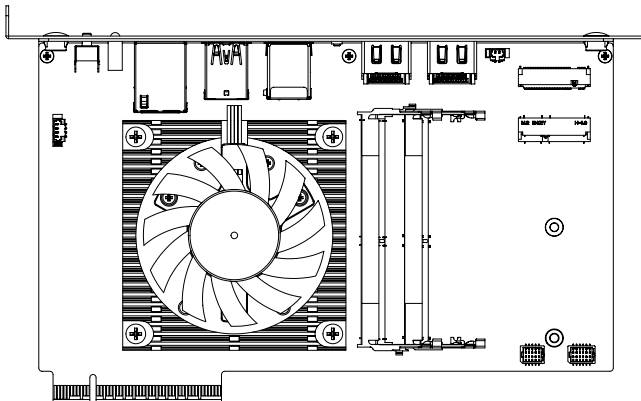


SDM-1165G7L (MTGU7AL-SI) SDM-1135G7L (MTGU5AL-SI) SDM-1115G4L (MTGU3AL-SI)

Smart Display Module Series
Quick Start Guide



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Packing List

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

Item	Quantity
SDM-1165G7L or SDM-1135G7L or SDM-1115G4L	1
SCREW KIT WITH #0 ZIPLOCK BAG SCREW-BIND M3.0*L5.0 NI (P/N : 25KSD-130053-S0R)	1

※Optional kit :

Item	Quantity
TPM 2.0 module (P/N : 9CTM010NR-00)	1
TPM Cable (P/N : 25CRZ-100600-S9R)	1
Internal Wi-Fi Cable (P/N: 25CA0-090004-A5S (90mm) + 25CA0-280003-A5S (280mm))	1
External Wi-Fi 5 Antenna (P/N: 25CA0-112001-A5S)	2
External Wi-Fi 6/6E Antenna (P/N: 25CA0-163002-A5S)	2

- Followings are the optional components to be purchased only when choosing M.2 NVMe SSD for SKU combination.
- To get installation instructions, please see P.24

Item	Quantity
DIMM2 PAD (P/N : 25ST3-200086-T5R)	1
M.2 Standoff (P/N : 12KSF-F10303-20R)	1
M.2 Screw (P/N: 25KSG-130048-S0R)	1
M.2 Bracket (P/N: 25ST1-1231Z0-S7R)	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 GIGAIPC.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.

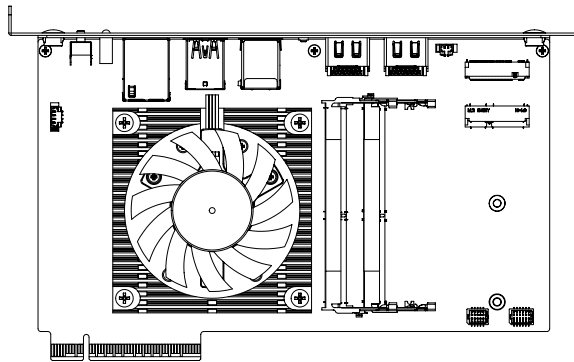
Table Contents

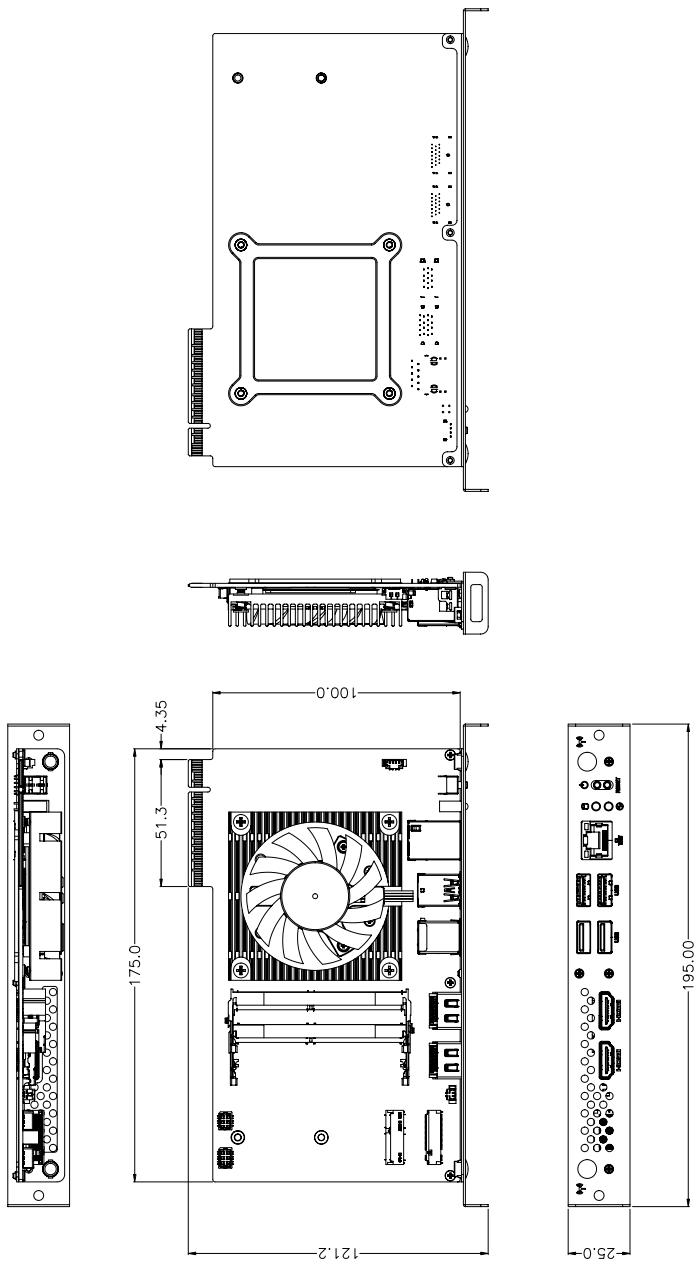
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Chapter 1

Chapter 1 - Product Specifications





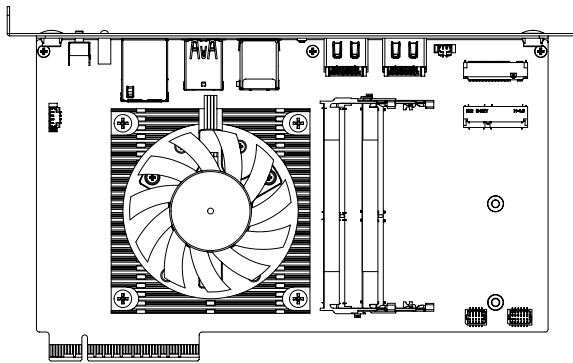
1.1 Specifications

Motherboard	SDM-1165G7L (MTGU7AL-SI)	SDM-1135G7L (MTGU5AL-SI)	SDM-1115G4L (MTGU3AL-SI)
Form Factor	SDM-Large 175W x 100D(mm)		
CPU	Intel® Core™ i7-1165G7 Processor 10nm SuperFin, 4 cores, 8 threads, up to 4.70 GHz TDP 28W	Intel® Core™ i5-1135G7 Processor 10nm SuperFin, 4 cores, 8 threads, up to 4.20 GHz TDP 28W	Intel® Core™ i3-1115G4 Processor 10nm SuperFin, 2 cores, 4 threads, up to 4.10 GHz TDP 28W
Socket	1 x FCBGA1449		
Memory	2 x DDR4 SO-DIMM sockets, Max. Capacity 64 GB Support Dual Channel DDR4 3200 MHz memory modules		
Ethernet	1 x GbE LAN Port (Intel® I219V)		
Video	<p>Integrated Graphics Processor - Intel® Iris X^e Graphics: 1 x HDMI 2.0 (SDM), supporting a maximum resolution of 4096x2160 @60Hz 1 x Display Port (SDM), supporting a maximum resolution of 4096x2160 @60Hz 2 x HDMI 2.0 (Rear), supporting a maximum resolution of 4096x2160 @60Hz</p> <p>(4 independent display outputs)</p>		<p>Integrated Graphics Processor - Intel® UHD Graphics: 1 x HDMI 2.0 (SDM), supporting a maximum resolution of 4096x2160 @60Hz 1 x Display Port (SDM), supporting a maximum resolution of 4096x2160@60Hz 2 x HDMI 2.0 (Rear), supporting a maximum resolution of 4096x2160 @60Hz</p> <p>(4 independent display outputs)</p>
Audio	Intel® integrated Audio		

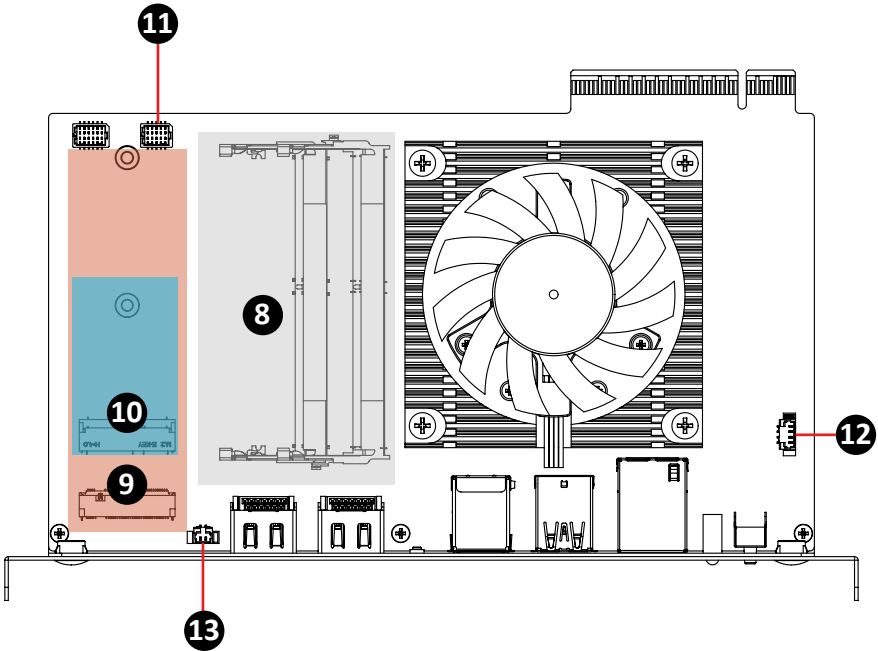
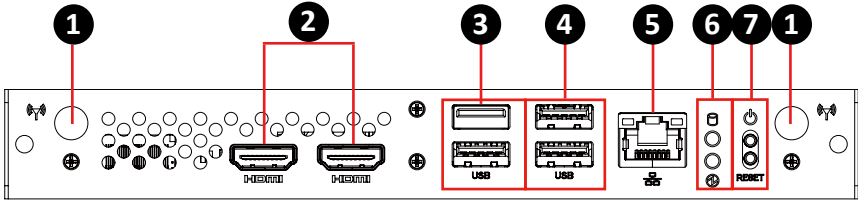
Motherboard	SDM-1165G7L (MTGU7AL-SI)	SDM-1135G7L (MTGU5AL-SI)	SDM-1115G4L (MTGU3AL-SI)
Expansion Slots	1 x 2280 M.2 M-Key (PCIe x4, SATA 6Gb/s) 1 x 2230 M.2 E-Key		
Rear I/O	1 x RJ45 LAN port 2 x HDMI 2.0 3 x USB 3.2 Gen 1 1 x USB 2.0 1 x PWR LED 1 x HDD LED 2 x External Antenna Hole (Optional) 1 x Reset button 1 x Power button		
TPM	1 x TPM header		
OS Compatibility	Windows® 10 (x64)		
Operating Properties	Operating temperature: 0°C to 55°C Operating humidity: 0%-90% (non-condensing) Non-operating temperature: -40°C to 85°C Non-operating humidity: 0%-95% (non-condensing)		

Chapter 2

Chapter 2 – Hardware Information



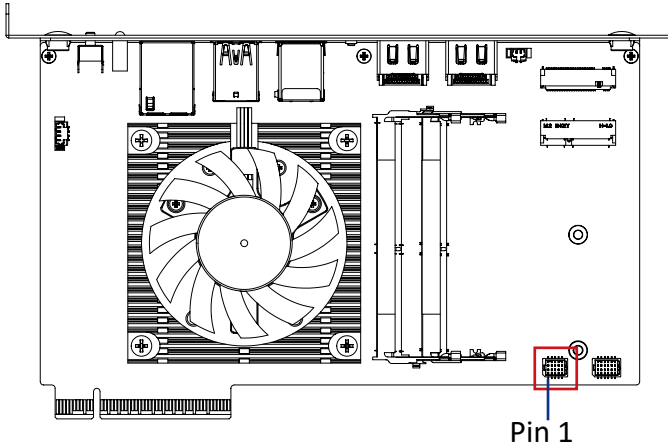
2.1 Jumpers and Connectors




No	Code	Description
1	Antenna hole	2 x Antenna (WiFi & BT) (Option)
2	HDMI_1 HDMI_2	2 x HDMI
3	FUSB	1 x USB 2.0 (Top) 1 x USB 3.2 Gen 1 (Bottom)
4	FUSB31	2 x USB 3.2 Gen 1
5	LAN	1 x RJ45
6	PS_LED	1 x PWR LED (Top) 1 x HDD LED (Bottom)
7	PSW_RST	1 x Power button (Top) 1 x Reset button (Bottom)
8	SODIMM_A SODIMM_B	2 x DDR4 SO-DIMM sockets
9	M2M	1 x 2280 M.2 M-Key (PCIe x4, SATA 6Gb/s)
10	M2E	1 x 2230 M.2 E-Key
11	TPM	1 x Trusted Platform Module Connector
12	CPU_FAN	1 x CPU Fan connector
13	BATTERY	1 x Battery cable connector

2.2.1 TPM (Trusted Platform Module Connector)

1



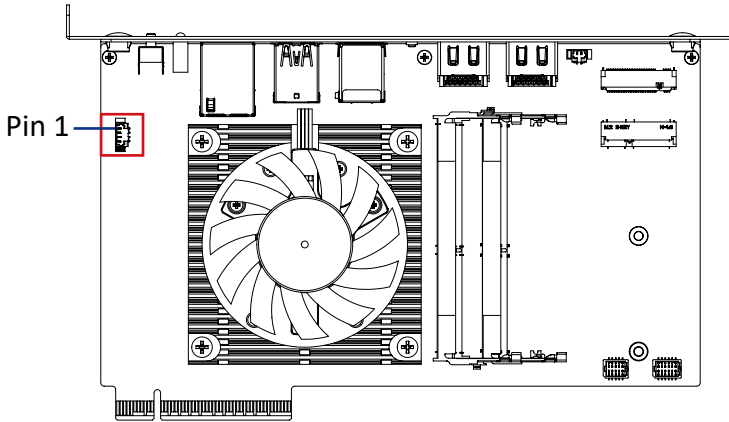
TPM Connector	
	

Connector PN	Vendor
87216-1004-06	ACES

Pin No.	Definition
1	Clock
2	GND
3	SPI_CS
4	TPM_SO
5	RESET
6	TPM_SI
7	NC
8	NC
9	3.3V
10	NC

2.2.2 CPU_FAN (CPU Fan connector)

1



CPU FAN Connector



Pin No.	Definition
1	GND
2	12V
3	Detect
4	Speed control

Connector PN

85205-0470N ACES

Vendor

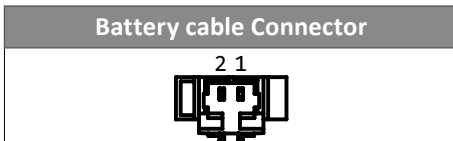
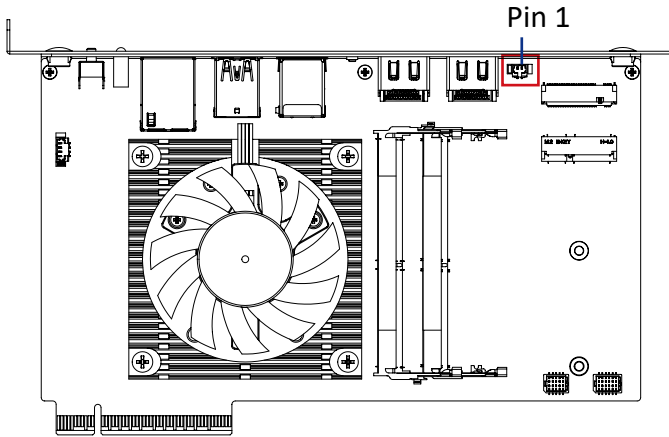
KYOYAKU

A1250WV-S-04PC

JOINT-TECH

2.2.3 BATTERY (Battery cable connector)

1

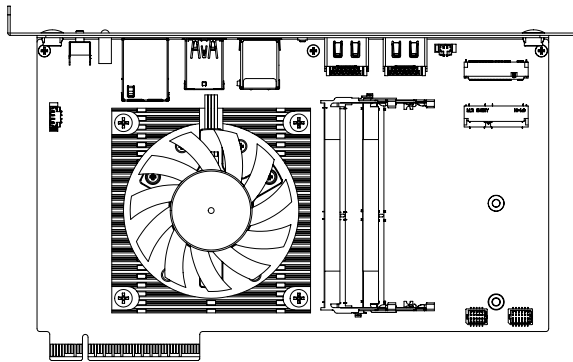


Pin No.	Definition
1	3.3V RTC
2	GND

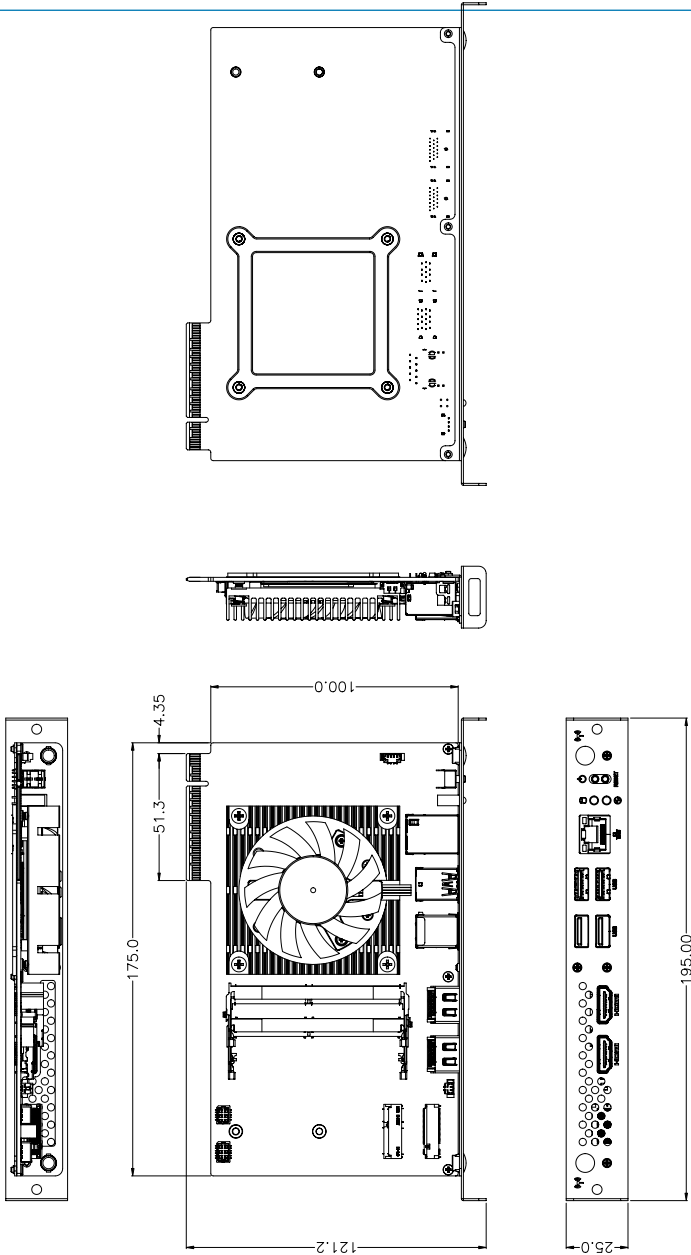
Connector PN	Vendor
85205-0270L ACES	ACES
A1250WV-S-02PC	JOINT-TECH

Chapter 3

Chapter 3 – SDM-L Installation

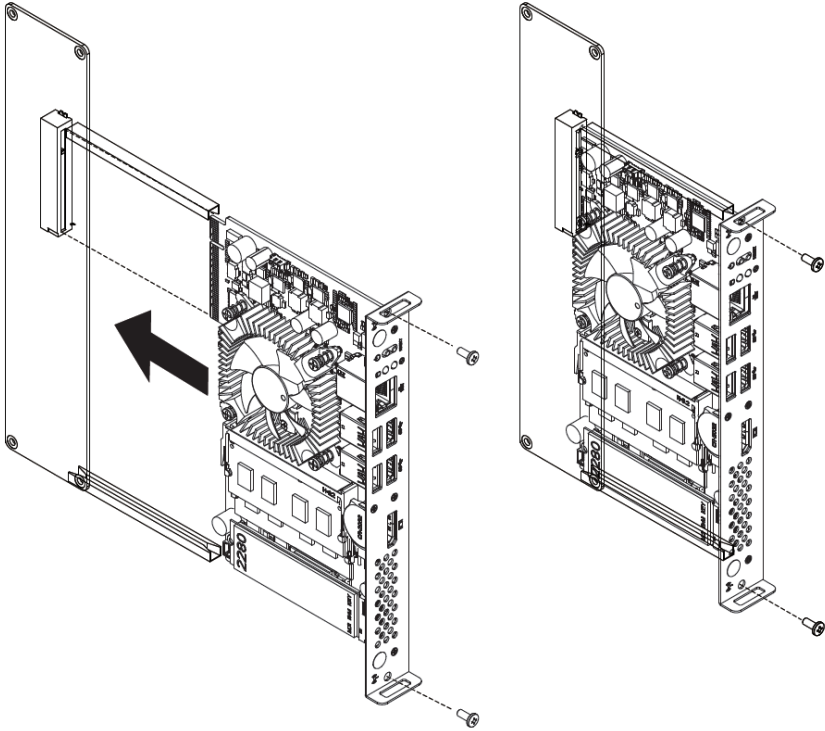


3.1 Dimension



3.2 Installation

[SDM Install]



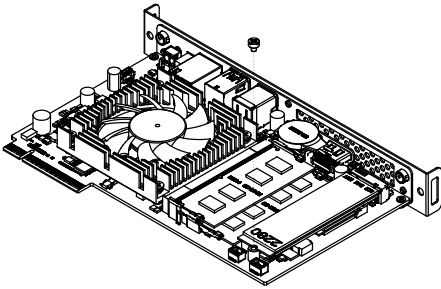
* The image is for reference only.
The actual product could be slightly different.

[M.2 SSD Heatplate module Install]

Following instructions are only for using M.2 NVMe SSD and the optional kit listed on P.4

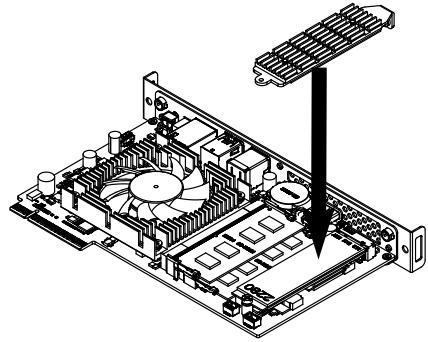
Step 1.

Remove the on-board screw (Location : MSO1).
Carefully insert M.2 2280 SSD into the M.2 slot, and use the standoff which provided in the accessory kits to secure the M.2 SSD.



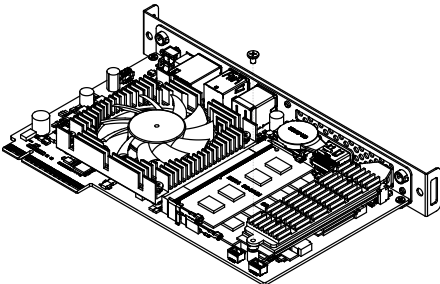
Step 2.

Remove the release paper on M.2 SSD Heatplate, and attach M.2 SSD Heatplate module to the M.2 SSD.



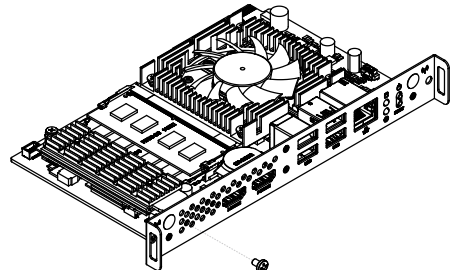
Step 3.

Tighten up the screw which was previously removed.



Step 4.

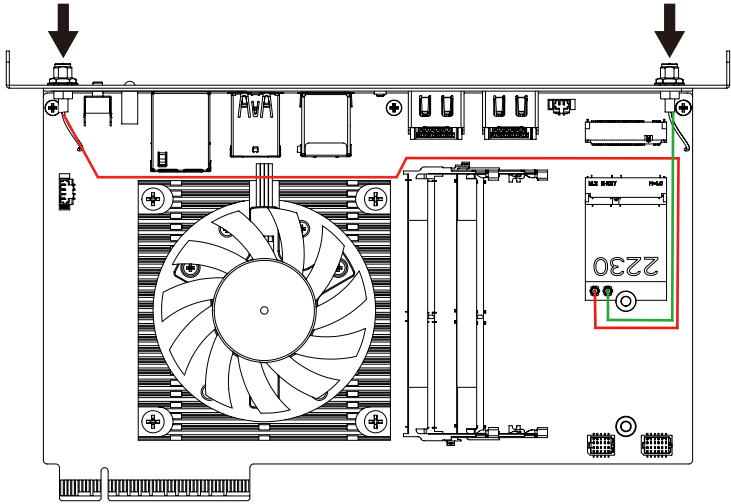
Tighten up the screw which was provided in the accessory kits on the bracket.



[Internal WiFi cable Install & Routing]

Using 280mm
Internal WiFi cable

Using 90mm
Internal WiFi cable



Chapter 4

Chapter 4 – BIOS

4.1 Introduction

BIOS (Basic input/output system) provides hardware detailed information and boot-up options, which include firmware to control, set-up and test all hardware settings. Therefore, BIOS is the communication bridge between OS/application software and hardware.

4.1.1 How to Entering into BIOS menu

Once the system is power on, press the key as soon as possible to access into BIOS Setup program.

4.1.2 Function Keys to setup in BIOS Setup program

Function keys	Description
→←	Select Screen
↑↓	Select Item
Enter	Execute command or enter the submenu
+	Increase the numeric value or make changes
—	Decrease the numeric value or make changes
F1	General Help
F2	Previous Values
F3	Load Optimized Defaults Settings
F4	Save changes & Exit the BIOS Setup program
ESC	Exit the BIOS Setup program

4.2 The Main Menu

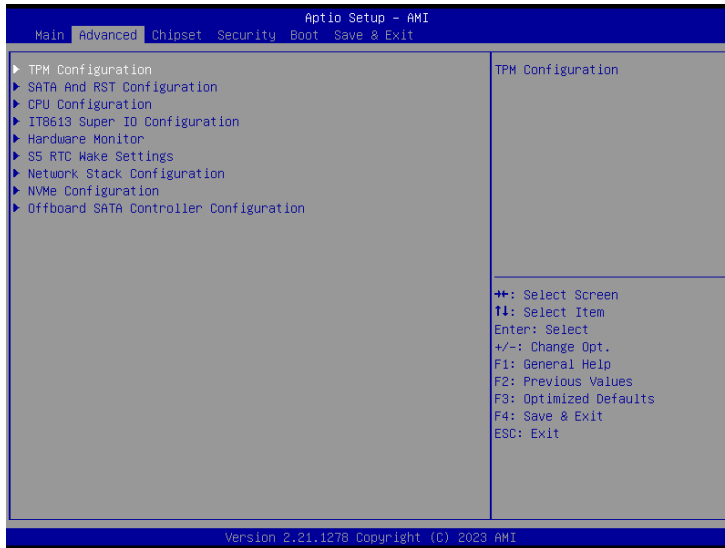
The main menu shows the basic system information. Use arrow keys to move among the items.



Items	Description
Project Name	Shows Project name information
BIOS Version	Shows the BIOS version of the system
Build Date and Time	Shows the Build Date and Time when the BIOS was created.
LAN MAC Address	Shows LAN MAC Address information
Total Memory	Shows the total memory size of the installed memory
ME FW version	Shows ME firmware version
System Date	Set the Date for the system (Format : Weekday - Month - Day - Year)
System Time	Set the time for the system (Format : Hour - Minute - Second)

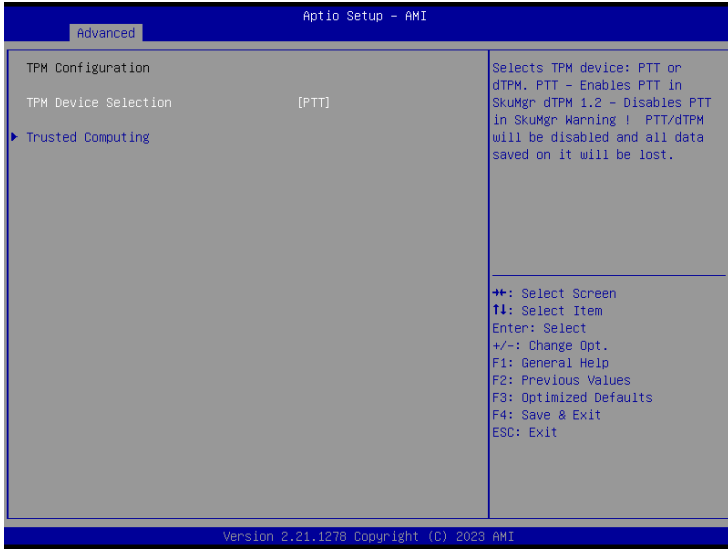
4.3 Advanced

The Advanced menu is to configure the functions of hardware settings through submenu. Use arrow keys to move among the items, and press <Enter> to access into the related submenu.



4.3.1 TPM Configuration

Use TPM Configuration submenu to choose TPM interface.



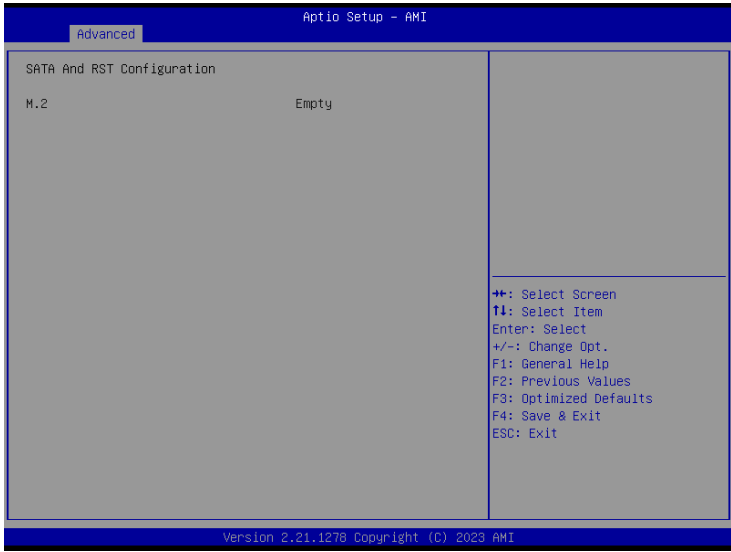
Item	Description
TPM Device Selection	PTT : Internal TPM (Default setting) dTPM : External TPM (When using External TPM module or having TPM chip on MB)

Trusted Computing : Shows TPM information, and TPM module configuration setting.



Item	Description
Security Device support	Enabled : Enables TPM feature (Default setting) Disabled : Disables TPM feature
Pending operation	None : No execution will be conducted (Default setting) TPM clear : Set to clear data on TPM

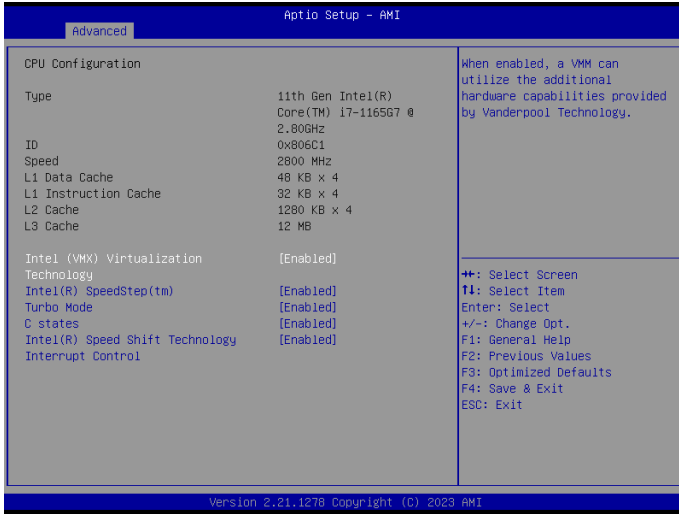
4.3.2 SATA And RST Configuration



Item	Description
M.2	shows M.2 SATA interface SSD information

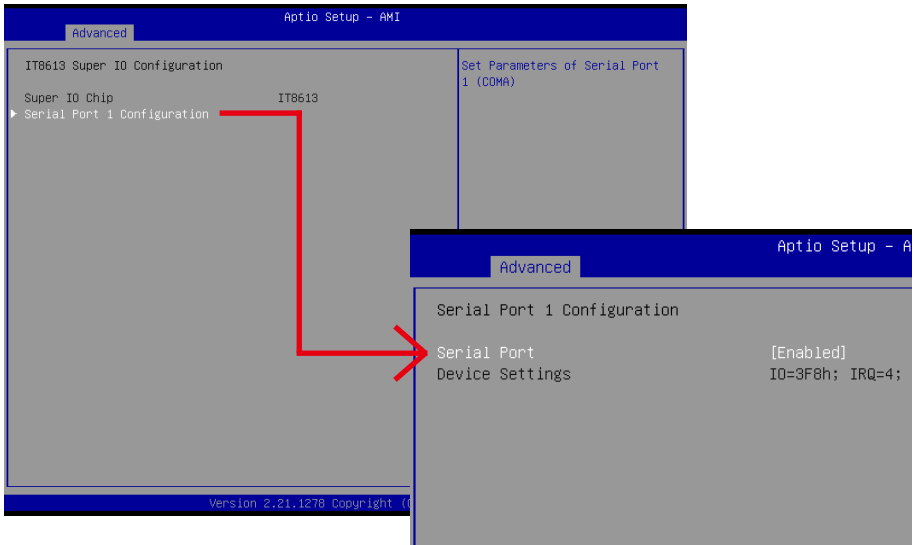
4.3.3 CPU Configuration

This submenu shows detailed CPU informations.



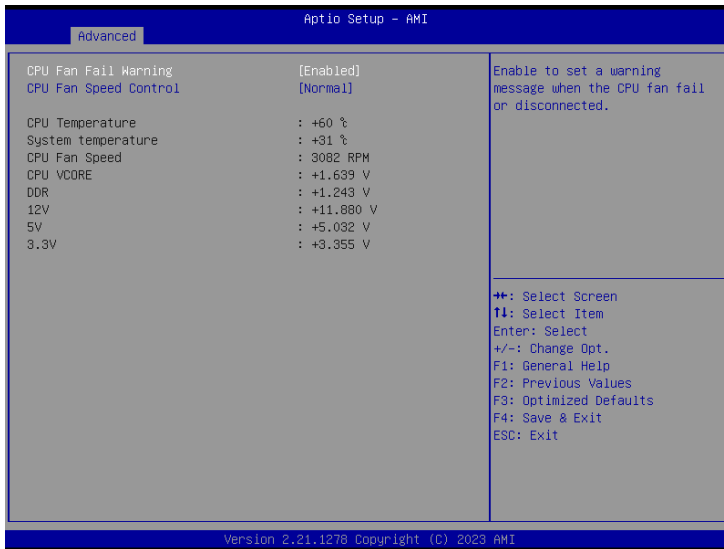
Item	Description
Intel (VMX) Virtualization Technology	Virtualization enhanced by Intel® Virtualization Technology will allow a platform to run multiple operating systems and applications in independent partitions. With virtualization, one computer system can function as multiple virtual systems. Enabled : Enables Intel Virtualization Technology (Default setting) Disabled : Disables Intel Virtualization Technology
Intel(R) SpeedStep(tm)	According to Intel CPU loading, Intel SpeedStep Technology will automatically adjust the CPU voltage and core frequency to decrease heat and power consumption for power saving. Enabled : Enables Intel SpeedStep Technology (Default setting) Disabled : Disables Intel SpeedStep Technology
Turbo Mode	Enabled : Enables Turbo Mode (Default setting) Disabled : Disables Turbo Mode
C states	Command CPU to enter into low power consumption mode when CPU is under idle mode. Enabled : Enables C states (Default setting) Disabled : Disables C states
Intel(R) Speed Shift Technology Interrupt control	To speed up CPU frequency transition time from basic frequency to maximum frequency. Enabled : Enables Intel(R) Speed Shift Technology Interrupt control (Default setting) Disabled : Disables Intel(R) Speed Shift Technology Interrupt control

4.3.4 IT8613 Super IO Configuration



Item	Description
Super IO Chip	Shows Super I/O chip model
Serial Port 1 Configuration	Press [Enter] to configure advanced items : Serial Port : Enabled : Enables allows you to configure the serial port settings Disabled : if Disabled, displays no configuration for the serial port Device settings : Display the specified Serial Port base I/O address and IRQ

4.3.5 Hardware Monitor



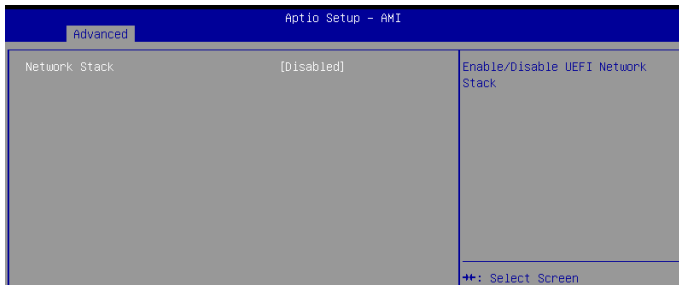
Item	Description
CPU Fan Fail Warning	Enabled : Enables CPU FAN Fail warning alert function (Default setting) Disabled : Disables CPU FAN Fail warning alert function
CPU Fan Speed Control	Normal : Fan speed set by BIOS default (Default setting) Full Speed : Set Fan operates at full speed
CPU temperature	Shows current CPU temperature
System temperature	Shows current system temperature
CPU Fan Speed	Shows current CPU fan Speed

4.3.6 S5 RTC Wake Settings

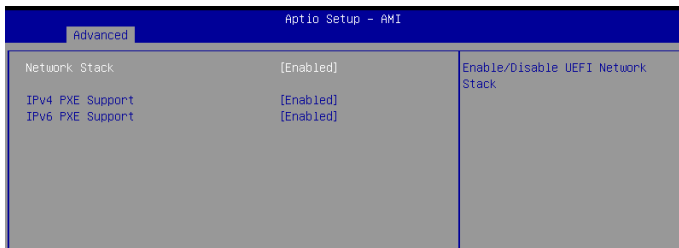


Item	Description
Wake system from S5	Enable or Disable System to wake on a specific time. Disabled : Disables system to wake on a specific time (Default setting) Fixed Time : Enables system to wake on a specific time (Format : hr : min : sec)

4.3.7 Network Stack Configuration



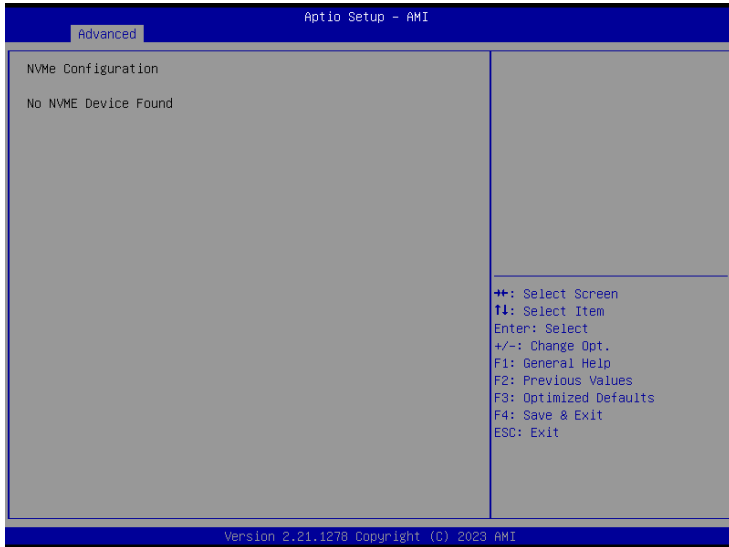
When Network stack is enabled :



Item	Description
Network Stack	When system is power on, install LAN driver under UEFI mode Disabled : Disables UEFI Network Stack (Default setting) Enabled : Enables UEFI Network Stack
IPv4 PXE Support	When Network stack is enabled : Disabled : Disables IPv4 PXE Support Enabled : Enables IPv4 PXE Support (Default setting)
IPv6 PXE Support	When Network stack is enabled : Disabled : Disables IPv6 PXE Support Enabled : Enables IPv6 PXE Support (Default setting)

4.3.8 NVMe Configuration

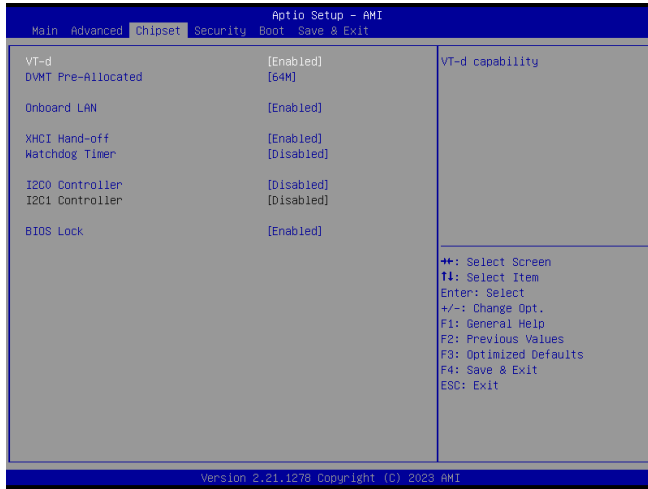
NVMe Configuration shows information when your M.2 NVMe PCIe SSD is installed.



4.3.9 Offboard SATA Controller Configuration



4.4 Chipset



Item	Description
VT-d	Enabled : Enables VT-d function (Default setting) Disabled : Disables VT-d function
DVMT Pre-Allocated	Use DVMT Pre-Allocated to set the amount of system memory which is installed to the integrated graphics processor Option items : 32M , 64M(Default setting), 128M, 256M
Onboard LAN	Enable/Disable onboard LAN controller Enabled : Enables onboard LAN controller (Default setting) Disabled : Disables onboard LAN controller
XHCI Hand-off	Enable/Disable XHCI Hand-off function Enabled : Enables XHCI Hand-off function (Default setting) Disabled : Disables XHCI Hand-off function
Watchdog Timer	Enable/Disable Watchdog Timer function Enabled : Enables Watchdog Timer function Disabled : Disabled Watchdog Timer function (Default setting)
I2C0 Controller	Enable/Disable I2C0 controller function Enabled : Enables I2C0 controller function Disabled : Disables I2C0 controller function (Default setting)
I2C1 Controller	When I2C0 Controller item is enabled : Enable/Disable I2C1 controller function Enabled : Enables I2C1 controller function Disabled : Disables I2C1 controller function (Default setting)
BIOS Lock	Enable/Disable BIOS Lock function Enabled : Enables BIOS Lock function (Default setting) Disabled : Disabled BIOS Lock function

4.5 Security



Item	Description
Administrator Password	To set up Administrator's password Minimum length : 3 Maximum length : 20
User Password	To set up User's password Minimum length : 3 Maximum length : 20
Secure Boot	Press <Enter> to configure the advanced items



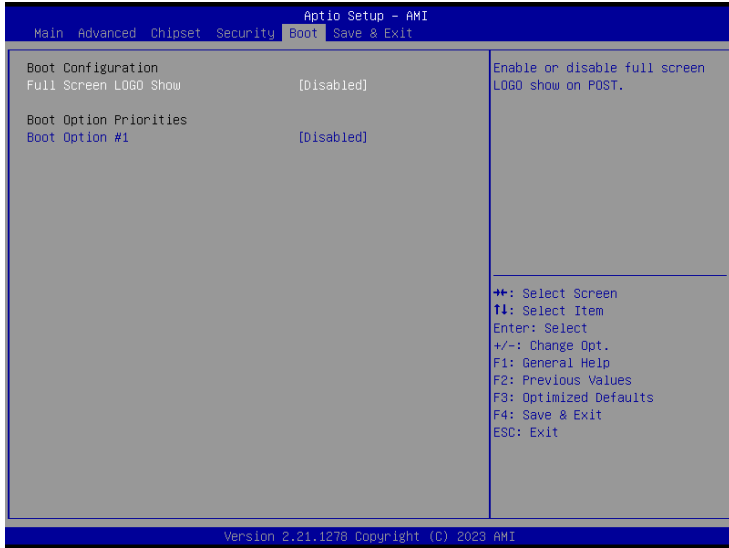
Item	Description
Secure Boot	Secure Boot requires all the applications that are running during the booting process to be pre-signed with valid digital certificates Enabled : Enables Secure Boot function Disabled : Disables Secure Boot function (Default setting)
Secure Boot Mode	Standard : Standard mode Custom : Custom mode (Default setting)
Restore Factory Keys	To restore factory settings Yes : Agree to restore factory settings No : Cancel to restore factory settings
Reset To Setup Mode	Yes : Agree to setup mode No : Cancel to setup mode
Key Management	Enables expert users to modify Secure boot policy variables without full authentication Press <Enter> to configure the advanced items



Item	Description	Item	Description
Factory Key Provision	Install factory default Secure Boot keys after the platform reset and while the system is in Setup mode Enabled : Enables Factory Key Provision (Default setting) Disabled : Disables Factory Key Provision	Platform Key (PK)	These items allows you to enroll factory defaults or load Certificates from a file.
Restore Factory Keys	To restore factory settings Yes : Agree to restore factory settings No : Cancel to restore factory settings	Key Exchange Keys	
Reset To Setup Mode	Yes : Agree to setup mode No : Cancel to setup mode	Authorized Signatures	
Export Secure Boot variables	Copy NVRAM content of Secure Boot variables to files in a root folder on a file system device	Forbidden Signatures	
Enroll Efi Image	Allow the image to run in Secure Boot mode	Authorized TimeStamps	
Remove 'UEFI CA' from DB	To remove 'UEFI CA' from database Yes : Agree to remove 'UEFI CA' from database No : Cancel to remove 'UEFI CA' from database	OsRecovery Signatures	
Restore DB defaults	Restore DB variables to factory defaults Yes : Agree to restore DB defaults No : Cancel to restore DB defaults		

4.6 Boot

This Boot menu allows you to set/change system boot options



Item	Description
Full Screen LOGO Show	Enable/Disable full screen LOGO show on POST screen Enabled : Enables Full screen LOGO Show on POST screen Disabled : Disables Full screen LOGO Show on POST screen (Default setting)
Boot Option #1	Shows the information of the storage that be installed in the system Choose/set the boot priority

4.7 Save & Exit



Item	Description
Save Changes and Reset	After configuring all the options that you wish to change, choose this option to save all the changes and reboot the system Yes : Agree to save and reset No : Cancel to save and reset
Discard Changes and Reset	Choose this option to reboot the system without saving any changes Yes : Agree to discard changes and reset No : Cancel to discard changes and reset
Restore Defaults	Restore/Load default values for all the setup options Yes : Agree to load optimized defaults No : Cancel to load optimized defaults
Me FW Image Re-Flash	Enable/Disable Me FW image re-flash function Enabled : Enables Me FW image re-flash function Disabled : Disables Me FW image re-flash function (Default setting)