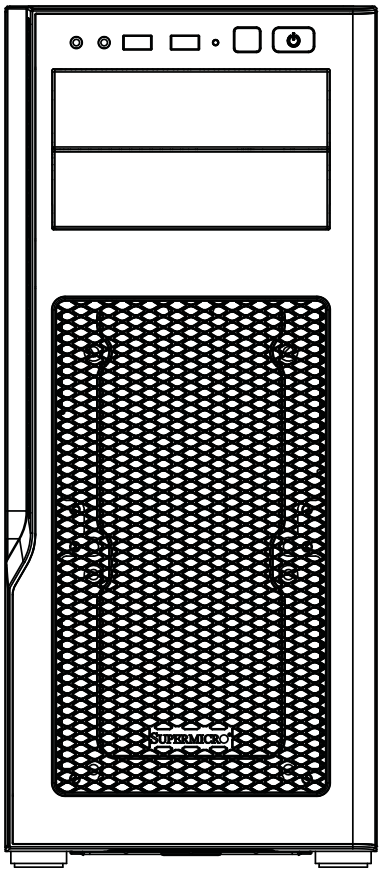
High Performance Desktop System 5130AD-T



USER'S MANUAL

Revision 1.0

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Manual Revision 1.0

Release Date: February 08, 2017

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 5130AD-T. Installation and maintenance should be performed by experienced technicians only.

Please refer to the 5130AD-T server specifications page on our website for updates on supported memory, processors and operating systems (http://www.supermicro.com).

Notes

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.

- Supermicro product manuals: http://www.supermicro.com/support/manuals/
- Product drivers and utilities: ftp://ftp.supermicro.com
- Product safety info: http://www.supermicro.com/about/policies/safety_information.cfm

If you have any questions, please contact our support team at:
support@supermicro.com

This manual may be periodically updated without notice. Please check the Supermicro website for possible updates to the manual revision level.

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

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Chapter 1

Introduction

1.1 Overview

This chapter provides a brief outline of the functions and features of the 5130AD-T. The 5130AD-T is based on the C7Z270-PG motherboard and the GS5A-753K chassis.

In addition to the motherboard and chassis, several important parts that are included with the system are listed below.

Main Parts List		
Description	**Part Number**	**Quantity**
Rear exhaust fan	NA	1
Front cooling fan	NA	2
3.5" HDD cage for 3 drives	MCP-220-GS504-0N	2
2.5" HDD cage for 4 drives	MCP-220-GS505-0N	1
Optional active CPU heatsink	SNK-P0051AP4	1

1.2 Unpacking the System

Inspect the box the SuperServer 5130AD-T was shipped in and note if it was damaged in any way. If any equipment appears damaged, please file a damage claim with the carrier who delivered it.

Decide on a suitable location for the rack unit that will hold the server. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. It will also require a grounded AC power outlet nearby. Be sure to read the precautions and considerations noted in Appendix B.

1.3 System Features

The following table provides you with an overview of the main features of the 5130AD-T. Please refer to Appendix C for additional specifications.

System Features
Motherboard
C7Z270-PG
Chassis
GS5A-753K
CPU
Supports Intel® 7th/6th Gen Core i7/i5/i3 series processor
Socket Type
LGA 1151
Memory
Support up to 64 GB of unbuffered, non-ECC, 3600 MHz (OC) DDR4 memory in four (4) slots of 4GB, 8GB and 16GB UDIMM memory
Chipset
Intel Z270 chipset
Expansion Slots
The motherboard contains the following expansion slots: • Four (4) PCI-E 3.0 X16 slots • One (1) PCI-E 3.0 X4 (for Thunderbolt AIC support) • Two (2) M.2 slots
Hard Drive Bays
Supports up to ten 3.5” and 2.5” HDD or SSD drives with tool-less trays. The GS5A-753R chassis standard configuration includes two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house either 3.5" or 2.5" drives.
Power
750 Watt power supply (PWS-753-PQ)
Form Factor
Tower case with ATX form factor (9.6" x 12.0") (243.84 mm x 304.8 mm) motherboard
Dimensions
HxWxD: 18.1" x 7.9" x 19.4" (460mm x 200mm x 493mm)

1.4 Server Chassis Features

Control Panel

The 5130AD-T features a front panel allowing easy access to the system power and communication ports. The in addition to the HDD Activity LED, the Power button and the Reset button, the following ports are available on the front panel:

- Two USB 3.0 ports
- Audio port
- Mic Port

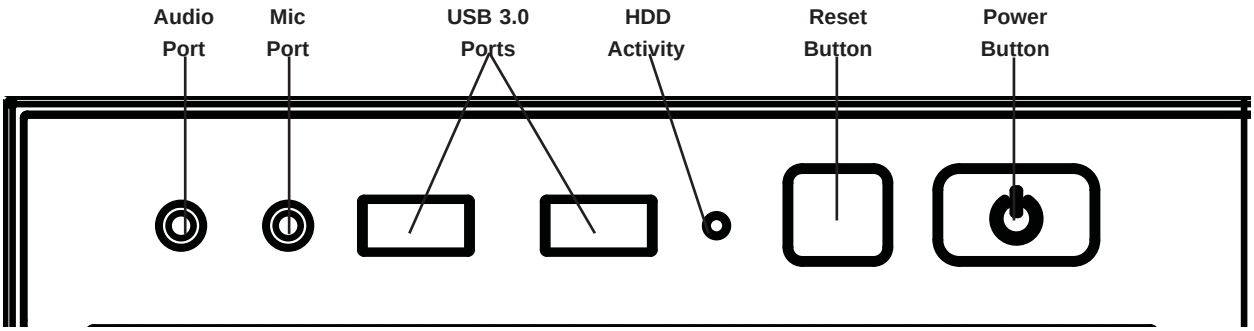


Figure 1-1. Control Panel View

Front and Rear Features

The GS5A-753K is a mid-tower chassis See the illustrations below for the features included on the front and rear of the chassis.

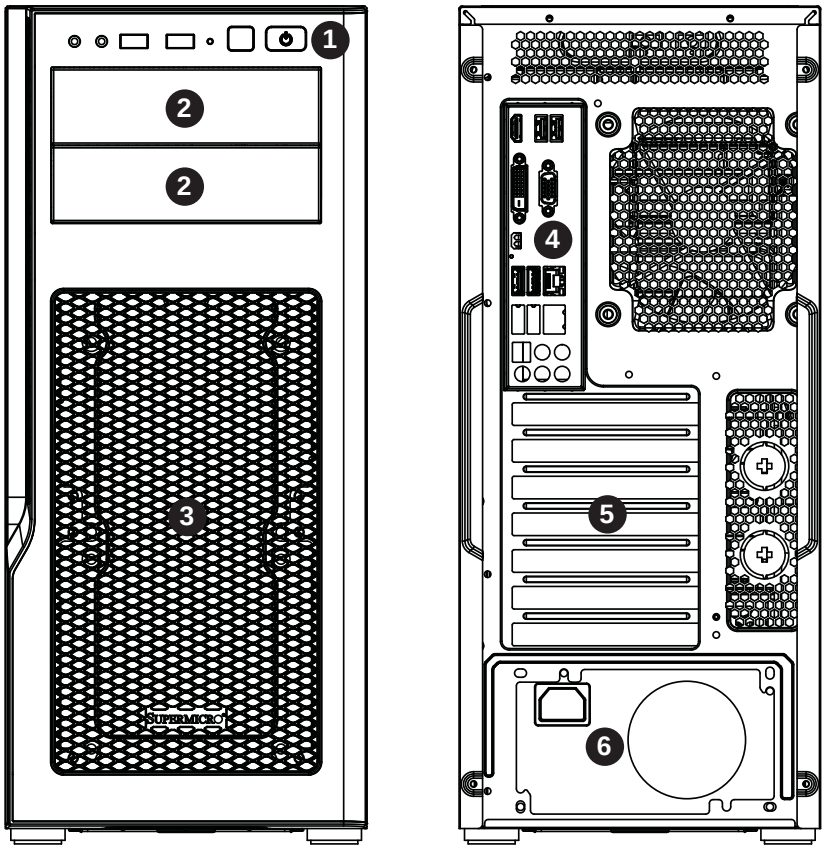


Figure 1-2. Chassis Front View

Front and Rear Chassis Features		
Item	**Feature**	**Description**
1	Front Control Panel	Front control panel as described in previous "Control Panel" section.
2	Front 5.25" Drive Bays	Drive bays for 5.25" drives or optional devices
3	Front Bezel Screen	Front grille with one click access to dust filter
4	Rear I/O ports	Rear I/O ports for system (shown as an example, your system I/O ports may look different).
5	Expansion Cards Slots	Openings for expansion cards
6	Power Supply	The power supply and its power cord slot are accessed here.

1.5 Motherboard Layout

Below is a layout of the C7Z270-PG with jumper, connector and LED locations shown. See the table on the following page for descriptions. For detailed descriptions, pinout information and jumper settings, refer to Chapter 4.

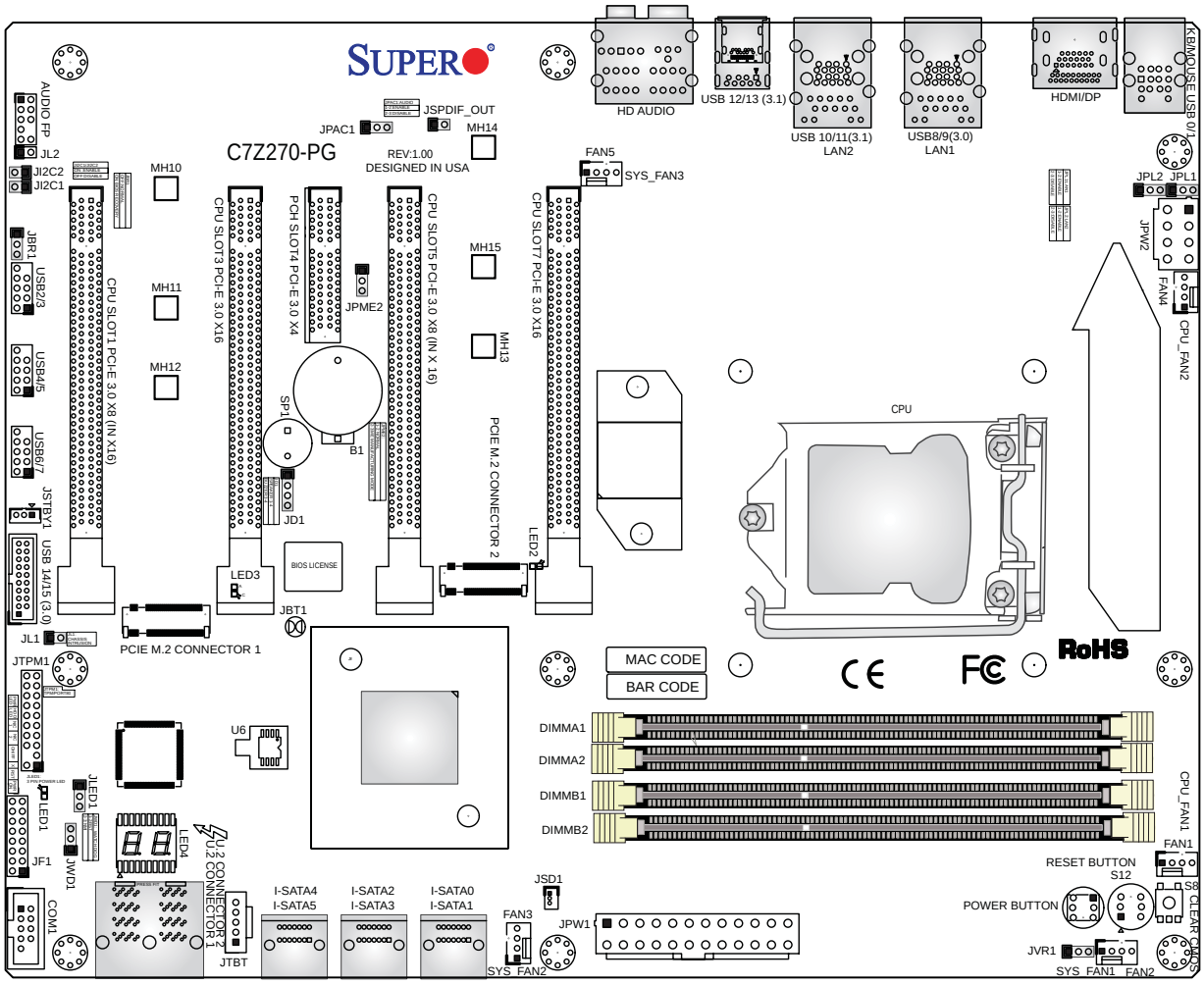


Figure 1-4. Motherboard Layout

Quick Reference Table

Jumper	Description	Default Setting
CLEAR CMOS	Clear CMOS Switch	Push Button Switch
JBR1	BIOS Recovery Switch	Pins 1-2 (Disable)
JBT1	Clear CMOS (on board)	Short pads to clear CMOS
JI²C1/JI²C2	SMB to PCI Slots	Open (Disable)
JPAC1	Audio Enable	Pins 1-2 (Enabled)
JPL2	LAN3/LAN4 Enable/Disable	Pins 1-2 (Enabled)
JPME2	Intel® Manufacturing Mode	Pins 1-2 (Normal)
JWD1	Watch Dog Function Enable	Pins 1-2 (RST)
POWER BUTTON	Internal Power Button	Push Button Switch
RESET BUTTON	Onboard System Reset Button	Push Button Switch

Connector	Description
AUDIO FP	Front Panel Audio Header
B1	Onboard Battery
COM1	COM1 Port Header
FANS 1-5	System/CPU Fan Headers (Fan 1, Fan 4: CPU Fans; Fan 2, Fan 3, Fan 5: System Fans)
HD Audio	High Definition Audio Ports
HDMI/DP	High Definition Multimedia Interface/Display Port
I-SATA0~5	(Intel® Z270) Serial ATA (SATA 3.0) Ports 0~5 (6Gb/sec)
JD1	Speaker/buzzer (Pins 1~4: External Speaker, Pins 3~4: Buzzer)
JF1	Front Control Panel Header
JL1	Chassis Intrusion Header
JLED1	Power LED Indicator Header
JPW1	24-pin ATX Main Power Connector (Required)
JPW2	+12V 8-pin CPU power Connector (Required)
JSD1	SATA DOM (Disk On Module) Power Connector
JSPDIF_OUT	Sony/Philips Digital Interface Format (S/PDIF) Out Header
JSTBY1	Standby Power Header
JTBT	Thunderbolt Connector
JTPM1	Trusted Platform Module (TPM) Header
KB/MOUSE	PS2 Keyboard/Mouse Connectors
LAN1/LAN2	RJ45 Gigabit LAN Ports
MH 10-12	Mounting holes for PCI-E M.2 Connector 1
MH 13-15	Mounting holes for PCI-E M.2 Connector 2
PCI-E M.2 CONNECTOR 1, 2	PCI-E M.2 Connectors 1 and 2, small form factor devices and other portable devices for High speed NVMe SSDs
Slot 1/7	CPU PCI-E 3.0 x16 Slots
Slot 3/5	CPU PCI-E 3.0 x8 (IN x16) Slots
Slot 4	PCH PCI-E 3.0 x4

SP1	Internal Speakers
U.2 CONNECTOR 1, 2	U.2 Connector 1 and 2, for 2.5" SSD Drives
USB 0/1	Back Panel USB 2.0 Ports
USB 2/3, USB 4/5, USB 6/7	Front Panel Accessible USB 2.0 Headers
USB 8/9	Back Panel USB 3.0 Ports
USB 10/11, USB 12/13	Back Panel USB 3.1 Ports
USB 14/15	Front Panel Accessible USB 3.0 Header

LED	Description	Color State	Status
LED1	Onboard Standby PWR LED	Green: Solid on	Power On
LED2	M.2 connector 2 SSD ACT LED	Green: Solid on	M.2 device connected
LED3	M.2 connector 1 SSD ACT LED	Green: Solid on	M.2 device connected
LED4	Status Code LED*	Digital Readout	See manual

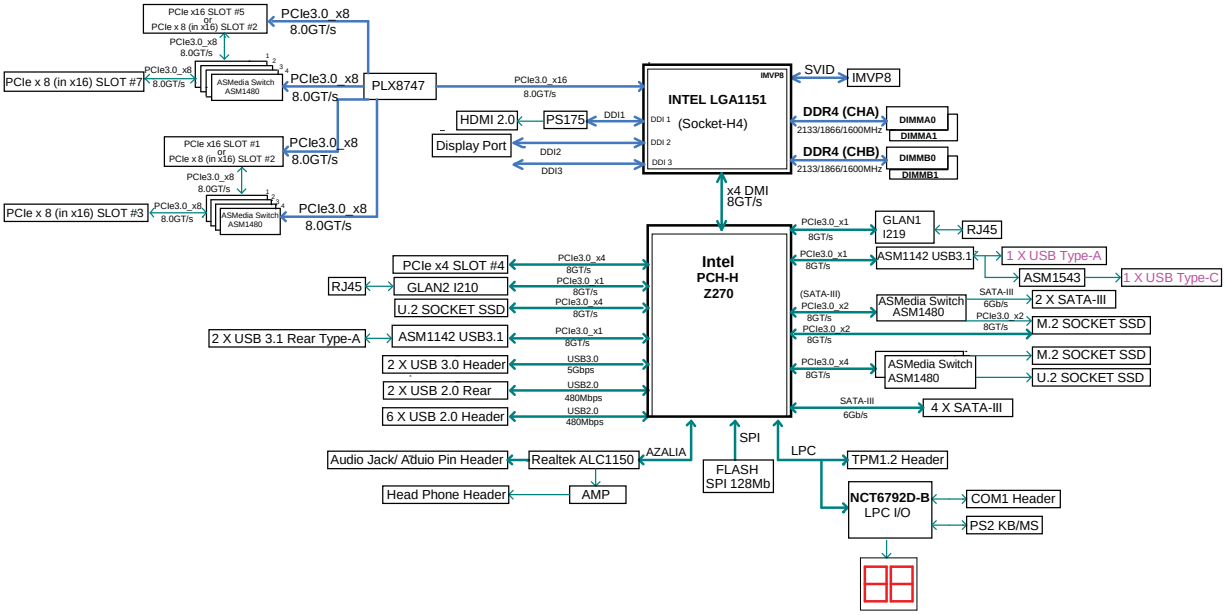


Figure 1-5. Intel Z270 Chipset: System Block Diagram

Note: This is a general block diagram and may not exactly represent the features on your motherboard. See the System Specifications appendix for the actual specifications of your motherboard.

Chapter 2

Desktop Setup

2.1 Overview

This chapter provides a quick setup checklist to get your 5130AD-T up and running. Following these steps in the order given should enable you to have the system operational within a minimum amount of time. This quick setup assumes that your system has come to you with the motherboard preinstalled.

2.2 Unpacking the System

You should inspect the box the system was shipped in and note if it was damaged in any way. If the system itself shows damage you should file a damage claim with the carrier who delivered it.

Decide on a suitable location for the system. It should be situated in a clean, dust-free area that is well ventilated. Avoid areas where heat, electrical noise and electromagnetic fields are generated. You will also need it plugged into a grounded power outlet. Be sure to read the Warnings and Precautions in the next section.

2.3 Warnings and Precautions!

Review the electrical and general safety precautions in Chapter 4.

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

- Allow the power supply units to cool before touching them.

Workstations Precautions

- Ensure that the caster wheels on the desktop are locked.
- Review the electrical and general safety precautions in Chapter 4.
- Use a regulating uninterruptible power supply (UPS) to protect the desktop from power surges, voltage spikes and to keep your system operating in case of a power failure.
- Allow the power supply units and hot-swap SATA drives to cool before touching them.
- To maintain proper cooling, always keep all chassis panels closed and all SATA carriers installed when not being serviced.

2.4 Accessing the Inside of the System

You may need to access the system periodically to perform maintenance or install components such as hard drives. The system features two removable side covers, allowing easy access to the system interior.

Caution: Except for short periods of time, do not operate the system without the cover in place. The chassis cover must be in place to allow proper airflow.

Left Side and Right Side Covers

Removing a Side Chassis Cover

1. Power down the system.
2. Remove the two thumb screws on the rear of the chassis.
3. Slide the cover back toward the rear of the chassis.

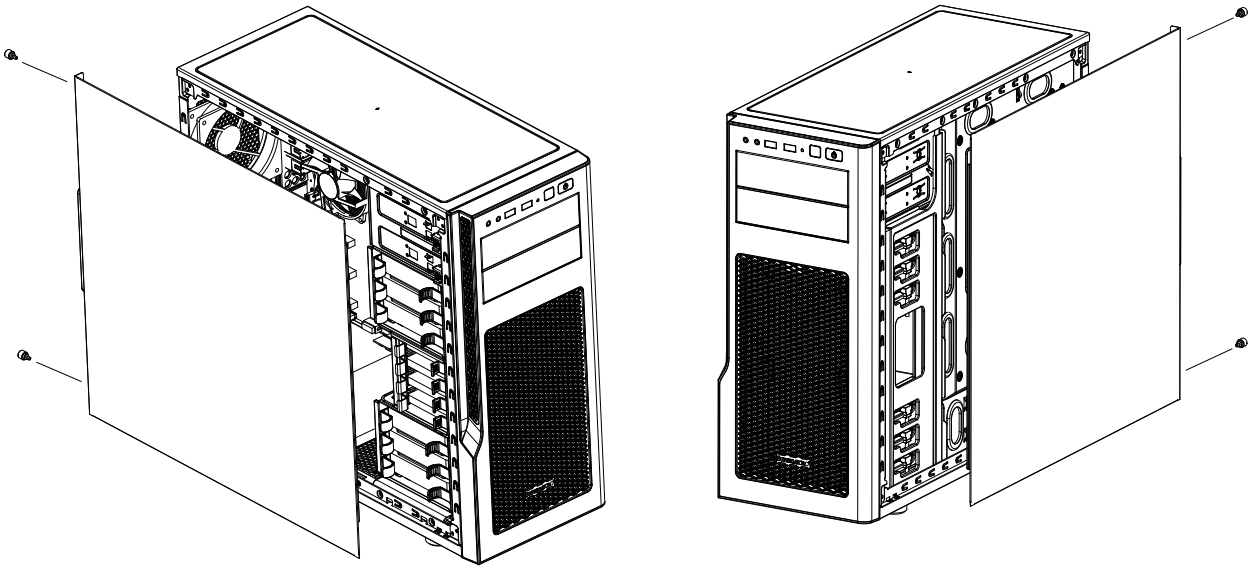


Figure 2-1. Removing the Chassis Side Covers

Front Bezel

Remove the front bezel by pulling it off from the bottom of the bezel. This should only be necessary when replacing the front fans.

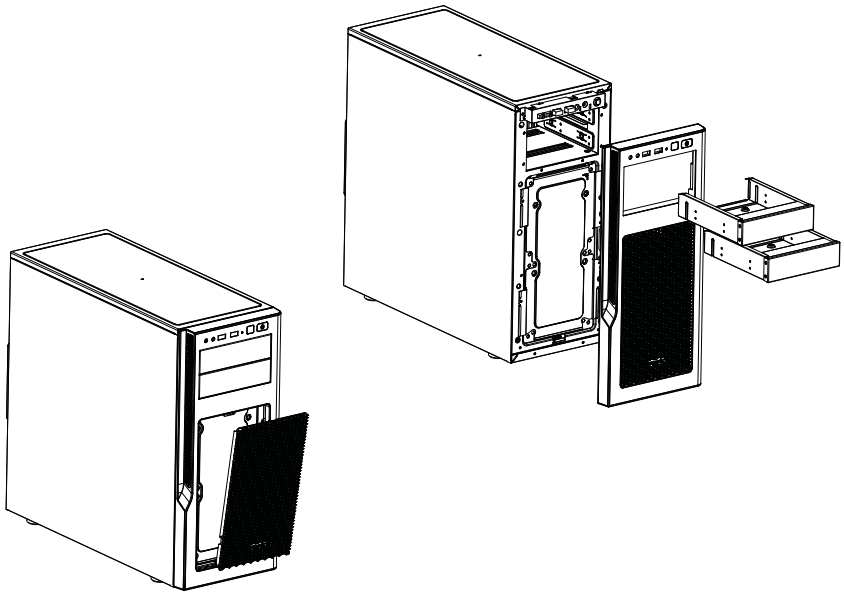


Figure 2-2. Removing the Front Bezel

Chapter 3

Maintenance and Component Installation

This chapter provides instructions on installing and replacing main system components. To prevent compatibility issues, only use components that match the specifications and/or part numbers given.

Installation or replacement of most components require that power first be removed from the system. Please follow the procedures given in each section.

3.1 Removing Power

Use the following procedure to ensure that power has been removed from the system. This step is necessary when removing or installing non hot-swap components or when replacing a non-redundant power supply.

1. Use the operating system to power down the system.
2. After the system has completely shut-down, disconnect the AC power cord(s) from the power strip or outlet. (If your system has more than one power supply, remove the AC power cords from all power supply modules.)
3. Disconnect the power cord(s) from the power supply module(s).

3.3 Motherboard Components

Processor and Heatsink Installation

Follow the procedures in this section to install a processor (CPU) and heatsink to the motherboard.

Notes:

- The motherboard should be installed into the chassis first and the processor should be installed into the CPU socket before you install a CPU heatsink.
- If you bought a CPU separately, make sure that you use an Intel-certified multi-directional heatsink only.
- When receiving a motherboard without a processor pre-installed, make sure that the plastic CPU socket cap is in place and none of the socket pins are bent; otherwise, contact your retailer immediately.
- Refer to the Supermicro website for updates on CPU support.

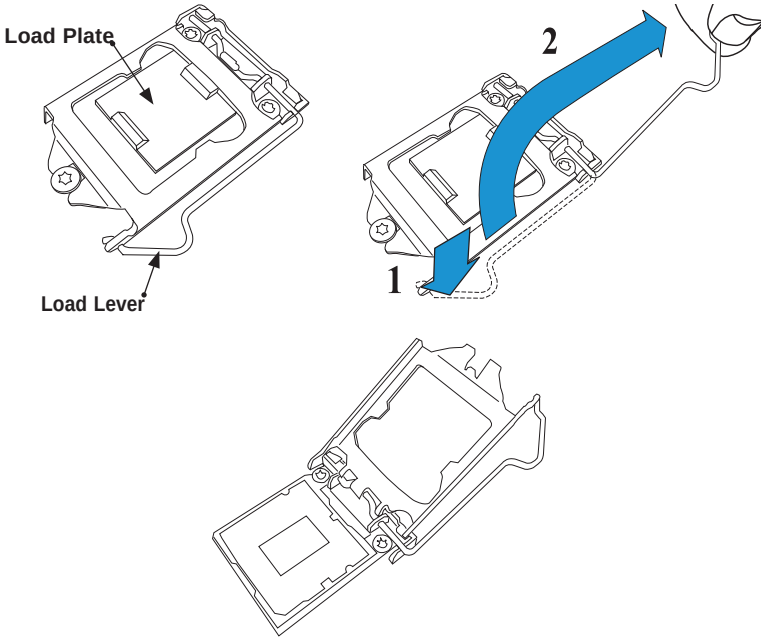
Installing the LGA1151 Processor

Begin by removing power from the system as described in Section 3.1.

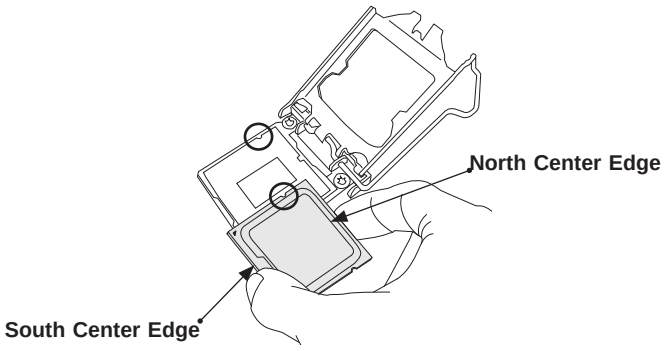
Installing a Processor

1. Press the load lever to release the load plate, which covers the CPU socket, from its locking position.

2. Gently lift the load lever to open the load plate. Remove the plastic cap.

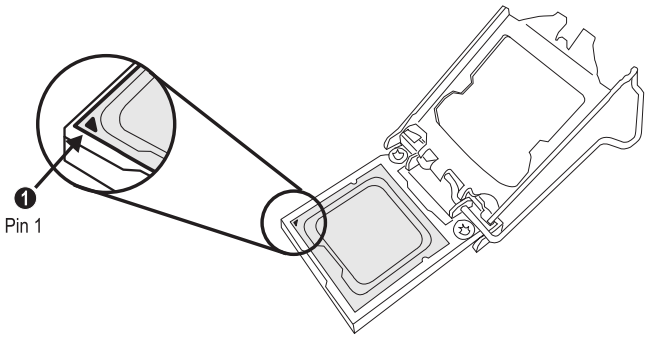


3. Use your thumb and your index finger to hold the CPU at the North center edge and the South center edge of the CPU.

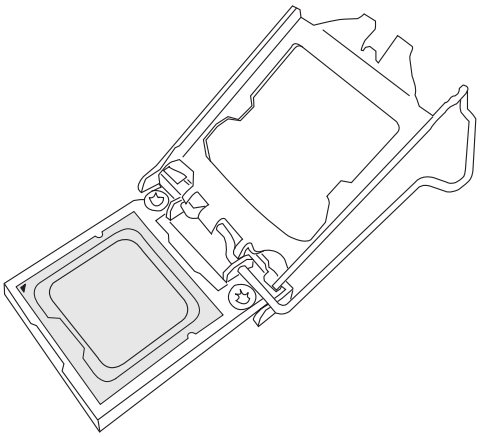


4. Align the CPU key that is the semi-circle cutouts against the socket keys. Once it is aligned, carefully lower the CPU straight down into the socket.

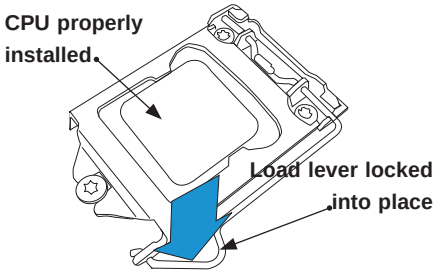
Warning: Do not drop the CPU on the socket. Do not move the CPU horizontally or vertically. Do not rub the CPU against the surface or against any pins of the socket in order to avoid damaging the CPU or the socket.



5. With the CPU inside the socket, inspect the four corners of the CPU to make sure that the CPU is properly installed.



6. Use your thumb to gently push the load lever down to the lever lock.



Attention! You can only install the CPU inside the socket only in one direction. Make sure that it is properly inserted into the CPU socket before closing the load plate. If it doesn't close properly, do not force it as it may damage your CPU. Instead, open the load plate again and double-check that the CPU is aligned properly.

Installing a Heatsink

The use of active type heatsinks are recommended (except in 1U systems). To install a third-party heatsink, please follow the installation instructions included with the heatsink package.

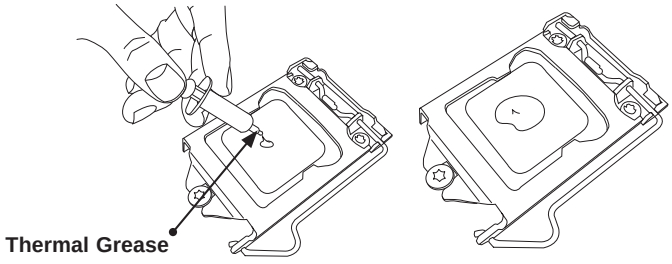
Installing an Active CPU Heatsink with Fan

1. Locate the CPU Fan power connector on the motherboard. (Refer to the layout on the right for the CPU Fan location.)
2. Position the heatsink so that the heatsink fan wires are closest to the CPU fan power connector and are not interfered with other components.
3. Inspect the CPU Fan wires to make sure that the wires are routed through the bottom of the heatsink.
4. Remove the thin layer of the protective film from the heatsink.

Attention! CPU overheating may occur if the protective film is not removed from the heatsink.

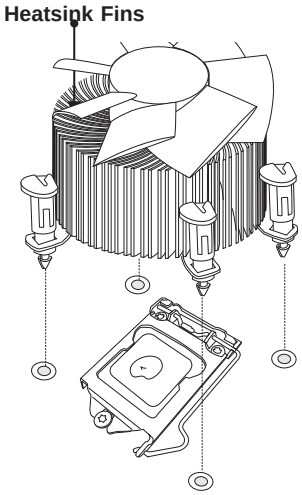
5. Apply the proper amount of thermal grease on the CPU.

Note: If your heatsink came with a thermal pad, please ignore this step.



6. If necessary, rearrange the wires to make sure that the wires are not pinched between the heatsink and the CPU. Also make sure to keep clearance between the fan wires and the fins of the heatsink.

7. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. Also, make sure to orient each fastener so that the narrow end of the groove is pointing outward.

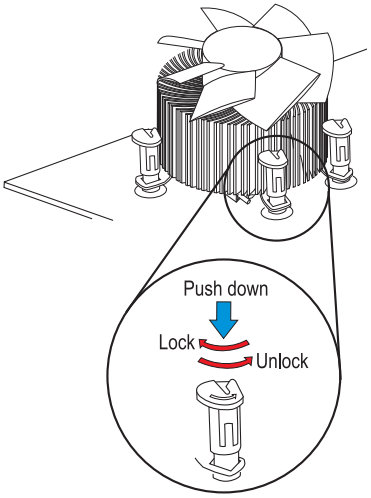


8. Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.

9. Once all four fasteners are securely inserted into the mounting holes, and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.

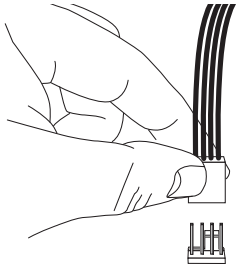
Note: It is recommended that you use the Supermicro SNK-P0046A4 active heatsink for this system.

10. Align the four heatsink fasteners with the mounting holes on the motherboard. Gently push the pairs of diagonal fasteners (#1 & #2, and #3 & #4) into the mounting holes until you hear a click. Also, make sure to orient each fastener so that the narrow end of the groove is pointing outward.



11. Repeat Step 7 to insert all four heatsink fasteners into the mounting holes.

12. Once all four fasteners are securely inserted into the mounting holes, and the heatsink is properly installed on the motherboard, connect the heatsink fan wires to the CPU Fan connector.

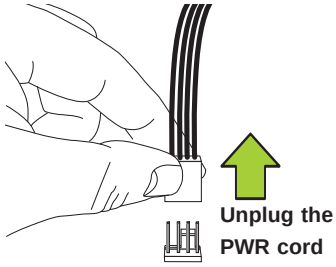


Removing the Heatsink

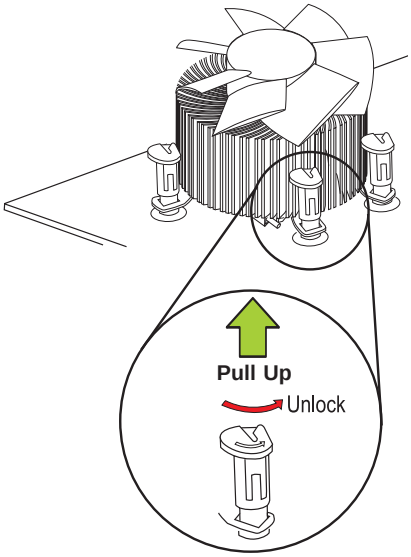
We do not recommend that the CPU or the heatsink be removed. However, if you do need to remove the heatsink, please follow the instructions below to remove the heatsink and to prevent damage done to the CPU or other components.

Active Heatsink Removal

1. Unplug the power cord from the power supply.
2. Disconnect the heatsink fan wires from the CPU fan header.



3. Use your finger tips to gently press on the fastener cap and turn it counterclockwise to make a 1/4 (90^0) turn, and pull the fastener upward to loosen it.



4. Repeat Step 3 to loosen all fasteners from the mounting holes.
5. With all fasteners loosened, remove the heatsink from the CPU.

Memory Installation

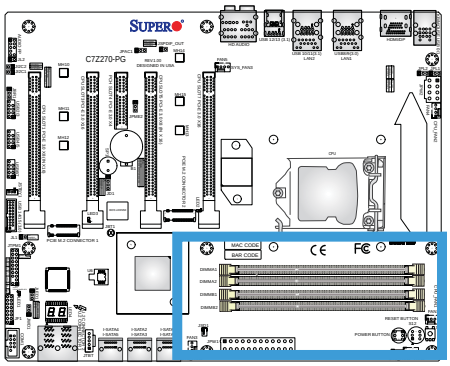
Memory Support

The C7Z270-PG supports up to 64 GB of unbuffered, non-ECC, 3600 MHz (OC) DDR4 memory in four (4) memory slots. Populating two adjacent slots at a time with memory modules of the same size and type will result in interleaved (128-bit) memory, which is faster than non-interleaved (64-bit) memory.

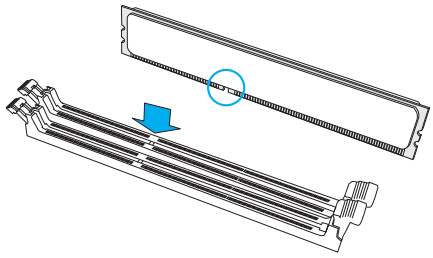
Check the Supermicro website for possible updates to memory support.

Installing Memory

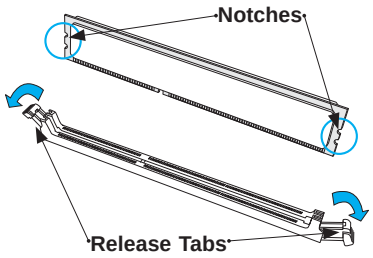
1. Insert the desired number of DIMMs into the memory slots, starting with DIMMA1 (see the next page for the location). For the system to work properly, please use the memory modules of the same type and speed in the same motherboard.



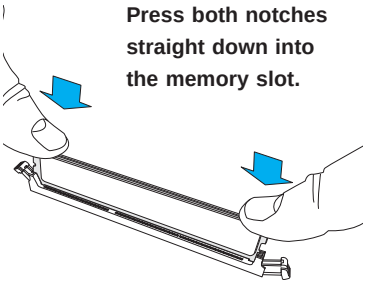
2. Push the release tabs outwards on both ends of the DIMM slot to unlock it.
3. Align the key of the DIMM module with the receptive point on the memory slot.



4. Align the notches on both ends of the module against the receptive points on the ends of the slot.



5. Use two thumbs together to press the notches on both ends of the module straight down into the slot until the module snaps into place.



6. Press the release tabs to the lock positions to secure the DIMM module into the slot.

Removing Memory Modules

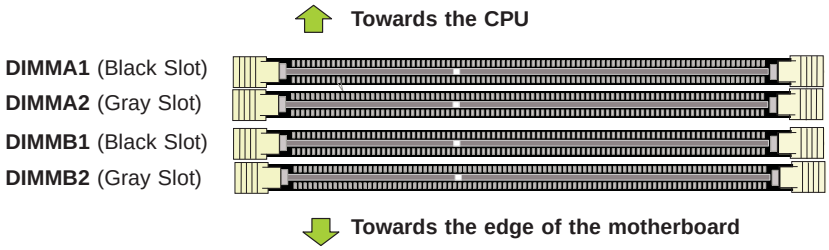
Reverse the steps above to remove the DIMM modules from the motherboard.

Caution: Exercise extreme caution when installing or removing memory modules to prevent any possible damage to the DIMMs or slots.

Warning: In dual-CPU configurations, memory must be installed in the DIMM slots associated with the installed CPUs.

Note: Visit the product page on the Supermicro website for possible updates to memory support (www.supermicro.com).

Memory Support



The C7Z270-PG supports up to 64 GB of Unbuffered (UDIMM) non-ECC DDR4 memory, up to 3600MHz (OC) in four 288-pin memory slots. Populating these DIMM modules with a pair of memory modules of the same type and same size will result in interleaved memory, which will improve memory performance.

Notes:

Be sure to use memory modules of the same type, same speed, same frequency on the same motherboard. Mixing of memory modules of different types and speeds is not allowed.

Due to memory allocation to system devices, the amount of memory that remains available for operational use will be reduced when 4 GB of RAM is used. The reduction in memory availability is disproportional. See the following table for details.

For Microsoft Windows users: Microsoft implemented a design change in the Windows XP with Service Pack 2 (SP2) and Windows Vista. This change is specific to the behavior of Physical Address Extension (PAE) mode which improves driver compatibility. For more information, please read the following article at

Microsoft's Knowledge Base website at: http://support.microsoft.com/kb/888137.

Memory Population 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. Mixed DIMM speeds can be installed. However, all DIMMs will run at the speed of the slowest DIMM.

Recommended Population (Balanced)				
DIMMA1	**DIMMB1**	**DIMMA2**	**DIMMB2**	**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

PCI Expansion Card Installation

Installing Expansion Cards

Installing an Expansion Card

1. Power down the system as described in section 6-2 and open the left side chassis cover.
2. Remove the blank PCI shield from the rear of the chassis by removing the thumb screw.
3. Insert the expansion card into the motherboard expansion slot while aligning the expansion card bracket with the opening in the rear of the chassis.
4. Secure the expansion card bracket to the rear of the chassis with the thumb screw.
5. Replace the chassis side cover and power up the system.

Motherboard Battery

The motherboard uses non-volatile memory to retain system information when system power is removed. This memory is powered by a lithium battery residing on the motherboard.

Replacing the Battery

Begin by removing power from the system as described in section 3.1.

1. Push aside the small clamp that covers the edge of the battery. When the battery is released, lift it out of the holder.

2. To insert a new battery, slide one edge under the lip of the holder with the positive (+) side facing up. Then push the other side down until the clamp snaps over it.

Note: 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.

Warning: There is a danger of explosion if the onboard battery is installed upside down (which reverses its polarities). This battery must be replaced only with the same or an equivalent type recommended by the manufacturer (CR2032).

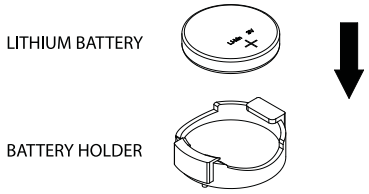


Figure 3-1. Installing the Onboard Battery

3.4 Chassis Components

Supermicro S5 SI Edition Titanium Black chassis (GS5A-753K) blends elegance and flexibility into a refined home for your high-performance hardware.

Key Features

- Black anodized brushed aluminum fascia front panel with two USB 3.0 ports
- Removable 3.5” and 2.5” HDD/SSD cages with tool-less trays for up to 10 drives
- Tool-less 5.25” device installation with trays to support 3.5” and 2.5” drives additionally
- Cable management holes with rubber grommets for clean builds
- Removable magnetic dust filters
- One click front grille access
- Large motherboard tray cut-out for better CPU cooling

Hard Drives

The standard configuration includes two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house either 3.5" or 2.5" drives.

- Each 5.25" bay can be configured to accept a removable media drive, such as DVD, or a storage device, such as a 3.5" HDD, 2.5" HDD, or solid state drive.
- The four 2.5" bays are housed in a removable cage.
- Two additional removable cages can each accommodate three 2.5" or 3.5" drives.

The SAS/SATA drives are mounted in drive carriers to simplify their installation and removal from the chassis. (Both procedures may be done without removing power from the system.)

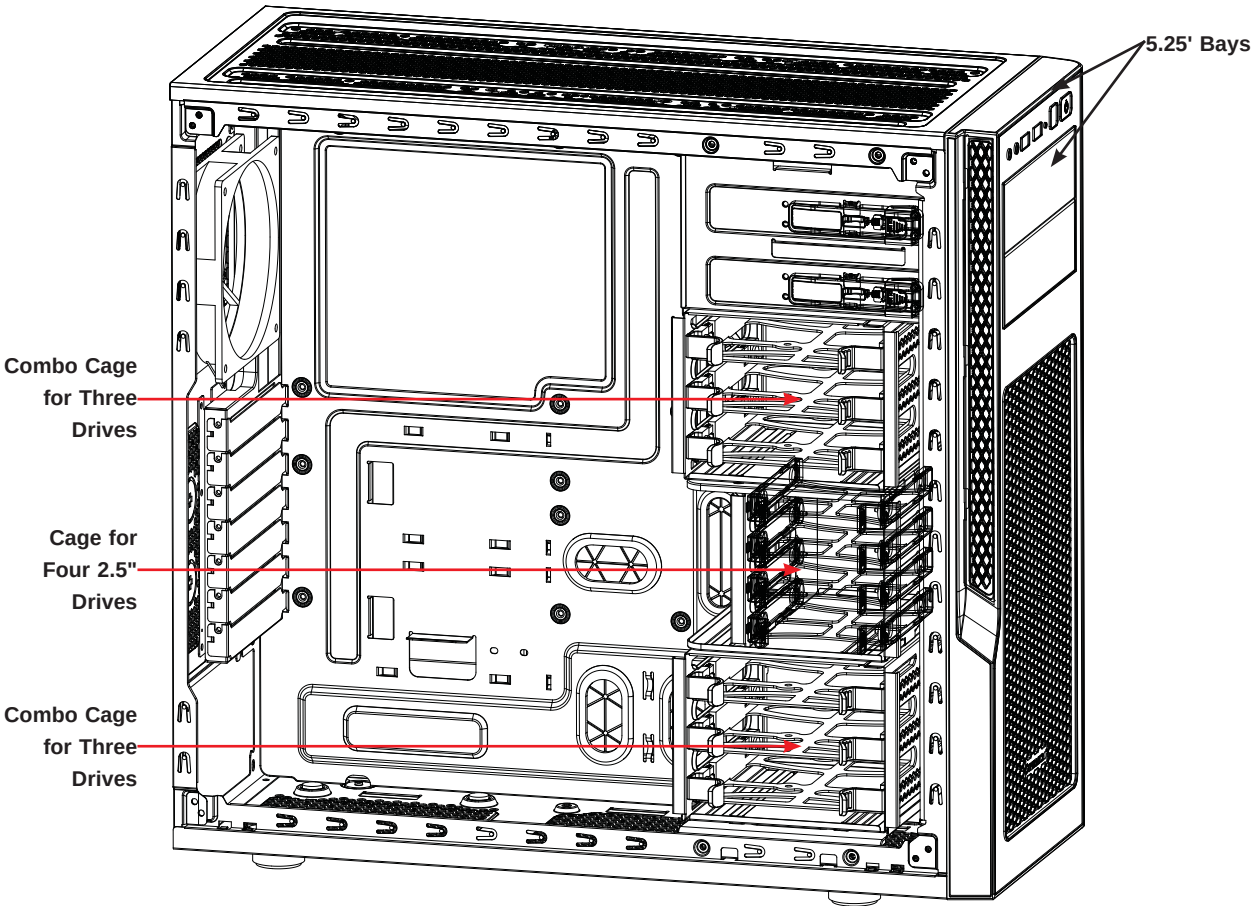


Figure 3-2. Drive Bays

Removing a Hot-Swap Drive Carrier

1. Push the release button on the carrier.
2. Swing the handle fully out.
3. Grasp the handle and use it to pull the drive carrier out of its bay.

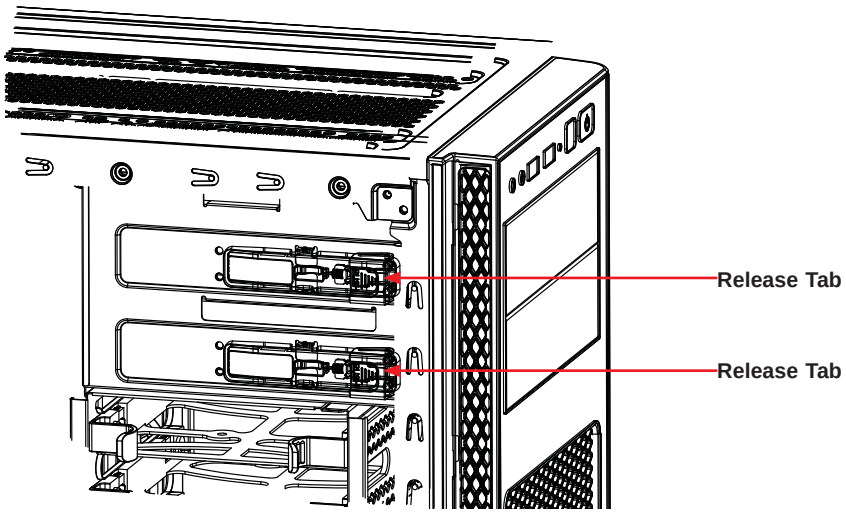


Figure 3-3. Release Tabs for the Drive Tray

Installing a Storage Device in the 5.25" Drive Tray

You can install a 3.5" drive, one or two 2.5" disk drives or solid state drives.

1. Open the chassis left side cover.

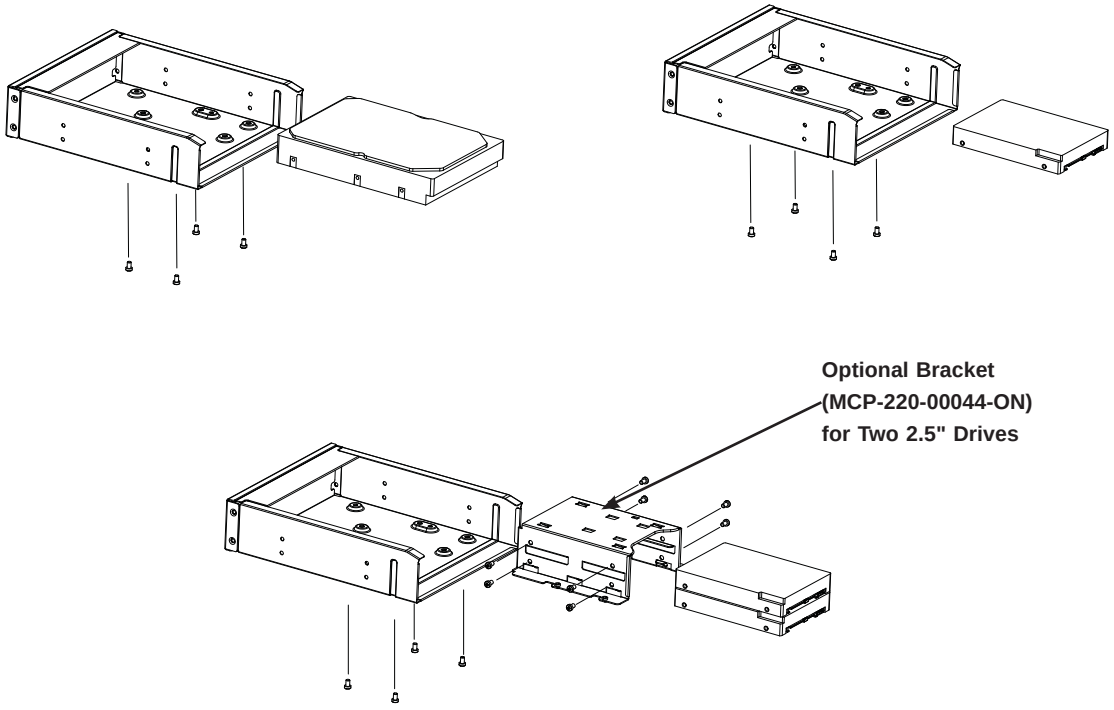


Figure 3-4. Storage Device Configurations for 5.25" Bays

2. Locate and press the release tab (Figure 6-5) for the drive tray in which you want to place the drive.
3. Push the drive tray toward the front of the chassis and out.
4. Secure the storage drive to the drive tray with screws through the bottom of the tray. To install two 2.5" drives, use the optional bracket (P/N MCP-220-00044-0N) as shown.
5. Slide the drive tray into the chassis until it clicks into place.

Installing Disk Drives into the Cage

You can install up to four 2.5" drives into the dedicated center cage. You can also install three drives into each of the upper and lower combination cages.

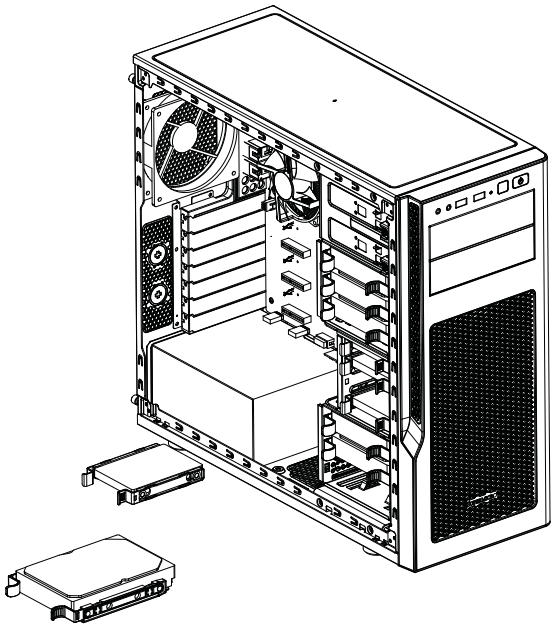


Figure 3-5. Installing Drives and Mounting Brackets in to the Cage

1. Open the chassis left side cover.
2. Remove the drive mounting bracket from the cage. Pinch the tabs and pull out.
3. Secure the drive into the mounting bracket.

- For 2.5" drives in the dedicated bays (center cage), flex the drive bracket and drop the drive in with the connector side facing into the chassis.
- For 3.5" drives in the combo bays (top or bottom cages), flex the drive bracket and drop the drive in with the connector side facing into the chassis.
- For 2.5" drives in the combo bays, use screws through the bottom of the bracket to secure the drive with the connector side facing into the chassis.

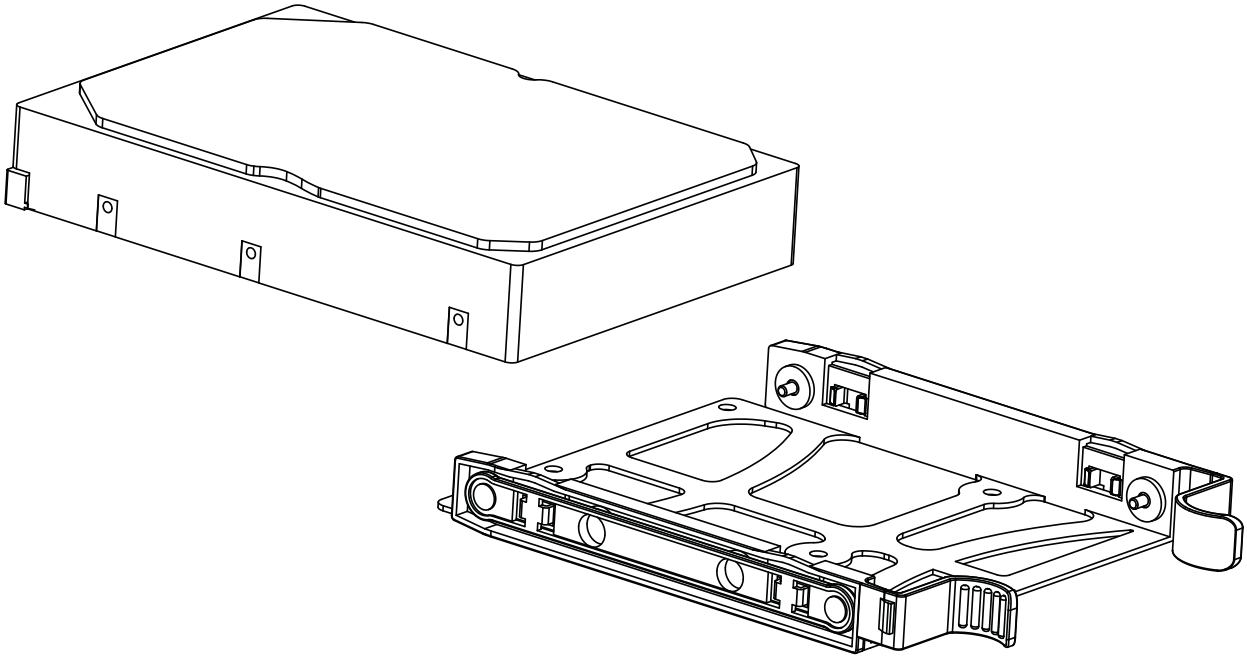


Figure 3-6. Mounting Tray for 3.5" Drive

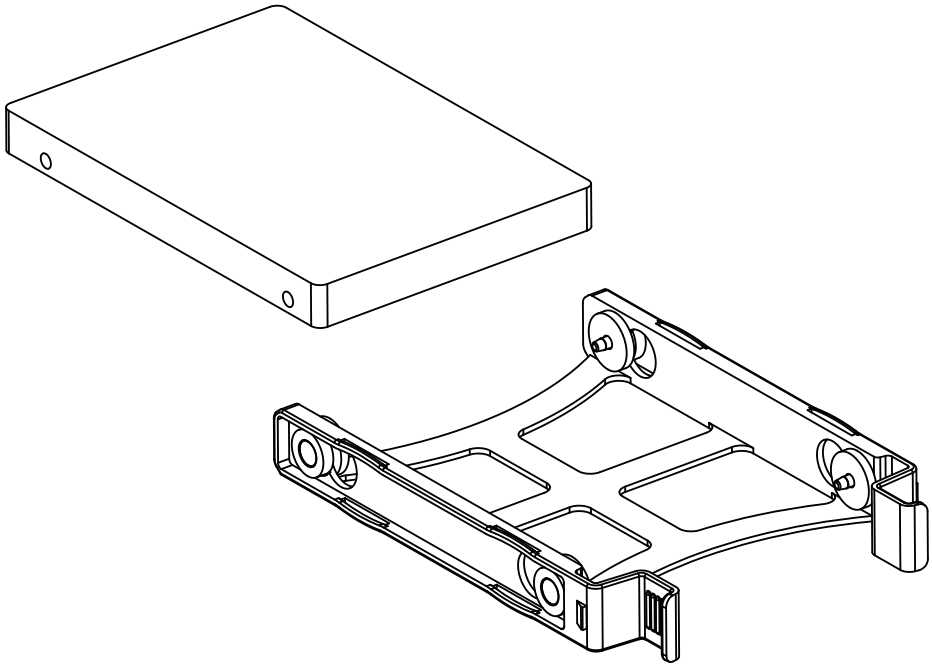


Figure 3-7. Mounting Tray for 2.5" Drive

System Cooling

The chassis includes two 120mm PWM fans in the front and one 120mm PWM in the rear. Other fan mounts and configurations are possible.

- Two front fans can be upgraded to 140mm.
- Three fans can be mounted on the chassis top, 120mm or 140mm.
- One fan can be mounted on the chassis bottom, 120mm.
- Fans can be mounted on the chassis side: two 120mm or one 140mm.Installing Fans

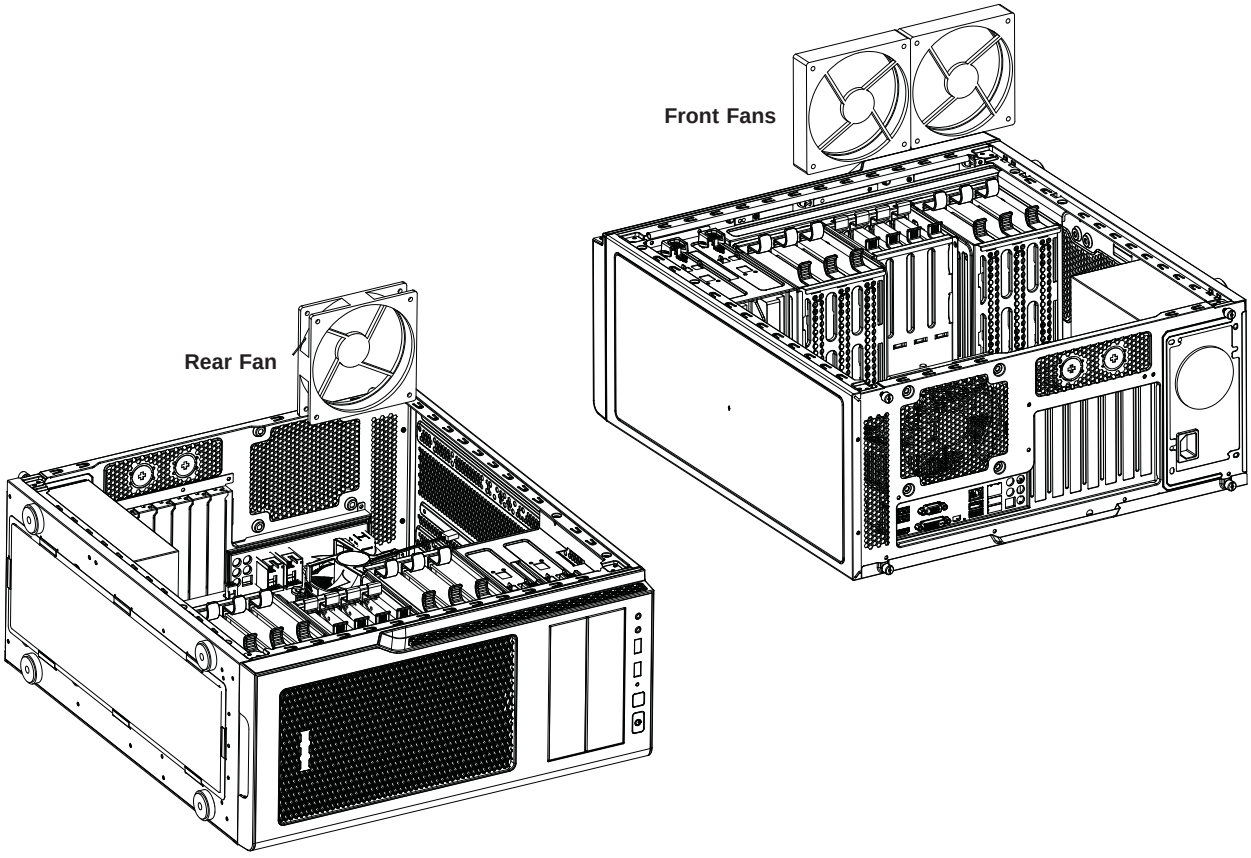


Figure 3-8. Standard Fan Placement

Adding or Changing Fans

- To upgrade the standard front fans, remove the chassis front cover.
- To add a fan to the chassis bottom, the lower 3.5" HDD cage must be removed. See Figure 3-9.

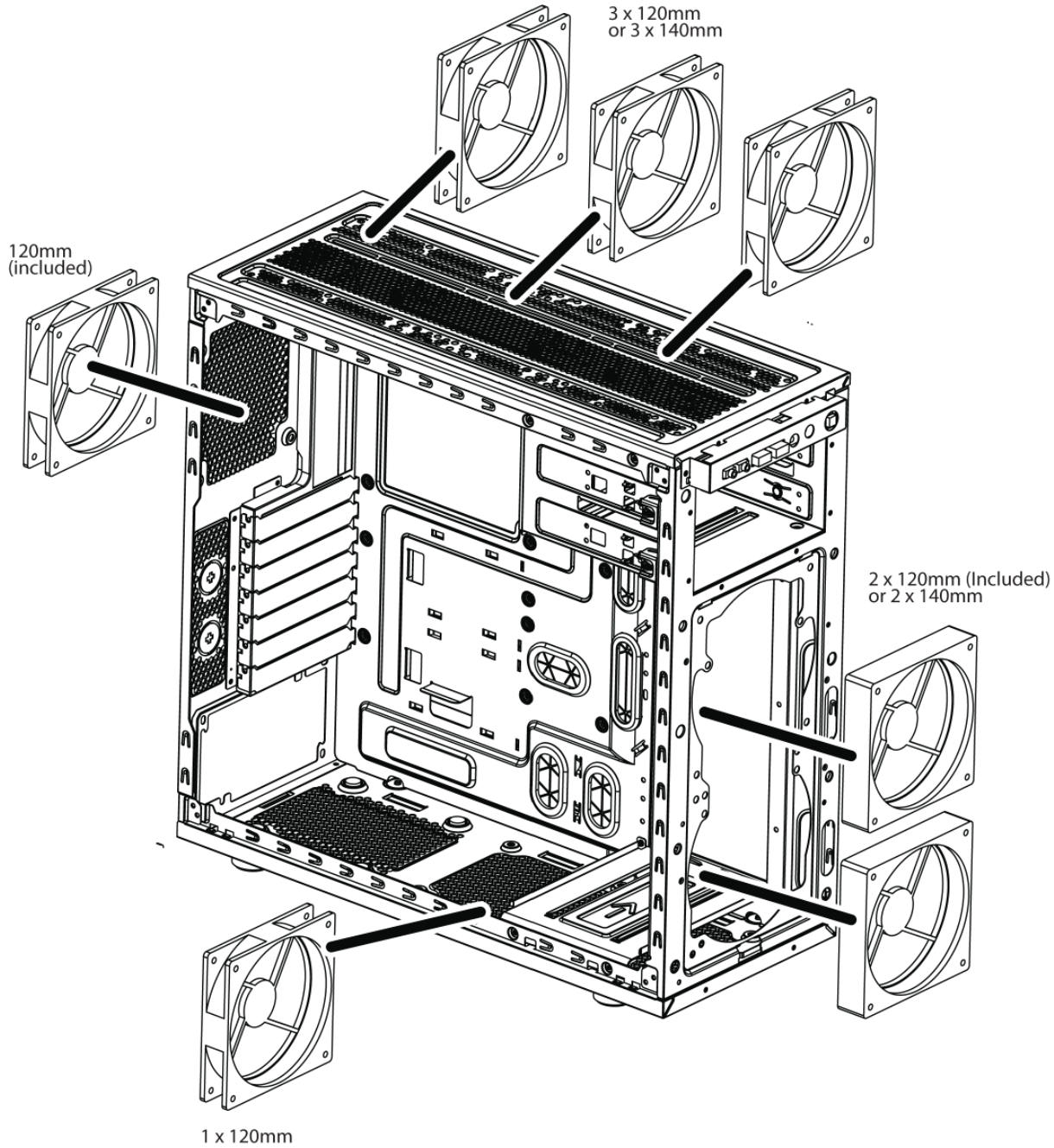


Figure 3-9. All Possible Fan Placements

Water Cooled Heat Sink

The chassis supports a water cooled CPU heat sink. A 120 mm radiator can be placed over the rear fan. A 240 mm radiator can be place just under the top of the chassis. Consult your water cooling kit instructions for installation.

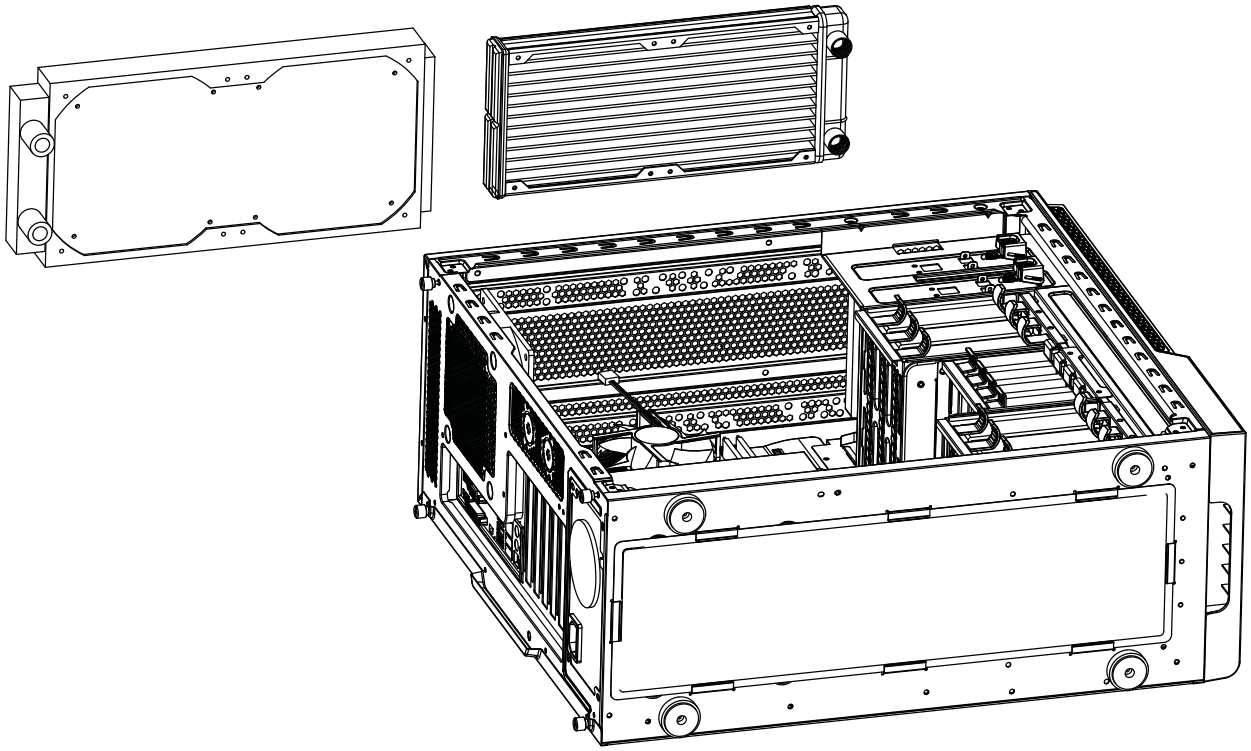


Figure 3-10. Example 240 mm Radiator

Air Flow

Make sure cables do not obstruct the cooling airflow.

Dust Filters

The chassis features a dust filter in front of the front fans, and two magnetic dust filters, one on top of the chassis and one on the bottom. They can be lifted off and cleaned to improve system air flow circulation.

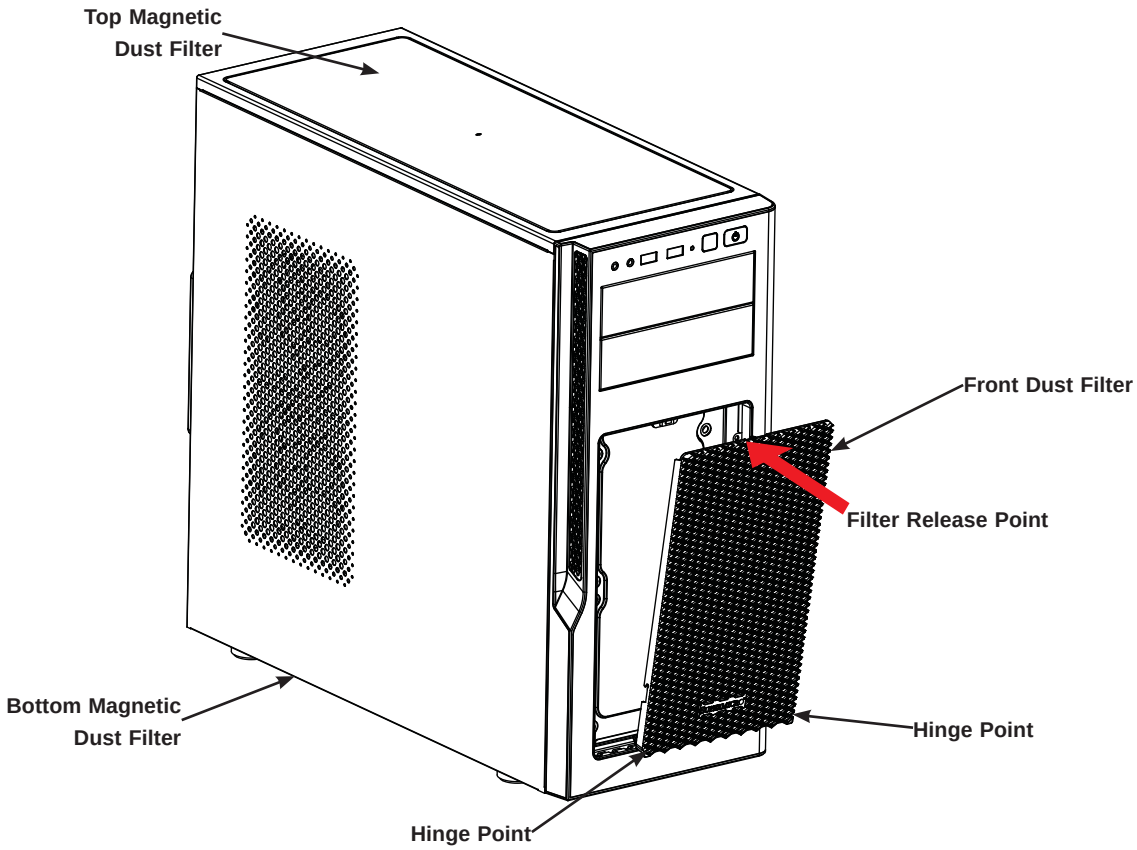


Figure 3-11. Dust Filters

Cleaning the Front Dust Filter

1. Disengage the filter by pushing on the top edge center. The top pops loose.
2. Rotate the filter top downward to release it from the hinge points on the bottom.
3. Clean the filter.
4. Replace the filter by aligning it in the bottom hinge points, then pushing the top edge back into place. Push the top center until it clicks in.

The top and bottom magnetic filters can be simply lifted off for cleaning.

Power Supply

The 5130AD-T system comes with a 750 Watt power supply. Mount it on the rear floor of the chassis. The power supply fan may be on top (recommended) or under the power supply.

Chapter 4

Motherboard Connections

This section describes the connections on the motherboard and provides pinout definitions. Note that depending on how the system is configured, not all connections are required. The LEDs on the motherboard are also described here. A severboard layout indicating component locations may be found in Chapter 1.

Please review the Safety Precautions in Chapter 3 before installing or removing components.

4.1 Power Connections

Two power connections on the C7Z270-PG must be connected to the power supply. The wiring is included with the power supply.

- 24-pin Primary ATX Power (JPWR1)
- 8-pin Processor Power (JPWR2)

Main ATX Power Connector

The 24-pin main power connector (JPW1) is used to provide power to the motherboard. The 8-pin CPU PWR connector (JPW2) is also required for the processor. These power connectors meet the SSI EPS 12V specification. See the table below for pin definitions.

ATX Power 24-pin Connector Pin Definitions

Pin#	Definition	Pin#	Definition
13	+3.3V	1	+3.3V
14	-12V	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	Res (NC)	8	PWR_OK
21	+5V	9	5VSB
22	+5V	10	+12V
23	+5V	11	+12V
24	COM	12	+3.3V

Required Connection

Important: To provide adequate power to the motherboard, connect the 24-pin *and* the 8-pin power connectors to the power supply. Failure to do so may void the manufacturer's warranty on your power supply and motherboard.

Processor Power Connector

JPW2 must also be connected to the power supply. This connector is used to power the processor(s).

+12V 8-pin Power Pin Definitions	
Pin#	Definition
1 - 4	Ground
5 - 8	+12V

Required Connection

4.2 Headers and Connectors

Fan Headers (Fan 1 - Fan 5)

Your motherboard has five fan headers (Fan 1-Fan 5). These fans are 4-pin fan headers. Although pins 1-3 of the fan headers are backward compatible with the traditional 3-pin fans, we recommend the use 4-pin fans to take advantage of the fan speed control. 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 (JL1)

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

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

Internal Buzzer (SP1)

The Internal Buzzer (SP1) can be used to provide audible indications for various beep codes. See the table on the right for pin definitions.

Internal Buzzer Pin Definition		
Pin#	Definition	
Pin 1	Pos. (+)	Beep In
Pin 2	Neg. (-)	Alarm Speaker

Speaker (JD1)

On the JD1 header, pins 3-4 are used for internal speaker. Close pins 3-4 with a cap to use the onboard speaker. If you wish to use an external speaker, close pins 1-4 with a cable. See the table on the right for pin definitions.

Speaker Connector Pin Definitions

Pin#	Definition
3~4	Internal Speaker
1~4	External Speaker

Onboard Power LED (JLED1)

An onboard Power LED header is located at JLED1. This Power LED header is connected to Front Control Panel located at JF1 to indicate the status of system power. See the table on the right for pin definitions.

Onboard PWR LED Pin Definitions

Pin#	Definition
1	VCC
2	No Connection
3	Connection to PWR LED in JF1

DOM PWR Connector (JSD1)

The Disk-On-Module (DOM) power connector, located at JSD1, provides 5V power to a solid state DOM storage device 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

SPDIF OUT (JSPDIF_OUT)

The SPDIF Out (JSPDIF_OUT) is used for digital audio output. You will also need the appropriate cable to use this feature.

SPDIF_OUT Pin Definitions

Pin#	Definition
1	S/PDIF_Out
2	Ground

PCI-E M.2 Connector (PCI-E M.2)

The PCI-E M.2 connector is for devices such as memory cards, wireless adapters, etc. These devices must conform to the PCIE M.2 specifications (fromerly known as NGFF).

Standby Power Header (JSTBY1)

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#	**Definition**
1	+5V Standby
2	Ground
3	Wake-up

Front Panel Audio Header (AUDIO FP)

A 10-pin Audio header is supported on the motherboard. This header allows you to connect the motherboard to a front panel audio control panet, if needed. Connect an audio cable to the audio header to use this feature (not supplied). See the table at right for pin definitions for the header.

10-in Audio Pin Definitions	
Pin#	**Signal**
1	Microphone_Left
2	Audio_Ground
3	Microphone_Right
4	Audio_Detect
5	Line_2_Right
6	Ground
7	Jack_Detect
8	Key
9	Line_2_Left
10	Ground

TPM Header/Port 80

A Trusted Platform Module/Port 80 header is located at JTPM1 to provide TPM support and Port 80 connection. Use this header to enhance system performance and data security. See the table on the right for pin definitions.

TPM/Port 80 Header Pin Definitions			
Pin#	**Definition**	**Pin#**	**Definition**
1	LCLK	2	GND
3	LFRAME#	4	<(KEY)>
5	LRESET#	6	+5V (X)
7	LAD 3	8	LAD 2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SMB_CLK4	14	SMB_DAT4
15	+3V_DUAL	16	SERIRQ
17	GND	18	CLKRUN# (X)
19	LPCPD#	20	LDRQ# (X)

Thunderbolt Connector

This motherboard supports one Thunderbolt interface on the back panel. Thunderbolt is a hardware interface that allows peripherals to be connected to the motherboard at transfer speeds of up to 10Gbits/s. This port combines a PCIe and a DisplayPort into one serial signal.

Front Control Panel

JF1 contains header pins for various control panel connections. See the figure below for the pin locations and definitions of the control panel buttons and LED indicators.

All JF1 wires have been bundled into a single cable to simplify this connection. Make sure the red wire plugs into pin 1 as marked on the motherboard. The other end connects to the control panel PCB board.

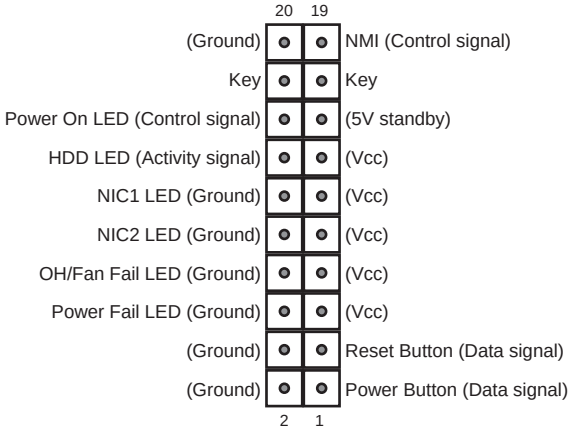


Figure 4-1. JF1: Control Panel Pins

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 when the system is in suspend mode, press the button for 4 seconds or longer.

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

Reset Button

The Reset Button connection is located on pins 3 and 4 of JF1. Attach it to a hardware reset switch on the computer case.

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

Power Fail LED

The Power Fail LED connection is located on pins 5 and 6 of JF1.

Power Fail LED Pin Definitions (JF1)	
Pin#	**Definition**
5	3.3V
6	PWR Supply Fail

Overheat (OH)/Fan Fail

Connect an LED cable to pins 7 and 8 of JF1 to use the Overheat/Fan Fail LED connections. The LED on pin 8 provides warnings of overheat or fan failure.

OH/Fan Fail Indicator Status	
Status	**Definition**
Off	Normal
On	Overheat
Flashing	Fan Fail

OH/Fan Fail LED Pin Definitions (JF1)	
Pin#	**Definition**
7	Blue LED
8	OH/Fan Fail LED

NIC1/NIC2 (LAN1/LAN2)

The NIC (Network Interface Controller) LED connection for LAN port 1 is located on pins 11 and 12 of JF1, and the LED connection for LAN Port 2 is on Pins 9 and 10. Attach the NIC LED cables here to display network activity.

LAN1/LAN2 LED Pin Definitions (JF1)	
Pin#	**Definition**
9	NIC2 Activity LED
10	NIC2 Link LED
11	NIC1 Activity LED
12	NIC1 Link LED

HDD LED/UID Switch

The HDD LED/UID Switch connection is located on pins 13 and 14 of JF1. Attach a cable to Pin 14 to show hard drive activity status. Attach a cable to Pin 13 to use UID switch. Refer to the table below for pin definitions.

HDD LED Pin Definitions (JF1)	
Pin#	**Definition**
13	3.3V Standby/UID Switch
14	HDD Active

Power LED

The Power LED connection is located on pins 15 and 16 of JF1.

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

NMI Button

The non-maskable interrupt button header is located on pins 19 and 20 of JF1.

NMI Button Pin Definitions (JF1)	
Pin#	**Definition**
19	Control
20	Ground

Data Cables

The data cables in the system have been carefully routed to maintain airflow efficiency. If you disconnect any of these cables, take care to re-route them as they were originally when reconnecting them.

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

Power Cables

The following power connections on the C7Z270-PG must be connected to the power supply. The wiring is included with the power supply. See Section 4.1 for details.

- 24-pin Primary ATX Power (JPW1)
- 8-pin Processor Power (JPW2, JPW3)

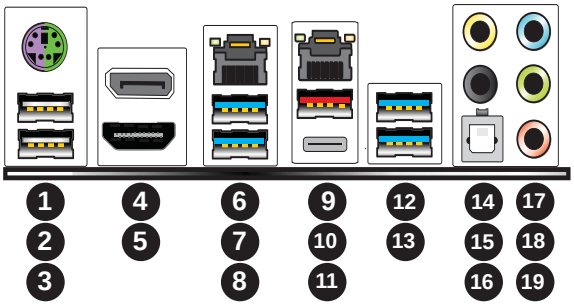


Figure 4-2. Rear I/O Ports

Rear I/O Ports					
#	**Description**	#	**Description**	#	**Description**
1.	PS/2 Keyboard/Mouse Port	8.	USB 3.0 Port 8	15.	Surround Out
2.	USB 2.0 Port 0	9.	LAN2	16.	S/PDIF Out
3.	USB 2.0 Port 1	10.	USB 3.1 Port 10	17.	Line In
4.	Display Port	11.	USB 3.1 Port 11	18.	Line Out
5.	HDMI Port	12.	USB 3.1 Port 12	19.	Mic In
6.	LAN1	13.	USB 3.1 Port 13		
7.	USB 3.0 Port 9	14.	Center/LFE Out		

Ethernet Ports

Two Gigabit Ethernet port (LAN) are located on the I/O Back panel to provide network connections. This port will accept RJ45 type cables.

Universal Serial Bus (USB)

Two Universal Serial Bus 2.0 ports (#0/1), two USB 3.0 ports (#8/9), four USB 3.1 ports (#10/11/12/13) are located on the I/O back panel. In addition, one USB 3.0 header (two ports: #14/15), three USB 2.0 headers (six ports: #2/3, 4/5, 6/7) are also located on the motherboard to provide front chassis access using USB cables (not included). See the tables below for pin definitions.

Back Panel High Definition Audio (HD Audio)

This motherboard features a 7.1+2 Channel High Definition Audio (HDA) codec that provides 10 DAC channels. The HD Audio connections simultaneously supports multiple-streaming 7.1 sound playback with 2 channels of independent stereo output through the front panel stereo out for front, rear, center and subwoofer speakers. Use the Advanced software included in the CD-ROM with your motherboard to enable this function.

ATX PS/2 Keyboard/Mouse Ports

The ATX PS/2 keyboard and PS/2 mouse are located above Back Panel USB Ports 0/1 on the motherboard.

VESA® DisplayPort™

DisplayPort, developed by the VESA consortium, delivers digital display at a fast refresh rate. It can connect to virtually any display device using a DisplayPort adapter for devices such as VGA, DVI or HDMI.

HDMI Port

One HDMI (High-Definition Multimedia Interface) is located on the I/O backpanel. This connector is used to display both high definition video and digital sound through an HDMI capable display, using a single HDMI cable (not included).

Serial Port (COM1)

There is one serial (COM) port header on the motherboard. COM1 is located next to the 1394 connection header. See the table on the right for pin definitions.

SATA Connections (I-SATA0~I-SATA5)

Six Serial ATA (SATA) 3.0 connectors (I-SATA 0~5) are supported on the board. These I-SATA 3.0 ports are supported by the Intel Z270 PCH chip (supports RAID 0,1,5,10). See the table below for pin definitions.

SATA 2.0/3.0 Connectors Pin Definitions

Pin#	Signal
1	Ground
2	SATA_TXP
3	SATA_TXN
4	Ground
5	SATA_RXN
6	SATA_RXP
7	Ground

U.2 SSD Connectors

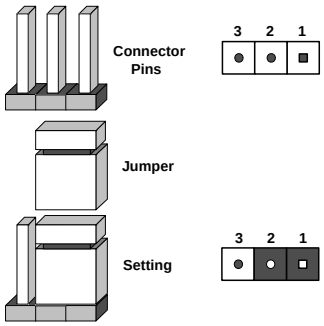
Two U.2 SSD connectors (U.2 Connector 1, U.2 Connector 2) are supported on the board. These connectors support Solid State Drives (SSD) and is an extension of the existing SATA connectors. They offer up to 4x PCI 3.0 lanes to a connected SSD device.

4.4 Jumpers

Explanation of Jumpers

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

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



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 cover of the chassis to access the motherboard.
3. Remove the onboard battery from the motherboard.
4. Short the CMOS pads with a metal object such as a small screwdriver for at least four seconds.
5. Remove the screwdriver (or shorting device).
6. Replace the cover, reconnect the power cord(s) and power on the system.

Notes: Clearing CMOS will also clear all passwords.

Do not use the PW_ON connector to clear CMOS.


JBT1 contact pads

LAN Enable/Disable

Jumper JPL2 will enable or disable LAN ports 3 and 4. See the table on the right for jumper settings. The default setting is enabled.

LAN1/2 Enable/Disable Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Enabled
Pins 2-3	Disabled

PCI Slot SMB Enable (I^2C1/I^2C2)

Use Jumpers I^2C1/I^2C2 to enable PCI SMB (System Management Bus) support to improve system management for the PCI slots. See the table on the right for jumper settings.

PCI Slot_SMB Enable Jumper Settings	
Jumper Setting	**Definition**
Short	Enabled
Open (Default)	Disabled

Manufacturing Mode (JPME2)

Close pins 2 and 3 of jumper JPME2 to bypass SPI flash security and force the system to operate in Manufacturing Mode, allowing the user to flash the system firmware from a host server for system setting modifications. See the table on the right for jumper settings.

Manufacture Mode (JPME2) Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Normal (Default)
Pins 2-3	Manufacture Mode

Audio Enable (JPAC1)

JPAC1 allows you to enable or disable the onboard audio support. The default position is on pins 1 and 2 to enable onboard audio connections. See the table on the right for jumper settings.

Audio Enable/Disable Jumper Settings	
Jumper Setting	**Definition**
Pins 1-2	Enabled
Pins 2-3	Disabled

Watch Dog Timer Enable/Disable

Watch Dog (JWD1) is a system monitor that can reboot the system when a software application hangs. 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. See the table on the right for jumper settings.

Watch Dog Jumper Settings

Jumper Setting	Definition
Pins 1-2	Reset (default)
Pins 2-3	NMI
Open	Disabled

BIOS Recovery (JBR1)

The BIOS Recovery jumper (JBR1) is used to enable or disable the BIOS Recovery feature of the motherboard. See Appendix D for details.

BIOS Recovery (JBR1) Jumper Settings

State	Definition
Off	Normal (Default)
On	Recover

Power Button (POWER BUTTON)

In addition to the soft power switch provided in JF1, your motherboard is equipped with a 'soft' power button on the motherboard. This switch works the same way as the soft power switch on JF1.

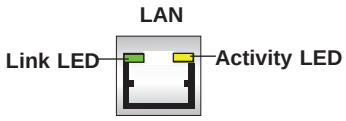
Reset Button

When pressed, the Reset Button will reset the system and reboot. This action will erase everything in memory and restart the system.

4.5 LED Indicators

LAN LEDs

Two LAN ports are located on the I/O back panel of the motherboard. This Ethernet LAN port has two LEDs (Light Emitting Diode). The yellow LED indicates activity, while the Link LED may be green, amber, or off to indicate the speed of the connections. See the tables at right for more information.



LAN1/2 LED (Connection Speed Indicator)	
LED Color	**Definition**
Off	10 Mb/s
Green	100 Mb/s
Amber	1 Gb/s

Onboard Power LED (LED1)

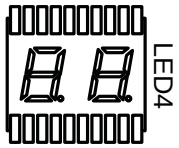
An Onboard Power LED is located at LED1 on the motherboard. When LED1 is on, the AC power cable is connected. Make sure to disconnect the power cable before removing or installing any component. See the layout below for the LED location.

Onboard Power LED Indicator	
LED Color	**Definition**
Off	System Off (power cable not connected)
Green	System On

Status Display (LED4)

LED4 is made up of two alpha-numeric displays that will display a status or POST code, when the motherboard is powered on. Please download the following AMI publication for a complete list of POST codes:

http://www.ami.com/support/doc/ami_aptio_4.x_status_codes_pub.pdf



Status Display LED Indicator			
LED	**Description**	**Color/State**	**Status**
LED1	Onboard Standby PWR LED	Green: Solid on	Power On
LED2	M.2 connector 2 SSD ACT LED	Green: Solid on	M.2 device connected
LED3	M.2 connector 1 SSD ACT LED	Green: Solid on	M.2 device connected
LED4	Status Code LED*	Digital Readout	See manual

Chapter 5

Software

After the hardware has been installed, you should install the Operating System (OS), configure RAID settings and install the drivers. Necessary drivers and utilities may be found at ftp://ftp.supermicro.com/driver.

5.1 OS Installation

You must first configure RAID settings (if using RAID) before you install the Windows OS and the software drivers. To configure RAID settings, please refer to the RAID Configuration User Guides posted on our website at www.supermicro.com/support/manuals.

Installing the Windows OS for a RAID System

1. Insert Microsoft's Windows Setup DVD in the DVD drive and the system will start booting up from the DVD.
2. Insert the USB stick containing Windows drivers to a USB port on the system.
   Note: for older legacy OS's, please use a method to slipstream the drivers.
3. Select the partition on the drive in which to install Windows.
4. Browse the USB folder for the proper driver files.
5. Choose the RAID driver indicated in the Windows OS Setup screen, then choose the hard drive in which you want to install it.
6. Once all devices are specified, continue with the installation.
7. After the Windows OS installation is completed, the system will automatically reboot.

Installing Windows to a Non-RAID System

1. Insert Microsoft's Windows OS Setup DVD in the DVD-ROM drive and the system will start booting up from the DVD.
2. Continue with the installation. The Windows OS Setup screen will display.
3. From the Windows OS Setup screen, press the <Enter> key. The OS Setup will automatically load all device files and then continue with the Windows installation.
4. After the installation has completed, the system will automatically reboot.

5.2 Driver Installation

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 DVD of the drivers and utilities it contains. (You may also use a utility to extract the ISO file if preferred.)

After creating a DVD with the ISO files, insert the disk into the DVD drive on your system and the display shown in Figure 5-1 should appear.

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 to your hard drive or a USB flash drive and install from there.

Note: To install the Windows OS, please refer to the instructions posted on our website at http://www.supermicro.com/support/manuals/.

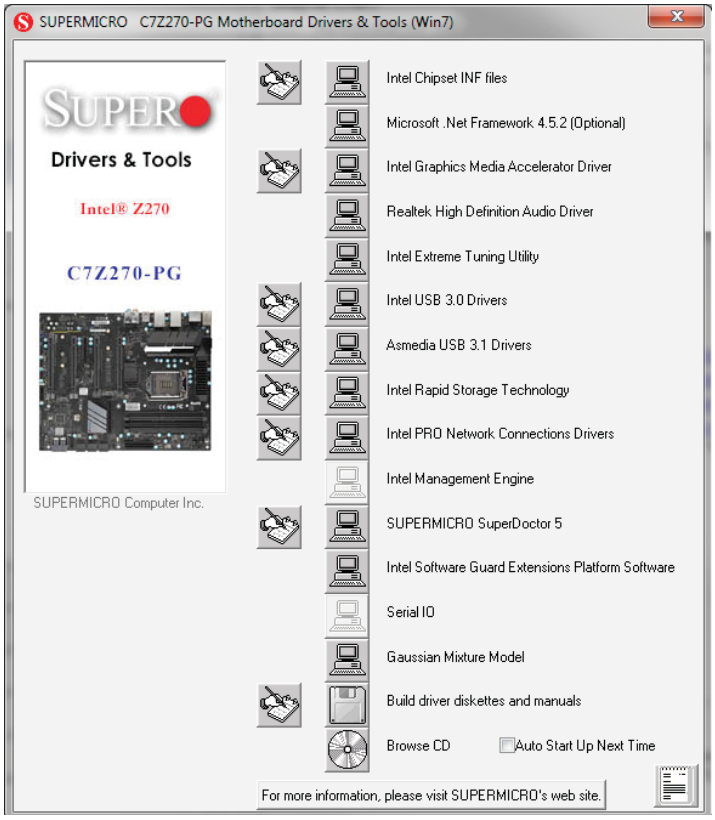


Figure 5-1. Driver & Tool Installation Screen

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 re-boot 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.

5.3 SuperDoctor® 5

The Supermicro SuperDoctor 5 is a program that functions in a command-line or web-based interface for Windows and Linux operating systems. The program monitors such system health information 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. SuperDoctor 5 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.

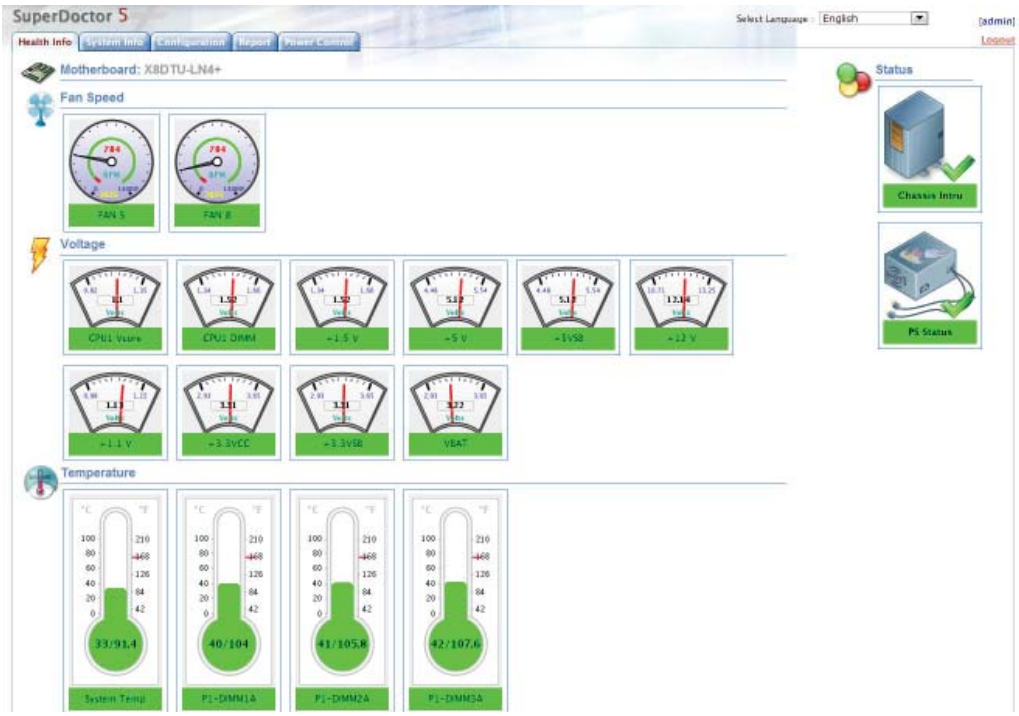


Figure 5-2. SuperDoctor 5 Interface Display Screen (Health Information)

Chapter 6

BIOS

6.1 Introduction

This chapter describes the AMI BIOS Setup Utility for the C7Z270-PG. The ROM BIOS is stored in a Flash EEPROM and can be easily updated. This chapter describes the basic navigation of the AMI BIOS Setup Utility setup screens.

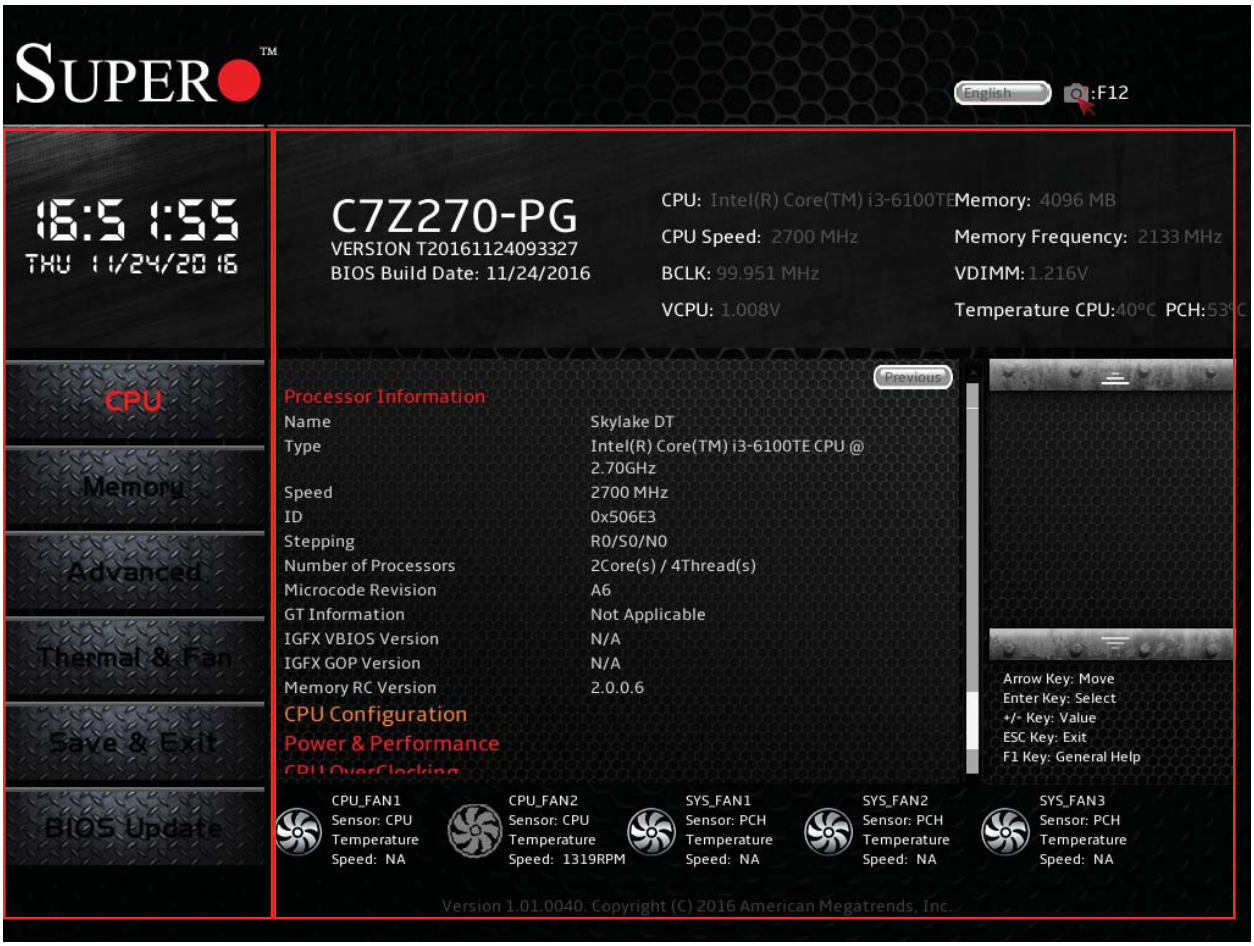
Note: For AMI BIOS Recovery, please refer to the UEFI BIOS Recovery Instructions in Appendix C.

Starting BIOS GUI Setup Utility

To enter the AMI BIOS GUI Setup Utility screens, press the <Delete> key while the system is booting up.

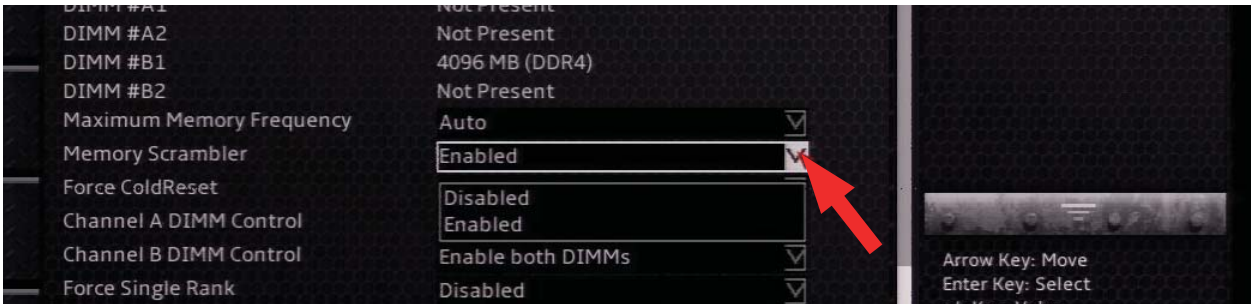
Note: In most cases, the <Delete> key is used to invoke the AMI BIOS setup screen.

6.2 Main Menu

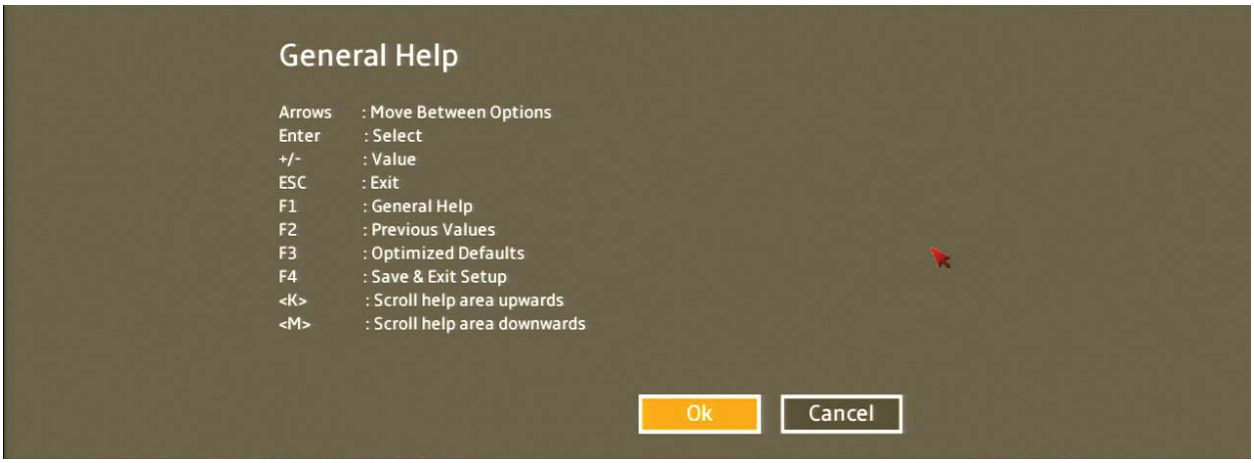


When you first enter AMI BIOS Setup Utility, you will see the Main Menu screen. You can always return to the Main Menu by selecting the ***Main*** tab on the top of the screen with the arrow keys.

The Main BIOS Setup screen has two main areas. The left area is the Main Navigation, and the main area is for the Information Section. Icons that do not respond when the mouse pointer is hovering on top are not configurable.



The AMI BIOS GUI Setup Utility uses a mouse pointer navigation system similar to standard graphical user interfaces. Hover and click an icon to select a section, click a down arrow to select from an options list.



You may press the <F1> on any screen under the Setup Section to see a list of Hot Keys that are available. Press <F12> to print the screen.

The keyboard's Escape key <ESC> cancels the current screen and will you back to the previous screen.

How To Change the Configuration Data

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

Note: For the purposes of this manual, options that are printed in **Bold** are default settings.

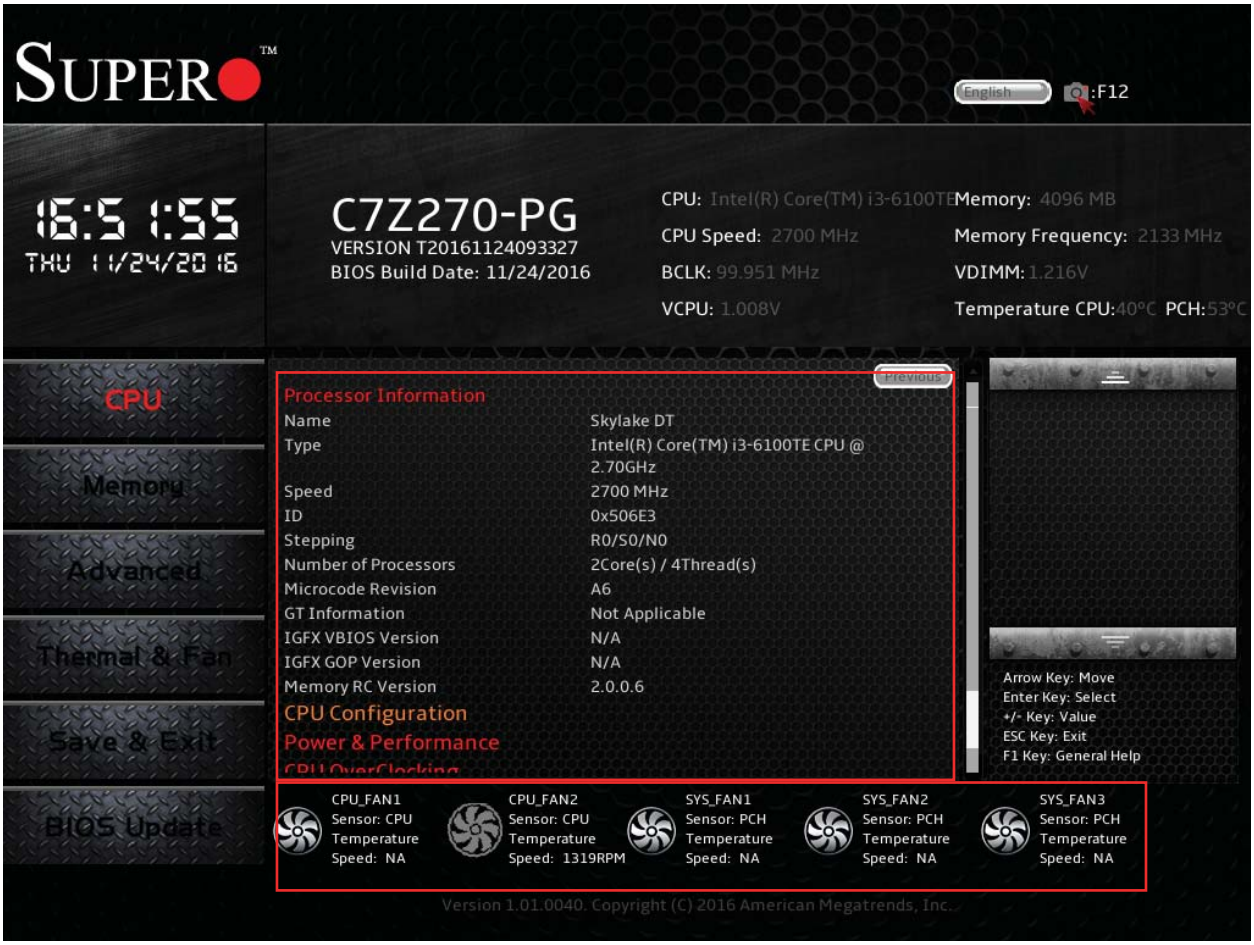
How to Start the Setup Utility

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 GUI Setup Utility. From the Setup Home screen, you can access the other Setup Sections.

This feature allows you to prioritize the boot sequence from the list of available devices. A device that is in parenthesis has been disabled in the corresponding type menu.

6.3 System Information

The System Information Panel displays the motherboard's configuration.



The following information among others are displayed in this section:

- **Motherboard Model Name -** C7Z270-PG.
- **BIOS Version -** this item displays the BIOS version number.
- **Build Date and Time -** displays the BIOS build date and Time.
- **CPU -** displays the CPU type speed, stepping, etc
- **CPU Fan Data -** displays sensor type, temperature, speed

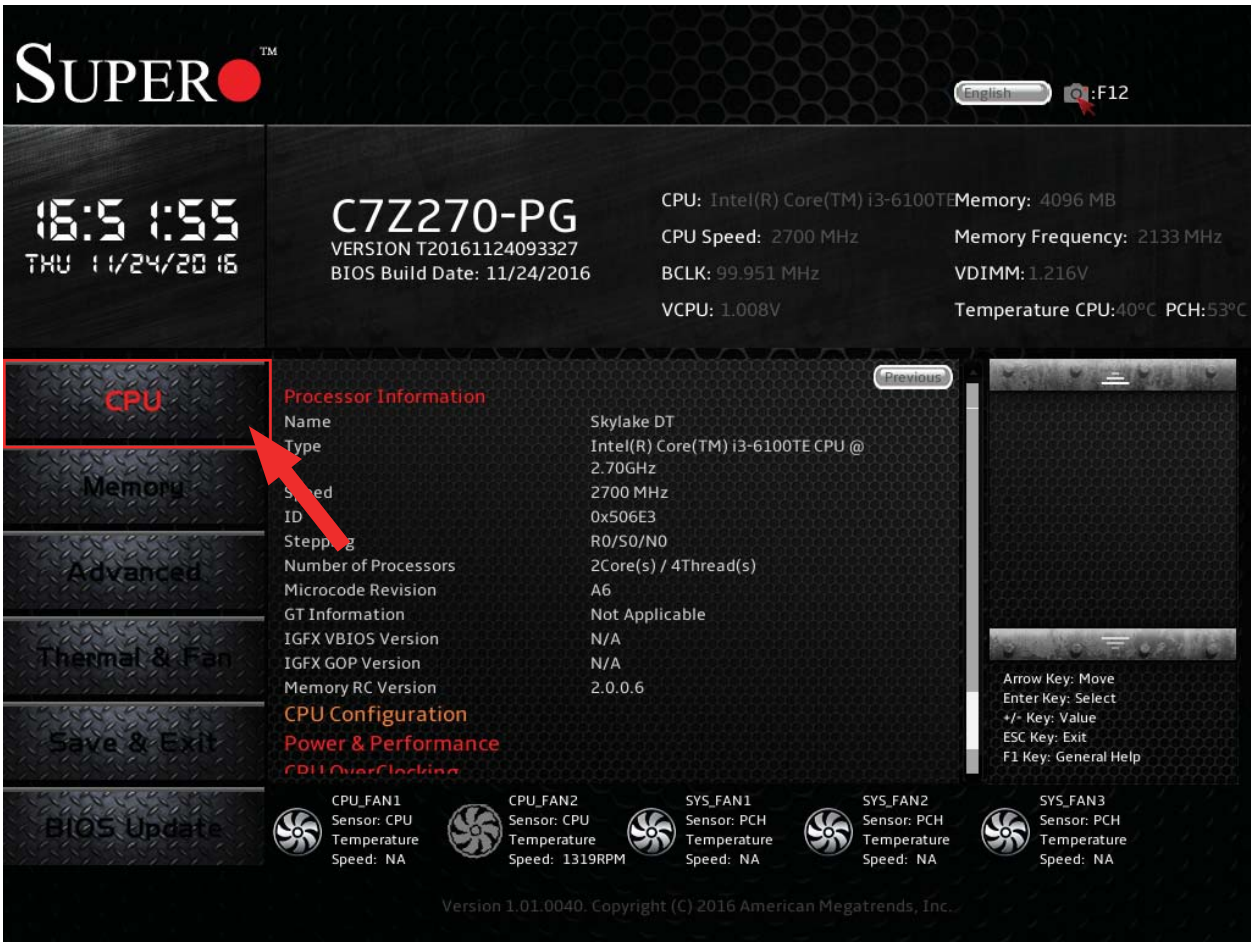
System Date

Click on the date to open the setup fields. This item sets and displays the system date. Click the up and down arrows to adjust the date.

System Time

Click on the time to open the setup fields. This item sets and displays the system time. Click the up and down arrows to adjust the system time.

6.4 CPU



The following information are be displayed in this section:

- **Name -** indicates the model name of the CPU.
- **Type -** indicates the brand, model name, model number of the CPU and it's rated clock speed.
- **Speed -** this item shows the detected CPU speed.
- **ID -** displays the unique CPU ID.
- **Stepping -** displays the processor stepping.
- **Number of Processors -** displays the number of cores detected.
- **Microcode Revision -** displays the CPU's microcode patch version.
- **GT Info -** this item shows the processor's GT Information.
- **IGFX VBIOS Version -** this item shows the Integrating Graphics VBIOS version.
- **IGFX GOP Version -** this item shows the Integrating Graphics VOP version.
- **Memory RC Version -** this item shows the memory RC version.

CPU Configuration

Set all options for the processor in this section.

The following CPU information will be displayed:

- **CPU T**ype - displays the CPU type.
- **Type** - indicates the brand, model name, model number of the CPU and it's rated clock speed.
- **ID** - displays the unique CPU ID.
- **Speed** - this item shows the detected CPU speed.
- **L1 Data Cache** - indicates if Level 1 cache is supported.
- **L1 Instruction Cache** - displays if Level 1 instruction cache is supported.
- **L2 Cache** - indicates if Level 2 cache is supported.
- **L3 Cache** - displays whether Level 3 cache is supported or not.
- **L4 Cache** - indicates if Level 4 cache is supported.
- **VMX** - indicates if VMX is supported.
- **SMX/TXT** - indicates if SMX/TXT is supported.

SW Guard Extension (SGX)

Select Enabled to activate the Software Guard Extensions (SGX). The options are Enabled, Disabled and **Software Controlled.**

Select Owner EPOCH Input Type

There are three Owner EPOCH modes (Each EPOCH is 64 bit). The options are **No Change in Owner EPOCHs**, Change to New Random Owner EPOCH and Manual User Defined Owner EPOCHs.

PRMRR Size

The BIOS must reserve a contiguous region of Processor Reserved Memory (PRM) in the Processor Reserved Memory Range Register (PRMRR). This item appears if SW Guard Extensions is enabled. The options are **Auto**, 32MB, 64MB and 128MB.

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 Disabled and **Enabled**.

Adjacent Cache Line Prefetch

(Available when supported by the CPU)

Select Enabled for the CPU to prefetch both cache lines for 128 bytes as comprised. Select Disabled for the CPU to prefetch both cache lines for 64 bytes. The options are Disabled and **Enabled**.

Intel (VMX) Virtualization Technology

(Available when supported by the CPU)

Select Enabled to use the Intel Virtualization Technology to allow one platform to run multiple operating systems and applications in independent partitions, creating multiple "virtual" systems in one physical computer. The options are **Enabled** and Disabled.

Note: If there is any change to this setting, you will need to power off and reboot the system for the change to take effect. Please refer to Intel's web site for detailed information.

Active Processor Cores

Use this feature to select the number of active processor cores. The options are **All**, 1, 2, 3 and 4 (These options depend on how many cores are supported by the CPU.)

Hyper-Threading

Select Enabled to support Intel Hyper-threading Technology to enhance CPU performance. The options are **Enabled** and Disabled.

BIST

Select Enabled to activate the Built-In Self Test (BIST) on reset. The options are Enabled and **Disabled**.

AES

Select Enable for Intel CPU Advanced Encryption Standard (AES) Instructions support to enhance data integrity. The options are **Enabled** and Disabled.

Machine Check

Select Enable to activate Machine Check. The options are **Enabled** and Disabled.

MonitorMWait

Select Enable to activate MonitorMWait. The options are **Enabled** and Disabled.

Intel Trusted Executed Technology

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. The options are Enabled and **Disabled.**

*If Intel Trusted Execution Technology is Enabled, the features Alias Check Request and DPR Memory Size are available for configuration.

Alias Check Request

Use this feature to set up Alias Check Request. The options are Enabled and Disabled.

Reset AUX Content

Use this feature to reset the TPM Auxiliary content. The options are yes or **no**.

FCLK Frequency for Early Power On

Select the FCLK frequency for early power on. The options are Normal (800MHz), **1GHz** and 400MHz.

Power and Performance

CPU - Power Management Control

Boot performance mode

This option enables the selection of the default CPU performance during system boot. The options are **Max Non-Turbo Performance**, Max Battery and Turbo Performance.

Intel(R) SpeedStep(tm)

Intel SpeedStep Technology allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are Disabled and **Enabled**.

C states

C-States architecture, a processor power management platform developed by Intel, can further reduce power consumption from the basic C1 (Halt State) state that blocks clock cycles to the CPU. Select Enabled for CPU C Sates support. The options are **Enabled** and Disabled. If this feature is set to Enabled, the following items will display:

Enhanced C-states

(Available when "CPU C States" is set to Enabled)

Select Enabled to enable Enhanced C1 Power State to boost system performance. The options are **Enabled** and Disabled.

C-State Auto Demotion

When this item is enabled, the CPU will conditionally demote C State based on un-cored auto-demote information. The options are Disabled, C1, C3 and **C1 and C3**.

C-State Un-demotion

When this item is enabled, the CPU will conditionally un-demote from demoted C3 or C1. The options are Disabled, C1, C3 and **C1 and C3**.

Package C-State Demotion

This item enables the Package C-State demotion. The options are **Disabled** and Enabled.

Package C-State Un-Demotion

When set, the CPU will conditionally un-demote from demoted Packaged Package C-State Un-Demotion. The options are **Disabled** and Enabled.

CState Pre-Wake

When set, this option enables or disables the C-State pre wake. The options are **Enabled** and Disabled.

Package C State Limit

Select Auto for the AMI BIOS to automatically set the limit on the C-State package register. The options are C0, C2, C3, C6, C7, C7s and **Auto**.

Package C State Workaround

Enable this feature to fix old HDDs that have problems entering the Package C State. The options are **Disabled** and Enabled.

GT-Power Management

RC6 (Render Standby)

Use this feature enable Render Standby support. The options are Enabled and Disabled.

Maximum GT Frequency

This option is the Maximum GT Frequency as defined by the user. Choose between 300MHz (RPN) and 1200MHz (RP0). Any value beyond this range will be clipped to its min/max supported by the CPU. The options are **Default Max Frequency**, 300MHz through 1200MHz in increments of 50MHz.

CPU OverClocking

BCLK Clock Frequency (1/100 MHz)

Use this item to set the CPU clock override value for the host system. The default setting is **10000**.

FCLK Frequency for Early Power On

Select the FCLK frequency for early power on. The options are Normal (800MHz), **1GHz** and 400MHz.

Active Processor Cores

Use this feature to select the number of active processor cores. The options are **All**, 1, 2, 3 and 4 (these options depend on how many cores are supported by the CPU).

Load SMC CPU OC Setting

This item has optimized pre-configured overclock settings. Select one to activate. The options are **Manual**, 4.0GHz~5.5GHz (in 100MHz increments).

1-Core Ratio Limit Override

This increases (multiplies) 1 clock speed in the CPU core in relation to the bus speed when one CPU core is active. Enter **0** to use the manufacturer's default setting.

2-Core Ratio Limit Override

This increases (multiplies) 2 clock speeds in the CPU core in relation to the bus speed when two CPU cores are active. Enter **0** to use the manufacturer's default setting.

RSR

This item enables or disables the RSR feature. The options are **Disabled** and Enabled.

Boot Performance Mode

This option enables the selection of the default CPU performance during system boot. The options are **Max Non-Turbo Performance**, Max Battery and Turbo Performance.

Intel(R) SpeedStep(tm)

Enhanced Intel SpeedStep Technology (EIST) allows the system to automatically adjust processor voltage and core frequency in an effort to reduce power consumption and heat dissipation. **Please refer to Intel's web site for detailed information.** The options are Disabled and **Enabled**.

Package Power Limit MSR Lock

This feature enables or disables the locking of Package Power Limit settings. When enabled Package Power Limit MSR will be locked and a reset will be required to unlock the register. The options are **Disabled** and Enabled.

Configurable TDP Boot Mode

This feature sets the TDP Boot Mode to either **Nominal**, Up, Down or Deactivated. When deactivated, it will set MSR to Nominal and MMIO to zero.

Configurable TDP Lock

This option sets the lock bits on TURBO_ACTIVATION_RATIO and CONFIG_TDP_CONTROL. When lock is enabled, Custom Config TDP Count will be forced to 1 and Custom Config TDP Boot Index will be forced to 0. The options are **Disabled** and Enabled.

CTDP BIOS Control

This feature enables CTDP control via runtime ACPI BIOS methods. The options are **Disabled** and Enabled.

Power Limit 1 Override

This feature disables or enables the Power Limit 1 Override. If this option is disabled, the BIOS will program the default values for Power Limit and Power Limit 1 Time Window. The options are Disabled and **Enabled.**

Power Limit 1

This feature configures Package Power Limit 1, in milliwatts. When the limit is exceeded, the CPU ratio is lowered after a period of time (see item below). A lower limit can save power and protect the CPU, while a higher limit improves performance. This value must be between Min Power Limit TDP limit. If value is '0' the BIOS will program the TDP value. Use the number keys on your keyboard to enter the value. The default setting is dependent on the CPU.

Power Limit 1 Time Window

This item determines how long the time window over which the TDP value is maintained. Use the number keys on your keyboard to enter the value. The default setting is **8**. This value may vary between 0~128.

Power Limit 2 Override

This feature disables or enables the Power Limit 2 Override. If this option is disabled, the BIOS will program the default values for Power Limit and Power Limit 2 Time Window. The options are Disabled and **Enabled.**

Power Limit 2

This feature configures Package Power Limit 2, in milliwatts. When the limit is exceeded, the CPU ratio is lowered after a period of time (see item below). A lower limit can save power and protect the CPU, while a higher limit improves performance. This value must be between Min Power Limit TDP limit. If value is '0' the BIOS will program the TDP value. Use the number keys on your keyboard to enter the value. The default setting is dependent on the CPU.

Platform PL1 Enable

This option disables or enables the Platform Power Limit 1 programming. If this option is enabled, it activates the PL1 value to be used by the processor to limit the average power of the given time window.

Platform PL2 Enable

This option disables or enables the Platform Power Limit 2 programming. If this option is enabled, it activates the PL1 value to be used by the processor to limit the average power of the given time window. The options are **Disabled** and Enabled.

Power Limit 3 Override

This feature disables or enables the Power Limit 3 Override. If this option is disabled, the BIOS will program the default values for Power Limit and Power Limit 3 Time Window. The options are **Disabled** and Enabled.

Power Limit 4 Override

This feature disables or enables the Power Limit 4 Override. If this option is disabled, the BIOS will program the default values for Power Limit and Power Limit 4 Time Window. The options are **Disabled** and Enabled.

CPU Flex Ratio Override

Select Enabled to activate CPU Flex Ratio programming. The options are Enabled and **Disabled**.

CPU Flex Ratio Settings

When CPU Flex Ratio Override is enabled, this sets the value for the CPU Flex Ratio. The default is **16**.

Core Max OC Ratio

This option sets the maximum overclocking ratio for the CPU core. The allowable range is from 0~80.

System Agent Voltage (mV)

This option sets the System Agent Voltage in mV.

Core Voltage Mode

Use this feature to select the Core voltage mode. The options are Override and **Adaptive**.

If the feature above is set to Override, SVID and Core Voltage Override are available for configuration.

Core Extra Turbo Voltage

Use this feature to select the Core Turbo voltage mode. Select a value.

Core Voltage Offset

Use this feature to set the CPU Voltage Offset value from -500mV to +500mV. Enter **0** to use the manufacturer default value.

Offset Prefix

Use this feature to set the Core Voltage Offset value as a positive (+) number or a negative (-) number. The default setting is **"+"**.

Core PLL Voltage Offset

Use this feature to set the CPU PLL Voltage Offset value from 0-63 with each unit at 15mV. This is used to increase the range of the core frequency in extreme overclocking conditions. Enter **0** to use the manufacturer default value.

Ring Max OC Ratio

Use this feature to set the maximum overclocking ratio for the RING Domain. Select a value.

Ring Min OC Ratio

Use this feature to set the minimum overclocking ratio for the RING Domain. Select a value.

Uncore Voltage Offset

Use this feature to specify the Offset Voltage applied to the Uncore domain. Select a value.

Offset Prefix

Use this feature to set the offset value as positive or negative. The options are + or -.

PCH Voltage

Use this feature to trim the PCH Voltage. Select from these values: **1.00V**, 1.05V, 1.10V, 1.15V, 1.20V, 1.25V and 1.30V.

CPU PLL Voltage

Use this feature to trim the CPU PLL Voltage. Select from these values: **1.20V**, 1.25V, 1.30V, 1.35V, 1.40V, 1.45V and 1.50V.

CPU_IO Voltage

Use this feature to calibrate the CPU I/O Voltage. Select from these values: **0.975V**, 1.15V, 1.30V and 1.50V.

Load Line Calibration

Load line calibration is vDroop, which is the tendency for a CPU's vCore to drop when going from an idle state to a load state. Enable this feature to reduce vDroop. The options are Disabled and **Enabled**.

PSYS Slope

PSYS Slope is defined in 1/100 increments and uses the BIOS VR mailbox command 0x9. Range is 0-200. For example, enter 125 for a 1.25 slope. Enter 0 for AUTO.

PSYS Offset

PSYS Offset is defined in 1/4 increments and uses the BIOS VR mailbox command 0x9. For example, enter 100 for a 25 offset. Range is 0-255.

PSYS PMax Power

The value is defined in 1/8 Watt increments and uses the BIOS VR mailbox command 0xB. For example, enter 1000 for a 125 Watt PMax value. Range is 0-8192. Enter 0 for AUTO.

Acoustic Noise Settings

Acoustic Noise Mitigation

Select Enable to help mitigate acoustic noise on certain SKUs when the CPU is in deeper C-State. The options are Enabled and **Disabled**.

When the above is set to Enabled, the following can be configured:

IA VR Domain

Disable Fast PKG C State Ramp for IA Domain

Select False to leave Fast ramp enabled during deeper C-States. Selecting True will disable Fast ramp during deeper C-States. The options are True and False.

Slow Slew Rate for IA Domain

This feature sets the VR IA Slew Rate for Deep Package C-State ramp time. Slow slew rate equals Fast divided by the number 2, 4, 8, or 16. This feature is used to help reduce acoustic noise. The options are Fast/2, Fast/4, Fast/8 and Fast/16.

GT VR Domain

Disable Fast PKG C State Ramp for GT Domain

Select False to leave Fast ramp enabled during deeper C-States. Selecting True will disable Fast ramp during deeper C-States. The options are True and False.

Slow Slew Rate for GT Domain

This feature sets the VR GT Slew Rate for Deep Package C-State ramp time. Slow slew rate equals Fast divided by the number 2, 4, 8, or 16. This feature is used to help reduce acoustic noise. The options are Fast/2, Fast/4, Fast/8 and Fast/16.

SA VR Domain

Disable Fast PKG C State Ramp for SA Domain

Select False to leave Fast ramp enabled during deeper C-States. Selecting True will disable Fast ramp during deeper C-States. The options are True and False.

Slow Slew Rate for SA Domain

This feature sets the VR SA Slew Rate for Deep Package C-State ramp time. Slow slew rate equals Fast divided by the number 2, 4, 8, or 16. This feature is used to help reduce acoustic noise. The options are Fast/2, Fast/4, Fast/8 and Fast/16.

Core/IA VR Settings

VR Config Enable

Select Enable to activate VR configuration options. The options are Enabled and Disabled.

AC Loadline

AC Loadline is defined in 1/100 mOhms and uses the BIOS mailbox command 0x2. A value of 100 equals 1.0 mOhm, and 1255 is 12.55 mOhms. Range is 0-6249 (0-62.49 mOhms). Enter 0 for AUTO.

DC Loadline

DC Loadline is defined in 1/100 mOhms and uses the BIOS mailbox command 0x2. A value of 100 equals 1.0 mOhm, and 1255 is 12.55 mOhms. Range is 0-6249 (0-62.49 mOhms). Enter 0 for AUTO.

PS Current Threshold1

The PS Current Threshold1 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is 80 for 20A.

PS Current Threshold2

The PS Current Threshold2 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is 20 for 5A.

PS Current Threshold3

The PS Current Threshold2 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is 20 for 5A.

PS3 Enable

Enable or Disables PS3. Uses BIOS VR mailbox command line 0x3. The options are Enabled and Disabled.

PS4 Enable

Enable or Disables PS4. Uses BIOS VR mailbox command line 0x3. The options are Enabled and Disabled.

IMON Slope

IMON (Load Current Monitor) Slope is defined in 1/100 increments and uses the BIOS VR mailbox command 0x4. Range is 0-200. For example, enter 125 for a 1.25 slope. Enter 0 for AUTO.

IMON Offset

IMON Offset is defined in 1/1000 increments and uses the BIOS VR mailbox command 0x4. For example, enter 25,348 for a 25.348 offset. Range is 0-63999.

IMON Prefix

This feature sets the IMON offset value to a positive or negative number. The options are + and -.

VR Current Limit

This feature sets the Voltage Regulator current limit. The value represents the maximum instantaneous current allowed at any given time. The value is represented in 1/4A (Ampere) increments. A value of 400 equals 100A. Set this number to 0 for Auto. This uses the BIOS VR mailbox command 0x6.

VR Voltage Limit

This feature sets the Voltage Regulator voltage limit. The value is represented in mV. A value of 1250 equals 1.25V. Set this number to 0 for Auto. This uses the BIOS VR mailbox command 0x6.

TDC Enable

Enable or Disables TDC (Thermal Design Current). The options are Enabled and **Disabled**.

TDC Current Limit

The TDC Current Limit is defined in 1/8A (Amperes) increments and uses the BIOS mailbox command 0x1A. A value of 1000 equals 125A. Range is 0-32767. Enter 0 for 0 Amps.

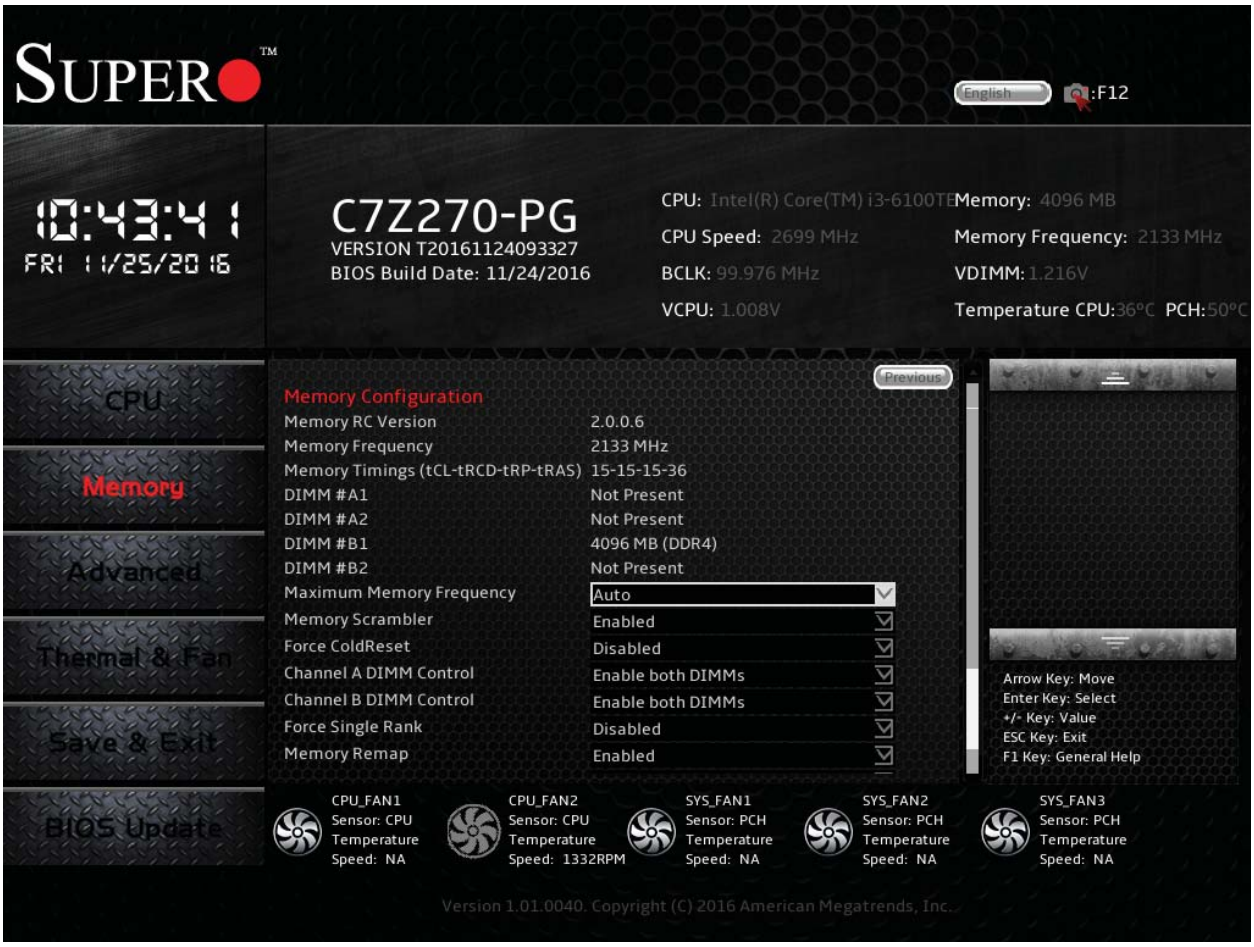
TDC Time Window

The TDC Time Window is defined in milliseconds. Range is 1-8ms and 10ms. Note that 9ms has no valid encoding in the MSR definition. The options are 1ms, 2ms, 3ms, 4ms, 5ms, 6ms, 7ms, 8ms and 10ms.

TDC Lock

Enable or Disables TDC Lock. The options are Enabled and **Disabled**.

6.5 Memory



The following information are be displayed in this section:

- **Memory RC Version**
- **Memory Frequency**
- **Memory Timings (tCL-tRCD-tRP-tRAS)**
- **DIMM#A1 ~ DIMM#B2**

Maximum Memory Frequency

This option selects the type/speed of the memory installed. The options are 1333, 1600, 1867, 2133, 2400, 2667, 2933, and 3200. All values are in MHz. **Default speed is auto detected.**

Memory Scrambler

This feature enables or disables memory scrambler support for memory error correction. The settings are **Enabled** and Disabled.

Force Cold Reset

Use this feature when ColdBoot is required during MRC execution. The settings are Enabled and **Disabled**.

Channel A DIMM Control

This feature enables or disables the selected Channel A DIMM slot(s). The settings are **Enable Both DIMMs**, Disable DIMM0, Disable DIMM1 and Disable Both DIMMs.

Channel B DIMM Control

This feature enables or disables the selected Channel B DIMM slot(s). The settings are **Enable Both DIMMs**, Disable DIMM0, Disable DIMM1 and Disable Both DIMMs.

Force Single Rank

When enabled, only Rank0 will be use in each DIMM. The settings are Enabled and **Disabled**.

Memory Remap

PCI memory resources will overlap with the total physical memory if 4GB of memory or above is installed on the motherboard. When this occurs, **Enable** this function to reallocate the overlapped physical memory to a location above the total physical memory to resolve the memory overlapping situation. The options are **Enabled** and Disabled.

Mrc Fast Boot

This feature enables or disables fast path through MRC. The settings are **Enabled** and Disabled.

Memory OverClocking

The stored values for Default, Custom, XMP1 and XMP2 memory profiles in that particular order will be displayed in these fields.

- **tCK (MHz)**
- **tCL**
- **tRCD / tRP**
- **tRAS**
- **tCWL**
- **tFAW**
- **tREF1**
- **tRFC**
- **tRRD**
- **tRTP**
- **tWR**
- **tWTR**
- **NMode**
- **VDD [mV]**

Memory Profile

Use this feature to set Performance Memory Profiles which may cause impact on memory behavior. The options are **Default Profile,** Custom Profile, XMP Profile 1 and XMP Profile 2.

If Default is selected, the installed memory will run at 2200MHz if the detected memory is rated at 2400MHz or above, and run at 1867MHz if the memory detected is rated at 1867MHz.

Memory Reference Clock

This option selects the Memory Clock ratio. The options are **133MHz**, 100MHz and Auto.

QCLK Odd Ratio

This option enables or disables the quadrature clock odd ratio. The options are **Disabled**, and Enabled.

Memory Frequency

This option selects the type/speed of the memory installed. The options are Auto, DDR4-1067MHz, DDR4-1333MHz, DDR4-1600MHz, DDR4-1867MHz, DDR4-2133MHz, DDR4-2400MHz, DDR4-2667MHz, DDR4-2933 and DDR4-3200MHz. **Default speed is auto detected.**

Memory Voltage

This option selects the Memory Voltage The options are **Default**, 1.20V, 1.25V, 1.30V, 1.35V, 1.40V, 1.45V, 1.50V, 1.55V, 1.60V, 1.65V, 1.70V and 1.75V.

If Custom Profile is selected, the following options appear:

tCL

This option configures the Cas Latency Range. Enter a number between 4-18. The default is **15**.

tRCD/tRP

This option selects the Ras Precharge Range and Row to Col Delay Range. Enter a number between 1-38. The default is **15**.

tRAS

This option selects the Ras Active Time. Enter a number between 1-586. The default is **36**.

Minimum CAS Write Latency Time (tCWL)

This option selects the Minimum CAS Write Latency Time. Enter a numeric value. The default is **8**.

tFAW

This option selects the Minimum Four Activate Window Delay Time. Enter a numeric value between 1-586. The default is **23**.

Maximum tREFI Time (tREFI)

This option configures the Maximum tREFI Time (Average Periodic Refrech Interval). Enter a numeric value. The default is **6240**.

tRFC

This option selects the Minimum Refresh Recovery Delay Time. Enter a number between 1-9363. The default is **278**.

tRRD

This option selects the Minimum Row Active To Row Active Delay Time. Enter a number between 1-38. The default is **4**.

tRTP

This option configures the Internal Read to Precharge Command Delay Time. Enter a number between 1-38. The default is **8**.

tWR

This option configures the Minimum Write Recovery Time. Enter a number between 1-38. The default is **16**.

tWTR

This option configures the Minimum Internal Write to Read Command Delay Time. Enter a number between 1-38. The default is **0**.

NMode

This option configures NMode. The default is **2**.

3rd Timing:

tRPab_ext

This option configures the tRPab_ext. Enter a numeric value. The default is **0**.

tRDPRE

This option configures the tRDPRE. Enter a numeric value. The default is **8**.

tWRPRE

This option configures the tWRPRE. Enter a numeric value. The default is **34**.

tRRD_sg

This option configures the tRRD_sg. Enter a numeric value. The default is **6**.

tRRD_dg

This option configures the tRRD_dg. Enter a numeric value. The default is **4**.

derating ext

This option configures the derating_ext. Enter a numeric value. The default is **2**.

ODT_read_duration

This option configures the ODT Read Duration. Enter a numeric value. The default is **0**.

ODT_Read_Delay

This option configures the ODT Read Delay. Enter a numeric value. The default is **1**.

ODT_write_duration

This option configures the ODT Write Duration. Enter a numeric value. The default is **0**.

ODT_Write_Delay

This option configures the ODT Write Delay. Enter a numeric value. The default is **0**.

Write_Early_ODT

This option configures the Write Early ODT. Enter a numeric value. The default is **0**.

tAONPD

This option configures the tAONPD. The default is **10**.

ODT_Always_Rank0

This option configures the ODT Always Rank0. Enter a numeric value. The default is **0**.

tRDRD_sg

This option configures the between module read to read delay (tRDRD_sg). Enter a numeric value. The default is **6**.

tRDRD_dg

This option configures the between module read to read delay (tRDRD_dg). Enter a numeric value. The default is **4**.

tRDRD_dr

This option configures the between module read to read delay (tRDRD_dr). Enter a numeric value. The default is **6**.

tRDRD_dd

This option configures the between module read to read delay (tRDRD_dd). Enter a numeric value. The default is **7**.

tRDWR_sg

This option configures the between module read to write delay (tRDWR_sg). Enter a numeric value. The default is **6**.

tRDWR_dg

This option configures the between module read to write delay (tRDWR_dg). Enter a numeric value. The default is **4**.

tRDWR_dr

This option configures the between module read to write delay (tRDWR_dr). Enter a numeric value. The default is **7**.

tRDWR_dd

This option configures the between module read to write delay (tRDWR_dd). Enter a numeric value. The default is **7**.

tWRRD_sg

This option configures the between module read to write delay (tWRRD_sg). Enter a numeric value. The default is **28**.

tWRRD_dg

This option configures the between module read to write delay (tWRRD_dg). Enter a numeric value. The default is **23**.

tWRRD_dr

This option configures the between module read to write delay (tWRRD_dr). Enter a numeric value. The default is **6**.

tWRRD_dd

This option configures the between module read to write delay (tWRRD_dd). Enter a numeric value. The default is **6**.

tRWRW_sg

This option configures the between module read to write delay (tWRWR_sg). Enter a numeric value. The default is **6**.

tRWRW_dg

This option configures the between module read to write delay (tWRWR_dg). Enter a numeric value. The default is **4**.

tRWRW_dr

This option configures the between module read to write delay (tWRWR_dr). Enter a numeric value. The default is **7**.

tRWRW_dd

This option configures the between module read to write delay (tWRWR_dd). Enter a numeric value. The default is **7**.

tXP

This option configures tXP. Enter a numeric value. The default is 7.

tXPDLL

This option configures tXPDLL. Enter a numeric value. The default is **26**.

tPRPDEN

This option configures tPRPDEN. Enter a numeric value. The default is **2**.

tRDPDEN

This option configures tRDPDEN. Enter a numeric value. The default is **20**.

tWRPDEN

This option configures tWRPDEN. Enter a numeric value. The default is **34**.

DIIBwEn[0]

This option configures DIIBwEn[0]. Enter a numeric value. The default is **0**.

DIIBwEn[1]

This option configures DIIBwEn[1]. Enter a numeric value. The default is **1**.

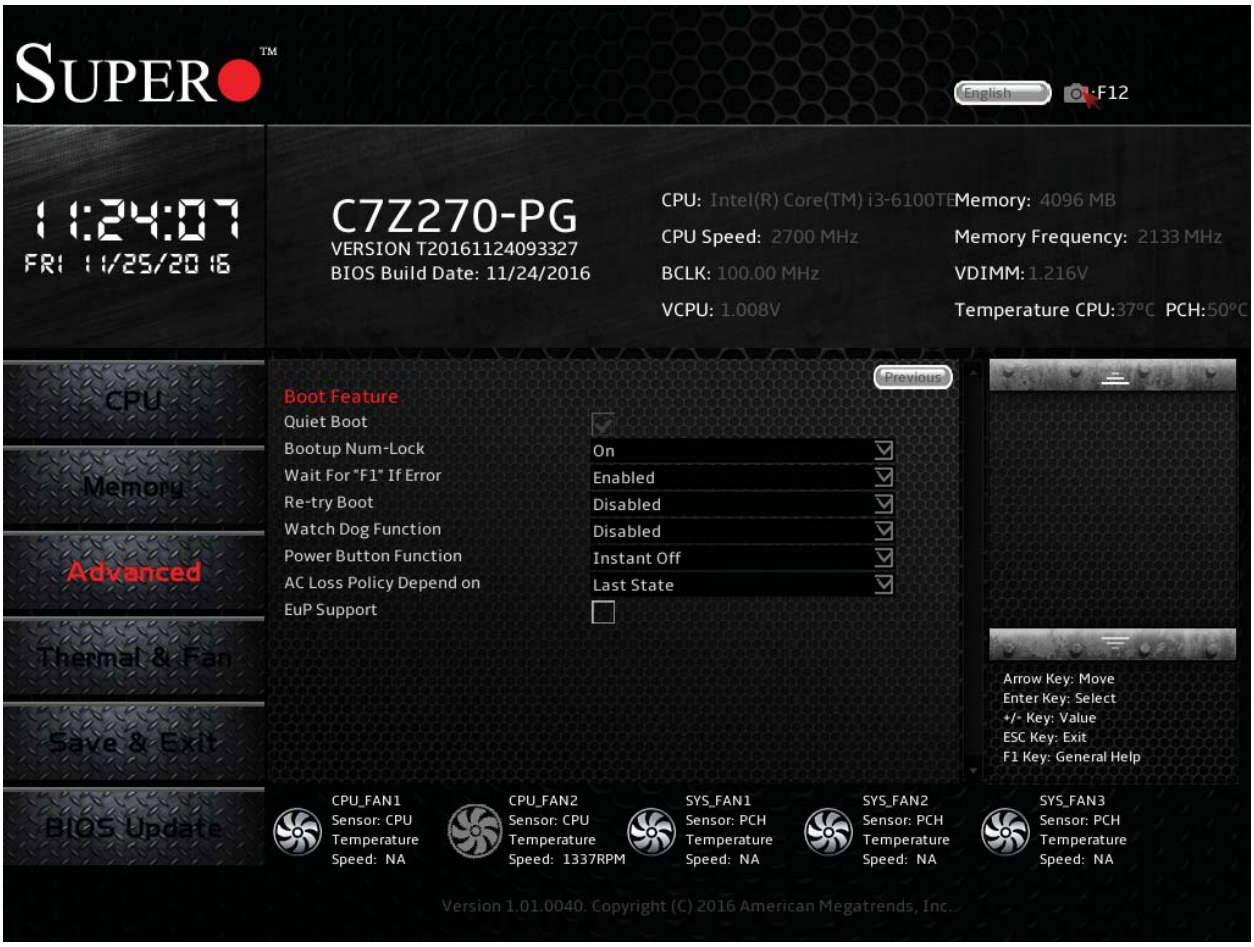
DIIBwEn[2]

This option configures DIIBwEn[2]. Enter a numeric value. The default is **2**.

DIIBwEn[3]

This option configures DIIBwEn[3]. Enter a numeric value. The default is **2**.

6.6 Advanced



Boot Feature

Quiet Boot

Use this feature to select the screen display between the POST messages and the OEM logo upon bootup. Uncheck the box to display the POST messages. Check the box to display the OEM logo instead of the normal POST messages.

Bootup Num-Lock

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.

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.

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 **Disabled** and Enabled.

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 **Instant Off** and 4 Seconds Override.

AC Loss Policy Depend On

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 Stay Off, Power On, and **Last State**.

EuP Support

EuP, or Energy Using Product, is a European energy-saving specification that sets a standard on the maximum total power consumption on electrical products. Check the box to activate EUP support. The default is Unchecked (**Disabled)**.

NCT6792D Super IO Configuration

SuperIO Chip NCT6792D

Serial Port 1 Configuration

Serial Port

This item will Enable or Disable Serial Port 1 (COM1). Place a tick mark on the box to enable Serial Port 1. The default is **Enabled**.

Device Settings

This item displays the current IRQ setting for Serial Port 1 (COM1).

Change Settings

This item configures the IRQ setting for Serial Port 1 (COM1).

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

COM 1

Console Redirection

Select Enabled to enable COM Port 1 Console Redirection, which will allow a client machine to be connected to a host machine at a remote site for networking. The options are **Disabled (unchecked)** and Enabled (checked).

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

Console Redirection Settings

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 item 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 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** 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 **Enabled (checked)** and Disabled (unchecked)**.**

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 Enabled (checked) and **Disabled (unchecked).**

Resolution 100x31

Select Enabled for extended-terminal resolution support. The options are **Enabled (checked)** and Disabled (unchecked)**.**

Legacy OS Redirection Resolution

Use this item 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 the option-Bootloader is selected, legacy Console Redirection is disabled before booting the OS. When the option- Always Enable is selected, legacy Console Redirection remains enabled upon OS bootup. The options are **Always Enable** and Bootloader.

Legacy Console Redirection

Legacy Console Redirection Settings

Legacy Serial Redirection Port

Select a COM port for Legacy Serial Redirection. The options are dependent on the available COM ports.

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.

Console Redirection

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

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

Console Redirection Settings

Out-of-Band Mgmt Port

The feature selects a serial port in a client server to be used by the Windows Emergency Management Services (EMS) to communicate with a remote host server. The options are **dependent on the available COM ports**.

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 both 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 data sending when the receiving buffer is full. Send a "Start" signal to start data sending when the receiving buffer is empty. The options are **None,** Hardware RTS/CTS, and Software Xon/Xoff.

The setting for each these features is displayed:

Data Bits, Parity, Stop Bits

System Agent (SA) Configuration

The following will be displayed:

- **SA PCIe Code Version**
- **VT-d Capability**

PEG Port Configuration

PEG 0:1:0

Enable Root Port

Select Enable to activate the Root Port. The options are Disabled, Enabled, and **Auto**.

Max Link Speed

Select **Auto**, Gen1, Gen2, or Gen3 to set the PEG Max Link Speed.

ASPM

This feature configures the ASPM (Active State Power Management) settings for the graphics devices installed on PCI-E Slot 0, Slot 1, or Slot2. The options are Disabled, L0s, L1s, L0sL1 and **Auto**.

De-emphasis Control

Use this feature to configure the De-emphasis control on PEG. The options are -6 dB and **-3.5 dB**.

PEG 0:1:1

Enable Root Port

Select Enable to activate the Root Port. The options are Disabled, Enabled, and Auto.

Max Link Speed

Select Auto, Gen1, Gen2, or Gen3 to set the PEG Max Link Speed.

PEG 0:1:2

Enable Root Port

Select Enable to activate the Root Port. The options are Disabled, Enabled, and **Auto**.

Max Link Speed

Select **Auto**, Gen1, Gen2, or Gen3 to set the PEG Max Link Speed.

PEG Port Feature Configuration

Detect Non-Compliant Device

Select Enable to activate detection of non-compliant PCI Express device in PEG port. The options are **Disabled** and Enabled.

PCIe Spread Spectrum Clocking

When enabled, this feature will allow the disabling of the Spread Spectrum Clocking for compliance testing. The options are Disabled and **Enabled**.

GMM Device (B0:D8:F0)

This feature will enable/disable the SA GMM device. The options are Disabled and **Enabled**.

Above 4GB MMIO BIOS Assignment

Select Enable for remapping of BIOS above 4GB. The options are Enabled and **Disabled**.

Graphics Configuration

Graphics Turbo IMON Current

Use this feature to set the limit on the current voltage regulator. Valid range is 14-31. Default is **31**.

Skip Scanning of External Gfx Card

Use this feature to scan for External Gfx Card on PEG and PCH PCIE Ports. If this feature is enabled, the system will not scan for a new card. The options are **Disabled** or Enabled.

Primary Display

Use this feature to select the graphics device to be used as the primary display. Select from IGFX/PEG/PCI or select SG for switchable GFX. The options are **Auto**, IGFX, PEG, PCIE and SG.

Select PCIE Card

Use this feature to select either Elk Creek 4, PEG Eval or **Auto**, to used on the platform.

External Gfx Card Primary Display Configuration

Primary PEG

This feature allows the user to select the primary PCI Express Graphics (PEG) slot. The options are **Auto**, PEG11, and PEG12.

Primary PCIE

This feature allows the user to specify which graphics card to be used as the primary graphics card. The options are **Auto**, PCIE1**,** PCIE2, PCIE3, PCIE4, PCIE5, PCIE6, PCIE7, PCIE8, PCIE9, PCIE10, PCIE11, PCIE12, PCIE13, PCIE14, PCIE15, PCIE16, PCIE17, PCIE18, and PCIE19.

Internal Graphics

This item keeps the IGD (Internal Graphics Device) enabled, based on setup options. The options are **Auto**, Enabled, and Disabled.

GTT Size

Use this feature to set the memory size to be used by the graphics translation table (GTT). The options are 2MB, 4MB, and **8MB**.

Aperture Size

Use this feature to set the Aperture size, which is the size of system memory reserved by the BIOS for graphics device use. The options are 128MB, **256MB,** 512MB, 1024MB and 2048MB.

DVMT Pre-Allocated

Dynamic Video Memory Technology (DVMT) allows dynamic allocation of system memory to be used for video devices to ensure best use of available system memory based on the DVMT 5.0 platform. The options are 0M, 4M, 8M, 12M, 16M, 20M, 24M, 28M, **32M**, 32M/F7, 36M, 40M, 44M, 48M, 52M, 56M, and 60M.

DVMT Total Gfx Mem

Use this feature to set the total memory size to be used by internal graphics devices based on the DVMT 5.0 platform. The options are 128MB, **256MB,** and MAX.

Gfx Low Power Mode

Select Enabled to use the low power mode for internal graphics devices installed in a small form factor (SFF) computer. The options are **Enabled** and Disabled.

VDD Enable

Activating this feature will force VDD in the BIOS. The options are Disabled and **Enabled**.

Graphics Clock Frequency

Use this feature to set the internal graphics clock frequency. The options are 337.5MHz, 450MHz, 540MHz, and **675MHz.**

Graphics OverClocking

GT Slice Domain

GT OverClocking Frequency

This option selects the Overclocked RPO frequency in multiples of 50MHz. The default is **0**.

GT Voltage Mode

Use this feature to select the Overclocking GT mode. The options are Override, Offset, and **Adaptive**.

GT Extra Turbo Voltage

(if Adaptive is selected above) Use this feature to set the extra voltage applied while GT is operating in trubo mode. Specify a value from 0mV to 2000mV. Enter **0** to use the manufacture default value.

GT Voltage Offset

(if Offset is selected above) Use this feature to set the GT Adaptive voltage Target(mV) value from 0mV to 2000mV. Enter **0** to use the manufacture default value.

Offset Prefix

Use this feature to set the Offset value as a positive (+) number or a negative (-) number. The default setting is **"+"**.

GT Unslice Domain

GT OverClocking Frequency

This option selects the Overclocked RPO frequency in multiples of 50MHz. The default is **0**.

GT Voltage Mode

Use this feature to select the Overclocking GT mode. The options are Override, Offset, and **Adaptive**.

GT Extra Turbo Voltage

(if Adaptive is selected above) Use this feature to set the extra voltage applied while GT is operating in turbo mode. Specify a value from 0mV to 2000mV. Enter **0** to use the manufacture default value.

GT Voltage Offset

(if Offset is selected above) Use this feature to set the GT Adaptive voltage Target(mV) value from 0mV to 2000mV. Enter **0** to use the manufacture default value.

Offset Prefix

Use this feature to set the Offset value as a positive (+) number or a negative (-) number. The default setting is **"+"**.

GT-UnSliced VR Settings

GT-UnSliced Domain

VR Config Enable

Select Enable to activate VR configuration options. The options are **Enabled** and Disabled.

AC Loadline

AC Loadline is defined in 1/100 mOhms and uses the BIOS mailbox command 0x2. A value of 100 equals 1.0 mOhm, and 1255 is 12.55 mOhms. Range is 0-6249 (0-62.49 mOhms). Enter **0 for AUTO**.

DC Loadline

DC Loadline is defined in 1/100 mOhms and uses the BIOS mailbox command 0x2. A value of 100 equals 1.0 mOhm, and 1255 is 12.55 mOhms. Range is 0-6249 (0-62.49 mOhms). Enter **0 for AUTO.**

PS Current Threshold1

The PS Current Threshold1 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is **80 for 20A.**

PS Current Threshold2

The PS Current Threshold2 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is **20** for 5A.

PS Current Threshold3

The PS Current Threshold2 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is **20** for 5A.

PS3 Enable

Enable or Disables PS3. Uses BIOS VR mailbox command line 0x3. The options are **Enabled** and Disabled.

PS4 Enable

Enable or Disables PS4. Uses BIOS VR mailbox command line 0x3. The options are **Enabled** and Disabled.

IMON Slope

IMON (Load Current Monitor) Slope is defined in 1/100 increments and uses the BIOS VR mailbox command 0x4. Range is 0-200. For example, enter 125 for a 1.25 slope. Enter **0 for AUTO**.

IMON Offset

IMON Offset is defined in 1/1000 increments and uses the BIOS VR mailbox command 0x4. For example, enter 25,348 for a 25.348 offset. Range is 0-63999.

IMON Prefix

This feature sets the IMON offset value to a positive or negative number. The options are + and -.

VR Current Limit

This feature sets the Voltage Regulator current limit. The value represents the maximum instantaneous current allowed at any given time. The value is represented in 1/4A (Ampere) increments. A value of 400 equals 100A. Set this number to **0 for Auto**. This uses the BIOS VR mailbox command 0x6.

VR Voltage Limit

This feature sets the Voltage Regulator voltage limit. The value is represented in mV. A value of 1250 equals 1.25V. Set this number to **0 for Auto**. This uses the BIOS VR mailbox command 0x6.

TDC Enable

Enable or Disables TDC (Thermal Design Current). The options are Enabled and **Disabled.**

TDC Current Limit

The TDC Current Limit is defined in 1/8A (Amperes) increments and uses the BIOS mailbox command 0x1A. A value of 1000 equals 125A. Range is 0-32767. Enter **0 for 0 Amps**.

TDC Time Window

The TDC Time Window is defined in milliseconds. Range is 1-8ms and 10ms. Note that 9ms has no valid encoding in the MSR definition. The options are **1ms**, 2ms, 3ms, 4ms, 5ms, 6ms, 7ms, 8ms, and 10ms.

TDC Lock

Enable or Disables TDC Lock. The options are Enabled and **Disabled**.

GT-Sliced VR Settings

GT-Sliced Domain

VR Config Enable

Select Enable to activate VR configuration options. The options are **Enabled** and Disabled.

AC Loadline

AC Loadline is defined in 1/100 mOhms and uses the BIOS mailbox command 0x2. A value of 100 equals 1.0 mOhm, and 1255 is 12.55 mOhms. Range is 0-6249 (0-62.49 mOhms). Enter **0 for AUTO**.

DC Loadline

DC Loadline is defined in 1/100 mOhms and uses the BIOS mailbox command 0x2. A value of 100 equals 1.0 mOhm, and 1255 is 12.55 mOhms. Range is 0-6249 (0-62.49 mOhms). Enter **0 for AUTO.**

PS Current Threshold1

The PS Current Threshold1 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. Default is **80 for 20A.**

PS Current Threshold2

The PS Current Threshold2 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. **Default is 20 for 5A.**

PS Current Threshold3

The PS Current Threshold2 is defined in 1/4A (Amperes) increments and uses the BIOS mailbox command 0x3. A value of 400 equals 100A. Range is 0-512 which translates to 0-128A. Enter 0 for AUTO. **Default is 20 for 5A.**

PS3 Enable

Enable or Disables PS3. Uses BIOS VR mailbox command line 0x3. The options are **Enabled** and Disabled.

PS4 Enable

Use this feature to enable or disable PS4. This feature uses BIOS VR mailbox command line 0x3. The options are **Enabled** and Disabled.

IMON Slope

IMON (Load Current Monitor) Slope is defined in 1/100 increments and uses the BIOS VR mailbox command 0x4. Range is 0-200. For example, enter 125 for a 1.25 slope. Enter **0 for AUTO**.

IMON Offset

IMON Offset is defined in 1/1000 increments and uses the BIOS VR mailbox command 0x4. For example, enter 25,348 for a 25.348 offset. Range is 0-63999.

IMON Prefix

This feature sets the IMON offset value to a positive or negative number. The options are + and -.

VR Current Limit

This feature sets the Voltage Regulator current limit. The value represents the maximum instantaneous current allowed at any given time. The value is represented in 1/4A (Ampere) increments. A value of 400 equals 100A. Set this number to **0 for Auto**. This uses the BIOS VR mailbox command 0x6.

VR Voltage Limit

This feature sets the Voltage Regulator voltage limit. The value is represented in mV. A value of 1250 equals 1.25V. Set this number to **0 for Auto**. This uses the BIOS VR mailbox command 0x6.

TDC Enable

Enable or Disables TDC (Thermal Design Current). The options are **Enabled** and Disabled.

TDC Current Limit

The TDC Current Limit is defined in 1/8A (Amperes) increments and uses the BIOS mailbox command 0x1A. A value of 1000 equals 125A. Range is 0-32767. Enter 0 for **0 Amps**.

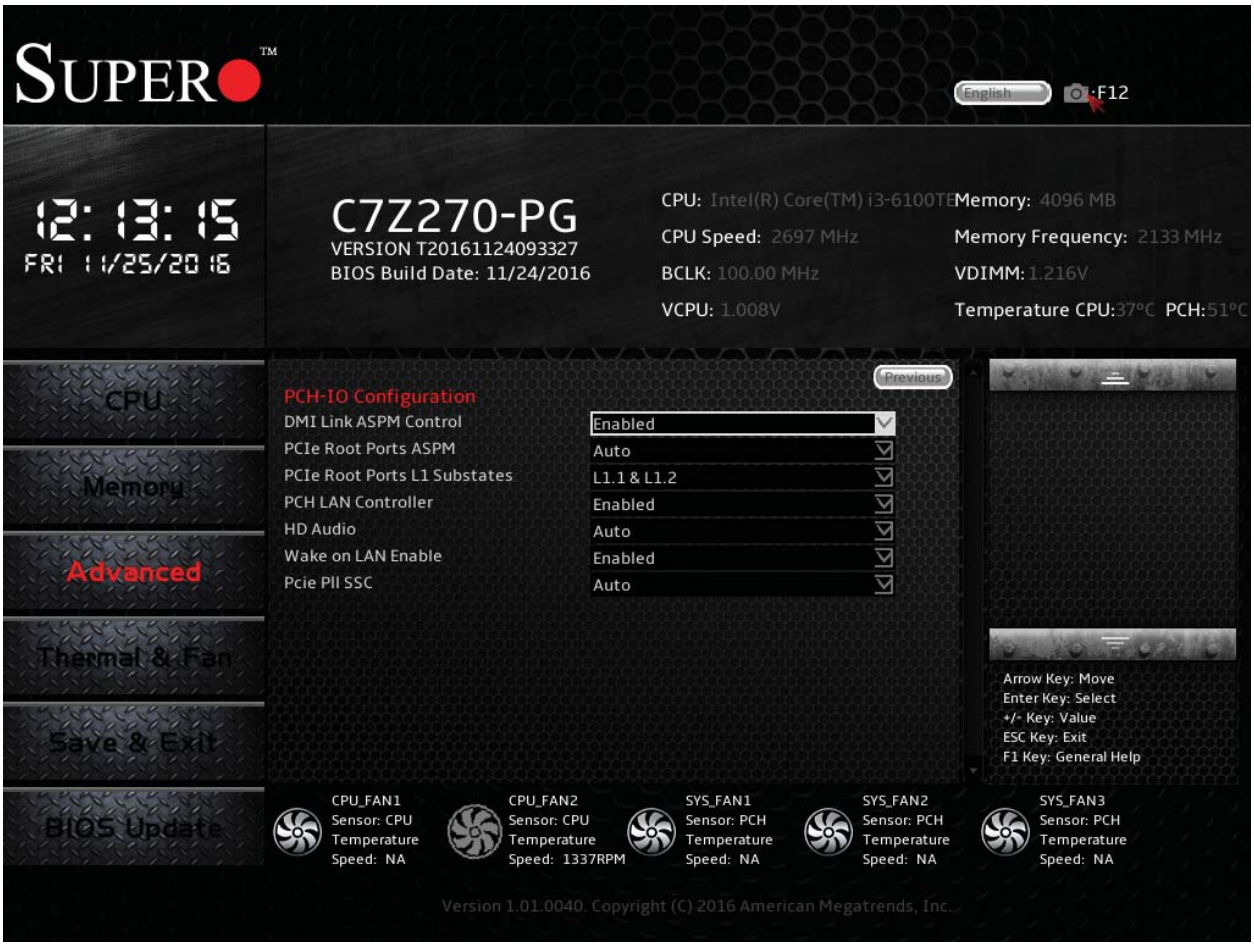
TDC Time Window

The TDC Time Window is defined in milliseconds. Range is 1-8ms and 10ms. Note that 9ms has no valid encoding in the MSR definition. The options are **1ms**, 2ms, 3ms, 4ms, 5ms, 6ms, 7ms, 8ms and 10ms.

TDC Lock

Enable or Disables TDC Lock. The options are Enabled and **Disabled.**

PCH-IO Configuration



DMI Link ASPM Control

Use this feature to set the ASPM (Active State Power Management) state on the SA (System Agent) side of the DMI Link. The options are **Enabled** and Disabled.

PCIe Root Ports ASPM

Use this feature to set the Active State Power Management (ASPM) to power manage the PCIe link during the various L states. The options are **Auto**, L0sL1, L1, L0s, and Disabled.

PCIe Root Ports L1 Substates

Use this feature to define which L1 substate to use. The options are Disabled, L1.1, L1.2, and **L1.1&L1.2**.

PCH LAN Controller

Use this feature to enable or disable the PCH LAN Controller. The options are Disabled and **Enabled**.

HD Audio

Use this feature to detect an HD Audio device. The options are Disabled, Enabled, and **Auto**.

Wake on LAN Enable

Select Enabled to enable the capability to 'wake-up' the system through the Ethernet port. The settings are **Enabled** and Disabled.

Pcie PII SSC

Use this feature PCIE PII SSC. Select Auto to keep the hardware default with no BIOS override. Range is from 0.0% to 2.0%.

SATA and RST Configuration

SATA Controllers

Select Disabled to disable the onboard SATA Controllers. The settings are **Enabled** and Disabled.

SATA Mode Selection

This item selects the mode for the installed SATA drives. The options are **AHCI** and Intel RST Premium.

SATA Controller Speed

Use this option to specify the maximum speed the SATA controller can support. The options are **Default**, Gen 1, Gen 2, and Gen 3.

SATA Frozen

Select Disabled to disable the Freeze Lock Security feature. The settings are **Enabled** and Disabled.

The remaining options in the section are similar across Serial ATA Ports 0 through 5.

Serial ATA Port

This item displays the detected SATA drive, if any.

Hot Plug

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

Configured as eSATA

This item displays the eSATA status for the detected hard drive.

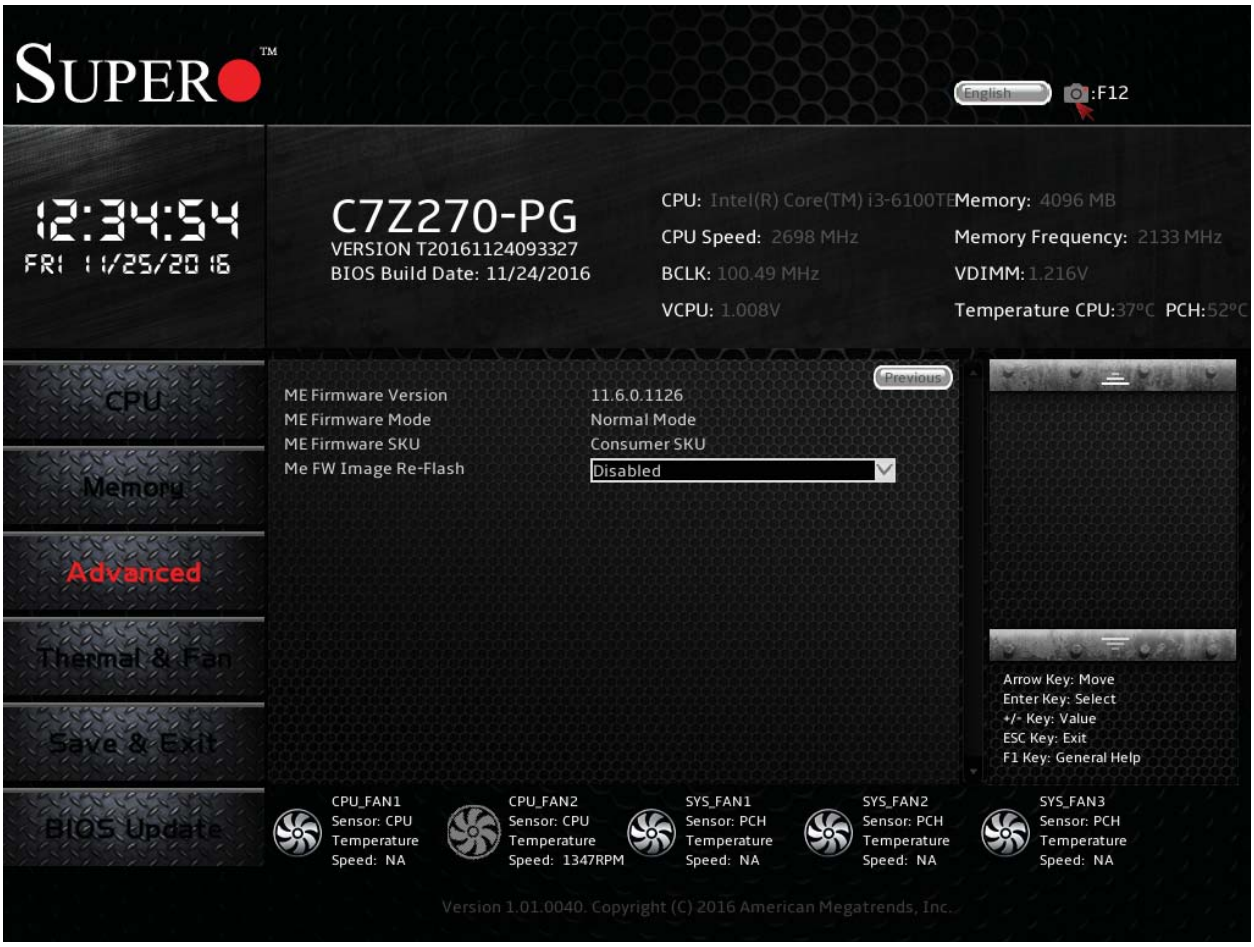
Spin Up Device

When this option is disabled, all drives will spin up at boot. When this option is enabled, it will perform Staggered Spin Up on any drive this option is activated. The settings are Enabled and **Disabled**.

SATA Device Type

Select **Hard Disk Drive** or Solid State Drive.

PCH FW Configuration



The following information for the PCH Firmware.

- **ME Firmware Version**
- **ME Firmware Mode**
- **ME Firmware SKU**

ME FW Image Re-Flash

This item will update the PCH Firmware from an image in a USB Flashdrive attached to a USB port. The options are Enabled and **Disabled**.

USB Configuration

The following information for USB Configuration.

- **USB Module Version**
- **USB Controllers**
- **USB Devices**

Legacy USB Support

Select Enabled to support legacy USB devices. Select Auto to disable legacy support when legacy USB devices are not present. If Disable is selected, legacy USB devices will not be supported. The options are **Enabled,** Disabled, and Auto.

XHCI Hand-Off

This item 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.

USB Mass Storage Driver Support

Set Enabled to enable USB mass storage driver support. The options are Disabled and **Enabled**.

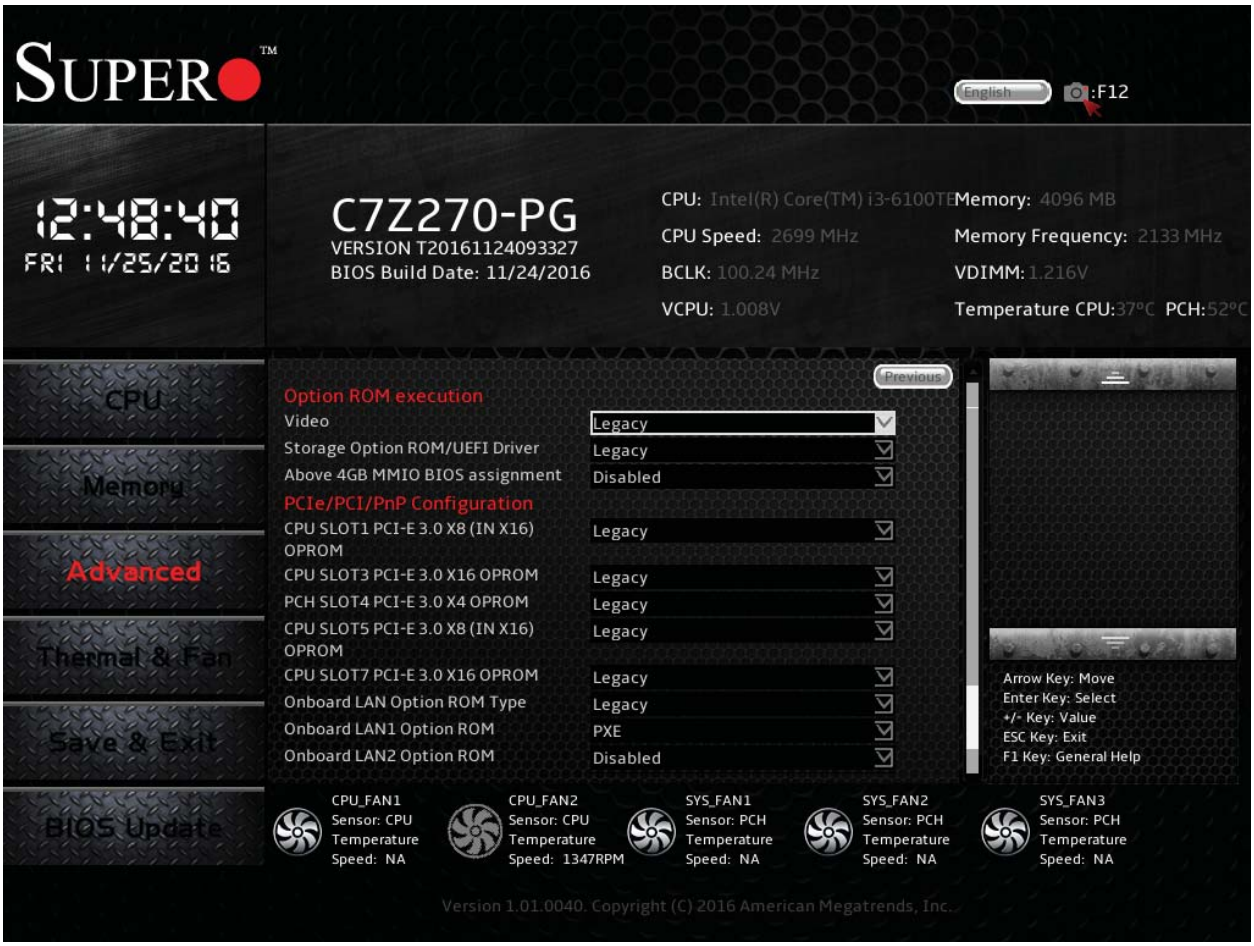
Install Windows 7 USB Support

Enable this feature to use the USB keyboard and mouse during the Windows 7 installation, since the native XHCI driver support is unavailable. Use a SATA optical drive as a USB drive, and USB CD/DVD drives are not supported. Disable this feature after the XHCI driver has been installed in Windows. The options are **Disabled** and Enabled.

External USB 3.1 Host Controller Support

Use this feature to enable or disable the ASmedia USB 3.1 Host controller The options are Disabled and **Enabled**.

PCIe/PCI/PnP Configuration



Option ROM Execution

Video

This feature controls which option ROM to execute for the Video device. The options are Do Not Launch, UEFI, and **Legacy**.

Storage Option ROM/UEFI Driver

This feature controls which option ROM to execute for the storage device. The options are Do Not Launch, UEFI, and **Legacy**.

Above 4GB MMIO BIOS Assignment

Select Enable for remapping of BIOS above 4GB. The options are Enabled and **Disabled**.

PCIe/PCI/PnP Configuration

CPU SLOT1 PCI-E 3.0 X8 (IN X16) OPROM,
CPU SLOT3 PCI-E 3.0 X16 OPROM,
PCH SLOT4 PCI-E 3.0 X4 OPROM,
CPU SLOT5 PCI-E 3.0 X8 (IN X16) OPROM,
CPU SLOT7 PCI-E 3.0 X16 OPROM

Select Disabled to deactivate the selected slot, Legacy to activate the slot in legacy mode and EFI to activate the slot in EFI mode. The options are Disabled, **Legacy,** and EFI.

Onboard LAN Option ROM type

Select the type of option ROM installed. The options are EFI and **Legacy**.

Onboard LAN1 Option ROM

Select PXE (Preboot Execution Environment) to boot the computer using a PXE device installed in a LAN port specified. Select Disabled to prevent system boot using a device installed in a LAN port. The options are Disabled and **PXE**.

Onboard LAN2 Option ROM

Select PXE (Preboot Execution Environment) to boot the computer using a PXE device installed in a LAN port specified. Select Disabled to prevent system boot using a device installed in a LAN port. The options are Disabled and **PXE**.

Network Stack

Select Enabled to enable PXE (Preboot Execution Environment) or UEFI (Unified Extensible Firmware Interface) for network stack support. The options are Enabled and **Disabled**. If this feature is enabled, the two features below are available.

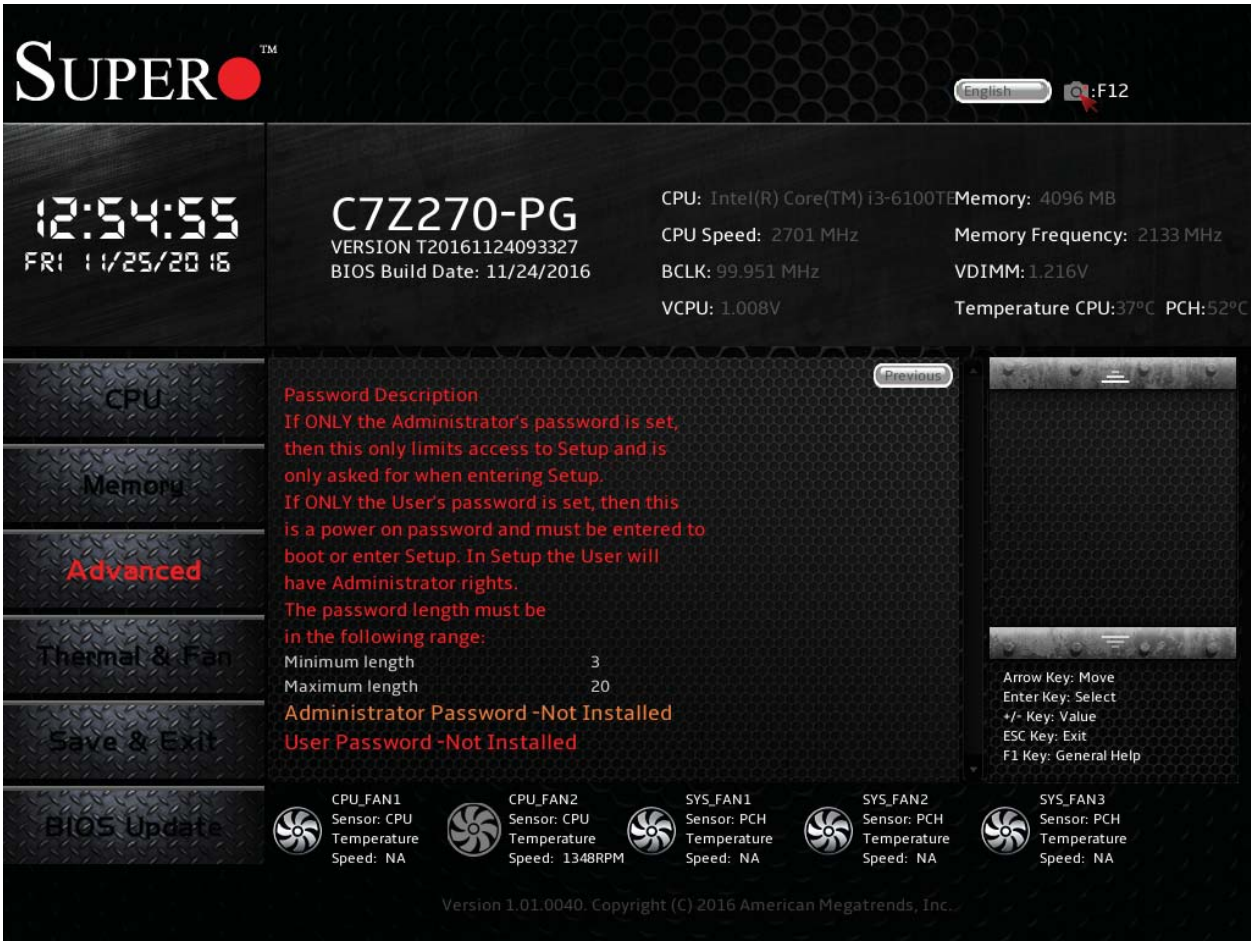
Ipv4 PXE Support

Select Enabled to enable Ipv4 PXE (Preboot Execution Environment) for boot support. If this feature is set to Disabled, Ipv4 PXE boot option will not be supported. The options are **Enabled** and Disabled.

Ipv6 PXE Support

Select Enabled to enable Ipv6 PXE (Preboot Execution Environment) for boot support. If this feature is set to Disabled, Ipv6 PXE boot option will not be supported. The options are Enabled and **Disabled.**

Security



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

- If the Administrator password is defined ONLY - this controls access to the BIOS setup ONLY.
- If the User's password is defined ONLY - this password will need to be entered upon each system boot, and will also have Administrator rights in the setup.
- Passwords must be at least 3 and up to 20 characters long.

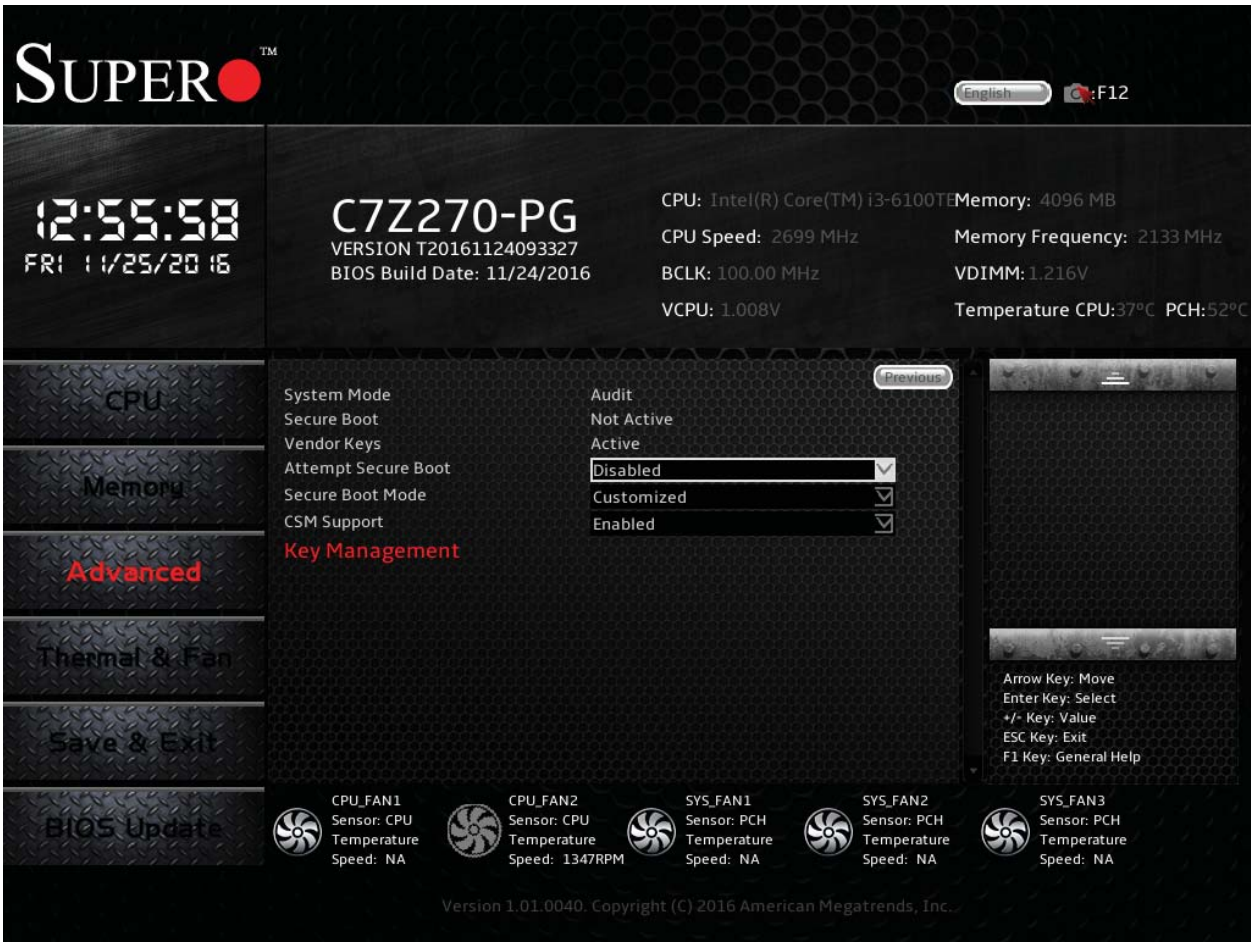
Administrator Password

Use this feature to set the Administrator Password which is required to enter the BIOS setup utility. The length of the password should be from 3 characters to 20 characters long.

User Password

Use this feature to set the User Password, which is required every time the system boots. The length of the password should be from 3 characters to 20 characters long.

Secure Boot



The following items will be displayed:

- **System Mode**
- **Secure Boot**
- **Vendor Keys**

Attempt Secure Boot

Select Enabled for Secure Boot flow control. This feature is available when the platform key (PK) is pre-registered, the platform operates in the user mode, and CSM is disabled in the Setup utility. The options are **Disabled** and Enabled.

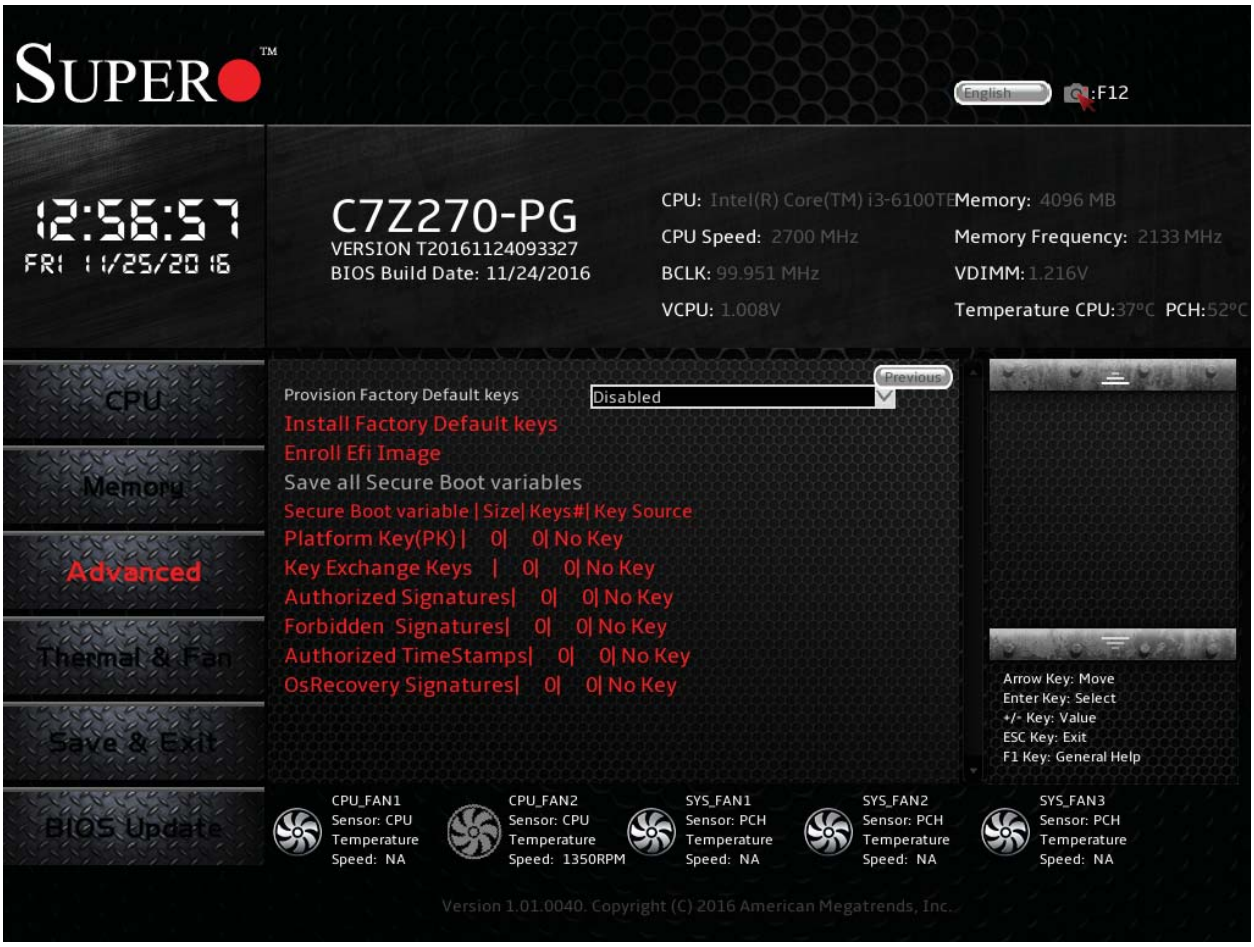
Secure Boot Mode

This feature allows selection of the Secure Boot Mode between Standard and Custom. Selecting Custom enables users to change the Image Execution Policy and manage Secure Boot Keys. The options are **Custom** and Standard.

CSM Support

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

Key Management



Provision Factory Default Keys

Allow provisioning the factory default secure boot keys when system is in setup mode. The options are **Disabled** and Enabled.

(if Secure Boot Mode is set to 'Custom')

Key Management allows experienced users to modify Secure Boot Variables.

Install Factory Default Keys

This option forces the system to install the factory default keys. Click Yes or No.

Enroll Efi Image

This option allows the image to run in Secure Boot Mode. Enroll SHA256 Hash Certificate of the image into the Authorized Signature Database.

Save All Secure Boot Variables

This option saves all revised Secure Boot settings.

Platform Key (PK)

This item uploads and installs a secure Platform Key. You may insert a factory default key or load from a file. The file formats accepted are:

1. Public Key Certificate
2. EFI Signature List
    a. EFI CERT X509 (DER Encoded)
    b. EFI CERT RSA2048 (bin)
    c. EFI SERT SHA256 (bin)
3. EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Delete Key Exchange Key

This item deletes a previously installed Key Exchange Key.

Key Exchange Keys

This item uploads and installs a Key Exchange Key. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append Key Exchange Key

This item uploads and adds a Key Exchange Key into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Delete Authorized Signature

This item deletes a previously installed Authorized Signature.

Authorized Signatures

This item uploads and installs an Authorized Signature . You may insert a factory default key or load from a file. The file formats accepted are:

1. Public Key Certificate
    a. EFI Signature List
    b. EFI CERT X509 (DER Encoded)
    c. EFI CERT RSA2048 (bin)
    d. EFI SERT SHA256 (bin)
2. EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append Authorized Signature

This item uploads and adds an Authorized Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Delete Forbidden Signature

This item deletes a previously installed Forbidden Signature.

Forbidden Signatures

This item uploads and installs a Forbidden Signature . You may insert a factory default key or load from a file. The file formats accepted are:

1. Public Key Certificate
    a. EFI Signature List
    b. EFI CERT X509 (DER Encoded)
    c. EFI CERT RSA2048 (bin)
    d. EFI SERT SHA256 (bin)
2. EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append Forbidden Signature

This item uploads and adds an Forbidden Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Delete Authorized TimeStamps

This item deletes a previously installed Forbidden Signature.

Authorized TimeStamps

This item uploads and installs an Authorized Time Stamp . You may insert a factory default key or load from a file. The file formats accepted are:

1. Public Key Certificate
    a. EFI Signature List
    b. EFI CERT X509 (DER Encoded)
    c. EFI CERT RSA2048 (bin)
    d. EFI SERT SHA256 (bin)
2. EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append Authorized TimeStamp

This item uploads and adds an Authorized TimeStamp into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Delete OSRecovery Signatures

This item deletes a previously installed OS Recovery Signature.

OsRecovery Signature

This item uploads and installs an OSRecovery Signature . You may insert a factory default key or load from a file. The file formats accepted are:

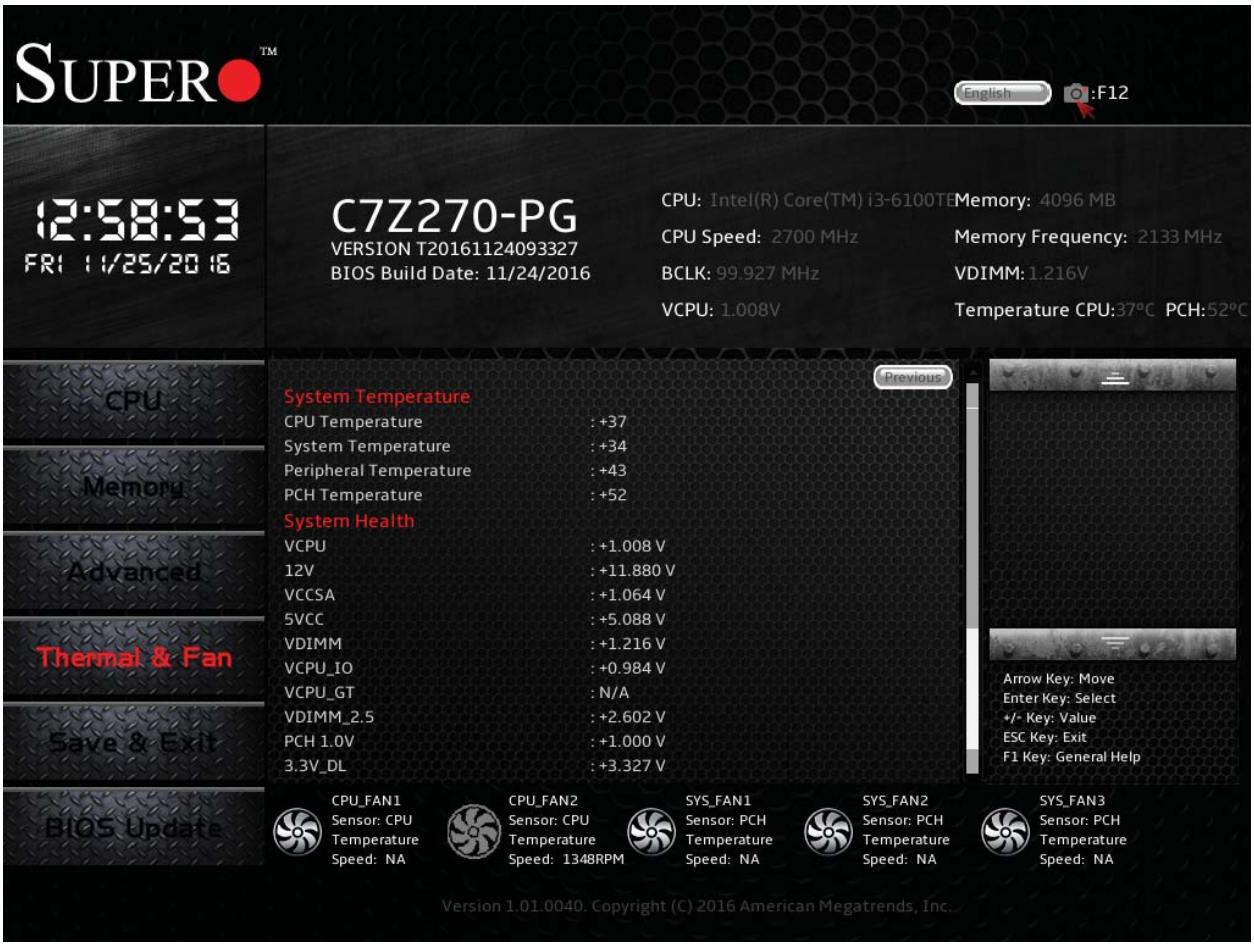
1. Public Key Certificate
    a. EFI Signature List
    b. EFI CERT X509 (DER Encoded)
    c. EFI CERT RSA2048 (bin)
    d. EFI SERT SHA256 (bin)
2. EFI Time Based Authenticated Variable

When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

Append OsRecovery Signature

This item uploads and adds an OSRecovery Signature into the Key Management. You may insert a factory default key or load from a file. When prompted, select "Yes" to load Factory Defaults or "No' to load from a file.

6.7 Thermal & Fan



System Temperature

The following items will be displayed:

- **CPU Temperature** - displays the CPU temperature detected by PECI.
- **System Temperature** - indicates the system internal temperature.
- **Peripheral Temperature** - displays the detected peripheral device temperature.
- **PCH Temperature** - indicates the detected PCH chip temperature.

System Health

The following items will be displayed (Voltage):

- **VCPU**
- **12V**
- **VCCSA**
- **5VCC**
- **VDIMM**
- **VCPU_IO**
- **VCPU_GT**
- **VDIMM_2.5**
- **PCH 1.0V**
- **3.3V_DL**
- **VSB**
- **3.3VCC**
- **VBAT**
- **VCPU_STPLL**

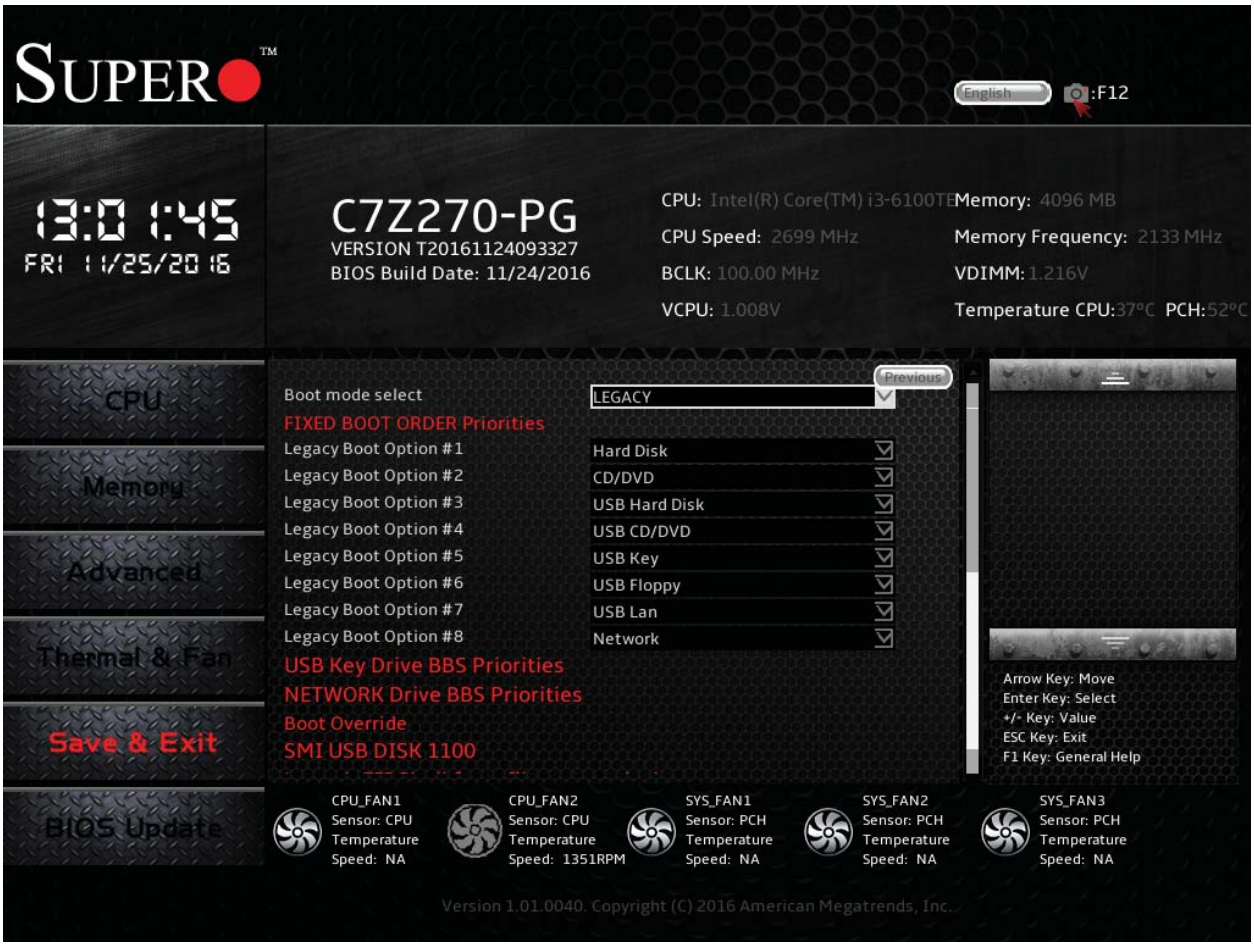
Fan Control

Fan Speed Control Mode

This feature allows the user to decide how the system controls the speeds of the onboard fans. The CPU temperature and the fan speed are correlative. When the CPU on-die temperature increases, the fan speed will also increase for effective system cooling. Select "Full Speed" to allow the onboard fans to run at full speed (of 100% Pulse Width Modulation Duty Cycle) for maximum cooling. This setting is recommended for special system configuration or debugging. Select "Stable" for the onboard fans to run at 50% of the Initial PWM Cycle in order to balance the needs between system cooling and power saving. This setting is recommended for regular systems with normal hardware configurations. Select "Quiet" to optimize for minimal fan noise and Custom to enter user-specific settings. The options are **Quiet**, Stable, Full Speed and Customize.

When "Customize" is selected above, the settings for **CPU_FAN1/FAN2 Control, SYS FAN1/FAN2/FAN3 Control** will appear and can be configured:

6.8 Save & Exit



Boot mode select

Use this item to select the type of device to be used for system boot. The options are **Legacy**, UEFI, and Dual.

FIXED BOOT ORDER Priorities

This option prioritizes the order of bootable devices from which the system will boot. Choose an entry from top to bottom to select devices.

Legacy Boot Option #1~#8

The options are Hard Disk, CD/DVD, USB Hard Disk, USB CD/DVD, USB Key, USB Floppy, USB LAN, Network and Disabled.

USB Key Drive BBS Priorities

Use this feature to specify the Boot Device Priority sequence from available USB Key Drives. The options are **SMI USB DISK 110** and Disable.

NETWORK Drive BBS Priorities

Specifies the Boot Device Priority sequence from available Network Drives the options are **IBA CL Slot 00FE v0110** and Disabled.

Boot Override

Saves the specified boot override and resets the system, i.e., **IBA CL Slot 00FE v0110**. Select OK to activate, otherwise, click Cancel.

IBA CL Slot 00FE v0110

Launch EFI Shell from filesystem device

This option will attempt to launch the EFI Shell application (shell.efi) from one of the available file system devices. Select OK to activate, otherwise, click Cancel.

For the following options, select OK to initiate, otherwise, click Cancel.

Save Changes and Exit

This option will save the changes that have been made and will exit BIOS Setup.

Discard Changes and Exit

This option will discard the changes that have been made and will exit BIOS Setup.

Save Changes and Reset

This option will save the changes that have been made and will reboot the system.

Discard Changes and Reset

This option will save the changes that have been made and will reboot the system.

Save Changes

This option will save the changes but will remain in setup mode.

Discard Changes

This option will discard the changes but will remain in setup mode.

Default Options

Restore Defaults

This option will load the factory-stored optimized defaults and remain in setup mode.

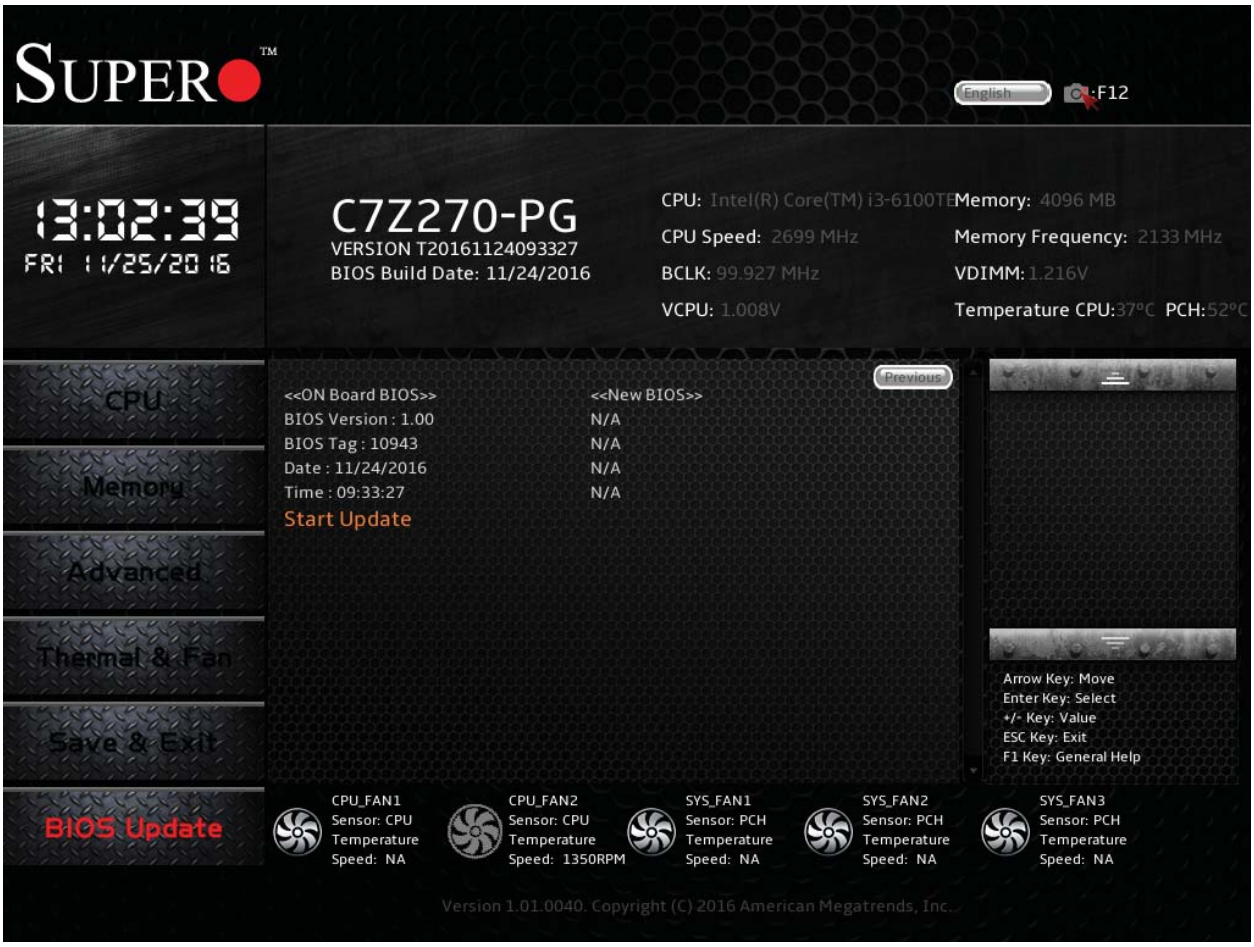
Save as User Defaults

This option will save the changes as user-specified defaults and remain in setup mode.

Restore User Defaults

This option will load previously-saved user-specified defaults and remain in setup mode.

6.9 BIOS Update



The following items will be displayed:

- **BIOS Version**
- **BIOS Tag**.
- **Date**
- **Time**

Start Update

Use this utility to prepare BIOS Update with ME.

1. Click "Start Update" enter the SuperFlash utility.
2. At the prompt, select "Yes" to reboot and configure the system to Flash mode. Select "No" to cancel and view the BIOS information.
3. After the system reboots to the flash mode, the system is ready to flash the BIOS. At the prompt, slect "OK" to continue.
4. Select the "Select File" option and then in the pop-up menu select "General USB Flash Disk 1.00."
5. Select the filename (i.e., "C7270-CG") in the pop-up menu.

6. Select "Start Flash" to flash the BIOS. A pop-up message will appear to show the progress of the BIOS flash.

7. If the flash is successful, a pop-up message will indicate the result. Select "OK" to complete the BIOS flash and to reboot the system. Go to the "SYSTEM INFORMATION - Motherboard" page in the BIOS Setup to check for the correct BIOS version.

Appendix A

BIOS Error Codes

A-1 BIOS Error Beep (POST) 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 are those which 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.

These fatal errors are usually communicated through a series of audible beeps. The numbers on the fatal error list (on the following page) correspond to the number of beeps for the corresponding error. All errors listed, with the exception of Beep Code 8, are fatal errors.

BIOS Error Beep (POST) 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
5 short beeps	Display error	System display error
OH LED On	System OH	System Overheat

A-2 Additional BIOS POST Codes

The AMI BIOS supplies additional checkpoint codes, which are documented online at http://www.supermicro.com/support/manuals/ ("AMI BIOS POST Codes User's Guide").

When BIOS performs the Power On Self Test, it writes checkpoint codes to I/O port 0080h. If the computer cannot complete the boot process, a diagnostic card can be attached to the computer to read I/O port 0080h (Supermicro p/n AOC-LPC80-20).

For information on AMI updates, please refer to http://www.ami.com/products/.

Appendix B

Standardized Warning Statements for AC Systems

B.1 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 appendix in its entirety before installing or configuring components in the Supermicro chassis.

These warnings may also be found on our website 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

:ا المنتج يعتمد على معدات الحماية من الدوائرالقصيرة التي تم تثبيتها في
بنى
أكد من أن تقدير الجهاز الواقي ليس أكثر من: 250V، 20A

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 250V, 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 מפני ניתוק חשמלי

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

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

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.

תיאום חוקי החשמל הארצי

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

تركيب المعدات الكهربائية يجب أن يمتثل للقوانين المحلية والوطنية المتعلقة بالكهرباء

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

Warning! Hazardous moving parts. Keep away from moving fan blades. 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

警告!回転部品に注意。運転中は回転部(羽根)に触れないでください。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!

警告！危险的可移动性零件。请务必与转动的风扇叶片保持距离。 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

危險的可移動性零件。請務必與轉動的風扇葉片保持距離。 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

Gefährlich Bewegende Teile. Von den bewegenden Lüfterblätter fern halten. 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!

Riesgo de piezas móviles. Mantener alejado de las aspas del ventilador. 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

Pieces mobiles dangereuses. Se tenir a l'ecart des lames du ventilateur 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
و غير ها من الأشياء بعيدا عن الفتحات في كتلة المر و حة.

경고!

움직이는 위험한 부품. 회전하는 송풍 날개에 접근하지 마세요. 새시로부터 팬 조립품을 제거할 때 팬은 여전히 회전하고 있을 수 있습니다. 팬 조림품 외관의 열려있는 부분들로부터 손가락 및 스크류드라이버, 다른 물체들이 가까이 하지 않도록 배치해 주십시오.

Waarschuwing

Gevaarlijk bewegende onderdelen. Houd voldoende afstand tot de bewegende ventilatorbladen. 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 קצר חשמלי. על פי חוקי שימוש במכשירי חשמל וחוקי בטיחות, קיים איסור להשתמש בכבלים המוסמכים ב- UL או ב- CSA (כשאר מופיע עליהם קוד של UL/CSA) עבור כל מוצר חשמלי אחר שלא צוין על ידי סופרקמיקרו בלבד.

عند تركيب الجهاز يجب استخدام كابلات التوصيل،والكابلات الكهربائية
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.

Appendix C

System Specifications

Processors

Supports Intel® 7th/6th Gen Core i7/i5/i3 series LGA1151 processors
Note: Please refer to the motherboard specifications pages on our website for updates to supported processors.

Chipset

Intel Z270 chipset

BIOS

256 Mb AMI BIOS® SPI Flash BIOS

Memory

Supports four (4) 240-pin DIMM slots that can support up to 64 GB of unbuffered, non-ECC, 3600 MHz (OC) DDR4 memory SDRAM.
Note: See the memory section in Chapter 3 for details and our website for updates to supported memory.

SATA Controller

On-chip (Intel Z270) controller

Peripheral Drive Bays

Two 5.25" drive bays can be used for peripheral devices

Drive Bays

Two 5.25" drive bays, four 2.5" drive bays, and six combination bays that can house either 3.5" or 2.5" drives

PCI Expansion Slots

Four (4) PCI-E 3.0 X16 slots
One (1) PCI-E 3.0 X4 (for Thunderbolt AIC support)
Two (2) M.2 slots

Motherboard

C7Z270-PG; ATX form factor (9.6" x 12.0") (243.84 mm x 304.8 mm)

Chassis

GS5A-753K; Mid-Tower, HxWxD: 18.1" x 7.9" x 19.4" (460mm x 200mm x 493mm)

System Cooling

Two 12-cm PWM intake fans, One 12-cm PWM rear exhaust fan

Power Supply

Model: PWS-753-PQ
AC Input Voltages: 100-240 VAC
Rated Input Current: 7A (115V) to 3.5A (240V)
Rated Input Frequency: 50-60 Hz
Rated Output Power: 750 Watt
Rated Output Voltages: +3.3V (20A max, 0A min.), +5V (20A mas, 0A min.), +12V (62A max, 0.1A min.), -12V (0.3A), +5Vsb (2.5A max, 0A Min.))

Operating Environment

Operating Temperature: 10º to 35º C (50º to 95º 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 B, EN 55022 Class B, EN 61000-3-2/3-3, CISPR 22 Class B
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)

Perchlorate Warning

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”

Appendix D

UEFI BIOS Recovery

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. Doing so may cause a boot failure.

D.1 Overview

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 clean, hands-off control to a computer system at bootup.

D.2 Recovering the UEFI BIOS Image

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, if the BIOS boot block crashes, you will need to follow the procedures below for BIOS recovery.

D.3 Recovering the BIOS Block with a USB 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.

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

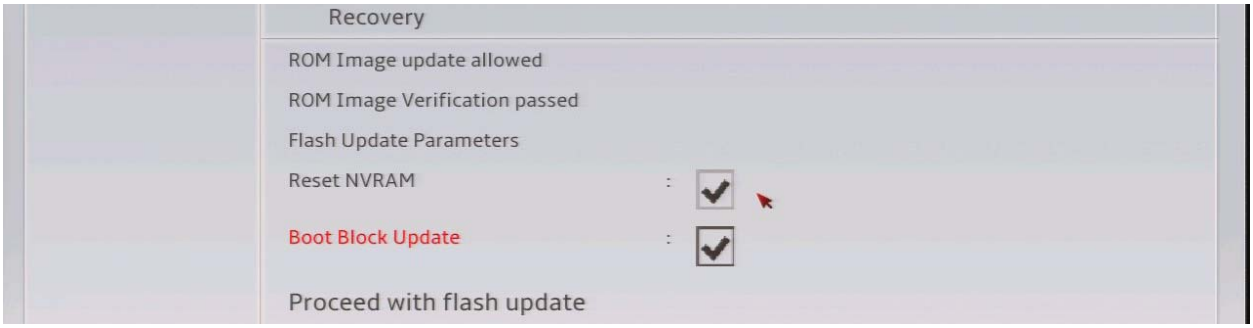
1. Using a different machine, copy the "Super.ROM" binary image file into the disc Root "\" Directory of a USB device or a writeable CD/DVD.

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 (save in the root folder) and rename it "SUPER.ROM" for BIOS recovery use.

2. Insert the USB device that contains the new BIOS image ("SUPER.ROM") into any available USB port Be sure the file is saved in the very top (root) folder.

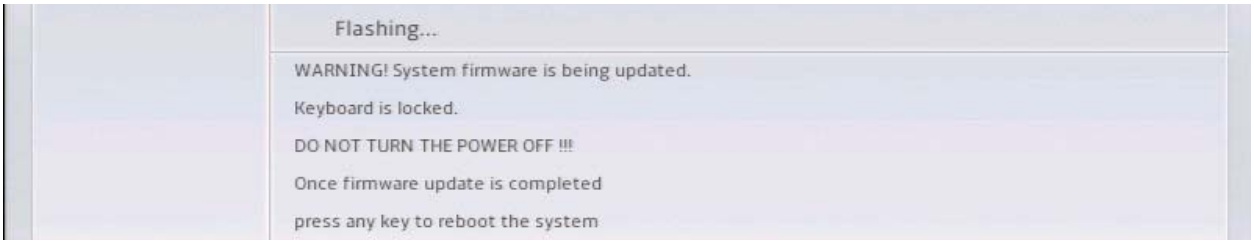
3. Set the JBR1 switch on the motherboard to recovery mode and power on the system. If the screen appears as below, press <DEL> to continue.

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



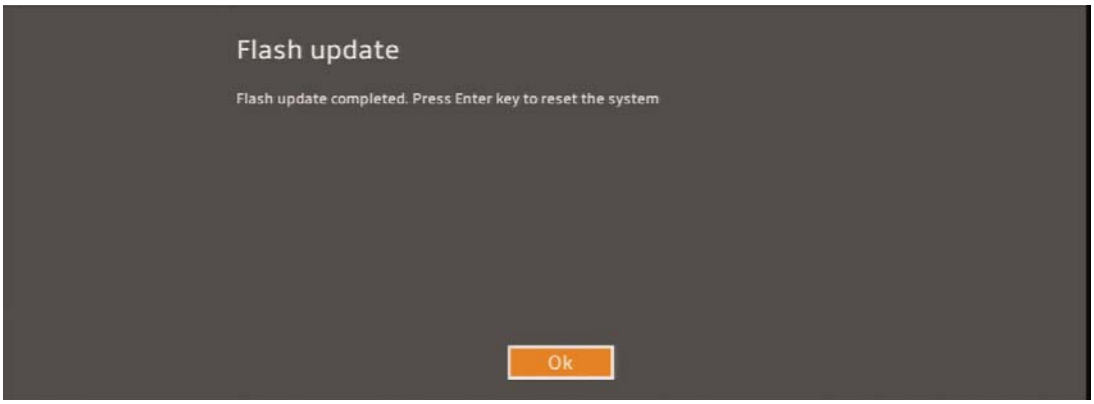
Note: At this point, you may decide if you want to start with BIOS Recovery. If you decide to proceed with BIOS Recovery, follow the procedures below.

5. To continue with BIOS Recovery, select the item- "Proceed with flash update". You will see the progress of BIOS Recovery as shown on the screens below.



Note: *Do not interrupt* the BIOS programming until it is completed.

6. After the BIOS Recovery process is complete, click OK to reboot the system.

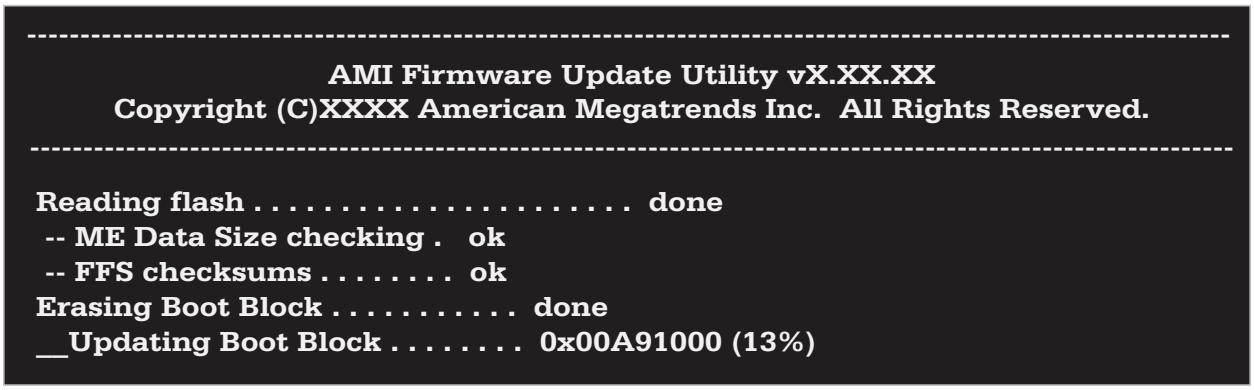


D.4 Dual Boot Block

This motherboard supports the Dual Boot Block feature, which is the last-ditch mechanism to recover the BIOS boot block. This section provides an introduction to the feature.

BIOS Boot Block

A BIOS boot block is the minimum BIOS loader required to enable necessary hardware components for the BIOS crisis recovery flash that will update the main BIOS block. An on-call BIOS boot-block corruption may occur due to a software tool issue (see image below) or an unexpected power outage during BIOS updates.



BIOS Boot Block Corruption Occurrence

When a BIOS boot block is corrupted due to an unexpected power outage or a software tool malfunctioning during BIOS updates, you can still reboot the system by activating switch JBR1 on the motherboard. When JBR1 is activated, the system will boot from a backup boot block pre-loaded in the BIOS by the manufacturer.

D.2 Steps to Reboot the System by switch JBR1

1. Power down the system.
2. On switch JBR1 slide switch to ON, and power on the system.
3. Follow the BIOS recovery SOP listed in the previous chapter (Appendix C).
4. After completing the steps above, power down the system.
5. Turn OFF switch JBR1, and power on the system.