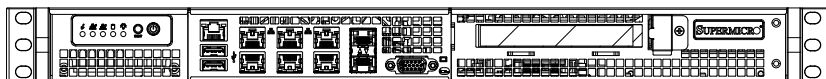# SUPERSERVER®
5018D-FN8T

USER'S MANUAL

Revision 1.0

The information in this User's Manual has been carefully reviewed and is believed to be accurate. The vendor assumes no responsibility for any inaccuracies that may be contained in this document, makes no commitment to update or to keep current the information in this manual, or to notify any person or organization of the updates. **Please Note: For the most up-to-date version of this manual, please see our web site at www.supermicro.com.**

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California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

WARNING: Handling of lead solder materials used in this product may expose you to lead, a chemical known to the State of California to cause birth defects and other reproductive harm.

Manual Revision 1.0
Release Date: June 22, 2016

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Preface

About this Manual

This manual is written for professional system integrators and PC technicians. It provides information for the installation and use of the SuperServer. Installation and maintenance should be performed by experienced technicians only.

Please refer to the server specifications page on our Web site for updates on supported memory, processors and operating systems (http://www.supermicro.com).

Warnings

Special attention should be given to the following symbols used in this manual.

Warning! Indicates important information given to prevent equipment/property damage or personal injury.

Warning! Indicates high voltage may be encountered when performing a procedure.

Contents

Chapter 4 Standardized Warning Statements for AC Systems

Chapter 5 Advanced Motherboard Setup

Chapter 6 Advanced Chassis Setup and Maintenance

Chapter 7 BIOS

Appendix A BIOS POST Error Codes

Appendix B UEFI BIOS Recovery Instructions

Appendix C System Specifications

Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Web Site:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)
Web Site:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc.
	3F, No. 150, Jian 1st Rd.
	Zhonghe Dist., New Taipei City 235
	Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Web Site:	www.supermicro.com.tw

Notes

Chapter 1

Introduction

1-1   Overview

The SuperServer 5018D-FN8T is a compact, low-power network appliance comprised of two main subsystems: the SC505-203B 1U server chassis and the X10SDV-TP8F single processor motherboard. Certified operating systems are listed at www.supermicro.com.

In addition to the motherboard and chassis, various hardware components are listed below:

- One riser card (RSC-RR1U-E8) and bracket for a PCI expansion card

- Cooling: One 4-cm fan (FAN-0065L4)

Note: For your system to work properly, please follow the links below to download all necessary drivers/utilities and the user's manual for your server.

- Product manuals: http://www.supermicro.com/support/manuals/

- Product drivers and utilities: ftp://ftp.supermicro.com

- Product safety information:
  http://www.supermicro.com/about/policies/safety_information.cfm

For support, email support@supermicro.com.

1-2 Motherboard Features

The SuperServer 5018D-FN8T is built around the X10SDV-TP8F, a single processor motherboard designed to provide maximum performance. Below are the main features. (see Figure 1-1 for a block diagram)

Processors

The motherboard supports a single Intel Xeon D-1518 four Core 35W embedded processor.

Memory

The motherboard has four DDR4 slots that can support up to 128 GB of ECC RDIMM or 64GB ECC/Non-ECC UDIMM with a max data rate of 2133MHz.

Serial ATA

The system supports up to four SATA3 (6Gbps) 2.5" hard drives or one 3.5" drive. It also includes one SATA DOM (Disk on Module) power connector.

Input/Output Ports

Externallly accessable ports include eight LAN ports--six RJ-45 at 1GbE speed, and two SFP+ 10GbE, plus a dedicated IPMI LAN port. The system also offers two USB 3.0 ports, and a VGA port.

The motherboard includes four USB 2.0, one USB Type-A header, and a serial port header.

PCI Expansion Slots

The motherboard supports:

- One M.2 PCIe 3.0 x4 Slot, M Key for SSD, SATA 3.0 support (Mux with I-SATA4)

- One Mini PCIe 2.0 x1 slot with mSATA support (Mux with I-SATA5)
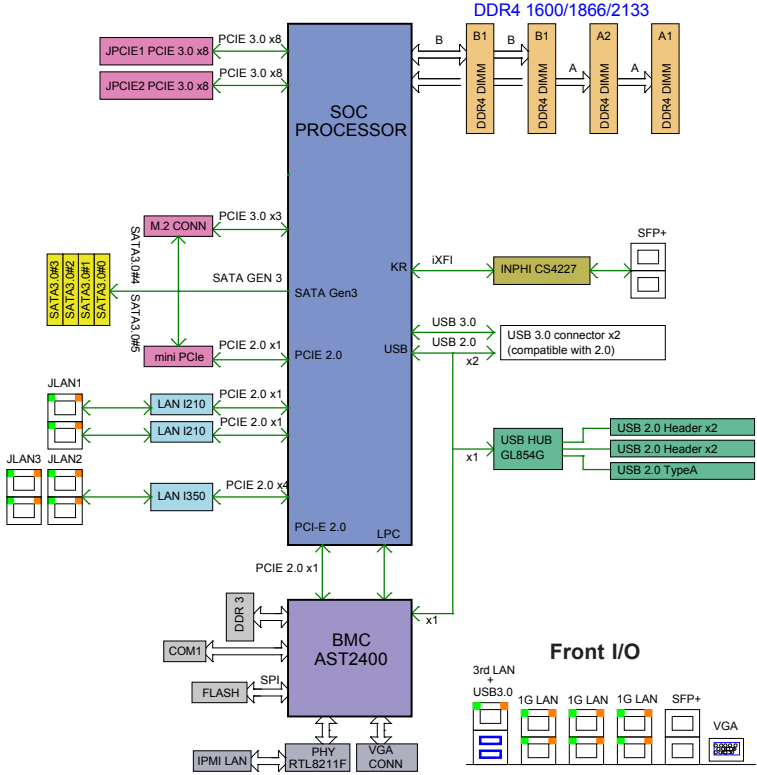
Figure 1-1. System Block Diagram

Note: This is a general block diagram. Refer to Chapter 5 for details.

1-3   Server Chassis Features

The appliance 5018D-FN8T is built on the SC505-203B, a small form factor 1U rackmount server chassis. The following is a general outline of the main features.

System Power

The system has a single 200 watt low-noise AC-DC power supply with PFC.

Drives

The chassis is designed to support fixed internal hard drives or SSDs--up to two 3.5" or up to four 2.5" drives. SATA DOM is also supported.

Control Panel

The control panel provides system monitoring and power control. LEDs indicate power on, network activity, hard disk drive activity and system overheat. The control panel also includes a main power button and a reset button.

PCI Expansion

The chassis provides one front PCI-E expansion card slot. If the server is configured with one 3.5" drive (low profile) or two 2.5" drives (full height), it accepts an expansion card. If the server is configured with four 2.5" drives, there is no room for an expansion card.

Cooling System

The chassis has includes one 4-cm fan, and supports up to three fans. Fan speed may be controlled using IPMI.

1-4   Contacting Supermicro

Headquarters

Address:	Super Micro Computer, Inc.
	980 Rock Ave.
	San Jose, CA 95131 U.S.A.
Tel:	+1 (408) 503-8000
Fax:	+1 (408) 503-8008
Email:	marketing@supermicro.com (General Information)
	support@supermicro.com (Technical Support)
Website:	www.supermicro.com

Europe

Address:	Super Micro Computer B.V.
	Het Sterrenbeeld 28, 5215 ML
	's-Hertogenbosch, The Netherlands
Tel:	+31 (0) 73-6400390
Fax:	+31 (0) 73-6416525
Email:	sales@supermicro.nl (General Information)
	support@supermicro.nl (Technical Support)
	rma@supermicro.nl (Customer Support)
Website:	www.supermicro.nl

Asia-Pacific

Address:	Super Micro Computer, Inc.
	3F, No. 150, Jian 1st Rd.
	Zhonghe Dist., New Taipei City 235
	Taiwan (R.O.C)
Tel:	+886-(2) 8226-3990
Fax:	+886-(2) 8226-3992
Email:	support@supermicro.com.tw
Website:	www.supermicro.com.tw

Notes

Chapter 2

Installation in a Rack

This chapter provides instructions for mounting your chassis in a rack.

2-1   Preparing for Setup

The box in which your system was shipped should include the mounting screws to mount the system into the rack. Please read this chapter in its entirety before beginning the installation procedure.

Choosing a Setup Location

Decide on a suitable location for the rack unit that will hold your system. It should be a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. A nearby grounded power outlet. is required

- Leave at least 25 inches clearance in front of the rack to open the front door completely.

- Leave approximately 30 inches of clearance in the back of the rack to allow for sufficient airflow and access for servicing.

- It should be a restricted access location, such as a dedicated equipment room or a service closet.

2-2   Warnings and Precautions

Rack Precautions

- Ensure that the leveling jacks on the bottom of the rack are fully extended to the floor with the full weight of the rack resting on them.

- In single rack installation, stabilizers should be attached to the rack. In multiple rack installations, the racks should be coupled together.

- Always make sure the rack is stable before extending a component from the rack.

- You should extend only one component at a time - extending two or more simultaneously may cause the rack to become unstable.

Server Precautions

- Review the electrical and general safety precautions in Chapter 4.

- Determine the placement of each component in the rack *before* you install the rails.

- Install the heaviest server components on the bottom of the rack first, and then work up.

- Use a regulating uninterruptible power supply (UPS) to protect the server from power surges, voltage spikes and to keep your system operating in case of a power failure.

- Allow the hot plug SAS drives and power supply modules to cool before touching them.

- Always keep the rack's front door and all panels and components on the servers closed when not servicing to maintain proper cooling.

Rack Mounting Considerations

Ambient Operating Temperature

If installed in a closed or multi-unit rack assembly, the ambient operating temperature of the rack environment may be greater than the ambient temperature of the room. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra).

Reduced Airflow

Equipment should be mounted into a rack so that the amount of airflow required for safe operation is not compromised.

Mechanical Loading

Equipment should be mounted into a rack so that a hazardous condition does not arise due to uneven mechanical loading.

Circuit Overloading

Consideration should be given to the connection of the equipment to the power supply circuitry and the effect that any possible overloading of circuits might have on overcurrent protection and power supply wiring. Appropriate consideration of equipment nameplate ratings should be used when addressing this concern.

Reliable Ground

A reliable ground must be maintained at all times. To ensure this, the rack itself should be grounded. Particular attention should be given to power supply connections other than the direct connections to the branch circuit (i.e. the use of power strips, etc.).

To prevent bodily injury when mounting or servicing this unit in a rack, you must take special precautions to ensure that the system remains stable. The following guidelines are provided to ensure your safety:

- This unit should be mounted at the bottom of the rack if it is the only unit in the rack.

- When mounting this unit in a partially filled rack, load the rack from the bottom to the top with the heaviest component at the bottom of the rack.

- If the rack is provided with stabilizing devices, install the stabilizers before mounting or servicing the unit in the rack.

- Slide rail mounted equipment is not to be used as a shelf or a work space.

2-3   Installing the System into a Rack

The system can be installed into a rack directly using screws**.**
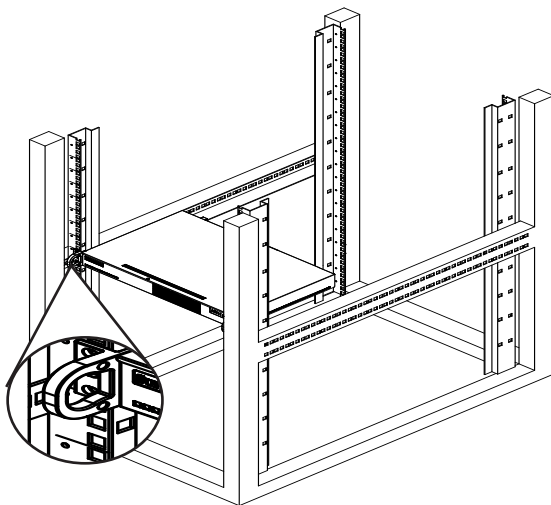
Figure 2-1. Installing the Chassis into a Rack

Note: Figures are for illustrative purposes only. Always install servers into racks from the bottom up.

⚠ **Warning**: Do not pick up the server by the front handles. They are designed to pull the system from a rack only.

⚠ **Stability hazard**. The rack stabilizing mechanism must be in place, or the rack must be bolted to the floor before you slide the unit out for servicing. Failure to stabilize the rack can cause the rack to tip over.

Installing the Chassis into a Rack

1.   Find the four included mounting screws required to mount the chassis into a rack.

2.   Align the mounting holes of the chassis with the thru-holes of the rack.

3.   Insert the mounting screws into the thru-holes in the front of the chassis and through the thru-holes in the rack

Chapter 3

System Interface

3-1   Overview

The chassis includes a control panel on the front that includes power buttons and status monitoring lights, and status lights for the power supply
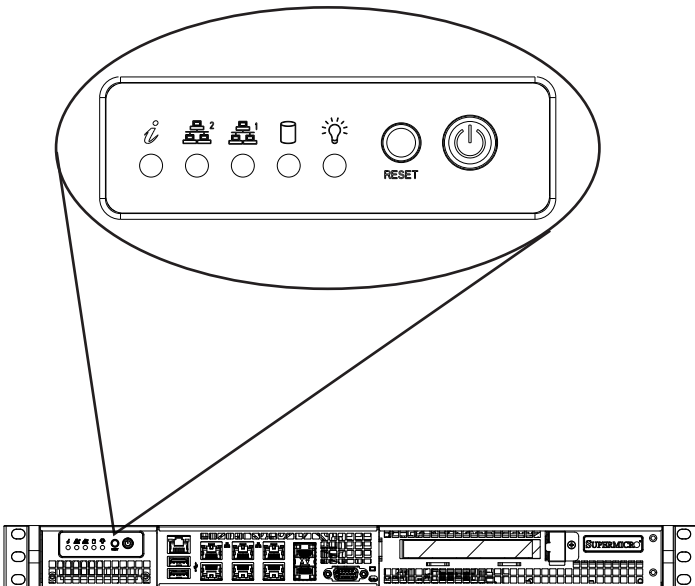
Figure 3-1. Control Panel

3-2 Control Panel Buttons

The chassis includes two push-buttons that control power to the system.

Power: The main power switch is used to apply or remove power from the power supply to the server. Turning off system power with this button removes the main power but maintains standby power. To perform many maintenance tasks, you must unplug system before servicing.

Reset: The reset button is used to reboot the system.

3-3 Control Panel LEDs

There are five LEDs that provide status information about the system.

Information LED: Alerts operator of several states, as noted in the table below.

Information LED	
Status	**Description**
Continuously on and red	An overheat condition has occured. (This may be caused by cable congestion.)
Blinking red (1Hz)	Fan failure, check for an inoperative fan.
Blinking red (0.25Hz)	Power failure, check for a non-operational power supply.
Solid blue	Local UID has been activated. Use this function to locate the server in a rack mount environment.
Blinking blue	Remote UID is on. Use this function to identify the server from a remote location.

NIC2: Indicates network activity on GLAN2 when flashing.

NIC1: Indicates network activity on GLAN1 when flashing.

HDD: Indicates IDE channel activity on the hard drive when flashing.

Power: Indicates power is being supplied to the system power supply units. This LED should normally be illuminated when the system is operating.

Overheating

There are several possible responses if the system overheats.

Overheat Temperature Setting

Some backplanes allow the overheat temperature to be set at 45, 50, or 55 degrees by changing a jumper setting. For more information, consult the backplane user manual on the Supermicro website.

Responses

If the server overheats

1. Use the LEDs to determine the nature of the overheating condition.

2. Confirm that the chassis covers are installed properly.

3. Check the routing of the cables and make sure all fans are present and operating normally.

4. Verify that the heatsinks are installed properly.

Notes.

Chapter 4

Standardized Warning Statements for AC Systems

About Standardized Warning Statements

The following statements are industry standard warnings, provided to warn the user of situations which have the potential for bodily injury. Should you have questions or experience difficulty, contact Supermicro's Technical Support department for assistance. Only certified technicians should attempt to install or configure components.

Read this chapter in its entirety before installing or configuring components in the Supermicro chassis. Some warnings may not apply for your system.

These warnings may also be found on our web site at http://www.supermicro.com/about/policies/safety_information.cfm.

Warning Definition

Warning!

This warning symbol means danger. You are in a situation that could cause bodily injury. Before you work on any equipment, be aware of the hazards involved with electrical circuitry and be familiar with standard practices for preventing accidents.

警告の定義
この警告サインは危険を意味します。
人身事故につながる可能性がありますので、いずれの機器でも動作させる前に、
電気回路に含まれる危険性に注意して、標準的な事故防止策に精通して下さい。

此警告符号代表危险。

您正处于可能受到严重伤害的工作环境中。在您使用设备开始工作之前，必须充分意识到触电的危险，并熟练掌握防止事故发生的标准工作程序。请根据每项警告结尾的声明号码找到此设备的安全性警告说明的翻译文本。

此警告符號代表危險。

您正處於可能身體可能會受損傷的工作環境中。在您使用任何設備之前，請注意觸電的危險，並且要熟悉預防事故發生的標準工作程序。請依照每一注意事項後的號碼找到相關的翻譯說明內容。

Warnung

WICHTIGE SICHERHEITSHINWEISE

Dieses Warnsymbol bedeutet Gefahr. Sie befinden sich in einer Situation, die zu Verletzungen führen kann. Machen Sie sich vor der Arbeit mit Geräten mit den Gefahren elektrischer Schaltungen und den üblichen Verfahren zur Vorbeugung vor Unfällen vertraut. Suchen Sie mit der am Ende jeder Warnung angegebenen Anweisungsnummer nach der jeweiligen Übersetzung in den übersetzten Sicherheitshinweisen, die zusammen mit diesem Gerät ausgeliefert wurden.

BEWAHREN SIE DIESE HINWEISE GUT AUF.

INSTRUCCIONES IMPORTANTES DE SEGURIDAD

Este símbolo de aviso indica peligro. Existe riesgo para su integridad física. Antes de manipular cualquier equipo, considere los riesgos de la corriente eléctrica y familiarícese con los procedimientos estándar de prevención de accidentes. Al final de cada advertencia encontrará el número que le ayudará a encontrar el texto traducido en el apartado de traducciones que acompaña a este dispositivo.

GUARDE ESTAS INSTRUCCIONES.

IMPORTANTES INFORMATIONS DE SÉCURITÉ

Ce symbole d'avertissement indique un danger. Vous vous trouvez dans une situation pouvant entraîner des blessures ou des dommages corporels. Avant de travailler sur un équipement, soyez conscient des dangers liés aux circuits électriques et familiarisez-vous avec les procédures couramment utilisées pour éviter les accidents. Pour prendre connaissance des traductions des avertissements figurant dans les consignes de sécurité traduites qui accompagnent cet appareil, référez-vous au numéro de l'instruction situé à la fin de chaque avertissement.

CONSERVEZ CES INFORMATIONS.

תקנון הצהרות אזהרה

הצהרות הבאות הן אזהרות על פי תקני התעשייה, על מנת להזהיר את המשתמש מפני חבלה פיזית אפשרית. במידה ויש שאלות או היתקלות בבעיה כלשהי, יש ליצור קשר עם מחלקת תמיכה טכנית של סופרמיקרו. טכנאים מוסמכים בלבד רשאים להתקין או להגדיר את הרכיבים.

יש לקרוא את הנספח במלואו לפני התקנת או הגדרת הרכיבים במארזי סופרמיקרו.

تحذير! هذا الرمز يعني خطر انك في حالة يمكن أن تتسبب في اصابة جسدية .
قبل أن تعمل على أي معدات،كن على علم بالمخاطر الناجمة عن الدوائر
الكهربائية
وكن على دراية بالممارسات الوقائية لمنع وقوع أي حوادث
استخدم رقم البيان المنصوص في نهاية كل تحذير للعثور ترجمتها

안전을 위한 주의사항

경고!

이 경고 기호는 위험이 있음을 알려 줍니다. 작업자의 신체에 부상을 야기 할 수
있는 상태에 있게 됩니다. 모든 장비에 대한 작업을 수행하기 전에 전기회로와
관련된 위험요소들을 확인하시고 사전에 사고를 방지할 수 있도록 표준
작업절차를 준수해 주시기 바랍니다.

해당 번역문을 찾기 위해 각 경고의 마지막 부분에 제공된 경고문 번호를

참조하십시오

BELANGRIJKE VEILIGHEIDSINSTRUCTIES

Dit waarschuwings symbool betekent gevaar. U verkeert in een situatie die
lichamelijk letsel kan veroorzaken. Voordat u aan enige apparatuur gaat werken,
dient u zich bewust te zijn van de bij een elektrische installatie betrokken risico's
en dient u op de hoogte te zijn van de standaard procedures om ongelukken te
voorkomen. Gebruik de nummers aan het eind van elke waarschuwing om deze te
herleiden naar de desbetreffende locatie.

BEWAAR DEZE INSTRUCTIES

Installation Instructions

⚠️ **Warning!**

Read the installation instructions before connecting the system to the power source.

設置手順書

システムを電源に接続する前に、設置手順書をお読み下さい。

警告
将此系统连接电源前，请先阅读安装说明。

警告
將系統與電源連接前，請先閱讀安裝說明。

Warnung

Vor dem Anschließen des Systems an die Stromquelle die Installationsanweisungen lesen.

¡Advertencia!

Lea las instrucciones de instalación antes de conectar el sistema a la red de alimentación.

Attention

Avant de brancher le système sur la source d'alimentation, consulter les directives d'installation.

יש לקרוא את הוראות התקנה לפני חיבור המערכת למקור מתח.

اقر إرشادات التركيب قبل توصيل النظام إلى مصدر للطاقة

시스템을 전원에 연결하기 전에 설치 안내를 읽어주십시오.

Waarschuwing

Raadpleeg de installatie-instructies voordat u het systeem op de voedingsbron aansluit.

Circuit Breaker

Warning!

This product relies on the building's installation for short-circuit (overcurrent) protection. Ensure that the protective device is rated not greater than: 250 V, 20 A.

サーキット・ブレーカー

この製品は、短絡(過電流)保護装置がある建物での設置を前提としています。

保護装置の定格が250 V、20 Aを超えないことを確認下さい。

警告

此产品的短路(过载电流)保护由建筑物的供电系统提供，确保短路保护设备的额定电流不大于250V，20A。

警告

此產品的短路(過載電流)保護由建築物的供電系統提供，確保短路保護設備的額定電流不大於250V，20A。

Warnung

Dieses Produkt ist darauf angewiesen, dass im Gebäude ein Kurzschluss- bzw. Überstromschutz installiert ist. Stellen Sie sicher, dass der Nennwert der Schutzvorrichtung nicht mehr als: 250 V, 20 A beträgt.

¡Advertencia!

Este equipo utiliza el sistema de protección contra cortocircuitos (o sobrecorrientes) del edificio. Asegúrese de que el dispositivo de protección no sea superior a: 250 V, 20 A.

Attention

Pour ce qui est de la protection contre les courts-circuits (surtension), ce produit dépend de l'installation électrique du local. Vérifiez que le courant nominal du dispositif de protection n'est pas supérieur à :250 V, 20 A.

מוצר זה מסתמך על הגנה המותקנת במבנים למניעת קצר חשמלי. יש לוודא כי המכשיר המגן מפני הקצר החשמלי הוא לא יותר מ-250 V, 20 A

هذا المنتج يعتمد على معدات الحماية من الدوائرالقصيرة التي تم تثبيتها في المبنى
تأكد من أن تقييم الجهاز الوقائي ليس أكثر من: 20A, 250V

경고!

이 제품은 전원의 단락(과전류)방지에 대해서 전적으로 건물의 관련 설비에 의존합니다. 보호장치의 정격이 반드시 250V(볼트), 20A(암페어)를 초과하지 않도록 해야 합니다.

Waarschuwing

Dit product is afhankelijk van de kortsluitbeveiliging (overspanning) van uw electrische installatie. Controleer of het beveiligde aparaat niet groter gedimensioneerd is dan 220V, 20A.

Power Disconnection Warning

Warning!

The system must be disconnected from all sources of power and the power cord removed from the power supply module(s) before accessing the chassis interior to install or remove system components.

電源切断の警告

システムコンポーネントの取り付けまたは取り外しのために、シャーシー内部にアクセスするには、
システムの電源はすべてのソースから切断され、電源コードは電源モジュールから取り外す必要があります。

警告

在你打开机箱并安装或移除内部器件前，必须将系统完全断电，并移除电源线。

警告

在您打開機殼安裝或移除內部元件前，必須將系統完全斷電，並移除電源線。

Warnung

Das System muss von allen Quellen der Energie und vom Netzanschlusskabel getrennt sein, das von den Spg.Versorgungsteilmodulen entfernt wird, bevor es auf den Chassisinnenraum zurückgreift, um Systemsbestandteile anzubringen oder zu entfernen.

¡Advertencia!

El sistema debe ser disconnected de todas las fuentes de energía y del cable eléctrico quitado de los módulos de fuente de alimentación antes de tener acceso el interior del chasis para instalar o para quitar componentes de sistema.

Attention

Le système doit être débranché de toutes les sources de puissance ainsi que de son cordon d'alimentation secteur avant d'accéder à l'intérieur du chassis pour installer ou enlever des composants de systéme.

אזהרה !

יש לנתק את המערכת מכל מקורות החשמל ויש להסיר את כבל החשמלי מהספק לפני גישה לחלק הפנימי של המארז לצורך התקנת או הסרת רכיבים.

يجب فصل النظام من جميع مصادر الطاقة وإزالة سلك الكهرباء من وحدة امداد الطاقة قبل الوصول إلى المناطق الداخلية للهيكل لتثبيت أو إزالة مكونات الجهاز

경고!

시스템에 부품들을 장착하거나 제거하기 위해서는 섀시 내부에 접근하기 전에 반드시 전원 공급장치로부터 연결되어있는 모든 전원과 전기코드를 분리해주어야 합니다.

Waarschuwing

Voordat u toegang neemt tot het binnenwerk van de behuizing voor het installeren of verwijderen van systeem onderdelen, dient u alle spanningsbronnen en alle stroomkabels aangesloten op de voeding(en) van de behuizing te verwijderen

Equipment Installation

 Warning!

Only trained and qualified personnel should be allowed to install, replace, or service this equipment.

機器の設置
トレーニングを受け認定された人だけがこの装置の設置、交換、またはサービスを許可されています。

警告
只有经过培训且具有资格的人员才能进行此设备的安装、更换和维修。

警告
只有經過受訓且具資格人員才可安裝、更換與維修此設備。

Warnung

Das Installieren, Ersetzen oder Bedienen dieser Ausrüstung sollte nur geschultem, qualifiziertem Personal gestattet werden.

¡Advertencia!

Solamente el personal calificado debe instalar, reemplazar o utilizar este equipo.

Attention

Il est vivement recommandé de confier l'installation, le remplacement et la maintenance de ces équipements à des personnels qualifiés et expérimentés.

אזהרה !
צוות מוסמך בלבד רשאי להתקין, להחליף את הציוד או לתת שירות עבור הציוד.

يجب أن يسمح فقط للموظفين المؤهلين والمدربين لتركيب واستبدال أو خدمة هذا الجهاز

경고!

훈련을 받고 공인된 기술자만이 이 장비의 설치, 교체 또는 서비스를 수행할 수 있습니다.

Waarschuwing

Deze apparatuur mag alleen worden geïnstalleerd, vervangen of hersteld door geschoold en gekwalificeerd personeel.

Restricted Area

 Warning!

This unit is intended for installation in restricted access areas. A restricted access area can be accessed only through the use of a special tool, lock and key, or other means of security. (This warning does not apply to workstations).

アクセス制限区域

このユニットは、アクセス制限区域に設置されることを想定しています。

アクセス制限区域は、特別なツール、鍵と錠前、その他のセキュリティの手段を用いてのみ出入りが可能です。

警告

此部件应安装在限制进出的场所，限制进出的场所指只能通过使用特殊工具、锁和钥匙或其它安全手段进出的场所。

警告

此裝置僅限安裝於進出管制區域，進出管制區域係指僅能以特殊工具、鎖頭及鑰匙或其他安全方式才能進入的區域。

Warnung

Diese Einheit ist zur Installation in Bereichen mit beschränktem Zutritt vorgesehen. Der Zutritt zu derartigen Bereichen ist nur mit einem Spezialwerkzeug, Schloss und Schlüssel oder einer sonstigen Sicherheitsvorkehrung möglich.

¡Advertencia!

Esta unidad ha sido diseñada para instalación en áreas de acceso restringido. Sólo puede obtenerse acceso a una de estas áreas mediante la utilización de una herramienta especial, cerradura con llave u otro medio de seguridad.

Attention

Cet appareil doit être installée dans des zones d'accès réservés. L'accès à une zone d'accès réservé n'est possible qu'en utilisant un outil spécial, un mécanisme de verrouillage et une clé, ou tout autre moyen de sécurité.

אזור עם גישה מוגבלת

אזהרה !
יש להתקין את היחידה באזורים שיש בהם הגבלת גישה. הגישה ניתנת בעזרת
כלי אבטחה בלבד (מפתח, מנעול וכד').

تم تخصيص هذه الوحدة لتركيبها في مناطق محظورة .
يمكن الوصول إلى منطقة محظورة فقط من خلال استخدام أداة خاصة،
قفل ومفتاح أو أي وسيلة أخرى للالأمان

경고!

이 장치는 접근이 제한된 구역에 설치하도록 되어있습니다. 특수도구, 잠금 장치
및 키, 또는 기타 보안 수단을 통해서만 접근 제한 구역에 들어갈 수 있습니다.

Waarschuwing

Dit apparaat is bedoeld voor installatie in gebieden met een beperkte toegang.
Toegang tot dergelijke gebieden kunnen alleen verkregen worden door gebruik te
maken van speciaal gereedschap, slot en sleutel of andere veiligheidsmaatregelen.

Battery Handling

Warning!

There is the danger of explosion if the battery is replaced incorrectly. Replace the
battery only with the same or equivalent type recommended by the manufacturer.
Dispose of used batteries according to the manufacturer's instructions

電池の取り扱い

電池交換が正しく行われなかった場合、破裂の危険性があります。交換する電池はメー
カーが推奨する型、または同等のものを使用下さい。使用済電池は製造元の指示に従
って処分して下さい。

警告

电池更换不当会有爆炸危险。请只使用同类电池或制造商推荐的功能相当的电池更
换原有电池。请按制造商的说明处理废旧电池。

警告

電池更換不當會有爆炸危險。請使用製造商建議之相同或功能相當的電池更換原有
電池。請按照製造商的說明指示處理廢棄舊電池。

Warnung

Bei Einsetzen einer falschen Batterie besteht Explosionsgefahr. Ersetzen Sie die Batterie nur durch den gleichen oder vom Hersteller empfohlenen Batterietyp. Entsorgen Sie die benutzten Batterien nach den Anweisungen des Herstellers.

Attention

Danger d'explosion si la pile n'est pas remplacée correctement. Ne la remplacer que par une pile de type semblable ou équivalent, recommandée par le fabricant. Jeter les piles usagées conformément aux instructions du fabricant.

¡Advertencia!

Existe peligro de explosión si la batería se reemplaza de manera incorrecta. Reemplazar la batería exclusivamente con el mismo tipo o el equivalente recomendado por el fabricante. Desechar las baterías gastadas según las instrucciones del fabricante.

אזהרה !

קיימת סכנת פיצוץ של הסוללה במידה והוחלפה בדרך לא תקינה. יש להחליף את הסוללה בסוג התואם מחברת יצרן מומלצת.

סילוק הסוללות המשומשות יש לבצע לפי הוראות היצרן.

هناك خطر من انفجار في حالة استبدال البطارية بطريقة غير صحيحة فعليك استبدال البطارية
فقط بنفس النوع أو ما يعادلها كما أوصت به الشركة المصنعة
تخلص من البطاريات المستعملة وفقا لتعليمات الشركة الصانعة

경고!

배터리가 올바르게 교체되지 않으면 폭발의 위험이 있습니다. 기존 배터리와 동일하거나 제조사에서 권장하는 동등한 종류의 배터리로만 교체해야 합니다. 제조사의 안내에 따라 사용된 배터리를 처리하여 주십시오.

Waarschuwing

Er is ontploffingsgevaar indien de batterij verkeerd vervangen wordt. Vervang de batterij slechts met hetzelfde of een equivalent type die door de fabrikant aanbevolen wordt. Gebruikte batterijen dienen overeenkomstig fabrieksvoorschriften afgevoerd te worden.

Redundant Power Supplies (if applicable to your system)

⚠️ **Warning!**

This unit might have more than one power supply connection. All connections must be removed to de-energize the unit.

冗長電源装置

このユニットは複数の電源装置が接続されている場合があります。

ユニットの電源を切るためには、すべての接続を取り外さなければなりません。

警告

此部件连接的电源可能不止一个，必须将所有电源断开才能停止给该部件供电。

警告

此裝置連接的電源可能不只一個，必須切斷所有電源才能停止對該裝置的供電。

Warnung

Dieses Gerät kann mehr als eine Stromzufuhr haben. Um sicherzustellen, dass der Einheit kein trom zugeführt wird, müssen alle Verbindungen entfernt werden.

¡Advertencia!

Puede que esta unidad tenga más de una conexión para fuentes de alimentación. Para cortar por completo el suministro de energía, deben desconectarse todas las conexiones.

Attention

Cette unité peut avoir plus d'une connexion d'alimentation. Pour supprimer toute tension et tout courant électrique de l'unité, toutes les connexions d'alimentation doivent être débranchées.

אם קיים יותר מספק אחד

אזהרה !
ליחדה יש יותר מחיבור אחד של ספק. יש להסיר את כל החיבורים על מנת לרוקן
את היחידה.

قد يكون لهذا الجهاز عدة اتصالات بوحدات امداد الطاقة.
يجب إزالة كافة الاتصالات لعزل الوحدة عن الكهرباء

경고!

이 장치에는 한 개 이상의 전원 공급 단자가 연결되어 있을 수 있습니다. 이
장치에 전원을 차단하기 위해서는 모든 연결 단자를 제거해야만 합니다.

Waarschuwing

Deze eenheid kan meer dan één stroomtoevoeraansluiting bevatten. Alle
aansluitingen dienen verwijderd te worden om het apparaat stroomloos te maken.

Backplane Voltage (if applicable to your system)

Warning!

Hazardous voltage or energy is present on the backplane when the system is
operating. Use caution when servicing.

バックプレーンの電圧
システムの稼働中は危険な電圧または電力が、バックプレーン上にかかっています。
修理する際には注意ください。

警告
当系统正在进行时，背板上有很危险的电压或能量，进行维修时务必小心。

警告
當系統正在進行時，背板上有危險的電壓或能量，進行維修時務必小心。

Warnung

Wenn das System in Betrieb ist, treten auf der Rückwandplatine gefährliche
Spannungen oder Energien auf. Vorsicht bei der Wartung.

¡Advertencia!

Cuando el sistema está en funcionamiento, el voltaje del plano trasero es peligroso.
Tenga cuidado cuando lo revise.

Attention

Lorsque le système est en fonctionnement, des tensions électriques circulent sur
le fond de panier. Prendre des précautions lors de la maintenance.

מתח בפנל האחורי

אזהרה !
קיימת סכנת מתח בפנל האחורי בזמן תפעול המערכת. יש להיזהר במהלך
העבודה.

هناك خطر من التيار الكهربائي أوالطاقة الموجودة على اللوحة
عندما يكون النظام يعمل كن حذرا عند خدمة هذا الجهاز

경고!

시스템이 동작 중일 때 후면판 (Backplane)에는 위험한 전압이나 에너지가 발생
합니다. 서비스 작업 시 주의하십시오.

Waarschuwing

Een gevaarlijke spanning of energie is aanwezig op de backplane wanneer het
systeem in gebruik is. Voorzichtigheid is geboden tijdens het onderhoud.

Comply with Local and National Electrical Codes

Warning!

Installation of the equipment must comply with local and national electrical codes.

地方および国の電気規格に準拠
機器の取り付けはその地方および国の電気規格に準拠する必要があります。

警告

设备安装必须符合本地与本国电气法规。

警告

設備安裝必須符合本地與本國電氣法規。

Warnung

Die Installation der Geräte muss den Sicherheitsstandards entsprechen.

¡Advertencia!

La instalacion del equipo debe cumplir con las normas de electricidad locales y
nacionales.

Attention

L'équipement doit être installé conformément aux normes électriques nationales et locales.

<div dir="rtl">

תיאום חוקי החשמל הארצי

אזהרה !
התקנת הציוד חייבת להיות תואמת לחוקי החשמל המקומיים והארציים.

</div>

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تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

</div>

경고!

현 지역 및 국가의 전기 규정에 따라 장비를 설치해야 합니다.

Waarschuwing

Bij installatie van de apparatuur moet worden voldaan aan de lokale en nationale elektriciteitsvoorschriften.

Product Disposal

 Warning!

Ultimate disposal of this product should be handled according to all national laws and regulations.

製品の廃棄

この製品を廃棄処分する場合、国の関係する全ての法律・条例に従い処理する必要が あります。

警告
本产品的废弃处理应根据所有国家的法律和规章进行。

警告
本產品的廢棄處理應根據所有國家的法律和規章進行。

Warnung

Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.

¡Advertencia!

Al deshacerse por completo de este producto debe seguir todas las leyes y reglamentos nacionales.

Attention

La mise au rebut ou le recyclage de ce produit sont généralement soumis à des lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.

סילוק המוצר

אזהרה !
סילוק סופי של מוצר זה חייב להיות בהתאם להנחיות וחוקי המדינה.

عند التخلص النهائي من هذا المنتج ينبغي التعامل معه وفقا لجميع القوانين واللوائح الوطنية

경고!

이 제품은 해당 국가의 관련 법규 및 규정에 따라 폐기되어야 합니다.

Waarschuwing

De uiteindelijke verwijdering van dit product dient te geschieden in overeenstemming met alle nationale wetten en reglementen.

Hot Swap Fan Warning (if applicable to your system)

 Warning!

The fans might still be turning when you remove the fan assembly from the chassis. Keep fingers, screwdrivers, and other objects away from the openings in the fan assembly's housing.

ファン・ホットスワップの警告

シャーシから冷却ファン装置を取り外した際、ファンがまだ回転している可能性があります。ファンの開口部に、指、ドライバー、およびその他のものを近づけないで下さい。

警告
当您从机架移除风扇装置，风扇可能仍在转动。小心不要将手指、螺丝起子和其他物品太靠近风扇

警告

當您從機架移除風扇裝置，風扇可能仍在轉動。小心不要將手指、螺絲起子和其他
物品太靠近風扇。

Warnung

Die Lüfter drehen sich u. U. noch, wenn die Lüfterbaugruppe aus dem Chassis
genommen wird. Halten Sie Finger, Schraubendreher und andere Gegenstände
von den Öffnungen des Lüftergehäuses entfernt.

¡Advertencia!

Los ventiladores podran dar vuelta cuando usted quite ell montaje del ventilador
del chasis. Mandtenga los dedos, los destornilladores y todos los objetos lejos de
las aberturas del ventilador

Attention

Il est possible que les ventilateurs soient toujours en rotation lorsque vous retirerez
le bloc ventilateur du châssis. Prenez garde à ce que doigts, tournevis et autres
objets soient éloignés du logement du bloc ventilateur.

אזהרה !
כאשר מסירים את חלקי המאוורר מהמארז, יתכן והמאווררים עדיין עובדים. יש
להרחיק למרחק בטוח את האצבעות וכלי עבודה שונים מהפתחים בתוך המאוורר

من الممكن أن المراوح لا تزال تدور عند إزالة كتلة المروحة من الهيكل يجب إبقاء
الأصابع ومفكات البراغي
وغيرها من الأشياء بعيدا عن الفتحات في كتلة المروحة.

경고!

섀시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬
조립품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이
가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Het is mogelijk dat de ventilator nog draait tijdens het verwijderen van het
ventilatorsamenstel uit het chassis. Houd uw vingers, schroevendraaiers
en eventuele andere voorwerpen uit de buurt van de openingen in de
ventilatorbehuizing.

Power Cable and AC Adapter

⚡ **Warning!**

When installing the product, use the provided or designated connection cables, power cables and AC adaptors. Using any other cables and adaptors could cause a malfunction or a fire. Electrical Appliance and Material Safety Law prohibits the use of UL or CSA -certified cables (that have UL/CSA shown on the code) for any other electrical devices than products designated by Supermicro only.

電源コードとACアダプター

製品を設置する場合、提供または指定された接続ケーブル、電源コードとACアダプターを使用下さい。他のケーブルやアダプタを使用すると故障や火災の原因になることがあります。電気用品安全法は、ULまたはCSA認定のケーブル(UL/CSEマークがコードに表記)を Supermicroが指定する製品以外に使用することを禁止しています。

警告

安装此产品时，请使用本身提供的或指定的连接线，电源线和电源适配器．使用其它线材或适配器可能会引起故障或火灾。除了Supermicro所指定的产品，电气用品和材料安全法律规定禁止使用未经UL或CSA认证的线材。(线材上会显示UL/CSA符号)。

警告

安裝此產品時，請使用本身提供的或指定的連接線，電源線和電源適配器．使用其它線材或適配器可能會引起故障或火災。除了Supermicro所指定的產品，電氣用品和材料安全法律規定禁止使用未經UL或CSA認證的線材。(線材上會顯示UL/CSA符號)。

Warnung

Bei der Installation des Produkts, die zur Verfügung gestellten oder benannt Anschlusskabel, Stromkabel und Netzteile. Verwendung anderer Kabel und Adapter kann zu einer Fehlfunktion oder ein Brand entstehen. Elektrische Geräte und Material Safety Law verbietet die Verwendung von UL-oder CSA-zertifizierte Kabel, UL oder CSA auf der Code für alle anderen elektrischen Geräte als Produkte von Supermicro nur bezeichnet gezeigt haben.

¡Advertencia!

Al instalar el producto, utilice los cables de conexión previstos o designados, los cables y adaptadores de CA. La utilización de otros cables y adaptadores podría ocasionar un mal funcionamiento o un incendio. Aparatos Eléctricos y la Ley de Seguridad del Material prohíbe el uso de UL o CSA cables certificados que tienen UL o CSA se muestra en el código de otros dispositivos eléctricos que los productos designados por Supermicro solamente.

Attention

Lors de l'installation du produit, utilisez les bables de connection fournis ou désigné. L'utilisation d'autres cables et adaptateurs peut provoquer un dysfonctionnement ou un incendie. Appareils électroménagers et de loi sur la sécurité Matériel interdit l'utilisation de UL ou CSA câbles certifiés qui ont UL ou CSA indiqué sur le code pour tous les autres appareils électriques que les produits désignés par Supermicro seulement.

חשמליים ומתאמי AC

אזהרה !
כאשר מתקינים את המוצר, יש להשתמש בכבלים, ספקים ומתאמים AC אשר
נועדו וסופקו לשם כך. שימוש בכל כבל או מתאם אחר יכול לגרום לתקלה או
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UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרקמיקרו בלבד.

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ومحولات التيار المتردد
التي . أن استخدام أي كابلات ومحولات أخرى يتسبب في حدوث عطل أو حريق.
تم توفيرها لك مع المنتج
الأجهزة الكهربائية ومواد قانون السلامة يحظر استخدام الكابلات CSA أو UL
معتمدة من قبل
لأي أجهزة كهربائية أخرى غير المنتجات المعينة من قبل Supermicro
(التي تحمل علامة UL/CSA)

경고!

제품을 설치할 때에는 제공되거나 지정된 연결케이블과 전원케이블, AC어댑터를 사용해야 합니다. 그 밖의 다른 케이블들이나 어댑터들은 고장 또는 화재의 원인이 될 수 있습니다. 전기용품안전법 (Electrical Appliance and Material Safety Law)은 슈퍼마이크로에서 지정한 제품들 외에는 그 밖의 다른 전기 장치들을 위한 UL또는 CSA에서 인증한 케이블(전선 위에 UL/CSA가 표시)들의 사용을 금지합니다.

Waarschuwing

Bij het installeren van het product, gebruik de meegeleverde of aangewezen kabels, stroomkabels en adapters. Het gebruik van andere kabels en adapters kan leiden tot een storing of een brand. Elektrisch apparaat en veiligheidsinformatiebladen wet verbiedt het gebruik van UL of CSA gecertificeerde kabels die UL of CSA die op de code voor andere elektrische apparaten dan de producten die door Supermicro alleen.

Notes

Chapter 5

Advanced Motherboard Setup

This chapter covers the steps required to connect the data and power cables and install add-on cards. All motherboard jumpers and connections are also described. A layout and quick reference chart are included in this chapter for your reference.

Note: For this server, the CPU heatsink are preinstalled on the motherboard, and not replacable by the user.

5-1 Handling the Motherboard

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully (see previous chapter). To prevent the motherboard from bending, keep one hand under the center of the board to support it when handling. The following measures are generally sufficient to protect your equipment from electric static discharge.

Precautions

- Use a grounded wrist strap designed to prevent ESD.
- Touch a grounded metal object before removing boards from antistatic bags.
- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.
- When handling chips or modules, avoid touching their pins.
- Put the motherboard, add-on cards and peripherals back into their antistatic bags when not in use.
- For grounding purposes, make sure your computer chassis provides excellent conductivity between the power supply, the case, the mounting fasteners and the motherboard.

Unpacking

The motherboard is shipped in antistatic packaging to avoid electrical static discharge. When unpacking the board, make sure the person handling it is static protected.

5-2   Connecting Cables

Once the motherboard is installed, the cables must be connected. These include the data (ribbon) cables for the peripherals and control panel and the power cables. See section 5-5 for connectors.

Connecting Data Cables

The ribbon cables used to transfer data from the peripheral devices have been carefully routed to prevent them from blocking the flow of cooling air that moves through the system from front to back. If you need to disconnect any of these cables, you should take care to keep them routed as they were originally after reconnecting them (make sure the red wires connect to the pin 1 locations). The following data cables (with their locations noted) should be connected.

- SATA drive data cables (I-SATA0-5)
- Control Panel cable (JF1)

Important! Make sure the the cables do not come into contact with the fans.

Connecting Power Cables

The motherboard has three power supply connectors, JPW1, JPV1, JPH1. The 4-pin HDD power connector JPH1 provides power to HDD devices.

Connecting the Control Panel

The JF1 connector contains header pins for the front control panel. All JF1 wires have been bundled into a single ribbon cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the board. The other end connects to the Control Panel PCB board, located just behind the system status LEDs on the chassis.

5-3   Input/Output Ports
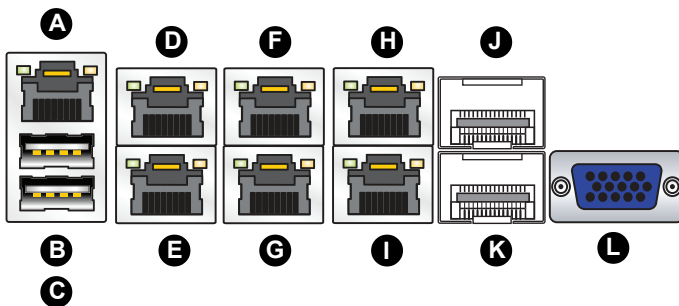
Figure 5-1. I/O Ports

Front Panel I/O		
A. IPMI LAN	E. LAN Port 1	I. LAN Port 5
B. USB Port 1	F. LAN Port 4	J. LAN Port 8 (SFP+)
C. USB Port 0	G. LAN Port 3	K. LAN Port 7 (SFP+)
D. LAN Port 2	H. LAN Port 6	L. VGA Port

5-4   Memory Support

The X10SDV-TP8F motherboard supports up to 128GB of DDR4 ECC RDIMM or 64GB of DDR4 ECC/Non-ECC UDIMM with speeds up to 2133MHz in four memory slots. Populating these DIMM slots with memory modules of the same type and same size will result in interleaved memory, which improves memory performance.

CAUTION

Exercise extreme care when installing or removing DIMM modules to prevent damage.

Memory Population Guidelines

Follow the table below when populating the memory DIMMs.

Recommended Population (Balanced)				
DIMMA1 Slot	DIMMB1 Slot	DIMMA2 Slot	DIMMB2 Slot	Total System Memory
4GB	4GB			8GB
4GB	4GB	4GB	4GB	16GB
8GB	8GB			16GB
8GB	8GB	8GB	8GB	32GB
16GB	16GB			32GB
16GB	16GB	16GB	16GB	64GB
32GB	32GB			64GB
32GB	32GB	32GB	32GB	128GB
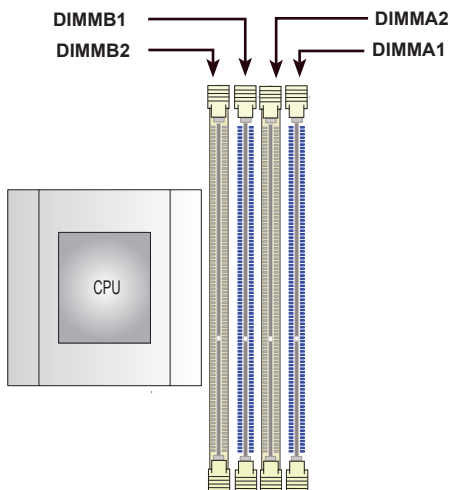
Figure 5-2. Memory Slot Labels

Memory Installation Guidelines

When installing memory modules, the DIMM slots should be populated in the following order: DIMMA1, DIMMB1, then DIMMA2, DIMMB2.

- Always use DDR4 DIMM modules of the same size, type and speed. Mixing memory modules of different types and speeds is not allowed.

- The motherboard will support one DIMM module installed. However, for best memory performance, install DIMM modules in pairs.

Installing DIMM Memory Modules

1. Align the key on the bottom of the DIMM module against the key on the memory slot. Take note of the notches on the side of the DIMM module, and of the locking clips on the socket to avoid causing damage.
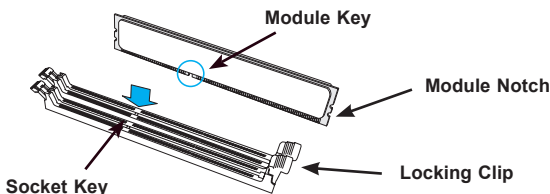
2. Install the DIMM module straight down into the socket until it is securely seated in the socket. The side clips will automatically lock the module into place.
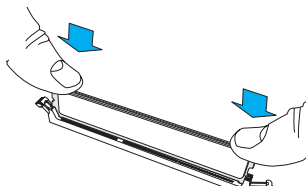
5-5   Expansion Cards

M.2 is formerly known as Next Generation Form Factor (NGFF). The JMD1 M.2 connector is designed for internal mounting devices. The X10SDV-TP8F deploys an M key only (2242/2280/22110) dedicated for SSD devices with the ultimate performance capability in a PCI Express 3.0 X4 interface for native PCIe SSD support. The M.2 is mux with the I-SATA4 port for legacy SATA SSD devices.

5-6   Motherboard Details
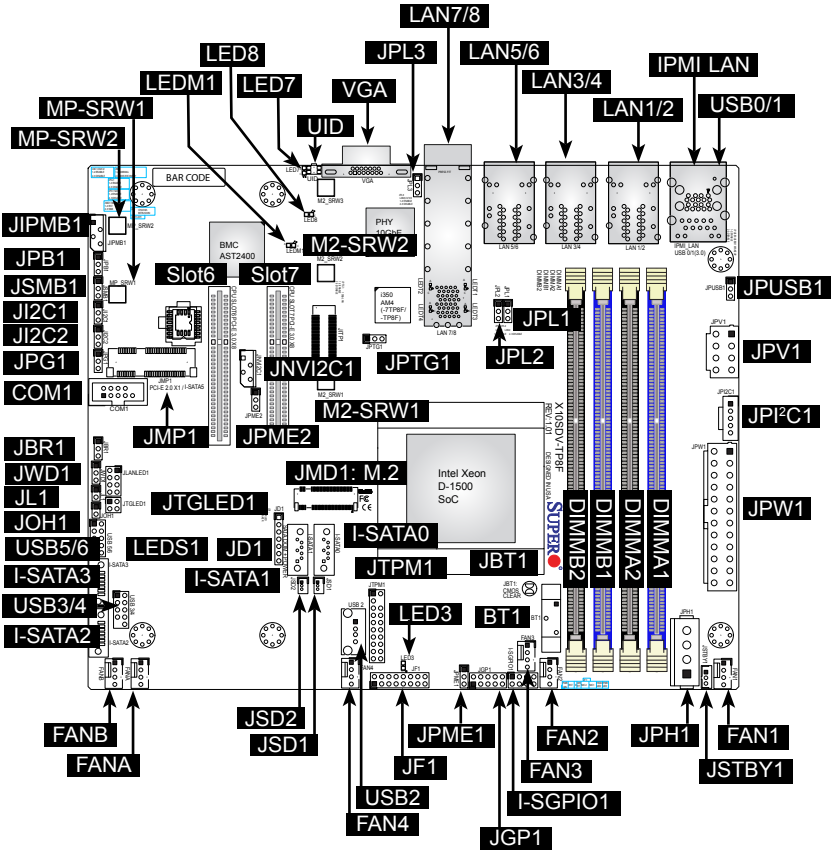
Figure 5-3. X10SDV-TP8F Motherboard Layout

Notes:

1. "■" indicates the location of "Pin 1". Jumpers not indicated are for testing only.

2. When LED3 (Onboard Power LED Indicator) is on, system power is on. Unplug the power cable before installing or removing any components.

3. The X10SDV-TP8F motherboard supports Turbo Boost Technology, offering turbo-boost capabilities to maximize system performance for server platforms.

X10SDV-TP8F Headers/Connectors	
Connector	**Description**
BT1	Onboard Battery
COM1	COM1 Header
FAN1 - FAN4, FANA, FANB	CPU/System Cooling Fans
IPMI LAN	Dedicated IPMI LAN Port
I-SATA0 - I-SATA5	Intel SATA Ports (I-SATA0 / I-SATA1 support SuperDOM, I-SATA4 via M.2, I-SATA5 via Mini-PCIE mSATA)
I-SGPIO1	Serial Link General Purpose I/O Headers
JD1	Speaker (Pins 1-3: Power LED, Pins 4-7: Speaker)
JF1	Front Panel Control Header
JGP1	General Purpose I/O Expander Header
JIPMB1	4-pin External SMbus I²C Header (for an IPMI Card)
JL1	Chassis Intrusion Header
JMD1	M.2 PCI-E 3.0 X4 / I-SATA4 Slot
JMP1	Mini PCI-E 2.0 X1 / I-SATA5 Slot
JNVI2C1	NVMe I²C Header
JOH1	Overheat LED Header
JPH1	4-pin Power Connector for HDD use
JPI2C1	Power Supply SMBus I2C Header
JPV1	12V 8-pin DC Power Connector
JPW1	24-pin ATX Power Connector
JSD1, JSD2	SATA DOM (Device_On_Module) Power Connectors
JSMB1	SMBus Header
JSTBY1	5V Standby Power Header
JTGLED1	LAN7 ~ LAN8 Activity LED Header
JTPM1	Trusted Platform Module (TPM)/Port 80 Connector
LAN1-LAN8	Gigabit Ethernet (RJ45) Ports LAN1-LAN6 10Gigabit Ethernet (SFP+) Ports LAN7-LAN8
M2-SRW1 - M2-SRW3	M.2 Mounting Screws
MP-SRW1 - SRW2	PCI-E 2.0 X1 / I-SATA5 Slot Mounting Screws
SLOT6, SLOT7	CPU PCI-E 3.0 x8 Slot
UID	Unit ID Button
USB 0/1	Back panel USB 3.0 Ports
USB 2	USB Type-A Connnector
USB 3/4, 5/6	Front Access USB 2.0 Ports
VGA	Back panel VGA Port

Jumpers		
Jumper	**Description**	**Default**
JBR1	BIOS Recovery	Pins 1-2 (Normal)
JBT1	CMOS Clear	Open: Normal, Short: Clear CMOS
JI²C1/JI²C2	SMB to PCI-Exp. Slots	Pins 2-3 (Disabled)
JPG1	VGA Enable	Pins 1-2 (Enabled)
JPL1	LAN1 Enable	Pins 1-2 (Enabled)
JPL2	LAN2 Enable	Pins 1-2 (Enabled)
JPL3	LAN3/4/5/6 Enable	Pins 1-2 (Enabled)
JPME1	ME Recovery	Pins 1-2 (Normal)
JPME2	Manufacturing Mode	Pins 1-2 (Normal)
JPTG1	10Gb Ethernet Enable	Pins 1-2 (Enabled)
JPUSB1	USB Wakeup	Pins 1-2 (Enabled) (For USB0/1 Only)
JWD1	Watch Dog Enable	Pins 1-2 (Reset)

LED Indicators			
LED	**Description**	**Color/State**	**Status**
LED3	Power LED	Green: On	System Power On
LED7	UID Switch LED	Blue: On	Unit Identified
LED8	Overheat/PWR Fail/Fan Fail LED	Red: Solid on/ Blinking	Solid On: Overheat, Blinking: PWR Fail or Fan Fail
LEDM1	BMC Heartbeat LED	Green: Blinking	BMC: Normal
LEDT1	LAN7 Link Status	Green: On	10G is linked up
LEDT2	LAN7 Activity	Green: Blinking	10G LAN7 is active
LEDT3	LAN8 Link Status	Green: On	10G is linked up
LEDT4	LAN8 Activity	Green: Blinking	10G LAN8 is active

5-7   Connector Definitions

Power Connectors

The 24-pin ATX power connector header (JPW1) provides power to the motherboard. The 12V DC power connector (JPV1) provides alternative power for a special enclosure when the 24-pin ATX power is not in use. The 4-pin power connector (JPH1) provides power to onboard HDD devices.

Note: Do not use the 8-pin DC power at JPV1 when the 24-pin ATX Power at JPW1 is connected to the power supply. Do not plug in both JPV1 and JPW1 at the same time.

ATX Power 24-pin Connector Pin Definitions (JPW1)			
Pin#	Definition	Pin #	Definition
13	+3.3V	1	+3.3V
14	NC	2	+3.3V
15	COM	3	COM
16	PS_ON	4	+5V
17	COM	5	COM
18	COM	6	+5V
19	COM	7	COM
20	NC	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V
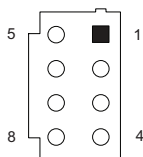
8-pin DC Power Pin Definitions (JPV1)	
Pin#	Definition
1-4	GND
5-8	12V
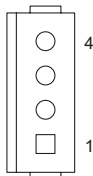
4-Pin HDD Power Pin Definitions (JPH1)	
Pin#	Definition
1	12V
2-3	GND
4	5V

Control Panel Connectors
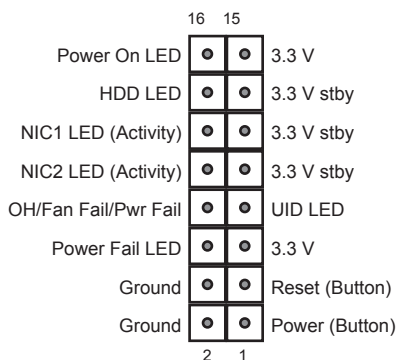
Figure 5-4. Control Panel Header Pins

Power Button

The Power Button connection is located on pins 1 and 2 of JF1. Momentarily contacting both pins will power on/off the system. This button can also be configured to function as a suspend button (with a setting in the BIOS--see Chapter 7). To turn off the power in the suspend mode, press the button for at least 4 seconds.

Power Button Pin Definitions (JF1)	
Pin#	Definition
1	Signal
2	Ground

Reset Button

The reset button is located on pins 3 and 4 of JF1 and attaches to the reset switch on the computer chassis. See the table on the right for pin definitions.

Reset Button Pin Definitions (JF1)	
Pin#	Definition
3	Reset
4	Ground

Overheat (OH)/Fan Fail/PWR Fail and UID LEDs

Pins 7 and 8 connect to the Overheat/ Fan Fail/Power Fail and UID LEDs on the front control panel. These functions are described in Chapter 3.

OH/Fan Fail/ PWR Fail/Blue_UID LED Pin Definitions (JF1)	
Pin#	Definition
7	Blue_UID LED
8	OH/Fan Fail/Power Fail Cathode

NIC1/NIC2 (LAN/LAN2)

The NIC (Network Interface Controller) LED connection for LAN ports 1 and 2 are located on pins 11 and 12 and pins 9 and 10 of JF1, respectively. Attach NIC LED cables to the NIC1 and NIC2 LED indicators to display network activity. Refer to the table on the right for pin definitions.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	Definition
9/11	3.3V Standby
10/12	NIC Activity LED

HDD LED

The HDD LED connection is located on pins 13 and 14 of JF1. Attach a cable here to indicate the status of HDD-related activities. See the table on the right for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	Definition
13	3.3 V Stby
14	HDD LED

HDD LED Status	
State	Definition
Off	No Activity
Blinking	HDD Busy

Power LED

The Power LED connection is located on pins 15 and 16 of JF1. Refer to the table on the right for pin definitions.

Power LED Pin Definitions (JF1)	
Pin#	Definition
15	3.3V
16	Power LED

Input/Output Connectors

Universal Serial Bus (USB)

Two Universal Serial Bus 3.0 ports (USB0/1) are located on the front I/O panel. One USB Type-A header (USB2) is available on the motherboard.

Ethernet Ports

Six Gigabit Ethernet ports (LAN1-LAN6) and two 10G SFP+ports (LAN7, LAN8) are located on the front I/O panel to provide network connections. An additional dedicated LAN port provides IPMI connection.

VGA

A VGA port is located on the front I/O panel.

Unit Identifier Switch and LEDs

A Unit Identifier (UID) switch is located next to the VGA port on the front I/O panel. It controls the UID LED indicators. They are described in the "Onboard Indicators" section of this manual.

UID Switch	
Pin#	Definition
1	Ground
2	Ground
3	Button In
4	Button In

Other Motherboard Connectors

Fan Headers

There are six fan 4-pin headers. Pins 1-3 are backward compatible with the traditional 3-pin fans, but you can use 4-pin fans to take advantage of the fan speed control using Pulse Width Modulation through the BMC. This allows the fan speeds to be automatically adjusted based on the motherboard temperature. Refer to the table on the right for pin definitions.

Fan Header Pin Definitions	
Pin#	Definition
1	Ground (Black)
2	+12V (Red)
3	Tachometer
4	PWM_Control

Chassis Intrusion

A Chassis Intrusion header is located at JL1 on the motherboard. Attach the appropriate cable from the chassis to alert a chassis intrusion when the chassis is opened.

Chassis Intrusion Pin Definitions (JL1)	
Pin#	Definition
1	Ground
2	Intrusion Input

System Management Bus Header

A System Management Bus header for IPMI 2.0 is located at JIPMIB1. Connect the appropriate cable here to use the IPMI I²C connection on your system.

SMBus Header Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock
4	No Connection

DOM PWR Connectors (JSD1, JSD2)

The Disk-On-Module (DOM) power connectors (JSD1 and JSD2) provide 5V power to solid-state DOM storage devices connected to one of the SATA ports. See the table on the right for pin definitions.

DOM PWR Pin Definitions	
Pin#	Definition
1	5V
2	Ground
3	Ground

TPM Header/Port 80 Header

The JTPM1 header is used to connect a Trusted Platform Module (TPM)/ Port 80, which is available from a third-party vendor. TPM is a security device that supports encryption and authentication in hard drives. It enables the motherboard to deny access if the TPM associated with the hard drive is not installed in the system. See the table on the right for pin definitions.

Trusted Platform Module Header (JTPM1) Pin Definitions			
Pin #	Definition	Pin #	Definition
1	LCLK	2	GND
3	LFRAME#	4	No Pin
5	LRESET#	6	+5V (X)
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	NC	14	NC
15	+3V_DUAL	16	SERIRQ
17	GND	18	GND
19	3.3V	20	NC)

Overheat/Fan Fail LED

The JOH1 header is used to connect an LED indicator to provide warnings of chassis overheating. Refer to the table on right for pin definitions.

OH/Fan Fail LED (JOH1) Pin Definitions	
Pin#	Definition
1	3.3V
2	OH Active

OH/Fan Fail LED Status Definitions	
State	Message
Off	Normal
Solid	Overheat

Speaker (JD1)

On the JD1 header, pins 4-7 are used for internal speaker. See the table on the right for pin definitions.

Speaker Connector Pin Definitions	
Pin Setting	Definition
Pins 1-3	Power LED
Pins 4-7	Speaker

Standby Power

The Standby Power header is located at JSTBY1 on the motherboard. See the table on the right for pin definitions.

Standby Power Pin Definitions	
Pin Setting	Definition
1	+5V Standby
2	Ground
3	No connection

Serial Link I/O Header

The Serial Link General Purpose Input/Output (SGPIO) header is used to communicate with the enclosure management chip in the system. See the table on the right for pin definitions.

Serial Link General-Purpose Header (SGPIO) Pin Definitions			
Pin#	Definition	Pin	Definition
1	NC	2	NC
3	Ground	4	DATA Out
5	Load	6	Ground
7	Clock	8	NC

General Purpose I/O Header

The JGP1 header is a general purpose I/O on a pin header. See the table on the right for pin definitions.

GPIO Expander Pin Definitions			
Pin#	Definition	Pin	Definition
1	P3V3	2	GND
3	GP0	4	GP1
5	GP2	6	GP3
7	GP5	8	GP5
9	GP6	10	GP7

Power SMB (I2C) Header

The Power System Management Bus header at JPI2C1 monitors the power supply and the system temperature.

Standby Power Pin Definitions	
Pin#	Definition
1	+5V standby
2	Ground
3	No connection

System Management Bus Header

The System Management Bus header for additional slave devices or sensors is located as JSMB1.

SMBus Power Pin Definitions	
Pin#	Definition
1	Data
2	Ground
3	Clock

NVMe I2C Header

Connector JNVI2C is a management header for the Supermicro AOC NVMe PCI-E peripheral cards. Connect it with the I2C cable.

5-8   Jumper Settings

Explanation of Jumpers

To modify the operation of the motherboard, jumpers can be used to choose between optional settings. Jumpers create shorts between two pins to change the function of the connector. Pin 1 is identified with a square solder pad on the printed circuit board. See the motherboard layout pages for jumper locations.

Note: On a two-pin jumper, "Closed" means the jumper is on both pins and "Open" means the jumper is either on only one pin or completely removed.

Connector Pins

3   2   1

Jumper

Setting

3   2   1
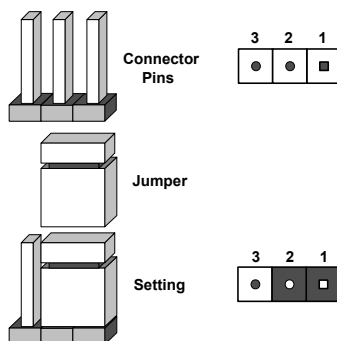
CMOS Clear

JBT1 is used to clear CMOS (which will also clear any passwords). Instead of pins, this jumper consists of contact pads to prevent accidentally clearing the contents of CMOS.

To clear CMOS,

1. First power down the system and unplug the power cord(s).

2. Remove the onboard CMOS battery.

3. With the power disconnected, short the CMOS pads with a metal object such as a small screwdriver.

4. Remove the screwdriver (or shorting device).

5. Replace the battery and econnect the power cord(s).

 Note: *Do not use the PW_ON connector to clear CMOS.*

VGA Enable/Disable

JPG1 allows you to enable or disable the VGA port. The default position is on pins 1 and 2 to enable VGA. See the table on the right for jumper settings.

VGA Enable/Disable Jumper Settings	
Pin#	Definition
1-2	Enabled (default)
2-3	Disabled

PCI-E Slot SMB Enable

Use Jumpers I2C1/I2C2 to enable PCI SMB (System Management Bus) support to improve system management for the onboard PCI-E slot.

PCI Slot_SMB Enable Jumper Settings	
Pin#	Definition
1-2	Enabled
2-3	Disabled (Default)

Watch Dog Timer Enable

Watch Dog (JWD1) is a system monitor that can be used to enter LAN bypass default settings, reset the system or enter NMI when the Timer expires. Close pins 1-2 to reset the system if an application hangs. Close pins 2-3 to generate a non-maskable interrupt signal for the application that hangs. Open all pins to enter LAN pair default mode only. Watch Dog may be enabled in the BIOS Setup. The default timer is around 5 minutes.

Watch Dog Jumper Settings	
Pin#	Definition
1-2	Reset (default)
2-3	NMI
Open	LAN pairs set to default mode without reset or NMI

Management Engine (ME) Recovery

Use JPME1 to select ME Firmware Recovery mode, which will limit resource allocation for essential system operation only in order to maintain normal power operation and management. In the single operation mode, online upgrade will be available via Recovery mode. See the table on the right for jumper settings.

ME Recovery Jumper Settings	
Pin#	Definition
1-2	Normal (Default)
2-3	ME Recovery

ME Manufacturing Mode

Close JPME2 to bypass SPI flash security and force the system to use the Manufacturing Mode, which will allow the user to flash the system firmware from a host server to modify system settings.

Manufacturing Mode Jumper Settings	
Pin#	Definition
1-2	Normal (Default)
2-3	Manufacturing Mode

BIOS Recovery

Close pins 2 and 3 of jumper JBR1 for BIOS recovery. The default setting is on pins 1 and 2 for normal operation. See the table on the right for jumper settings.

BIOS Recovery Jumper Settings	
Pin#	Definition
1-2	Normal
2-3	BIOS Recovery

USB Wake-Up

Use the JPUSB1 jumper to enable the function of "System Waking-Up via USB devices" for USB0/1. This jumper allows you to "wake-up" the system by pressing a key on the USB keyboard or by clicking the USB mouse of your system. The JPUSB1 jumper is used together with the USB Wake-Up function in the BIOS. Enable both the jumper and the BIOS setting to enable this function. See the table on the right for jumper settings and connections.

USB Wake-up Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

BMC Enabled

JPB1 allows you to enable the BMC (Baseboard Management Control) chip and the onboard IPMI connection for debugging purpose only. After the BMC is disabled, IPMI health and remote management functions are no longer supported. See the table on the right for jumper settings.

Note: Please aways keep BMC enabled to make sure that the platform operates reliably with the health monitor.

BMC Enabled Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

GbE LAN Ports Enable/Disable

Jumpers JPL1 and JPL2 are used to enable or disable LAN ports 1 and 2, respectively. Use JPL3 to enable or disable LAN ports 3, 4, 5, and 6. The default setting is enabled.

GbE LAN Enable Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

10Gb Ethernet Enable/Disable

JPTG1 is used to enable or disable 10Gb support.

10Gb Enable/Disable Jumper Settings	
Pin#	Definition
1-2	Enabled (Default)
2-3	Disabled

5-9   Onboard Indicators

LAN LEDs

Each Ethernet port has two LED indicators. One shows activity when flashing. The other LED indicates the speed of the connection. See the table on the right for a description.

Link Speed LED States	
Color	Definition
Off	No Connection or 10 Mbps
Amber	1 Gbps
Green	For LAN 1-6: 100 Mbps

Activity LED Link Speed LED
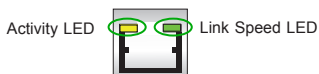
10G LAN Activity LED

The Activity LED for LAN7 is located at LEDT2, and the Activity LED for LAN8 is located at LEDT4. The LEDs blink when the LAN is active.

10G LAN Link Status LED

The Link status LED for LAN7 is located at LEDT1, and the Link status LED for LAN8 is located at LEDT3. When the LEDs are on, the LAN is working properly.

LEDT1
LEDT3
LEDT2
LEDT4
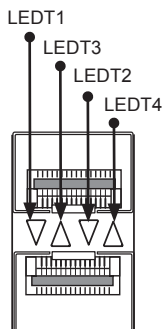
BMC Heartbeat LED

A BMC Heartbeat LED is located at LEDM1. See the table on the right for a description.

BMC Heartbeat LED States	
Color/State	Definition
Green: Blinking	BMC: Normal

Onboard Power LED

An Onboard Power LED is located at LED3 on the motherboard. When this LED is on, the system is on. See the table on the right for a description.

Onboard PWR LED Indicator LED States	
Color	Definition
Off	System Off (PWR cable not connected)
Green	System On

Overheat/PWR Fail/Fan Fail LED

An onboard Overheat/PWR Fail/ Fan Fail LED is located at LED8. See the table on the right for a description.

Overheat/PWR Fail/Fan Fail LED States	
Color/State	Definition
Red/Solid	Overheat
Red/Blinking	PWR Fail or Fan Fail

Unit Identification LED

Unit identifier (UID) LED helps identify the server in a rack. A front UID LED indicator (LED7) is located next to the UID switch on the front I/O panel.

The UID function can be activated by the UID switch on the front I/O panel or through IPMI. When activated, the LED is lighted blue.

5-10 SATA Ports

SATA Ports

This motherboard has six SATA 3.0 ports. I-SATA0 and I-SATA1 have built-in power pins to support Supermicro's SATA DOM (Disk On Module) solutions.

M.2 Socket

M.2 is formerly known as Next Generation Form Factor (NGFF). The connector (JMD1) is designed for internal mounting devices. The motherboard deploys an M key dedicated for SSD devices with the ultimate performance capability in a PCI Express 3.0 x4 interface for native PCIe SSD support. The M.2 is mux with the I-SATA4 port for legacy SATA SSD devices.

Mini PCI-E Slot

The JMP1 connector is a mini PCI-E 2.0 X1 slot that is mux with I-SATA5.

5-11 Installing Software

The Supermicro ftp site contains drivers and utilities for your system at ftp://ftp. supermicro.com. Some of these must be installed, such as the chipset driver.

After accessing the ftp site, go into the CDR_Images directory and locate the ISO file for your motherboard. Download this file to create a CD/DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

Another option is to go to the Supermicro Website at http://www.supermicro.com/ products/. Find the product page for your motherboard here, where you may download individual drivers and utilities.

After creating a CD/DVD with the ISO files, insert the disk into the CD/DVD drive on your system and the display shown in Figure 5-5 should appear.
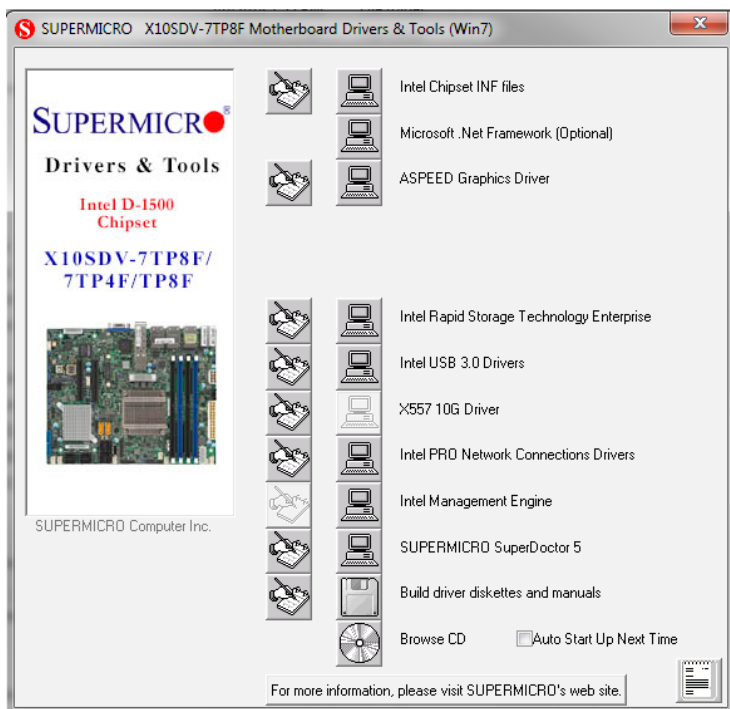
Figure 5-5. Driver/Tool Installation Display Screen

Note: Click the icons showing a hand writing on paper to view the readme files for each item. Click the computer icons to the right of these items to install each item (from top to the bottom) one at a time. After installing each item, you must reboot the system before moving on to the next item on the list. The bottom icon with a CD on it allows you to view the entire contents.

SuperDoctor® 5

The Supermicro SuperDoctor® 5 is a hardware and operating system services monitoring program that functions in a command-line or web-based interface in Windows and Linux operating systems. The program monitors system health information such as CPU temperature, system voltages, system power consumption, fan speed, and provides alerts via email or Simple Network Management Protocol (SNMP).

SuperDoctor 5 comes in local and remote management versions and can be used with Nagios to maximize your system monitoring needs. With SuperDoctor 5 Management Server (SSM Server), you can remotely control power on/off and reset chassis intrusion for multiple systems with SuperDoctor 5 or IPMI. SD5 Management Server monitors HTTP, FTP, and SMTP services to optimize the efficiency of your operation.

Note: The default User Name and Password for SuperDoctor 5 is ADMIN/ADMIN.

Figure 5-6. SuperDoctor 5 Interface Display Screen (Health Information)
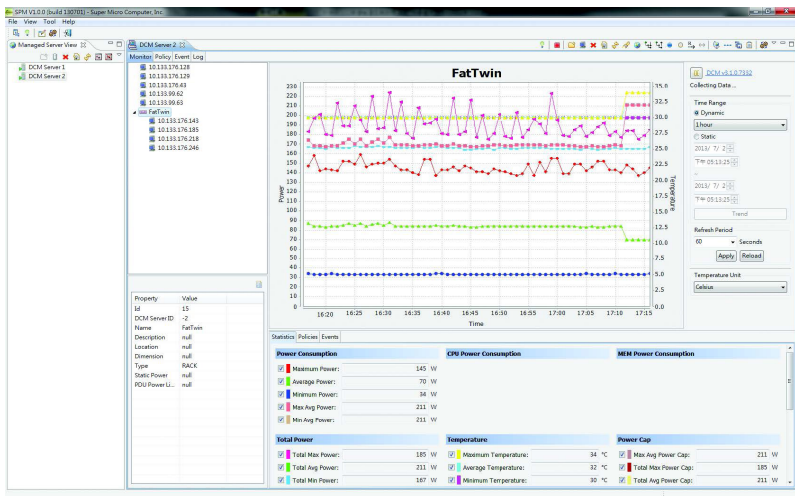
Figure 5-7. SuperDoctor 5 Interface Display Screen (Remote Control)

Note: The SuperDoctor 5 program and User's Manual can be downloaded from the Supermicro web site at http://www.supermicro.com/products/nfo/sms_sd5.cfm. For Linux, we recommend that you use the SuperDoctor II application instead.

5-12 Serverboard Battery

Caution: There is a danger of explosion if the onboard battery is installed in the wrong orientation with reversed polarities. This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032). Dispose of used batteries according to the manufacturer's instructions.

Lithium Battery

Battery Holder
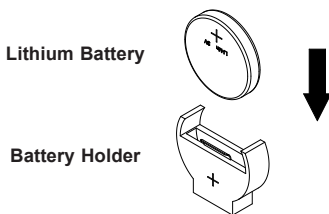
Figure 5-8. Installing the Onboard Battery

Please handle used batteries carefully. Do not damage the battery in any way; a damaged battery may release hazardous materials into the environment. Do not discard a used battery in the garbage or a public landfill. Please comply with the regulations set up by your local hazardous waste management agency to dispose of your used battery properly.

Chapter 6

Advanced Chassis Setup and Maintenance

This chapter covers the steps required to install components and perform maintenance on the chassis. The only tool required is a Phillips screwdriver.

Review the warnings and precautions listed in the manual before setting up or servicing this chassis. These include information in Chapter 4 and the warnings and precautions listed in the setup instructions.
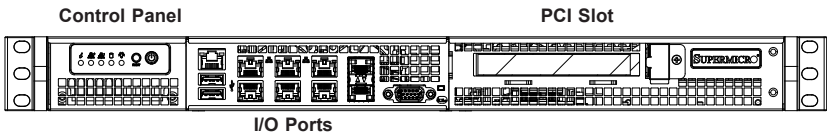
Figure 6-1. SC505 Chassis Front

6-1   Static-Sensitive Devices

Electrostatic Discharge (ESD) can damage electronic components. To prevent damage to any printed circuit boards (PCBs), it is important to handle them very carefully.

The following measures are generally sufficient to protect your equipment from ESD damage.

Precautions

- Use a grounded wrist strap designed to prevent static discharge.

- Touch a grounded metal object before removing any board from its antistatic bag.

- Handle a board by its edges only; do not touch its components, peripheral chips, memory modules or gold contacts.

- When handling chips or modules, avoid touching their pins.

6-2 Removing Power from the System

Before performing most setup or maintenance tasks, use the following procedure to ensure that power has been removed from the system.

1. Use the operating system to power down the system, following the on-screen prompts.

2. After the system has completely shut-down, carefully grasp the head of the power cord and gently pull it out of the back of the power supply.

3. Disconnect the cord from the power strip or wall outlet.

6-3   Removing the Chassis Cover
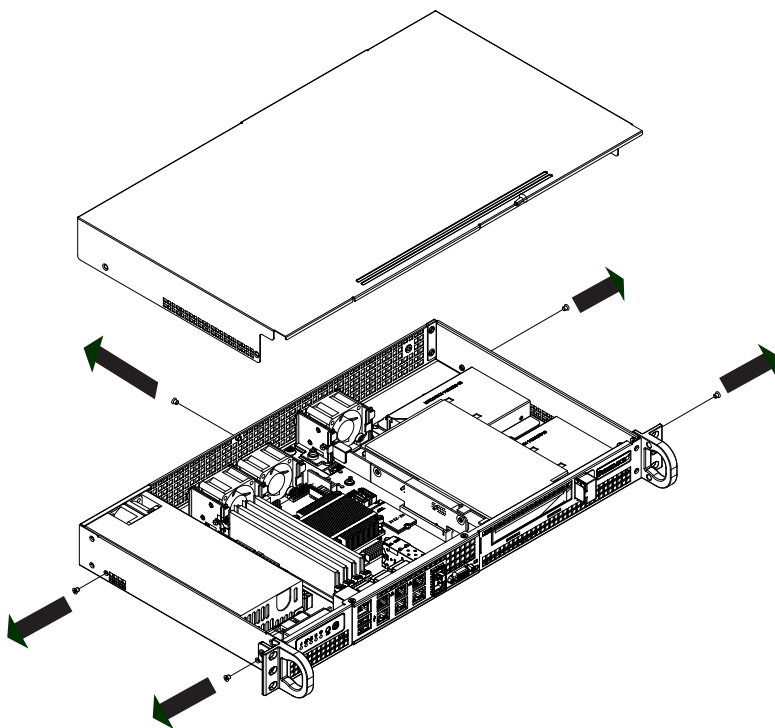
Figure 6-2. Removing the Chassis Cover

Removing the Cover

1. Power down the system as described in Section 6-2.

2. Remove the five screws that hold the cover in place. There are two screws on each side of the chassis, and one on the back.

3. Lift the cover upward.

6-4   Installing Hard Drives

Hard drives and expansion cards are supported in the following configurations:
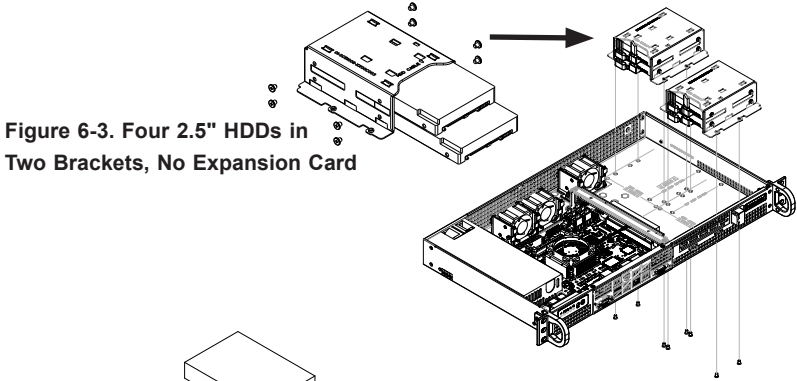
**Figure 6-3. Four 2.5" HDDs in
Two Brackets, No Expansion Card**
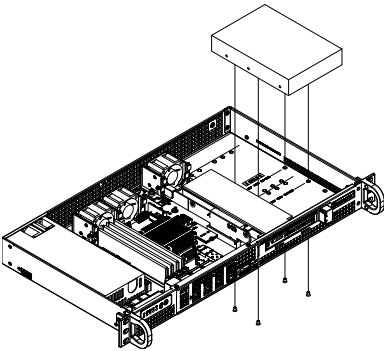
**Figure 6-4. One 3.5" Hard Drive and
One Low Profile Expansion Card**

**Figure 6-5. Two 2.5" Hard Drives and One
Full-Height, Half-Length Expansion Card**
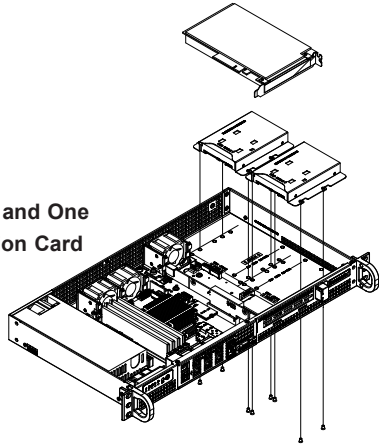
Installing 3.5" Fixed Hard Drives

One 3.5" hard drive may be installed. Refer to Figures 6-4.

Installing 3.5" Hard Drive

The 3.5" hard drive screws directly into the chassis.

1. Power down the system as described in Section 6-2 and remove the cover.

2. Place the hard drives into the chassis, as illustrated in figure 6-4. Orient a single drive with the cable connections facing the rear of the chassis.

3. Secure the hard drive to the chassis floor by inserting the screws up through the underside of the chassis.

4. Connect the hard drive wiring.

5. Reinstall the chassis cover and power cord and then power up the server.

Installing 2.5" Fixed Hard Drives

One to four 2.5" hard drives may be installed in several different configurations. Refer to Figures 6-3 and Figure 6-5.

Installing Fixed 2.5" Hard Drives

6. Power down the system as described in Section 6-2 and remove the cover.

7. Install the hard drives into the hard drive brackets and secure them to the bracket with the screws provided.

8. Place the hard drives and brackets into the chassis as illustrated in Figure 6-3 or Figure 6-5. Orient two or more drives with the cable connections facing the inside of the chassis.

9. Secure the hard drive brackets to the chassis floor by inserting the screws up through the underside of the chassis.

10. Connect the hard drive wiring.

11. Reinstall the chassis cover and power cord, then power up the server.

Note: Bracket ordering information: for single drive height, MCP-220-00051-0N; for double drive height, MCP-220-00044-0N.

6-5   Installing an Expansion Card

The SC505 chassis includes a PCI slot. An expansion card may be installed with one 3.5" or up to two 2.5" hard drives. See the supported configurations on page 6-4. Expansion cards should be installed only after installing the hard drives. A riser card is required.

Installing an Expansion Card

1. Power down the system as described in Section 6-2 and remove the cover.

2. Locate the expansion card clip on the front of the chassis. Remove the screws holding the expansion card clip and the shield that covers the PCI-E slot opening in the chassis.

3. Remove the expansion card clip and the PCI-E slot cover from the chassis.

4. Outside of the chassis, insert the expansion card into the riser card.
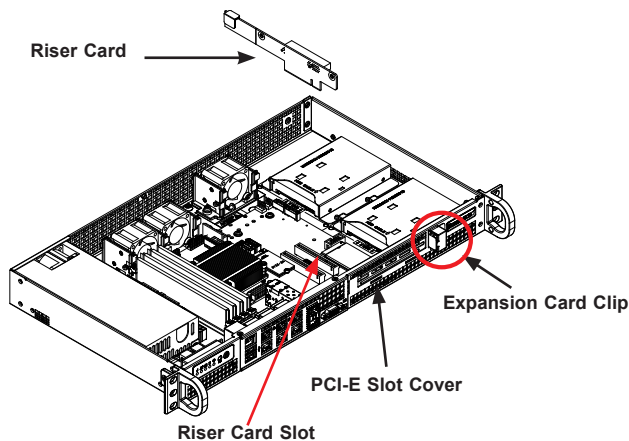
Figure 6-9. Install the Expansion Card and Riser Card

5. Insert the riser card into the expansion slot on the motherboard while aligning the PCI slot bracket of the expansion card into the open PCI-E slot in the chassis.

6. Replace the expansion card clip and screw it onto the chassis to hold the expansion card in place.

7. Replace the chassis cover, reconnect the power cord and power up the server.

6-6   System Fans

Three system fans are installed in the chassis.
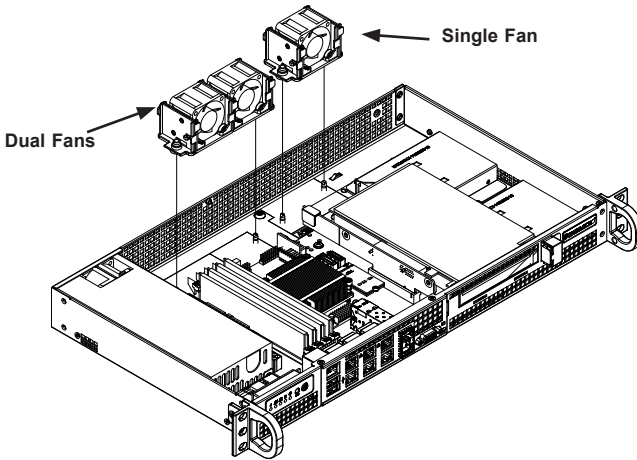
Figure 6-10. Installing System Fans

Replacing System Fans

1. Power down the system as described in Section 6-2 and remove the cover.

2. Disconnect the fan power cable from the motherboard and remove the broken fan. Be careful to keep your hands away from the fan blades for safety.

3. Place a new fan in the fan tray, making sure it faces the correct direction.

4. Reconnect the fan cables to the motherboard.

5. Replace the chassis cover, reconnect the power cord and power up the server.

Checking the Chassis Airflow

Checking the Airflow

- Make sure there are no objects to obstruct airflow in and out of the server.

- Use only recommended server parts.

- Make sure no wires or foreign objects obstruct air flow through the chassis. Pull all excess cabling out of the airflow path, or use shorter cables.

- The control panel LEDs inform you of system status. See "Chapter 3: System Interface" for details.

6-7   Power Supply

The SC505 chassis includes a single 200 watt power supply. This power supply has an auto-switching capability, which enables it to automatically sense and operate at a 100V - 240V input voltage.

If the power supply unit fails, the system will shut down and you must replace the unit. Replacement units can be ordered directly from Supermicro.

Replacing the Power Supply

1. If power is on, power down as described in Section 6-2. Remove the chassis cover.

2. Disconnect all wiring from the power supply.

3. Remove the four screws which hold the power supply in the chassis. Two mounting screws are located on the rear of the power supply. Two bottom mounting screws are accessed on the underside of the chassis and extend upwards through the mounting holes to hold the power supply in place. Set the screws aside for later use.

4. Remove the power supply from the chassis.

5. Align the mounting thru holes on the new power supply with the mounting holes in the chassis and reattach the power supply to the chassis using the four screws which were previously set aside.

6. Reconnect the wiring and the power cord to the power supply, replace the cover and power up the server.
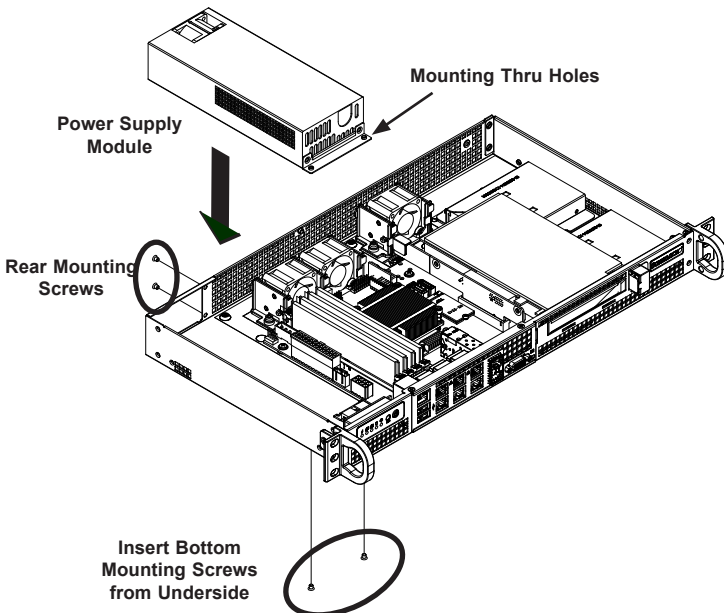
Figure 6-11. Installing the Power Supply

Notes

Chapter 7

BIOS

7-1   Introduction

This chapter describes the AMI BIOS setup utility for the X10SDV-TP8F. The AMI ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS utility setup screens.

Note: For AMI BIOS Recovery, please refer to the UEFI BIOS Recovery Instructions in Appendix B.

Starting BIOS Setup Utility

To enter the AMI BIOS setup utility screens, press the <Del> key while the system is booting up.

Note: In most cases, the <Del> key is used to invoke the AMI BIOS setup screen. There are a few cases when other keys are used, such as <F3>, <F4>, etc.

Each main BIOS menu option is described in this manual. The Main BIOS setup menu screen has two main frames. The left frame displays all the options that can be configured. Grayed-out options cannot be configured. Options in blue can be configured by the user. The right frame displays the key legend. Above the key legend is an area reserved for informational text. When an option is selected in the left frame, it is highlighted in white. Often informational text will accompany it.

Note: The AMI BIOS has default informational messages built in. The manufacturer retains the option to include, omit, or change any of these informational messages.

The AMI BIOS setup utility uses a key-based navigation system called "hot keys." Most of the AMI BIOS setup utility "hot keys" can be used at any time during setup navigation. These keys include <F3>, <F4>, <Enter>, <ESC>, arrow keys, etc.

Note 1: Options printed in **Bold** are default settings.

How To Change the Configuration Data

The configuration data that determines the system parameters may be changed by entering the AMI BIOS setup utility. This setup utility can be accessed by pressing <Delete> at the appropriate time during system boot.

Note: For AMI UEFI BIOS Recovery, please refer to the UEFI BIOS Recovery User Guide posted @ http://www.supermicro.com/support/manuals/.

Starting the Setup Utility

Normally, the only visible Power-On Self-Test (POST) routine is the memory test. As the memory is being tested, press the <Delete> key to enter the main menu of the AMI BIOS setup utility. From the main menu, you can access the other setup screens. An AMI BIOS identification string is displayed at the left bottom corner of the screen below the copyright message.

Caution: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall the manufacturer be liable for direct, indirect, special, incidental, or consequential damage arising from a BIOS update. If you have to update the BIOS, do not shut down or reset the system while the BIOS is being updated to avoid possible boot failure.

7-2   Main Setup

When you first enter the AMI BIOS setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab on the top of the screen. The Main BIOS Setup screen is shown below.
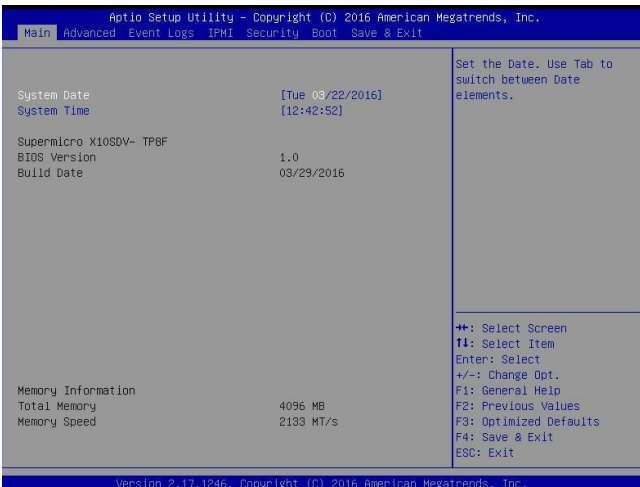
The following Main menu items are displayed:

System Date/System Time

Use this item to change the system date and time. Highlight *System Date* or *System Time* using the arrow keys. Enter new values using the keyboard. Press the <Tab> key or the arrow keys to move between fields. The date must be entered in Day MM/DD/YY format. The time is entered in HH:MM:SS format.

Note: The time is in the 24-hour format. For example, 5:30 P.M. appears as 17:30:00.

Supermicro X10SDV-TP8F

BIOS Version

This item displays the version of the BIOS ROM used in this system.

Build Date

This item displays the date that the BIOS setup utility was built.

Memory Information

Total Memory

This displays the amount of memory that is available in the system.

Memory Speed

This displays the detected system memory speed.

7-3   Advanced Setup Configurations

Use the arrow keys to select Advanced Setup and press <Enter> to access the following submenu items.

```
                 Aptio Setup Utility - Copyright (C) 2016 American Megatrends, Inc.
   Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

  Boot Feature                                            Boot Feature Configuration
  CPU Configuration                                       Page
  Chipset Configuration
  SATA Configuration
  Server ME Configuration
  PCIe/PCI/PnP Configuration
  Super IO Configuration
  Serial Port Console Redirection
  ACPI Settings
  Trusted Computing




                                                          →←: Select Screen
                                                          ↑↓: Select Item
                                                          Enter: Select
                                                          +/-: Change Opt.
                                                          F1: General Help
                                                          F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit

              Version 2.17.1246. Copyright (C) 2016 American Megatrends, Inc.
```

Warning: Take caution when changing the Advanced settings. An incorrect value, a very high DRAM frequency, or an incorrect DRAM timing setting may make the system unstable. When this occurs, revert to the default to the manufacture default settings.

▶Boot Features

Quiet Boot

Use this feature to select the screen display between the POST messages and the OEM logo upon bootup. Select Disabled to display the POST messages. Select Enabled to display the OEM logo instead of the normal POST messages. The options are **Enabled** and Disabled.

AddOn ROM Display Mode

Use this feature to set the display mode for the Option ROM. Select Keep Current to display the current AddOn ROM setting. Select Force BIOS to use the Option ROM display set by the system BIOS. The options are **Force BIOS** and Keep Current.

Bootup NumLock State

Use this feature to set the Power-on state for the <Numlock> key. The options are Off and **On**.

Wait For 'F1' If Error

Use this feature to force the system to wait until the 'F1' key is pressed if an error occurs. The options are Disabled and **Enabled**.

INT19 (Interrupt 19) Trap Response

Interrupt 19 is the software interrupt that handles the boot disk function. When this item is set to Immediate, the ROM BIOS of the host adaptors will "capture" Interrupt 19 at bootup immediately and allow the drives that are attached to these host adaptors to function as bootable disks. If this item is set to Postponed, the ROM BIOS of the host adaptors will not capture Interrupt 19 immediately and allow the drives attached to these adaptors to function as bootable devices at bootup. The options are **Immediate** and Postponed.

Re-try Boot

If this item is enabled, the BIOS will automatically reboot the system from a specified boot device after its initial boot failure. The options are **Disabled**, Legacy Boot, and EFI Boot.

▶Power Configuration

Watch Dog Function

If enabled, the Watch Dog Timer will allow the system to reset or generate NMI based on jumper settings when it is expired for more than 5 minutes. The options are Enabled and **Disabled.**

Power Button Function

This feature controls how the system shuts down when the power button is pressed. Select 4 Seconds Override for the user to power off the system after pressing and holding the power button for 4 seconds or longer. Select Instant Off to instantly power off the system as soon as the user presses the power button. The options are 4 Seconds Override and **Instant Off.**

Restore on AC Power Loss

Use this feature to set the power state after a power outage. Select Stay-Off for the system power to remain off after a power loss. Select Power-On for the system power to be turned on after a power loss. Select Last State to allow the system to resume its last power state before a power loss. The options are Power On, Stay Off, and **Last State**.

▶CPU Configuration

The following CPU information will be displayed:

- Processor ID

- Processor Frequency

- Processor Max Ratio

- Processor Min Ratio

- Microcode Revision

- L1 Cache RAM

- L2 Cache RAM

- L3 Cache Ram

- CPU Version

Clock Spread Spectrum

If this feature is set to Enabled, the BIOS utility will monitor the level of Electro-magnetic Interference caused by the components and will attempt to reduce the interference whenever needed. The options are **Disable** and Enable.

Hyper-Threading (ALL)

Select Enable to use Intel Hyper-Threading Technology to enhance CPU performance. The options are Disable and **Enable**.

Cores Enabled

Set a numeric value to enable the number of cores. (Please refer to Intel's website for more information.) Enter **0** to enable all cores.

Monitor/Mwait

Select Enabled to enable the Monitor/MWait instructions. The Monitor instruction monitors a region of memory for writes, and MWait instructions instruct the CPU to stop until the monitored region begins to write. The options are Disable and **Enable**.

Execute Disable Bit (Available if supported by the OS & the CPU)

Select Enabled to enable the Execute-Disable Bit which will allow the processor to designate areas in the system memory where an application code can execute

and where it cannot, thus preventing a worm or a virus from flooding illegal codes to overwhelm the processor or damage the system during an attack. The default is **Enable**. (Refer to the Intel® and Microsoft® websites for more information.)

PPIN Control

Select Unlock/Enable to use the Protected-Processor Inventory Number (PPIN) in the system. The options are **Unlock/Enable** and Unlock/Disable.

Hardware Prefetcher (Available when supported by the CPU)

If set to Enabled, the hardware prefetcher will prefetch streams of data and instructions from the main memory to the L2 cache to improve CPU performance. The options are Disable and **Enable**.

Adjacent Cache Prefetch (Available when supported by the CPU)

The CPU prefetches the cache line for 64 bytes if this feature is set to Disabled. The CPU prefetches both cache lines for 128 bytes as comprised if this feature is set to **Enable**.

DCU Streamer Prefetcher (Available when supported by the CPU)

Select Enabled to enable the DCU (Data Cache Unit) Streamer Prefetcher which will stream and prefetch data and send it to the Level 1 data cache to improve data processing and system performance. The options are Disable and **Enable**.

DCU IP Prefetcher (Available when supported by the CPU)

Select Enabled for DCU (Data Cache Unit) IP Prefetcher support, which will prefetch IP addresses to improve network connectivity and system performance. The options are Disable and **Enable**.

Direct Cache Access (DCA)

Select Enabled to use Intel's DCA (Direct Cache Access) Technology to improve data transfer efficiency. The options are Disable, Enable, and **Auto**.

Intel Virtualization Technology (Available when supported by the CPU)

Select Enabled to support Intel Virtualization Technology, which will allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are Disable and **Enable**.

Note: If a change is made to this setting, you will need to reboot the system for the change to take effect. Refer to Intel's website for detailed information.

▶Advanced Power Management Configuration

This section is used to configure the following CPU Power Management settings.

EIST (P-States)

EIST (Enhanced Intel SpeedStep Technology) allows the system to automatically adjust processor voltage and core frequency to reduce power consumption and heat dissipation. The options are Disable and **Enable.**

If the above is set to Enable, CPU P State will display:

▶CPU P State Control

P State Domain

This feature allows the user to indicate the P-State domain for each logical process in the system. All processes indicate the same domain in the same package. The options are **ALL** and ONE.

P-State Coordination

This feature allows the user to change the P-State (Power-Performance State) coordination type. P-State is also known as "SpeedStep" for Intel processors. Select HW_ALL to change the P-State coordination type for hardware components only. Select SW_ALL to change the P-State coordination type for all software installed in the system. Select SW_ANY to change the P-State coordination type for a software program in the system. The options are **HW_All,** SW_ALL, and SW_ANY.

Energy Efficient P-State

Select Enable to support power-saving mode for P-State. The options are Disable and **Enable.**

Boot Performance Mode

This feature allows the user to select the performance state that the BIOS will set before the operating system handoff. The options are **Max Performance** and Max Efficient.

Turbo Mode

Select Enable for processor cores to run faster than the frequency specified by the manufacturer. The options are Disable and **Enable**.

▶CPU HWPM State Control

Enable CPU HWPM

Select Enable for better CPU energy performance. The options are **Disable**, HWPM NATIVE MODE, and HWPM OOB MODE.

Enable CPU Autonomous Cstate

Use this feature to enable CPU Autonomous C State, which converts HALT instructions to Mwait. The options are Disable and **Enable**.

▶CPU C State Control

CPU C State

Use this feature to enable the enahnced C State of the CPU. The options are Disable and **Enable**.

Package C State Limit

This feature allows the user to set the limit on the C State package register. The options are C0/C1 State, C2 State, C6 (Non Retention) State**,** and **C6 (Rentention) state.**

CPU C3 Report

Select Enabled to allow the BIOS to report the CPU C3 State (ACPI C2) to the operating system. During the CPU C3 State, the CPU clock generator is turned off. The options are Enable and **Disable.**

CPU C6 Report

Select Enabled to allow the BIOS to report the CPU C6 State (ACPI C3) to the operating system. During the CPU C6 State, the power to all cache is turned off. The options are Disable and **Enable**.

Enhanced Halt State (C1E)

Select Enabled to use Enhanced Halt-State technology, which will significantly reduce the CPU's power consumption by reducing the CPU's clock cycle and voltage during a Halt-state. The options are Disable and **Enable**.

▶CPU T State Control

ACPI (Advanced Configuration Power Interface) T-States

Select Enable to support CPU throttling by the operating system to reduce power consumption. The options are **Disable** and Enable.

▶CPU Advanced PM Turning

▶Energy Perf BIAS

Energy Performance Tuning

When enabled, this item selects whether the BIOS or Operating System can turn on the energy performance bias tuning. The options are Disable and **Enable**.

If the above is set to Disable, Energy Performance BIAS Setting will display:

Energy Performance BIAS Setting

This feature allows balancing Power Efficiency vs Performance. This will override whatever setting is in the Operating System. The options are Performance, **Balanced Performance**, Balanced Power, and Power.

Power/Performance Switch

This feature allows dynamic switching between Power and Performance power efficiency. The options are Disable and **Enable**.

Workload Configuration

This feature allows for optimization of workload. Balanced is recommended. The options are **Balanced** and I/O Sensitive.

▶Program PowerCTL_MSR

PKG C-state Lat. Neg.

Use this feature to indicate whether latency should be negotiated with PCH for packaging C-States. The options are **Enable** and Disable.

SAPM Control

This feature indicates whether the PCU should control the System Agent PM using its power-performance tuning algorithm. The options are **Enable** and Disable.

Energy Efficient Turbo

Use this feature to enable energy efficient turbo mode. The options are **Enable** and Disable.

▶**DRAM RAPL Configuration**

Override BW_LIMIT_TF

This feature allows the user to turn off the "Override BW_LIMIT_TF (Time Frame)" setting when the item "Running Average Limit for DRAM modules" (DRAM RAPL) is set to Enabled so that the DRAM RAPL setting can work properly. The default setting is **1**.

DRAM RAPL Extended Range

Use this feature to set the DRAM Running Average Power Limit (RAPL) Extended Range. The options are Disable and **Enable**.

▶**Chipset Configuration**

Warning: Setting the wrong values in the following features may cause the system to malfunction.

▶**North Bridge**

This feature allows the user to configure the following North Bridge settings.

▶**IIO Configuration**

EV DFX (Device Function On-Hide) Features

When this feature is set to Enable, the EV_DFX Lock Bits that are located on a processor will always remain clear during electric tuning. The options are **Disable** and Enable.

▶IIO1 Configuration

M.2 PCI-E 3.0 X4

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s), and **Gen 3 (Generation 3) (8 GT/s)**.

CPU SLOT 6 PCI-E 3.0 X8

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s), and **Gen 3 (Generation 3) (8 GT/s)**.

CPU SLOT 7 PCI-E 3.0 X8

This item configures the link speed of the PCI-E port specified by the user. The options are Gen 1 (Generation 1) (2.5 GT/s), Gen 2 (Generation 2) (5 GT/s), and **Gen 3 (Generation 3) (8 GT/s)**.

▶IOAT (Intel IO Acceleration) Configuration

Enable IOAT

Select Enable to enable Intel I/OAT (I/O Acceleration Technology) support, which significantly reduces CPU overhead by leveraging CPU architectural improvements and freeing the system resource for other tasks. The options are Disable and **Enable**.

No Snoop

Select Enable to support no-snoop mode for each CB device. The options are **Disable** and Enable.

▶Intel VT for Directed I/O (VT-d)

Intel VT for Directed I/O (VT-d)

Select Enable to use Intel Virtualization Technology support for Direct I/O VT-d support by reporting the I/O device assignments to the VMM (Virtual Machine Monitor) through the DMAR ACPI Tables. This feature offers fully-protected I/O resource sharing across Intel platforms, providing greater reliability, security and availability in networking and data-sharing. The options are **Enable** and Disable.

ACS Control

Use this feature to program Access Control Services (ACS) to the PCI-E Root Port Bridges. The options are **Enable** and Disable.

Interrupt Remapping

Select Enable for Interrupt Remapping support to enhance system performance. The options are **Enable** and Disable.

▶Memory Configuration

Enforce POR

Select Enable to enforce POR restrictions on DDR4 frequency and voltage programming. The options are **Enabled** and Disabled.

Memory Frequency

Use this feature to set the maximum memory frequency for onboard memory modules. The options are **Auto**, 1333, 1400, 1600, 1800, 1867, 2000, 2133, 2200, 2400, 2600, 2667, 2800, 2993, 3000, 3200, and Reserved (Do not select Reserved).

Data Scrambling

Select Enabled to enable data scrambling to enhance system performance and data integrity. The options are **Auto**, Disabled, and Enabled.

DRAM RAPL Baseline

Use this feature to set the run-time power-limit baseline for DRAM modules. The options are Disable, DRAM RAPL Mode 0, and **DRAM RAPL Mode 1**.

Set Throttling Mode

Throttling improves reliability and reduces power consumption in the processor via automatic voltage control during processor idle states. The options are Disabled and **CLTT** (Closed Loop Thermal Throttling).

A7 Mode

Select Enabled to support the A7 (Addressing) mode to improve memory performance. The options are **Enable** and Disable.

▶DIMM Information

This item displays the status of a DIMM module specified by the user.

- DIMMA1

- DIMMB1

- DIMMA2

- DIMMB2

▶Memory RAS (Reliability_Availability_Serviceability) Configuration

Use this submenu to configure the following Memory RAS settings.

Patrol Scrub

Patrol Scrubbing is a process that allows the CPU to correct correctable memory errors detected on a memory module and send the correction to the requestor (the original source). When this item is set to Enabled, the IO hub will read and write back one cache line every 16K cycles, if there is no delay caused by internal processing. By using this method, roughly 64 GB of memory behind the IO hub will be scrubbed every day. The options are **Enable** and Disable.

Patrol Scrub Interval

This feature allows you to decide how many hours the system should wait before the next complete patrol scrub is performed. Use the keyboard to enter a value from 0-24. The default setting is **24**.

Demand Scrub

Demand Scrubbing is a process that allows the CPU to correct correctable memory errors found on a memory module. When the CPU or I/O issues a demand-read command, and the read data from memory turns out to be a correctable error, the error is corrected and sent to the requestor (the original source). Memory is updated as well. Select Enable to use Demand Scrubbing for ECC memory correction. The options are Disable and **Enable**.

Device Tagging

Select Enable to support device tagging. The options are **Disable** and Enable.

▶South Bridge

The following South Bridge information will display:

- USB Configuration

- USB Module Version

- USB Devices

Legacy USB Support

This feature enables support for legacy USB devices. Select Auto to disable legacy support if USB devices are not present. Select Disable to have USB devices available only for EFI applications. The options are **Enabled,** Disabled, and Auto.

XHCI Hand-Off

This is a work-around solution for operating systems that do not support XHCI (Extensible Host Controller Interface) hand-off. The XHCI ownership change should be claimed by the XHCI driver. The settings are **Enabled** and Disabled.

EHCI Hand-Off

This item is for the Operating Systems that do not support Enhanced Host Controller Interface (EHCI) hand-off. When this item is enabled, EHCI ownership change will be claimed by the EHCI driver. The settings are Enabled and **Disabled**.

USB 3.0 Support

Select Enabled for USB 3.0 support. The options are Smart Auto, **Auto**, Enabled, Disabled.

EHCI1

Select Enabled to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #1 (at least one USB 2.0 connector should be enabled for EHCI support). The options are Disabled and **Enabled**.

EHCI2

Select Enabled to enable EHCI (Enhanced Host Controller Interface) support on USB 2.0 connector #2 (at least one USB 2.0 connector should be enabled for EHCI support). The options are Disabled and **Enabled**.

XHCI Pre-Boot Driver

Select Enabled to enable XHCI (Extensible Host Controller Interface) support on a pre-boot drive specified by the user. The options are **Enabled** and Disabled.

▶SATA Configuration

When this submenu is selected, the AMI BIOS automatically detects the presence of the SATA devices that are supported by the Intel PCH chip and displays the following items:

SATA Controller

This item enables or disables the onboard SATA controller supported by the Intel PCH chip. The options are **Enabled** and Disabled.

Configure SATA as

Select IDE to configure a SATA drive specified by the user as an IDE drive. Select AHCI to configure a SATA drive specified by the user as an AHCI drive. Select RAID to configure a SATA drive specified by the user as a RAID drive. The options are IDE, **AHCI**, and RAID.

*If the item "Configure SATA as" is set to AHCI, the following items will display:

SATA Frozen

Use this item to enable the HDD Security Frozen Mode. The options are **Disabled** and Enabled.

SATA AHCI LPM

Use this feature to enable the Link Power Management for SATA AHCI. The options are Disabled and **Enabled**.

Support Aggressive Link Power Mgmt

When this item is set to Enabled, the SATA AHCI controller manages the power usage of the SATA link. The controller will put the link in a low power mode during extended periods of I/O inactivity, and will return the link to an active state when I/O activity resumes. The options are Disabled and **Enabled**.

SATA RAID Option ROM/UEFI Driver (Available if "Configure SATA As" is set to RAID)

Select Enabled to use the SATA RAID Option ROM/UEFI driver for system boot. The options are **Enabled** and Disabled.

SATA Port 0~ Port 5

This item displays the information detected on the installed SATA drive on the particular SATA port.

- Model number of drive and capacity

- Software Preserve Support

Port 0 ~ Port 5 Hot Plug

This feature designates this port for hot plugging. Set this item to Enabled for hot-plugging support, which will allow the user to replace a SATA drive without shutting down the system. The options are **Enabled** and Disabled.

Port 0 ~ Port 5 Spin Up Device

On an edge detect from 0 to 1, set this item to allow the PCH to initialize the device. The options are Enabled and **Disabled**.

Port 0 ~ Port 5 SATA Device Type

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are Hard Disk Drive and Solid State Drive.

*If the item "Configure SATA as" is set to IDE, the following items will display:

SATA Frozen

Use this item to enable the HDD Security Frozen Mode. The options are **Disabled** and Enabled.

Port 0 ~ Port 5 SATA Device Type (Available when a SATA port is detected)

Use this item to specify if the SATA port specified by the user should be connected to a Solid State drive or a Hard Disk Drive. The options are Hard Disk Drive and Solid State Drive.

▶Server ME (Management Engine) Configuration

This feature displays the following system ME configuration settings.

- General ME Configuration

- Operational Firmware Version

- ME Firmware Type

- Recovery Firmware Version

- ME Firmware Features

- ME Firmware Status #1

- ME Firmware Status #2

- Current State

- Error Code

▶PCIe/PCI/PnP Configuration

The following information will display:

- PCI Bus Driver Version

- PCI Devices Common Settings:

PCI PERR/SERR Support

Select Enabled to allow a PCI device to generate a PERR/SERR number for a PCI Bus Signal Error Event. The options are Enabled and **Disabled**.

Above 4G Decoding (Available if the system supports 64-bit PCI decoding)

Select Enabled to decode a PCI device that supports 64-bit in the space above 4G Address. The options are **Disabled** and Enabled.

SR-IOV (Available if the system supports Single-Root Virtualization)

Select Enabled for Single-Root IO Virtualization support. The options are **Disabled** and Enabled.

Maximum Payload

Use this feature to select the setting for the PCI Express maximum payload size. The options are **Auto**, 128 Bytes, 256 Bytes, 512 Bytes, 1024 Bytes, 2048 Bytes, and 4096 Bytes.

Relaxed Ordering

Select Enable to enable Relaxed Ordering support which will allow certain transactions to violate the strict-ordering rules of PCI bus for a transaction to be completed prior to other transactions that have already been enqueued. The options are **Disabled** and Enabled.

Extended Tag

Use this item to allow a device to use the 8-bit tag field as a requester. The options are **Disabled** and Enabled.

ARI Forwarding

When this feature is enabled, the Downstream Port disables its traditional device number to 0 when turning Type1 Configuration Request into a Type0 Configuration Request. The default value is **Disabled**.

M.2 PCI-E 3.0 X4

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

CPU SLOT 6 PCI-E 3.0 X8 OPROM

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

CPU SLOT 7 PCI-E 3.0 X8 OPROM

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

PCI-E 2.0 X1 OPROM

Use this feature to select which firmware type to be loaded for the add-on card in this slot. The options are Disabled, **Legacy**, and EFI.

Onboard SAS Option ROM

Use this feature to select which firmware to be loaded for the onboard SAS Option ROM. The options are Disabled, **Legacy**, and EFI.

Onboard LAN Option ROM Type

Use this feature to select which firmware to be loaded for the onboard LAN. The options are **Legacy** and EFI.

Onboard LAN1 Option ROM

Use this option to select the type of device installed in LAN Port1 used for system boot. The default setting for LAN1 Option ROM is **PXE**.

Onboard LAN2 ~ LAN8 Option ROM

Use this option to select the type of device installed in the specified LAN Ports used for system boot. The options are **Disabled** and PXE.

Onboard Video Option ROM

Use this item to select the Onboard Video Option ROM type. The options are Disabled, **Legacy,** and EFI.

VGA Priority

This feature allows the user to select the graphics adapter to be used as the primary boot device. The options are **Onboard** and Offboard.

Network Stack

Select Enabled enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are Enabled and **Disabled**.

*If "Network Stack" is set to Enabled, the four items below will become available for configuration:

IPv4 PXE Support

Select Enabled to enable IPv4 PXE boot support. The options are Disabled and **Enabled**.

IPv6 PXE Support

Select Enabled to enable IPv6 PXE boot support. The options are **Disabled** and Enabled.

PXE boot wait time

Use this option to specify the wait time to press the ESC key to abort the PXE boot. Press "+" or "-" on your keyboard to change the value. The default setting is **0**.

Media detect count

Use this option to specify the number of times media will be checked. Press "+" or "-" on your keyboard to change the value. The default setting is **1**.

▶Super IO Configuration

Super IO Chip AST2400

▶Serial Port 1 Configuration

This submenu allows the user the configure settings of Serial Port 1 or Serial Port 2.

Serial Port

Select Enabled to enable the selected onboard serial port. The options are Disabled and **Enabled**.

Device Settings

This item displays the status of a serial part specified by the user.

Change Port 1 Settings

This feature specifies the base I/O port address and the Interrupt Request address of a serial port specified by the user. Select Auto to allow the BIOS to automatically assign the base I/O and IRQ address.

The options for Serial Port 1 are **Auto**, (IO=3F8h; IRQ=4), (IO=3F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=2F8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12), (IO=3E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12) and (IO=2E8h; IRQ=3, 4, 5, 6, 7, 9, 10, 11, 12).

▶Serial Port Console Redirection

COM1 Console Redirection

Console Redirection

Select Enabled to enable console redirection support for a serial port specified by the user. The options are **Disabled** and Enabled.

▶COM1 Console Redirection Settings

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Terminal Type

This feature allows the user to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

Bits Per second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600, and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 Bits and **8 Bits**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None** and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are Disabled and **Enabled.**

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

Putty KeyPad

This feature selects the settings for Function Keys and KeyPad used for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SC0, ESCN, and VT400.

Redirection After BIOS POST

Use this feature to enable or disable legacy console redirection after BIOS POST. When set to Bootloader, legacy console redirection is disabled before booting the OS. When set to Always Enable, legacy console redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

SOL Console Redirection

Select Enabled to use the SOL port for Console Redirection. The options are Disabled and **Enabled**.

*If the item above set to Enabled, the following items will become available for user's configuration:

▶SOL Console Redirection Settings

Use this feature to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII Character set. Select VT100+ to add color and function key support. Select ANSI to use the Extended ASCII Character Set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, **VT100+**, and VT-UTF8.

Bits Per second

Use this feature to set the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 38400, 57600 and **115200** (bits per second).

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 (Bits) and **8 (Bits)**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

Flow Control

Use this feature to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are None and Hardware RTS/CTS.

VT-UTF8 Combo Key Support

Select Enabled to enable VT-UTF8 Combination Key support for ANSI/VT100 terminals. The options are Disabled and **Enabled.**

Recorder Mode

Select Enabled to capture the data displayed on a terminal and send it as text messages to a remote server. The options are **Disabled** and Enabled.

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are Disabled and **Enabled**.

Legacy OS Redirection Resolution

Use this feature to select the number of rows and columns used in Console Redirection for legacy OS support. The options are 80x24 and **80x25**.

Putty KeyPad

This feature selects Function Keys and KeyPad settings for Putty, which is a terminal emulator designed for the Windows OS. The options are **VT100**, LINUX, XTERMR6, SCO, ESCN, and VT400.

Redirection After BIOS POST

Use this feature to enable or disable legacy Console Redirection after BIOS POST. When set to Bootloader, legacy Console Redirection is disabled before booting the OS. When set to Always Enable, legacy Console Redirection remains enabled when booting the OS. The options are **Always Enable** and Bootloader.

Serial Port for Out-of-Band Management/Windows Emergency Management Services (EMS)

The submenu allows the user to configure Console Redirection settings to support Out-of-Band Serial Port management.

EMS (Emergency Management Services) Console Redirection

Select Enabled to use a COM port selected by the user for EMS Console Redirection. The options are Enabled and **Disabled.**

*If the item above set to Enabled, the following items will become available for user's configuration:

▶EMS Console Redirection Settings

This feature allows the user to specify how the host computer will exchange data with the client computer, which is the remote computer used by the user.

Out-of-Band Mgmt Port

The feature selects a serial port in a client server to be used by the Microsoft Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **COM1** and SOL.

Terminal Type

Use this feature to select the target terminal emulation type for Console Redirection. Select VT100 to use the ASCII character set. Select VT100+ to add color and function key support. Select ANSI to use the extended ASCII character set. Select VT-UTF8 to use UTF8 encoding to map Unicode characters into one or more bytes. The options are ANSI, VT100, VT100+, and **VT-UTF8**.

Bits Per Second

This item sets the transmission speed for a serial port used in Console Redirection. Make sure that the same speed is used in the host computer and the client computer. A lower transmission speed may be required for long and busy lines. The options are 9600, 19200, 57600, and **115200** (bits per second).

Flow Control

Use this item to set the flow control for Console Redirection to prevent data loss caused by buffer overflow. Send a "Stop" signal to stop sending data when the receiving buffer is full. Send a "Start" signal to start sending data when the receiving buffer is empty. The options are **None,** Hardware RTS/CTS, and Software Xon/Xoff.

Data Bits

Use this feature to set the data transmission size for Console Redirection. The options are 7 (Bits) and **8 (Bits)**.

Parity

A parity bit can be sent along with regular data bits to detect data transmission errors. Select Even if the parity bit is set to 0, and the number of 1's in data bits

is even. Select Odd if the parity bit is set to 0, and the number of 1's in data bits is odd. Select None if you do not want to send a parity bit with your data bits in transmission. Select Mark to add a mark as a parity bit to be sent along with the data bits. Select Space to add a Space as a parity bit to be sent with your data bits. The options are **None**, Even, Odd, Mark and Space.

Stop Bits

A stop bit indicates the end of a serial data packet. Select 1 Stop Bit for standard serial data communication. Select 2 Stop Bits if slower devices are used. The options are **1** and 2.

▶ACPI Settings

WHEA Support

This feature Enables the Windows Hardware Error Architecture (WHEA) support for the Windows 2008 (or a later version) operating system. The options are Disabled and **Enabled**.

High Precision Event Timer

Select Enabled to activate the High Performance Event Timer (HPET) that produces periodic interrupts at a much higher frequency than a Real-time Clock (RTC) does in synchronizing multimedia streams, providing smooth playback and reducing the dependency on other timestamp calculation devices, such as an x86 RDTSC Instruction embedded in the CPU. The High Performance Event Timer is used to replace the 8254 Programmable Interval Timer. The options are Disabled and **Enabled**.

PCI AER Support

Select Enabled to enable the ACPI OS to manage PCI Advanced Error Reporting. The options are **Disabled** and Enabled.

▶Trusted Computing

Configuration

Security Device Support

If this feature and the TPM jumper on the motherboard are both set to Enabled, onbaord security devices will be enabled for TPM (Trusted Platform Module) support to enhance data integrity and network security. Please reboot the system for a change on this setting to take effect. The options are Disabled and **Enabled**.

TPM State

This feature changes the TPM State. The options are **Disabled** and Enabled.

Note: The system will restart to change the TPM State.

Pending operation

Use this item to schedule a TPM-related operation to be performed by a security device for system data integrity. Your system will reboot to carry out a pending TPM operation. The options are **None** and TPM Clear.

Device Select

Use this feature to select the TPM version. TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support for TPM 2.0 devices. Select Auto to enable support for both versions. The default setting is **Auto**.

The following are informational status messages that indicate the current TPM State:

TPM Enabled Status

TPM Active Status

TPM Owner Status

TXT Support

Intel TXT (Trusted Execution Technology) helps protect against software-based attacks and ensures protection, confidentiality and integrity of data stored or created on the system. Use this feature to enable or disable TXT Support. The options are **Disabled** and Enabled.

7-4   Event Logs

Use this feature to configure Event Log settings.
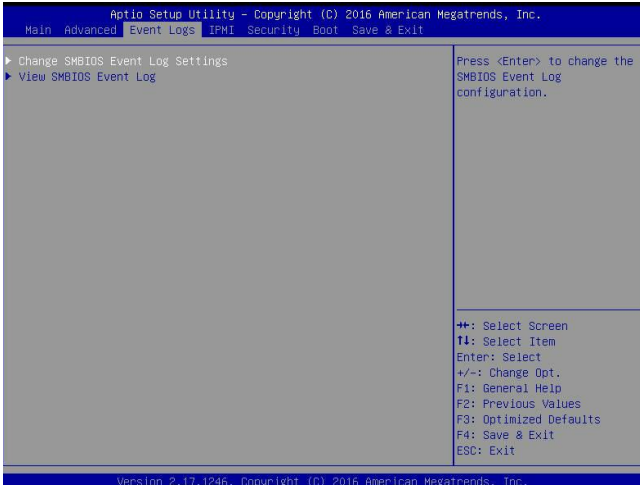
►Change SMBIOS Event Log Settings

Enabling/Disabling Options

SMBIOS Event Log

Change this item to enable or disable all features of the SMBIOS Event Logging during system boot. The options are **Enabled** and Disabled.

Runtime Error Logging Support

Select Enabled to support Runtime Error Logging. The options are **Enable** and Disable. If this item is set to Enable, the following item will be available for configuration:

Memory Corrected Error Enabling (Available when the item above - Runtime Error Logging Support is set to Enable)

Select Enable for the BIOS to correct a memory error if it is correctable. The options are Disable and **Enable**.

Memory Corr. Error Threshold

Use this item to enter the threshold value for correctable memory errors. The default setting is **10**.

PCI-Ex (PCI-Express) Error Enable

Select Yes for the BIOS to correct errors occurred in the PCI-E slots. The options are Yes and **No**.

Erasing Settings

Erase Event Log

If No is selected, data stored in the event log will not be erased. Select Yes, Next Reset, data in the event log will be erased upon next system reboot. Select Yes, Every Reset, data in the event log will be erased upon every system reboot. The options are **No**, Yes, Next reset, and Yes, Every reset.

When Log is Full

Select Erase Immediately for all messages to be automatically erased from the event log when the event log memory is full. The options are **Do Nothing** and Erase Immediately.

SMBIOS Event Long Standard Settings

Log System Boot Event

This option toggles the System Boot Event logging to enabled or disabled. The options are **Disabled** and Enabled.

MECI

The Multiple Event Count Increment (MECI) counter counts the number of occurrences that a duplicate event must happen before the MECI counter is incremented. This is a numeric value. The default value is **1**.

METW

The Multiple Event Time Window (METW) defines number of minutes must pass between duplicate log events before MECI is incremented. This is in minutes, from 0 to 99. The default value is **60**.

> **Note**: After making changes on a setting, be sure to reboot the system for the changes to take effect.

▶View SMBIOS Event Log

This section displays the contents of the SMBIOS Event Log.

7-5   IPMI

Use this feature to configure Intelligent Platform Management Interface (IPMI) settings.

```
               Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
     Main   Advanced   Event Logs   IPMI   Security   Boot   Save & Exit

     BMC Firmware Revision              3.30                 Press <Enter> to change the
     IPMI STATUS                        Working              SEL event log configuration.

   ▶ System Event Log
   ▶ BMC Network Configuration
     IPMI Function Support              [Enabled]







                                                            →←: Select Screen
                                                            ↑↓: Select Item
                                                            Enter: Select
                                                            +/-: Change Opt.
                                                            F1: General Help
                                                            F2: Previous Values
                                                            F3: Optimized Defaults
                                                            F4: Save & Exit
                                                            ESC: Exit

               Version 2.17.1246. Copyright (C) 2016 American Megatrends, Inc.
```

BMC Firmware Revision

This item indicates the IPMI firmware revision used in your system.

IPMI STATUS (Baseboard Management Controller)

This item indicates the status of the IPMI firmware installed in your system.

▶System Event Log

Enabling/Disabling Options

SEL Components

Select Enabled for all system event logging at bootup. The options are **Enabled** and Disabled.

Erasing Settings

Erase SEL

Select Yes, On next reset to erase all system event logs upon next system reboot. Select Yes, On every reset to erase all system event logs upon each system reboot. Select No to keep all system event logs after each system reboot. The options are **No,** Yes, On next reset, and Yes, On every reset.

When SEL is Full

This feature allows the user to decide what the BIOS should do when the system event log is full. Select Erase Immediately to erase all events in the log when the system event log is full. The options are **Do Nothing** and Erase Immediately.

> **Note**: After making changes on a setting, be sure to reboot the system for the changes to take effect.

▶BMC Network Configuration

BMC Network Configuration

IPMI LAN Selection

This item displays the IPMI LAN setting. The default setting is **Failover**.

IPMI Network Link Status

This item displays the IPMI Network Link status. The default setting is **Shared LAN**.

Update IPMI LAN Configuration

Select Yes for the BIOS to implement all IP/MAC address changes at the next system boot. The options are **No** and Yes

Configuration Address Source (Available for configuration if "Update IPMI LAN Configuration" is set to Yes)

This feature allows the user to select the source of the IP address for this computer. If Static is selected, you will need to know the IP address of this computer and enter it to the system manually in the field. If DHCP is selected, the BIOS will search for a DHCP (Dynamic Host Configuration Protocol) server in the network that is attached to and request the next available IP address for this computer. The options are **DHCP** and Static. The following items are assigned IP addresses automatically if DHCP is selected.

Station IP Address

This item displays the Station IP address for this computer. This should be in decimal and in dotted quad form (i.e., 192.168.10.253).

Subnet Mask

This item displays the sub-network that this computer belongs to. The value of each three-digit number separated by dots should not exceed 255.

Station MAC Address

This item displays the Station MAC address for this computer. Mac addresses are 6 two-digit hexadecimal numbers.

Gateway IP Address

This item displays the Gateway IP address for this computer. This should be in decimal and in dotted quad form (i.e., 172.31.0.1).

VLAN (Available for configuration if "Update IPMI LAN Configuration" is set to Yes)

Use this feature to enable or disable the IPMI VLAN function. The options are **Disable** and Enable.

IPMI Function Support

Use this feature to enable IPMI support. The options are **Enabled** and Disabled. When Disabled, the system powers on quickly by removing BIOS support for extended IPMI features. The Disable option is for applications that require faster power on time wthout using Supermicro Update Manager (SUM) or extended IPMI features. The BMC network configuration in the BIOS setup is also invalid when IPMI Function Support is disabled. The general BMC function and motherboard health monitor such as fan control are still functioning even when this option is disabled.

7-6   Security Settings

This menu allows the user to configure the following security settings for the system.
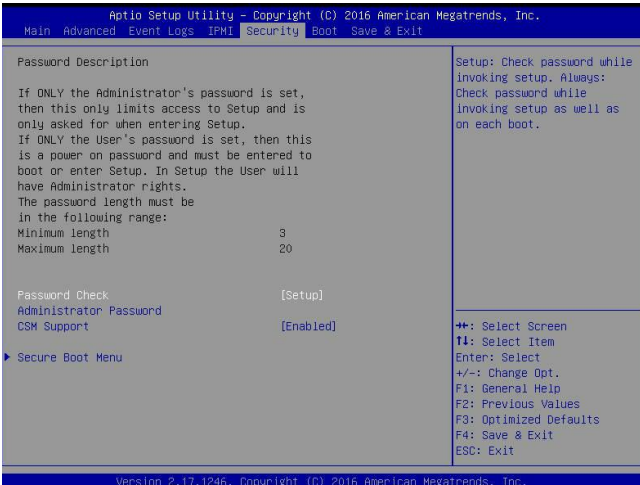
Password Check

Select Setup for the system to check for a password at Setup. Select Always for the system to check for a password at bootup or upon entering the BIOS Setup utility. The options are **Setup** and Always.

Administrator Password

Press Enter to create a new, or change an existing Administrator password.

CSM Support

Select Enabled to support the EFI Compatibility Support Module (CSM), which provides compatibility support for traditional legacy BIOS for system boot. The options are **Enabled** and Disabled.

▶Secure Boot Menu

This section displays the contents of the following secure boot features:

- System Mode

- Secure Boot

- Vendor Keys

Secure Boot

Use this item to enable secure boot. The options are **Disabled** and Enabled.

Secure Boot Mode

Use this item to select the secure boot mode. The options are Standard and **Custom**.

▶Key Management

This submenu allows the user to configure the following Key Management settings.

Factory Default Key Provision

Select Enabled to install the default Secure-Boot keys set by the manufacturer. The options are **Disabled** and Enabled.

▶Enroll All Factory Default Keys

Select Yes to install all default secure keys set by the manufacturer. The options are **Yes** and No.

Save All Secure Boot Variables

This feature allows the user to decide if all secure boot variables should be saved.

▶Platform Key (PK)

This feature allows the user to configure the settings of the platform keys.

Set New Key

Select Yes to load the new platform keys (PK) from the manufacturer's defaults. Select No to load the platform keys from a file. The options are **Yes** and No.

▶**Key Exchange Key (KEK)**

Set New Key

Select Yes to load the KEK from the manufacturer's defaults. Select No to load the KEK from a file. The options are Yes and No.

Append Key

Select Yes to add the KEK from the manufacturer's defaults list to the existing KEK. Select No to load the KEK from a file. The options are Yes and No.

▶**Authorized Signatures**

Set New Key

Select Yes to load the database from the manufacturer's defaults. Select No to load the DB from a file. The options are Yes and No.

Append Key

Select Yes to add the database from the manufacturer's defaults to the existing DB. Select No to load the DB from a file. The options are Yes and No.

▶**Forbiden Signatures**

Set New Key

Select Yes to load the DBX from the manufacturer's defaults. Select No to load the DBX from a file. The options are Yes and No.

Append New Key

Select Yes to add the DBX from the manufacturer's defaults to the existing DBX. Select No to load the DBX from a file. The options are Yes and No.

▶**Authorized TimeStamps**

Set New Key

Select Yes to load the DBT from the manufacturer's defaults. Select No to load the DBT from a file. The options are Yes and No.

Append Key

Select Yes to add the DBT from the manufacturer's defaults list to the existing DBT. Select No to load the DBT from a file. The options are Yes and No.

7-7   Boot Settings

Use this feature to configure Boot Settings:

```
                    Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
       Main  Advanced  Event Logs  IPMI  Security  Boot  Save & Exit

       Boot Configuration                                          Select which boot device
                                                                   type to list in FIXED BOOT
       Boot Mode Select                       [DUAL]               ORDER Priorities.


       FIXED BOOT ORDER Priorities
       Dual Boot Order #1                     [Hard Disk]
       Dual Boot Order #2                     [CD/DVD]
       Dual Boot Order #3                     [USB Hard Disk]
       Dual Boot Order #4                     [USB CD/DVD]
       Dual Boot Order #5                     [USB Key: USB DISK 2...]
       Dual Boot Order #6                     [USB Floppy]
       Dual Boot Order #7                     [Network:IBA GE Slot...]
       Dual Boot Order #8                     [UEFI Hard Disk]
       Dual Boot Order #9                     [UEFI CD/DVD]
       Dual Boot Order #10                    [UEFI USB Hard Disk]
       Dual Boot Order #11                    [UEFI USB CD/DVD]
       Dual Boot Order #12                    [UEFI USB Key:UEFI: ...]    ++: Select Screen
       Dual Boot Order #13                    [UEFI USB Floppy]           ↑↓: Select Item
       Dual Boot Order #14                    [UEFI Network]              Enter: Select
       Dual Boot Order #15                    [UEFI AP:UEFI: Built...]    +/−: Change Opt.
                                                                         F1: General Help
     ▶ Add New Boot Option                                               F2: Previous Values
     ▶ Delete Boot Option                                                F3: Optimized Defaults
                                                                         F4: Save & Exit
                                                                         ESC: Exit

                    Version 2.17.1246. Copyright (C) 2016 American Megatrends, Inc.
```

Boot Mode Select

Use this item to select the type of device that the system is going to boot from. The options are Legacy, UEFI, and **Dual.** The default setting is Dual.

Fixed Boot Order Priorities

This option prioritizes the order of bootable devices that the system to boot from. Press <Enter> on each entry from top to bottom to select devices.

- Dual Boot Order #1

- Dual Boot Order #2

- Dual Boot Order #3

- Dual Boot Order #4

- Dual Boot Order #5

- Dual Boot Order #6

- Dual Boot Order #7

- Dual Boot Order #8

- Dual Boot Order #9

- Dual Boot Order #10

- Dual Boot Order #11

- Dual Boot Order #12

- Dual Boot Order #13

- Dual Boot Order #14

- Dual Boot Order #15

▶Delete Boot Option

Use this feature to remove a pre-defined boot device from which the system will boot during startup.

The settings are [any pre-defined boot device].

▶NETWORK Drive BBS Priorities

This feature allows the user to specify which Network devices are boot devices.

- Legacy Boot Order #1

- 2nd Boot Device

▶UEFI Application Boot Priorities

This feature allows the user to specify which UEFI devices are boot devices.

- UEFI Boot Order #1

7-8 Save & Exit

Select the Exit tab from the BIOS setup utility screen to enter the Exit BIOS Setup screen.
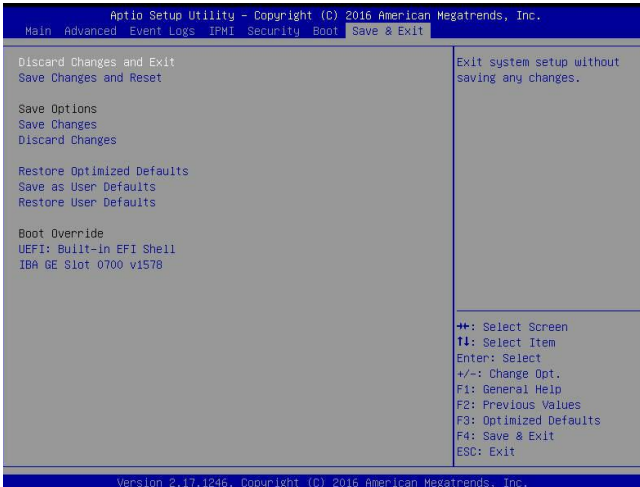
Discard Changes and Exit

Select this option to quit the BIOS Setup without making any permanent changes to the system configuration, and reboot the computer. Select Discard Changes and Exit from the Exit menu and press <Enter>.

Save Changes and Reset

When you have completed the system configuration changes, select this option to leave the BIOS setup utility and reboot the computer, so the new system configuration parameters can take effect. Select Save Changes and Exit from the Exit menu and press <Enter>.

Save Options

Save Changes

After completing the system configuration changes, select this option to save the changes you have made. This will not reset (reboot) the system.

Discard Changes

Select this option and press <Enter> to discard all the changes and return to the AMI BIOS utility Program.

Restore Defaults

To set this feature, select Restore Defaults from the Save & Exit menu and press <Enter>. These are factory settings designed for maximum system stability, but not for maximum performance.

Save As User Defaults

To set this feature, select Save as User Defaults from the Exit menu and press <Enter>. This enables the user to save any changes to the BIOS setup for future use.

Restore User Defaults

To set this feature, select Restore User Defaults from the Exit menu and press <Enter>. Use this feature to retrieve user-defined settings that were saved previously.

Boot Override

Listed on this section are other boot options for the system (i.e., Built-in EFI shell). Select an option and press <Enter>. Your system will boot to the selected boot option.

Appendix A

BIOS POST Error Codes

During the POST (Power-On Self-Test) routines, which are performed each time the system is powered on, errors may occur.

Non-fatal errors are those which, in most cases, allow the system to continue the boot-up process. The error messages normally appear on the screen.

Fatal errors will not allow the system to continue the boot-up procedure. If a fatal error occurs, you should consult with your system manufacturer for possible repairs.

Note: A PC buzzer must be installed using JD1 to hear the BIOS error beep codes.

BIOS POST Error Codes		
Beep Code	**Error Message**	**Description**
1 beep	Refresh	Circuits have been reset. (Ready to power up)
5 short beeps + 1 long beep	Memory error	No memory detected in the system
8 short beeps	Display memory read/write error or no video	Video adapter missing or with faulty memory
OH LED On	System Overheat	System overheat

Notes

Appendix B

UEFI BIOS Recovery Instructions

Warning: Do not upgrade the BIOS unless your system has a BIOS-related issue. Flashing the wrong BIOS can cause irreparable damage to the system. In no event shall Supermicro be liable for direct, indirect, special, incidental, or consequential damages arising from a BIOS update. If you need to update the BIOS, do not shut down or reset the system while the BIOS is updating to avoid possible boot failure.

B-1 An Overview to the UEFI BIOS

The Unified Extensible Firmware Interface (UEFI) provides a software-based interface between the operating system and the platform firmware in the pre-boot environment. The UEFI specification supports an architecture-independent mechanism for add-on card initialization to allow the UEFI OS loader, which is stored in the add-on card, to boot the system. The UEFI offers a clean, hands-off control to a computer system at bootup.

B-2 How to Recover the UEFI BIOS Image (-the Main BIOS Block)

A UEFI BIOS flash chip consists of a recovery BIOS block and a main BIOS block (a main BIOS image). The boot block contains critical BIOS codes, including memory detection and recovery codes for the user to flash a new BIOS image if the original main BIOS image is corrupted. When the system power is on, the boot block codes execute first. Once it is completed, the main BIOS code will continue with system initialization and bootup.

Note: Follow the BIOS recovery instructions below for BIOS recovery when the main BIOS boot crashes. However, when the BIOS boot block crashes, you will need to follow the procedures below for BIOS recovery.

B-3 To Recover the Main BIOS Block Using a USB-Attached Device

This feature allows the user to recover a BIOS image using a USB-attached device without additional utilities used. A USB flash device such as a USB Flash Drive, or a USB CD/DVD ROM/RW device can be used for this purpose. However, a USB Hard Disk drive cannot be used for BIOS recovery at this time.

The file system supported by UEFI is FAT (including FAT12, FAT16, and FAT32) installed on a bootable or non-bootable USB-attached device. However, the BIOS might need several minutes to locate the SUPER.ROM file if the media size becomes too large because it contains too many folders and files.

To perform UEFI BIOS recovery using a USB-attached device, follow the instructions below.

1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

   Note: If you cannot locate the "Super.ROM" file in your driver disk, visit our website at www.supermicro.com to download the BIOS image into a USB flash device and rename it "Super.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("Super.ROM") into your USB drive and power on the system

3. While powering on the system, please keep pressing <Ctrl> and <Home> simultaneously on your keyboard _until_ the following screen (or a screen similar to the one below) displays.

Caution: Please **stop** pressing the <Ctrl> and <Home> keys immediately when you see the screen (or a similar screen) below; otherwise, it will trigger a system reboot.


```
                                              BMC IP:10.132.161.13
     PEI--System Enter Recovery Mode..                          4F
```

Note: On the other hand, if the following screen displays, please load the "Super. ROM" file to the root folder and connect this folder to the system. (You can do so by inserting a USB device that contains the new "Super.ROM" image to your machine for BIOS recovery.)


```
                                              BMC IP:10.132.161.13
     PEI--Could Not Find Recovery Image...                      07
```

4. After locating the new BIOS binary image, the system will enter the BIOS Recovery menu as shown below.

   Note: At this point, you may decide if you want to start with BIOS recovery. If you decide to proceed with BIOS recovery, follow the procedures below.

```
Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
  Main  Advanced  Event Logs  IPMI  Boot  Security  Exit  Recovery

  WARNING! BIOS Recovery mode has been detected          Select this to start flash
                                                         update
  Flash Update Parameters
  Reset NVRAM                        [Enabled]
▶ Proceed with flash update




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



          Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

5. When the screen as shown above displays, using the arrow key, select the item "Proceed with flash update" and press the <Enter> key. You will see the progress of BIOS recovery as shown in the screen below.

   Note: *Do not interrupt* the process of BIOS flashing until it is completed.

```
Aptio Setup Utility - Copyright (C) 2010 American Megatrends, Inc.
                                                    Recovery

  WARNING! System firmware is being updated.
  Keyboard is locked.
  DO NOT TURN THE POWER OFF !!!
  Once firmware update is completed
  press any key to reboot the system

  Flash update progress             15 %




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



          Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

6. After the process of BIOS recovery is completed, press any key to reboot the system.


```
Aptio Setup Utility – Copyright (C) 2010 American Megatrends, Inc.
                                                    Recovery

WARNING! System firmware is being updated.
Keyboard is locked.
DO NOT TURN THE POWER OFF !!!
Once firmware update is completed
press any key to reboot the system

Flash update progress            completed.


                                              →←: Select Screen
                                              ↑↓: Select Item
                                              Enter: Select
                                              +/-: Change Opt.
                                              F1: General Help
                                              F2: Previous Values
                                              F3: Optimized Defaults
                                              F4: Save & Exit
                                              ESC: Exit


            Version 2.10.1208. Copyright (C) 2010 American Megatrends, Inc.
```

7. Using a different system, extract the BIOS package into a bootable USB flash drive.

8. When a DOS prompt appears, enter FLASH.BAT BIOSname.### at the prompt.

   Note: *Do not interrupt this process* until BIOS flashing is completed.

9. After seeing the message that BIOS update is completed, unplug the AC power cable from the power supply to clear the CMOS, and then plug the AC power cable in the power supply again to power on the system.

10. Press <Del> continuously to enter the BIOS Setup utility.

11. Press <F3> to load default settings.

12. After loading default settings, press <F4> to save the settings and exit the BIOS Setup utility.

Appendix C

System Specifications

Processor

One Intel Xeon D-1518 processor; 2.2GHz; CPU TDP support 35W, FCBGA 1667, 4 Cores, 8 Threads, 6MB cache, System on Chip (SoC)

BIOS

128Mb SPI Flash with AMI BIOS

Memory

Memory Capacity: 128GB DDR4 ECC RDIMM or 64GB DDR4 ECC/Non-ECC UDIMM with speeds of 1600MHz, 1800MHz up to 2133MHz in four slots

DIMM Sizes: 4GB, 8GB, 16GB and 32GB (32GB for RDIMM only,)

SATA

SoC controller for SATA3 (6Gbps) ports

Drives

Supports one 3.5" hard drive or up to four 2.5" hard drives (mounting brackets required); also supports SATA DOM; all drives are fixed, internal

Expansion Slots

One PCIe 3.0 x8 slot, depending on the hard drive configuration
M.2 PCIe 3.0 x4, M Key 2242/2280/22110
Mini-PCIe with mSATA support

Network Connections

Two 10G SFP+ from SoC, four 1GbE with Intel I350-AM4, two 1GbE with Intel I210; a dedicated IPMI LAN port

Motherboard

X10SDV-TP8F (Flex ATX form factor)
Dimensions: 9.0" x 7.25", (22.9cm x 18.4cm)

Chassis

SC505-203B (1U rackmount)
Dimensions: (WxHxD) 17.2 x 1.7 x 9.8 in. (437 x 43 x 249 mm)

System Cooling

Three 4-cm PWM 13K RPM fans with fan speed controlled by IPMI

System Input Requirements

AC Input Voltage: 100-240 VAC
Rated Input Current: 2.6 Amp maximum
Rated Input Frequency: 50-60 Hz

Power Supply

Part# PWS-203-1H, low noise with PFC
Rated Output Power: 200 W
Rated Output Voltages: +12V (16A), +5Vsb (2A), +5V (8A), +3.3V (8A), -12V (0.5A max.)

Operating Environment

Operating Temperature: 10º to 40º C (50º to 104º F)
Non-Operating Temperature: -40º to 70º C (-40º to 158º F)
Operating Relative Humidity: 8% to 90% (non-condensing)
Non-Operating Relative Humidity: 5% to 95% (non-condensing)

Regulatory Compliance

Electromagnetic Emissions: FCC Class A, EN 55022 Class A, EN 61000-3-2/-3-3, CISPR 22 Class A

Electromagnetic Immunity: EN 55024/CISPR 24, (EN 61000-4-2, EN 61000-4-3, EN 61000-4-4, EN 61000-4-5, EN 61000-4-6, EN 61000-4-8, EN 61000-4-11)

Safety: CSA/EN/IEC/UL 60950-1 Compliant, UL or CSA Listed (USA and Canada), CE Marking (Europe)

California Best Management Practices Regulations for Perchlorate Materials: This Perchlorate warning applies only to products containing CR (Manganese Dioxide) Lithium coin cells. "Perchlorate Material-special handling may apply. See www.dtsc.ca.gov/hazardouswaste/perchlorate"

(continued from front)

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Notes