

Transport GT26

B4987

Service Engineer's Manual



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PREFACE

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Version 1.00

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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;
- 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 on an experienced radio/television technician for help.

Notice for Canada

This apparatus complies with the Class A 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 Transport™GT26-B4987. This Manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts:

- Chapter1:** Provides an introduction to the GT26 B4987 barebones, packing list, describes the external components, gives a table of key components, and provides block diagrams of the system.
- Chapter2:** Covers procedures on installing the CPU, memory modules, PCI-E/PCI-X card, HTX card and hard drives.
- Chapter3:** Covers removal and replacement procedures for pre-installed components.
- Chapter4:** Covers the contents of system BIOS.
- Appendix I:** Covers procedures on installing the SMDC card (M3295) card into the SO-DIMM socket.
- Appendix II:** Listing the cable connection tables for reference of system setup.
- Appendix III:** Provides brief description on how to configure and use the components of LSI Logic IR software product with LSI Logic SAS controller.
- Appendix IV:** Provides brief description on how to install InfiniBand Driver.

SAFETY INFORMATION

Before installing and using the Transport™GT26-B4987, 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 Transport™ GT26 B4987

Congratulations on your purchase of the TYAN Transport™ GT26 B4987, a highly-optimized rack-mountable barebone system. The Transport™ GT26 B4987 is designed to support quad AMD® Opteron 8000 series 1207-pin processors and up to 32DIMMs, providing a rich feature set and incredible performance. Leveraging advanced technology from AMD, the Transport™ GT26 B4987 server system is capable of offering scalable 32 and 64-bit computing, high-bandwidth memory design, and lightning-fast PCI-E, PCI-X bus or HTX slot implementation. The Transport™ GT26 B4987 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 Transport™ GT26 B4987 in SATAII/SAS flavor while supporting up to three (3) hot-swap hard drives and one (1) slim ODD. The Transport™ GT26 B4987 uses TYAN's latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides the Transport™ GT26 B4987 the power and flexibility to meet the needs of nearly any server application.



1.2 Product Models

Model	Supported HDD type & quantity	With IB Onboard	Power supply
B4987G26W3H	SAS(3), Hot-swappable	No	1000W single
B4987G26W3HI	SAS(3), Hot-swappable	Yes	1000W single

1.3 Features

Enclosure

- Industry 19" rack-mountable 1U chassis
 - (1) slim ODD bay
 - (3) 3.5" HDD bays
 - Dimension:
D27.87 x W 17.2 x H1.72 inch
(708 x 436 x 43.6mm)
-

Processors

- Quad mPGA1207-pin Socket
 - Supports up to Quad AMD® Opteron™ Socket F (1207) 8000 series processors
-

Chipset

- nVidia NPF3600 (MCP55)
 - Winbond 83627EHG super I/O controller
 - Winbond 83793G Hardware Monitoring IC
 - LSI 1068E 8-port SAS controller
 - Mellanox InfiniHost MT25204A0-FCC-D (DDR) (Optional for B4987G26W3HI only)
-

Memory

- Total 32 DDRII sockets (8 per CPU)
 - Maximum 128GB Registered DDR2-400/533 memory, DDR2-667 supported (< 2 in one channel, When install more than 2 DIMMs (not included) on one channel, the frequency will decelerate to 533MHz.)
 - Supports ECC Memory and Chipkill
-

Expansion Slots

- One (1) PCI-E x 16 slot (support low profile x 16 signal PCI-E card) with M2083 or One (1) HTX slot with M4987-HTX riser card (low profile card)
- 200-pin OPMA connector support M3 card

Back I/O Ports

- Stacked PS/2 Mouse & Keyboard ports
 - COM1 connector
 - (1) One 15-pin VGA port
 - (2) USB2.0 ports
 - (3) RJ-45 ports, one for OPMA management
 - (1) One 8487 SAS connector (same as IB CON)
 - (1) One InfiniBand connector (optional for B4987G26W3HI)
-

Front Panel Features

- I/O
 - (2) USB2.0 ports
 - LED indicators
 - Power LED
 - (2) LAN LEDs
 - HDD active LEDs
 - System warning LED
 - ID LED
 - Switches
 - Power
 - Reset
 - NMI
 - ID
-

Integrated Storage Controller

- B4987G26W3H
 - Support 3 SAS ports, by LSI1068E SAS controller
 - B4987G26V3HI
 - Support 3 SAS ports, by LSI1068E SAS controller and IB chip MT25204A0-FCCR-D (Mellanox) on board
-

Storage

- Hard Disk Drives:
 - B4987G26W3H/ B4987G26V3HI: Support SAS HDD with RAID 0,1,1E
 - Pre-installed slim type ODD

Motherboard

- TYAN S4987 system board
- Customized 16.83" x 16.098"

BIOS

- Phoenix® 8Mbit FWH or Flash ROM
- Supports APM1.2 and ACPI
- Serial console redirect
- USB boot supported

Sever Management

- System fan speed control and monitoring
- Chassis intrusion alert
- Supports Tyan Server Management (TSM)
- Watch Dog Timer supported
- Support TYAN M3295 SMDC Card

Networking

- Dual Gigabit Ethernet ports (Marvell88E1121 Gigabit PHY)
- Supports WOL and PXE

Video

- Integrated ATI ES1000 (RN50) w/32MB frame buffer

System Cooling

- (7) 40*40*56mm 1500rpm heavy-duty fans
- (4) passive CPU heatsinks

Power Supply

- Single, 1000W clod-swap PWR

Regulatory

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

Environment Temperature

- Operating temperature: 5°C ~ 35°C
- Non-operating temperature: -40°C ~ 70°C

NOTE: For system thermal concern, GT26-B4987 can support 120W CPU without ODD and HDD2 installation. (HDD bay in the middle of the three is HDD2.)








HDD2

1.4 Unpacking

This section describes the Transport GT26 B4987 package contents and accessories. Open the box carefully and ensure that all components are present and undamaged. The product should arrive packaged as illustrated below.

1.4.1 Box Contents

Component	Description
	Industry standard 1U chassis, (3) hot-swap HDD bays
	Tyan S4987 system board (pre-installed)
	Air Duct
	1 x slim ODD drive (pre-installed)
	M1003: LED and USB control board (pre-installed)

	<p>1000W Single Power</p>
	<p>(7) System fans (40mm x 40mm x 56mm)</p>
	<p>M1221 HDD and FAN Backplane</p>
	<p>M4987-HTX (Optional parts)</p>
	<p>M2061 PCI-E to PCI-X (Optional parts)</p>
	<p>M2083 (pre-installed)</p>

1.4.2 Accessories

If any items are missing or appear damaged, contract 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 Drive CD



4 x Heatsink



HDD Screws



Power Cables
Left to right: Europe, US



Mounting Ears & Screws



Barebone Manual



ODD Dummy Cover

Rail Kit



Mounting Bracket x 4



Screw Kit



Sliding Rail x 2

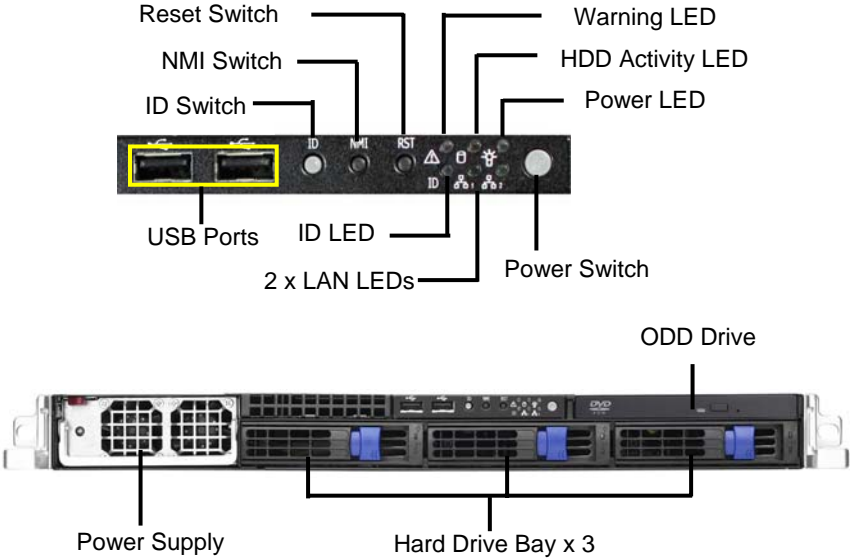


**Sliding Brackets
Front L-Bracket x 2
Rear L-Bracket x 2**

1.5 About the Product

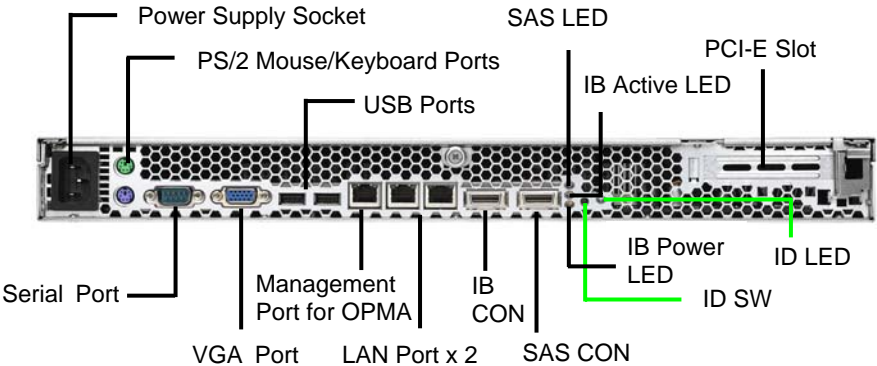
The following views show you the product.

1.5.1 System Front View



1.5.2 System Rear View

NOTE: IB CON and IB LEDs only appear on B4987G26W3HI Model.



LED Definition

Front Panel

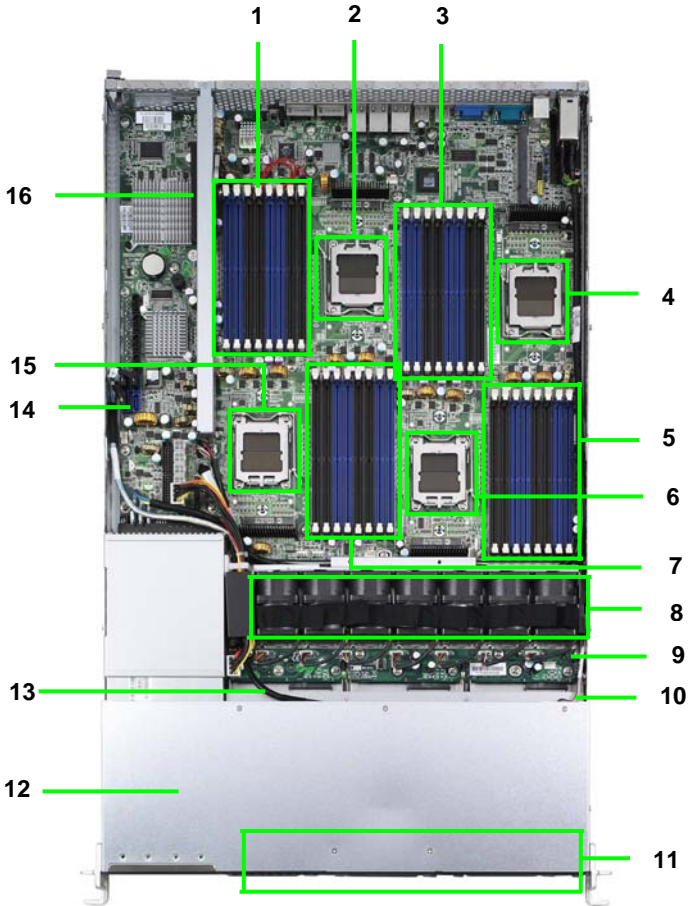
LED	Color	State	Description
Power	Green OFF	ON OFF	Power ON Power OFF
HDD Activity	Amber OFF	Random Blinking OFF	HDD access activity No disk activity
LAN1/LAN2 Linkage	Green Green OFF	ON Blinking OFF	LAN Linked LAN Accessing No LAN link
Warning	Red Red Red OFF	ON ON ON OFF	Fan failure(<1500RPM) Over Temperature(90°C) Voltage failure (+/-10%) Normal
Hot Swappable HDD Tray Power LED	Green OFF	ON OFF	HDD connected HDD 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	Random Blinking On	HDD access activity No disk activity (HDD ready)
ID LED	Blue OFF	ON OFF	System identified System not identified

Rear I/O LED

LED	Color	State	Description
OPMA NIC Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN Linked LAN Accessing No LAN link
OPMA NIC Mode (Right Side)	Green OFF	ON OFF	100M mode 10M mode
RJ45 NIC1 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN Linked LAN Accessing No LAN link
RJ45 NIC1 Mode (Right Side)	Amber Amber Amber OFF	Blinking 3 Blinking 2 Blinking 1 OFF	Gigabit mode 100M mode 10M mode No LAN link
RJ45 NIC2 Linkage (Left Side)	Green Green OFF	ON Blinking OFF	LAN Linked LAN Accessing No LAN link
RJ45 NIC2 Mode (Right Side)	Amber Amber Amber OFF	Blinking 3 Blinking 2 Blinking 1 OFF	Gigabit mode 100M mode 10M mode No LAN link
InfiniBand Linkage (Bottom side)	Green OFF	ON OFF	InfiniBand connected InfiniBand disconnected
InfiniBand Mode (Middle side)	Amber Amber	ON Blinking	No IB activity IB access activity
SAS LED	Green OFF	Blinking OFF	HDD access No Disk Activity
ID LED	Blue OFF	ON OFF	System identified System not identified

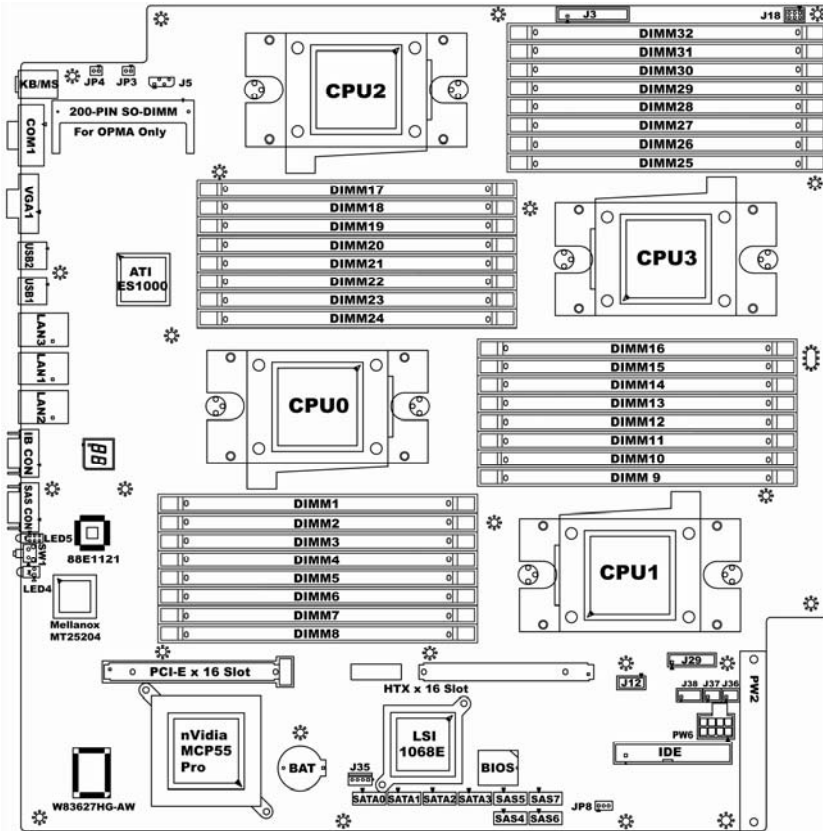
NOTE: “Left” or “Right” is viewed from the rear.

1.5.3 Internal View



- | | |
|----------------------|-----------------------------|
| 1. CPU0 Memory Slots | 9. M1221 |
| 2. CPU0 | 10. LED Control Board Cable |
| 3. CPU2 Memory Slots | 11. Three SATA/SAS HDD Bays |
| 4. CPU2 | 12. Power Supply |
| 5. CPU3 Memory Slots | 13. USB Cable |
| 6. CPU3 | 14. SAS Connectors |
| 7. CPU1 Memory Slots | 15. CPU1 |
| 8. System Fan | 16. PCI-E Slot |

1.5.4 Motherboard Layout







This diagram is representative of the latest board revision available at the time of publishing. The board you receive may not look exactly like the above diagram.

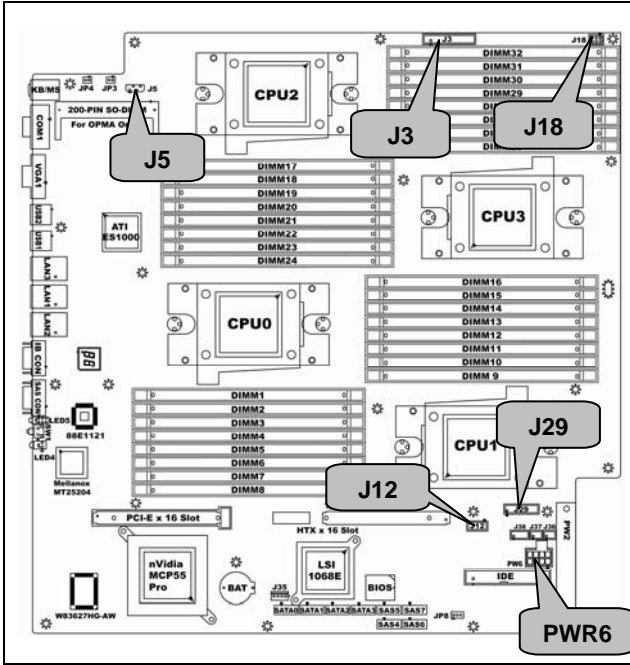
1.5.5 Jumpers & Connectors

Jumper/Connector	Function
J3	Front Panel Header (14Pin x 2)
J5	IPMB Pin Header (4Pin x 1)
J12	USB Pin Header (5Pin x 2)
J18	LCM Pin Header (3Pin x 2)
J29	FAN Tach Connector (9Pin x 2)
J35	M2061 PWR Connector (4Pin x 1)
J36/J37	SAS SGPIO Connector (3Pin x 2)
J38	SAS Fault LED Connector (5Pin x 2)
JP3/JP4	OPMA Setting Jumper (2Pin)
JP8	CMOS Clear (3Pin)
PWR6 Connector	PWR Connector for M1221(4Pin x 2)

Jumper Legend

	OPEN - Jumper OFF	Without jumper cover
	CLOSED - Jumper ON	With jumper cover
	To indicate the location of pin-1	
	To indicate the location of pin-1	

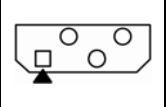
Jumper Placement



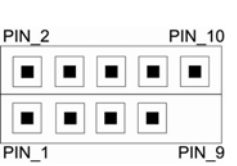
J3: Front Panel Connector (14Pin x 2)

Signal	Pin	Pin	Signal
HD LED+	1	2	HD LED-
Reset Button+	3	4	Reset Button-
PW LED+	5	6	PW LED-
Fault LED+	7	8	Fault LED-
SM BUS DATA	9	10	SM BUS CLK
NMI Button	11	12	NMI Button-
5VSB	13	14	INTRUDER#
PWR Button+	15	16	PWR Button-
LAN2 LED+	17	18	LAN2 LED-
LAN1 LED+	19	20	LAN1 LED-
Reserve	21	22	Reserve
ID LED+	23	24	ID LED-
ID LED Button+	25	26	ID LED Button-
KEY PIN	27	28	NC

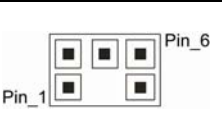
J5: IPMB Pin Header (4Pin x 1)

	<table border="1"> <thead> <tr> <th>Signal</th> <th>Pin</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>IPMB DATA</td> <td>1</td> <td>2</td> <td>GND</td> </tr> <tr> <td>IPMB CLK</td> <td>3</td> <td>4</td> <td>NC</td> </tr> </tbody> </table>	Signal	Pin	Pin	Signal	IPMB DATA	1	2	GND	IPMB CLK	3	4	NC
Signal	Pin	Pin	Signal										
IPMB DATA	1	2	GND										
IPMB CLK	3	4	NC										

J12: USB Pin Header (5Pin x 2)

	<table border="1"> <thead> <tr> <th>Signal</th> <th>Pin</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>+5VPWR</td> <td>1</td> <td>2</td> <td>+5VPWR</td> </tr> <tr> <td>DATA1-</td> <td>3</td> <td>4</td> <td>DATA2-</td> </tr> <tr> <td>DATA1+</td> <td>5</td> <td>6</td> <td>DATA2+</td> </tr> <tr> <td>GND</td> <td>7</td> <td>8</td> <td>GND</td> </tr> <tr> <td>Key</td> <td>9</td> <td>10</td> <td>GND</td> </tr> </tbody> </table>	Signal	Pin	Pin	Signal	+5VPWR	1	2	+5VPWR	DATA1-	3	4	DATA2-	DATA1+	5	6	DATA2+	GND	7	8	GND	Key	9	10	GND
Signal	Pin	Pin	Signal																						
+5VPWR	1	2	+5VPWR																						
DATA1-	3	4	DATA2-																						
DATA1+	5	6	DATA2+																						
GND	7	8	GND																						
Key	9	10	GND																						
<p>Use this header to connect to the USB devices via the enclosed USB cable.</p>																									

J18: LCM Pin Header (3Pin x 2)

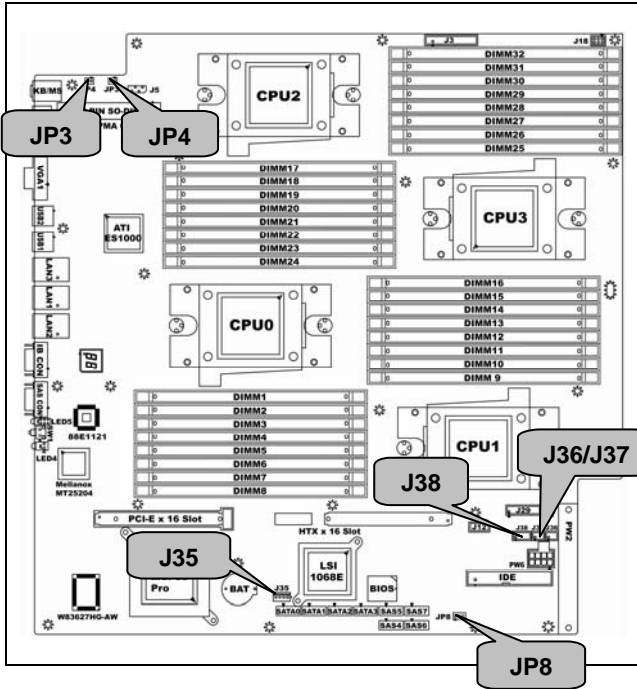
	<table border="1"> <thead> <tr> <th>Signal</th> <th>Pin</th> <th>Pin</th> <th>Signal</th> </tr> </thead> <tbody> <tr> <td>VCC_5_RUN</td> <td>1</td> <td>2</td> <td>RXD</td> </tr> <tr> <td>KEY PIN</td> <td>3</td> <td>4</td> <td>GND</td> </tr> <tr> <td>VCC_5_DUAL</td> <td>5</td> <td>6</td> <td>TXD</td> </tr> </tbody> </table>	Signal	Pin	Pin	Signal	VCC_5_RUN	1	2	RXD	KEY PIN	3	4	GND	VCC_5_DUAL	5	6	TXD
Signal	Pin	Pin	Signal														
VCC_5_RUN	1	2	RXD														
KEY PIN	3	4	GND														
VCC_5_DUAL	5	6	TXD														
<p>Use this header to connect the LCM module with system monitoring function.</p>																	

J29: FAN Tach Connector (9Pin x 2)

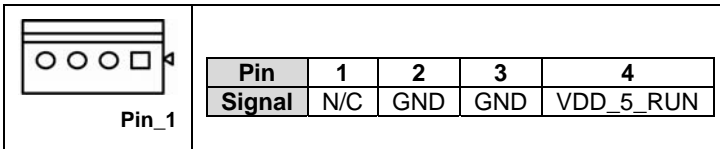
Signal	Pin	Pin	Signal
FAN_TACH1	1	2	FAN_TACH2
FAN_TACH3	3	4	FAN_TACH4
FAN_TACH5	5	6	FAN_TACH6
FAN_TACH7	7	8	FAN_TACH8
FAN_TACH9	9	10	FAN_TACH10
Reserve	11	12	KEY PIN
FAN_PWM2	13	14	FAN_PWM1
FAN_TACH11	15	16	FAN_TACH12
FAN_TACH13	17	18	FAN_TACH14

PWR6: Power Connector for M1221 only (4Pin x 2)

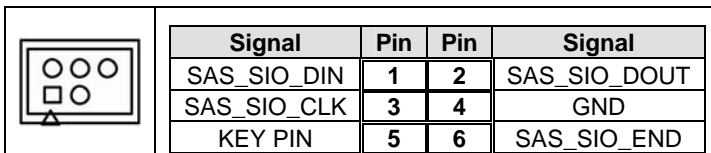
Signal	Pin	Pin	Signal
GND	1	5	+12V
GND	2	6	+12V
GND	3	7	+5V
GND	4	8	+3.3V



J35: M2061 PCI-E to PCI-X Riser Connector (4Pin x 1)



J36/J37: SAS SGPIO Connector (3Pin x 2)



J38: SAS Fault LED Connector (5Pin x 2)

	Signal	Pin	Pin	Signal
	SAS_FAULT_LED_N0	1	2	SAS_FAULT_LED_N1
	SAS_FAULT_LED_N2	3	4	SAS_FAULT_LED_N3
	SAS_FAULT_LED_N4	5	6	SAS_FAULT_LED_N5
	KEY PIN	7	8	SAS_FAULT_LED_N7
	SAS_FAULT_LED_N6	9	10	GND

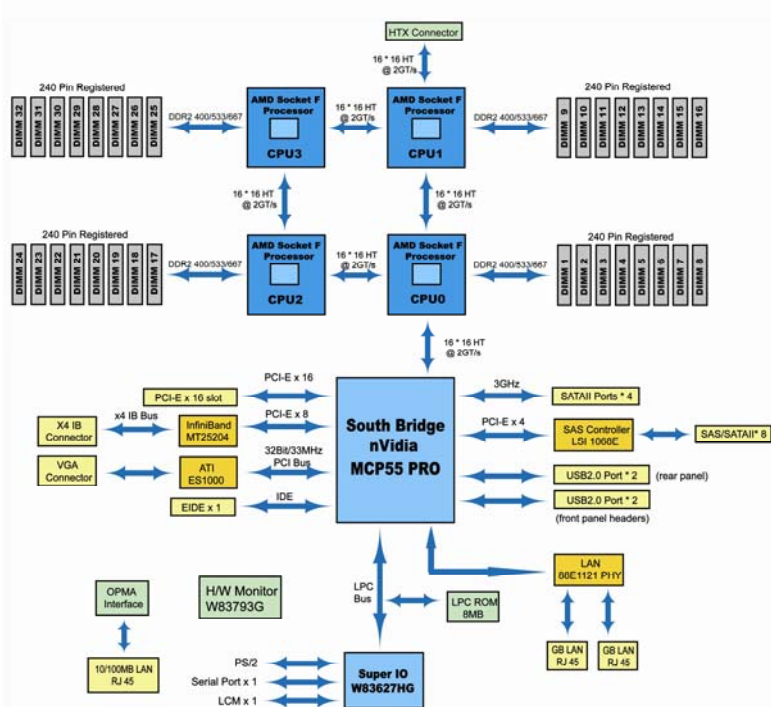
JP3/JP4: OPMA Setting Jumper (2Pin)

	Install: TYAN OPMA Card (Default)
	Remove: Other OPMA Card

JP8: COMS Clear

<p>Normal (Default)</p>	<p>You can reset the CMOS settings by using this jumper if you have forgotten your system/setup password or need to clear system BIOS setting.</p> <ul style="list-style-type: none"> - Power off system and disconnect both power connectors from the motherboard - Put jumper cap back to Pin_1 and Pin_2 (default setting) - Use jumper cap to close Pin_2 and Pin_3 for several seconds to Clear CMOS <p>Reconnect power & power on system</p>
<p>Clear CMOS</p>	

1.5.6 System Block Diagram



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 PCI card and HTX card are also given.

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 Transport GT26 B4987 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 Transport GT26 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

Sliding Rails x 2

Sliding Bracket 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 GT26 into an industry standard 19" rack.

NOTE: Before mounting the Transport GT26 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

A: Flat 6#-32 x4~x16

B: B-type 6#-32 x4

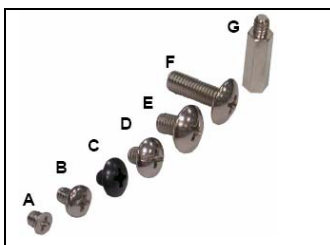
C: M4-4L x8

D: M4-5L x4

E: M4-8L x8

F: M4-15L x2

G: 13.5mm stand-off x1



2.1.1.1 Installing the inner Rails to the Chassis

1. Screw the mounting ear to each side of GT26 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.

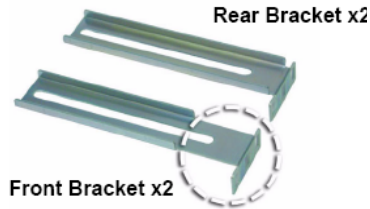


2.1.1.2 Installing the Outer Rails to the Rack

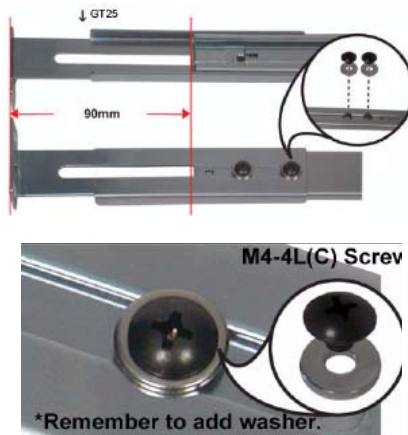
1. Measure the distance between inner side of the front and rear mounting brackets in the rack.



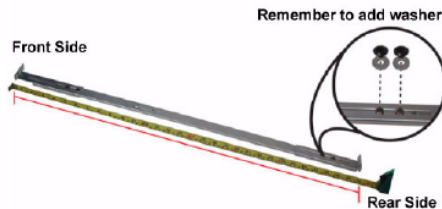
2. Locate the front and rear brackets.



3. Reserve 90mm for GT26 on the front bracket. Secure the front bracket to outer rail with 2 M4-4L (C) screws.



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.



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

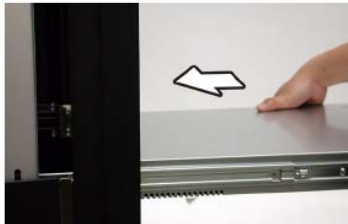


2.1.1.3 Rackmounting the Server

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).

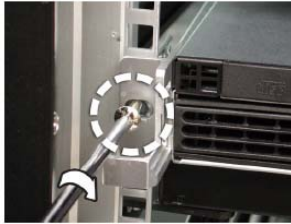
A



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 GT26 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, PCI and HTX card.

2.2.1 Removing the Chassis Cover

Follow these instructions to remove the Transport GT26 chassis cover.

1. Thumb the screw on the back side as shown in the small diagram. Then slide the chassis cover in the direction of arrow.



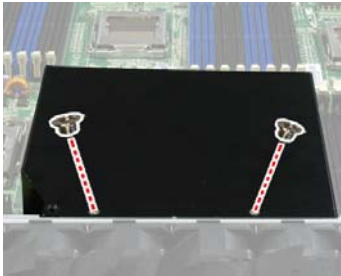
2. Remove the cover.



2.2.2 Installing the CPU and Heatsink

Follow these instructions on install CPU0, CPU1, CPU2, CPU3 and the CPU heatsinks.

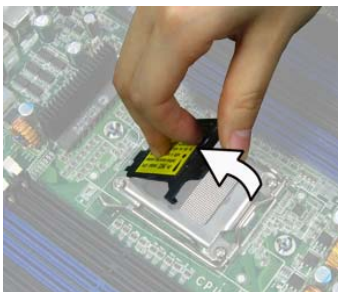
1. Remove the two screws securing the pre-installed air duct.
NOTE: Only CPU3 has air duct above. This step can be omitted when installing other CPUs.



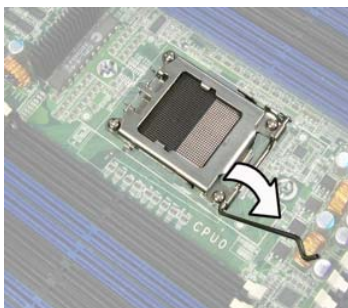
2. Remove the air duct and locate the CPU socket.



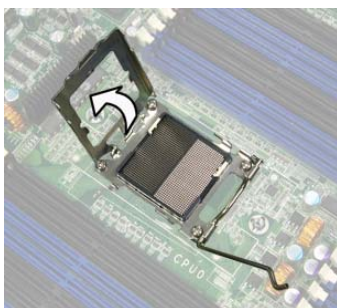
3. Take off the CPU protection cap.



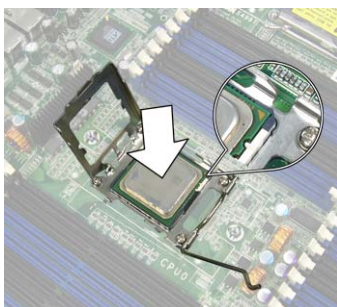
4. Lift up the CPU lever to unlock the CPU socket.



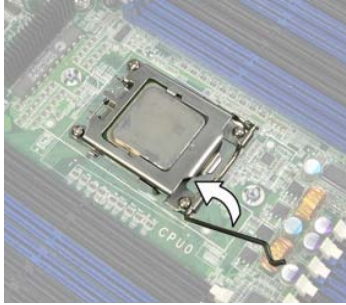
5. Open the socket in the direction as shown.



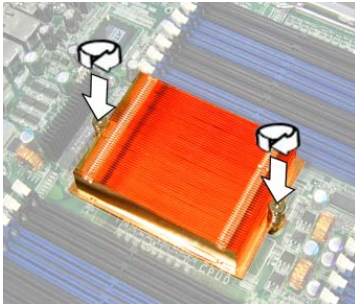
6. Place the CPU in the CPU socket, ensuring that pin1 is located as shown below.



7. Close the socket and press the CPU socket lever down to secure the CPU.



8. Place the heatsink on top of the CPU and screws into place as shown.

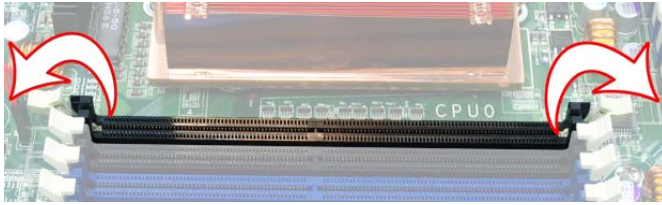


9. Repeat the above steps to install the other CPU.
10. Place and screw the air duct back with two screws as in step 1.

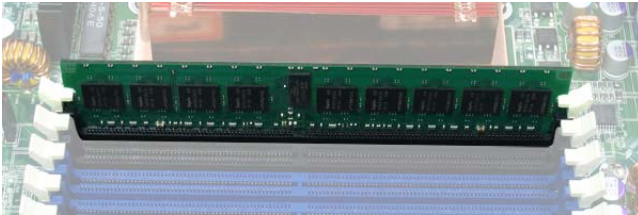
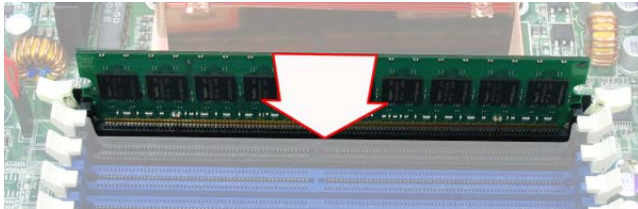
2.2.3 Installing the Memory

Follow these instructions to install the memory modules on the motherboard. Your GT26-B4987 boasts up to 32DIMM sockets.

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



2. 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.



NOTE: For optimal system operation, please install memory in pairs.

Memory Population Option Table

To correctly install the memory in pairs (DIMMA# + DIMMB#), refer to the following table for supported population options. Start installing Memory modules from DIMM7 and DIMM8.

	Single CPU Installed (CPU0 only)			Dual CPU installed (CPU0 and CPU1)			Four CPU installed		
Quantity of memory installed	2	4	8	4	8	16	8	16	32
CPU0_DIMM1(A)			√			√			√
CPU0_DIMM2(B)			√			√			√
CPU0_DIMM3(A)			√			√			√
CPU0_DIMM4(B)			√			√			√
CPU0_DIMM5(A)		√	√		√	√		√	√
CPU0_DIMM6(B)		√	√		√	√		√	√
CPU0_DIMM7(A)	√	√	√	√	√	√	√	√	√
CPU0_DIMM8(B)	√	√	√	√	√	√	√	√	√
CPU1_DIMM9(A)						√			√
CPU1_DIMM10(B)						√			√
CPU1_DIMM11(A)						√			√
CPU1_DIMM12(B)						√			√
CPU1_DIMM13(A)					√	√		√	√
CPU1_DIMM14(B)					√	√		√	√
CPU1_DIMM15(A)				√	√	√	√	√	√
CPU1_DIMM16(B)				√	√	√	√	√	√
CPU2_DIMM17(A)									√
CPU2_DIMM18(B)									√
CPU2_DIMM19(A)									√

CPU2_DIMM20(B)										√
CPU2_DIMM21(A)									√	√
CPU2_DIMM22(B)									√	√
CPU2_DIMM23(A)								√	√	√
CPU2_DIMM24(B)								√	√	√
CPU3_DIMM25(A)										√
CPU3_DIMM26(B)										√
CPU3_DIMM27(A)										√
CPU3_DIMM28(B)										√
CPU3_DIMM29(A)									√	√
CPU3_DIMM30(B)									√	√
CPU3_DIMM31(A)								√	√	√
CPU3_DIMM32(B)								√	√	√

Note:

1. √ indicates a populated DIMM slot.
2. We strong recommend that install memory **in pairs**.
3. Please always install memory from the **furthest A channel DIMM slot**.

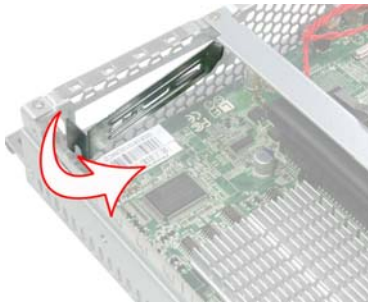
2.2.4 Installing the PCI-E Card/PCI-X Card

The GT26-B4987 has one PCI-E Card slot: **PCI-E x 16 card slot**
Follow these instructions to install the PCI-E card.

1. Push the tab of PCI-E Slot on the rear panel in the directions as shown to release the bracket.



2. Remove the bracket as shown.



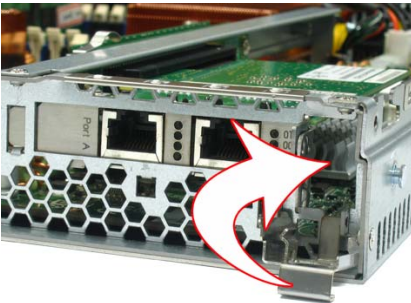
3. Locate the pre-installed PCI-E riser.



4. Insert PCI-E (low-profile) card into the PCI-E riser.



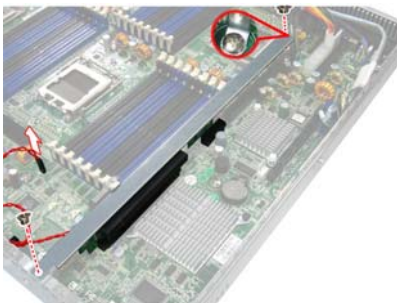
5. Push the tab of PCI slot in the direction as shown to fix the PCI-E Card.



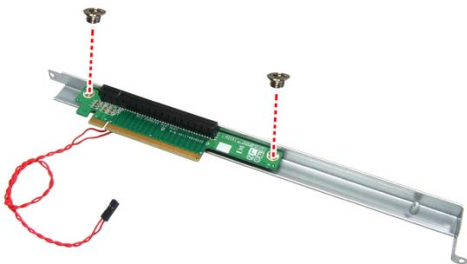
Optional for PCI-X Card Installation

The GT26 B4987 also supports PCI-X Card by PCI-E to PCI-X riser card (M2061) on the same slot. Install PCI-X card according to the following steps.

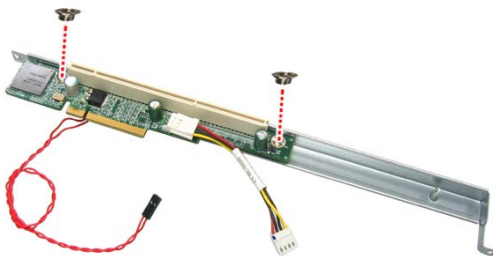
1. Remove the link bar with PCI-E riser (M2083) and disconnect the intrusion header.



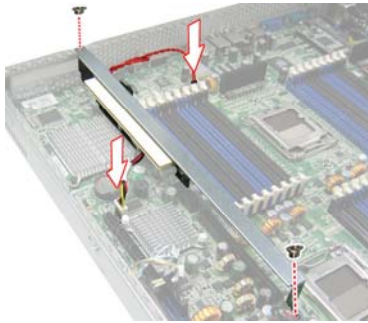
2. Remove the PCI-E riser (M2083) from the bracket.



3. Change PCI-E riser (M2083) with PCI-E to PCI-X riser (M2061).



4. Install the bracket with PCI-E to PCI-X riser (M2061) into the slot and connect the intrusion header.

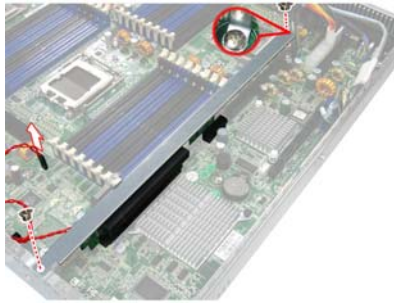


5. Install PCI-X (low-profile) Card in the same steps as PCI-E Card.

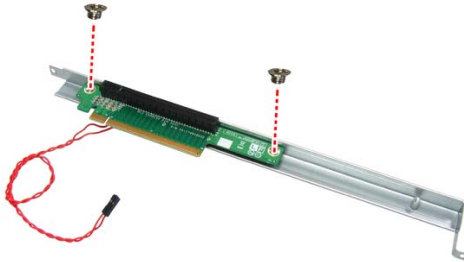
2.2.5 Installing the HTX Card (optional)

The GT26 B4987 also supports HTX Card on the same slot through M4987-HTX riser. Install HTX card according to the following steps.

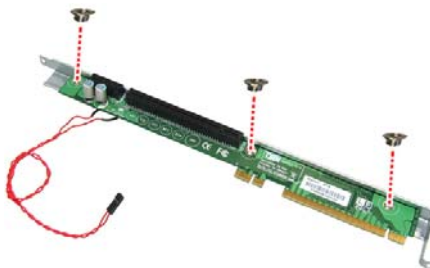
6. Remove the link bar with PCI-E riser (M2083) and disconnect the intrusion header.



7. Remove the PCI-E riser (M2083) from the bracket.



8. Change PCI-E riser (M2083) with HTX riser (M4987-HTX).



9. Install the bracket with HTX riser (M4987-HTX) into the slot, and connect the intrusion header.



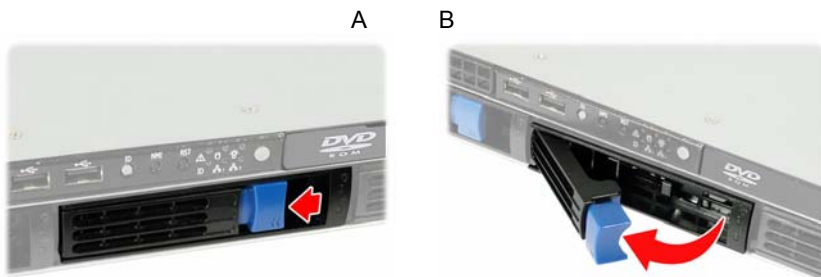
10. Install HTX Card in the same steps as PCI-E Card.

2.3 Installing the Hard Driver

The GT26 chassis kit supports SATA/SAS hard drives.

Follow these instructions to install a SATA or SAS 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.



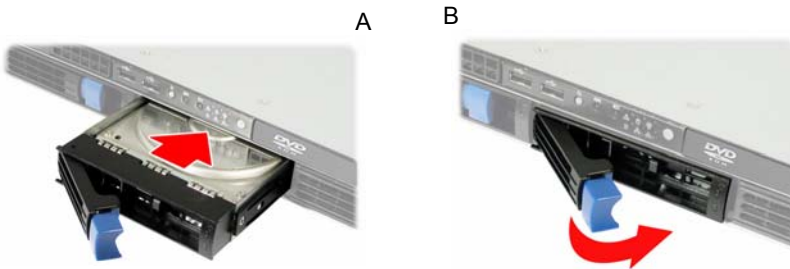
3. Place a hard drive into the drive tray and turn the tray over.



4. Use 4 HDD screws (6# x 4L, flat) 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. Press the locking lever to secure the hard drive tray.



Chapter 3: Replacing Pre-Installed Components

3.1 Introduction

This chapter explains how to replace pre-installed components, including the Motherboard, M1221 HDD and FAN backplane, LED control board and ODD drive.

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

3.1.2 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.

3.1.3 Precautions

Components and electronic circuit boards can be damaged by discharges of static electricity. Working on a system that is connected to a power supply can be extremely dangerous. Follow the guidelines below to avoid damage to the Transport GT26 B4987 or injury to yourself.

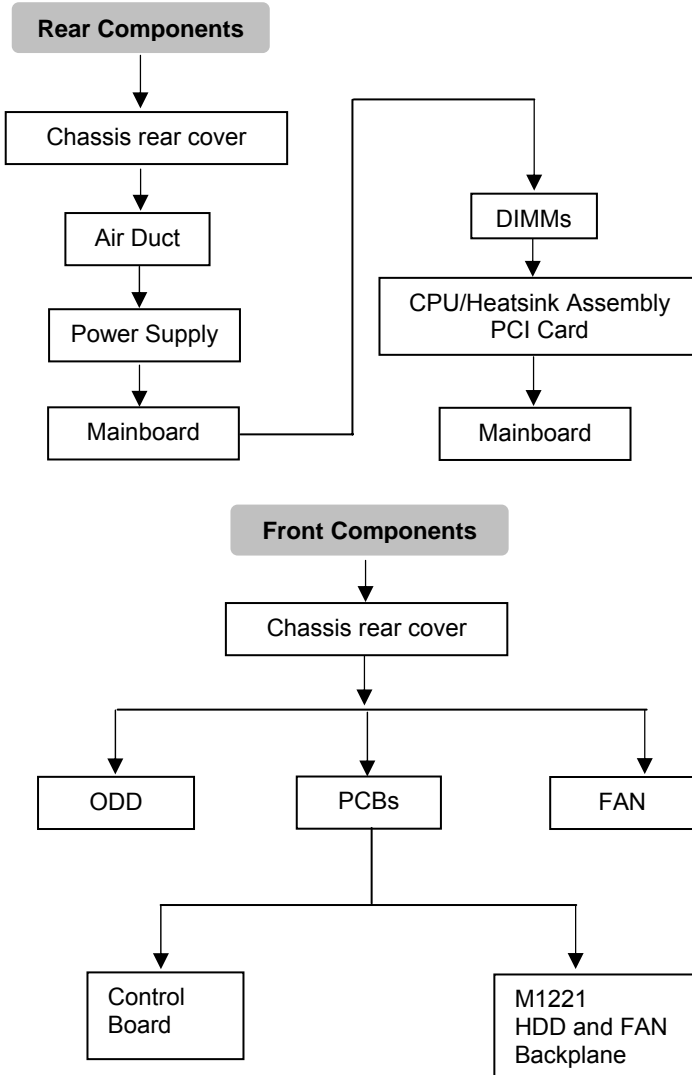
- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching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

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.



3.3 Removing the Cover

Before replacing any parts you must remove the chassis cover.

Follow these instructions to remove the cover of the Transport GT26 chassis cover.

1. Thumb the screw on the back side as shown in the small diagram. 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 components, including the motherboard.

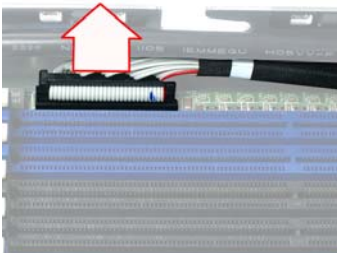
3.4.1 Disconnecting All Motherboard Cables

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

1. Disconnect Main Power Cables.



2. Disconnect Front Panel cable and SAS/SATA hard drive cable.



Front Panel cable



SAS/SATA hard drive cables

3. Disconnect PWR6 cable, ODD Drive cable, Fan Tach connector cable and USB cable.

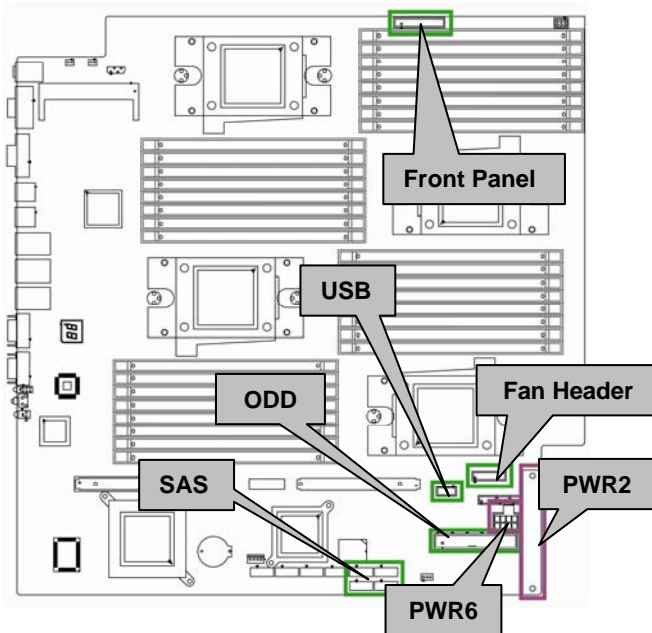


ODD Drive Cable



Front right to left: PW6 cable, Fan Tach Connector cable and USB cable

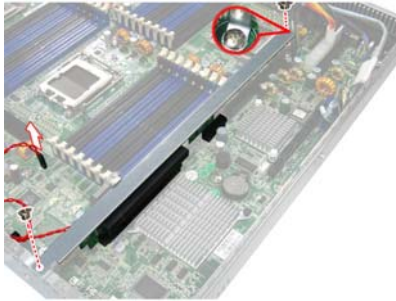
Cable Location Diagram



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 and disconnect the intrusion header.



2. Remove the twenty-four screws securing the motherboard to the chassis.

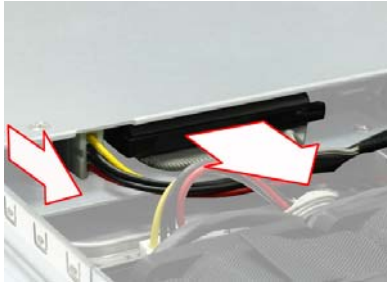


3. Remove the motherboard.

3.5 Replacing the Slim ODD

Follow these instructions to replace the ODD.

1. Remove power and data cables from the slim ODD adapter.



2. Press the tab in the directions as shown to release the ODD drive.



3. Free the ODD drive from the drive bay.



4. Remove the two screws that secure ODD drive to the bracket.



5. Replace the ODD drive.



6. Secure ODD (FRU NO.: CDVD-0020) to the bracket using two screws. Then replace the unit into the drive bay and connect the ODD power and data cables.

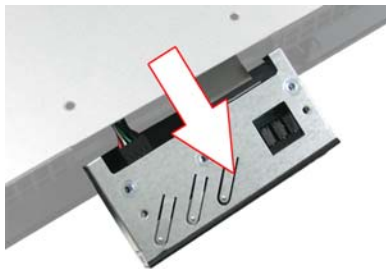
3.6 Replacing the LED Control Board

Follow these instructions to replace the LED control board.

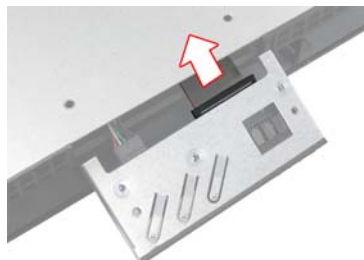
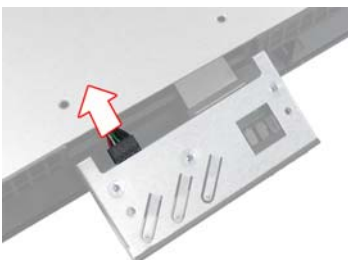
1. Remove the two screws securing the LED control board unit to the chassis.



2. Lift the LED control board unit free from the chassis.



3. Unplug the USB cable and ribbon cable from the connector.



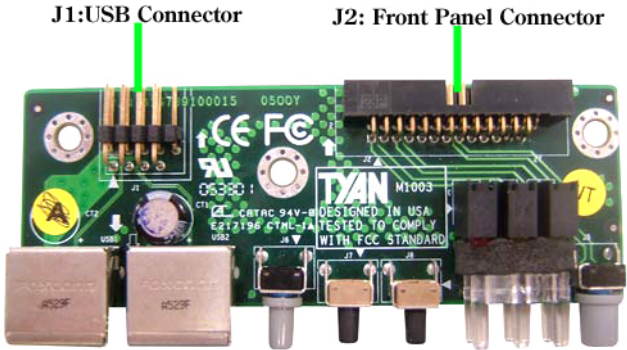
4. Remove three screws securing the LED control board to the bracket.



5. Lift the LED control board free from the chassis. After replacement, insert the unit into the chassis following the above procedures in reverse.



3.6.1 M1003 LED Control Board Features



3.6.2 M1003 LED Control Board Connector Pin Definition

J1 USB Connector

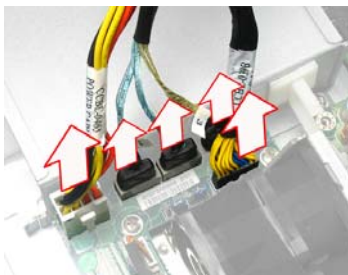
Pin	Definition	Pin	Definition
1	VCC5	2	VCC5
3	USB1-	4	USB0-
5	USB1+	6	USB0+
7	GND	8	GND
9	KEY PIN	10	GND

J2 Front Panel Connector

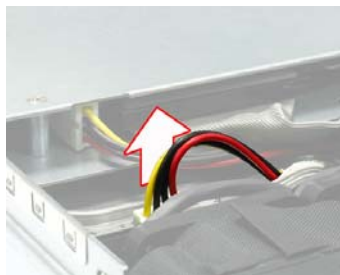
Pin	Definition	Pin	Definition
1	HDLED+	2	HDLED-
3	RESET+	4	RESET-
5	PW_LED+	6	PW_LED-
7	WLED+	8	WLED-
9	OCJ_SMBDAT	10	ICH_SMBCLK
11	EXT_INT	12	VOLTAGE5
13	V5SB	14	INTRU#
15	PWR_SW+	16	PWR_SW-
17	LAN1_LED+	18	LAN1_LED-
19	LAN2_LED+	20	LAN2_LED-
21	Reserve	22	Reserve
23	ID_LED+	24	ID_LED-
25	ID_SW+	26	ID_SW+
27	KEY PIN	28	NC

3.7 Replacing the M1221 HDD and FAN Backplane

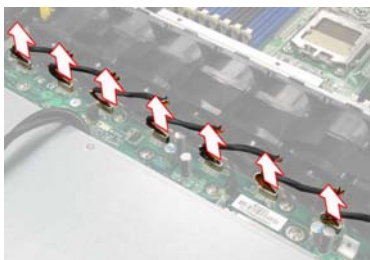
1. Remove all of those cables connected to the backplane, including fan cables, Fan Tach cable, ODD power cable, PWR6 cables, and SAS/SATA cables. Refer to the pictures below for locations.



Front Right to Left: PW6 cable, SAS/SATA cables and Fan Tach cable;



ODD Power Cable

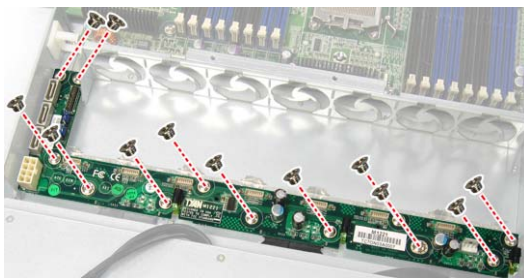


Fan Cables



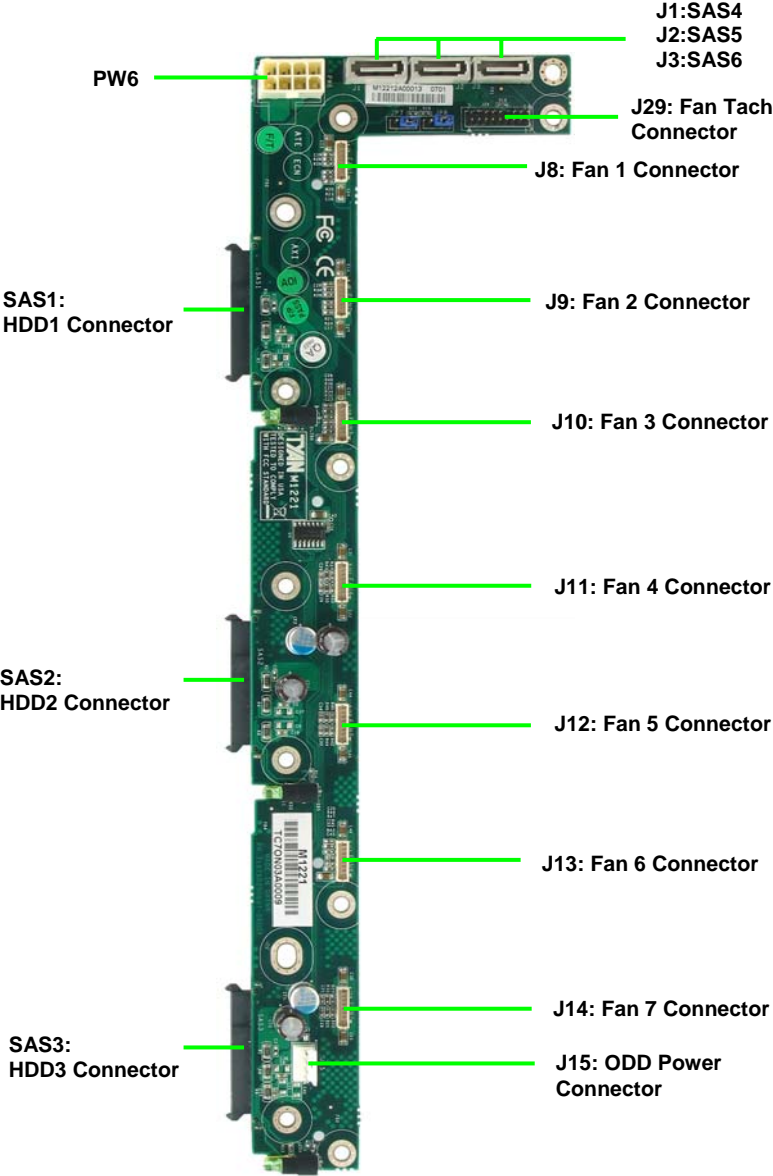
System Fan

2. Remove twelve screws to release the backplane.



3. Replace the backplane to the chassis following the procedure in reverse.

3.7.1 M1221 HDD and FAN Backplane Features for GT26-B4987



3.7.2 System Fan Layout

The following table provides the information for system fan layout.

System Fan Speed Control Signal

M1221 J29 (PWM Signal)	Connect to →	Motherboard J29 (PWM Signal)
---------------------------	-----------------	---------------------------------

FAN Layout Table 1

M1221 Fan Connector	Connect to	Barebone System Fan
FAN 1 Connector (J8)	→	FAN 1&2
FAN 2 Connector (J9)	→	FAN 3&4
FAN 3 Connector (J10)	→	FAN 5&6
FAN 4 Connector (J11)	→	FAN 7&8
FAN 5 Connector (J12)	→	FAN 9&10
FAN 6 Connector (J13)	→	FAN 11&12
FAN 7 Connector (J14)	→	FAN 13&14

3.7.3 M1221 HDD and FAN Backplane Connector Pin Definitions

J29 FAN Tach Connector

Pin	Definition	Pin	Definition
1	FAN_TACH1	2	FAN_TACH2
3	FAN_TACH3	4	FAN_TACH4
5	FAN_TACH5	6	FAN_TACH6
7	FAN_TACH7	8	FAN_TACH8
9	FAN_TACH9	10	FAN_TACH10
11	Reserve	12	KEY PIN
13	FAN_PWM2	14	FAN_PWM1
15	FAN_TACH11	16	FAN_TACH12
17	FAN_TACH14	18	FAN_TACH13

J15 ODD Power Connector

Pin	Definition
1	+12V
2	GND
3	GND
4	+5V

PW6 Connector

Pin	Definition	Pin	Definition
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+5V
4	GND	8	+3.3V

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.

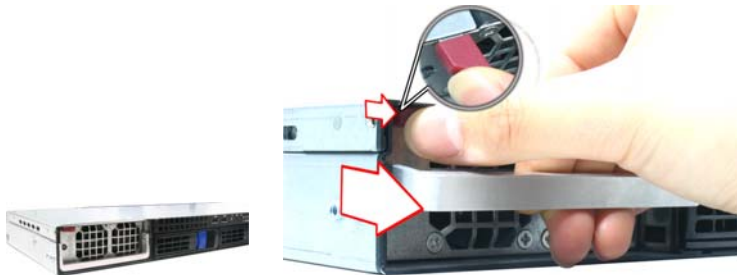
J8, J9, J10, J11, J12, J13, J14 Fan Connector

Pin	Definition	
	1	FAN_PWM
	2	+12V
	3	FAN_TACH
	4	GND
	5	GND
	6	FAN_TACH
	7	+12V
	8	FAN_PWM

3.8 Replacing the Power Supply

To replace the power supply follow these instructions.

1. Press the tab as shown in the diagram and pull out the power.

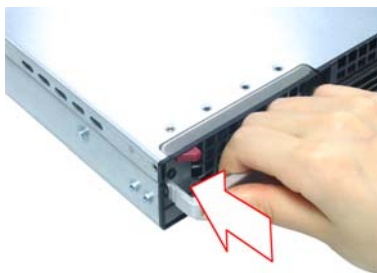


Power Socket

2. Free the power from the power socket.



3. Replace a new single power (FRU NO.: CPSU-0240) and reinsert it into the power socket as shown.



Chapter 4: BIOS Setup

4.1 About the BIOS

The BIOS is the basic input/output system, the firmware on the motherboard that enables your hardware to interface with your software. The BIOS determines what a computer can do without accessing programs from a disk. The BIOS contains all the code required to control the keyboard, display screen, disk drives, serial communications, and a number of miscellaneous functions. This chapter describes the various BIOS settings that can be used to configure your system.

The BIOS section of this manual is subject to change without notice and is provided for reference purposes only. The settings and configurations of the BIOS are current at the time of print and are subject to change, and therefore may not match exactly what is displayed on screen.

This section describes the BIOS setup program. The setup program lets you modify basic configuration settings. The settings are then stored in a dedicated, battery-backed memory (called NVRAM) that retains the information even when the power is turned off.

To start the BIOS setup utility:

1. Turn on or reboot your system.
2. Press during POST (<Tab> on remote console) to start the BIOS setup utility.

4.2 – BIOS Menu Bar

The menu bar at the top of the windows lists these selections:

Main	To configure basic system setups
Advanced	To configure the advanced chipset features
PCI/PnP	To configure legacy Plug & Play or PCI settings
Boot	To configure system boot order
Security	To configure user and supervisor passwords
Chipset	To configure chipset management features
Exit	To exit setup utility

4.3 Setup Basics

The table below shows how to navigate in the setup program using the keyboard.

Key	Function
<F1>	General help window
<ESC>	Exit current menu
← → arrow keys	Select a different menu
↑ or ↓ arrow keys	Move cursor up/down
<Tab> or <Shift-Tab>	Cycle cursor up/down
<Home> or <End>	Move cursor to top/bottom of the window
<PgUp> or <PgDn>	Move cursor to next/previous page
<->	Select the previous value/setting of the field
<+>	Select the next value/setting of the field
<F8>	Load Fail Safe default configuration values of the menu
<F9>	Load the Optimal default configuration values of the menu
<F10>	Save and exit
<Enter>	Execute command or select submenu

4.4 Getting Help

Pressing [F1] will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press [ESC].

4.5 In Case of Problems

If you have trouble booting your computer after making and saving the changes with the BIOS setup program, you can restart the computer by holding the power button down until the computer shuts off (usually within 4 seconds); resetting by pressing CTRL-ALT-DEL; or clearing the CMOS.

The best advice is to only alter settings that you thoroughly understand. In particular, do not change settings in the Chipset section unless you are absolutely sure of what you are doing. The Chipset defaults have been carefully chosen either by TYAN or your system manufacturer for best performance and reliability. Even a seemingly small change to the Chipset setup options may cause the system to become unstable or unusable.

NOTE: The following pages provide the details of BIOS menu. Please be noticed that the BIOS menu are continually changing due to the BIOS updating. The BIOS menu provided are the most updated when this manual is written. Please visit Tyan's website at <http://www.tyan.com> for the information of BIOS updating.

4.6 BIOS Main Menu

The Main BIOS Menu is the first screen that you can navigate. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. "Grayed-out" options cannot be configured, options in blue can be changed.

The right frame displays the key legend. Above the key legend is an area reserved for a text message. When an option is selected in the left frame, it is highlighted in white. Often, a text message will accompany it.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
System Overview	Use [ENTER], [TAB] or [SHIFT-TAB] to select a field
AMIBIOS Version : 08.00.xx Build Date : DD/MM/YY ID : 0AAAA000 Processor Dual-Core AMD Opteron™ Processor XXXX Speed : xxxx MHz Count : x System Memory Size : xxxx MB System Time [HH:MM:SS] System Date [MM:DD:YYYY]	Use [+] or [-] to configure system time. ← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
Main		
System Time	HH : MM : SS	Set the system time
System Date	MM : DD : YYYY	Set the system date

4.7 BIOS Advanced Menu

You can select any of the items in the left frame of the screen, such as Super I/O Configuration, to go to the sub menu for that item. You can display an Advanced BIOS Setup option by highlighting it using the <Arrow> keys. All Advanced BIOS Setup options are described in this section. The Advanced BIOS Setup screen is shown below. The sub menus are described on the following pages.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
Advanced Settings	Configure CPU
<p>WARNING: Setting wrong values in below sections may cause system to malfunction.</p> <ul style="list-style-type: none"> ▶ CPU Configuration ▶ IDE Configuration ▶ Super IO Configuration ▶ ACPI Configuration ▶ APM Configuration ▶ Event Log Configuration ▶ Hardware Health Configuration ▶ Remote Access Configuration ▶ USB Configuration 	<p>← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit</p>

Feature	Option	Description
Advanced Settings		
CPU Configuration	Menu Item	Configure CPU
IDE Configuration	Menu Item	Configure the IDE device(s)
Super IO Configuration	Menu Item	Configures Super IO Chipset Nat417
ACPI Configuration	Menu Item	Section for Advanced ACPI Configuration
APM Configuration	Menu Item	Section for APM configuration
Event Log Configuration	Menu Item	Mark as read, Clear or View Event Log statistics
Hardware Health Configuration	Menu Item	Configure/monitor the Hardware Health
Remote Access Configuration	Menu Item	Configure Remote Access
USB Configuration	Menu Item	Configure the USB support

4.7.1 CPU Configuration

You can use this screen to view CPU Configuration Menu. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option. The settings are described on the following pages.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
CPU Configuration Module Version : XX.XX AGESA Version : XXXXXX Physical Count : X Logical Count : X		This option should remain disabled for normal operation. The driver developer may disable it for testing purpose. ← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
Dual Core AMD Opteron (tm) Processor xxxxxxxx Revision : xx Cache L1: xxxx Cache L2: xxxx Speed: xxxx Current FSB Multiplier : xxxx Maximum FSB Multiplier: xxxx Able to change Freq.: Yes uCode Patch Level: None required GART Error Reporting [Disabled] Microcode Update [Enabled] SVM u Code Option [Enabled] Runtime Legacy PSB [Disabled] ACPI 2.0 Objects [Enabled]		

Feature	Option	Description
CPU Configuration		
Module Version	Read only	Displays information about CPU
AGESA Version		
Physical Count		
Logical Count		
Revision	Read only	Displays information about CPU
Cache L1		
Cache L2		
Speed		
Current FSB Multiplier		
Maximum FSB Multiplier		
Able to change Freq.		
uCode Patch Level		
GART Error Reporting	Disabled	This option should remain disabled for normal operation. The driver developer may enable it for the purpose of testing.
	Enabled	
Microcode Update	Enabled	Enable/Disable Microcode Update.
	Disabled	
SVM u Code Option	Enabled	Processor Assisted Virtualization.
	Disabled	
Runtime Legacy PSB	Disabled	Enable/Disable the generation of Power State Block for use of PowerNow(tm) driver in a single cover system.
	Enabled	
ACPI 2.0 Objects	Enabled	Enable/Disable the generation of ACPI_PPC, _PSS, and _PCT objects.
	Disabled	

4.7.2 IDE Configuration Sub-Menu

You can use this screen to select options for the IDE Configuration Settings. Use the up and down <Arrow> Keys to select an item. Use the <Plus> and <Minus> Keys to change the value of the selection options.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
IDE Configuration		While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices. ← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
Onboard IDE Controller	[Enabled]	
Serial-ATA Devices	[Device 0/1]	
<ul style="list-style-type: none"> ▶ nVidia RAID Setup ▶ Primary IDE Master ▶ Primary IDE Slave ▶ SATA0 (Dev5, Func0) ▶ SATA1 (Dev5, Func0) ▶ SATA2 (Dev5, Func1) ▶ SATA3 (Dev5, Func1) 		
Hard Disk Write Protect	[Disabled]	
IDE Detect Time Out (Sec)	[35]	
ATA (PI) 80Pin Cable Detection	[Host & Device]	

Feature	Option	Description
IDE Configuration		
Onboard IDE Controller	Enabled	Enable/Disable onboard IDE controller.
	Disabled	
Serial-ATA Devices	Device 0/1	Configure serial ATA devices.
	Disabled	
	Device 0	
Hard Disk Write Protect	Disabled	Enable/Disable device write protection. This will be effective only if device is accessed through BIOS.
	Enabled	
IDE Detect Time Out (Sec)	0~35 (at 5 interval)	Select the time out value for detecting ATA/ATAPI device(s).
ATA (PI) 80Pin Cable Detection	Host & Device	Select the mechanism for detecting 80Pin ATA(PI) cable.
	Host	
	Device	

4.7.2.1 nVidia RAID Setup

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
RAID Setup		While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.
nVidia RAID Function	[Disabled]	
SATA0 (Dev 5, Func0)	[Disabled]	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
SATA1 (Dev 5, Func0)	[Disabled]	
SATA2 (Dev 5, Func1)	[Disabled]	
SATA3 (Dev 5, Func1)	[Disabled]	

Feature	Option	Description
nVidia RAID Setup		
nVidia Function	Disabled	While entering setup, you can choose enabled/disabled RAID mode for each ATA channel.
	Enabled	
SATA0/1/2/3	Disabled	Enable/Disable specific SATA Drive as RAID.
	Enabled	

4.7.2.2 Primary IDE Master/Slave Sub-Menu

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Primary IDE Master		
Device: Not Detected		
Type	[Auto]	← → Select Screen
LBA /Large Mode	[Auto]	↑ ↓ Select Item
Block (Multi-Sector Transfer)	[Auto]	+/- Change Option
PIO Mode	[Auto]	Tab Select Field
DMA Mode	[Auto]	F1 General Help
S.M.A.R.T.	[Auto]	F10 Save and Exit
32 Bit Data Transfer	[Enabled]	ESC Exit

Feature	Option	Description
Primary IDE Master/Slave		
Type	Auto	Selects the type of device connected to the system.
	Not Installed	
	CD/DVD	
	ARMD	
LBA/Large Mode	Auto	Auto: Enabled LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled.
	Disabled	Disabled: Disabled LBA Mode.
Block (Multi-Sector Transfer)	Auto	Disabled: The Data transfer from and to the device occurs one sector at a time.
	Disabled	Auto: The Data transfer from and to the device occurs multiple sectors at a time if the device supports it.
PIO Mode	Auto	Select the PIO Mode. Select Auto to enhance hard disk performance by optimizing the hard disk timing.
	0~4 (at 1 interval)	
DMA Mode	Auto	Select DMA Mode. Auto: Auto detected.
S.M.A.R.T.	Auto	S.M.A.R.T (Self-Monitoring Analysis and Reporting Technology) is a utility that monitors your disk status to predict hard disk failure.
	Disabled	
	Enabled	
32Bit Data Transfer	Enabled	Enable 32-bit to maximize the IDE hard disk data transfer rate.
	Disabled	

4.7.2.3 SATA0/1/2/3 Sub-Menu

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
Third IDE Master	
Device: Not Detected	
LBA /Large Mode Block (Multi-Sector Transfer) PIO Mode DMA Mode S.M.A.R.T. 32 Bit Data Transfer	[Auto] [Auto] [Auto] [Auto] [Auto] [Enabled]
← → Select Screen ↑ ↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit	

Feature	Option	Description
SATA 0/1/2/3		
LBA/Large Mode	Auto	Auto: Enabled LBA Mode if the device supports it and the device is not already formatted with LBA Mode disabled. Disabled: Disabled LBA Mode.
	Disabled	
Block (Multi-Sector Transfer)	Auto	Disabled: The Data transfer from and to the device occurs one sector at a time.
	Disabled	Auto: The Data transfer from and to the device occurs multiple sectors at a time if the device supports it.
PIO Mode	Auto	Select the PIO Mode. Select Auto to enhance hard disk performance by optimizing the hard disk timing.
	0~4 (at 1 interval)	
DMA Mode	Auto	Select DMA Mode. Auto: Auto detected.
S.M.A.R.T.	Auto	S.M.A.R.T (Self-Monitoring Analysis and Reporting Technology) is a utility that monitors your disk status to predict hard disk failure.
	Disabled	
	Enabled	
32Bit Data Transfer	Enabled	Enable 32-bit to maximize the IDE hard disk data transfer rate.
	Disabled	

4.7.3 Super I/O Configuration Sub-Menu

You can use this screen to select options for the Super I/O settings. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Configure Win627 Super I/O Chipset		Allows BIOS to enable or disable Floppy Controller.
Serial Port1 Address	[3F8/IRQ4]	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
Serial Port2 Address	[2F8/IRQ3]	
Serial Port2 Mode	[Normal]	
Chassis Intrusion Detect	[Disabled]	
Watchdog Mode	[Disabled]	

Feature	Option	Description
Configure Win627 Super I/O Chipset		
Serial Port1 Address	3F8 IRQ4	Allow BIOS to select Serial Port1 Base Addresses.
	3E8 IRQ4	
	2E8 IRQ3	
	Disabled	
Serial Port2 Address	2F8 IRQ3	Allow BIOS to select Serial Part2 Base Addresses.
	3F8 IRQ4	
	2E8 IRQ3	
	Disabled	
Serial Port2 Mode	Normal	Allow BIOS to select mode for Serial Port2.
	IrDA	
	ASK IR	
Chassis Intrusion Detect	Disabled	Enable/Disable the function of chassis intrusion detection. When chassis open event is detected, BIOS will record the event.
	Enabled	
Watchdog Mode	Disabled	Watchdog Timer sets 2/4/6/8/10 minutes. When WD time-out occurs, system will auto reboot.
	2 Minutes	
	4 Minutes	
	6 Minutes	
	8 Minutes	
	10 Minutes	

4.7.4 ACPI Configuration Sub-Menu

Use this screen to select options for ACPI. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option. A description of the selected item appears on the right side of the screen. The settings are described on this page. The screen is shown below.

BIOS Setup Utility	
Main	Advanced
PCI/PnP	Boot
Security	Chipset
	Exit
ACPI Settings	Enable ACPI Configuration settings
<ul style="list-style-type: none"> ▶ Advanced ACPI Configuration ▶ Chipset ACPI Configuration 	<p>← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit</p>

4.7.4.1 Advanced ACPI Configuration Sub-Menu

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Advanced ACPI Configuration		
ACPI Version Features	[ACPI v1.0]	← → Select Screen
ACPI APIC support	[Enabled]	↑ ↓ Select Item
AMI OEMB table	[Enabled]	+/- Change Option
Headless mode	[Disabled]	F1 General Help
		F10 Save and Exit
		ESC Exit

Feature	Option	Description
Advanced ACPI Configuration		
ACPI Version Features	ACPI v3.0	Set this value to allow or prevent the system to be compliant with the ACPI 2.0 specification.
	ACPI v2.0	
	ACPI v1.0	
ACPI APIC Support	Enabled	This option allows you to define whether or not to enable APIC features.
	Disabled	
AMI OEMB table	Enabled	Set this value to allow the ACPI BIOS to add a pointer to an OEMB table in the Root System Description Table (RSDT) table. Note: OEMB table is used to pass POST data to the AMI code during ACPI O/S operations.
	Disabled	
Headless mode	Enabled	Enable or disable Headless operation mode through ACPI.
	Disabled	

4.7.4.2 Chipset ACPI Configuration Sub-Menu

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Chipset ACPI Configuration		
MCP55 ACPI HPET Table	[Enabled]	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
Chipset ACPI Configuration		
MCP55 ACPI HPET Table	Enabled	Enable/Disable MCP55 ACPI HPET Table.
	Disabled	

4.7.5 APM Configuration

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Power Management/APM	[Enabled]	Enable or Disable APM
Power Button Mode	[On/Off]	
Video Power Down Mode	[Enabled]	
Green PC Monitor Power State	[Standby]	
Hard Disk Power Down Mode	[Enabled]	
Hard Disk Time Out (Minute)	[Disabled]	
Force Throttle	[Disabled]	
Manual Throttle Ratio	[50%]	
System Thermal	[Disabled]	
Thermal throttle Ratio	[50%]	
Resume On PME#	[Disabled]	← → Select Screen
Resume On PCIe Wake#	[Disabled]	↑ ↓ Select Item
Resume On LAN (MAC)	[Disabled]	+/- Change Option
Resume On Ring	[Disabled]	Enter Go to Sub Screen
Resume On PS/2 Keyboard	[Disabled]	F1 General Help
Resume On RTC Alarm	[Disabled]	F10 Save and Exit
		ESC Exit

Feature	Option	Description
APM Configuration		
Power Management/APM	Enabled	Enables or Disable APM.
	Disabled	
Power Button Mode	On/Off	Go into ON/OFF or suspend when power button is pressed.
	suspend	
Video Power Down Mode	Enabled	Power Down Video is Off.
	Disabled	
Green PC Monitor Power State	Standby	Options: standby suspend off.
	Suspend	
	Off	
Hard Disk Power Down Mode	Enabled	Power Down, Hard Disk in suspend Mode.
	Disabled	
Hard Disk Time Out (Minute)	1	Hard Disk Time Out in specified Minutes.
	2	
	3	
	4	
	5	
	6	
	7	
	8	
	9	
	10	
	11	
	12	
	13	
	14	
	15	
	Force Throttle	
Enabled		
Manual Throttle Ratio	Disabled	Select the Duty Cycle in Throttle mode.
	87.5%	
	75%	
	62.5%	
	50%	
	37.5%	
25%		
System Thermal	Enabled	Disable/Enable Thermal to generate a power management event.
	Disabled	
Thermal throttle Ratio	87.5%	Select the duty cycle in throttle when the thermal override condition occurs.
	75%	
	62.5%	
	50%	
	37.5%	
	25%	
Resume On PME#	Enabled	Disable/Enable PME to generate a wake event.
	Disabled	

Resume On PCIE Wake	Enabled	Disable/Enable PME to generate a wake event.
	Disabled	
Resume On LAN (MAC)	Enabled	Disable/Enable LAN(MAC) to generate a wake event.
	Disabled	
Resume On Ring	Enabled	Disable/Enable RI to generate a wake event.
	Disabled	
Resume On PS/2 Keyboard	Enabled	Disable/Enable PS/2 Keyboard to generate a wake event.
	Disabled	
Resume On RTC Alarm	Enabled	Disable/Enable RTC event to wake after a power failure.
	Disabled	

4.7.6 Event Log Configuration Sub-Menu

You can use this screen to view the Event Log Control Menu. This logs system events (such as CMOS clear, ECC memory errors, etc) and writes the log into NVRAM. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option. The settings are described on the following pages.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
Event Logging details	View all unread events on the Event Log.
View Event Log Mark All Events as Read Clear Event Log	← → Select Screen ↑ ↓ Select Item +/- Change Option Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
Event Logging details		
View Event Log	—	Views all unread events on the Event Log.
Mark All Events as Read	OK	Marks all unread events as read.
	Cancel	
Clear Event Log	OK	Erases all of events.
	Cancel	

4.7.7.1 FAN Configuration Sub-Men

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Fan Configuration		
FAN1	Reading	XXXXX RPM
FAN2	Reading	XXXXX RPM
FAN3	Reading	XXXXX RPM
FAN4	Reading	XXXXX RPM
FAN5	Reading	XXXXX RPM
FAN6	Reading	XXXXX RPM
FAN7	Reading	XXXXX RPM
FAN8	Reading	XXXXX RPM
FAN9	Reading	XXXXX RPM
FAN10	Reading	XXXXX RPM
FAN11	Reading	XXXXX RPM
FAN12	Reading	XXXXX RPM
FAN13	Reading	XXXXX RPM
FAN14	Reading	XXXXX RPM
		← → Select Screen ↑ ↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit

4.7.7.2 Voltage Configuration Sub-Men

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Voltage Configuration		
CPU0	VCORE	XXXV
CPU0	VDD	XXXV
CPU1	VCORE	XXXV
CPU1	VDD	XXXV
CPU2	VCORE	XXXV
CPU2	VDD	XXXV
CPU3	VCORE	XXXV
CPU3	VDD	XXXV
VLPT	1.2V	
5VSB		
VDD5V		
VDD12V		
SB1.5V		
SB1.4V		
		← → Select Screen ↑ ↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit

4.7.7.3 Temperature Configuration Sub-Men

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Temperature Configuration		
CPU0 Temperature:	XXX°C/ XXX°F	← → Select Screen
CPU1 Temperature:	XXX°C/ XXX°F	↑ ↓ Select Item
CPU2 Temperature:	XXX°C/ XXX°F	+/- Change Option
CPU3 Temperature:	XXX°C/ XXX°F	Tab Select Field
MCP55 Temperature:	XXX°C/ XXX°F	F1 General Help
System Temperature:	XXX°C/ XXX°F	F10 Save and Exit
		ESC Exit

4.7.8 Remote Access Configuration Sub-Menu

You can use this screen to view the Remote Access Configuration Menu. This feature allows access to the Server remotely via serial port. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option. The settings are described on the following pages.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Configure Remote Access type and parameters		Select remote access type.
Remote Access	[Disabled]	
Serial Port Number	[COM1]	
Base Address, IRQ		
Serial Port Mode	[115200 8,n,1]	← → Select Screen
Flow Control	[None]	↑ ↓ Select Item
Redirection After BIOS POST	[Always]	+/- Change Field
Terminal Type	[ANSI]	F1 General Help
VT-UTF8 Combo Key Support	[Enabled]	F10 Save and Exit
Serdir Memory Display Delay	[NO Delay]	ESC Exit

Feature	Option	Description
Configure Remote Access type and parameters		
Remote Access	Enabled	Enables remote access to system through serial port.
	Disabled	
Serial Port Number	COM1	Select Serial Port for console redirection.
	COM2	
Serial Port Mode	115200 8, n,1	Select Serial Port Settings..
	56700 8,n,1	
	38400 8,n,1	
	19200 8,n,1	
	09600 8,n,1	
Flow Control	None	Select Flow Control for console redirection.
	Hardware	
	Software	
Redirection After BIOS POST	Disabled	Disabled: turns of the redirection after Boot. Redirection is active during POST and during Boot loader.
	Always	
Terminal Type	ANSI	Select the target terminal type.
	VT100	
	VT-UTF8	
VT-UTF8 Combo Key Support	Enabled	Enable/Disable VT-UTF8 combination key support for ANSI/VT100 terminals.
	Disable	
Serdir Memory Display Delay	No Delay	Gives the delay in seconds to display memory information.
	Delay 1Sec	
	Delay 2Sec	
	Delay 4Sec	

4.7.9 USB Configuration Sub-Menu

You can use this screen to view the USB Configuration Menu. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option. The settings are described on the following pages.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
USB Configuration	Enables support for legacy USB.
Module Version – X.XX.X-XX.X	
USB Devices Enabled: None	
Legacy USB Support [Enabled]	
USB 2.0 Controller Mode [HiSpeed]	
BIOS EHCI Hand-Off [Enabled]	
▶ USB Mass Storage Device Configuration	
	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
USB Configuration		
Legacy USB Support	Disabled	Enables support for legacy USB.
	Enabled	
USB 2.0 Controller Mode	Hi Speed	Configure the USB 2.0 controller in Hi Speed (480Mbps) or Full Speed (12Mbps).
	Full Speed	
BIOS EHCI Hand-Off	Enabled	This is a work around for OSes without EHCI hand-off support. The EHCI ownership change should claim by EHCI driver.
	Disabled	

4.7.9.1 USB Mass Storage Device Configuration Sub-Men

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
USB Mass Storage Device Configuration		← → Select Screen ↑ ↓ Select Item +/- Change Option Tab Select Field F1 General Help F10 Save and Exit ESC Exit
USB Mass Storage Reset Delay	[20 Sec]	
Device # 1	XXXX	
Emulation Type	[Auto]	

Feature	Option	Description
USB Mass Storage Device Configuration		
USB Mass Storage Reset Delay	20 Sec	Number of seconds POST waits for the USB mass storage device after start unit command.
	10 Sec	
	30 Sec	
	40 Sec	
Emulation Type	Auto	If Auto, USB devices less than 530MB will be emulated as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD.
	Floppy	
	Forced FDD	
	Hard Disk	
	CDROM	

4.8 PCI PnP Menu

You can use this screen to view PnP (Plug & Play) BIOS Configuration Menu. This menu allows the user to configure how the BIOS assigns resources & resolves conflicts. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option. The settings are described on the following pages.

BIOS Setup Utility		
Main	Advanced	PCI/PnP
Boot	Security	Chipset
Exit		
Advanced PCI/PnP Settings		Clear NVRAM during System Boot.
<p>WARNING: Setting wrong values in below sections may cause system to malfunction.</p> <p>Clear NVRAM [No] Plug & Play O/S [No] PCI Latency Timer [64] Allocate IRQ to PCI VGA [Yes] Palette Snooping [Disabled] PCI IDE BusMaster [Enabled]</p>		<p>← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit</p>

Feature	Option	Description
Advanced PCI/PnP Settings		
Clear NVRAM	No	Clears NVRAM during system Boot.
	Yes	
Plug & Play OS	Yes	No: lets the BIOS configure all the devices in the system. Yes: lets the operating system configure Plug and Play (PnP) devices not required for boot if your system has a Plug and Play operating system.
	No	
PCI Latency Timer	32	This setting controls how many PCI clocks each PCI device can hold the bus before another PCI device takes over. When set to higher values, every PCI device can conduct transactions for a longer time and thus improve the effective PCI bandwidth. Values in units of PCI clocks for PCI device latency timer register.
	64	
	96	
	128	
	160	
	192	
	224	
248		
Allocate IRQ to PCI VGA	Yes	Yes: assigns IRQ to PCI VGA card if card requests IRQ.
	No	
Palette Snooping	Disabled	This is the default setting and should not be changed unless the VGA card manufacturer requires Palette Snooping to be Enabled. Enabled: informs the PCI devices that an ISA graphics device is installed in the system so the card will function correctly.
	Enabled	
PCI IDE BusMaster	Disabled	Enabled: BIOS uses PCI bus mastering for reading / writing to IDE drives.
	Enabled	
	Reserved	

4.9 Boot Menu

You can display Boot Setup option by highlighting it using the Arrow (↑/↓) keys and pressing Enter. The settings are described on the following pages.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
Boot Settings	Configures settings during System Boot.
<ul style="list-style-type: none"> ▶ Boot Settings Configuration ▶ Boot Device Priority ▶ Hard Disk Drives ▶ Removable Drives ▶ Network Drives 	← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

4.9.1 Boot Settings Configuration Sub-Menu

Use this screen to select options for the Boot Settings Configuration. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
Boot Settings Configuration	Allows BIOS to skip certain tests while booting. This will decrease the time needed to boot the system.
Quick Boot [Disabled]	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
Quiet Boot [Disabled]	
Add On ROM Display Mode [Force BIOS]	
Boot up Num-Lock [On]	
PS/2 Mouse Support [Auto]	
Wait for 'F1' if Error [Enabled]	
Hit 'DEL' Message Display [Enabled]	
Interrupt 19 Capture [Enabled]	
Endless Boot [Disabled]	

Feature	Option	Description
Boot Settings Configuration		
Quick Boot	Enabled	This option allows user bypass BIOS self test during POST.
	Disabled	
Quiet Boot	Disabled	Disabled: displays normal POST messages.
	Enabled	Enabled: displays OEM log instead of POST messages.
Add On ROM Display Mode	Force BIOS	Allows user to force BIOS/Option ROM of add-on cards to be displayed during quiet boot.
	Keep Current	
Boot up Num-Lock	On	Selects Power-on state for Numlock.
	Off	
PS/2 Mouse Support	Enabled	Selects support for PS/2 Mouse.
	Disabled	
	Auto	
Wait for 'F1' If Error	Enabled	Waits for F1 key to be present if error occurs.
	Disabled	
Hit 'DEL' Message Display	Enabled	Displays "Press DEL to run Setup" in POST.
	Disabled	
Interrupt 19 Capture	Disabled	Enabled: allows option ROMs to trap interrupt 19.
	Enabled	
Endless Boot	Enabled	Enable/Disable endless loop boot from BBS table.
	Disabled	

4.9.2 Boot Device Priority

Use this screen to select options for the Boot Device Priority. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Boot Device Priority		Specifies the boot sequence from the available devices.
1st Boot Device	[xx,xxx-xxxxx:xxx]	A device enclosed in parenthesis has been disabled in the corresponding type menu. ← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
2nd Boot Device	[xx,xxx-xxxxx:xxx]	

Feature	Option	Description
Boot Device Priority		
1st Boot Device	xx,xxx-xxxxx:xxx	Settings for boot priority. These can be customized depending on your preference.
2nd Boot Device	Disabled	

4.9.3 Hard Disk Drives

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Hard Disk Drives		Specifies the boot sequence from the available devices. ← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
1st Drive	[xx,xxx-xxxxx:xxx]	

Feature	Option	Description
Hard Disk Drives		
1st Drive	xx,xxx-xxxxx:xxx	Specifies the boot sequence from the available devices.
	Disabled	

4.9.4 Removable Drives

BIOS Setup Utility						
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Exit
Removable Drives					Specifies the boot sequence from the available devices. ← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit	
1st Drive		[xx,xxx-xxxxx:xxx]				

Feature	Option	Description
Network Drives		
1st Drive	xx,xxx-xxxxx:xxx	Specifies the boot sequence from the available devices.
	Disabled	

4.9.5 Network Drives

BIOS Setup Utility						
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Exit
Network Drives					Specifies the boot sequence from the available devices. ← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit	
1st Drive		[xx,xxx-xxxxx:xxx]				
2nd Drive		[xx,xxx-xxxxx:xxx]				

Feature	Option	Description
Network Drives		
1st Drive 2nd Drive	xx,xxx-xxxxx:xxx	Specifies the boot sequence from the available devices.
	Disabled	

4.10 Security Menu

The system can be configured so that all users must enter a password every time the system boots or when BIOS Setup is entered, using either the Supervisor password or User password. The Supervisor and User passwords activate two different levels of password security. If you select password support, you are prompted for a one to six character password. Type the password on the keyboard. The password does not appear on the screen when typed. Make sure you write it down. If you forget it, you must clear CMOS and reconfigure.

BIOS Setup Utility	
Main	Advanced PCI/PnP Boot Security Chipset Exit
Security Settings	Install or change the password.
Supervisor Password : Not Installed User Password : Not Installed	← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit
Change Supervisor Password Change User Password	
Boot Sector Virus Protection [Disabled]	

Feature	Option	Description
Security Settings		
Supervisor Password:	Not Installed	If the password has been set, Installed displays. If no password is set, Not Installed displays.
	Installed	
User Password:	Not Installed	If the password has been set, Installed displays. If no password is set, Not Installed displays.
	Installed	
Change Supervisor Password	—	Selects this option to change or install Supervisor Password.
Change User Password	—	Selects this option to change or install User Password.
Boot Sector Virus Protection	Disabled	When it is set to [Enabled], BIOS will issue a virus warning message and beep if a write to the boot sector or the partition table of the HDD is attempted.
	Enabled	

4.11 Chipset Menu

This menu allows the user to customize functions of the AMD Chipsets. North Bridge configuration contains options for Memory & CPU settings. South Bridge configuration contains options for SM Bus & USB. Additional configuration for the AMD8131 PCI-X Tunnel is available in the PCI-X Configuration Menu. Select a menu by highlighting it using the Arrow (↑/↓) keys and pressing Enter. The settings are described on the following pages.

BIOS Setup Utility						
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Exit
Advanced Chipset Settings					Options for NB	
WARNING: Setting wrong values in below sections may cause system to malfunction. <ul style="list-style-type: none"> ▶ Northbridge Configuration ▶ Southbridge/MCP55 Configuration ▶ Hyper Transport Configuration 					← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit	

4.11.1 Northbridge Configuration Sub-Menu

This menu gives options for customizing memory & Hypertransport settings. Select a menu by highlighting it using the Arrow (↑/↓) keys and pressing Enter. The settings are described on the following pages.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
NorthBridge Chipset Configuration		
<ul style="list-style-type: none"> ▶ Memory Configuration ▶ ECC Configuration ▶ IOMMU Option Menu 		
Power Down Control	[Auto]	
Alternate VID	[Auto]	
Memory CLK	:XXX MHz	
CAS latency (Tcl)	:XX	
RAS/CAS Delay (Trcd)	:X CLK	
Min Active RAS (Tras)	:X CLK	
Row Precharge Time (Trp)	:X CLK	
RAS/RAS Delay (Trrd)	:X CLK	
Row Cycle (Trc)	:XX CLK	
Asynchronous Latency	:X ns	
		← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
NorthBridge Chipset Configuration		
Power Down Control	Auto	Allow DIMMs to enter power down mode by deasserting the clock enable signal when DIMMs are not in use.
	Disable	
Alternate VID	Auto	Specify the alternate VID while in low power status.
	0.850V	
	1.050V	
	1.025V	
	1.000V	
	0.975V	
	0.950V	
	0.925V	
	0.900V	
	0.875V	
0.825V		
0.800V		

Feature	Option	Description
NorthBridge Chipset Configuration		
Memory CLK	Read only	It shows the clock frequency of the installed SDRAM.
CAS Latency (Tcl)	Read only	This controls the timing delay (in clock cycles) before SDRAM starts a read command after receiving it.
RAS/CAS Delay (Trcd)	Read only	When DRAM is refreshed, both rows and columns are addressed separately. This setup item allows you to determine the timing of the transition from RAS (row address strobe) to CAS (column address strobe). The less the clock cycles, the faster the DRAM performance.
Min Active RAS (Tras)	Read only	This setting allows you to select the number of clock cycles allotted for the RAS pulse width, according to DRAM specifications. The less the clock cycles, the faster the DRAM performance.
Row Precharge Time (Trp)	Read only	This item controls the number of cycles for Row Address Strobe (RAS) to be allowed to precharge. If insufficient time is allowed for the RAS to accumulate its charge before DRAM refresh, refresh may be incomplete and DRAM may fail to retain data. This item applies only when synchronous DRAM is installed in the system.
RAS/RAS Delay (Trrd)	Read only	Auto uses hardware compensation values. Other values add to or subtract from hardware generated value. Recommended setting is Auto.
Row Cycle (Trc)	Read only	Bits 7-4. RAS#-active to RAS#-active or auto refresh of the same bank.
Asynchronous Latency	Read only	Bits 3-0. This field should be loaded with a 4-bit value equal to the maximum asynchronous latency in the DRAM read round-trip loop.

4.11.1.1 Memory Configuration Sub-Menu

This menu has options for memory speed & latency. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
Memory Configuration		MEMCLK can be set by the code using AUTO, or if you use LIMIT, you can set one of the standard values.
Memclock Mode	[Auto]	
Memory Clock Value	[400]	
MCT Timing Mode	[Auto]	
CAS Latency (CL)	[Auto]	
TRAS	[Auto]	
TRP	[Auto]	
TRCD	[Auto]	
TRRD	[Auto]	
TRC	[Auto]	
Bank Interleaving	[Auto]	← → Select Screen
Enable Clock to All DIMMs	[Disabled]	↑ ↓ Select Item
MemClk Tristate C3/ATLVID	[Disabled]	+/- Change Option
CS Spuring Enable	[Disabled]	F1 General Help
DQS Signal Training Control	[Enabled]	F10 Save and Exit
Memory Hole Remapping	[Enabled]	ESC Exit

Feature	Option	Description
Memory Configuration		
Memclock Mode	Limit	Select the DRAM Frequency programming method. If Auto, the DRAM speed will be based on SPDs. If Limit, the DRAM speed will not exceed the specified value. If Manual, the DRAM speed specified will be programmed by users.
	Auto	
	Manual	
Memory Clock Value	400	Set Memory Value
	533	
	667	
	800	
MCT Timing Mode	Manual	Allow user to configure the MCT Timing Mode manually.
	Auto	
CAS Latency (CL)	Auto	Set CAS Latency
	3.0 ~ 6.0	
TRAS	Auto	Set TRAS
	5CLK ~ 18CLK	
TRP	Auto	Set TRP
	3CLK ~ 6CLK	
TRCD	Auto	Set TRCD
	3CLK ~ 6CLK	
TRRD	Auto	Set TRRD
	2T ~ 5T	
TRC	Auto	Set TRC
	11T ~ 25T	
Bank Interleaving	Disabled	Enable Bank Memory Interleaving
	Auto	
Enable Clock to All DIMMs	Enabled	Enable unused clocks to DIMMs even memory slots are not populated.
	Disabled	
MemCik Tristate C3/ATLVID	Enabled	Enable/Disable MemCik Tri-Stating during C3 and Alt VID
	Disabled	
CS Spuring Enable	Enabled	Reserve a spare memory rank in each mode.
	Disabled	
DQS Signal Training Control	Enabled	Turning this off will require custom memory timings programming. Training will be automatically disabled if CS sparing is enabled.
	Disabled	
Memory Hole Remapping	Enabled	Enable Memory Remapping around Memory Hole
	Disabled	

4.11.1.2 ECC Configuration Sub-Menu

This menu allows the user to configure ECC setup for system & DRAM. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option.

BIOS Setup Utility						
Main	Advanced	PCI/PnP	Boot	Security	Chipset	Exit
ECC Configuration					DRAM ECC allows hardware to report and correct memory errors automatically maintaining system integrity.	
DRAM ECC Enable					[Enabled]	
4-Bit ECC Mode					[Disabled]	
DRAM SCRUB REDIRECT					[Disabled]	
DRAM BG Scrub					[Disabled]	
L2 Cache BG Scrub					[Disabled]	
Data Cache BG Scrub					[Disabled]	
					← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit	

Feature	Option	Description
ECC Configuration		
DRAM ECC Enable	Enabled	DRAM ECC allows hardware to report and correct memory errors automatically maintaining system integrity.
	Disabled	
4-Bit ECC Mode	Disabled	Enable 4-Bit ECC Mode. Note: Also known as CHIPKILL ECC Mode
	Enabled	
DRAM SCRUB REDIRECT	Disabled	DRAM SCRUB REDIRECT allows the system to correct DRAM ECC errors immediately when they occur, even if background scrubbing is on.
	Enabled	
DRAM BG Scrub	Disabled	DRAM scrubbing corrects memory errors so later reads are correct. Doing this while memory is not being used improves performance. Note: When AMD's node interleave feature is enabled, BIOS will force DRAM scrub off.
	40ns	
	80ns	
	160ns	
	320ns	
	640ns	
	1.28us	
	2.56us	
	5.12us	
	10.2us	
	20.5us	
	41.0us	
	81.9us	
163.8us		
327.7us		
655.4us		

Feature	Option	Description
ECC Configuration		
L2 Cache BG Scrub	Disabled	Allows the L2 Data Cache RAM to be corrected while idle.
	40ns	
	80ns	
	160ns	
	320ns	
	640ns	
	1.28us	
	2.56us	
	5.12us	
	10.2us	
	20.5us	
	41.0us	
	81.9us	
	163.8us	
	327.7us	
655.4us		
Data Cache BG Scrub	Disabled	Allows the L1 Data Cache RAM to be corrected while idle.
	40ns	
	80ns	
	160ns	
	320ns	
	640ns	
	1.28us	
	2.56us	
	5.12us	
	10.2us	
	20.5us	
	41.0us	
	81.9us	
	163.8us	
	327.7us	
655.4us		

4.11.1.3 IOMMU Option Menu

This menu has options for IOMMU. Use the up and down arrow (↑/↓) keys to select an item. Use the Plus and Minus (+/-) keys to change the value of the selected option.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
IOMMU Mode	[AGP Present]	<p>Set GART size in systems without AGP, or disable altogether. Some OSes require valid GART for proper operation. If AGP is present, select appropriate option to ensure proper AGP operation.</p> <p>← → Select Screen ↑ ↓ Select Item +/- Change Option F1 General Help F10 Save and Exit ESC Exit</p>

Feature	Option	Description
IOMMU Configuration		
IOMMU Mode	AGP Present	Set GART size in systems without AGP, or disable altogether. Some OSes require valid GART for proper operation. If AGP is present, select appropriate option to ensure proper AGP operation.
	Disabled	
	32 MB	
	64 MB	
	128 MB	
	256 MB	
	512 MB	
1 GB		

4.11.2 Southbridge Configuration Sub-Menu

This menu gives options for southbridge devices settings. Select a menu by highlighting it using the Arrow (↑/↓) keys and pressing Enter. The settings are described on the following pages.

BIOS Setup Utility		
Main	Advanced	PCI/PnP Boot Security Chipset Exit
SouthBridge Chipset Configuration		
CPU/LDT Spread Spectrum	[Center Spread]	
PCIE Spread Spectrum	[Enabled]	
SATA Spread Spectrum	[Enabled]	
Primary Graphics Adapter	[PCI Express ->PCI]	
USB1.1 Controller	[Enabled]	
USB2.0 Controller	[Enabled]	
LAN1	[Auto]	
LAN2	[Auto]	
Restore on AC Power Loss	[Last State]	
SAS Function	[Enabled]	
		← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit

Feature	Option	Description
SouthBridge Chipset Configuration		
CPU/LDT Spread Spectrum	Disabled	Disabled Up Spread Center Spread. Select CPU/LDT Spread Spectrum Mode.
	Up Spread	
	Center Spread	
PCIE Spread Spectrum	Disabled	Select PCIE Spread Spectrum Mode.
	Enabled	
SATA Spread Spectrum	Disabled	Select SATA Spread Spectrum Mode.
	Enabled	
Primary Graphics Adapter	PCI Express ->PCI	Set Primary Graphics Adapter Mode.
	PCI -> PCI Express	
USB 1.1	Enabled	Enable/Disable USB 1.1 Controller.
	Disabled	
USB 2.0	Enabled	Enable/Disable USB 2.0 Controller.
	Disabled	
LAN1	Auto	LAN1 Configuration
	Disabled	
LAN2	Auto	LAN2 Configuration
	Disabled	
Restore on AC Power Loss	Power Off	System State after Restore on AC Power Loss
	Power On	
	Last State	
SAS Function	Enabled	Enable/disable SAS Function.
	Disabled	

4.11.3 Hyper Transport MCP55 Configuration Sub-Menu

This menu gives Hyper Transport Links settings. Select a menu by highlighting it using the Arrow (↑/↓) keys and pressing Enter. The settings are described on the following pages.

BIOS Setup Utility		
Main	Advanced	PCI/PnP
Boot	Security	Chipset
		Exit
Hper Transport MCP55 Configuration		
Mcp55(SB) to K8 (CPU) Freq Auto	[Disabled]	← → Select Screen
Mcp55(SB) to K8 (CPU) Frequency	[1000 MHz]	↑ ↓ Select Item
Mcp55(SB) to K8 (CPU) LinkWidth	[16 ↓ ,16 ↑]	Enter Go to Sub Screen
		F1 General Help
		F10 Save and Exit
		ESC Exit

Feature	Option	Description
Hyper Transport MCP55 Configuration		
Mcp55(SB) to K8 (CPU) Freq Auto	Enabled	MCP55 (SB) to K8 (CPU) Frequency Selection by CPU capability.
	Disabled	
Mcp55(SB) to K8 (CPU) Frequency	200	MCP55 (SB) to K8 (CPU) Frequency Selection.
	400	
	600	
	800	
	1000	
	1200	
	1400	
Mcp55(SB) to K8 (CPU) LinkWidth	4 ↓ 4 ↑	MCP55 (SB) to K8 (CPU) link width selection.
	8 ↓ 8 ↑	
	16 ↓ 16 ↑	

4.12 Exit Menu

You can display an Exit BIOS Setup option by highlighting it Arrow (↑/↓) keys and pressing Enter.

BIOS Setup Utility					
Main	Advanced	PCI/PnP	Boot	Security	Chipset Exit
Exit Options				Exit system setup after saving the changes.	
Save Changes and Exit Discard Changes and Exit Discard Charges				F10 key can be used for this operation.	
Load Optimal Defaults Load Failsafe Defaults				← → Select Screen ↑ ↓ Select Item Enter Go to Sub Screen F1 General Help F10 Save and Exit ESC Exit	

Save Changes and Exit

Use this option to exit setup utility and re-boot.
All new selections you have made are stored into CMOS.
System will use the new settings to boot up.

Discard Changes and Exit

Use this option to exit setup utility and re-boot.
All new selections you have made are not stored into CMOS.
System will use the old settings to boot up.

Discard Changes

Use this option to restore all new setup values that you have made but not saved into CMOS.

Load Optimal Defaults

Use this option to load default performance setup values.
Use this option when system CMOS values have been corrupted or modified incorrectly.

Load Failsafe Defaults

Use this option to load all default failsafe setup values.
Use this option when troubleshooting.

Appendix I: Installing M3295

Follow these steps to install M3295 into the SO-DIMM slot.

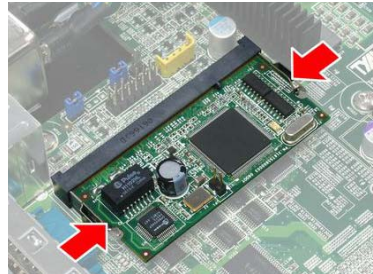


M3295

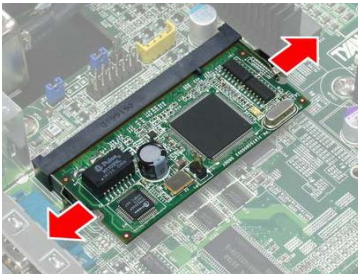


SO-DIMM Socket

1. Insert M3295 firmly into the socket by pressing down as shown in the diagram. Only it is firmly seated into the socket, two spring levers on each side will close and secure the card into the socket. There should be key on M3295 that fits the key in the SO-DIMM socket. The card may fit in only one way.



2. To remove M3295, simply push out the spring levers as shown and pull the card out of the socket.



Appendix II: Cable Connection Tables

SAS/SATA Cables

Table 1: B4987G26W3H/B4987G26W3HI

M1221	Connect to	Motherboard
J1 Connector	→	SAS 4
J2 Connector	→	SAS 5
J3 Connector	→	SAS 6

Power Cables

Table 2: PWR2 Cable Connection

Connect the PWR2 cable according to the diagram on the right. Please make sure you connect them in the correct way.

Yellow/Green	Yellow/ Green (GND)	→	MB S4987 PWR2 Pin7
Blue	Blue (Neutral)	→	MB S4987 PWR2 Pin8
Brown	Brown (90~240V)	→	MB S4987 PWR2 Pin9

Other Cables

Table 3: M1221 HDD and FAN Backplane to Motherboard

M1221	Connect to	Motherboard
J29 Fan Tach Connector	→	J29 Connector
PW6	→	PW6

Table 4: M1003 Front Panel Control Board Related Cable

M1003	to	Motherboard
M1003 J1 USB Connector	→	Motherboard J12 Connector
M1003 J2 Front Panel Connector	→	Motherboard J3 Connector

Table 5: ODD Related Cable

Motherboard IDE (ODD) Connector	→	ODD Backplane
M1221 J15 Power Connector	→	ODD Backplane

Appendix III: LSI Logic Config Utility

NOTE: This appendix just provides a brief introduction of the LSI Logic integrated RAID solution for LSI Logic controller LSISAS 1068E. For detail of SAS RAID (GT26-B4987), please visit <http://www.Lsillogic.com/contacts/index.html> to refer to LSI manual.

The main LSI Logic Config Utility menu is the first screen you can navigate that shows you how to configure and use the components of the LSI Logic integrated raid (IR) software product with LSI Logic controller — LSI SAS1068E.

To start the LSI Logic Config Utility:

1. Turn on or reboot your system;
2. Press <Ctrl+C> during POST to start the LSI Logic Config Utility;
3. On the Adapter list screen, use the arrow keys to select an LSI Logic SAS adapter (SAS1068E), as shown in figure X.1;

LSI Logic Config Utility		v6.12.00.00 (2006.10.31)					
Adapter List		Global Properties					
Adapter	PCI Bus	PCI Dev	PCI Fnc	PCI Slot	FW Revision	Status	Boot Order
SAS1068E	06	00	00	21	1.18.00.00-IR	Enabled	0

Esc = Exit Menu F1/Shift+1 = Help
Alt+N = Global Properties -/+ = Alter Boot Order Ins/Del = Alter Boot List

Figure X.1

4. Press <Enter> to go to the Adapter Properties screen as shown in figure X.2

LSI Logic Config Utility v6.12.00.00 (2006.10.31)	
Adapter Properties -- SAS1068E	
Adapter	SAS1068E
PCI Slot	21
PCI Address(Bus/Dev/Func)	06:00:00
MPT Firmware Revision	1.18.00.00-IR
SAS Address	500E0810:00000050
NVDATA Version	25.03 M
Status	Enabled
Boot Order	0
Boot Support	[Enabled BIOS & OS]
RAID Properties	
SAS Topology	
Advanced Adapter Properties	
Esc = Exit Menu	F1/Shift+1 = Help
+Enter = Select Item	-/+ = Change Item

Figure X.2

On the Adapter properties screen, use the arrow keys to select **RAID Properties** on the screen and press **<Enter>**.

When you are prompted to select a volume type, select **Create XX** (such as IM, IME or IS) **volume** as shown in figure X.3. The create New Array screen illustrates a list of disks that can be added to a volume.

LSI Logic Config Utility v6.12.00.00 (2006.10.31)	
Select NewArray Type -- SAS1068E	
Create IM Volume	Create Integrated Mirror Array of 2 disks plus an optional hot spare. Data on the primary disk may be migrated.
Create IME Volume	Create Integrated Mirrored Enhanced Array of 3 to 8 disks including an optional hot spare. ALL DATA on array disks will be DELETED!
Create IS Volume	Create Integrated Striping array of 2 to 8 disks. ALL DATA on array disks will be DELETED!
ESC=Exit Menu F1/Shift+1=Help	
Enter = Choose array type to create	

Figure X.3

5. Move the cursor to the “RAID disk” column to select a disk. To add a disk to the volume, change the “NO” to “YES” by pressing “+ Key”, “- Key”, or “space bar”.

- 5.1 **Creating an IM (RAID 1) volume:** When the disk is added, you may either keep the existing data or overwrite it. Press “**M**” to keep the existing data on the first disk or press “**D**” to overwrite it. If you keep the existing data, this is called a **migration**. The first disk will be mirrored onto the second one, so the data you want to keep must be on the first disk added to the volume. And in this way, any data on the second disk is overwritten.
- 5.2 **Creating an IME (RAID 1E) volume:** Repeat this step to select a total of three to eight disks for the volume (or three to seven disks if you will create a global hot spare).
- 5.3 **Creating IS (RAID 0) volume:** There are several limitations when creating an IS (RAID 0) volume.
 - 5.3.1 All disks must be either SATA or SAS (with SMART support); Disks must have 512-byte blocks and must not have removable media;
 - 5.3.2 There must be 2 (included) to 8 (included) drives in a valid IS volume. Hot spare drives are not allowed;
 - 5.3.3 After disks have been added, the Array Size field will reflect the size of the new volume.
6. When the volume has been fully configured, press “**C**” and then select **save changes** and **exit this menu** to commit the changes.

Note: Integrated striping (RAID 0) does not provide any data protection in the event of disk failure. It is primarily used to increase speed.

Appendix IV: InfiniBand Installation Guide

InfiniBand™ enabling, Optional for B4987G26W3HI only

Note: The appendix just gives a draft picture of the InfiniBand™ driver installation, for the detail please visit <http://www.mellanox.com/> to download the latest InfiniBand Driver and users' manual.

The InfiniBand™ Architecture (IBA) is an industry standard that defines a new high-speed switched fabric subsystem designed to connect processor nodes and I/O nodes to form a system area network. This new interconnected method moves away from the local transaction-based I/O model across buses to a remote message-passing model across channels. The architecture is independent of the host operating system (OS) and the processor platform.

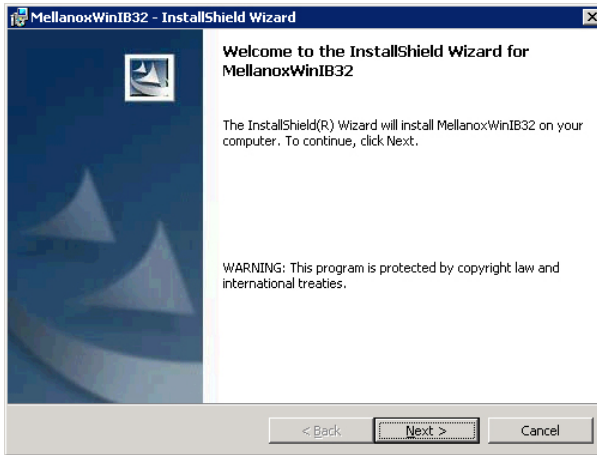
Installer

- Installer developed using installShield which is the most popular tool for building installers
- MSI format
- Simple, self explained GUI installation
- Can be run in batch mode (no GUI) by 'msiexec/quit'
- Default install dir:\program files\Mellanox
- Add the installed package to "Add remove programs" and "start - > Program - > Mellanox"

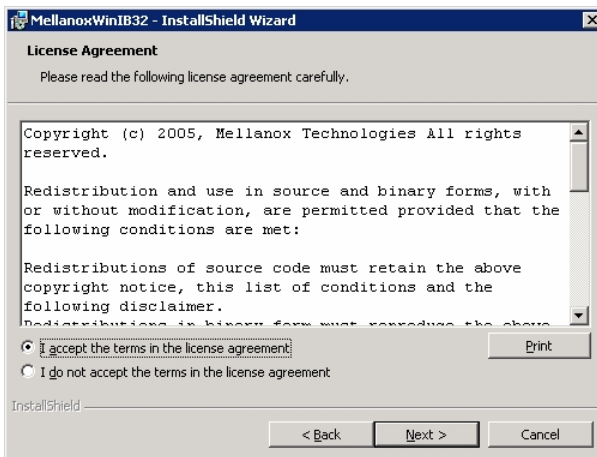
Some important notes:

- GT26-B4987 V2.1 CD doesn't include InfiniBand Driver, please visit: <http://www.mellanox.com/> to download the driver:
Click OFED to download Linux driver.
Click WinIB to download Windows driver.
- Supported HCA (Host Channel Adapters) must be installed before WinIB installation.
- Since IB drivers are not certified by Microsoft, several security alerts will pop during installation. Please accept them all.
*To prevent this please change to "ignore" in "My computer - > properties - > Hardware -> Driver signing";
- During installation "Find new hardware wizard" will popup. Please choose "cancel" for all instances.
- Install Log file:\Windows\setupapi.log.

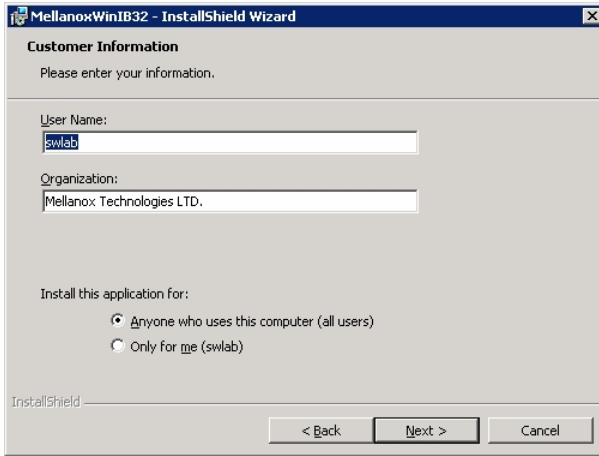
The following diagrams may guide you how to install the InfiniBand Driver.



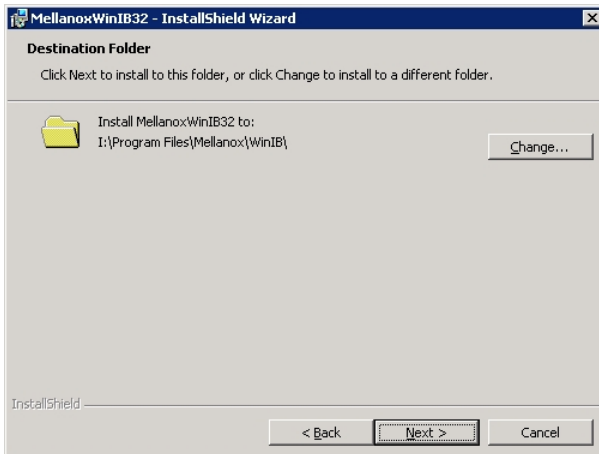
Welcome Screen



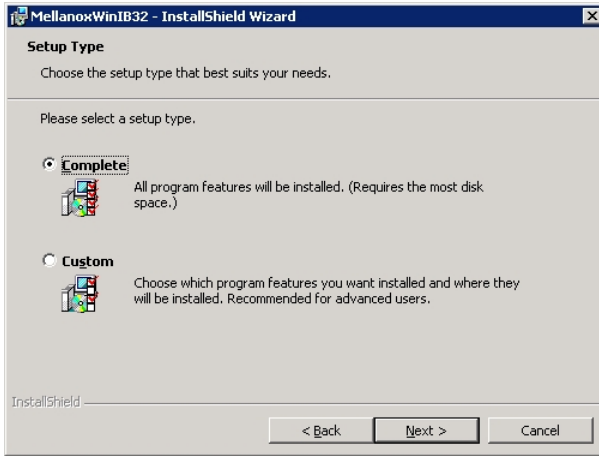
License Agreement



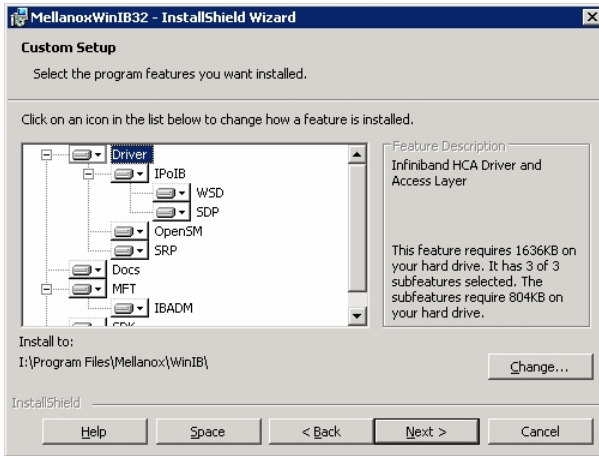
Registration Info



Install Path SDP/WSD Activation

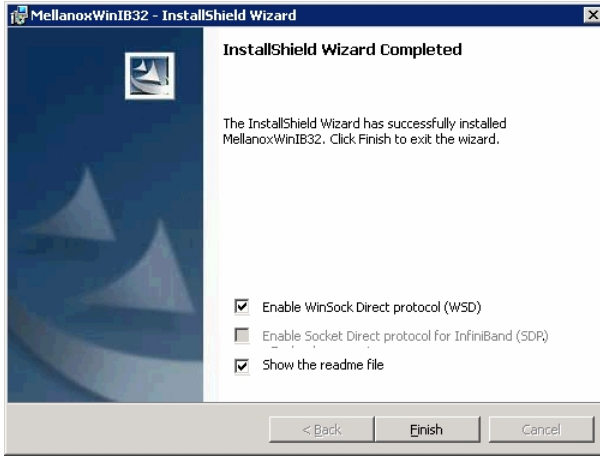


Complete/Custom



Components Selection.

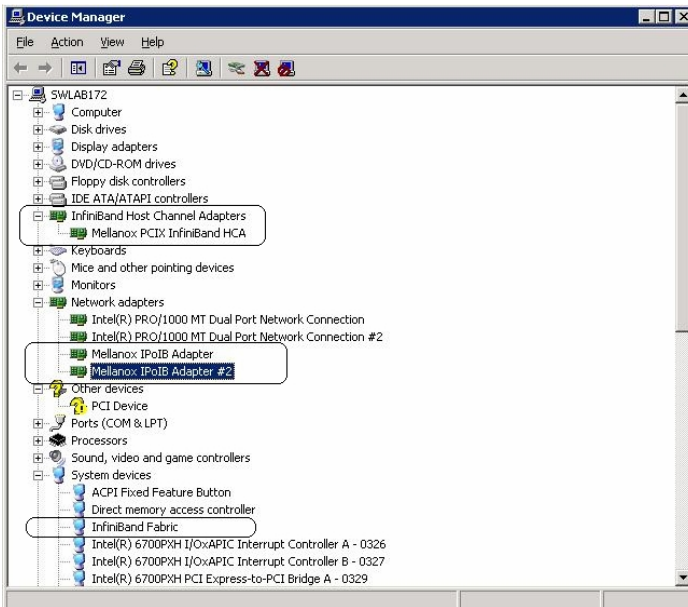
Only SDP or WSD may be installed. Not both! Below, SDK...



SDP/WSD Activation

The installer installs 3 types of devices:

- InfiniBand Fabric
- HCA
- IPoIB Interface



Uninstall InfiniBand Driver

- Uninstall can be done from the “Add/Remove Program” of the control panel or from the “Start -> Programs -> Mellanox -> WinIB”;
- After the uninstall one MUST restart the machine to complete the uninstall process;

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 consequence).

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 their 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.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.

TYAN Transport GT26-B4987 User's Manual v1.00

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