

ICS-6280

Industrial Network Appliance

User's Manual 1st Ed

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Packing List

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

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 AAEON.com for the latest version of this document.

Safety Precautions

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.**

FCC Statement

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.

China RoHS Requirements (CN)

产品中有毒有害物质或元素名称及含量

AAEON Embedded Box PC/ Industrial System

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	○	○	○	○	○	○
电源	○	○	○	○	○	○
<p>O: 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 SJ/T 11363-2006 标准规定的限量要求以下。</p> <p>X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T 11363-2006 标准规定的限量要求。</p> <p>备注:</p> <p>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。</p> <p>二、上述部件物质中央处理器、内存、硬盘、光驱、触控模块为选购品。</p>						

China RoHS Requirement (EN)

Poisonous or Hazardous Substances or Elements in Products

AAEON Embedded Box PC/ Industrial System

Component	Poisonous or Hazardous Substances or Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (Cr(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
PCB & Other Components	○	○	○	○	○	○
Wires & Connectors for External Connections	○	○	○	○	○	○
Chassis	○	○	○	○	○	○
CPU & RAM	○	○	○	○	○	○
Hard Disk	○	○	○	○	○	○
PSU	○	○	○	○	○	○

O: The quantity of poisonous or hazardous substances or elements found in each of the component's parts is below the SJ/T 11363-2006-stipulated requirement.

X: The quantity of poisonous or hazardous substances or elements found in at least one of the component's parts is beyond the SJ/T 11363-2006-stipulated requirement.

Note: The Environment Friendly Use Period as labeled on this product is applicable under normal usage only

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Chapter 1

Product Specifications

1.1 Specifications

System

Form Factor	DIN Rail/ Desktop
Processor	Intel® Elkhart lake SoC Processor
System Memory	260-pin DDR4 3200Mhz SODIMM with IB ECC support x 1
Chipset	SoC
Ethernet	Intel® i211 Gigabit Ethernet x 4
Bypass	1 pair, supports up to 2 pairs
BIOS	AMI SPI Flash BIOS
Serial ATA	SATA III port x 1 for 2.5" SSD support
CFast/mSATA	mSATA (Full size) socket colay SATAIII port x 1
Expansion Interface	Supports Mini-Card slot x 1 with SIM socket
USB	USB 3.2 Gen 1 x 2
Serial Port	Supports up to RS-232/422/485 COM port x 2
Watchdog Timer	1~255 steps by software programmable
RTC	Internal RTC
System Fan	Fanless
Color	Black
Power Supply	Dual 2-Pin Phoenix terminal block

System

Dimension	5.12" x 4.96" x 2.83" (130mm x 126mm x 72mm)
Power Requirement	Redundant 9~48Vdc power input
MTBF (Hours)	TBD

Display

Chipset	Intel® HD Graphics
Interface	HDMI port x 1, VGA port x 1

I/O

Front I/O Panel	RJ-45 GbE x 4 RS-232/422/485 COM ports x 2 HDMI port x 1 VGA port x 1 USB 3.2 Gen 1 x 2 Micro SIM slot x 1 Software programmable button x 1 Power LED x 1 HDD LED x 1 Status LED x 1 Bypass LED x 1 (Optional x 2)
Rear I/O Panel	DIN Rail/ Wallmount Lock
Top Panel	2-Pin Terminal Block +9~46VDC x 2

Environmental Parameters and Dimensions

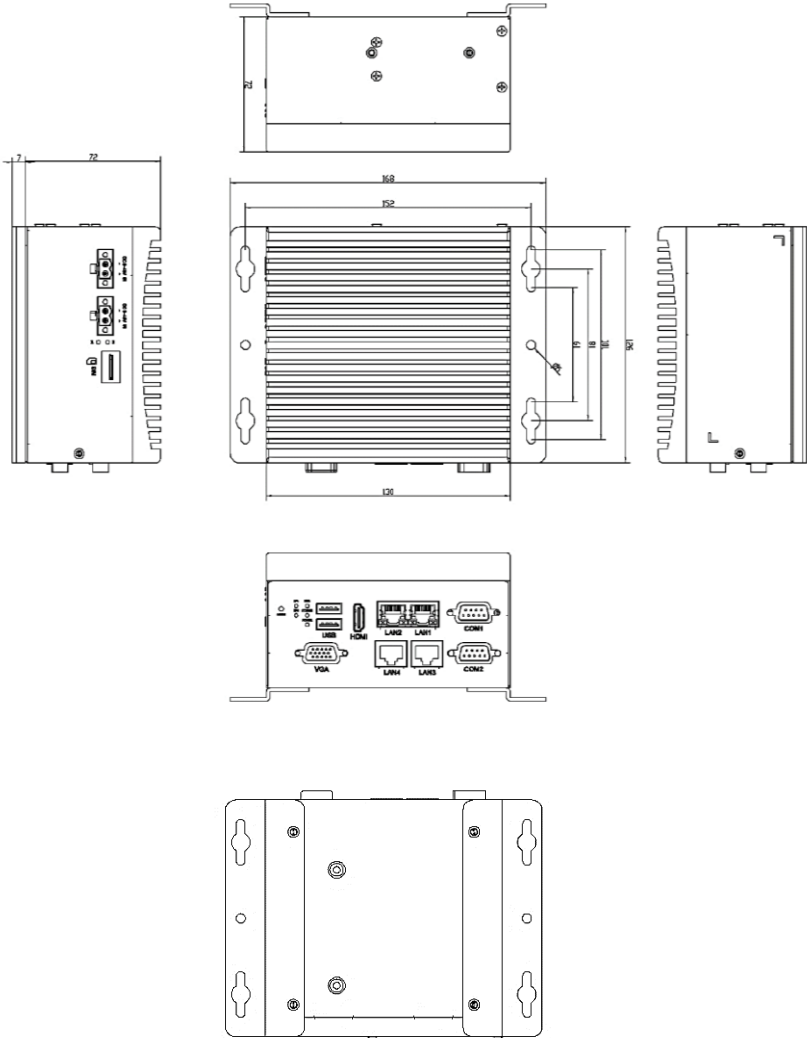
Operating Temperature	-40°F ~ 167°F (-40°C ~ 75°C)
Storage Temperature	-40°F ~ 185°F (-40°C ~ 85°C)
Operating Humidity	10% ~ 80% relative humidity, non-condensing
Storage Humidity	10% ~ 80% @40°C; non-condensing
Vibration	0.5 Grms/ 5 ~ 500Hz / operation (2.5" SSD) 1.5 Grms/ 5 ~ 500Hz / non operation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

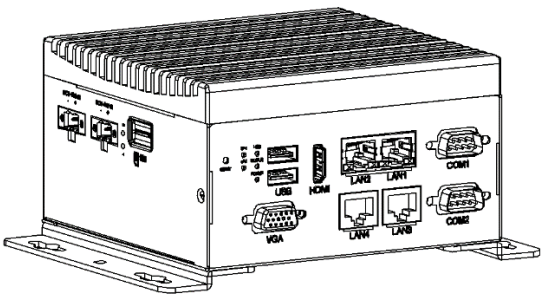
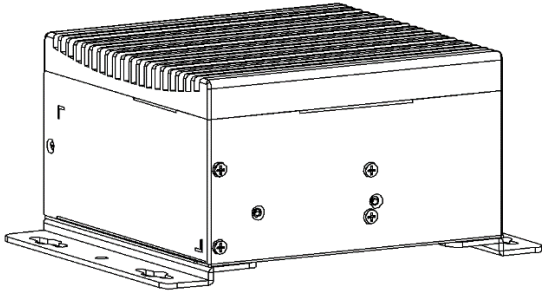
Chapter 2

Hardware Information

2.1 Dimensions

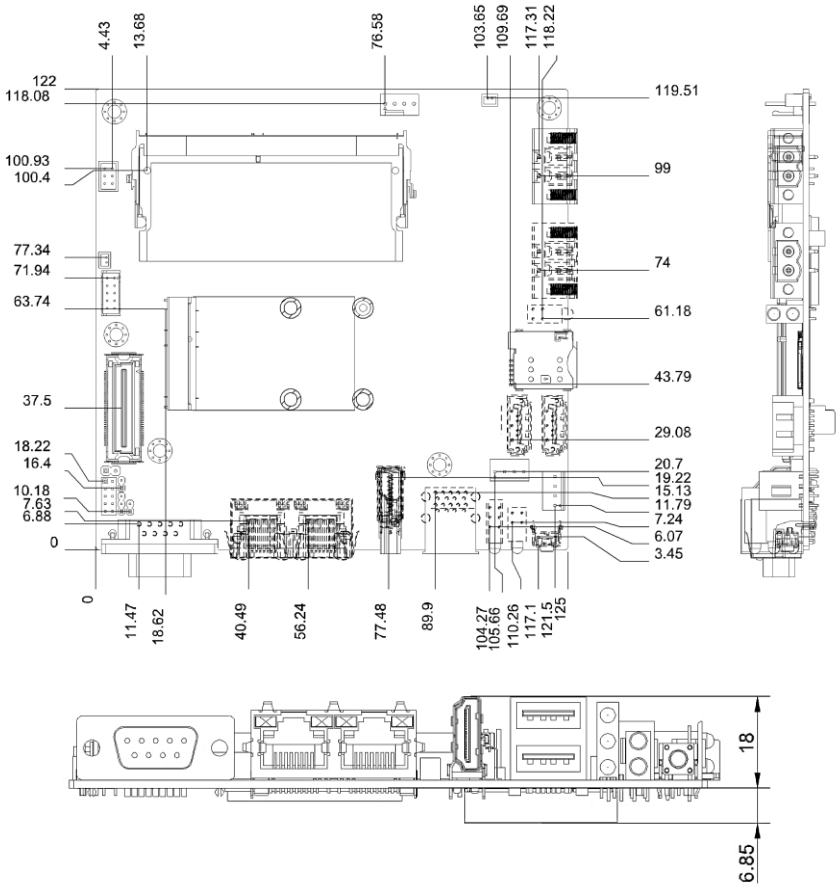
System



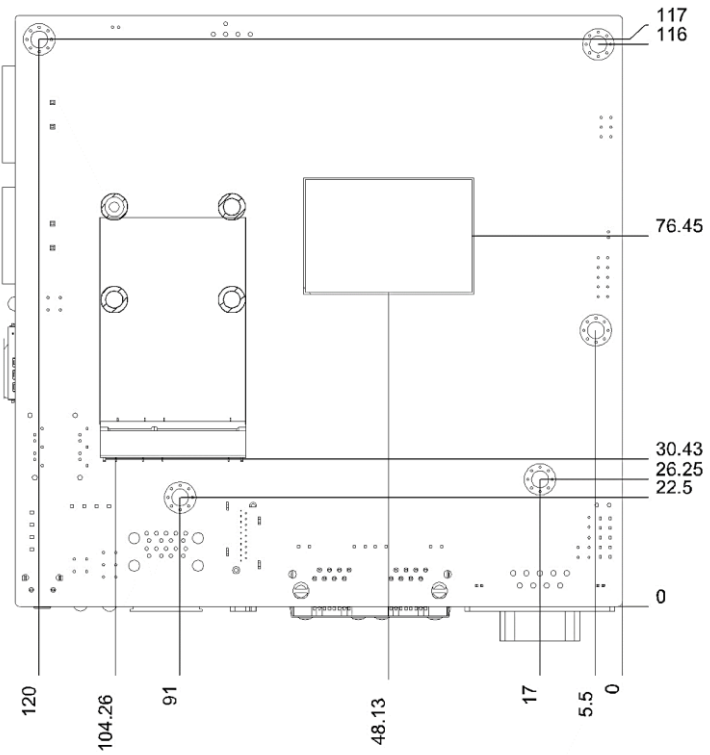


Board

Component Side

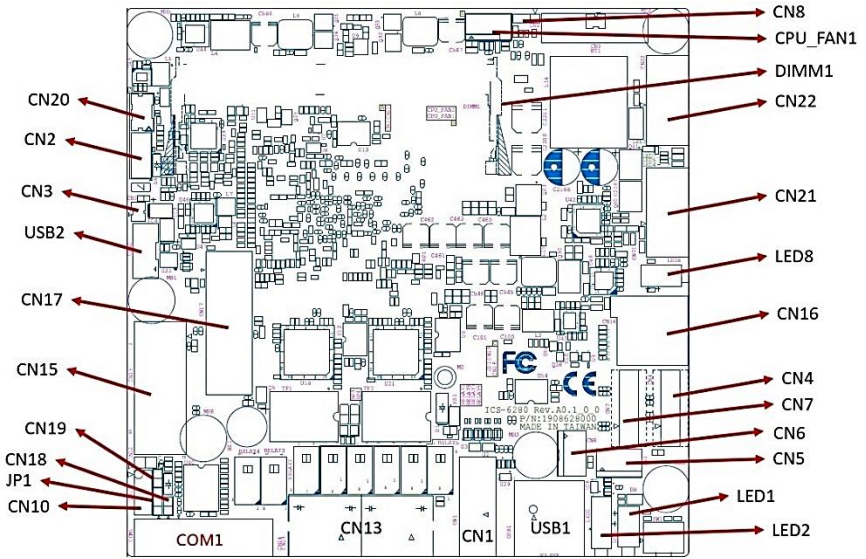


Solder Side

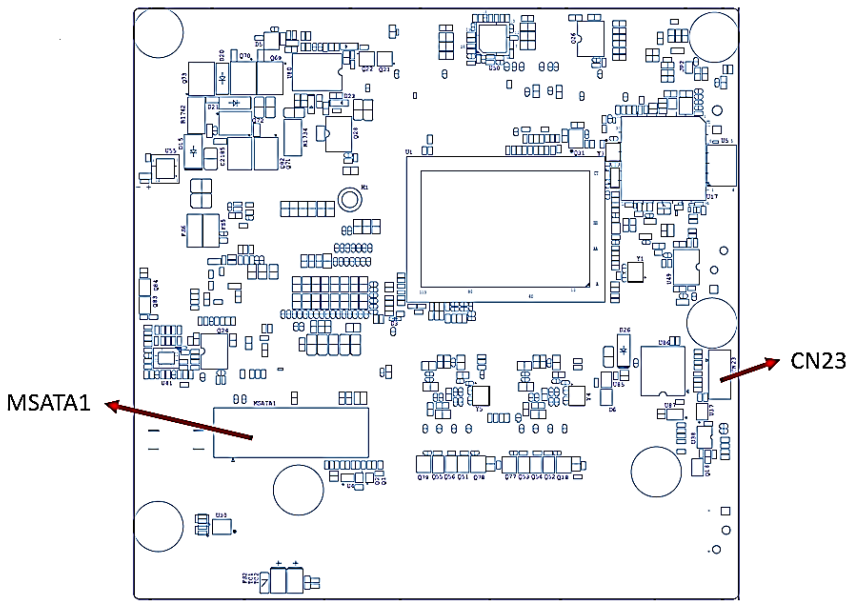


2.2 Jumpers and Connectors

Component Side



Solder Side



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

2.3.1 Jumper Settings

Clear CMOS (CN8)

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

Auto Power Button (JP1)

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

2.4 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	USB2.0
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	USB3.0
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
CPU_FAN1	CPU fan
DIMM1	Memory
CN23	MCU Flash
mSATA	mSATA slot

2.4.1 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 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.

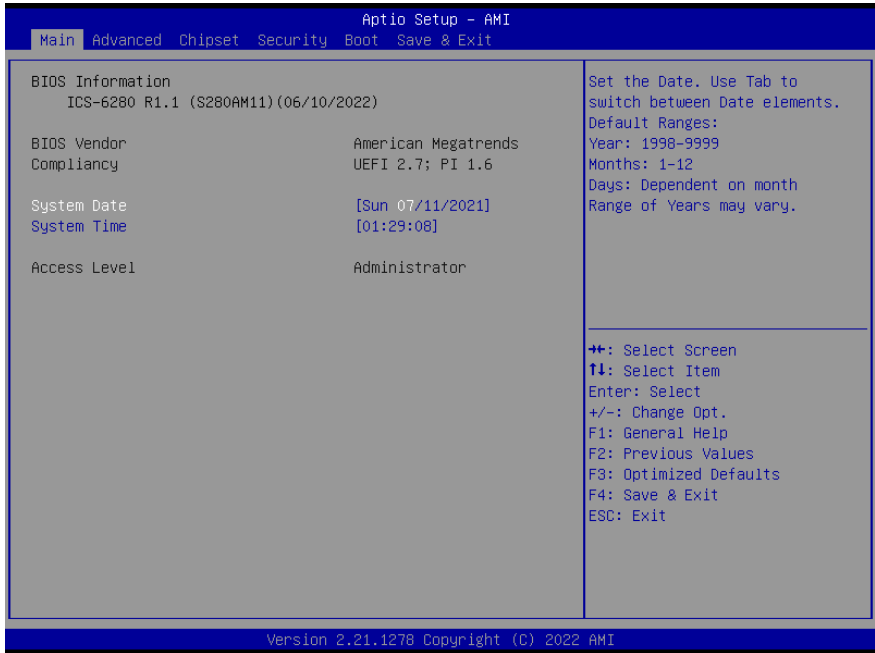
Security

Set setup administrator/user password.

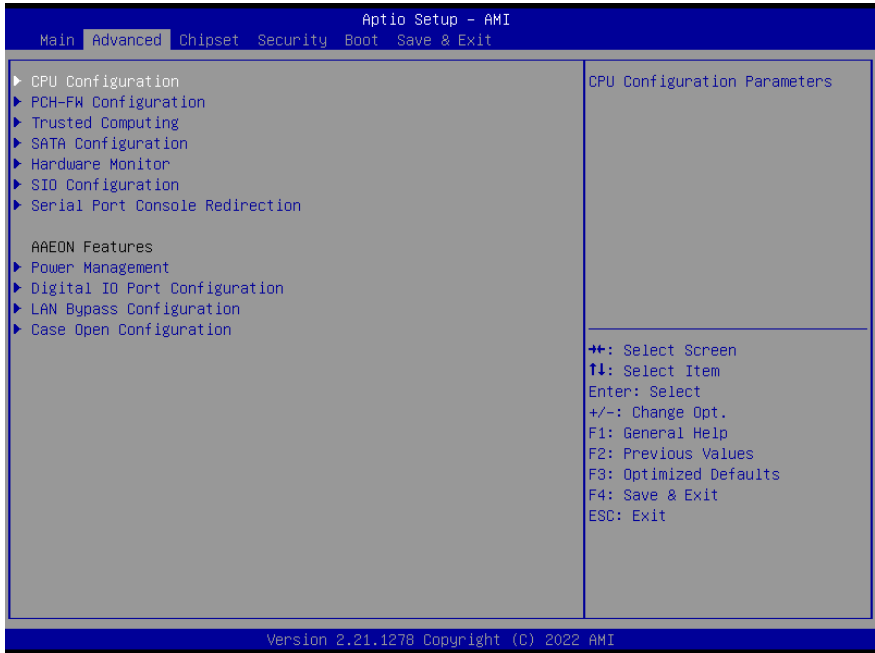
Save & Exit

Exit system setup after saving the changes.

3.3 Setup Submenu: Main



3.4 Setup Submenu: Advanced



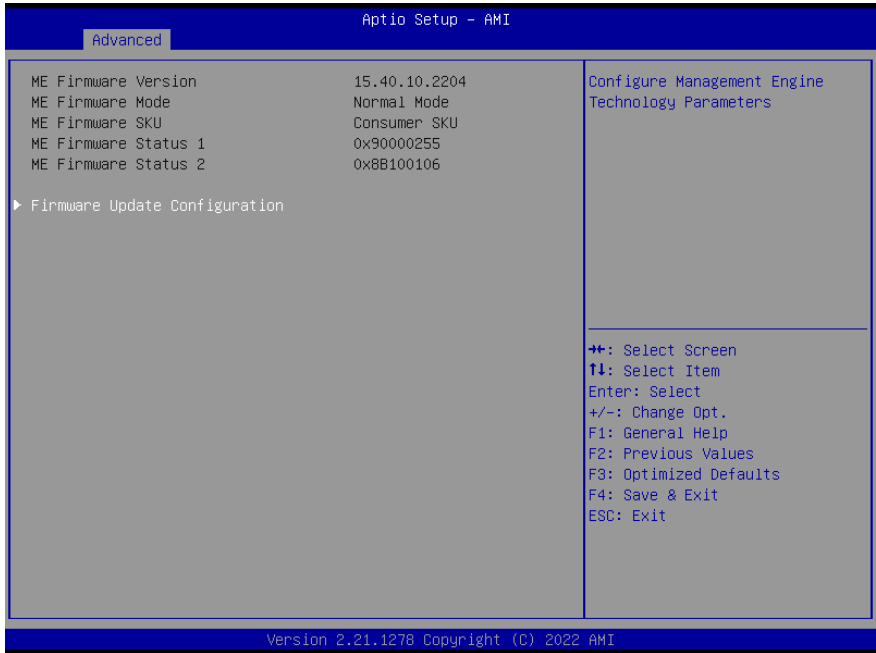
3.4.1 CPU Configuration



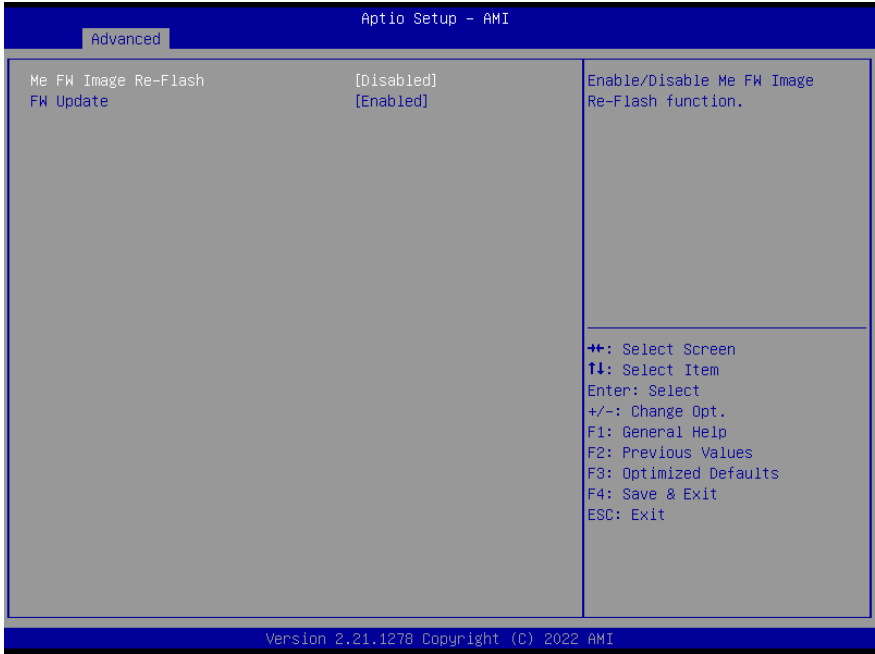
Options summary:

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

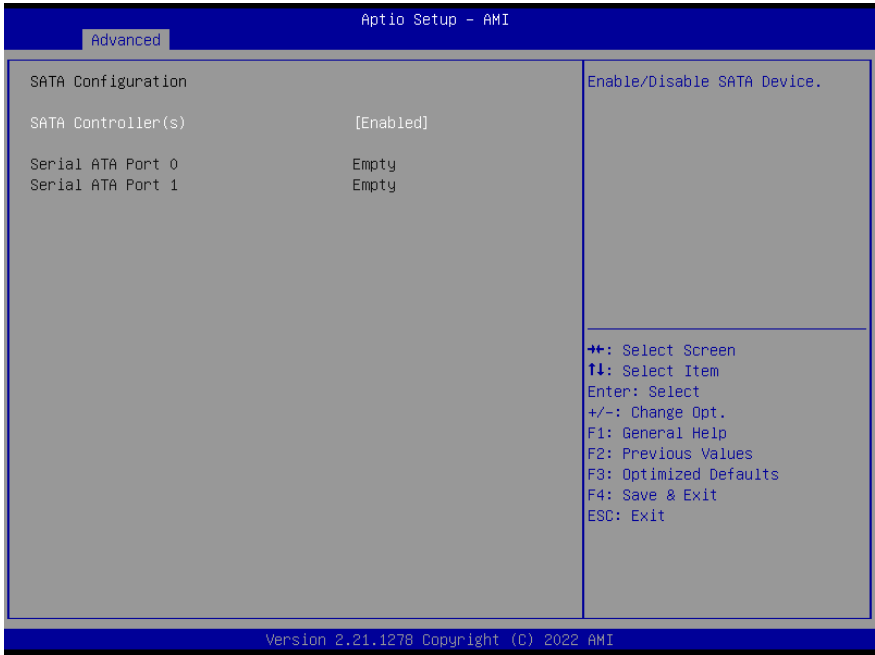


Options summary:

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. NOTE: Your computer will reboot during restart in order to change State of Security Device.		

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. NOTE: 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

Industrial Network Appliance ICS-6280

The screenshot displays the 'Advanced' menu of the Aptio Setup - AMI BIOS. The 'System FAN Setting' section is expanded, showing various temperature and voltage readings. A 'Smart Fan function setting' panel is also visible on the right side of the screen.

System FAN Setting	
CPU DTS Temperature	: +56 ℃
System Temperature	: +49 ℃
System FAN	: N/A

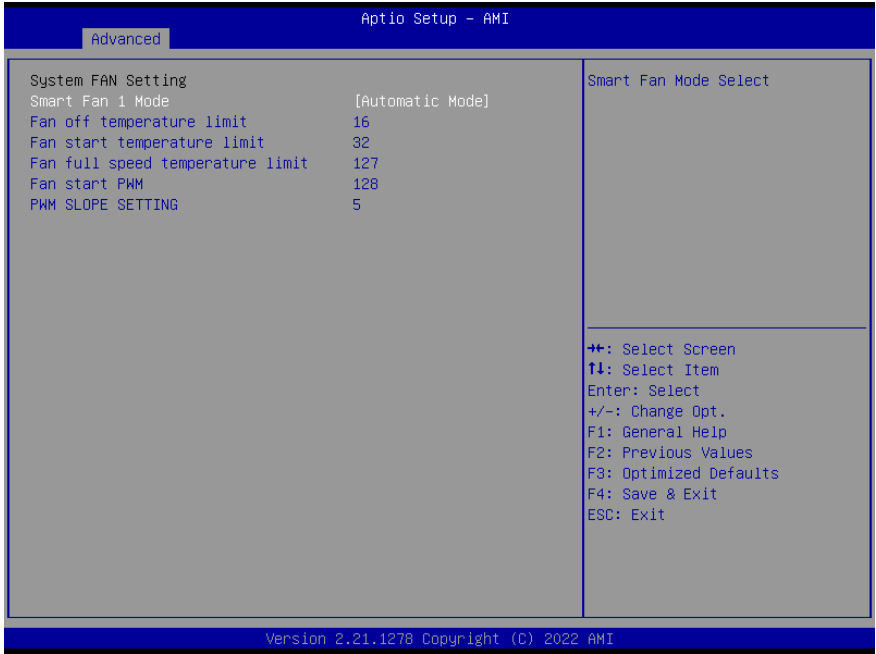
Voltage Readings	
VCORE	: +1.689 V
VMEM	: +1.188 V
+12V	: +12.033 V
+3.3V	: +3.289 V
+5V	: +4.932 V
+48V1	: +11.380 V
+48V2	: +11.810 V
VS3V	: +3.248 V
VBAT	: +3.030 V
AVCC3	: +3.248 V

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 then 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		

The screenshot shows the 'Advanced' section of the 'Aptio Setup - AMI' BIOS. The 'System FAN Setting' is expanded to show 'Smart Fan 1 Mode' set to '[Software Mode]' and 'Manual PWM Setting' set to '127'. The 'Smart Fan Mode Select' menu is also visible, listing navigation and function keys.

```

Aptio Setup - AMI
-----
Advanced

System FAN Setting
Smart Fan 1 Mode      [Software Mode]
Manual PWM Setting    127

Smart Fan Mode Select

++: 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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```

Options summary:

Manual PWM Setting	127	Optimal Default, Fail-Safe Default
Fan will work with this Manual PWM Value		

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		

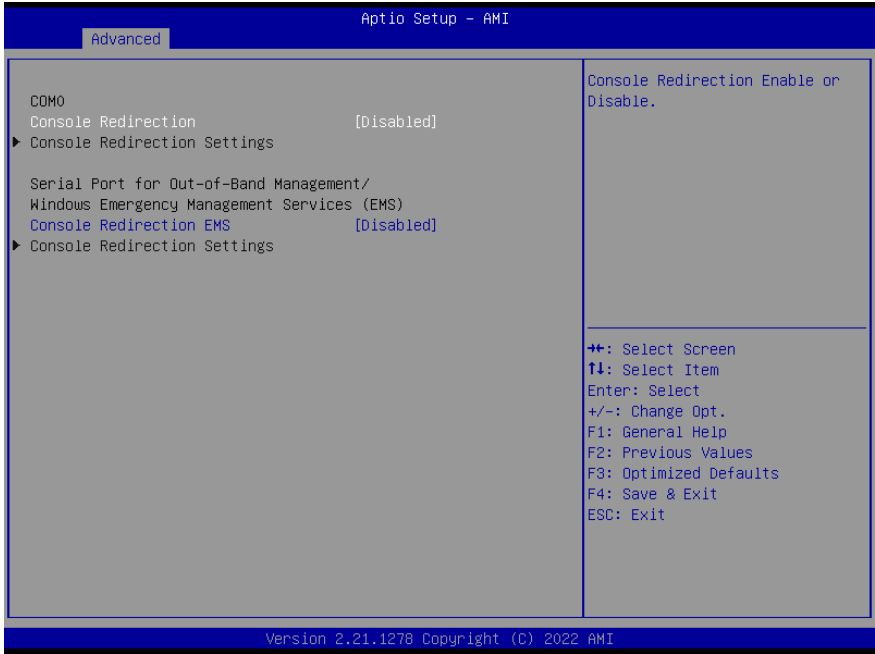
3.4.8.2 Serial Port 2 Configuration



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		

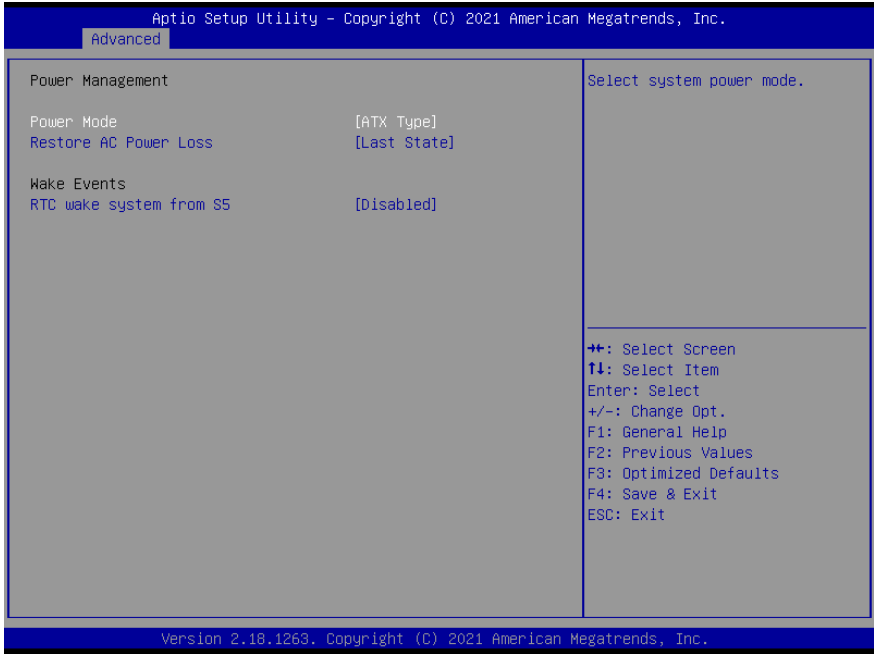
3.4.9 Serial Port Console Redirection



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		

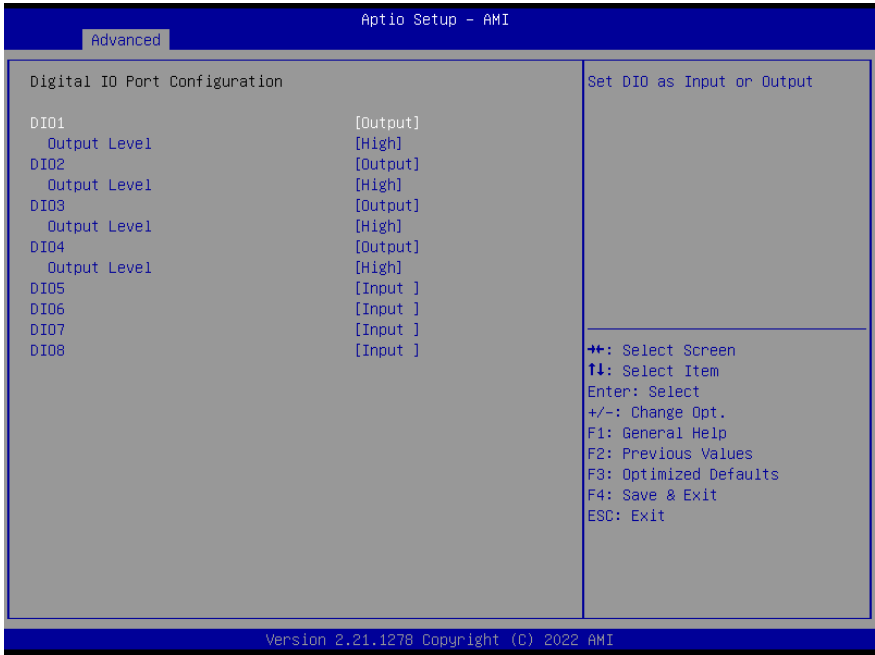
3.4.10 Power Management



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		

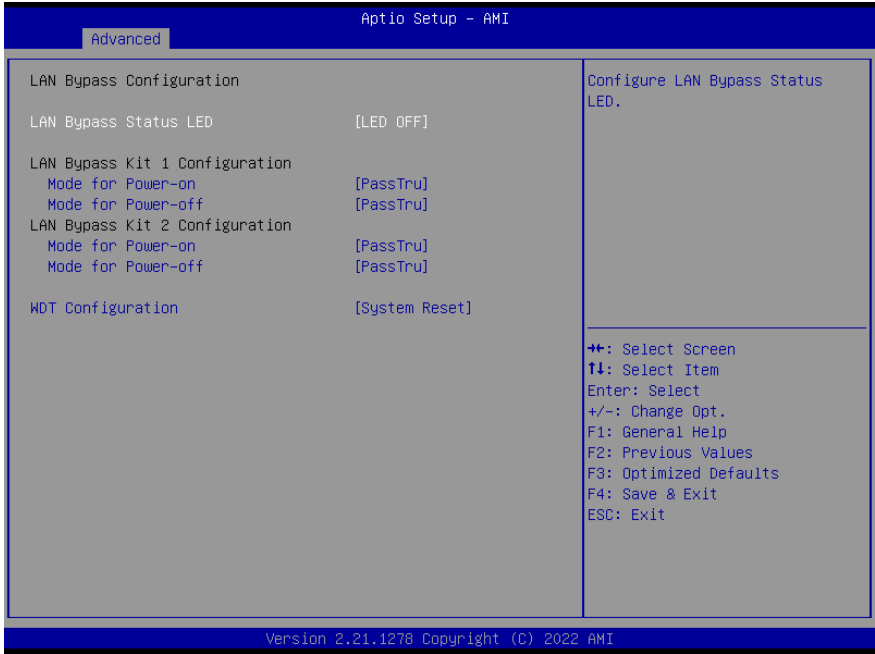
3.4.11 Digital IO Port Configuration



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)		

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



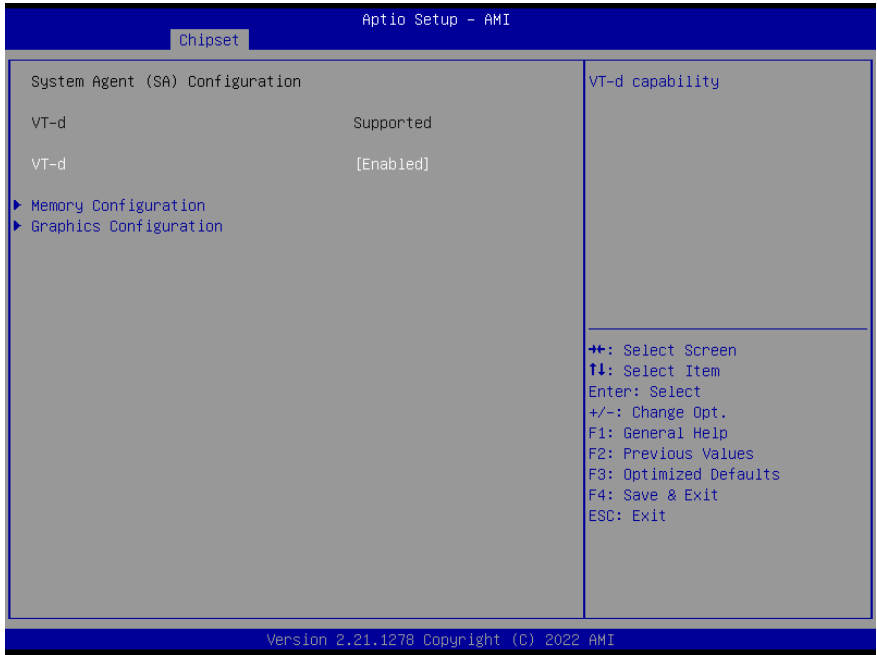
Options summary:

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		

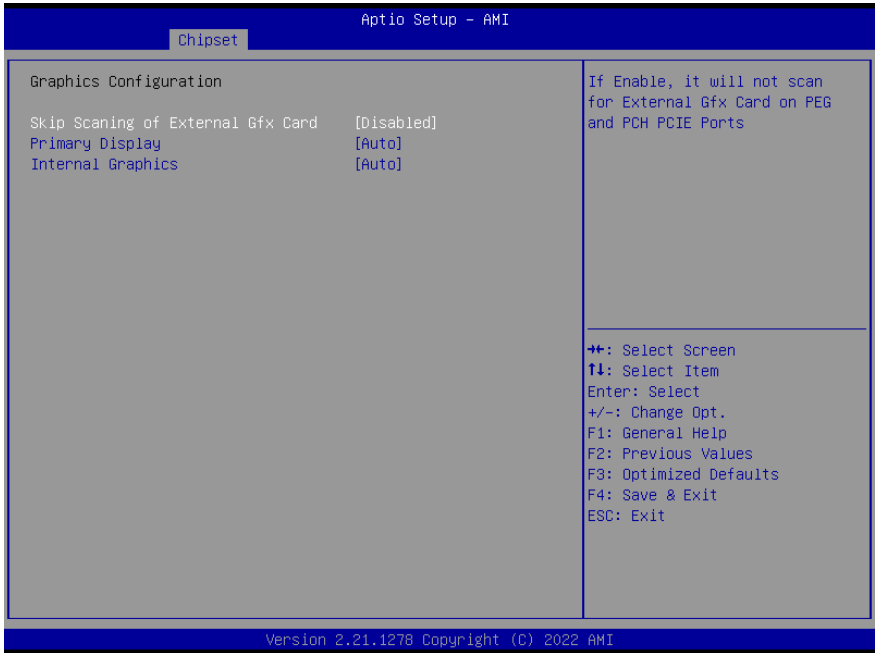
3.5.2 Memory Configuration



Options summary:

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

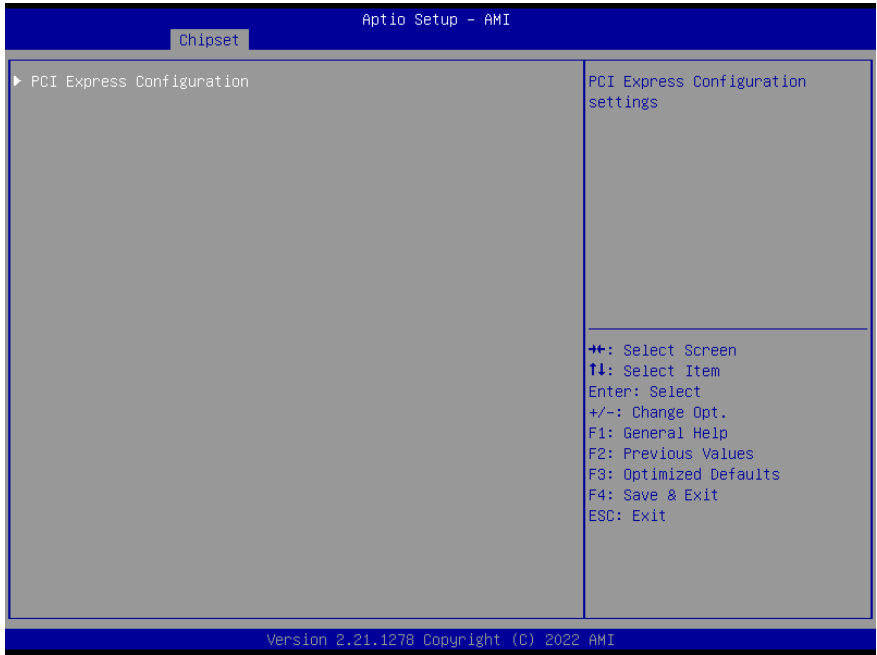
3.5.3 Graphics Configuration



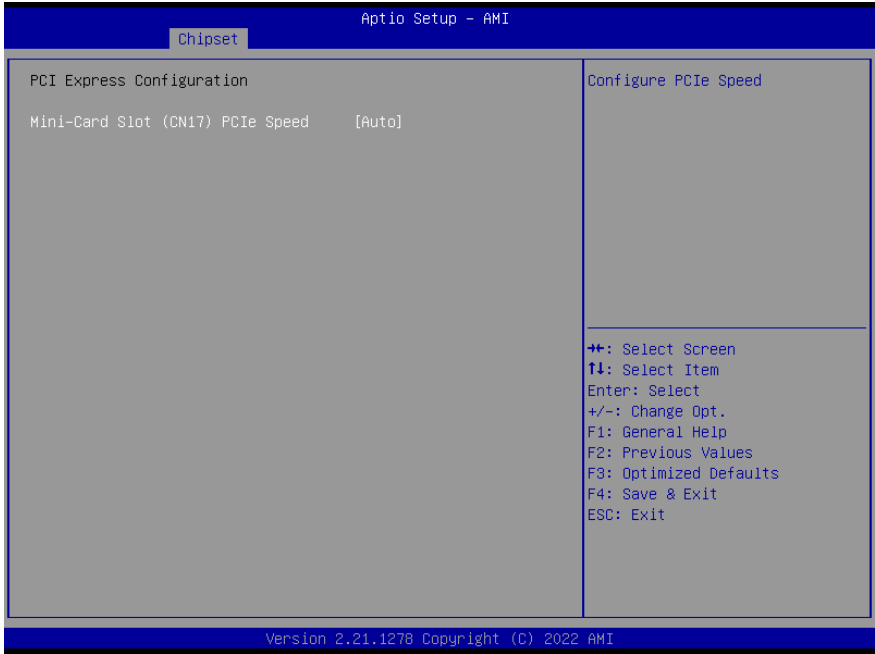
Options summary:

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



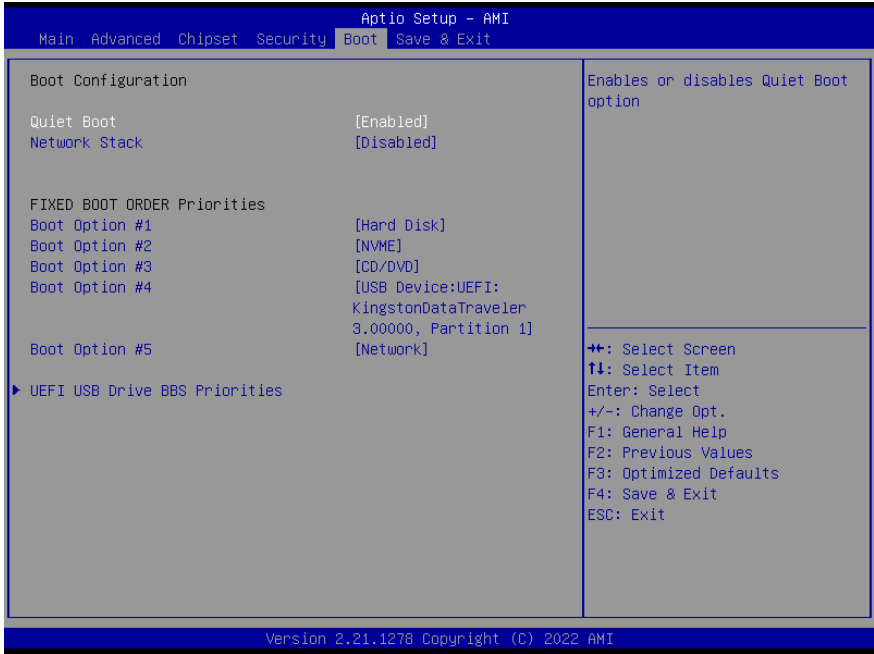
3.5.5 PCI Express Configuration



Options summary:

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

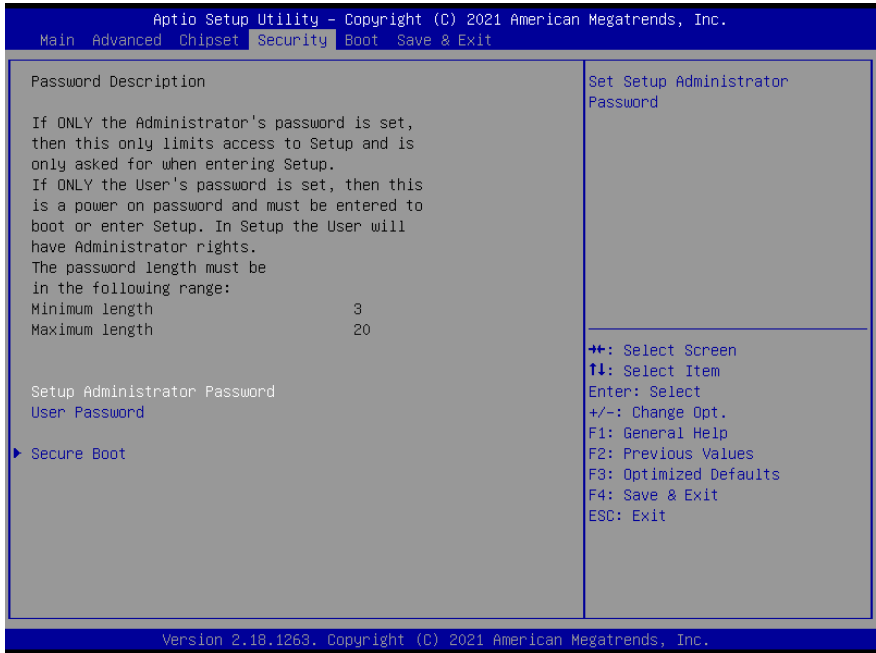
3.6 Setup Submenu: Boot



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

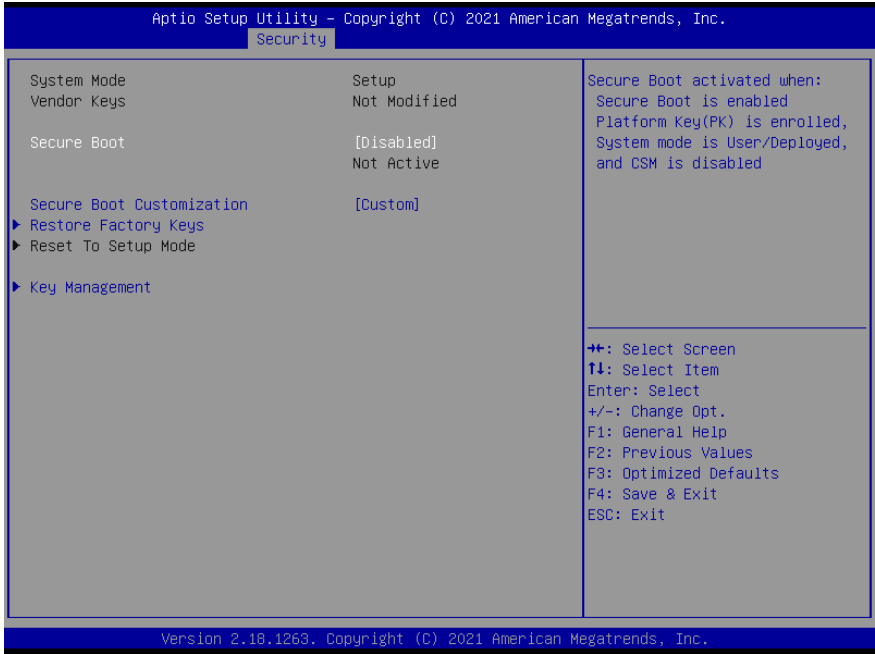
You can install an Administrator password, and if you install an administrator password, you can then install a user password. A user password does not provide access to many of the features in the Setup utility.

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	Optimal Default, Fail-Safe Default
	Custom	
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		
Restore Factory Keys	Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys	

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

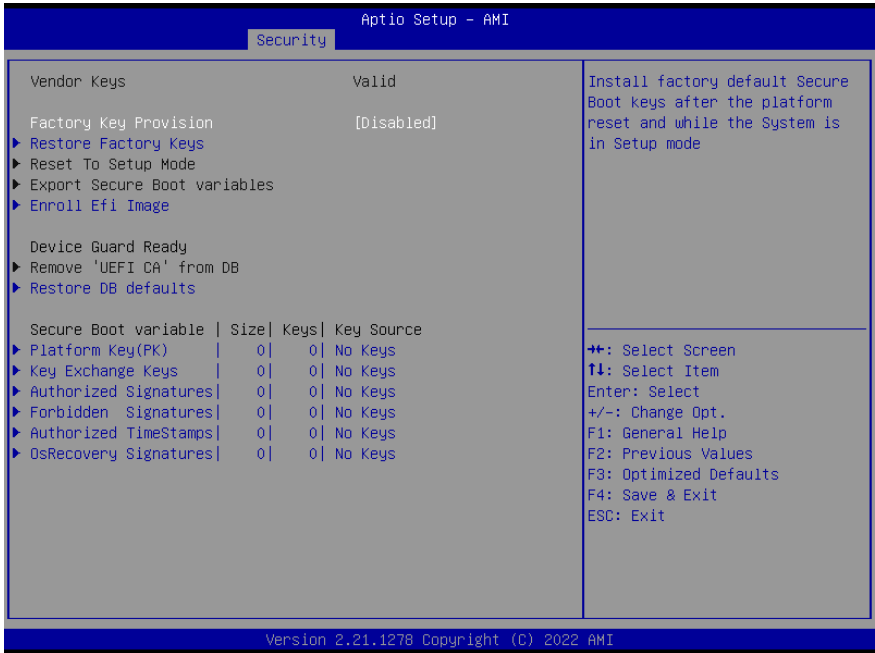
2. Authenticated UEFI Variable

3. EFI PE/COFF Image (SHA256)

Key Source:

Default, External, Mixed

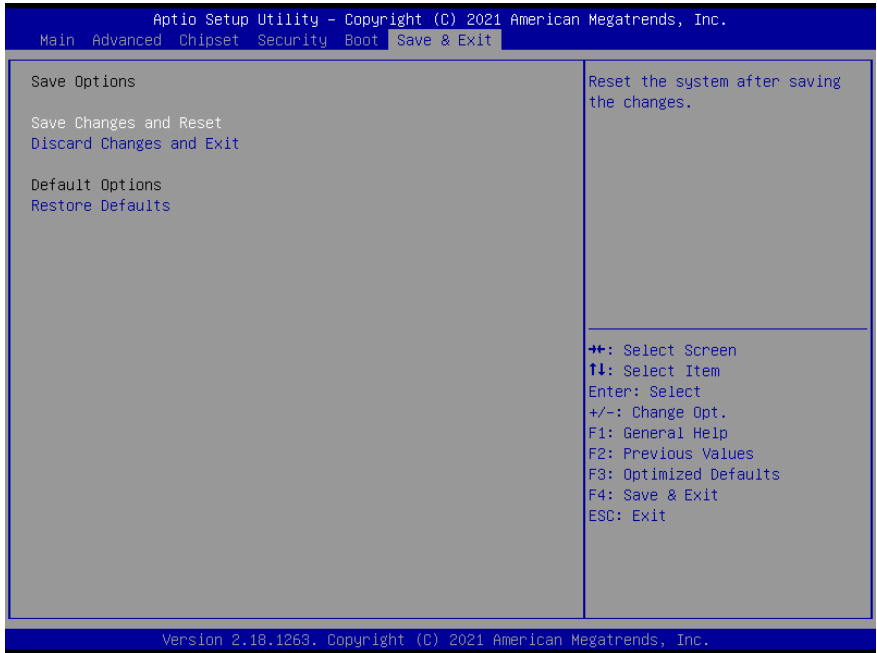
3.7.2 Key Management



Options summary:

Factory Key Provision	Disabled	Optimal Default, Fail-Safe Default
	Enabled	
Provision factory default keys on next re-boot only when System in Setup Mode		
Restore Factory Keys	Force System to User Mode. Configure NVRAM to contain OEM-defined factory default Secure Boot keys	
Enroll Efi Image	Allow the image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (DB)	
Restore DB defaults	Restore DB variable to factory defaults	

3.8 Setup Submenu: Save & Exit



Chapter 4

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.

<http://www.aaeon.com/en/p/desktop-network-appliance-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

I/O Information

B.1 I/O Address Map


















































Input/output (IO)	
[0000000000000000 - 000000000000CF7]	PCI Express Root Complex
[0000000000000020 - 000000000000021]	Programmable interrupt controller
[0000000000000024 - 000000000000025]	Programmable interrupt controller
[0000000000000028 - 000000000000029]	Programmable interrupt controller
[000000000000002C - 00000000000002D]	Programmable interrupt controller
[000000000000002E - 00000000000002F]	Motherboard resources
[0000000000000030 - 000000000000031]	Programmable interrupt controller
[0000000000000034 - 000000000000035]	Programmable interrupt controller
[0000000000000038 - 000000000000039]	Programmable interrupt controller
[000000000000003C - 00000000000003D]	Programmable interrupt controller
[0000000000000040 - 000000000000043]	System timer
[000000000000004E - 00000000000004F]	Motherboard resources
[0000000000000050 - 000000000000053]	System timer
[0000000000000061 - 000000000000061]	Motherboard resources
[0000000000000063 - 000000000000063]	Motherboard resources
[0000000000000065 - 000000000000065]	Motherboard resources
[0000000000000067 - 000000000000067]	Motherboard resources
[0000000000000070 - 000000000000070]	Motherboard resources
[0000000000000080 - 000000000000080]	Motherboard resources
[0000000000000092 - 000000000000092]	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 - 000000000000FFFF]	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















































B.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
	[000000007FDDC000 - 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 - 00000000FFFFFFFF] 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
	[00000077FFFEFC000 - 00000077FFFEFFFF] High Definition Audio Controller
	[00000077FFFF00000 - 00000077FFFFFFFFFF] High Definition Audio Controller


















































B.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
	(ISA) 0x000000C0 (192)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C1 (193)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C2 (194)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C3 (195)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C4 (196)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C5 (197)	Microsoft ACPI-Compliant System
	(ISA) 0x000000C6 (198)	Microsoft ACPI-Compliant System
	(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
	(ISA) 0x00000104 (260)	Microsoft ACPI-Compliant System
	(ISA) 0x00000105 (261)	Microsoft ACPI-Compliant System
	(ISA) 0x00000106 (262)	Microsoft ACPI-Compliant System
	(ISA) 0x00000107 (263)	Microsoft ACPI-Compliant System
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	(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
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	(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
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	(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