

AIOT-AIVD

AI IoT Video Analysis Gateway

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
● AIOT-AIVD	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 product page on 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. Make sure the power source matches the power rating of the device.
3. Position the power cord so that people cannot step on it. Do not place anything over the power cord.
4. Always completely disconnect the power before working on the system's hardware.
5. No connections should be made when the system is powered as a sudden rush of power may damage sensitive electronic components.
6. 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.
7. Always disconnect this device from any AC supply before cleaning.
8. While cleaning, use a damp cloth instead of liquid or spray detergents.
9. Make sure the device is installed near a power outlet and is easily accessible.
10. Keep this device away from humidity.
11. Place the device on a solid surface during installation to prevent falls
12. Do not cover the openings on the device to ensure optimal heat dissipation.
13. Watch out for high temperatures when the system is running.
14. Do not touch the heat sink or heat spreader when the system is running
15. Never pour any liquid into the openings. This could cause fire or electric shock.
16. 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.

17. 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
18. **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 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

QO4-381 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

Specifications

1.1 Specifications

System	
CPU	Intel® Pentium N4200 Processor
Chipset	Intel® System on Chip
Memory	Onboard 8GB LPDDR4 memory
Storage	64GB eMMC on board
	500GB HDD x 1 (Optional)
Display	HDMI x 1
	DP x 1
Ethernet	Realtek 8111G x 2
USB	USB 3.0 x 3
COM	—
Digital I/O	—
Expansion Slot	AI core X mini card module x 1
	M.2 2230 E-Key x 1
Indicator	—
Wi-Fi	801.11ac (Optional)
Bluetooth	BT4.0 (Optional)
LoRa	—
POE	—
OS Support	Microsoft Windows 10, Linux Ubuntu,
	OpenVino

I/O Placements

Front I/O	RJ45 Connector x 2
	Power button x 1
	HDMI x 1
	DP x 1
	USB3.0 x 2
	Power input x 1
	Power button x 1
Rear I/O	USB 3.0 x 1
	Antenna connector x 1 (Optional)
Right Side I/O	Antenna connector x 1 (Optional)
Left Side I/O	Antenna connector x 1 (Optional)

Power

Power Requirement	5V DC In
-------------------	----------

Mechanical

IP	—
Dimension	126 mm x 95 mm x 58 mm
Mounting	VESA Mount
Gross Weight	2.4 lbs. (1.1 kg)
Net Weight	1.5 lbs. (700 g)

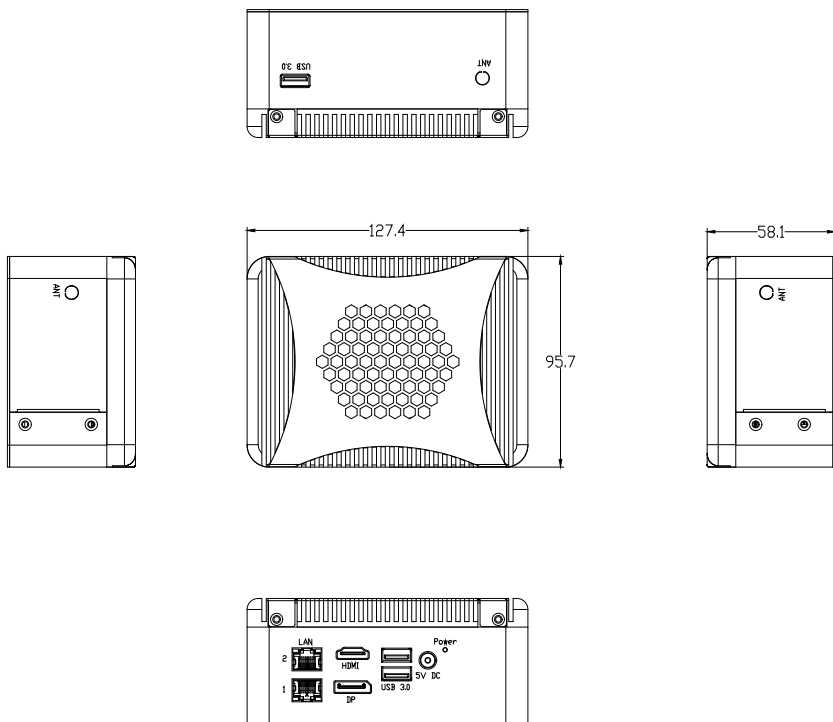
Environment

Operating Temperature	0°C ~ 60°C
Storage Temperature	-4°F ~ 158°F (-20°C ~ 70°C)
Storage Humidity	5~95% @ 40°C, non-condensing
Anti-Vibration	3 Grms/ 5 ~ 500Hz/ operation – eMMC 1 Grms/ 5~ 500Hz/ operation – HDD
Certification	CE, FCC Class A

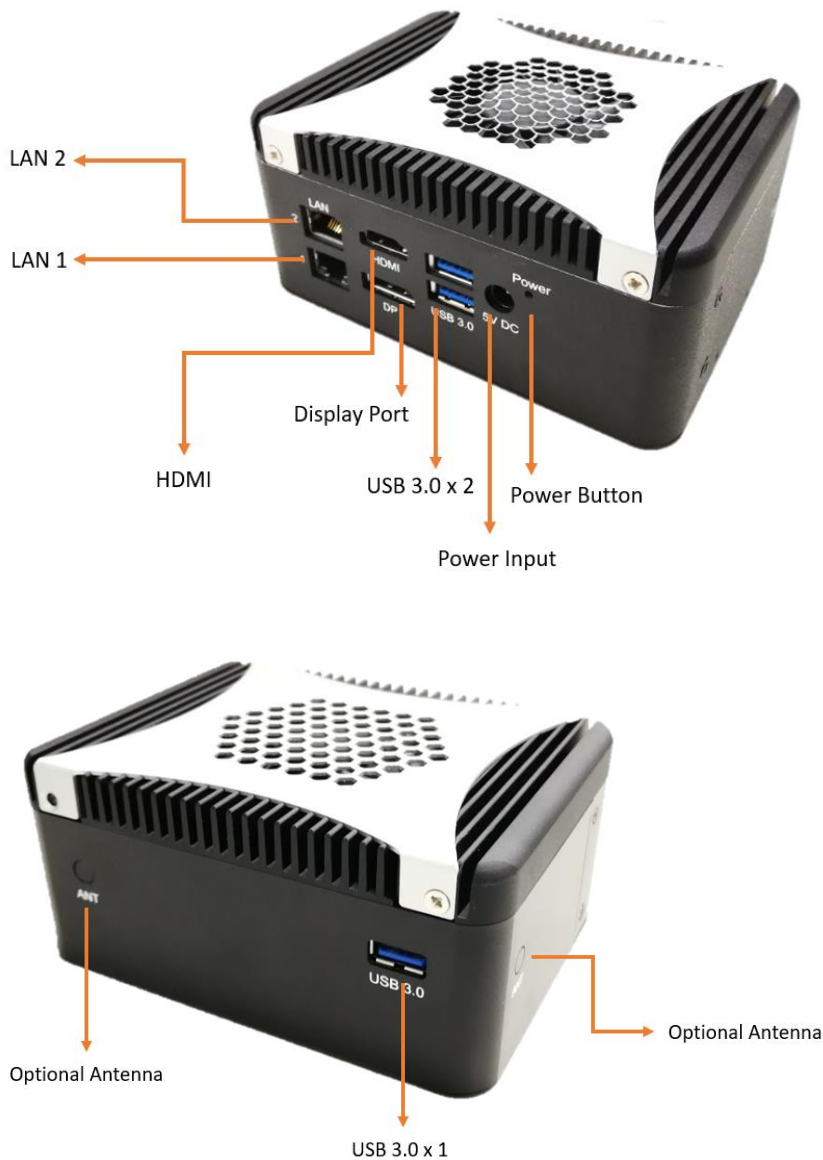
Chapter 2

Hardware Information

2.1 Dimensions

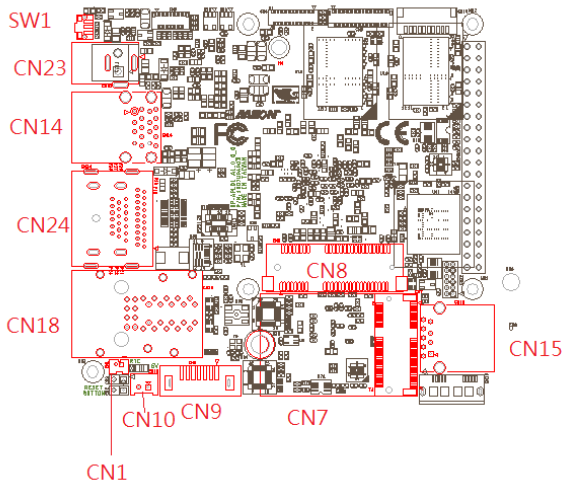


2.2 I/O Location

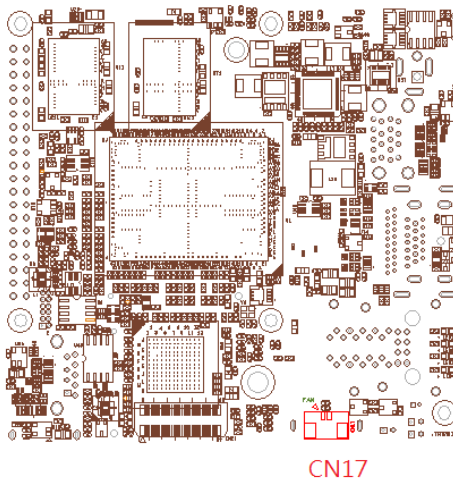


2.3 Jumpers and Connectors

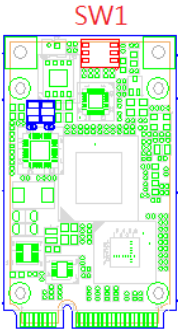
UP-APL Board Top Side



UP-APL Board Bottom Side



MINI-MYX Connector Top Side



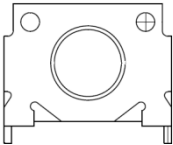
2.4 List of Switches and Connectors

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

UP-APL Connector and Switch Index		
Label	Function	Connector Type
SW1	Power Button	(TF) Push Button Switch.HCH.PTS-099
CN1	RTC Battery Wafer	(TF) WAFER BOX 2P:180D.1.25mm.CATCH.1201-700-02S
CN7	M.2 key-E 2230 Connector	(TF)M.2 Key-E Slot.75P:90D(F).SMD.Pitch 0.5mm.H=6.7mm.BLACK.FOXCONN.AS0BC21-S67B E-LH
CN8	Mini Card Connector	(TF)MiniCard SLOT.52P:90D.(F).SMD.FOXCONN.AS0B226-S68Q-7H
CN9	SATA Connector	(TF)SATA CONNECTOR.7P:180D(M).SMT.TechBest.007-01-0075 7
CN10	SATA Power Connector	(TF)WAFER BOX.2P:180D(M).DIP2.0mm.w/LOCK.PINREX.721-81-0 2TW00
CN14	USB 3.0 Type A Connector	(TF)USB3.0 CONNECTOR.DUAL PORT.18P:90D(F).DIP:TEKCON.5406-301-021-H1
CN15	USB 3.0 Type A Connector	(TF)USB3.0 CONNECTOR.Single A Type.90D(F).DIP:Techbest.5405-011-011-01
CN17	FAN Power Connector	(TF)WAFER.2P:180D(M).SMD.1.25mm.W/Cap.PINREX. 712-73-02TWE0
CN18	Dual RJ45 Connector	(TF)GIGA RJ45.28P:90D(F).W/TF&LED.DAUL PORT.DIP:UDE.RM3-169A9V1Q
CN23	DC Jack	(TF)DC Power Jack.3P:90D(M).DIP:2.0mm.COXOC.416AEWTJ02004P A
CN24	HDMI/DP Connector	(TF)HDMI/DP combo Port conn..39P:90D(F).DIP:FOXCONN.3VD11203-HHJ0-4H

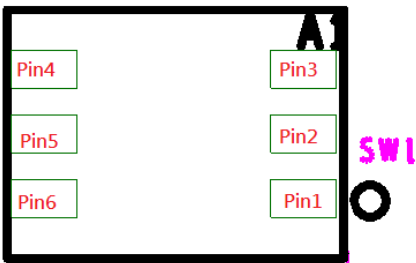
MINI-MYX Connector and Switch Index		
Label	Function	Connector Type
SW1	Switch	(TF)SWITCH.3S.6P.SOJ.24V.25mA.pitch=1.27mm.180D.SMD.BIWIN.SOJ03-R

2.4.1 Power Button (UP-APL SW1)



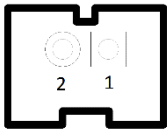
Position	Function
SW1 0	Power ON
SW1 1	(default)

2.4.2 Switch (MINI-MYX SW1)



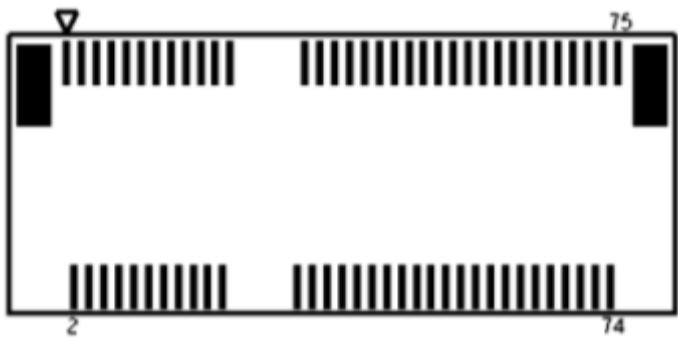
SW Value			Board Value
3	2	1	
Off	Off	Off	0
Off	Off	On	1
Off	On	Off	2
Off	On	On	3
On	Off	Off	4
On	Off	On	5
On	On	Off	6
On	On	On	7

2.4.3 RTC Battery Wafer (CN1)



Pin	Signal
1	+V_COIN_BAT
2	GND

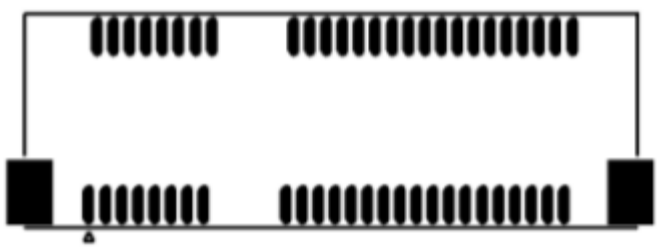
2.4.4 M.2 Key-E 2230 Connector (CN7)



Pin	Signal	Pin	Signal
1	GND	2	3.3V
3	USB_D+	4	3.3V
5	USB_D-	6	NC
7	GND	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	GND
19	NC	20	NC
21	NC	22	UART0RXD
23	NC	24	N/A(Key-E)
25	N/A(Key-E)	26	N/A(Key-E)
27	N/A(Key-E)	28	N/A(Key-E)
29	N/A(Key-E)	30	N/A(Key-E)
31	N/A(Key-E)	32	UART0_TXD
33	GND	34	UART0_CTS
35	PCIE_C_TXP3	36	UART0_RTS

Pin	Signal	Pin	Signal
37	PCIE_C_TXN3	38	NC
39	GND	40	NC
41	PCIE_RXP3	42	NC
43	PCIE_RXN3	44	NC
45	GND	46	NC
47	CLK_PCIE_M2_P	48	NC
49	CLK_PCIE_M2_N	50	Suspend Clock
51	GND	52	Reset#
53	PCIE_M2_CLKREQ	54	Bluetooth Enable
55	Wake#	56	Wi-Fi Enable
57	GND	58	SMBus_DAT
59	NC	60	SMBus_CLK
61	NC	62	SMBus_Alert
63	GND	64	NC
65	NC	66	NC
67	NC	68	NC
69	GND	70	NC
71	NC	72	3.3V
73	NC	74	3.3V
75	GND		

2.4.5 Mini Card Connector (CN8)



Pin	Signal	Pin	Signal
1	Wake#	2	3.3V
3	NC	4	GND
5	INT_SERIRQ	6	1.5V
7	PCIE_MINI_CLKREQ	8	NC
9	GND	10	NC
11	CLK_PCIE_MINI_N	12	NC
13	CLK_PCIE_MINI_P	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	3G Enable
21	GND	22	Reset#
23	PERn0_mSATA_R+	24	3.3V
25	PERp0_mSATA_R-	26	GND
27	GND	28	1.5V
29	GND	30	NC
31	PETn0_mSATA_T-	32	NC
33	PETp0_mSATA_T+	34	GND
35	GND	36	USB_D-
37	GND	38	USB_D+

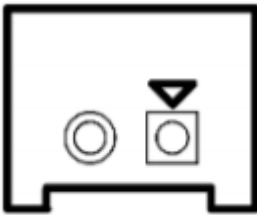
Pin	Signal	Pin	Signal
39	3.3V	40	GND
41	3.3V	42	NC
43	mSATA_PCl_e_SEL_C	44	NC
45	NC	46	NC
47	NC	48	1.5V
49	NC	50	GND
51	NC	52	3.3V

2.4.6 SATA Connector (CN9)



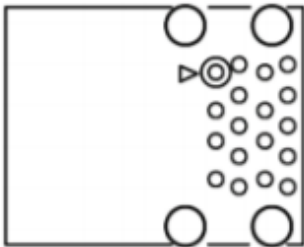
Pin	Signal	Pin	Signal
1	GND	5	RX-
2	TX+	6	RX+
3	TX-	7	GND
4	GND		

2.4.7 SATA Power Connector (CN10)



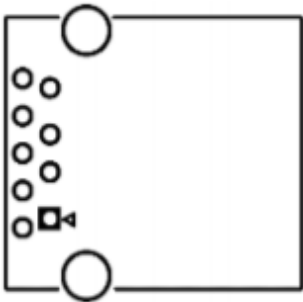
Pin	Signal
1	5V
2	GND

2.4.8 Dual USB 3.0 Type-A Connector (CN14)



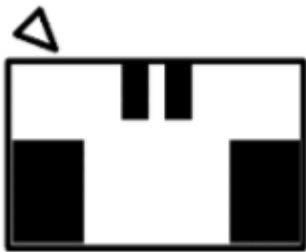
Pin	Signal	Pin	Signal
1	5V	2	USB2_D1-
3	USB2_D1+	4	GND
5	USB3_RX1-	6	USB3_RX1+
7	GND	8	USB3_TX1-
9	USB3_TX1+	10	5V
11	USB2_D2-	12	USB2_D2+
13	GND	14	USB3_RX2-
15	USB3_RX2+	16	GND
17	USB3_TX2-	18	USB3_TX2+

2.4.9 USB 3.0 Type-A Connector (CN15)



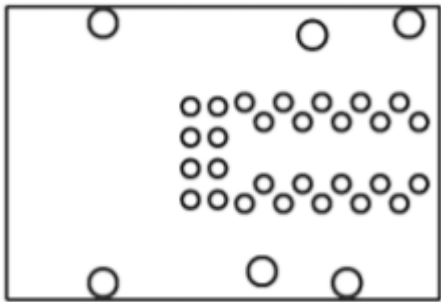
Pin	Signal	Pin	Signal
1	5V	2	USB2_D-
3	USB2_D+	4	GND
5	USB3_RX-	6	USB3_RX+
7	GND	8	USB3_TX-
9	USB3_TX+		

2.4.10 FAN Power Connector (CN17)



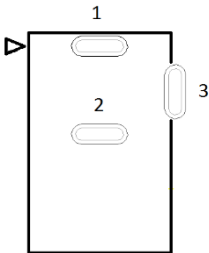
Pin	Signal
1	5V
2	GND

2.4.11 Dual RJ45 LAN Connector (CN18)



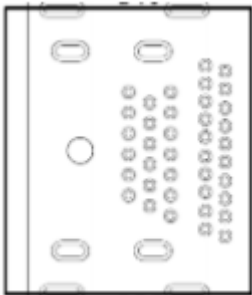
Pin	Signal	Pin	Signal
R1A	LAN1_MDIO+	R2A	LAN1_MDIO-
R3A	LAN1_MDI1+	R4A	LAN1_MDI1-
R5A	LAN1_MDI2+	R6A	LAN1_MDI2-
R7A	LAN1_MDI3+	R8A	LAN1_MDI3-
R9A	NC	R10A	GND
L1A	LAN1_ACTL	L2A	LAN1_ACTLED+
L3A	LAN1_LINK1000#	L4A	LAN1_Link100#
R1B	LAN2_MDIO+	R2B	LAN2_MDIO-
R3B	LAN2_MDI1+	R4B	LAN2_MDI1-
R5B	LAN2_MDI2+	R6B	LAN2_MDI2-
R7B	LAN2_MDI3+	R8B	LAN2_MDI3-
R9B	NC	R10B	GND
L1B	LAN2_ACTL	L2B	LAN2_ACTLED+
L3B	LAN2_LINK1000#	L4B	LAN2_Link100#

2.4.12 DC Jack (CN23)



Pin	Signal
1	+5V
2	GND
3	GND

2.4.13 HDMI/DP Connector (CN24)



Pin	Signal	Pin	Signal
P1	DDIO_TXP_DP_0	P2	GND
P3	DDIO_TXN_DP_0	P4	DDIO_TXP_DP_1
P5	GND	P6	DDIO_TXN_DP_1
P7	DDIO_TXP_DP_2	P8	GND
P9	DDIO_TXN_DP_2	P10	Port0_CLK+
P11	GND	P12	Port0_CLK-

Pin	Signal	Pin	Signal
P13	Config1	P14	Config2
P15	DP_AUX_P	P16	GND
P17	DP_AUX_N	P18	DDI0_TYPE_C_HPD
P19	GND	P20	3.3V
P21	DDI1_TXP_HDMI_0	P22	GND
P23	DDI1_TXN_HDMI_0	P24	DDI1_TXP_HDMI_1
P25	GND	P26	DDI1_TXN_HDMI_1
P27	DDI1_TXP_HDMI_2	P28	GND
P29	DDI1_TXN_HDMI_2	P30	DDI1_CLK_HDMI_DP
P31	GND	P32	DDI1_CLK_HDMI_DN
P33	HDMI1_CEC_D	P34	NC
P35	DDI1_5V_DDCCLK	P36	DDI1_5V_DDCDATA
P37	GND	P38	5V
P39	DDI1_TYPE_C_HPD		

Chapter 3

AMI BIOS Setup

3.1 System Test and Initialization

The system uses certain routines to perform testing and initialization during the boot up sequence. If an error, fatal or non-fatal, is encountered, the system will output a few short beeps or an error message. The board can usually continue the boot up sequence with non-fatal errors.

The system configuration verification routines check the current system configuration against the values stored in the CMOS memory. If they do not match, an error message will be output, and the BIOS setup program will need to be run to set the configuration information in memory.

There are three situations in which the CMOS settings will need to be set or changed:

- Starting the system for the first time
- The system hardware has been changed
- The CMOS memory has lost power and the configuration information is erased

The system's CMOS memory uses a backup battery for data retention. The battery must be replaced when it runs down.

3.2 AMI BIOS Setup

The AMI BIOS ROM has a pre-installed Setup program that allows users to modify basic system configurations, which is stored in the battery-backed CMOS RAM and BIOS NVRAM so that the information is retained when the power is turned off.

To enter BIOS Setup, press or <ESC> immediately while your computer is powering up.

The function for each interface can be found below.

Main – Date and time can be set here. Press <Tab> to switch between date elements

Advanced – Enable/ Disable boot option for legacy network devices

Chipset – For hosting bridge parameters

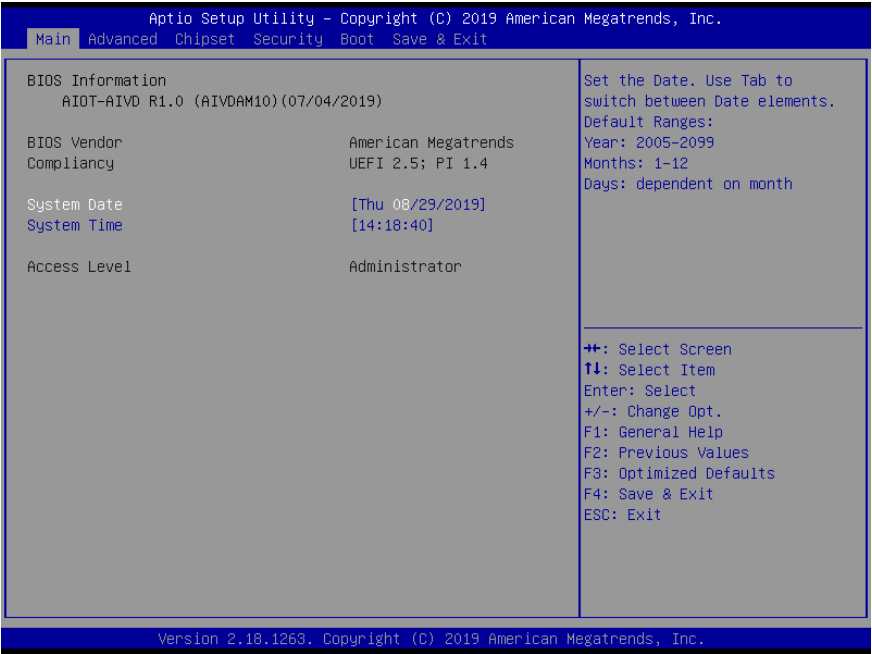
Security – The setup administrator password can be set here

Boot – Enable/ Disable quiet Boot Option

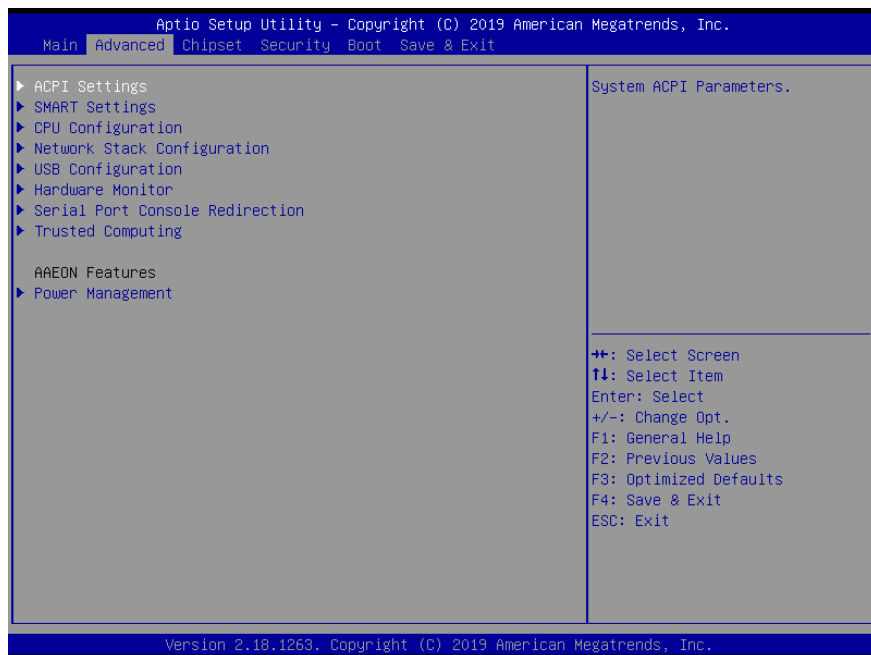
Save & Exit – Save your changes and exit the program

3.3 Setup submenu: Main

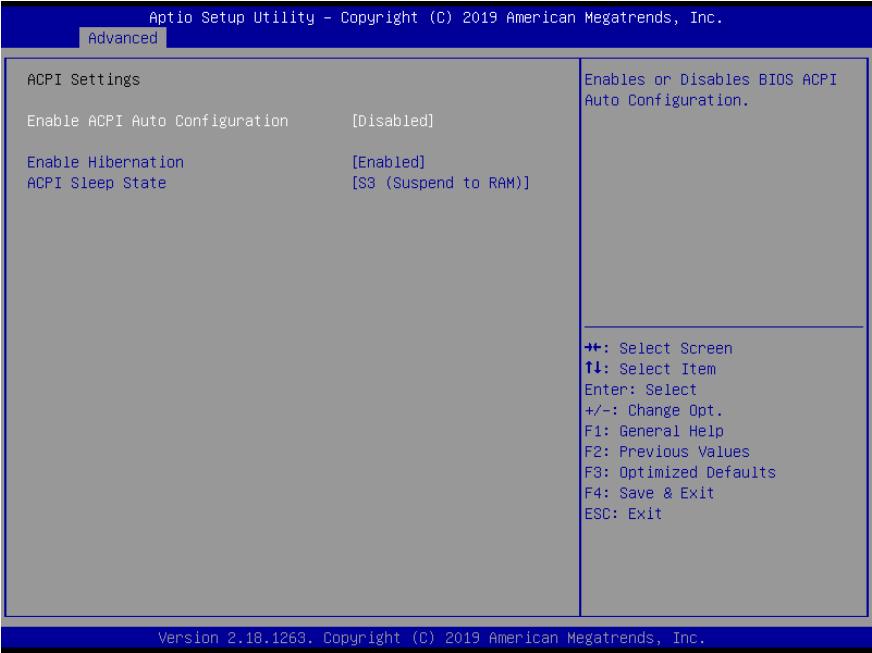
Press **Delete** to enter Setup



3.4 Setup submenu: Advanced

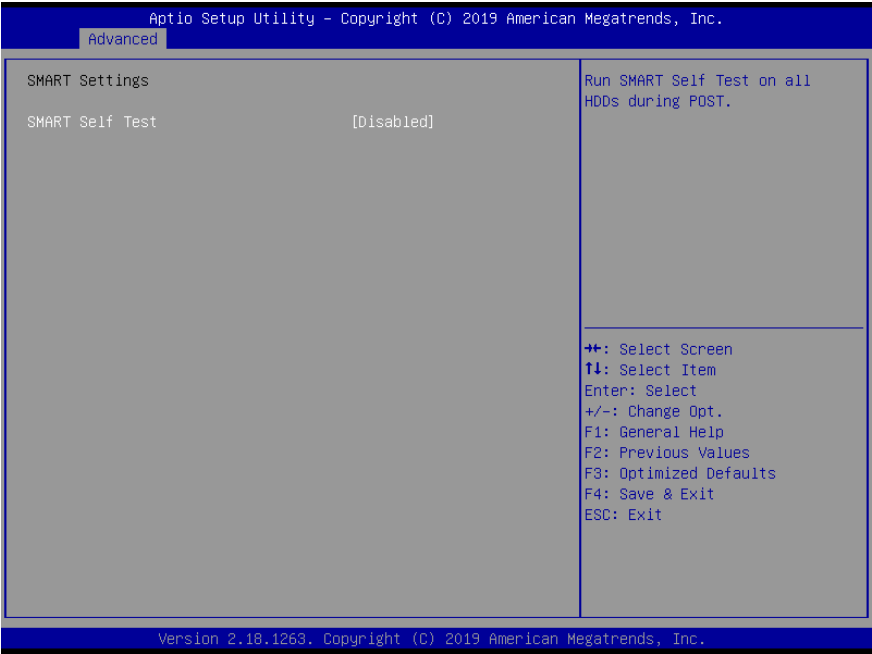


3.4.1 Advanced: ACPI Settings



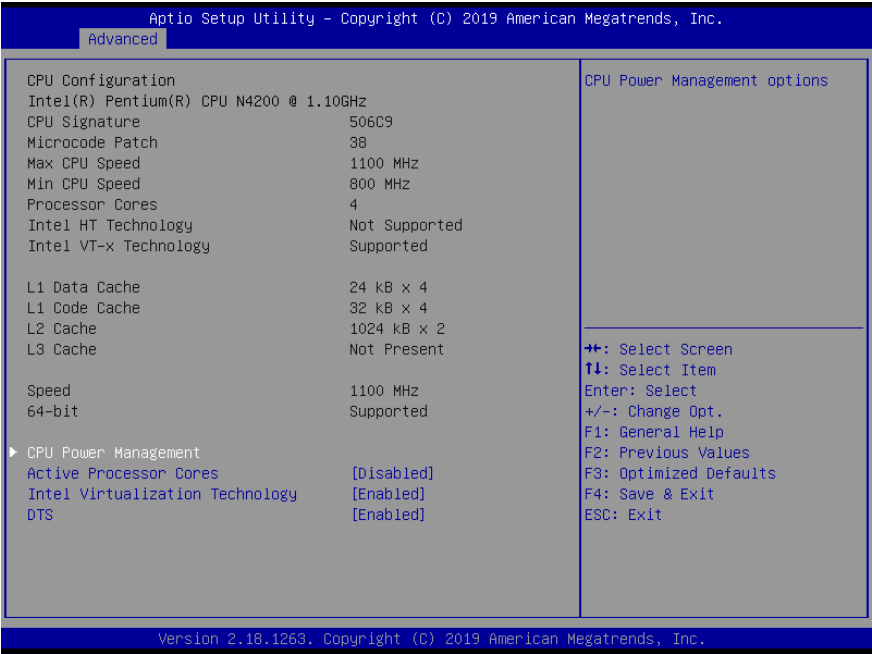
Options Summary		
Enable ACPI Auto Configuration	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or Disables BIOS ACPI Auto Configuration.		
Enable Hibernation	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enables or Disables System ability to Hibernate (OS/S4 Sleep State).This option may be nit effective with OS.		
ACPI Sleep State	Suspend Disabled	Optimal Default, Failsafe Default
	S3(Suspend to RAM))	
Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.		

3.4.2 Advanced: SMART Settings



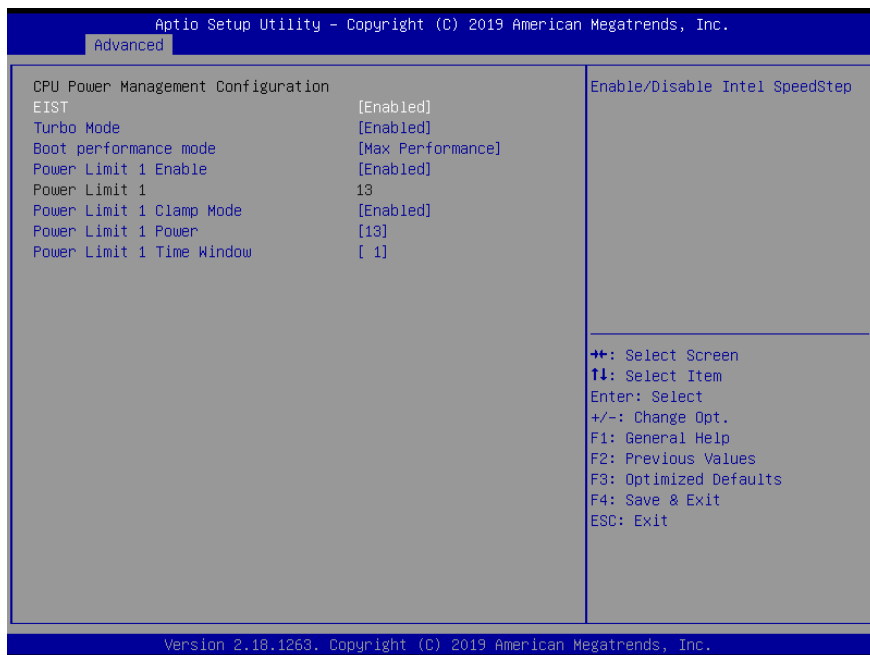
Options Summary		
SMART Self Test	Disabled	Optimal Default, Failsafe Default
	Enabled	
Run SMART Self Test on all HDDs during POST		

3.4.3 Advanced: CPU Configuration



Options Summary		
CPU Power Management		
CPU Power Management options menu		
Activate Processor Cores	Disabled	Optimal Default, Failsafe Default
	Enabled	
Number of cores to enable in each processor package.		
Intel Virtualization Technology	Disabled	Optimal Default, Failsafe Default
	Enabled	
When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.		
DTS	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled Digital Thermal Sensor.		

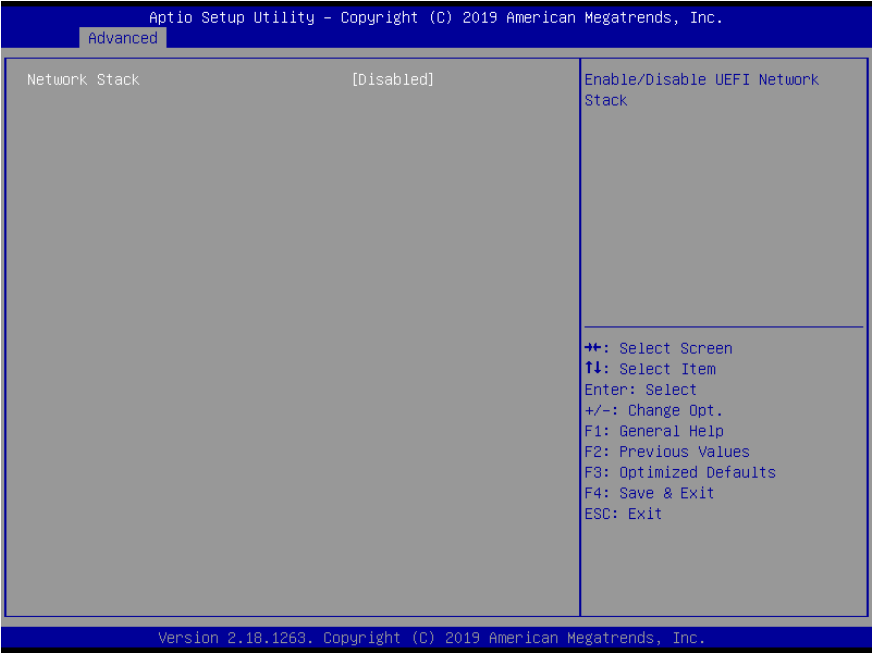
3.4.3.1 CPU Power Management



Options Summary		
EIST	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled Intel SpeedStep		
Turbo Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
Turbo Mode		
Boot performance mode	Max Battery	Optimal Default, Failsafe Default
	Max Performance	
Select the performance state that the BIOS will set before OS handoff.		
Power Limit 1 Enable	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled Power Limit 1		
Power Limit 1 Clamp Mode	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled Power Limit 1 Clamp Mode		

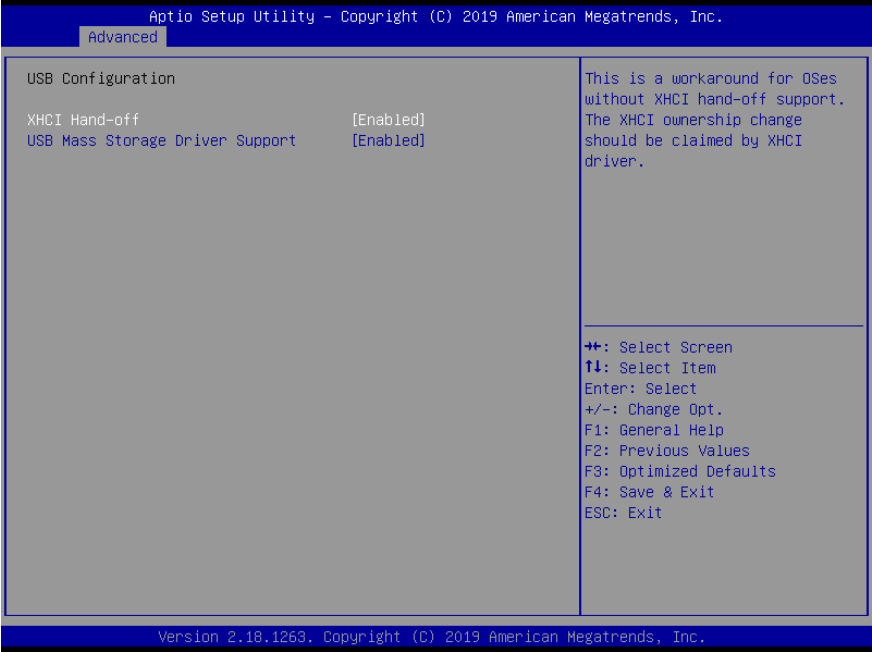
Options Summary		
Power Limit 1 Power	7~25	Optimal Default (13) ,Failsafe Default
Power Limit 1 in Watts. Auto will program Power Limit 1 based on silicon default support value.		
Power Limit 1 Time Window	1~8,10,12,14,16,20,24,28,32,40,48,56,64,80,96,112,128	Optimal Default (1) ,Failsafe Default
Power Limit 1 Time Window Value in Seconds. Auto will program Power Limit 1 Time Window based on silicon default support value.		

3.4.4 Advanced: Network Stack Configuration



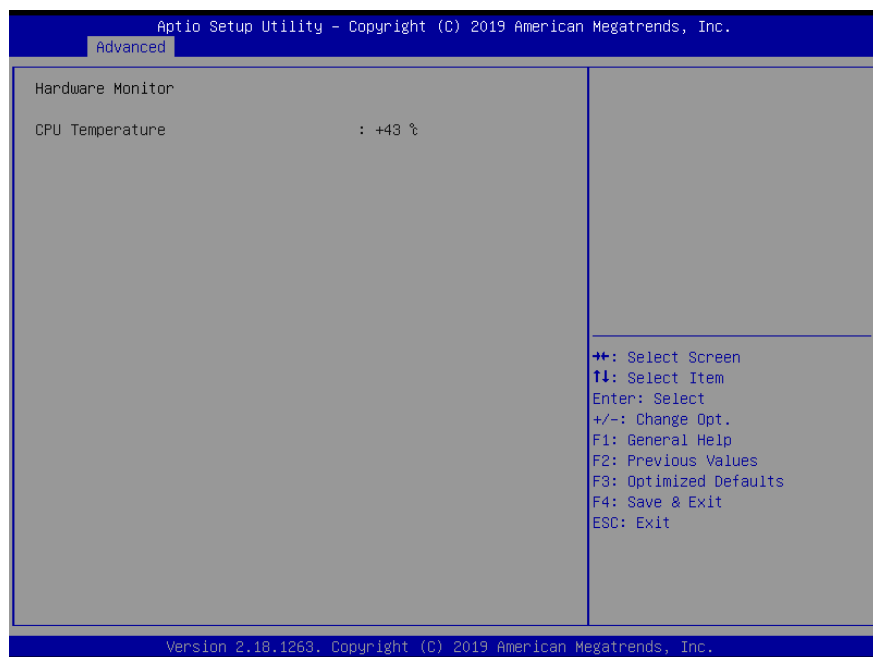
Options Summary		
Network Stack	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enabled/Disabled UEFI Network Stack		

3.4.5 Advanced: USB Configuration

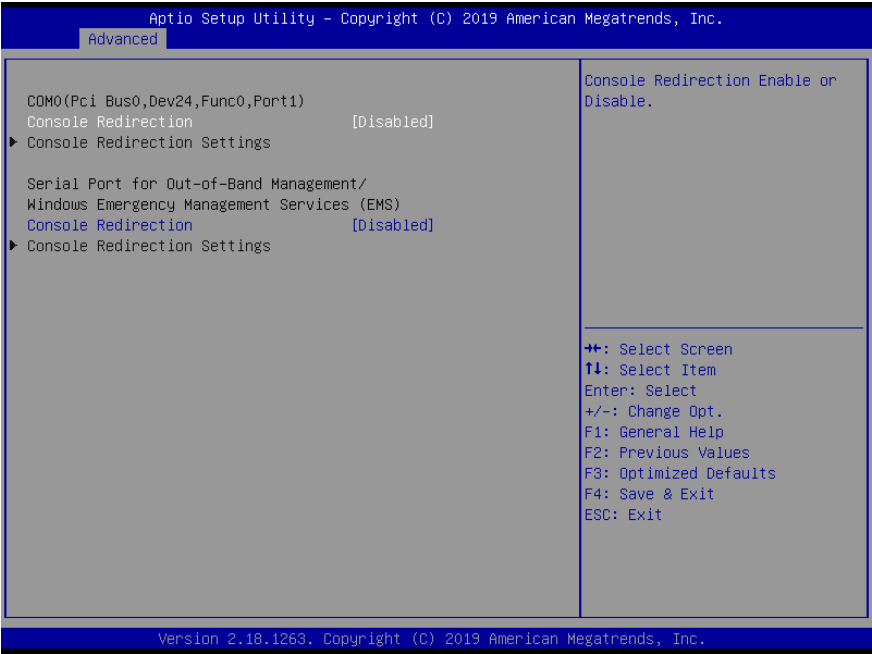


Options Summary		
XHCI Hand-off	Enabled	Optimal Default, Failsafe Default
	Disabled	
This is a workaround for OSeS without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.		
USB Mass Storage Driver Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled/Disabled USB Mass Storage Driver Support.		

3.4.6 Advanced: Hardware Monitor

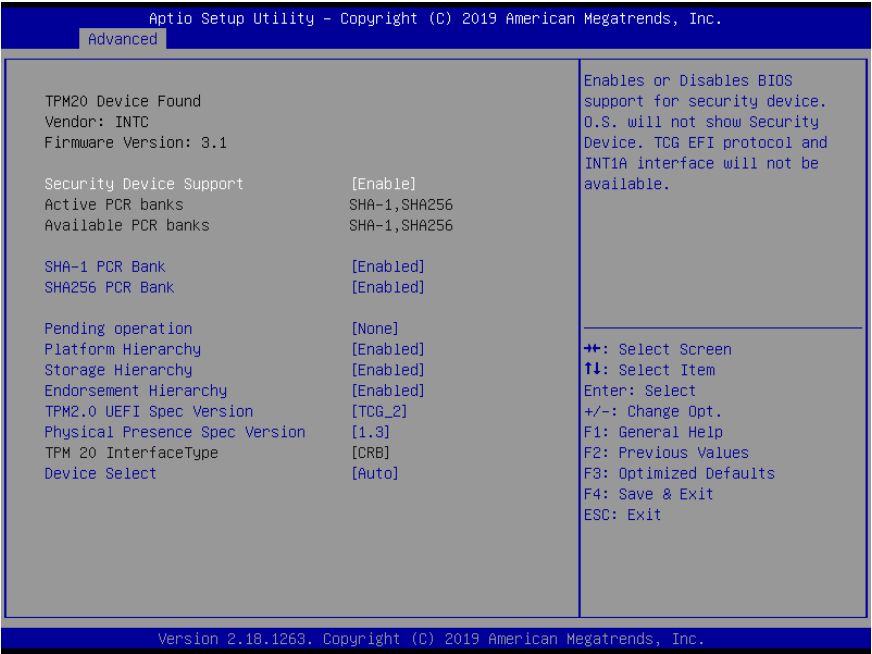


3.4.7 Advanced: Serial Port Console Redirection



Options Summary		
Console Redirection	Enabled	Optimal Default, Failsafe Default
	Disabled	
Console Redirection Enable or Disable.		
Console Redirection	Enabled	Optimal Default, Failsafe Default
	Disabled	
Console Redirection Enable or Disable.		

3.4.8 Advanced: Trusted Computing



Options Summary		
Security Device Support	Enable	Optimal Default, Failsafe Default
	Disable	
Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.		
SHA-1 PCR Bank	Enable	Optimal Default, Failsafe Default
	Disable	
Enables or Disables SHA-1 PCR Bank.		
SHA256 PCR Bank	Enable	Optimal Default, Failsafe Default
	Disable	
Enables or Disables SHA256 PCR Bank.		
Pending operation	TPM clear	Optimal Default, Failsafe Default
	None	
Schedule an Operation for the Security Device. Note: Your Computer will reboot during Restart in order to change State of Security Device.		

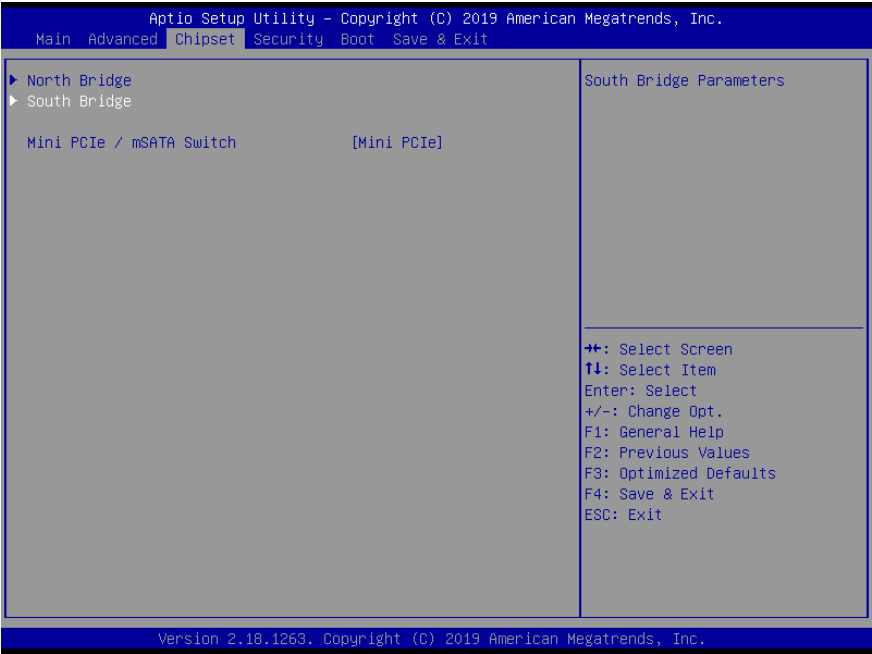
Options Summary		
Platform Hierarchy	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled Platform Hierarchy		
Storage Hierarchy	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled Storage Hierarchy		
Endorsement Hierarchy	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enabled or Disabled Endorsement Hierarchy		
TPM2.0 UEFI Spec Version	TCG_1_2	Optimal Default, Failsafe Default
	TCG_2	
Select the TCG2 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	1.2	Optimal Default, Failsafe Default
	1.3	
Select to Tell O.S. to support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not Support 1.3.		
Device Select	TPM 1.2	Optimal Default, Failsafe Default
	TPM 2.0	
	Auto	
TPM 1.2 will restrict support to TPM 1.2 device, 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 device will be enumerated.		

3.4.9 Advanced: Power Management



Options Summary		
RTC wake system from S5	Disabled	Optimal Default, Failsafe Default
	Fixed Time	
	Dynamic Time	
Fixed Time: System will wake on the hr::min::sec specified./n Dynamic Time: System will wake on the current time + Increase minute(S)		

3.5 Setup submenu: Chipset



Options Summary		
Mini PCIe / mSATA Switch	mSATA	
	Mini PCIe	Optimal Default, Failsafe Default
Mini PCIe / mSATA Switch		

3.5.1 Chipset: North Bridge

Aptio Setup Utility - Copyright (C) 2019 American Megatrends, Inc.		
Chipset		
Memory Information		Enable : Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. Disable: Always disable IGD
Total Memory	8192 MB (LPDDR4)	
IGD Configuration		
Integrated Graphics Device	[Enable]	
RC6(Render Standby)	[Enable]	
GTT Size	[8MB]	
Aperture Size	[256MB]	
DVMT Pre-Allocated	[64M]	
DVMT Total Gfx Mem	[256M]	
Cd Clock Frequency	[624 MHz]	
GT PM Support	[Enable]	
PAVP Enable	[Enable]	
IGD - LCD Control		
BIA	[Auto]	
ALS Support	[Enable]	
IGD Flat Panel	[Auto]	
IGD Boot Type	[Auto]	
Panel Scaling	[Auto]	
GMCH BLC Control	[PWM-Inverted]	
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.18.1263, Copyright (C) 2019 American Megatrends, Inc.		

Options Summary		
Integrated Graphics Device	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled: Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. Disabled: Always disable IGD		
RC6(Render Standby)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Check to enable render standby support, RC6 should be enabled if S0ix is enabled. This item will be read only if S0ix is enabled		
GTT Size	2MB	Optimal Default, Failsafe Default
	4MB	
	8MB	
Select the GTT Size		

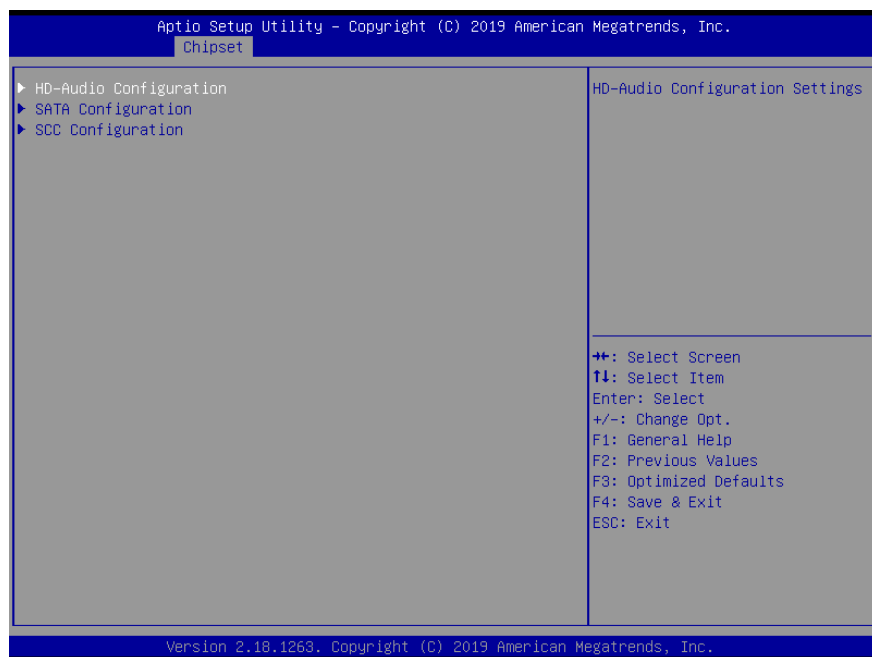
Table Continues on Next Page...

Options Summary		
Aperture Size	128MB	Optimal Default, Failsafe Default
	256MB	
	512MB	
Select the Aperture Size		
DVMT Pre-Allocated	64,96,128,160,192,224,256,288,320,352,384,416,448,480, 512(M)	Optimal Default: 64M, Failsafe Default
Select the DVMT 5.0 Pre-Allocated(Fixed) Graphics Memory size used by the Internal Graphics Device		
DVMT Total Gfx Mem	128MB	Optimal Default, Failsafe Default
	256MB	
	MAX	
Select the DVMT 5.0 Total Graphic Memory size used by the Internal Graphics Device		
Cd Clock Frequency	144,288,384,576,624 (MHz)	Optimal Default: 624MHz, Failsafe Default
Select the highest Cd Clock frequency supported by the platform		
GT PM Support	Enable	Optimal Default, Failsafe Default
	Disable	
Enable/Disable GT PM Support		
PAVP Enable	Enable	Optimal Default, Failsafe Default
	Disable	
Enable/Disable PAVP		
BIA	Auto	Optimal Default, Failsafe Default
	Disabled	
	Level 1	
	Level 2	
	Level 3	
	Level 4	
	Level 5	
>>Auto: GMCH Use VBIOS Default; >>Level n: Enabled with Selected Aggressiveness Level.		
ALS Support	Enable	Optimal Default, Failsafe Default
	Disable	
Valid only for ACPI.		

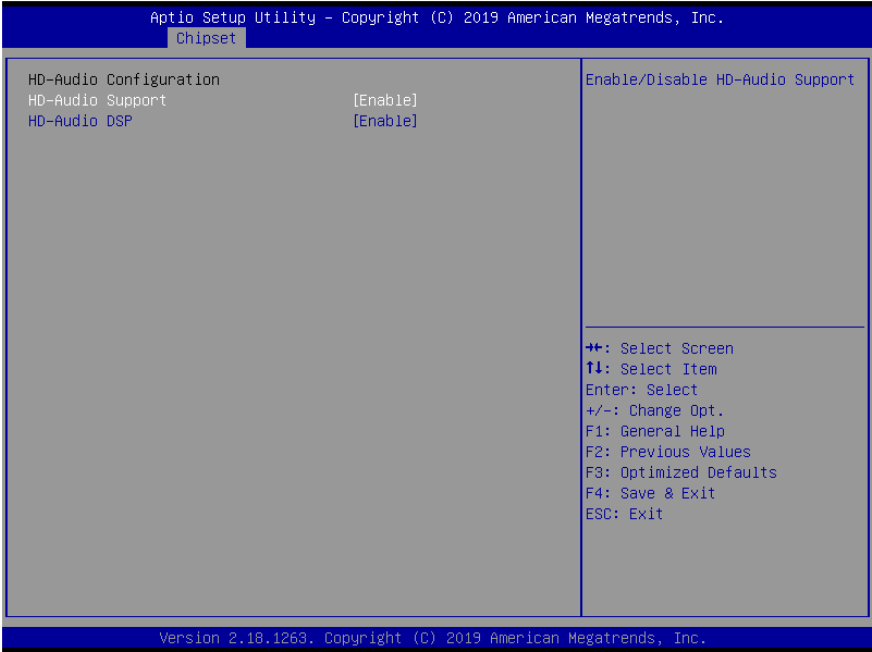
Table Continues on Next Page...

Options Summary		
IGD Flat Panel	Auto	Optimal Default, Failsafe Default
	640x480	
	800x600	
	1024x768	
	1280x1024	
	1366x768	
	1680x1050	
	1920x1200	
	1280x800	
IGD Boot Type	Auto	Optimal Default, Failsafe Default
	VGA Port	
	HDMI	
	DP Port B	
	DP Port C	
	eDP	
	DSI Port A	
	DSI Port C	
Select preference for Integrated Graphics Device (IGD) display interface used when system boots.		
Panel Scaling	Auto	Optimal Default, Failsafe Default
	Centering	
	Stretching	
GMCH BLC Control	PWM-Inverted	Optimal Default, Failsafe Default
	GMBus-Inverted	
	PWM-Normal	
	GMBus-Normal	

3.5.2 Chipset: South Bridge

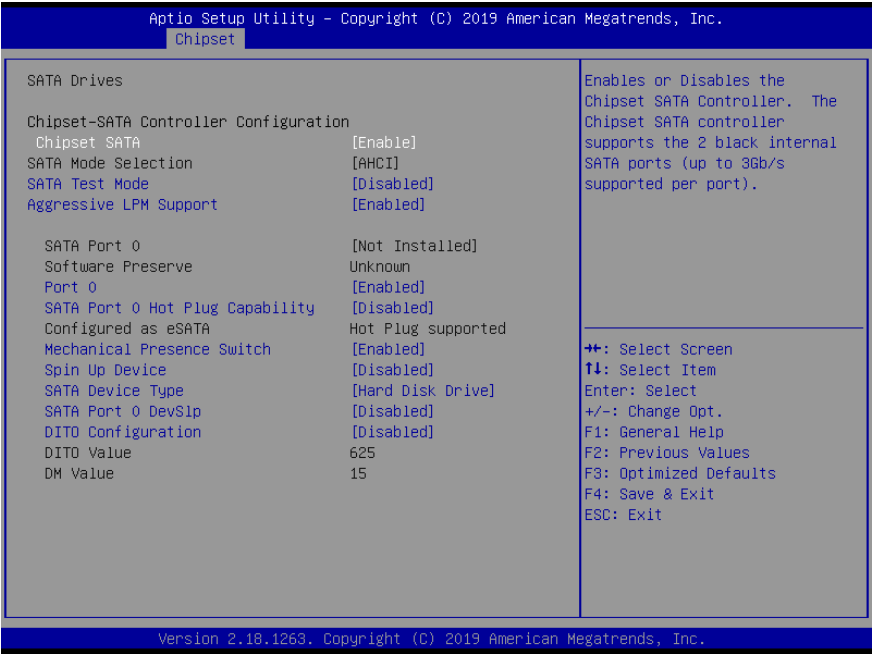


3.5.2.1 HD-Audio Configuration



Options Summary		
HD-Audio Support	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled/Disable HD-Audio Support		
HD-Audio DSP	Enable	Optimal Default, Failsafe Default
	Disable	
Enabled/Disable HD-Audio DSP		

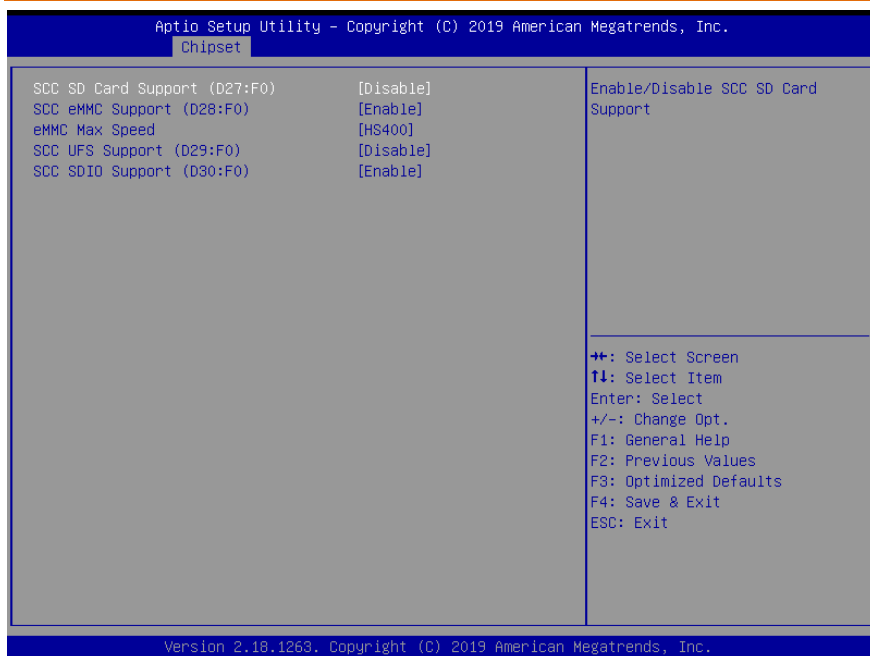
3.5.2.2 SATA Configuration



Options Summary		
Chipset SATA	Enable	Optimal Default, Failsafe Default
	Disable	
Enables or Disables the Chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).		
SATA Test Mode	Enabled	Optimal Default, Failsafe Default
	Disabled	
Test Mode Enable/Disable		
Aggressive LPM Support	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable PCH to aggressively enter link power state.		
Port 0	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable or Disable SATA Port.		

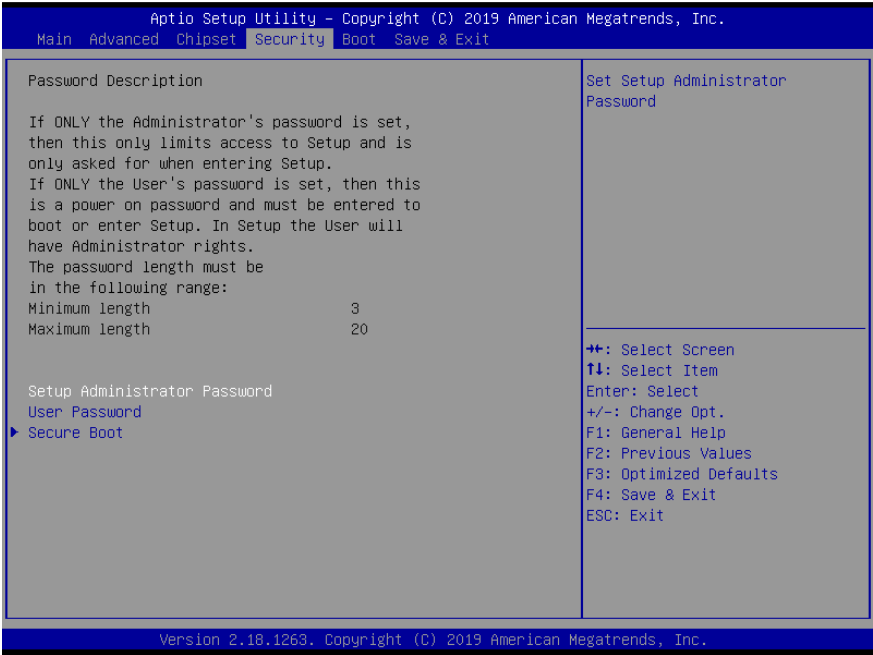
Options Summary		
SATA Port 0 Hot Plug Capability	Disabled	Optimal Default, Failsafe Default
	Enabled	
If enabled, SATA port will be reported as HOT PLUG capable.		
Mechanical Presence Switch	Disabled	Optimal Default, Failsafe Default
	Enabled	
Controls reporting if this port has a Mechanical Presence Switch. Note: Requires hardware support.		
Spin Up Device	Disabled	Optimal Default, Failsafe Default
	Enabled	
If enabled for any of ports Staggered Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot		
SATA Device Type	Hard Disk Drive	Optimal Default, Failsafe Default
	Solid State Drive	
Identify the SATA port is connected to Solid State Drive or Hard Disk Drive		
SATA Port 0 Devslp	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable SATA Port 0 DevSlp. Board rework for LP needed before enable.		
DITO Configuration	Disabled	Optimal Default, Failsafe Default
	Enabled	
Enable/Disable DITO Configuration.		

3.5.2.3 SCC Configuration



Options Summary		
SCC SD Card Support(D27:F0)	Enable	Optimal Default, Failsafe Default
	Disable	
Enable/Disable SCC SD Card Support		
SCC eMMC Support(D28:F0)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable SCC eMMC Support		
eMMC Max Speed	HS400	Optimal Default, Failsafe Default
	HS200	
	DDR50	
Select the eMMC max Speed allowed.		
SCC UFS Support (D29:F0)	Enable	Optimal Default, Failsafe Default
	Disable	
Enable/Disable UFS SDIO Support		
SCC SDIO Support (D28:F0)	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enable/Disable SCC SCC SDIO Support		

3.6 Setup submenu: Security



Change User/Administrator Password

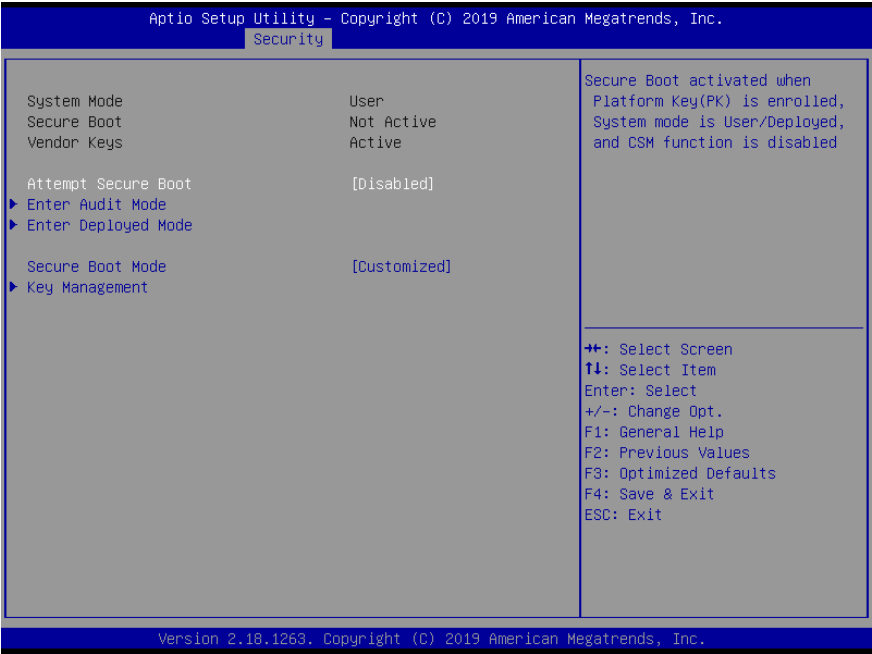
You can set an Administrator Password or User Password. An Administrator Password must be set before you can set a User Password. The password will be required during boot up, or when the user enters the Setup utility. A User Password does not provide access to many of the features in the Setup utility.

Select the password you wish to set, and press Enter. In the dialog box, enter your password (must be between 3 and 20 letters or numbers). Press Enter and retype your password to confirm. Press Enter again to set the password.

Removing the Password

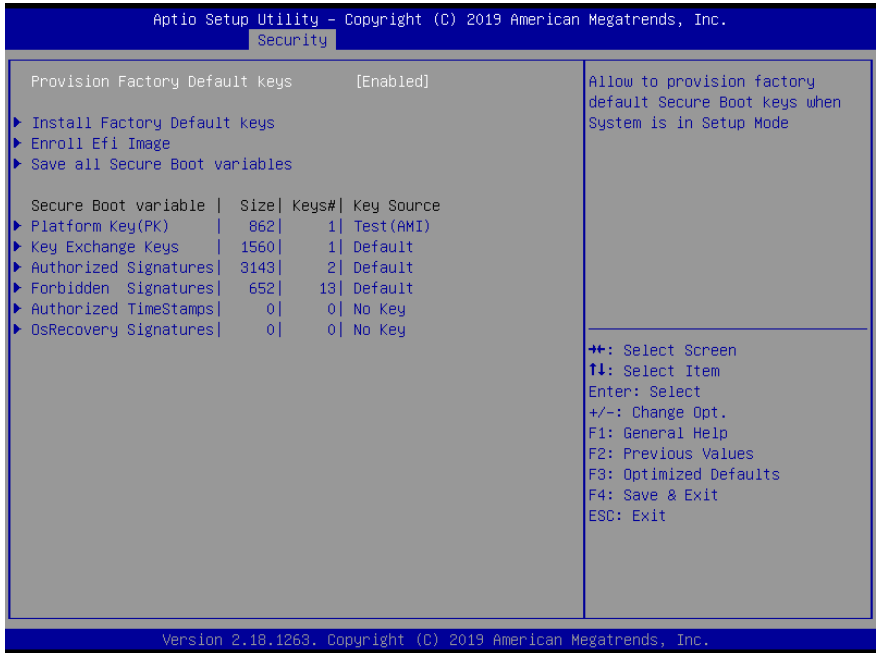
Select the password you want to remove and enter the current password. At the next dialog box press Enter to disable password protection.

3.6.1 Secure Boot



Options Summary		
Attempt Secure Boot	Enabled	Optimal Default, Failsafe Default
	Disabled	
Secure Boot activated when Platform Key(PK) is enrolled, System mode is User/Deployed , and CSM function is disabled		
Enter Audit Mode	Yes	
	No	
Enter Audit Mode. If a current System Mode is User – PK variable will be erased on transition to Audit		
Enter Deployed Mode		
Enter Deployed Mode		
Secure Boot Mode	Standard	Optimal Default, Failsafe Default
	Customized	
Set UEFI Secure Boot Mode to STANDARD mode or CUSTOM mode, changes take effect after saving. Resetting system will return to STANDARD mode		

3.6.1.1 Key Management



Options Summary		
Provision Factory Default keys	Enabled	Optimal Default, Failsafe Default
	Disabled	
Allow to provision factory default Secure Boot keys when System is in Setup Mode		
Install Factory Default keys	Press 'Yes' to install factory default keys	
Force System to User Mode – install all Factory Default keys		
Enroll Efi Image		
Allow the image to run in Secure Boot mode. Enroll SHA256 Hash Certificate of the Image into Authorized Signature Database (db)		
Save all Secure Boot variables		
Save NVRAM content of Secure Boot policy variables to the files (EFI_SIGNATURE_LIST data format) in root folder on a target file system device		

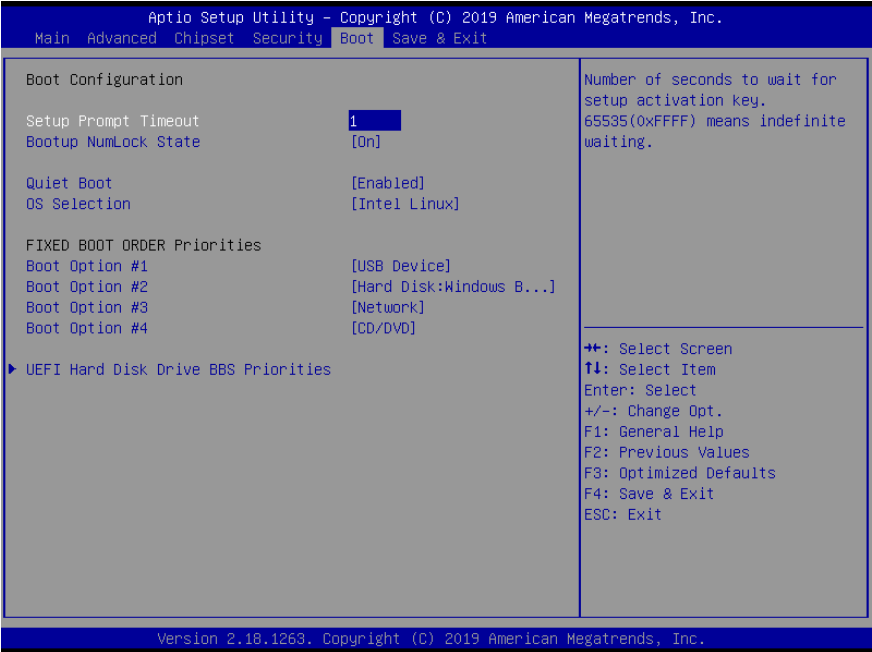
Options Summary	
Platform key(PK) [862] 1 Test(AMI)	Save To File
	Set New Var
	Delete Var
Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate in: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER encoded) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHA256,384,512 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Default , External, Mixed , Test	
Key Exchange keys [1560] 1 Default	Save To File
	Set New Var
	Append key
	Delete Var
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_SHA256,384,512 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Default , External, Mixed , Test	

Table Continues on Next Page

Options Summary	
Authorized Signature 3143 2 Default	Save To File
	Set New Var
	Append key
	Delete Var
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_SHA256,384,512 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Default , External, Mixed , Test	
Forbidden Signatures 652 13 Default	Save To File
	Set New Var
	Append key
	Delete Var
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_SHA256,384,512 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Default , External, Mixed , Test	
Authorized TimeStamps 0 0 No Key	Set New Var
	Append key
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_SHA256,384,512 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Default , External, Mixed , Test	

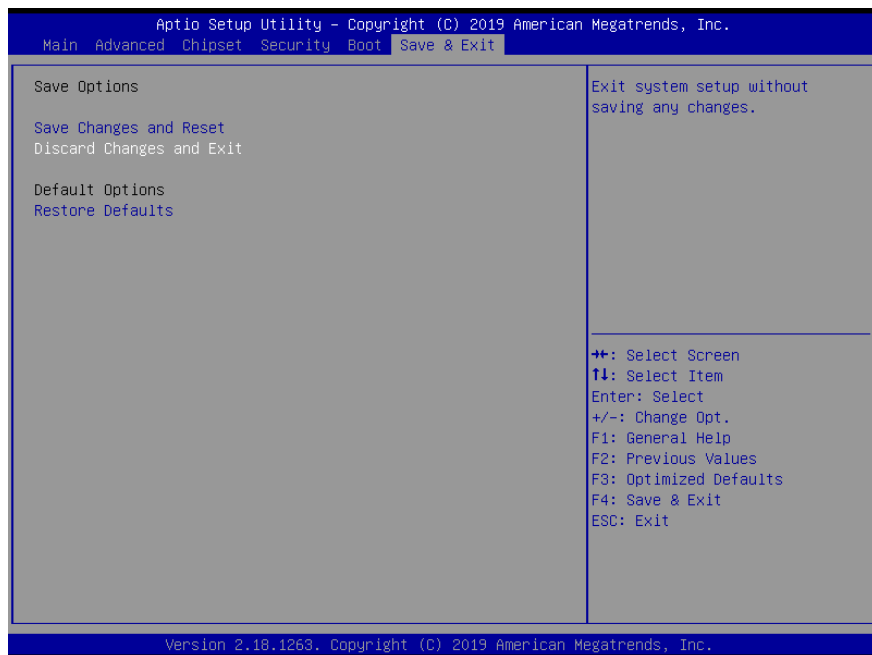
Options Summary	
OsRecovery Signatures 0 0 No key	Set New Var
	Append key
Enroll Factory Defaults or load certificates from a file:	
1.Public Key Certificate in:	
a)EFI_SIGNATURE_LIST	
b)EFI_CERT_X509 (DER encoded)	
c)EFI_CERT_RSA2048 (bin)	
d)EFI_CERT_SHA256,384,512	
2.Authenticated UEFI Variable	
3.EFI PE/COFF Image(SHA256)	
Key Source:	
Default , External, Mixed , Test	

3.7 Setup submenu: Boot



Options Summary		
Setup Prompt Timeout		
Number of seconds to wait for setup activation Key. 65535(0xFFFF) means indefinite waiting.		
Bootup NumLock State	On	Optimal Default, Failsafe Default
	Off	
Select the keyboard NumLock state		
Quiet Boot	Enabled	Optimal Default, Failsafe Default
	Disabled	
Enables or disables Quiet Boot option		
OS Selection	Windows	Optimal Default, Failsafe Default
	Android	
	Intel Linux	
	Windows 10 IoT Core	
Select the target OS.		

3.8 Setup submenu: Save & Exit



Chapter 4

Software and System Startup

4.1 Drivers Download and Installation

Drivers for the AIOT-AIVD can be downloaded from the product page on the AAEON website by following this link:

<https://www.aaeon.com/en/p/ai-iot-video-analysis-gateway-aiot-aivd>

Download the driver(s) you need and follow the steps below to install them.

Step 1 – Install Chipset Drivers

1. Open the **Step 1 - Chipset** folder
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 2 – Install Graphics Drivers

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

Step 3 – Install TXE Drivers

1. Open the **Step 3 - TXE** folder
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 4 – Install LAN Drivers

1. Open the **Step 4 - LAN** folder and select your OS
2. For the N3350 CPU, open the **Realtek** folder
For the E3940 CPU, open the **Intel** folder
3. Open the **setup.exe** file in the folder
4. Follow the instructions
5. Drivers will be installed automatically

Step 5 – Install Serial IO Drivers

1. Open the **Step 5 - Serial IO** folder and select your OS
2. Open the **SetupSerialIO.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 6 – Install HSUART Drivers

1. Open the **Step 6 - HSUART** folder and select your OS
2. Open the **Intel_Processor_Win10_HSUART_Sub_Drivers_64Bit.exe** file in the folder
3. Follow the instructions
4. Drivers will be installed automatically

Step 7 – Install OpenVINO

1. Go to the Intel website and download the latest version of OpenVINO toolkit:
<https://software.intel.com/en-us/opencvino-toolkit>
2. Open the **Setup.exe** file in the folder
3. Follow the instructions
4. OpenVINO will be installed automatically

4.2 Quick Startup Guide

This section provides instructions to quickly setup and initialize the AIOT-AIVD. Follow the steps below to startup your gateway for the first time.

Step 1: Connect the Hardware

- i. Connect the power adapter to the system (6A@5V 5.5/2.1mm DC) and plug the system in.
- ii. Connect to a display by plugging a male HDMI type-A connector into the port on the AIOT-AIVD. Ensure the other end of the HDMI cable is plugged into the display properly.
- iii. Connect your keyboard and mouse to the AIOT-AIVD.

Note: Ensure everything is connected properly and securely.



Step 2: Prepare Drive

- i. Prepare the bootable drive with the OS (Windows 10 or Ubuntu).

Step 3: Turn On

- i. Turn on the system power and install the OS and drivers.