GN70-B8236

Service Engineer's Manual



PREFACE

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Version 1.0

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following conditions:

- This device must not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesirable operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Notice for Canada

This Class A digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la Classe A est conforme à la norme NMB-003 du Canada.



Notice for Europe (CE Mark)
This product is in conformity with the Council Directive 2004/108/EC.

CAUTION: Lithium battery included with this board. Do not puncture, mutilate, or dispose of battery in fire. There will be 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 TYAN GN70-B8236. 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 TYAN GN70-B8236 barebones, standard parts list, describes the external components, gives a table of key components, and provides block diagram of the system.

Chapter2: Covers procedures on installing the CPU, memory modules and hard drives.

Chapter3: Covers removal and replacement procedures for pre-installed components.

Appendix: List the cable connection and FRU part tables for reference of system setup, and technical support in case a problem arises with your system.

Safety and Compliance Information

Before installing and using TYAN GN70-B8236, 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.

Safety Information

Retain and follow all product safety and operating instructions provided with your equipment. In the event of a conflict between the instructions in this guide and the instructions in equipment documentation, follow the guidelines in the equipment documentation.

Observe all warnings on the product and in the operating instructions. To reduce the risk of bodily injury, electric shock, fire and damage to the equipment, observe all precautions included in this guide.

You must become familiar with the safety information in this guide before you install, operate, or service TYAN products.

Symbols on Equipment

	**Caution**. This symbol indicates a potential hazard. The potential for injury exists if cautions are not observed. Consult equipment documentation for specific details.
	**Warning.** This symbol indicates the presence of hazardous energy circuits or electric shock hazards. Refer all servicing to qualified personnel.
	**Warning**. This symbol indicates the presence of a hot surface or hot component. If this surface is contacted, the potential for injury exists. To reduce risk of injury from a hot component, allow the surface to cool before touching.

General Precautions

- Follow all caution and warning instructions marked on the equipment and explained in the accompanying equipment documentation.

Machine Room Environment

- Make sure that the area in which you install the system is properly ventilated and climate-controlled.

- Ensure that the voltage and frequency of your power source match the voltage and frequency inscribed on the electrical rating label of the equipment.
- Do not install the system in or near a plenum, air duct, radiator, or heat register.
- Never use the product in a wet location.

Equipment Chassis

- Do not block or cover the openings to the system.
- Never push objects of any kind through openings in the equipment. Dangerous voltages might be present.
- Conductive foreign objects can produce a short circuit and cause fire, electric shock, or damage to your equipment.
- Lift equipment using both hands and with your knees bent.

Equipment Racks

To avoid injury or damage to the equipment:

- Observe local occupational health and safety requirements and guidelines for manual materials handling.
- Do not attempt to move a rack by yourself; a minimum of two people are needed to move a rack.
- Do not attempt to move a fully loaded rack. Remove equipment from the rack before moving it.
- Do not attempt to move a rack on an incline that is greater than 10 degrees from the horizontal.
- Make sure the rack is properly secured to the floor or ceiling.
- Make sure the stabilizing feet are attached to the rack if it is a single-rack installation.
- Make sure racks are coupled together if it is a multiple-rack installation.
- Make sure the rack is level and stable before installing an appliance in the rack.
- Make sure the leveling jacks are extended to the floor.

- Make sure the full weight of the rack rests on the leveling jacks.
- Always load the rack from the bottom up. Load the heaviest component in the rack first.
- Make sure the rack is level and stable before pulling a component out of the rack.
- Make sure only one component is extended at a time. A rack might become unstable if more than one component is extended.

To avoid damage to the equipment:

- The rack width and depth must allow for proper serviceability and cable management.
- Ensure that there is adequate airflow in the rack. Improper installation or restricted airflow can damage the equipment.
- The rack cannot have solid or restricted airflow doors. You must use a mesh door on the front and back of the rack or remove the doors to ensure adequate air flow to the system.
- If you install the Model in a rack, do not place equipment on top of the unit. It will cause restricted airflow and might cause damage to the equipment.
- Make sure the product is properly matted with the rails. Products that are improperly matted with the rails might be unstable.
- Verify that the AC power supply branch circuit that provides power to the rack is not overloaded. This will reduce the risk of personal injury, fire, or damage to the equipment. The total rack load should not exceed 80 percent of the branch circuit rating. Consult the electrical authority having jurisdiction over your facility wiring and installation requirements.

Equipment Power Cords

- Use only the power cords and power supply units provided with your system. The system might have one or more power cords.
- Plug the power cord into a grounded (earthed) electrical outlet that is easily accessible at all times.
- In all European electrical environments, you must ground the Green/Yellow tab on the power cord. If you do not ground the

Green/Yellow tab, it can cause an electrical shock due to high leakage currents.

• Do not place objects on AC power cords or cables. Arrange them so that no one might accidentally step on or trip over them.

• Do not pull on a cord or cable. When unplugging from the electrical outlet, grasp the cord by the plug.

• To reduce the risk of electrical shock, disconnect all power cords before servicing the appliance.

Equipment Batteries

• The system battery contains lithium manganese dioxide. If the battery pack is not handled properly, there is risk of fire and burns.

• Do not disassemble, crush, puncture, short external contacts, or dispose of the battery in fire or water.

• Do not expose the battery to temperatures higher than 60°C (140°F).

• The system battery is not replaceable. If the battery is replaced by an incorrect type, there is danger of explosion. Replace the battery only with a spare designated for your product.

• Do not attempt to recharge the battery.

• Dispose of used batteries according to the instructions of the manufacturer. Do not dispose of batteries with the general household waste. To forward them to recycling or proper disposal, use the public collection system or return them to TYAN, your authorized TYAN partner, or their agents.

Equipment Modifications

• Do not make mechanical modifications to the system. TYAN is not responsible for the regulatory compliance of TYAN equipment that has been modified.

Equipment Repairs and Servicing

• The installation of internal options and routine maintenance and service of this product should be performed by individuals who are knowledgeable

about the procedures, precautions, and hazards associated with equipment containing hazardous energy levels.

- Do not exceed the level of repair specified in the procedures in the product documentation. Improper repairs can create a safety hazard.

- Allow the product to cool before removing covers and touching internal components.

- Remove all watches, rings, or loose jewelry when working before removing covers and touching internal components.

- Do not use conductive tools that could bridge live parts.

- Use gloves when you remove or replace system components; they can become hot to the touch.

- If the product sustains damage requiring service, disconnect the product from the AC electrical outlet and refer servicing to an authorized service provider. Examples of damage requiring service include:

– The power cord, extension cord, or plug has been damaged.

– Liquid has been spilled on the product or an object has fallen into the product.

– The product has been exposed to rain or water.

– The product has been dropped or damaged.

– The product does not operate normally when you follow the operating instructions.

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Chapter 1: Overview

1.1 About the TYAN GN70-B8236

Congratulations on your purchase of the TYAN® GN70-B8236, a highly optimized rack-mountable barebone system. The GN70-B8236 is designed to support dual AMD® 45nm 8-Core/12-Core Opteron 6100 Series processors and up to 128GB RDIMM and 64GB UDIMM of DDR3 memory, providing a rich feature set and incredible performance. Leveraging advanced technology from AMD®, the GN70-B8236 server system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, and lightning-fast PCI-E bus implementtation. The GN70-B8236 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® also offers the GN70-B8236 in a version that can support up to eight 3.5" or 2.5" hot-swap hard drives. The GN70-B8236 uses TYAN's latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides GN70-B8236 the power and flexibility to meet the needs of nowadays server application.



1.2 Product Models

Model	HDD Bays	Power supply
B8236G70W8HR-HE	Hot-swap, 8HDDs	(1+1) hot-swap 770W
B8236G70W8HR-HE-SEM	Hot-swap, 8HDDs	(1+1) hot-swap 700W

1.3 Features

TYAN GN70B8236 (B8236G70W8HR-HE)

System	Form Factor	2U Rackmount
	Chassis Model	GN70
	Dimension (D x W x H)	27.56" x 17.72" x 3.43" (700 x 450 x 87mm)
	Motherboard	S8236WGM3NR-HE
	Board Dimension	EEB, 12"x13" (305x330mm)
	Gross Weight	25 kg
Front Panel	Buttons	(1) RST / (1) ID / (1) PWR w/ LED
	LEDs	(1) PWR / (1) ID / (1) Warning / (3) LAN
	I/O Ports	(2) USB ports
External Drive Bay	Type / Q'ty	2.5" or 3.5" Hot-Swap / (8)
	Supported HDD Interface	SATA-II 3.0Gb/s / SAS 6.0Gb/s
System Cooling Configuration	FAN	(8) 6cm fans
Power Supply	Type	EPS1U
	Efficiency	PFC / 80 plus gold
	Redundancy	1+1
	Input Range	Full-range AC(100-240V)
	Frequency	60 Hertz
	Output Watts	770W or 700W
Processor	Supported CPU Series	AMD 45nm 8-Core/12-Core Opteron 6100 Series Processors (Magny-Cours) / (3) HT3.0 support ; 12MB L3 per socket

	Socket Type / Q'ty	G34 / (2)
	Average CPU Power (ACP) wattage	Up to 80W
	System Bus	Up to 6.4 GT/s Hyper-Transport link support
Chipset	**Chipset**	AMD SR5690 + SR5650 + SP5100
	Super I/O	Winbond W83627DHG-P
Memory	**Supported DIMM Qty**	(16) DIMM slots
	DIMM Type / Speed	U/RDDR3 & LV RDDR3, 800/1066/1333 MHz
	Capacity	Up to 128GB RDIMM/ 64GB UDIMM
	Memory channel	4 Channels per CPU
	Memory voltage	1.5V or 1.35V
Expansion Slots	**PCI-E**	(3) PCI-E Gen.2 x16 slots (**NOTE:** The PCIE-3 slot is for half-length, full-height card only.)
	Pre-install TYAN Riser Card	(1) M2201-L16-2F, PCI-E x16 2U riser card (left) / (2) M2202-R16-2F, PCI-E x16 2U riser card (right)
	Max. HBA Dimension (H x L)	(6) 111.15mm x 167.65mm (FH/HL)
LAN	**Port Q'ty**	(3)
	Controller	Intel 82574L / Intel 82576EB
Graphic	**Connector type**	D-Sub 15-pin
	Resolution	1600x1200@60Hz
	Chipset	Aspeed AST2050
I/O Ports	**USB**	(4) ports (2 at front, 2 at rear)
	COM	(1) DB-9 COM port

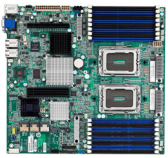
	VGA	(1) D-Sub 15-pin port
	RJ-45	(3) ports
System Monitoring	**Chipset**	Winbond W83795G
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	Temperature	Monitors temperature for CPU & system environment
	LED	Over temperature warning indicator / Fan & PSU fail LED indicator
	Others	Chassis intrusion detection / Watchdog timer support
Server Management	**Onboard Chipset**	Onboard Aspeed AST2050
	AST2050 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / Supports storage over IP and remote platform-flash / BIOS update
	AST2050 iKVM Feature	24-bit high quality video compression / Dual 10/100 Mb/s MAC interfaces
BIOS	**Brand / ROM size**	AMI / 4MB
	Feature	Plug and Play (PnP) /PCI2.3 /WfM2.0 /SMBIOS2.3 /PXE boot / ACPI 2.0 power management /Power on mode after power recovery / User-configurable H/W monitoring / Auto-configurable of hard disk types
Operating System	**OS supported list**	Please refer to our OS supported list.
Regulation	**FCC (DoC)**	Class A
	CE (DoC)	Yes

Operating Environment	Operating Temp.	10° C ~ 35° C (50° F~ 95° F)
	Non-operating Temp.	- 40° C ~ 70° C (-40° F ~ 158° F)
	In/Non-operating Humidity	90%, non-condensing at 35° C
RoHS	RoHS 6/6 Complaint	Yes
Package Contains	Barebone	(1) GN70B8236 Barebone
	Manual	(1) MB User's manual + (1) BB User's manual
	Installation CD	(1) TYAN installation CD
	Heatsink / Cooler	(2) G34 CPU heatsinks
	Rail kit	(1) CRAL-0031, sliding rail kit for KGT24/ KGT62
	Mounting Ear	(1) mounting ear kit
	Cable Power Cord	(2) CCBL-0310, US type power cord / (2) CCBL-0300, EU type power cord
Optional accessories	Peripheral	(1) CDVD-0060, slim type DVD-ROM

1.4 Standard Parts List

This section describes GN70-B8236 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.

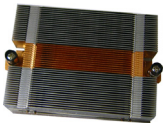
1.4.1 Box Contents

Component	Description
	2U chassis, (8) hot swap HDD bays
	TYAN® S8236 system board (pre-installed)
	(1+1) ERP1U hot-swap 770W RPSU (Delta)
	(1+1) ERP1U hot-swap 700W RPSU (Samsung)
	(8) System fan
	M1601T70-D-PDB Power Distribution Board (pre-installed)
	M1245G70-BP6-8 SATA/SAS HDD Backplane Board (pre-installed)

	M1709G70-FPB (pre-installed)
	M2201-L16-2F riser card (pre-installed)
	M2202-R8-2F riser card (pre-installed)

1.4.2 Accessories

If any items are missing or appear damaged, contact your retailer or browse to TYAN®'s website for service: http://www.tyan.com
The web site also provides information of other TYAN® products, as well as FAQs, compatibility lists, BIOS settings, etc.

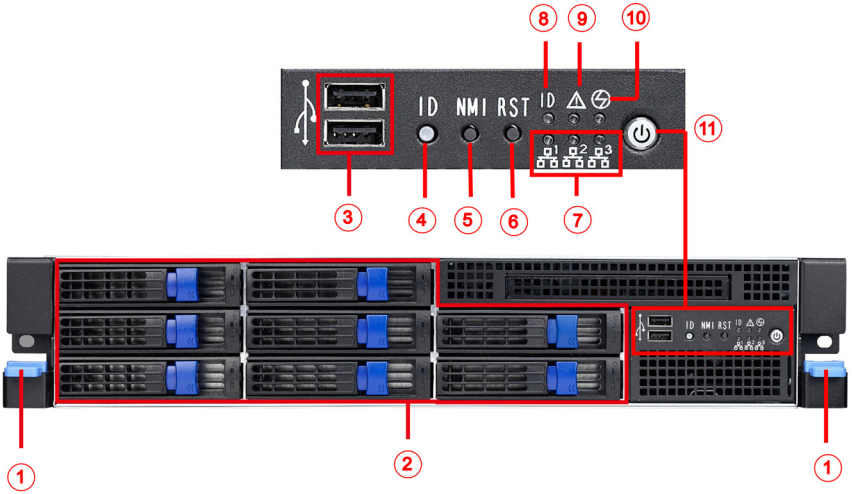
	
TYAN® Motherboard Drive CD	Heatsink x 2
	
HDD Screw Pack (12 pcs)	Rail x 2
	
DVD Bracket Kit	DVD Cable Kit
	
Ventilation Bracket	GPU Cable

	
SGCC Bracket_L	SGCC Bracket_R
	
AC Power Cord 125V (US)	AC Power Cord 250V (Europe)
	
Barebone Manual	Mainboard Manual
	
Addendum for China Use Only	

1.5 About the Product

The following views show you the product.

1.5.1 System Front View



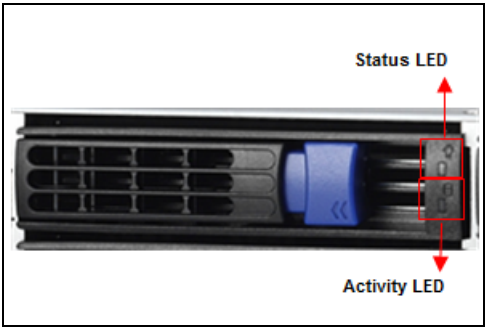
HDD Sequence

HDD0	HDD3	
HDD1	HDD4	HDD6
HDD2	HDD5	HDD7

1	**Ears**
2	**3.5” HDD bays**
3	**USB Ports**
4	**ID Button**
5	**NMI Button**
6	**RESET Button**
7	**NIC1/NIC2/NIC3**
8	**ID LED**
9	**Warning LED**
10	**BMC LED (reserved)**
11	**Power On/OFF Button with LED**

LED Definitions

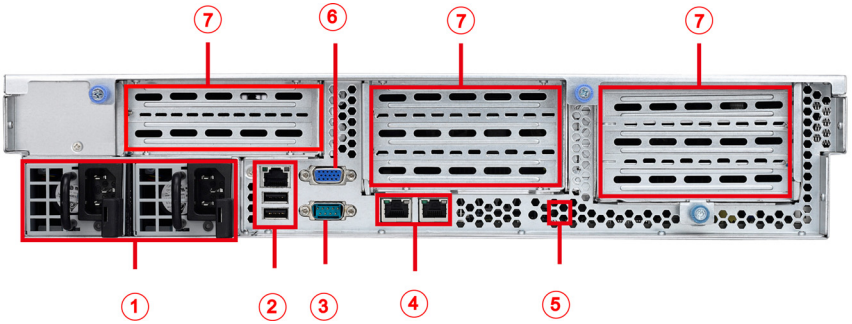
LED	State	Color	Description
Power LED	On	Green	System is turned on
	Blinking	Green	System is under S1 or S3 state
	Off	Off	Power off
NIC1	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
NIC2	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
NIC3	Blinking	Green	LAN active
	On	Green	LAN linked
	off	off	LAN not linked
Warning LED	On	Red	Fan fail /Over temperature /Over voltage
	Off	Off	No failure
ID LED	On	Blue	System identified
	Off	Off	System not identified



HDD LED

HDD Status		Status LED Color: Amber	Activity LED Color: Green
No Driver Present or power disconnected		OFF	OFF
Driver Present	No Activity	OFF	ON
	Access Activity	OFF	Blinking
HDD Fail		On Solid	OFF
Identify (Locate the HDD)		Blinking(1Hz)	x
SAS/SATA RAID Building		Blinking(4Hz)	x

1.5.2 System Rear View



1	Power Supply
2	LAN3 (shared with IPMI) + 2 USB
3	COM Port
4	LAN1 + LAN2
5	ID LED
6	VGA Port
7	PCI-E Slots

LAN LED

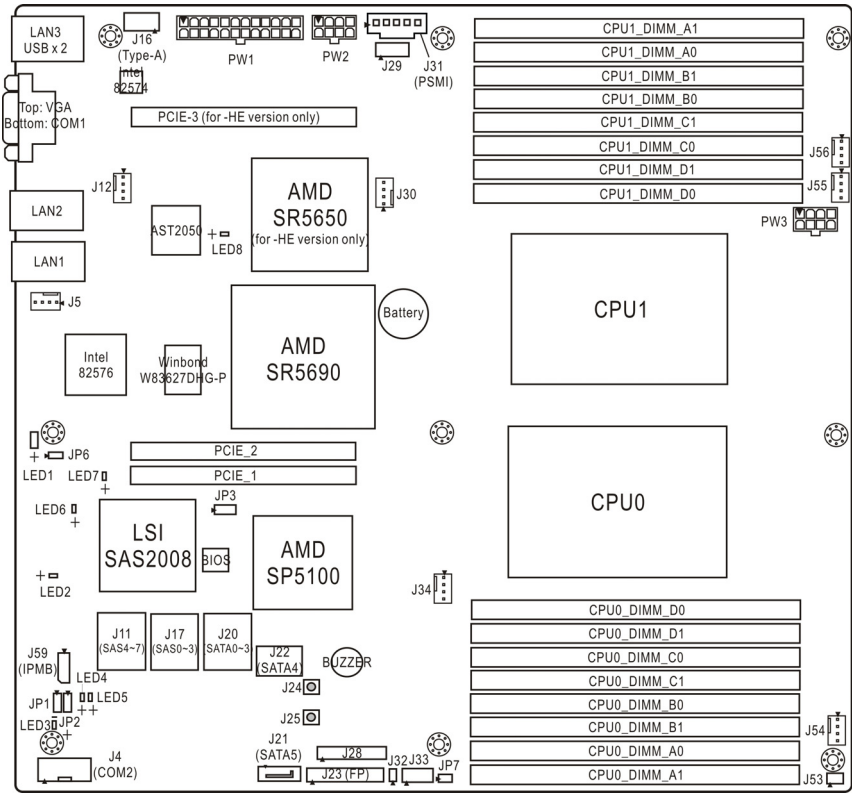
LED	State	Color	Description
RJ-45 Activity(left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Disabled	Flash Green	No LAN linked
RJ-45 Linkage(Right)	On	Amber	1000Mb linked
	On	Green	100Mb linked
	Disabled	Off	10Mb mode or No LAN linked

NOTE: "Left" and "Right" are viewed from the rear panel.

ID LED

LED	State	Color	Description
ID LED	On	Blue	System identified
	Off	Off	System not identified

1.5.3 Motherboard (S8236) Layout



The 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.

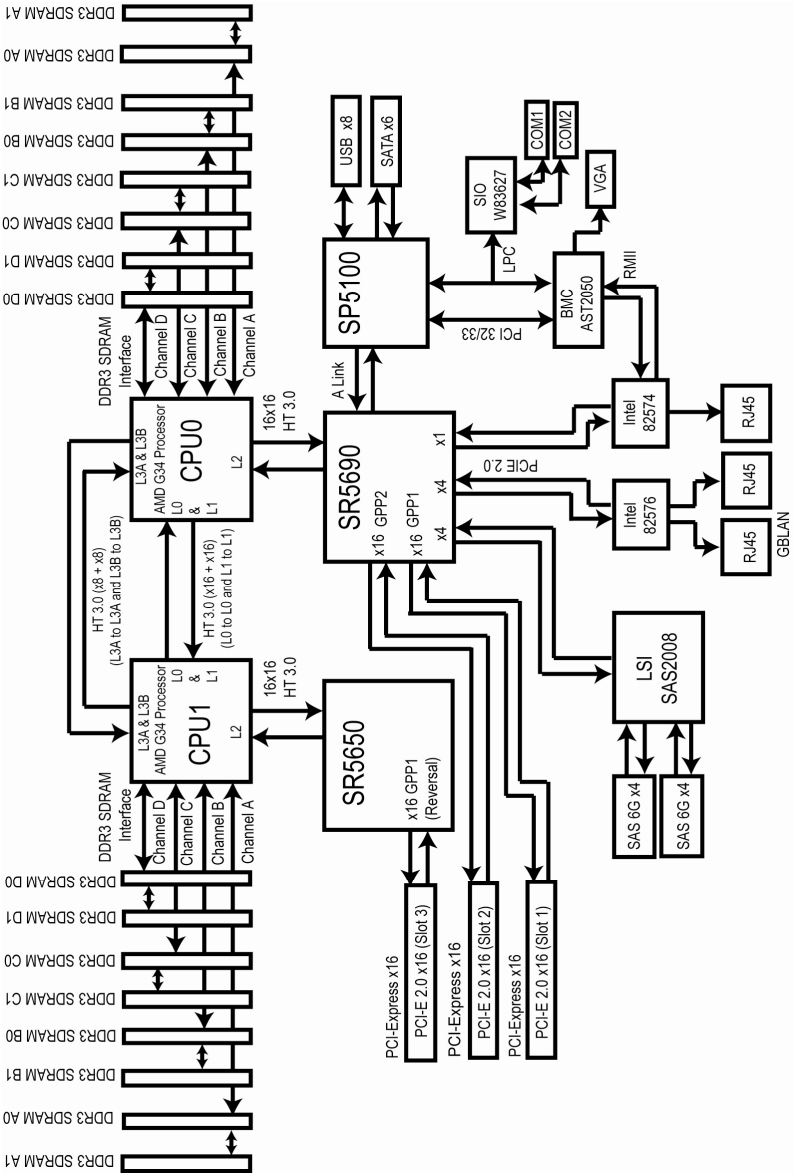
1.5.4 Jumpers & Connectors

Jumper/Connector	Function
J4	COM2 Header
J5/J12/J30/J34/J54/J55/J56	4-pin Fan Connectors
J23	Front Panel Header
J24	Reset Switch
J25	Power Switch
J28	Fan TACH Connector
J29/J33	USB Front Panel Header
J31	PSMI Connector
J32	LAN3 Active LED Header
J53	HDD Fault Header
J59	IPMB Header
JP1/JP2	COM2 Function Select Jumper
JP3	Clear CMOS Jumper
JP6	Front Panel ID LED Button
JP7	Chassis Intrusion Header
LED1	ID LED
LED2	SAS Flash Ready (Amber)
LED3	SAS HD Fault LED (Amber)
LED4	Power On LED (Green)
LED5	Standby LED (Green)
LED6	SAS Error LED (Amber)
LED7	SAS Heart Beat LED (Green)
LED8	BMC Heart Beat LED (Green)

Jumper Legend

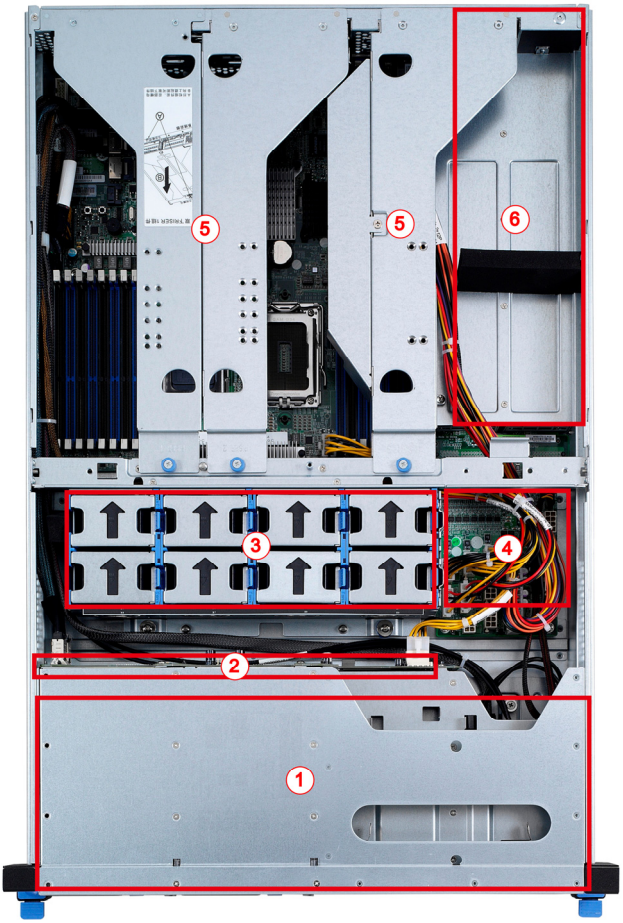
	**OPEN - Jumper OFF**	**Without jumper cover**
	**CLOSED - Jumper ON**	**With jumper cover**

1.5.5 System Block Diagram (S8236)



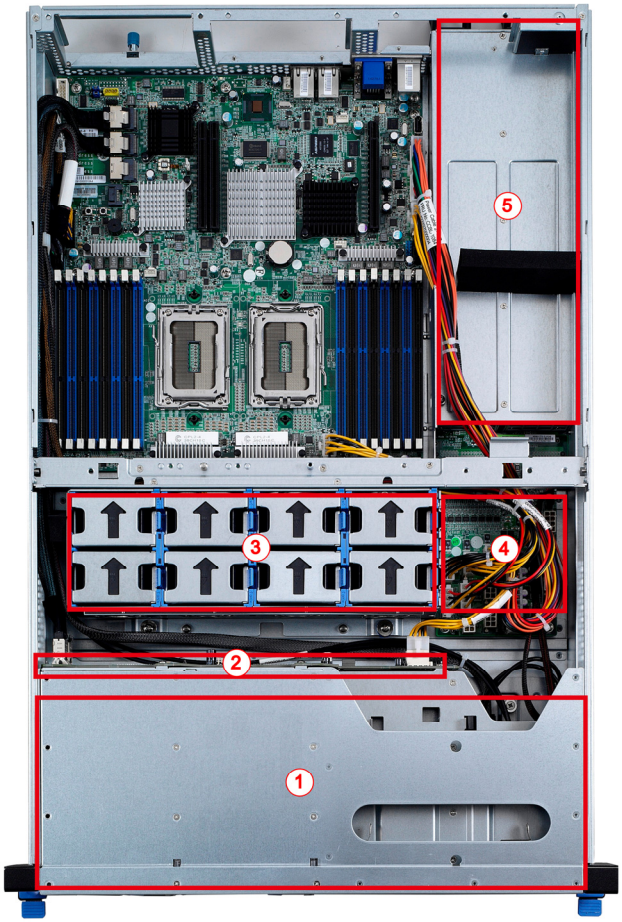
1.5.6 Internal View

With Riser Card Brackets



1	3.5” HDD cage (underneath)
2	SAS/SATA HDD Backplane Board
3	System Fan Unit
4	Power Distribution Board
5	PCI-E Riser Card Bracket
6	Power Supply (underneath)

Without Riser Card Brackets



1	3.5” HDD cage (underneath)
2	SAS/SATA HDD Backplane Board
3	System Fan Unit
4	Power Distribution Board
5	Power Supply (underneath)

Chapter 2: Setting Up

2.0.1 Before you Begin

This chapter explains how to install the CPUs, CPU heatsinks, memory modules, and hard drives. Instructions on inserting add on cards 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 with your hands. It is recommended that you do not use pliers to remove connectors as it may 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 GN70-B8236 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.



CAUTION: Please note that the following illustrations may not look exactly like the rackmount server you purchased. Therefore, the illustrations should be held for your reference only.

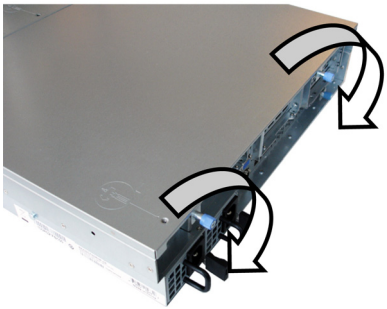
2.1 Installing Motherboard Components

This section describes how to install components on to the motherboard, including CPUs, memory modules, HDD and PCI-E cards.

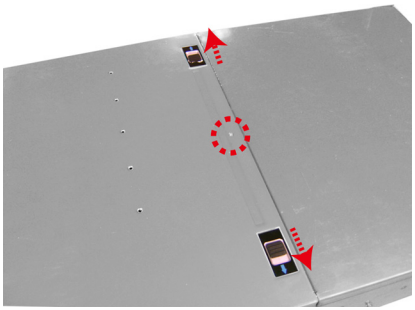
2.1.1 Removing the Chassis Cover

Follow these instructions to remove the GN70-B8236 chassis cover.

1 Unscrew the rear top cover on the back side.



2 Unscrew the front top cover and pull the latches aside to lift up the top cover.





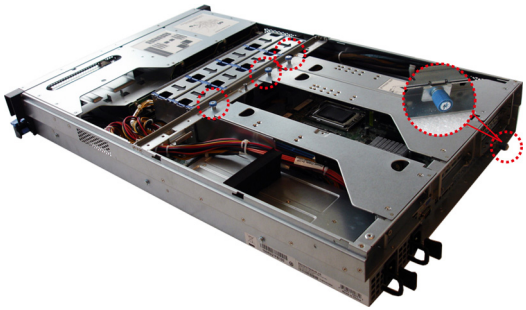
3 Slide the rear top cover out.



2.1.2 Removing the Riser Card Brackets

Follow these instructions to remove the PCI-E Riser Card Brackets.

1 Loose four thumb screws to release the PCI-E Riser Card Brackets.

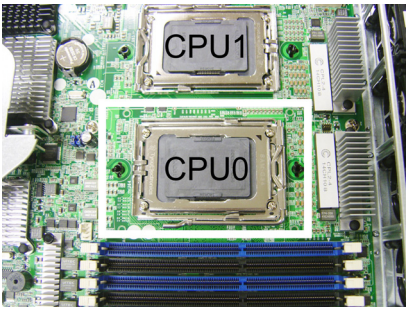


2 Lift up the Riser Card Brackets.

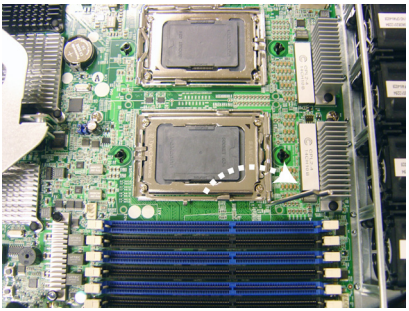
2.1.3 Installing the CPU and Heatsink

Follow the steps below on installing CPUs and CPU heatsinks.

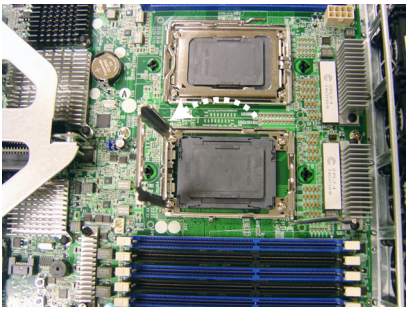
1. Locate the CPU sockets.



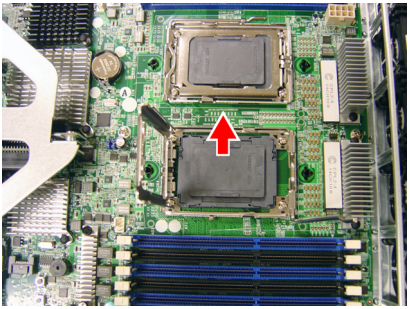
2. Pull the lever slightly away from the socket and then push it to a fully open position.

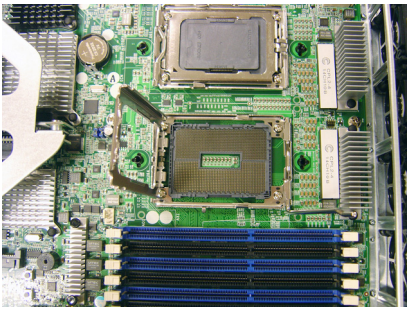


3. Push the CPU socket cover to a fully open position.

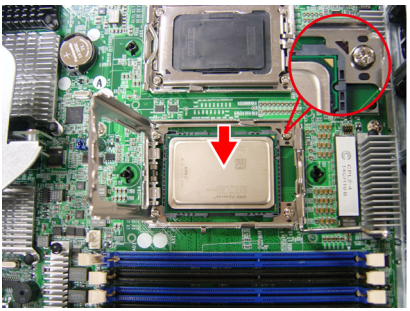


4. Take out the protection cap.

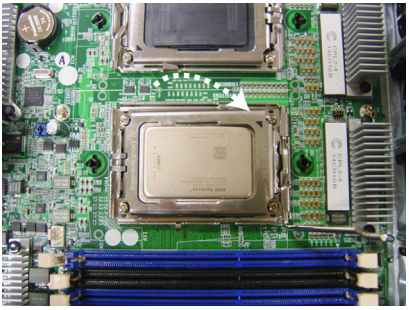


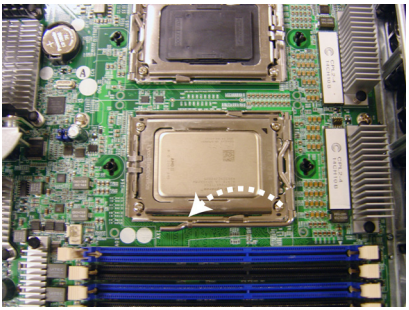


5. Place the CPU into the socket and make sure that the gold arrow is located in the right direction.

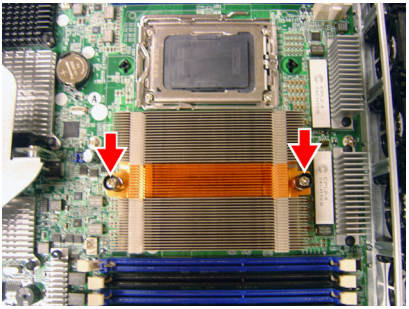


6. Close the CPU socket cover and press the lever down to secure the CPU.





7. Position the heatsink on top of the CPU and secure it with 2 screws.



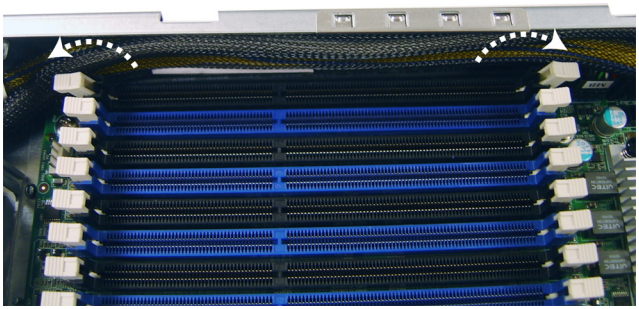
8. Repeat the procedures mentioned earlier to install the second CPU and heatsink.

2.1.4 Installing the Memory

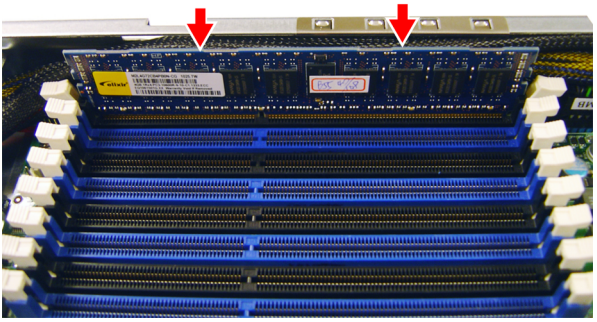
Follow these instructions to install the memory modules onto the motherboard.

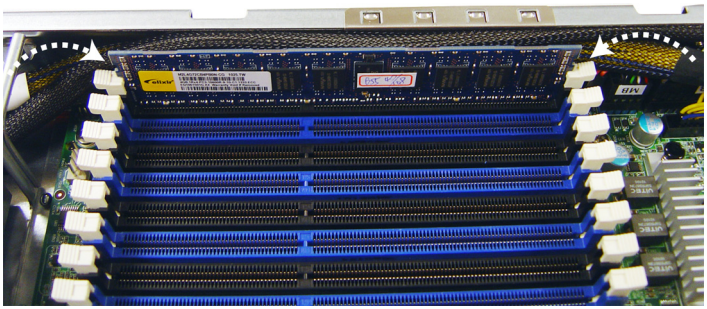
1. Locate the memory slots on the motherboard.

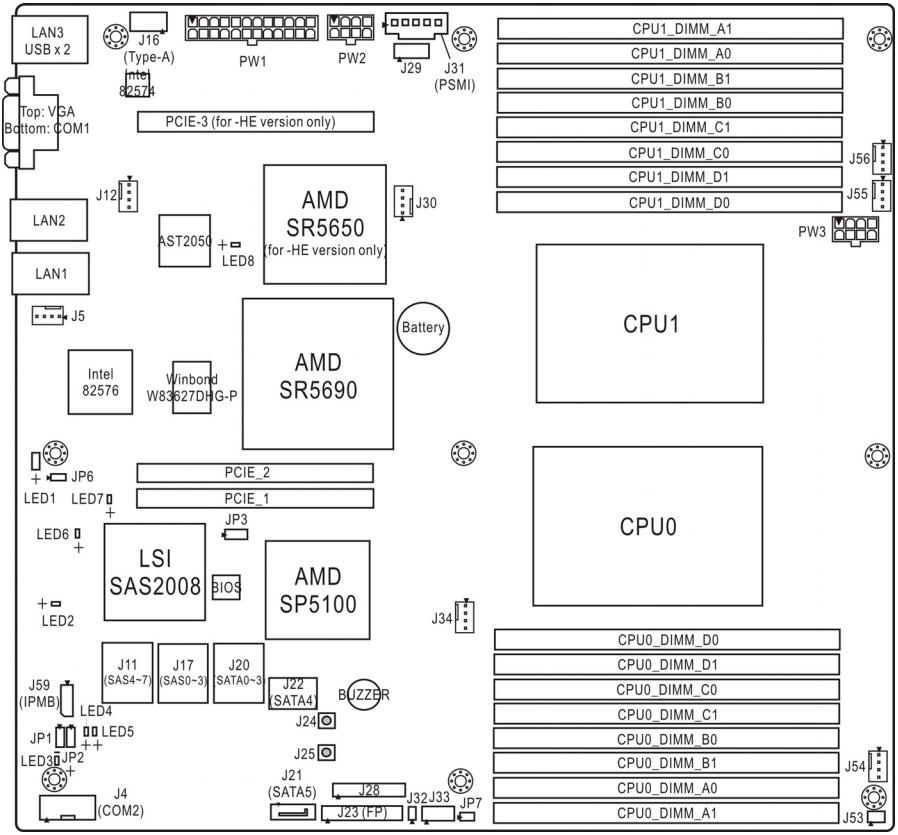
2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.



3. Align the memory module with the slot. When inserted properly, the memory slot locking levers lock automatically onto the indentations at the ends of the module. Follow the recommended memory population table to install the other memory modules.

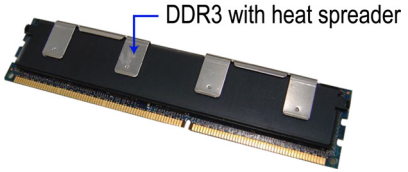


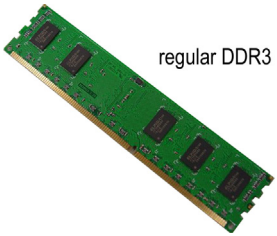




Memory Population Option Table

The following pictures show common types of DDR3 memory modules.





Recommended Memory Population Table

	Single CPU Installed (CPU0 only)						Dual CPU installed (CPU0 and CPU1)										
Quantity of memory installed	**1**	**2**	**3**	**4**	**6**	**8**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**10**	**12**	**14**	**16**
CPU0_DIMM(1)D0						√									√	√	√
CPU0_DIMM(2)D1				√	√	√						√	√	√	√	√	√
CPU0_DIMM(3)C0						√									√	√	√
CPU0_DIMM(4)C1			√	√	√	√				√	√	√	√	√	√	√	√
CPU0_DIMM(5)B0					√	√								√	√	√	√
CPU0_DIMM(6)B1		√	√	√	√	√		√	√	√	√	√	√	√	√	√	√
CPU0_DIMM(7)A0					√	√								√	√	√	√
CPU0_DIMM(8)A1	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√	√
CPU1_DIMM(9)D0																	√
CPU1_DIMM(10)D1													√	√	√	√	√
CPU1_DIMM(11)C0																	√
CPU1_DIMM(12)C1											√	√	√	√	√	√	√
CPU1_DIMM(13)B0																√	√
CPU1_DIMM(14)B1									√	√	√	√	√	√	√	√	√
CPU1_DIMM(15)A0																√	√
CPU1_DIMM(16)A1							√	√	√	√	√	√	√	√	√	√	√

NOTE:

1. √ indicates a populated DIMM slot.
2. Paired memory installation for Max performance.
3. Populate the same DIMM type in each channel, specifically
   - Use the same DIMM size
   - Use the same # of ranks per DIMM
4. Dual-rank DIMMs are recommended over single-rank DIMMs
5. Un-buffered DIMM can offer slightly better performance than registerd DIMM if populating only a single DIMM per channel
6. We don't suggest other memory installation.
7. AMD 6100 series CPU doesn't support Quad-ranks U-DIMM

U-DIMM Module Support

DDR3 Speed/Voltage		DDR3 Rank Configuration	
1.35v	1.5v	DIMM1 (A1, B1, C1, D1)	DIMM0 (A0, B0, C0, D0)
800MHz	800MHz	SR and DR	n/a
800MHz	800MHz	SR and DR	SR and DR
1066MHz	1066MHz	SR and DR	n/a
1066MHz	1066MHz	SR and DR	SR and DR
1066MHz	1333MHz	SR and DR	n/a
1066MHz	1333MHz	SR and DR	SR and DR

Notes:

- U-DIMM can support up to 4GB sized DIMM's
- Maximum of 8GB per channel
- SR and DR UDDR3 module support **only**
- x8 DRAM module support **only**
- SR and DR 1.35v Memory MAX speed of 1066MHz in a dual channel configuration
- SR and DR 1.5v Memory MAX speed of 1333MHz in a dual channel configuration

R-DIMM Module Support

DDR3 Speed/Voltage		DDR3 Rank Configuration	
1.35v	1.5v	DIMM1 (A1, B1, C1, D1)	DIMM0 (A0, B0, C0, D0)
800MHz	800MHz	SR and DR	n/a
800MHz	800MHz	QR	n/a
800MHz	800MHz	SR, DR and QR	SR, DR and QR
1066MHz	1066MHz	SR and DR	n/a
1066MHz	1066MHz	QR	n/a
1066MHz	1066MHz	SR and DR	SR and DR
n/a	1066MHz	QR	SR, DR and QR
n/a	1333MHz	SR and DR	n/a
n/a	1333MHz	QR	n/a

Notes:

- RDIMM can support up to 16GB sized DIMM's
- SR and DR Memory has a MAX amount of 16GB per channel
- SR and DR 1.35v Memory MAX speed of 1066MHz in a dual channel configuration
- SR and DR 1.5v Memory MAX speed of 1333MHz in a dual channel configuration
- QR Memory has a MAX amount of 32GB per channel
- QR 1.35v Memory MAX speed of 800MHz in a dual channel configuration
- QR 1.5v Memory MAX speed of 1066MHz in a dual channel configuration

2.1.4 Installing Hard Drives

The GN70-B8236 can support up to eight (8) 3.5” or 2.5” hard drives. Follow these instructions to install a hard drive.

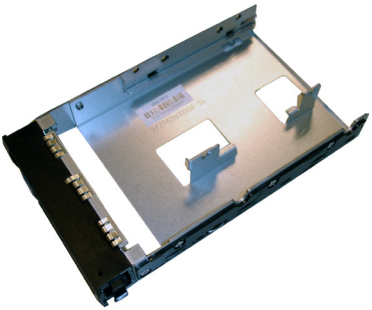
> Warning!!! Always install the hard disk drive to the chassis after the chassis is secured on the rack.

1 Press and hold the locking lever latch to pull the locking lever open.



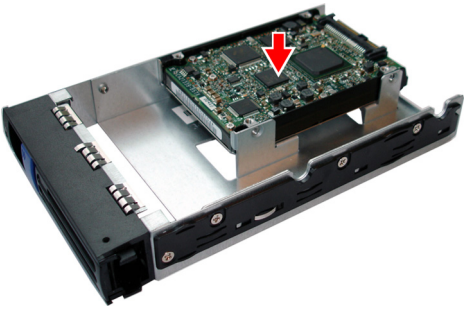
2 Slide the HDD tray out.

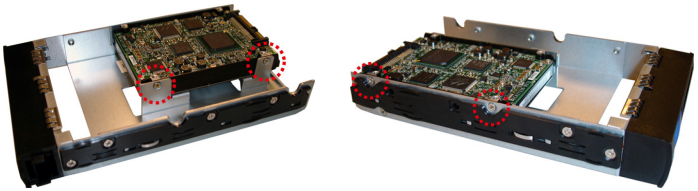




Option A: for 2.5” hard drives

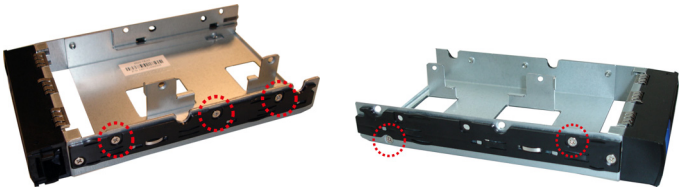
3 Place a 2.5” hard drive into the HDD tray and use 4 screws to secure the HDD.

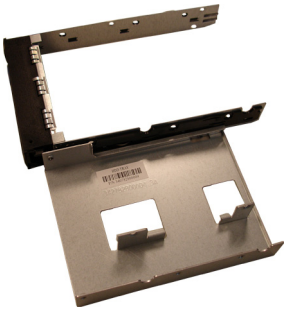




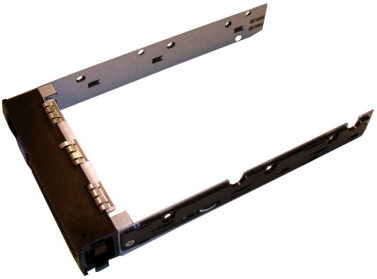
Option B: for 3.5” hard drives

4 Unscrew the drive bracket from the HDD tray.





5 Place a 3.5” hard drive into the drive tray and use 6 screws to secure the HDD.





6 Reinsert the HDD tray into the chassis and press the locking lever to secure the tray.

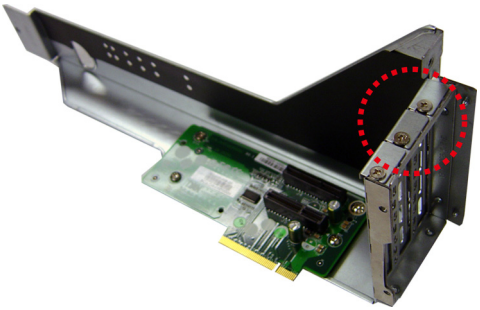




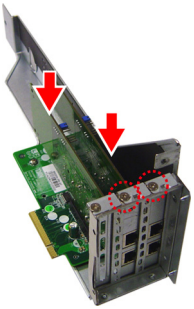
2.1.5 Installing the PCI-E Cards

The GN70-B8236 supports three PCI-E Riser Card Brackets. A power cable (2x3p/2x4p) is required for GPU cards. Follow these instructions to install PCI-E cards.

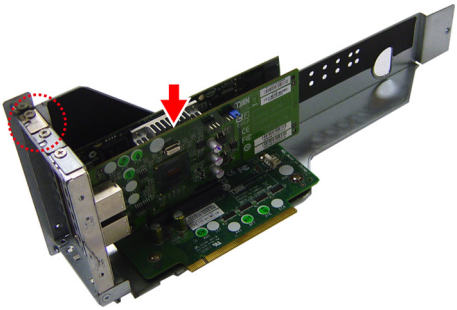
1 Unscrew the PCI-E slots to take out the PCI brackets.



2 Insert the PCI-E cards and securely screw as shown.

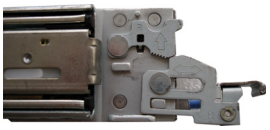


3 Repeat the same procedures for the second and third Riser Card Brackets.



2.2 Rack Mounting

After installing the necessary components, the TYAN GN70-B8236 can be mounted in a rack using the supplied rack mounting kit.

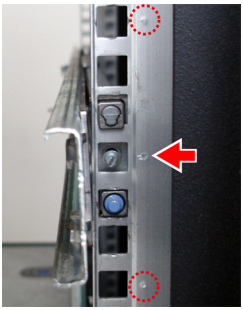
Rear view	Sliding Rail x 2	Front view
		

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the TYAN GN70-B8236 into an industry standard 19" rack.

NOTE: Before mounting the TYAN GN70-B8236 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. However, to make the installation easier, we suggest that you remove all HDD trays before you insert the chassis to the rack.

1. Position the rear of the sliding rail to the rear side of the rack. Make sure the mid-point of the rail align with the anchor point marked in red.

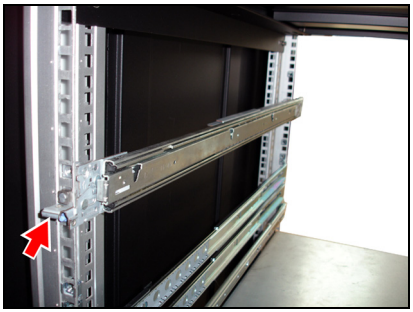
Rear 

2. Repeat the same procedures for the front end of the rail.



Front

3. Push the locking latch to secure the rail to the rack. Repeat the same procedures for the other rail.



Left

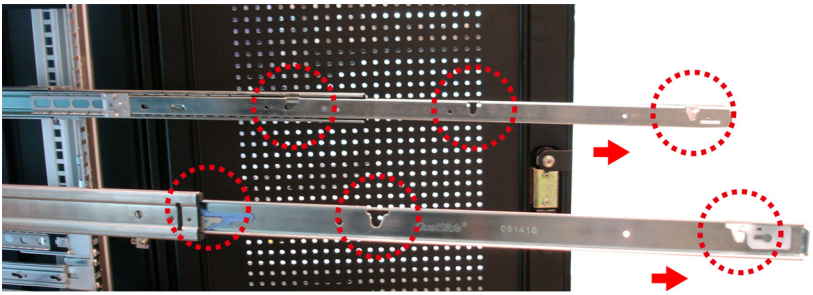


Right

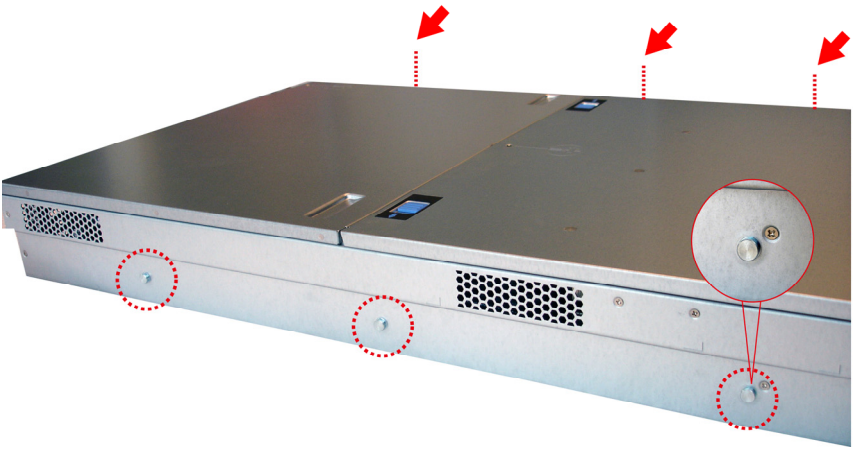


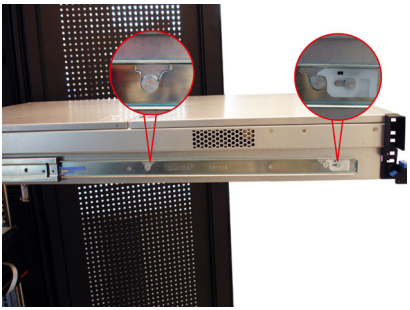
4. Slide the inner rail to its full length. Note that to slide to its full length, push the locking tab of the rail upward and then the rail can slide freely. There are three holes on each rail which are used to hook and secure the chassis.





5. Align the studs on the chassis with the holes on the rails and make sure the chassis is securely hooked.





6. Push the chassis back into the rack.



7. The installation is now complete.



2.2.2 Removing the Server from a Rack

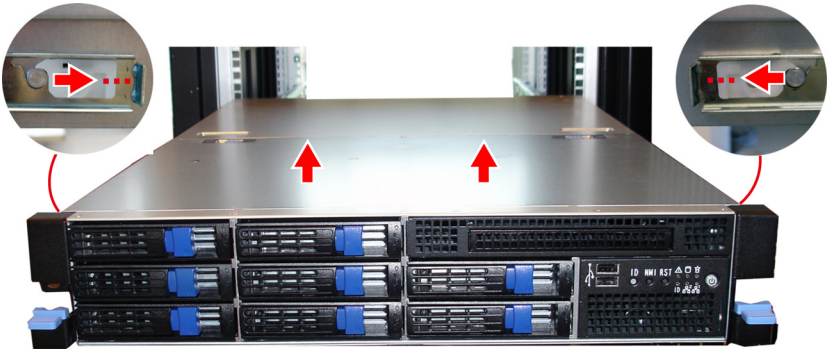
Follow these instructions to remove the TYAN GN70-B8236 from an industry standard 19" rack.

1. Push the ears to pull the chassis forward.





2. Push forward the locking tabs on both rails to unhook the chassis from the rails.



3. Follow the steps described earlier in reverse to remove the chassis from the rack.

NOTE:
To avoid injury, it is strongly recommended that at least two people lift the TYAN GN70-B8236 to hook on or unhook from the rails.

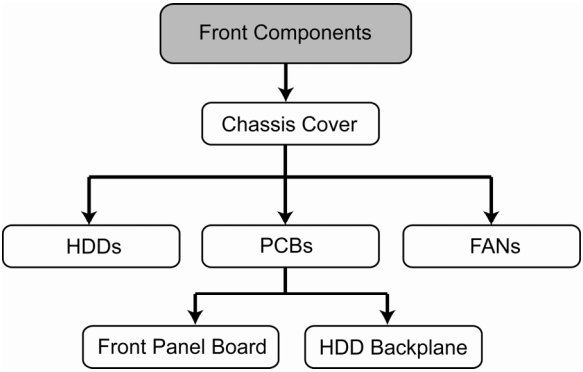
Chapter 3: Replacing Pre-Installed Components

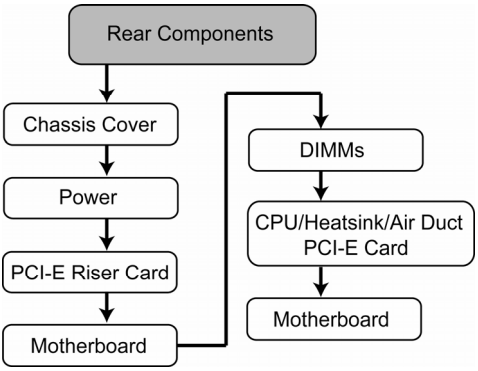
3.1 Introduction

This chapter explains how to replace the pre-installed components, including the S8236 Motherboard, M1709G70-FPB Front Panel Board, PCI-E Riser Card, M1245G70-BP6-8 SATA/SAS HDD Board, System Fan and Power Supply Unit etc.

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 Section ***2.1.1 Removing the Chassis Cover*** (page ***35***) to remove the cover of the GN70-B8236.

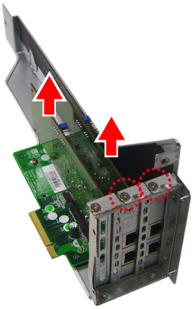
3.4 Replacing Motherboard Components

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

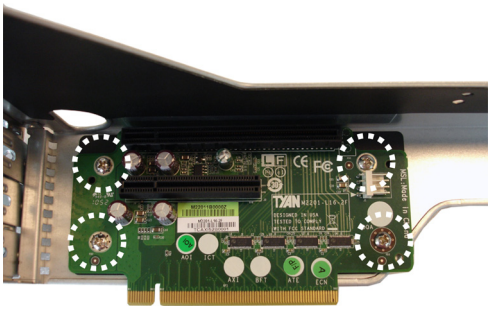
3.4.1 Replacing PCI-E Riser Card Cards

The GN70-B8236 has **three pre-installed PCI-E×16** riser cards.
Follow the instructions below to disassemble the M2201-L16-2F and M2202-F16-2F PCI-E riser cards.

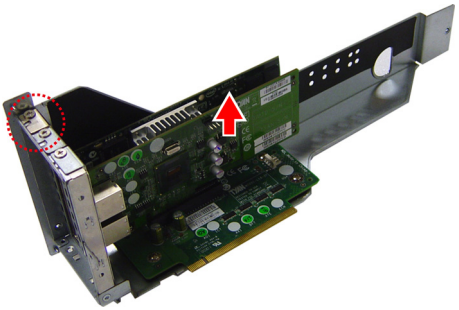
1 Unscrew to take out the PCI-E cards.



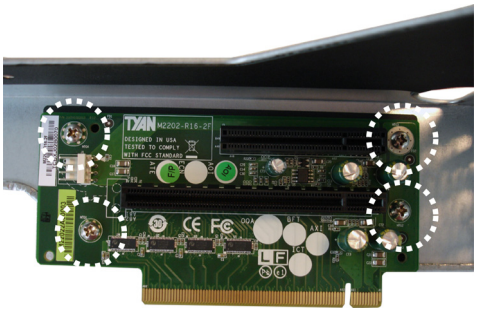
2 Unscrew the M2201-L16-2F riser card to replace a new one if necessary.



3 Repeat the same procedures for the second and third Riser Card Brackets.



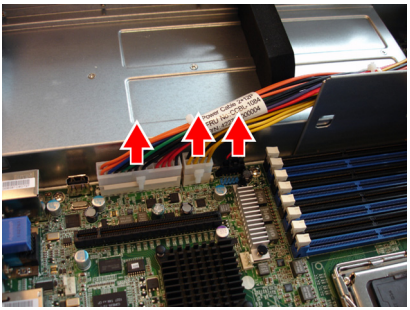
4 Unscrew the M2202-F16-2F riser card to replace a new one if necessary.



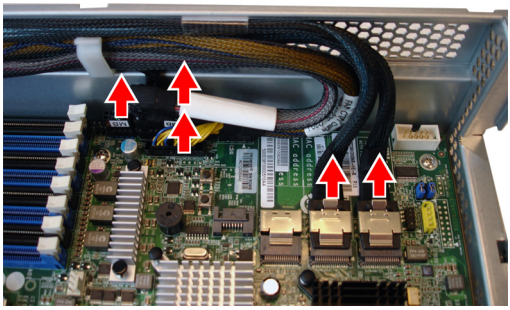
3.4.2 Disconnecting All Motherboard Cables

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

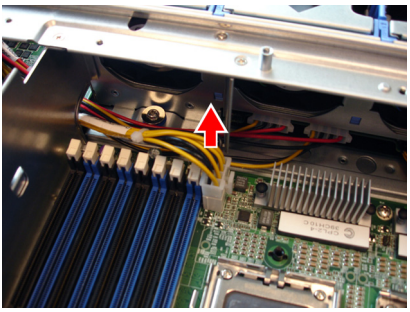
1 Disconnect the power and PSMI cables.



2 Disconnect the Mini SAS, USB, fan control and front panel cables.



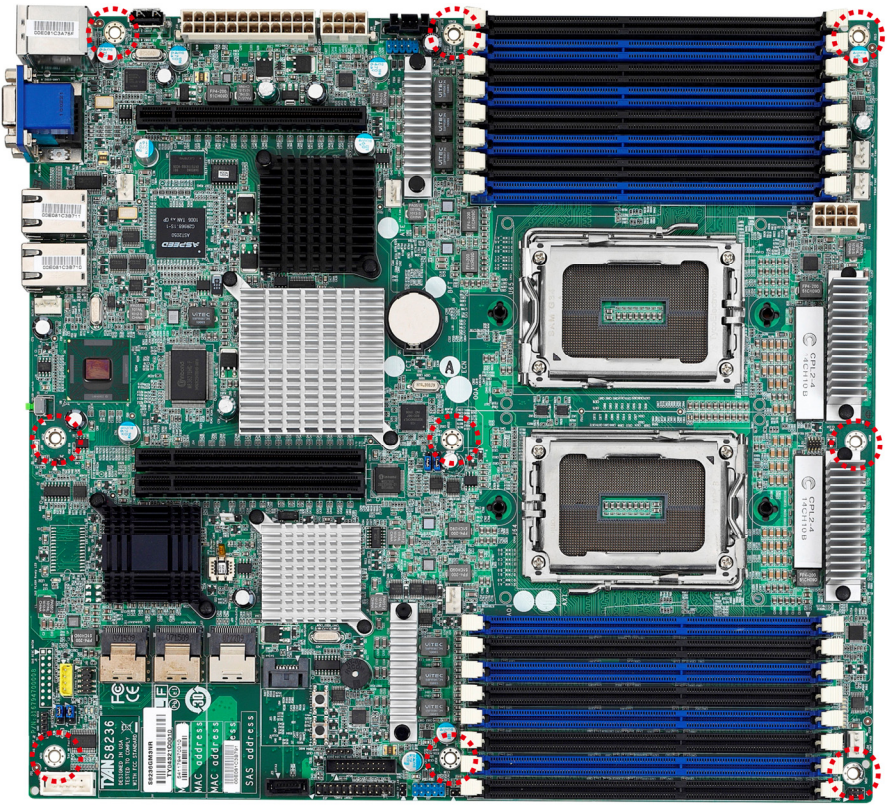
3 Disconnect the power cable.



3.4.3 Removing the Motherboard

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

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

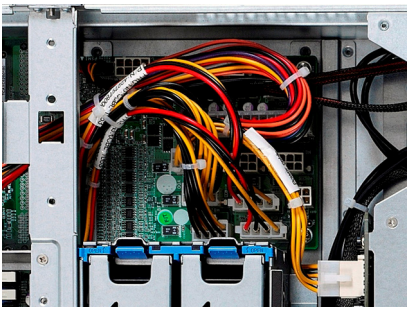


3 Carefully lift the motherboard from the chassis.

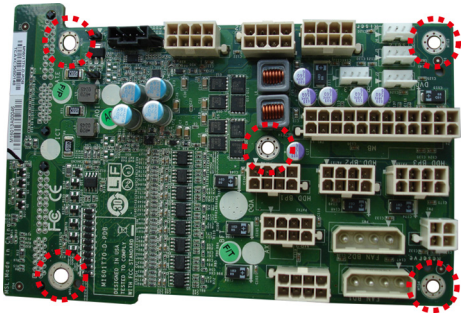
3.5 Replacing the Power Distribution Board

Follow these instructions to replace the M1601T70-D-PDB power distribution board.

1 Disconnect all cables.



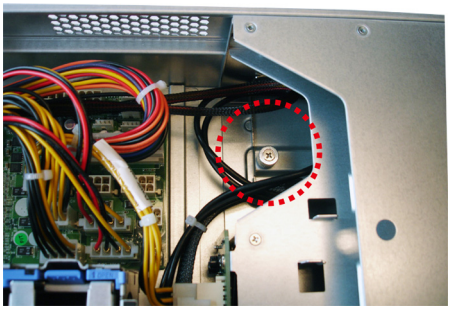
2 Unscrew to replace a new power distribution board.



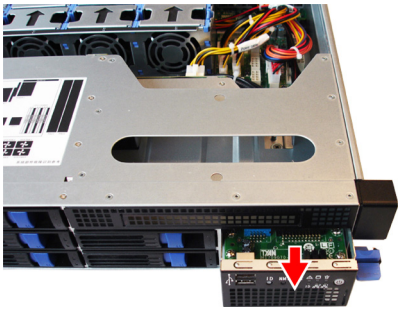
3.6 Replacing the Front Panel Board

Follow these instructions to replace the M1709G70-FPB Front Panel Board.

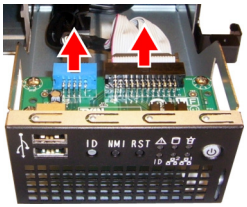
1 Unscrew to release the Front Panel Board Module.



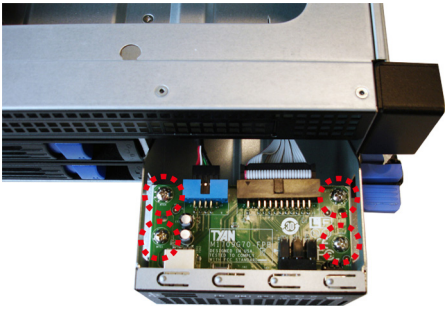
2 Push the Front Panel Board Module forward.



3 Disconnect the Front Panel Control and USB cables.

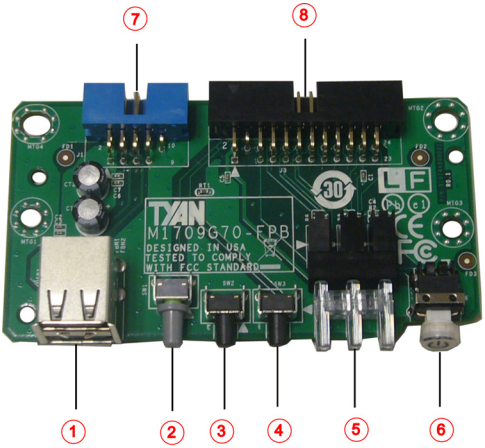


4 Unscrew the Front Panel Board to replace a new one.



5 Follow the steps described earlier in reverse to reinstall the Front Panel Board.

3.6.1 Front Panel Board Specifications



1. USB Ports
2. ID Button
3. NMI Button
4. RESET Button
5. NIC1/NIC2/NIC3
6. Power On/Off Button with LED
7. USB Connector
8. Front Panel Connector

Form Factor	➢ 18.5MMx44.2MM, 4-Layer PCB
Connectors	➢ One 2x15 pin header for front panel connector of motherboard and HDD backplane board
LEDs	➢ Power On/Off LED Color: Green (after power on) ➢ ID LED Color: Blue ➢ Warning (IPMI) LED Dual Color: Yellow (Warning) / Green(Normal)
Push buttons	➢ RESET button ➢ ID button ➢ Power On/Off button with Power On/Off LED

3.6.2 FPB LED and Connector Pin Definition

LED	State	Color	Description
Power On/Off LED	On	Green	System is turned on
	Blinking	Green	System is under S1 or S3 state
	Off	Off	Power off
Warning (IPMI) LED	On	Orange	Fan fail / Over temperature / Over Voltage / PSU fail
	On	Green	No failure
ID LED	On	Blue	System identified remotely on the server, by clicking the Chassis Locate LED key.*
	Off	Off	System not identified

*: For more information on the Chassis Locate LED, please visit our Web site for the latest Pilot II Software Configuration Guide.

Front Panel Connector (J3)

Definition	Pin	Pin	Definition
PW_LED+	**1**	**2**	VCC
Key	**3**	**4**	ID_LED+
PW_LED-	**5**	**6**	ID_LED-
HD/LAN3_LED+	**7**	**8**	SYS_FAULT1-
HD/LAN3_LED-	**9**	**10**	SYS_FAULT2-
PWR_SW+	**11**	**12**	LAN1_LED+
PWR_SW-	**13**	**14**	LAN1_LED-
RESET+	**15**	**16**	ICH_SMBDAT
RESET-	**17**	**18**	ICH_SMBCLK
ID_SW+	**19**	**20**	INTRU#
Temp_sensor	**21**	**22**	LAN2_LED+
EXT_INT	**23**	**24**	LAN2_LED-

USB Connector (J1)

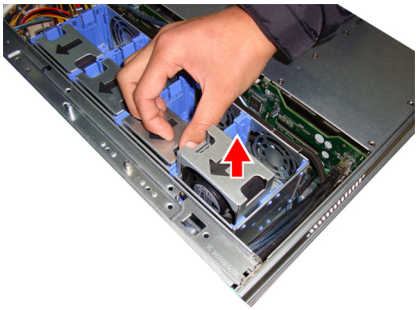
Definition	Pin	Pin	Definition
VCC	**1**	**2**	VCC
USB1-	**3**	**4**	USB2-
USB1+	**5**	**6**	USB2+
GND	**7**	**8**	GND
KEY	**9**	**10**	GND

3.7 Replacing the System Fan

Follow these instructions to replace the system fan.

1 Press the latch in the direction as shown to lift up the fan from cage.

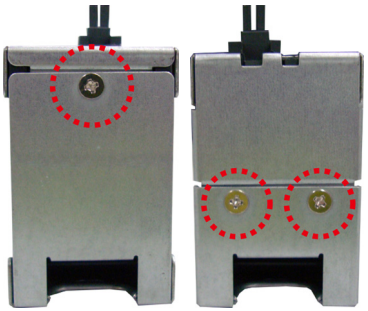




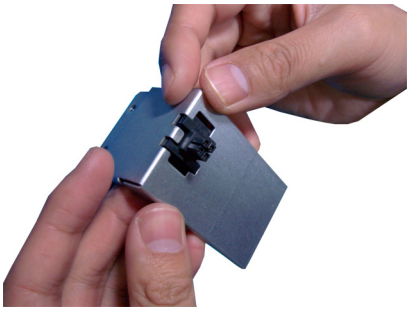
2 Take out the fan unit.

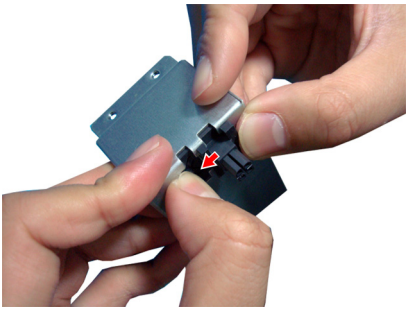


3 Loose the screws on both sides.

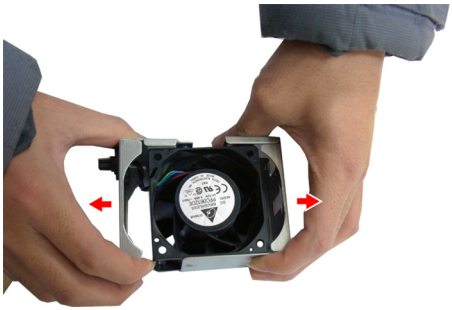


4 Push the latch in the direction as the arrow shown to release the fan from the iron holder.





5 Remove the iron holder to replace a new fan.





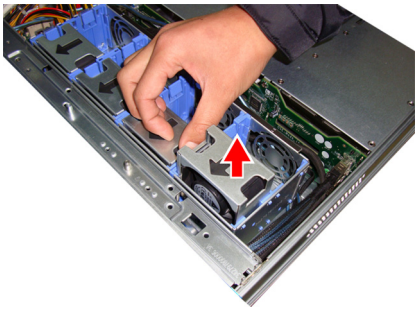
6 After replacing a new one, put the fan unit back into the cage.

3.8 Replacing the Fan Backplane Board

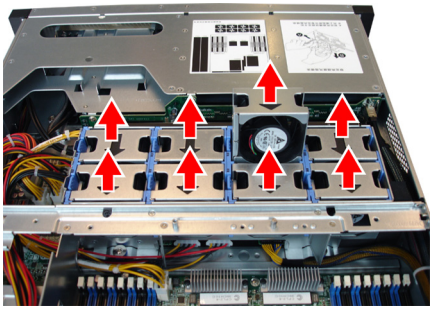
Follow these instructions to replace the Fan Backplane Board in your system.

1 Press the latch in the direction as shown to lift up the fan from cage.

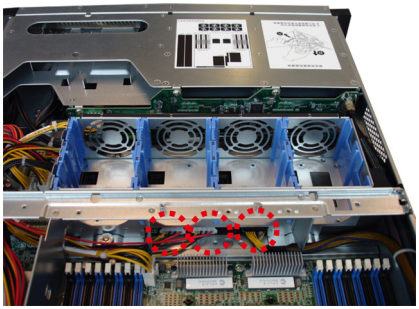




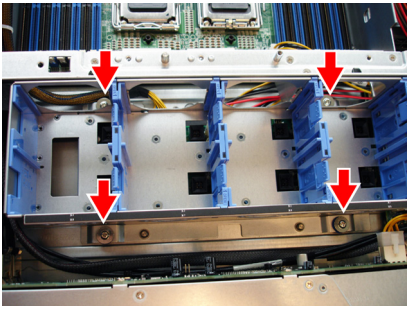
2 Remove all eight fans from the chassis.



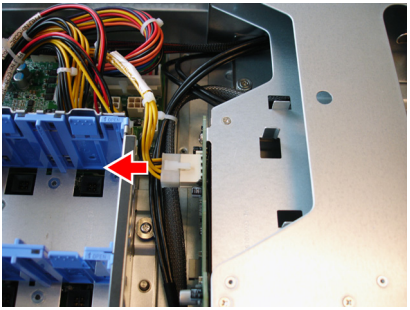
3 Disconnect all cables attached to the Fan Backplane Board.



4 Use a screw driver to unscrew the Fan Module.



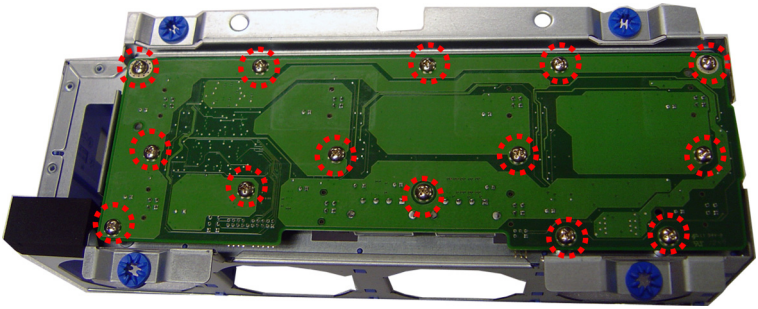
5 Disconnect the power and fan cables.



6 Lift up the Fan Module.

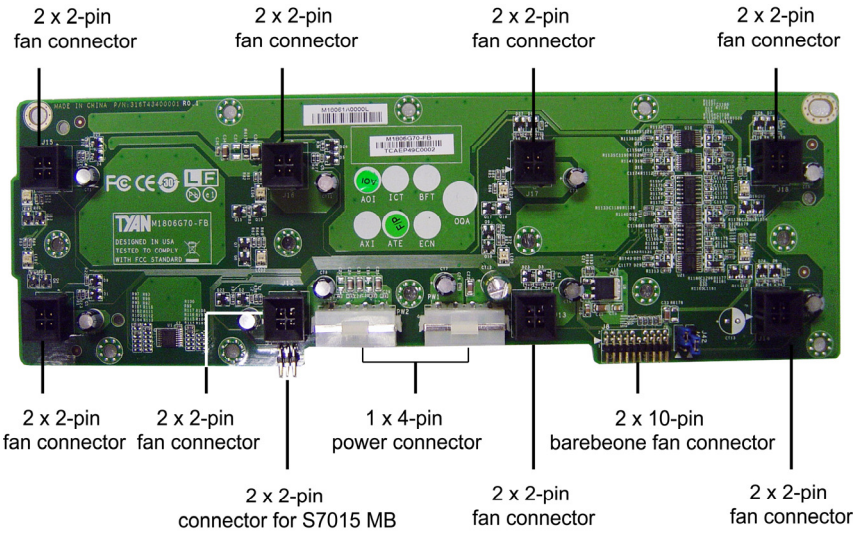


7 Release the 14 screws on the Fan Backplane Board to replace a new one.



8 Follow the steps described in reverse order to reinstall the fan cage.

3.8.1 Fan BP Board Specifications



Form Factor	➢ 254 mm x 82 mm, 4-layer PCB
Integrated I/O	➢ (2) 1x4pin R/A Power Connector ➢ (8) 2x2pin Fan Connectors ➢ (1) 2 x10pin Barebone Fan Connector ➢ (1) 2x2pin Connector for S7015

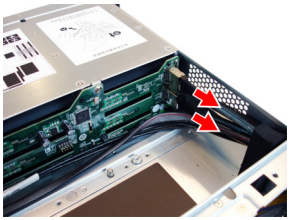
3.8.2 Fan BP Board LED Definitions

FAN Status	Green LED	Red LED
With Fan	On	Off
Without Fan	Off	On

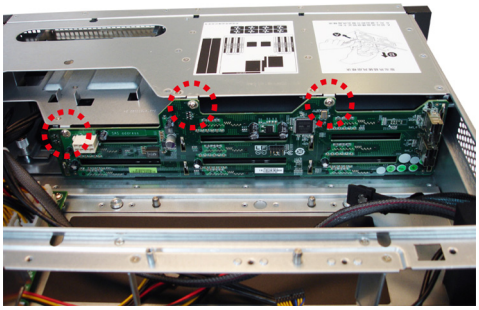
3.9 Replacing the HDD Backplane Board

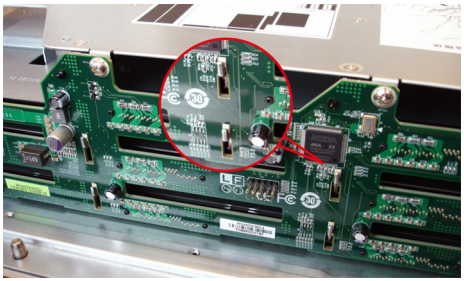
Follow these instructions to replace the SATA/SAS HDD Backplane Board.

1 Refer to Section ***3.8 Replacing the Fan Backplane Board*** for how to remove the Fan Module. Disconnect the power cables attached to the HDD BP Board.



2 Unscrew the HDD BP Board. Remove the HDD BP Board from the hook.

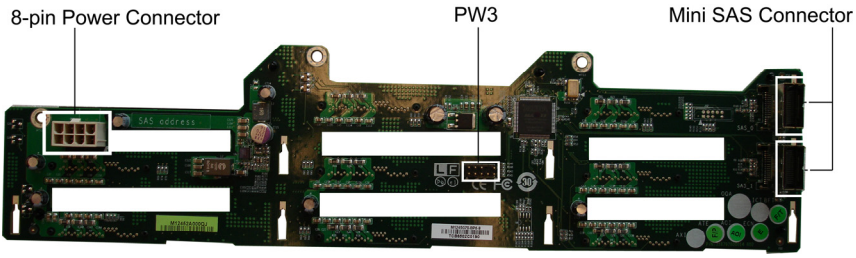




3 Replace a new HDD BP Board and reinstall it into the chassis following the steps in reverse.

3.9.1 HDD BP Board Specifications

Front View



Rear View (with mylar)



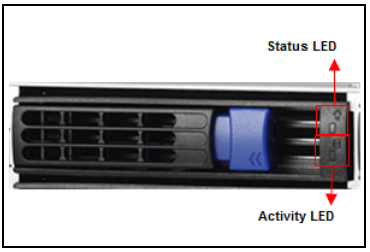
Form Factor	➢ 81.8 x 436 mm, 4-layer PCB
Integrated I/O	➢ 8 SAS HDD Connectors ➢ 2 Mini SAS Connectors to MB and RAID Card ➢ 1 2 x 4-pin Power Connector
LEDs	➢ 8 HDD active LEDs ➢ 8 HDD fault LEDs

PW3 Pin definition

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

3.9.2 HDD BP Board LED Definitions

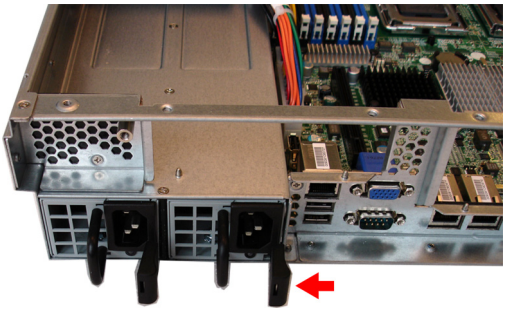


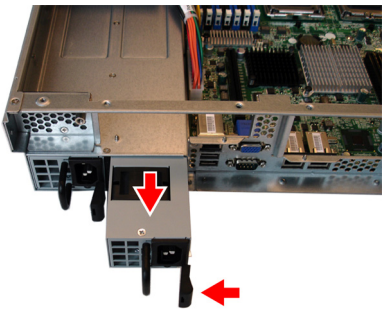


HDD Status		Status LED 2/4/6/8 Color: Amber	Activity LED 1/3/5/7 Color: Green
No Driver Present or power disconnected		OFF	OFF
Driver Present	No Activity	OFF	ON
	Access Activity	OFF	Blinking
HDD Fail		On Solid	OFF
Identify (Locate the HDD)		Blinking(4Hz)	x
SAS/SATA RAID Building		Blinking(1Hz)	x
NOTE: If the LSI 9280-l6i4e or 9260-l6i storage cards is installed, the LED status will change as below:			
Identify (Locate the HDD)		Blinking(4Hz)	ON
SAS/SATA RAID Building		Blinking	Blinking

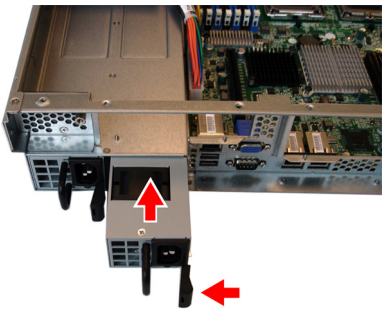
3.10 Replacing the Power Supply

1 Press and hold the latch to pull the power supply out.





2 After replacing a new power supply, press and hold the latch to push the power supply back into the chassis.



NOTE

Appendix I: Cable Connection Tables

1. Mini-SAS Cables

SAS/SATA Backplane M1245G70-BP6	**Connects to**	**Motherboard**
SAS_1	→	J17
SAS_2	→	J11

2. FAN Control Cable

FAN Board M1806G70-FB	**Connects to**	**Motherboard**
J8	→	J28

3. Front Panel Control Cable

Front Panel Board M1709G70-FPB	**Connects to**	**Motherboard**
J3	→	J23

4. USB Cable

Front Panel Board M1709G70-FPB	**Connects to**	**Motherboard**
J1	→	J33

5. Power Cables

Power Board M1601T70-D-PDB	**Connects to**	**Motherboard**
PW1 (MB)	→	PW1
PATX1 (MB1)	→	PW2

PATX2 (MB2)	→	PW3
J7 (PSMI)	→	J31

Power Board M1601T70-D-PDB	**Connects to**	**FAN Board M1806G70-FB**
PW4 (FAN BD1)	→	PW2
PW5 (FAN BD2)	→	PW1

Power Board M1601T70-D-PDB	**Connects to**	**SAS/SATA Backplane M1245G70-BP6**
PATX8 (HDD BP3)	→	PW1

Appendix II: FRU Parts Table

GN70-B8236 FRU Parts					
Item	**Model Number**	**Part Number**	**Picture**	**Quantity**	**Description**
Power Supply	DPS-770CB	471015200243		2	DELTA, DPS-770CB,1U
FAN	PFC0612DE-7N51	336252012309		8	12000RPM,60*60*38MM,4PIN
PCBA	M2201-L16-2F	411794700007		1	PCI-E X16 1U Riser Card
PCBA	M2202-R16-2F	411T41000017		2	PCI-E X16 1U Riser Card

NOTE

Appendix III: 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 MiTAC International Corporation can help. Besides designing innovative and quality products for over a decade, MiTAC has continuously offered customers service beyond their expectations. TYAN's website (http://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. MiTAC also ranks high for its commitment to fast and friendly customer support through email. By offering plenty of options for users, MiTAC serves multiple market segments with the industry's most competitive services to support them.

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's 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 manufa--cturer for a Return Merchandise Authorization (RMA) nu--mber. 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® GN70-B8236 Service Engineer's Manual V1.00

Document No.: D2125-100