



# KD632-C236/Q170 ATX Industrial Motherboard User's Manual

## Copyright

This publication contains information that is protected by copyright. No part of it may be reproduced in any form or by any means or used to make any transformation/adaptation without the prior written permission from the copyright holders.

This publication is provided for informational purposes only. The manufacturer makes no representations or warranties with respect to the contents or use of this manual and specifically disclaims any express or implied warranties of merchantability or fitness for any particular purpose. The user will assume the entire risk of the use or the results of the use of this document. Further, the manufacturer reserves the right to revise this publication and make changes to its contents at any time, without obligation to notify any person or entity of such revisions or changes.

Changes after the publication's first release will be based on the product's revision. The website will always provide the most updated information.

© 2019. All Rights Reserved.

## **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.

## **Notice:**

- 1. The changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.
- 2. Shielded interface cables must be used in order to comply with the emission limits.

## **Table of Contents**

Copyright	2
Trademarks	2
FCC and DOC Statement on Class B	2
Warranty	4
Static Electricity Precautions	4
Safety Measures	.4
About the Package	5
Optional Items	.5
Before Using the System Board	.5
Chapter 1 - Introduction	6
Specifications Features	6

Chapter 2 - Hardware	Installation9
----------------------	---------------

RJ45 LAN Ports
I/O Connectors
Digital I/O Connector
Power Connectors
Chassis Intrusion Connector
Standby Power LED
Expansion Slots
Battery
LAN LED Connector
Connecting the EXT-RS232/RS485 Card to the Motherboard
Chapter 3 - BIOS Setup
Overview
Insyde BIOS Setup Utility
Advanced
Security
Exit
Updating the BIOS48 Notice: BIOS SPI ROM48

Chapter 5 - RAID6	1
Chapter 6 - Intel AMT Settings	5
Appendix A - Troubleshooting Checklist	9

## 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 consequencial 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 connectors 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.

## **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 KD632-C236/Q170 motherboard
- One COM port cable (Length: 300mm, 2 x COM ports)
- One Serial ATA data cable (Length: 500mm)
- One I/O shield
- One M.2 standoff
- Two M.2 screws

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.

## **Optional Items**

- USB 2.0 port cable (Length: 350/398mm)
- USB 3.1 Gen1 port cable (Length: 320mm)
- Front audio cable
- DP to HDMI dongle
- COM port cable (Length: 400mm, 2 x COM ports)
- Serial ATA data cable (Length: 500mm, W/LOCK)
- Thermal solution (For 35W, Height: 37.3mm)
- Thermal solution (For 65W, Height: 72.8mm)
- Thermal solution (For 95W, Height: 72.8mm)
- LPC EXT-RS232 module (4 x RS232 ports)
- LPC EXT-RS485 module (4 x RS485 ports)

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 Board**

Before using the system board, prepare basic system components.

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

- A CPU
- Memory module
- Storage devices such as hard disk drive, etc.

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

## **Chapter 1 - Introduction**

## **Specifications**

SYSTEM	Processor	KD632-C236: Intel® Xeon® E3 v5/v6 LGA 1151 Socket Processors with TDP up to 80W with C236 SKU 6th/7th Generation Intel® Core™/Pentium®/Celeron® LGA 1151 Socket Processors with TDP up to 95W KD632-Q170: 6th/7th Generation Intel® Core™/Pentium®/Celeron® LGA 1151 Socket Processors with TDP up to 95W				
	Chipset	KD632-C236: Intel® C236 Chipset KD632-Q170: Intel® Q170 Chipset				
	Memory	KD632-C236: Four 288-pin ECC/Non-ECC U-DIMM up to 64GB Dual Channel DDR4 2133/2400MHz KD632-Q170: Four 288-pin Non-ECC U-DIMM up to 64GB Dual Channel DDR4 2133/2400MHz				
	BIOS	Insyde SPI 128Mbit				
GRAPHICS	Controller	Intel® HD Gen 9 Graphics				
	Feature	OpenGL 5.0, DirectX 12, OpenCL 2.1 HW Decode: AVC/H.264, MPEG2, VC1/WMV9, JPEG/MJPEG, HEVC/H.265, VP8, VP9 HW Encode: MPEG2, AVC/H.264, JPEG, HEVC/H.265, VP8, VP9				
	Display	1 x VGA         VGA: resolution up to 1920x1200 @ 60Hz           1 x DVI-I (DVI-D signal)         DVI-D: resolution up to 1920x1200 @ 60Hz           1 x DP++         DP++: resolution up to 4096x2160 @ 60Hz				
	Triple Displays	VGA + DVI-I (DVI-D signal) + DP++				
EXPANSION	Interface	KD632-C236: 2 x PCIe x16 (1 x16 or 2 x8 signal) (Gen 3) 3 x PCIe x4 (Gen 3) 2 x PCI 1 x M.2 2260/2280 M key (SATA3.0/PCIe Gen3 x 2 NVMe) (Optane memory support) 1 x Mini PCIe (PCIe/mSATA/USB 2.0) KD632-Q170: 2 x PCIe x16 (1 x16 or 2 x8 signal) (Gen 3) 3 x PCIe x4 (Gen 3) 2 x PCI 1 x M.2 2260/2280 M key (SATA3.0/PCIe Gen3 x 2 NVMe) 1 x Mini PCIe (PCIe/mSATA/USB 2.0)				
AUDIO	Audio Codec	Realtek ALC888S-VD2-GR				
ETHERNET	Controller	<ul> <li>KD632-C236:</li> <li>1 x Intel<sup>®</sup> 1210AT PCIe (10/100/1000Mbps)</li> <li>1 x Intel<sup>®</sup> 1219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Xeon/Core i7/i5 supports iAMT)</li> <li>KD632-Q170:</li> <li>1 x Intel<sup>®</sup> 1210AT PCIe (10/100/1000Mbps)</li> <li>1 x Intel<sup>®</sup> 1219LM PCIe with iAMT11.0 (10/100/1000Mbps) (only Core i7/i5 supports iAMT)</li> </ul>				
REAR I/O	Ethernet 2 x GbE (RJ-45)					
	USB	4 x USB 3.1 Gen1 2 x USB 2.0				

REAR I/O	Serial	1 x RS-232/422/485 (RS-232 w/ power) (DB-9)
	PS/2	1 x PS/2 (mini-DIN-6)
	Display	1 x VGA 1 x DVI-I (DVI-D signal) 1 x DP++
	Audio	1 x Line-out 1 x Mic-in 1 x Line-in (opt., MOQ required)
INTERNAL I/O	Serial	1 x RS-232/422/485 (RS-232 w/ power) (2.54mm pitch) 4 x RS-232 (2.54mm pitch)
	USB	2 x USB 3.1 Gen1 4 x USB 2.0 + 1 x Vertical USB 2.0 (type A)
	Audio	1 x Front Audio Header 1 x S/PDIF
	SATA	5 x SATA 3.0 (up to 6Gb/s) (1 SATA shared with mini PCIe (SATA), default at mini PCIe/2 SATA shared with M.2, default at M.2) RAID 0/1/5/10
	DIO	1 x 8-bit DIO
	LPC	1 x LPC (supports LPC EXT-RS232/RS485 module)
	SMBus	1 x SMBus
WATCHDOG TIMER	Output & Interval	System Reset, Programmable via Software from 1 to 255 Seconds
SECURITY	TPM	Infineon TPM1.2/2.0 (opt., MOQ required)
POWER	Туре	ATX
	Connector	8-pin ATX 12V power 24-pin ATX power
	RTC Battery	CR2032 Coin Cell
OS SUPPORT		Windows 7 32/64-bit Windows 8.1 64-bit Windows 10 64-bit Ubuntu 16.04 Note: 7th Gen CPU SKU ONLY support Windows 10 64-bit & Ubuntu 16.04.
ENVIRONMENT	Temperature	Operating: 0 to 60°C Storage: -30 to 60°C with RTC Battery; -40 to 85°C without RTC Battery
	Humidity	Operating: 5 to 90% RH Storage: 5 to 90% RH
MECHANICAL	Dimensions	ATX Form Factor 305mm (12") x 244mm (9.6")
	Height	PCB: 1.6mm

### **Features**

### • Watchdog Timer

The Watchdog Timer function allows your application to regularly "clear" the system at the set time interval. If the system hangs or fails to function, it will reset at the set time interval so that your system will continue to operate.

### • DDR4

DDR4 deliver increased system bandwidth and improved performance at a lower power than DDR3/DDR2. It is not compatible with DDR3/DDR3L/DDR2.

### • Graphics

The integrated Intel<sup>®</sup> HD graphics engine delivers an excellent blend of graphics performance and features to meet business needs. It provides excellent video and 3D graphics with outstanding graphics responsiveness. These enhancements deliver the performance and compatibility needed for today's and tomorrow's business applications. Supports 1 x VGA, 1 x DVI-I (DVI-D signal) and 1 x DP++ interfaces for triple display outputs.

### • PCI Express

PCI Express is a high bandwidth I/O infrastructure that possesses the ability to scale speeds by forming multiple lanes. The x4 PCI Express lane supports transfer rate of 4 Gigabyte per second (2 directions). The PCI Express architecture also supports high performance graphics infrastructure by enhancing the capability of a PCIe x16 Gen 3 at 16GB/s bandwidth (8GB/s in each direction).

### • Serial ATA

Serial ATA is a storage interface that is compliant with SATA 1.0a specification. With speed of up to 6Gb/s (SATA 3.0), it improves hard drive performance faster than the standard parallel ATA whose data transfer rate is 100MB/s.

## **Gigabit LAN**

Two Intel<sup>®</sup> Gigabit LAN controllers (Intel<sup>®</sup> I210AT PCI Express Gigabit Ethernet controller and Intel<sup>®</sup> I219LM Gigabit Ethernet Phy) support up to 1Gbps data transmission.

#### Audio

The Realtek ALC888S-VD2-GR audio codec provides 7.1 channel High Definition audio output.

### Wake-On-LAN

This feature allows the network to remotely wake up a Soft Power Down (Soft-Off) PC. It is supported via the onboard LAN port or via a PCI LAN card that uses the PCI PME (Power Management Event) signal. However, if your system is in the Suspend mode, you can power-on the system only through an IRQ or DMA interrupt.



**Important:** The 5V\_standby power source of your power supply must support  $\geq$ 720mA.

### Wake-On-USB

This function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

#### Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the 5V\_standby power source of your power supply must support  $\geq$ 1.5A. For 3 or more USB ports, the 5V\_standby power source of your power supply must support  $\geq$ 2A.

## • RTC Timer

The RTC installed on the system board allows your system to automatically power-on on the set date and time.

### • ACPI STR

The system board is designed to meet the ACPI (Advanced Configuration and Power Interface) specification. ACPI has energy saving features that enables PCs to implement Power Management and Plug-and-Play with operating systems that support OS Direct Power Management. ACPI when enabled in the Power Management Setup will allow you to use the Suspend to RAM function.

With the Suspend to RAM function enabled, you can power-off the system at once by pressing the power button or selecting "Standby" when you shut down Windows<sup>®</sup> without having to go through the sometimes tiresome process of closing files, applications and operating system. This is because the system is capable of storing all programs and data files during the entire operating session into RAM (Random Access Memory) when it powers-off. The operating session will resume exactly where you left off the next time you power-on the system.

#### 🛀 Important:

The 5V\_standby power source of your power supply must support  $\geq$ 720mA.

### • Wake-On-PS/2

This function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system.

**Important:** The 5V\_standby power source of your power supply must support  $\geq$ 720mA.

### • Power Failure Recovery

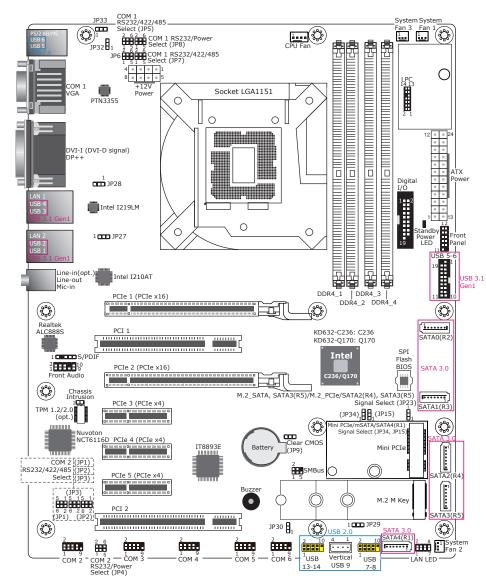
When power returns after an AC power failure, you may choose to either power-on the system manually or let the system power-on automatically.

#### • USB

The system board supports the new USB 3.1 Gen1. It is capable of running at a maximum transmission speed of up to 5 Gbit/s (625 MB/s) and is faster than USB 2.0 (480 Mbit/s, or 60 MB/s) and USB 1.1 (12Mb/s). USB 3.1 Gen1 reduces the time required for data transmission, reduces power consumption, and is backward compatible with USB 2.0. It is a marked improvement in device transfer speeds between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

## **Chapter 2 - Hardware Installation**

## **Board Layout**



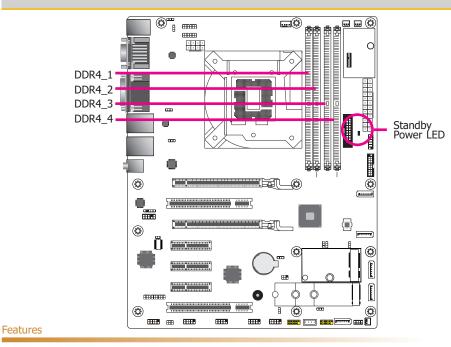
## Important:

Electrostatic discharge (ESD) can damage your board, processor, disk drives, add-in boards, and other components. Perform installation procedures 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.

## **System Memory**

### Magnetic Important:

When the Standby Power LED lit red, it indicates that there is power on the system board. Power-off the PC then unplug the power cord prior to installing any devices. Failure to do so will cause severe damage to the motherboard and components.



- Four 288-pin ECC/Non-ECC U-DIMM up to 64GB (KD632-C236) Four 288-pin Non-ECC U-DIMM up to 64GB (KD632-Q170)
- Dual Channel DDR4 2133/2400 MHz

The system board supports the following memory interface.

### Single Channel (SC)

Data will be accessed in chunks of 64 bits (8B) from the memory channels.

#### **Dual Channel (DC)**

Data will be accessed in chunks of 128 bits from the memory channels. Dual channel provides better system performance because it doubles the data transfer rate.

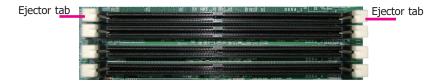
Single Channel	DIMMs are on the same channel. DIMMs in a channel can be identical or completely different. However, we highly recommend using identical DIMMs. Not all slots need to be populated.
Dual Channel	DIMMs of the same memory configuration are on different channels.

### **Installing the DIMM Module**

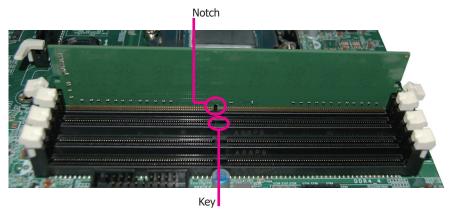


**Note:** The system board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

- 1. Make sure the PC and all other peripheral devices connected to it has been powered down.
- 2. Disconnect all power cords and cables.
- 3. Locate the DIMM socket on the system board.
- 4. Push the "ejector tabs" at the ends of the socket to the side.



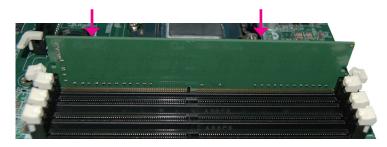
5. Note how the module is keyed to the socket.



6. Grasping the module by its edges, position the module above the socket with the "notch" in the module aligned with the "key" on the socket. The keying mechanism ensures the module can be plugged into the socket in only one way.



7. Seat the module vertically, pressing it down firmly until it is completely seated in the socket.



8. The ejector tabs at the ends of the socket will automatically snap into the locked position to hold the module in place.



## CPU

The system board is equipped with a surface mount LGA 1151 socket. This socket is exclusively designed for installing a LGA 1151 packaged Intel CPU.

#### Important:

- Before you proceed, make sure (1) the LGA 1151 socket comes with a protective cap, (2) the cap is not damaged and (3) the socket's contact pins are not bent. If the cap is missing or the cap and/or contact pins are damaged, contact your dealer immediately.
- 2. Make sure to keep the protective cap. RMA requests will be accepted and processed only if the LGA 1151 socket comes with the protective cap.





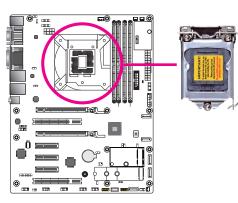
Note:

The system board used in the following illustrations may not resemble the actual board. These illustrations are for reference only.

11

## **Installing the CPU**

- 1. Make sure the PC and all other peripheral devices connected to it has been powered down.
- 2. Disconnect all power cords and cables.
- 3. Locate the LGA 1151 CPU socket on the system board.



- 5. Lift the load lever to lift the load plate.
  - Lift the load lever up to the angle shown on the photo.

Load <u>l</u>ever



6. Remove the protective cap from the CPU socket. The cap is used to protect the CPU socket against dust and harmful particles. Remove the protective cap only when you are about to install the CPU.





Protective cap

 Unlock the socket by pushing the load lever down, moving it sideways until it is released from the retention tab; then lift the load lever up.

Important:

the CPU.

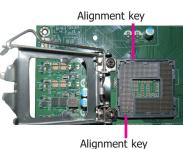


The CPU socket must not come in contact with anything other than the CPU. Avoid unnecessary exposure. Remove the protective cap only when you are about to install

7. Insert the CPU into the socket. The gold triangular mark on the CPU must align with the corner of the CPU socket shown on the photo.



The CPU's notch will prop-erly fit into the socket's alignment key.



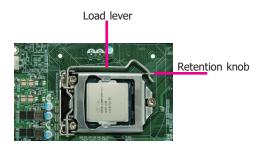
**Important:** The CPU will fit in only one orientation and can easily be inserted without exerting any force.



8. Close the load plate then push the load lever down.

While closing the load plate, make sure the front edge of the load plate slides under the retention knob.

9. Hook the load lever under the retention tab.



### **Installing the Fan and Heat Sink**

The CPU must be kept cool by using a CPU fan with heat sink. Without sufficient air circulation across the CPU and heat sink, the CPU will overheat damaging both the CPU and system board.



A boxed Intel<sup>®</sup> processor already includes the CPU fan and heat sink assembly. If your CPU was purchased separately, make sure to only use Intel®-certified fan and heat sink.

1. Before you install the fan / heat sink, you must apply a thermal paste onto the top of the CPU. The thermal paste is usually supplied when you purchase the fan / heat sink assembly. Do not spread the paste all over the surface. When you later place the heat sink on top of the CPU, the compound will disperse evenly.

Some heat sinks come with a patch of pre-applied thermal paste. Do not apply thermal paste if the fan / heat sink already has a patch of thermal paste on its underside. Peel the strip that covers the paste before you place the fan / heat sink on top of the CPU.

2. Place the heat sink on top of the CPU. The 4 pushpins around the heat sink, which are used to secure the heat sink onto the system board, must match the 4 mounting holes around the socket.

©"; <u>\_\_\_</u> \_\_\_\_ . Ο. ٢ **O** ۲ • ۲ <u>n</u> \_\_\_\_\_ 

000

, **....** 

C

e.

.....

......

. ۲ • 0

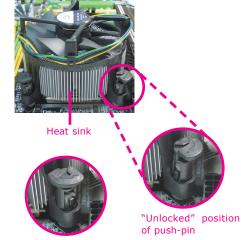
Mounting hole

CPU fan connector

3. Orient the heat sink such that the CPU fan's cable is nearest the CPU fan connector.

4. Rotate each of the four push-pins clockwise to the locked position first.

> Apply firm presure and press down two push-pins on the opposite corners of the heat sink. Perform the same procedure for the other two push-pins. A distinctive click can be heard when a push-pin is pressed all the way through the mounting hole and anchored in place. Flip the board to inspect.



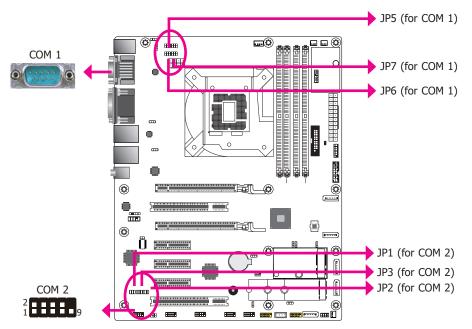
"Locked" position of push-pin

5. Connect the CPU fan's cable to the CPU fan connector on the system board.

14

## **Jumper Settings**





JP5/JP6/JP7 (for COM1) and JP1/JP2/JP3 (for COM2) are used to configure the COM ports to RS232, RS422 (Full Duplex) or RS485. When COM 1 RS232/422/485 is selected, JP6 and JP7 must be set in accordance to JP5. When COM 2 RS232/422/485 is selected, JP2 and JP3 must be set in accordance to JP1. The pin functions of the COM ports will vary according to the jumpers' setting.

JP5 (for COM 1)/JP1 (for COM 2)				
2 4 6 1 3 5 1-3, 4-6 On: RS232 (default)		2 4 6 1 3 5 3-5, 4-6 On: RS422 Full Duplex	• • • • •	2 4 6 1 3 5 3-5, 2-4 On: R5485
	•	JP6/JP7 (for COM 1)	•	105
2 4 6 1 3 5	• • • • • •	2 4 6 1 3 5	• • • • • •	2 4 6 1 3 5
1-3, 2-4 On: RS232 (default)		3-5, 4-6 On: RS422 Full Duplex	•	3-5, 4-6 On: RS485
		JP2/JP3 (for COM 2)	•	
2 4 6 1 3 5	•			
1-3, 2-4 On: RS232 (default)		3-5, 4-6 On: RS422 Full Duplex	•	3-5, 4-6 On: RS485
		COM 1/COM 2		
1 2 3 4 5				



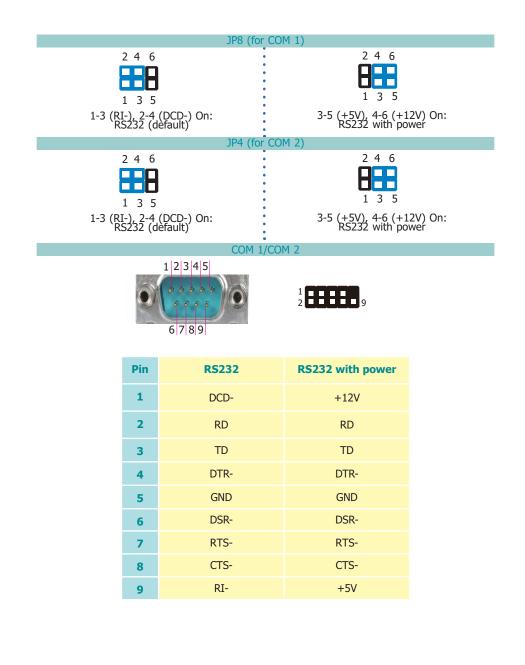


Pin	RS232	RS422 Full Duplex	RS485
1	DCD-	RX+	DATA+
2	RD	RX-	DATA-
3	TD	TX+	NC
4	DTR-	TX-	NC
5	GND	GND	GND
6	DSR-	NC	NC
7	RTS-	NC	NC
8	CTS-	NC	NC
9	RI-	NC	NC

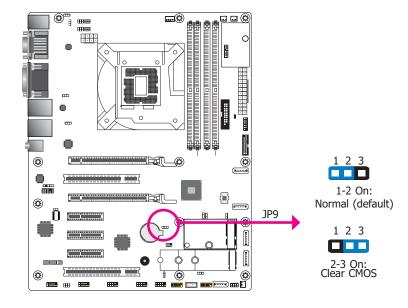
\_\_\_\_\_ JP8 (for COM 1) ©"".  $\square$ COM 1 EEEE 聞聞 THE 0 C • -0 88 ٩ • ٢ ...... Ö ..... ٢ COM 2 Ô 2 ..... ..... **TT** m JP4 (for COM 2)

COM1/COM2 RS232/Power Select

JP8 (for COM 1) and JP4 (for COM 2) are used to configure Serial COM ports to pure RS232 or RS232 with power. The pin functions of COM 1 and COM 2 will vary according to JP8's and JP4's settings respectively.



## **Clear CMOS**



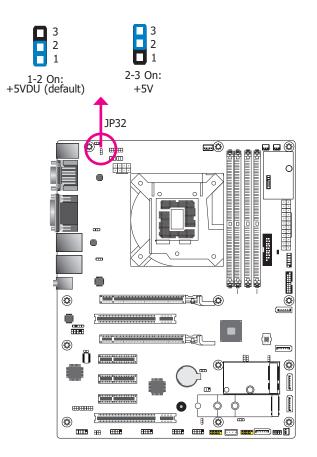
If you encounter the followings,

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

you can reconfigure the system with the default values stored in the ROM BIOS.

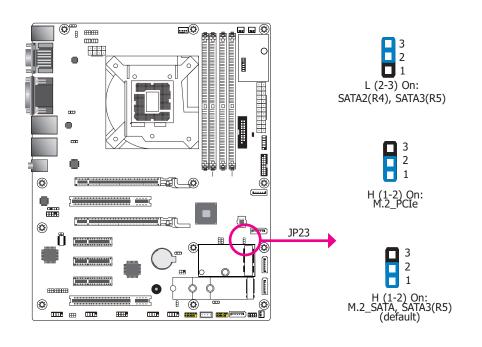
- To load the default values stored in the ROM BIOS, please follow the steps below.
- 1. Power-off the system and unplug the power cord.
- 2. Set JP9 pins 2 and 3 to On. Wait for a few seconds and set JP9 back to its default setting, pins 1 and 2 On.
- 3. Now plug the power cord and power-on the system.

### **PS/2 Power Select**



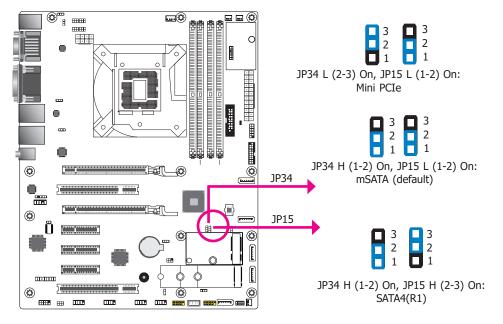
JP32 is designed to select the PS/2 power: +5VDU (default) or +5V.

# M.2\_SATA, SATA3(R5)/M.2\_PCIe/SATA2(R4), SATA3(R5) Signal Select



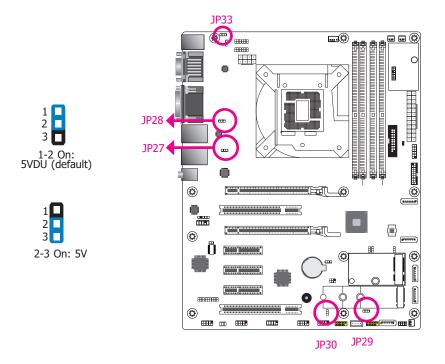
JP23 is designed to select the M.2 signals.

### Mini PCIe/mSATA/SATA4(R1) Signal Select



JP15 and JP34 are designed to select the Mini PCIe, mSATA (default), or SATA4(R1) signal.

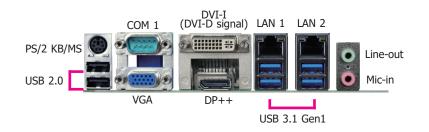
### **USB Power Select**



The power of the USB connectors' voltage buses can be configured to either 5VDU or 5V. The jumpers are located as illustrated above and correspond to each USB port number as listed below.

JP number	USB Port	
JP27	USB 1/2 (USB 3.1)	
JP28	USB 3/4 (USB 3.1)	
JP29	USB 7/8 (USB 2.0)	
JP30	USB 13/14 (USB 2.0)	
JP33	USB 5/6 (USB 2.0)	

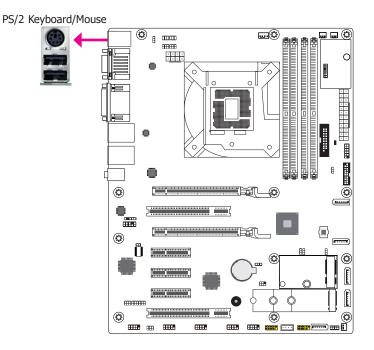
## **Rear Panel I/O Ports**



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

- 1 PS/2 Keyboard/Mouse port
- 2 USB 2.0 ports
- 1 Serial COM port
- 1 VGA port
- 1 DVI-I (DVI-D signal) port
- 1 DP++ port
- 2 RJ45 LAN ports
- 4 USB 3.1 Gen1 ports
- 1 Line-in jack (optional)
- 1 Line-out jack
- 1 Mic-in jack

### **PS/2 Keyboard/Mouse Port**



This rear I/O port is used to connect a PS/2 keyboard/mouse. The PS/2 mouse port uses IRQ12.

#### Wake-On-PS/2 Keyboard/Mouse

The Wake-On-PS/2 Keyboard/Mouse function allows you to use the PS/2 keyboard or PS/2 mouse to power-on the system. To use this function:

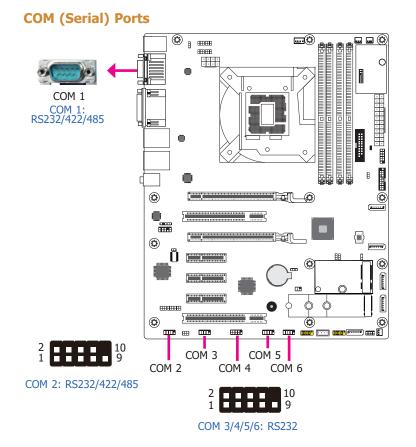
#### • **BIOS Setting**

Configure the wake-up function of PS/2 keyboard/mouse in the Advanced menu ("ACPI Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.



ortant:

The +5V\_standby power source of your power supply must support  $\geq$ 720mA.



The pin functions of COM 1 port will vary according to setting of JP5, JP6, JP7 and JP8. Refer to "COM1/COM2 RS232/422/485 Select" and "COM1/COM2 RS232/Power Select" in this chapter for more information.

The pin functions of COM 2 port will vary according to setting of JP1, JP2, JP3 and JP4. Refer to "COM1/COM2 RS232/422/485 Select" and "COM1/COM2 RS232/Power Select" in this chapter for more information.

COM 3 to COM 6 are fixed at RS232. Please refer to the pin functions below.

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.

#### **Connecting External Serial Ports**

Your COM port may come mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then insert the serial port cable to the COM connector. Make sure the colored stripe on the ribbon cable is aligned with pin 1 of the COM connector.

#### **BIOS Setting**

Configure the serial COM ports in the Advanced menu ("SIO NUVOTON6116D" submenu) of the BIOS. Refer to the chapter 3 for more information.

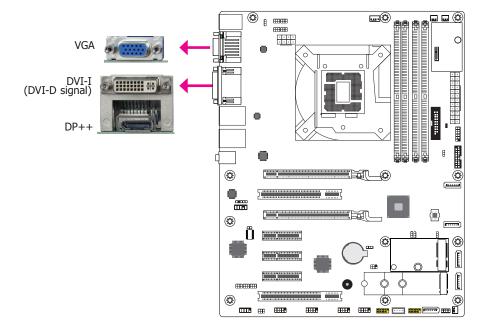
#### COM 3/4/5/6

Pin	Assignment	Pin	Assignment
1	DCD-	2	RD
3	TD	4	DTR-
5	GND	6	DSR-
7	RTS-	8	CTS-
9	RI-	10	

### **Graphics Interfaces**

The display ports consist of the following:

- 1 VGA port
- 1 DVI-I (DVI-D signal) port
- 1 DP++ port



#### **VGA Port**

The VGA port is used for connecting a VGA monitor. Connect the monitor's 15-pin D-shell cable connector to the VGA port. After you plug the monitor's cable connector into the VGA port, gently tighten the cable screws to hold the connector in place.

#### **DVI-I (DVI-D Signal) Port**

The DVI-I port is used to connect a digital LCD monitor or LCD TV. This port supports DVI-D signal only. Connect the display device's cable connector to the port. After you plug the cable connector into the port, gently tighten the cable screws to hold the connector in place.

#### **DP++ Port**

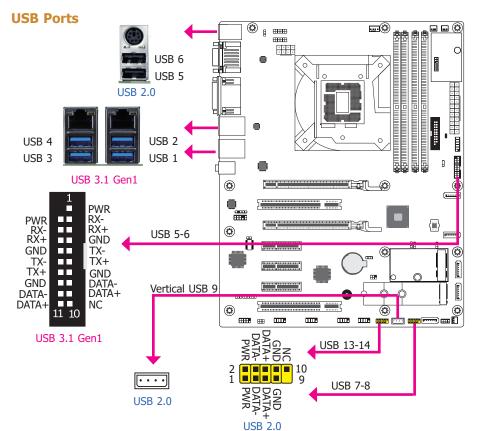
The DP++ port which carries both digital audio and video signals is used to connect a LCD monitor or a digital TV that has the DP++ port.

#### **BIOS Setting**

Configure the display devices in the Advanced menu ("Video Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.

#### **Driver Installation**

Install the graphics driver. Refer to the chapter 4 for more information.



The USB device allows data exchange between your computer and a wide range of simultaneously accessible external Plug and Play peripherals.

The system board is equipped with 3 onboard USB 2.0 ports (USB 5-6/9) and 4 onboard USB 3.1 Gen1 ports (USB 1-2/3-4). The 10-pin connectors allow you to connect 4 additional USB 2.0 ports (USB 7-8/13-14). The 20-pin connector allows you to connect 2 additional USB 3.1 Gen1 ports (USB 5-6). The additional USB ports may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis and then insert the USB port cables to a connector.

#### **BIOS Setting**

Configure these USB devices in the Advanced menu ("USB Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.

#### **Driver Installation**

You may need to install the proper drivers in your system operation to use the USB device. Refer to your operating system's manual or documentation for more information.

#### **Jumper Settings**

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse

#### Wake-On-USB Keyboard/Mouse

The Wake-On-USB Keyboard/Mouse function allows you to use a USB keyboard or USB mouse to wake up a system from the S3 (STR - Suspend To RAM) state.

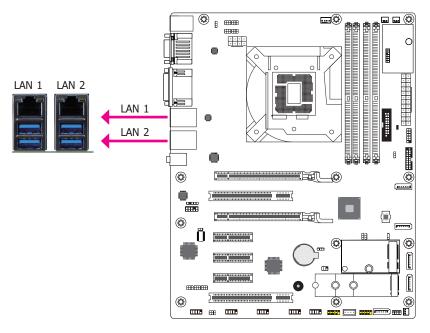
#### • BIOS Setting

Configure the wake-up function of USB in the Advanced menu ("ACPI Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.

#### 🛀 Important:

If you are using the Wake-On-USB Keyboard/Mouse function for 2 USB ports, the +5V\_standby power source of your power supply must support  $\geq 1.5A$ . For 3 or more USB ports, the +5V\_standby power source of your power supply must support  $\geq 2A$ .

### **RJ45 LAN Ports**



#### Features

- Intel<sup>®</sup> I210AT PCI Express Gigabit Ethernet controller
- Intel<sup>®</sup> I219LM Gigabit Ethernet Phy with iAMT11.0 (10/100/1000Mbps) (only Xeon and Core i7/i5 support iAMT)

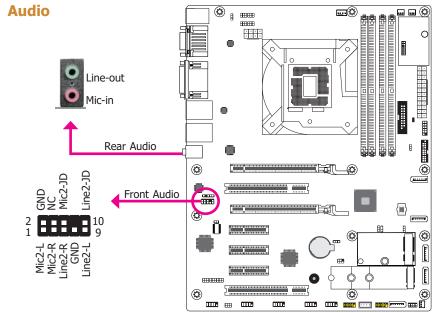
The LAN port allows the system board to connect to a local area network by means of a network hub.

#### **BIOS Setting**

Configure the onboard LAN ports in the Advanced menu ("ACPI Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.

#### **Driver Installation**

Install the LAN drivers. Refer to the chapter 4 for more information.



#### Rear Audio

The system board is equipped with 2 audio jacks (Line-out and Mic-in). Line-in jack is available upon request. A jack is a one-hole connecting interface for inserting a plug.

- Line-in Jack (Light Blue) (optional) This jack is used to connect any audio devices such as Hi-fi set, CD player, tape player, AM/FM radio tuner, synthesizer, etc.
- Line-out Jack (Lime) This jack is used to connect a headphone or external speakers.
- Mic-in Jack (Pink) This jack is used to connect an external microphone.

#### **Front Audio**

The front audio connector allows you to connect to the second line-out and mic-in jacks that are at the front panel of your system.

#### **BIOS Setting**

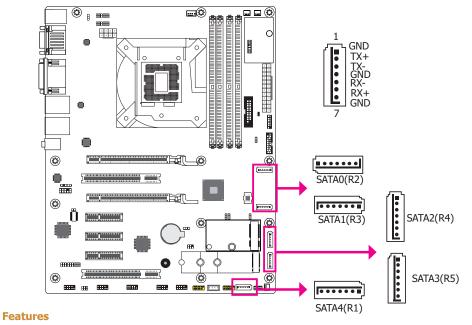
Configure these Audio devices in the Advanced menu ("Audio Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.

#### **Driver Installation**

Install the audio driver. Refer to the chapter 4 for more information.

## **I/O Connectors**

### **SATA (Serial ATA) Connectors**



- 5 Serial ATA 3.0 ports with data transfer rate up to 6Gb/s
- Integrated Advanced Host Controller Interface (AHCI) controller
- Supports RAID 0, RAID 1, RAID 5, RAID 10

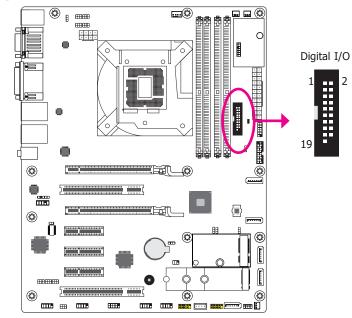
The Serial ATA connectors are used to connect Serial ATA devices. Connect one end of the Serial ATA data cable to a SATA connector and the other end to your Serial ATA device.

The system board package comes with a power cable that must be connected from the system board's peripheral power connector to the SATA drive's power connector in order to provide power to the drive.

#### **BIOS Setting**

Configure the Serial ATA drives in the Advanced menu ("SATA Configuration" submenu) of the BIOS. Refer to the chapter 3 for more information.

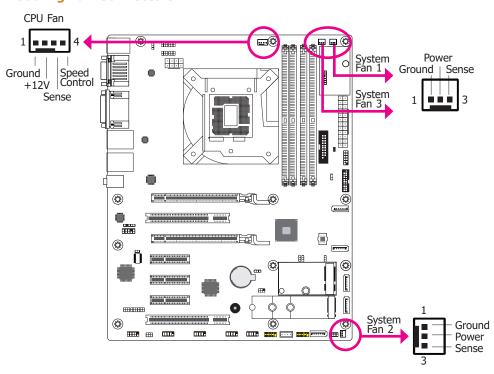
### **Digital I/O Connector**



The 8-bit Digital I/O connector provides powering-on function to external devices that are connected to these connectors.

#### **Digital I/O Connector**

Pin	Assignment	Pin	Assignment
1	GND	2	+12V
3	DIO7	4	+12V
5	DIO6	6	GND
7	DIO5	8	+5V
9	DIO4	10	+5V
11	DIO3	12	GND
13	DIO2	14	+5VDU
15	DIO1	16	+5VDU
17	DIO0	18	GND
19	GND	20	

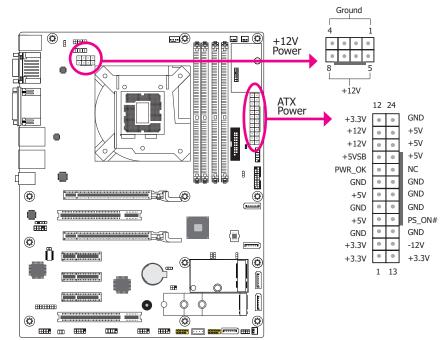


These fan connectors are used to connect cooling fans. The cooling fans will provide adequate airflow throughout the chassis to prevent overheating the CPU and system board components.

#### **BIOS Setting**

The Advanced menu ("SIO NUVOTON6116D" submenu) of the BIOS will display the current speed of the cooling fans. Refer to chapter 3 for more information.

#### **Power Connectors**



Use a power supply that complies with the ATX12V Power Supply Design Guide Version 1.1. An ATX12V power supply unit has a standard 24-pin ATX main power connector that must be inserted into the 24-pin connector. The 8-pin +12V power connector enables the delivery of more +12VDC current to the processor's Voltage Regulator Module (VRM).

The power connectors from the power supply unit are designed to fit the 24-pin and 8-pin connectors in only one orientation. Make sure to find the proper orientation before plugging the connectors.

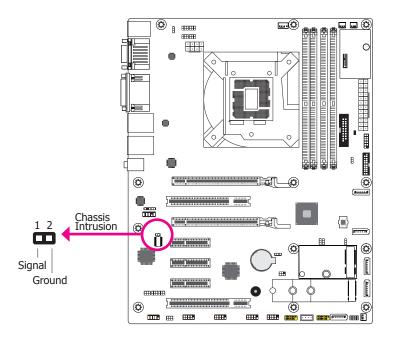
The system board requires a minimum of 300 Watt power supply to operate. Your system configuration (CPU power, amount of memory, add-in cards, peripherals, etc.) may exceed the minimum power requirement. To ensure that adequate power is provided, we strongly recommend that you use a minimum of 400 Watt (or greater) power supply.

#### Important:

Insufficient power supplied to the system may result in instability or the add-in boards and peripherals not functioning properly. Calculating the system's approximate power usage is important to ensure that the power supply meets the system's consumption requirements.

#### **Cooling Fan Connectors**

### **Chassis Intrusion Connector**

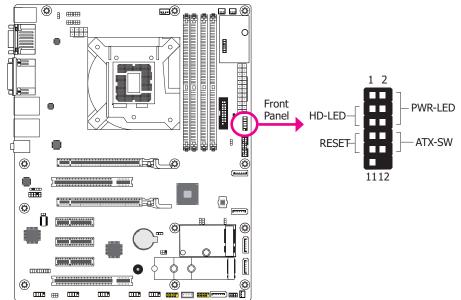


The board supports the chassis intrusion detection function. Connect the chassis intrusion sensor cable from the chassis to this connector. When the system's power is on and a chassis intrusion occurred, an alarm will sound. When the system's power is off and a chassis intrusion occurred, the alarm will sound only when the system restarts.

#### **BIOS Setting**

Configure the chassis intrusion detection function in the Advanced menu ("SIO NUVO-TON6116D" submenu) of the BIOS. Refer to the chapter 3 for more information.

#### **Front Panel Connector**



#### **HD-LED - Hard Drive LED**

This LED will light when the hard drive is being accessed.

#### **RESET - Reset Switch**

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

#### **PWR-LED - Power/Standby LED**

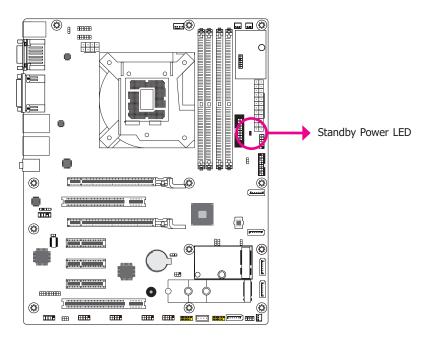
When the system's power is on, this LED will light. When the system is in the S1 (POS - Power On Suspend) state, it will blink every second. When the system is in the S3 (STR - Suspend To RAM) state, it will blink every 4 seconds.

#### **ATX-SW - ATX Power Switch**

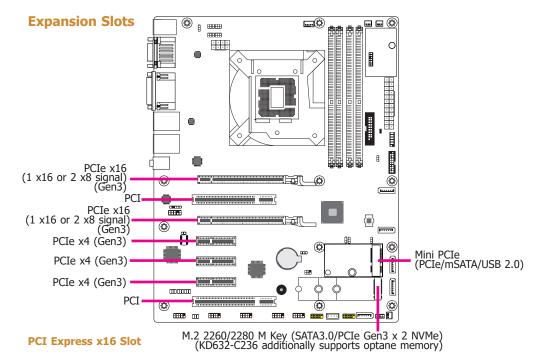
This switch is used to power on or off the system.

	Pin	Assignment		Pin	Assignment
	1	NC		2	LED Power
	3 HDD Power PWR-LED	<b>PWR-LED</b>	4	LED Power	
HD-LED	5	Signal		6	Signal
	7	GND	ATY CW	8	Ground
RESET	9	Signal	ATX-SW	10	Signal
	11	NC		12	

### **Standby Power LED**



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



Install PCI Express x16 graphics card, that comply to the PCI Express specifications, into the PCI Express x16 slot. To install a graphics card into the x16 slot, align the graphics card above the slot then press it down firmly until it is completely seated in the slot. The retaining clip of the slot will automatically hold the graphics card in place.

#### PCI Slot

The PCI slot supports expansion cards that comply with PCI specifications. You can install a PCI expansion card or a customized riser card designed for only 2 PCI slots expansion (for low profile PCI card only) into the PCI slot.

#### **PCI Express x4 Slot**

Install PCI Express cards such as network cards or other cards that comply to the PCI Express specifications into the PCI Express x4 slot.

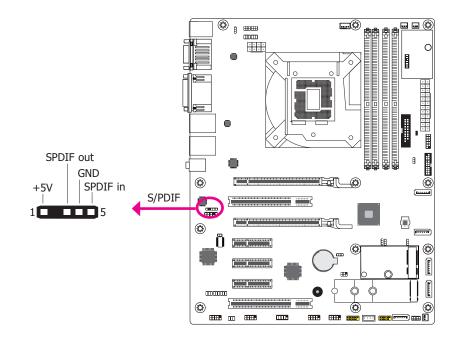
#### Mini PCIe Socket

The full-size Mini PCIe socket supports USB/Mini PCIe/mSATA signals and is used to install a Mini PCIe card. Mini PCIe and mSATA signals can be switched with jumpers JP15 and JP34.

#### M.2 Socket

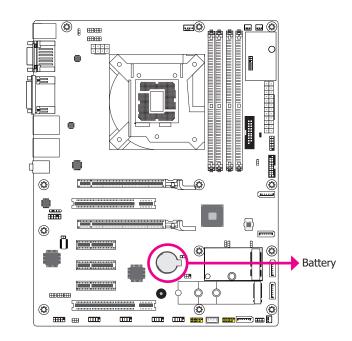
The M.2 socket is the Next Generation Form Factor (NGFF) which is designed to support multiple modules and make the M.2 more suitable in application for solid-state storage.

### **S/PDIF Connector**



The S/PDIF connector is used to connect an external S/PDIF port. Your S/PDIF port may be mounted on a card-edge bracket. Install the card-edge bracket to an available slot at the rear of the system chassis then connect the audio cable to the S/PDIF connector. Make sure pin 1 of the audio cable is aligned with pin 1 of the S/PDIF connector.

### **Battery**

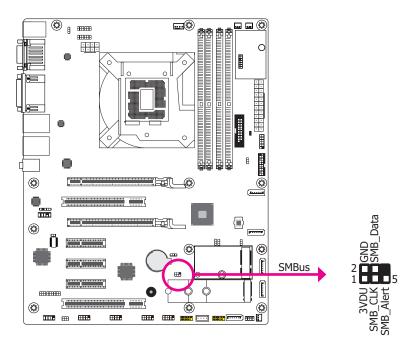


The lithium ion battery powers the real-time clock and CMOS memory. It is an auxiliary source of power when the main power is shut off.

#### Safety Measures

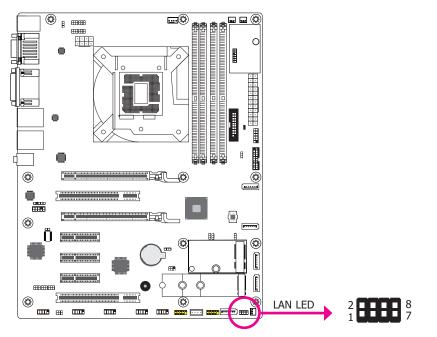
- Danger of explosion if battery incorrectly replaced.
- Replace only with the same or equivalent type recommended by the manufacturer.
- Dispose of used batteries according to local ordinance.

### **SMBus Connector**



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.

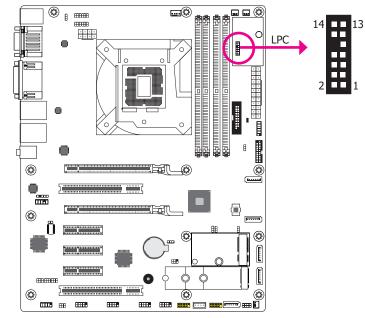
### LAN LED Connector



The LAN LED connector is used to detect the connection state of RJ45 LAN ports when the connection is made to an active network via a cable. The pin functions of the LAN LED connector are listed below.

Pin	Assignment	Pin	Assignment
1	LAN1 (I219)_Speed_1Gbos	2	LAN1 (I219)_Speed_100Mbps
3	LAN1 (I219)_Link_Activity	4	3VDU
5	LAN2 (I210)_Speed_1Gbos	6	LAN2 (I210)_Speed_100Mbps
7	LAN2 (I210)_Link_Activity	8	3VDU





The Low Pin Count Interface was defined by Intel<sup>®</sup> 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. Data transfer on the LPC bus is implemented over a 4 bit serialized data interface, which uses a 33MHz LPC bus clock. For more information about LPC bus refer to the Intel<sup>®</sup> Low Pin Count Interface Specification Revision 1.1'. The table below indicates the pin functions of the LPC connector.

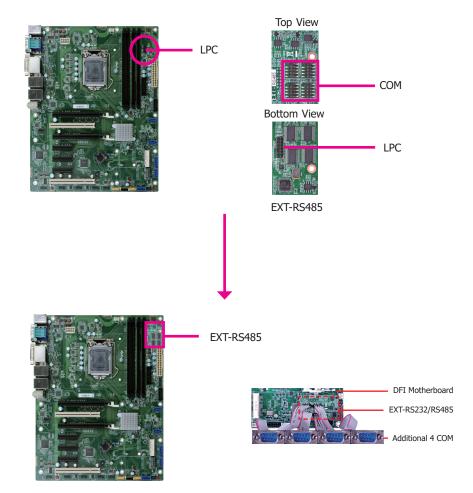
Pin	Assignment	Pin	Assignment
1	CLK	2	LAD1
3	RST#	4	LAD0
5	FRAME#	6	3V3
7	LAD3	8	GND
9	LAD2	10	
11	INT_SERIRQ	12	GND
13	5VSB	14	5V

### Connecting the EXT-RS232/RS485 Card to the Motherboard

With DFI's proprietary technology, KD632-C236/Q170 supports two extension modules for additional four COM ports. The EXT-RS232/RS485 card is connected to KD632-C236/Q170 via the LPC connector. The illustrations below guide you how to connect the extension module to the carrier board.



The system board used in the following illustrations may not resemble the actual one. These illustrations are for reference only.



## **Chapter 3 - 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.



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></esc>	Exit to the BIOS Setup Utility.	
<f5></f5>	Scrolls forward through the values or options of the highlighted field.	
<f6></f6>	Scrolls backward through the values or options of the highlighted field.	
<f1></f1>	Displays general help	
<f9></f9>	Optimized defaults	
<f10></f10>	Saves and resets the setup program.	
<enter></enter>	Press <enter> to enter the highlighted submenu.</enter>	

## 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 " $\blacktriangleright$ " 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>.

## **Insyde BIOS Setup Utility**

### Main

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

Main Advanced	InsydeH2O Setup Utility Security Boot Exit	Rev. 5.0
Project Name BIOS Version Supported Processor Processor Type	KD632 B193.28A Intel 6th and 7th Generation CPU Intel(R) Pentium(R) CPU G4400 @ 3.30GHz	This is the help for the hour, minute, second field. Valid range is from 0 to 23, 0 to 59, 0 to 59. IN- CREASE/REDUCE : +/
CPUID CPU Speed CPU Stepping L1 Data Cache L2 Instruction Cache L2 Cache L3 Cache Number Of Processors Microcode Rev	0x506E3 (SKYLÅKE DT HALO) 3300 MHz 03 (R0/S0/N0 Stepping) 32 KB 32 KB 256 KB 3072 KB 2 Core(s) / 2 Thread(s) 000000C6	
Total Memory System Memory Speed DIMM 0 DIMM 1 DIMM 2 DIMM 3	8192 MB 2133 MHz [Not Installed] 8192 MB [Not Installed] [Not Installed]	
PCH Rev / SKU Intel ME Version / SKU System Time System Date	31 (D1 Stepping) / SKL PCH-H Q170 11.8.55.3510 / CORPORATE [17:54:40] [04/08/2019]	
	Select Item <b>F5/F6</b> Change Values Select Item Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

#### System Time

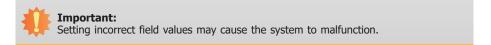
The time format is <hour>, <minute>, <second>. The time is based on the 24-hour military-time clock. For example, 1 p.m. is 13:00:00. Hour displays hours from 00 to 23. Minute displays minutes from 00 to 59. Second displays seconds from 00 to 59.

#### System Date

The date format is <month>, <date>, <year>. Month displays the month, from 01 to 12. Date displays the date, from 01 to 31. Year displays the year, from 2000 to 2099.

### Advanced

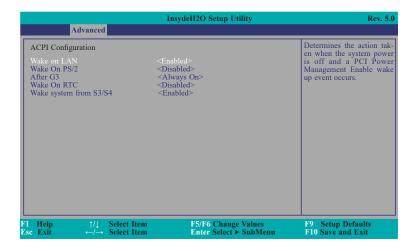
The Advanced menu allows you to configure your system for basic operation. Some entries are defaults required by the system board, while others, if enabled, will improve the performance of your system or let you set some features according to your preference.



			Insyde	H2O Setup Utility	Rev. 5.
Main	Advanced	Security	Boot	Exit	
<ul> <li>CPU Cor</li> <li>Video Cc</li> <li>Audio Cd</li> <li>SATA Cc</li> <li>USB Cor</li> <li>PCI Expi</li> <li>ME Conf</li> <li>Active M</li> <li>MEBX Co</li> <li>Debug C</li> <li>Debug C</li> <li>UEFI De</li> <li>SIO NUV</li> </ul>	onfiguration onfiguration onfiguration nfiguration ress Configurat	chnology Supp	oort		ACPI Configuration Setting
Help e Exit		Select Item Select Item		F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

#### **ACPI Configuration**

This section is used to configure the system ACPI parameters.



#### Wake on LAN

This field is used to enable or disable the LAN signal to wake up the system.

#### Wake On PS/2

This field is used to enable or disable the PS/2 device to wake up the system.

#### After G3

This field is to specify what state to go when power is re-applied after a power failure (G3 state).

Always On The system working state.

**Always Off** Off, except for trickle current to devices such as the power button.

#### Wake On RTC

Automatically power the system on at a particular time every day from the Real-time clock battery.

#### Wake up time

When Wake On RTC is set to enabled, specify the wake up time of the day: <hour> (00~23), <minute> (00~59), <second> (00~59).

#### Wake system from S3/S4

Enable or disable System wake on USB.



### Note:

Under Dual Boot Type or UEFI Boot Type mode, if Quiet Boot is set to enabled, BGRT Logo field will appear for configuration. Refer to the Boot menu for more information.

	InsydeH2O Setup Utility	Rev. 5.
Advanced		
ACPI Configuration Wake on LAN Wake On PS/2 After G3 BGRT Logo Wake On RTC Wake system from \$3/\$4	<enabled> <disabled> <always on=""> <enabled> <disabled> <enabled></enabled></disabled></enabled></always></disabled></enabled>	Support display logo with ACPI BGRT table.
l Help		F9 Setup Defaults F10 Save and Exit

#### **BGRT Logo**

This field is used to enable or disable to support display logo with ACPI BGRT table.

#### **CPU Configuration**

This section is used to configure the CPU.

	Insyd	eH2O Setup Utility	Rev. 5.0
Advanced			
CPU Configuration Intel Speed Step Turbo Mode CPU C States Hyper-Threading	<enable <enable <enable< th=""><th>1&gt; 1&gt;</th><th>Allows more than two fre- quency ranges to be sup- ported.</th></enable<></enable </enable 	1> 1>	Allows more than two fre- quency ranges to be sup- ported.
F1Help $\uparrow/\downarrow$ EscExit $\leftarrow/\rightarrow$	Select Item Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

#### **Intel Speed Step**

This field is used to enable or disable the Intel Enhanced SpeedStep Technology.

#### **Turbo Mode**

Enable or disable the turbo mode.

#### **CPU C States**

Enable or disable the CPU Power Management.

#### Hyper-Threading

Enables this field for Windows XP and Linux which are optimized for Hyper-Threading technology. Select disabled for other OSes not optimized for Hyper-Threading technology.

#### **Video Configuration**

This section configures the video settings.

	InsydeH2O Setup Utility	Rev. 5
Advanced Video Configuration Primary Display Internal Graphics Device Boot display	<auto> <auto> <vga+dvi> Auto IGFX PEG PCI</vga+dvi></auto></auto>	Initial priority: AUTO: PEG -> PCIe - PCI -> IGFX IGFX: IGFX -> PEG - PCIe -> PCI PEG: PEG -> PCIe -> PC -> IGFX PCI: PCI -> PCIe -> PE -> IGFX
T1 Help ↑/↓ Select Item Esc Exit ←/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

### **Primary Display**

Set the initial priority.

### **Internal Graphics Device**

Keep IGFX enabled or disabled based on the setup options.

#### **Boot display**

Set the display device combination.



To control "Primary Display" & "Boot display", first go to "Boot" menu and select different "Boot Type".

Boot Type : Legacy Boot Type -> Hide Primary Display & Show Boot display Boot Type : UEFI Boot Type -> Show Primary Display & Hide Boot display

Boot Type : Dual Boot Type -> Show Primary Display & Show Boot display

	InsydeH2O Setup Ut	tility Rev. 5.0
Advanced		
Video Configuration Primary Display	<auto></auto>	Choose display device combination
Internal Graphics Device Boot display	<auto> <vga+dvi></vga+dvi></auto>	
	Boot display DVI+DPI DVI+VGA DPI+DVI DPI+VGA VGA+DVI VGA+DP1	
F1 Help ↑/↓ Sele Esc Exit ←/→ Sele		nge Values F9 Setup Defaults rt > SubMenu F10 Save and Exit

#### **Audio Configuration**

This section is used to configure the audio settings.

	Ins	sydeH2O Setup Utility	Rev. 5
Advand	ed		
Azaliza	<enab< th=""><th>led&gt;</th><th>Control Detection of t HD-Audio device.</th></enab<>	led>	Control Detection of t HD-Audio device.
			Disabled = HDA will unconditionally disabled
			Enabled = HDA will unconditionally enabled
			Auto = HDA will be en bled if present, disabl otherwise.
	↓ Select Item → Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

### Azaliza

Control the detection of the Azaliza device.

Disabled HDA will be unconditionally disabled.

**Enabled** HDA will be unconditionally enabled.

### Auto

HDA will be enabled if present, disabled otherwise.

## **SATA Configuration**

This section is designed to select the SATA controller and the type of hard disk drive which are installed in your system unit.

	Insyc	leH2O Setup Utility	Rev. 5.
Advanced			
SATA Controller(s)		<enabled></enabled>	Enable/Disable SATA
SATA Speed		<auto></auto>	Device.
SATA Mode Selection		<ahci></ahci>	
System Acceleration wi	th Intel(R)	<enabled></enabled>	
Optane(TM) Memory			
SATAO (R2)	[Not Installed]		
Port 0	[]	<enabled></enabled>	
Hot Plug		<disabled></disabled>	
SATA1 (R3)	[Not Installed]		
Port 1	[]	<enabled></enabled>	
Hot Plug		<disabled></disabled>	
SATA2 (R4)	[Not Installed]		
Port 2	[]	<enabled></enabled>	
Hot Plug		<disabled></disabled>	
SATA3 (R5)	[Not Installed]		
Port 3	. ,	<enabled></enabled>	
Hot Plug		<disabled></disabled>	
SATA4 (RĬ)	[Not Installed]		
Port 4	. ,	<enabled></enabled>	
Hot Plug		<disabled></disabled>	
Help ↑/↓	Select Item	F5/F6 Change Values	F9 Setup Defaults
	Select Item	Enter Select > SubMenu	F10 Save and Exit

### SATA Controller(s)

This field is used to enable or disable Serial ATA devices.

### SATA Speed

This field is used to select SATA speed generation limit: Auto, Gen1, Gen2 or Gen3.

#### **SATA Mode Selection**

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

## AHCI

This option allows the Serial ATA devices to use AHCI (Advanced Host Controller Interface).

## Intel RST Premium

This option allows you to create RAID or Intel Rapid Storage configuration on Serial ATA devices.

#### System Acceleration with Intel(R) Optane(TM) Memory (KD632-C236 only)

This field is used to enable or disable the system acceleration with  $Intel^{\scriptscriptstyle \oplus}$  Optane  $^{\scriptscriptstyle \mathsf{TM}}$  memory feature.

## Port 0/1/2/3/4 and Hot Plug

These fields are used to enable or disable the serial ATA port and its hot plug.

## **USB** Configuration

This section is used to configure the parameters of the USB device.

		sydeH2O Setup Utility	Rev. 5.0
Advanced			
egacy USB Support (HCI Hand-off	<enab <disal< th=""><th></th><th>USB keyboard/mouse/stor- age support under UEF1 and DOS environment. It will supporting UEF1 en- vironment only if set to UEFI Only</th></disal<></enab 		USB keyboard/mouse/stor- age support under UEF1 and DOS environment. It will supporting UEF1 en- vironment only if set to UEFI Only
$\begin{array}{cc} \text{Help} & \uparrow/\downarrow\\ \text{Exit} & \leftarrow/\rightarrow \end{array}$	Select Item Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

## Legacy USB Support

### Disabled

Disable USB keyboard/mouse/storage support under UEFI and DOS environment.

## Enabled

Enable USB keyboard/mouse/storage support under UEFI and DOS environment.

### **UEFI Only**

Enable USB keyboard/mouse/storage support under UEFI environment.

## **XHCI Hand-off**

Enable or disable to clear XHCI controller ownership change SMI bit by BIOS.

## **PCI Express Configuration**

This section configures settings relevant to PCI Express root ports.

	Advanced	InsydeH2O Setup Utility	Rev. 5.0
PCIE 1     PCIE 2     PCIE 2     PCIE 3     PCIE 4     PCIE 5     M.2     Mini PCIE     Intel 1210     Intel 1219			PEG PCI Express Port set- ting
F1 Help Esc Exit	$ \begin{array}{c} \uparrow/\downarrow  \text{Select Item} \\ \leftarrow/\rightarrow  \text{Select Item} \end{array} $	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit
4	Advanced	InsydeH2O Setup Utility	Rev. 5.0
PCIE 1 PCIe Speed Hot Plug		<enabled> <auto> <disabled></disabled></auto></enabled>	Enable or Disable the Root Port

### PCIE 1 to PCIE 5, M.2 and Mini PCIE

This field is used to enable or disable the PCI Express Root Port.

### **PCIe Speed**

Select the speed of the PCI Express Root Port: Auto, Gen1, Gen2 or Gen3.

### **Hot Plug**

This field is used to enable or disable the PCI Express Hot Plug.

		InsydeH2O Setup Utility	Rev. 5.0
Advan	ced		
Intel 1210		<enabled></enabled>	Control the PCI Express Root Port.
l Help ↑, sc Exit ←	/↓ Select Item /→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

## Intel I210

This field is used to enable or disable the PCI Express Root Port 19 settings.

	InsydeH2O Setup Utility	Rev. 5.0
Advanced		
Intel 1219	<enabled></enabled>	Control the PCI Express Root Port.
F1 Help ↑/↓ Select Ite Esc Exit ←/→ Select Ite	1 F5/F6 Change Values 1 Enter Select ≻ SubMenu	F9 Setup Defaults F10 Save and Exit

## Intel I219

This field is used to enable or disable the PCI Express Root Port 12 settings.

## **ME Configuration**

This section configures settings relevant to flash ME region.

	InsydeH2O Setup Utility	Rev. 5.
Advanced		
Me Fw Image Re-Flash	<disabled></disabled>	Enable/disable to flash Mi region
71 Help ↑/↓ Selec	t Item F5/F6 Change Va	lues F9 Setup Defaults

## Me Fw Image Re-Flash

This field is used to enable or disable the flash ME region.

## **Active Management Technology Support**

The section allows users to enable or disable the Intel<sup>®</sup> Active Management Technology (Intel<sup>®</sup> AMT) BIOS extension. Please refer to **Chapter 6** for more information.

	Insyd	eH2O Setup Utility	Rev. 5.0
A	dvanced		
Active Manager	nent Technology Support		When disabled AMT BIOS Features are no
Intel AMT Supp Un-Configure M			longer supported and user is no longer able to access MEBx Setup. Note : This option does not dis- able Manageability Fea- tures in FW.
F1 Help Ese Exit	1/↓ Select Item ←/→ Select Item	F5/F6 Change Values Enter Select ≻ SubMenu	F9 Setup Defaults F10 Save and Exit

## Intel AMT Support

This field is used to enable or disable Intel<sup>®</sup> Active Management Technology BIOS Extension.

## **Un-Configure ME**

This field is used to enable or disable un-configuring ME without password.

## **MEBX** Configuration

This section configures MEBX setting. Please refer to **Chapter 6** for more information.

( n	арт	er 3
	apu	

## **Debug Configuration**

## This section configures debug setting.

		InsydeH2O Setu	ıp Utility	Rev. 5.0
Adv	vanced			
Dynamic EFI D	EBUG	<0f>		Enable it to output debug message from COM port.
F1 Help Esc Exit	↑/↓ Select Iter ←/→ Select Iter		hange Values elect ► SubMenu	F9 Setup Defaults F10 Save and Exit

# Dynamic EFI DEBUG

This field is used to turn on or off the function to output debug message from COM

port. If set to on, relevant EFI debug information will show up.

Advanced	InsydeH2O Setup Utility	Rev. 5.0
Dynamic EFI DEBUG EFI debug print level EFI debug serial port EFI debug baud rate	<0n> [0x8000000] [0x3F8] [115200]	Enable it to output debug message from COM port.
	Select Item F5/F6 Change Value Select Item Enter Select ► SubM	es F9 Setup Defaults Jenu F10 Save and Exit

## **UEFI Device Manager**

The section configures UEFI device with option ROM, such as LAN card, etc.

	In	sydeH2O Setup Utility	Rev. 5.
Advanced			
UEFI Device Manager			UEFI Device Manager Setting
UEFI Device Manager			
	Exit BIOS Setu	p Utility and launch Device Manager ! [OK]	
F1Help $\uparrow/\downarrow$ EscExit $\leftarrow/\rightarrow$	Select Item Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

### **SIO NUVOTON6116D**

This section configures the system super I/O chip parameters.

	InsydeH2O Setup Utility	Rev. 5.0
Advanced		
SYS Smart Fan Control	<enable></enable>	Enable/Disable Smart Fan
Boundary 1	[30]	
Boundary 1 Boundary 2	[30]	
Boundary 3	[40]	
Boundary 4	[50]	
Fan Speed Count 1	[30]	
Fan Speed Count 1	[30]	
Fan Speed Count 2	[50]	
Fan Speed Count 3	[75]	
CPU Smart Fan Control	<enable></enable>	
Boundary 1	[30]	
Boundary 2	[40]	
Boundary 3	[50]	
Boundary 4	[60]	
Fan Speed Count 1	[30]	
Fan Speed Count 2	[40]	
Fan Speed Count 3	[50]	
Fan Speed Count 4	751	
SYS Smart Fan 2 Control	<enable></enable>	
Boundary 1	[30]	
Boundary 2	[40]	
Boundary 3	[50]	
Boundary 4	[60]	
Fan Speed Count 1	[30]	
Fan Speed Count 2	[40]	
Fan Speed Count 3	[50]	
Fan Speed Count 4	[75]	
SYS Smart Fan 3 Control	<enable></enable>	
Boundary 1	[30]	
Boundary 2	[40]	
Boundary 3	[50]	
Boundary 4	[60]	
Fan Speed Count 1	[30]	
Fan Speed Count 2	[40]	_ ↓
1 Help ↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
Sec Exit $\leftarrow / \rightarrow$ Select Item	Enter Select ► SubMenu	F10 Save and Exit

#### SYS Smart Fan/Fan 2/Fan 3 and CPU Smart Fan Control

Enable or disable the system/CPU smart fan/fan 2/fan 3.

#### **Boundary 1 to Boundary 4**

Set the boundary temperatures that determine the operation of the fan with different fan speeds accordingly. For example, when the system or the CPU temperature reaches boundary temperature 1, the system or CPU fan should be turned on and operate at the designated speed. The range is from  $0-127^{\circ}$ C.

#### Fan Speed Count 1 to Fan Speed Count 4

Set the fan speed. The range is from 1-100% (full speed).



#### Note:

SYS Smart Fan Control, CPU Smart Fan Control, SYS Smart Fan 2 Control and SYS Smart Fan 3 Control can be switched to <Disable>. When they are disabled, "Fix Fan Speed Count" will appear for configuration.

Advanced	InsydeH2O Setup Utility	Rev. 5
Advanced		
SYS Smart Fan Control	<disable></disable>	Fan Speed set from 1-100%
Fix Fan Speed Count	[50]	1-100%
CPU Smart Fan Control	<disable></disable>	
Fix Fan Speed Count	[50]	
SYS Smart Fan 2 Control	<disable></disable>	
Fix Fan Speed Count	[50]	
SYS Smart Fan 3 Control	<disable></disable>	
Fix Fan Speed Count	[50]	
COM Port 1	<enable></enable>	
Base I/O Address	<3F8>	
Interrupt	<irq4></irq4>	
RS485 Auto Flow	<disable></disable>	
COM Port 2	<enable></enable>	
Base I/O Address	<2F8>	
Interrupt	<irq3></irq3>	
RS485 Auto Flow	<disable></disable>	
COM Port 3	<enable></enable>	
Base I/O Address	<3E8>	
Interrupt	<irq4></irq4>	
COM Port 4	<enable></enable>	
Base I/O Address	<2E8>	
Interrupt	<irq3></irq3>	
COM Port 5	<enable></enable>	
Base I/O Address	<2F0>	
Interrupt	<irq4></irq4>	
COM Port 6	<enable></enable>	
Base I/O Address	<2E0>	
Interrupt	<irq3></irq3>	
WDT	<disable></disable>	
Case Open	<disable></disable>	
►PC Health Status		
Help ↑/↓ Select Item	F5/F6 Change Values	F9 Setup Defaults
c Exit $\leftarrow/\rightarrow$ Select Item	Enter Select   SubMenu	F10 Save and Exit

	InsydeH2O Setup Utility	Rev. 5.0
Advanced		<b>^</b>
Fan Speed Count 3	[50]	
Fan Speed Count 4	[75]	
SYS Smart Fan 3 Control	<enable></enable>	
Boundary 1	[30]	
Boundary 2	[40]	
Boundary 3	[50]	
Boundary 4	[60]	
Fan Speed Count 1	[30]	
Fan Speed Count 2	[40]	
Fan Speed Count 3	[50]	
Fan Speed Count 4	[75]	
COM Port 1	<enable></enable>	
Base I/O Address	<3F8>	
Interrupt	<irq4></irq4>	
RS485 Auto Flow	<disable></disable>	
COM Port 2 Base I/O Address	<enable> &lt;2F8&gt;</enable>	
	<2F8> <iro3></iro3>	
Interrupt RS485 Auto Flow	<irq5> <disable></disable></irq5>	
COM Port 3	<enable></enable>	
Base I/O Address	<3E8>	
Interrupt	<iro4></iro4>	
COM Port 4	<enable></enable>	
Base I/O Address	<2E8>	
Interrupt	<irq3></irq3>	
COM Port 5	<enable></enable>	
Base I/O Address	<2F0>	
Interrupt	<iro4></iro4>	
COM Port 6	<enable></enable>	
Base I/O Address	<2E0>	
Interrupt	<irq3></irq3>	
WDT	<disable></disable>	
Case Open	<disable></disable>	
►PC Health Status		
1 Help ↑/1 Select Iten	n F5/F6 Change Values	F9 Setup Defaults
sc Exit $\leftarrow/\rightarrow$ Select Iten		F10 Save and Exit

## COM Port 1 to COM Port 6

Configure the settings to use the serial port.

**Disable** No configuration

Enable User configuration

## **RS485 Auto Flow**

Enable or disable RS485 auto flow.

## WDT

Enable or disable the watchdog function. A counter will appear if you select to enable WDT. Input any value between 1 to 255 seconds.

## Case Open

Enable or disable the case open detection function.

## PC Health Status

This section displays the PC health status.

	InsydeH2O Setup Utility	Rev.
Advanced		
PC Health Status		
Voltage		
VBAT	3.056 V	
VCORE	0.864 V	
VDDQ	1.200 V	
5V	5.056 V	
+12V	12.056 V	
Temperature		
System (°C/°F)	27.5 C/ 81.5 F	
CPU (°C/°F)	47.5 C/ 117.5 F	
Fan Speed		
SYS FAN	0 RPM	
CPU FAN	0 RPM	
SYS FAN 2	0 RPM	
SYS FAN 3	0 RPM	
l Help ↑/↓ Selec se Exit ←/→ Selec	t Item F5/F6 Change Values t Item Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

#### **Console Redirection**

This section configures settings relevant to console redirection.

	InsydeH2O Setup Utility	Rev. 5.0
Advanced		
Console Redirection Setup		Enable Console Redirec- tion Function
		tion Function
l Help		F9 Setup Defaults F10 Save and Exit

## **Console Serial Redirect**

This field is used to enable or disable the console serial redirection function.

When Console Serial Redirect is set to enabled, the screen will appear like below:

	InsydeH2O Setup Utility	Rev. 5.0
Advanced		
Console Redirection Setup		Enable Console Redirec- tion Function
Console Serial Redirect		
Terminal Type	<vt_100></vt_100>	
Baud Rate	<115200>	
Data Bits	<8 Bits>	
Parity	<none></none>	
Stop Bits Flow Control	<1 Bit>	
► COM1	<none></none>	
Enable VT-100, 115200, N81		
►COM2		
Disable VT-100, 115200, N81		
►COM3		
Disable VT-100, 115200, N81		
►COM4		
Disable VT-100, 115200, N81		
►COM5		
Disable VT-100, 115200, N81		
►COM6		
Disable VT-100, 115200, N81		
F1 Help ↑/↓ Select Item Esc Exit ←/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

## **Terminal Type**

Select terminal type: VT\_100, VT\_100+, VT\_UTF8 or PC\_ANSI.

## **Baud Rate**

Select baud rate: 115200, 57600, 38400, 19200, 9600, 4800, 2400 or 1200.

#### Data Bits

Select data bits: 7 bits or 8 bits.

## Parity

Select parity bits: none, even or odd.

## **Stop Bits**

Select stop bits: 1 bit or 2 bits.

## **Flow Control**

Select flow control type: none, RTS/CTS or XON/XOFF.

#### COM1 to COM6

			InsydeH2O Setup Utility	Rev. 5.0
	Advanced			
	ortEnable IseGlobalSetting		<enabled></enabled>	
<b>F</b> 1	Help ↑/↓ Exit ←/→	Select Item Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

## PortEnable

This field is used to enable or disable the COM port to redirect the console.

## UseGlobalSetting

This field is to enable or disable to use global setting. When enabled the global setting, setting of the COM port will be the same as those in Console Redirection section. When disabled the global setting, setting of the COM port can be configured independently in this section. When UseGlobalSetting is set to disabled, the screen will appear like below:

	InsydeH2O Setup Utility	Rev. 5
Advanced		
PortEnable UseGlobalSetting Terminal Type Baud Rate Data Bits Parity Stop Bits Flow Control	<enabled> <disabled> <vt_100> &lt;115200&gt; &lt;8 Bits&gt; <none> &lt;1 Bit&gt; <none></none></none></vt_100></disabled></enabled>	
l Help ↑/↓ Select I sc Exit ←/→ Select I		F9 Setup Defaults F10 Save and Exit

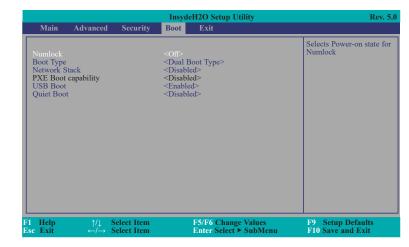
# **Security**

Main A	dvanced	Security	InsydeF Boot	I2O Setup Utility Exit	Rev. 5
Current TPM TPM State Supervisor Pa			<not dete<br="">Not Install</not>	ed	Install or Change the pass word and the length of password must be greated than one character.
Set Superviso					
Help c Exit		elect Item elect Item		5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

#### Set Supervisor Password

Set the supervisor's password and the length of the password must be greater than one character.

#### Boot



#### Numlock

Select the power-on state for numlock.

## **Boot Type**

Select the boot type. The options are Dual Boot Type, Legacy Boot Type or UEFI Boot Type.

If you select "Dual Boot Type" or "UEFI Boot Type", the "Network Stack", "PXE Boot capability", "USB Boot" and "Quiet Boot" will show up.

If you select "Legacy Boot Type", "PXE Boot to LAN", "USB Boot" and "Quiet Boot" will show up.



#### Note:

If the boot type is set to UEFI, the method for RAID volume creation will be different. Please refer to Chapter 5 - RAID for more information.

#### **Network Stack**

This field is used to enable or disable network stack.

### **PXE Boot capability**

**Disabled** Suppoort Network Stack **UEFI PXE** IPv4/IPv6 Legacy Legacy PXE OPROM only

### **PXE Boot to LAN**

Disable or enable PXE boot to LAN.

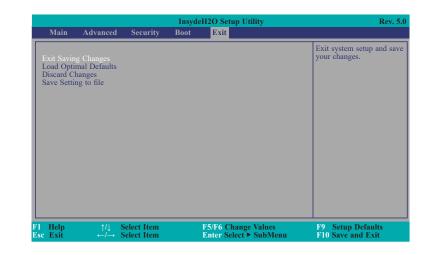
### **USB Boot**

Enable or disable to change USB boot devices boot order.

#### **Quiet Boot**

Enable or disable booting in text mode.

## Exit



### **Exit Saving Changes**

Select Yes and then press <Enter> to exit the system setup and save your changes.

#### **Load Optimal Defaults**

Select YES and then press <Enter> to load optimal defaults.

### **Discard Changes**

Select YES and then press <Enter> to exit the system setup without saving your changes.

## Save Setting to file

Select this option to save BIOS configuration settings to a USB flash device.

### **Restore Setting from file**

This field will appear only when a USB flash device is detected. Select this field to restore setting from the USB flash device.

# **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. For updating Insyde BIOS in UEFI mode, you may refer to the how-to-video at https://www.dfi.com/Knowledge/Video/31.

# **Notice: BIOS SPI ROM**

- 1. The Intel® Management Engine has already been integrated into this system board. Due to the 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<sup>®</sup> 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.

# **Chapter 4 - Supported Software**

Install drivers, utilities and software applications that are required to facilitate and enhance the performance of the system board. You may acquire the software from your sales representatives, from an optional DVD included in the shipment, or from the website download page at https://www.dfi.com/DownloadCenter

# **Intel Chipset Software Installation Utility**

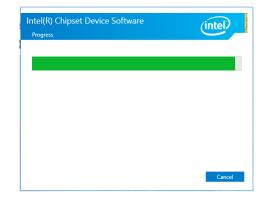
The Intel Chipset Software Installation Utility is used for updating Windows® INF files so that the Intel chipset can be recognized and configured properly in the system.

To install the utility, download "KD632 Chipset Driver" zip file at our website.

1.	Setup is ready to install the utility. Click "Next".	Intel(R) Chipset Device Software Welcome You are about to install the following product: Intel(R) Chipset Device Software It is strongly recommended that you exit all programs before cont Press Next to continue, or press Cancel to exit the setup program.	nuing.	4.	The step displays the installing status in the progress.
2.	Read the license agreement then click "Accept".	Intel(R) Chipset Device Software License Agreement INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distrib User) IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (cc "Software") until you have carefully read the following terms and loading or using the Software, you agree to the terms of this Agr not wish to so agree, do not install or use the Software. Please Also Note: " If you are an Original Equipment Manufacturer (OEM), Indepen Vendor (IKV), or Independent Software Vendor (ISV), this comple AGREEMENT applies: " If you are an End-User, then only Exhibit A, the INTEL SOFTWAR AGREEMENT, applies.	llectively, the conditions. By ement: If you do lent Hardware e LICENSE E LICENSE	5.	After completing installa- tion, click "Restart Now" to exit setup. Restarting the system will allow the new software installation to take effect.

3. Go through the readme document for more installation tips then click "Install".







# **Intel Graphics Drivers**

To install the driver, download "KD632 Graphics Driver" zip file at our website.

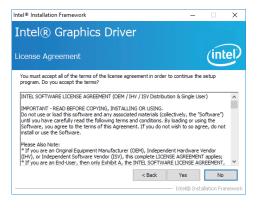
1. Setup is now ready to install the graphics driver. Click "Next".

Intel® Installation Framework	-		×
Intel® Graphics Driver			
Welcome to the Setup Program		(inl	tel)
This setup program will install the following components: - Intel® Graphics Driver - Intel® Display Audio Driver			
It is strongly recommended that you exit all programs before continuing.	Click Next	to continu	Je.
Automatically run WinSAT and enable the Windows Aero desktop the	me (if supp	oorted).	
	<b>ext &gt;</b> htel® Insta	Canc allation Fra	

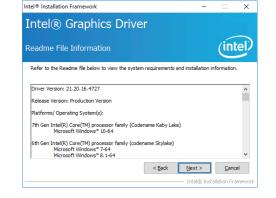
By default, the "Automatically run WinSAT and enable the Windows Aero desktop theme" is enabled. With this enabled, after installing the graphics driver and the system rebooted, the screen will turn blank for 1 to 2 minutes (while WinSAT is running) before the Windows 7/8.1/10 desktop appears. The "blank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

We recommend that you skip this process by disabling this function then click "Next".

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



 Go through the readme document for system requirements and installation tips then click "Next".



Intel® Installation Framework

 Setup is now installing the driver. Click "Next" to continue.

Intel® Graphics Driver	
Setup Progress	intel
Please wait while the following setup operations are performed:	
Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 og anabata Nicrosoft Windows Start Henv Prog Deleting File: C-19 aers Public Deleting File: C-19 aers Mark Start Menv Prog Deleting File: C-19 aers Public Deleting File: C-19 aers Mark Start Menv Prog Deleting File: V-19 aers Mark Start Menv Prog Deleting Registr V Ker; Hult NGCF WARE (Intel (SV) Kinternal Audio	irams Untel Vintel (R) Graphic I Panel.Ink Control Panel.Ink Irams Vintel (Nintel (R) Iris(TM) Irams Vintel (R) Iris(TM) Grap Introl Panel.Ink Ics Control Panel.Ink Fix
Click Next to continue.	~
<	>
	Next >
	<ul> <li>Intel® Installation Framework</li> </ul>

- 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.

Setup Is Complete		inte
You must restart this compu computer now?	uter for the changes to take eff	ect. Would you like to restart the
• Yes, I want to restart	this computer now.	
○ No, I will restart this co	omputer later.	
Click Finish, then remove ar	ny installation media from the dr	ives.

# **Audio Drivers**

To install the driver, download "KD632 Audio Driver" zip file at our website.

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



 Click "Yes, I want to restart my computer now" then click "Finish".

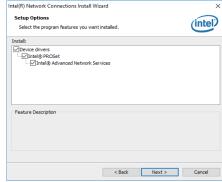
> Restarting the system will allow the new software installation to take effect.



# **Intel LAN Drivers**

To install the driver, download "KD632 LAN Driver" zip file at our website.

1. Setup is ready to install the # Intel(R) Network Connections Install Wizard × driver. Click "Next". Welcome to the install wizard for Intel(R) (intel) Network Connections Installs drivers, Intel(R) Network Connections, and Advanced Networking Services. WARNING: This program is protected by copyright law and international treaties. < Back Next > Cancel 2. Click "I accept the terms / Intel(R) Network Connections Install Wizard  $\times$ in the license agreement" License Agreement (intel) Please read the following license agreement carefully. then click "Next". INTEL SOFTWARE LICENSE AGREEMENT IMPORTANT - READ BEFORE COPYING, IN STALLING OR USING. Do not copy, install, or use this software and any associated materials (collectively, the "Software") provided under this license agreement ("Agreement") until you have carefully read the following terms and conditions. By copying, installing, or otherwise using the Software, you agree to be bound by the terms of this Agreement. If you do not agree to the terms of this Agreement, do not copy, install, or use the Software. LICENSES: accept the terms in the license agreement Print  $\bigcirc$  I do not accept the terms in the license agreement < Back Next > Cancel 3. Select the program features Intel(R) Network Connections Install Wizard Х you want installed then Setup Options (intel) click "Next". Select the program features you want installed. Install:



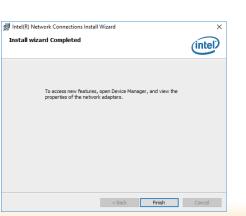
4. Click "Install" to begin the installation.

Intel(R) Network Connections Instal	l Wizard		×
Ready to Install the Program		dink	3
The wizard is ready to begin installatio	n.		
Click Install to begin the installation.			
If you want to review or change any o exit the wizard.	of your installation setting	js, dick Back. Click Cancel t	0
	< Back	Install Cance	

5. The step displays the installing status in the progress.

	Installing	Vetwork Connection	Connections	5		(in	×
	The prog	Please wait while th This may take sever	e install wizari		R) Network Conn	ections.	
Insta	alling Drivers						
		ork drivers for: gabit Network Co	nnection				
				< Back	Next >	Cano	el

6. After completing installation, click "Finish".



# Kernel Mode Driver Framework (For Windows 7 only)

To install the driver, download "KD632 KMDF" zip file at our website.

1. Click "Yes" to install the update.

Do you want t	o install the fo	llowing Wi	ndows softw	are update?
Update for \	Vindows (KB2	585811)		
			Yes	No

2. The update is installed now.

Installation status:		
Initializing installation	n	
Installing:		

3. Click "Restart Now" to restart your computer when the installation is complete.



# **Intel Management Engine Interface Drivers**

To install the driver, download "KD632 MEI Driver" zip file at our website.

1.	Setup is ready to install the	Setup	×
	driver. Click "Next".	Intel® Management Engine Components Welcome	
		You are about to install the following product:	
		Intel® Management Engine Components 11.7.0.1043	
		It is strongly recommended that you exit all programs before continuing. Click Next to continue, or click Cancel to exit the setup program.	
		Intel Corporation < Back Next >	Cancel
2.	Read the license agreement	Setup	×
	then tick "I accept the terms in the License Agree- ment". Click "Next".	Intel® Management Engine Components License Agreement	
	ment. Click Next.	INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)	^
		IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (collectively, the 'Softwar und you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do instail or use the Software.	
		Please Also Note: * If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IrVI), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applie * If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEME applies.	es;
		For OEMs, IHVs, and ISVs:	
		LICENSE. This Software is licensed for use only in conjunction with Intel component prod Use of the Software in conjunction with non-Intel component products is not licensed	lucts.
		$\hfill I$ accept the terms in the License Agreement.	
		Intel Corporation <back next=""></back>	Cancel

 Click "Next" to install to the default folder, or click "Change" to choose another destination folder.

Setup			×
Intel® Mana Destination Fo	agement Engine Componen Ider		(intel)
Click Next to ins	tall to the default folder, or click Cha	nge to choose another	destination folder.
C:\Program Fil	es (x86)\Intel\Intel(R) Management B	Engine Components	
			Change
Intel Corporation		< Back	Next > Cancel

4. Please wait while the product is being installed.

Setup	
Intel® Management Engine Components Progress	(intel)
Please wait while the product is being installed.	
Intel Corporation	< Back Next > Cance

5. After completing installation, click "Finish".



3. Click "Next".

# Intel USB 3.0 Drivers (For Windows 7 and Windows 8.1)

To install the driver, download "KD632 USB3.0 Driver" zip file at our website.

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



2. Read the license agreement then tick "I accept the terms in the license agreement". Click "Next".

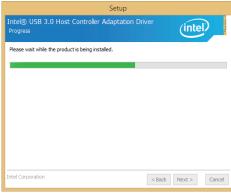
Intel® USB 3.0 Host Controller Adaptation Driver License Agreement	
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)	^
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load this software and any associated materials (collectively, the "Software") unil you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement. If you do not wish to so agree, do not instal or use the Software.	
Please Also Note: "If you are an Original Equipment Manufacturer (OEH), Independent Hardware Vendor (IMV), or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies; "If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT, applies.	
For OEMs, IHVs, and ISVs:	
LICENSE. This Software is licensed for use only in conjunction with Intel component products. Use of the Software in conjunction with non-Intel component products is not licensed	~
✓ I accept the terms in the License Agreement.	
Intel Corporation <back next=""> Ca</back>	ncel

- Intel® USB 3.0 Host Controller Adaptation Driver

   Confirmation

   You are about to install the following components:

   Intel® USB 3.0 Host Controller Adaptation Driver
- Setup is currently installing the driver. After installation has completed, click "Next".



Setup

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.



Chapter 4 Supported Software

x

Cancel

# **Intel Rapid Storage Technology**

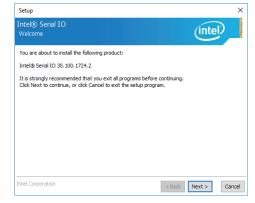
The Intel Rapid Storage Technology is a utility that allows you to monitor the current status of the SATA drives. It enables enhanced performance and power management for the storage subsystem.

To install the driver, download "KD632 IRST Driver" zip file at our website. Please refer to **Chapter 5** for more information.

# **SIO Driver**

To install the driver, download "KD632 SIO Driver" zip file at our website.

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



2. Read the license agreement carefully.

Tick "I accept the terms in the License Agreement" then click "Next".



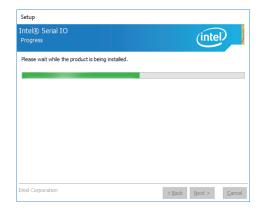
 Go through the readme document for system requirements and installation tips then click "Next".

Setup			>
Intel® Serial IO Readme File Information		(intel	
*	*******	***********	***** ^
* Production Version Release * Microsoft Windows* 10 64 bit			
* Intel(R) Serial IO Driver * April 2017			
* NOTE: This document refers to systems containing the * following Intel processors/chipsets:			
<ul> <li>Intel(R) Core(TM) M Processor.</li> <li>Intel(R) 6th generation Core Platform I/O.</li> <li>Intel(R) 100 Series Chipset Family.</li> <li>Intel(R) 7th Generation Core Platform I/O.</li> <li>Intel(R) 200 Series Chipset Family.</li> </ul>			~
Intel Corporation	< Back	Next >	Cancel

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

Setup	×
Intek® Serial IO Confirmation	(intel)
You are about to install the following components: - Intel® Senial IO GPIO Driver - Intel® Senial IO UART Driver - Intel® Senial IO IZC Driver	
Intel Corporation	< <u>B</u> ack <u>Next</u> > <u>C</u> ancel

5. Setup is now installing the driver.



6. Click "Yes, I want to restart this computer now" then click "Finish".

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



# Microsoft Framework 4.5 (For Windows 7)



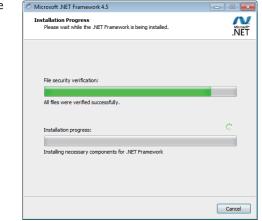
**Note:** Before installing Microsoft Framework 4.5, make sure you have updated your Windows 7 operating system to Service Pack 3.

To install the driver, download "KD632 DotNetFx45" zip file at our website.

1. Setup is now extracting files.

Extracting files	
Preparing: C:\0c89be168b43273a5eace56c5a\netfx_Full.mzz	
	Cancel

3. Setup is now installing the driver.



4. Click "Finish".



2. Read the license agreement carefully.

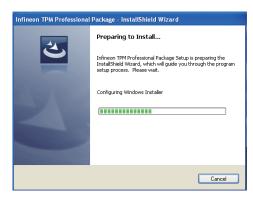
Click "I have read and accept the terms of the License Agree ment" then click "Install".

Nicrosoft .NET Framework 4.5					
.NET Framework 4.5 Setup Please accept the license terms to o	continue.				
MICROSOFT SOFTWARE SU	PPLEMENTAL LICENSE TERMS				
.NET FRAMEWORK 4.5 FOR MICROSOFT WINDOWS OPERATING SYSTEM AND ASSOCIATED LANGUAGE PACKS					
affiliates) licenses this supple Microsoft Windows operating	sed on where you live, one of its ment to you. If you are licensed to use system software (the "software"), you u may not use it if you do not have a				
I have read and accept the licen	ise terms.				
Download size estimate:	0 MB				
Download time estimates:	Dial-Up: 0 minutes Broadband: 0 minutes				
	Install Cancel				

# Infineon TPM 1.2 Driver and Tool (Optional)

To install the driver, download "KD632 TPM1.2 Utility" zip file at our website.

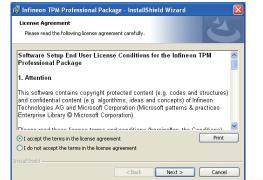
1. The setup program is preparing to install the driver.



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



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".



Click "Install".

Click Textall to	begin the installa			
	review or chang	stallation setti	ngs, click Back. C	lick Cancel to

 TPM requires installing the Microsoft Visual C++ package prior to installing the utility. Click "Install".

🙀 Infineo	n TPM Professional Package - InstallShield Wizard 📃 🗖 🗙
	y Infineon TPM Professional Package gram features you selected are being installed.
i 🗗	Please wait while the InstallShield Wizard installs Infineon TPM Professional Package. This may take several minutes.
	Status:
	Installing Microsoft Visual C++ 2010 SP1 Redistributable Package
TostaliShield -	
u nombrield -	< Back Next > Cancel

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

	y Infineon TPM Professional Package gram features you selected are being installed.
13	Please wait while the InstallShield Wizard installs Infineon TPM Professional Package. This may take several minutes.
	Status:
	Copying new files

9. Click "Finish".



10. Click "Yes" to restart your system.



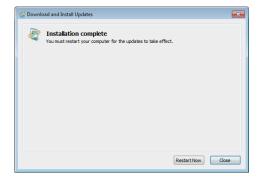
# Infineon TPM 2.0 Driver and Tool (Optional)

To install the driver, download "KD632 TPM2.0 Hotfix" zip file at our website.

1. Click "OK".

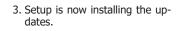
Install Mes	age
<u> </u>	You must apply this hotfix on a computer that supports to running x64-based versions of Windows and supports UEFI together with Compatibility Support Module (CSM) booting mode.
	OK Cancel

4. Click "Restart now" to restart your system.



## 2. Click "Yes".





The updates are being installed	
Installation status:	
Initializing installation	*
	-
Installing:	
	Cancel

# **Chapter 5 - RAID**

The system board allows configuring RAID on Serial ATA drives. It supports RAID 0, RAID 1, RAID 5 and RAID 10.

# **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 (Mirroring 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 5

RAID 5 stripes data and parity information across hard drives. It is fault tolerant and provides better hard drive performance and more storage capacity.

## **RAID 10 (Mirroring and Striping)**

RAID 10 is a combination of data striping and data mirroring providing the benefits of both RAID 0 and RAID 1. Use four new drives or an existing drive and three new drives for this configuration.

RAID LevelMin. DrivesProtectionRAID 02NoneRAID 12Single Drive Fail		Protection	Description	
		None	Data striping without redundancy	
		Single Drive Failure	Disk mirroring	
RAID 5	3		Block-level data striping with distributed parity	
RAID 10	4	1 Disk Per Mirrored Stripe (not same mirror)	Combination of RAID 0 (data striping) and RAID 1 (mirroring)	

# Settings

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

- 1. Connect the Serial ATA drives.
- 2. Enable RAID 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 2 for details on connecting the Serial ATA drives.

#### Mainter 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 Insyde BIOS

- 1. Power-on the system then press <Del> to enter the main menu of the Insyde BIOS.
- 2. Go to "Advanced" menu and select the "SATA Configuration" menu.
- 3. Change the "SATA Mode Selection" to "Intel RST Premium" mode.
- 4. Save the changes in the "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. Create a volume name and press <Enter>.
- 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 select the strip size and press <Enter>.
- 6. Select the capacity and press <Enter>. You must select less than one hundred percent of the available volume space to leave space for the second volume.
- 7. Press <Enter> to create the volume.
- 8. At the prompt, press  $\langle Y \rangle$  to confirm volume creation.
- 9. Select 4: Exit and press <Enter>.
- 10. Press  $\langle Y \rangle$  to confirm exit.

## 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 and select "UEFI Device Manager".

			Insyde	H2O Setup Utility	Rev. 5.0
Main	Advanced	Security	Boot	Exit	
<ul> <li>CPU Con</li> <li>Video Co</li> <li>Audio Cc</li> <li>SATA Co</li> <li>USB Con</li> <li>PCI Expr</li> <li>ME Confi</li> <li>Active M</li> <li>MEBX Co</li> <li>Debug Co</li> <li>UEFI De</li> <li>SIO NUV</li> </ul>	onfiguration onfiguration onfiguration ofiguration ress Configurat		port		UEFI Device Manager Set
Help se Exit		elect Item elect Item		F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

- 2. The screen displays all available drives. Select "Create RAID volume" to create a RAID volume".
- 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 scroll through the list of hard drives and press <Enter> to select the drive.
- 5. Press <Enter>.
- 6. Use the up or down arrow keys to select the strip size and press <Enter>.
- 7. Enter the volume size and press <Enter>.
- 8. At the prompt, press  $\langle Y \rangle$  to confirm volume creation.

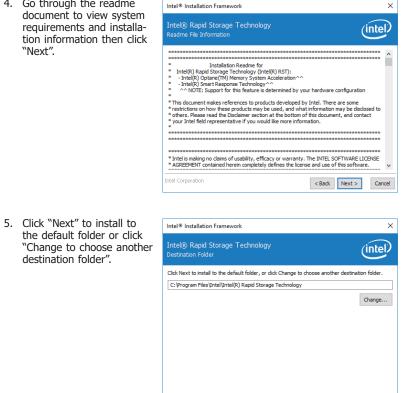
# Step 4: Install the Intel Rapid Storage Technology Utility

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. Download "KD632 IRST Driver" zip file at our website.
- 2. Setup is ready to install the utility. Click "Next".
- Intel® Installation Framework × Intel® Rapid Storage Technology (intel) You are about to install the following product: Intel® Rapid Storage Technology It is strongly recommended that you exit all programs before continuing. Click Next to continue, or click Cancel to exit the setup program intel Corporation < Back Next > Cancel
- 3. Read the license agreement and click "I accept the terms in the License Agreement". Then, click "Next".

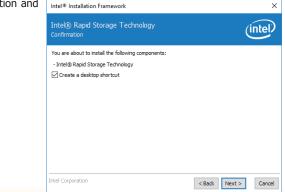
Intel® Rapid Storage Technology License Agreement	inte	D
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IH	V / ISV Distribution & Single User)	^
IMPORTANT - READ BEFORE COPYING, INSTALLIN Do not use or load this software and any associate until you have carefully read the following terms an Software, you agree to the terms of this Agreemen install or use the Software.	d materials (collectively, the "Software") Id conditions. By loading or using the	
Please Also Note: * If you are an Original Equipment Manufacturer (C (IHV), or Independent Software Vendor (ISV), this * If you are an End-User, then only Exhibit A, the I applies.	complete LICENSE AGREEMENT applies;	
For OEMs, IHVs, and ISVs:		
LICENSE. This Software is licensed for use only in c	onjunction with Intel component products.	~
✓ I accept the terms in the License Agreement.		

4. Go through the readme document to view system requirements and installation information then click "Next".



6. Confirm the installation and click "Next".

destination folder".



< Back Next >

Cancel

intel Corporation

7. Click "Yes, I want to restart this computer now" to complete the installation and then click "Finish".

Intel® Installation Framework									
Intek Compl	Ċ	ntel							
	You have successfully installed the following product: Intel® Rapid Storage Technology								
	Please restart your PC to implement these changes. Would you like to restart your PC now?								
	Yes, I want to restart this computer now.								
	○ No, I will restart this computer later.								
Click be	ere to open log file location.								
Click he	ere to open log file location.								
Intel Co	Intel Corporation < Back Next >								

# **Chapter 6 - Intel AMT Settings**

## **Overview**

Intel Active Management Technology (Intel® AMT) combines hardware and software solution 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 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 Insyde BIOS**

- 1. Power-on the system then press <Del> to enter the main menu of the Insyde BIOS.
- 2. In the Advanced menu, select Active Management Technology Support.

Main         Advanced         Security         Boot         Exit           ACPI Configuration         -         AMT Configuration           >CPU Configuration         -         AMT Configuration           >SATA Configuration         -         -         -           >SATA Configuration         -         -         -         -           >USB Configuration         -         -         -         -         -           >PCI Express Configuration         -         -         -         -         -         -           >MED Configuration         -				Insyde	H2O Setup Utility	Rev. 5
>ACPI Configuration         > CPU Configuration         > Video Configuration         > Audio Configuration         > SATA Configuration         > USB Configuration         > WBE Configuration         > WES Configuration         > ME Configuration         > ME Configuration         > ME Configuration         > ME Configuration         > Metax Configuration         > Advice Management Technology Support         > MBEX Configuration         > Debug Configuration         > UBEP I Device Manager         > SIO NUVOTON6116D	Main	Advanced	Security	Boot	Exit	
	<ul> <li>CPU Co</li> <li>Video C</li> <li>Audio C</li> <li>SATA C</li> <li>USB Co</li> <li>PCI Exp</li> <li>ME Cor</li> <li>Active M</li> <li>MEBX</li> <li>Debug C</li> <li>UEFI D</li> <li>SIO NU</li> </ul>	onfiguration onfiguration Configuration onfiguration onfiguration figuration Management Tec Configuration Configuration Configuration evice Manager VOTON6116D		port		AMT Configuration

## 3. Select **Enabled** in the **Intel AMT Support** field.

	Ins	ydeH2O Setup Utility	Rev. 5.
Advanced			
Active Management Techno	logy Support		When disabled AM BIOS Features are no
Intel AMT Support Un-Configure ME	<enabled> <disabled></disabled></enabled>		longer supported and use is no longer able to acces MEBx Setup.
			Note : This option does not dis able Manageability Fea tures in FW.
	Select Item Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

4. In the **Exit** menu, select **Exit Saving Changes** then select **Yes** and press Enter.

				Insyde	H2O Setup Utility	Rev. 5.0
	Main	Advanced	Security	Boot	Exit	
	.oad Op Discard	ing Changes timal Defaults Changes ting to file				Exit system setup and save your changes.
F1 Esc	Help Exit	^/↓ ←/→	Select Item Select Item		F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

# Enable Intel<sup>®</sup> AMT in the Intel<sup>®</sup> Management Engine BIOS Extension (MEBX) Screen

- 1. After the system reboots, press <Del> to enter the main menu of the Insyde BIOS.
- 2. In the **Advanced** menu, select **MEBX Configuration**.

InsydeH2O Setup Utility		Rev.			
Main	Advanced	Security	Boot Exi	t	
<ul> <li>CPU Cot</li> <li>Video Cc</li> <li>Audio CC</li> <li>SATA Cc</li> <li>USB Cot</li> <li>PCI Exp</li> <li>ME Con</li> <li>Active M</li> <li>MEBX Co</li> <li>Debug Co</li> <li>Debug Co</li> <li>SIO NU</li> </ul>		chnology Suppo	rt		MEBX Configuration ting
Help Exit		Select Item	F5/F6	Change Values	F9 Setup Defaults

3. Select **MEBX Configuration** and press Enter.

		InsydeH2O Setup Utility	Rev. 5.0
F	Advanced		
MEBX Config	uration		MEBX Configuration Set
			ting
F1 Help Esc Exit	↑/↓ Select Item ←/→ Select Item	F5/F6 Change Values Enter Select ► SubMenu	F9 Setup Defaults F10 Save and Exit

4. Select **MEBx Login** and 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 Password then press Enter.



- 5. Enter a new password in the space provided under Intel(R) ME New Password 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



6. You will be asked to verify the new password. Enter the same new password in the space provided under Verify Password then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
MAIN MENU			
MEBx Login Intel(R) ME General Settings Intel(R) Standard Manageability Configuration MEBx Exit Verify password			
Intel(R) ME Password			
$[\uparrow\downarrow]$ =Move Highlight [Enter] =Select Entry [Esc] =Exit			

7. Select Intel(R) ME General Settings then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
MAIN MENU			
<ul> <li>Intel(R) ME General Settings</li> <li>Intel(R) Standard Manageability Configuration MEBx Exit</li> </ul>			
[↑↓] =Move Highlight [Enter] =Select Entry [Esc] =Exit			

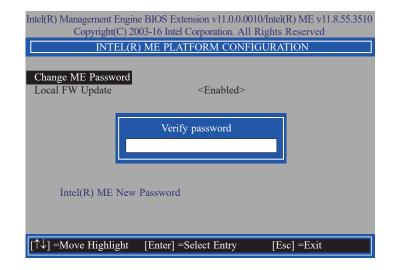
8. If you want to change ME password, select **Change ME Password** then press Enter. Enter the current password in the space provided under Intel(R) ME Password then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved				
INTEL(R)	INTEL(R) ME PLATFORM CONFIGURATION			
Change ME Password Local FW Update <enabled></enabled>				
Intel(R) ME Password				
Intel(R) ME New Password				
$[\uparrow\downarrow] = Move Highlight$	[Enter] =Select Entry	[Esc] =Exit		

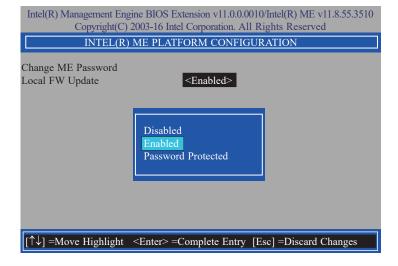
- 9. Enter a new password in the space provided under Intel(R) ME New Password then press Enter. The password must include:
  - 8-32 characters
  - Strong 7-bit ASCII characters excluding : , and " characters
  - At least one digit character (0, 1, ...9)
  - At least one 7-bit ASCII non alpha-numeric character, above 0x20, (e.g. !, \$, ;)
  - Both lower case and upper case characters

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
INTEL(R) N	ME PLATFORM CONFIGU	RATION	
Change ME Password Local FW Update <enabled></enabled>			
	ntel(R) ME New Password	-	
Intel(R) ME New Password			
[↑↓] =Move Highlight	[Enter] =Select Entry	[Esc] =Exit	

10. You will be asked to verify the new password. Enter the same new password in the space provided under Verify Password then press Enter.



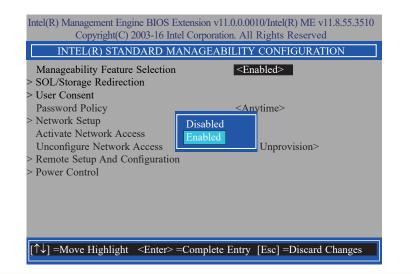
11. Select Local FW Update then press Enter. Select Enabled or Disabled or Password Protected then press Enter.



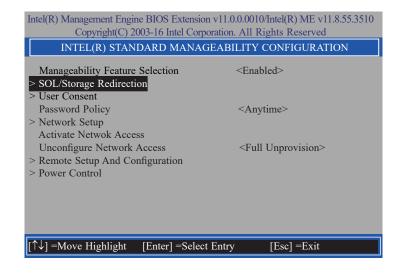
12. Press Esc until you return to the **Main Menu**. Select **Intel(R) Standard Manageability Configuration** then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
MAIN MENU			
> Intel(R) ME General Settings			
> Intel(R) Standard Manageability Configuration MEBx Exit			
NIEDX EXIL			
$[\uparrow\downarrow]$ =Move Highlight [Enter] =Select Entry [Esc] =Exit			

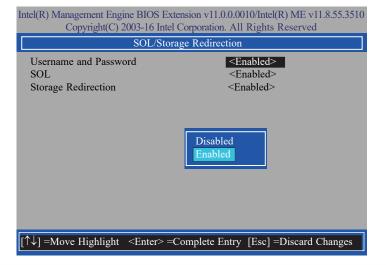
13. In the Intel(R) Standard Manageability Configuration menu, select Manageability Feature Selection then press Enter. Select Enabled or Disabled then press Enter.



14. In the Intel(R) Standard Manageability Configuration menu, select SOL/Storage Redirection then press Enter.



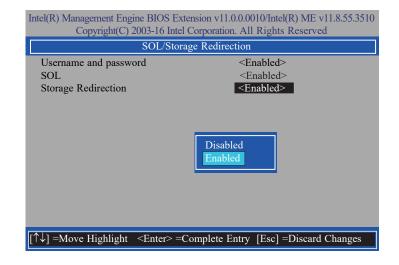
15. In the **SOL/Storage Redirection** menu, select **Username and Password** then press Enter. Select **Enabled** or **Disabled** then press Enter.



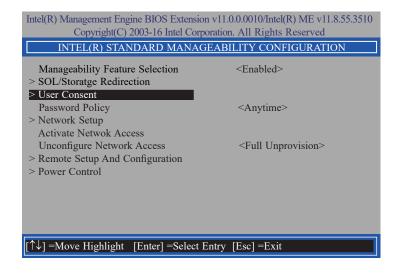
16. Select SOL then press Enter. Select Enabled or Disabled then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
SOL/Storage Redirection			
Username and passw SOL Storage Redirection	ord <enabled> <enabled> <enabled></enabled></enabled></enabled>		
	Disabled Enabled		
$\uparrow\uparrow\downarrow$ ] =Move Highlight	<enter> =Complete Entry [Esc] =Discard Changes</enter>		

17. Select **Storage Redirection** then press Enter. Select **Enabled** or **Disabled** then press Enter.



18. Press Esc until you return to the Intel(R) Standard Manageability Configuration menu. Select User Consent then press Enter.



19. In the **User Consent** menu, select **User Opt-in** then press Enter. Select **NONE** or **ALL** then press Enter.

ntel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
USER CONSENT			
1	<b><none></none></b> <enabled></enabled>		
NONE ALL			
$\uparrow \downarrow$ ] =Move Highlight <enter> =Complete Entry</enter>	[Esc] =Discard Changes		

20. Select **Opt-in Configurable from Remote IT** then press Enter. Select **Enabled** or **Disabled** then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
USER CONSENT			
User Opt-in Opt-in Configurable from Remote IT	<none> <enabled></enabled></none>		
	Disabled Enabled		
$[\uparrow\downarrow] =$ Move Highlight $\langle$ Enter $\rangle =$ Com	plete Entry [Esc] =Discard Changes		

21. Press Esc until you return to the Intel(R) Standard Manageability Configuration menu. Select Password Policy then press Enter.

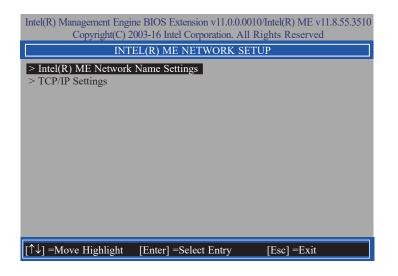
You may choose to use a password only during setup and configuration or to use a password anytime the system is being accessed.



22. In the Intel(R) Standard Manageability Configuration menu, select Network Setup then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510			
Copyright(C) 2003-16 Intel Corporation. All Rights Reserved			
INTEL(R) STANDARD MANAGEABILITY CONFIGURATION			
Manageability Feature Selection > SOL/Storage Redirection	<enabled></enabled>		
> User Consent Password Policy	<anytime></anytime>		
> Network Setup Activate Network Access	Eull Unaravision		
Unconfigure Network Access > Remote Setup And Configuration > Power Control	<full unprovision=""></full>		
$[\uparrow\downarrow]$ =Move Highlight [Enter] =Select	t Entry [Esc] =Exit		

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



24. In the **Intel(R) ME Network Name Settings** menu, select **Host Name** then press Enter. Enter the computer's host name then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved				
INTEL(R) ME NETWORK	INTEL(R) ME NETWORK NAME SETTINGS			
D I DITOTT 1	 Shared> Disabled>			
Computer Host N	lame			
<enter> =Compl</enter>	ete Entry [Esc] =Discard Changes			

25. Select **Domain Name** then press Enter. Enter the computer's domain name then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.001 Copyright(C) 2003-16 Intel Corporation. All I	
INTEL (R) ME NETWORK NAME S	ETTINGS
Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update	
Computer Domain Name	]
<enter> =Complete Entry</enter>	[Esc] =Discard Changes

26. Select **Shared/Dedicated FQDN** then press Enter. Select **Shared** or **Dedicated** then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved	
INTEL(R) ME NETW	ORK NAME SETTINGS
Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update	− <mark> Shared&gt;</mark> <disabled></disabled>
Dedicated Shared	
$[\uparrow\downarrow] =$ Move Highlight $\langle$ Enter $\rangle =$ Co	omplete Entry [Esc] =Discard Changes

27. Select **Dynamic DNS Update** then press Enter. Select **Enabled** or **Disabled** then press Enter. If **Dynamic DNS Update** is set to **Enabled**, **Periodic Update Interval** and **TTL** fields will show up.

ntel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved		
INTEL(R) M	INTEL(R) ME NETWORK NAME SETTINGS	
$[\uparrow\downarrow]$ =Move Highlight <e< td=""><td>nter&gt; =Complete Entry [Esc] =Discard Changes</td></e<>	nter> =Complete Entry [Esc] =Discard Changes	

28. Select **Periodic Update Interval** then press Enter. Enter value then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved	
INTEL(R) M	NETWORK NAME SETTINGS
Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update Periodic Update Interval TTL	- - - - - - - - - - - - - -
<	nter> =Complete Entry [Esc] =Discard Changes

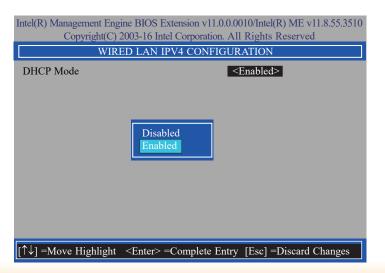
29. Select **TTL** then press Enter. Enter value then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved	
INTEL(R) ME	NETWORK NAME SETTINGS
Host Name Domain Name Shared/Dedicated FQDN Dynamic DNS Update Periodic Update Interval TTL	- - - - - - - - - - - - - -
<en< td=""><td>ter&gt; =Complete Entry [Esc] =Discard Changes</td></en<>	ter> =Complete Entry [Esc] =Discard Changes

30. Press Esc until you return to the Intel(R) ME Network Setup menu. Select TCP/IP Settings then press Enter. In the TCP/IP Settings menu, select Wired LAN IPV4 Configuration then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510
Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
TCP/IP SETTINGS
> Wired LAN IPV4 Configuration
[↑↓] =Move Highlight [Enter] =Select Entry [Esc] =Exit

31. In the **Wired LAN IPV4 Configuration** menu, select **DHCP Mode** then press Enter. Select **Enabled** or **Disabled** then press Enter. If set to **Disabled**, **IPV4 Address**, **Subnet Mask Address**, **Default Gateway Address**, **Preferred DNS Address** and **Alternate DNS Address** will show up.



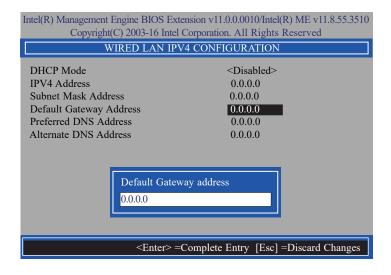
32. Select **IPV4 Address** then press Enter. Enter address then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved WIRED LAN IPV4 CONFIGURATION	
WIKED LAN IPV4 C	UNFIGURATION
DHCP Mode	<disabled></disabled>
IPV4 Address	0.0.0.0
Subnet Mask Address	0.0.0.0
Default Gateway Address	0.0.0.0
Preferred DNS Address	0.0.0.0
Alternate DNS Address	0.0.0.0
IP address (e.	g. 123.123.123.100)
0.0.0.0	
<fnter> =Con</fnter>	nplete Entry [Esc] =Discard Changes
	ipiete Entry [Ese] Diseard Changes

33. Select **Subnet Mask Address** then press Enter. Enter address then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved	
WIRED LAN IPV4	CONFIGURATION
DHCP Mode	<disabled></disabled>
IPV4 Address	0.0.0.0
Subnet Mask Address	0.0.0.0
Default Gateway Address	0.0.0.0
Preferred DNS Address	0.0.0.0
Alternate DNS Address	0.0.0.0
Subnot most (o.g.)	255 255 255 ()
Subnet mask (e.g. 255.255.255.0)	
0.0.0	
<enter> =Complete Entry [Esc] =Discard Changes</enter>	

34. Select **Default Gateway Address** then press Enter. Enter address then press Enter.



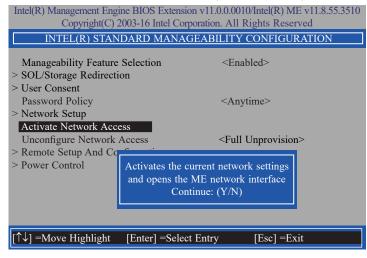
35. Select **Preferred DNS Address** then press Enter. Enter address then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved	
WIRED LAN IPV4 CC	ONFIGURATION
DHCP Mode	<disabled></disabled>
IPV4 Address	0.0.0.0
Subnet Mask Address	0.0.0.0
Default Gateway Address	0.0.0.0
Preferred DNS Address	0.0.0.0
Alternate DNS Address	0.0.0.0
Preferred DNS address 0.0.0.0	
<enter> =Comp</enter>	blete Entry [Esc] =Discard Changes

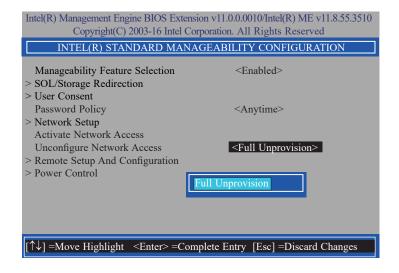
36. Select Alternate DNS Address then press Enter. Enter address then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved	
WIRED LAN IPV4	CONFIGURATION
DHCP Mode IPV4 Address Subnet Mask Address Default Gateway Address Preferred DNS Address Alternate DNS Address Alternate DNS Address	<disabled> 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0 0.0.0.0</disabled>
<enter> =Co</enter>	omplete Entry [Esc] =Discard Changes

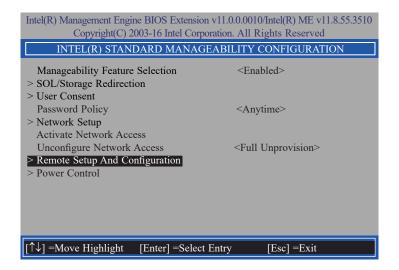
37. Press Esc until you return to the **Intel(R) Standard Manageability Configuration** menu. If you want to activate the current network settings and open the ME network inferface, select **Activate Network Access**, press Enter, then press Y.



38. In the Intel(R) Standard Manageability Configuration menu, select Unconfigure Network Access then press Enter.



39. In the Intel(R) Standard Manageability Configuration menu, select Remote Setup And Configuration then press Enter.



40. In the Intel(R) Remote Setup And Configuration menu, select Current Provisioning Mode then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 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

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

Intel(R) Management Engine BIOS Extension v11.0.0.0010Intel(R) ME v11.8.55.3510 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	
$[\uparrow\downarrow]$ =Move Highlight [Enter] =Select Entry [Esc] =Exit	

42. In the Intel(R) Remote Setup And Configuration menu, select Provisioning Server IPV4/IPV6 then press Enter. Enter the address then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 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 server address
<enter> =Complete Entry [Esc] =Discard Changes</enter>

43. In the Intel(R) Remote Setup And Configuration menu, select Provisioning Server FQDN then press Enter. Enter the FQDN then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 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
<enter> =Complete Entry [Esc] =Discard Changes</enter>

44. If you want to activate remote configuration, in the **Intel(R) Remote Setup And Configuration** menu, select **RCFG** then press Enter. Select **Start Configuration** then press Enter. Press Y to activate.

Intel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510
Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
INTEL(R) REMOTE CONFIGURATION
Start Configuration This will activate Remote Configuration.
Continue: (Y/N)
[↑↓] =Move Highlight [Enter] =Select Entry [Esc] =Exit

45. Press Esc until you return to the Intel(R) Remote Setup And Configuration menu. Select TLS PKI then press Enter. Select Remote Configuration \*\* then press Enter. Select Enabled or Disabled then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved		
INTEL(R) REMOTE CONFIGURATION		
Remote Configuration PKI DNS Suffix > Manage Hashes	** < <u><enabled></enabled></u>	I
	Disabled Enabled	
$[\uparrow\downarrow]$ =Move Highlight	<enter> =Complete Entry</enter>	[Esc] =Discard Changes

46. Select **PKI DNS Suffix** then press Enter. Enter the PKI DNS Suffix then press Enter.

Intel(R) Management Engine BIOS Extension v11.0.00010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved		
INTE	L(R) REMOTE CONFIGU	JRATION
Remote Configuratio PKI DNS Suffix > Manage Hashes	n** <enable< td=""><td>ed&gt;</td></enable<>	ed>
	Enter PKI DNS S	uffix
<	Enter> =Complete Entry	[Esc] =Discard Changes

47. In the **Intel(R) Remote Configuration** menu, select **Manage Hashes** then press Enter. Select the hash name then press Insert to enter custom hash certificate name, press Delete to delete hash, press Enter to view hash information, press + to activate or deactivate hash, and press Esc to exit.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510

Copyright	0	prporation. All Rights	× /	.5510
INTE	EL(R) REMOTE C	ONFIGURATION		
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	Ļ
[Ins] =Add New Hash [↑↓] =Move Highlight	[Delete] =Delete Hash [Enter] =View Hash	[+] =Activate Hash [Esc] =Exit		

48. Press Esc until you return to the Intel(R) Standard Manageability Configuration menu, select Power Control then press Enter. Select Intel(R) AMT ON in Host Sleep States then press Enter. Select an option then press Enter.

	ion v11.0.0.0010/Intel(R) ME v11.8.55.3510 rporation. All Rights Reserved
INTEL(R) AMT PO	WER CONTROL
These configurations are effective only after Intel(R) AMT ON in Host Sleep States	Charletone ON in S0. ME Walso in
Idle Timeout	65535
	0, ME Wake in S3, S4-5
$\uparrow\uparrow\downarrow$ =Move Highlight <enter> =Comp</enter>	lete Entry [Esc] =Discard Changes

49. In the **Intel(R) AMT Power Control** menu, select **Idle Timeout** then press Enter. Enter the timeout value and press Enter.

	0	on v11.0.0.0010/Intel(R) ME v poration. All Rights Reserve	
IN	TEL(R) AMT POV	WER CONTROL	
This configurations an	e effective only aft	er AMT provisioning has st	tarted
Intel(R) AMT ON in	Host Sleep States	<desktop: in="" me<br="" on="" s0,="">S3, S4-5&gt;</desktop:>	Wake in
Idle Timeout		65535	
	T: 111	1 (2525)	
	Timeout Value (	1-65535)	
	65535		
	<enter> =Comp</enter>	lete Entry [Esc] =Discard	Changes

50. Press Esc until you return to the **Main Menu**. Select **MEBx Exit** then press Enter. Press Y to exit.

Intel(R) Management Engine BIOS Extension v11.0.0.0010/Intel(R) ME v11.8.55.3510 Copyright(C) 2003-16 Intel Corporation. All Rights Reserved
MAIN MENU
<ul> <li>&gt; Intel(R) ME General Settings</li> <li>&gt; Intel(R) AMT Configuration</li> <li>MEBx Exit</li> </ul>
Are you sure you want to exit?(Y/N):
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 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.

# **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.