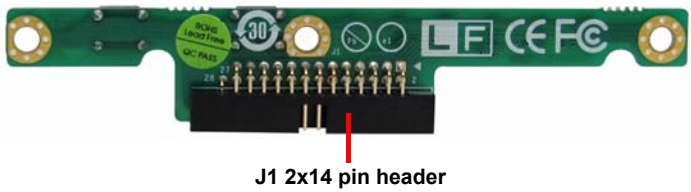
8. Place a new LCD module in position in the chassis following the above steps in reverse.

3.5.1 M1000 LCD Module Features

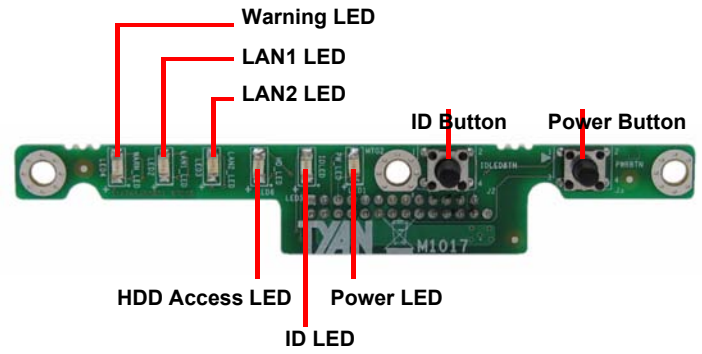


3.5.2 M1017 LED Board Features

Front View



Rear View



3.5.3 M1017 LED Board Connector Pin Definition

J1 (2 x 14 Pin Header)

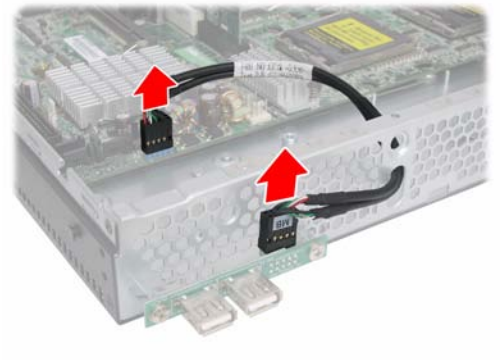
1	HD_LED+	2	HD_LED-
3	RST	4	GND
5	PW_LED+	6	GND
7	WARN_LED+	8	WLED-
9	PCI_SMBUSDA	10	PCI_SMBUSCL
11	FP_NMI_L	12	GND
13	NMI_PWR	14	INTRUDER_L
15	PWRSW-	16	GND
17	LAN1_LED+	18	LAN1_LEDLINK
19	LAN2_LED+	20	LAN2_LEDLINK
21	NC	22	NC
23	IDLED+	24	ID_LED-
25	IDLEDBTN-	26	ID_SW-
27	KEY	28	NC

3.6 Replacing the USB Board

Follow these instructions to replace the USB board in your GT14 B5372-LC system.

1. Remove the chassis front cover as shown.

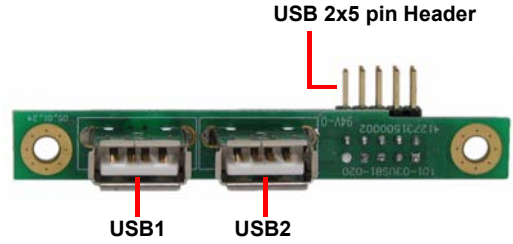
2. Disconnect the USB cable from the USB board.



3. Remove the two screws securing the USB board to separate the USB board from the chassis.

4. Place a new USB board in position in the chassis following the above steps in reverse.

3.6.1 USB Board Features



3.6.2 USB Board Connector Pin Definition

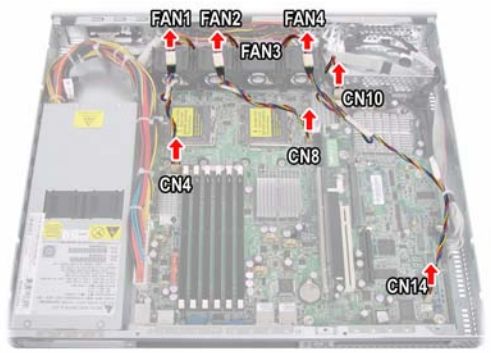
2 x 5 Pin USB Header

1	USB1 POWER	2	USB2 POWER
3	USB1 DATA -	4	USB2 DATA -
5	USB1 DATA +	6	USB2 DATA +
7	USB1 GND	8	USB2 GND
9	KEY PIN	10	NONE

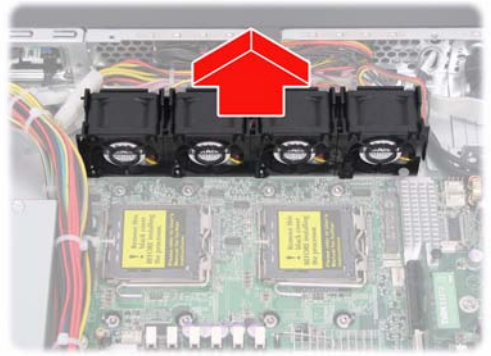
3.7 Replacing the Cooling Fans

Follow these instructions to replace the cooling fans in your GT14 B5372-LC system.

1. Disconnect the fan cable connectors from the fans and the motherboard.



2. Remove the fan unit from the chassis.



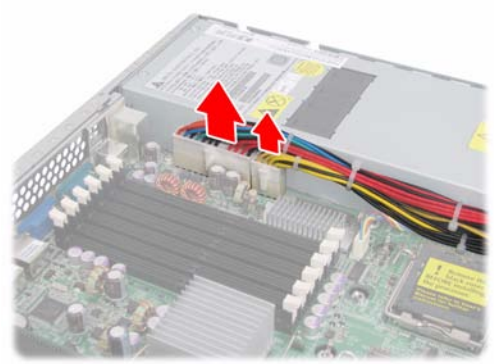
3. Remove the fan you want to replace in the direction of the arrow from the fan cradle.

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

3.8 Replacing the Power Supply

Follow these instructions to replace the power supply in your GT14 B5372-LC system.

1. Remove the top chassis cover. See **"3.3 Removing the Top Chassis Cover"** on page 46 for more details.
2. Detach the power cables from the motherboard. See **"3.4.1 Disconnecting All Motherboard Cables"** on page 47 for more details.



3. Remove the two screws that secure the power supply to the chassis.

4. Remove the two screws securing the power supply to the chassis.

5. Lift the power supply free from the chassis.

6. Replace a new power supply into the chassis following the above steps in reverse.
7. Remove the two screws that secure the power supply front breaket.

Appendix I: BIOS Differences

The BIOS of B5372-LC is similar to the BIOS of S5372. However, there is something different. You may refer to the attached motherboard manual for the complete BIOS information. The difference between B5372-LC and S5372 is on the submenu “Hardware Health Configuration” under “Advanced” menu. See the following for the differences.

S5372-LC Advanced/Hardware Health Configuration

PhoenixBIOS Setup Utility		
Advanced		
		Item Specific Help
▶ Voltage Monitoring		
▶ Fan Control		
CPU0 Fan	xxxx RPM	
CPU1 Fan	xxxx RPM	
CPU0 Fan	xxxx RPM	
CPU1 Fan	xxxx RPM	
Front Fan1	xxxx RPM	
Front Fan2	xxxx RPM	
Rear Fan3	xxxx RPM	
Rear Fan4	xxxx RPM	
CPU 0 Temp.	xx ºC/ xxx ºF	
CPU 0 Temp. (PECI)	xx ºC/ xxx ºF	
CPU 1 Temp.	xx ºC/ xxx ºF	
CPU 1 Temp. (PECI)	xx ºC/ xxx ºF	
Ambient temp1.	xx ºC/ xxx ºF	
Ambient temp2.	xx ºC/ xxx ºF	
F1 Help ↑↓ Select Item	-/+ Change Values	F9 Setup Defaults
Esc Exit ←→ Select Menu	Enter Select ▶ Sub-Menu	F10 Save and Exit

PhoenixBIOS Setup Utility		
Advanced		
		Item Specific Help
Auto Fan Control	[Disabled]	Auto Mode Fan Control Parameters
CPU0 Fan header	[4 Pins	
CPU1 Fan header	[4 Pins	
Front Fan1 header	[4 Pins	
Front Fan2 header	[4 Pins	
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit		

B5372-LC Advanced/Hardware Health Configuration

PhoenixBIOS Setup Utility		
Advanced		
		Item Specific Help
▶ Voltage Monitoring		
▶ Fan Control		
System Fan1	xxxx RPM	
System Fan2	xxxx RPM	
System Fan1	xxxx RPM	
System Fan2	xxxx RPM	
System Fan3	xxxx RPM	
System Fan4	xxxx RPM	
CPU 0 Temp.	xx ºC/ xxx ºF	
CPU 0 Temp. (PECI)	xx ºC/ xxx ºF	
CPU 1 Temp.	xx ºC/ xxx ºF	
CPU 1 Temp. (PECI)	xx ºC/ xxx ºF	
Ambient temp1.	xx ºC/ xxx ºF	
Ambient temp2.	xx ºC/ xxx ºF	
F1 Help ↑↓ Select Item -/+ Change Values F9 Setup Defaults Esc Exit ←→ Select Menu Enter Select ▶ Sub-Menu F10 Save and Exit		

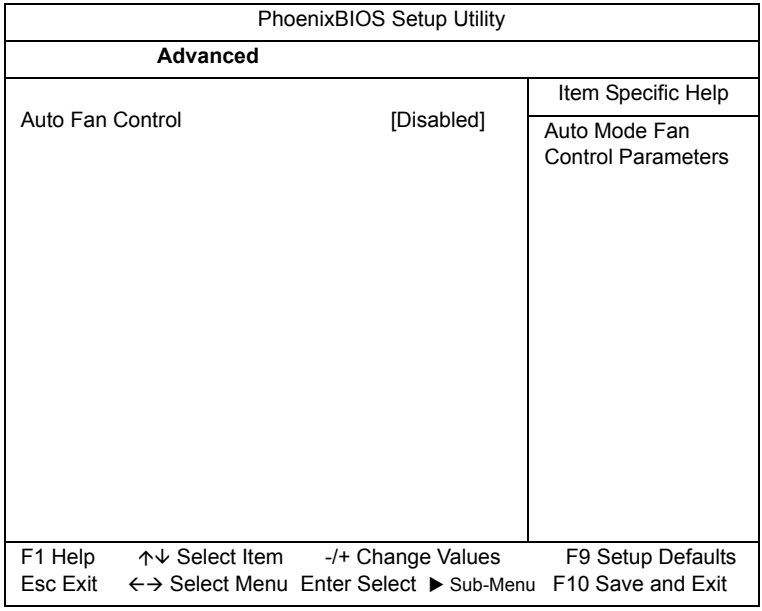


Table of Differences

	S5372-LC	**B5372-LC**
Auto Fan Power Control	Enabled	Disabled
Hardware Monitor Fan	CPU0 Fan CPU1 Fan Front Fan1 Front Fan2 Rear Fan3 Rear Fan4	System Fan1 System Fan2 System Fan3 System Fan4

Appendix II: Cable Connection Tables

SATA Cable

Table 1: GT14 B5372-LC Model

HDD	Connect to	Motherboard
HDD 1	→	SATA 0
HDD 2	→	SATA 2

FAN Cable

Table 2: System Fan to Motherboard

System Fan	Connect to	Motherboard
Fan 1	→	CN4
Fan 2	→	CN8
Fan 3	→	CN14
Fan 4	→	CN10

Power Supply Cable

Table 3: Power Supply to Motherboard

Power Supply	Connect to	Motherboard
P1 24-pin power cable	→	CN1
P2 8-pin power cable	→	CN2

Other Cables

Table 4: M1017 LED Board to Motherboard

M1017 LED Board	Connect to	Motherboard
J1	→	CN19
		CN22

Table 5: USB Board to Motherboard

USB Board	Connect to	Motherboard
USB 2x5 pin header	→	CN12

Table 6: LCD Module to Motherboard

M1000 LCD Module	Connect to	Motherboard
J3	→	CN21
NOTE: M1000 Pin2-3 of JP1 and JP2 should be closed.		

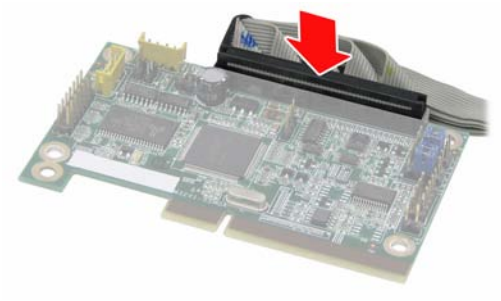
Table 7: Power Supply Cable toHDD

Power Supply	Connect to	HDD
P4	→	HDD1
		HDD2

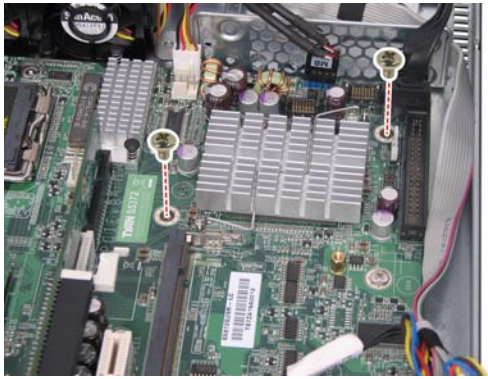
Appendix III: Installing the SMDC Card

The following provides you with the information on installing the M3291 SMDC card into your GT14 chassis.

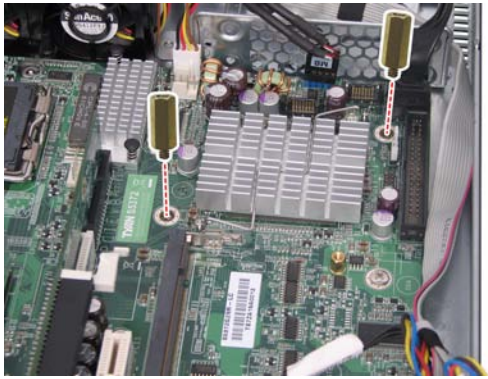
1. Connect the 2x25 pin SMDC cable to M3291 as shown.



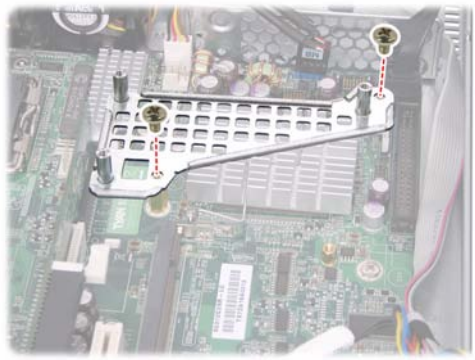
2. Remove the two screws as indicated below.



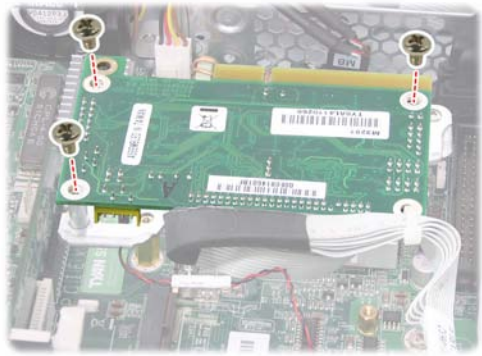
3. Secure the two stand-off screws as shown.



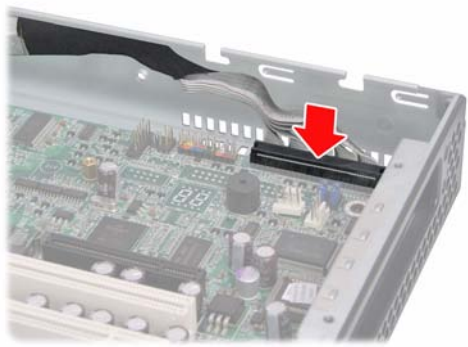
4. Align the SMDC plate holder with the secured stand-off screws and secure in place with two screws as shown.



5. Secure the SMDC card to the plate holder with three screws.



6. Connect the other end of SMDC cable to the SMDC connector (CN20) on the motherboard.

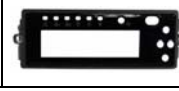


Cable Connection Table

SMDC Card (M3291)	Connects to	Motherboard
J1 connector	→	CN20

Appendix IV: FRU Parts Table

Item	Model Number	Part Number	Picture	Quantity	Description
Motherboard	S5372G2NR-LC	/		1	S5372G2NR-LC Dual Intel® Xeon LGA771
Chassis Unit	CCHA-0220	432765400003		1	GT14 1U chassis
Chassis Top Cover	CCCV-0110	340765400001		1	GT14 Top Cover
Chassis Front Bezel	CFBZ-0120	340765400017		1	Front Bezel for GT14 Series 1U Chassis
HDD Tray	CHDT-0110	340765400020		1	Internal Dual 2.5”HDD Bracket Kit
Power Supply	CPUS-0280	471015200165		1	400W Power Supply
FAN	CFAN-0270	336252012304		4	40*40*28mm Fan, 12V, 14700rpm, 4-pin
Fan Holder	CFHD-0010	340765400034		4	40*40*28mm Fan Holder with Rubber
Heat Sink & Cooler	CHSK-0170	343753600001		2	LGA771 CPU Heat Sink (Main Source)
	CHSK-0171	343753600003		2	LGA771 CPU Heat Sink (Second Source)
	CHSB-0080	342748500001		2	CEK Spring for LGA771

Item	Model Number	Part Number	Picture	Quantity	Description
PCBA	M1017	/		1	Front Control Board
	CPCA-0400	/		1	USB Board
	M3291	/		1	SMDC IPMI Card
Riser Card	M2082-2-RS	/		1	PCI-E Riser Card
	M2055-RS	/		1	PCI-X Riser Card
LCM Module	M1000-RS	/		1	LCD MODULE
LCD Bracket	CMPT-0090	340765400029		1	LCM Front Front-Bracket with Button
	CMPT-0091	340765400030		1	LCM Back Back-Bracket with Standoff
	CMPT-0080	340765400031		1	Rear Braket with Bezel

Item	Model Number	Part Number	Picture	Quantity	Description
Cable Set	CCBL-0723	422766600001		1	Front Control Board Cable, 950mm
	CCBL-0356	422766600006		1	USB Cable, 230mm
	CCBL-0603	422766600002		1	LCM Cable, 900mm
	CCBL-0467	422766600005		1	Power Cable (Y Type), 230mm
	CCBL-0328	422766600003		1	SATA Cable, HS/180-HS/180, 150mm
	CCBL-0327	422766600004		1	SATA Cable, HS/180-HS/90, 150mm
	CCBL-0280	332810000280		1	A/C power cord, L=2440mm US type
	CCBL-0290	332810000281		1	A/C power cord, L=1800mm, EU type
	CCBL-0622	422740900011		1	SMDC Cable, 220mm

Item	Model Number	Part Number	Picture	Quantity	Description
Rack Mounting Parts	CEAR-0120	340765400025		1	Mounting Ear Kit
	CRAL-0110	340765400009		1	GT14 Standard Rail for 4-post
	CRBK-0030	452765400031		1	GT14 Open Rail for 2-post
	CRAL-0111	340765400010		1	GT14 Dual Rail for 4-post with 2 barebones

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 **techsupport@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.mainboard.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, misuse, 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 prepaid. TYAN will pay to have the board shipped back to you.

Tank GT14 B5372-LC Service Engineer's Manual v1.0

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