DFI

MD711-SU

Medical Computing System
User's Manual

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Trademarks

Product names or trademarks appearing in this manual are for identification purpose only and are the properties of the respective owners.

FCC and DOC Statement on Class B

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio TV technician for help.

The MD711 Medical Computing System has been tested and complies with the regulatory safety requirements and design standards of the following:

EN 60601-1:2006
Medical electrical equipment - Part 1: General requirements for basic safety and essential performance

IEC 60601-1-2:2014 and/or EN 60601-1-2:2015

Medical electrical equipment. General requirements for basic safety and essential performance. Collateral Standard. Electromagnetic disturbances. Requirements and tests

Table of Contents

About this Manual

An electronic file of this manual can be obtained from the DFI website at www.dfi.com. To download the user's manual from our website, please go to Support > Download Center. On the Download Center page, select your product or type the model name and click "Search" to find all technical documents including the user's manual for a specific product.

Warranty

1. Warranty does not cover damages or failures that arised from misuse of the product, inability to use the product, unauthorized replacement or alteration of components and product specifications.

2. The warranty is void if the product has been subjected to physical abuse, improper installation, modification, accidents or unauthorized repair of the product.

3. Unless otherwise instructed in this user's manual, the user may not, under any circumstances, attempt to perform service, adjustments or repairs on the product, whether in or out of warranty. It must be returned to the purchase point, factory or authorized service agency for all such work.

4. We will not be liable for any indirect, special, incidental or consequential damages to the product that has been modified or altered.

Static Electricity Precautions

It is quite easy to inadvertently damage your PC, system board, components or devices even before installing them in your system unit. Static electrical discharge can damage computer components without causing any signs of physical damage. You must take extra care in handling them to ensure against electrostatic build-up.

1. To prevent electrostatic build-up, leave the system board in its anti-static bag until you are ready to install it.

2. Wear an antistatic wrist strap.

3. Do all preparation work on a static-free surface.

4. Hold the device only by its edges. Be careful not to touch any of the components, contacts or connections.

5. Avoid touching the pins or contacts on all modules and connectors. Hold modules or con nectors by their ends.

> **Important:**
> Electrostatic discharge (ESD) can damage your processor, disk drive and other components. Perform the upgrade instruction procedures described at an ESD workstation only. If such a station is not available, you can provide some ESD protection by wearing an antistatic wrist strap and attaching it to a metal part of the system chassis. If a wrist strap is unavailable, establish and maintain contact with the system chassis throughout any procedures requiring ESD protection.

Safety Measures

To avoid damage to the system:
• Use the correct AC input voltage range.

To reduce the risk of electric shock:
• Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

Battery:
• Danger of explosion if battery incorrectly replaced.
• Replace only with the same or equivalent type recommend by the manufacturer.
• Dispose of used batteries according to local ordinance.

Safety Precautions

- Use the correct DC input voltage range.

- Unplug the power cord before removing the system chassis cover for installation or servicing. After installation or servicing, cover the system chassis before plugging the power cord.

- Danger of explosion if battery incorrectly replaced.

- Replace only with the same or equivalent type recommend by the manufacturer.

- Dispose of used batteries according to local ordinance.

- Keep this system away from humidity.

- Place the system on a stable surface. Dropping it or letting it fall may cause damage.

- The openings on the system are for air ventilation to protect the system from overheating. DO NOT COVER THE OPENINGS.

- Place the power cord in such a way that it will not be stepped on. Do not place anything on top of the power cord. Use a power cord that has been approved for use with the system and that it matches the voltage and current marked on the system's electrical range label.

- If the system will not be used for a long time, disconnect it from the power source to avoid damage by transient overvoltage.

- If one of the following occurs, consult a service personnel:

  - The power cord or plug is damaged.

  - Liquid has penetrated the system.

  - The system has been exposed to moisture.

  - The system is not working properly.

  - The system dropped or is damaged.

  - The system has obvious signs of breakage.

- The unit uses a three-wire ground cable which is equipped with a third pin to ground the unit and prevent electric shock. Do not defeat the purpose of this pin. If your outlet does not support this kind of plug, contact your electrician to replace the outlet.

- Disconnect the system from the DC outlet before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.

- The operator should not touch the Computing System and the PATIENT simultaneously. Do not touch or close to the patient when using the Tablet.

- Other equipment that connecting the analog and digital interfaces to this Computing System must be certified to the respective IEC standards (i.e. IEC 60950-1 for data processing equipment and IEC 60601-1 for medical equipment).

- Furthermore, all configurations shall comply with the system requirements of IEC 60601-1. Everybody who connects additional equipment to the signal input part or signal output part configures a medical system, and is therefore, responsible that the system complies with the requirements of the standard IEC 60601-1. If in doubt, consult the technical service department or your local representative.

> **WARNING:** To avoid risk of electric shock, this equipment must only be connected to supply mains with protective earth by Input Connector.
>
> **CAUTION:** Do not use in the vicinity of other equipment with high electromagnetic interference or else the function and safety of this product might be affected.
>
> **WARNING:** Do not modify this equipment without authorization of the manufacturer.

• Markings Explanation:

To prevent possible hearing damage, do not listen at high volume levels for long periods when using earphone.

Follow operating instruction when using device.

CAUTION: Do not use the product in the vicinity of devices emitting high frequency electromagnetic radiation

Declaration of Conformity to requirement of Federal Communications Commission.

This symbol indicates that when the equipment has reached the end of its useful life, it must be taken to a recycling centre and processed separate from domestic waste.

Declaration of Conformity to Medical Device Directive.

The Restriction of the use of certain hazardous substances in electrical and electronic equipment.

Refer to operating instructions.

About the Package

The package contains the following items. If any of these items are missing or damaged, please contact your dealer or sales representative for assistance.

• One MD711-SU system unit
• Mounting screws for SATA drive
• Mounting screws for Mini PCIe and M.2 modules
• One Quick Installation Guide

Optional Items

• Memory
• Storage (SATA HDDs)
• Wi-Fi Kit
• Power Cord
• Power Adapter: 100-240 VAC, 50/60 Hz, 60W (Input:100~240V; Output:24Vdc/2.5A)

The board and accessories in the package may not come similar to the information listed above. This may differ in accordance to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.

Before Using the System

Before powering on the system, prepare the basic system components.

If you are installing the system board in a new system, you will need at least one of the following internal components.

• Storage devices such as mSATA card and M.2 modules.

You will also need external system peripherals, which will normally include at least a keyboard, a mouse and a video display.

Chapter 1 - Introduction

Overview

Front View

Rear View

Key Features

Model Name	MD711-SU
Processor	6th Generation Intel® Core™ Processors, BGA 1356 Intel® Core™ i7-6600U Processor, Dual Core, 4M Cache, 2.6GHz, 15W Intel® Core™ i5-6300U Processor, Dual Core, 3M Cache, 2.4GHz, 15W
Audio	One line-out and microphone port
LAN	Two LAN ports (*)
COM	Two serial ports (*)
Display	One DP (or HDMI, available upon request) One DVI-D
USB	Four USB 3.0 and two USB 2.0 (*) Type A ports

Note:

(*) The USB 2.0, LAN and COM ports provide galvanic isolation up to 3kVac/4kVdc to prevent damaging circuitry of the electonic devices connected with each other.

Specifications

Processor System	6th Generation Intel® Core™ Processors, BGA 1356 Intel® Core™ i7-6600U Processor, Dual Core, 4M Cache, 2.6GHz, 15W Intel® Core™ i5-6300U Processor, Dual Core, 3M Cache, 2.4GHz, 15W
Memory	Two 260-pin SODIMM up to 32GB Dual Channel DDR4 2133MHz

Graphics	• Intel® HD Graphics GT Series
	• Supported codecs:
	  OpenGL 5.0, DirectX 12, OpenCL 2.1
	  HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H265, VP8, VP9
	  HW Encode: AVC/H.264, MPEG2, JPEG, HEVC/H265, VP8, VP9
	• Display interfaces:
	  1 x DP/HDMI (HDMI available upon request)
	  1 x DVI-D
	  DP: resolution up to 4096x2304 @ 60Hz
	  HDMI: resolution up to 2560x1600 @ 60Hz or 4096x2160 @ 24Hz
	  DVI-D: resolution up to 1920x1200 @ 60Hz
	• Supports dual display:
	  DVI-D + DP

Audio	• Supported audio codec: Realtek ALC888 5.1-channel • Audio jacks: Mic-in and Line-out
Storage/Expansion	• 2 x 2.5" SATA 3.0 HDD/SSD with a drive bay • 1 x PCIe x16 (Gen 3) (x4 lanes) • Full-size Mini PCIe (PCIe/USB) • 1 M.2 (2242 key B) : Supports PCIe, USB and SATA signals
Ethernet	1 x Intel® I210 PCIe (10/100/1000Mbps) 1 x Intel® I219LM with iAMT11.0 PCIe (10/100/1000Mbps)

I/O Ports and LED Indicators	• Front Panel
	  - 1 x Power Button
	  - 1 x Power LED
	  - 1 x HDD LED
	• Rear Panel
	  - 2 x GbE (RJ-45) (supports 3kVac/4kVdc isolation)
	  - 2 x RS-232 (DB-9) (supports 3kVac/4kVdc isolation)
	  - 4 x USB 3.0 (type A)
	  - 2 x USB 2.0 (type A, full speed; supports 3kVac/4kVdc isolation)
	  - 1 x DP/HDMI (HDMI available upon request)[1]
	  - 1 x DVI-D
	  - 1 x line-out and 1 x microphone jacks
	  - 1 x antenna hole

Power	• 9-36V DC-in

Environment	• Temperature
	  - Operating: 0°C ~ 40°C (w/0.7m air flow)
	  - Storage: -20°C ~ 85°C
	• Relative Humidity
	  - 5 to 90% RH (non-condensing)

Vibration	• Operating: Random 5~500Hz, IEC68-2-64 (3G) (SSD/mSATA), IEC68-2-64 (0.5G) (HDD) • Non-Operating: Sine 10~500Hz, IEC68-2-6 (3G) (SSD/mSATA), IEC68-2-6 (1G) (HDD)
Shock	• Operating: 3G, 11ms • Non-Operating: 5G, 11ms
Construction	• Aluminum + Metal Aluminum
Mounting	• Wall mount [2]
Dimensions (W x H x D)	• 182mm x 97.6mm x 200mm (7.17" x 3.84" x 7.87")
Weight	• 2.3 Kg
OS Support	• Windows 7 (32/64-bit) • Windows 8.1 (64-bit) • Windows 10 (64-bit) • WES 7 (32/64-bit) • WES 8.1 (64bit) • Linux
Certification	CE, FCC, RoHS IEC 60601-1-2:2014 EN 60601-1-2:2015 ISO 14971:2007

IMPORTANT:

1. The patients should not touch the system.
2. The medical personnel should not touch the system for a long period of time.
3. The system is supposed to connect to a backup power supply such as an uninterruptible power supply (UPS) .

Notes:

1. Please refer to the ordering information of the datasheet.
2. The mount kit is not supported in standard model. Please contact your sales representative for more information.

Getting to Know the MD711-SU

Front View

HDD LED (green)

Power Button [1] with LED (blue)

HDD LED (green)

Indicates the status of the storage devices.

HDD LED		
HDD State	**Disk access activity**	**Disk drives present or not present**
LED Behavior	Blink	Off

Power Button with LED (blue)

Press to power on or off the system.

Notes:

1. Please gently press the power button to avoid possible damages.

2. This is a DP/HDMI combo port. You can choose to have a DP++ port or an HDMI port. However, make sure that you plug in an HDMI cable with the right orientation and alignment to avoid damage to the connector. You should feel resistance (due to a pin on the right) if the cable is not inserted correctly. Please see a video at https://youtu.be/SUj07rfN5l8 for detailed instructions.

Aligning side (left)

Angled-corner pin

Angled-corner (up)

Align this edge with the left side of the connector

Rear View

USB 3.0

DVI-D DP[2]

USB 2.0

LAN 2 LAN 1

COM 2 COM 1
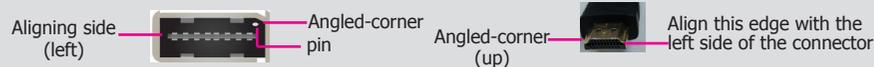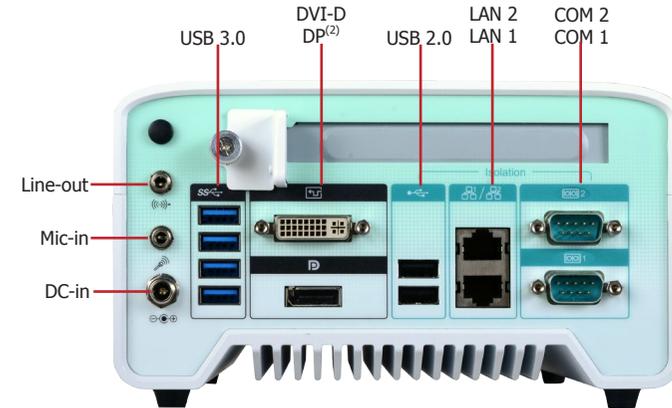
Line-out

Mic-in

DC-in

Line-out Port

Connects a speaker.

Mic-in Port

Connects a microphone.

DC-in jack

DC 9-36V power input via a DC-in jack.

DVI-D Port

Connects the DVI-D port of a display device.

DisplayPort (or HDMI, available upon request)

Connects the DP port of a display device.

COM Ports

Connect RS232 serial devices.

USB 3.0 Ports

Connect USB 3.0 devices as well as USB 2.0/1.1 devices.

USB 2.0 Ports (Full Speed)

Connect USB 2.0/1.1 devices. Please note that these USB 2.0 ports can only transmit data at speeds up to 1.5Mbps (USB 1.0) or 12Mbps (USB 1.1).

LAN Ports

Connect the system to a local area network.

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Mechanical Dimensions

Chassis Dimension

182

104.80
97.60

Rear View

200

Top View

209.80

Left View

Right View

DFI

Front View
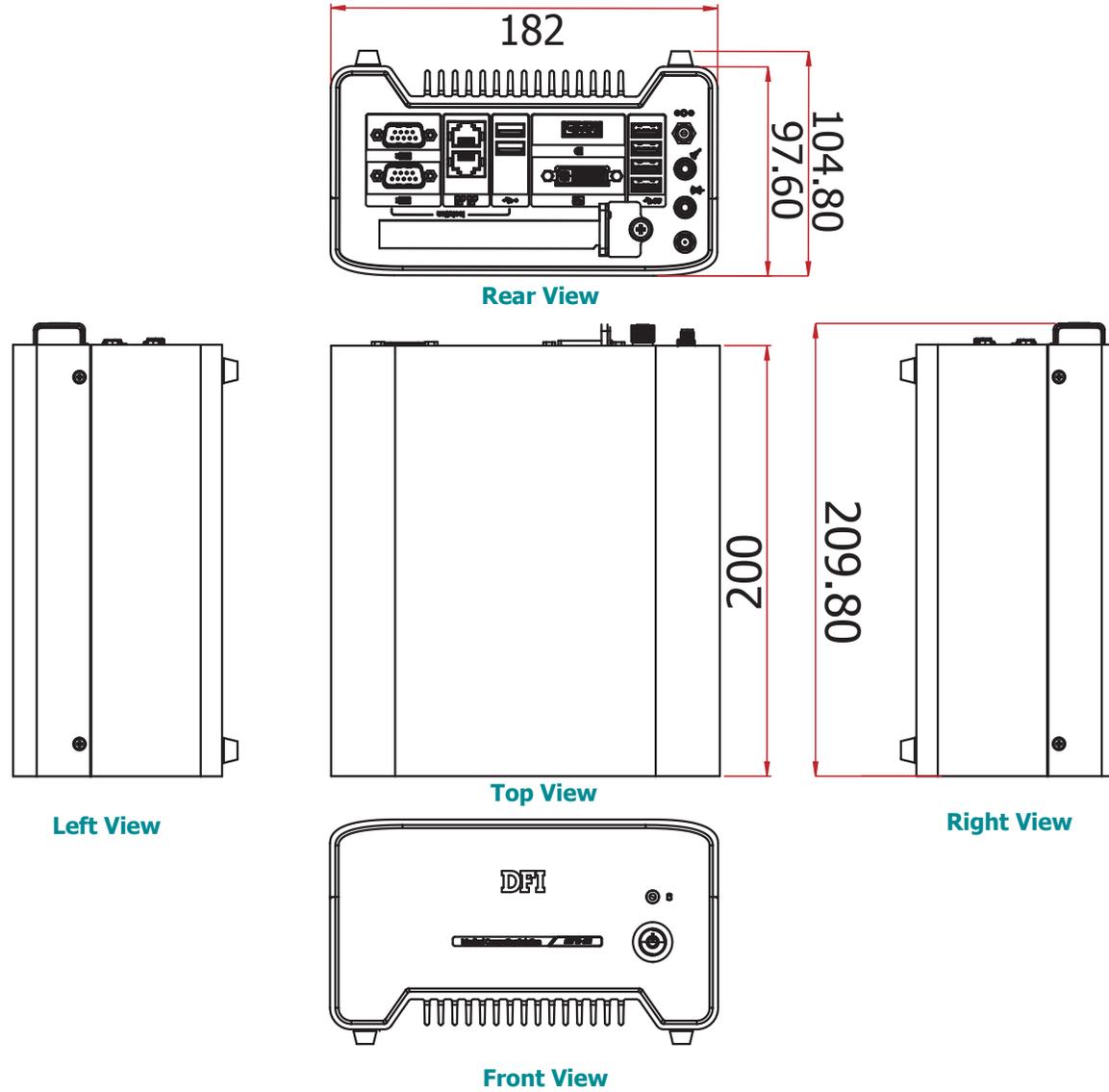
Chapter 2 - Getting Started

Preparing the System

Before you start using the system, you need the following items:

• AC power adapter or other means of power supply
• DVD-ROM drive (for installing software/drivers)
• Screwdriver

Installing Devices

The following devices can be installed in the system.

• Mini PCIe card
• M.2 modules
• PCIe cards

Configuring the BIOS

To get you started, you may need to change configurations such as the date, time and the type of hard disk drive.

1. Power on the system.
2. After the memory test, the message "Press DEL to run setup" will appear on the screen. Press the Delete key to enter the BIOS setup utility.

Installing the Operating System

Most operating system software is prepared using a DVD or bootable USB drive. Please refer to your operating system manual for instructions on installing an operating system.

Installing the Drivers

The system comes with a software package including drivers. These drivers must be installed to provide the best system performance. Refer to the Supported Software Chapter for instructions on installing drivers.

Chapter 3 - Installing Devices

Removing the Chassis Cover

Please observe the following guidelines and follow the procedure to open the system.

1. Make sure the system and all other peripheral devices connected to it have been powered off.

2. Disconnect all power cords and cables.

3. The 4 screws on the sides of the system are used to secure the cover to the chassis. Remove these screws and put them in a safe place for later use.

Chassis screw

Chassis screw

Installing a 2.5" SATA Drive

The SATA HDD bracket is included in the product package and can accommodate two SATA drives.

Use the following procedure to install a SATA HDD or SSD:

1. Remove the screws that secure the drive bay on the mainboard and then remove the drive bay.

HDD bracket

2. Insert the SATA drive into the HDD bracket and secure it in place with the provided screws. Connect the data and power cables to the drive.

SATA cables

Mounting screw

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3. Place the SATA drive with the HDD bracket into the system. Align the mounting holes on the HDD bracket with the mounting holes on the mainboard and use the provided screws to secure the drive in place.

Mounting Screw

Mounting Screw
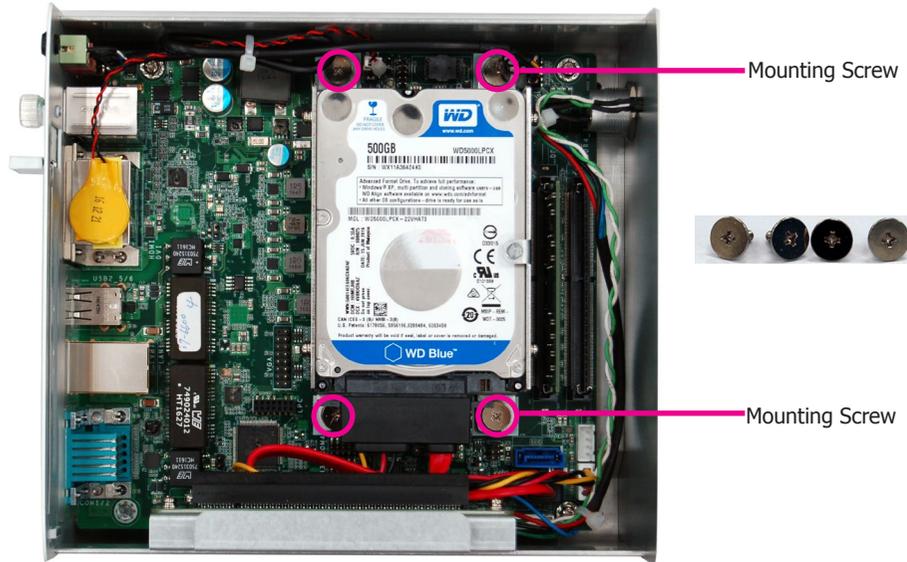
4. Connect the other end of the SATA data cable and the SATA power cable to the SATA data and SATA power connector on the mainboard respectively.

SATA power connector

SATA data connector
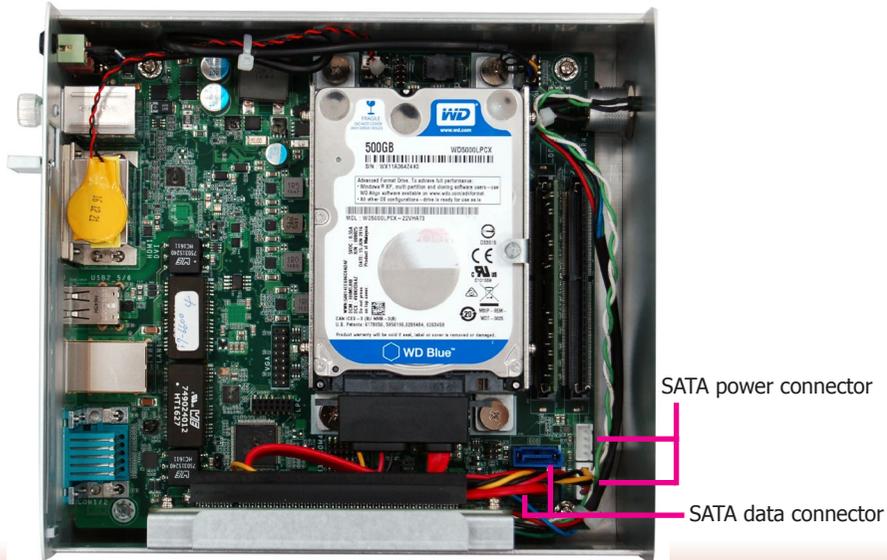
Installing a SODIMM

Grasp the module by its edges and align the SODIMM's notch with the socket's key; then insert the SODIMM into the socket at an angle and push it forward until the retaining clips snap behind. Make sure that you have inserted the module fully into the socket so that the retaining clips will snap into place.

SODIMM2

SODIMM1

Insert the SODIMM at an angle

SODIMM is firmly seated in place with the retaining clips snapped behind

To remove a SODIMM, gently spread the retaining clips at each end of the SODIMM socket. The SODIMM should pop out of the socket. Lift the SODIMM away from the socket on the mainboard.

Notes:
1. The system supports dual-channel configuration. To enable dual-channel, populate both SODIMM sockets.
2. If you plan to install only one SODIMM, install it in the DDR4_1 socket (closer to the center of the mainboard).
3. The SODIMM sockets can only accept DDR4 memory modules. Please do not install other types of memory modules.

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Installing a Mini PCIe Expansion Card

The Mini PCIe socket is located on the mainboard. Remove the HDD bracket first to access the socket. Use the following procedure to install a Mini PCIe card:

1. Grasp the Mini PCIe card by its edges and align the notch in the connector of the Mini PCIe card with the notch in the connector on the mainboard.

2. Insert the Mini PCIe card into the connector.

Insert the card at an angle
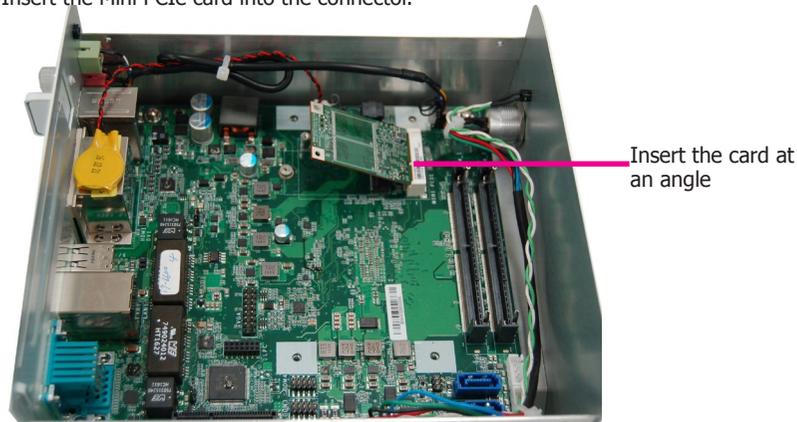
3. Push down on the other end of the Mini PCIe card and secure the card on the mainboard with the provided mounting screw (same size as the M.2 screw).

Mounting screw
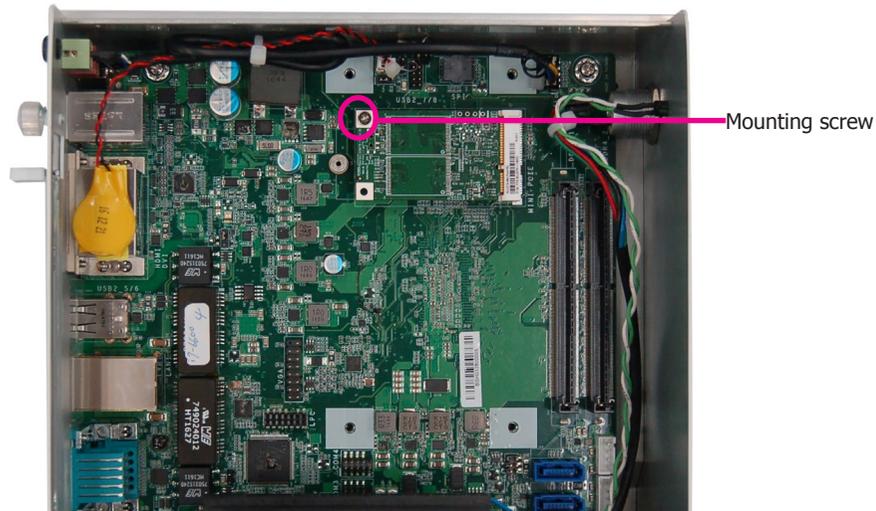
> **Note:**
> The Mini PCIe slot provides PCIe and USB signals and can accommodate common Mini PCIe cards such as a WiFi and Bluetooth card.

Installing an M.2 Expansion Card

The system is equipped with one M.2 socket, supporting the M.2 22x42mm (key B) form factor. Remove the HDD bracket first to access the socket. Use the following procedure to install an M.2 card:

1. Align the notch at the edge of the M.2 card with the key in the connector.

2. Insert the M.2 card into the connector.

Insert the card at an angle
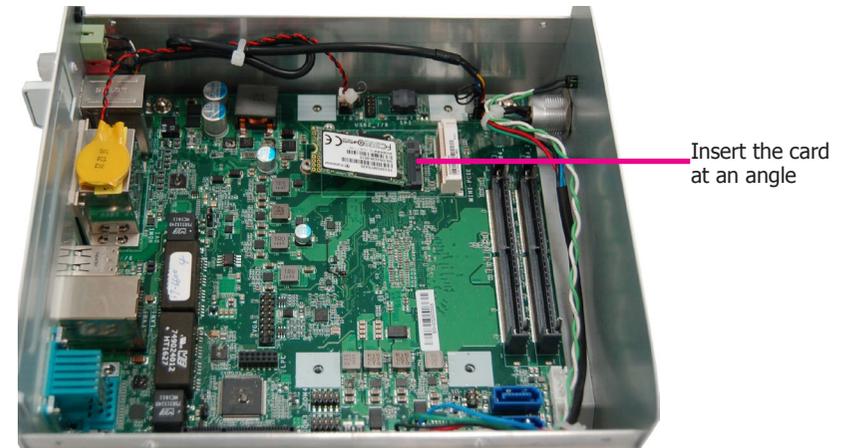
3. Push down on the other end of the M.2 card and secure and card on the mainboard with the provided mounting screw (same size as the Mini PCIe screw).

Mounting screw
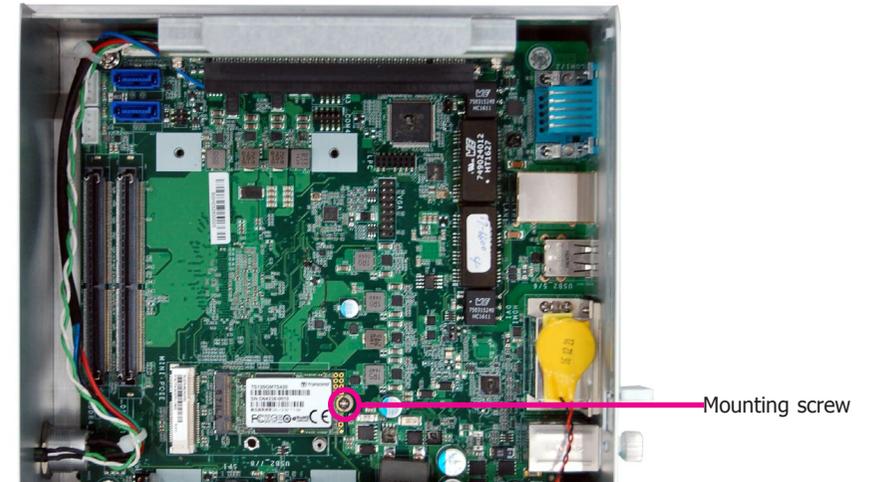
> **Note:**
> The M.2 slot provides PCIe, USB, and SATA signals and can accommodate common mobile broadband and storage modules.

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Installing a PCIe Expansion Card

The PCIe slot on the riser card inside the system is used to install expansion cards.
Use the following procedure to install a PCIe expansion card:

> **Note:**
> The riser card (DFI model: *T100-1E)* has a x16 PCIe connector (PCIe Gen3 x4 lanes).

1. Remove the slot plate and bracket by removing the thumbscrew on the front chassis.

Mounting screw and bracket   Slot plate
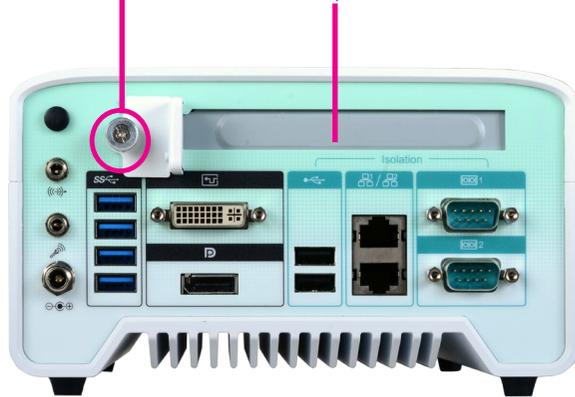
2. Insert the expansion card into the PCIe slot on the riser card. Ensure the card is properly seated into the slot.

PCIe card
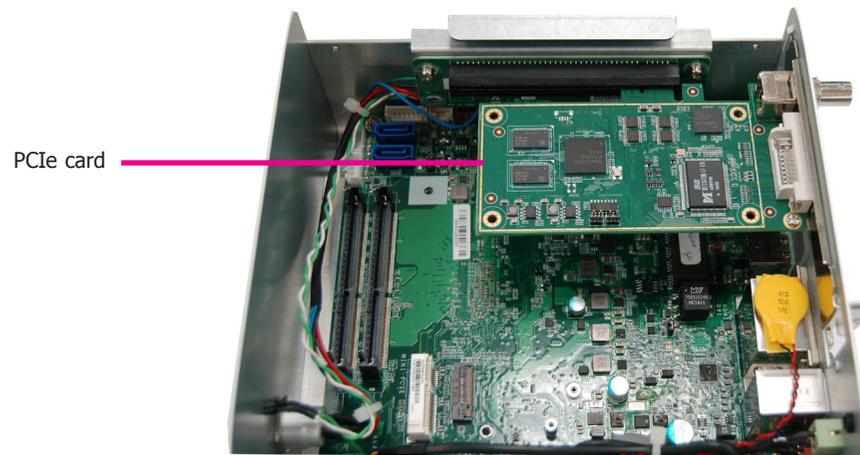
3. secure the bracket in place.

Front View
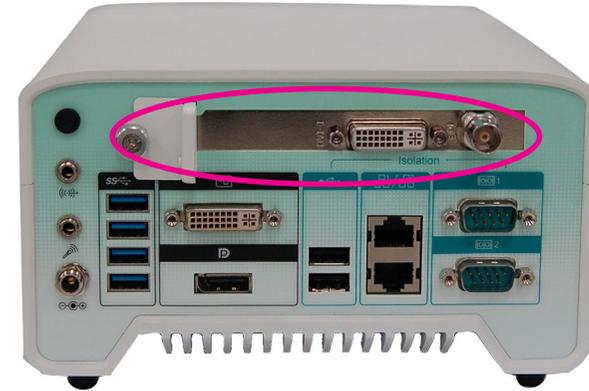
> **Important:**
> When inserting expansion cards into the system, please select a card within 167.65mm (as shown in the picture below) in order to fit into the expansion slot.

PCIe card

167.65mm
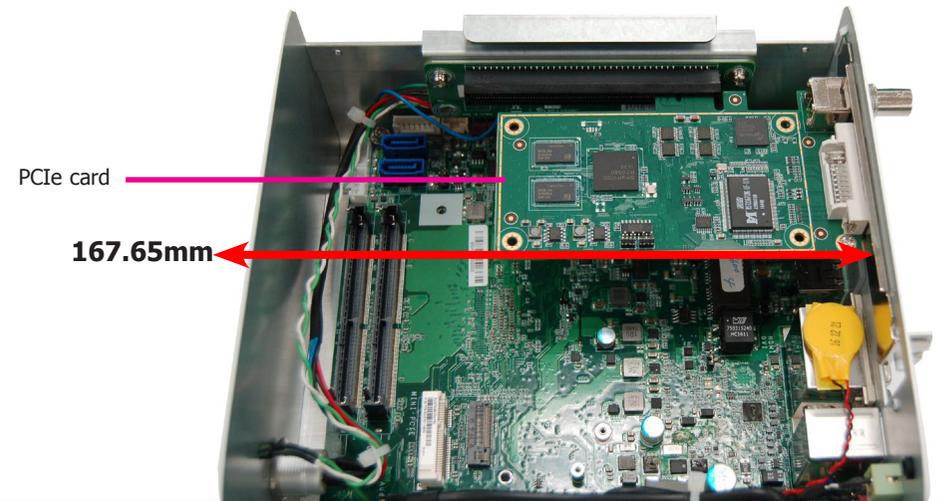
Chapter 4 - Jumper Settings

Clear CMOS Data

JP1

1 2 3

1-2 On:
Normal (default)

1 2 3

2-3 On:
Clear CMOS Data
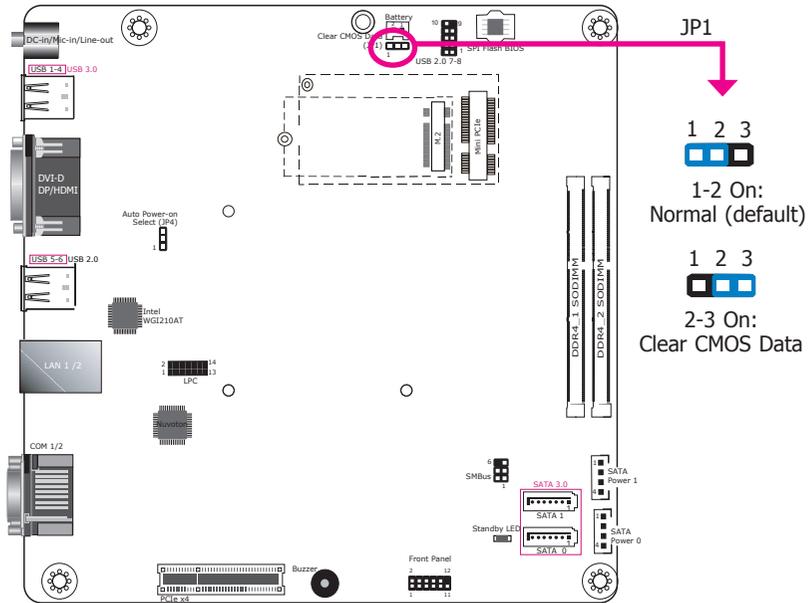
If you encounter the following situations, you can reconfigure the system with the default values stored in the ROM BIOS.

a) CMOS data becomes corrupted.
b) You forgot the supervisor or user password.

To load the default values stored in the ROM BIOS, please follow the steps below.

1. Power-off the system and unplug the power cord.

2. Set the jumper pins 2 and 3 to On. Wait for a few seconds and set the jumper back to its default setting, pins 1 and 2 On.

3. Now plug the power cord and power-on the system.

Auto Power-on Select

JP4

3
2
1

1-2 On:
Power-on via power button
(default)

3
2
1

2-3 On:
Power-on via AC power
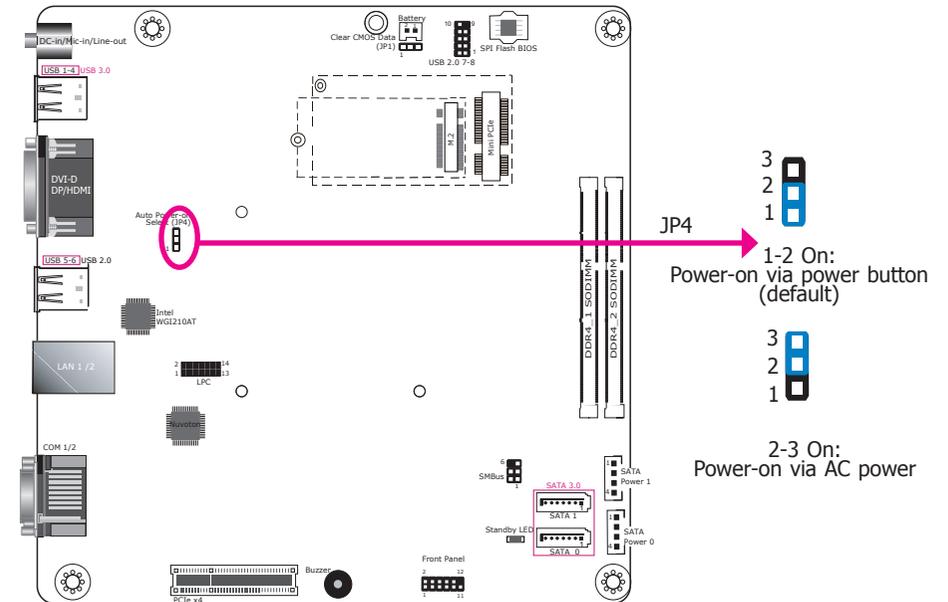
This jumper is used to select the method of powering on the system. If you want the system to power on whenever AC power comes in, set the jumper pins 2 and 3 to "On." If you want to use the power button, set pins 1 and 2 to "On."

When using the "Power-On" feature to power the system back on after a power failure occurs, the system may not power on if the power loss is resumed within 5 seconds (power flicker).

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Chapter 5 - Ports and Connectors

Front Panel I/O Ports

HDD LED (green)

Power Button with LED (blue)

The front panel I/O consists of the following ports:

• HDD LED (green)
• Power button with LED (blue)

Rear Panel I/O Ports

USB 3.0   DVI-D DP   USB 2.0   LAN 2 LAN 1   COM 2 COM 1
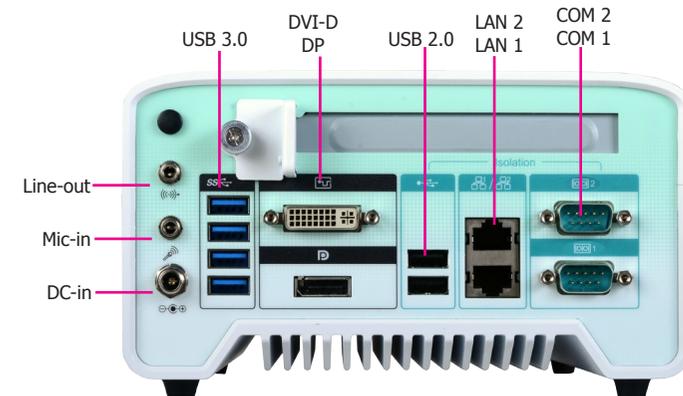
Line-out
Mic-in
DC-in

The rear panel I/O consists of the following ports:

• DC-in power socket
• DVI-D and DP ports (*)
• USB 3.0 ports
• USB 2.0 ports
• COM ports
• LAN ports
• Line-out and Microphone port

Note:
*The system offers another SKU with an HDMI port.

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USB Ports

Audio Ports
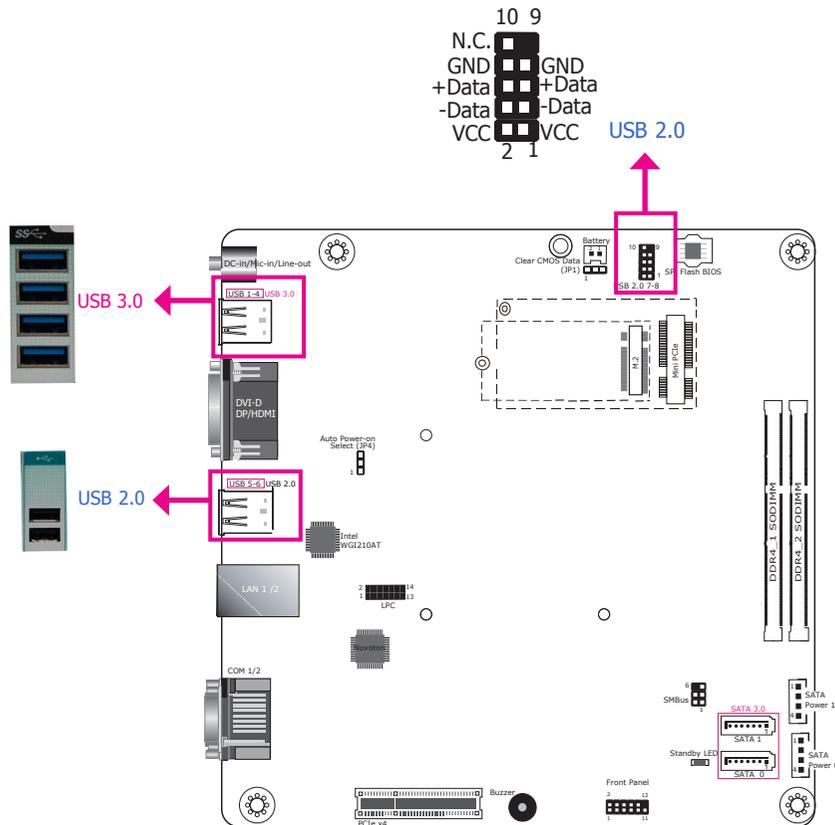
The USB devices allow data exchange between your system and a wide range of simultaneously accessible external Plug and Play peripherals.

The system is equipped with four external USB 3.0 (USB 1-4) and two USB 2.0 (USB 5-6) ports. The system board also provides two internal USB 2.0 ports (USB 7-8) via pin headers. Note that these ports can *only* support transmission speeds up to 11Mbps (Full Speed). Please configure the operating standard using *either* the previous USB 1.1 or USB 1.0 generation on the rear panel USB 2.0 (USB 5-6) ports in the BIOS menu.

● **BIOS Setting**

Configure the USB controller in the Advanced menu ("USB Configuration" submenu) of the BIOS. Refer to Chapter 7 for more information.
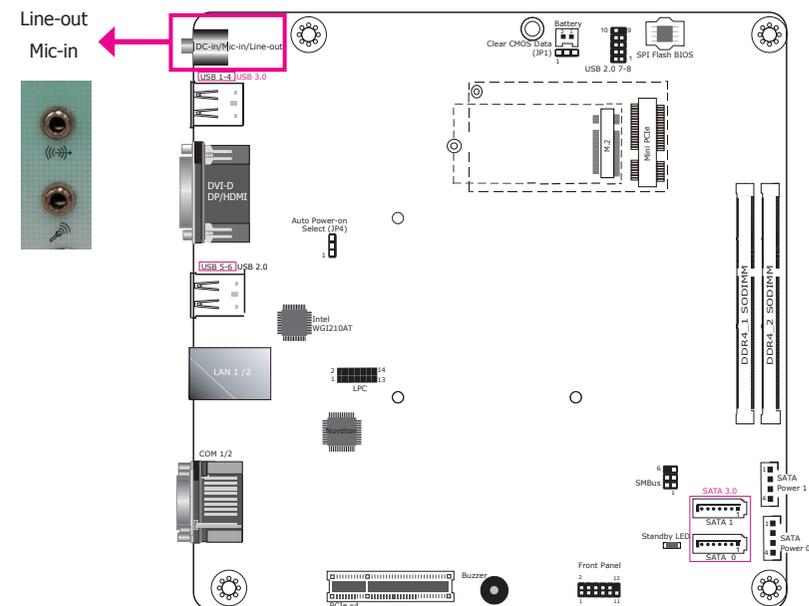
The microphone jack (front panel) and line-out (rear panel) can be connected with an external microphone and speaker respectively.

● **BIOS Setting**

Configure the audio controller in the Advanced menu ("Audio Configuration" submenu) of the BIOS. Refer to Chapter 7 for more information.

● **Driver Installation**

You may need to install audio driver in your operating system to use audio devices. Refer to Chapter 8 and your operating system's documentation for more information.

COM Ports
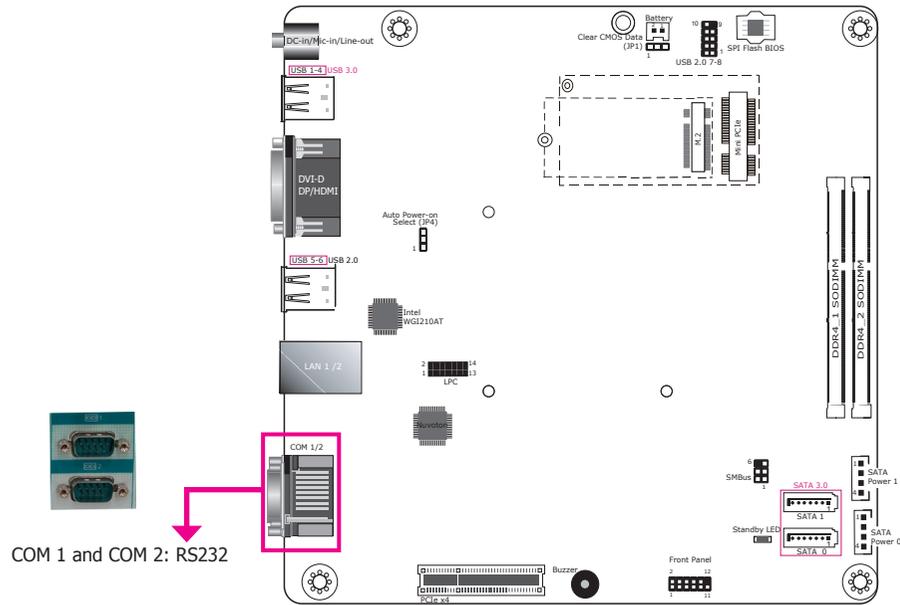
COM 1 and COM 2: RS232
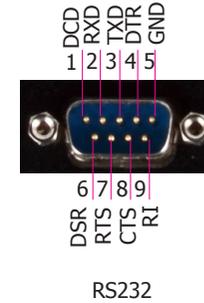
RS232

COM 1 to COM 2 (Serial) Ports

COM 1 and COM 2 are RS232 serial ports.

The serial ports are asynchronous communication ports with 16C550A-compatible UARTs that can be used with modems, serial printers, remote display terminals, and other serial devices.

● BIOS Setting

Configure the COM ports including its communication mode in the Advanced menu ("Super I/O" submenu) of the BIOS. Refer to Chapter 7 for more information.

RJ45 LAN Ports
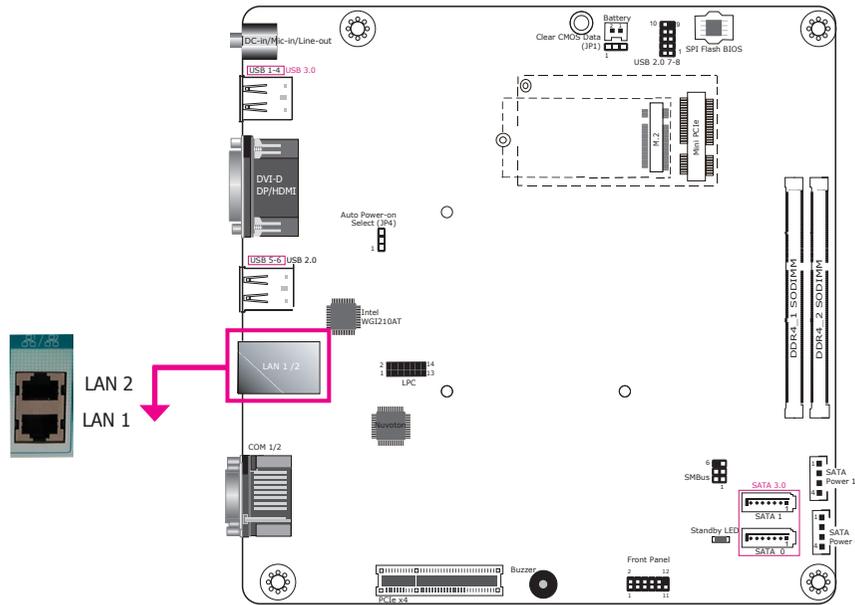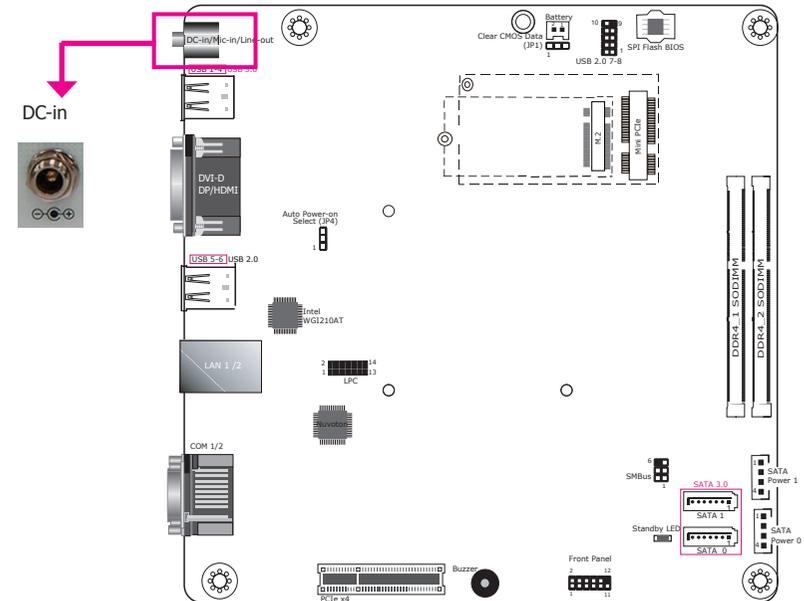
Features

- 2 PCIe Gigabit Ethernet controllers:

LAN 1: Intel® I219LM with iAMT11.0 PCIe (10/100/1000Mbps)
LAN 2: Intel® I210AT PCIe (10/100/1000Mbps)

The LAN ports allow the system to connect to a local area network.

BIOS Setting

Configure the onboard LAN in the "Advanced" menu ("ACPI Configuration" submenu) of the BIOS. Refer to Chapter 7 for more information.

Driver Installation

Install the LAN drivers. Refer to Chapter 8 for more information.

DC-in

Connect a DC power cord of a power adapter with 9-36V DC output voltage. Using a voltage range out of this specification may fail to boot the system or cause damage to the system board.

Display Outputs

DP (or HDMI)
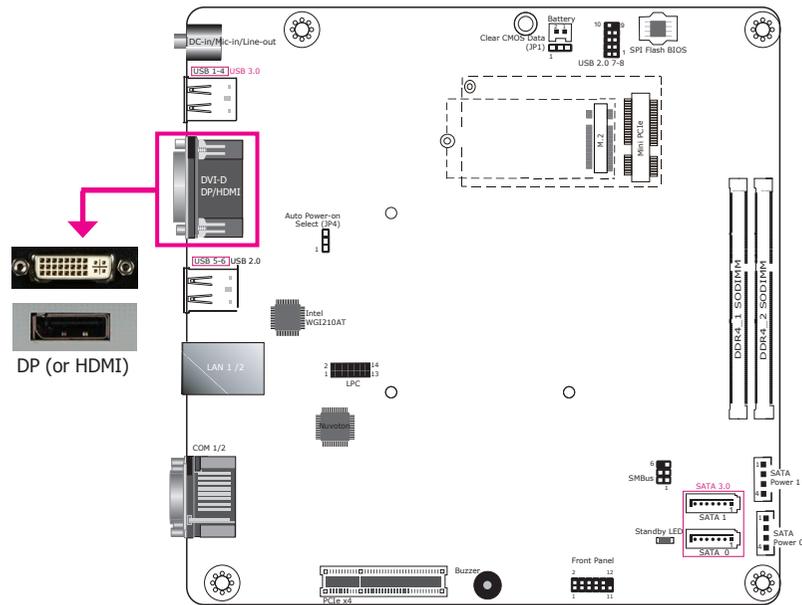
The DVI-D and DP (DisplayPorts) are used to connect an LCD monitor.

Connect the DVI-D and DP to monitors equipped with a DVI-D and DP port respectively. After you plug the cable connector into the DVI-D port, gently tighten the cable screws of the DVI-D cable to secure the connection. The system also supports dual display with these ports.

BIOS Setting

Configure the graphics device in the "Advanced" menu ("Video Configuration" submenu) of the BIOS. Refer to Chapter 7 for more information.

Driver Installation

Install the graphics driver. Please refer to Chapter 8 for more information.

I/O Connectors

Expansion slots

M.2 Type 2242 (PCIe 2.0 x2/USB/SATA)

Mini PCIe (PCIe/USB)

PCIe 3.0 x4
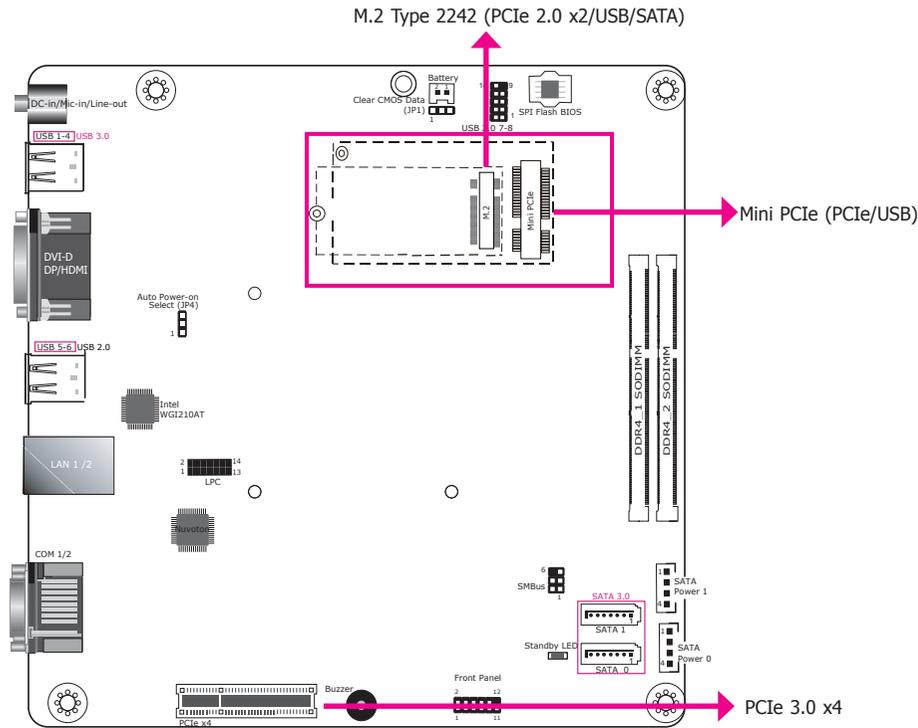
Mini PCI Express Slot (CN5)

The Mini PCI Express slot on the system board is used to install a full-size Mini PCIe card using PCIe and USB signals.

M.2 Type 2242 Key B (CN6)

The M.2 card slots on the back side of the system board are used to install M.2 (NGFF) modules. The M.2 Type 2242 (B Key) slot can be inserted with either a SATA SSD card or a PCIe NVMe card with the form factor of M.2 22x42 mm. However, the PCIe Gen 2.0 x2 bandwidth is capable of up to 1000MB/s transfer speed whereas the SATA 3.0 can only provide up to 600MB/s transfer speed.

PCIe Slot

The PCIe slot provides PCIe Gen3 x4 lanes and can be installed with a riser card with a x16 connector (model: *T100-1E*) to provide expansion capability such as video capture.

SMBus Connector

SMBus (J19)
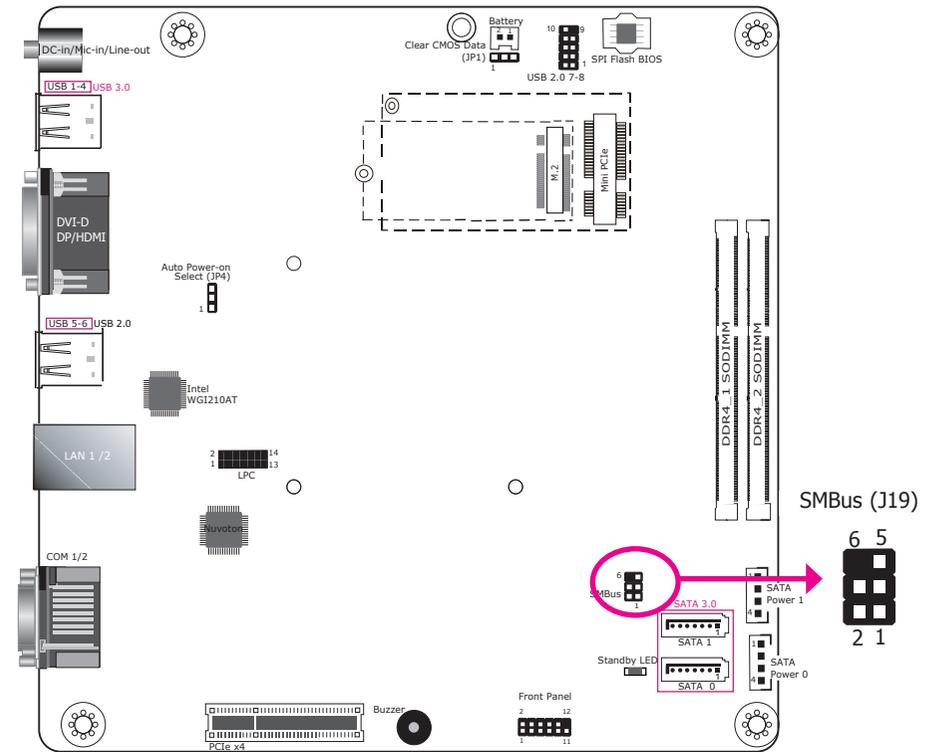
The SMBus (System Management Bus) connector is used to connect SMBus devices. It is a multiple device bus that allows multiple chips to connect to the same bus and enable each one to act as a master by initiating data transfer.

Pins	Pin Assignments
1	3V3_SB
2	GND
3	SMB_CLK
4	SMB_DATA
5	SMB_ALERT
6	NC

23

Standby LED
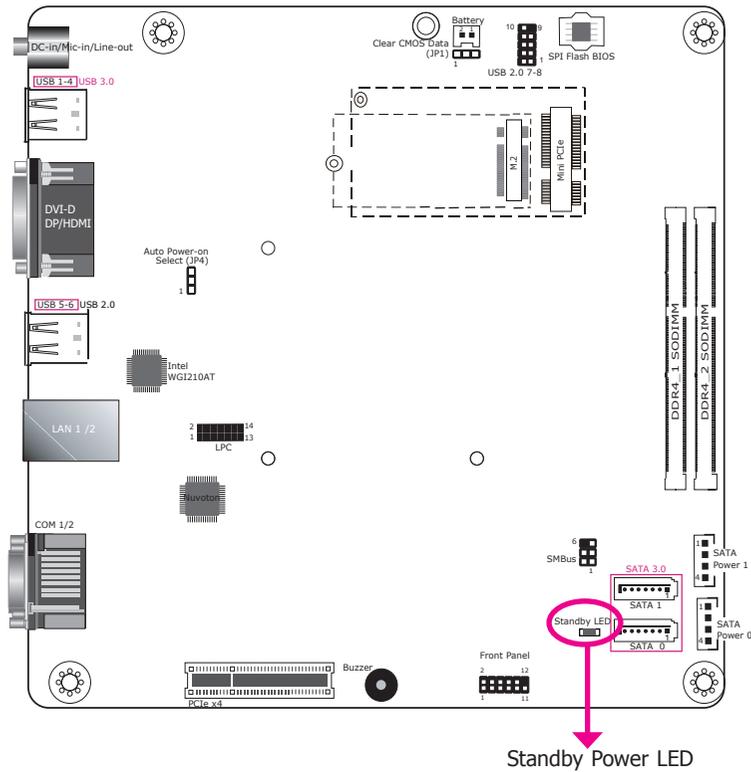
Standby Power LED

Standby Power LED

This LED will blink when the system is in the standby mode. It indicates that there is power on the system board. Power off the system and then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.

Battery

Battery

2 1
GND Battery

Battery

Connect to the battery connector
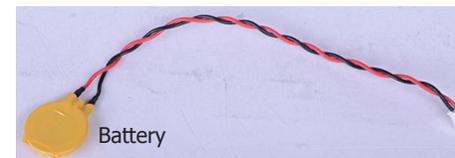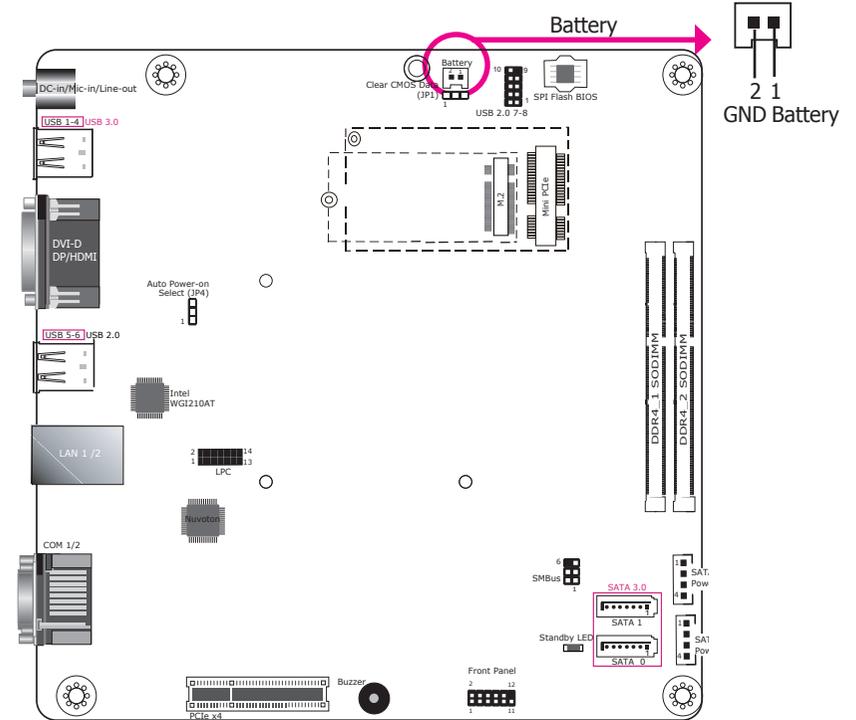
The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

Safety Measures

• Danger of explosion if battery incorrectly replaced.

• Replace only with the same or equivalent type recommend by the manufacturer.

• Dispose of used batteries according to local ordinance.

24

SATA Data and Power Connector
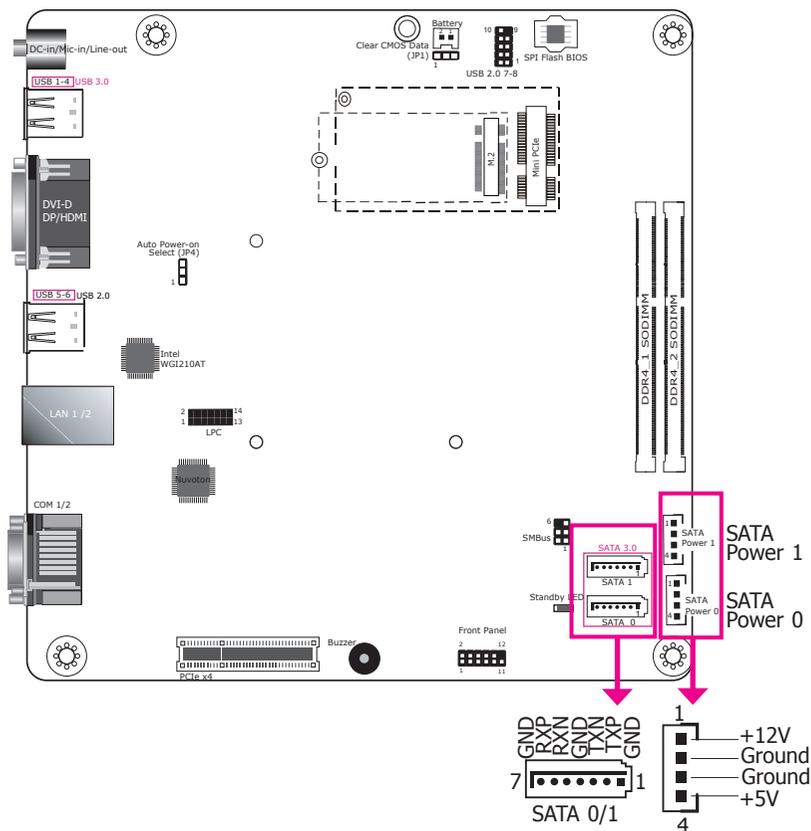
- 2 Serial ATA 3.0 ports with data transfer rate up to 6Gb/s

- Supports Integrated Advanced Host Controller Interface (AHCI) controller and Intel® Rapid Storage Technology

- Supports RAID 0/1

The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA data cable to a SATA connector and the other end to your Serial ATA device.

BIOS Setting

Configure the Serial ATA drives in the Advanced menu ("SATA Configuration" submenu) of the BIOS. Refer to Chapter 7 for more information.

Front Panel Connector
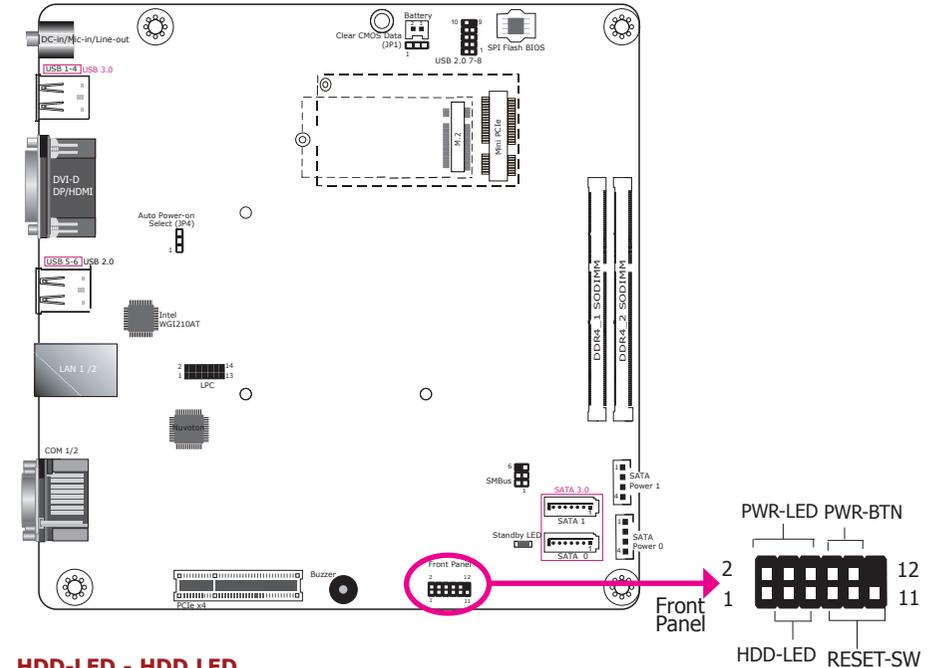
HDD-LED - HDD LED

This LED will be lit when the hard drive is being accessed.

RESET-SW - Reset Switch

This switch allows you to reboot without having to power off the system.

PWR-LED - Power LED

When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

PWR-BTN - Power Button

This switch is used to power on or off the system.

	Pin	Pin Assignment		Pin	Pin Assignment
HDD-LED	3	3V3	**PWR-LED**	2	3V3SB
	5	HDD_LED		4	3V3SB
	7	Ground		6	Power_LED
RESET-SW	9	RST Signal	**PWR-BTN**	8	Ground
	11	N.C.		10	Power_Button

LPC Connector
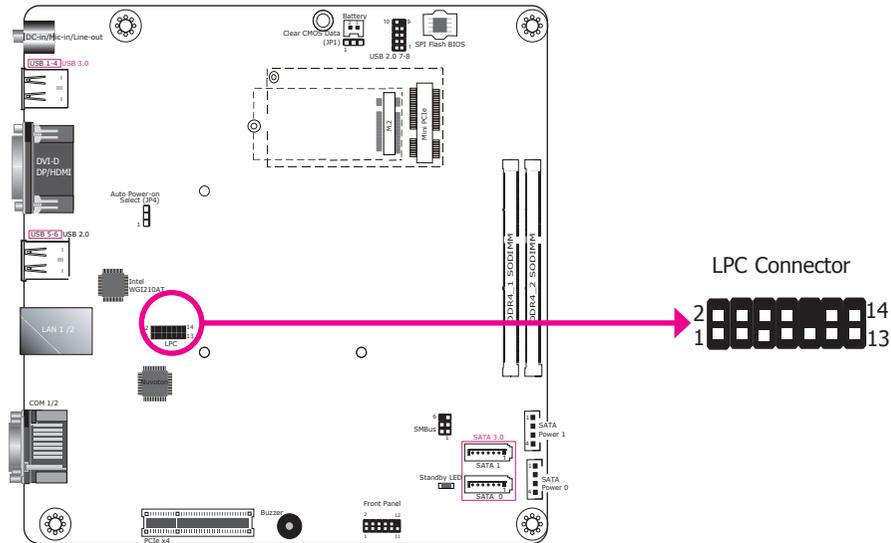
The Low Pin Count Interface was defined by Intel® Corporation to facilitate the industry's transition towards legacy free systems. It allows the integration of low-bandwidth legacy I/O components within the system, which are typically provided by a Super I/O controller. Furthermore, it can be used to interface firmware hubs, Trusted Platform Module (TPM) devices and embedded controller solutions. For more information about LPC bus refer to the Intel® Low Pin Count Interface Specification Revision 1.1'. The table below indicates the pin assignments of the LPC connector.

Pins	Pin Assignment	Pins	Pin Assignment
1	CLK_24M	2	LAD1
3	RST#	4	LAD0
5	FRAME#	6	VCC3
7	LAD3	8	GND
9	LAD2	10	-
11	SERIRQ	12	GND
13	5VSB	14	5V

Chapter 6 - Mounting Options

Wall Mount

The wall mount kit includes the following:

• Two wall mount brackets
• Bracket screws

Take off the rubber feet on the bottom of system using a screw driver.
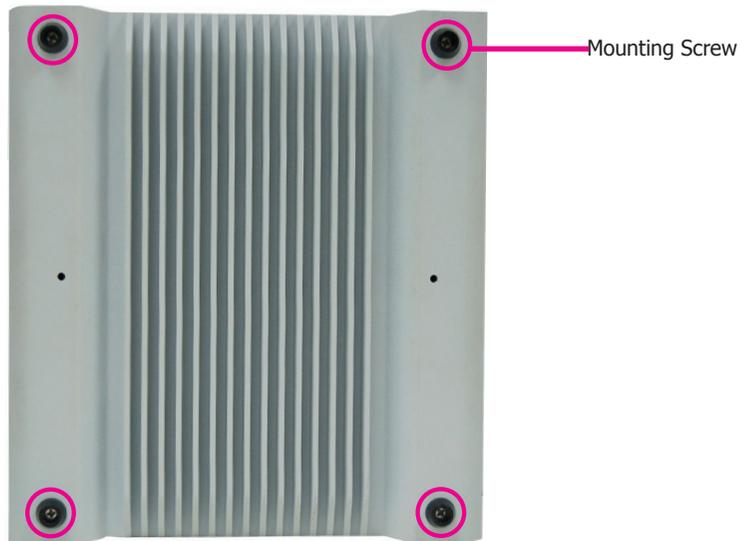
Mounting Screw

Align the mounting holes of the wall mount bracket with the screw holes of the system and use the provided mounting screws to secure the wall mount brackets on both sides of the system.
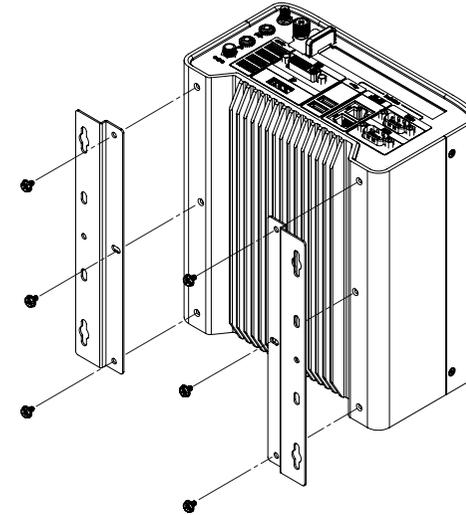
The following diagrams show the location and dimension of the wall moutning holes.

103.30

207.60

75

75

192.60

27
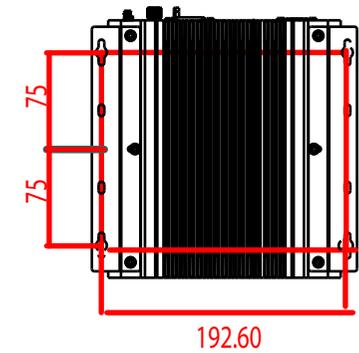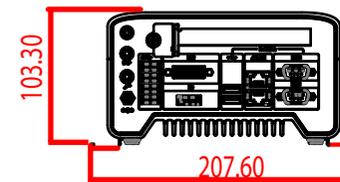
Chapter 7 - BIOS Setup

Overview

The BIOS is a program that takes care of the basic level of communication between the CPU and peripherals. It contains codes for various advanced features found in this system board. The BIOS allows you to configure the system and save the configuration in a battery-backed CMOS so that the data retains even when the power is off. In general, the information stored in the CMOS RAM of the EEPROM will stay unchanged unless a configuration change has been made such as a hard drive replaced or a device added.

It is possible that the CMOS battery will fail causing CMOS data loss. If this happens, you need to install a new CMOS battery and reconfigure the BIOS settings.

Note:
The BIOS is constantly updated to improve the performance of the system board; therefore the BIOS screens in this chapter may not appear the same as the actual one. These screens are for reference purpose only.

Default Configuration

Most of the configuration settings are either predefined according to the Load Optimal Defaults settings which are stored in the BIOS or are automatically detected and configured without requiring any actions. There are a few settings that you may need to change depending on your system configuration.

Entering the BIOS Setup Utility

The BIOS Setup Utility can only be operated from the keyboard and all commands are keyboard commands. The commands are available at the right side of each setup screen.

The BIOS Setup Utility does not require an operating system to run. After you power up the system, the BIOS message appears on the screen and the memory count begins. After the memory test, the message "Press DEL to run setup" will appear on the screen. If the message disappears before you respond, restart the system or press the "Reset" button. You may also restart the system by pressing the <Ctrl> <Alt> and <Del> keys simultaneously.

Legends

Keys	Function
Right and Left arrows	Moves the highlight left or right to select a menu.
Up and Down arrows	Moves the hightlight up or down between submenu or fields.
<Esc>	Exit to the BIOS Setup Utility.
+ (plus key)	Scrolls forward through the values or options of the highlighted field.
- (minus key)	Scrolls backward through the values or options of the highlighted field.
<F1>	Displays general help
<F2>	Pervious values
<F3>	Optimized defaults
<F4>	Saves and resets the setup program.
<Enter>	Press <Enter> to enter the highlighted submenu.

Scroll Bar

When a scroll bar appears to the right of the setup screen, it indicates that there are more available fields not shown on the screen. Use the up and down arrow keys to scroll through all the available fields.

Submenu

When "▶" appears on the left of a particular field, it indicates that a submenu which contains additional options are available for that field. To display the submenu, move the highlight to that field and press <Enter>.

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Insyde BIOS Setup Utility

Main

The Main menu is the first screen that you will see when you enter the BIOS Setup Utility.

```
                          InsydeH20 Setup Utility                        Rev. 5.0
 Main  Advanced  Security  Boot  Exit

 Project Name              SU273                   This is the help for the hour, minute,
 BIOS Version              B187.06A                second field. Valid range is from 0 to
                                                   23, 0 to 59, 0 to 59. INCREASE/REDUCE :
 Processor Type            Intel(R) Core(TM) i5-6300U CPU @ 2.40GHz  +/-.
 CPUID:                    0x406E3 (SKYLAKE ULT ULX)
 CPU Speed:                2500 MHz
 CPU Stepping:             03 (D0/K0 Stepping)
 L1 Data Cache:            32 KB
 L1 Instruction Cache:     32 KB
 L2 Cache:                 256 KB
 L3 Cache:                 3072 KB
 Number Of Processors:     2 Core(s) / 4 Thread(s)
 Microcode Rev:            000000C2
 GOP Ver:                  9.0.1039

 Total Memory              4096 MB
 System Memory Speed       2133 MHz
 SODIMM 0                  [Not Installed]
 SODIMM 1                  4096 MB

 PCH Rev / SKU             21 (C1 Stepping) / SKL PCH-LP (U) Premium
                            SKU
 Intel ME Version / SKU    11.8.50.3399 / CORPORATE

 System Time               [14:48:54]
 System Date               [09/03/2018]



 F1  Help            ↑/↓ Select Item     F5/F6 Change Values       F9  Setup Defaults
 Esc Exit            +/→ Select Item     Enter Select ▶ SubMenu    F10 Save and Exit
```

System Time

The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

System Date

The date format is <month>, <date>, <year>. Month displays the month, from January to December. Date displays the date, from 1 to 31. Year displays the year, from 1980 to 2099.

Advanced

The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.

> **Important:**
> Setting incorrect field values may cause the system to malfunction.

```
                          InsydeH20 Setup Utility                        Rev. 5.0
 Main  Advanced  Security  Boot  Exit

                                                   ACPI Configuration Setting
 ▶ACPI Configuration
 ▶CPU Configuration
 ▶Video Configuration
 ▶Audio Configuration
 ▶SATA Configuration
 ▶USB Configuration
 ▶PCI Express Configuration
 ▶ME Configuration
 MEBX Configuration
 ▶Active Management Technology Support
 ▶SIO NUVOTON6106D




 F1  Help            ↑/↓ Select Item     F5/F6 Change Values       F9  Setup Defaults
 Esc Exit            +/→ Select Item     Enter Select ▶ SubMenu    F10 Save and Exit
```

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ACPI Configuration

This section configures system ACPI parameters.

```
                          InsydeH20 Setup Utility                    Rev. 5.0
  Advanced

ACPI Configuration                                    Determines the action taken when the
                                                      system power is off and a PCI Power
Wake on LAN                  <Enabled>                Management Enable wake up event occurs.
State After G3               <S0 State>




F1  Help              ↑/↓ Select Item    F5/F6 Change Values    F9  Setup Defaults
Esc Exit              ←/→ Select Item    Enter Select ▶ SubMenu F10 Save and Exit
```
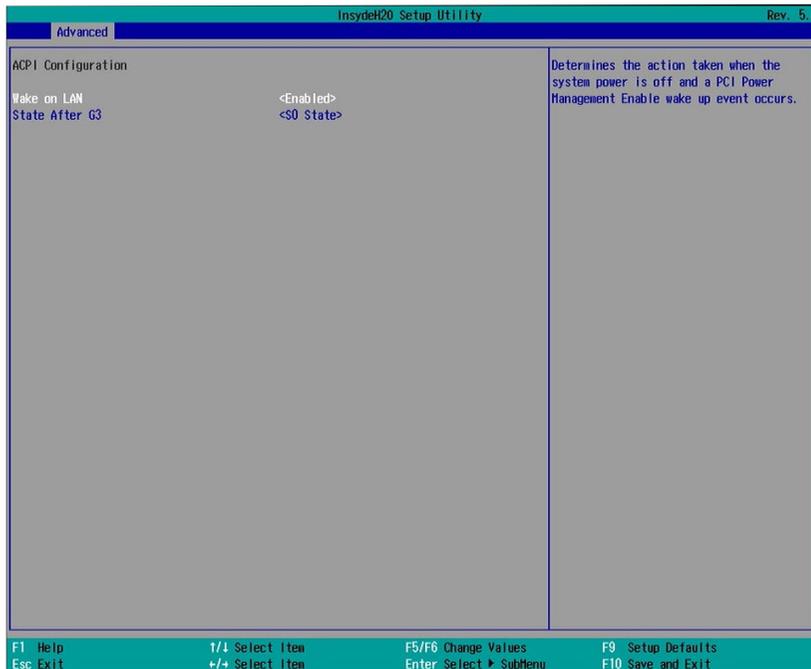
Wake on LAN

Enable or disable WOL (wake-on-LAN) to wake the system through an Ethernet adapter.

State After G3

Specify which state the system should be in when power is reapplied after a power failure (G3, the mechanical-off, state).

S0: The system is powered on (in working state).
S5: The system is powered off (in soft-off state).

CPU Configuration

This section configures the CPU.

```
                          InsydeH20 Setup Utility                    Rev. 5.0
  Advanced

CPU Configuration                                     Allows more than two frequency ranges to
                                                      be supported.
Intel(R) SpeedStep(tm)       <Enabled>
  Turbo Mode                 <Enabled>




F1  Help              ↑/↓ Select Item    F5/F6 Change Values    F9  Setup Defaults
Esc Exit              ←/→ Select Item    Enter Select ▶ SubMenu F10 Save and Exit
```

Intel® SpeedStep®

Enable or disable the Enhanced Intel® SpeedStep® Technology, which helps optimize the balance between system's power consumption and performance. After it is enabled in the BIOS, you can take advantage of its offering by setting power schemes from the operating system's power options.

Turbo Mode

Enable or disable processor turbo mode, which allows the processor core to automatically run faster than the base frequency by taking advantage of thermal and power headroom.

30

Video Configuration

This section configures the video settings.
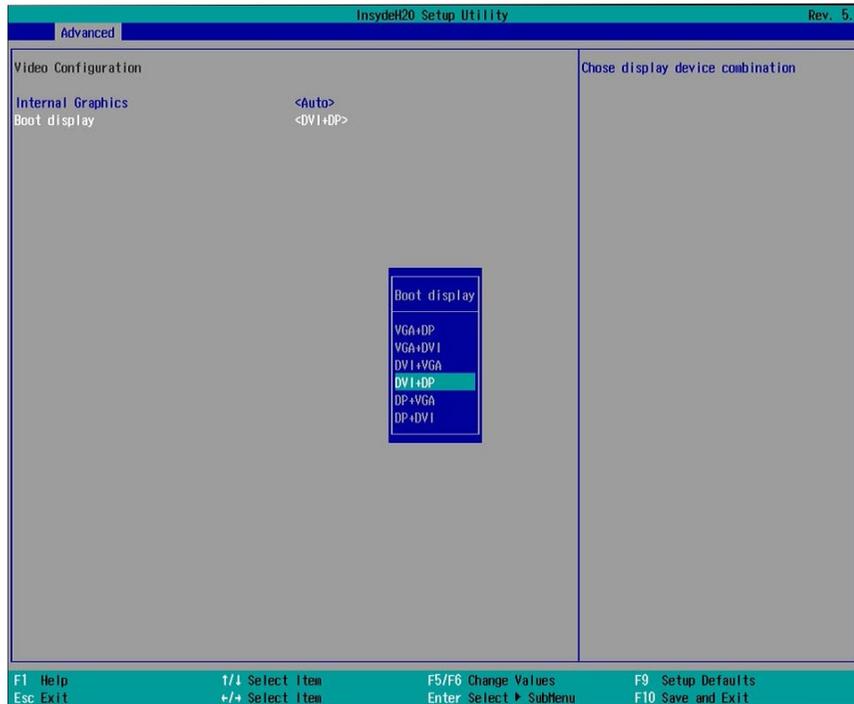
Primary Display

Select which graphics device will be the primary display. Note that this option will be shown only if the "Boot type" is set to "Dual" or "UEFI."

Internal Graphics

Enable, disable or automatically detect the internal graphics.

Boot display

Prioritize device combination for display during system boot. Note that this option will be shown only if the "Boot type" is set to "Dual" or "Legacy".

Audio Configuration

This section configures the audio settings.
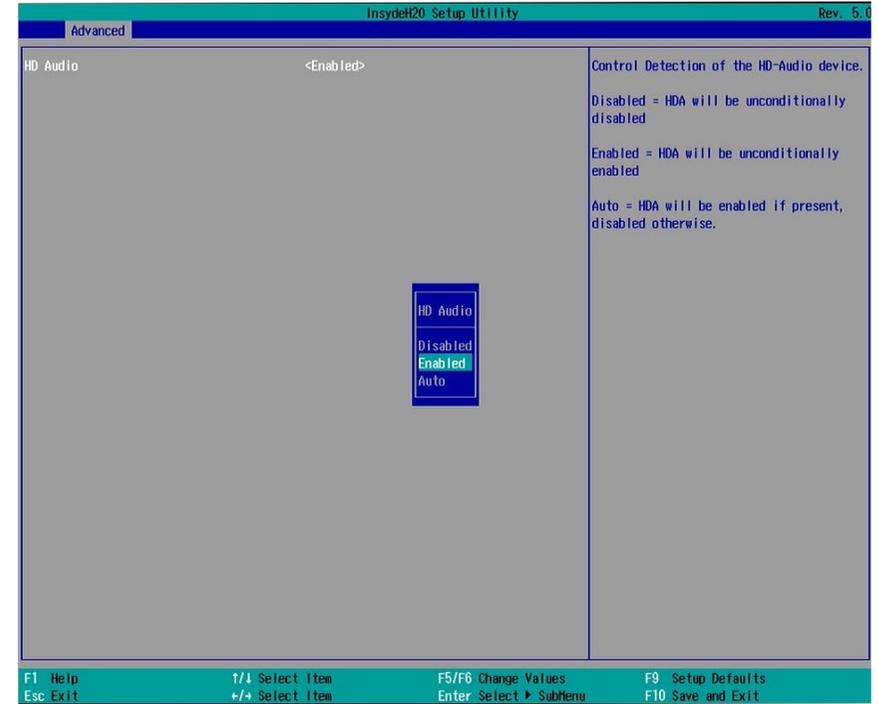
Audio Controller

Control the detection of the high-definition audio devices.

Disabled
High-definition audio devices will be unconditionally disabled.

Enabled
High-definition audio devices will be unconditionally enabled.

Auto
High-definition audio devices will be enabled is present and disabled otherwise.

SATA Configuration

This section configures SATA devices. It also shows the information about the installed SATA drives.
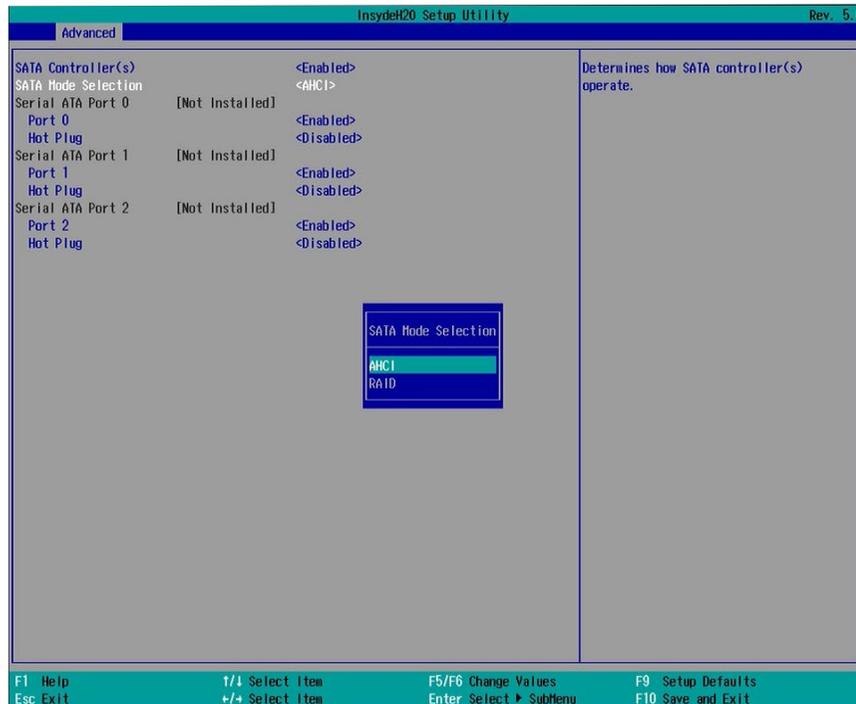
SATA Controller

Enable or disable the Serial ATA controller.

SATA Mode Selection

The mode selection determines how the SATA controller(s) operates.

AHCI Mode
This option shows that the Serial ATA devices use AHCI (Advanced Host Controller Interface).

RAID
This option allows you to create RAID using Intel® Rapid Storage Technology (Intel® RST) on the Serial ATA devices.

Serial ATA Port 0, 1 and 2 and Hot Plug

Enable or disable each Serial ATA port and its hot plug function.

USB Configuration

This section configures the parameters of the USB devices.
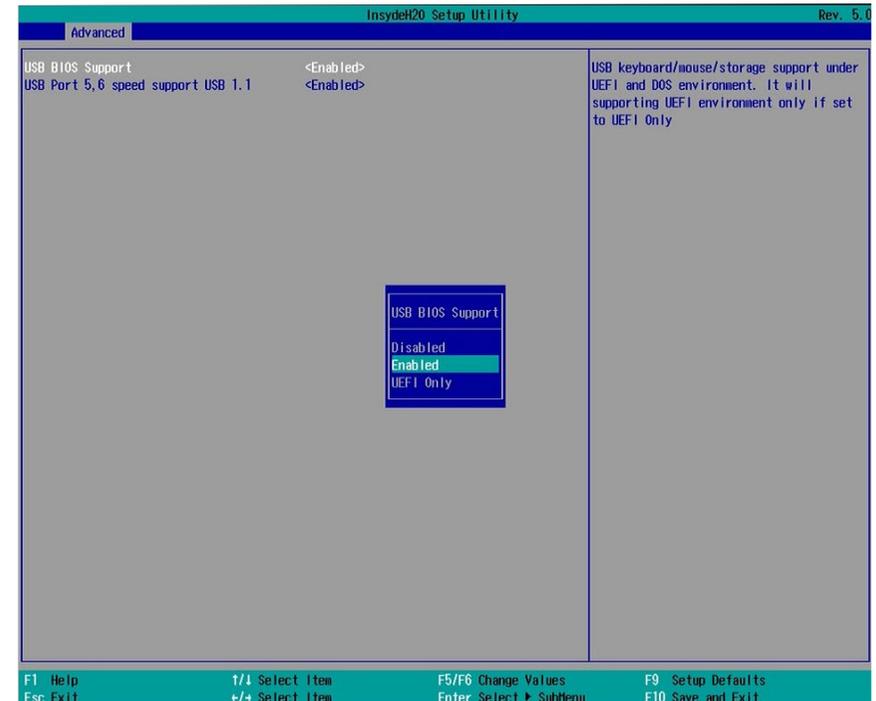
USB BIOS Support

Disabled
Disable the USB keyboard/mouse/storage support.

Enabled
Enable the USB keyboard/mouse/storage support.

UEFI Only
Enable the USB keyboard/mouse/storage support only under the UEFI environment.

USB Port 5, 6 Speed Support USB 1.1

Select **Enable** to set the operating mode to *USB 1.1* on these USB ports 2.0 (USB 5 and 6 on the rear panel). If you would like to use a USB storage device, set it to Enable.

Select **Disable** to set the operating mode to *USB 1.0* on these USB 2.0 ports. If you would like to use a USB keyboard/mouse, set it to Disable.

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PCI Express Configuration

This section configures the settings of PCI Express root ports.
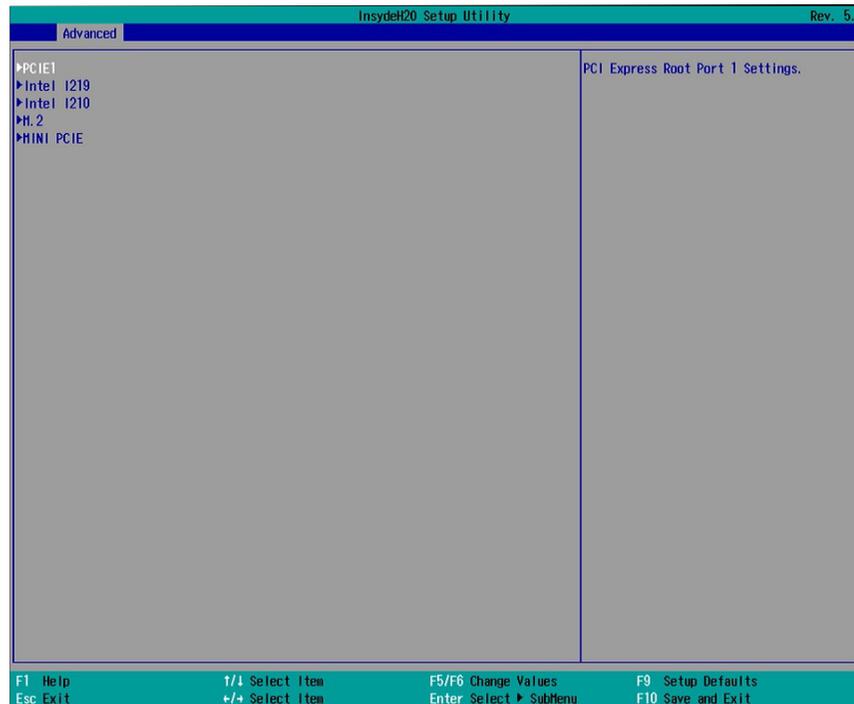
PCIE1

Controls the PCIe expansion slot.

Intel I210

Controls the PCIe signal of the Intel I210 LAN port.

Intel I219

Controls the PCIe signal of the Intel I219LM LAN port.

M.2

Controls the PCIe signal of the M.2 Type 2242 slot.

Mini PCIe

Controls the PCIe signal of the Mini PCIe slot.

Press "Enter" to enter the configurations for each PCIe root port as shown on the right.
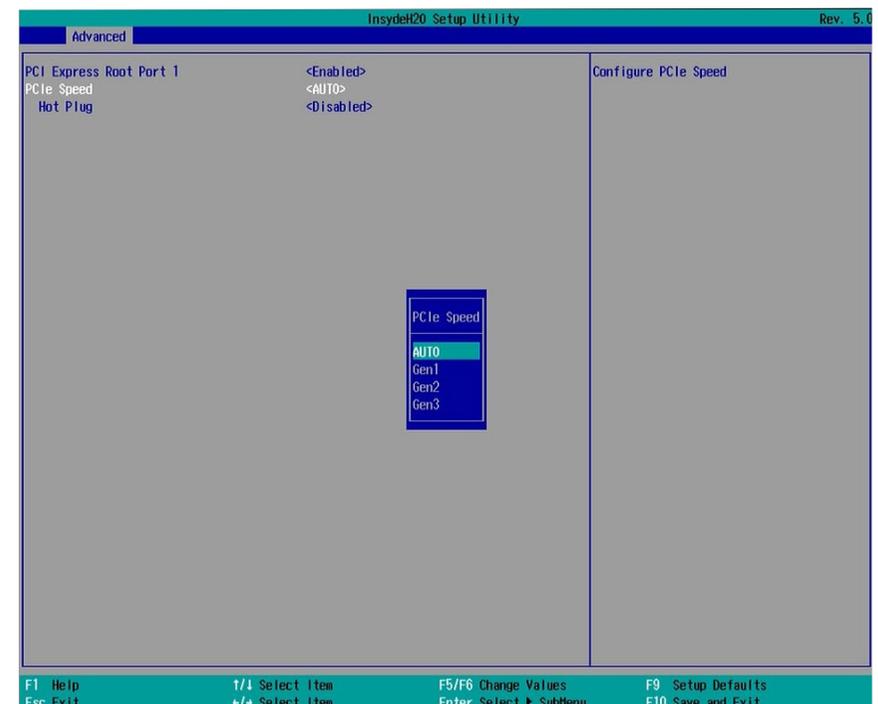
PCI Express Root Port

Enable or disable this PCI Express root port.

Hot Plug

Enable or disable the hot plug function.

PCIe Speed

Select the speed of the PCI Express Root Port: Auto, Gen1 (2.5 GT/s), Gen2 (5 GT/s) or Gen3 (8.0 GT/s).

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Chapter 7

ME Configuration

This section configures flashing of Intel® Active Management Engine region.
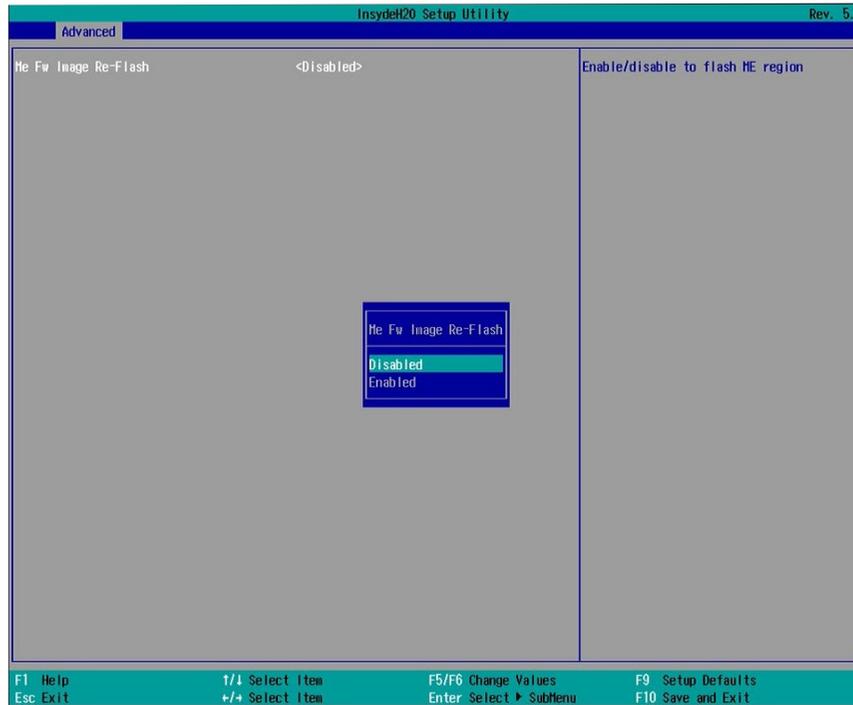
Me Fw Image Re-Flash

Enable or disable flashing of the Intel® ME region.

Active Management Technology Support

The section allows users to enable or disable the Intel® Active Management Technology (Intel® AMT) BIOS extension. Please refer to Chapter 10 - Intel AMT Settings for more information.
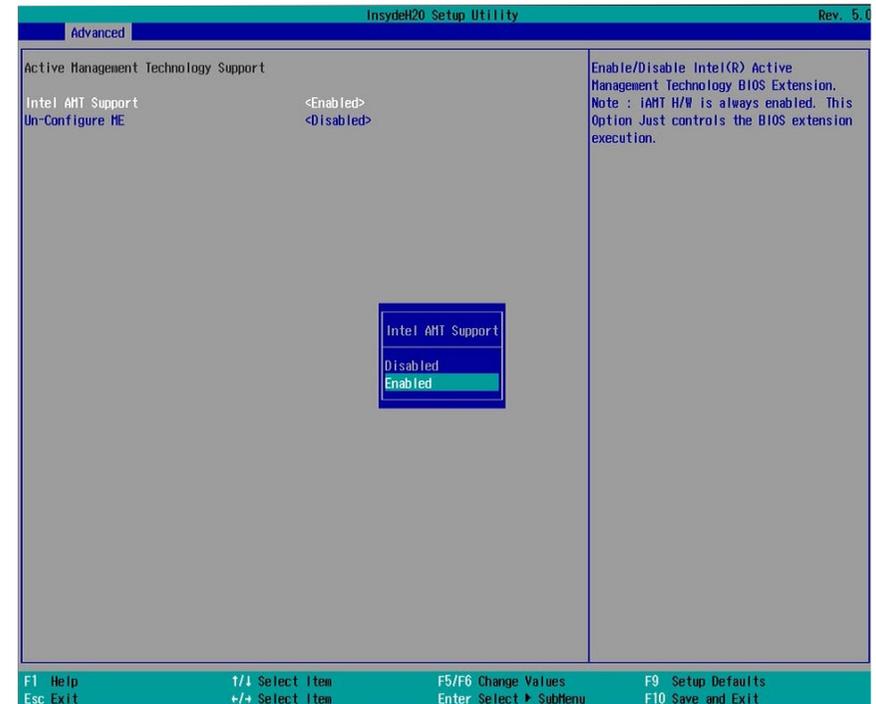
Intel® AMT Support

Enable or disable Intel® Active Management Technology BIOS extension.

Un-Configure ME

Clears all ME related configurations without requiring a password on the next boot.

Chapter 7 BIOS Setup

Super I/O

This section configures the system super I/O chip parameters.
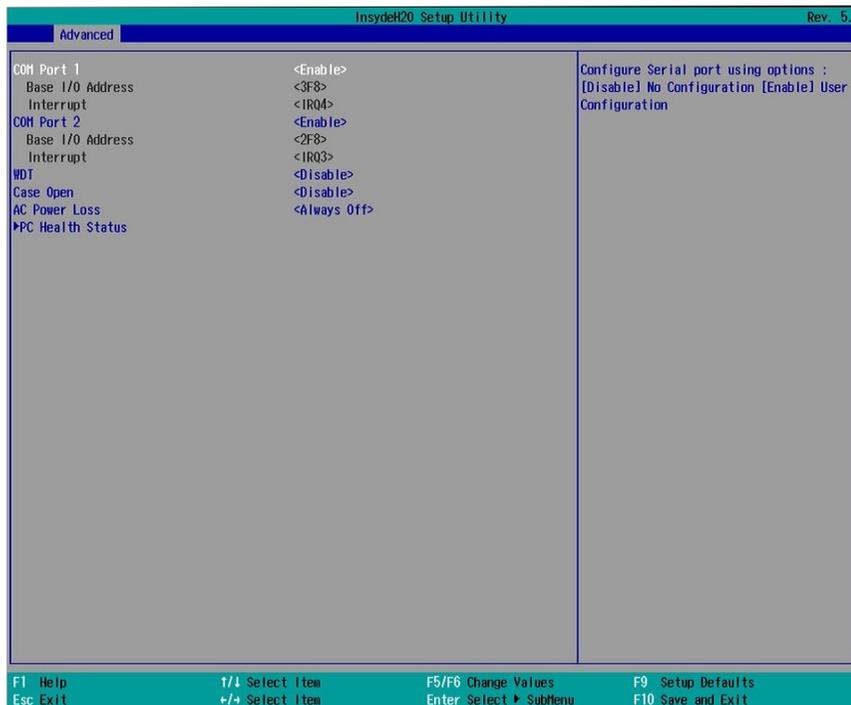
COM Port 1 to COM Port 2

Enable or disable each serial port.

Disable Disable this serial port.
Enable   Enable this serial port.

It also shows the Base I/O address and the assigned interrupt number.

WDT

Enable or disable the watchdog function. A counter will appear if you select to en-
able WDT. Input any value between 1 and 255 (seconds).
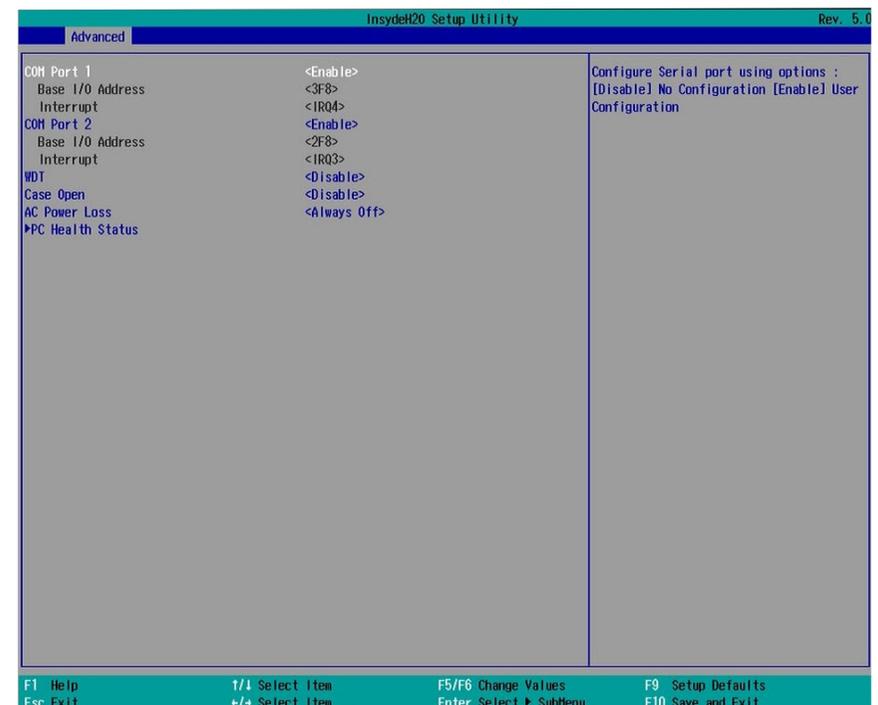
Case Open

Enable or disable the chassis intrusion alert.

AC Power Loss

Set the AC power loss to Always off or Always on. When set to Always off, the system's
status will be power-off after an AC power loss event. When set to Always on, the
system's status will be power-on after an AC power loss event.

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PC Health Status

This section displays PC health status.

InsydeH20 Setup Utility   Rev. 5.0

Advanced

PC Health Status

Voltage
  VCORE   0.880 V
  5V   4.978 V
  +12V   12.056 V
  VDDQ   1.184 V
  VBAT   3.072 V
  3VSB   3.312 V

Temperature
  System (°C/°F)   44.0 C/ 111.2 F
  CPU (°C/°F)   39.0 C/ 102.2 F

F1 Help   ↑/↓ Select Item   F5/F6 Change Values   F9 Setup Defaults
Esc Exit   ←/→ Select Item   Enter Select ▶ SubMenu   F10 Save and Exit
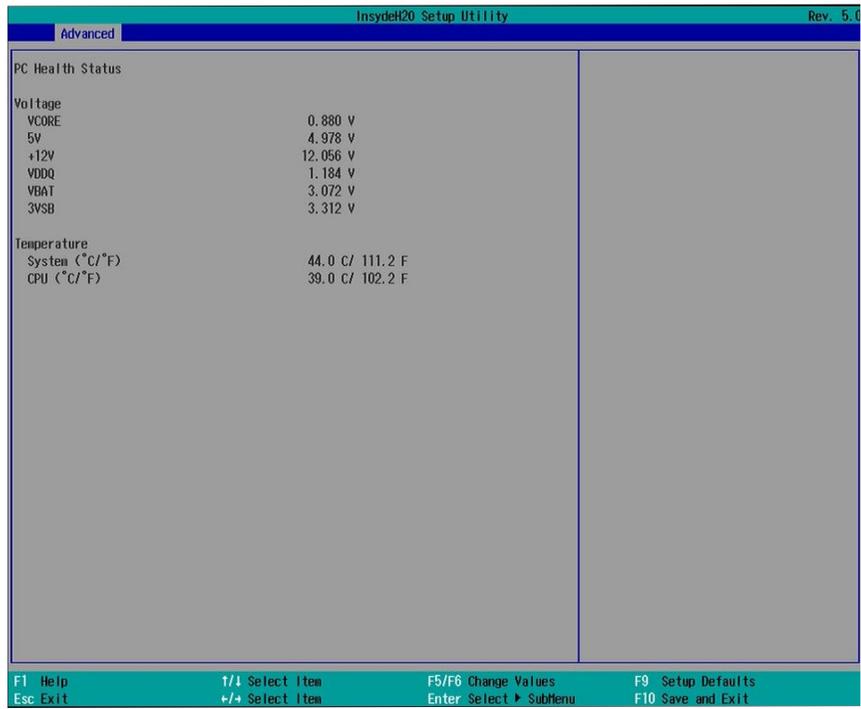
Security

This section configures the Trusted Platform Module (TPM) function.
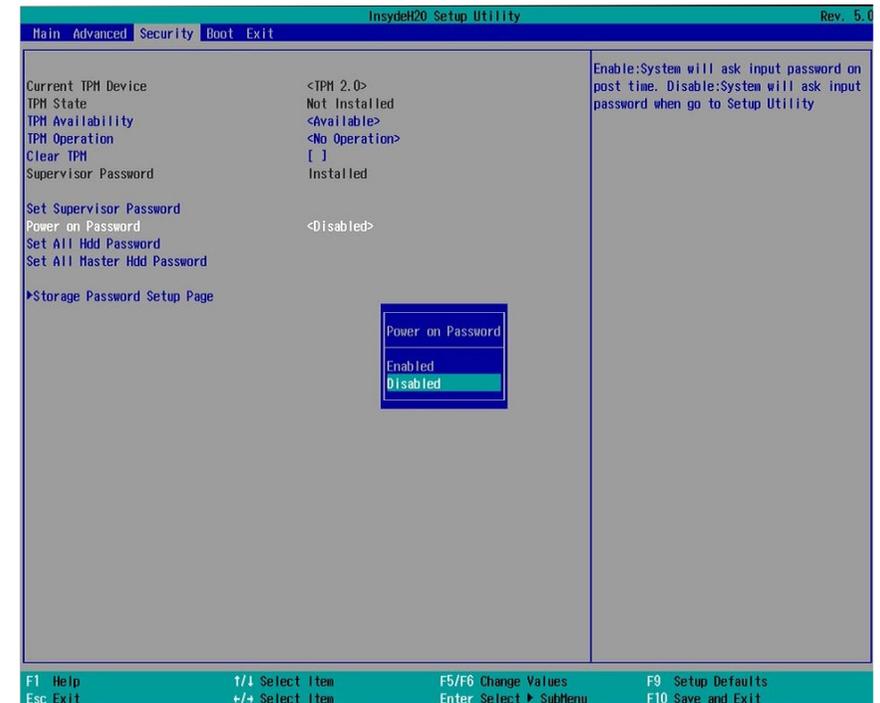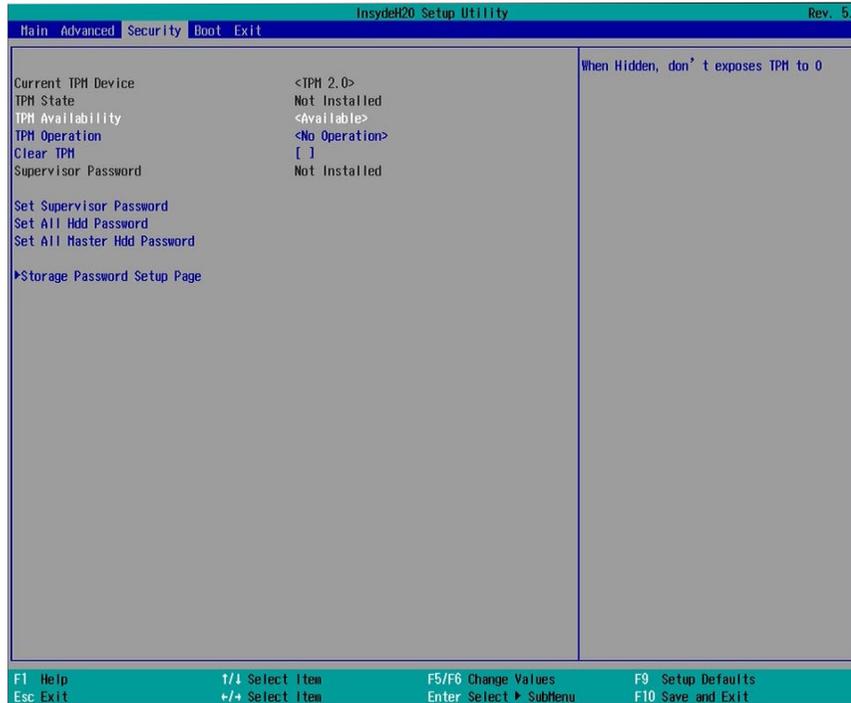
TPM Availability

Show or hide TPM availability and its configurations.

TPM Operation

Select one of the supported operation: Enable, Disable, or No Operation.

• No Operation: No changes to the current state.

• Disable: Disable and deactivate TPM.

• Enable: Enable and activate TPM.

Clear TPM

Remove all TPM ownership contents.

Set Supervisor Password

Set the administrative password for entering the BIOS utility or upon the entering of the power-on self-test (POST) process. The length of the password must be greater than 1 character and less than or equal to 10 characters.

Power-on Password

If you select to set the supervisor password, this option will be shown. Enable or disable the system to require password at boot.

37
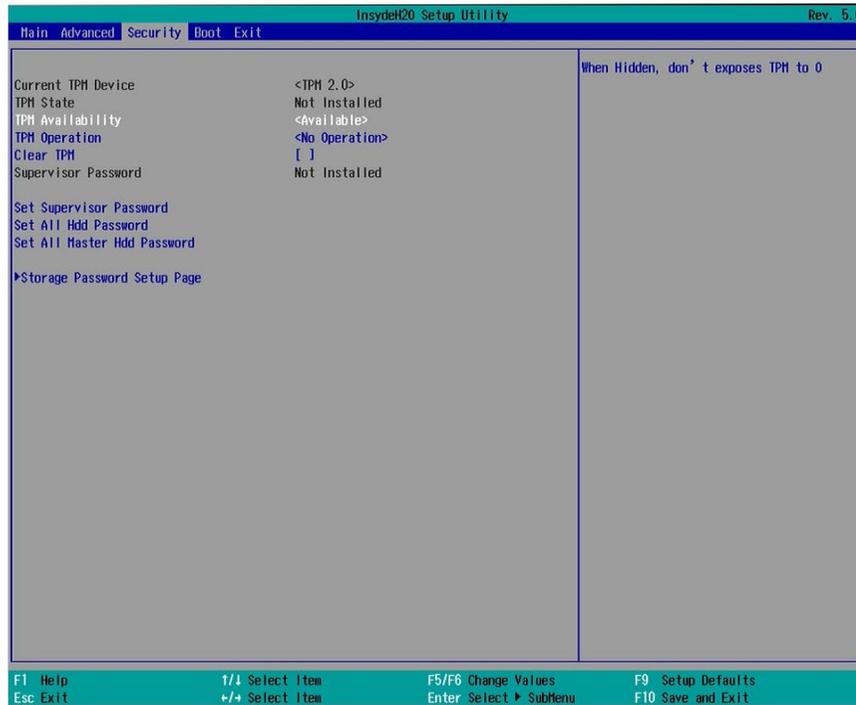
Set All Hdd Password

Set the user password for all HDDs. The length of the password must be greater than one character and less than or equal to 32 characters.

Set All Master Hdd Password

Set the master password for all HDDs. The length of the password must be greater than one character and less than or equal to 32 characters.

Storage Password Setup Page

Set the storage password for each detected device. The following configuration options will be shown:

(Device Name)

Select this option to set a password for the selected device.
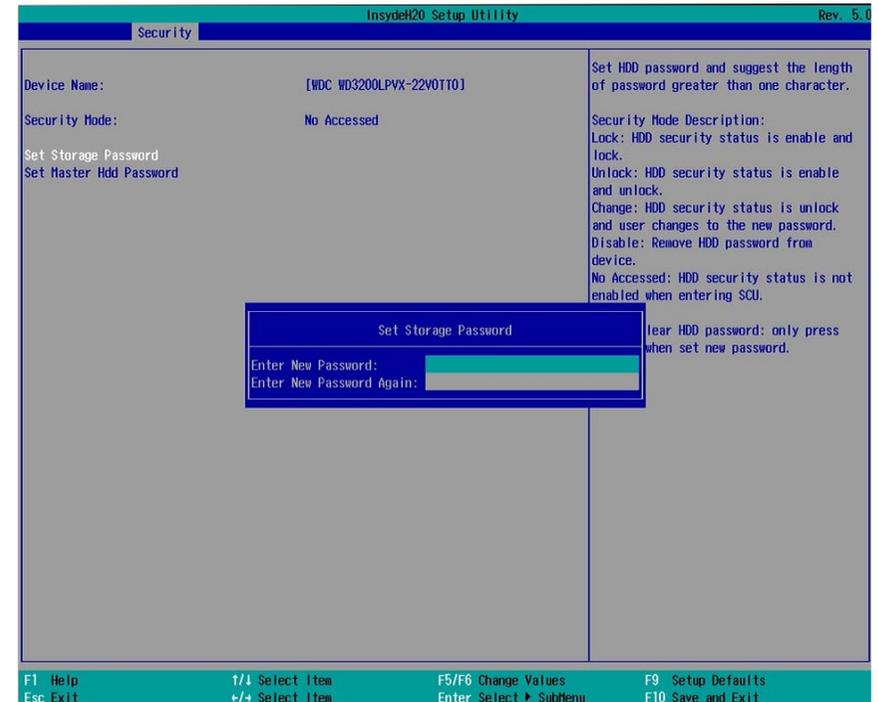
Security Mode Description

Lock: HDD security status is enabled and locked.

Unlock: HDD security status is enabled and locked.

Change: HDD security status is unlocked and users are allowed to change the password.

Disable: Remove the password from the device.

No Access: HDD Secutiry status is not enabled.

Set Storage Password

Set all HDD password. The length of password must be greater than one character.

Set master HDD password

Set Master Hdd Password. The length of password must be greater than one character and less than or equal to 32 characters.

Boot
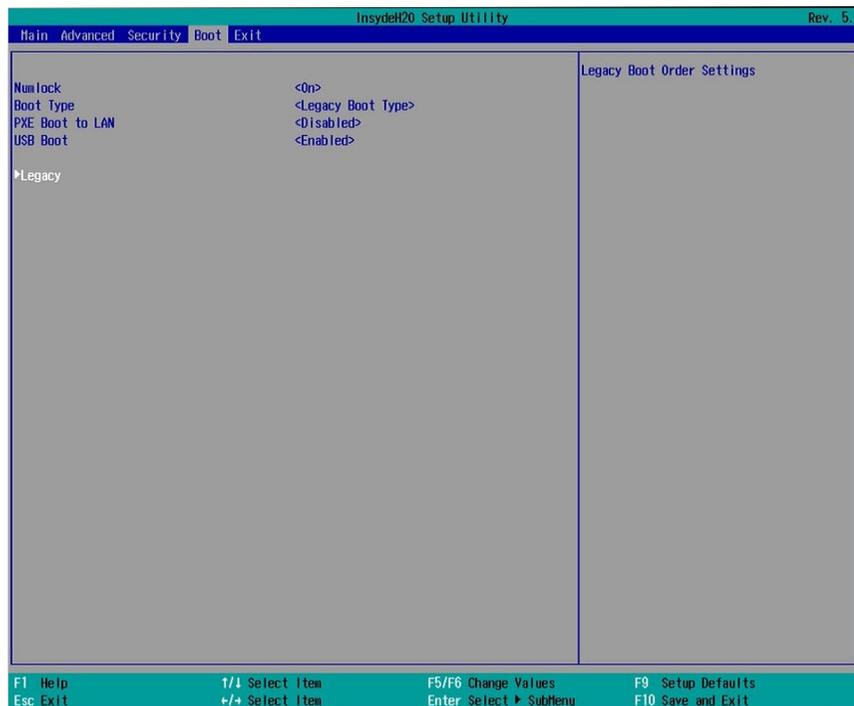
NumLock

This allows you to determine the default state of the numeric keypad at boot. By default, the system boots up with Num Lock on. When set to Off, the function of the numeric keypad is the arrow keys.

Boot Type

Select the boot type. The options include Dual Boot Type, Legacy Boot Type, and UEFI Boot Type.

Network Stack

Enable or disable network stack. It supports the operation of these functions or software: Windows 8 BitLocker Network Unlock and UEFI IPv4/IPv6 PXE or legacy PXE OPROM.

PXE Boot Capability (UEFI mode)/PXE Boot to LAN (legacy mode)

Enable or disable Preboot eXecution Environment (PXE) boot through an Ethernet port. This function can only be enabled if the Network Stack support is enabled under the UEFI Boot Type.

USB Boot

Enable or disable USB boot from a flash drive.

Boot Device Priority
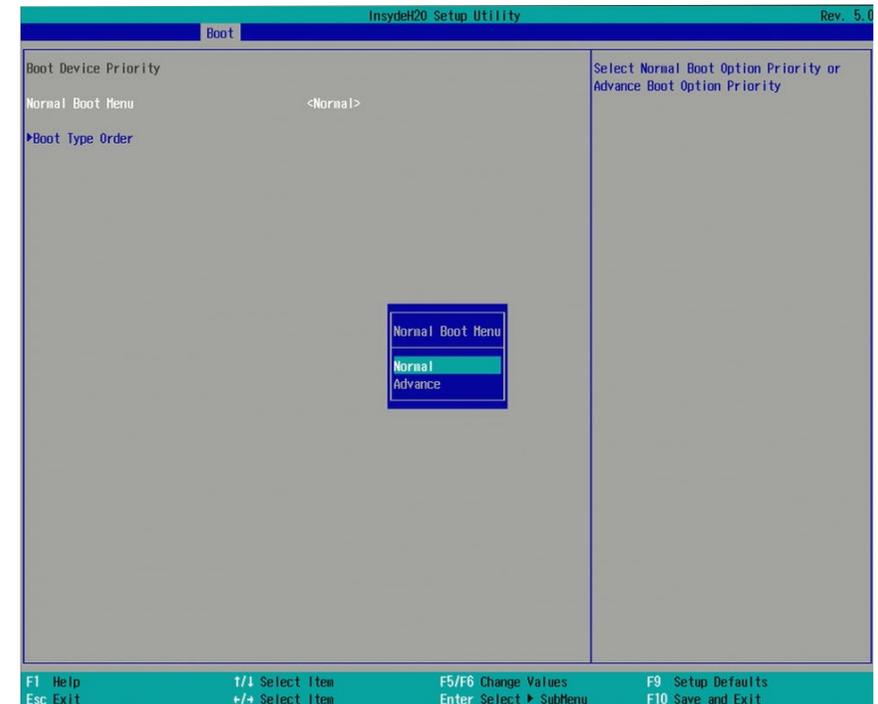
Boot Menu

This section configures legacy boot order. This menu is shown only when the boot type is set to "Legacy" or "Dual".

Normal

For this option, determine the boot order for the devices within each category. Use + and - keys to arrange the priority of the boot devices in the list. The first device in the list has the highest boot priority.

Advance

For this option, determine the boot order for all bootable devices. Use + and - keys to arrange the priority of the detected boot devices in the list. The first device in the list has the highest boot priority.

EFI

Enter this menu to select the priority of the UEFI boot devices. Use the "+" key to move an item up or the "-" key to move an item down. The one on the top of the list has the highest priority.

> **Note:**
> If the boot type is set to UEFI, the method for RAID volume creation will be different. Please refer to Chapter 9 – RAID for more information.

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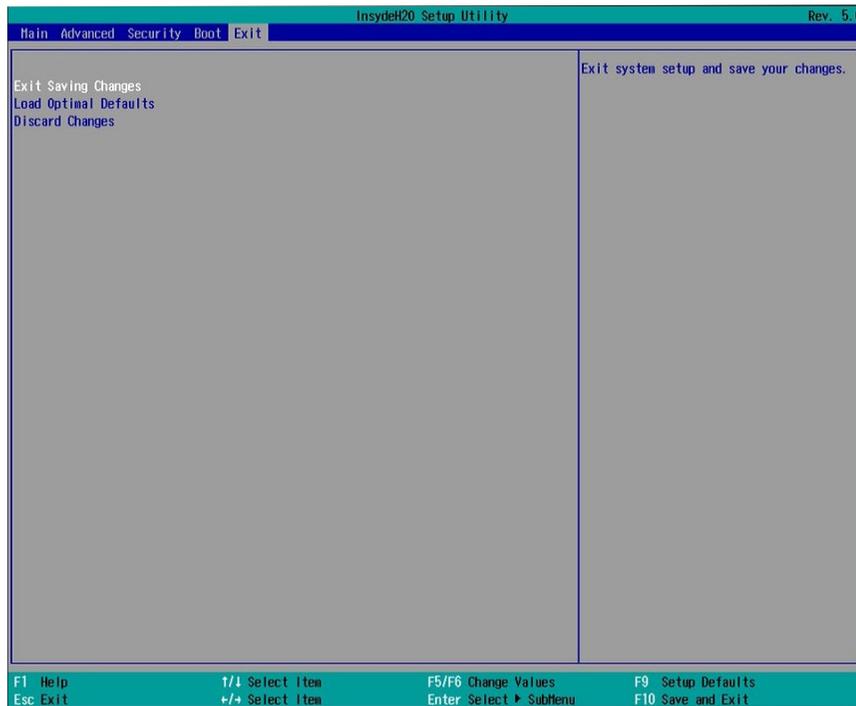
Exit

Exit Saving Changes

Select this field and press <Enter> to exit BIOS setup and save your changes.

Load Optimal Defaults

Select this field and press <Enter> to load the optimal defaults.

Discard Changes

Select this field and press <Enter>to exit the BIOS setup without saving your changes.

Updating the BIOS

To update the BIOS, you will need the new BIOS file and a flash utility. Please contact technical support or your sales representative for the files and specific instructions about how to update BIOS with the flash utility.

When you download the given BIOS file, you may find a BIOS flash utility attached with the BIOS file. This is the utility for performing BIOS updating procedure. For your convenience, we will also provide you with an auto-execution file in the BIOS file downloaded. This auto-execution file will bring you directly to the flash utility menu soon after system boots up and finishes running the boot files in your boot disk.

```
Read file successfully.   (path= "platform.ini")

                              Information
                    Please do not remove the AC power



         Insyde H20FFT (Flash Firmware Tool) Version (SEG) 100.00.08.10
         Copyright(c) 2012 - 2016, Insyde Software Corp. All Rights Reserved.

                  Initializing
         Current BIOS Model name: SU273
         New   BIOS Model name: SU273

         Current BIOS version: 68.08A
         New BIOS version: 68.08A

                  Updating Block at FFFFF000h
         0%         25%            50%           75%        100%
                                                                    100%
C:\SU25x>_
```

Notice: BIOS SPI ROM

1. The Intel® Management Engine has already been integrated into this system board. Due to safety concerns, the BIOS (SPI ROM) chip cannot be removed from this system board and used on another system board of the same model.

2. The BIOS (SPI ROM) on this system board must be the original equipment from the factory and cannot be used to replace one which has been utilized on other system boards.

3. If you do not follow the methods above, the Intel® Management Engine will not be updated and will cease to be effective.

Note:
a. You can take advantage of flash tools to update the default configuration of the BIOS (SPI ROM) to the latest version anytime.
b. When the BIOS IC needs to be replaced, you have to populate it properly onto the system board after the EEPROM programmer has been burned and follow the technical person's instructions to confirm that the MAC address should be burned or not.

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Chapter 8 - Supported Software

The system requires you to install drivers for some devices to operate properly. To download the latest driver, please go to the DFI Download Center:

http://www.dfi.com/DownloadCenter

Once you are in the Download Center page, select your product or type the model name and click "Search" to find product-related resources such as documentation and drivers.

Drivers are available for the following devices in Windows 7, 8.1 and 10:

• Intel® Chipset Device Software

• Intel® Graphics Driver

• Intel® Rapid Storage Technology

• Intel® LAN Driver

• Kernel Mode Driver Framework (For Windows 7 only)

• Intel® ME Driver

• Intel® USB 3.0 Driver (For Windows 7 and Windows 8.1)

• Audio Driver

• Intel® Serial IO Driver

Intel Chipset Device Software

The Intel Chipset Device Software is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install this driver, follow these steps:

1. Setup is ready to install the utility. Click "Next" to continue.

2. Read the license agreement and then click "Yes".
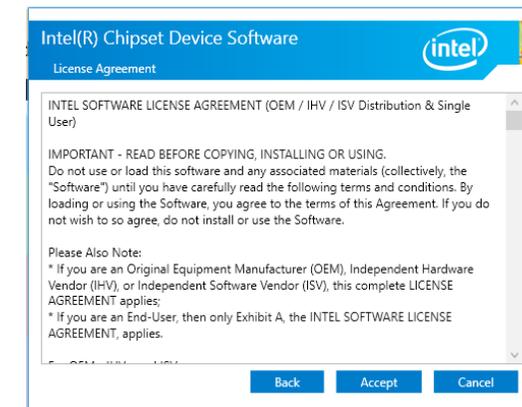
3. Go through the readme document for more installation tips and then click "Next".
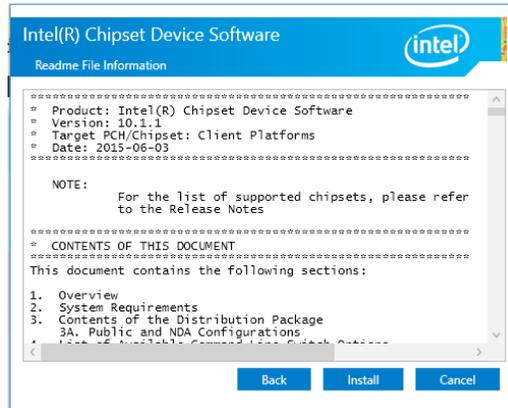
4. Click "Finish" to exit setup.
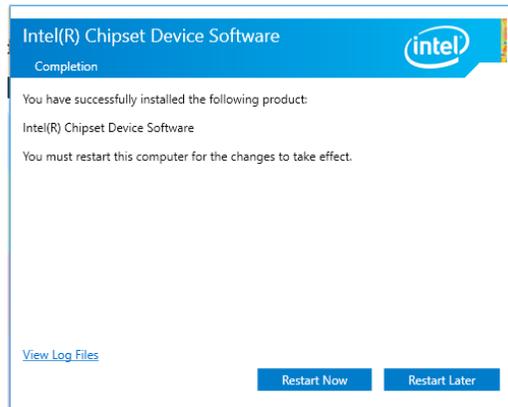
Intel Rapid Storage Technology

The Intel Rapid Storage Technology is a utility that allows you to monitor the current status of the SATA drives. It also enables enhanced performance and power management for the storage subsystem.

To install this driver, follow these steps:

1. The setup program is preparing to install the driver. Please exit all programs before continuing with the installation.
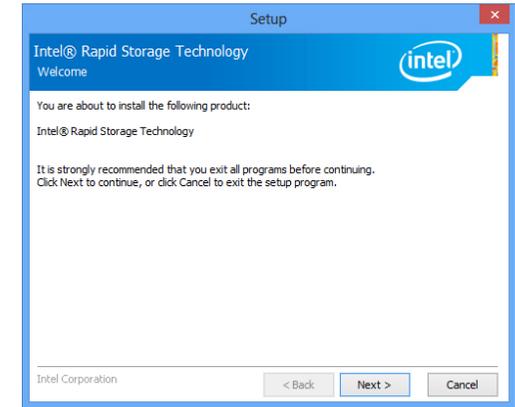
2. Read the license agreement carefully, accept the terms of the License Agreement, then click "Next" to continue.
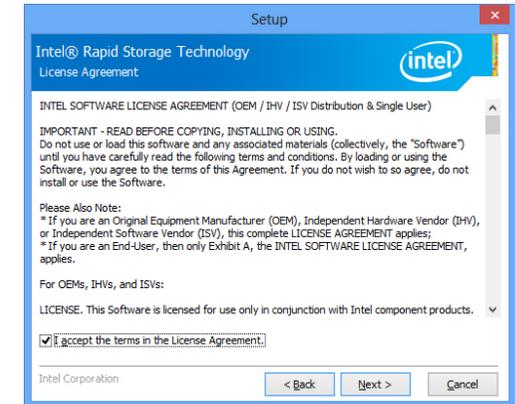
3. Read the readme information and then click "Next."
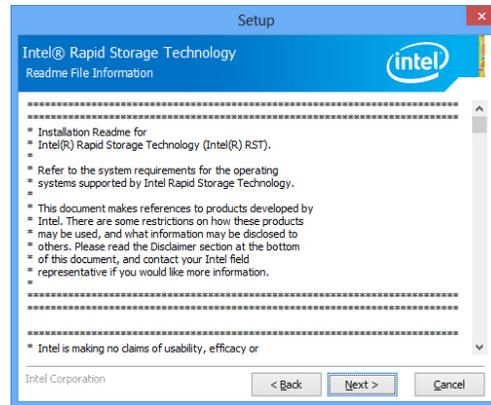
4. Setup is currently installing the driver. Click "Next" to install to the default folder or select to change the installation folder. The setup will then inform you that the Intel® Rapid Storage Technology will be installed on your system.
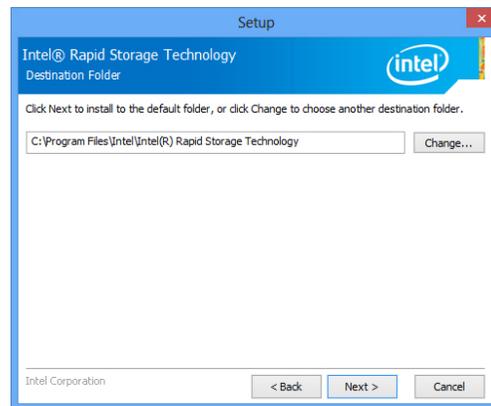
5. Click "Yes, I want to restart this computer now", then click "Finish."

   Restarting the system will allow the new software installation to take effect.
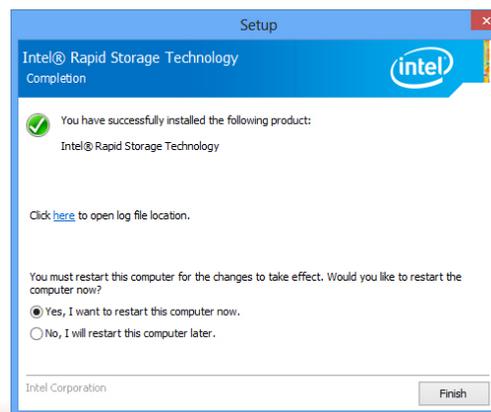
Intel Graphics Driver

To install this driver, follow these steps:

1. Setup is now ready to install the graphics driver. Click "Next".

   By default, the "Automatically run WinSAT and enable the Windows Aero desktop theme" is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows 7/Windows 8.1/Windows 10 desktop appears. The "blank screen" period is the time Windows is testing the graphics performance.

2. Read the license agreement, and then click "Yes".

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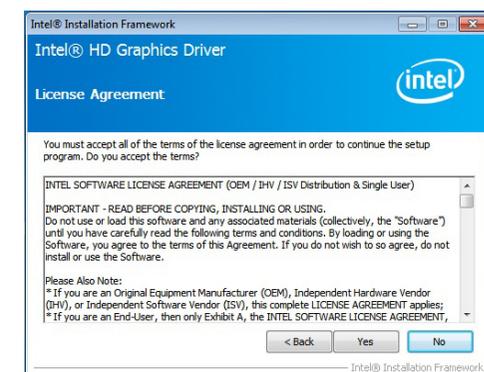
3. Go through the readme document for system requirements and installation tips, and then click "Next".
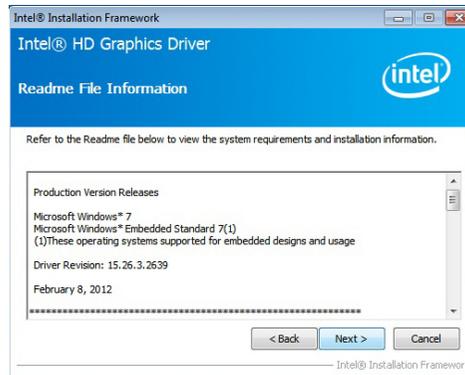
4. Setup is now installing the driver. Click "Next" to continue.
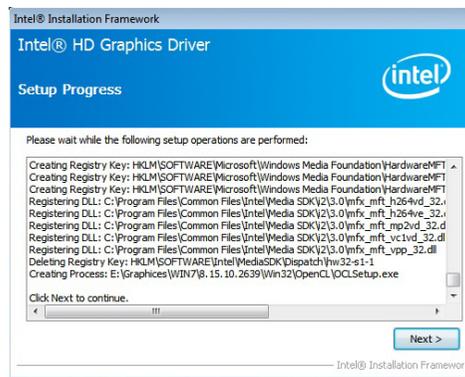
5. Click "Yes, I want to restart this computer now", and then click "Finish".

   Restarting the system will allow the new software installation to take effect.
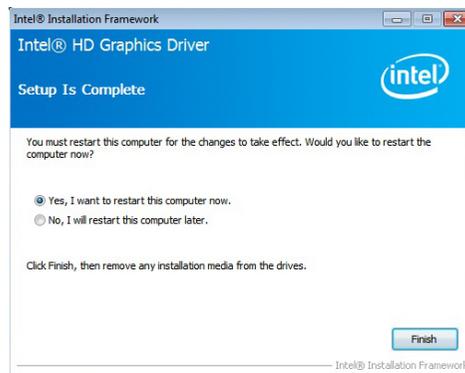
Audio Drivers

To install this driver, follow these steps:

1. Setup is ready to install the driver. Click "Next" to continue.
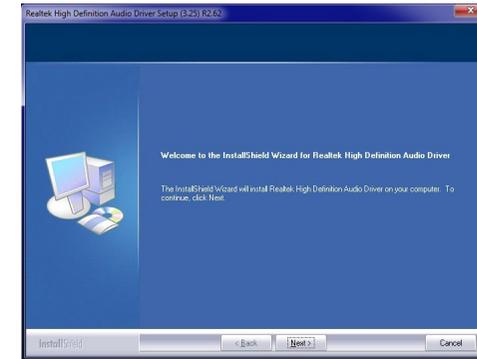
2. Click "Yes, I want to restart my computer now", and then click "Finish".

   Restarting the system will allow the new software installation to take effect.

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Intel LAN Drivers

To install this driver, follow these steps:

1. Setup is ready to install the driver. Click "Next" to continue.

2. Click "I accept the terms in the license agreement", and then click "Next".

3. Select the program features you want installed, and then click "Next".
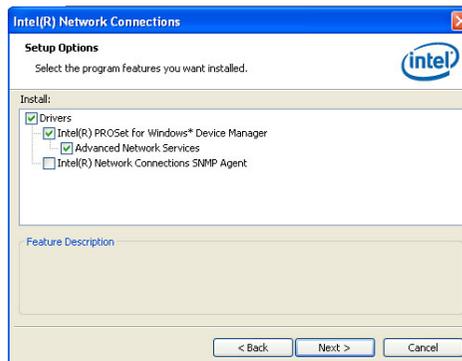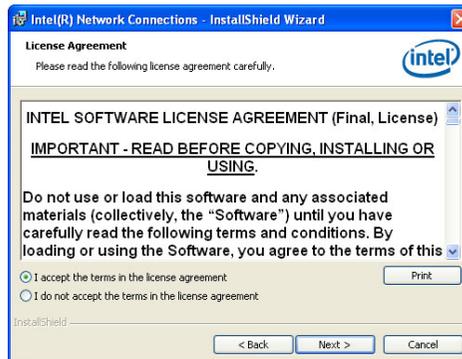
4. Click "Install" to begin the installation.

5. After the installation is complete, click "Finish".
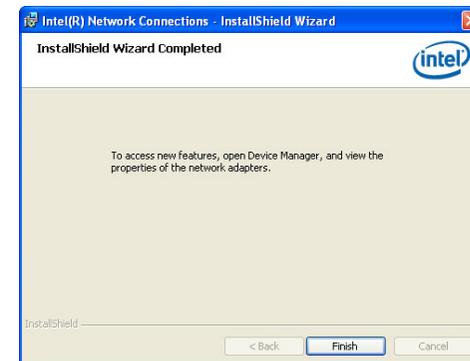
Kernel Mode Driver (For Windows 7 only)

To install this driver, follow these steps:

1. Click "Yes" to install the update.
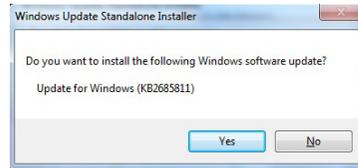
2. The update is being installed now.
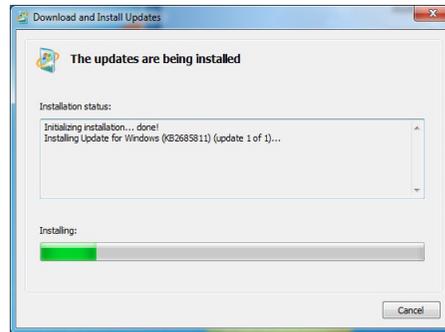
3. Click "Restart Now" to restart your computer when the installation is complete.
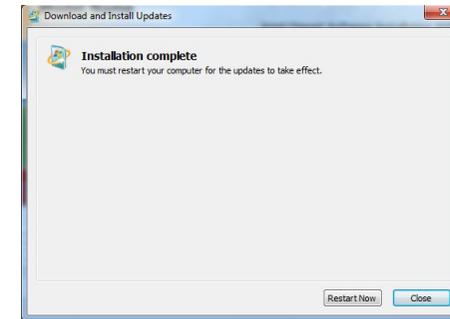
Intel Management Engine Drivers

To install this driver, follow these steps:

1. Setup is ready to install the driver. Click "Next" to continue.

2. Read the license agreement, and then click "Next".
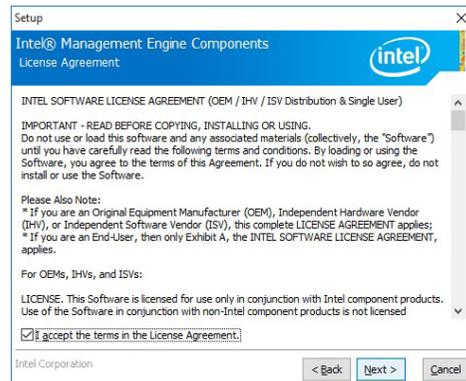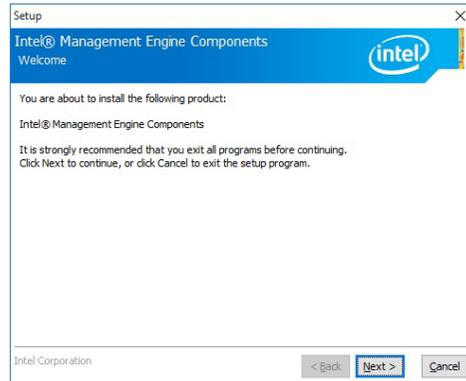
3. Setup is currently installing the driver. After the installation is complete, click "Next".
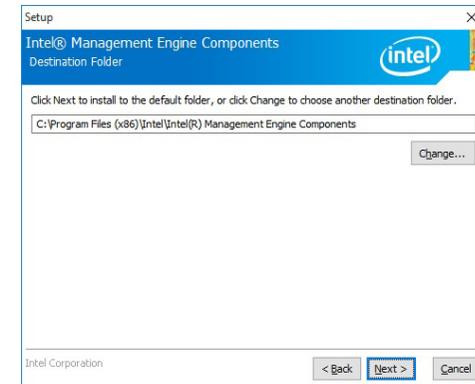
4. Please wait while the product is being installed.
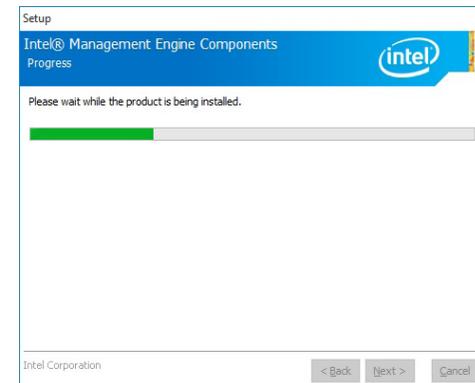
5. After the installation is complete, click "Finish".
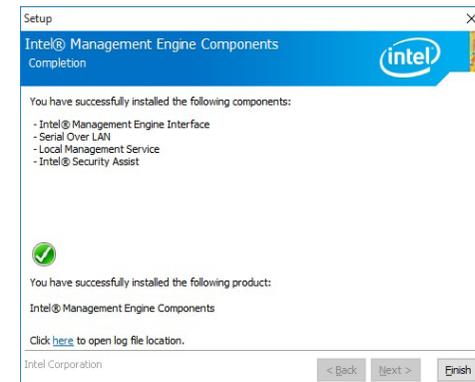
Intel USB 3.0 Driver (For Windows 7 and Windows 8.1)

To install this driver, follow these steps:

1. Setup is ready to install the driver. Click "Next" to continue.
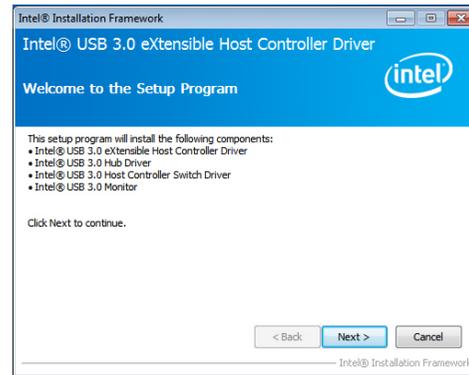
2. Read the license agreement, and then click "Yes".

3. Go through the readme document for more installation tips, and then click "Next".
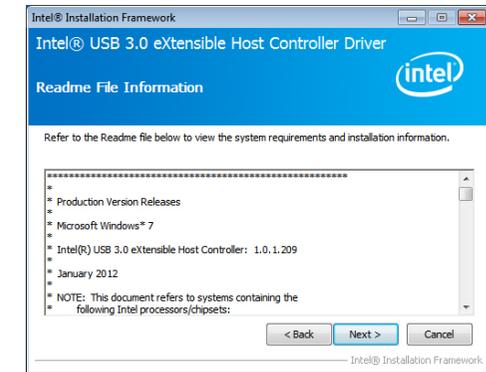
4. Setup is currently installing the driver. After the installation is complete, click "Next".
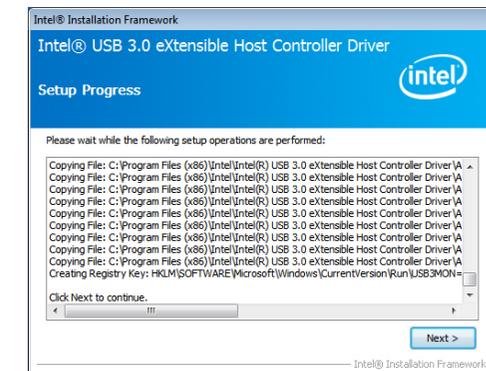
5. After the installation is complete, click "Finish".

IO Driver

To install this driver, follow these steps:

1. Setup is ready to install the driver. Click "Next".

3. Read the file information, and then click "Next".
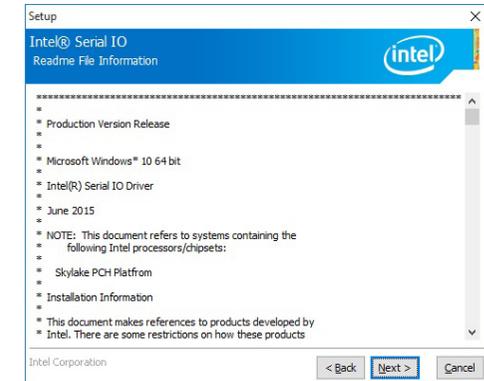
4. Setup is ready to install the driver. Click "Next" to continue.

2. Read the license agreement care-fully. Click "I accept the terms in the License Agreement", and then click "Next".
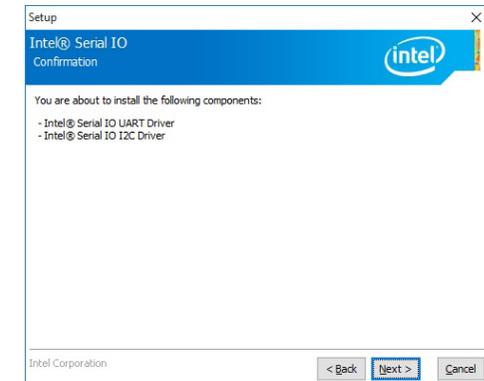
5. Setup is now installing the driver.

6. Click "Finish" to exit the setup.

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Microsoft Framework 4.5.2 (For Windows 7 only)

> **Note:**
> Before installing Microsoft Framework 4.5.2, make sure you have updated your Windows 7 operating system to Service Pack 1 or above.

To install this driver, follow these steps:

1. Setup is now extracting files.

3. Setup is now installing the driver.
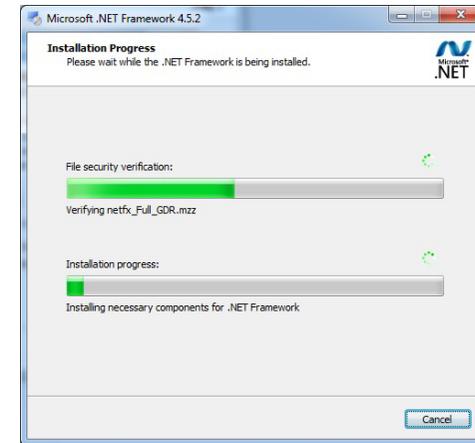
4. Click "Finish" to exit the setup program.

2. Read the license agreement carefully.

   Click "I have read and accept the terms of the License Agreement", and then click "Install".
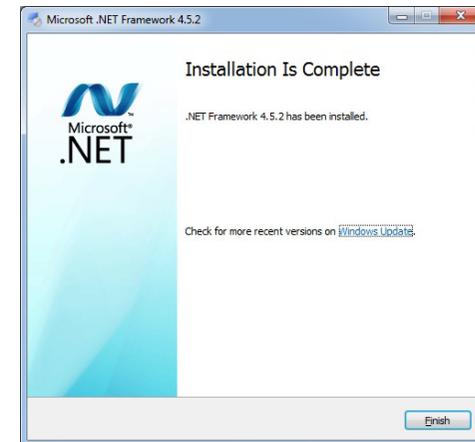
Infineon TPM 1.2 Driver and Tool (Optional)

To install this driver, follow these steps:

1. The setup program is preparing to install the driver.

2. The setup program is now ready to install the utility. Click "Next" to continue.

3. Click "I accept the terms in the license agreement", and then click "Next".

4. Enter the necessary information, and then click "Next".
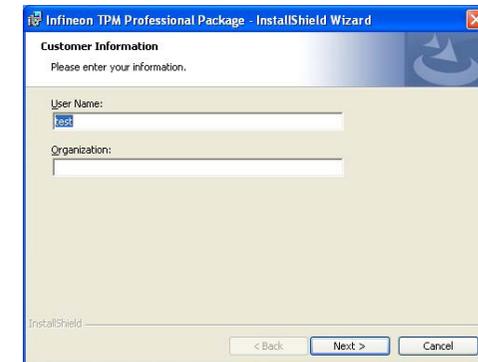
5. Select a setup type, and then click "Next".
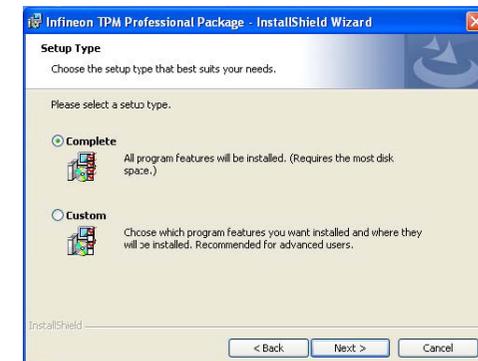
6. Click "Install" to begin the installation.

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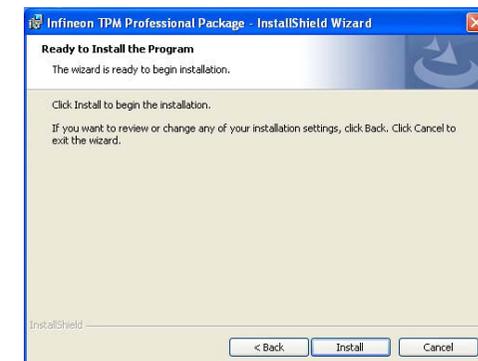
7. TPM requires installing the Micro-soft Visual C++ package prior to installing the utility. Click "Install" to start the installation.

8. The setup program is currently installing the Microsoft Visual C++ package.

9. Click "Finish".

10. Click "Yes" to restart your system.
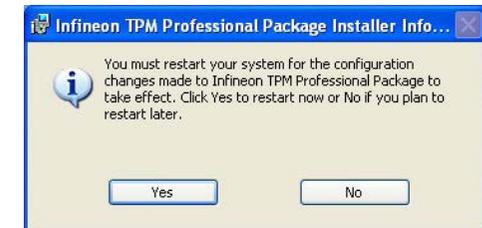
Adobe Acrobat Reader 9.3

To install this driver, follow these steps:

1. Click "Next" to install or click "Change Destination Folder" to select a different folder for installation.
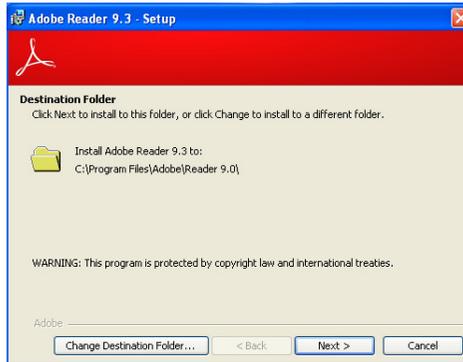
2. Click "Install" to begin installing the program.
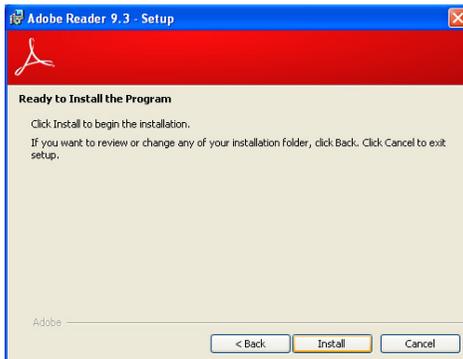
3. Click "Finish" to exit the installation.
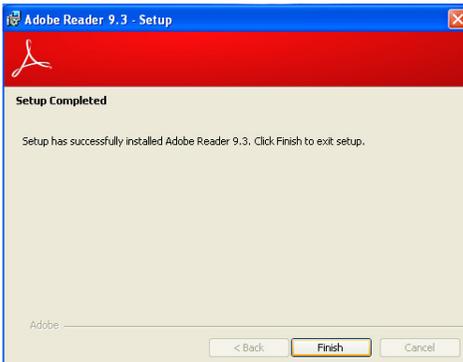
Chapter 9 - RAID

The system board allows configuring RAID on Serial ATA drives. It supports RAID 0 and RAID 1.

RAID Levels

RAID 0 (Striped Disk Array without Fault Tolerance)

RAID 0 uses two new identical hard disk drives to read and write data in parallel, interleaved stacks. Data is divided into stripes and each stripe is written alternately between two disk drives. This improves the I/O performance of the drives at different channel; however it is not fault tolerant. A failed disk will result in data loss in the disk array.

RAID 1 (Mirrored Disk Array with Fault Tolerance)

RAID 1 copies and maintains an identical image of the data from one drive to the other drive. If a drive fails to function, the disk array management software directs all applications to the other drive since it contains a complete copy of the drive's data. This enhances data protection and increases fault tolerance to the entire system. Use two new drives or an existing drive and a new drive but the size of the new drive must be the same or larger than the existing drive.

RAID Level	Min. Drives	Protection	Description
RAID 0	2	None	Data striping without redundancy
RAID 1	2	Single Drive Failure	Disk mirroring

Settings

To enable the RAID function, the following settings are required.

1. Connect the Serial ATA drives.

2. Enable Serial ATA in the Insyde BIOS.

3. Create a RAID volume.

3-1. Create a RAID volume if the boot type is UEFI.

4. Install the Intel Rapid Storage Technology Utility.

Step 1: Connect the Serial ATA Drives

Refer to Chapter 3 for details on connecting the Serial ATA drives.

> **Important:**
> 1. Make sure you have installed the Serial ATA drives and connected the data cables otherwise you won't be able to enter the RAID BIOS utility.
> 2. Treat the cables with extreme caution especially while creating RAID. A damaged cable will ruin the entire installation process and operating system. The system will not boot and you will lost all data in the hard drives. Please give special attention to this warning because there is no way of recovering back the data.

Step 2: Enable RAID in the BIOS

1. Power-on the system then press <Del> to enter the main menu of the BIOS setup utility.

2. Go to "Advanced" menu, and select the "SATA Configuration" menu.

3. Change the "SATA Mode Selection" to "RAID" mode.

4. Save the changes in the "Save & Exit" menu.

5. Reboot the system.

Step 3: Create a RAID Volume

1. When the Intel® RST option ROM status screen displays during POST, press <Ctrl> and <I> simultaneously to enter the option ROM user interface.

2. Select 1: Create RAID Volume and press <Enter>.

3. Use the up or down arrow keys to select the RAID level and press <Enter>.

4. Use the up or down arrow keys to select the strip size and press <Enter>.

5. Press <Enter> to select the physical disks.

6. Use the up or down arrow keys to scroll through the list of hard drives and press <Space> to select the drive.

7. Press <Enter>.

8. Select the volume size and press <Enter>. You must select less than one hundred percent of the available volume space to leave space for the second volume.

9. Press <Enter> to create the volume.

10. At the prompt, press <Y> to confirm volume creation.

11. Select 4: Exit and press <Enter>.

12. Press <Y> to confirm exit.

> **Note:**
> These steps are cited from the Intel® Support site, "Set Up a System with Intel® Matrix RAID Technology" (Article ID: 000005789).
> http://www.intel.com/content/www/us/en/support/boards-and-kits/000005789.html

Step 3-1: Create a RAID Volume if the Boot Type is UEFI

If the boot type is set to UEFI, RAID volume creation will be different. Please use the following steps to create RAID volumes. To set the boot type, enter the Insyde BIOS and go to "Boot" >"Boot type".

1. Go to the "Advanced" menu of the Insyde BIOS.

2. The "Intel® Rapid Storage Technology" menu appears. Enter this menu.
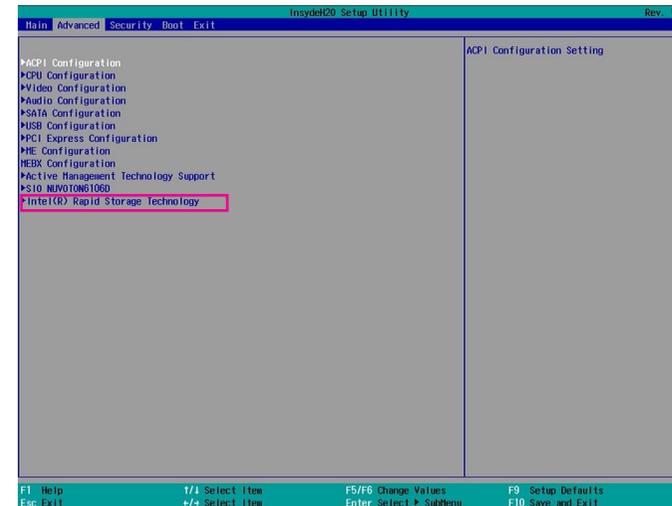
3. The screen displays all available drives. Select "Create RAID volume" to create a RAID volume".

4. Use the up or down arrow keys to select the RAID level and press <Enter>.

5. Use the up or down arrow keys to scroll through the list of hard drives and press <Space> to select the drive.

6. Press <Enter>.

7. Use the up or down arrow keys to select the strip size and press <Enter>.

8. Enter the volume size and press <Enter>.

9. At the prompt, press <Y> to confirm volume creation.

Step 4: Install the Intel Rapid Storage Technology Utility

The Intel Rapid Storage Technology Utility can be installed from within Windows. It allows RAID volume management (create, delete, migrate) from within the operating system. It will also display useful SATA device and RAID volume information. The user interface, tray icon service and monitor service allow you to monitor the current status of the RAID volume and/or SATA drives. It enables enhanced performance and power management for the storage subsystem.

1. Insert the provided DVD into an optical drive.

2. Click "Intel Rapid Storage Technology Utility" on the main menu.

3. Setup is ready to install the utility. Click Next.
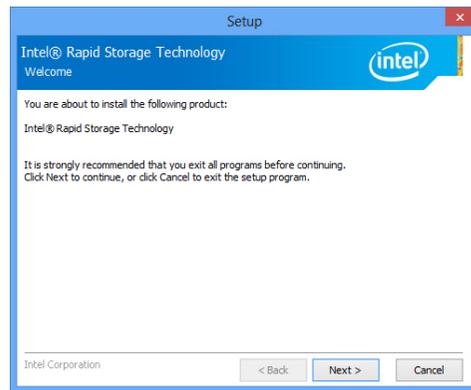
4. Read the license agreement and click "I accept the terms in the License Agreement." Then, click Next.
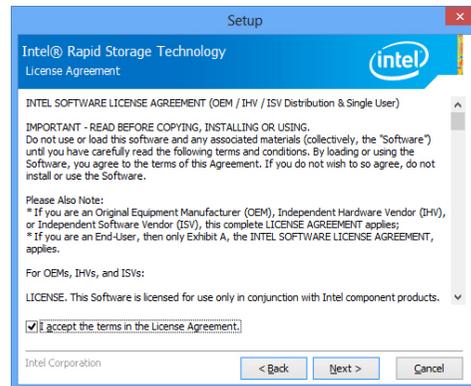
5. Go through the readme document to view system requirements and installation information then click Next.

6. Click Next to install to the default folder or click change to choose another destination folder.
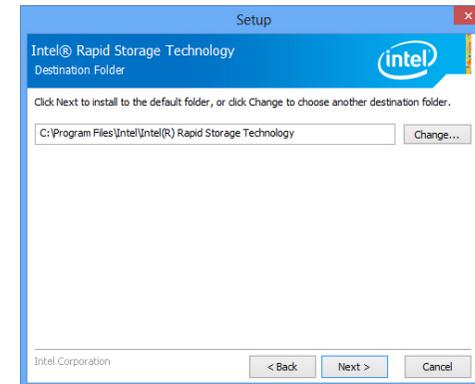
7. Confirm the installation and click Next.
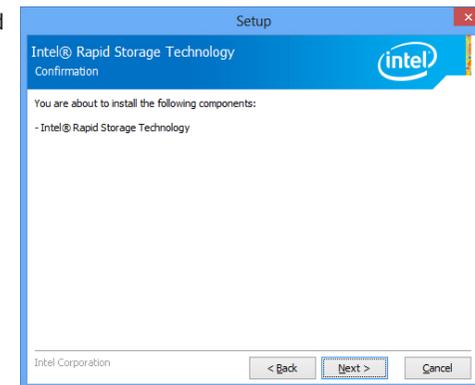
8. Click "Yes, I want to restart this computer now" to complete the installation and then click Finish.

Chapter 10 - Intel AMT Settings

Overview

Intel Active Management Technology (Intel® AMT) combines hardware and software solutions to provide maximum system defense and protection to networked systems.

The hardware and software information are stored in non-volatile memory. With its built-in manageability and the latest security applications, Intel® AMT provides the following functions.

• Discover

Allows remote access and management of networked systems even while PCs are powered off; significantly reducing desk-side visits.

• Repair

Remotely repair systems after OS failures. Alerting and event logging help detect problems quickly to reduce downtime.

• Protect

Intel AMT's System Defense capability remotely updates all systems with the latest security software. It protects the network from threats at the source by proactively blocking incoming threats, reactively containing infected clients before they impact the network, and proactively alerting when critical software agents are removed.

Enable Intel® AMT in the BIOS

1. Power on the system then press <Del> to enter the main menu of the BIOS setup utility.

2. In the "Advanced" menu, select "Active Management Technology Support".
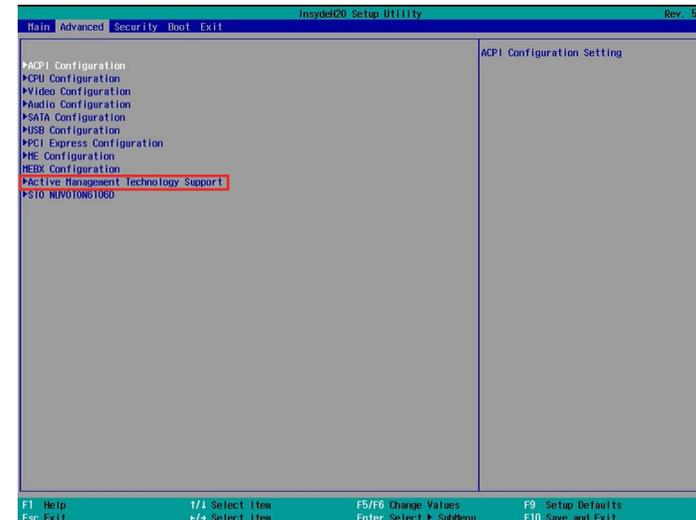
3. In the "Active Management Technology Support" menu, select "Enabled" for "Intel AMT Support".
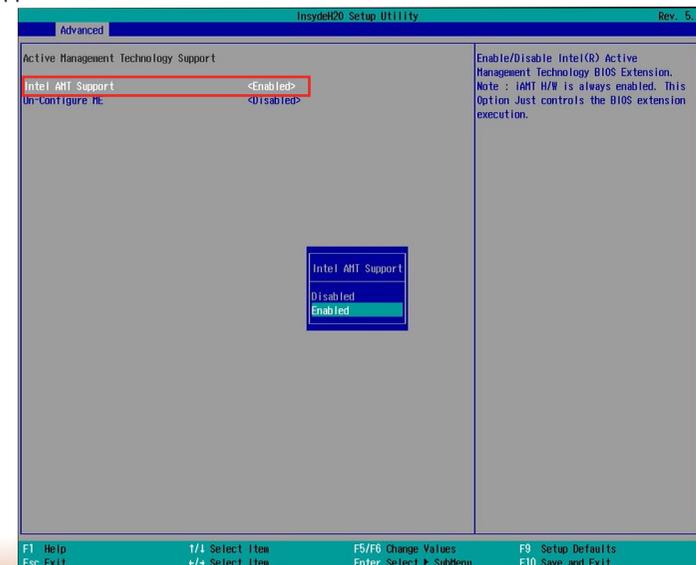
4. In the "Exit" menu, select "Exit Saving Changes" and then select "OK".
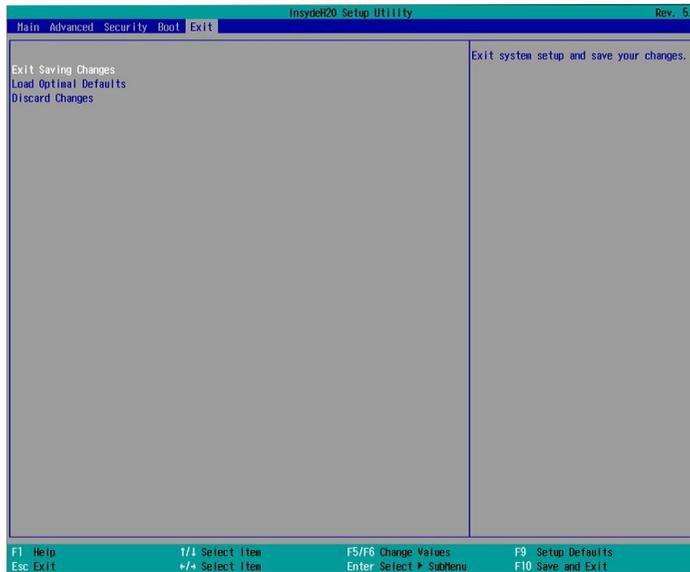
Set up Intel® AMT using the Intel® Management Engine BIOS Extension (MEBX)

1. After the system reboots, press <Del> to enter the BIOS menu again.

2. In the "Advanced" menu, select "MEBX Configuration" to enter the Manageability Engine BIOS Extension (MEBx) Setup.

3. When the system reboots, you will be prompted for a password. The default password is "admin". Enter the default password in the space provided under Intel(R) ME Password, then press "Enter".
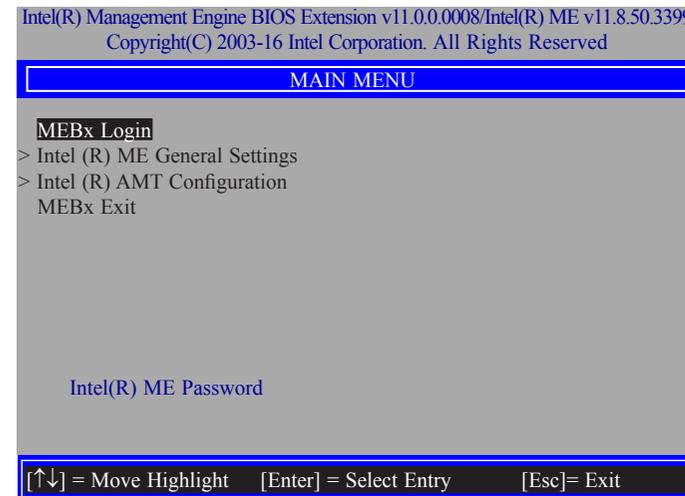
4. Enter a password in the space provided under "Intel(R) ME Password" and then press "Enter". The password must include:

    • 8-32 characters
    • Strong 7-bit ASCII characters excluding **:,** and **"** characters
    • At least one digit character (0, 1, ...9)
    • At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, $, ;)
    • Both lower case and upper case characters

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MAIN MENU

MEBx Login
> Intel (R) ME General Settings
> Intel (R) AMT Configuration
  MEBx Exit

Intel (R) ME Password

Intel(R) ME Password

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit
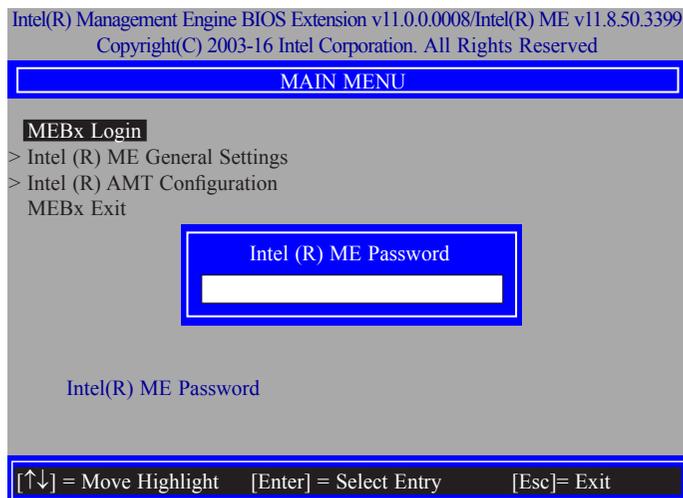
5. You will be asked to verify the password. Enter the same new password in the space provided under "Verify Password" and then press "Enter".

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MAIN MENU

MEBx Login
> Intel (R) ME General Settings
> Intel (R) AMT Configuration
  MEBx Exit

Verify Password

Intel(R) ME Password

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit
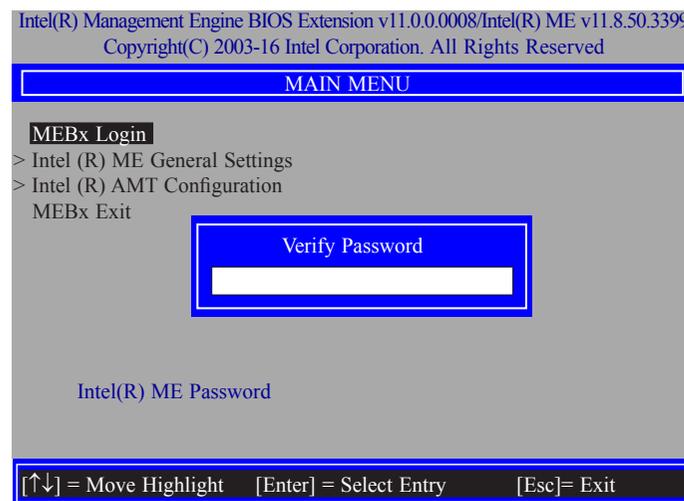
6. Select "Intel(R) ME General Settings" and then press "Enter".

Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
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MAIN MENU

> Intel (R) ME General Settings
> Intel (R) AMT Configuration
  MEBx Exit

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit
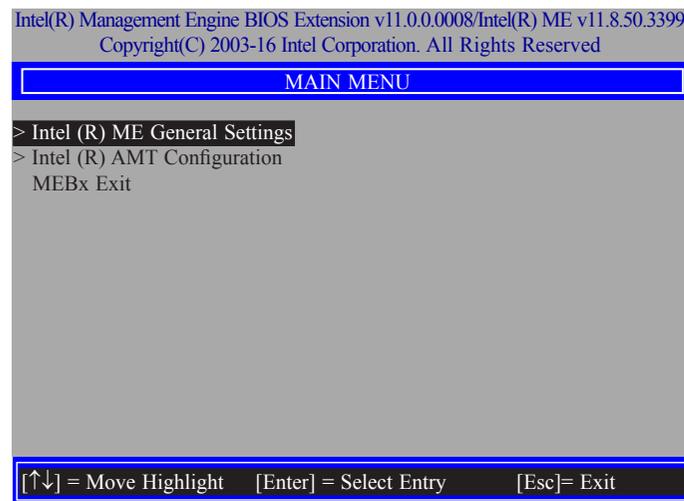
7. Select "Change Intel(R) ME Password" and then press "Enter".

    You will be prompted for a password. The default password is "admin". Enter the default password in the space provided under "Intel(R) ME New Password" and then press "Enter".

    • 8-32 characters
    • Strong 7-bit ASCII characters excluding **:**, and **"** characters
    • At least one digit character (0, 1, ...9)
    • At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, $, ;)
    • Both lower case and upper case characters

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                      INTEL (R) ME PLATFORM CONFIGURATION

Change ME Password
Local FW Update                    <Enabled>




              Intel (R) ME New Password



[↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```
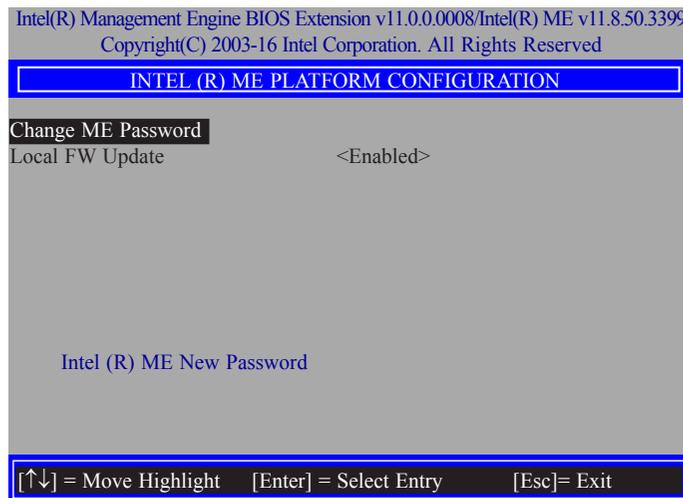
8. Select "Local FW Update" and then press "Enter". Select "Enabled" or "Disabled" or "Password Protected" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                      INTEL (R) ME PLATFORM CONFIGURATION

Change ME Password
Local FW Update                    <Enabled>

                          Disabled
                          Enabled
                          Password Protected



[↑↓] = Move Highlight   [Enter] = Complete Entry  [Esc]= Discard Changes
```
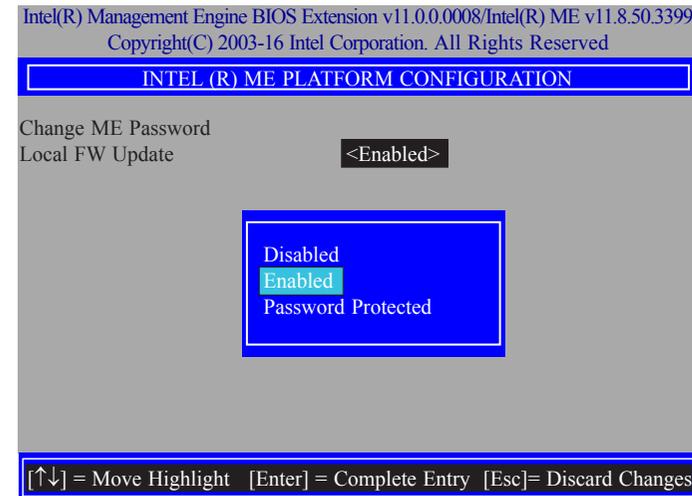
9. Select Previous Menu until you return to the "Main Menu". Select "Intel(R) AMT Configuration" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                      INTEL (R) AMT CONFIGURATION

   Manageability Feature Selection          < Enabled>
 > SOL/Storage Redirection/KVM
 > User Consent
   Password Policy                          <Anytime>
 > Network Setup
   Activate Network Access
   Unconfigure Network Access               <Full Unprovision>
 > Remote Setup And Configuration
 > Power Control



[↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

10. In the "Intel(R) AMT Configuration" menu, select "Manageability Feature Selection" and then press "Enter". Select "Enabled" or "Disabled" and then press "Enter".

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INTEL (R) AMT CONFIGURATION

```
   Manageability Feature Selection          < Enabled>
 > SOL/Storage Redirection/KVM
 > User Consent
   Password Policy                          <Anytime>
 > Network Setup
   Activate Network Access          Disabled
   Unconfigure Network Access       Enabled          l Unprovision>
 > Remote Setup And Configuration
 > Power Control
```

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes

11. In the "Intel(R) AMT Configuration" menu, select "SOL/Storage Redirection/KVM" and then press "Enter".

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INTEL (R) AMT CONFIGURATION

```
   Manageability Feature Selection          < Enabled>
 > SOL/Storage Redirection/KVM
 > User Consent
   Password Policy                          <Anytime>
 > Network Setup
   Activate Netwok Access
   Unconfigure Network Access               <Full Unprovi-
sion>
 > Remote Setup And Configuration
 > Power Control
```

[↑↓] = Move Highlight   [Enter] = Select Entry [Esc]= Exit

12. In the "SOL/Storage Redirection/KVM" menu, select "Username and Password" and then press "Enter". Select "Enabled" or "Disabled" and then press "Enter".

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SOL/Storage Redirection/KVM

```
   Username and Password                    < Enabled>
   SOL                                      <Enabled>
   Storage Redirection                      <Enabled>
   KVM Feature Selection                    <Enabled>

                                   Disabled
                                   Enabled
```

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
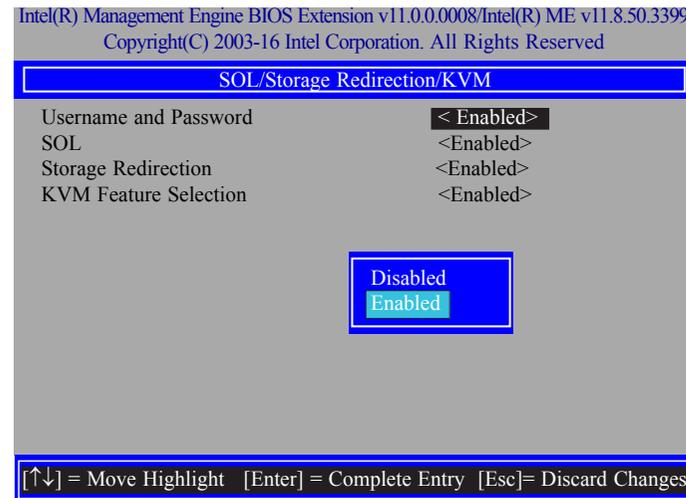
13. In the "SOL/Storage Redirection/KVM" menu, select "SOL" and then press "Enter". Select "Enabled" or "Disabled" and then press "Enter".

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SOL/Storage Redirection/KVM

```
   Username and password                    < Enabled>
   SOL                                      <Enabled>
   Storage Redirection                      <Enabled>
   KVM Feature Selection                    <Enabled>

                                   Disabled
                                   Enabled
```

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
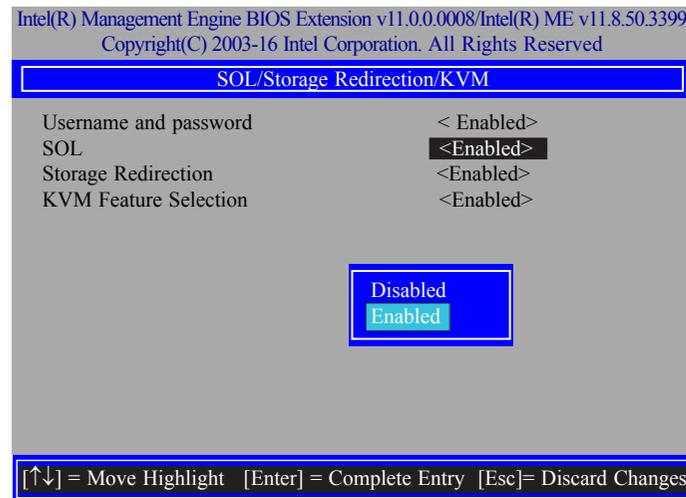
14. In the "SOL/Storage Redirection/KVM" menu, select "Storage Redirection" and then press "Enter". Select "Enabled" or "Disabled" and then press "Enter".

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SOL/Storage Redirection/KVM

Username and password   < Enabled>
SOL   <Enabled>
Storage Redirection   <Enabled>
KVM Feature Selection   <Enabled>

Disabled
Enabled

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
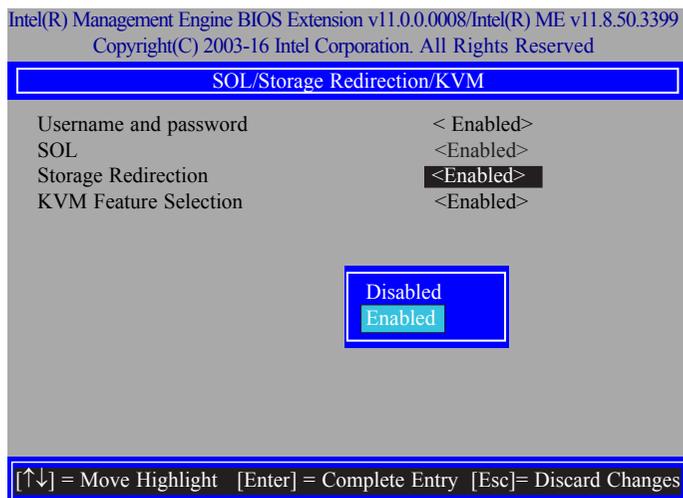
15. In the "SOL/IDER/KVM" menu, select "KVM Feature Selection" and then press "Enter". Select "Enabled" or "Disabled" and then press "Enter".

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SOL/Storage Redirection/KVM

Username and password   < Enabled>
SOL   <Enabled>
Storage Redirection   <Enabled>
KVM Feature Selection   <Enabled>

Disabled
Enabled

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
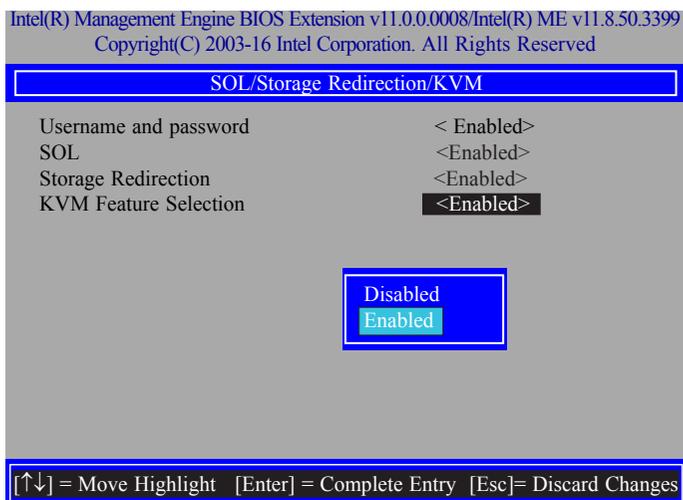
16. Select Previous Menu until you return to the "Intel(R) AMT Configuration" menu. Select "User Consent" and then press "Enter".

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USER CONSENT

User Opt-in   < KVM>
Opt-in Configurable from Remote IT < Enabled>

Configure When User Consent Should be Required.

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit
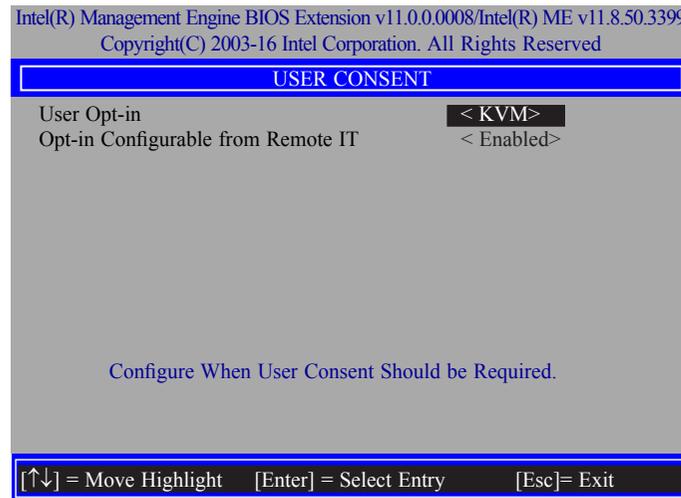
17. In the "User Consent" menu, select "User Opt-in" and then press "Enter". Select "None" or "KVM" or "ALL" and then press "Enter".

Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
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USER CONSENT

User Opt-in   < KVM>
Opt-in Configurable from Remote IT < Enabled>

NONE
KVM
ALL

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
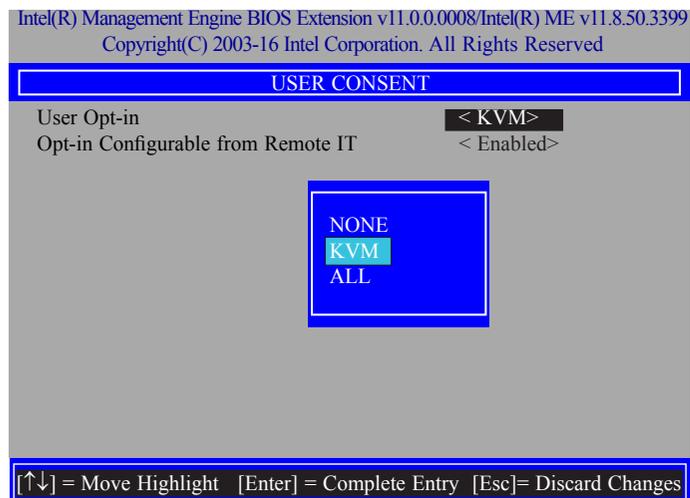
18. In the "User Consent" menu, select "Opt-in Configurable from Remote IT" and then press "Enter". Select "Enabled" or "Disable Remote Control of KVM Opt-in Policy" and then press "Enter".

Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
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USER CONSENT

User Opt-in   < ALL>
Opt-in Configurable from Remote IT   < Enabled>

Disabled
Enabled

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
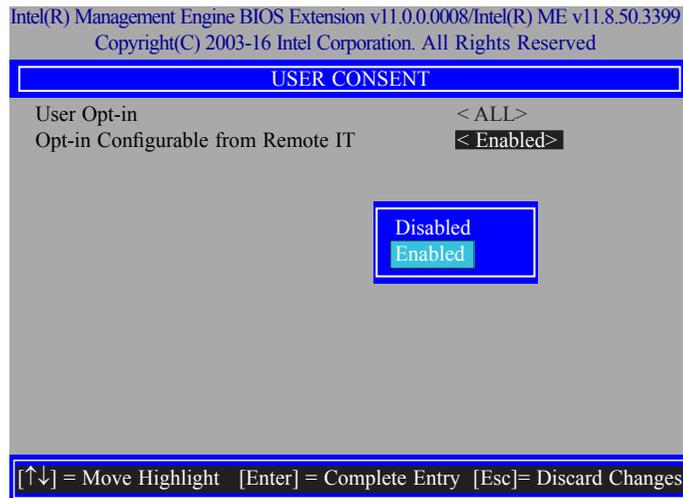
19. Select Previous Menu until you return to the "Intel(R) AMT Configuration" menu. Select "Password Policy" and then press "Enter".

You may choose to use a password only during setup and configuration or to use a password anytime the system is being accessed.

Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
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INTEL (R) AMT CONFIGURATION

Manageability Feature Selection   < Enabled>
> SOL/Storage Redirection/KVM
> User Consent
  Password Policy   <Anytime>
> Network Setup
  Activate Network Access
  Unconfigure Network Access   <Full Unprovision>
> Remote Setup And Configur

> Power Control

Default Password Only
During Stepup And Configuration
Anytime

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes

20. In the "Intel(R) AMT Configuration" menu, select "Network Setup" and then press "Enter".

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INTEL (R) AMT CONFIGURATION

Manageability Feature Selection   < Enabled>
> SOL/Storage Redirection/KVM
> User Consent
  Password Policy   <Anytime>
> Network Setup
  Activate Network Access
  Unconfigure Network Access   <Full Unprovision>
> Remote Setup And Configuration
> Power Control

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit

21. In the "Intel(R) ME Network Setup" menu, select "Intel(R) ME Network Name Settings" and then press "Enter".

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INTEL (R) ME NETWORK SETUP

> Intel (R) ME Network Name Settings
> TCP/ IP Settings

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit
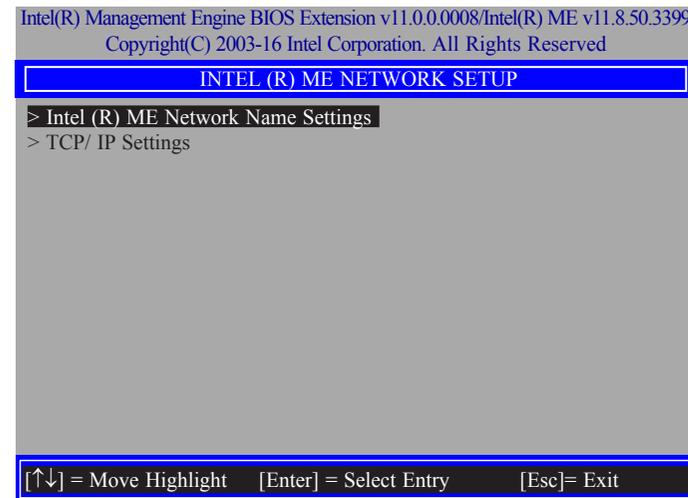
22. In the "Intel(R) ME Network Name Settings" menu, select "Host Name" and then press "Enter". Enter the computer's host name and then press "Enter".

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INTEL (R) ME NETWORK NAME SETTINGS

Host Name   ▄
Domain Name
Shared/ Dedicated FQDN   <Shared>
Dynamic DNS Update   <Disabled>

Computer Host Name

[Enter] = Complete Entry   [Esc]= Discard Changes
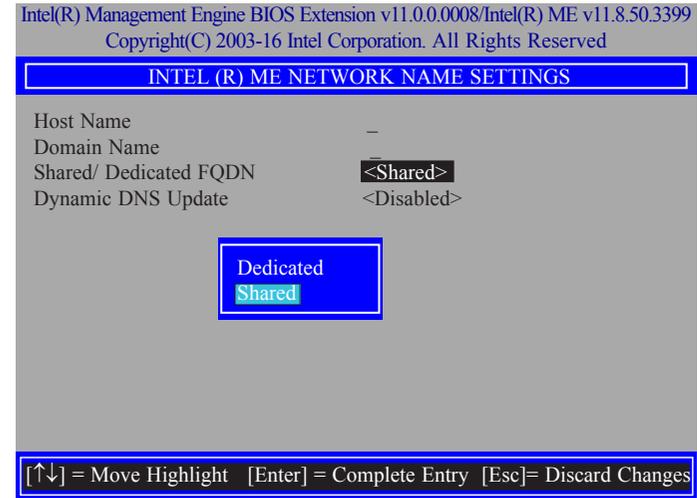
23. Select "Domain Name" and then press "Enter". Enter the computer's domain name and then press "Enter".

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INTEL (R) ME NETWORK NAME SETTINGS

Host Name   _
Domain Name   ▄
Shared/ Dedicated FQDN   <Shared>
Dynamic DNS Update   <Disabled>

Computer Domain Name

[Enter] = Complete Entry   [Esc]= Discard Changes

24. Select "Shared/Dedicated FQDN" and then press "Enter". Select "Shared" or "Dedicated" and then press "Enter".

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INTEL (R) ME NETWORK NAME SETTINGS

Host Name   _
Domain Name   _
Shared/ Dedicated FQDN   <Shared>
Dynamic DNS Update   <Disabled>

Dedicated
Shared

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes

25. Select "Dynamic DNS Update" and then press "Enter". Select "Enabled" or "Disabled" and then press "Enter".

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INTEL (R) ME NETWORK NAME SETTINGS

Host Name   _
Domain Name   _
Shared/ Dedicated FQDN   <Shared>
Dynamic DNS Update   <Disabled>

Disabled
Enabled

[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes
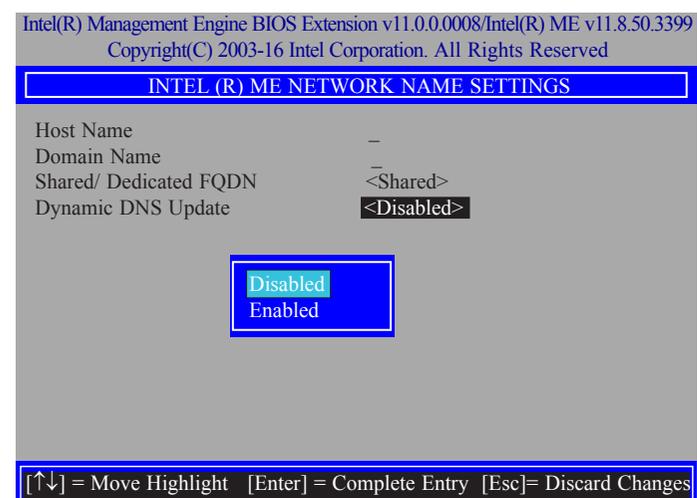
26. Select Previous Menu until you return to the "Intel(R) ME Network Setup" menu. Select "TCP/IP Settings" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
            Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                          TCP/ IP SETTINGS

> Wired LAN IPV4 Configuration




[↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

27. In the "TCP/IP Settings" menu, select "Wired LAN IPV4 Configuration" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
            Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                     WIRED LAN IPV4 CONFIGURATION

DHCP Mode                              <Enabled>



                         Disabled
                         Enabled



[↑↓] = Move Highlight   [Enter] = Complete Entry  [Esc]= Discard Changes
```
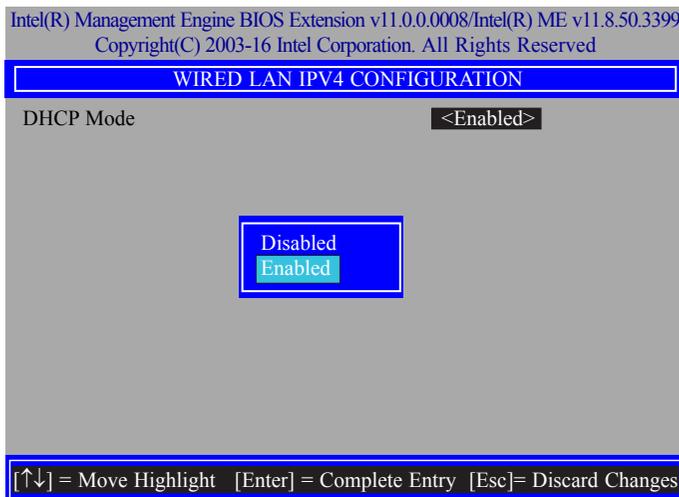
28. In the "Intel(R) AMT Configuration" menu, select "Activate Network Access" and then select "Yes/No" and press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
            Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                        INTEL (R) AMT CONFIGURATION

   Manageability Feature Selection          < Enabled>
 > SOL/Storage Redirection/KVM
 > User Consent
   Password Policy                          <Anytime>
 > Network Setup
   Activate Network Access
   Unconfigure Network Access               <Full Unprovision>
 > Remote Setup And Configuration
 > Power Control          Activates the current network settings
                          and opens the ME network interface
                          Continue: (Y/N)


[↑↓] = Move Highlight   [Enter] = Select Entry  [Esc]= Exit
```

29. In the "Intel(R) AMT Configuration" menu, select "Unconfigure Network Access" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
            Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                        INTEL (R) AMT CONFIGURATION

   Manageability Feature Selection          < Enabled>
 > SOL/Storage Redirection/KVM
 > User Consent
   Password Policy                          <During Setup And
                                             Configuration>
 > Network Setup
   Activate Network Access                  <Full Unprovision>
   Unconfigure Network Access
 > Remote Setup And Configuration
 > Power Control                            Full Unprovision



[↑↓] = Move Highlight   [Enter] = Complete Entry  [Esc]= Discard Changes
```

30. In the "Intel(R) AMT Configuration" menu, select "Remote Setup And Configuration" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
┌──────────────────────────────────────────────────────────────────────────┐
│                       INTEL (R) AMT CONFIGURATION                          │
└──────────────────────────────────────────────────────────────────────────┘

      Manageability Feature Selection          < Enabled>
   >  SOL/Storage Redirection/KVM
   >  User Consent
      Password Policy                          <Anytime>
   >  Network Setup
      Activate Network Access
      Unconfigure Network Access               <Full Unprovision>
   >  Remote Setup And Configuration
   >  Power Control



   [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```
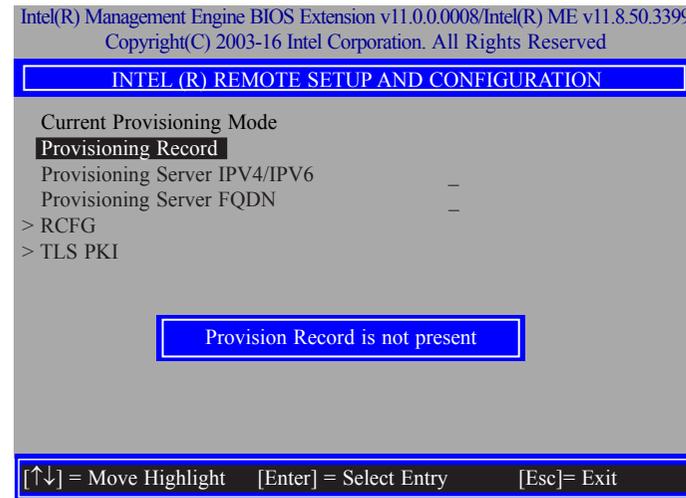
31. In the "Intel(R) Remote Setup And Configuration" menu, select "Current Provisioning Mode" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
┌──────────────────────────────────────────────────────────────────────────┐
│                 INTEL (R) REMOTE SETUP AND CONFIGURATION                    │
└──────────────────────────────────────────────────────────────────────────┘

      Current Provisioning Mode
      Provisioning Record
      Provisioning Server IPV4/IPV6                   _
      Provisioning Server FQDN                        _
   >  RCFG
   >  TLS PKI

            ┌──────────────────────────────────────┐
            │        Provisioning Mode: PKI        │
            └──────────────────────────────────────┘


   [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

32. In the "Intel(R) Remote Setup And Configuration" menu, select "Provisioning Record" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
              Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
┌──────────────────────────────────────────────────────────────────────────┐
│                 INTEL (R) REMOTE SETUP AND CONFIGURATION                    │
└──────────────────────────────────────────────────────────────────────────┘

      Current Provisioning Mode
      Provisioning Record
      Provisioning Server IPV4/IPV6                   _
      Provisioning Server FQDN                        _
   >  RCFG
   >  TLS PKI

            ┌──────────────────────────────────────┐
            │      Provision Record is not present  │
            └──────────────────────────────────────┘


   [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

33. In the "Intel(R) Remote Setup And Configuration" menu, select "Provisioning server IPV4/IPV6", enter "Provisioning server address" and then press "Enter".

```
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┌──────────────────────────────────────────────────────────────────────────┐
│                 INTEL (R) REMOTE SETUP AND CONFIGURATION                    │
└──────────────────────────────────────────────────────────────────────────┘

      Current Provisioning Mode
      Provisioning Record
      Provisioning Server IPV4/IPV6                   _
      Provisioning Server FQDN                        _
   >  RCFG
   >  TLS PKI

            ┌──────────────────────────────────────┐
            │        Provisioning server address    │
            │  ┌────────────────────────────────┐  │
            │  └────────────────────────────────┘  │
            └──────────────────────────────────────┘

   [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```
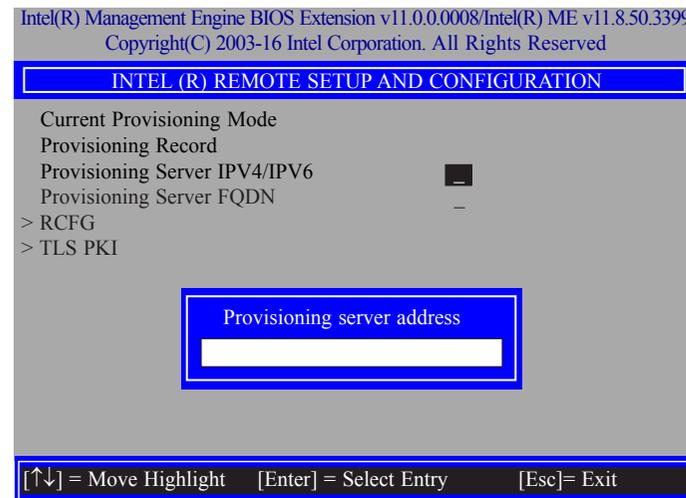
34. In the "Intel(R) Remote Setup And Configuration" menu, select "Provisioning server FQDN", enter the FQDN of Provisioning server, and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
                Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                    INTEL (R) REMOTE SETUP AND CONFIGURATION

    Current Provisioning Mode
    Provisioning Record
    Provisioning Server IPV4/IPV6          _
    Provisioning Server FQDN               _
  > RCFG
  > TLS PKI

                    Enter FQDN of provisioning server
               ┌──────────────────────────────────┐
               │                                  │
               └──────────────────────────────────┘

    [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

35. In the "Intel(R) Remote Setup And Configuration" menu, select "RCFG" and press "Enter", and then select "Start Configuration Y/N" and press "enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
                Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                        INTEL (R) REMOTE CONFIGURATION

    Start Configuration

                   ┌──────────────────────────────────┐
                   │ This will activate Remote Condigura- │
                   │ tion. Continue: (Y/N)               │
                   └──────────────────────────────────┘

    [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

36. In the "Intel(R) Remote Setup And Configuration" menu, select "TLS PKI" and then press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
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                    INTEL (R) REMOTE SETUP AND CONFIGURATION

    Current Provisioning Mode
    Provisioning Record
    Provisioning Server IPV4/IPV6          _
    Provisioning Server FQDN               _
  > RCFG
  > TLS PKI

    [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```

37. In the "Intel(R) Remote Configuration" menu, select "Remote Configuration**" and press "Enter", and then select "Enabled" or "Disabled" and press "Enter".

```
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
                Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
                        INTEL (R) REMOTE CONFIGURATION

    Remote  Configuration**              < Enabled>
    PKI DNS Suffix                        _
  > Manage Hashes

                                ┌──────────────┐
                                │ Disabled     │
                                │ Enabled      │
                                └──────────────┘

    [↑↓] = Move Highlight    [Enter] = Select Entry        [Esc]= Exit
```
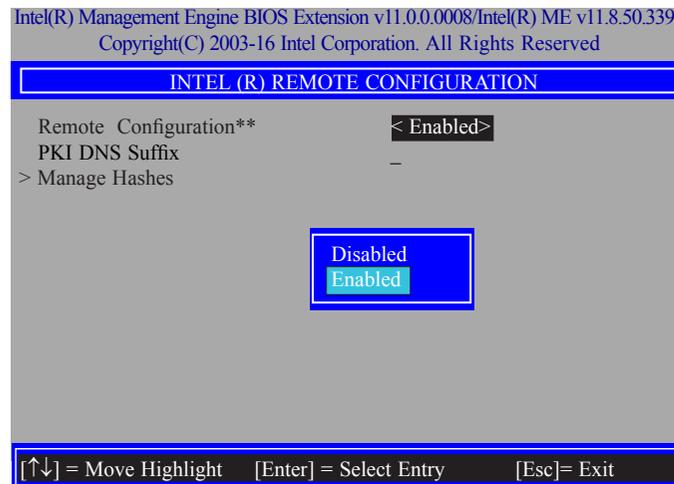
38. Select "PKI DNS Suffix", enter the "PKI DNS Suffix", and then press "Enter".

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INTEL (R) REMOTE CONFIGURATION

```
Remote Configuration**              < Enabled>
PKI DNS Suffix                         _
> Manage Hashes


            Enter PKI DNS Suffix
        ┌──────────────────────────┐
        │                          │
        └──────────────────────────┘
```

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit
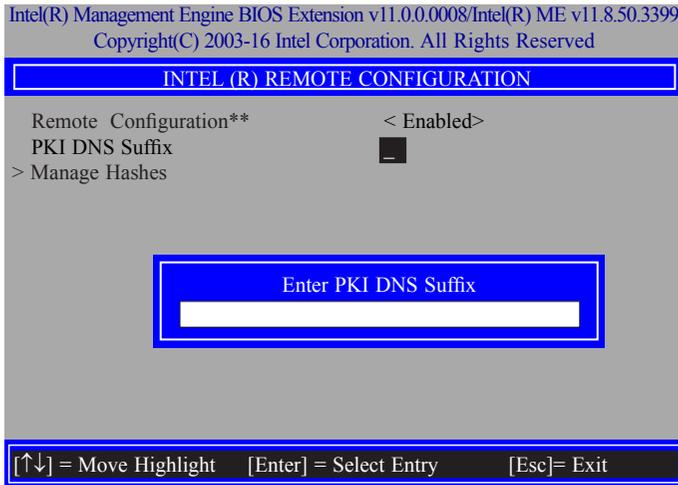
39. Select "Manage Hashes" and press "Enter", and then select one of the hash names.

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INTEL (R) REMOTE CONFIGURATION

```
Remote Configuration**              < Enabled>
PKI DNS Suffix                         _
> Manage Hashes
```

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit

40. In the "Intel(R) AMT Configuration" menu, select Power Control, and then press "Enter".

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INTEL (R) REMOTE CONFIGURATION

Hash Name	Active	Default	Algorithm
VeriSign Class 3	Active: [*]	Default: [*]	SHA256
VeriSign Class 3	Active: [*]	Default: [*]	SHA256
Go Daddy Class 2	Active: [*]	Default: [*]	SHA256
Comodo AAA CA	Active: [*]	Default: [*]	SHA256
Starfield Class 2	Active: [*]	Default: [*]	SHA256
VeriSign Class 3	Active: [*]	Default: [*]	SHA256
VeriSign Class 3	Active: [*]	Default: [*]	SHA256
VeriSign Class 3	Active: [*]	Default: [*]	SHA256
GTE CyberTrust G1	Active: [*]	Default: [*]	SHA256
Baltimore Cyber Tr	Active: [*]	Default: [*]	SHA256
Cyber Trust Global	Active: [*]	Default: [*]	SHA256
Verizon Global Ro	Active: [*]	Default: [*]	SHA256
Entrust. net CA (2	Active: [*]	Default: [*]	SHA256
Entrust Root CA	Active: [*]	Default: [*]	SHA256
VeriSign Universa	Active: [*]	Default: [*]	SHA256
Go Daddy Root CA	Active: [*]	Default: [*]	SHA256
Entrust Root CA -	Active: [*]	Default: [*]	SHA256
Startfield Root CA	Active: [*]	Default: [*]	SHA256

[Ins]= Add New Hash   [Delete] = Delete Hash   [+] = Activate Hash
[↑↓] =Move Highlight   [Enter] = View Hash   [Esc]= Exit

41. In the "Intel(R) AMT Power Control" menu, select "Intel(R) AMT ON in Host Sleep States" and then press "Enter". Select an option and then press "Enter".

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INTEL (R) AMT CONFIGURATION

```
Manageability Feature Selection         < Enabled>
> SOL/Storage Redirection/KVM
> User Consent
Password Policy                         <Anytime>
> Network Setup
Activate Network Access
Unconfigure Network Access              <Full Unprovision>
> Remote Setup And Configuration
> Power Control
```

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit

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42. In the "Intel(R) AMT Power Control" menu, select "Idle Timeout" and then press "Enter". Enter the timeout value (1-65535).

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INTEL (R) AMT POWER CONTROL

These configurations are effective only after AMT provisioning has started

Intel (R) AMT ON in Host Sleep States   <Desktop: ON in S0,
                                             ME Wake in S3, S4-5>

Idle Timeout   65535

    Desktop : ON in S0
    Desktop : ON in S0, ME Wake in S3, S4-5

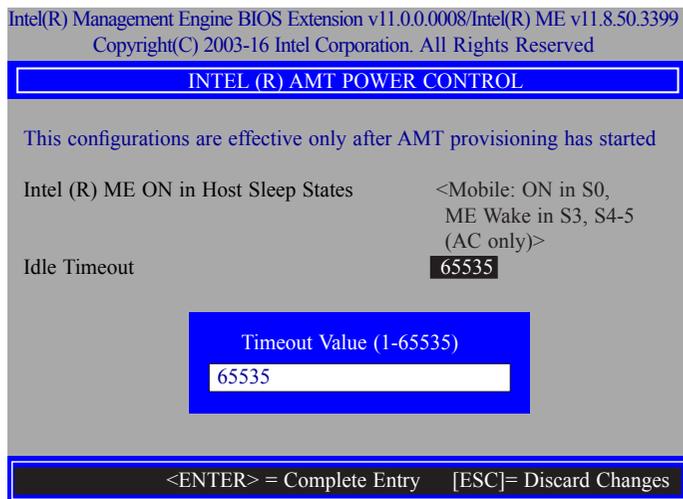[↑↓] = Move Highlight   [Enter] = Complete Entry [Esc]= Discard Changes

43. In the "Intel(R) AMT Power Control" menu, select "Idle Timeout" and then press "Enter". Enter the timeout value (1-65535).

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INTEL (R) AMT POWER CONTROL

This configurations are effective only after AMT provisioning has started

Intel (R) ME ON in Host Sleep States   <Mobile: ON in S0,
                                             ME Wake in S3, S4-5
                                             (AC only)>
Idle Timeout   65535

            Timeout Value (1-65535)
            65535

<ENTER> = Complete Entry   [ESC]= Discard Changes

44. Select Previous Menu until you return to the "Main Menu". Select "Exit" and then press "Enter". Type "Y" and then press "Enter".
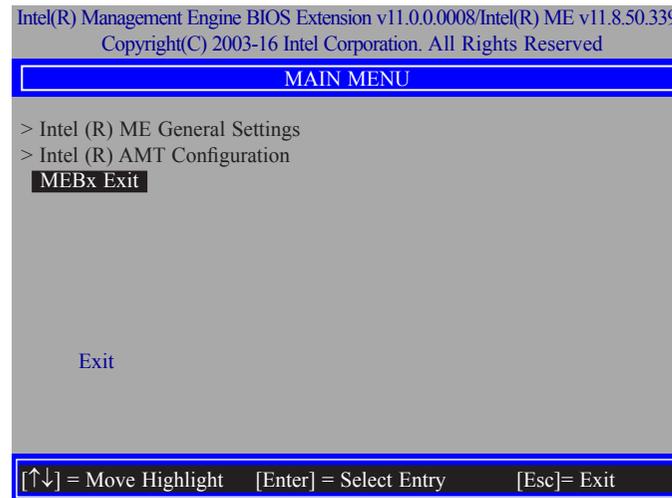
Intel(R) Management Engine BIOS Extension v11.0.0.0008/Intel(R) ME v11.8.50.3399
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MAIN MENU

> Intel (R) ME General Settings
> Intel (R) AMT Configuration
  MEBx Exit

        Exit

[↑↓] = Move Highlight   [Enter] = Select Entry   [Esc]= Exit

Appendix A - Troubleshooting Checklist

Troubleshooting Checklist

This chapter of the manual is designed to help you with problems that you may encounter with your personal computer. To efficiently troubleshoot your system, treat each problem individually. This is to ensure an accurate diagnosis of the problem in case a problem has multiple causes.

Some of the most common things to check when you encounter problems while using your system are listed below.

1. The power switch of each peripheral device is turned on.

2. All cables and power cords are tightly connected.

3. The electrical outlet to which your peripheral devices are connected is working. Test the outlet by plugging in a lamp or other electrical device.

4. The monitor is turned on.

5. The display's brightness and contrast controls are adjusted properly.

6. All add-in boards in the expansion slots are seated securely.

7. Any add-in board you have installed is designed for your system and is set up correctly.

Monitor/Display

If the display screen remains dark after the system is turned on:

1. Make sure that the monitor's power switch is on.

2. Check that one end of the monitor's power cord is properly attached to the monitor and the other end is plugged into a working AC outlet. If necessary, try another outlet.

3. Check that the video input cable is properly attached to the monitor and the system's display adapter.

4. Adjust the brightness of the display by turning the monitor's brightness control knob.

The picture seems to be constantly moving.

1. The monitor has lost its vertical sync. Adjust the monitor's vertical sync.

2. Move away any objects, such as another monitor or fan, that may be creating a magnetic field around the display.

3. Make sure your video card's output frequencies are supported by this monitor.

The screen seems to be constantly wavering.

1. If the monitor is close to another monitor, the adjacent monitor may need to be turned off. Fluorescent lights adjacent to the monitor may also cause screen wavering.

Power Supply

When the computer is turned on, nothing happens.

1. Check that one end of the AC power cord is plugged into a live outlet and the other end properly plugged into the back of the system.

2. Make sure that the voltage selection switch on the back panel is set for the correct type of voltage you are using.

3. The power cord may have a "short" or "open". Inspect the cord and install a new one if necessary.

Floppy Drive

The computer cannot access the floppy drive.

1. The floppy diskette may not be formatted. Format the diskette and try again.

2. The diskette may be write-protected. Use a diskette that is not write-protected.

3. You may be writing to the wrong drive. Check the path statement to make sure you are writing to the targeted drive.

4. There is not enough space left on the diskette. Use another diskette with adequate storage space.

Hard Drive

Hard disk failure.

1. Make sure the correct drive type for the hard disk drive has been entered in the BIOS.

2. If the system is configured with two hard drives, make sure the bootable (first) hard drive is configured as Master and the second hard drive is configured as Slave. The master hard drive must have an active/bootable partition.

Excessively long formatting period.

If your hard drive takes an excessively long period of time to format, it is likely a cable connection problem. However, if your hard drive has a large capacity, it will take a longer time to format.

Serial Port

The serial device (modem, printer) doesn't output anything or is outputting garbled characters.

1. Make sure that the serial device's power is turned on and that the device is on-line.

2. Verify that the device is plugged into the correct serial port on the rear of the computer.

3. Verify that the attached serial device works by attaching it to a serial port that is working and configured correctly. If the serial device does not work, either the cable or the serial device has a problem. If the serial device works, the problem may be due to the onboard I/O or the address setting.

4. Make sure the COM settings and I/O address are configured correctly.

Keyboard

Nothing happens when a key on the keyboard was pressed.

1. Make sure the keyboard is properly connected.

2. Make sure there are no objects resting on the keyboard and that no keys are pressed during the booting process.

System Board

1. Make sure the add-in card is seated securely in the expansion slot. If the add-in card is loose, power off the system, re-install the card and power up the system.

2. Check the jumper settings to ensure that the jumpers are properly set.

3. Verify that all memory modules are seated securely into the memory sockets.

4. Make sure the memory modules are in the correct locations.

5. If the board fails to function, place the board on a flat surface and seat all socketed components. Gently press each component into the socket.

6. If you made changes to the BIOS settings, re-enter setup and load the BIOS defaults.

Appendix B - Specifications

• The MD711 medical device is to process and display physiological data for patient management through Wi-Fi, Ethernet, USB flash drive; only for data management but not for diagnosis and treatment.

• Input rating for the medical device: 100-240 VAC, 50/60 Hz, 60W

• Protection against electric shock: Class I

• Protection against harmful ingress of water or particulate matter: IPX0

• No applied parts

• Not AP or APG type

• Intended for continuous operation

• Power supply is specified as a part of ME EQUIPMENT:

  AC/DC adapter: mfr. Mean Well Enterprises Co., Ltd., type GSM60A24

  Input: AC 100-240V, 50/60Hz, 1.4-0.7A; Output: 24Vdc. 2.5A

• Environment

  Operating: 0°C to 40°C, 5 to 90% R.H.

  Storage / Transportation: -20°C to 85°C, 5 to 90% R.H.

Any inspection and maintenance tasks must be carried out only by service personnel those who authorized by the manufacturer. Circuit diagrams, descriptions and component parts list will be made available only upon request when servicing is required. Please contact the a dress below for further information.

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