FT48T-B7105

Service Engineer's Manual

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Version 1.0

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Notice for the USA

Compliance Information Statement (Supplier's Declaration of Conformity, SDoC) 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 and 2014/35/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。 VCCI-A

● Safety: IEC/EN 60950-1

This equipment is compliant with CB/LVD of Safety: IEC/EN 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 FT48T-B7105.

How this guide is organized

This guide contains the following parts:

Chapter 1: Overview
This chapter provides an introduction to the TYAN FT48T-B7105 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 FT48T-B7105, 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

- 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.

- Retain all screws or other fasteners when removing access cover(s). Upon completion of accessing inside the product, refasten access cover with original screws or fasteners.

- 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 FT48T-B7105

Congratulations on your purchase of the TYAN® FT48T-B7105, a highly optimized Workstation barebone system. The FT48T-B7105 is designed to support dual Intel® Xeon Scalable Processors and up to 384GB RDIMM / 768GB LRDIMM / 1536GB RDIMM 3DS/LRDIMM 3DS DDR4 memory, providing a rich feature set and incredible performance. Leveraging advanced technology from Intel®, the FT48T-B7105 Workstation system is capable of offering scalable 32 and 64-bit computing, high bandwidth memory design, and lightning-fast PCI-E bus implementation. The FT48T-B7105 not only empowers your company in nowadays IT demand but also offers a smooth path for future application usage.

TYAN® also offers the FT48T-B7105 in a version that can support up to four 3.5”/2.5” hot-swap SSD/HDD. The FT48T-B7105 uses TYAN’s latest chassis featuring a robust structure and a solid mechanical enclosure. All of this provides FT48T-B7105 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 models:

- **B7105F48TV4HR-2T-N**: Intel-based platform
- **B7105F48TV4HR-2T-G**: Intel-based platform

SKU Differences

Model Name	FT48T-B7105	
SKU Name	**B7105F48TV4HR-2T-N**	**B7105F48TV4HR-2T-G**
FAN	6	3
PCIe Air duct	Yes	No
CPU Air duct	Yes	Yes
Thermal solution on GPU	Passive or Active	Active

1.3 Features

TYAN FT48T-B7105 (B7105F48TV4HR-2T-N)

System	Net weight	34 kg (75 lbs)
	Form Factor	4U Tower
	Chassis Model	FT48T
	Dimension (D x W x H)	27.5" x 16.8" x 6.9" (700 x 427 x 176mm)
	Motherboard	S7105AGM2NR-2T
	Gross Weight	40 kg (88.5 lbs)
Front Panel	Buttons	(1) RST, (1) ID, (1) PWR w/ LED
	LEDs	(1) HDD, (2) LAN, (1) ID, (1) System Event
	I/O Ports	(2) USB 3.0 port
External Drive Bay	Type / Q'ty	5.25" device bays, (3) 3.5"/2.5" Hot-Swap SSD/HDD, (4)
	HDD Backplane Support	SATA 6.0Gb/s
	Supported HDD Interface	(4) SATA 6Gb/s
System Cooling Configuration	Redundancy	Yes
	FAN	(5+1) hot-swap 12cm fans
	Heat Sink	(2) Passive CPU Heat sinks
Power Supply	Type	RPSU
	Input Range	100-127V~ / 220-240V~, 47-63Hz System: 24A / 10A (max.) Per Inlet: 12A / 10A
	Output Watts	2000 Watts (100-127Vac input), 1968 Watts (220-240Vac input)
	Efficiency	80 plus Platinum
	Redundancy	1+1 **NOTE:** 1. When use 100V-127V AC input, the system does not support redundant PSU operation if the total system load exceeds 12A (1000 Watts). 2. When use 220V-240 AC input, the system does not support redundant PSU operation if the total system load exceeds 10A

			(1968 Watts).
Processor	**Socket Type / Q'ty**		LGA3647/ (2)
	System Bus		Up to 10.4/9.6 GT/s with Intel UltraPath Interconnect (UPI) support
	Supported CPU Series		Intel Xeon Scalable Processor
	Thermal Design Power (TDP) wattage		Max up to 205W
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**		(1) PCI-E Gen3 x16 slot, max 25 Watts (5) PCI-E Gen3 x16 slots, max 75 Watts **NOTE:** Please note the thermal design power (TDP) of GPU must be equal or less than 250W or OCP (over current protect) will occur.
LAN	**Port Q'ty**		(2) 10GbE ports, (1) GbE port dedicated for IPMI
	Controller		Intel X550-AT2
	PHY		Realtek RTL8211E
Storage	**SATA**	**Connector**	(2) SATA
		Controller	Intel C621
		Speed	6.0 Gb/s
		RAID	RAID 0/1/10/5 (Intel RSTe)
	sSATA	**Connector**	(2) Mini-SAS HD (8-ports)
		Controller	Intel C621

		Speed	6.0 Gb/s
		RAID	RAID 0/1/10/5 (Intel RSTe)
	NVMe	**Connector (M.2)**	(2) 22110/2280 (by PCI-E & SATA interface)
Graphic	**Connector type**	D-Sub 15-pin	
	Resolution	Up to 1920x1200	
	Chipset	Aspeed AST2500	
I/O Ports	**USB**	(2) USB3.0 ports (at rear), (2) USB3.0 ports (at front)	
	VGA	(1) D-Sub 15-pin port	
	Audio	2.1	
	RJ-45	(2) 10GbE ports, (1) GbE dedicated for IPMI	
	Others	ID LED	
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	**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	
	Onboard Chipset	Onboard Aspeed AST2500	
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	**CB/LVD**	Yes
	RCM	Class A
	FCC (SDoC)	Class A
	CE (DoC)	Class A
	VCCI	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) FT48T-B7105 w/NV Tesla-aware FW Barebone
	Others	For rackmount solution, please contact Tyan sales

TYAN FT48T-B7105 (B7105F48TV4HR-2T-G)

System	**Net weight**	34 kg (75 lbs)
	Form Factor	4U Tower
	Chassis Model	FT48T
	Dimension (D x W x H)	27.5" x 16.8" x 6.9" (700 x 427 x 176mm)
	Motherboard	S7105AGM2NR-2T
	Gross Weight	40 kg (88.5 lbs)
Front Panel	**Buttons**	(1) RST, (1) ID, (1) PWR w/ LED
	LEDs	(1) HDD, (2) LAN, (1) ID, (1) System Event
	I/O Ports	(2) USB 3.0 port
External Drive Bay	**Type / Q'ty**	5.25" device bays, (3) 3.5"/2.5" Hot-Swap SSD/HDD, (4)

	HDD Backplane Support	SATA 6.0Gb/s
	Supported HDD Interface	(4) SATA 6Gb/s
System Cooling Configuration	**Redundancy**	Yes
	FAN	(3) hot-swap 12cm fans
	Heat Sink	(2) Passive CPU Heat sinks
Power Supply	**Type**	RPSU
	Input Range	100-127V~ / 220-240V~, 47-63Hz System: 24A / 10A (max.) Per Inlet: 12A / 10A
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	Efficiency	80 plus Platinum
	Redundancy	1+1 **NOTE:** 1. When use 100V-127V AC input, the system does not support redundant PSU operation if the total system load exceeds 12A (1000 Watts). 2. When use 220V-240 AC input, the system does not support redundant PSU operation if the total system load exceeds 10A (1968 Watts).
Processor	**Socket Type / Q'ty**	LGA3647/ (2)
	System Bus	Up to 10.4/9.6 GT/s with Intel UltraPath Interconnect (UPI) support
	Supported CPU Series	Intel Xeon Scalable Processor
	Thermal Design Power (TDP) wattage	Max up to 205W
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**	(1) PCI-E Gen3 x16 slot, max 25 Watts (5) PCI-E Gen3 x16 slots, max 75 Watts **NOTE:** Please note the thermal design power (TDP) of GPU must be equal or less than 250W or OCP (over current protect) will occur.	
LAN	**Port Q'ty**	(2) 10GbE ports, (1) GbE port dedicated for IPMI	
	Controller	Intel X550-AT2	
	PHY	Realtek RTL8211E	
Storage	**SATA**	**Connector**	(2) SATA
		Controller	Intel C621
		Speed	6.0 Gb/s
		RAID	RAID 0/1/10/5 (Intel RSTe)
	sSATA	**Connector**	(2) Mini-SAS HD (8-ports)
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	NVMe	**Connector (M.2)**	(2) 22110/2280 (by PCI-E & SATA interface)
Graphic	**Connector type**	D-Sub 15-pin	
	Resolution	Up to 1920x1200	
	Chipset	Aspeed AST2500	
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	VGA	(1) D-Sub 15-pin port	
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	RJ-45	(2) 10GbE ports, (1) GbE dedicated for IPMI	
	Others	ID LED	

TPM (Optional)	**TPM Support**	Please refer to our TPM supported list.
System Monitoring	**Chipset**	Aspeed AST2500
	Temperature	Monitors temperature for CPU & memory & system environment
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	AST2500 IPMI Feature	24-bit high quality video compression, 10/100/1000 Mb/s MAC interface
	Onboard Chipset	Onboard Aspeed AST2500
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	**CB/LVD**	Yes
	RCM	Class A
	FCC (SDoC)	Class A
	CE (DoC)	Class A
	VCCI	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) FT48T-B7105 Barebone
	Others	For rackmount solution, please contact Tyan sales

NOTE:

1. The specifications are subject to change without prior notice.
2. Please visit our Web site for the latest information.

1.4 Standard Parts List

This section describes FT48T-B7105 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

FT48T-B7105 Box Content

- 4U barebone, (4) hot swap HDD bays
- (1+1), 2000W power supply unit --- B7105F48TV4HR-2T-N / B7105F48TV4HR-2T-G
- S7105AGM2NR-2T system board (pre-installed)
- M1019-FPB (pre-installed)
- (3) system fans, (6 system fans for B7105F48TV4HR-2T-N)
- M1809F77A-FB (pre-installed)
- M1622F48T-D-PDB (pre-installed)
- M1237F48-BP6-4-7055 HDD BP

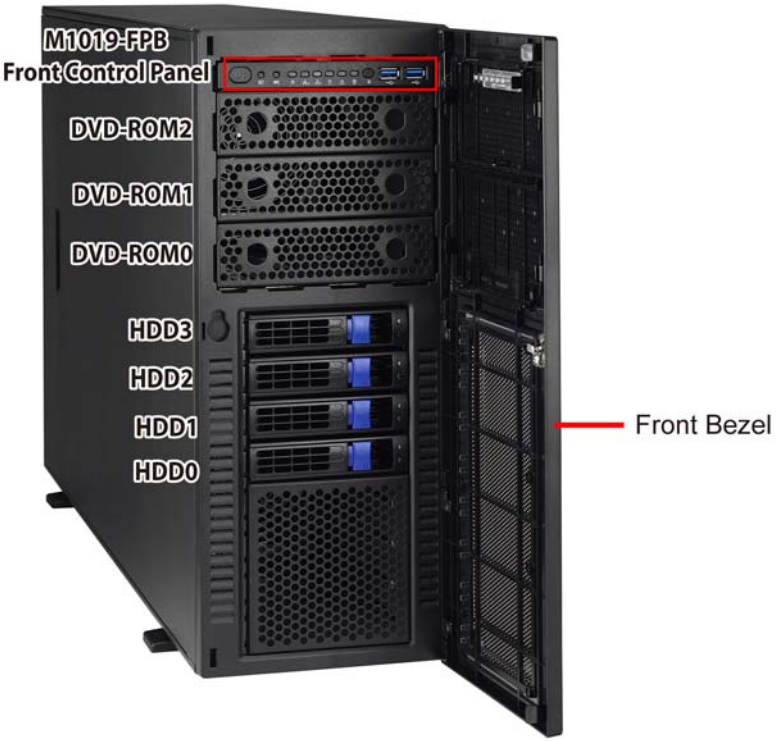
FT48T-B7105 Accessories

- CPU Clip*2
- CPU Heatsink *2
- Quick Installation Guide *1
- Addendum for China Use Only *1
- Driver's and Utility CD *1
- Foot Stand*4 & Screw *4
- CD_ROM_Rail *3
- CD_ROM_Rail Screw Kit *1
- AC Power Cord (US) *2
- AC Power Cord (EU) *2
- GPU Card Holder Kit *5
- PCIe Air Duct Kit *1 (only for B7105F48TV4HR-2T-N)
- 8-pin CPU Power Cable *5 (only for B7105F48TV4HR-2T-N)
- 6-Pin +8-pin PCIe Power Cable *5
- SATA Internal Cable *2
- SATA Power Cable *2
- Screw Pack for M.2 *2
- Screw Pack for HDD *2
- Sliding Rail *1 (Optional)

1.5 About the Product

The following views show you the product.

1.5.1 System Front View



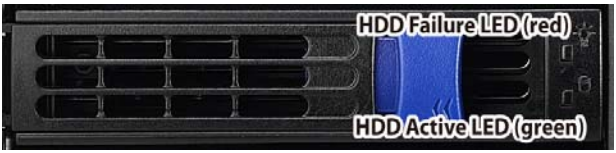
Front Control Panel (M1019-FPB pre-installed)

1	Power Button
2	Reset Button
3	NMI Button
4	ID LED
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

M1019-FPB LED Definition

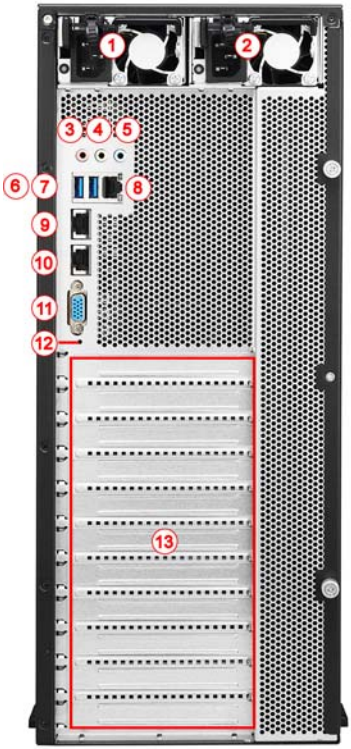
LED	Color	Behavior
#4 ID LED	Blue	Located / Solid On Normal / Normal
#5 LAN2 LED	Green	Access / Blinking Linking / Solid On
#6 LAN1 LED	Green	Access / Blinking Linking / Solid On
#7 HDD LED	Amber	Ready / Off Access / Blinking
#8 Warning LED	Amber	System Normal / Off System Warning / Solid On
#9 Power LED	Green	System Power On / Solid On System Power Off / Off

HDD LED Definitions



Drive State	Active LED (Green)	Failure LED (Red)
Drive present, no activity	Green Solid On	Off
Drive present, with activity	Green Blinking	Off
Drive Failed	Don't care	Red Solid On
Drive dentify	Don't care	Red Blinking @1 Hz
Drive Rebuild	Don't care	Red Blinking @4 Hz

1.5.2 System Rear View

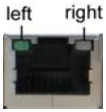


1	PSU0	8	IPMI Port
2	PSU1	9	LAN2
3	MIC	10	LAN1
4	LINE-OUT	11	VGA Port
5	LINE-IN	12	ID LED
6	USB3.0 Port2	13	Expansion Slots
7	USB3.0 Port1		

10Gbps LAN Port LAN Indication

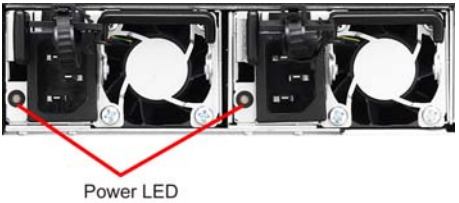
10Gbps LAN Link/Activity LED Scheme			
		**Left LED (Link/Activity) LED Color: Green**	**Right LED (Speed) LED Color: Yellow**
No Link		OFF	OFF
100 Mbps	Link	Green Solid On	Green Solid On
	Active	Green Blinking	Green Solid On
1000 Mbps (1Gbps)	Link	Green Solid On	Yellow Solid On
	Active	Green Blinking	Yellow Solid On
10 Gbps	Link	Yellow Solid On	Yellow Solid On
	Active	Yellow Blinking	Yellow Solid On

1Gbps LAN Port LAN Indication

1Gbps LAN Link/Activity LED Scheme			
		**Left LED (Link/Activity) LED Color: Green**	**Right LED (Speed) LED Color: Amber**
No Link		OFF	OFF
10 Mbps	**Link**	Green Solid On	OFF
	Active	Green Blinking	OFF
100 Mbps	**Link**	Green Solid On	Green Solid On
	Active	Green Blinking	Green Solid On
1000 Mbps (1Gbps)	**Link**	Green Solid On	Amber Solid On
	Active	Green Blinking	Amber Solid On

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

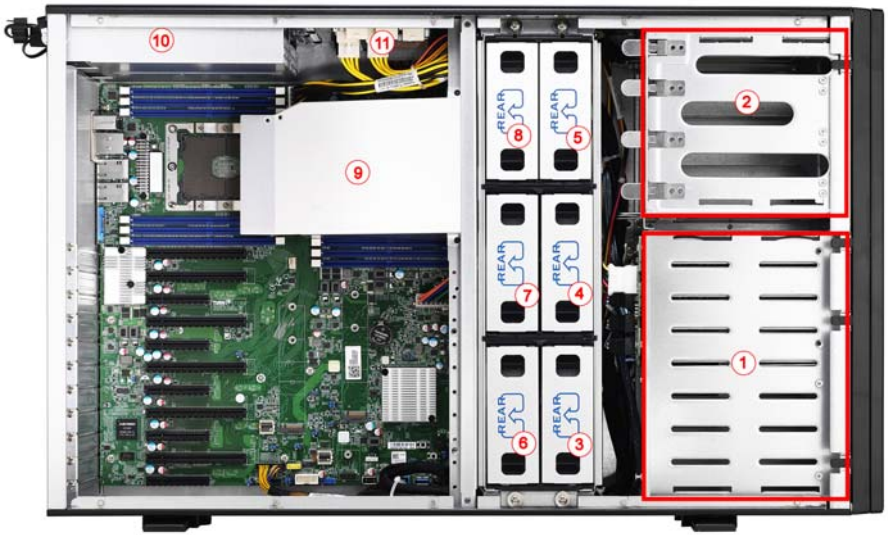
Power LED Definitions



	Bicolor	
Power Supply condition	**Green LED**	**Amber LED**
No AC power to all power supplies	OFF	OFF
Power supply critical event causing a shutdown; failure, OCP, OVP, Fan Fail, OTP, UVP	OFF	Amber Solid ON
Power supply warning events where the power supply continues to opeate; high temp (inlet temperature>51 deg (PMBus reading), or hot spot temperature >95 deg (PMBus reading), high power, high current, slow fan (Fan warning +/- 20% RPM)	OFF	Amber Blinking @1Hz
AC present Only 12VSB on (PS off) or PS in Smart Redundant state	Green Blinking @1Hz	OFF
Output ON and OK	Green Solid ON	OFF
AC cord unplugged or AC power lost with a second power supply in parallel still with AC input power	OFF	Amber Solid ON

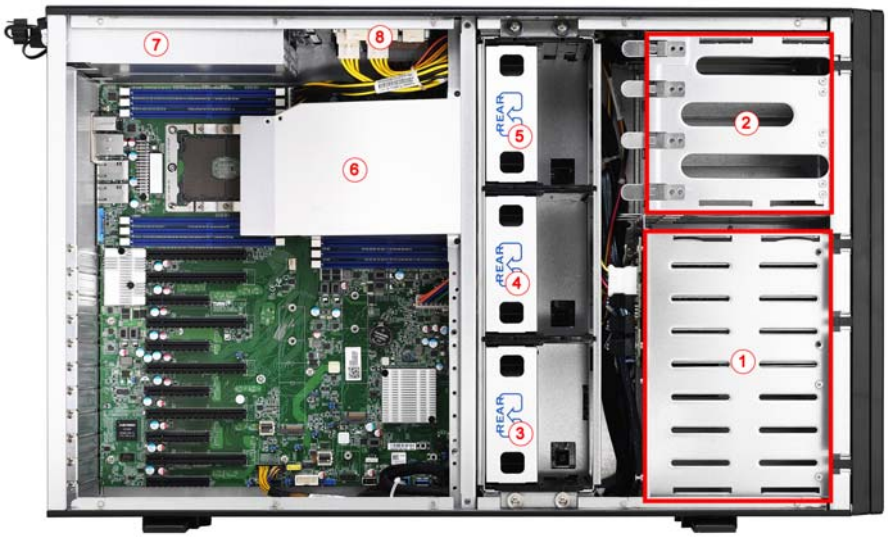
1.5.3 System Top View

B7105F48TV4HR-2T-N



1	(4) HDD trays (M1237F48-BP6-4 HDD Backplane Board pre-installed)
2	(3) DVD-ROM trays (M1019-FPB Front Panel Board pre-installed)
3	FAN6
4	FAN5
5	FAN4
6	FAN3
7	FAN2
8	FAN1
NOTE: M1809F77A-FB Fan Board is pre-installed.	
9	Air Duct
10	Power Supply
11	M1622F48T-D-PDB (pre-installed)

B7105F48TV4HR-2T-G



1	(4) HDD trays (M1237F48-BP6-4 HDD Backplane Board pre-installed)
2	(3) DVD-ROM trays (M1019-FPB Front Panel Board pre-installed)
3	FAN3
4	FAN2
5	FAN1
NOTE: M1809F77A-FB Fan Board is pre-installed.	
6	Air Duct
7	Power Supply
8	M1622F48T-D-PDB (pre-installed)

NOTE

2.0.1 Before you Begin

This chapter explains how to install the CPUs, CPU heatsinks, memory modules, and SSD/HDD. 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 FT48T-B7105 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

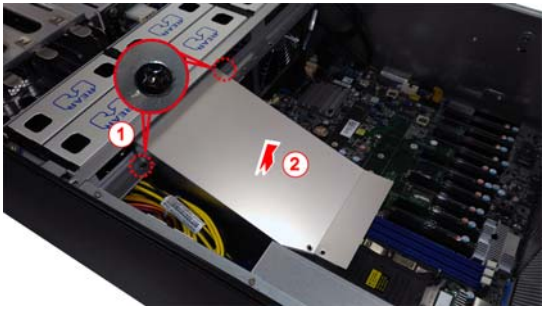
This section describes how to install components on to the motherboard, including CPUs, memory modules, SSD/HDD and PCI-E cards.

2.1.1 Removing the Chassis Cover

Follow these instructions to remove the FT48T-B7105 chassis cover.

1. Loosen one screw and two thumb screws to slide the top cover off.

2. Unscrew to remove the CPU air duct from the chassis.



2.1.2 Opening the Chassis Front Bezel

Follow these instructions to open the chassis front bezel.

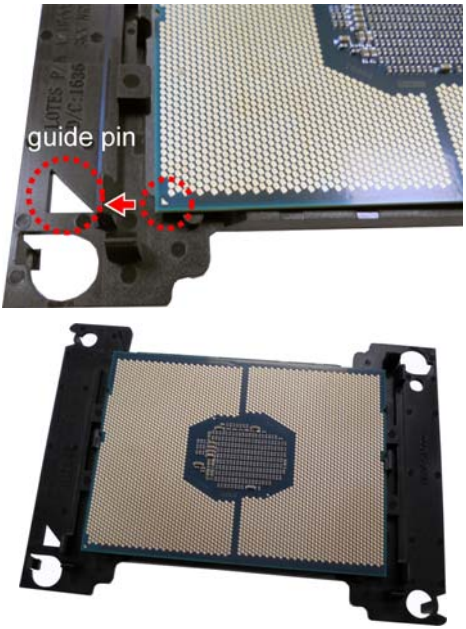
1. Insert the front bezel key (packed in a bag in the accessory box) and rotate the key 90 degrees counterclockwise to unlock the front bezel.

2. Open the front bezel.

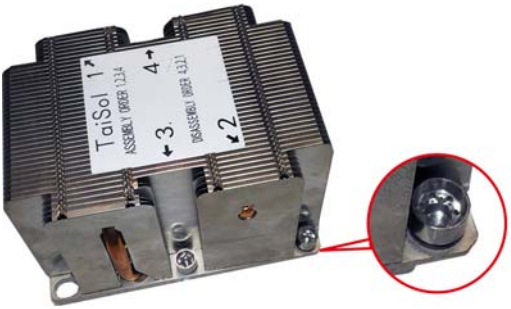
2.1.3 Installing the CPU and Heatsink

Follow the steps below on installing CPUs and CPU heatsinks.

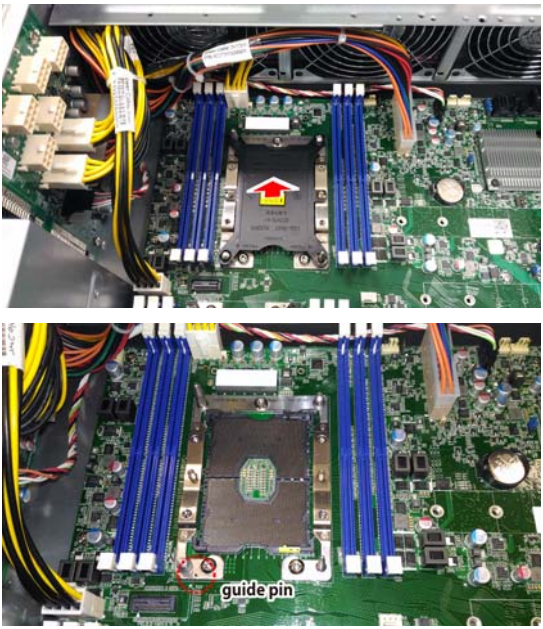
1. Align and install the processor on the carrier.



2. Carefully flip the heatsink. Then install the carrier assembly on the bottom of the heatsink and make sure the guide pin is located in the correct direction.



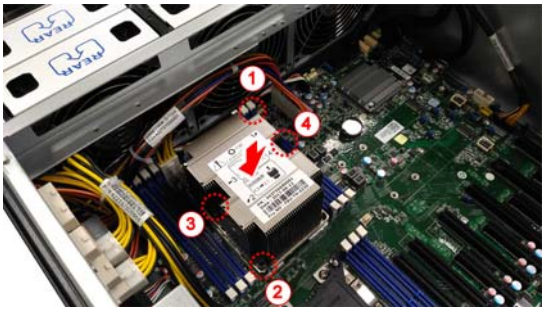
3. Always start with CPU0 first. Remove the CPU Socket protection cap. Locate the CPU socket's guide pin.



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.

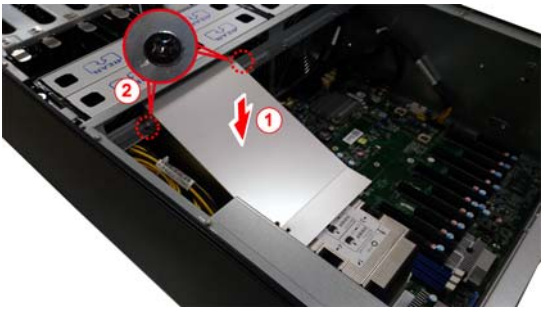
4. Carefully flip the heatsink. Align the heatsink with the CPU socket by the guide pin and make sure the guide pin is located in the correct direction. Then place the heatsink onto the top of the CPU socket.



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.

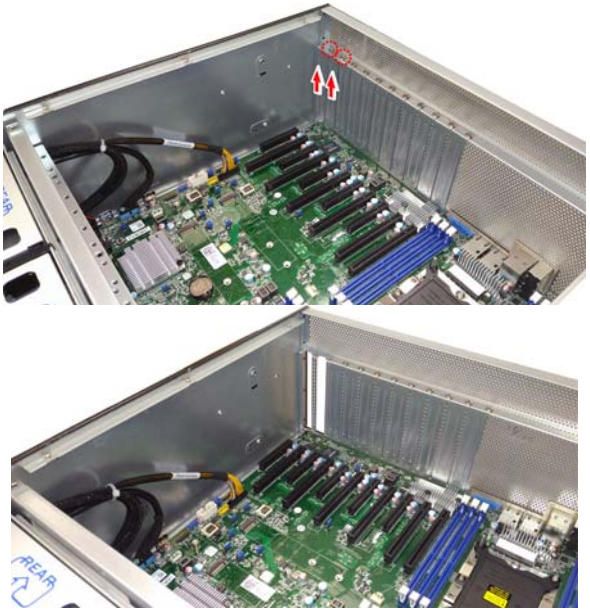
7. Place the CPU air duct back and screw it to the chassis.



2.1.4 Installing the Expansion Cards

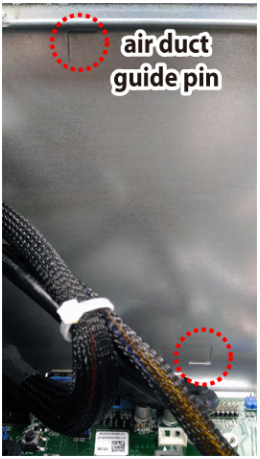
Follow the instructions to install the expansion cards.

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



2. Screw the GPU bracket to the GPU card.

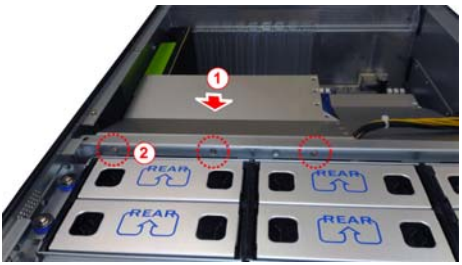
3. Locate the guide pins of the GPU air duct. Place the GPU air duct on the chassis wall.



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

5. Connect the GPU Power cable.

6. Replace the GPU air duct and screw it to the Mid-bar.



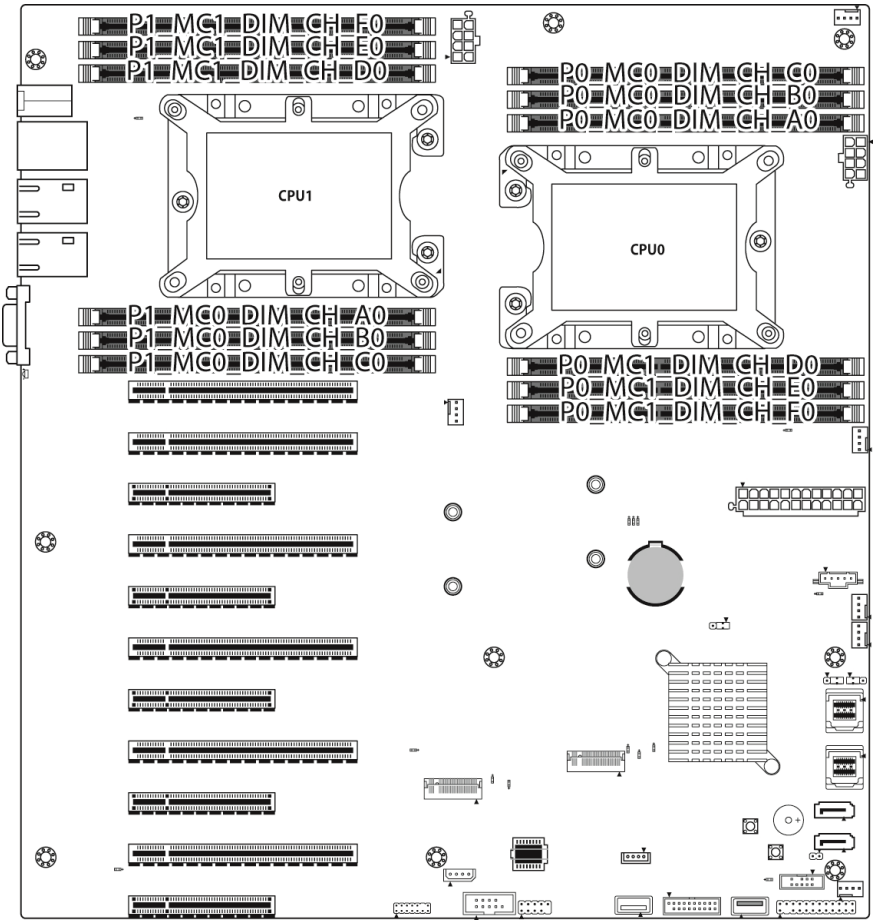
2.1.5 Installing the Memory

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

1. Locate the memory slots on the motherboard.
2. Press the memory slot locking levers in the direction of the arrows as shown in the following illustration.

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

DIMM Location



Recommended Memory Population Table (Single CPU)

	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_MC1_DIM_CH_D0				√	√	√
P0_MC1_DIM_CH_E0					√	√
P0_MC1_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

Recommended Memory Population Table (Dual CPU)

	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_MC1_DIM_CH_D0		√	√	√	√	√
P0_MC1_DIM_CH_E0			√	√	√	√
P0_MC1_DIM_CH_F0			√	√	√	√
P1_MCO_DIM_CH_A0				√	√	√
P1_MCO_DIM_CH_B0				√	√	√
P1_MCO_DIM_CH_C0					√	√
P1_MC1_DIM_CH_D0					√	√
P1_MC1_DIM_CH_E0						√
P1_MC1_DIM_CH_F0						√

2.1.6 Installing Hard Drives

The FT48T-B7105 can support up to four (4) 3.5”/2.5” SSD/HDD. 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 lever latch and pull the locking lever open.

2. Slide the HDD tray out.

3. Place a 3.5"/2.5” SSD/HDD into the HDD tray.

3.5” HDD

2.5” SSD/HDD

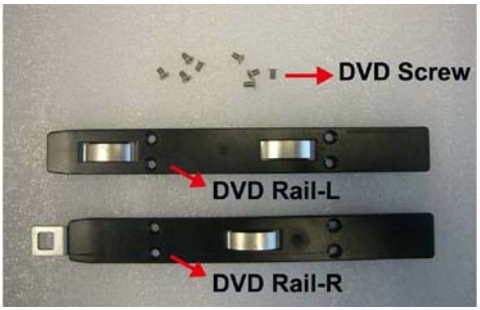
4. Turn over the HDD unit and secure the SSD/HDD using 4 HDD screws.

5. Reinsert the HDD tray into the chassis and press the locking lever to secure the tray. Close the front bezel.

2.1.7 Installing the DVD-ROM

Follow these instructions to install the DVD-ROM.

1. Take out the DVD-ROM Kit.



2. Assemble the DVD Rail-L and Rail-R to the DVD device and secure with 8 screws.

3. Open the front bezel, and select the device tray where to insert the DVD-ROM.

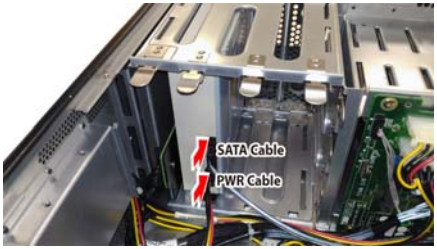
4. Unscrew to remove the selected device tray as shown below.

5. Install the DVD-ROM into the chassis.

6. Connect the SATA cable to the motherboard and route the cable along the side of the chassis.

7. Connect the DVD-ROM PWR cable to the Power Distribution Board.

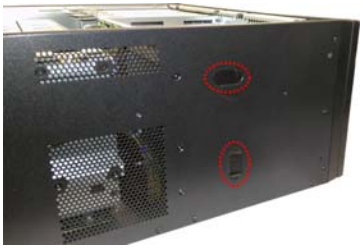
8. Connect the SATA cable and PWR cable to the DVD-ROM device.



2.2 Installing Foot Stands

Follow these instructions to install the footsands.

1. Peel off the mylars.

2. Take out the Footstand Kit.

3. Screw the footstands to the chassis (both front and rear).

2.3 Rack Mounting

After installing the necessary components, the TYAN FT48T-B7105 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: Nut for M6 screw --- 10 pcs
B: M6--10 pcs

A B

2.3.1 Installing the FT48T-B7105 in a Rack

Follow these instructions to mount the TYAN FT48T-B7105 into an industry standard 19" rack.

NOTE: Before mounting the TYAN FT48T-B7105 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. Unscrew to remove the side cover.

2. Screw the mounting ears to the FT48T-B7105 as shown using six M4-L5 screws (black).

Left

Right

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

4. Install the inner sliding rail to each side of the server using five M4-L5 screws.

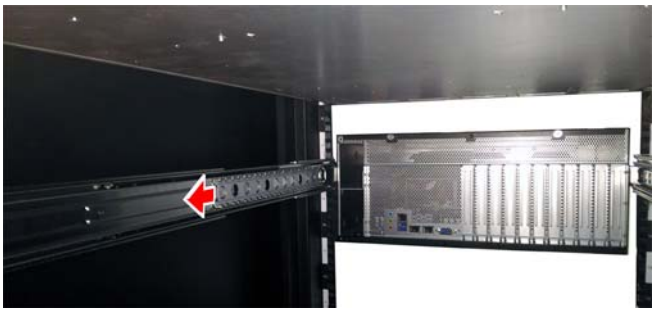
Installing the Outer Rails to the Unit

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 five nut (3 front, 2 rear) (A) for each side. Secure the mounting brackets from outside, not inside of the rack.

Rack Mounting the Server

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



2. Push the whole system in.

3. Secure the mounting ears to the rack using two M6 screws (B).

4. Push the latch on both sides of the chassis simultaneously to pull the system out.

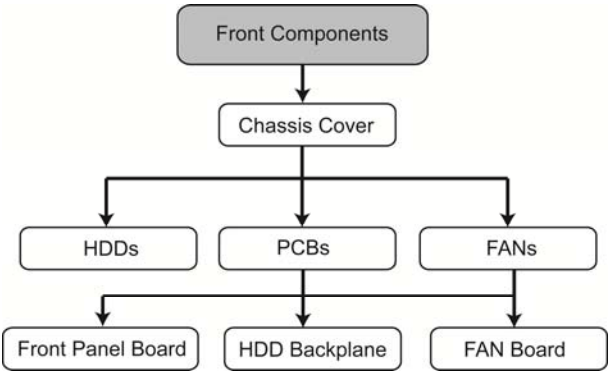
Chapter 3: Replacing Pre-Installed Components

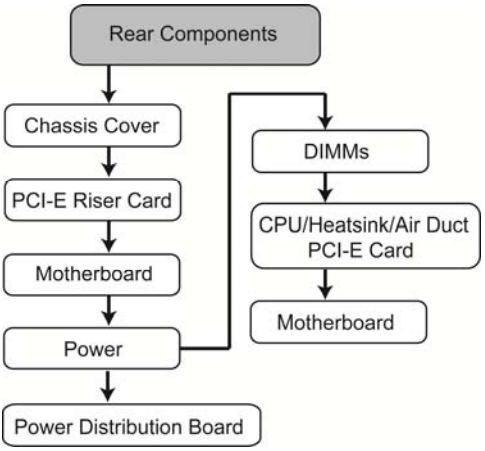
3.0.1 Introduction

This chapter explains how to replace the pre-installed components, including the S7105 Motherboard, M1019-FPB Front Panel Board, M1237F48-BP6-4 SATA/SAS HDD Backplane Board, M1809F77A-FB Fan Board, M1622F48T-D-PDB Power Distribution Board, System Fan and Power Supply Unit etc.

3.0.2 Disassembly Flowchart

The following flowchart outlines the disassembly procedures.





3.1 Removing the Cover

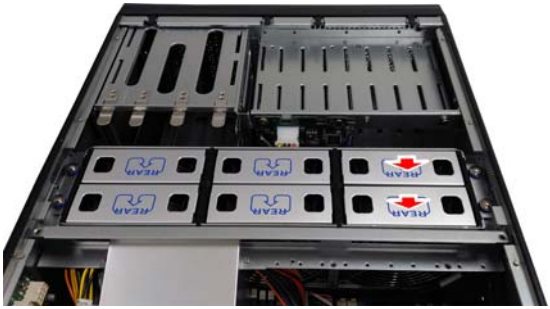
Before replacing any parts you must remove the chassis cover. Follow Section ***2.1.1 Removing the Chassis Cover*** (page ***37***) to remove the cover of the FT48T-B7105.

3.2 Replacing the System Fan

Follow these instructions to replace the system fan.

1. Take out the failed fans.

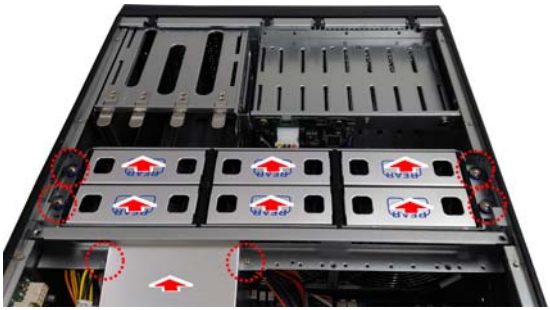
2. Prepare new fans and insert them into the fan cage.



3.3 Replacing the Fan Board

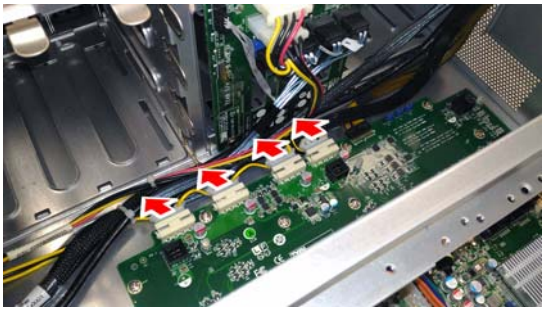
Follow these instructions to replace the fan board.

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



2. Take out the fan cage.

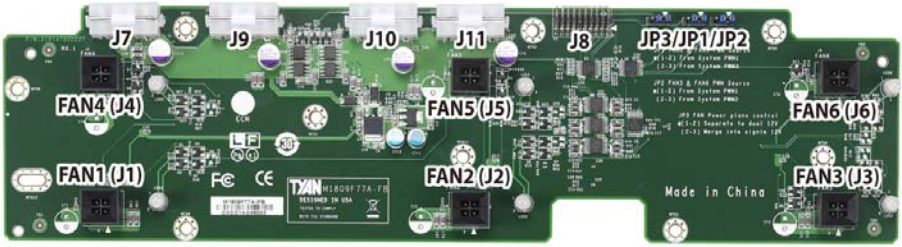
3. Disconnect all cables from the fan board.



4. Unscrew the fan board to replace with 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



M1809F77A-FB Fan Board	
Form Factor	W81.4 x L312.28 (mm), 4-layer PCB
Specifications	(4) Big 4P Power Connector (J7/J9/J10/J11) (6) 2x2-pin FAN Connector (J1/J2/J3/J4/J5/J6) (1) 2x10-pin TYAN Barebone FAN Connector (J8)

FAN Sequence

Front Side (facing HDD)

FAN4	FAN5	FAN6
FAN1	FAN2	FAN3

Rear Side (facing Mainboard)

3.3.2 Pin Definitions

J1/J2/J3/J4/J5/J6: 2x2-pin Power Connector

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

J8: 2×10-Pin System Fan Connector for Motherboard

Definition	Pin	Pin	Definition
Tachometer Input1	1	2	Tachometer Input6
Tachometer Input2	3	4	Tachometer Input7
Tachometer Input3	5	6	Tachometer Input8
Tachometer Input4	7	8	Tachometer Input9
Tachometer Input5	9	10	Tachometer Input10
GND	11	12	KEY
PWM Output2	13	14	PWM Output1
Tachometer Input11	15	16	SMB Data
Tachometer Input12	17	18	SMB Clock
3.3V Standby	19	20	PWM Output3

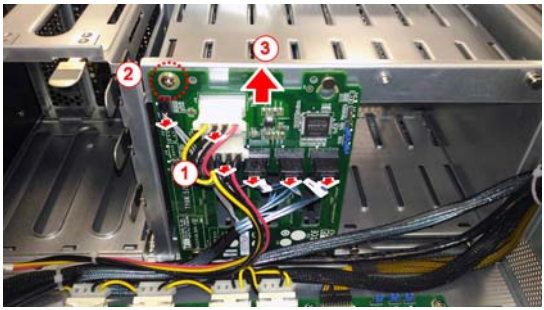
J7/J9/J10/J11: 1×4-Pin ATX Power Connector for Fan

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

3.4 Replacing the HDD Backplane Board

Follow these instructions to replace the M1237F48-BP6-4 SATA/SAS HDD Backplane Board.

1. Refer to Section ***3.3 Replacing the Fan Board*** on how to remove the Fan Cage and Fan Board.
2. Disconnect all cables attached to the HDD BP Board and unscrew to take it out.

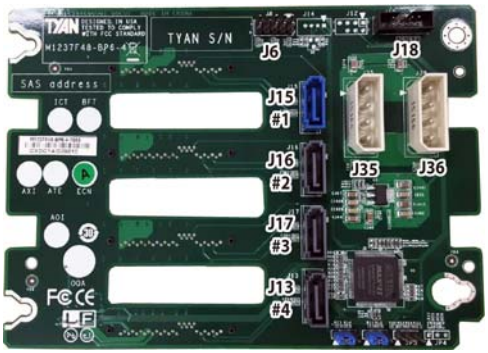


3. Prepare a new HDD BP Board and reinstall it into the chassis following the steps in reverse.

3.4.1 HDD BP Board Features

Here shows the M1237F48-BP6-4 HDD Backplane Board in details.

Front view:

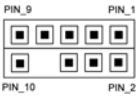


Rear view:

M1237F48-BP6-4 HDD Backplane Board	
Specifications	(2) Big 4-pin Power Connectors (J35/J36) (4) SATA 7-pin Connectors (J15/J16/J17/J13) (4) port 3.5" SAS/SATA 12Gb/s & hot-swap support (J1/J2/J4/J5) (1) 2x5-pin SGPIO Connector to MB (J18) (1) 2x5-pin CPLD JTAG Connector (J6)

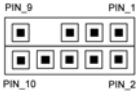
3.4.2 Connector Pin Definitions

J6: Burning FW Header



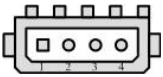
Definition	Pin	Pin	Definition
CPLD_JTAG_TCK	1	2	GND
CPLD_JTAG_TDO	3	4	VDD_3P3_RUN
CPLD_JTAG_TMS	5	6	NC
NC	7	8	KEY Pin
CPLD_JTAG_TDI	9	10	GND

J18: SGPIO Header



Definition	Pin	Pin	Definition
FPIO_SCL	1	2	SDATAIN
FPIO_SDA	3	4	SDATAOUT
GND	5	6	SAS_SIO_END_A
KEY Pin	7	8	SAS_SIO_CLK_A
NC	9	10	HD_ERR_LED

J35/J36: Big 4 pin Power Connector

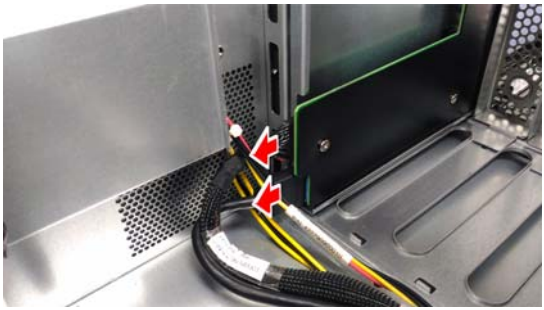


Definition	Pin	Pin	Definition
VDD_12_RUN	1	2	GND
GND	3	4	VDD_5_RUN

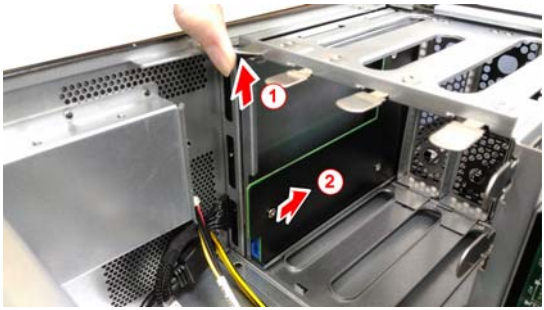
3.5 Replacing the Front Panel Board

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

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



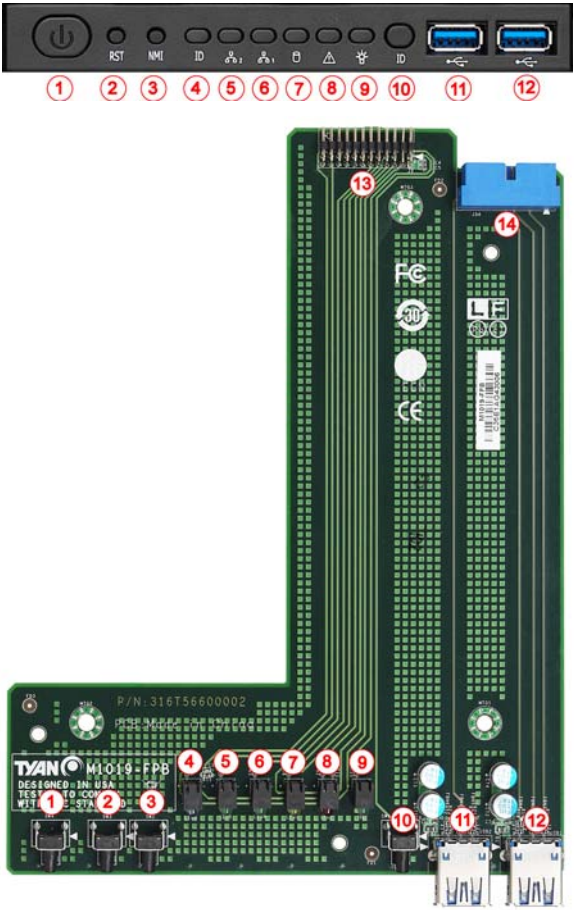
2. Pull up the latch and slide the LED control board unit out of the chassis.



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

4. Lift up the mylar and 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. Pull the lever to a fully open position. Press and hold the latch to pull the power supply out.

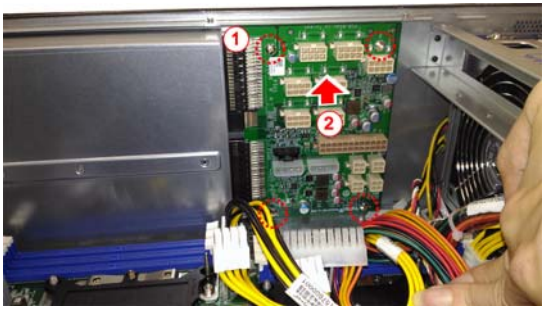
2. After replacing a new power supply, press and hold the latch to push the power supply back into the chassis.

3.7 Replacing the Power Distribution Board

Follow these instructions to replace the M1622F48T-D-PDB Power Distribution Board.

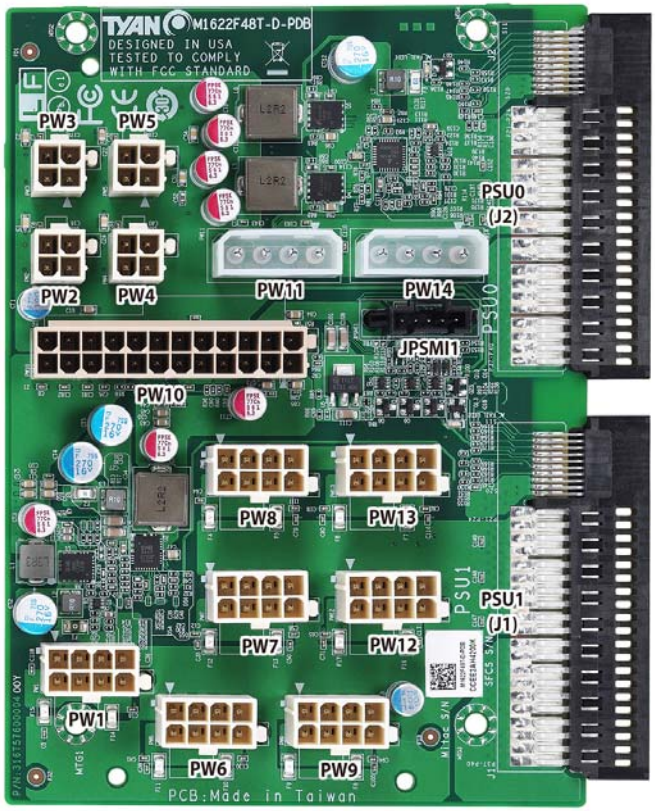
1. Disconnect all cables connected to the PDB.

2. Unscrew the power distribution board to lift it up for replacement.



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

3.7.1 Power Distribution Board Features

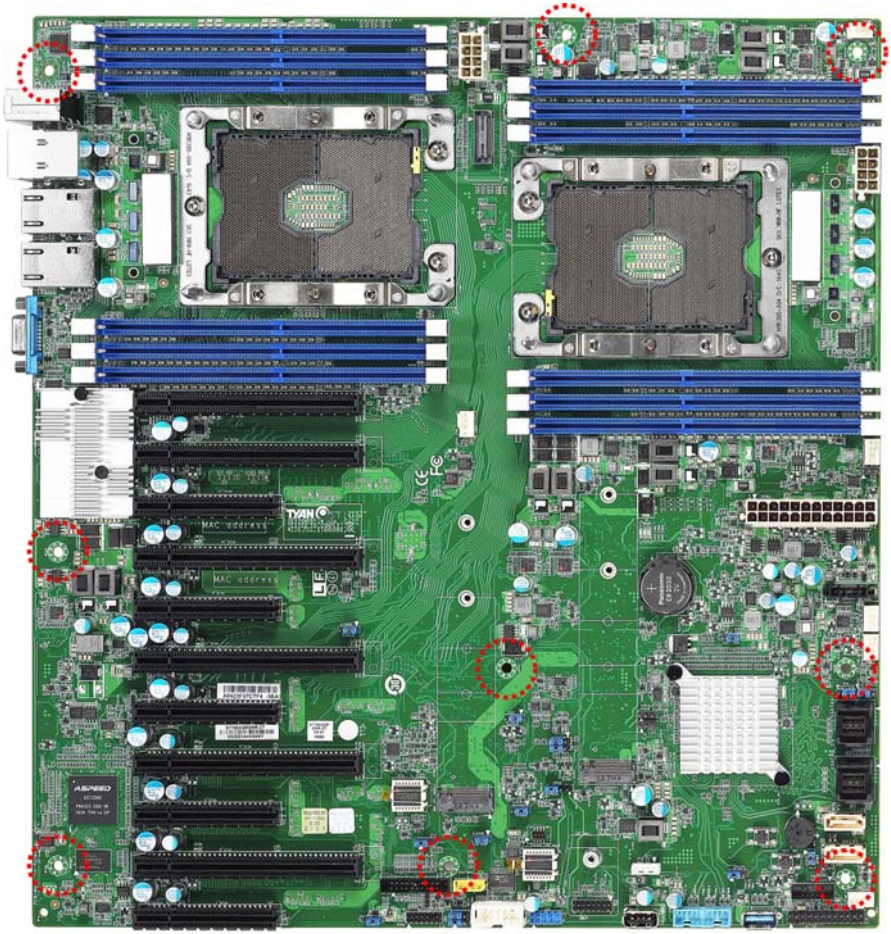


M1622F48T-D-PDB Power Distribution Board	
Specifications	Support 12V to 5V & 3.3V (2) Golden-Finger power connector (PSU0/PSU1) (1) PSMI Connector (JPSMI1) (1) 2x12 Pin SSI MB Power Connector (PW10) (7) 2x4 Pin SSI CPU Power Connector (PW1/6/7/8/9/12/13) (4) 2x2 Pin 5V & 12V Power Connector (PW2/3/4/5) (2) Big 4P Power Connector (PW11/PW14)

3.8 Removing the Motherboard

Follow these instructions to replace the S7105 Motherboard.

1. Refer to the sections described earlier to remove all cables and components on the motherboard.
2. Unscrew the motherboard.



3. Carefully lift the motherboard from the chassis.
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:

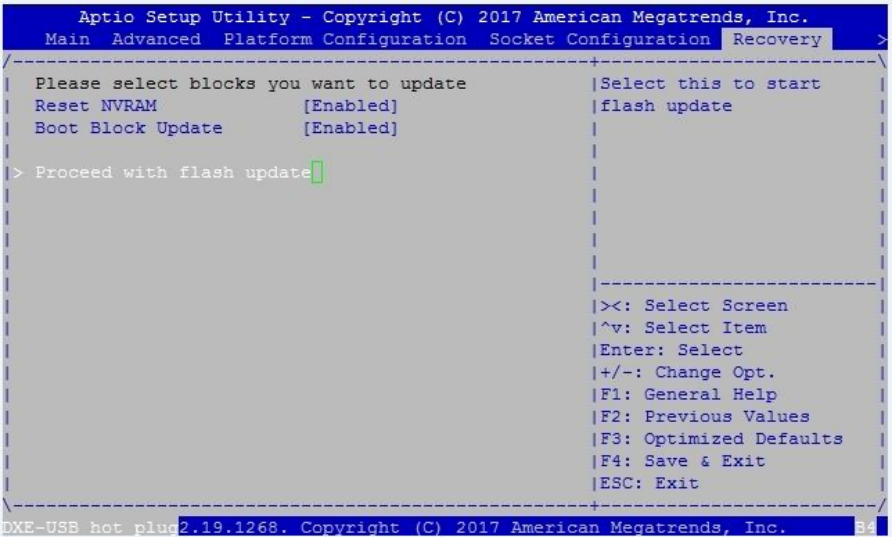
The emergency UEFI BIOS Recovery process is only used to rescue a system with a failed or corrupted BIOS image that fails to boot to an OS. It is not intended to be used as a general purpose BIOS flashing procedure and should not be used as such. Please do not shutdown or reset the system while the BIOS 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.



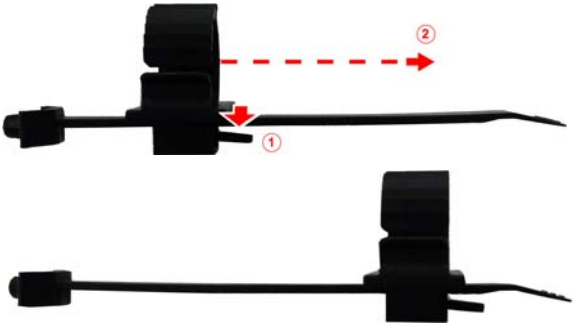
6. IMPORTANT: Do not power off or reboot the server during the BIOS recovery process. This can damage the BIOS recovery bootloader and prevent it from loading a subsequent time.
7. Wait for the BIOS recovery procedure to complete. Completion is signified with the message “Flash update completed. Press 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: How to install Power Wire Clip

Follow these instructions to install the Power Wire Clip.

1. Press the lever to pull the clip to the right.



2. Insert the Power Wire Clip into the Power Wire Clip Jack.

3. Plug in the AC Power Cord.

4. Press to lock the clip and push the clip forwards.


2
1

Appendix III: Cable Connection Tables

1. Fan ctrl cable

Fan BP to S7105 MB			
	Fan BP	Connect to	S7105 MB
Fan ctrl Cable	J8	→	FAN_HD1

2. Mini-SAS HD Cable

	M1237F48-BP6 -4 BP Board	Connect to	S7105 MB
Mini-SAS HD Cable	J13, J17, J16, J15 & J18	→	SATA0_3

3. Fan BP PWR Cable

FAN BP to PDB			
	FAN BP	Connect to	PDB
Fan BP PWR Cable	J9, J7, J10 & J11	→	PW3 & PW5

4. HDD BP PWR Cable

HDD BP to PDB			
	HDD BP	Connect to	PDB
2x2P to B4P PWR Cable	J35 & J36	→	PW2

5. FP Ctrl and USB Cable

Front Panel Board (FPB) to S7105 MB			
	FPB	**Connect to**	**S7105 MB**
FP Ctrl Cable	J3	→	SSI_FP
USB3.0 Cable	J34	→	USB3_FPIO2

6. GPU PWR Cable

PDB Board to GPU Card			
	PDB Board	**Connect to**	**GPU card**
GPU PWR Cable-1	PW1	→	GPU card-1
GPU PWR Cable-2	PW6	→	GPU card-2
GPU PWR Cable-3	PW7	→	GPU card-3
GPU PWR Cable-4	PW9	→	GPU card-4
GPU PWR Cable-5	PW12	→	GPU card-5

7. 2x12P, 2x4P PWR & PSMI Cable

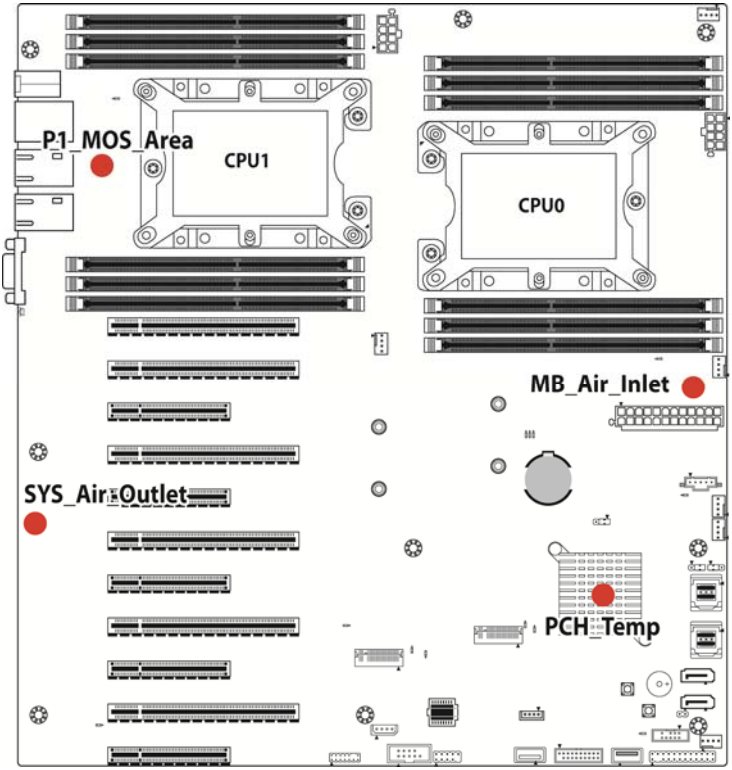
PDB Board to S7105 MB			
	PDB Board	**Connect to**	**S7105 MB**
2x12P PWR Cable	PW10	→	PWCN1
2x4P PWR Cable-1	PW13	→	PWCN2
2x4P PWR Cable-2	PW8	→	PWCN3
PSMI Cable	JPSMI1	→	PSMI

NOTE: Please note the thermal design power (TDP) of GPU must be less than 250W or OCP (over current protect) will occur.

Appendix IV: 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.

Figure 1: Sensor Location

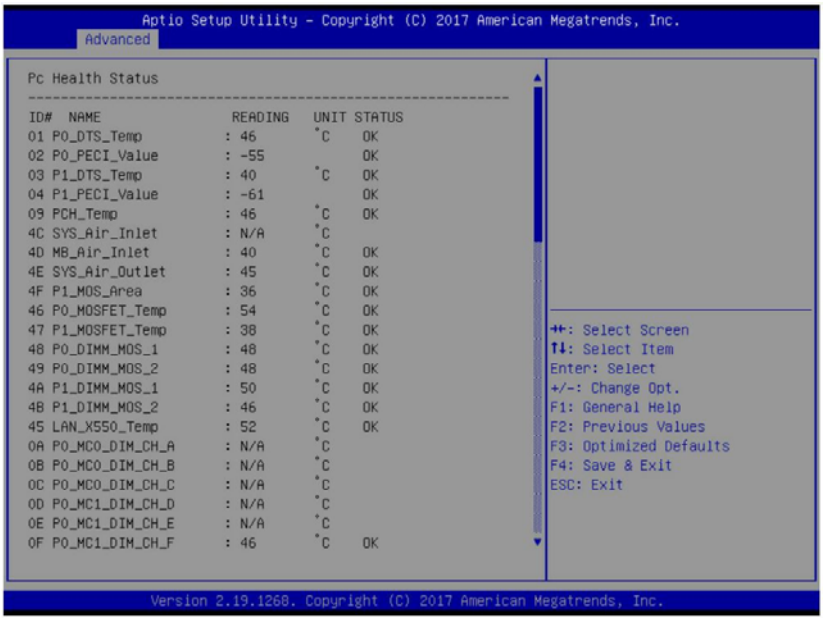


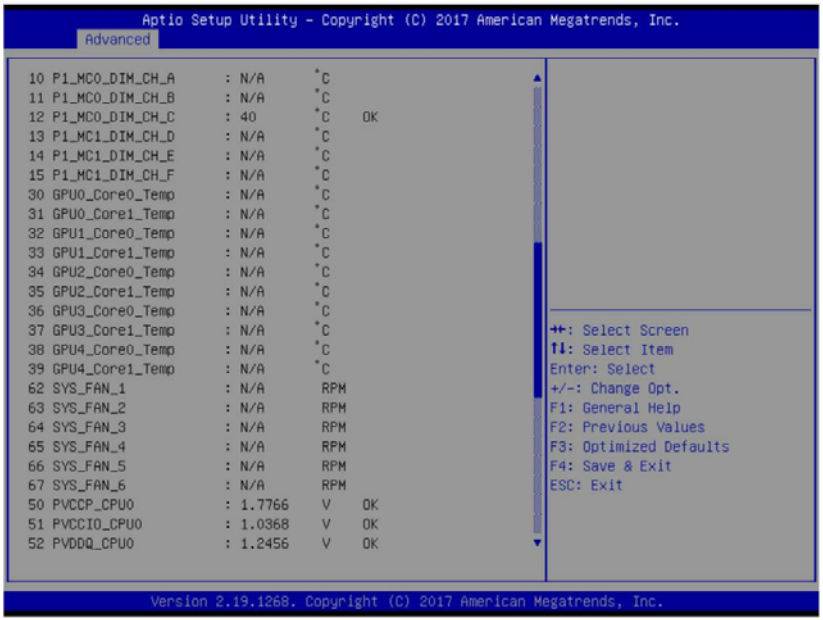
NOTE: The red spot indicates the sensor.

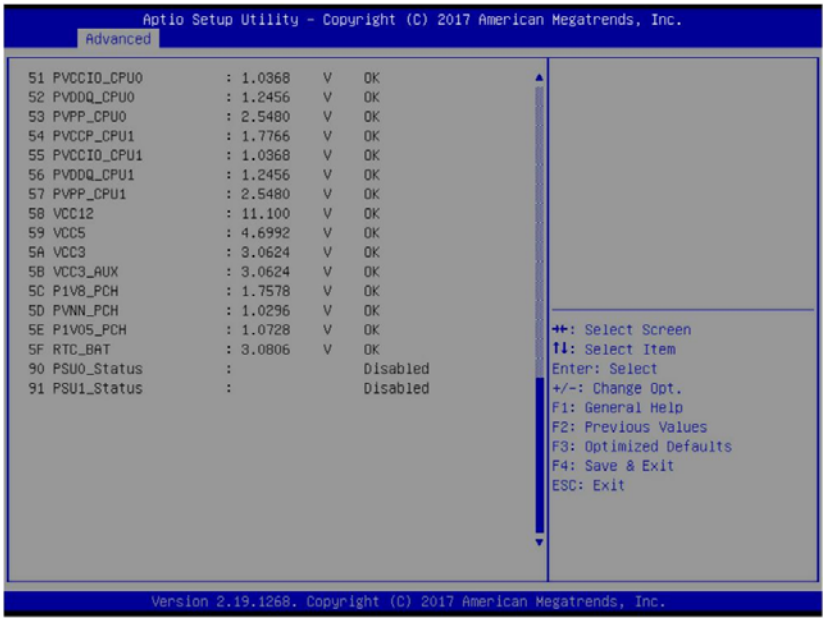
Fan and Temp Sensor Location:

1. Fan Sensor: It is located in the third pin of the fan connector, which detects the fan speed (rpm)
2. Temp Sensor: refer to Figure 1: Sensor Location. They detect the system temperature around.

BIOS Temp Sensor Name Explanation:



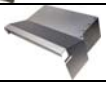




BIOS Temp Sensor	Name Explanation
P0_ DTS_Temp	Temperature of the CPU0 Digital Temperature Sensor
P1_ DTS_Temp	Temperature of the CPU1 Digital Temperature Sensor
P0_ PECI_Value	Temperature value of the CPU0 Platform Environment Control Interface (PECI)
P1_ PECI_Value	Temperature value of the CPU1 Platform Environment Control Interface (PECI)
PCH_Temp	Temperature of the PCH
SYS_Air_Inlet	Sensor located on the Front Panel Board
MB_Air_Inet	Temperature of the M/B Air Inlet Area
SYS_Air_Outlet	Temperature of the System Air Outlet Area
SAS_3008_Temp.	Temperature of the LSI SAS 3008 Chip
P1_MOS_Area	Temperature of the P1_MOS_Area
P0_MOSFET_Temp	The Max Temperature of CPU0 MOSFET
P1_MOSFET_Temp	The Max Temperature of CPU1 MOSFET
P0_DIMM_MOS_1	The Max Temperature of CPU0 DIMM Area1 MOSFET
P0_DIMM_MOS_2	The Max Temperature of CPU0 DIMM Area2 MOSFET
P1_DIMM_MOS_1	The Max Temperature of CPU1 DIMM Area1 MOSFET
P1_DIMM_MOS_2	The Max Temperature of CPU1 DIMM Area2 MOSFET

LAN_X550_Temp	Temperature of Intel LAN X550 Chipset
P0_MC0_DIM_CH_A	The Temperature of CPU0 DIMM A0 Slot
P0_MC0_DIM_CH_B	The Temperature of CPU0 DIMM B0 Slot
P0_MC0_DIM_CH_C	The Temperature of CPU0 DIMM C0 Slot
P0_MC1_DIM_CH_D	The Temperature of CPU0 DIMM D0 Slot
P0_MC1_DIM_CH_E	The Temperature of CPU0 DIMM E0 Slot
P0_MC1_DIM_CH_F	The Temperature of CPU0 DIMM F0 Slot
P1_MC0_DIM_CH_A	The Temperature of CPU1 DIMM A0 Slot
P1_MC0_DIM_CH_B	The Temperature of CPU1 DIMM B0 Slot
P1_MC0_DIM_CH_C	The Temperature of CPU1 DIMM C0 Slot
P1_MC1_DIM_CH_D	The Temperature of CPU1 DIMM D0 Slot
P1_MC1_DIM_CH_E	The Temperature of CPU1 DIMM E0 Slot
P1_MC1_DIM_CH_F	The Temperature of CPU1 DIMM F0 Slot
GPU0_Core0_TEMP	Temperature of GPU0 Core0 Slot
GPU0_Core1_ TEMP	Temperature of GPU0 Core1 Slot
GPU1_Core0_ TEMP	Temperature of GPU1 Core0 Slot
GPU1_Core1_ TEMP	Temperature of GPU1 Core1 Slot
GPU2_Core0_ TEMP	Temperature of GPU2 Core0 Slot
GPU2_Core1_ TEMP	Temperature of GPU2 Core1 Slot
GPU3_Core0_ TEMP	Temperature of GPU3 Core0 Slot
GPU3_Core1_ TEMP	Temperature of GPU3 Core1 Slot
GPU4_Core0_ TEMP	Temperature of GPU4 Core0 Slot
GPU4_Core1_ TEMP	Temperature of GPU4 Core1 Slot
SYS_FAN_1	Fan Speed of SYS_FAN_1
SYS_FAN_2	Fan Speed of SYS_FAN_2
SYS_FAN_3	Fan Speed of SYS_FAN_3
SYS_FAN_4	Fan Speed of SYS_FAN_4
SYS_FAN_5	Fan Speed of SYS_FAN_5
SYS_FAN_6	Fan Speed of SYS_FAN_6

Appendix V: FRU Parts Table

FT48T-B7105 FRU Parts				
Item	**Model Number**	**Part Number**	**Picture**	**Description**
Power Supply	FRU-PS-0230	471100000319		2000W PSU
FAN	CFAN-0410	541379090002		4800RPM,120*120*38mm,4PIN fan (FAN Q'ty 3pcs)
Heatsink & Cooler	FRU-TH-0220	434T56600001		Heatsink
Rack Mounting Parts	CRAL-0070	340746600010		28" Slide Rail Kit
GPU Card Holder	FRU-SM-0060	452T57600001		GPU card holder kit for K80
Air Duct	FRU-TA-0090	452T57600004		Air duct kit for GPU
Cable	FRU-CS-00850	422T42300004		2*4 pin GPU Card Power Cable,500mm
	FRU-CS-00860	422T57700004		2*3 pin +2*4 pin PCIe Power Cable,500mm
	FRU-CS-0330	332810000514		A/C Power Cord, L=1800mm,US Type
	FRU-CS-0460	332810000515		A/C Power Cord, L=1800mm,EU Type

NOTE

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

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® FT48T-B7105 Service Engineer's Manual V1.0

Document No.: D2413-100