YR292-B5538-X4

Service Engineer's Manual

PREFACE

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Version 1.0d

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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 YR292-B5538-X4. This Manual is intended for experienced users and integrators with hardware knowledge of personal computers.

This manual consists of the following parts:

Chapter 1:	Provides an introduction to the TYAN YR292-B5538-X4 barebones, standard parts list, describes the external components, gives a table of key components, and provides block diagram of the system.
Chapter 2:	Covers procedures on installing the CPU, memory modules and hard drives.
Chapter 3:	Covers removal and replacement procedures for pre-installed components.
Chapter 4:	Provides information of the motherboard, including the memory population table, block diagram and pin definitions.
Chapter 5:	Covers BIOS setup and configuration options.
Appendix:	List the Fan and Temp Sensors, Cable Connection Table and FRU Parts List 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 YR292-B5538-X4, 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.

Table of Contents

Chapter 1: Overview

1.1 About the TYAN YR292-B5538-X4

Congratulations on your purchase of the TYAN® YR292-B5538-X4, a highly optimized rack-mountable barebone system. The YR292-B5538-X4 is designed to support four nodes of Intel® Xeon E3-1200 v3/v4 Series processors and DDR3 1333/1600 UDIMM ECC memory, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, YR292-B5538-X4 server system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, and lightning-fast PCI-E bus implementation. The YR292-B5538-X4 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® is also proud to deliver the YR292-B5538-X4 in a version that can support up to sixteen hot-swap hard drives (four HDDs per node). The YR292-B5538-X4 uses TYAN®'s latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides YR292-B5538-X4 the power and flexibility to meet the needs of nowadays server application.

1.2 Features

TYAN YR292B5538 (B5538Y292X4-080PV4HR-BDW)

System	Form Factor		2U Rackmount
	Gross Weight		29 kg
	Feature		Four nodes in one chassis
	Chassis Model		YR292
	Dimension (D x W x H)		28.74" x 17.32" x 3.44" (730 x 440 x 87.5mm)
	Blade Dimension (D x W x H)		28.74" x 8.46" x 1.61" (730 x 214.8 x 40.8mm)
	Motherboard		S5538GM3NR-HE-BDW
	Board Dimension		6.3"x16.4" (160x416.6mm), per blade
Front Panel (per blade)	Buttons		(1) RST / (1) PWR / (1) ID
	LEDs		(1) PWR / (1) BMC / (2) LAN / (1) HDD
	I/O Ports		(2) USB ports
External Drive Bay (per blade)	Type / Q'ty		2.5" Hot-Swap / (4)
Internal Drive Bay (per blade)	Supported HDD Interface		SATA-III 6.0Gb/s
System Cooling Configuration (per blade)	FAN		(3) 4cm fans
Processor (per blade)	Supported CPU Series		Intel Xeon E3-1200 v3/v4 series processors
	Socket Type / Q'ty		LGA 1150/ (1)
	Thermal Design Power (TDP) wattage		Max up to 95W
Chipset (per blade)	PCH		Intel C226
Memory (per blade)	Supported DIMM Qty		(4) DIMM slots
	DIMM Type / Speed		DDR3/DDR3L 1333 /1600 UDIMM ECC
	Memory channel		2 Channels per CPU
	Memory voltage		1.5V
Expansion Slots (per blade)	PCI-E		(1) PCI-E Low-Profile Gen.3 x16 slot
LAN (per blade)	Port Q'ty		Total (3) ports, (1) dedicated for IPMI
	Controller		Intel I350-AM2 / Intel I210
Storage (per blade)	SATA	Connector	(6) SATA
		Controller	Intel C226
		Speed	6.0Gb/s

	RAID	RAID 0/1/10/5 (Intel Matrix RAID)
Graphic (per blade)	**Connector type**	D-Sub 15-pin
	Resolution	1600x1200@60Hz
	Chipset	Aspeed AST2300
I/O ports (per blade)	**USB**	(4) ports (2 at front, 2 at rear)
	COM	(1) DB-9 COM port
	VGA	(1) D-Sub 15-pin port
	RJ-45	Total (3) ports, (1) dedicated for IPMI
System Monitoring (per blade)	**Chipset**	Onboard Aspeed AST2300
	Temperature	Monitors temperature for CPU & system environment
	LED	Fan fail LED indicator / Over temperature warning indicator
	Others	Watchdog timer support
Server Management (per blade)	**Onboard Chipset**	Onboard Aspeed AST2300
	AST2300 IPMI Feature	IPMI 2.0 compliant baseboard management controller (BMC) / Supports storage over IP and remote platform-flash / USB 2.0 virtual hub
	AST2300 iKVM Feature	24-bit high quality video compression / Dual 10/100 Mb/s MAC interfaces
BIOS (per blade)	**Brand / ROM size**	AMI / 16MB
	Feature	User-configurable H/W monitoring / ACPI 3.0 power management/PXE boot / ACPI sleeping states S3,S4,S5 / SMBIOS 2.8/PnP/Wake on LAN
Power Supply	**Type**	RPSU
	Efficiency	PFC / 80 plus Platinum
	Redundancy	1+1
	Input Range	Full-range AC(100-240V) / 240VDC support
	Output Watts	800 Watts
Operating System	**OS supported list**	Please refer to our Intel 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 Compliant**	Yes
Package Contains	**Barebone**	(1) YR292-B5538 Barebone
	Manual	(1) Quick Installation Guide

Installation CD	(1) TYAN installation CD

1.3 Product Model

Model	HDD Bays	Power supply
YR292-B5538-X4 (four nodes)	Hot-swap, 16 HDDs	1+1 Redundancy 800 Watts

1.4 Standard Parts List

This section describes the YR292-B5538-X4 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.

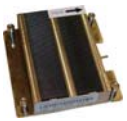
1.4.1 Box Contents Per Node

Component	Description
	2U chassis, 4 nodes (4) hot swap HDD bays per node
	TYAN® S5538 system board (pre-installed)
	(2) 800Watts single Power Supply (pre-installed)
	(3) 40x28mm System FAN (pre-installed)
	Power Distribution Board (pre-installed)
	M7018 SATA HDD Backplane Board (pre-installed)
	M7018-R16-1L PCI-E Riser Card (pre-installed)
	Front Panel Board (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



1 Heatsink per node

AC Power Cord 125V (US) x 2

AC Power Cord 250V (EU) x 2

HDD Screws

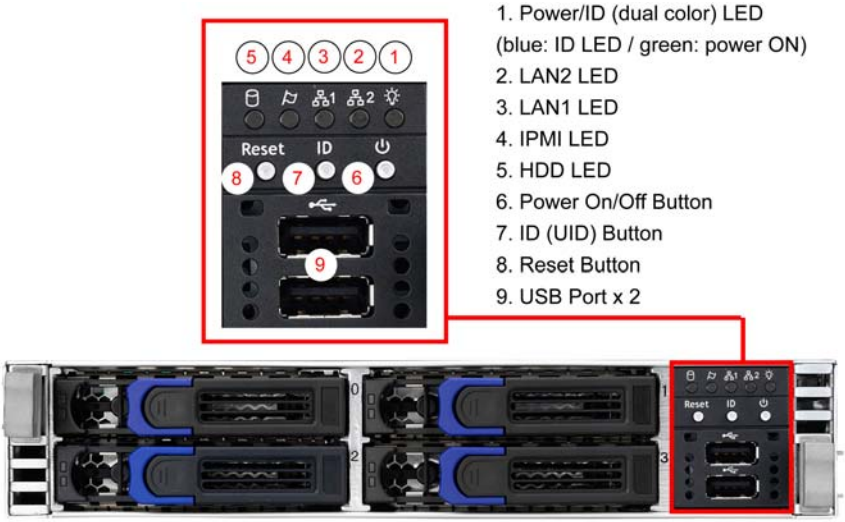
Addendum for China Use Only

Rack Mounting Kit

1.5 About the Product

The following views show you the product.

1.5.1 System Front View (Per Node)



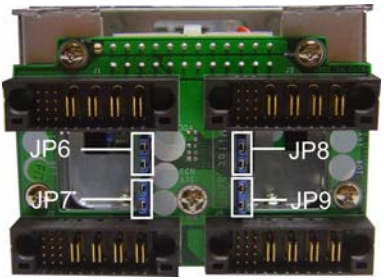
LED Definitions

LED	State	Color	Behavior
Power/ID	Power On	Green	Solid On
	ID active	Blue	Solid On
IPMI	System Normal	Amber	Off
	System Alert	Amber	Solid On
LAN1	Active	Green	Blinking
	Link	Green	Solid On
LAN2	Active	Green	Blinking
	Link	Green	Solid On
HDD (integrated)	HDD Ready	Green	Solid On
	HDD Access	Green	Blinking

NOTE: If an external HBA card is installed, the HDD LED will not function.

IPMI LED indication in 1+1 PSU Redundancy

Status	Description	IPMI LED
1	Both PSU1 and PSU2 are present and the AC cord is properly connected when the system powers on.	OFF
2	If the IPMI LED shows amber solid on, please check the following: ● Is the AC cord properly connected? ● Are both PSU1 and PSU2 present?	Amber solid on
NOTE: If you have checked and cleared the Status 2, and the IPMI LED continues to show amber solid on, please refer to the Web UI to view the Event Log for possible solutions.		



NOTE: Node 1 is set to be the master node by default, which can detect the power status. Users can use the jumpers on the power backplate to change the master node. The jumper settings are as follows:

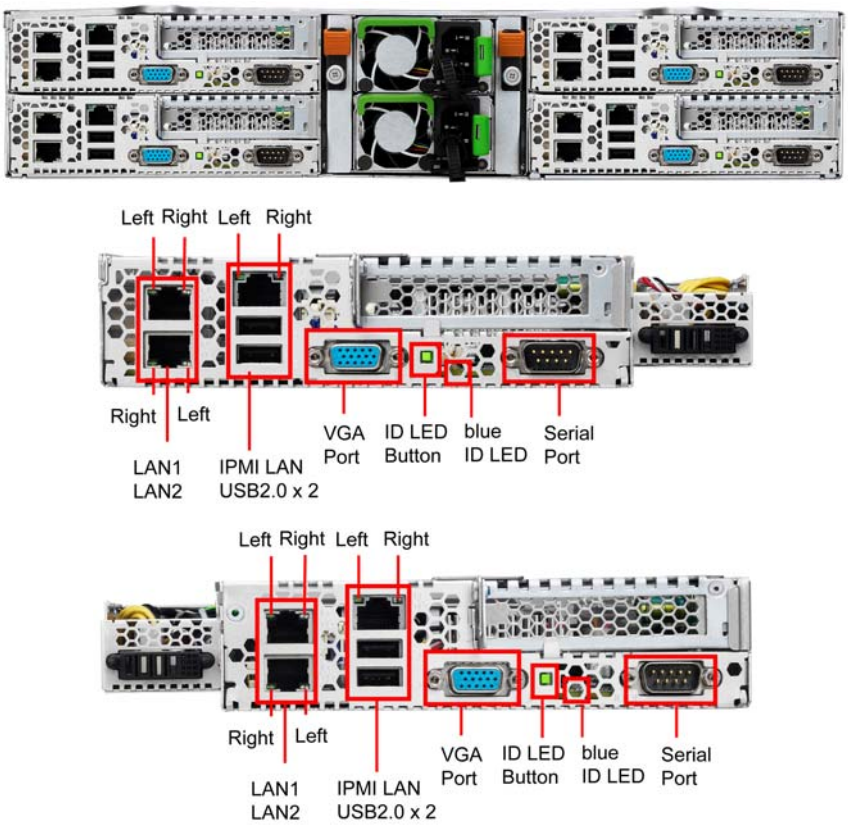
Master Node setting

Master Node	Jumper Setting
Node 1	JP6 (1,2), JP7 (1,2)
Node 2	JP6 (3,4), JP7 (3,4)
Node 3	JP8 (1,2), JP9 (1,2)
Node 4	JP8 (3,4), JP9 (3,4)

HDD LED

HDD Status		Activity LED Color: Green	Status LED Color: Red
No driver present or power disconnected		OFF	OFF
Driver Present	No Activity	Solid ON	OFF
	Access Activity	Blinking	OFF
	HDD Fail	Don't care	Solid ON
	Identifying	Don't care	Blinking @1Hz
	Rebuilding	Don't care	Blinking @4Hz

1.5.2 System Rear View (Per Node)



→blue ID LED: When the ID LED button on the rear panel is pressed, the blue Power LED on the front panel and the blue ID LED on the rear panel will light up. The technical personnel can easily locate the system on the rack, disconnect cables from the system, and remove it from the rack for later repair.

→LAN LED: The three onboard Ethernet ports have green and amber LEDs to indicate LAN status. The table below illustrates the different LED states.

LAN LED

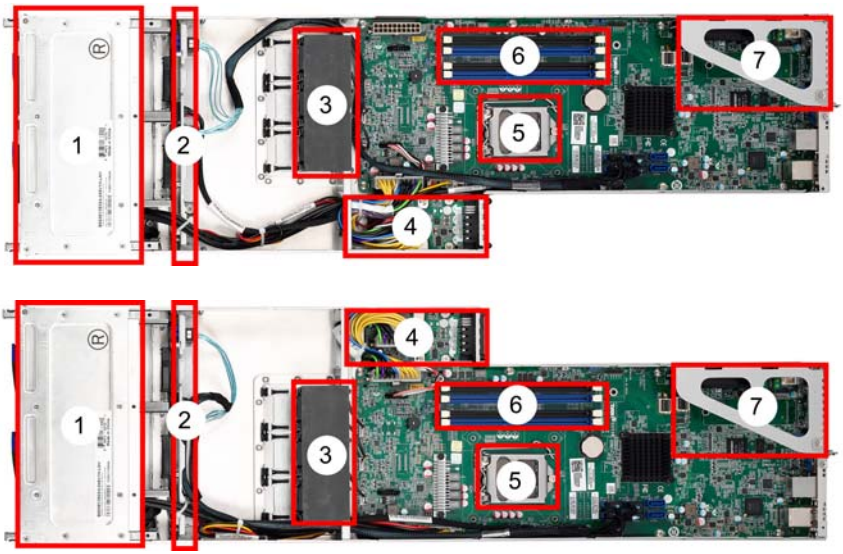
LED	State	Color	Description
RJ-45 Activity(left)	On	Green	10Mb/100Mb/1000Mb linked
	Blinking	Green	10Mb/100Mb/1000Mb activity
	Disabled	Flash Green	No LAN linked
RJ-45 Linkage(Right)	On	Amber	1000Mb linked
	On	Green	100Mb linked
	Disabled	Off	10Mb mode or No LAN linked

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 Internal View (Per Node)



Number	Description
1	HDD Cage
2	SATA HDD Backplane Board
3	System Fans
4	Power Distribution Board
5	CPU Socket
6	Memory
7	PCI-E Riser Card Assembly

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.

Caution!

1. To avoid damaging the motherboard and associated components, do not use torque force greater than 7kgf/cm (6.09 lb/in) on each mounting screw for motherboard installation.
2. Do not apply power to the board if it has been damaged.

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 YR292-B5538-X4 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.

Note:

All connectors are keyed to only attach one way.

All use the correct screw size as indicated in the procedures.

2.1 Installing Motherboard Components

This section describes how to install components on to the mainboard, including CPUs, memory modules, HDD and add on cards.

2.1.1 Installing Hard Drives

The YR292-B5538-X4 supports (4) 2.5” hard drives per node.
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 the locking tabs at both sides to pull the node out.

2. Press the locking lever latch and pull the locking lever open.

3. Slide the HDD tray out.

4. Unscrew the HDD tray bracket.

5. Place a hard drive into the drive tray. Use four screws to secure the HDD.

6. Reinsert the HDD tray into the chassis.

7. Press the locking lever to secure the tray. Repeat the same procedures to install other HDD trays.

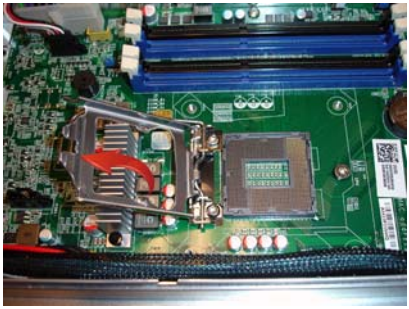
2.1.2 Installing the CPU and Heatsink

Follow the steps below to install the processor and heatsink.

1. Take off the CPU Socket protection cap.

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

3. Open the socket to a fully open position.



4. Place the CPU in the CPU socket. Make sure the gold arrow is located in the right direction.

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

6. Place the heatsink on top of the CPU and secure it with 4 screws.

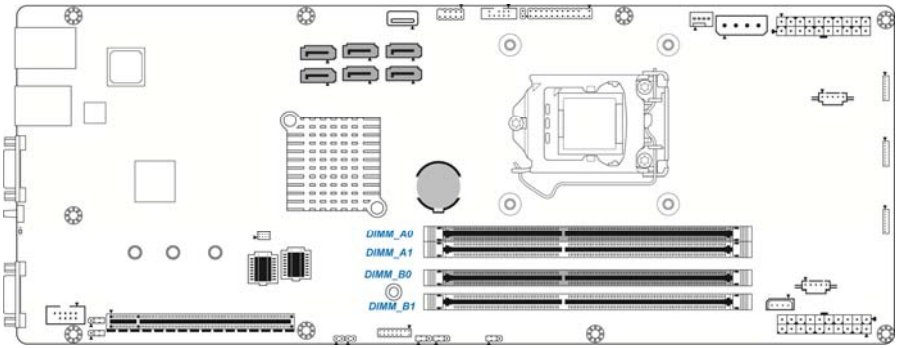
2.1.3 Installing the Memory

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

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.

Recommended Memory Population Table



	Single CPU Installed			
	DIMM_A0	DIMM_A1	DIMM_B0	DIMM_B1
Quantity of memory installed	√	√	√	√
	√	√	√	
	√	√		√
	√	√		
	√		√	√
	√		√	
	√			√
	√			
		√	√	√
		√	√	
		√		√
		√		
			√	√
			√	
				√

DIMM Support on Denlow Platform

Max Memory Possible	1Gb DRAM	2Gb DRAM	4Gb DRAM
Single Rank UDIMM	4GB (4x 1GB DIMMs)	8GB (4x 2GB DIMMs)	16GB (4x 4GB DIMMs)
Dual Rank UDIMMs	8GB (4x 2GB DIMMs)	16GB (4x 4GB DIMMs)	32GB (4x 8GB DIMMs)

NOTE:

1. Support DIMM type：Unbuffered DDR3 ECC
2. No support for RDIMMs and SODIMM

Ranks per DIMM	DIMM Slots Per Channel	DIMM Speed	Support Voltage
Single Rank UDIMM	1DPC	1333/1600	1.5V
	2DPC	1333/1600	1.5V
Dual Rank UDIMMs	1DPC	1333/1600	1.5V
	2DPC	1333/1600	1.5V

NOTE:

1. CPU has no HW or FW voltage restrictions, but only the “Supported Voltage” is POR and validated for each configuration.

2.2 Rack Mounting

After installing the necessary components, the TYAN YR292-B5538-X4 can be mounted in a rack using the supplied rack mounting kit.

Rack mounting kit

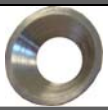
No.	Item	Description	Quantity
A		Sliding rails	2
B		Screw kit	1

2.2.1 Installing the Server in a Rack

Follow these instructions to mount the TYAN YR292-B5538-X4 into an industry standard 19" rack.

NOTE: Before mounting the TYAN YR292-B5538-X4 in a rack, ensure that all internal components have been installed and that the unit has been fully tested.

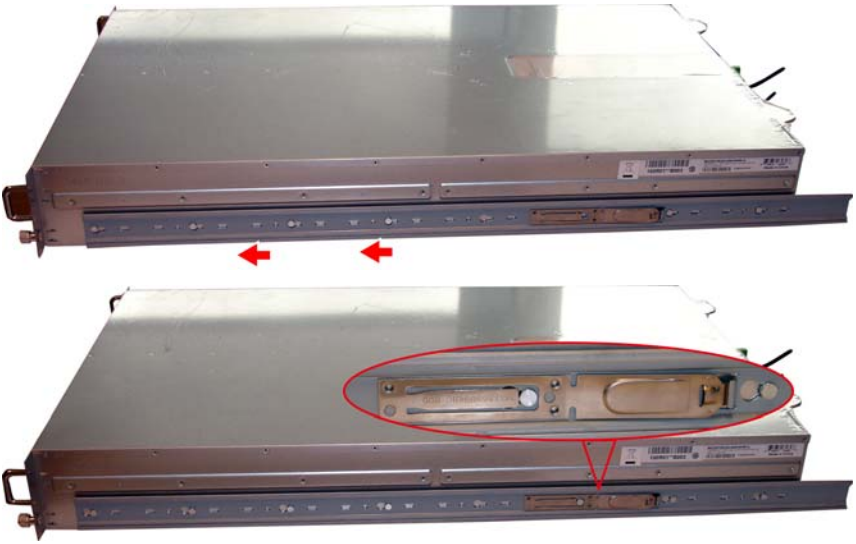
Screw Kit List

No.	Screw	Size	Quantity
A		M5	8
B		Washer	8
Total: A+B		M5 and Washer	Total: 8 sets

2.2.2 Installing the inner Rails to the Chassis

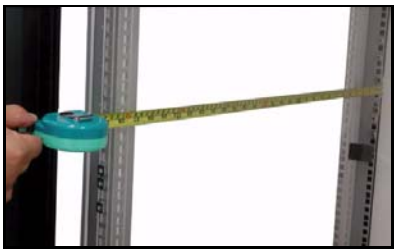
1. Draw out the inner rails from the rail assembly. Install inner rails to the left and right side of chassis.

2. Push the rails forwards to lock the rails in place.



2.2.3 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. Secure the outer rail to the rack using 4 M5 screws and 4 washers (2 sets front / 2 sets rear) for each side. Secure the rails to the rack as shown.

3. Repeat ***Step 2*** if you want to install more chassis to the rack.
4. To make the installation easier, we suggest that you remove all nodes before you insert the chassis to the rack.

2.2.4 Rack mounting the Server

To install the chassis to the rack

1. Lift the chassis and then insert the inner slide rails into the outside rails.

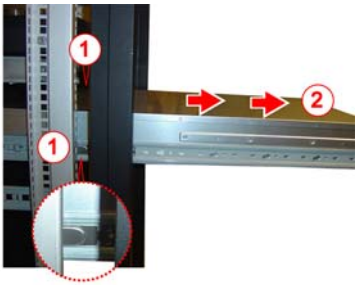
2. Push the chassis back into the rack.

3. Screw the chassis to the rack.

To remove the chassis from the rack

1. Unscrew the chassis.

2. Press the locking tabs on both sides of the chassis to pull the chassis out.



NOTE:
To avoid injury, it is strongly recommended that two people lift the TYAN YR292-B5538-X4 into the place while a third person screws it to the rack.

NOTE

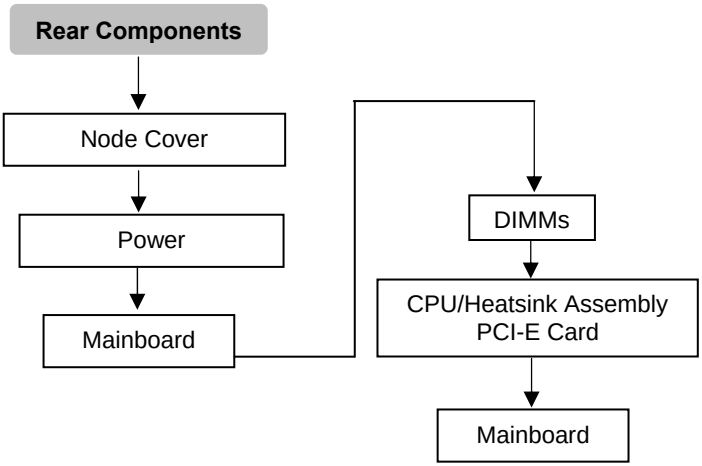
Chapter 3: Replacing Pre-Installed Components

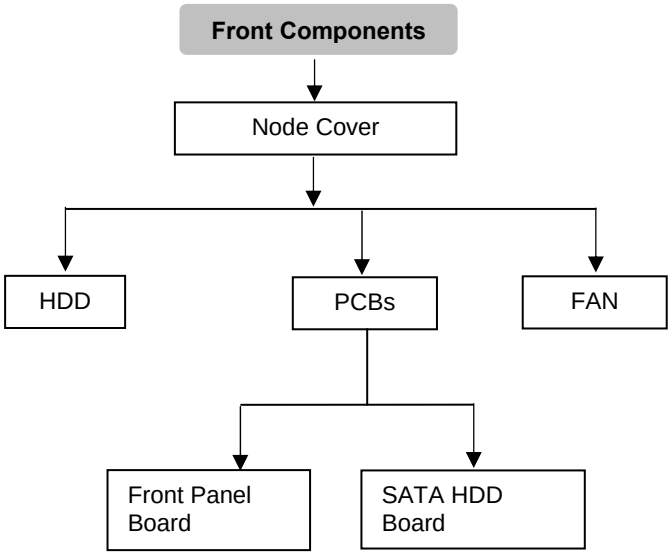
3.1 Introduction

This chapter explains how to replace the pre-installed components, including the Motherboard, front panel board, SATA HDD board, M2087-R PCI-E Riser card, System fans, and Power supply unit etc.

3.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedure.





Attention to 2U 4-Node Users:

1. Please make sure that at least the first Compute Node has been properly plugged into the power system before you plug in the AC cord and turn the power on. It is essential to do so for the system to acquire the system PSU status.
2. It is not recommended to plug out all four Compute Nodes at the same time during maintenance. If possible, please finish it within 5 minutes at room temperature (25^{o}C). If the maintenance work lasts longer than 5 minutes or the room temperature is higher than 25^{o}C, please unplug the AC cord first in order to assure the power system is not in no load operation.

3.3 Replacing Motherboard Components

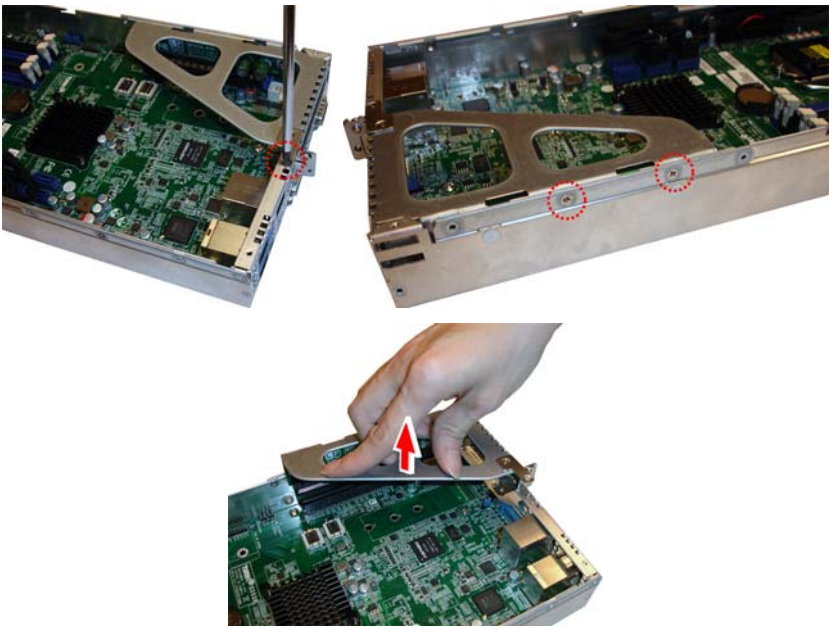
Follow these instructions to replace motherboard components, including the motherboard.

Follow **Chapter 2.1.1** to pull the node out.

3.3.1 Replacing Expansion Card

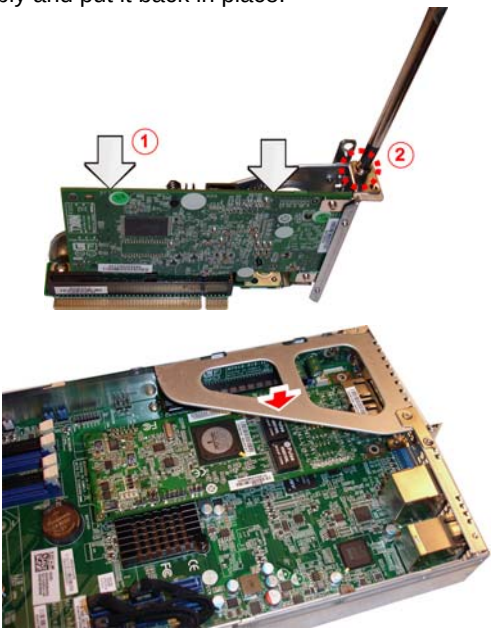
The YR292-B5538-X4 has **one preinstalled M7018_R16-1L** riser card, Follow the instructions below to disassemble the M7018-R16-1L and install a new riser card.

1. Unscrew the riser card assembly. Lift the assembly up.



2. Unscrew the riser card assembly. Remove the PCI-E bracket.

3. Install a **low-profile** riser card onto the assembly. Screw the riser card to the assembly and put it back in place.



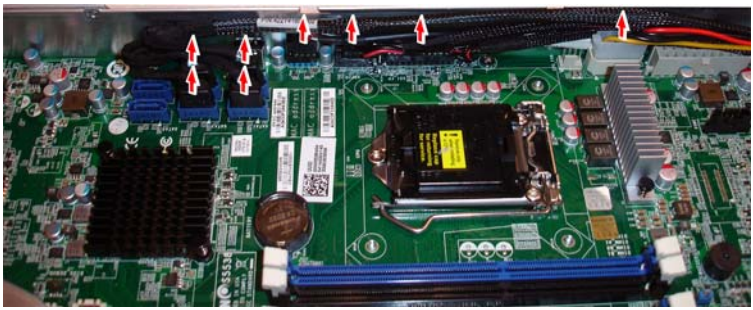
4. (optional for M7018-R16-1L) Unscrew to replace a new M7018-R16-1L card.

5. Follow the procedures mentioned earlier in reverse order to place the riser card assembly back into the chassis.

3.3.2 Disconnecting All Motherboard Cables

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

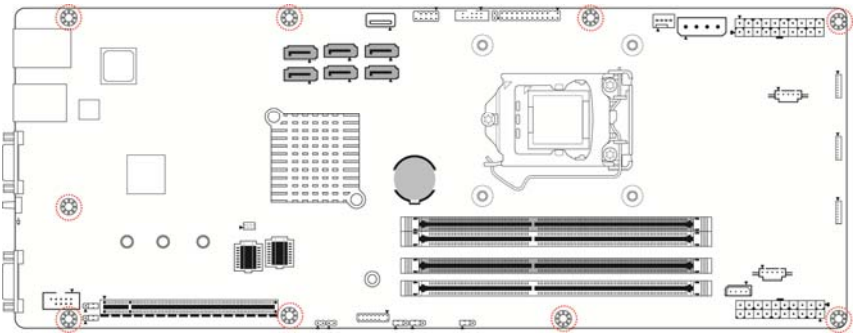
1. Disconnect all cables.



3.3.3 Removing the Motherboard

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

1. Remove the heatsink and processor if installed. If there are any parts installed, remove them as well.
2. Remove the nine screws securing the motherboard to the chassis.



3. Carefully lift the motherboard from the chassis.

3.4 Replacing the Power Distribution Board

Follow these instructions to replace the Power Distribution Board.

1. Disconnect the 20-pin power and PSMI cables from the power distribution board.

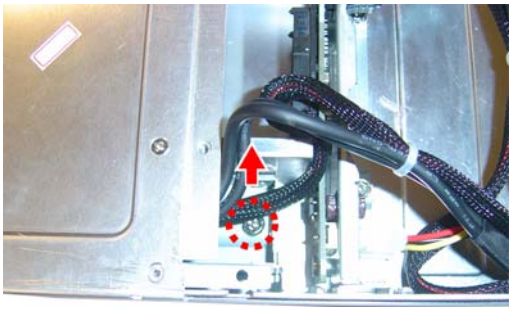
2. Unscrew to take out the power distribution board.

3. Repeat the procedures in reverse to replace a new power distribution board.

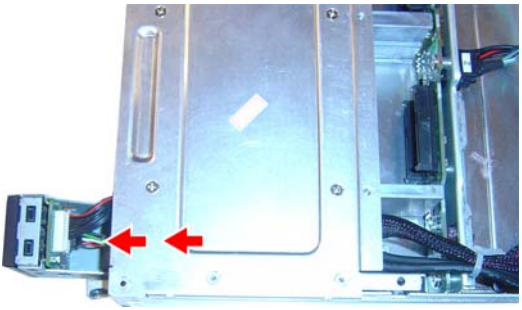
3.5 Replacing the Front Panel Board

Follow these instructions to replace the Front Panel board.

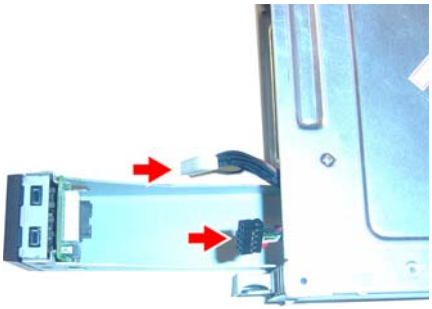
1. Release cables from the cable clip. Unscrew the front panel tray.



2. Pull the front panel tray from the chassis.

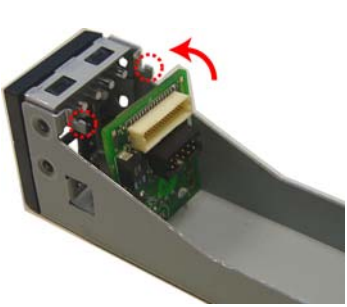


3. Disconnect cables from the front panel board.



4. Unscrew to take out the front panel board.

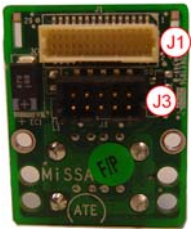
5. Replace a new front panel board and screw it to the front panel tray.



6. Repeat the procedures described earlier in reverse order to place the front panel tray back into place.

3.5.1 Front Panel Board Features

Front



Rear

NOTE:
See ***1.5.1 System Front View (Per Node)*** for details on Front Panel LEDs and buttons.

3.5.2 Front Panel Board Connector Pin Definition

J1: FPIO Connector

Pin	Net Name	Description	Pin	Net Name	Description
1	HD LED+	HDD LED	16	LAN1_LINK#	LAN1 LED -
2	HD LED-	HDD LED	17	LAN2_ACT	LAN2 LED +
3	RESET+	System Reset Switch+	18	LAN2_LINK#	LAN2 LED -
4	RESET-	System Reset Switch-	19	ID_LED +	Location LED +
5	PW_LED+	FPB power LED +	20	ID_LED -	Location LED -
6	PW_LED-	FPB power LED -	21	ID_SW +	Location Switch +
7	WLED+	IPMI LED	22	FP5V_STBY	5VSB power
8	WLED-	IPMI LED	23	FPB_HDD_ACTIVITY_G-	HDD Green LED
9	SMBDAT	I^2C BUS Data	24	FPB_HDD_FAULT_R-	HDD Red LED
10	SMBCLK	I^2C BUS Clock	25	SMBCLK	I^2C BUS Clock
11	EXT_INT	FPB NMI	26	BPGND	Ground
12	FP_GND	Ground	27	SMBDAT	I^2C BUS Data
13	PWR_SW+	Power Switch +	28	EXT_INT	FPB NMI
14	PWR_SW#	Power Switch -	29	NC	
15	LAN1_ACT	LAN1 LED +	30	NC	

J3: USB Connector

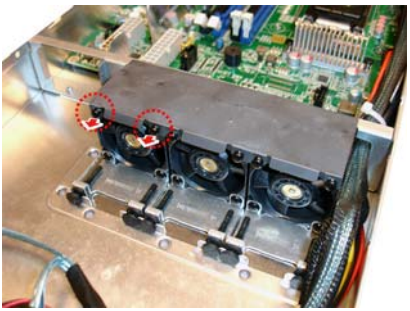
Pin	Net Name	Function	Pin	Net Name	Function
1	VCC_USB0	Power connect to 5V (for USB)	6	USB_P1_P	USB_P1 +
2	VCC_USB1	Power connect to 5V (for USB)	7	GND	Ground
3	USB_P0_N	USB_P0 -	8	GND	Ground
4	USB_P1_N	USB_P1 -	9	NC	
5	USB_P0_P	USB_P0 +	10	NC	

3.6 Replacing the System Fan

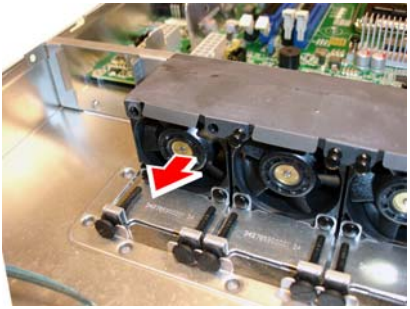
Follow these instructions to replace the cooling fans in your system.

1. Disconnect the fan cables from the mainboard.

2. Remove the screws that secure the fan to the system.



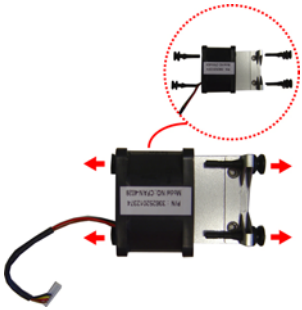
3. Remove the fan from the system.



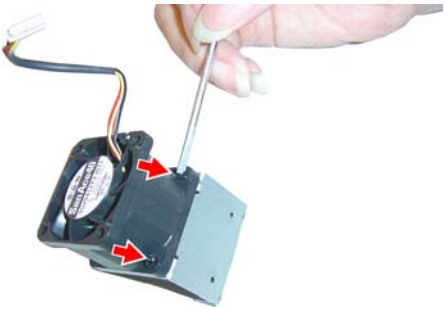
4. Reinstall the fan(s) into the chassis following the procedures described earlier in reverse order.

To replace a fan unit:

1. Remove the rubber screws from the fan.



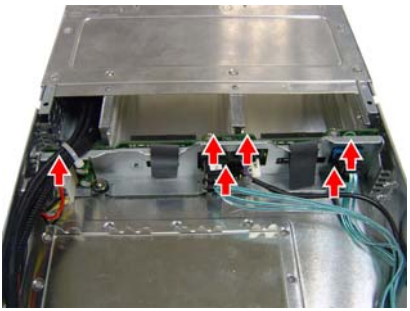
2. Use a flat-head screw driver to push the screws open. Replace a new fan and use the screw driver to push the screw back into the screw hole.



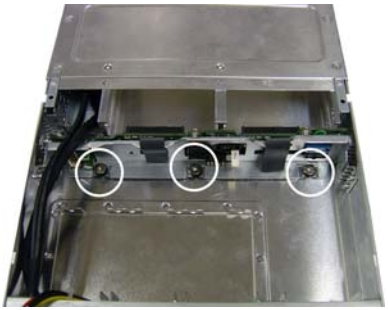
3.7 Replacing the SATA Backplane Board

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

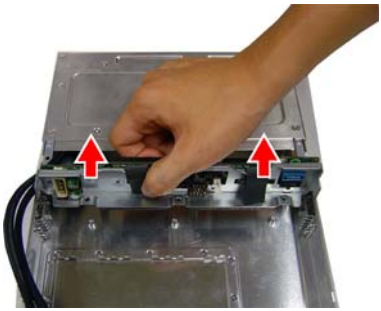
1. Disconnect one B4P PWR cable and five mini-SAS cables from the backplane board.



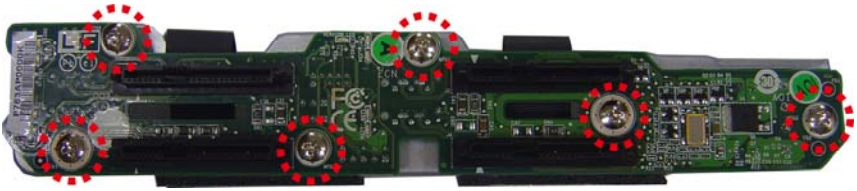
2. Unscrew the backplane bracket.



3. Lift the bracket up from the chassis.

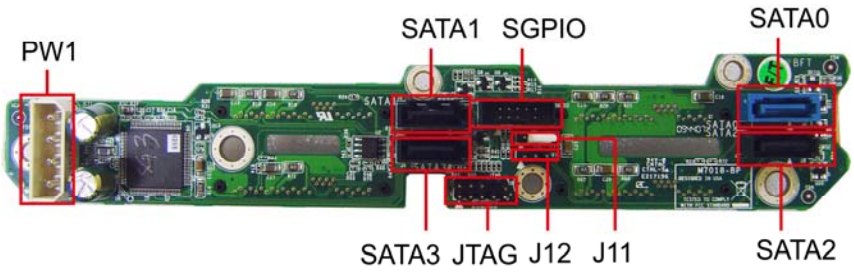


4. Unscrew the backplane board from the bracket. Replace a new SATA Backplane Board and reinstall it into the chassis following the above steps in reverse.

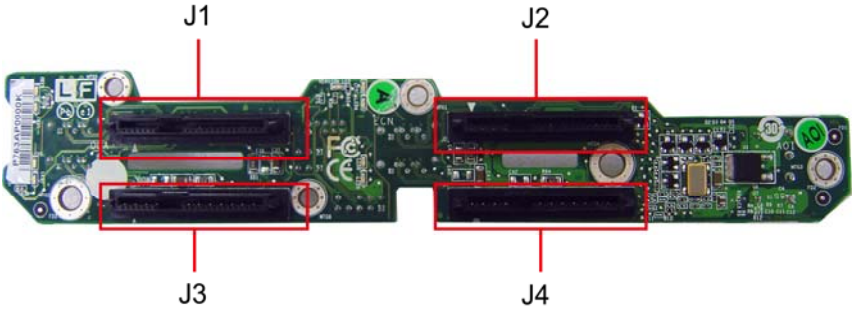


3.7.1 SATA Backplane Board Features

Front View



Rear View



Connector	Description
SATA0(J5) / SATA1(J6) / SATA2(J7) / SATA3(J9)	SATA Connector
J1~J4	HDD Connector
PW1	Power Connector
JTAG	CPLD Connector
SGPIO (J8)	SGPIO Connector
J11	Platform Select Jumper
J12	(reserved)

3.7.2 SATA Backplane Board Connector Pin Definitions

SATA Connector: SATA0/SATA1/SATA2/SATA3

Pin NO	Pin Name	Description
1	GND	GND
2	SAS_TX+	Transmit pair
3	SAS_TX-	Transmit pair
4	GND	GND
5	SAS_RX-	Receive pair
6	SAS_RX+	Receive pair
7	GND	GND

HDD Connector: J1/J2/J3/J4

Pin NO	Pin name	Pin NO	Pin name
S1	GND	P1	NC
S2	SAS_TX+	P2	NC
S3	SAS_TX-	P3	NC
S4	GND	P4	GND
S5	SAS_RX-	P5	GND
S6	SAS_RX+	P6	GND
S7	GND	P7	VDD_5_RUN
S8	SAS_Present_L	P8	VDD_5_RUN
S9	NC	P9	VDD_5_RUN
S10	NC	P10	HD_PRS_L
S11	GND	P11	SAS_LED
S12	NC	P12	GND
S13	NC	P13	VDD_12_RUN
S14	GND	P14	VDD_12_RUN
		P15	VDD_12_RUN

Power Connector: PW1

Pin No.	Net Name	Description
1	VDD_12_RUN	12V
2	GND	Power Ground
3	GND	Power Ground
4	VDD_5_RUN	5V

CPLD Connector: JTAG

Pin No.	Net Name	Description	Pin No.	Net Name	Description
1	CPLD_JTAG_TCK	JTAC_TCK DataOut	6	NC	
2	GND	Ground	7	NC	
3	CPLD_JTAG_TDO	JTAC_TDO DataOut	8	NC	
4	VDD_3P3_RUN	3.3V	9	CPLD_JTAG_TDI	
5	CPLD_JTAG_TMS	JTAC_TMS DataOut	10	GND	Ground

SGPIO Connector: SGPIO

Pin No.	Net Name	Description	Pin No.	Net Name	Description
1	SMBUS_3V3_CLK_CPLD	SMBus CLK	6	SAS_GPIO2	SGPIO SLOAD
2	SAS_GPIO0	SGPIO DataIN	7	NC	
3	SMBUS_3V3_DATA_CPLD	SMBus Data	8	SAS_GPIO3	SGPIO SCLOCK
4	SAS_GPIO1	SGPIO DataOUT	9	NC	
5	GND	Ground	10	HD_ERR_LED	

J11

	Pin 1-2 closed: Intel platform
	Pin 2-3 closed: AMD and LSI platform (default)

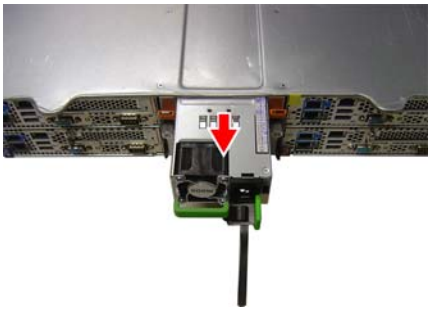
J12 (reserved)

	Pin 1-2 closed: beforehand jumper (default)
	Pin 2-3 closed: beforehand jumper

3.8 Replacing the Power Supply

Replace the power supply unit:

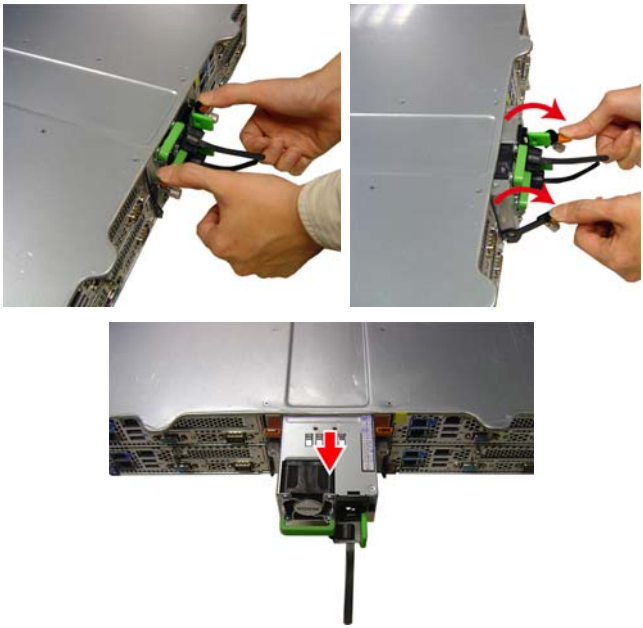
1. Press the latch down to pull the power supply out.



2. After replacing a new power supply, push the power supply back into the chassis.

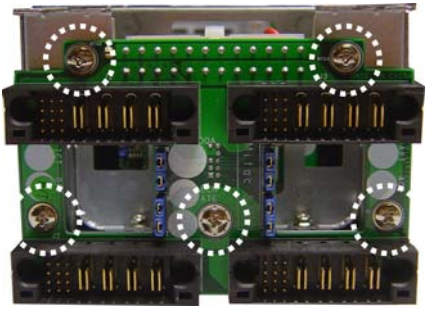
Replace the power supply backplate boards:

1. Press the latch down to pull the power supply out.

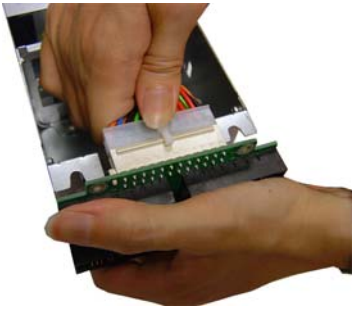


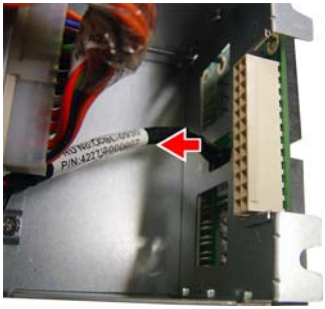
2. Take out the power supply units.

3. Unscrew the power supply backplate board M1501-BPB2.

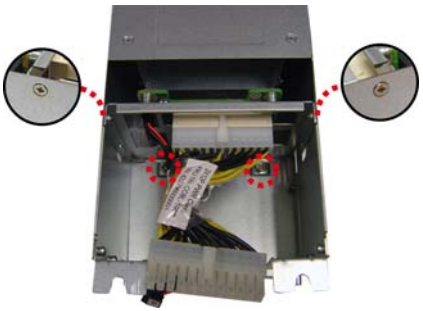


4. Disconnect the 24-pin power cable and the MB cable.

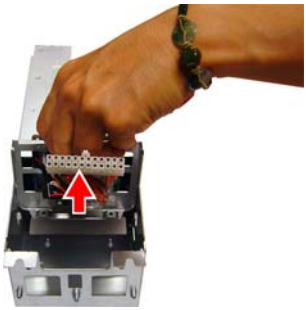




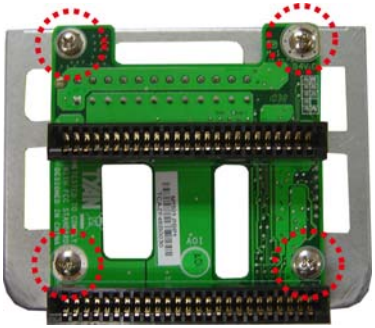
5. Unscrew the power supply backplate bracket.



6. Take out the power supply backplate bracket.



7. Unscrew to replace the M1501-BPB1 board.



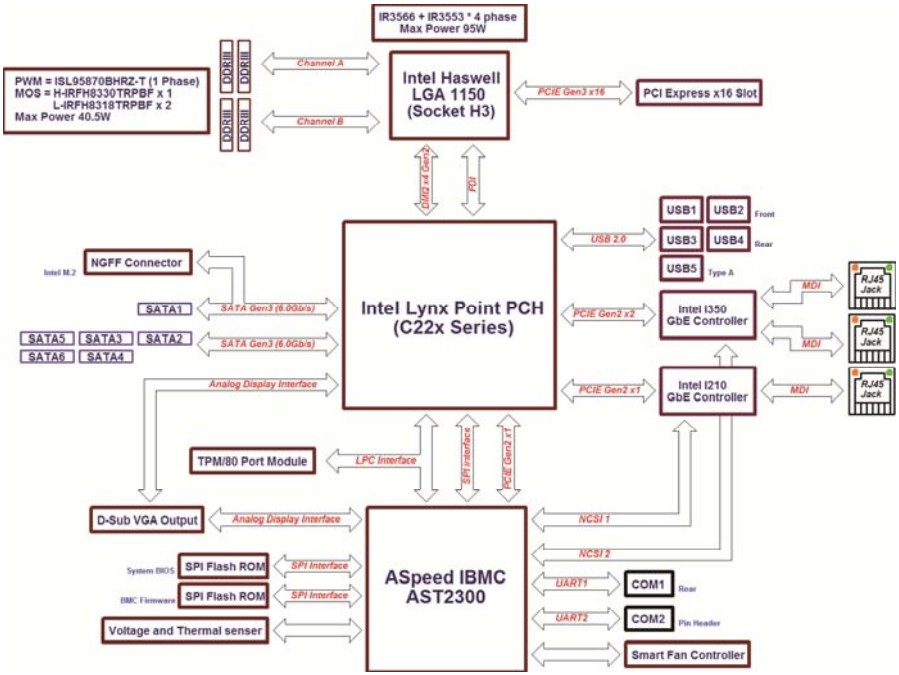
8. Repeat the procedures in reverse order to reinstall the power supply bracket.

Chapter 4: Motherboard Information

4.1 Board Image

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

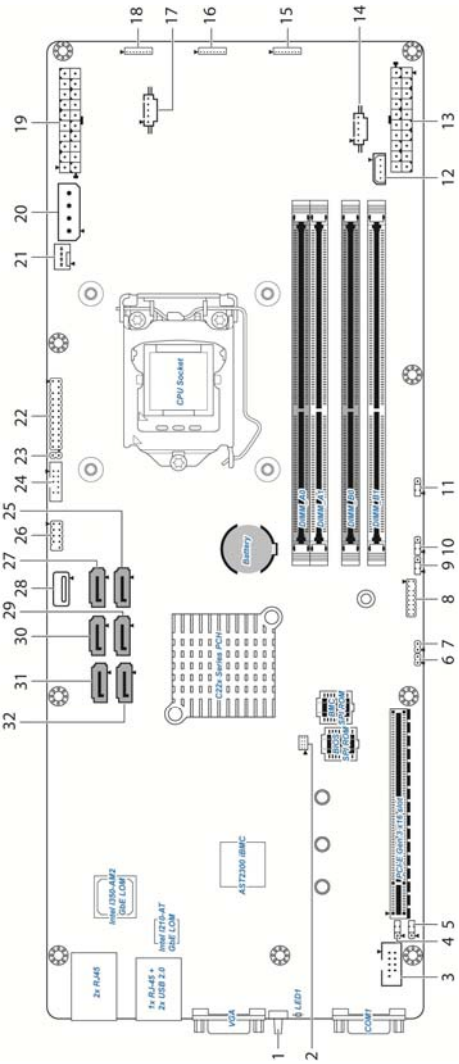
4.2 Block Diagram



S5538 Block Diagram

NOTE: NCSI 2 is optional.

4.3 Board Parts, Jumpers and Connectors



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. But for the DIMM number please refer to the above placement for memory installation. For the latest board revision, please visit our web site at http://www.tyan.com.

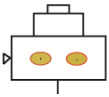
Jumpers & Connectors

Jumper/Connector	Jumper/Connector
1. ID LED Button (SW1)	17. PSMI Pin Header (J45)
2. BIOS debug (J12)	18. System FAN1 (J51)
3. COM2 Header (J6)	19. PWR_ATX_10P*2 (J41)
4. Reserved for BMC debug use (J9)	20. 4Px1_ATX_PWR (J39)
5. Reserved for BMC debug use (J8)	21. CPU Fan (J38)
6. Flash Descriptor Security Override Pin Header (For BIOS use, J16)	22. Front Panel Pin Header (J33)
7. Chassis Intrusion Header (J18)	23. LAN LED Pin Header for I210 (J13)
8. TYAN Module Header (J21)	24. SATA SGPIO Pin Header (HBA) (J30)
9. ME Firmware Update Jumper (J25)	25. 7-pin Vertical SATA3.0 Connector (SATA1) (J23)
10. BIOS Recovery Jumper (J26)	26. USB2.0 Header (J27)
11. Clear CMOS (J28)	27. 7-pin Vertical SATA3.0 Connector (SATA0) (J24)
12. IPMB Pin Header (J42)	28. Vertical Type-A USB2.0 Connector (J22)
13. PWR_ATX_10P*2 (J48)	29. 7-pin Vertical SATA3.0 Connector (SATA3) (J19)
14. PSMI Pin Header (J44)	30. 7-pin Vertical SATA3.0 Connector (SATA2) (J20)
15. System FAN3 (J50)	31. 7-pin Vertical SATA3.0 Connector (SATA4) (J15)
16. System FAN2 (J49)	32. 7-pin Vertical SATA3.0 Connector (SATA5) (J14)

Jumper Legend

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

SW1: ID LED Button



Pin	1	2
Signal	FP_IDLEDSW#	GND

J6: COM2 Header

Signal	Pin	Pin	Signal
COM2_DCD	1	2	COM2_DSR
COM2_RXD	3	4	COM2_RTS
COM2_TXD	5	6	COM2_CTS
COM2_DTR	7	8	COM2_NRI
GND	9	10	NONE

J16: Flash Descriptor Security Override Pin Header

Pin	1	2
Signal	VCC3_AUX	HDA_SD0

J18: Chassis Intrusion Header

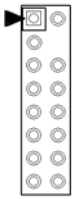
Open

Short (**Default**)

Pin	1	2
Signal	INTRUSION#	GND

Open: to **trigger** the system chassis intrusion alarm.
Short: to **disable** the system chassis intrusion alarm.

J21: TYAN Module Header



Signal	Pin	Pin	Signal
VCC3	1	2	FRAME
LAD0	3	4	KEY
LAD1	5	6	RESET#
LAD2	7	8	GND
LAD3	9	10	CLK
LSIRQ0#	11	12	GND
TPM_PRSNT	13	14	VCC3_AUX
NC	15	16	NC

J25: ME Firmware Update Jumper

	Pin 1-2 Closed: Normal (**Default**)
	Pin 2-3 Closed: ME Force Update

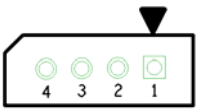
J26: BIOS Recovery Mode Jumper

	Pin 1-2 Closed: Normal (**Default**)
	Pin 2-3 Closed: BIOS Recovery Mode

J28: Clear CMOS Jumper

 Normal (**Default**)	1. You can reset CMOS by using this jumper if you have forgotten your system/setup password or need to clear BIOS setting. 2. Power off system and disconnect both power connectors from the motherboard. 3. Put jumper cap back to Pin_1 and Pin_2 (default setting). 4. Use jumper cap to close Pin_2 and Pin_3 for seconds to Clear CMOS. 5. Reconnect power & power on system. **NOTE:** After flashing new BIOS please follow the following steps: a. Clear CMOS b. Enter BIOS setup menu and load Default Settings. Then do a Save and Exit from setup.
 Clear CMOS	

J42: IPMB Connector



Signal	Pin	Pin	Signal
BMC_SMB_DATA	**1**	**2**	GND
BMC_SMB_CLK	**3**	**4**	VCC3_AUX

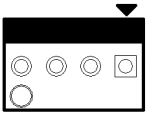
J44/J45: PSMI Connector

Signal	Pin	Pin	Signal
SMB_CLK	1	2	SMB_DAT
SMB_ALERT#	3	4	GND
VCC3	5		

J49/J50/J51: 8-Pin FAN Connector

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

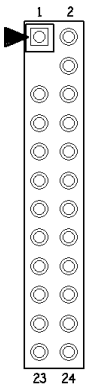
J38: CPU FAN Connector



Pin	1	2	3	4
Signal	GND	+12V	NC	NC

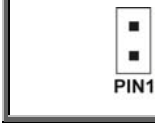
Use this header to connect the cooling fan to your motherboard to keep the system stable and reliable.

J33: Front Panel Connector



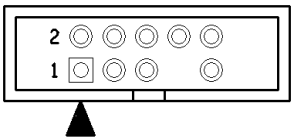
Signal	Pin	Pin	Signal
PWRLED+	1	2	VCC3_AUX
KEY	3	4	IDLED+
PWRLED-	5	6	IDLED-
HDDLED+	7	8	SYS_FAULT1-
HDDLED-	9	10	SYS_FAULT2-
PWR_SW#	11	12	LAN1LED+
GND	13	14	LAN1LED-
RESET_SW#	15	16	SMBDATA
GND	17	18	SMBCLK
IDLED_SW#	19	20	INTRUSION#
TEMP SENSOR	21	22	LAN2LED+
NMI_SW#	23	24	LAN2LED-

J13: LAN LED Pin Header for I210



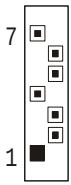
Pin	Signal
1	I210_LED+
2	LAN1_LED1_ACT#

J30: SATA SGPIO Pin Header (HBA)



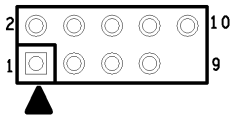
Signal	Pin	Pin	Signal
SMBCLK	1	2	SDATAOUT0
SMBDATA	3	4	SDATAOUT1
GND	5	6	SLOAD
KEY	7	8	SCLOCK
NC	8	10	CLK

SATA0/SATA1: SATA3.0 Connector



1	GND	Connects to the Serial ATA ready drives via the Serial ATA cable. SATA0: J24 SATA1: J23 SATA2: J20 SATA3: J19 SATA4: J15 SATA5: J14
2	SATA TX DP	
3	SATA TX DN	
4	GND	
5	SATA RX DN	
6	SATA RX DP	
7	GND	

J27: USB Front Panel Header



Signal	Pin	Pin	Signal
VCC	1	2	VCC
USBD-	3	4	USBD-
USBD+	5	6	USBD+
GND	7	8	GND
KEY	9	10	NC

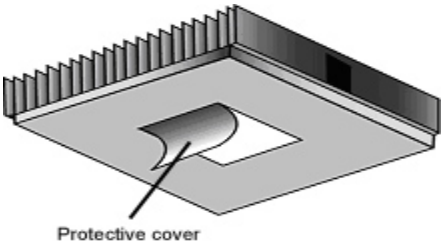
J27: Vertical TYPE-A USB2.0 Connector

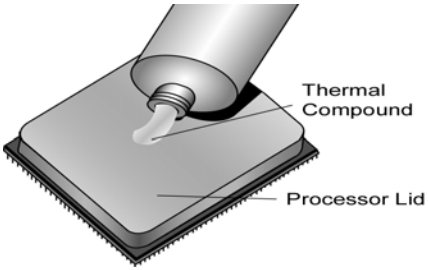
Signal	Pin	Pin	Signal
USB 5V power	1	2	USB Data-
USB Data+	3	4	GND

LED1: ID LED

Pin	Signal	
+	VCC3_AUX	
-	GND	
State	**Color**	**Description**
On	Blue	System identified
Off	Off	System not identified
NOTE: The ID LED can be activated remotely using IPMI. Please visit the TYAN Web Site at **http://www.tyan.com** to download the latest IPMI Configuration Guide for more details.		

4.4 Thermal Interface Material





There are two types of thermal interface materials designed for use with the processors.

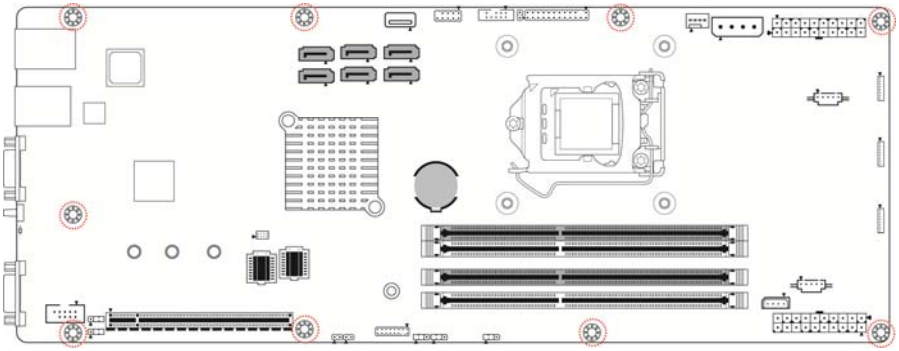
The most common material comes as a small pad attached to the heat sink at the time of purchase. There should be a protective cover over the material. Take care not to touch this material. Simply remove the protective cover and place the heat sink on the processor.

The second type of interface material is usually packaged separately. It is commonly referred to as 'thermal compound'. Simply apply a thin layer on to the CPU lid (applying too much will actually reduce the cooling).

NOTE: Always check with the manufacturer of the heat sink & processor to ensure that the thermal interface material is compatible with the processor and meets the manufacturer's warranty requirements.

4.5 Tips on Installing Motherboard in Chassis

Before installing your motherboard, make sure your chassis has the necessary motherboard support studs installed. These studs are usually metal and are gold in color. Usually, the chassis manufacturer will pre-install the support studs. If you are unsure of stud placement, simply lay the motherboard inside the chassis and align the screw holes of the motherboard to the studs inside the case. If there are any studs missing, you will know right away since the motherboard will not be able to be securely installed.

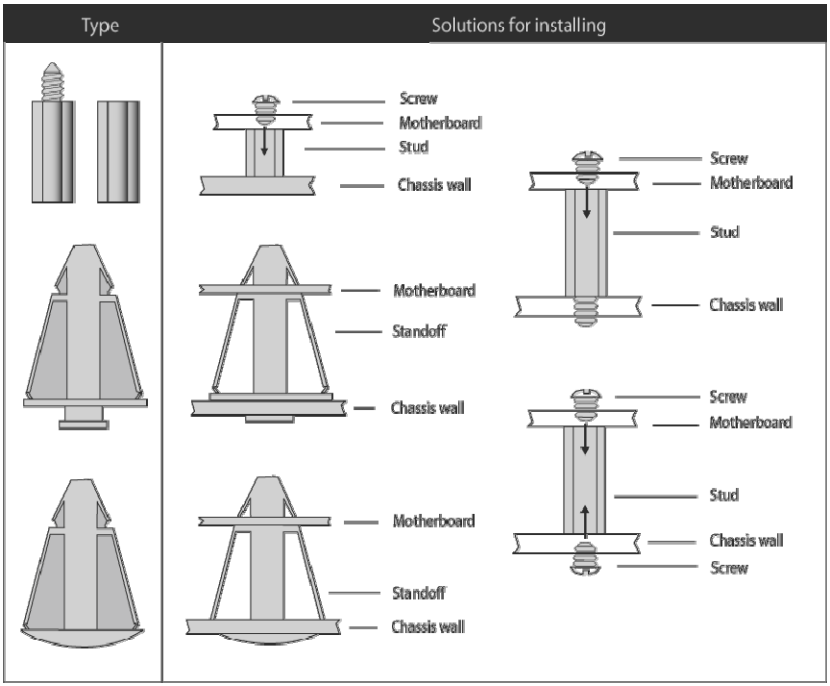


NOTE: Be especially careful to look for extra stand-offs. If there are any stand-offs present that are not aligned with a mounting hole on the motherboard, it will likely short components on the back of the motherboard when installed. This will cause malfunction and/or damage to your motherboard.

Some chassis include plastic studs instead of metal. Although the plastic studs are usable, MiTAC recommends using metal studs with screws that will fasten the motherboard more securely in place.

Below is a chart detailing what the most common motherboard studs look like and how they should be installed.

Mounting the Motherboard



Caution!

1. To avoid damaging the motherboard and associated components, do not use torque force greater than 7kgf/cm (6.09 lb/in) on each mounting screw for motherboard installation.
2. Do not apply power to the board if it has been damaged.

4.6 Installing the Power Supply

The S5538 motherboard requires a proprietary power supply. This product does not follow a standard ATX, ATX12v or EPS12v power connector specification. Only the J40/J41 20-pin connectors are required to properly power the S5538.

J40/J41: 20-Pin Power Connector (Proprietary Design)

Signal	Pin	Pin	Signal
GND	1	11	PS_ON#
GND	2	12	VCC5_SB
GND	3	13	GND
GND	4	14	GND
GND	5	15	GND
NC	6	16	NC
+12V	7	17	+12V
+12V	8	18	+12V
+12V	9	19	+12V
+12V	10	20	+12V

J39: 4-Pin Molex Power Connector (Barebones use only)

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

The 4-pin Molex Power Connector is provided for exclusive use with the TYAN YR292-B5538-X4 barebones solution to provide power for the HDD backplane.

NOTE: YOU MUST unplug the power supply before plugging the power cables to motherboard connectors.

4.7 Finishing Up

Congratulations on making it this far! You have finished setting up the hardware aspect of your computer. Before closing up your chassis, make sure that all cables and wires are connected properly, especially IDE cables and most importantly, jumpers. You may have difficulty powering on your system if the motherboard jumpers are not set correctly.
In the rare circumstance that you have experienced difficulty, you can find help by asking your vendor for assistance. If they are not available for assistance, please find setup information and documentation online at our website or by calling your vendor's support line.

NOTE

Chapter 5: BIOS Setup

5.1 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 <Del> during POST (<Tab> on remote console) to start the BIOS setup utility.

5.2 Setup Basics

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

Key	Function
← → arrow keys	Select Screen
↑ or ↓ arrow keys	Select Item
Enter	Select
+/-	Change Opt.
F1	General help window
F2	Previous Values
F3	Optimized Defaults
F4	Save & Exit
<ESC>	Exit current menu

5.3 Getting Help

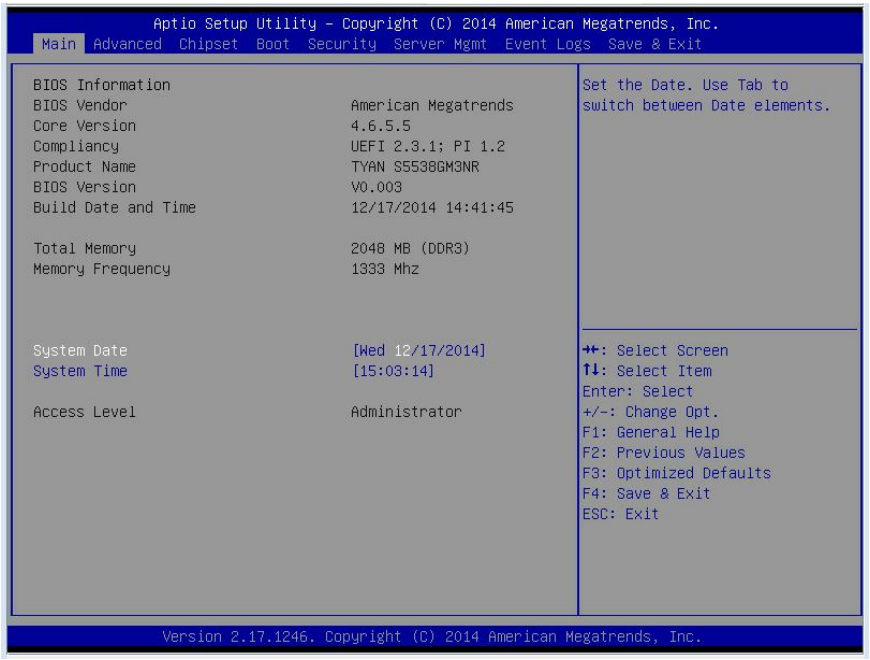
Pressing [F1] will display a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window, press [ESC].

5.4 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.

5.5 BIOS Main Menu



BIOS Information
It displays the BIOS vendor, core version, compliancy, date and time of BIOS build and the version of BIOS.

Memory Information
This displays the amount of system memory present on the system.

System Date
Adjust the system date.
MM (Months): DD (Days): YYYY (Years)

System Time
Adjust the system clock.
HH (24 hours format): MM (Minutes): SS (Seconds)

Access Level
Read only.

5.5.1 Manual Bars

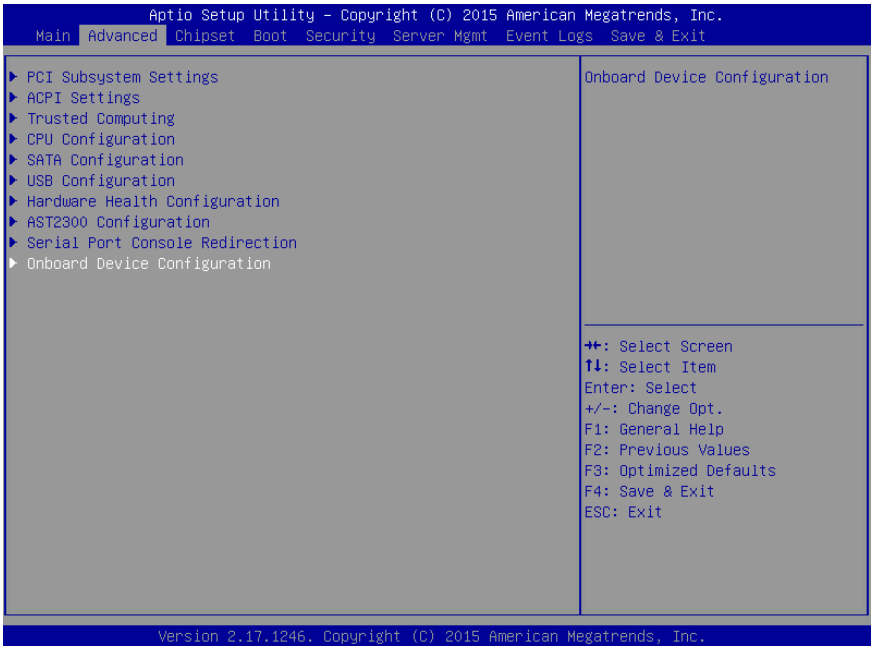
Main	For changing the basic system configuration
Advanced	For changing the advanced system settings
Chipset	For customize the Intel chipset function
Boot	For changing the system boot configuration
Security	For setting the Supervisor and User passwords
Server Mgmt	For changing the server management
Event Logs	For record the system Event Logs
Save & Exit	For selecting the exit options and loading default settings

NOTE:

The Main BIOS Menu is the first screen that you can navigate which 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.

5.6 BIOS Advanced Menu

This section facilitates configuring advanced BIOS options for your system.



PCI Subsystem Settings
PCI, PCI-X and PCI Express Settings.

ACPI Settings
System ACPI Parameters.

Trusted Computing
Trusted Computing Settings.

CPU Configuration
CPU Configuration Parameters.

SATA Configuration
SATA Devices Configuration.

USB Configuration
USB Configuration Parameters.

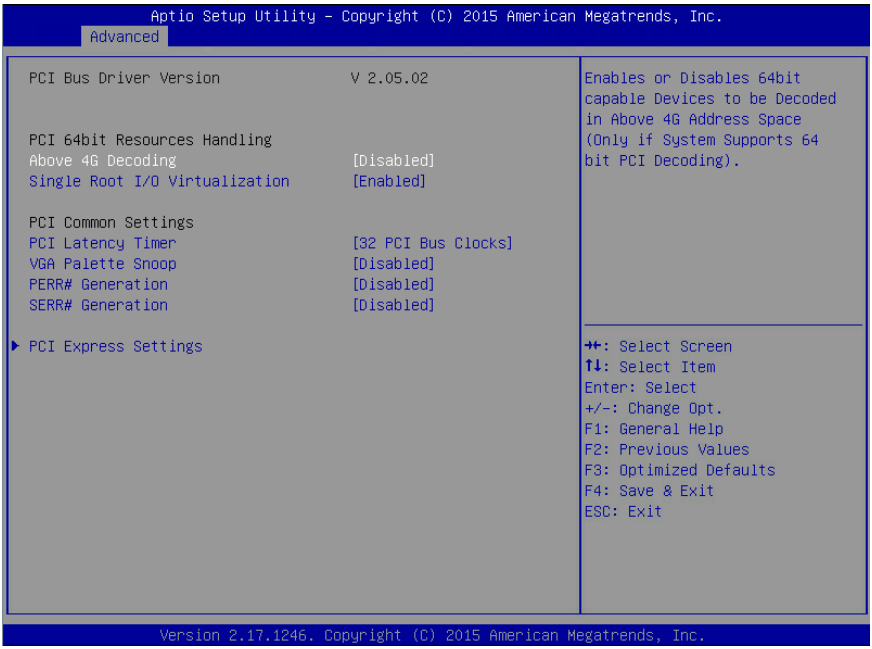
Hardware Health Configuration
Hardware health Configuration Parameters.

AST2300 Configuration
System Super IO Chip Parameters.

Serial Port Console Redirection
Serial Port Console Redirection.

Onboard Device Configuration
Onboard Device Configuration.

5.6.1 PCI Subsystem Settings



Above 4G Decoding
Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).

Disabled / Enabled

Single Root I/O Virtualization
Enable or disable Single Root I/O Virtualization.

Enabled / Disabled

PCI Latency Timer
Value to be programmed into PCI Latency Timer Register.

32 PCI Bus Clocks / 64 PCI Bus Clocks / 96 PCI Bus Clocks / 128 PCI Bus Clocks / 160 PCI Bus Clocks / 192 PCI Bus Clocks / 224 PCI Bus Clocks / 248 PCI Bus Clocks

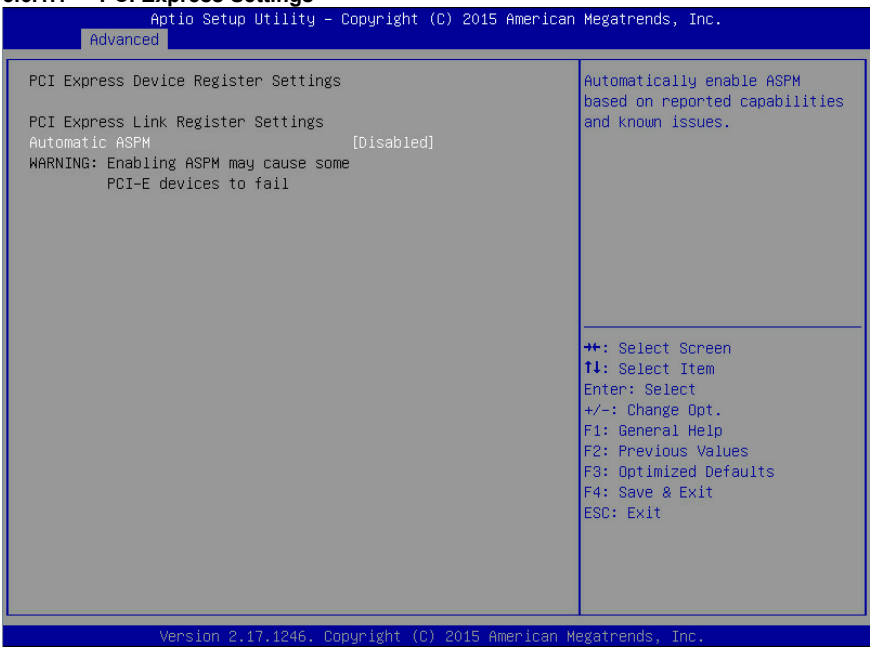
VGA Palette Snoop
Enables or Disables VGA Palette Registers Snooping.

Disabled / Enabled

PERR# Generation
Enables or Disables PCI Device to generate PERR#.
Disabled / Enabled

SERR# Generation
Enables or Disables PCI Device to generate SERR#.
Disabled / Enabled

5.6.1.1 PCI Express Settings

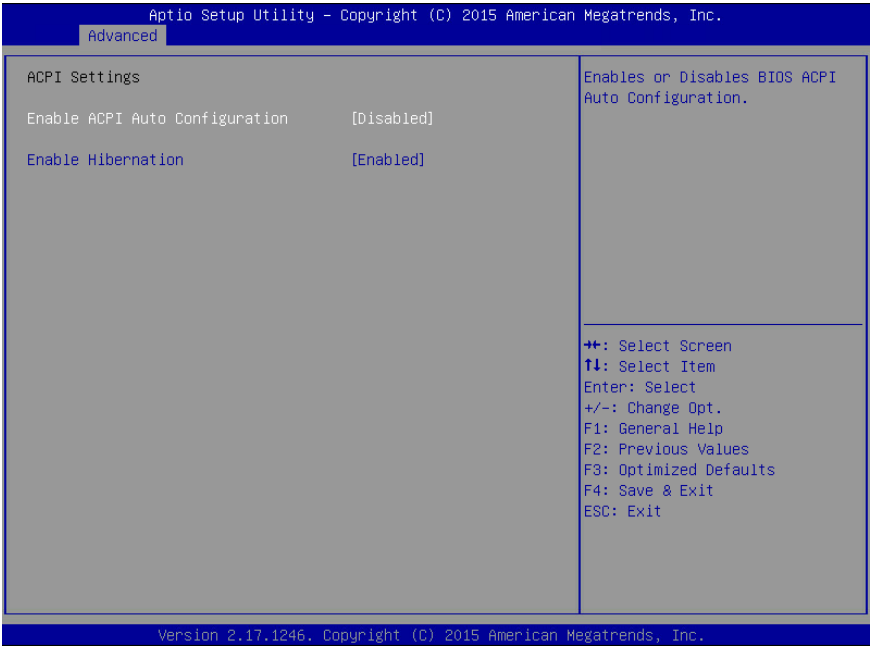


Automatic ASPM

Automatically enable ASPM based on reported capabilities and known issues.

Disabled / AUTO / Force L0s

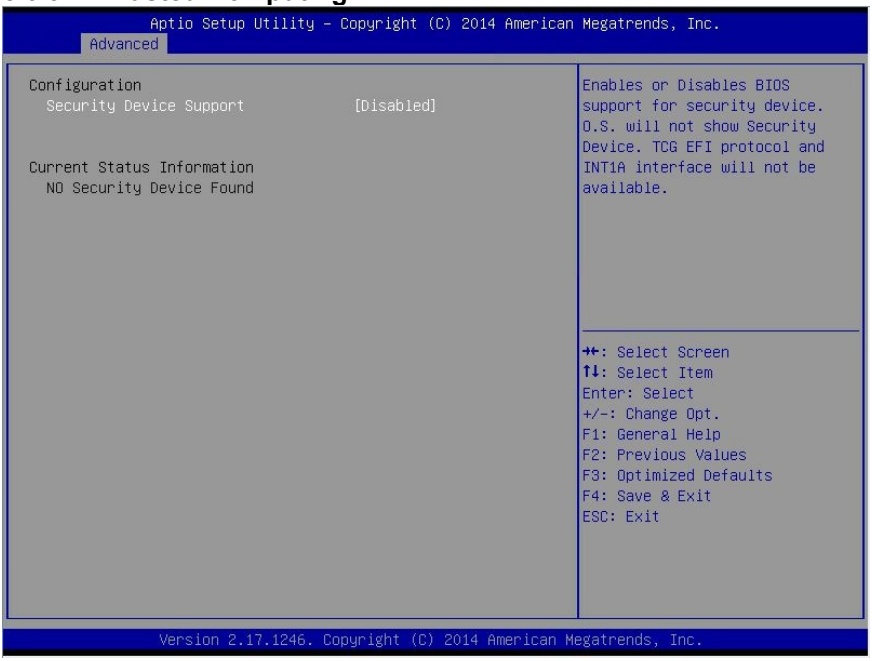
5.6.2 ACPI Setting



Enable ACPI Auto Configuration
Enable or disable ACPI Auto Configuration.
Disabled / Enabled

Enable Hibernation
Enable or disable System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some OS.
Disabled / **Enabled**

5.6.3 Trusted Computing

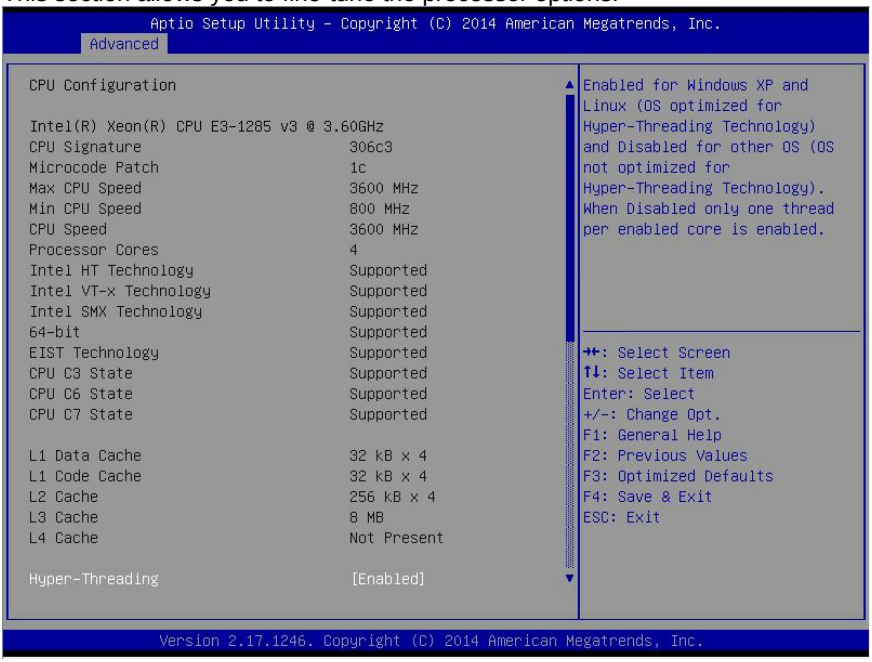


Security Device Support
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INTIA interface will not be available.

Disabled / Enabled

5.6.4 CPU Configuration

This section allows you to fine-tune the processor options.



CPU Configuration
Read only.

Hyper-Threading
Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled only one thread per enabled core is enabled.

Enabled / Disabled

Active Processor Cores
Number of cores to enable in each processor package.

All / 1 / 2 / 3

Limit CPUID Maximum
Disabled for Windows XP.

Disabled / Enabled

Execute Disable Bit
XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, RedHat Enterprise 3 Update 3).
Enabled / Disabled

Intel Virtualization Technology
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. **NOTE:** Once the lock bit is set, the contents of this register can not be modified until S5 reset occurs.
Enabled / Disabled

Hardware Prefetcher
To turn on/off the Mid Level Cache (L2) streamer prefetcher.
Enabled / Disabled

Adjacent Cache Line Prefetch
To turn on/off prefetching of adjacent cache lines.
Enabled / Disabled

Boot Performance Mode
Select the performance state that the BIOS will set before OS handoff.
Turbo Performance / Max Non-Turbo Performance / Max Battery

EIST
Enable/Disable Intel SpeedStep.
Enabled / Disabled

Turbo Mode
Turbo Mode support.
Enabled / Disabled

CPU C States
Enable or disable CPU C states.
Enabled / Disabled

Enhanced C1 State
Enhanced C1 state.
Enabled / Disabled

CPU C3 Report
Enable/Disable CPU C3 Report to OS.
Enabled / Disabled

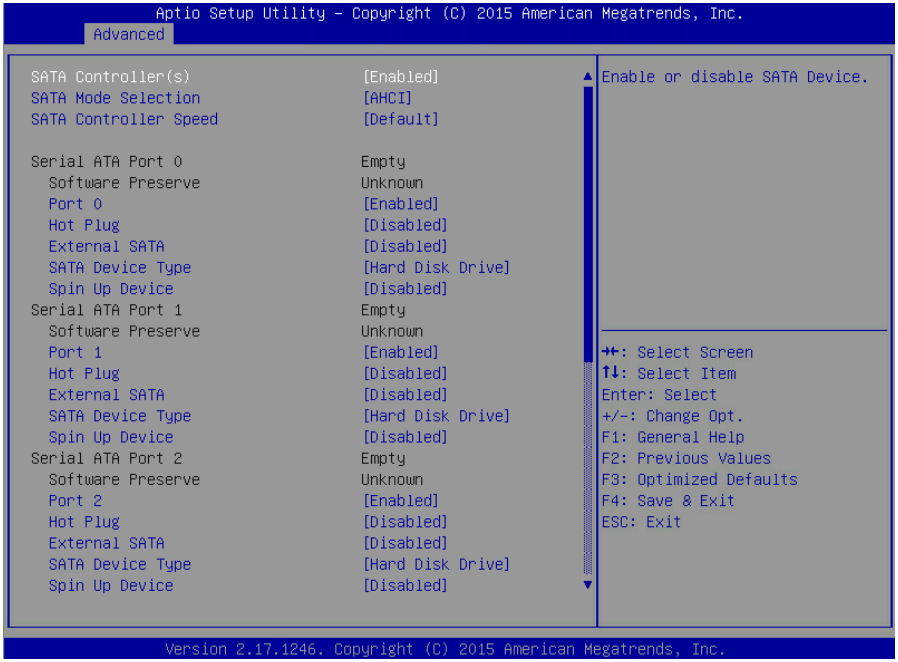
CPU C6 Report
Enable/Disable CPU C6 Report to OS.
Enabled / Disabled

CPU C7 Report
Enable/Disable CPU C7 Report to OS.
CPU C7s / CPU C7 / Disabled

Package C State Limit
Select Package C State Limit.
Auto / C0/C1 / C2 / C3 / C6/ C7 / C7s

Intel TXT(LT) Support
Enable/Disable Intel® TXT(LT) support.
Disabled / Enabled

5.6.5 SATA Configuration



SATA Controller (s)
Enable or disable SATA Device.
Enabled / Disabled

SATA Mode Selection
Determines how SATA controller(s) operate.
IDE / **AHCI** / RAID

SATA Controller Speed
Indicates the maximum speed the SATA controller can support.
Gen1 / Gen2 / **Gen3**

Serial ATA Port 0/1/2/3/4/5
Read only.

Software Preserve
Read only.

Port 0/1/2/3/4/5
Enable or Disable SATA Port
Enabled / Disabled

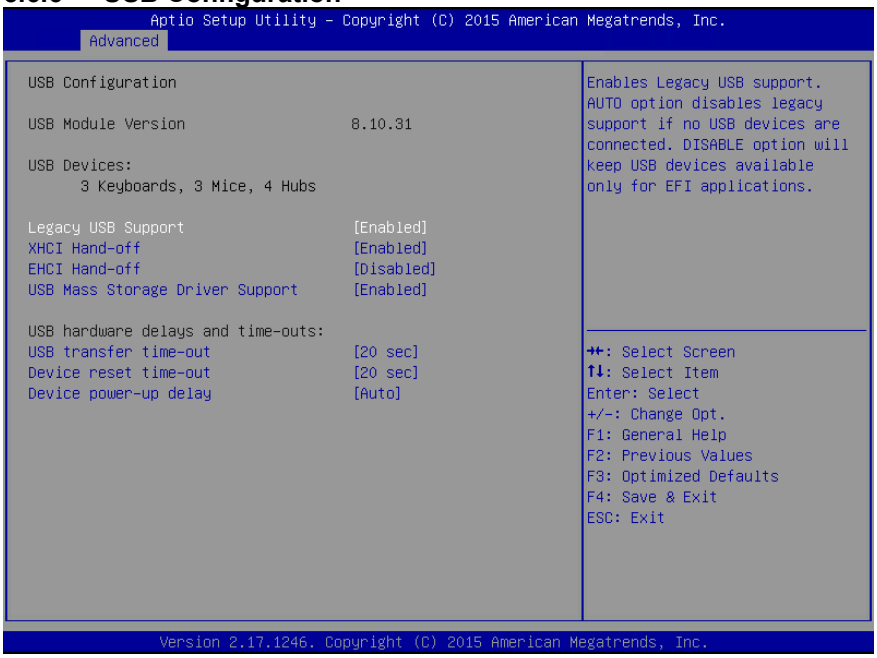
Hot Plug
Designates this port as Hot Pluggable.
Disabled / Enabled

External SATA
eSATA Ports Support.
Disabled / Enabled

SATA Device Type
Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
Hard Disk Driver / Solid State Drive

Spin Up Device
On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.
Disabled / Enabled

5.6.6 USB Configuration



Legacy USB Support
Enable legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.

Enabled / Disabled / Auto

XHCI Hand-off
This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.

Enabled / Disabled

EHCI Hand-off
This is a workaround for OSes without DHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

Enabled / **Disabled**

USB Mass Storage Driver Support
Enable/disable USB Mass Storage Driver Support.

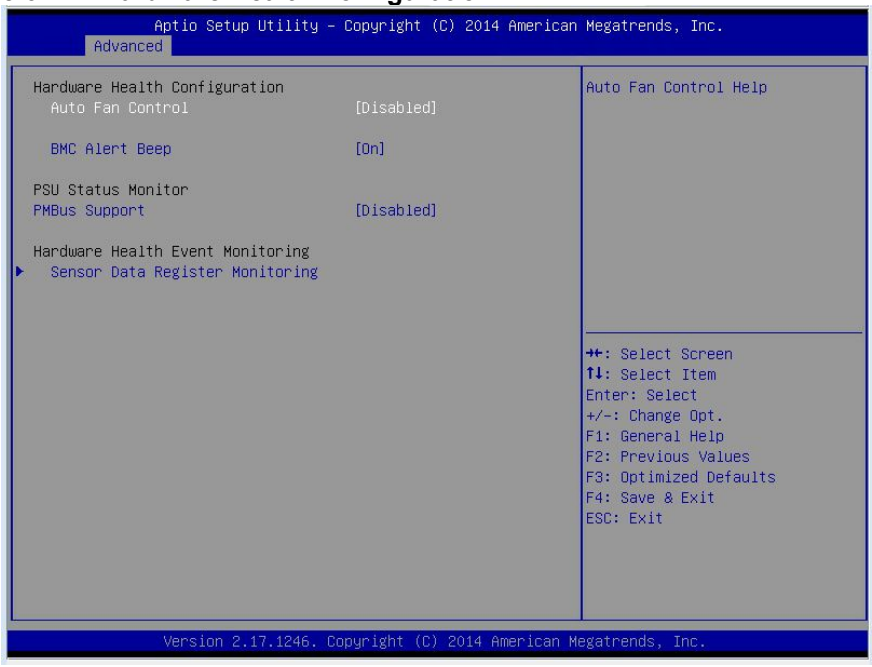
Enabled / Disabled

USB transfer time-out
The time-out value for Control, Bulk and Interrupt transfers.
20 sec / 10 sec / 5 sec / 1 sec

Device reset time-out
USB mass storage device Start Unit command time-out.
20 sec / 10 sec / 30 sec / 40 sec

Device power-up delay
Maximum time the device will take before it properly reports itself to the Host Controller. AUTO uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
Auto / Manual

5.6.7 Hardware Health Configuration



Auto Fan Control
Auto Fan Control Help. Select Disabled means the FAN Speed is running FULL ON.

Enabled / Disabled

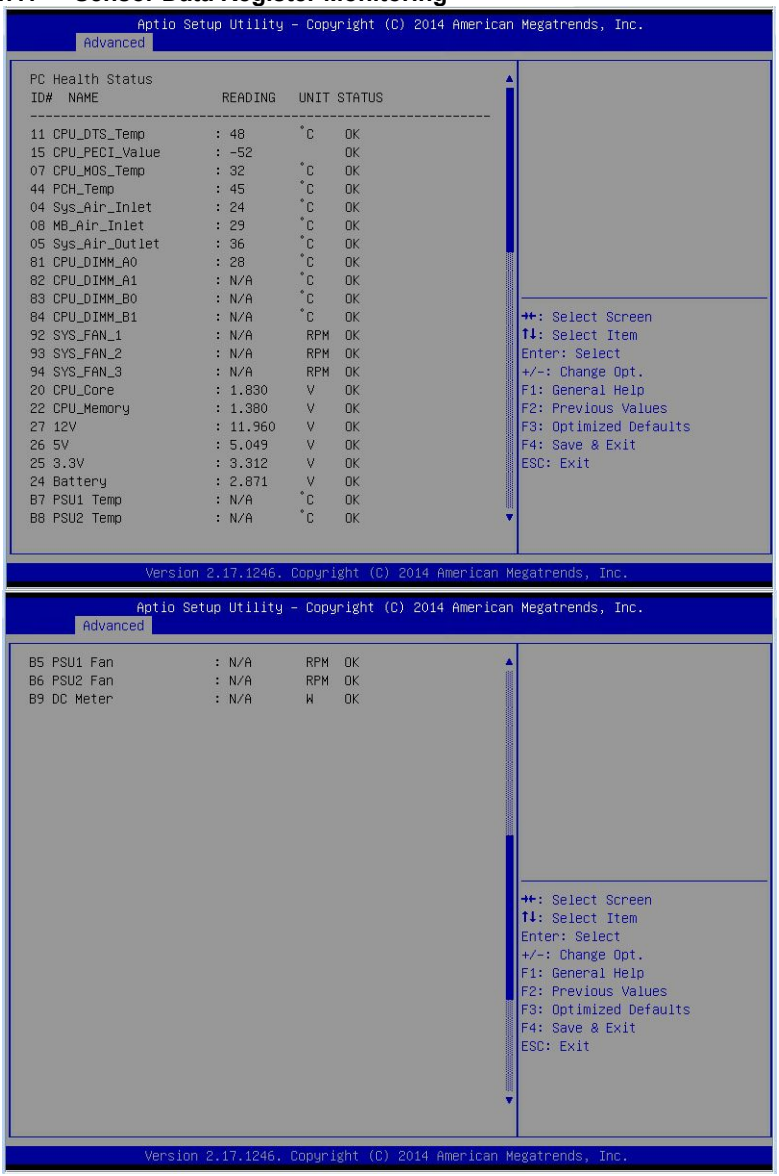
BMC Alert Beep
BMC Alert Beep On/Off.

On / Off

PMBus Support
PMBus Support.

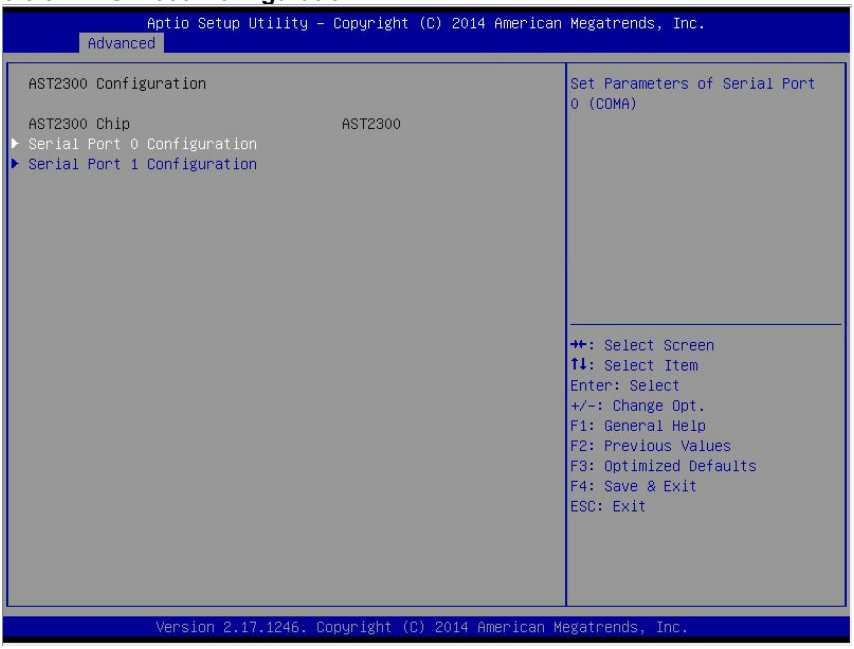
Disabled / Enabled

5.6.7.1 Sensor Data Register Monitoring



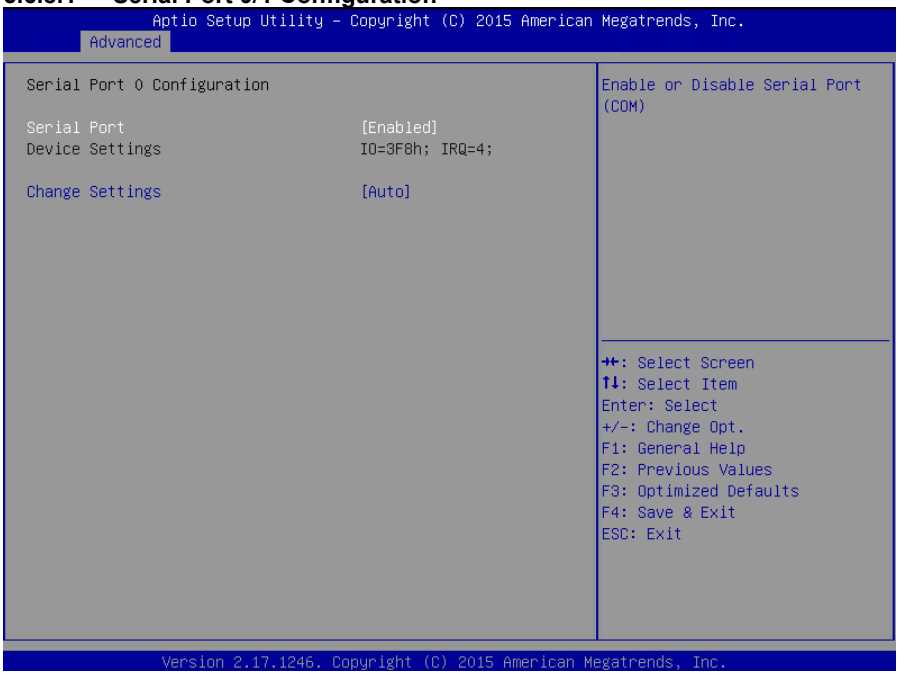
Read only.

5.6.8 AST2300 Configuration



AST2300 Chip
Read only.

5.6.8.1 Serial Port 0/1 Configuration



Serial Port
Enable or disable Serial Port (COM).

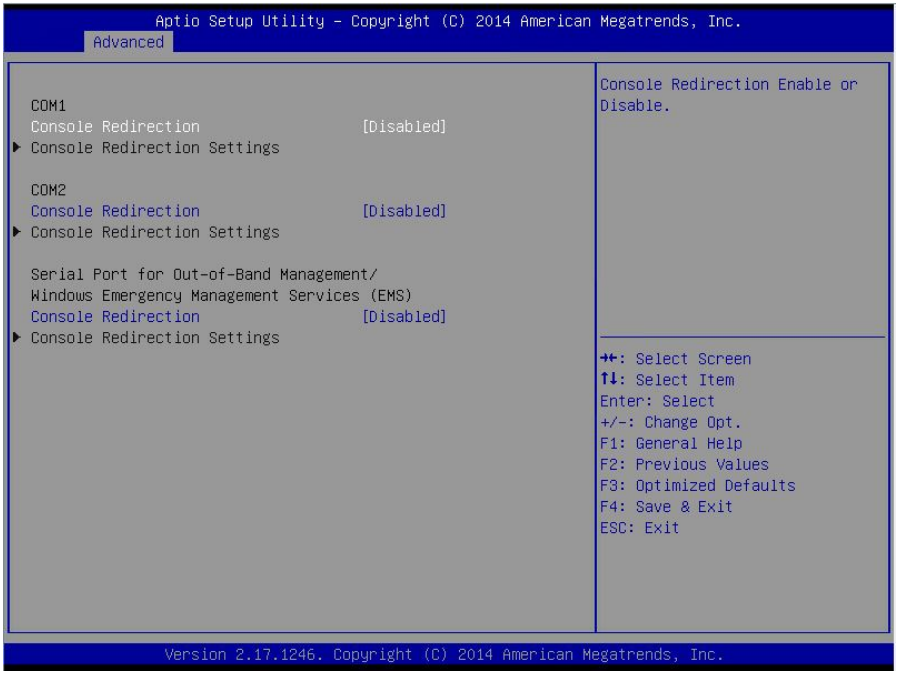
Enabled / Disabled

Device Settings
Read only.

Change Settings
Select an optimal setting for Super IO Device.

Auto /
IO=3F8h; IRQ=4;
IO=3F8h, IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;
IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;
IO=3E8h, IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;
IO=2E8h, IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12;

5.6.9 Serial Port Console Redirection

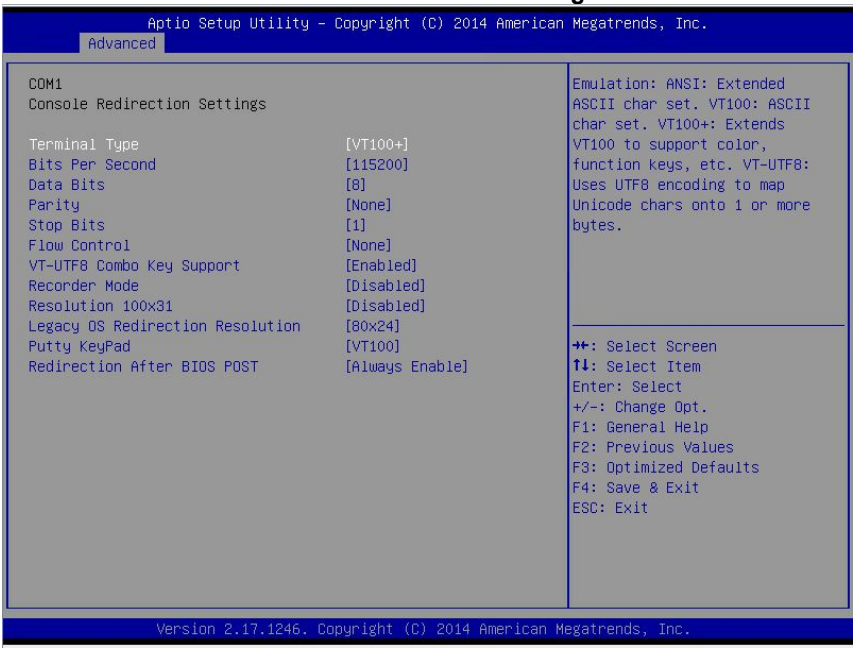


Console Redirection
Console redirection enable or disable.
Disabled / Enabled

Serial Port for Out-Of-Band Management/Windows Emergency Services (EMS) Console Redirection
Console redirection enable or disable.
Disabled / Enabled

Console Redirection Settings
The settings specify how the host computer and the remote computer (which the user is using) will exchange data. Both computers should have the same or compatible settings.

5.6.9.1 COM1/COM2 Console Redirection Settings



Terminal Type
Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.

VT100+ / VT100 / VT-UTF8 / ANSI

Bits per Second
Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

38400 / 9600 / 19200 / 57600 / 115200

Data Bits
Select for Data Bits.

8 / 7

Parity
A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of the 1's in the data bits is even. Odd: parity bit is 0 if the num of the 1's in the data bits is odd. Mark: parity bit is always 1. Space: parity bit is always 0. Mark and Space parity do not allow for error detection.

None / Even / Odd / Mark / Space

Stop Bits
Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stop bit.

1 / 2

Flow Control
Flow Control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to restart the flow. Hardware flow control uses two wires to send start/stop signal.

None / Hardware RTS / CTS

Recorded Mode
With this mode enabled only text will be sent. This is to capture Terminal data.

Disabled / Enabled

Resolution 100x31
Enables or disables extended terminal resolution.

Enabled / Disabled

Legacy OS Redirection Resolution
On Legacy OS, the Number of Rows and Columns supported redirection..

80x24 / 80x25

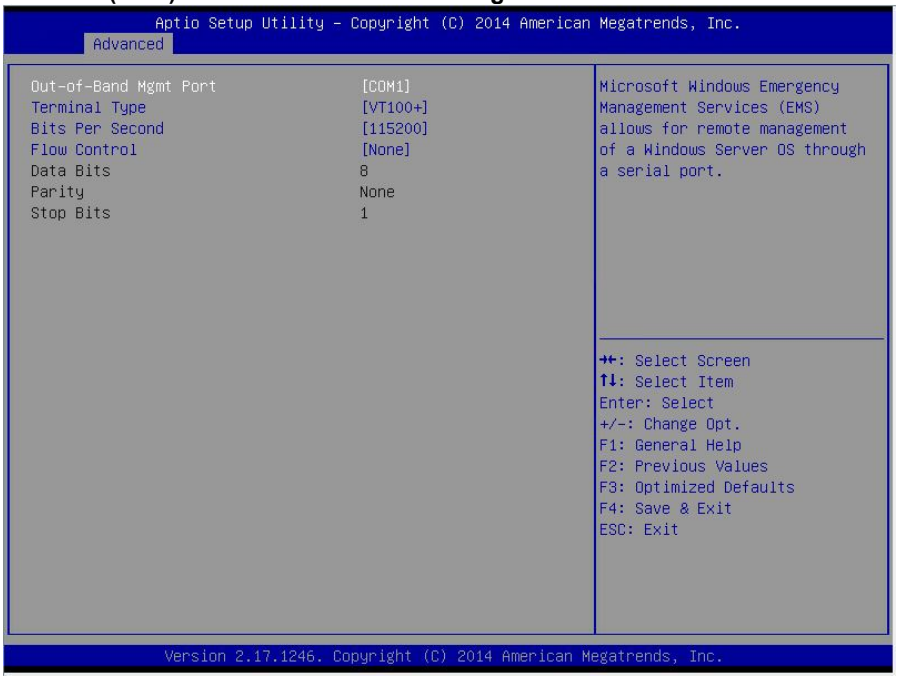
Putty KeyPad
Select FunctionKey and KeyPad on Putty.

VT100 / LINUX / XTERMR6 / SCO / ESCN / VT400

Redirection after BIOS POST
The settings specify if BootLoader is selected than Legacy console redirection is disabled before booting to Legacy OS. Default value is Always Enable which means Legacy Console Redirection is enabled for Legacy OS.

Always Enable / BootLoader

5.6.9.2 Serial Port for Out-Of-Band Management/Windows Emergency Services (EMS) Console Redirection Settings



Out-of Band Mgmt Port

Microsoft Windows Emergency Management Services (EMS) allows for remote management of a Windows Server OS through a serial port.

COM1 / COM2

Terminal Type

VT-UTF8 is the preferred terminal type for out-of-band management. The next best choice is VT100+ and then VT100. See above, in Console Redirection Settings page, for more Help with Terminal Type/Emulation.

VT-UTF8 **/** VT100 / **VT100+** / ANSI

Bits per Second

Select serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.

115200 / 9600 / 19200 / 38400 / 57600

Flow Control

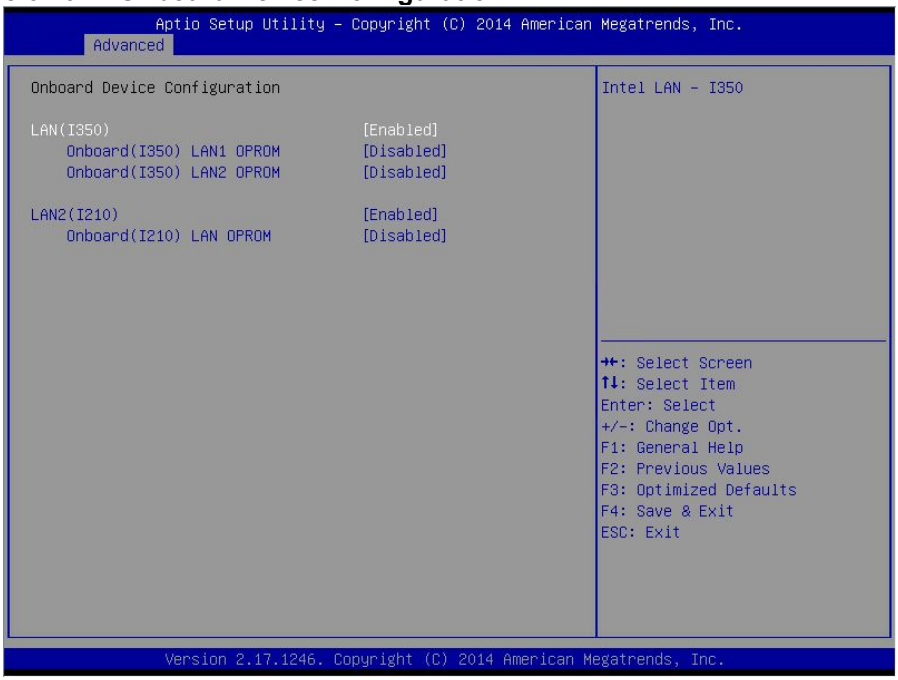
Flow Control can prevent data loss from buffer overflow. When sending data, if the receiving buffers are full, a 'stop' signal can be sent to stop the data flow. Once the buffers are empty, a 'start' signal can be sent to restart the flow. Hardware flow control uses two wires to send start/stop signal.

None / Hardware RTS/CTS

Data Bits / Parity / Stop Bits

Read only.

5.6.10 Onboard Device Configuration



LAN (I350)
Intel LAN - I350.
Enabled / Disabled

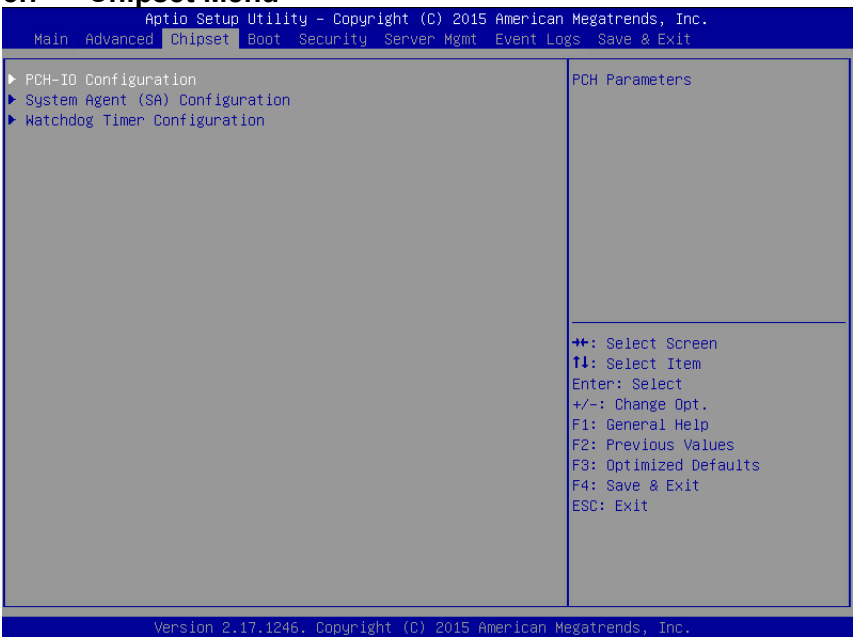
Onboard (I350) LAN1 OPROM
Intel LAN OPROM – I350.
Disabled / PXE / iSCSI

Onboard (I350) LAN2 OPROM
Intel LAN OPROM – I350.
Disabled / PXE

LAN2 (I210)
Intel LAN – I210.
Enabled / Disabled

Onboard (I210) LAN OPROM
Intel LAN OPROM – I210.
Disabled / PXE

5.7 Chipset Menu

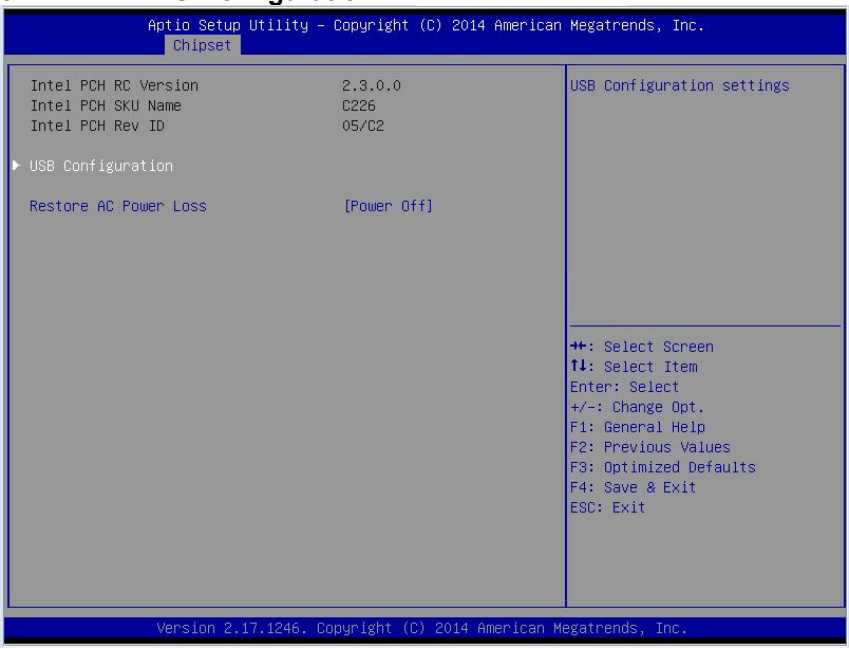


PCH-IO Configuration
PCH Parameters.

System Agent (SA) Configuration
System Agent (SA) Parameters.

WatchDog Timer Configuration.

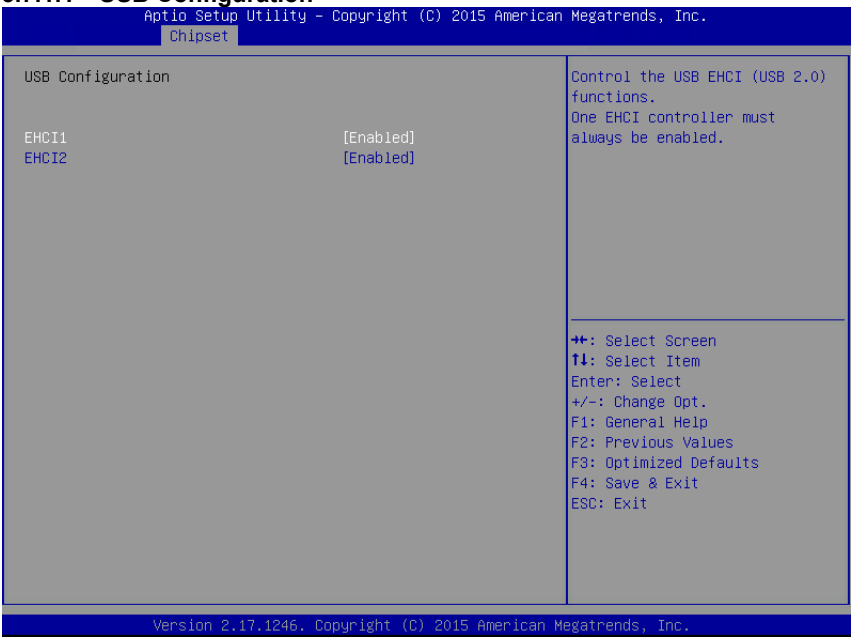
5.7.1 PCH-IO Configuration



Restore AC Power Loss
Specify what state to go to when power is re-applied after a power failure (G3 state).

Power Off / Power On / Last State

5.7.1.1 USB Configuration



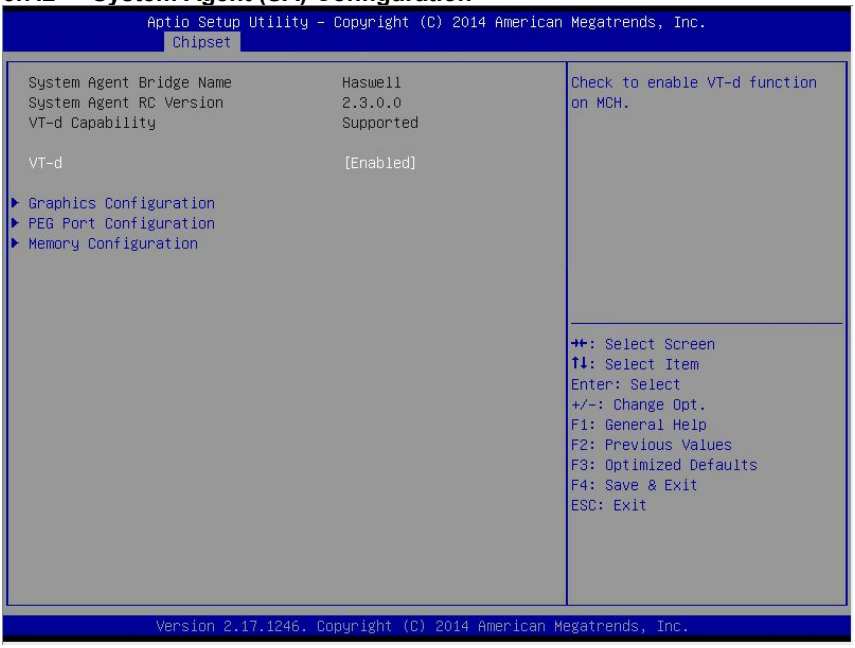
EHCI1
Control the USB EHCI (USB2.0) functions. One EHCI controller must always be enabled.

Enabled / Disabled

EHCI2
Control the USB EHCI (USB2.0) functions. One EHCI controller must always be enabled.

Enabled / Disabled

5.7.2 System Agent (SA) Configuration



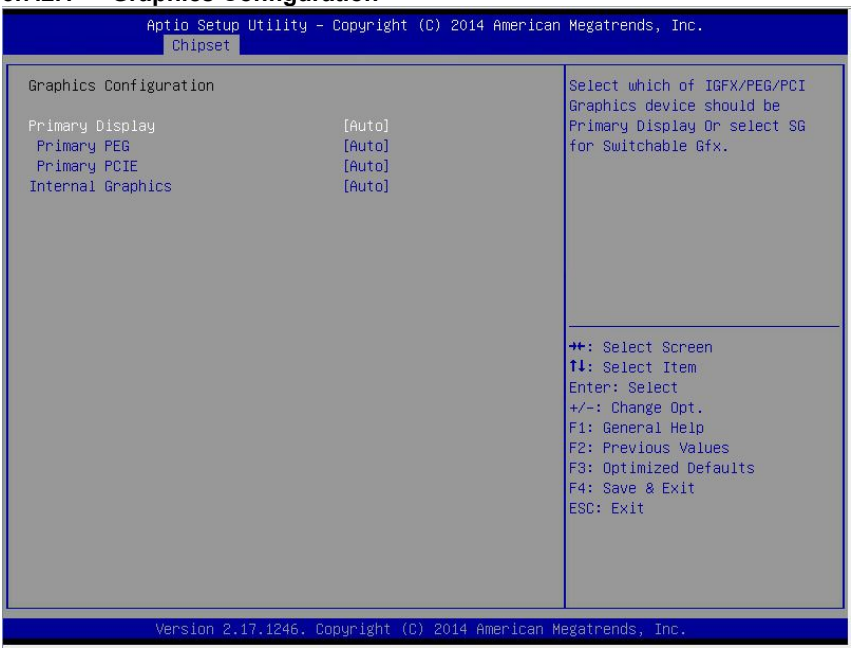
VT-d
Check to enable VT-d function on MCH.
Enabled / Disabled

Graphics Configuration
Config Graphics Settings.

PEG Port Configuration
Configure NB PCI Express Settings.

Memory Configuration
Memory Configuration Parameters.

5.7.2.1 Graphics Configuration



Primary Display
Select which of IGFX/PEG/PCI Graphics device should be Primary display Or select SG for Switchable Gfx.

Auto / IGFX / PEG / PCIE

Primary PEG
Select PEG0/PEG1/PEG2/PEG3 Graphics device should be Primary PEG.

Auto / PEG11 / PEG12

Primary PCIE
Select PCIE0/PCIE1/PCIE2/PCIE3/PCIE4/PCIE5/PCIE6/PCI7 Graphics device should be Primary PCIE.

Auto / PCIE1 / PCIE2 / PCIE3 / PCIE4 / PCIE5 / PCIE6 / PCIE7

Internal Graphics
Keep IGD enabled based on the setup options.

Auto / Disabled / Enabled

5.7.2.2 PEG Port Configuration

PEG0 – Gen X
Configure PEG0 B0:D1:F0 Gen1-Gen3
Auto / Gen1 / Gen2 / Gen3

PEG1 – Gen X
Configure PEG1 B0:D1:F1 Gen1-Gen3.
Auto / Gen1 / Gen2 / Gen3

PEG2 – Gen X
Configure PEG2 B0:D1:F2 Gen1-Gen3.
Auto / Gen1 / Gen2 / Gen3

PEG0 - ASPM
Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.
Disabled / **Auto** / ASPM L0s / ASPM L1 / ASPM L0sL1

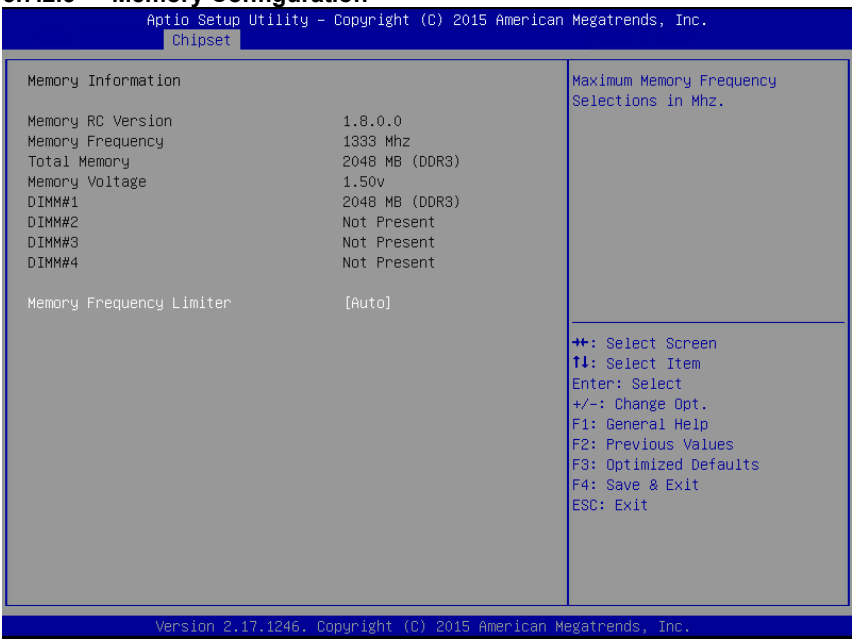
PEG1 - ASPM
Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Disabled / **Auto** / ASPM L0s / ASPM L1 / ASPM L0sL1

PEG2 - ASPM
Control ASPM support for the PEG Device. This has no effect if PEG is not the currently active device.

Disabled / **Auto** / ASPM L0s / ASPM L1 / ASPM L0sL1

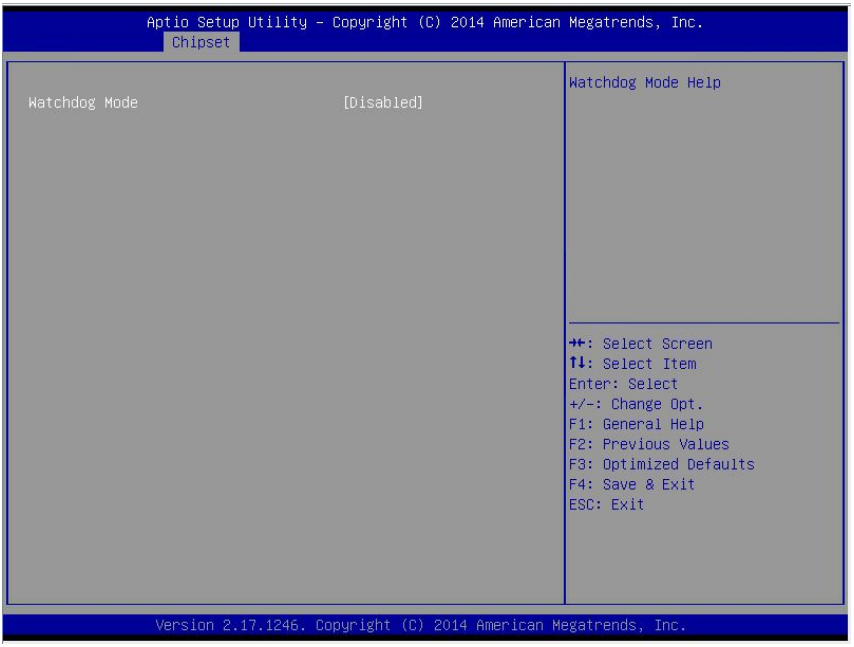
5.7.2.3 Memory Configuration



Memory Information
Read only.

Memory Frequency Limiter
Maximum Memory Frequency Selections in Mhz.
Auto / 1333 / 1600

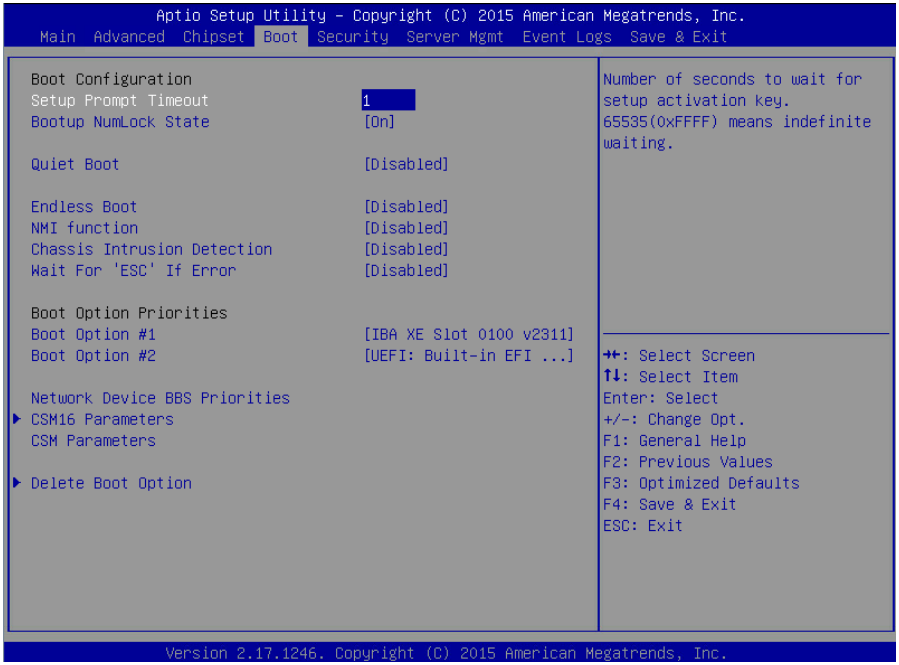
5.7.3 WatchDog Timer Configuration



Watch Dog Mode
Watch Dog Mode Help.
Disabled / POST / OS / PowerON
NOTE: When **Watch Dog Mode** is set to [Disabled], the following item will not appear.

Watch Dog Timer
Watch Dog Timer Help.
2 MINS / 4 MINS / 6 MINS / 8 MINS / 10 MINS

5.8 Boot Configuration



Setup Prompt Timeout
Number of seconds to wait for setup activation key. 65535 (0xFFFF) means indefinite waiting.

Bootup NumLock State
Select the keyboard NumLock state.
On / Off

Quiet Boot
Enable or disable Quiet Boot option.
Disabled / Enabled

Endless Boot
Enable or disable Endless Boot.
Disabled / Enabled

NMI Function
Enabled: When a NMI function supported.
Enabled / Disabled

Chassis Intrusion Detection
Enabled: When a chassis open event is detected, the BIOS will display the event.
Disabled / Enabled

Wait for 'ESC' If Error
Wait for 'ESC' key to be pressed if error occurs.
Enabled / Disabled

Boot Option #1
Set the system boot order.
Device Name / Disabled

Boot Option #2
Set the system boot order.
Device Name / Disabled

5.8.1 CSM16 Parameters

GateA20 Active
Upon Request: GA20 can be disabled using BIOS services.
Always: do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Upon Request / Always

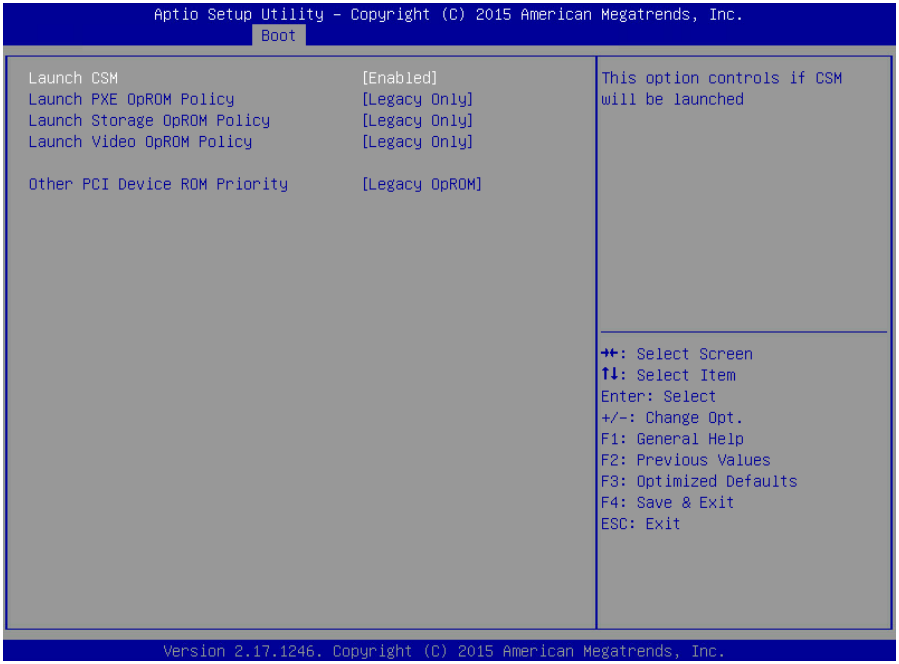
Option ROM Messages
Set display mode for Option ROM.

Force BIOS / Keep Current

INT19 Trap Response
BIOS reaction on INT19 trapping by Option ROM:
Immediate --- execute the trap right away; Postponed --- execute the trap during the legacy boot.

Immediate / Postponed

5.8.2 CSM Parameters



Launch CSM
This option controls if CSM will be launched.
Enabled / Disabled

Launch PXE OpROM policy
Control the execution of UEFI and Legacy PXE OpROM.
Do not Launch / UEFI only / **Legacy only**

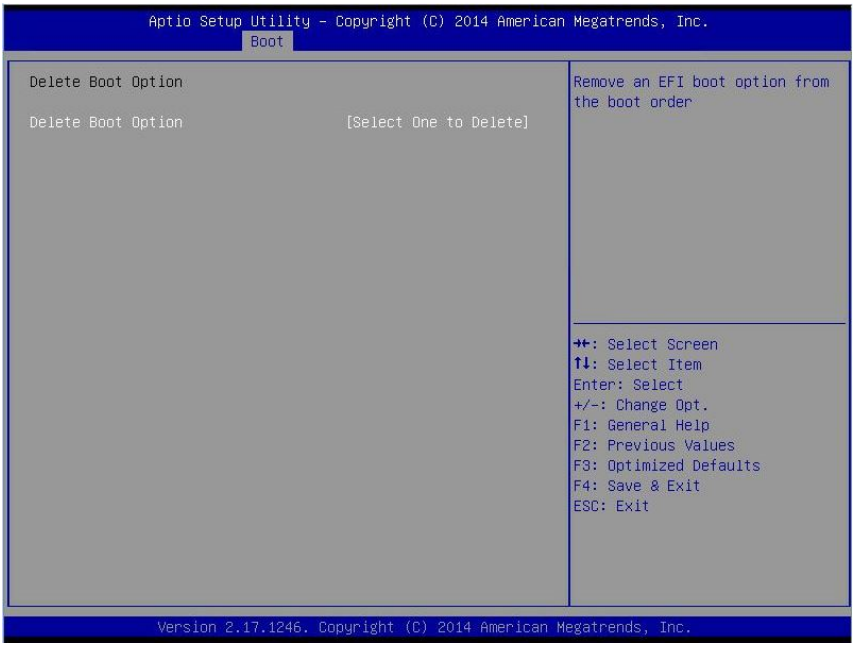
Launch Storage OpROM policy
Control the execution of UEFI and Legacy Storage OpROM.
Do not Launch / UEFI only / **Legacy only**

Launch Video OpROM policy
Control the execution of UEFI and Legacy Video OpROM.
Do not Launch / UEFI only / **Legacy only**

Other PCI device ROM priority
For PCI devices other than Network, Mass storage or Video defines which OpROM to launch.

UEFI OpROM / **Legacy OpROM**

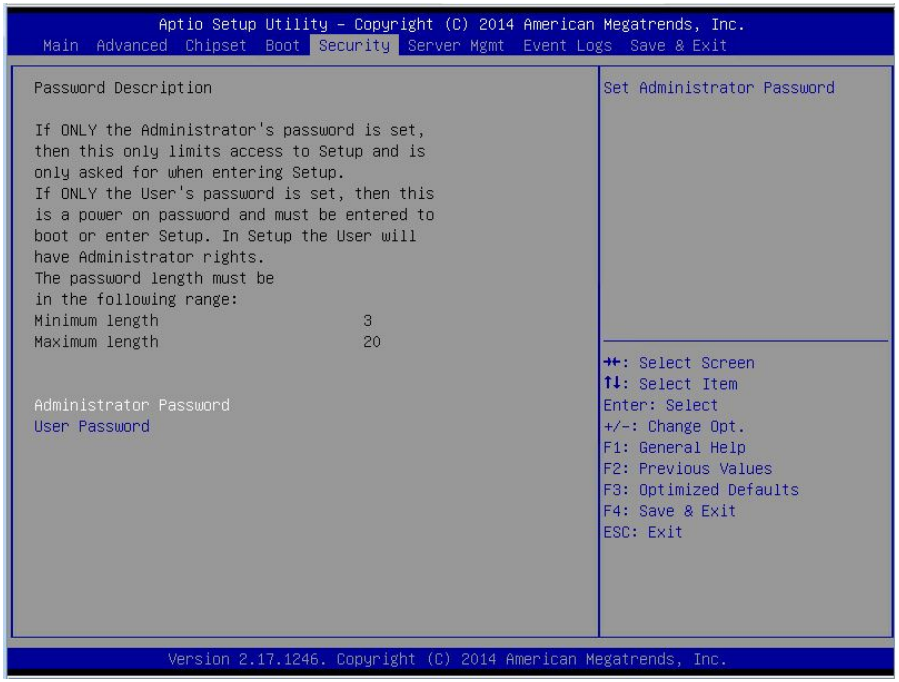
5.8.3 Delete Boot Option



Delete Boot Option
Remove an EFI boot option from the boot order.

Select one to Delete / Device Name

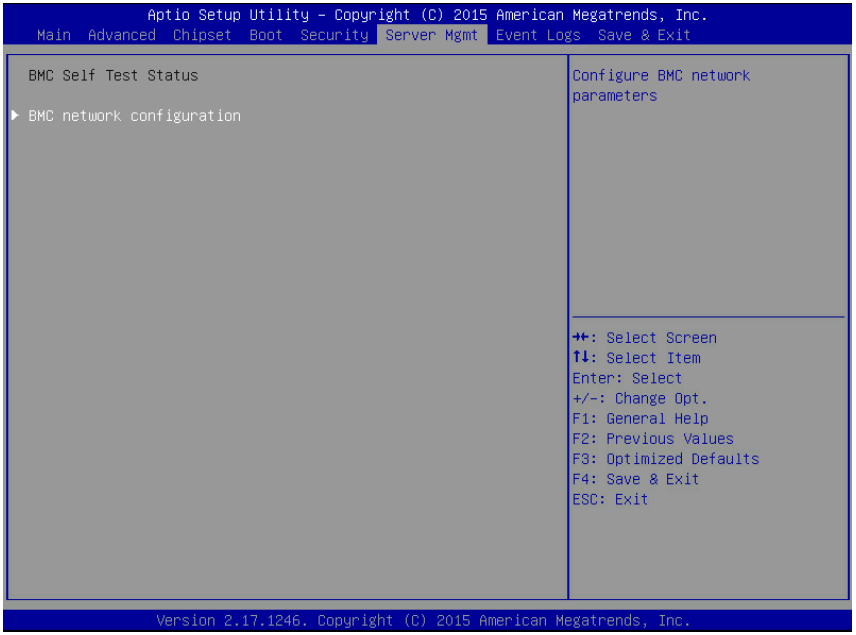
5.9 Security Menu



Administrator Password
Set administrator password in the ***Create New Password*** window. After you key in the password, the ***Confirm New Password*** window will pop out to ask for confirmation.

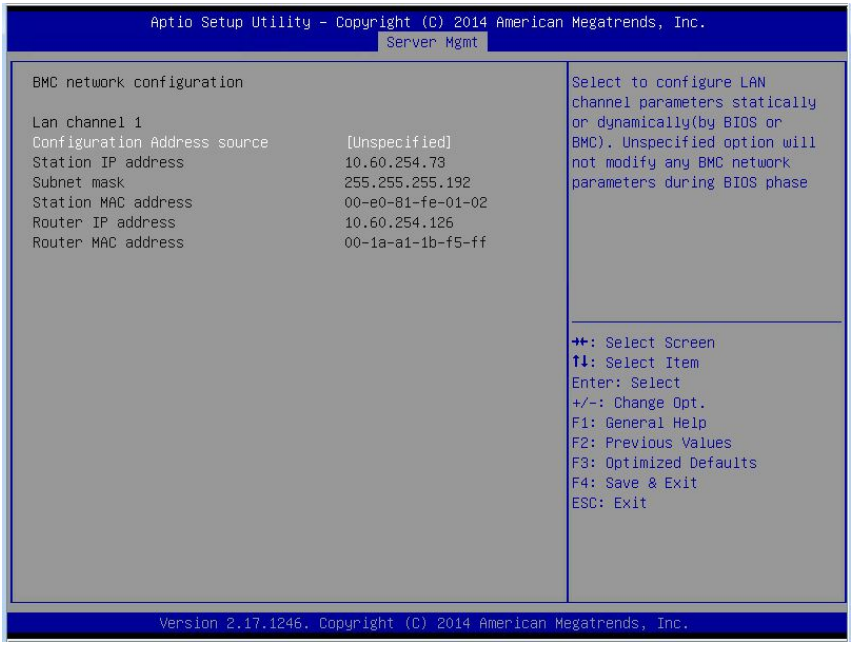
User Password
Set user password in the ***Create New Password*** window. After you key in the password, the ***Confirm New Password*** window will pop out to ask for confirmation.

5.10 Server Mgmt Menu



BMC Network Configuration
Configure BMC network parameters.

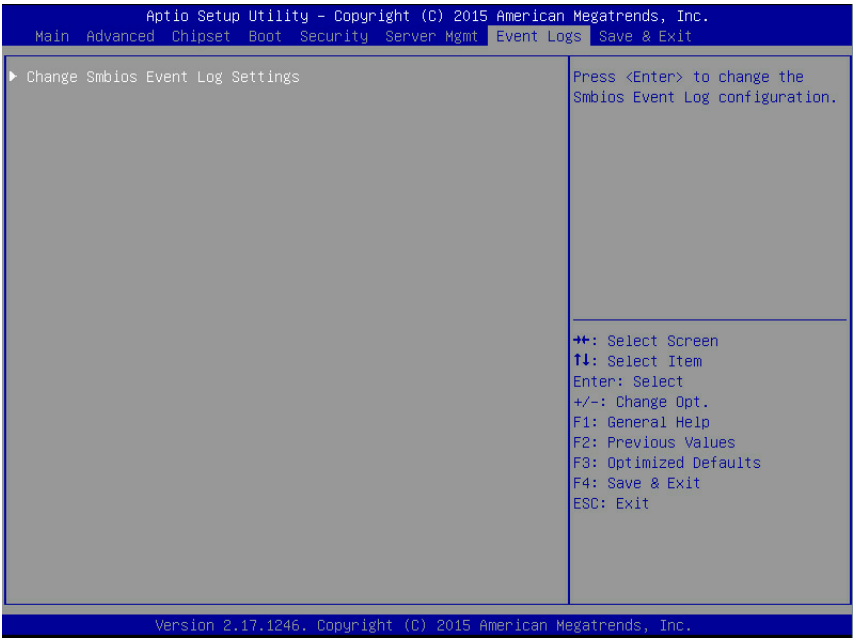
5.10.1 BMC Network Configuration



Configuration Address source
Select to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

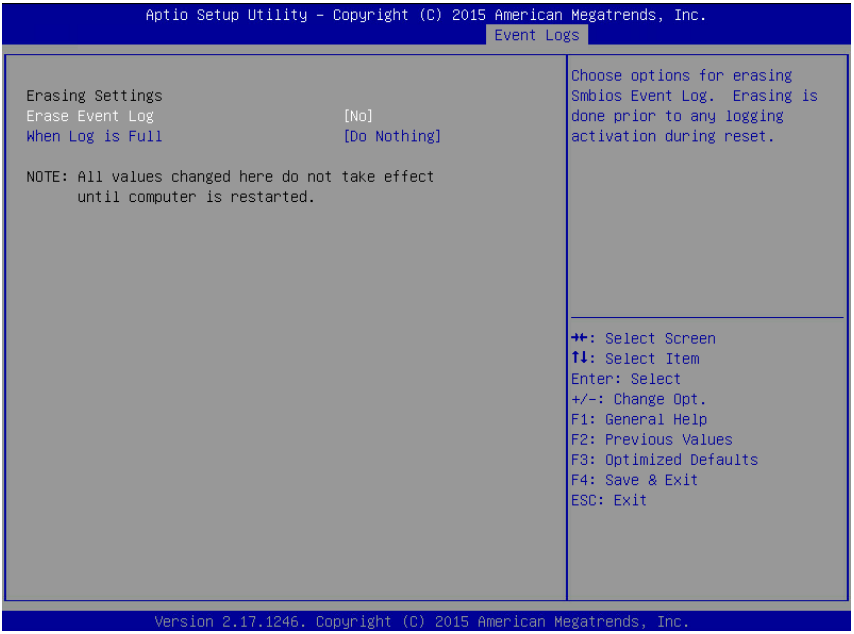
Unspecified / Static / Dynamic-Obtained by BMC

5.11 Event Logs Menu



Change Smbios Event Log Settings
Press <Enter> to change the Smbios Event Log configuration.

5.11.1 Change Smbios Event Log Settings



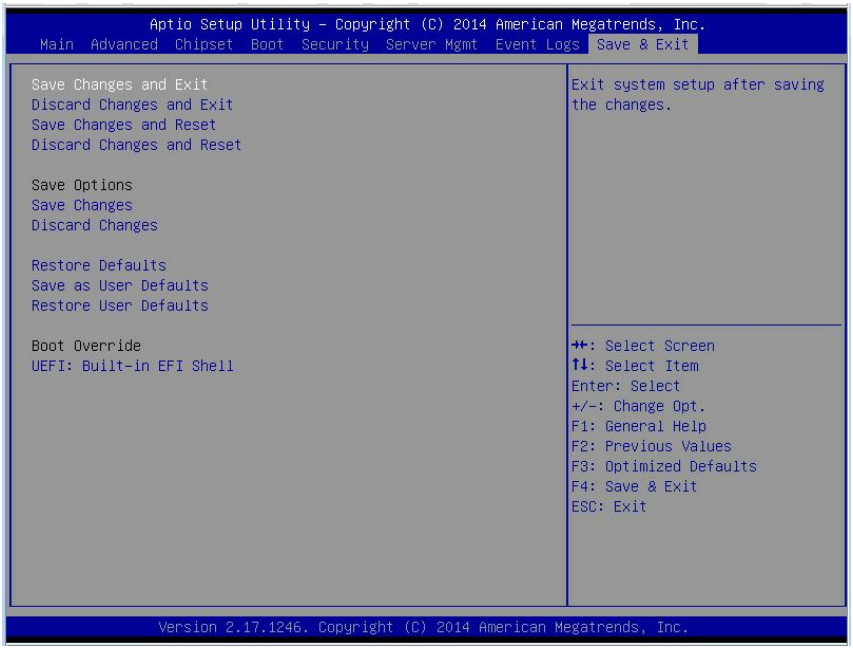
Erase Event Log
Choose options for erasing Smbios Event Log. Erasing is done prior to any logging activation during reset.

No/ Yes, Next reset / Yes, Every reset

When Log is Full
Choose options for reactions to a full Smbios Event Log.

Do Nothing / Erase Immediately

5.12 Save & Exit Menu



Save Changes and Exit
Exit system setup after saving the changes.

Discard Changes and Exit
Exit system setup without saving any changes.

Save Changes and Reset
Reset the system after saving the changes.

Discard Changes and Reset
Reset system setup without saving any changes.

Save Options
Read only.

Save Changes
Save changes done so far to any of the setup options.

Discard Changes
Discard changes done so far to any of the setup options.

Restore Defaults
Restore/Load Default values for all the setup options.

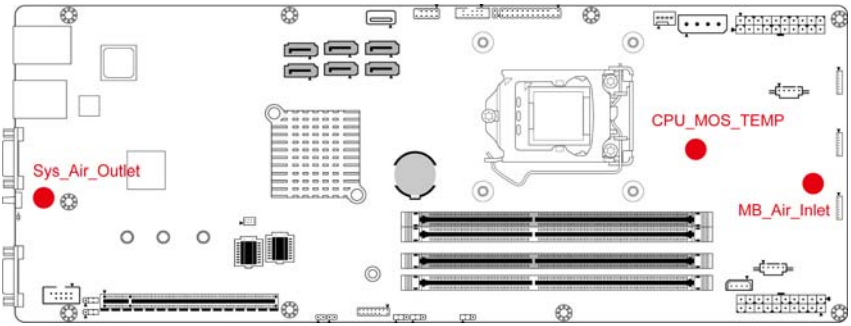
Save as User Defaults
Save the changes done so far as User Defaults.

Restore User Defaults
Restore the User Defaults to all the setup options.

Boot Override
Read only.

Appendix I: Fan and Temp Sensors

This section aims to help readers identify the locations of some specific FAN and Temp Sensors on the motherboard. A table of BIOS Temp sensor name explanation is also included for readers' reference.

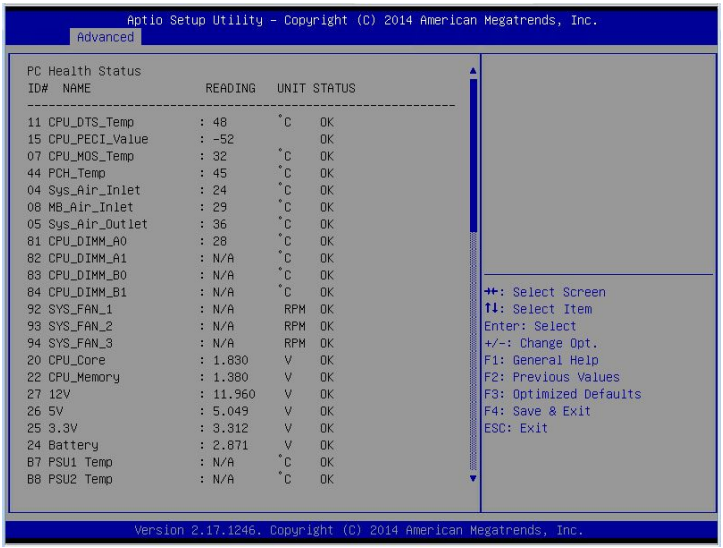


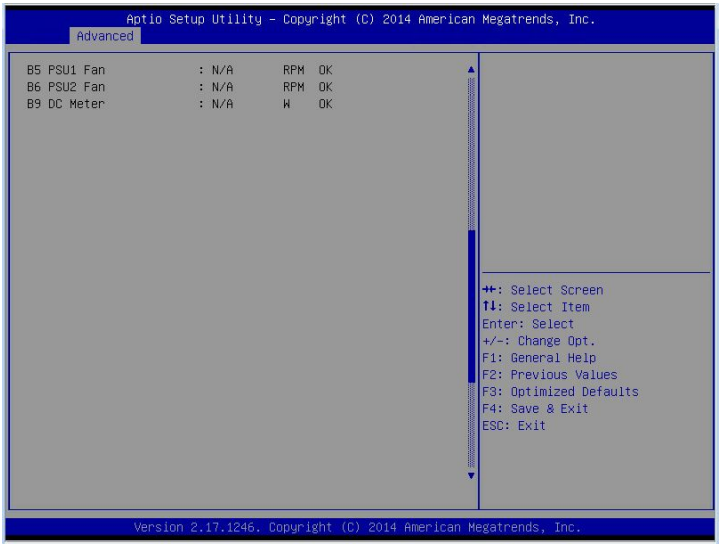
NOTE: The red dots indicate the sensors.

Fan and Temp Sensor Location:

1. Fan Sensor: It is located in the third pin of the fan connector, which detects the fan speed (rpm)
2. Temp Sensor: Sys_Air_Outlet, MB_Air_Inlet and CPU_MOS_TEMP. They detect the system temperature around.
   NOTE: The system temperature is measured in a scale defined by **Intel**, not in Fahrenheit or Celsius.

BIOS Temp Sensor Name Explanation:





BIOS Temp Sensor	Name Explanation
CPU DTS Temp	Temperature of the CPU Digital Temperature Sensor
CPU_PECI_Value	Temperature of the CPU Platform Environment Control Interface
CPU_MOS_TEMP	Temperature of the CPU MOSFET Area
PCH_Temp	Temperature of PCH
Sys_Air_Outlet	Temperature of the Sys_Air_Outlet Area
MB_Air_Inlet	Temperature of the M/B Air Inlet Area
NOTE: If the DIMM slot is not populated, the temp sensor will read “N/A”.	
CPU_DIMM_A0	Temperature of DIMM A0 Slot
CPU_DIMM_A1	Temperature of DIMM A1 Slot
CPU_DIMM_B0	Temperature of DIMM B0 Slot
CPU_DIMM_B1	Temperature of DIMM B1 Slot
PSU1 Temp	Temperature of PSU1
PSU2 Temp	Temperature of PSU2
BIOS FAN Sensor	**Name Explanation**
SYS_FAN_1	Fan speed of SYS_FAN1
SYS_FAN_2	Fan speed of SYS_FAN2
SYS_FAN_3	Fan speed of SYS_FAN3
PSU1 Fan	Fan speed of PSU1
PSU2 Fan	Fan speed of PSU2

NOTE

Appendix II: Cable Connection Tables

1. System Fan Connector

System Fan to S5538 MB		
System Fan	**Connect to**	**S5538 MB**
Fan1	→	J49
Fan2	→	J50
Fan3	→	J51

2. SATA Cable

SATA/SAS Backplane (BP) Board to S5538 MB			
	SATA/SAS BP Board	**Connect to**	**S5538 MB**
SATA Cable	J5 (SATA0)	→	J24
	J6 (SATA1)	→	J23
	J7 (SATA2)	→	J20
	J9 (SATA3)	→	J19

3. B4P PWR and SGPIO Cable

SATA/SAS BP Board to S5538 MB			
	SATA/SAS BP Board	**Connect to**	**S5538MB**
B4P Cable	PW1	→	J39
SGPIO Cable	J10	→	J30

4. FP Ctrl and USB Cable

Front Panel Board (FPB) to S5538 MB			
	FPB	**Connect to**	**S5538 MB**
Control Cable	J1	→	J33
USB Cable	J3	→	J27

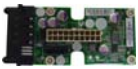
5. 2X10P PWR & PSMI Cable

PDB Board to S5538 MB			
	PDB Board	**Connect to**	**S5538 MB**
2X10P PWR Cable	PW1	→	Right blade J48 Left blade J41
PSMI Cable	J3	→	Right blade J44 Left blade J45

6. 2X12P PWR & SGPIO Cable

M1501-PBP1 to M1501-PBP2			
	M1501-PBP1	**Connect to**	**M1501-PBP2**
2X12P PWR Cable	PW1	→	PW1
SGPIO Cable	J1	→	J5

Appendix III: FRU Parts Table

YR292-B5538-X4 FRU Parts				
Item	**Model Number**	**Part Number**	**Picture**	**Description**
PCBA	M7018-R16-1L	411786900021		FRU-TF-RISER BD;SBU, B7008Y292X4-TCT, M7018-R16-1L RISER FOR YR292-B7008X4
PSU Cage Assembly	CPSU-0600	PSU Module: 340T41800004 PBP1: 411799100001 PBP2: 411799100007 SGPIO Cable: 422796000007 PSU cable: 332820000011		FRU-TF-PSU cage; SBU, YR292-B5538-X4-080V4HR, YR292-B5518X4
PDB	M1606Y292-D-PDB	411T42800006		Power distribution board (connect MB & PBP 2) for YR292; Delta PSU; RoHS
Cable	CCBL-033W	422T38600002		FRU-TF-CABLE KIT;SBU, B7008Y292X4-TCT,MINI-SAS CABLE 36P TO 7PX4 FOR YR292-B7008X4(700/750MM)
Power Supply	FRU-PS-0180	471100000239		FRU-TF-PWR ASSY;SBU,DELTA DPS-800NB F, (S0F) FOR YR292-B7008X4, B7008Y292X4-TCT
FAN	CFAN-0390	336252012385		FRU-TF-FAN MODULE;SBU, B7008Y292X4-TCT,4028 FAN FOR YR292-B7008X4
RAIL KIT	CRAL-0170	340786900010		FRU-TF-RAIL KIT;SBU, B7008Y292X4-TCT,RAIL FOR YR292-B7008X4
Heatsink	CHSK-0600	343T44900001		HF-HEATSINK;SBU, Cu, SOLDERLING+VAPOR CHAMBER, 1155-CPU-1U-PASSIVE HEATSINK, SQ42F00002,90X90X25MM, SCREW, YR292-B5518X4

NOTE

Appendix IV: 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 COMPUTING TECHNOLOGY 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.

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 TYAN's website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com
2. Contact your dealer for help before calling TYAN.
3. 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® YR292-B5538-X4 Service Engineer's Manual V1.0d

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