FT48B-B7100

Service Engineer's Manual

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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 may not cause harmful interference.
- This device must accept any interference received, including interference that may cause undesired 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 2014/30/EU.

Warning

This equipment is compliant with Class A of CISPR 32. In a residential environment this equipment may cause radio interference.

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.

● VCCI-A

この装置は、クラスA情報技術装置です。この装置を家庭環境で使用すると電波妨害を引き起こすことがあります。この場合には使用者が適切な対策を講ずるよう要求されることがあります。

● Safety: EN/IEC 60950-1

This equipment is compliant with CB/LVD of Safety: EN/IEC 60950-1.

About this Manual

This manual is intended for trained service technician/personnel with hardware knowledge of computers. Front bezel key should be controlled by trained service technician/personnel. Components inside the compartments should be serviced only by a trained service technician/personnel. This manual is aimed to provide you with instructions on installing your TYAN FT48B-B7100.

How this guide is organized

This guide contains the following parts:

Chapter 1: Overview
This chapter provides an introduction to the TYAN FT48B-B7100 barebones and standard parts list, describes the external components, gives an overview of the product from different angles.

Chapter 2: Setting Up
This chapter covers procedures on installing the processors, memory modules, hard drivers and other optional parts.

Chapter 3: Replacing the Pre-installed Components
This chapter covers the removal and replacement procedures for pre-installed components.

Appendix:
This chapter provides the cable connection table, the 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 FT48B-B7100, 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.
	**Caution.** Slide-mounted equipment is not to be used as a shelf or a work space.
	**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

- This device is for use only in a machine room or IT room.
- 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 FT48B-B7100

Congratulations on your purchase of the TYAN® FT48B-B7100, a highly optimized rack-mountable barebone system. The FT48B-B7100 is designed to support dual Intel® Xeon Scalable Processor Family and up to 384GB RDIMM / 768GB LRDIMM / 1536GB RDIMM 3DS/LRDIMM 3DS of DDR4 memory, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, the FT48B-B7100 server system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, and lightning-fast PCI-E bus implementation. The FT48B-B7100 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® also offers the FT48B-B7100 in a version that can support up to eight front and two rear 2.5" hot-swap hard drives. The FT48B-B7100 uses TYAN's latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides FT48B-B7100 the power and flexibility to meet the needs of nowadays server application.

1.2 Product Models

The system board within the Tyan Barebone is defined by the following model:

- **B7100F48BV10HR-N**: Intel-based platform

1.3 Features

TYAN FT48B-B7100 (B7100F48BV10HR-N)

System	**Form Factor**	4U Rackmount
	Chassis Model	FT48T
	Dimension (D x W x H)	27.5" x 16.8" x 6.9" (700 x 427 x 176mm)
	Motherboard	S7100GM2NR
	Gross Weight	40 kg (88.5 lbs)
	Net weight	34 kg (75 lbs)
Front Panel	**Buttons**	(1) PWR, (1) RST, (1) NMI, (1) ID
	LEDs	(1) PWR, (1) HDD, (2) LAN, (1) ID, (1) Warning, (1) BMC
	I/O Ports	(2) USB 3.0 port
External Drive Bay	**Type / Q'ty**	2.5" Hot-Swap SSD/HDD / (8) @front + (2)@rear
	HDD backplane support	SATA 6Gb/s/ SAS 12Gb/s (@front), SATA 6Gb/s (@rear)
	Supported HDD Interface	(10) SATA 6Gb/s
System Cooling Configuration	**FAN**	(5+1) 12cm fans
	Redundancy	Yes
Power Supply	**Type**	RPSU
	Input Range	200-240V AC/9.48A, AC 100-127V/12A
	Output Watts	1,000 Watts Max.(for 100-127V AC) 1,600 Watts Max. (for 200-240V AC)
	Efficiency	80 plus Platinum
	Redundancy	1+1 **NOTE:** When use 100V-127V AC input, the system does not support redundant PSU operation if the total system load exceeds 10A (1000 Watts).
Processor	**Socket Type / Q'ty**	LGA3647/ (2)
	Supported CPU Series	Intel Xeon Scalable Processor
	Thermal Design Power (TDP) wattage	Max up to 205W

	System Bus		Up to 10.4/9.6 GT/s with Intel UltraPath Interconnect (UPI) support
Chipset	**PCH**		Intel C621
Memory	**Supported DIMM Qty**		(6)+(6) DIMM slots
	DIMM Type / Speed		DDR4 RDIMM/RDIMM 3DS/LRDIMM/LRDIMM 3DS 2666
	Capacity		Up to 384GB RDIMM/ 768GB LRDIMM/ 1,536GB RDIMM 3DS/LRDIMM 3DS *Follow latest Intel DDR4 Memory POR
	Memory channel		6 Channels per CPU
	Memory voltage		1.2V
Expansion Slots	**PCI-E**		(4) PCI-E Gen3 x16 slot, (3) PCI-E Gen3 x8 slots
LAN	**Port Q'ty**		(2) GbE ports (1 port shared with IPMI)
	Controller		Intel I350-AM2
Storage	**SATA**	**Connector**	(2) Mini-SAS HD (8-ports)
		Controller	Intel C621
		Speed	6.0 Gb/s
		RAID	RAID 0/1/10/5 (Intel RSTe)
	M.2 connector		(1) M.2 connector (2242) by PCI-E interface, (1) M.2 connector (2242/2260/2280) by PCI-E interface
	sSATA	**Connector**	(2) SATA/SATA-DOM, (1) Mini-SAS HD (4-ports)
		Controller	Intel C621
		Speed	6.0 Gb/s
		RAID	RAID 0/1/10/5 (Intel RSTe)
Graphic	**Connector type**		D-Sub 15-pin
	Resolution		Up to 1920x1200
	Chipset		Aspeed AST2500
I/O Ports	**USB**		(2) USB3.0 ports (at front), (4)

		USB3.0 ports (at rear)
	VGA	(1) D-Sub 15-pin port
	RJ-45	(2) GbE ports (1 port shared with IPMI)
	Others	(1) ID button
TPM (Optional)	**TPM Support**	Please refer to our TPM supported list.
System Monitoring	**Chipset**	Aspeed AST2500
	Temperature	Monitors temperature for CPU & memory & system environment
	Voltage	Monitors voltage for CPU, memory, chipset & power supply
	LED	Over temperature warning indicator, Fan & PSU fail LED indicator
	Others	Watchdog timer support
Server Management	**Onboard Chipset**	Onboard Aspeed AST2500
	AST2500 iKVM Feature	IPMI 2.0 compliant baseboard management controller (BMC), Supports storage over IP and remote platform-flash, USB 2.0 virtual hub
	AST2500 IPMI Feature	24-bit high quality video compression, 10/100/1000 Mb/s MAC interface
BIOS	**Brand / ROM size**	AMI, 32MB
	Feature	Hardware Monitor, SMBIOS 3.0/PnP/Wake on LAN, Boot from USB device/PXE via LAN/Storage, User Configurable FAN PWM Duty Cycle, Console Redirection, ACPI sleeping states S4,S5, ACPI 6.1
Operating System	**OS supported list**	Please refer to our AVL support lists.
Regulation	**FCC (DoC)**	Class A
	CE (DoC)	Class A
	VCCI	Class A
	CB/LVD	Yes
	RCM	Class A
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	**Manual**	(1) Quick Installation Guide
	Installation CD	(1) TYAN Device Driver CD
	Barebone	(1) FT48B-B7100 w/NV Tesla-aware FW Barebone

1.4 Standard Parts List

This section describes FT48B-B7100 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

FT48B-B7100 Chassis Kit

- (1) 4U chassis
- (2) POWER SUPPLY;SBU,1600 W,DELTA,DPS-1600EB B
- (6) 120X120X38MM Fan (pre-installed)
- (1) S7100GM2NR Motherboard (pre-installed)
- (1) M1019-FPB Front Panel Board (pre-installed)
- (1) M7100F48B-PDB Power Distribution Board (pre-installed)
- (1) M7063F86-PBP Power Backplane Board (pre-installed)
- (1) M1801F77-FB-FT48 Fan Board (pre-installed)
- (1) M1244G70-BP6-8 HDD Backplane Board (pre-installed)
- (1) M7063F86-BP6-2 HDD Backplane Board (pre-installed)

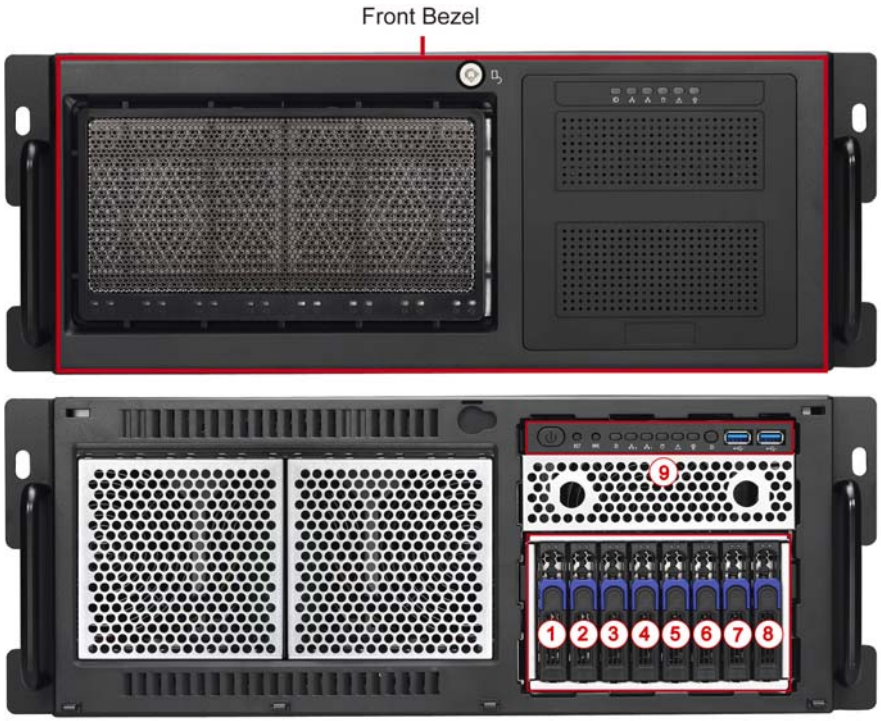
FT48B-B7100 Accessory Kit

- (1) Rail kit
- (2) CD_ROM_RAIL
- (1) CD_ROM_RAIL SCREW KIT
- (2) CPU heatsink
- (2) US power cord
- (2) EU power cord
- (1) Mounting ears
- (1) HDD BP PWR CABLE
- (1) SATA INTERNAL CABLE
- (1) 2.5” HDD screw pack
- (4) GPU CARD HOLDER KIT
- (2) CPU Clip
- (1) SINGLE PAGE
- (4) Foot Stand

1.5 About the Product

The following views show you the product.

1.5.1 System Front View

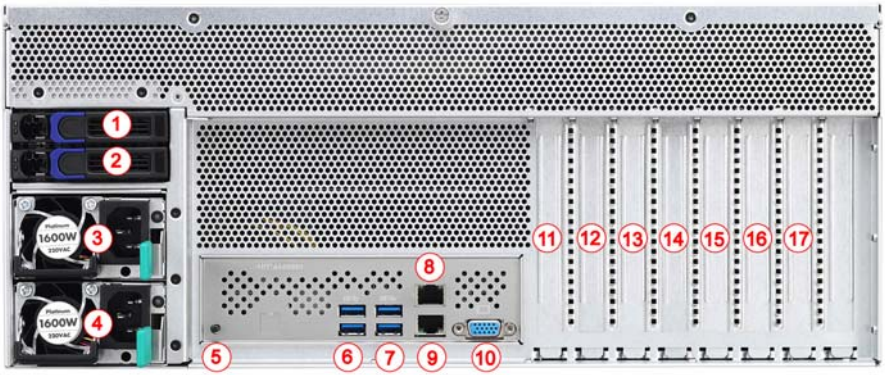


1	HDD0
2	HDD1
3	HDD2
4	HDD3
5	HDD4
6	HDD5
7	HDD6
8	HDD7
9	M1019-FPB Front Panel Control Board (pre-installed)

M1019-FPB Front Panel Control Board

1	Power Button
2	Reset Button
3	NMI Button
4	ID Button
5	LAN2 LED
6	LAN1 LED
7	HDD LED
8	Warning LED
9	Power LED
10	ID Button
11	USB3.0 Port 2
12	USB3.0 Port 1

1.5.2 System Rear View



1	HDD1 (with M7063F86-BP6-2 HDD BP Board pre-installed)
2	HDD0 (with M7063F86-BP6-2 HDD BP Board pre-installed)
3	RPSU1
4	RPSU0
5	ID LED Button
6	USB3.0 Ports
7	USB3.0 Ports
8	LAN2
9	LAN1 (BMC)
10	VGA Port
11	PCIE Gen3 x16 Slot (PCIE#7, GPU4)
12	PCIE Gen3 x8 Slot (PCIE#6)
13	PCIE Gen3 x16 Slot (PCIE#5, GPU3)
14	PCIE Gen3 x8 Slot (PCIE#4)
15	PCIE Gen3 x16 Slot (PCIE#3, GPU2)
16	PCIE Gen3 x8 Slot (PCIE#2)
17	PCIE Gen3 x16 Slot (PCIE#1, GPU1)

1.5.3 LED Definitions

Front Panel

LED	State	Description
Power LED	Green	Power on
ID LED	Blue	ID LED
LAN1/LAN2 Activity	Green	Link
	Green (Blinking)	Activity
HDD LED	Amber (Blinking)	Activity
Warning LED	Red	System Fan Failed, Voltage / Thermal Alert

ID LED

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

NOTE: Press ID button when the system is AC (Alternating Current) on, then ID LED will show the system is identified with emitting blue light. Users from remote site could also activate ID LED by input a few commands in IPMI, detailed software support please visit http://www.tyan.com for latest AST2500 user guide.

HDD LED

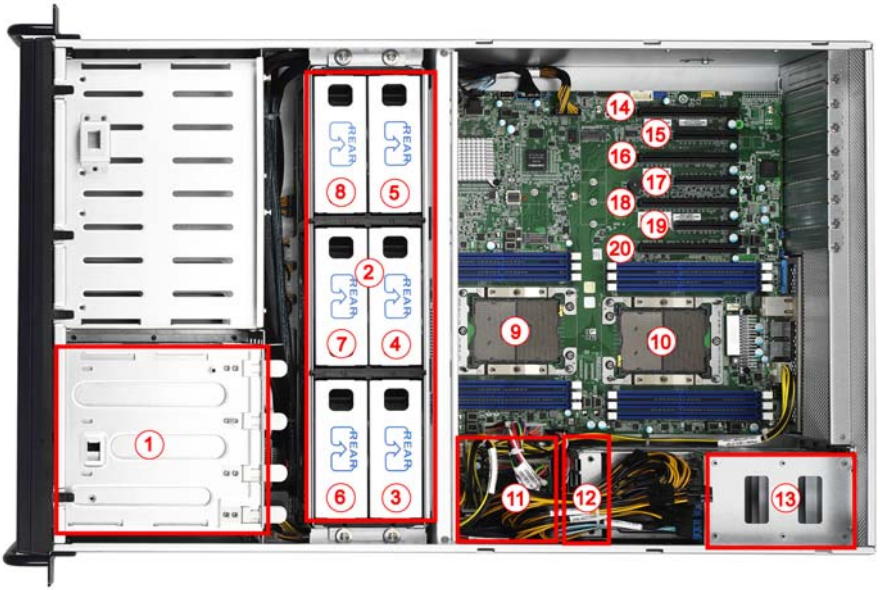
Activity LED	Status LED	Description
On	Off	Drive present, no activity
Green (Blinking)	Off	Drive present, with activity
Off	Amber	HDD/SSD Failed
Blink	Amber (Blinking 1 Hz)	Identify
Blink	Amber (Blinking 4 Hz)	Rebuild

Rear I/O: Onboard LAN LED Color Definition

The **two (2)** onboard Ethernet ports have green and yellow LEDs to indicate LAN status. The chart below illustrates the different LED states.

RJ45 LAN Link/Activity LED Scheme			
		**Left LED (Link/Activity)**	**Right LED (Speed)**
No Link		OFF	OFF
10 Mbps	**Link**	Green	OFF
	Active	Blinking Green	OFF
100 Mbps	**Link**	Green	Solid Green
	Active	Blinking Green	Solid Green
1000 Mbps	**Link**	Green	Solid Yellow
	Active	Blinking Green	Solid Yellow
10 Gbps	**Link**	Yellow	Solid Yellow
	Active	Blinking Yellow	Solid Yellow

1.5.4 System Top View



1	(8) HDD trays (with M1244G70-BP6-8 HDD BP Board pre-installed)	11	M7100F48B-PDB Power Distribution Board (pre-installed)
2	System Fans (with M1801F77-FB-FT48 Fan Board pre-installed)	12	M7063F86-PBP Power BP Board (pre-installed)
3	FAN1	13	(2) HDD trays (with M7063F86-BP6-2 HDD BP Board pre-installed)
4	FAN2	14	PCIE Gen3 x16 (PCIE#1, GPU1)
5	FAN3	15	PCIE Gen3 x8 (PCIE#2)
6	FAN4	16	PCIE Gen3 x16 (PCIE#3, GPU2)
7	FAN5	17	PCIE Gen3 x8 (PCIE#4)
8	FAN6	18	PCIE Gen3 x16 (PCIE#5, GPU3)
9	CPU0	19	PCIE Gen3 x8 (PCIE#6)
10	CPU1	20	PCIE Gen3 x16 (PCIE#7, GPU4)

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
- A T30 Security Torx screwdriver

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 **5~7 kgf/cm (4.35 ~ 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 FT48B-B7100 or injury to yourself.

- Ground yourself properly before removing the top cover of the system. Unplug the power from the power supply and then touch a safely grounded object to release static charge (i.e. power supply case). If available, wear a grounded wrist strap. Alternatively, discharge any static electricity by touching the bare metal chassis of the unit case, or the bare metal body of any other grounded appliance.
- Avoid touching motherboard components, IC chips, connectors, memory modules, and leads.
- The motherboard is pre-installed in the system. When removing the motherboard, always place it on a grounded anti-static surface until you are ready to reinstall it.
- Hold electronic circuit boards by the edges only. Do not touch the components on the board unless it is necessary to do so. Do not flex or stress circuit boards.
- Leave all components inside the static-proof packaging that they ship with until they are ready for installation.
- After replacing optional devices, make sure all screws, springs, or other small parts are in place and are not left loose inside the case. Metallic parts or metal flakes can cause electrical shorts.

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

2.1 Installing Motherboard Components

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

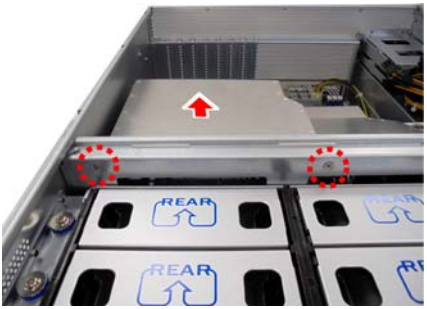
2.1.1 Removing the Chassis Cover and Air Ducts

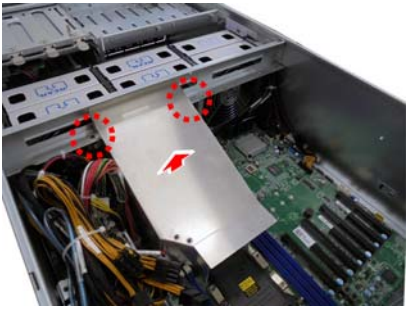
Follow these instructions to remove the FT48B-B7100 chassis cover and air ducts.

1. Unscrew the rear cover and then slide the rear top cover off.

2. Press the buttons on the front top cover and slide the cover off.

3. Unscrew to remove the air ducts from the chassis.



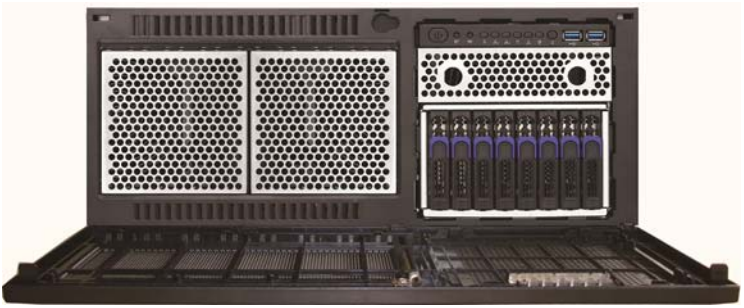


2.1.2 Opening the Chassis Front Bezel

Follow the following instructions to open the chassis front bezel.

1. Insert the front bezel key (packed in a bag in the accessory box) and rotate the key 90 degrees counterclockwise to unlock the front bezel.

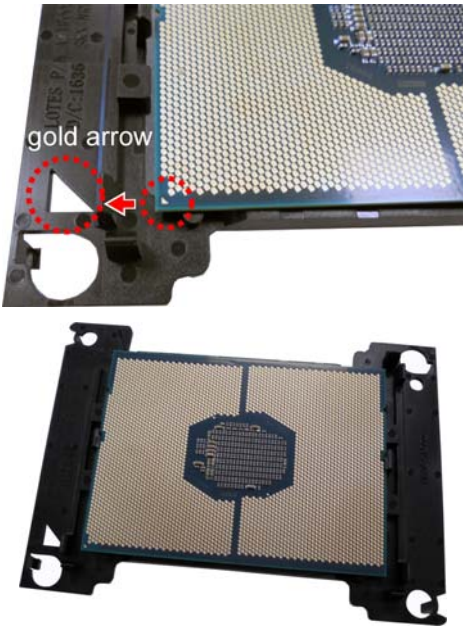
2. Open the front bezel.



2.1.3 Installing the CPU and Heatsink

Follow the steps below on installing CPUs and CPU heatsinks.

1. Align and install the processor on the carrier.



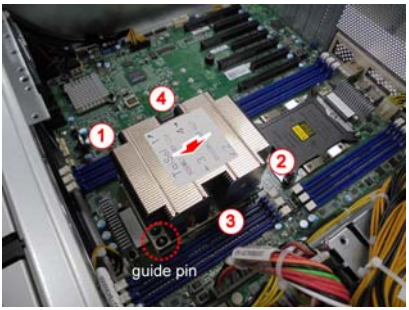
2. Locate the CPU socket's gold arrow. Always start with CPU0 first. Remove the CPU Socket protection cap.

3. Install the carrier assembly on the CPU Socket and make sure the gold arrow is located in the correct direction.


gold arrow

NOTE: A new heatsink comes with pre-applied thermal grease.
Once the heatsink has been removed from the processor, you need to clean the processor and heatsink using an alcohol solvent. Then apply new thermal grease before reinstalling the heatsink.

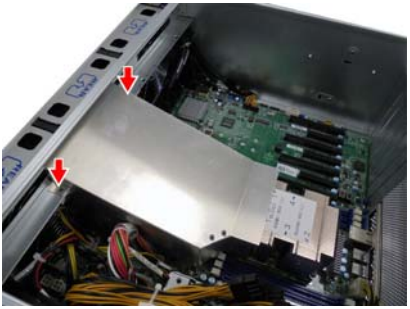
4. Align the heatsink with the CPU socket by the guide pins and make sure the gold arrow is located in the correct direction. Then place the heatsink onto the top of the CPU socket.



5. To secure the heatsink, use a T30 Security Torx to tighten the screws in a sequential order (1→2→3→4).
   NOTE: When disassembling the heatsink, loosen the screws in reverse order (4→3→2→1).

6. Repeat the procedures described earlier to install the second processor and heatsink.

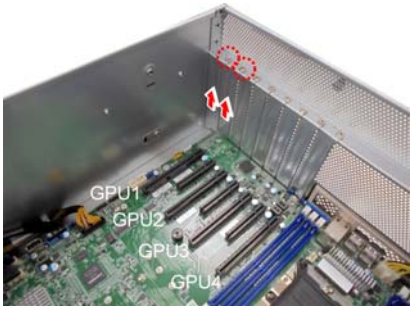
7. Place the CPU air duct back and screw it to the chassis.



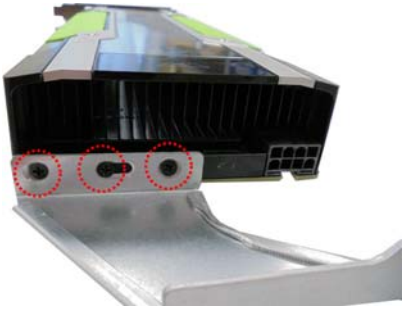
2.1.4 Installing the Expansion Cards

FT48B-B7100 has seven expansion slots. Only the PCI-E Gen.3 x16 slots can support **GPU (Graphic Processing Unit)** cards. Follow these instructions to install the GPU card.

1. Locate the PCI-E Gen.3 x16 slots on the motherboard. Unscrew to take out the dummy brackets.



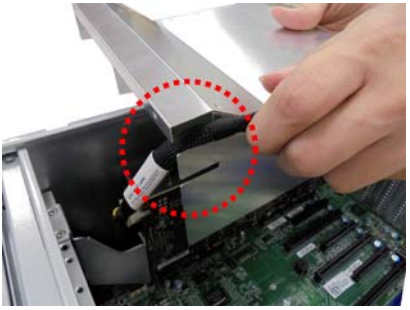
2. Screw the GPU bracket to the GPU card.



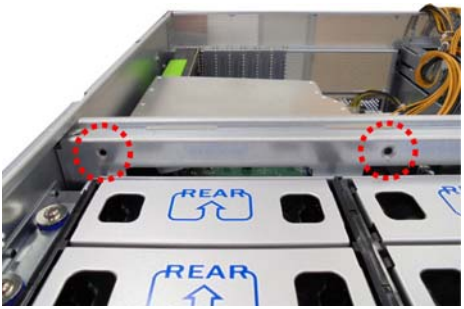
3. Connect the GPU Power cable.

4. Insert the GPU card into the PCIE Gen. 3 slot and screw the GPU card to the chassis.

5. Insert the cable through the air duct opening and place the GPU air duct in place.



6. Screw the GPU air duct to the chassis.

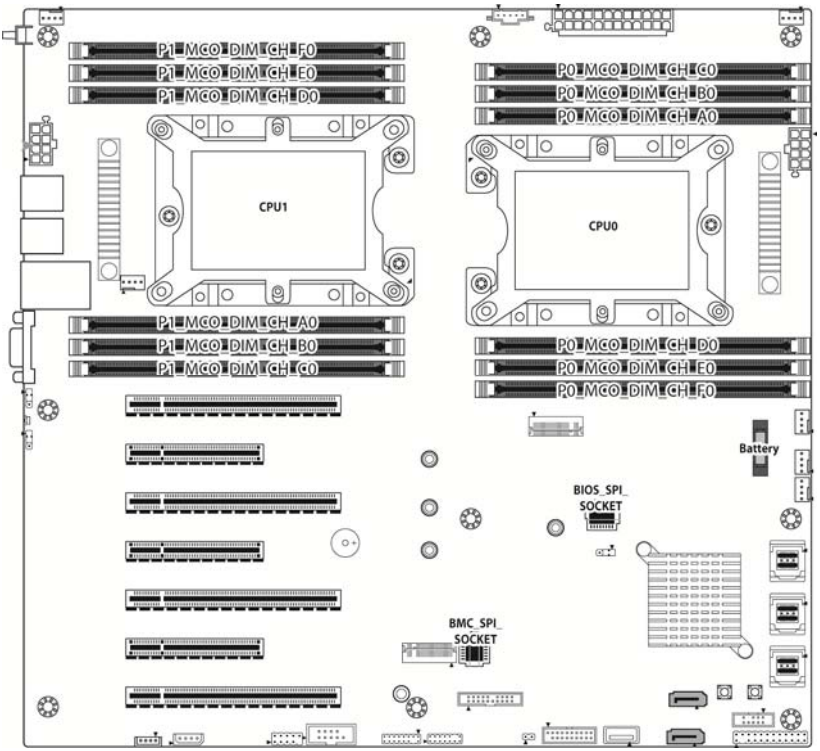


2.1.5 Installing the Memory

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. Follow the recommended memory population table to install the other memory modules.


P1_MCO_DIM_CH_F0
P1_MCO_DIM_CH_E0
P1_MCO_DIM_CH_D0
CPU1
P1_MCO_DIM_CH_A0
P1_MCO_DIM_CH_B0
P1_MCO_DIM_CH_C0
P0_MCO_DIM_CH_C0
P0_MCO_DIM_CH_B0
P0_MCO_DIM_CH_A0
CPU0
P0_MCO_DIM_CH_D0
P0_MCO_DIM_CH_E0
P0_MCO_DIM_CH_F0
Battery
BIOS_SPI_
SOCKET
BMC_SPI_
SOCKET

Memory Population Option Table

	Single CPU Installed (CPU0 only)					
Quantity of memory installed	**1**	**2**	**3**	**4**	**5**	**6**
P0_MCO_DIM_CH_A0	√	√	√	√	√	√
P0_MCO_DIM_CH_B0		√	√	√	√	√
P0_MCO_DIM_CH_C0			√	√	√	√
P0_MCO_DIM_CH_D0				√	√	√
P0_MCO_DIM_CH_E0					√	√
P0_MCO_DIM_CH_F0						√

NOTE:

1. √ indicates a populated DIMM slot.
2. Use paired memory installation for max performance.
3. Populate the same DIMM type in each channel, specifically
   - Use the same DIMM size
   - Use the same # of ranks per DIMM

	Dual CPU installed (CPU0 and CPU1)					
Quantity of memory installed	**2**	**4**	**6**	**8**	**10**	**12**
P0_MCO_DIM_CH_A0	√	√	√	√	√	√
P0_MCO_DIM_CH_B0	√	√	√	√	√	√
P0_MCO_DIM_CH_C0		√	√	√	√	√
P0_MCO_DIM_CH_D0		√	√	√	√	√
P0_MCO_DIM_CH_E0			√	√	√	√
P0_MCO_DIM_CH_F0			√	√	√	√
P1_MCO_DIM_CH_A0				√	√	√
P1_MCO_DIM_CH_B0				√	√	√
P1_MCO_DIM_CH_C0					√	√
P1_MCO_DIM_CH_D0					√	√
P1_MCO_DIM_CH_E0						√
P1_MCO_DIM_CH_F0						√

2.1.6 Installing Hard Drives

The FT48B-B7100 can support up to ten (10) 2.5” HDD/SSD (eight at front, two at rear). Follow these instructions to install a hard drive.

Warning!!! Always install the HDD/SSD to the chassis after the chassis is secured on the rack.

1. Press the locking lever latch and pull the latch open in the direction of arrow.

2. Slide the drive tray out.

3. Remove the 4 screws to detach HDD tray bracket.

4. Place a hard drive into the drive tray. Use four screws to secure the HDD/SSD.

5. Reinsert the HDD tray into the chassis.

6. Press the locking lever to secure the hard drive. Repeat the same procedures to install other HDD trays.

2.2 Rack Mounting

After installing the necessary components, the TYAN FT48B-B7100 can be mounted in a rack using the supplied rack mounting kit

Rack Mount Kit

- Rail with Bracket x 2
- Mounting Ears x 2
- Screw Sack x 1

Screw Sack

A: Bracket for M6 screw--10 pcs
B: M 6--10 pcs
C: M 4-L5--16 pcs

A B C

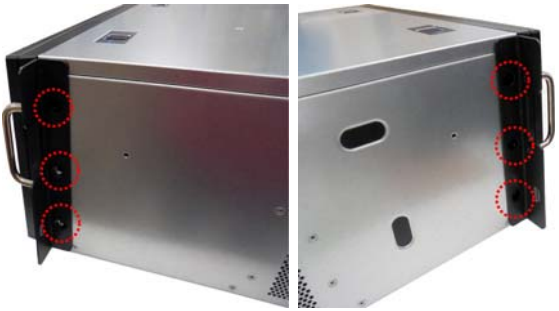
2.2.1 Installing the Server in a Rack

Follow these instructions to mount the TYAN FT48B-B7100 into an industry standard 19" rack.

NOTE: Before mounting the TYAN FT48B-B7100 in a rack, ensure that all internal components have been installed and that the unit has been fully tested. However, to make the installation easier, we suggest that you remove all HDD trays before you insert the chassis to the rack.

Installing the Inner Rails to the Unit

1. Screw the mounting ears to the FT48B-B7100 as shown using six M4-L5 screws (C) from the supplied screw kit.



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

3. Install the inner sliding rails to each side of the server using five M4-L5 screws (C).

Installing the Outer Rails to the Unit

1. Adjust the outer rails to fit the length of the rack. The sliding brackets have long slits to allow them to be fixed to the other part of the rails in various positions.

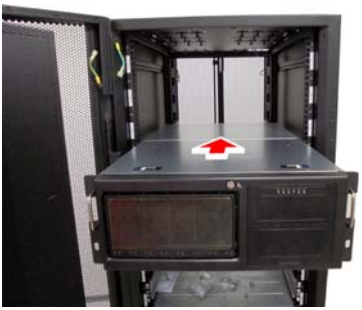
2. Secure the outer rails to the rack using four M6 (2 front, 2 rear) screws (B) and one nut (A) for each side. Secure the mounting brackets from outside, not inside of the rack.

Rack Mounting the Server

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

2. Lift the unit and then insert the inner slide rails into the middle rails.

3. Push the whole system in.



4. Secure the mounting ears of the unit to the rack using three M6 screws (B) for each side.

5. Secure the screws on the rear side.

NOTE

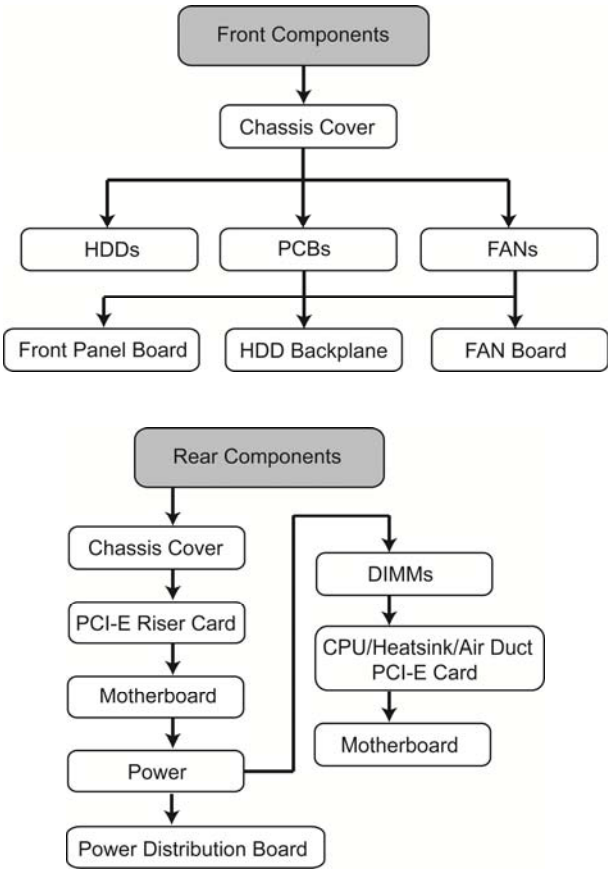
Chapter 3: Replacing Pre-Installed Components

3.0.1 Introduction

This chapter explains how to replace the pre-installed components, including the S7100 Motherboard, M1019-FPB Front Panel Board, M1244G70-BP6-8 & M7063F86-BP6-2 SATA/SAS HDD Backplane Board, M1081F77-FB-FB48 Fan Board, M7100F48B-PDB Power Distribution Board, PCI-E Riser Card, System Fan and Power Supply Unit etc.

3.0.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedures.



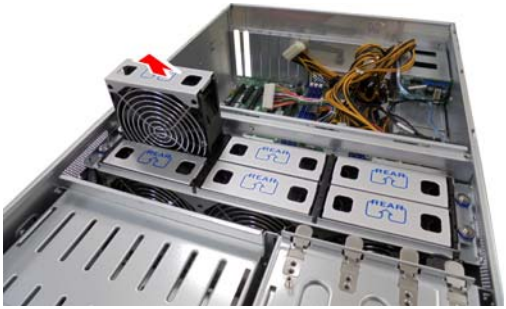
3.1 Removing the Cover

Before replacing any parts you must remove the chassis cover. Follow Section ***2.1.1 Removing the Chassis Cover*** (page ***29***) to remove the cover of the FT48B-B7100.

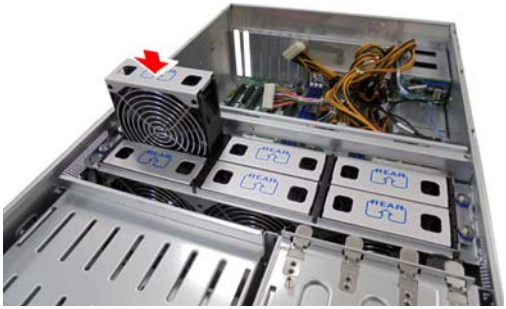
3.2 Replacing the System Fan

Follow these instructions to replace the system fan.

1. Take out the failed fan.



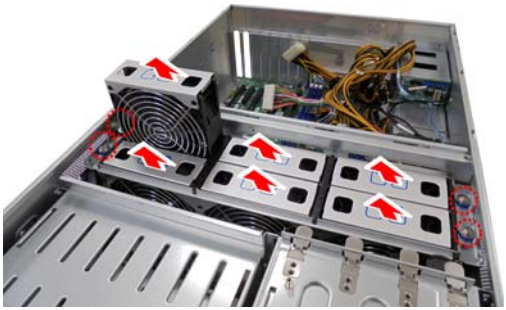
2. Prepare a new fan and insert it into the fan cage.



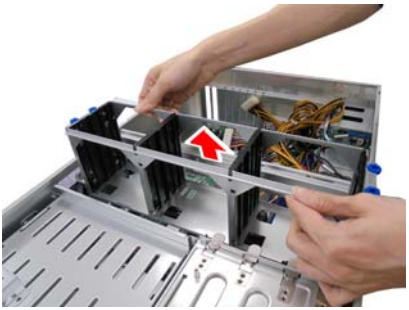
3.3 Replacing the Fan Board

Follow these instructions to replace the fan board.

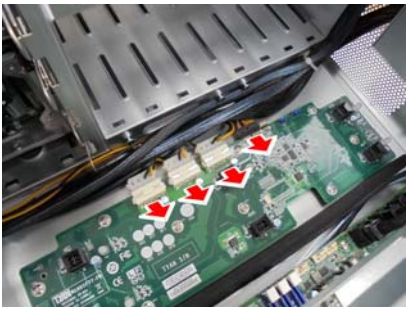
1. Unscrew the fan cage and remove all system fans from the fan cage.



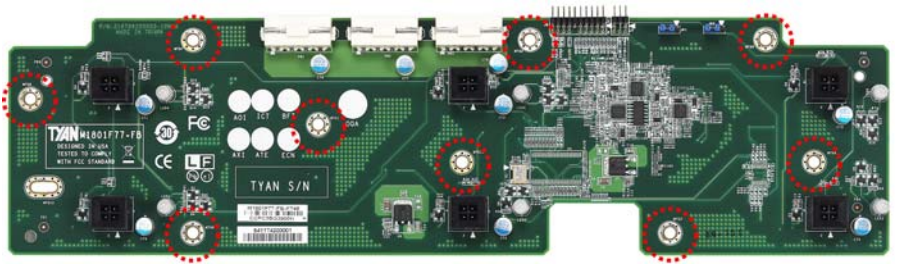
2. Take out the fan cage.



3. Disconnect all cables from the fan board.

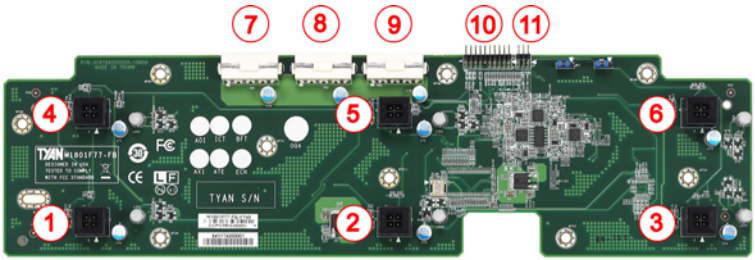


4. Unscrew the fan board to replace a new one.



5. Assemble the fan cage and system fans back into the chassis following the steps described earlier in reverse.

3.3.1 Fan Board Features



1	FAN1 Connector (J1)	7	Big 4-pin Power Connector (PW1)
2	FAN2 Connector (J2)	8	Big 4-pin Power Connector (PW2)
3	FAN3 Connector (J3)	9	Big 4-pin Power Connector (PW3)
4	FAN4 Connector (J4)	10	20-pin Fan Control Header (J8)
5	FAN5 Connector (J5)	11	4-pin Fan Signal Control Header (J7)
6	FAN6 Connector (J6)		

M1801F77-FB-FT48 Fan Board	
Form Factor	360mm x 167mm, 4-layer PCB
Specifications	(3) Big 4-pin Power Connector (6) 4-pin Fan Connector (1) 20-pin Fan Control Header (1) 4-pin Fan Signal Control Header

3.3.2 Fan Board LED Definition

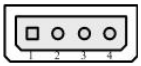
FAN Status	Green LED	Red LED
With Fan Speed RPM OK	On	Off
Fan Failed or Without Fan	Off	On

3.3.3 Connector Pin Definitions

J1~J6: 4-pin Fan Connector

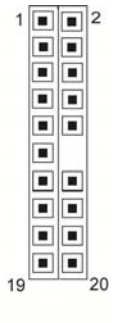
Definition	Pin	Pin	Definition
GND	1	2	VDD+12V
TACH	3	4	PWM

PW1/PW2/PW3: Big 4-pin Power Connector



Definition	Pin	Pin	Definition
VDD+12V	1	2	GND
GND	3	4	NC

J8: Fan Control Header



Definition	Pin	Pin	Definition
TACH1	1	2	TACH6
TACH2	3	4	NC
TACH3	5	6	NC
TACH4	7	8	NC
TACH5	9	10	NC
GND	11	12	KEY
PWM2	13	14	PWM1
NC	15	16	NC
NC	17	18	NC
NC	19	20	PWM3

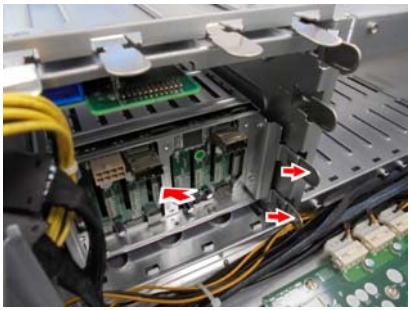
3.4 Replacing the HDD Backplane Board

Follow these instructions to replace the M1244G70-BP6-8 and M7063F86-BP6-2 HDD Backplane Boards.

M1244G70-BP6-8 Front HDD BP Board

1. Refer to Section ***3.3 Replacing the Fan Board (p. 51)*** on how to remove the Fan Cage and Fan Board.
2. Disconnect all cables attached to the HDD BP Board.

3. Press the latches to push the HDD module forwards.



4. Unscrew the HDD module's lower side rails.

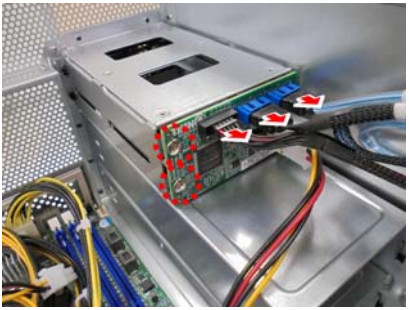
5. Loosen the screws as shown.

6. Unscrew the HDD BP Board for replacement.

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

M7063F86-BP6-2 Rear HDD BP Board

1. Disconnect all cables attached to the HDD BP Board. Unscrew the HDD BP Board from the HDD module.

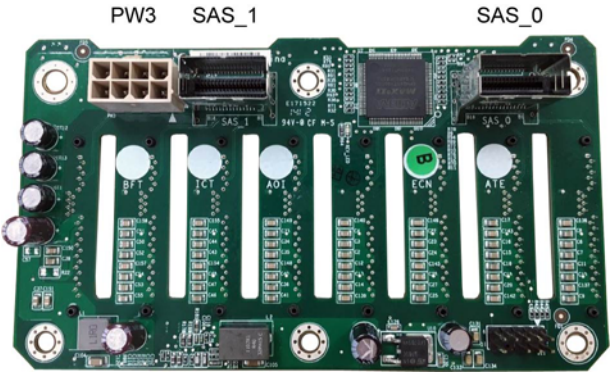


2. Prepare a new HDD BP Board for replacement and reinstall it into the HDD module following the steps in reverse.

3.4.1 HDD BP Board Features

Front view:

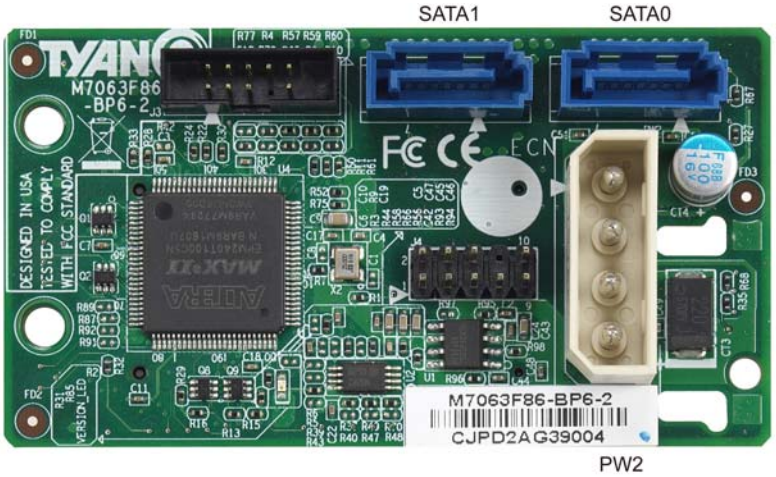
Rear view:



M1244G70-BP6-8 HDD Backplane Board	
Form Factor	8-layer PCB
Integrated I/O	(1) 8-pin Power Connector (PW3) (2) Mini-SAS Connector (8) HDD Connector, 2.5” SAS/SATA 12Gb/s & hot-swap support

Front view:

Rear view:



M7063F86-BP6-2 HDD Backplane Board	
Form Factor	8-layer PCB
Integrated I/O	(1) Big 4-pin Power Connector (PW2) (2) 7-pin SATA Connector (2) HDD Connector, 2.5” SAS/SATA 6Gb/s & hot-swap support

3.4.2 Connector Pin Definitions

M1244G70-BP6-8 HDD Backplane Board

PW3: 8-pin Power Connector

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

M7063F86-BP6-2 HDD Backplane Board

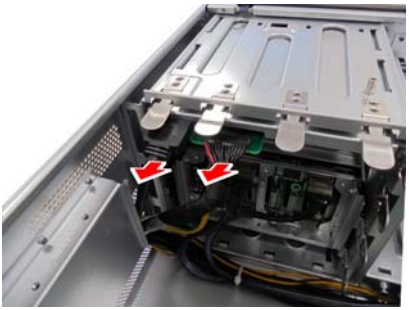
PW2: Big 4-pin Power Connector

Signal	Pin	Pin	Signal
P12V_IN	1	3	GND
GND	2	4	VCC5

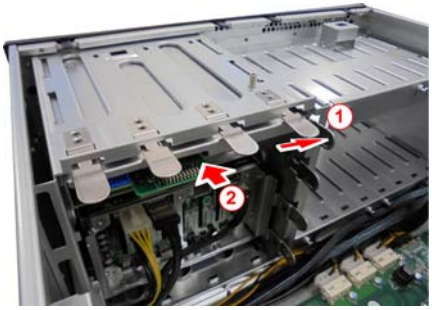
3.5 Replacing the Front Panel Board

Follow these instructions to replace the M1019-FPB Front Panel Control Board.

1. Disconnect the power cable and data cable from M1019.



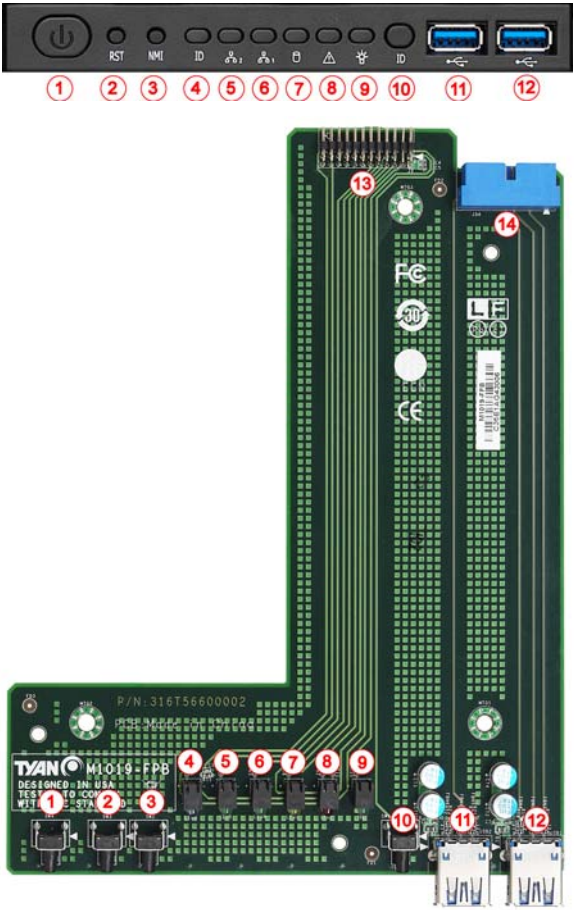
2. Push aside the latch and slide the LED control board unit out of the chassis.



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

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

3.5.1 Front Panel Board Features



M1019-FPB Front Panel Control Board			
1	Power Button	8	Warning LED (red)
2	Reset Button	9	Power LED (green)
3	NMI Button	10	ID Button
4	ID LED (blue)	11	USB3.0 Port 2
5	LAN2 LED (green)	12	USB3.0 Port 1
6	LAN1 LED (green)	13	Front Panel Connector (J3)
7	HDD LED (amber)	14	USB3.0 Connector (J34)

3.5.2 Pin Definitions

J34: 20-pin USB3.0 Connector

Signal	Pin	Pin	Signal
+5V	1	20	KEY
P0_RX_N	2	19	+5V
P0_RX_P	3	18	P1_RX_N
GND	4	17	P1_RX_P
P0_TX_N	5	16	GND
P0_TX_P	6	15	P1_TX_N
GND	7	14	P1_TX_P
P0_N	8	13	GND
P0_P	9	12	P1_N
OC_N	10	11	P1_P

J3: 24-pin Front Panel Header

Signal	Pin	Pin	Signal
PW_LED+	1	2	FP_PWER(3.3V)
KEY	3	4	FP_ID_LED_PWR
PW_LED-	5	6	FP_ID_LED_N
HD_LED+	7	8	HWM_FAULT_LED-
HD_LED-	9	10	SYS_FAULT_LED-
PW_SW#	11	12	LAN1_ACTLED+
GND	13	14	LAN1_ACTLED-
RST_SW#	15	16	SDA
GND	17	18	SCL
FP_ID_LED_BTN_N	19	20	INTRUDER#
FPIO_TEMP_IN	21	22	LAN2_ACTLED+
NMI_SW#	23	24	LAN2_ACTLED-

3.6 Replacing the Power Supply

The system has two pre-installed Power Supply Units. Please unplug the power cord before you follow these instructions to replace the power supply units.

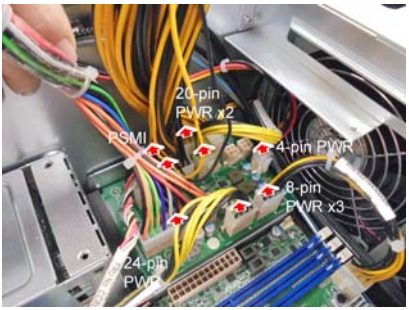
1. Press and hold the latch to pull the power supply out.

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

3.7 Replacing the Power Distribution Board

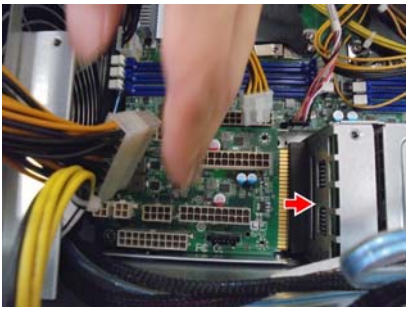
Follow these instructions to replace the M7100F48B-PDB Power Distribution Board.

1. Disconnect the all cables from the power distribution board.



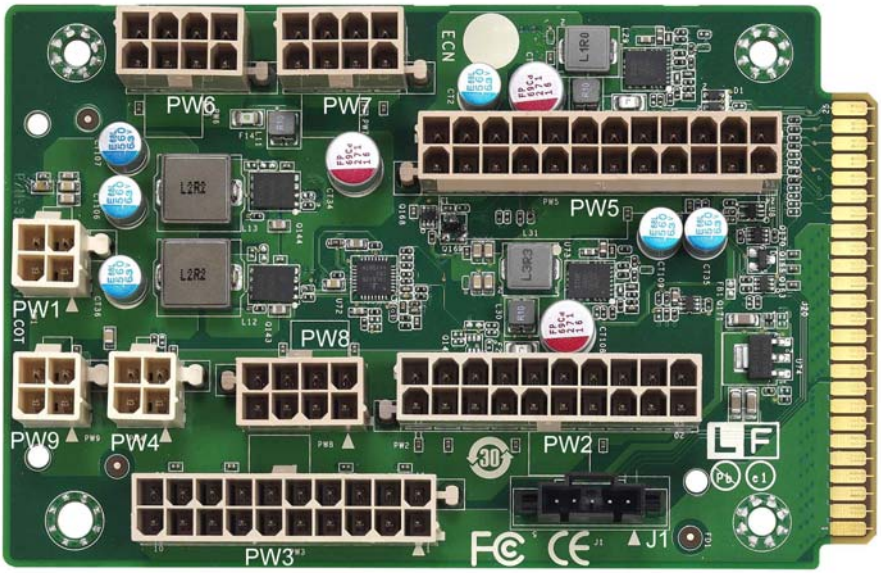
2. Unscrew the power distribution board.

3. Push the power supply cage forwards to take out the power distribution board.



4. Follow the steps described earlier in reverse order to reinstall the power distribution board into the chassis.

3.7.1 Power Distribution Board Features



M7100F48B-PDB Power Distribution Board	
Board Size	82mm x 127.3mm, 6-layer PCB
Integrated I/O	(3) 8-pin power connector (3) 4-pin power connector (2) 20-pin power connector (1) 24-pin power connector (1) PSMI connector (1) 50-pin golden finger

3.7.2 Pin Definitions

J1: PSMI Connector

Definition	Pin	Pin	Definition
SMBUS_Clock	1	2	SMBUS_Data
SMBUS_Alert	3	4	GND
NA	5		

PW1/PW4/PW9: 4-pin Power Connector

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

PW6/PW7/PW8: 8-pin Power Connector

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

PW2/PW3: 20-Pin Power Connector

Definition	Pin	Pin	Definition
GND	1	11	12V
GND	2	12	12V
GND	3	13	12V
GND	4	14	12V
GND	5	15	12V
GND	6	16	12V
GND	7	17	12V
GND	8	18	12V
GND	9	19	12V
GND	10	20	12V

PW5: 24-pin Power Connector

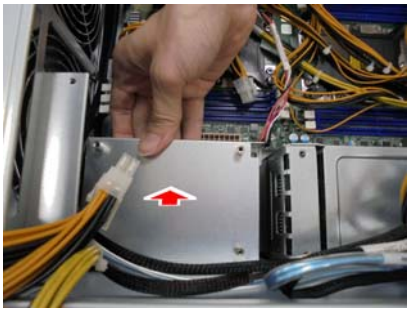
Definition	Pin	Pin	Definition
3.3V	**1**	**13**	3.3V
3.3V	**2**	**14**	NA
GND	**3**	**15**	GND
5V	**4**	**16**	PS_ON
GND	**5**	**17**	GND
5V	**6**	**18**	GND
GND	**7**	**19**	GND
PW_GD	**8**	**20**	NA
5VSB	**9**	**21**	5V
12V	**10**	**22**	5V
12V	**11**	**23**	5V
3.3V	**12**	**24**	GND

3.8 Replacing the Power Backplane Board

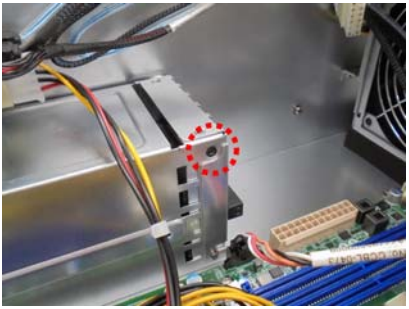
Follow these instructions to replace the M7063F86-PBP Power Backplane Board.

1. Unscrew the Power BP Board Tray from the chassis.

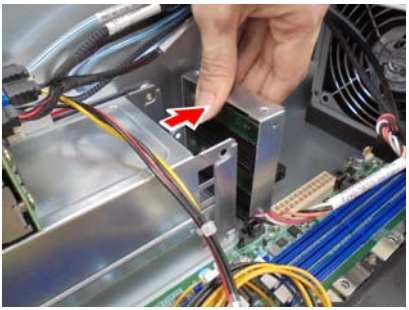
2. Remove the power distribution board and the bracket beneath.



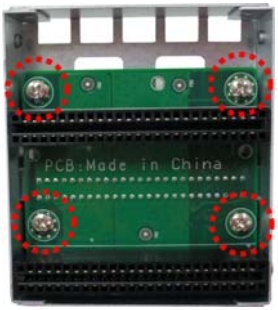
3. Unscrew the power backplane board tray.



4. Slide to take out the power backplane board tray.



5. Unscrew to replace with a new power backplane board.

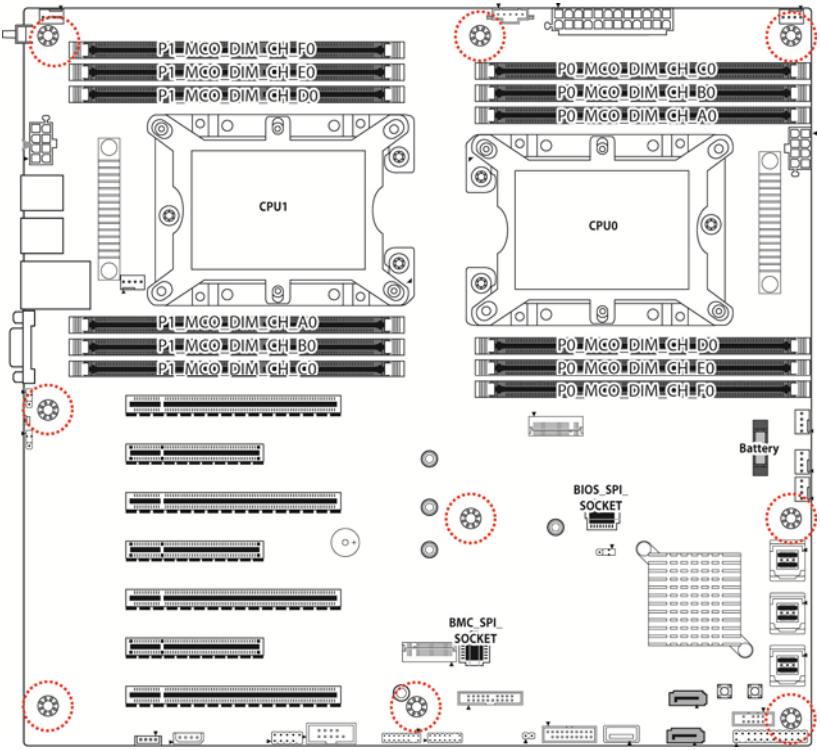


6. Follow the steps described earlier in reverse order to reinstall the power backplane board tray into the chassis.

3.8 Removing the Motherboard

Follow these instructions to replace the S7100 Motherboard.

1. Make sure you have disconnected all cables and remove all components from the chassis.
2. Unscrew the motherboard.



3. Carefully lift the motherboard from the tray.
4. Prepare a new motherboard and follow the steps described earlier in reverse order to reinstall the motherboard into the chassis.

NOTE

Appendix I: How to recover UEFI BIOS

Important Notes:

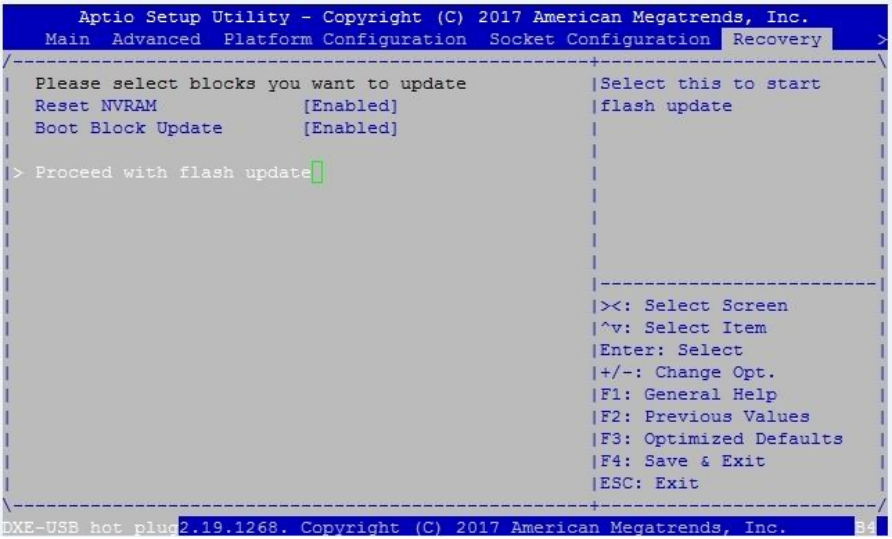
The emergency UEFI BIOS Recovery process is only used to rescue a system with a failed or corrupted BIOS image that fails to boot to an OS. It is not intended to be used as a general purpose BIOS flashing procedure and should not be used as such. Please do not shutdown or reset the system while the BIOS recovery process is underway or there is risk of damage to the UEFI recovery bootloader that would prevent the recovery process itself from working. In no event shall Tyan be liable for direct, indirect, incidental, special or consequential damages arising from the BIOS update or recovery.

The BIOS Recovery file is named xxxx.cap, where the 'xxxx' portion is the motherboard model number. Examples: 5630.cap, 7106.cap, 7109.cap, etc. Please make sure that you are using the correct BIOS Recovery file from Tyan's web site.

BIOS Recovery Process

1. Place the recovery BIOS file (xxxx.cap) in the root directory of a USB disk.
2. Ensure that the system is powered off.
3. Insert the USB disk to any USB port on the motherboard or chassis.
4. Power the system on while pressing “Ctrl” and “Home” simultaneously on the keyboard. Continue to hold these keys down until the following Tyan screen is displayed on the monitor:

5. The system will boot to BIOS setup. A new menu item will appear at the far right of the screen. Scroll to the 'Recovery' tab, move the curser to “Proceed with flash update” and press the "Enter" key on the keyboard to start the BIOS recovery process.



6. IMPORTANT: Do not power off or reboot the server during the BIOS recovery process. This can damage the BIOS recovery bootloader and prevent it from loading a subsequent time.
7. Wait for the BIOS recovery procedure to complete. Completion is signified with the message “Flash update completed. Press any key to reset the system” displayed on screen.
8. Remove the USB disk and reboot.

If your system does not have video output or the POST code halts at “FF” on the right-lower portion of the screen, please contact Tyan representatives for RMA service.

Appendix II: Cable Connection Tables

1. Fan Control Cable

Fan BP to S7100 MB			
	Fan BP	**Connect to**	**S7100 MB**
Fan ctrl Cable	J8	→	FAN_HD1

2. Mini-SAS HD Cable

	M1244G70-BP 6-8 BP Board	**Connect to**	**S7100 MB**
Mini-SAS HD Cable-1	J9	→	SAS0_3
Mini-SAS HD Cable-2	J10	→	SAS4_7

3. SATA and SGPIO Cable

	M7063F86-BP6 -2 BP Board	**Connect to**	**S7100 MB**
SATA cable-1	J5	→	SATA0
SATA Cable-2	J6	→	SATA1
SGPIO cable	J3	→	SSATA-SGPIO1

4. Fan BP PWR Cable

FAN BP to PDB			
	FAN BP	**Connect to**	**PDB**
Fan BP PWR Cable	PW1,PW2,PW3	→	PW3

5. HDD BP PWR Cable

HDD BP to PDB			
	HDD BP	**Connect to**	**PDB**
2x4P PWR Cable	PW1 of M1244	→	PW8
B4P PWR Cable	PW2 of M7063	→	PW1

6. FP Ctrl and USB Cable

Front Panel Board (FPB) to S7100 MB			
	FPB	**Connect to**	**S7100 MB**
FP Ctrl Cable	J3	→	SSI_FP
USB3.0 Cable	J34	→	USB3_FPIO2

7. GPU PWR Cable

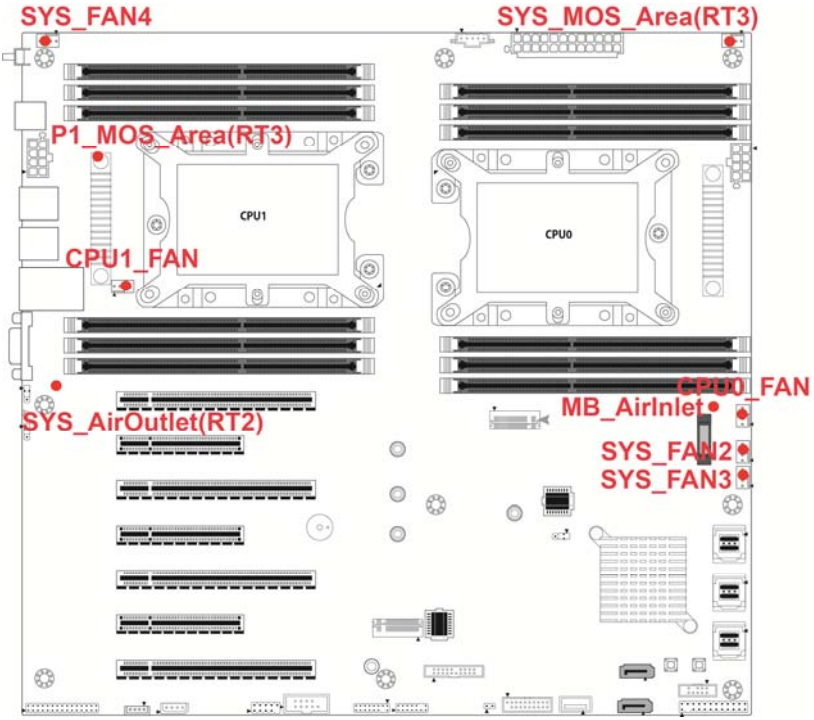
PDB Board to GPU Card			
	PDB Board	**Connect to**	**GPU card**
GPU PWR Cable-1	PW2	→	GPU card-1
GPU PWR Cable-2			GPU card-2
GPU PWR Cable-3	PW3	→	GPU card-3
GPU PWR Cable-4			GPU card-4

8. 2x12P, 2x4P PWR & PSMI Cable

PDB Board to S7100 MB			
	PDB Board	**Connect to**	**S7100 MB**
2x12P PWR Cable	PW5	→	PWCN1
2x4P PWR Cable-1	PW7	→	PWCN2
2x4P PWR Cable-2	PW6	→	PWCN3
PSMI Cable	J1	→	PSMI

Appendix III: 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.

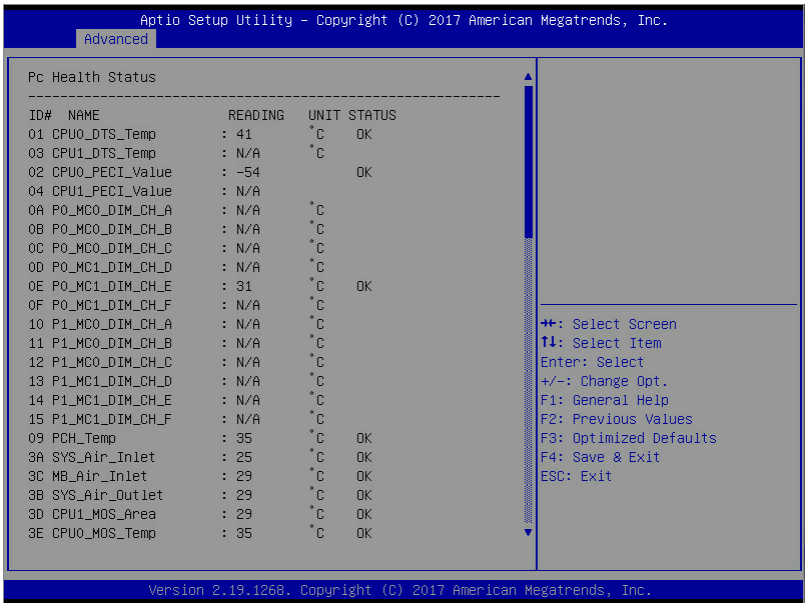


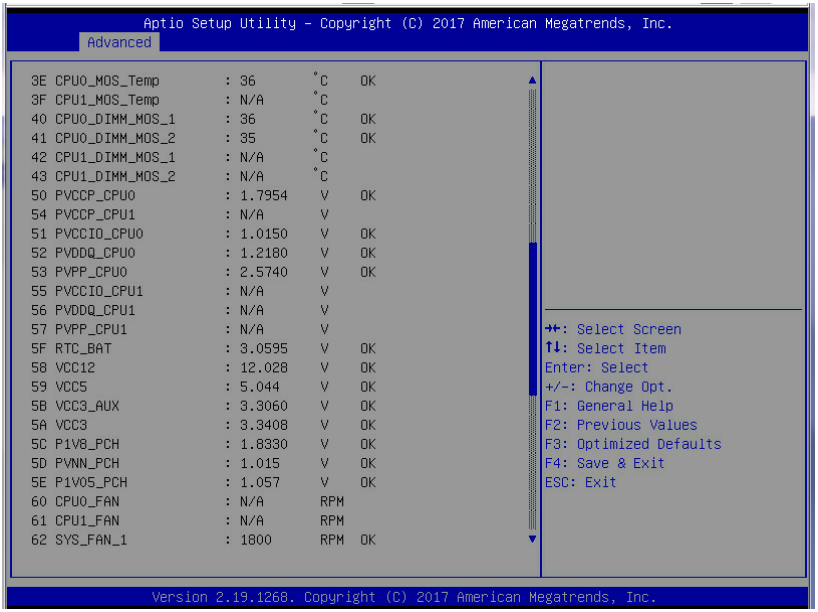
NOTE: The red dot indicates the sensor.

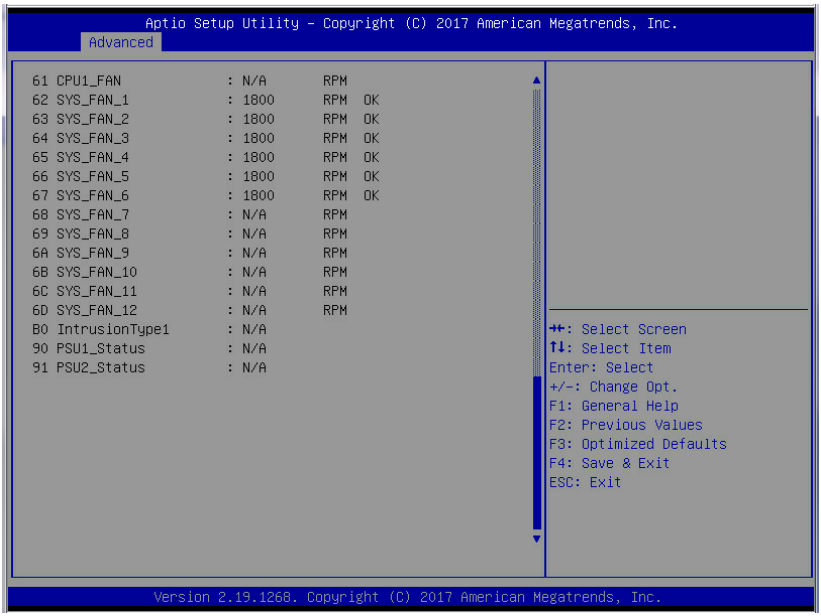
Fan and Temp Sensor Location:

1. Fan Sensor: It is located in the third pin of the fan connector, which detects the fan speed (rpm)
2. Temp Sensor: P1_MOS_Area(RT3) & SYS_AirOutlet(RT2). 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 FAN Sensor	Name Explanation
CPU0_DTS_Temp	Temperature of the CPU Digital Temperature Sensor
CPU1_DTS_Temp	Temperature of the CPU Digital Temperature Sensor
CPU0_PECI_Value	Temperature of the CPU Platform Environment Control Interface
CPU1_PECI_Value	Temperature of the CPU Platform Environment Control Interface
P0_MC0_DIM_CH_A	The highest temperature of CPU0 DIMM channel A slot
P0_MC0_DIM_CH_B	The highest temperature of CPU0 DIMM channel B slot
P0_MC0_DIM_CH_C	The highest temperature of CPU0 DIMM channel C slot
P0_MC1_DIM_CH_D	The highest temperature of CPU0 DIMM channel D slot
P0_MC1_DIM_CH_E	The highest temperature of CPU0 DIMM channel E slot
P0_MC1_DIM_CH_F	The highest temperature of CPU0 DIMM channel F slot
P1_MC0_DIM_CH_A	The highest temperature of CPU1 DIMM channel A slot
P1_MC0_DIM_CH_B	The highest temperature of CPU1 DIMM channel B slot
P1_MC0_DIM_CH_C	The highest temperature of CPU1 DIMM channel C slot
P1_MC1_DIM_CH_D	The highest temperature of CPU1 DIMM channel D slot
P1_MC1_DIM_CH_E	The highest temperature of CPU1 DIMM channel E slot
P1_MC1_DIM_CH_F	The highest temperature of CPU1 DIMM channel F slot
PCH_Temp	Temperature of PCH
SYS_Air_Inlet	Temperature of the SYS_Air_Inlet Area

MB_Air_ Inlet	Temperature of the MB_Air_Inlet Area
CPU1_MOS_Area	Temperature of CPU1_MOS_Area
CPU0_MOS_Temp	Temperature of CPU0_MOS_Temp
CPU1_MOS_Temp	Temperature of CPU1_MOS_Temp
CPU0_DIMM_MOS_1	Temperature of CPU0_DIMM_MOS_1
CPU0_DIMM_MOS_2	Temperature of CPU0_DIMM_MOS_2
CPU1_DIMM_MOS_1	Temperature of CPU1_DIMM_MOS_1
CPU1_DIMM_MOS_2	Temperature of CPU1_DIMM_MOS_2
CPU0_FAN	Fan speed of CPU0_FAN
CPU1_FAN	Fan speed of CPU1_FAN
SYS_FAN1	Fan speed of SYS_FAN1
SYS_FAN2	Fan speed of SYS_FAN2
SYS_FAN3	Fan speed of SYS_FAN3
SYS_FAN4	Fan speed of SYS_FAN4
SYS_FAN5	Fan speed of SYS_FAN5
SYS_FAN6	Fan speed of SYS_FAN6
SYS_FAN7	Fan speed of SYS_FAN7
SYS_FAN8	Fan speed of SYS_FAN8
SYS_FAN9	Fan speed of SYS_FAN9
SYS_FAN10	Fan speed of SYS_FAN10
SYS_FAN11	Fan speed of SYS_FAN11
SYS_FAN12	Fan speed of SYS_FAN12

Appendix IV: FRU Parts Table

FT48B-B7100 FRU Parts				
Item	**Model Number**	**Part Number**	**Picture**	**Description**
PSU	FRU-PS-0130	471100000193		TF-POWER SUPPLY;SBU,1600 W,DELTA,DPS-1600EB B,(S0F),1U MODULE,REV.S0F
FAN Kit	CFAN-0410	541379090002		TF-FAN;12V,PFC1212DE-SP0,4800RPM,120X120 X38,DELTA, 4-pin
Heatsink & Cooler	FRU-TH-0220	343T56600001		HF-HEATSINK;SBU,AL/CU,SOLDERLING+PIPE, 3647-2U-NARROW-PASSIVE HEATSINK, 1A0-D042800991, 108.0X78.0X64.0MM, SCREW,FT48B-B7100
Rail ASSY	CRAL-0070	340746600010		TF-28" RAIL ASSY;SBU,28" RAIL ASSY, WITH PACKING FOR FT48,FT48
Power Cord	FRU-CS-0330	332810000514		TF-POWER CORD;SBU,US,125 V,16 AWG(1.31mm²),1800mm,AC PWR CORD
	FRU-CS-0460	332810000515		TF-POWER CORD;SBU,EU,250 V,16 AWG(1.0mm²),1800mm,AC PWR CORD

NOTE

Appendix V: 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.

Please feel free to contact us directly for this service at tech-support@tyan.com

Help Resources:

1. See the POST codes section of this manual.
2. See the TYAN's website for FAQ's, bulletins, driver updates, and other information: http://www.tyan.com
3. Contact your dealer for help before calling TYAN.

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® FT48B-B7100 Service Engineer's Manual V1.0d

Document No.: D2385-100