

# ICS-6280

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Industrial Network Appliance

User's Manual 3<sup>rd</sup> Ed

## Copyright Notice

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## Packing List

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Before setting up your product, please make sure the following items have been shipped:

Item	Quantity
● ICS-6280	1
● SATA Cable	1
● SATA Power Cable	1
● DIN Rail Kit	1

If any of these items are missing or damaged, please contact your distributor or sales representative immediately.

## About this Document

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This User's Manual contains all the essential information, such as detailed descriptions and explanations on the product's hardware and software features (if any), its specifications, dimensions, jumper/connector settings/definitions, and driver installation instructions (if any), to facilitate users in setting up their product.

Users may refer to the product page at [AAEON.com](http://AAEON.com) for the latest version of this document.

## Safety Precautions

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Please read the following safety instructions carefully. It is advised that you keep this manual for future references

1. All cautions and warnings on the device should be noted.
2. All cables and adapters supplied by AAEON are certified and in accordance with the material safety laws and regulations of the country of sale. Do not use any cables or adapters not supplied by AAEON to prevent system malfunction or fires.
3. Make sure the power source matches the power rating of the device.
4. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
5. Always completely disconnect the power before working on the system's hardware.
6. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
7. If the device is not to be used for a long time, disconnect it from the power supply to avoid damage by transient over-voltage.
8. Always disconnect this device from any AC supply before cleaning.
9. While cleaning, use a damp cloth instead of liquid or spray detergents.
10. Make sure the device is installed near a power outlet and is easily accessible.
11. Keep this device away from humidity.
12. Place the device on a solid surface during installation to prevent falls
13. Do not cover the openings on the device to ensure optimal heat dissipation.
14. Watch out for high temperatures when the system is running.
15. Do not touch the heat sink or heat spreader when the system is running
16. Never pour any liquid into the openings. This could cause fire or electric shock.

17. As most electronic components are sensitive to static electrical charge, be sure to ground yourself to prevent static charge when installing the internal components. Use a grounding wrist strap and contain all electronic components in any static-shielded containers.
18. If any of the following situations arises, please the contact our service personnel:
  - i. Damaged power cord or plug
  - ii. Liquid intrusion to the device
  - iii. Exposure to moisture
  - iv. Device is not working as expected or in a manner as described in this manual
  - v. The device is dropped or damaged
  - vi. Any obvious signs of damage displayed on the device
19. **DO NOT LEAVE THIS DEVICE IN AN UNCONTROLLED ENVIRONMENT WITH TEMPERATURES BEYOND THE DEVICE'S PERMITTED STORAGE TEMPERATURES (SEE CHAPTER 1) TO PREVENT DAMAGE.**

### **Warning!**



This device complies with Part 15 FCC Rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received including interference that may cause undesired operation.

### **Caution:**

*There is a danger of explosion if the battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions and your local government's recycling or disposal directives.*

### **Attention:**

*Il y a un risque d'explosion si la batterie est remplacée de façon incorrecte. Ne la remplacer qu'avec le même modèle ou équivalent recommandé par le constructeur. Recycler les batteries usées en accord avec les instructions du fabricant et les directives gouvernementales de recyclage.*



## 产品中有毒有害物质或元素名称及含量

AAEON System

QO4-381 Rev.A0

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (Cr(VI))	多溴联 苯(PBB)	多溴二苯 醚(PBDE)
印刷电路板 及其电子组件	×	○	○	○	○	○
外部信号 连接器及线材	×	○	○	○	○	○
外壳	○	○	○	○	○	○
中央处理器 与内存	×	○	○	○	○	○
硬盘	×	○	○	○	○	○
液晶模块	×	×	○	○	○	○
光驱	×	○	○	○	○	○
触控模块	×	○	○	○	○	○
电源	×	○	○	○	○	○
电池	×	○	○	○	○	○

本表格依据 SJ/T 11364 的规定编制。

○：表示该有毒有害物质在该部件所有均质材料中的含量均在 GB/T 26572 标准规定的限量要求以下。

×：表示该有害物质的某一均质材料超出了 GB/T 26572 的限量要求，然而该部件

仍符合欧盟指令 2011/65/EU 的规范。

备注：

- 一、此产品所标示之环保使用期限，系指在一般正常使用状况下。
- 二、上述部件物质中央处理器、内存、硬盘、光驱、电源为选购品。
- 三、上述部件物质液晶模块、触控模块仅一体机产品适用。

# China RoHS Requirement (EN)

## Hazardous and Toxic Materials List

AAEON System

QQ4-381 Rev.A0

Component Name	Hazardous or Toxic Materials or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated biphenyls (PBBs)	Polybrominated diphenyl ethers (PBDEs)
PCB and Components	X	O	O	O	O	O
Wires & Connectors for Ext.Connections	X	O	O	O	O	O
Chassis	O	O	O	O	O	O
CPU & RAM	X	O	O	O	O	O
HDD Drive	X	O	O	O	O	O
LCD Module	X	X	O	O	O	O
Optical Drive	X	O	O	O	O	O
Touch Control Module	X	O	O	O	O	O
PSU	X	O	O	O	O	O
Battery	X	O	O	O	O	O

This form is prepared in compliance with the provisions of SJ/T 11364.

O: The level of toxic or hazardous materials present in this component and its parts is below the limit specified by GB/T 26572.

X: The level of toxic of hazardous materials present in the component exceed the limits specified by GB/T 26572, but is still in compliance with EU Directive 2011/65/EU (RoHS 2).

Notes:

1. The Environment Friendly Use Period indicated by labelling on this product is applicable only to use under normal conditions.
2. Individual components including the CPU, RAM/memory, HDD, optical drive, and PSU are optional.
3. LCD Module and Touch Control Module only applies to certain products which feature these components.

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# Chapter 1

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Product Specifications

## 1.1 Specifications

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### System

<b>Form Factor</b>	DIN Rail/Desktop
<b>Processor</b>	Intel Atom® x6000E Series Processor, 2~4 Cores
<b>System Memory</b>	260-pin DDR4 3200MT/s SODIMM with IB ECC support x 1
<b>Chipset</b>	SoC
<b>Ethernet</b>	Intel® I210-AT Gigabit Ethernet x 4
<b>Bypass</b>	Supports up to 2 Pairs LAN Bypass (Optional)
<b>BIOS</b>	AMI SPI Flash BIOS
<b>Serial ATA</b>	SATA 6Gb/s x 1 for 2.5" SSD support
<b>CFast/mSATA</b>	Full-size mSATA socket (colay SATA 6Gb/s)
<b>Expansion Interface</b>	Mini Card Slot x 1 with SIM socket
<b>USB</b>	USB 3.2 Gen 1 x 2
<b>Serial Port</b>	COM x 2 (RS-232/422/485)
<b>Watchdog Timer</b>	1 ~ 255 steps by software programmable
<b>RTC</b>	Internal RTC
<b>System Fan</b>	Fanless
<b>Color</b>	Black
<b>Power Supply</b>	Dual 2-Pin Phoenix Terminal Block
<b>Dimension</b>	5.12" x 4.96" x 2.83" (130mm x 126mm x 72mm)
<b>Power Requirement</b>	Redundant 9~48Vdc power input
<b>MTBF (Hours)</b>	TBD

### Display

<b>Graphics Chipset</b>	Intel® HD Graphics
<b>Interface</b>	HDMI Port x 1 VGA Port x 1

## I/O

<b>Front I/O Panel</b>	RJ-45 GbE x 4 RS-232/422/485 COM Ports x 2 HDMI x 1 VGA x 1 USB 3.2 Gen 1 x 2 Micro SIM x 1 Software Programmable Button x 1 Power LED x 1 HDD LED x 1 Status LED x 1
<b>Rear I/O Panel</b>	DIN Rail/Wallmount Lock
<b>Top Panel</b>	+9~48Vdc 2-Pin Terminal Block x 2

## Environmental

<b>Operating Temperature</b>	-40°F ~ 167°F (-40°C ~ 75°C)
<b>Storage Temperature</b>	-40°F ~ 185°F (-40°C ~ 85°C)
<b>Operating Humidity</b>	10% ~ 80% relative humidity, non-condensing
<b>Storage Humidity</b>	10% ~ 80% @40°C; non-condensing
<b>Vibration</b>	0.5 Grms/ 5 ~ 500Hz / operation (2.5" SSD) 1.5 Grms/ 5 ~ 500Hz / non-operation
<b>Shock</b>	10G peak acceleration (11 m sec. duration), operation 20G peak acceleration (11 m sec. duration), non-operation

# Chapter 2

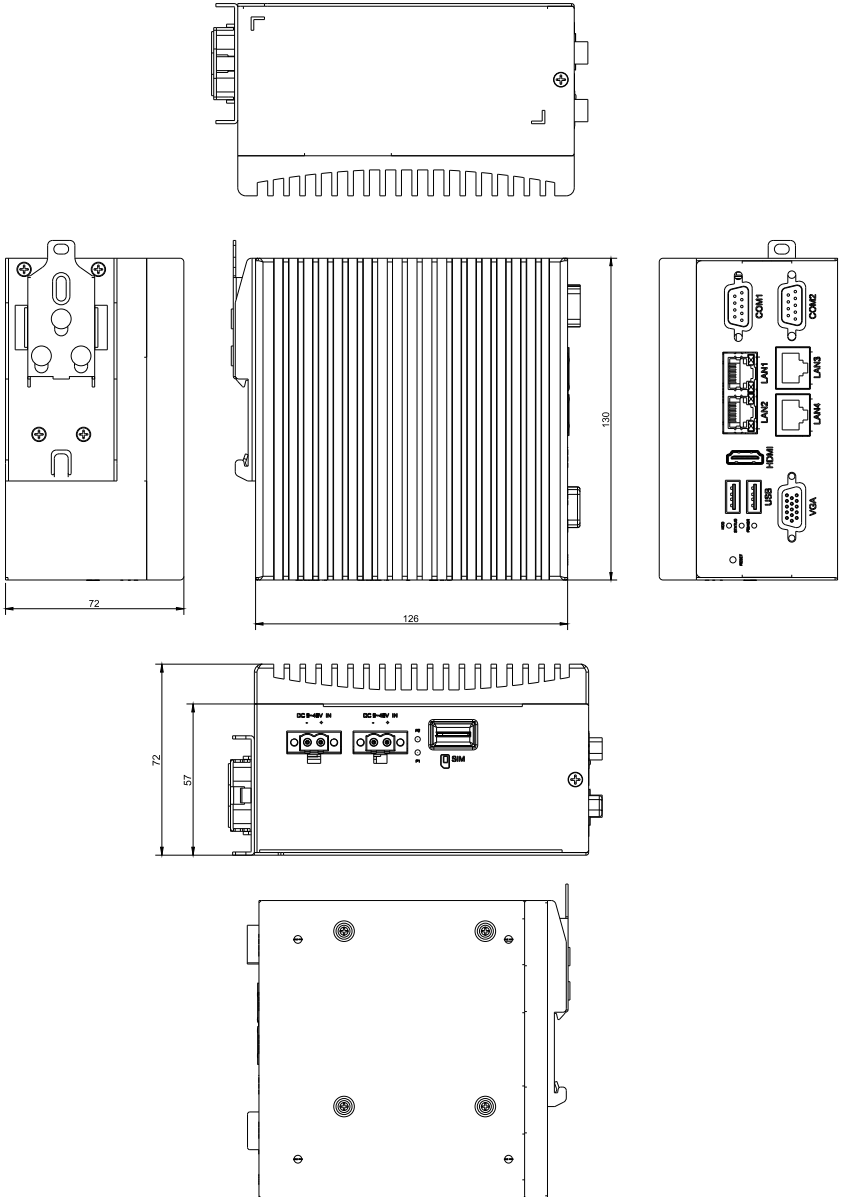
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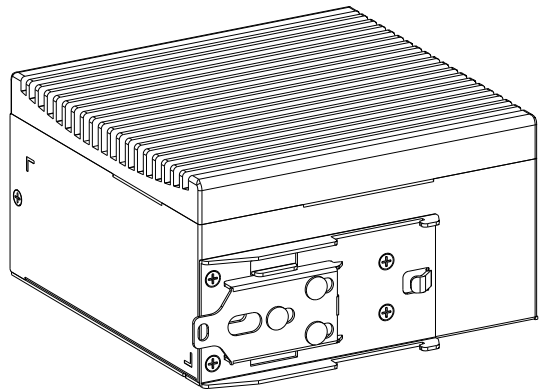
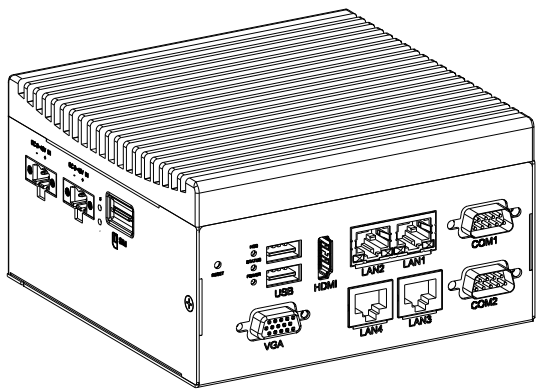
Hardware Information



## 2.1 Dimensions

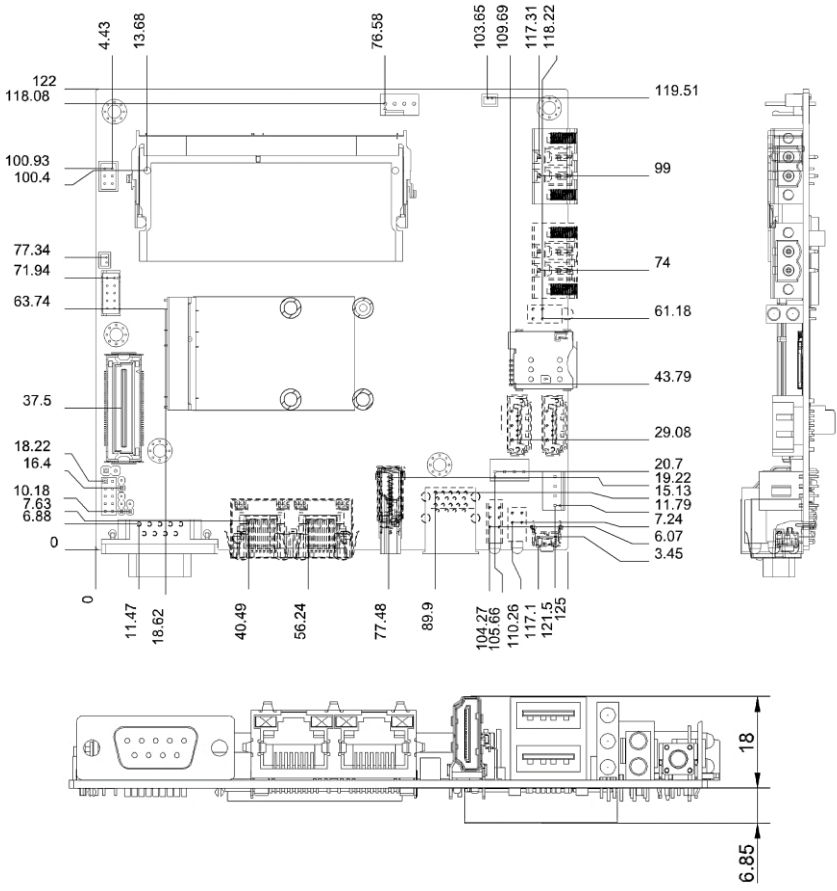
### System



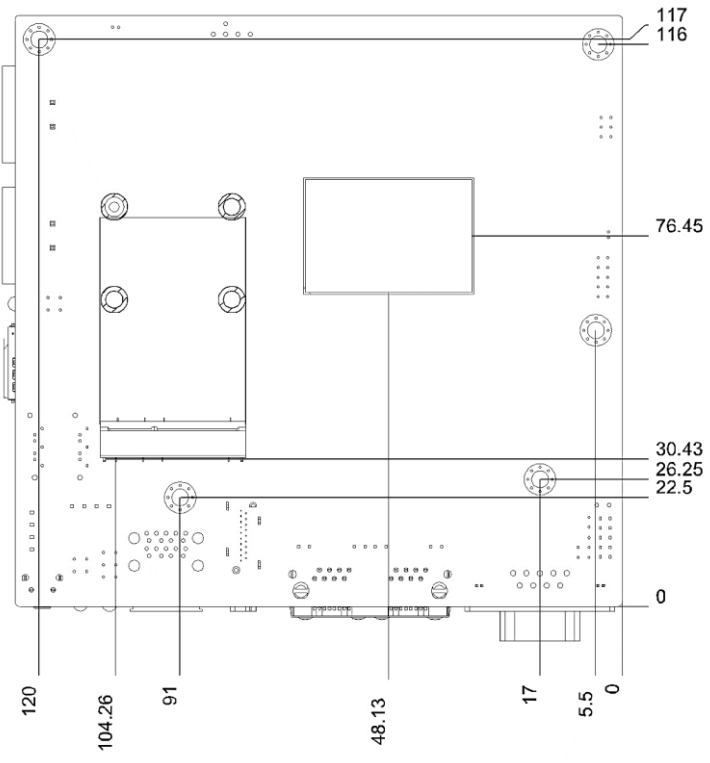


# Board

## Component Side

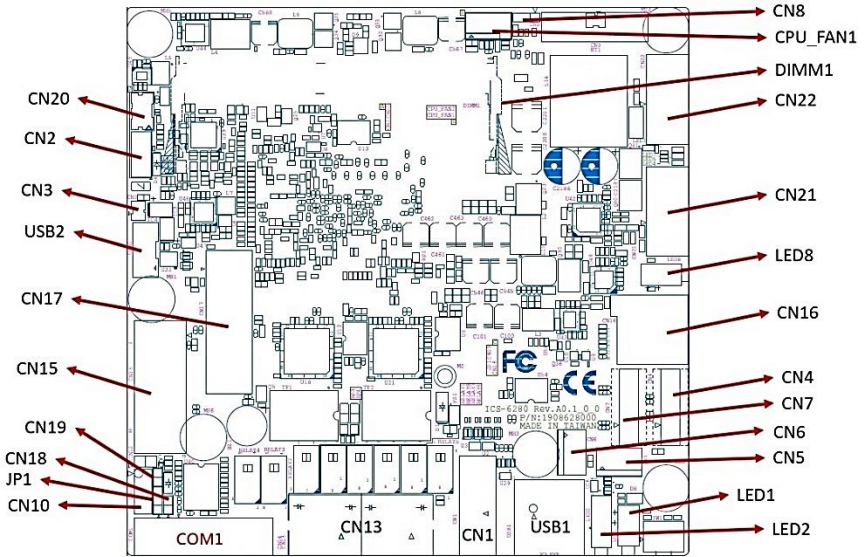


# Solder Side

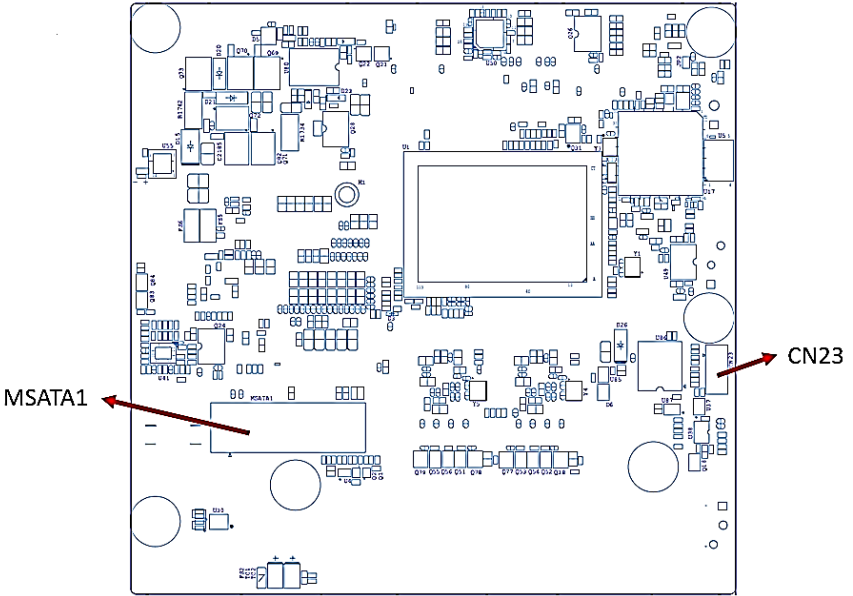


## 2.2 Jumpers and Connectors

### Component Side



Solder Side



MSATA1

CN23

## 2.3 List of Jumpers

---

Please refer to the table below for all of the board's jumpers that you can configure for your application.

Label	Function
CN8	Clear CMOS
JP1	Power-on states

## 2.4 Jumper Settings

---

### 2.4.1 Clear CMOS (CN8)

---

Normal (Default)	1-2
Clear CMOS	2-3

### 2.4.2 Auto Power Button (JP1)

---

Power-on via AC Power. (Default)	2-3
Power-on via Power Button.	1-2

## 2.5 List of Connectors

---

Please refer to the table below for all of the board's connectors that you can configure for your application

Label	Function
CN20	PS/2 Keyboard & Mouse
CN2	SPI Flash
CN3	Debug Port
USB2	USB 2.0
CN17	Mini Card
CN15	Board-to-Board
CN19	Reset Pin
CN18	Power Button
JP1	Auto Power Button
CN10	DIO
CN1	COM Port
CN13	LAN Port
CN1	HDMI
USB1	USB 3.0
LED2	System Status LED
LED1	LAN Bypass Status LED
CN5	SATA Power
CN6	SATA Power
CN7	SATA
CN4	SATA
CN16	SIM Card
LED8	PSU Status LED
CN21	Power Connector
CN22	Power Connector
CN8	Clear CMOS



Label	Function
CPU_FAN1	CPU Fan
DIMM1	Memory
CN23	MCU Flash
mSATA	mSATA Slot

### 2.5.1 Digital I/O (CN10)

---

This connector offers 5 pairs of digital I/O functions. The pin definitions are illustrated below:

PIN	Signal	PIN	Signal
1	Digital I/O bit1	2	Digital I/O bit2
3	Digital I/O bit3	4	Digital I/O bit4
5	Digital I/O bit5	6	Digital I/O bit6
7	Digital I/O bit7	8	Digital I/O bit8
9	+3.3V	10	GND

# Chapter 3

---

AMI BIOS Setup

## 3.1 System Test and Initialization

---

These routines test and initialize board hardware. If the routines encounter an error during the tests, you will either hear a few short beeps or see an error message on the screen. There are two kinds of errors: fatal and non-fatal. The system can usually continue the boot up sequence with non-fatal errors.

### System configuration verification

These routines check the current system configuration stored in the CMOS memory and BIOS NVRAM. If system configuration is not found or system configuration data error is detected, system will load optimized default and re-boot with this default system configuration automatically.

There are four situations in which you will need to setup system configuration:

1. You are starting your system for the first time
2. You have changed the hardware attached to your system
3. The system configuration is reset by Clear-CMOS jumper
4. The CMOS memory has lost power and the configuration information has been erased.

The ICS-6280 CMOS memory has an integral lithium battery backup for data retention. However, you will need to replace the complete unit when it finally runs down.

## 3.2 AMI BIOS Setup

---

AMI BIOS ROM has a built-in Setup program that allows users to modify the basic system configuration. This type of information is stored in battery-backed CMOS RAM and BIOS NVRAM so that it retains the Setup information when the power is turned off.

### Entering Setup

Power on the computer and press <Del> or <ESC> immediately. This will allow you to enter Setup.

### Main

Set the date, use tab to switch between date elements.

### Advanced

In here, can set power mode, USB configuration and check CPU type and speed

### Chipset

Host bridge parameters.

### Boot

Enables/disable quiet boot option.

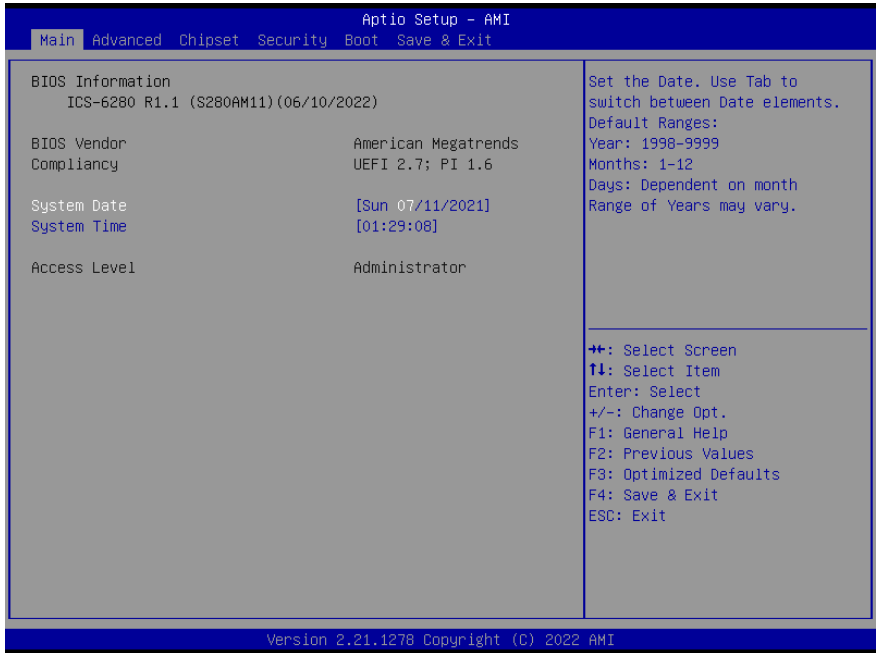
### Security

Set setup administrator/user password.

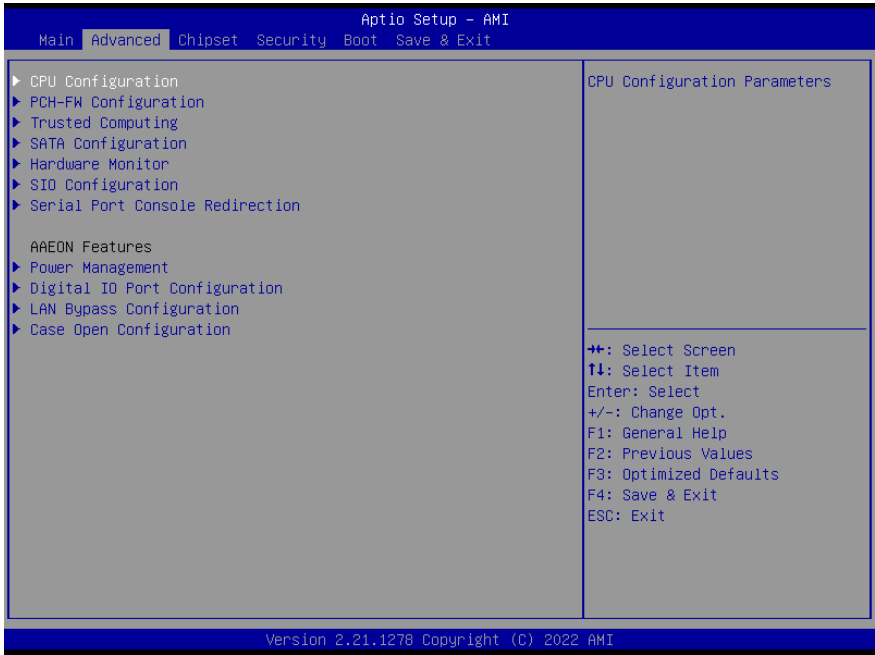
### Save & Exit

Exit system setup after saving the changes.

### 3.3 Setup Submenu: Main



### 3.4 Setup Submenu: Advanced



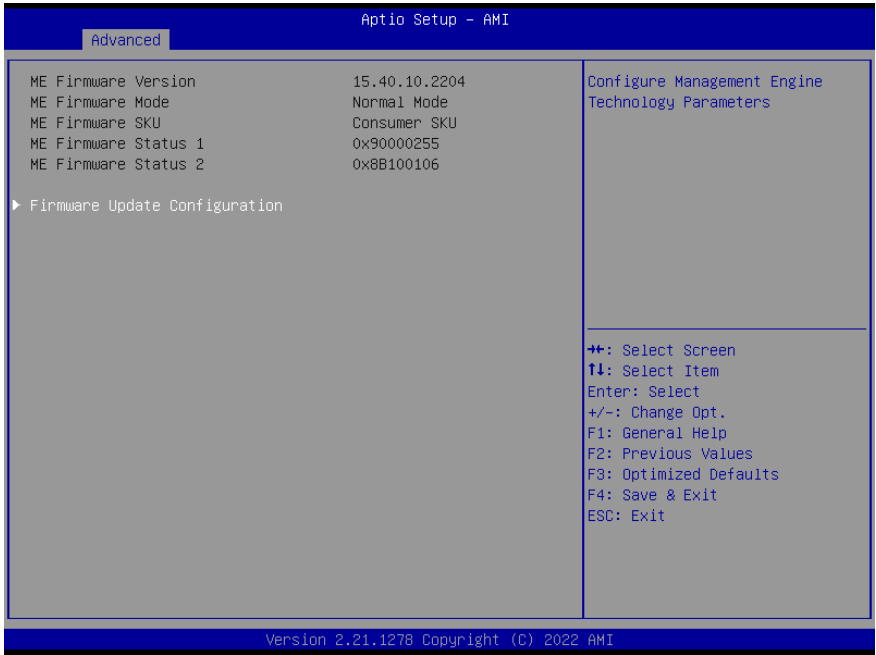
### 3.4.1 CPU Configuration



Options Summary		
Active Processor Cores	All	Optimal Default, Fail-Safe Default
	1	-
	2	-
	3	-

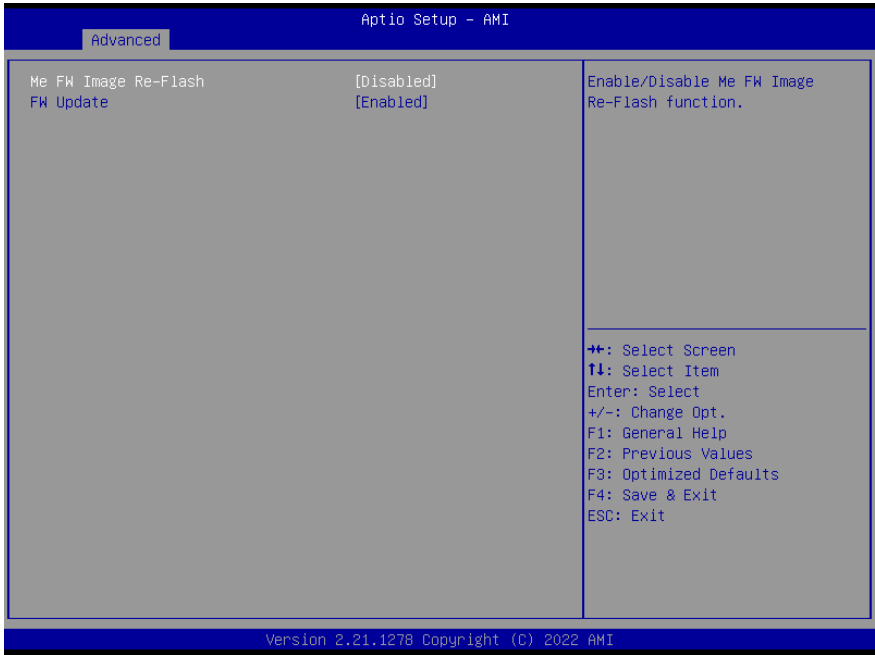
Number of cores to enable in each processor package.

### 3.4.2 PCH-FW Configuration



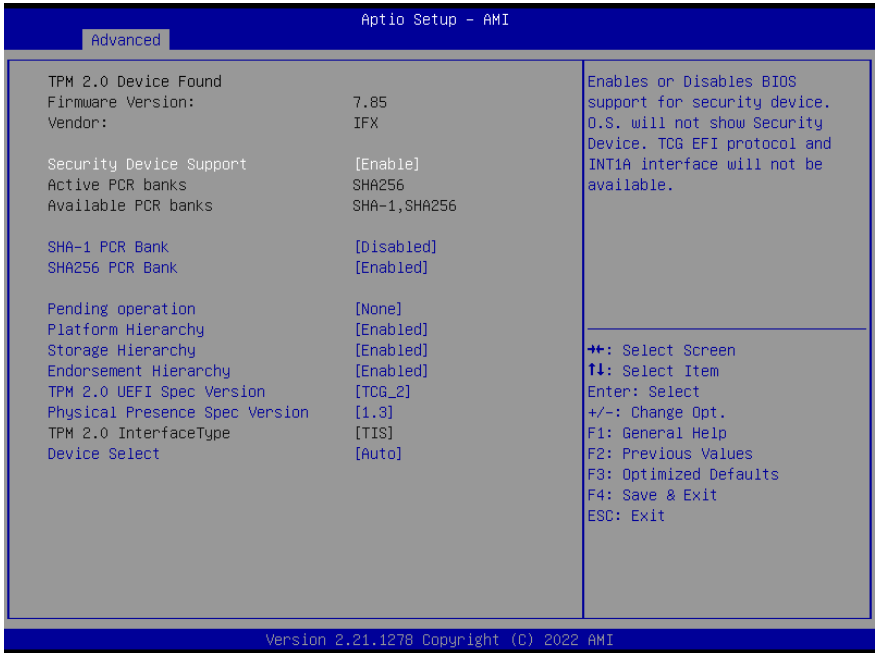


### 3.4.3 Firmware Update Configuration



Options Summary		
Me FW Image Re-Flash	Enabled	
	Disabled	Optimal Default, Fail-Safe Default
Enable/Disable Me FW Image Re-Flash function		
FW Update	Enabled	Optimal Default, Fail-Safe Default
	Disabled	
Enable/Disable Me FW update function		

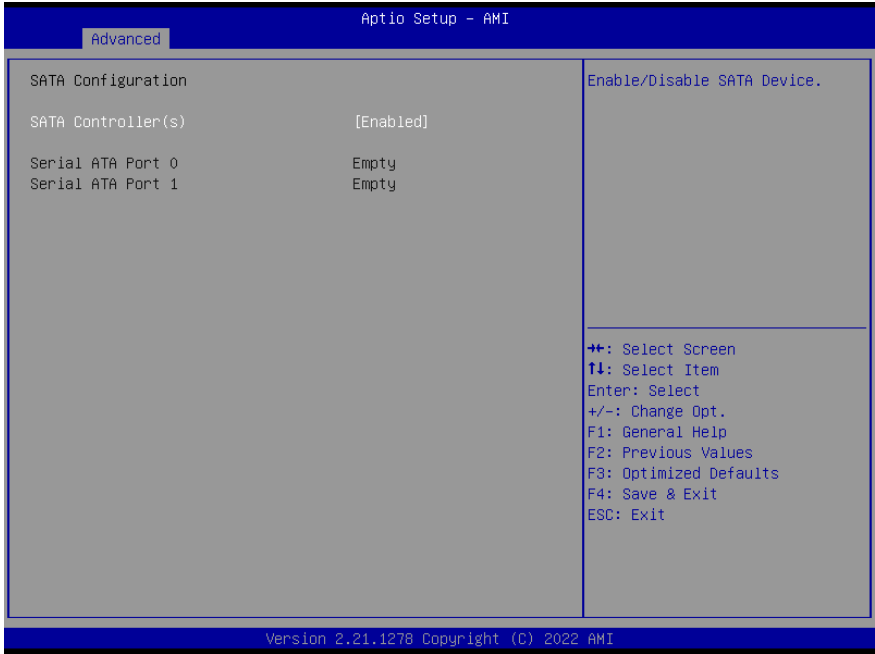
### 3.4.4 Trusted Computing



Options Summary		
Security Device Support	Enable	Optimal Default, Fail-Safe Default
	Disable	-
Enables or disables BIOS support for security device. OS will not show Security Device. TCG EFI protocol and INT1A interface will not be available.		
SHA-1 PCR Bank	Enabled	-
	Disabled	Optimal Default, Fail-Safe Default
Enables or disables SHA-1 PCR Bank		
SHA256 PCR Bank	Enabled	Optimal Default, Fail-Safe Default
	Disabled	-
Enables or disables SHA256 PCR Bank.		
Pending operation	None	Optimal Default, Fail-Safe Default
	TPM Clear	-
Schedule an operation for the Security Device.		
<b>NOTE:</b> Your computer will reboot during restart in order to change State of Security Device.		

Options Summary		
Platform Hierarchy	Enabled	Optimal Default, Fail-Safe Default
	Disabled	-
Enables or disables Platform Hierarchy		
Storage Hierarchy	Enabled	Optimal Default, Fail-Safe Default
	Disabled	-
Enables or disables Storage Hierarchy		
Endorsement Hierarchy	Enabled	Optimal Default, Fail-Safe Default
	Disabled	-
Enables or disables Endorsement Hierarchy		
TPM 2.0 UEFI Spec Version	TCG_2	Optimal Default, Fail-Safe Default
	TCG_1_2	-
Select the TCH2 Spec Version Support. TCG_1_2: The compatible mode for Win8/Win10 TCG_2: Support new TCG2 protocol and event format for Win10 or later		
Physical Presence Spec Version	1.3	Optimal Default, Fail-Safe Default
	1.2	-
Select to tell OS to support PPI spec version 1.2 or 1.3. <b>NOTE:</b> some HCK tests might not support version 1.3.		
Device Select	Auto	Optimal Default, Fail-Safe Default
	TPM 1.2	-
	TPM 2.0	-
TPM 1.2 will restrict support to TPM 1.2 devices. TPM 2.0 will restrict support to TPM 2.0 devices. Auto will support both with the default set to TPM 2.0 devices if not found. TPM 1.2 devices will be enumerated.		

### 3.4.5 SATA Configuration



Options Summary		
SATA Controller(s)	Enabled	Optimal Default, Fail-Safe Default
	Disabled	
Enable/Disable SATA Device.		

### 3.4.6 Hardware Monitor

The screenshot displays the 'Advanced' menu of the Aptio Setup - AMI BIOS. The 'System FAN Setting' section shows various temperature and voltage readings. The 'Smart Fan function setting' section provides navigation instructions for the fan control options.

System FAN Setting	
CPU DTS Temperature	: +56 ℃
System Temperature	: +49 ℃
System FAN	: N/A
Voltage Readings:	
VCORE	: +1.689 V
VMEM	: +1.188 V
+12V	: +12.033 V
+3.3V	: +3.289 V
+5V	: +4.932 V
+48V1	: +11.380 V
+48V2	: +11.810 V
VSb3V	: +3.248 V
VBAT	: +3.030 V
AVCC3	: +3.248 V

**Smart Fan function setting**

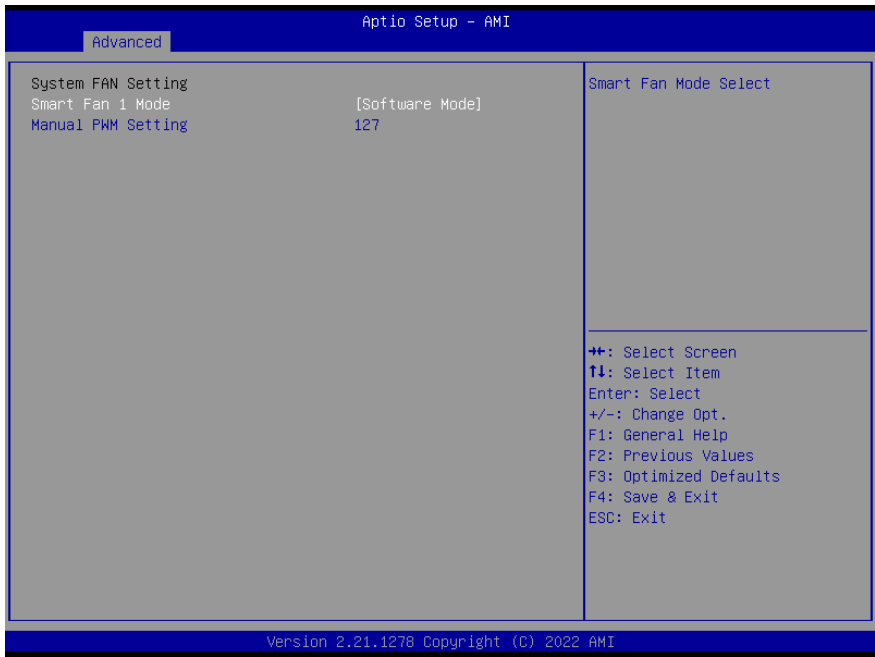
- ↔: Select Screen
- ↑↓: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F2: Previous Values
- F3: Optimized Defaults
- F4: Save & Exit
- ESC: Exit

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### 3.4.7 System FAN Setting



Options Summary		
Smart Fan 1 Mode	Automatic Mode	Optimal Default, Fail-Safe Default
	Software Mode	
Smart Fan Mode Select.		
Fan off temperature limit	16	Optimal Default, Fail-Safe Default
Fan will off when temperature lower then this limit.		
Fan start temperature limit	32	Optimal Default, Fail-Safe Default
Fan will work when temperature higher then this limit.		
Fan full speed temperature limit	127	Optimal Default, Fail-Safe Default
Fan will full speed when temperature higher than this limit.		
Fan start PWM	128	Optimal Default, Fail-Safe Default
Fan will full start with this PWM value.		
PWM SLOPE SETTING	5	Optimal Default, Failsafe Default
PWM SLOPE Selection.		
Slope = PWM value / °C.		

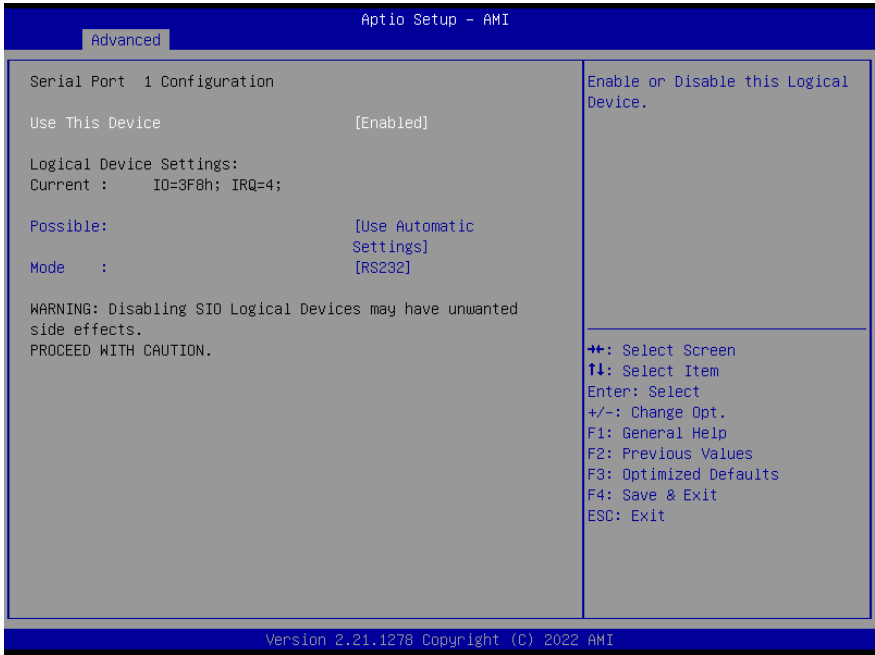


### 3.4.8 SIO Configuration



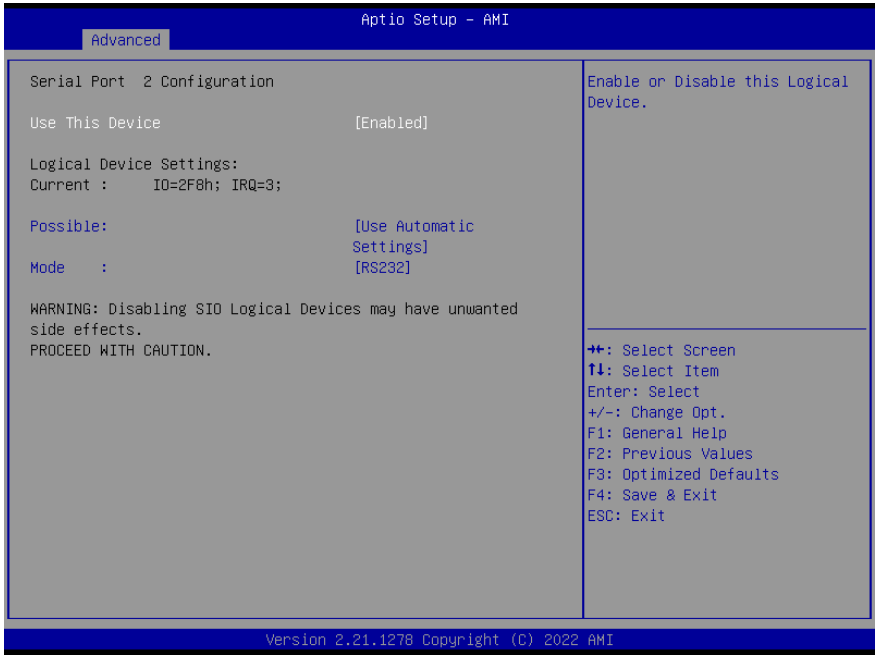


### 3.4.8.1 Serial Port 1 Configuration



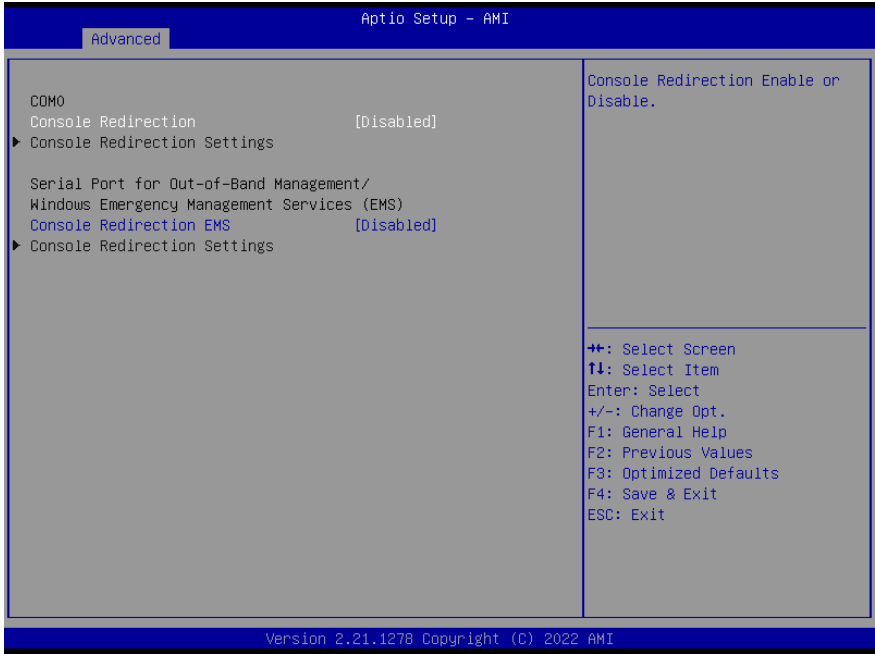
Options Summary		
Use This Device	Enabled	Optimal Default, Fail-Safe Default
	Disabled	
Enable or Disable this Logical Device		
Possible	Use Automatic setting	Optimal Default, Fail-Safe Default
	IO=3F8h; IRQ=4	
	IO=2F8h; IRQ=3	
Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts		
Mode	RS232	Optimal Default, Fail-Safe Default
	RS422	
	RS485	
UART RS232, 422, 485 select		

### 3.4.8.2 Serial Port 2 Configuration



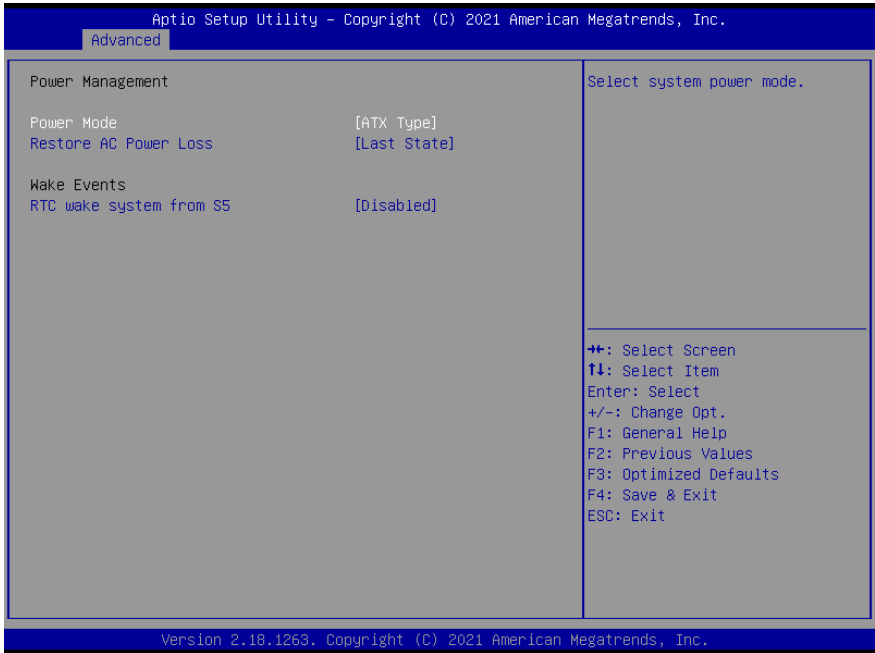
Options Summary		
Use This Device	Enabled	Optimal Default, Fail-Safe Default
	Disabled	
Enable or Disable this Logical Device.		
Possible	Use Automatic setting	Optimal Default, Fail-Safe Default
	IO=3F8h; IRQ=4	
	IO=2F8h; IRQ=3	
Allows the user to change the device resource settings. New settings will be reflected on this setup page after system restarts.		
Mode	RS232	Optimal Default, Fail-Safe Default
	RS422	
	RS485	
UART RS232, 422, 485 select.		

### 3.4.9 Serial Port Console Redirection



Options Summary		
Console Redirection	Enabled	
	Disabled	Optimal Default, Fail-Safe Default
Enable or Disable Console Redirection.		
Console Redirection EMS	Enabled	
	Disabled	Optimal Default, Fail-Safe Default
Enable or Disable Console Redirection.		

### 3.4.10 Power Management



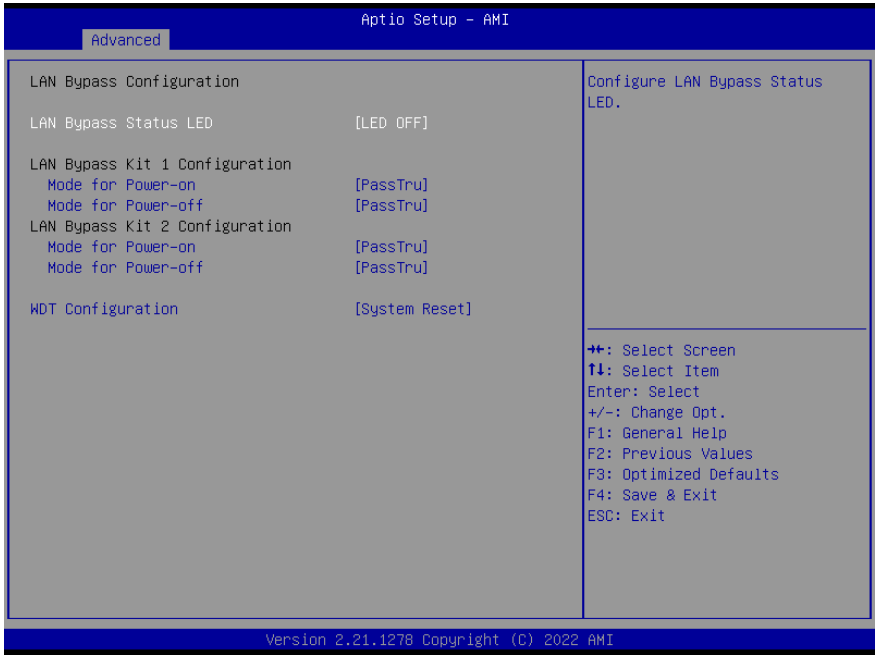
Options Summary		
Power Mode	ATX Type	Optimal Default, Fail-Safe Default
	AT Type	-
Select power supply mode.		
Restore AC Power Loss	Last State	Optimal Default, Fail-Safe Default
	Always On	-
	Always Off	-
RTC wake system from S5	Disabled	Optimal Default, Fail-Safe Default
	Fixed Time	-
	Dynamic Time	-
	Bypass	-
Fixed Time: System will wake on the hr :: min :: sec specified.		
Dynamic Time : System will wake on the current time + increase minutes(s).		
Bypass: BIOS will not control RTC wake function during system shutdown.		

### 3.4.11 Digital IO Port Configuration



Options Summary		
DIO	Input	Optimal Default, Fail-Safe Default
	Output	
Set DIO as Input or Output.		
Output Level	High	Optimal Default, Fail-Safe Default
	Low	
Set output level when DIO pin is output.		

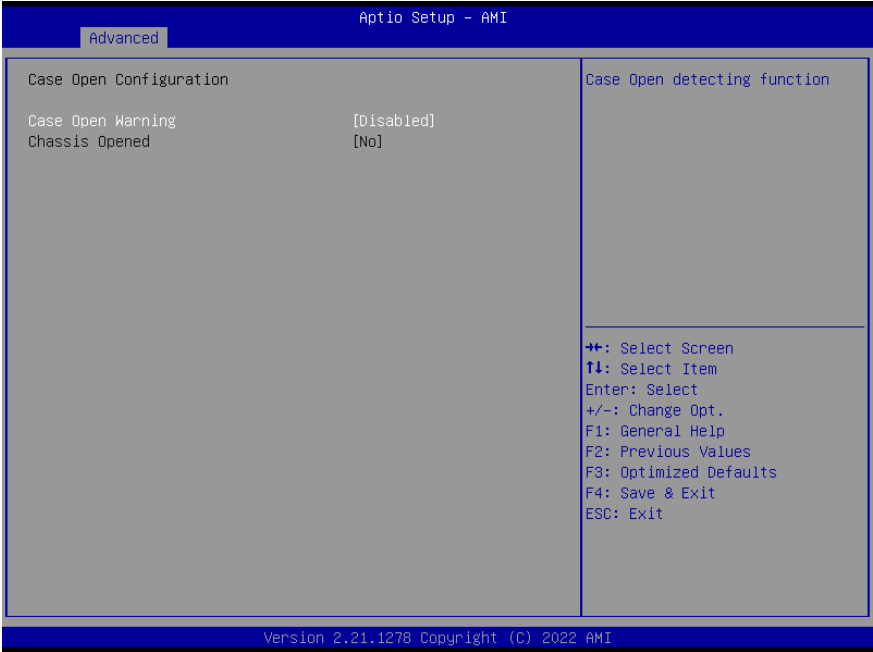
### 3.4.12 LAN Bypass Configuration



Options Summary		
LAN Bypass Status LED	LED OFF	Optimal Default, Fail-Safe Default
	RED LED ON	-
	RED LED BLINK	-
	RED LED FAST BLINK	-
	GREEN LED ON	-
	GREEN LED BLINK	-
	GREEN LED FAST BLINK	-
Configure LAN Bypass status LED.		
Mode for Power-on	PassTru	Optimal Default, Fail-Safe Default
	Bypass	
Configure LAN kit behavior when system in power-on state. (Bypass/Pass Through).		
Mode for Power-off	PassTru	Optimal Default, Fail-Safe Default
	Bypass	
Configure LAN kit behavior when system in power-off state. (Bypass/Pass Through).		

Options Summary		
WDT Configuration	System Reset	Optimal Default, Fail-Safe Default
	Force Bypass	
Configure LAN kit behavior when WDT is triggered. (Bypass/Pass Through).		

### 3.4.13 Case Open Configuration



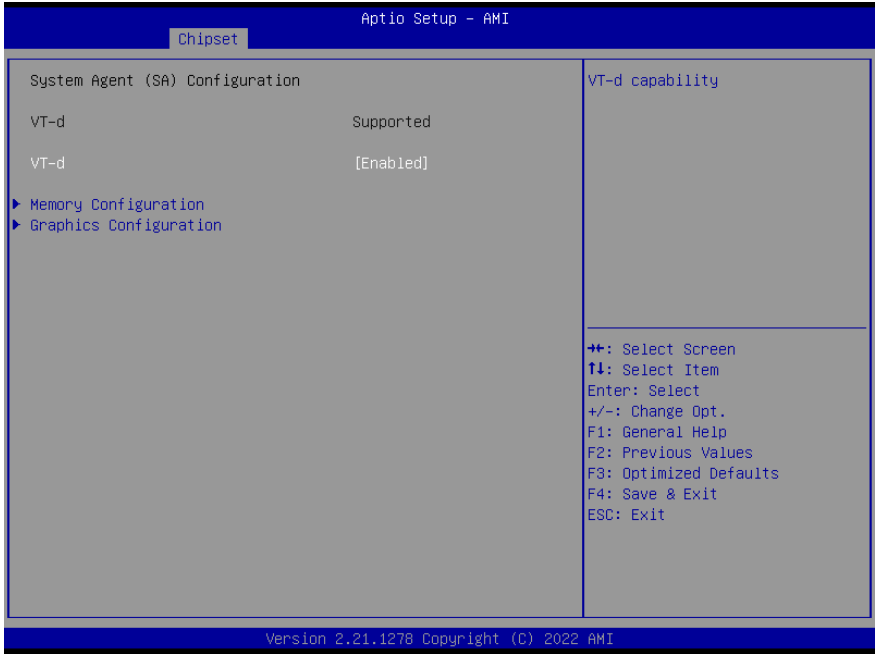
Options Summary		
Case Open Warning	Disabled	Optimal Default, Fail-Safe Default
	Enabled	
	Clear	
Case Open detecting function.		

### 3.5 Setup Submenu: Chipset



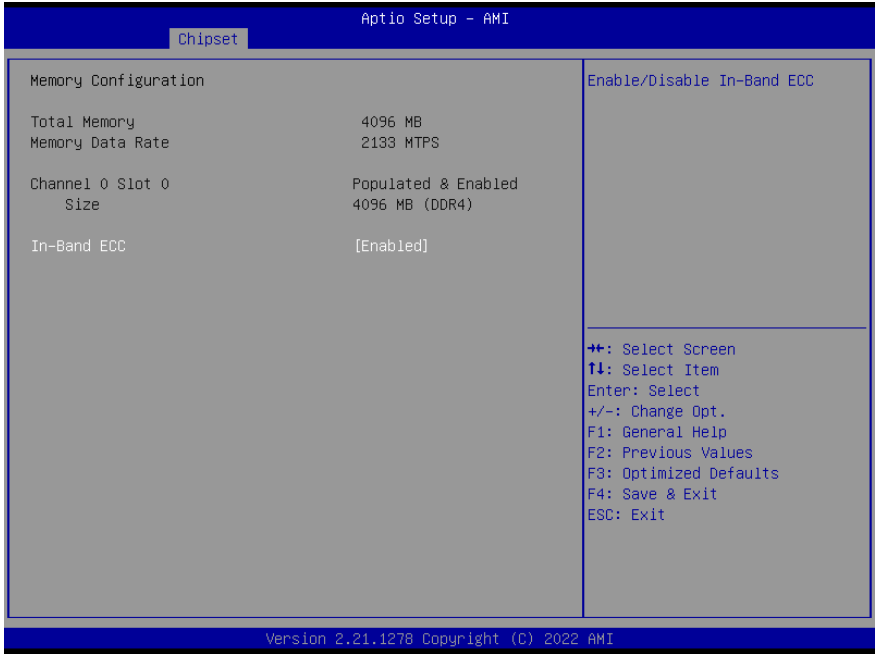


### 3.5.1 System Agent (SA) Configuration



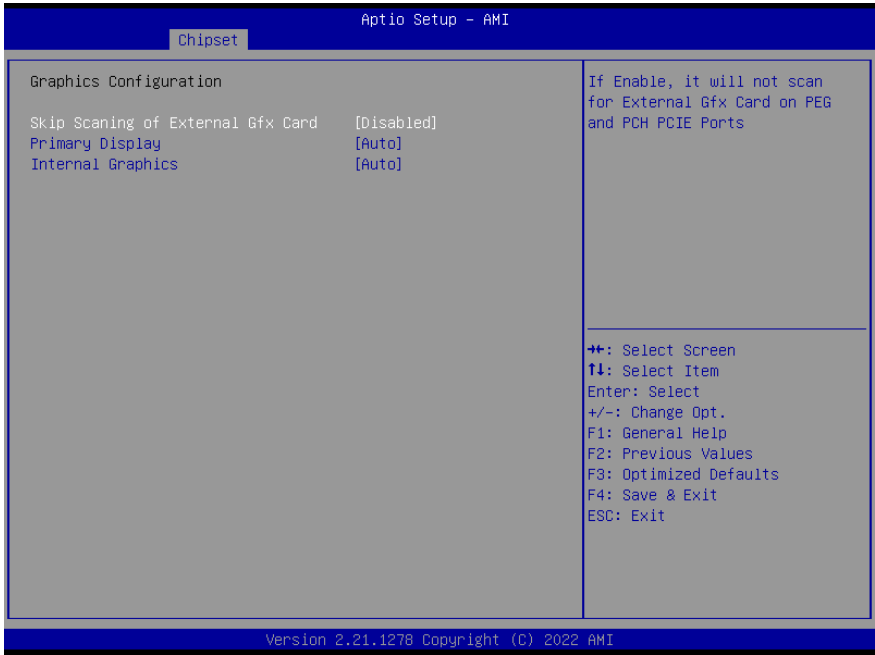
Options Summary		
VT-d	Enabled	Optimal Default, Fail-Safe Default
	Disabled	
VT-d capability.		

### 3.5.2 Memory Configuration



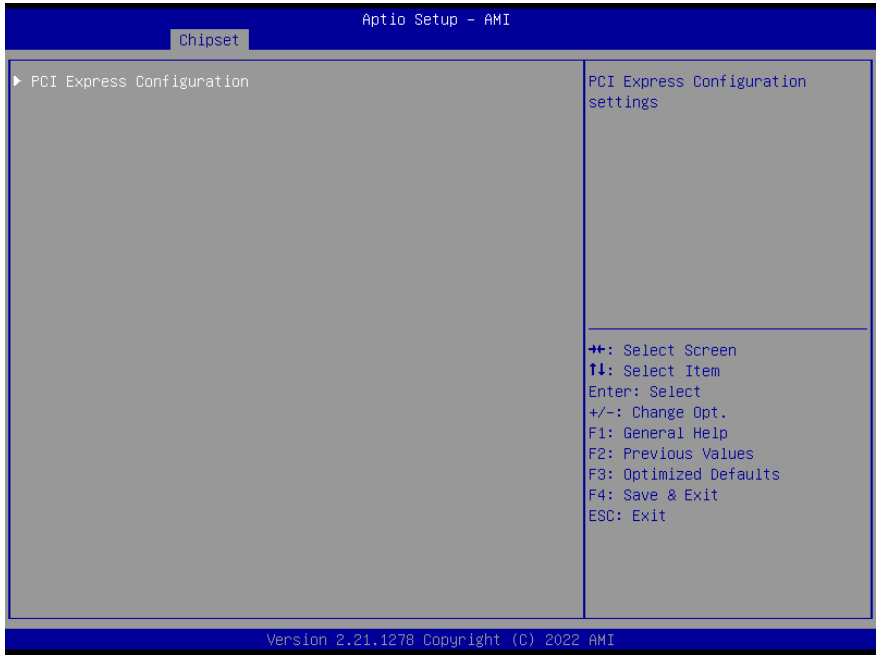
Options Summary		
In-Band ECC	Enabled	Optimal Default, Fail-Safe Default
	Disabled	-
Enable/Disable In-Band ECC.		

### 3.5.3 Graphics Configuration

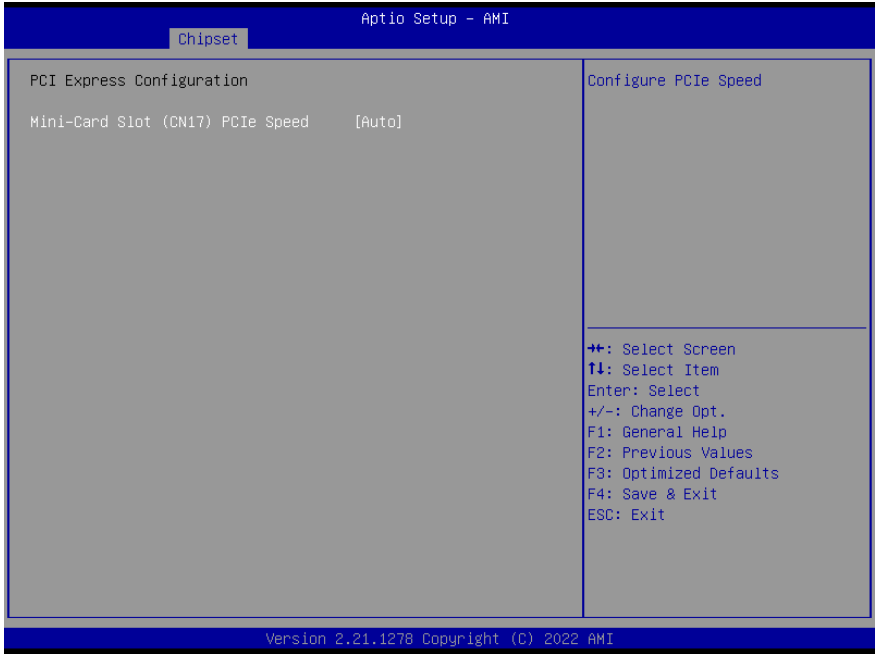


Options Summary		
Skip Scanning of External Gfx Card	Enabled	-
	Disabled	Optimal Default, Fail-Safe Default
If Enable, it will not scan for External Gfx Card on PEG and PCH PCIE Ports.		
Primary Display	Auto	Optimal Default, Fail-Safe Default
	IGFX	-
	PEG	-
	PCI	-
Select which of IGFX/PEG/PCI Graphics Device should be Primary Display or select HG for Hybrid Gfx.		
Internal Graphics	Auto	Optimal Default, Fail-Safe Default
	Disabled	-
	Enabled	-
Keep IGFX enabled based on the setup options.		

### 3.5.4 PCH-IO Configuration

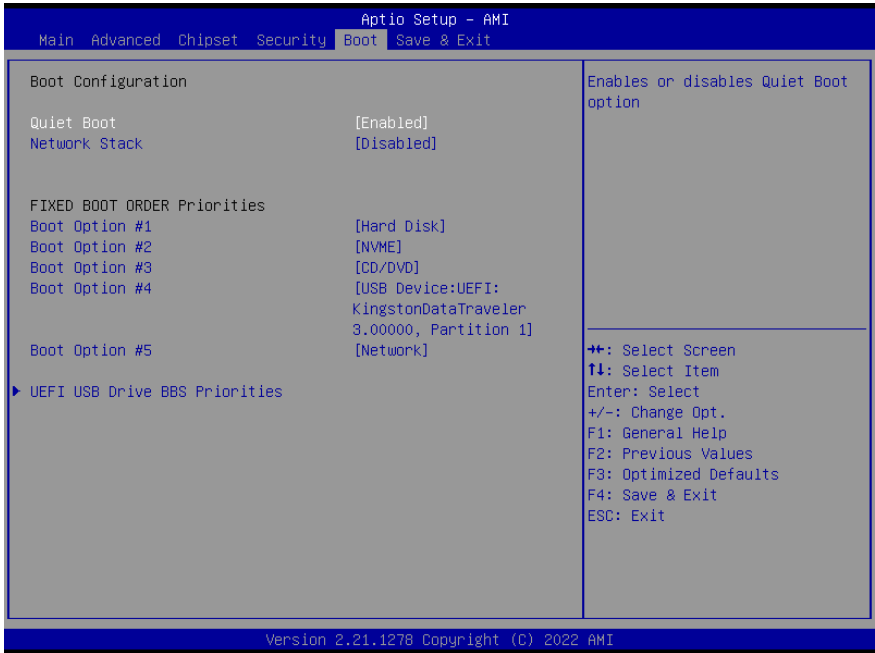


### 3.5.5 PCI Express Configuration



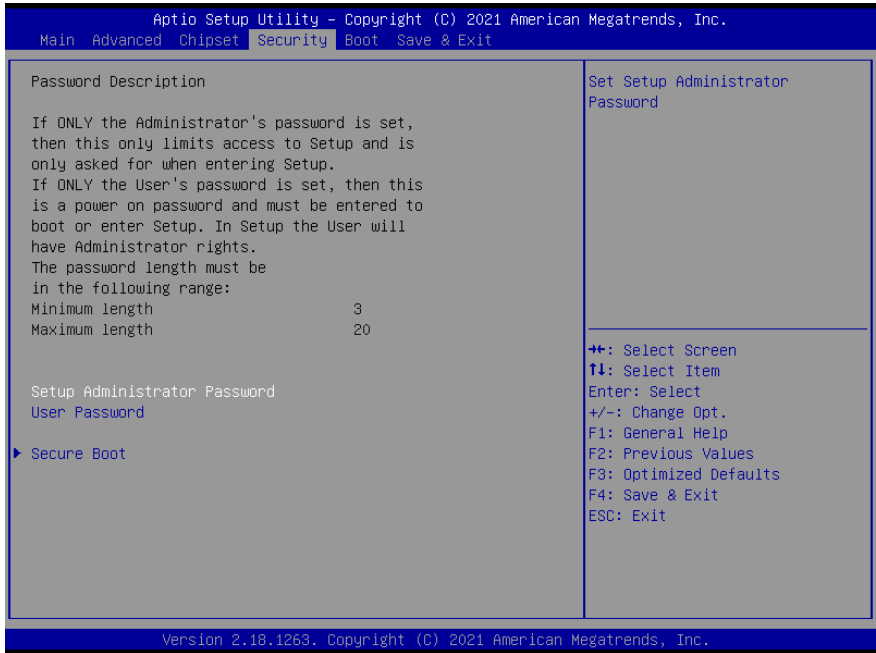
Options Summary		
Mini-Card Slot (CN17) PCIe speed	Auto	Optimal Default, Fail-Safe Default
	Gen 1	-
	Gen 2	-
	Gen 3	-
Configure PCIe Speed.		

### 3.6 Setup Submenu: Boot



Options Summary		
Quiet Boot	Disabled	
	Enabled	Optimal Default, Fail-Safe Default
Enable or Disable Quiet Boot option.		
Network Stack	Disabled	Optimal Default, Fail-Safe Default
	Enabled	
Enable/Disable UEFI Network Stack.		
UEFI Hard Disk Drive BBS Priorities.		
Specifies the Boot Device Priority sequence from available UEFI Hard Disk Drives.		
USB Drive BBS Priorities		
Specifies the Boot Device Priority sequence from available USB Drives.		
SD Drive BBS Priorities		
Specifies the Boot Device Priority sequence from available SD Drives.		

## 3.7 Setup Submenu: Security



### Change User/Administrator Password

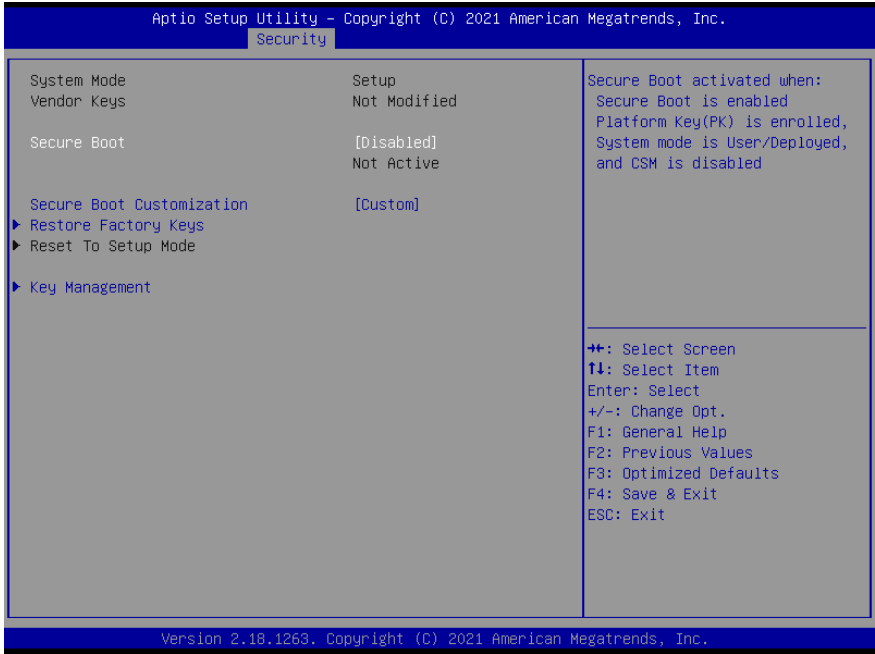
You can install an Administrator password, and if you install an administrator password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

If you highlight these items and press Enter, a dialog box appears which lets you enter a password. You can enter no more than six letters or numbers. Press Enter after you have typed in the password. A second dialog box asks you to retype the password for confirmation. Press Enter after you have retyped it correctly. The password is required at boot time, or when the user enters the Setup utility.

### Removing the Password

Highlight this item and type in the current password. At the next dialog box press Enter to disable password protection.

### 3.7.1 Secure Boot



Options Summary		
Secure Boot	Disabled	Optimal Default, Fail-Safe Default
	Enabled	
Secure Boot activated when: Secure Boot is enabled Platform Key (PK) is enrolled, System mode is User/Deployed, and CSM is disabled.		
Secure Boot Customization	Standard	
	Custom	Optimal Default, Fail-Safe Default
Secure Boot Mode - Custom & Standard, Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode, this change is effect after save. And after reset, the mode will return to STANDARD mode.		
<b>Restore Factory Keys</b>		
Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys.		



## Options Summary

Enroll Factory Defaults or load certificates from a file:

1. Public Key Certificate in:

- a) EFI\_SIGNATURE\_LIST
- b) EFI\_CERT\_X509 (DER encoded)
- c) EFI\_CERT\_RSA2048 (bin)
- d) EFI\_CERT\_SHAXXX

2. Authenticated UEFI Variable

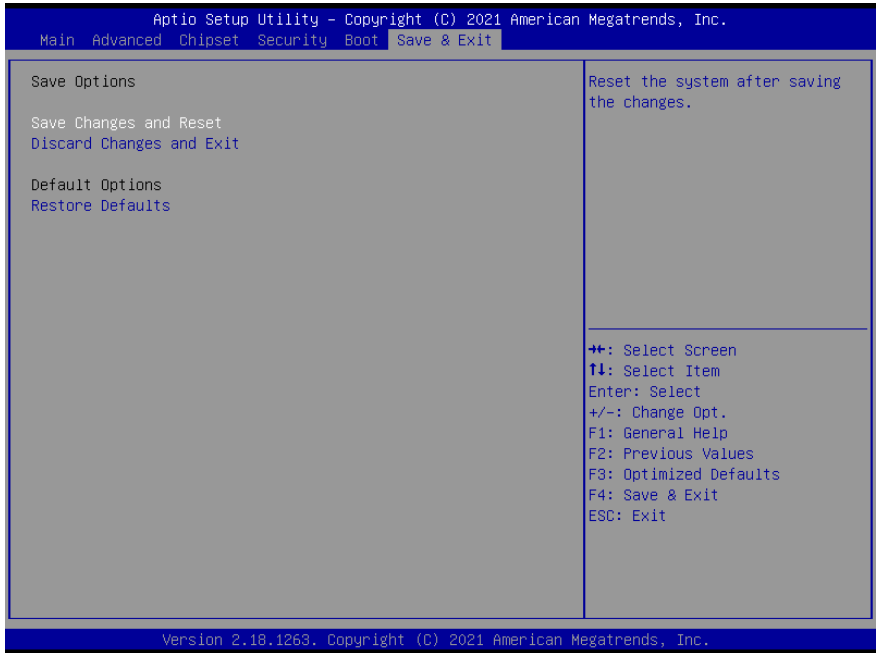
3. EFI PE/COFF Image (SHA256)

Key Source:

Default, External, Mixed.



### 3.8 Setup Submenu: Save & Exit



# Chapter 4

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Driver Installation

## 4.1 Driver Installation

---

Please download the driver from AAEON website. It contains all the drivers and utilities you need to setup your product. Follow the steps below to install the drivers.

<https://www.aaeon.com/en/p/din-rail-industrial-grade-network-appliances-ics-6280>

### Step 1 – Install Chipset Drivers

1. Open the **Chipset** folder followed by the **SetupChipset.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

### Step 2 – Install Graphics Driver

1. Open the **Graphics** folder followed by **Installer.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

### Step 3 – Install ME Driver

1. Open the **Intel CSE** folder, followed by the **SetupME.exe** file
2. Follow the instructions
3. Drivers will be installed automatically

### Step 4 – Install LAN Driver

1. Open the **LAN** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

## Step 5 – Install Serial IO Driver

1. Open the **Serial IO** folder and select your OS
2. Open the **.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

# Appendix A

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I/O Information

## A.1 I/O Address Map

Input/output (IO)	
[0000000000000000 - 000000000000CF7]	PCI Express Root Complex
[0000000000000020 - 0000000000000021]	Programmable interrupt controller
[0000000000000024 - 0000000000000025]	Programmable interrupt controller
[0000000000000028 - 0000000000000029]	Programmable interrupt controller
[000000000000002C - 000000000000002D]	Programmable interrupt controller
[000000000000002E - 000000000000002F]	Motherboard resources
[0000000000000030 - 0000000000000031]	Programmable interrupt controller
[0000000000000034 - 0000000000000035]	Programmable interrupt controller
[0000000000000038 - 0000000000000039]	Programmable interrupt controller
[000000000000003C - 000000000000003D]	Programmable interrupt controller
[0000000000000040 - 0000000000000043]	System timer
[000000000000004E - 000000000000004F]	Motherboard resources
[0000000000000050 - 0000000000000053]	System timer
[0000000000000061 - 0000000000000061]	Motherboard resources
[0000000000000063 - 0000000000000063]	Motherboard resources
[0000000000000065 - 0000000000000065]	Motherboard resources
[0000000000000067 - 0000000000000067]	Motherboard resources
[0000000000000070 - 0000000000000070]	Motherboard resources
[0000000000000080 - 0000000000000080]	Motherboard resources
[0000000000000092 - 0000000000000092]	Motherboard resources
[00000000000000A0 - 00000000000000A1]	Programmable interrupt controller
[00000000000000A4 - 00000000000000A5]	Programmable interrupt controller
[00000000000000A8 - 00000000000000A9]	Programmable interrupt controller
[00000000000000AC - 00000000000000AD]	Programmable interrupt controller
[00000000000000B0 - 00000000000000B1]	Programmable interrupt controller
[00000000000000B2 - 00000000000000B3]	Motherboard resources
[00000000000000B4 - 00000000000000B5]	Programmable interrupt controller
[00000000000000B8 - 00000000000000B9]	Programmable interrupt controller
[00000000000000BC - 00000000000000BD]	Programmable interrupt controller
[00000000000002F8 - 00000000000002FF]	Communications Port (COM2)
[00000000000003F8 - 00000000000003FF]	Communications Port (COM1)
[00000000000004D0 - 00000000000004D1]	Programmable interrupt controller
[0000000000000680 - 000000000000069F]	Motherboard resources
[0000000000000A00 - 0000000000000A0F]	Motherboard resources
[0000000000000A10 - 0000000000000A1F]	Motherboard resources
[0000000000000A20 - 0000000000000A2F]	Motherboard resources
[0000000000000D00 - 0000000000000FFF]	PCI Express Root Complex
[000000000000164E - 000000000000164F]	Motherboard resources
[0000000000001800 - 00000000000018FE]	Motherboard resources
[0000000000001854 - 0000000000001857]	Motherboard resources
[0000000000002000 - 00000000000020FE]	Motherboard resources
[0000000000003000 - 0000000000003FFF]	Intel(R) PCI Express Root Port #3 - 4B3B
[0000000000004000 - 0000000000004FFF]	Intel(R) PCI Express Root Port #2 - 4B3A
[0000000000005000 - 0000000000005FFF]	Intel(R) PCI Express Root Port #1 - 4B39
[0000000000006000 - 0000000000006FFF]	Intel(R) PCI Express Root Port #0 - 4B38
[0000000000007000 - 000000000000703F]	Intel(R) UHD Graphics
[0000000000007060 - 000000000000707F]	Standard SATA AHCI Controller
[0000000000007080 - 0000000000007083]	Standard SATA AHCI Controller
[0000000000007090 - 0000000000007097]	Standard SATA AHCI Controller
[000000000000EFA0 - 000000000000EFBF]	Intel(R) SMBus Controller - 4B23































































































## A.2 Memory Address Map















































▼	Large Memory
▼	Memory
	[0000004000000000 - 0000007FFFFFFF] PCI Express Root Complex
	[000000000A0000 - 000000000BFFFF] PCI Express Root Complex
	[000000007FC00000 - 000000007FCFFFFF] Intel(R) PCI Express Root Port #3 - 4B3B
	[000000007FC00000 - 00000000BFFFFFFF] PCI Express Root Complex
	[000000007FDC0000 - 000000007FCDFFFF] Intel(R) I211 Gigabit Network Connection #2
	[000000007FCE0000 - 000000007FCFFFFF] Intel(R) I211 Gigabit Network Connection #2
	[000000007FD00000 - 000000007FDFFFFF] Intel(R) PCI Express Root Port #2 - 4B3A
	[000000007FD0C000 - 000000007FDDFFFF] Intel(R) I211 Gigabit Network Connection
	[000000007FDE0000 - 000000007FDFFFFF] Intel(R) I211 Gigabit Network Connection
	[000000007FE00000 - 000000007FE1FFFF] Intel(R) I211 Gigabit Network Connection #4
	[000000007FE00000 - 000000007FEFFFFF] Intel(R) PCI Express Root Port #1 - 4B39
	[000000007FE20000 - 000000007FE23FFF] Intel(R) I211 Gigabit Network Connection #4
	[000000007FF00000 - 000000007FF1FFFF] Intel(R) I211 Gigabit Network Connection #3
	[000000007FF00000 - 000000007FFFFFFF] Intel(R) PCI Express Root Port #0 - 4B38
	[000000007FF20000 - 000000007FF23FFF] Intel(R) I211 Gigabit Network Connection #3
	[0000000080000000 - 0000000080001FFF] Standard SATA AHCI Controller
	[0000000080002000 - 00000000800027FF] Standard SATA AHCI Controller
	[0000000080003000 - 00000000800030FF] Standard SATA AHCI Controller
	[00000000C0000000 - 00000000CFFFFFFF] Motherboard resources
	[00000000FD000000 - 00000000FD68FFFF] Motherboard resources
	[00000000FD690000 - 00000000FD69FFFF] Intel(R) Serial IO GPIO Host Controller - INTC1020
	[00000000FD6A0000 - 00000000FD6AFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1020
	[00000000FD6B0000 - 00000000FD6BFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1020
	[00000000FD6B0000 - 00000000FD6CFFFF] Motherboard resources
	[00000000FD6C0000 - 00000000FD6CFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1020
	[00000000FD6D0000 - 00000000FD6DFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1020
	[00000000FD6E0000 - 00000000FD6EFFFF] Intel(R) Serial IO GPIO Host Controller - INTC1020
	[00000000FD6F0000 - 00000000FDFFFFFF] Motherboard resources
	[00000000FE000000 - 00000000FE01FFFF] Motherboard resources
	[00000000FE010000 - 00000000FE010FFF] Intel(R) SPI (flash) Controller - 4B24
	[00000000FE200000 - 00000000FE77FFFF] Motherboard resources
	[00000000FEC80000 - 00000000FECFFFFF] Motherboard resources
	[00000000FED00000 - 00000000FED003FF] High precision event timer
	[00000000FED20000 - 00000000FED77FFF] Motherboard resources
	[00000000FED40000 - 00000000FED44FFF] Trusted Platform Module 2.0
	[00000000FED45000 - 00000000FED8FFFF] Motherboard resources
	[00000000FED90000 - 00000000FED93FFF] Motherboard resources
	[00000000FEDA0000 - 00000000FEDA0FFF] Motherboard resources
	[00000000FEDA1000 - 00000000FEDA1FFF] Motherboard resources
	[00000000FEE00000 - 00000000FEEFFFFF] Motherboard resources
	[00000000FF000000 - 00000000FFFFFFF] Motherboard resources
	[0000004000000000 - 000000400FFFFFFF] Intel(R) UHD Graphics
	[0000006000000000 - 0000006000FFFFFF] Intel(R) UHD Graphics
	[0000006001100000 - 000000600110FFFF] Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
	[0000006001118000 - 00000060011180FF] Intel(R) SMBus Controller - 4B23
	[00000077FFEF8000 - 00000077FFEFBFFF] Intel(R) Management Engine Interface #1
	[00000077FFEF0000 - 00000077FFEFFFFF] High Definition Audio Controller
	[00000077FFFF0000 - 00000077FFFFFFFFFF] High Definition Audio Controller

## A.3 IRQ Mapping Chart



















































Interrupt request (IRQ)	
(ISA) 0x00000000 (00)	System timer
(ISA) 0x00000003 (03)	Communications Port (COM2)
(ISA) 0x00000004 (04)	Communications Port (COM1)
(ISA) 0x0000000E (14)	Intel(R) Serial IO GPIO Host Controller - INTC1020
(ISA) 0x00000036 (54)	Microsoft ACPI-Compliant System
(ISA) 0x00000037 (55)	Microsoft ACPI-Compliant System
(ISA) 0x00000038 (56)	Microsoft ACPI-Compliant System
(ISA) 0x00000039 (57)	Microsoft ACPI-Compliant System
(ISA) 0x0000003A (58)	Microsoft ACPI-Compliant System
(ISA) 0x0000003B (59)	Microsoft ACPI-Compliant System
(ISA) 0x0000003C (60)	Microsoft ACPI-Compliant System
(ISA) 0x0000003D (61)	Microsoft ACPI-Compliant System
(ISA) 0x0000003E (62)	Microsoft ACPI-Compliant System
(ISA) 0x0000003F (63)	Microsoft ACPI-Compliant System
(ISA) 0x00000040 (64)	Microsoft ACPI-Compliant System
(ISA) 0x00000041 (65)	Microsoft ACPI-Compliant System
(ISA) 0x00000042 (66)	Microsoft ACPI-Compliant System
(ISA) 0x00000043 (67)	Microsoft ACPI-Compliant System
(ISA) 0x00000044 (68)	Microsoft ACPI-Compliant System
(ISA) 0x00000045 (69)	Microsoft ACPI-Compliant System
(ISA) 0x00000046 (70)	Microsoft ACPI-Compliant System
(ISA) 0x00000047 (71)	Microsoft ACPI-Compliant System
(ISA) 0x00000048 (72)	Microsoft ACPI-Compliant System
(ISA) 0x00000049 (73)	Microsoft ACPI-Compliant System
(ISA) 0x0000004A (74)	Microsoft ACPI-Compliant System
(ISA) 0x0000004B (75)	Microsoft ACPI-Compliant System
(ISA) 0x0000004C (76)	Microsoft ACPI-Compliant System
(ISA) 0x0000004D (77)	Microsoft ACPI-Compliant System
(ISA) 0x0000004E (78)	Microsoft ACPI-Compliant System
(ISA) 0x0000004F (79)	Microsoft ACPI-Compliant System
(ISA) 0x00000050 (80)	Microsoft ACPI-Compliant System
(ISA) 0x00000051 (81)	Microsoft ACPI-Compliant System
(ISA) 0x00000052 (82)	Microsoft ACPI-Compliant System
(ISA) 0x00000053 (83)	Microsoft ACPI-Compliant System
(ISA) 0x00000054 (84)	Microsoft ACPI-Compliant System
(ISA) 0x00000055 (85)	Microsoft ACPI-Compliant System
(ISA) 0x00000056 (86)	Microsoft ACPI-Compliant System
(ISA) 0x00000057 (87)	Microsoft ACPI-Compliant System
(ISA) 0x00000058 (88)	Microsoft ACPI-Compliant System
(ISA) 0x00000059 (89)	Microsoft ACPI-Compliant System
(ISA) 0x0000005A (90)	Microsoft ACPI-Compliant System
(ISA) 0x0000005B (91)	Microsoft ACPI-Compliant System
(ISA) 0x0000005C (92)	Microsoft ACPI-Compliant System
(ISA) 0x0000005D (93)	Microsoft ACPI-Compliant System
(ISA) 0x0000005E (94)	Microsoft ACPI-Compliant System
(ISA) 0x0000005F (95)	Microsoft ACPI-Compliant System
(ISA) 0x00000060 (96)	Microsoft ACPI-Compliant System
(ISA) 0x00000061 (97)	Microsoft ACPI-Compliant System
(ISA) 0x00000062 (98)	Microsoft ACPI-Compliant System
(ISA) 0x00000063 (99)	Microsoft ACPI-Compliant System


















































	(ISA) 0x00000064 (100)	Microsoft ACPI-Compliant System
	(ISA) 0x00000065 (101)	Microsoft ACPI-Compliant System
	(ISA) 0x00000066 (102)	Microsoft ACPI-Compliant System
	(ISA) 0x00000067 (103)	Microsoft ACPI-Compliant System
	(ISA) 0x00000068 (104)	Microsoft ACPI-Compliant System
	(ISA) 0x00000069 (105)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006A (106)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006B (107)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006C (108)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006D (109)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006E (110)	Microsoft ACPI-Compliant System
	(ISA) 0x0000006F (111)	Microsoft ACPI-Compliant System
	(ISA) 0x00000070 (112)	Microsoft ACPI-Compliant System
	(ISA) 0x00000071 (113)	Microsoft ACPI-Compliant System
	(ISA) 0x00000072 (114)	Microsoft ACPI-Compliant System
	(ISA) 0x00000073 (115)	Microsoft ACPI-Compliant System
	(ISA) 0x00000074 (116)	Microsoft ACPI-Compliant System
	(ISA) 0x00000075 (117)	Microsoft ACPI-Compliant System
	(ISA) 0x00000076 (118)	Microsoft ACPI-Compliant System
	(ISA) 0x00000077 (119)	Microsoft ACPI-Compliant System
	(ISA) 0x00000078 (120)	Microsoft ACPI-Compliant System
	(ISA) 0x00000079 (121)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007A (122)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007B (123)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007C (124)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007D (125)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007E (126)	Microsoft ACPI-Compliant System
	(ISA) 0x0000007F (127)	Microsoft ACPI-Compliant System
	(ISA) 0x00000080 (128)	Microsoft ACPI-Compliant System
	(ISA) 0x00000081 (129)	Microsoft ACPI-Compliant System
	(ISA) 0x00000082 (130)	Microsoft ACPI-Compliant System
	(ISA) 0x00000083 (131)	Microsoft ACPI-Compliant System
	(ISA) 0x00000084 (132)	Microsoft ACPI-Compliant System
	(ISA) 0x00000085 (133)	Microsoft ACPI-Compliant System
	(ISA) 0x00000086 (134)	Microsoft ACPI-Compliant System
	(ISA) 0x00000087 (135)	Microsoft ACPI-Compliant System
	(ISA) 0x00000088 (136)	Microsoft ACPI-Compliant System
	(ISA) 0x00000089 (137)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008A (138)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008B (139)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008C (140)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008D (141)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008E (142)	Microsoft ACPI-Compliant System
	(ISA) 0x0000008F (143)	Microsoft ACPI-Compliant System
	(ISA) 0x00000090 (144)	Microsoft ACPI-Compliant System
	(ISA) 0x00000091 (145)	Microsoft ACPI-Compliant System
	(ISA) 0x00000092 (146)	Microsoft ACPI-Compliant System
	(ISA) 0x00000093 (147)	Microsoft ACPI-Compliant System
	(ISA) 0x00000094 (148)	Microsoft ACPI-Compliant System
	(ISA) 0x00000095 (149)	Microsoft ACPI-Compliant System















































	(ISA) 0x00000096 (150)	Microsoft ACPI-Compliant System
	(ISA) 0x00000097 (151)	Microsoft ACPI-Compliant System
	(ISA) 0x00000098 (152)	Microsoft ACPI-Compliant System
	(ISA) 0x00000099 (153)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009A (154)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009B (155)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009C (156)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009D (157)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009E (158)	Microsoft ACPI-Compliant System
	(ISA) 0x0000009F (159)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A0 (160)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A1 (161)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A2 (162)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A3 (163)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A4 (164)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A5 (165)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A6 (166)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A7 (167)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A8 (168)	Microsoft ACPI-Compliant System
	(ISA) 0x000000A9 (169)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AA (170)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AB (171)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AC (172)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AD (173)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AE (174)	Microsoft ACPI-Compliant System
	(ISA) 0x000000AF (175)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B0 (176)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B1 (177)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B2 (178)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B3 (179)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B4 (180)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B5 (181)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B6 (182)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B7 (183)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B8 (184)	Microsoft ACPI-Compliant System
	(ISA) 0x000000B9 (185)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BA (186)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BB (187)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BC (188)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BD (189)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BE (190)	Microsoft ACPI-Compliant System
	(ISA) 0x000000BF (191)	Microsoft ACPI-Compliant System
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	(ISA) 0x000000C2 (194)	Microsoft ACPI-Compliant System
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	(ISA) 0x000000C4 (196)	Microsoft ACPI-Compliant System
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	(ISA) 0x000000C7 (199)	Microsoft ACPI-Compliant System

	(ISA) 0x000000C8 (200)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C9 (201)	Microsoft ACPI-Compliant System
	(ISA) 0x000000CA (202)	Microsoft ACPI-Compliant System
	(ISA) 0x000000CB (203)	Microsoft ACPI-Compliant System
	(ISA) 0x000000CC (204)	Microsoft ACPI-Compliant System
	(ISA) 0x00000100 (256)	Microsoft ACPI-Compliant System
	(ISA) 0x00000101 (257)	Microsoft ACPI-Compliant System
	(ISA) 0x00000102 (258)	Microsoft ACPI-Compliant System
	(ISA) 0x00000103 (259)	Microsoft ACPI-Compliant System
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	(ISA) 0x00000106 (262)	Microsoft ACPI-Compliant System
	(ISA) 0x00000107 (263)	Microsoft ACPI-Compliant System
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	(ISA) 0x00000109 (265)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010A (266)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010B (267)	Microsoft ACPI-Compliant System
	(ISA) 0x0000010C (268)	Microsoft ACPI-Compliant System
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	(ISA) 0x0000010E (270)	Microsoft ACPI-Compliant System
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	(ISA) 0x0000011B (283)	Microsoft ACPI-Compliant System
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	(ISA) 0x0000011E (286)	Microsoft ACPI-Compliant System
	(ISA) 0x0000011F (287)	Microsoft ACPI-Compliant System
	(ISA) 0x00000120 (288)	Microsoft ACPI-Compliant System
	(ISA) 0x00000121 (289)	Microsoft ACPI-Compliant System
	(ISA) 0x00000122 (290)	Microsoft ACPI-Compliant System
	(ISA) 0x00000123 (291)	Microsoft ACPI-Compliant System
	(ISA) 0x00000124 (292)	Microsoft ACPI-Compliant System
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	(ISA) 0x00000126 (294)	Microsoft ACPI-Compliant System
	(ISA) 0x00000127 (295)	Microsoft ACPI-Compliant System
	(ISA) 0x00000128 (296)	Microsoft ACPI-Compliant System
	(ISA) 0x00000129 (297)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012A (298)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012B (299)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012C (300)	Microsoft ACPI-Compliant System

































































































	(ISA) 0x0000012C (300)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012D (301)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012E (302)	Microsoft ACPI-Compliant System
	(ISA) 0x0000012F (303)	Microsoft ACPI-Compliant System
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	(ISA) 0x0000013B (315)	Microsoft ACPI-Compliant System
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	(ISA) 0x000001BB (443)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BC (444)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BD (445)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BE (446)	Microsoft ACPI-Compliant System
	(ISA) 0x000001BF (447)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C0 (448)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C1 (449)	Microsoft ACPI-Compliant System



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	(ISA) 0x000001C3 (451)	Microsoft ACPI-Compliant System
	(ISA) 0x000001C4 (452)	Microsoft ACPI-Compliant System
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	(ISA) 0x000001DB (475)	Microsoft ACPI-Compliant System
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	(ISA) 0x000001E0 (480)	Microsoft ACPI-Compliant System
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	(ISA) 0x000001F3 (499)	Microsoft ACPI-Compliant System

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	(ISA) 0x000001F6 (502)	Microsoft ACPI-Compliant System
	(ISA) 0x000001F7 (503)	Microsoft ACPI-Compliant System
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	(ISA) 0x000001FA (506)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FB (507)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FC (508)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FD (509)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FE (510)	Microsoft ACPI-Compliant System
	(ISA) 0x000001FF (511)	Microsoft ACPI-Compliant System
	(PCI) 0x00000010 (16)	High Definition Audio Controller
	(PCI) 0xFFFFFDF (-33)	Intel(R) Management Engine Interface #1
	(PCI) 0xFFFFFE0 (-32)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFE1 (-31)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFE2 (-30)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFE3 (-29)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFE4 (-28)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFE5 (-27)	Intel(R) I211 Gigabit Network Connection
	(PCI) 0xFFFFFE6 (-26)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFE7 (-25)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFE8 (-24)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFE9 (-23)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFEA (-22)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFEB (-21)	Intel(R) I211 Gigabit Network Connection #2
	(PCI) 0xFFFFFEC (-20)	Intel(R) USB 3.10 eXtensible Host Controller - 1.20 (Microsoft)
	(PCI) 0xFFFFFED (-19)	Intel(R) UHD Graphics
	(PCI) 0xFFFFFEE (-18)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFEF (-17)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFF0 (-16)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFF1 (-15)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFF2 (-14)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFF3 (-13)	Intel(R) I211 Gigabit Network Connection #3
	(PCI) 0xFFFFFF4 (-12)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFF5 (-11)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFF6 (-10)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFF7 (-9)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFF8 (-8)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFF9 (-7)	Intel(R) I211 Gigabit Network Connection #4
	(PCI) 0xFFFFFFA (-6)	Standard SATA AHCI Controller
	(PCI) 0xFFFFFFB (-5)	Intel(R) PCI Express Root Port #3 - 4B3B
	(PCI) 0xFFFFFFC (-4)	Intel(R) PCI Express Root Port #2 - 4B3A
	(PCI) 0xFFFFFFD (-3)	Intel(R) PCI Express Root Port #1 - 4B39
	(PCI) 0xFFFFFFE (-2)	Intel(R) PCI Express Root Port #0 - 4B38