



MODEL:

AURA-xxx-MTL Series

Panel PC powered by Meteor Lake processor, dual-channel DDR5 SO-DIMM (16GB pre-installed) (up to 96GB), two 2.5GbE Ethernet port, 10~28V DC input, with built-in camera, speakers, and hot keys.

User Manual



Revision



Date	Version	Changes
Sep 7, 2026	1.00	Initial release



Safety Instructions

- en** Warning! Read the user manual before connecting the system to the power source.
- de** Vorsicht! Bitte lesen Sie die Bedienungsanleitung, bevor Sie das System an eine Stromquelle anschließen.
- fr** Attention! Avant de brancher le système à la source d'alimentation, consultez le mode d'emploi.
- it** Avvertenza! Consultare il manuale utente prima di collegare il sistema all'alimentatore.
- es** Atención! Lea atentamente este manual del usuario antes de operar la fuente de alimentación.
- zh** 警告！在將系統連接到電源之前，請仔細閱讀使用手冊。
- cn** 警告！在將系統連接到電源之前，請仔細閱讀使用手冊。
-

- en** Warning! To prevent the system from overheating, do not operate it in an area that exceeds the maximum operating temperature described in the user manual.
- de** Vorsicht! Um eine Überhitzung des Systems zu vermeiden, betreiben Sie es ausschließlich im zulässigen Betriebstemperaturbereich. Dieser ist in der Bedienungsanleitung vermerkt.
- fr** Attention! Pour éviter la surchauffe du système, ne l'utilisez pas dans une zone dont la température dépasse les limites décrits dans le mode d'emploi.
- it** Avvertenza! Per evitare che il sistema si surriscaldi, non utilizzarlo in aree che superino la temperatura massima d'esercizio descritta nel manuale utente.
- es** Atención! Para evitar el excesivo calentamiento del sistema, no opere en las condiciones de temperatura superior a lo recomendado en este manual del usuario.
- zh** 警告！為防止系統過熱，不要在超過使用手冊上記載的產品工作溫度範圍之外操作此系統。
- cn** 警告！為防止系統過熱，不要在超過使用手冊上記載的產品工作溫度範圍之外操作此系統。
-

- en** Warning! Use only the adapter and power cord approved for this system. Use of another type of adapter may risk fire or explosion. Please refer to the user manual for the power adapter specifications.
- de** Vorsicht! Nur zugelassene Netzteile und Netzkabel dürfen verwendet werden. Die Benutzung von anderen Netzteilen kann einen Brand oder eine Explosion zur Folge haben. Prüfen Sie die jeweiligen Spezifikationen in der Bedienungsanleitung.
- fr** Attention! Utilisez exclusivement le câble d'alimentation et l'adaptateur homologués pour ce système. L'utilisation d'un autre type d'adaptateur risquerait de provoquer un incendie ou une explosion. Veuillez référer au mode d'emploi pour les spécifications de l'adaptateur d'alimentation.
- it** Avvertenza! Utilizzare solo l'adattatore e il cavo di alimentazione approvati per questo sistema. L'uso di un altro tipo di adattatore può causare rischio d'incendio o esplosione. Si prega di fare riferimento al manuale utente per le specifiche sull'alimentazione.
- es** Atención! Utilice solamente el adaptador de corriente alterna (CA) con Marcas Conformidad otorgadas. Cualquier otro adaptador no otorgado aumenta el riesgo de explosión o incendio. Por favor consulte el manual del usuario para las especificaciones del adaptador de alimentación.
- zh** 警告！只能使用經過認證、適用於本系統的電源變壓器與電源線。使用不適用的電源變壓器將可能導致火災或爆炸。電源變壓器規格請參考使用手冊。
- cn** 警告！只能使用经过认证，适用于本系统的电源适配器与电源线。使用不适用的电源适配器将可能导致火灾或爆炸。电源适配器规格请参考使用手册。
-

- en** Warning! Ultimate disposal of this product should be handled according to all national laws and regulations.
- de** Vorsicht! Die Entsorgung dieses Produkts sollte gemäß allen Bestimmungen und Gesetzen des Landes erfolgen.
- fr** Attention! La mise au rebut ou le recyclage de ce produit sont généralement soumis aux lois et/ou directives de respect de l'environnement. Renseignez-vous auprès de l'organisme compétent.
- it** Avvertenza! Lo smaltimento di questo prodotto deve essere eseguito secondo le leggi e i regolamenti locali.
- es** Atención! La disposición final de residuos de este producto se debe cumplir con las normativas y leyes del país.
- zh** 警告！本產品的廢棄處理應根據該國家的法律和規章進行。
- cn** 警告！本产品的废弃处理应根据该国家的法律和规章进行。
-

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Manual Conventions



WARNING

Warnings appear where overlooked details may cause damage to the equipment or result in personal injury. Warnings should be taken seriously.



CAUTION

Cautionary messages should be heeded to help reduce the chance of losing data or damaging the product.



NOTE

These messages inform the reader of essential but non-critical information. These messages should be read carefully as any directions or instructions contained therein can help avoid making mistakes.



HOT SURFACE

This symbol indicates a hot surface that should not be touched without taking care.

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Chapter

1

Introduction

1.1 Overview



Figure 1-1: AURA-xxx-MTL Series Panel PC

The AURA-xxx-MTL series is a cutting-edge line of Industrial Panel PCs designed to meet the rigorous demands of modern edge computing and human-machine interface (HMI) applications. Powered by Intel® Core™ Ultra processors (Meteor Lake), this series leverages a unique tile-based architecture with integrated NPU (Neural Processing Unit) to deliver exceptional AI-ready performance and energy efficiency.

It offers screen sizes from 12.1" to 31.5" with high-brightness LCD, wide viewing angles, and USB PCAP touch with AG coating. Powered by Intel® Core™ Ultra processors and dual-channel DDR5 memory, it features dual 2.5GbE, rich I/O, wide-voltage DC input, and IP65 front protection. Built with aluminum front and metal rear chassis, it operates in harsh temperatures, and complies with CE/FCC. Ideal for industrial automation, smart manufacturing, and field monitoring.

AURA-xxx-MTL Series

1.2 Model Variation

Model	Size	Resolution	Processor
AURA-W121-MTL-U5AD-R10	12.1	1280x800	Ultra 5 125U
AURA-W121-MTL-U7AD-R10			Ultra 7 155U
AURA-W133-MTL-U5AD-R10	13.3	1920x1080	Ultra 5 125U
AURA-W133-MTL-U7AD-R10			Ultra 7 155U
AURA-150-MTL-U5AD-R10	15	1024x768	Ultra 5 125U
AURA-150-MTL-U7AD-R10			Ultra 7 155U
AURA-W156-MTL-U5AD-R10	15.6	1920x1080	Ultra 5 125U
AURA-W156-MTL-U7AD-R10			Ultra 7 155U
AURA-170-MTL-U5AD-R10	17	1280x1024	Ultra 5 125U
AURA-170-MTL-U7AD-R10			Ultra 7 155U
AURA-W185-MTL-U5AD-R10	18.5	1920x1080	Ultra 5 125U
AURA-W185-MTL-U7AD-R10			Ultra 7 155U
AURA-190-MTL-U5AD-R10	19	1280x1024	Ultra 5 125U
AURA-190-MTL-U7AD-R10			Ultra 7 155U
AURA-W215-MTL-U5AD-R10	21.5	1920x1080	Ultra 5 125U
AURA-W215-MTL-U7AD-R10			Ultra 7 155U
AURA-W238-MTL-U5AD-R10	23.8	1920x1080	Ultra 5 125U
AURA-W238-MTL-U7AD-R10			Ultra 7 155U
AURA-W270-MTL-U5AD-R10	27	2560x1440	Ultra 5 125U
AURA-W270-MTL-U7AD-R10			Ultra 7 155U
AURA-W315-MTL-U5AD-R10	31.5	3840x2160	Ultra 5 125U
AURA-W315-MTL-U7AD-R10			Ultra 7 155U

Table 1-1: Model Variation

1.3 Features

Some of the features of the AURA-xxx-MTL Series panel PC include:

- Ultimate Performance: Intel® MTL CPU with up to 96GB DDR5 for heavy-load Edge AI tasks.
- Front-Access Interaction: Built-in Camera, Speakers, and Hot Keys (Vol/Bri/Power) for easy control after mounting. Supports gloved operation and waterproof protection.
- Pro-Grade Touch: Advanced PCAP touch optimized for precision with industrial gloves or wet hands.
- Full-Size Portfolio: From 12.1" to 31.5" with a unified aesthetic, fitting everything from HMI to dashboards.
- Industrial Ruggedness: IP65 front panel and 10V~28V DC input for stable 24/7 mission-critical operation.

1.4 Front Panel

The front side of the AURA-xxx-MTL Series (___) is a flat panel LCD touchscreen surrounded by an aluminum frame.

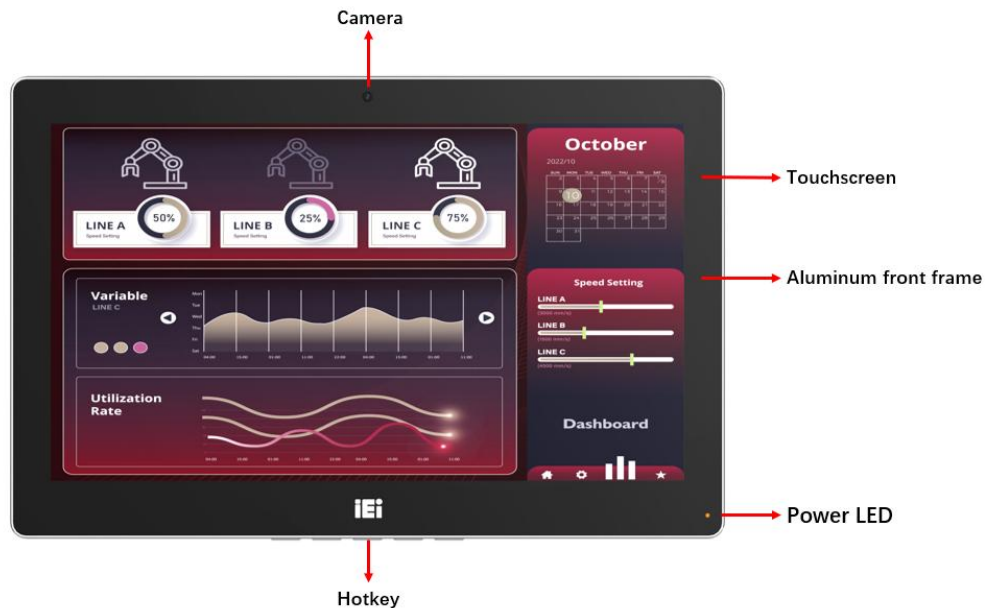


Figure 1-2: AURA-xxx-MTL Series Front View

AURA-xxx-MTL Series

1.5 Rear Panel

The rear panel provides access to retention screw holes that support VESA Mounting. See Figure 1-3.

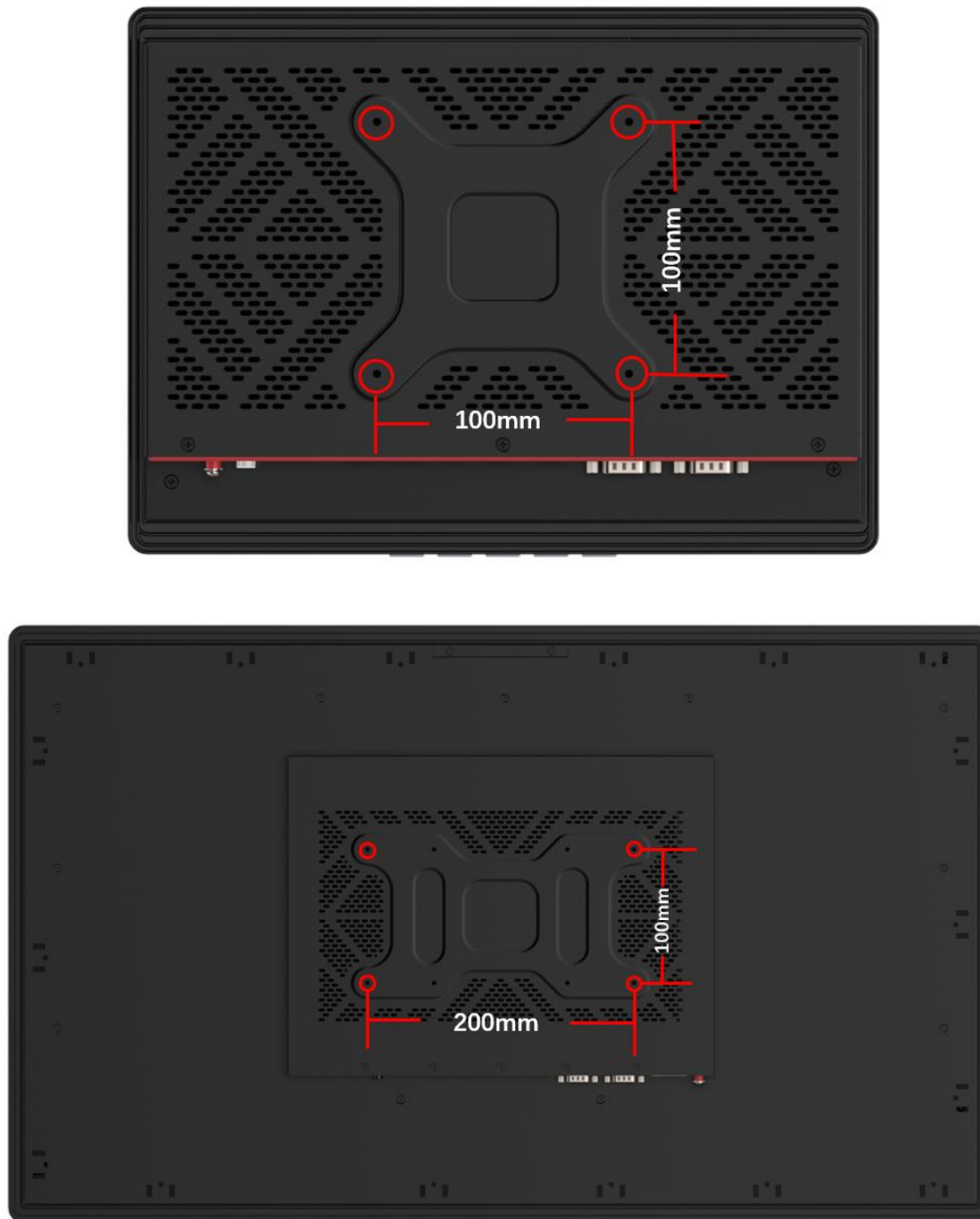


Figure 1-3: AURA-xxx-MTL Series Rear View

1.6 Bottom Panel

The bottom panel has the following interfaces:

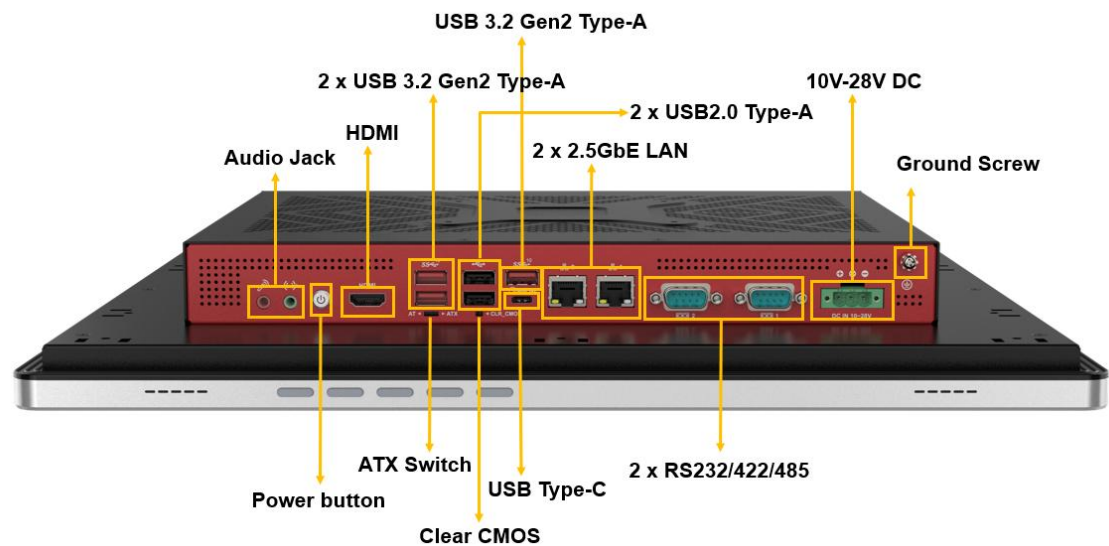


Figure 1-4: AURA-xxx-MTL Series Bottom View

AURA-xxx-MTL Series

1.7 Dimensions

1.7.1 AURA-W121-MTL Dimensions

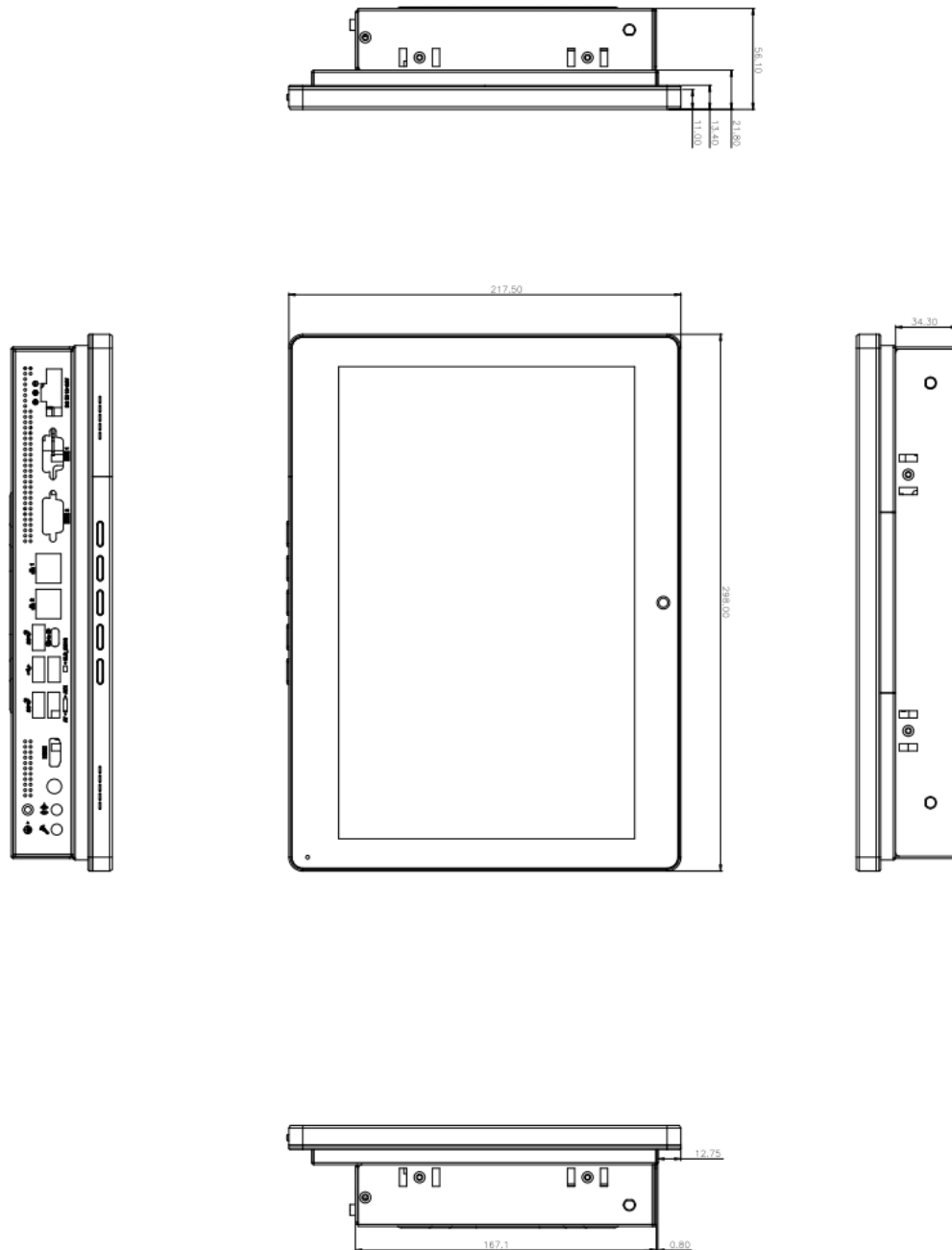


Figure 1-5: AURA-W121-MTL Dimensions (Unit: mm)



1.7.2 AURA-W133-MTL Dimensions

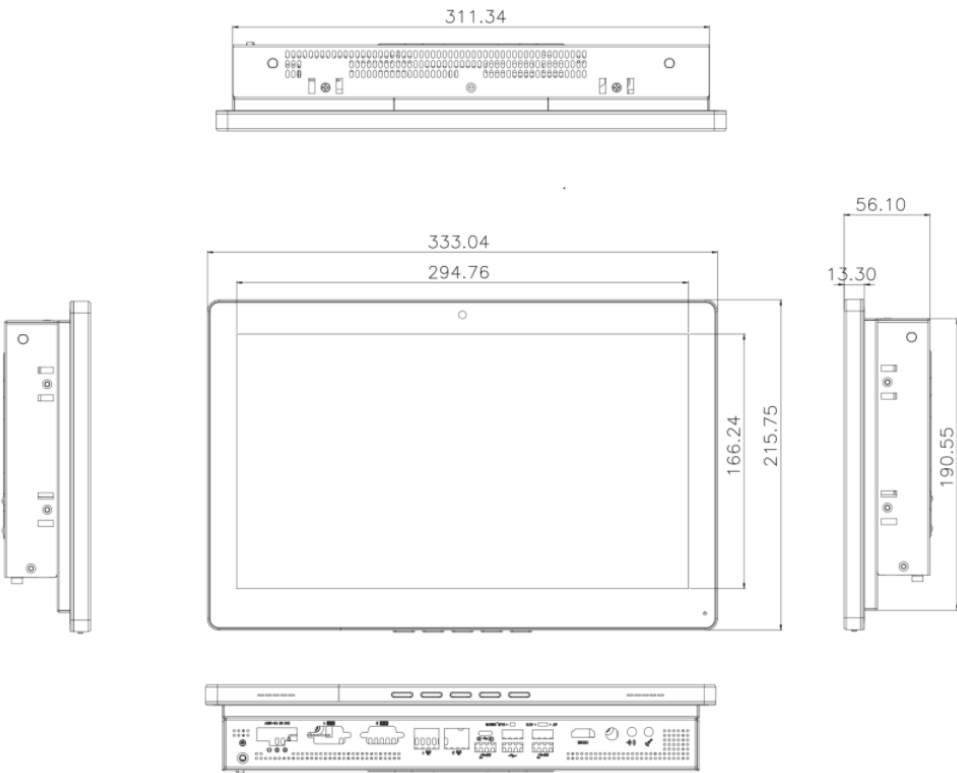


Figure 1-6: AURA-W133-MTL Dimensions (mm)



AURA-xxx-MTL Series

1.7.3 AURA-150-MTL Dimensions

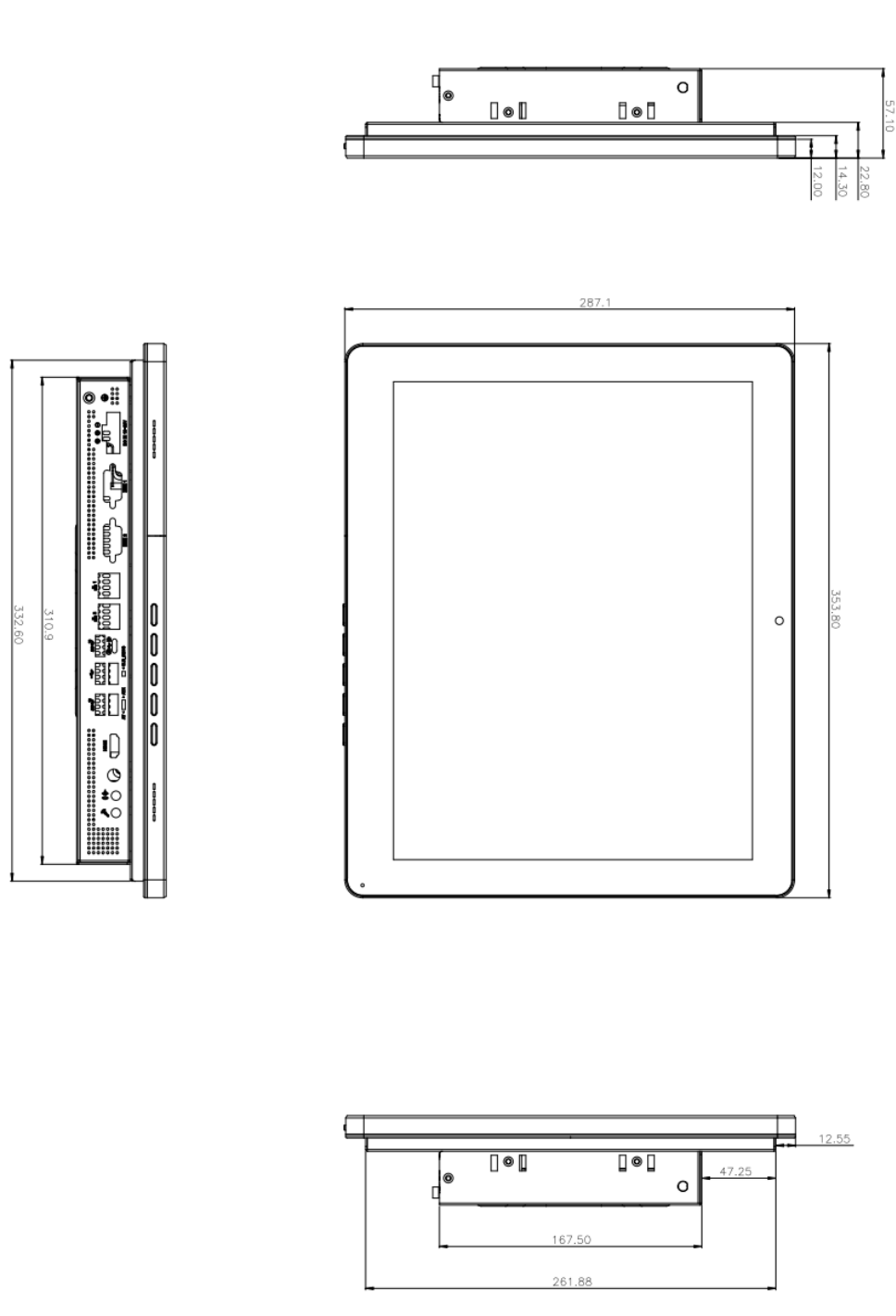


Figure 1-7: AURA-150-MTL Dimensions (mm)



1.7.4 AURA-W156-MTL Dimensions

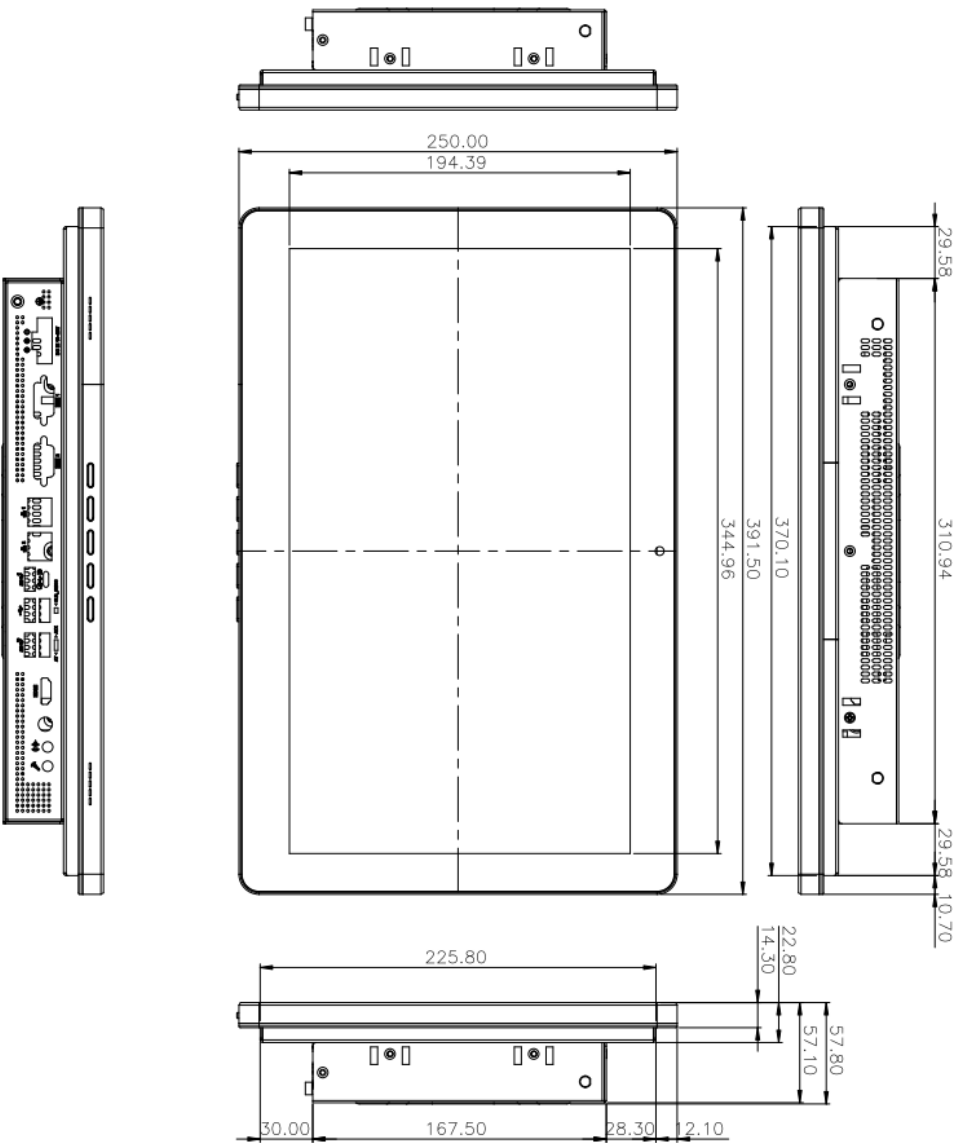


Figure 1-8: AURA-W156-MTL Dimensions (mm)

AURA-xxx-MTL Series

1.7.5 AURA-170-MTL Dimensions

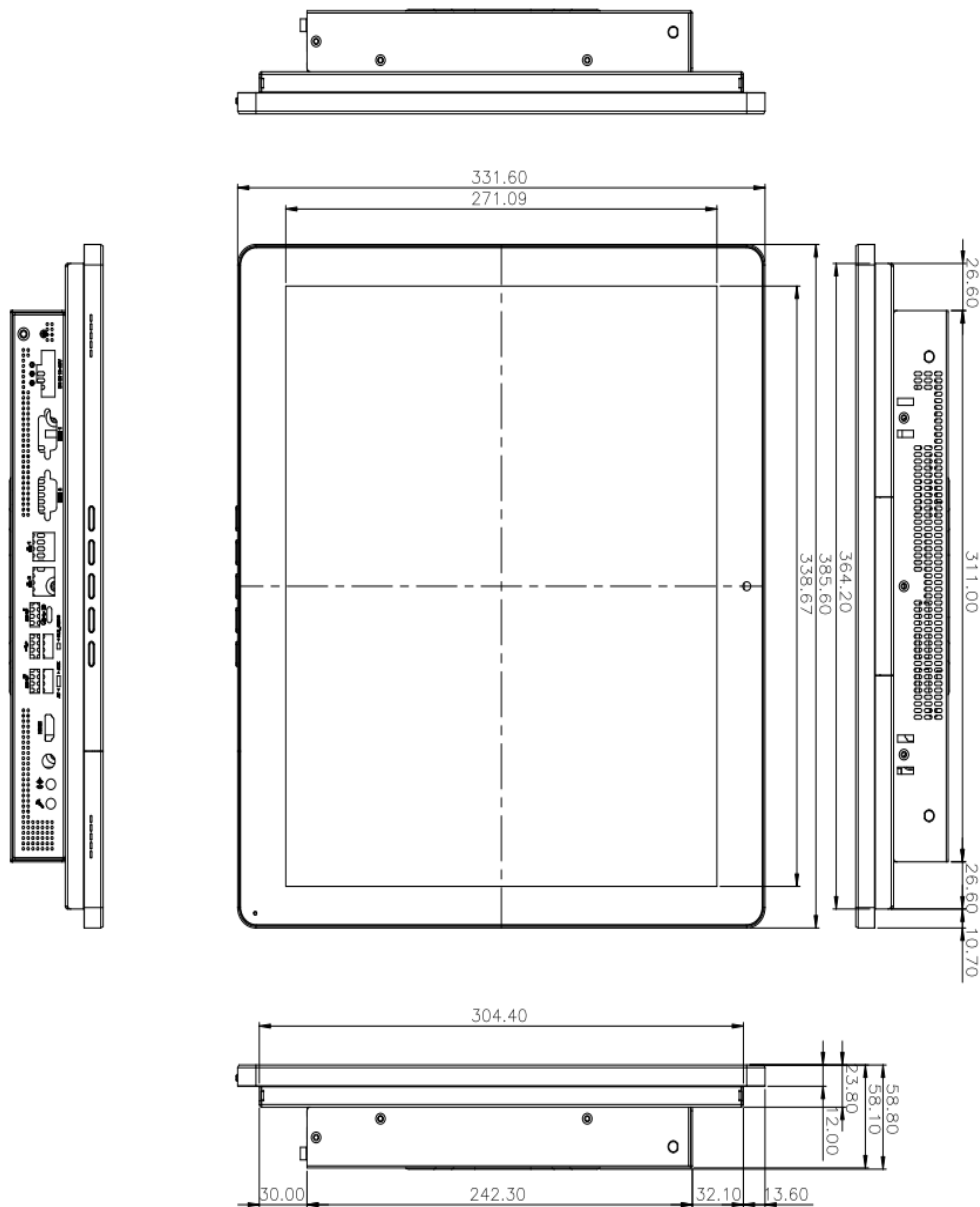


Figure 1-9: AURA-170-MTL Dimensions (mm)

1.7.6 AURA-W185-MTL Dimensions

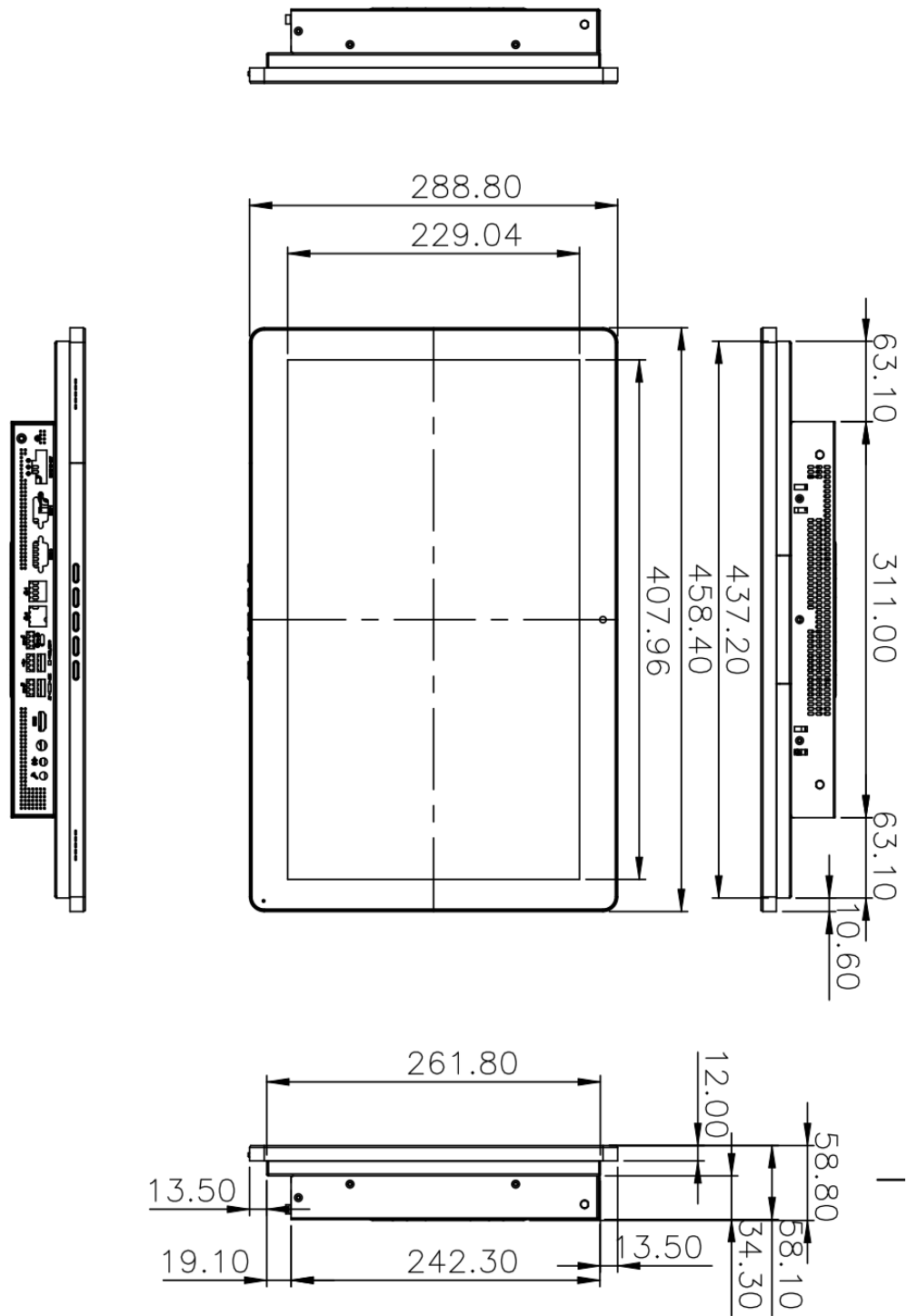


Figure 1-10: AURA-W185-MTL Dimensions (mm)

AURA-xxx-MTL Series

1.7.7 AURA-190-MTL Dimensions

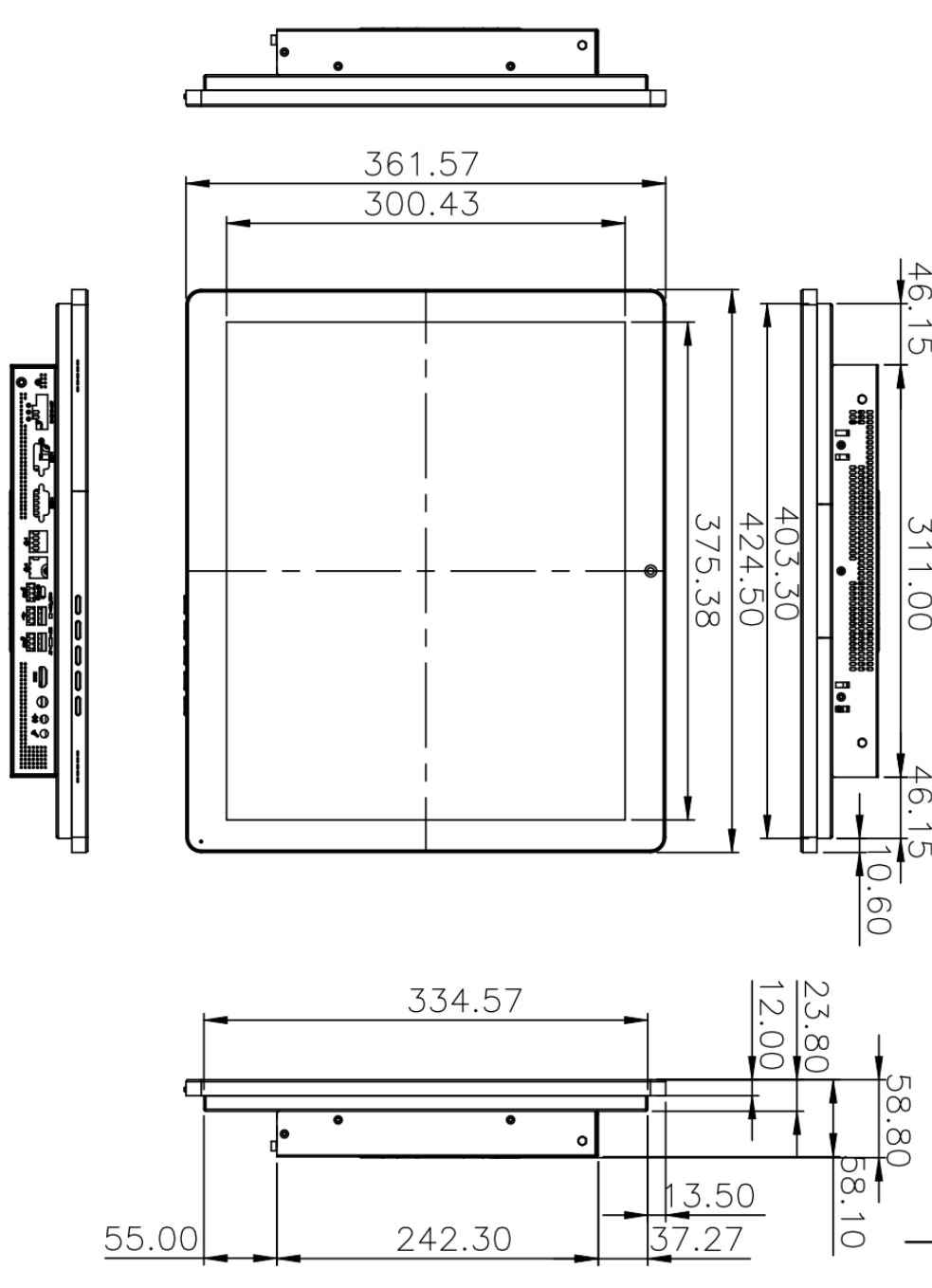


Figure 1-11: AURA-190-MTL Dimensions (mm)

1.7.8 AURA-W215-MTL Dimensions

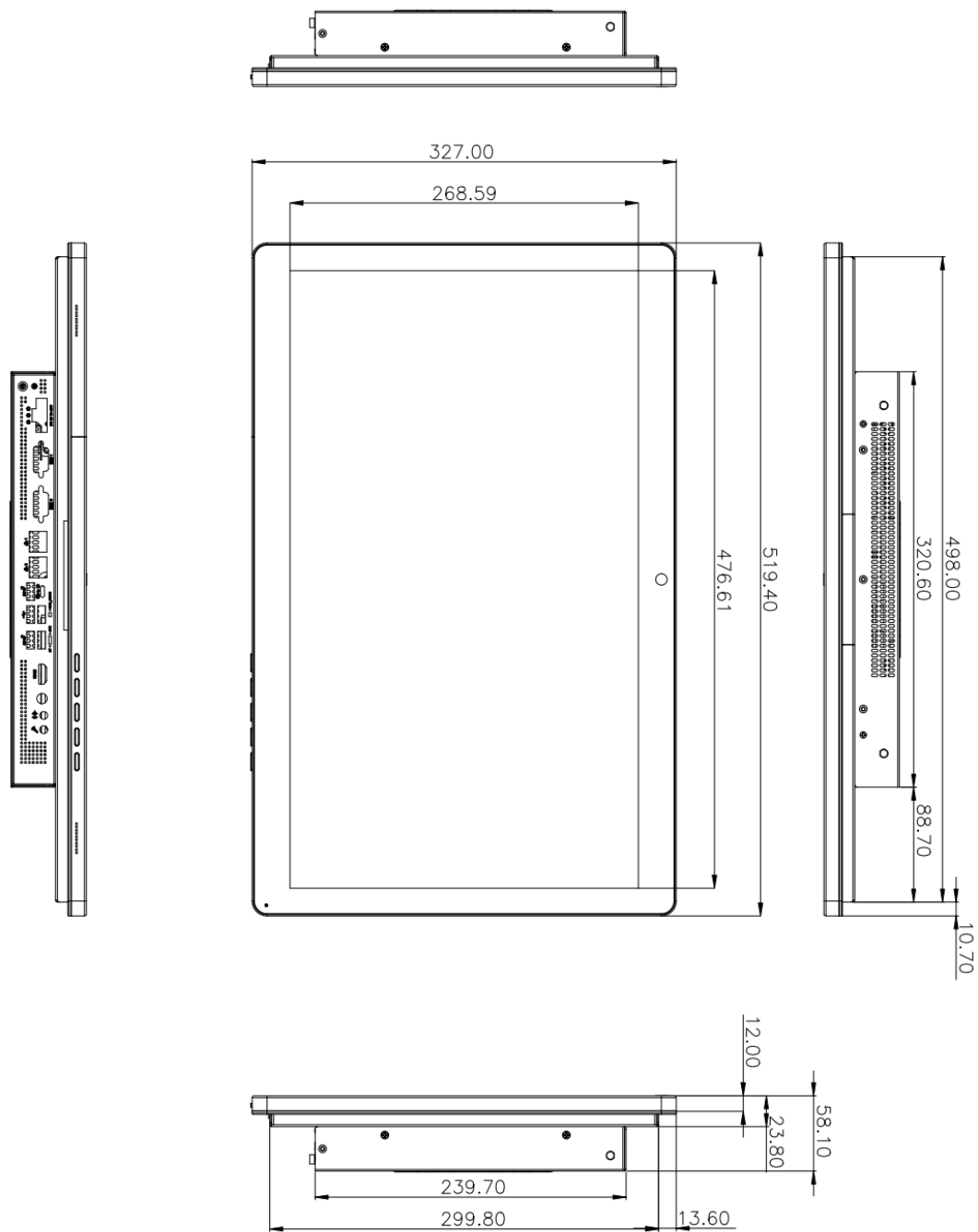


Figure 1-12: AURA-W215-MTL Dimensions (mm)

AURA-xxx-MTL Series

1.7.9 AURA-W238-MTL Dimensions

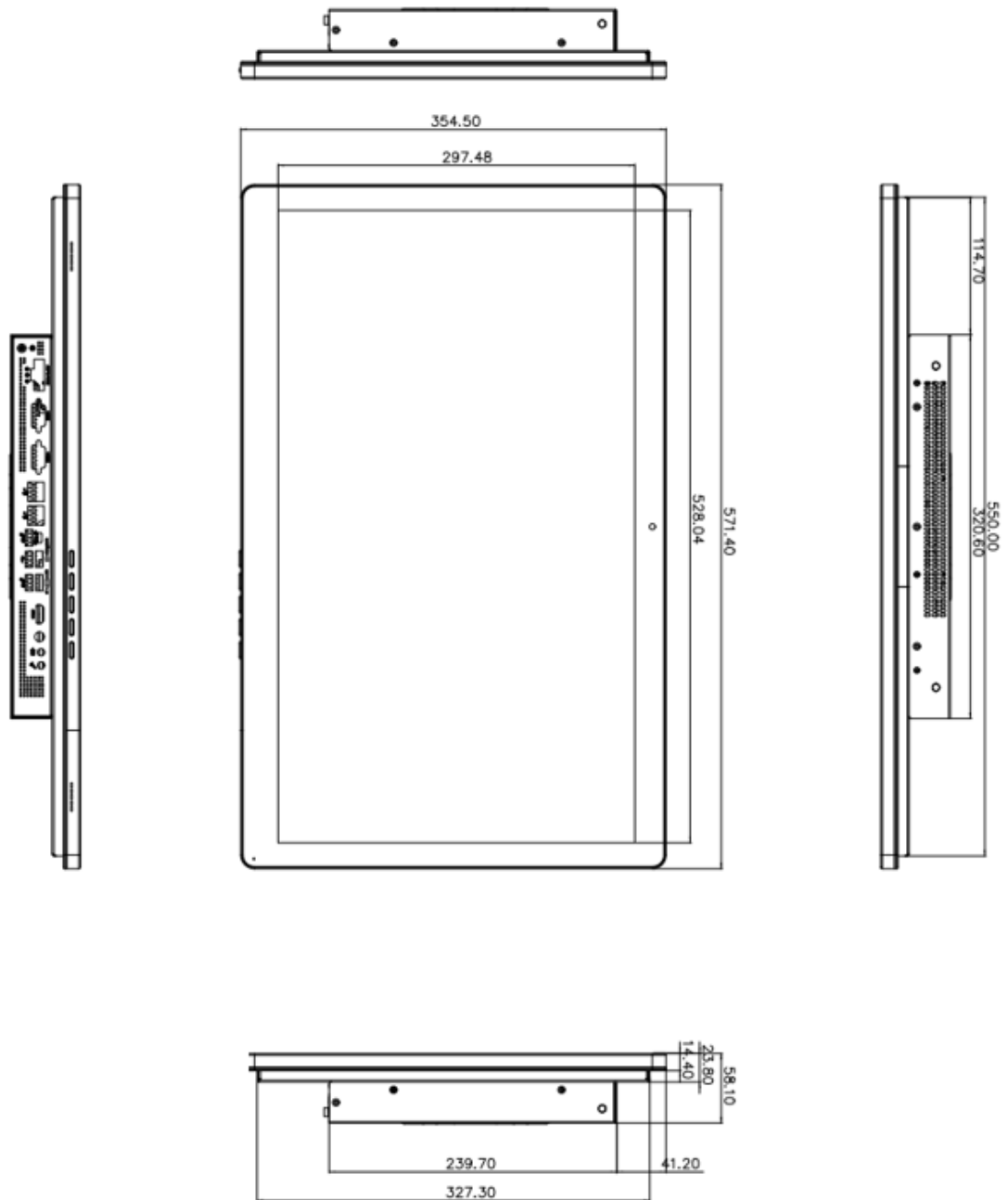


Figure 1-13: AURA-W238-MTL Dimensions (mm)

1.7.10 AURA-W270-MTL Dimensions

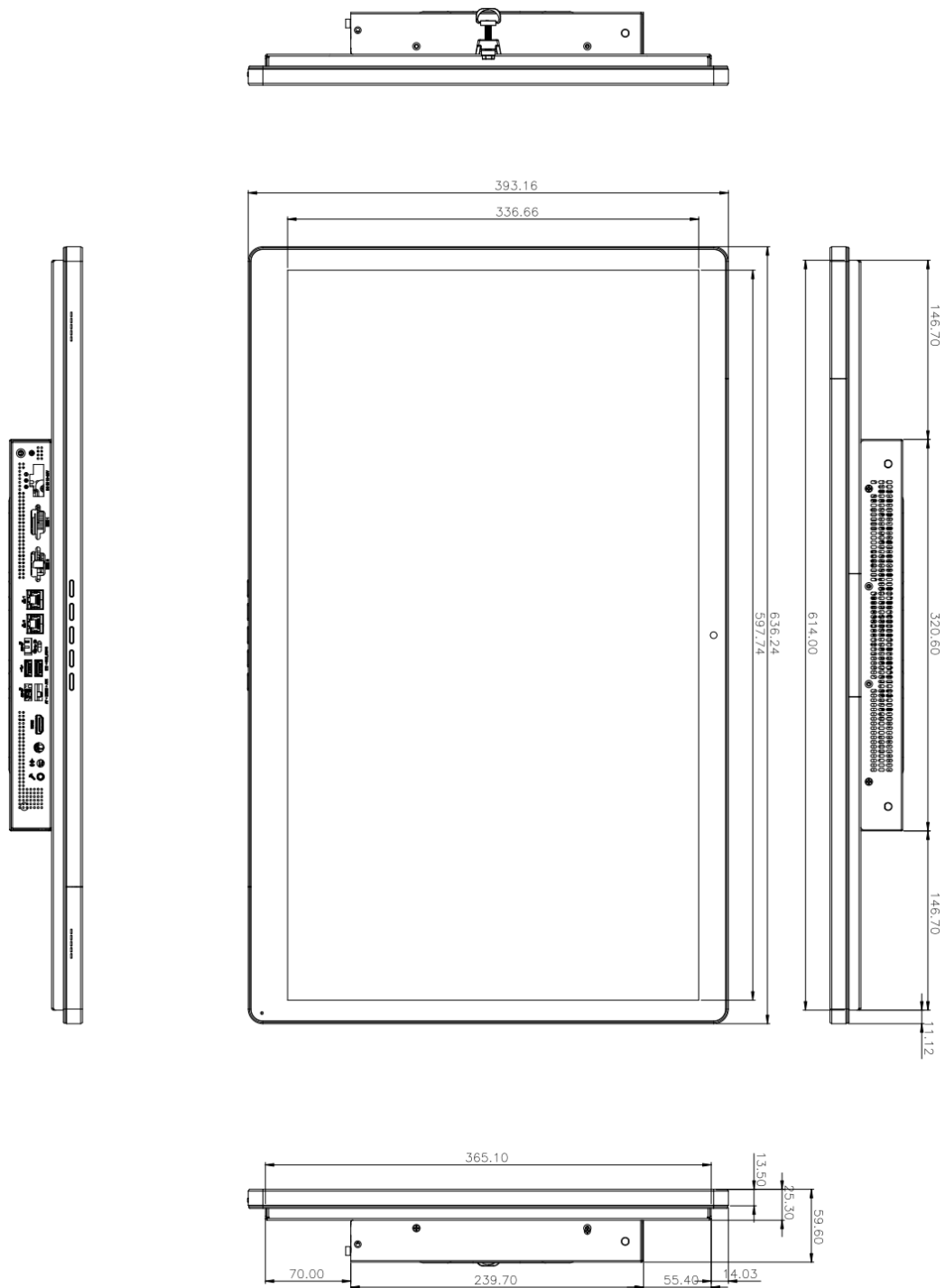


Figure 1-14: AURA-W270-MTL Dimensions (mm)

AURA-xxx-MTL Series

1.7.11 AURA-W315-MTL Dimensions

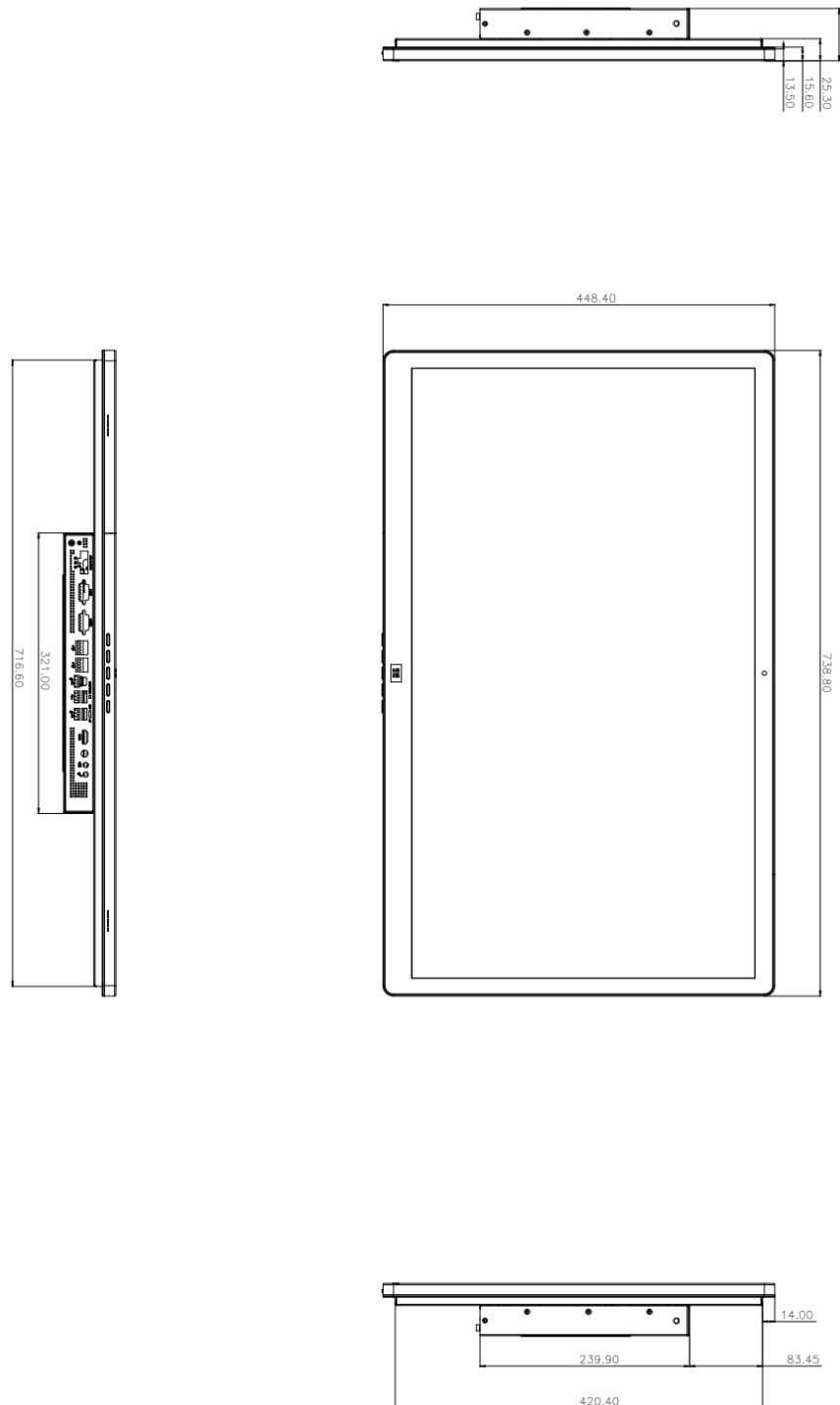


Figure 1-15: AURA-W315-MTL Dimensions (mm)



1.8 Specifications

The technical specifications are listed in **Table 1-2**、**Table 1-3**、**Table 1-4**.

	AURA-W121-MTL	AURA-W133-MTL	AURA-150-MTL	AURA-W156-MTL
LCD Display	12.1"(16:10)	13.3"(16:9)	15" (4:3)	15.6" (16:9)
Brightness	500	350	400	450
Max. Resolution	1280x800	1920x1080	1024x768	1920x1080
Contrast Ratio	1200: 1	1000:1	2500:1	800:1
LCD Color	16.7M	16.7M	16.7M	16.2M
Viewing Angle (H-V)	170°/170°	176°/176°	176°/176°	178°/178°
Backlight MTBF (hrs)	50000	30000	70000	50000
Touchscreen	PCAP with USB interface (anti-UV/AG coating)			
Touch Controller	Capacitive: ilitek			
CPU	Intel® Meteor Lake Ultra 5 processor 125U Intel® Meteor Lake Ultra 7 processor 155U			
Memory	Two 262-pin 5600 MT/s dual-channel DDR5 SO-DIMM (16GB pre-installed) (up to 96GB)			
Ethernet	LAN1: Intel® I226LM 2.5GbE controller LAN2: Intel® I226V 2.5GbE controller			
Expansion	1 x 2230 E-key (PCIe Gen3 x1/ USB2.0) 1 x 2280 M-key (PCIe Gen4 x4) 1 x 3042/3052 B-key (PCIe Gen3 x1/ USB3.2 Gen1/ USB2.0) 1 x On-board SIM card socket (hinge type) for M.2 B key			
I/O Ports and Switches	1 x HDMI 1.4 (4K@30) 1 x USB Type-C (USB3.2 Gen2 & Display port) 2 x RS232/422/485 (DB9) 3 x USB 3.2 Gen2 Type-A 2 x USB2.0 Type-A 1 x 3-pin terminal block 1 x Power button 1 x ATX Switch 1 x Clear CMOS			
Audio	1 x Mic 1 x Line-out 2 x internal 2W speaker			



AURA-xxx-MTL Series

	AURA-W121-MTL	AURA-W133-MTL	AURA-150-MTL	AURA-W156-MTL
TPM	Intel® PTT (Firmware TPM 2.0) Optional TPM module via 20-pin header (IEI TPM module P/N:TPM-IN03)			
Storage	1 x Onboard NVME (optional, MOQ required)			
Camera	720P Wide Angle Fixed Focus			
Hot Key	5 Keys (Volume +/-, Brightness +/-, Power)			
Construction Material	Aluminum front frame and sheet metal rear cover			
Mounting	Panel Mount, Rack Mount, VESA 100 x 100			
Enclosure Color	Black			
Dimensions (L x W x H) (mm)	298.00 x 217.5 x 56.10	333.04 x 215.75 x 56.10	353.80 x 287.10 x 57.10	391.5 x 250 x 57.80
Cutout Dimensions	288.60 x 195.10	314.00 x 193.50	335.60 x 264.90	373.00 x 228.00
Weight (Net/Gross)	3.2kg / 5.0kg	2.95 kg / 4.8kg	4.01kg / 6.5kg	4.07kg / 6.3kg
Operating Temperature	-20°C ~ 50°C	-20°C ~ 60°C	-20°C ~ 50°C	-20°C ~ 50°C
Storage Temperature	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 70°C
Humidity	10% to 90%@40°C (non-condensing) (50%@50°C)			
Vibration	Operation: Random Vibration Mode, MIL-STD-810H 514.8C-I (x~0.21Grms, y~0.76Grms, z~1.08Grms) Non-OP: Sine Vibration Mode, IEC-60068-2-06			
Shock	Operation: IEC68-2-27 half-sine, 5G, 1ms,100 shocks Non-OP: IEC68-2-27 half-sine, 15G,11ms,100 shocks			
IP Level	IP 65 compliant front panel			
Safety & EMC	CE/FCC			
Power Input	10~28V DC			
Power Consumption	Conditions	Ultra 5 125U with 16GB Memory, 256GB SSD, Windows 11 OS		
	Typical.	12V@2.78A	12V@3.07A	12V@2.52A
	*Max.	12V@5.70A	12V@5.98A	12V@5.44A
OS	Microsoft Windows® 10/11 IoT, Linux			

*Note: Max. Load: PassMark stress test running; System EuP disabled; 2x LAN and 2x COM active; Total 35W external I/O dummy load applied (simulating full peripheral power draw).



Table 1-2: AURA-W121/W133/W150/W156-MTL Specifications

	AURA-170-MTL	AURA-W185-MTL	AURA-190-MTL	AURA-W215-MTL
LCD Display	17" (5:4)	18.5" (16:9)	19" (5:4)	21.5" (16:9)
Brightness	350	350	450	350
Max. Resolution	1280x1024	1920x1080	1280x1024	1920x1080
Contrast Ratio	800:1	1200: 1	1000: 1	1000: 1
LCD Color	16.7M	16.7M	16.7M	16.7M
Viewing Angle (H-V)	160°/140°	170°/170°	178°/178°	178°/178°
Backlight MTBF (hrs)	50000	50000	50000	50000
Touchscreen	PCAP with USB interface (anti-UV/AG coating)			
Touch Controller	Capacitive: ilitek			
CPU	Intel® Meteor Lake Ultra 5 processor 125U Intel® Meteor Lake Ultra 7 processor 155U			
Memory	Two 262-pin 5600 MT/s dual-channel DDR5 SO-DIMM (16GB pre-installed) (up to 96GB)			
Ethernet	LAN1: Intel® I226LM 2.5GbE controller LAN2: Intel® I226V 2.5GbE controller			
Expansion	1 x 2230 E-key (PCIe Gen3 x1/ USB2.0) 1 x 2280 M-key (PCIe Gen4 x4) 1 x 3042/3052 B-key (PCIe Gen3 x1/ USB3.2 Gen1/ USB2.0) 1 x On-board SIM card socket (hinge type) for M.2 B key			
I/O Ports and Switches	1 x HDMI 1.4 (4K@30) 1 x USB Type-C (USB3.2 Gen2 & Display port) 2 x RS232/422/485 (DB9) 3 x USB 3.2 Gen2 Type-A 2 x USB2.0 Type-A 1 x 3-pin terminal block 1 x Power button 1 x ATX Switch 1 x clear CMOS			
Audio	1 x Mic 1 x Line-out 2 x internal 2W speaker			
Storage	1 x 2.5" SATA 6Gb/s SSD bay 1 x Onboard NVMe (optional, MOQ required)			



AURA-xxx-MTL Series

	AURA-170-MTL	AURA-W185-MTL	AURA-190-MTL	AURA-W215-MTL	
TPM	Intel® PTT (Firmware TPM 2.0) Optional TPM module via 20-pin header (IEI TPM module P/N:TPM-IN03)				
Camera	720P Wide Angle Fixed Focus				
Hot Key	5 Keys (Volume +/-, Brightness +/-, Power)				
Construction Material	Aluminum front frame and sheet metal rear cover				
Mounting	Panel Mount, Rack Mount, VESA 100 x 100			Panel Mount, VESA 100 x 100	
Enclosure Color	Black				
Dimensions (L x W x H) (mm)	385.60 x 331.60 x 58.80	458.40 x 288.80 x 58.80	424.50 x 361.57 x 58.80	519.40 x 327 x 58.10	
Cutout Dimensions	367.00 x 307.00	440.00 x 264.00	406.00 x 337.00	501.00 x 302.00	
Weight (Net/Gross)	5.24kg / 7.8kg	5.56 kg / 7.9kg	5.85 kg / 8.8kg	6.53kg / 9.2kg	
Operating Temperature	-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C	0°C ~ 50°C	
Storage Temperature	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 70°C	-20°C ~ 60°C	
Humidity	10% to 90%@40°C (non-condensing) (50%@50°C)				
Vibration	Operation: Random Vibration Mode, MIL-STD-810H 514.8C-I (x~0.21Grms, y~0.76Grms, z~1.08Grms) Non-OP: Sine Vibration Mode, IEC-60068-2-06				
Shock	Operation: IEC68-2-27 half-sine, 5G, 11ms,100 shocks Non-OP: IEC68-2-27 half-sine, 15G,11ms,100 shocks	Operation: IEC68-2-27 half-sine, 5 G,11ms,100 shocks Non-OP: IEC68-2-27 half-sine 10 G,11ms,100 shocks	Operation: IEC68-2-27 half-sine, 5G, 11ms,100 shocks Non-OP: IEC68-2-27 half-sine, 15G,11ms,100 shocks		
IP Level	IP 65 compliant front panel				
Safety & EMC	CE/FCC				
Power Input	10~28V DC				
Power	Conditions	Ultra 5 125U with 16GB Memory, 256GB SSD, Windows 11 OS			
Consu	Typical.	12V@3.94A	12V@4.27A	12@3.58A	12V@3.97A
mption	*Max.	12V@6.85A	12V@7.19A	12@6.50A	12V@6.88A
OS	Microsoft Windows® 10/11 IoT, Linux				

*Note: Max. Load: PassMark stress test running; System EuP disabled; 2x LAN and 2x COM active; Total 35W external I/O dummy load applied (simulating full peripheral power draw).

Table 1-3: AURA-170/W185/190/W215-MTL Specifications



AURA-xxx-MTL Series

	AURA-W238-MTL	AURA-W270-MTL	AURA-W315-MTL
LCD Display	23.8" (16:9)	27.0"(16:9)	31.5"(16:9)
Brightness	350	350	350
Max. Resolution	1920x1080	2560x1440	3840x2160
Contrast Ratio	1000: 1	1000: 1	1000: 1
LCD Color	16.7M	16.7M	1.07B
Viewing Angle (H-V)	178°/178°	178°/178°	178°/178°
Backlight MTBF (hrs)	30000	30000	30000
Touchscreen	PCAP with USB interface (anti-UV/AG coating)		
Touch Controller	Capacitive: ilitek		
CPU	Intel® Meteor Lake Ultra 5 processor 125U Intel® Meteor Lake Ultra 7 processor 155U		
Memory	Two 262-pin 5600 MT/s dual-channel DDR5 SO-DIMM (16GB pre-installed) (up to 96GB)		
Ethernet	LAN1: Intel® I226LM 2.5GbE controller LAN2: Intel® I226V 2.5GbE controller		
Expansion	1 x 2230 E-key (PCIe Gen3 x1/ USB2.0) 1 x 2280 M-key (PCIe Gen4 x4) 1 x 3042/3052 B-key (PCIe Gen3 x1/ USB3.2 Gen1/ USB2.0) 1 x On-board SIM card socket (hinge type) for M.2 B key		
I/O Ports and Switches	1 x HDMI 1.4 (4K@30) 1 x USB Type-C (USB3.2 Gen2 & Display port) 2 x RS232/422/485 (DB9) 3 x USB 3.2 Gen2 Type-A 2 x USB2.0 Type-A 1 x 3-pin terminal block 1 x Power button 1 x ATX Switch 1 x clear CMOS		
Audio	1 x Mic 1 x Line-out 2 x internal 2W speaker		
Storage	1 x 2.5" SATA 6Gb/s SSD bay 1 x Onboard NVMe (optional)		



AURA-xxx-MTL Series

		AURA-W238-MTL	AURA-W270-MTL	AURA-W315-MTL
TPM		Intel® PTT (Firmware TPM 2.0) Optional TPM module via 20-pin header (IEI TPM module P/N:TPM-IN03)		
Camera		720P Wide Angle Fixed Focus		
Hot Key		5 Keys (Volume +/-, Brightness +/-, Power)		
Construction Material		Aluminum front frame and sheet metal rear cover		
Mounting		Panel Mount, VESA 100 x 100	Panel Mount, VESA 100 x 200	
Enclosure Color		Black		
Dimensions (L x W x H) (mm)		571.40 x 354.50 x 58.10	636.24 x 393.16 x 59.60	738.80 x 448.40 x 59.90
Cutout Dimensions		553.00 x 330.00	617.00 x 368.00	720.00 x 423.40
Weight (Net/Gross)		7.49kg / 10.6kg	10.18kg / 14.3kg	13.12kg / 17.8kg
Operating Temperature		0°C ~ 50°C	0°C ~ 50°C	0°C ~ 50°C
Storage Temperature		-20°C ~ 60°C	-20°C ~ 60°C	-20°C ~ 60°C
Humidity		10% to 90%@40°C (non-condensing) (50%@50°C)		
Vibration		Operation: Random Vibration Mode, MIL-STD-810H 514.8C-I (x~0.21Grms, y~0.76Grms, z~1.08Grms) Non-OP: Sine Vibration Mode, IEC-60068-2-06		
Shock		Operation: IEC68-2-27 half-sine, 5G, 1ms,100 shocks Non-OP: IEC68-2-27 half-sine, 15G,11ms,100 shocks		
IP Level		IP 65 compliant front panel		
Safety & EMC		CE/FCC		
Power Input		10~28V DC		
Power Consumption	Conditions	Ultra 5 125U with 16GB Memory, 256GB SSD, Windows 11 OS		
	Typical.	12V@4.06A	12V@4.42A	12V@3.88A
	*Max.	12V@6.97A	12V@7.28A	12V@6.80A
OS		Microsoft Windows® 10/11 IoT, Linux		

*Note: Max. Load: PassMark stress test running; System EuP disabled; 2x LAN and 2x COM active; Total 35W external I/O dummy load applied (simulating full peripheral power draw).

Table 1-4: AURA-W238/W270/W315-MTL Specifications



Chapter

2

Unpacking



AURA-xxx-MTL Series

2.1 Unpacking

To unpack the panel PC, follow the steps below:

Notes:

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the panel PC has been properly installed. This ensures the screen is protected during the installation process.

- Step 1:** Use a box cutter, a knife, or a sharp pair of scissors to cut the tape sealing the top side of the external (second) box.
- Step 2:** Open the external (second) box.
- Step 3:** Use a box cutter, a knife, or a sharp pair of scissors to cut the tape sealing the top side of the internal (first) box.
- Step 4:** Lift the panel pc out of the boxes.
- Step 5:** Remove both polystyrene ends, one from each side.
- Step 6:** Pull the plastic cover off the panel PC.
- Step 7:** Make sure all the components listed in the packing list are present.

2.2 Packing List

The AURA-xxx-MTL Series panel PC are shipped with the following components:

Quantity	Item	Image
1	AURA-xxx-MTL Series panel PC	
1	Terminal block plugs	
1	Screw kit	
1	Panel Mount Kit	
1	SATA Cable & SATA install screws (Only for the Skus: 170/190/W185/W215/W238/W270/W315) (P/N: 32801-010500-100-HF)	 

Table 2-1: Packing List

If any of the above items are missing or damaged, contact the distributor or sales representative immediately.

AURA-xxx-MTL Series

2.3 Optional Items

The following items are optional accessories for the AURA-xxx-MTL Series:

Item	Part No	Description	Image
Stand	STAND-C19-R10	VESA 100x100mm, 75x75mm Monitor Stand, support up to 15kg, Black color, For 12"~23.8"	
Wall MOUNT	AFLWK-19B	VESA 100x100mm Monitor Wall Mount Kit with Retention Screw, Silver color, For 12"~23.8"	
Power Adapter	63040-010120-300-RS*	Adapter Power;FSP120-AHAN3;9NA1206708;Active PFC;Vin:90~264VAC;120W;Dim:75.6*151.3*25.4mm;Plug=6.5mm;Cable=1500mm;Erp(NO LOAD 0.15W);Vout:12VDC;Din 4Pin/lock	
Power Cord	32702-003600-100-RS	European Standard (VDE),(A)PLUG:LT-322(16A 250V);(B)CONNECTOR:LT-501(10A 250V), 1m	
DC Power Cable	32102-070400-100-RS	Power Adapter Cable, Power DIN 4-Pin (F) to 3-Pin Terminal Block, 200mm	
WIFI Module	EMB-WIFI-KIT02I3-R10	2T2R M.2 wifi module kit for embedded system, IEEE802.11a/b/g/n/ac/ax, 1 x M.2 AE Key Wireless LAN & Bluetooth 5.2;Intel;AX210.NGWW Module, 2 x RF cable, 2 x Antenna; RoHs	
M.2 SSD Heatsink	M2-SSD-HS-01	M.2 2280 SSD Heatsink, Rated for 3 W heat dissipation	



Item	Part No	Description	Image
TPM Module	TPM-IN03-R10	20-pin Infineon SPI TPM2.0 module, software management tool	
Case Open Cable	19800-032500-100-RS	Chassis Open Cable	

*The power adapter needs to be used with the 32102-070400-100-RS DC Power Conversion Cable

Table 2-2: Optional Items



Chapter

3

Installation

3.1 Anti-static Precautions

**WARNING:**

Failure to take ESD precautions during the maintenance of the panel PC may result in permanent damage to the panel PC and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AURA-xxx-MTL Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AURA-xxx-MTL Series is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** Before handling the board, touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring the AURA-xxx-MTL Series, place it on an anti-static pad. This reduces the possibility of ESD damaging the AURA-xxx-MTL Series.
- ***Only handle the edges of the PCB:*** When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

When installing the panel PC, please follow the precautions listed below:

- **Power turned off:** When installing the panel PC, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers:** Only certified engineers should install and modify onboard functionalities.

AURA-xxx-MTL Series

- **Mounting:** The AURA-xxx-MTL Series is a heavy device. When mounting the system onto a rack, panel, wall or arm, please make sure that at least two people are assisting with the procedure.
- **ESD Protection:** If a user opens the rear panel of the panel PC, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear an anti-static wristband.

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the panel PC.

Step 2: Install a storage module.

Step 3: Mount the panel PC.

Step 4: Connect peripheral devices to the panel PC.

Step 5: Configure the system.

3.4 Removing the Back Cover

To access the AURA-xxx-MTL Series internally the back cover must be removed. To remove the back cover, please follow the steps below.



WARNING:

Before any internal installation procedures are carried out on the system, make sure the system is turned off and cooled down for 15 minutes. Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Step 1: Remove the retention screws from the back cover (**Figure 3-1**).



Figure 3-1: AURA-xxx-MTL Series Back Cover Retention Screws

AURA-xxx-MTL Series

Step 2: Slide the back cover in the direction of the arrow, and then lift the back cover off the chassis. See **Figure 3-2**.



Figure 3-2: Remove the Back Cover

3.5 M.2 Module Installation

To install an M.2 card into the AURA-xxx-MTL Series Panel PC, please follow the steps below.

Step 1: Remove the back cover. See **Section 3.4** above.

Step 2: Locate the M.2 card slot. Remove the preinstalled retention screw on the standoff of the M.2 card slot as shown in **Figure 3-3**.

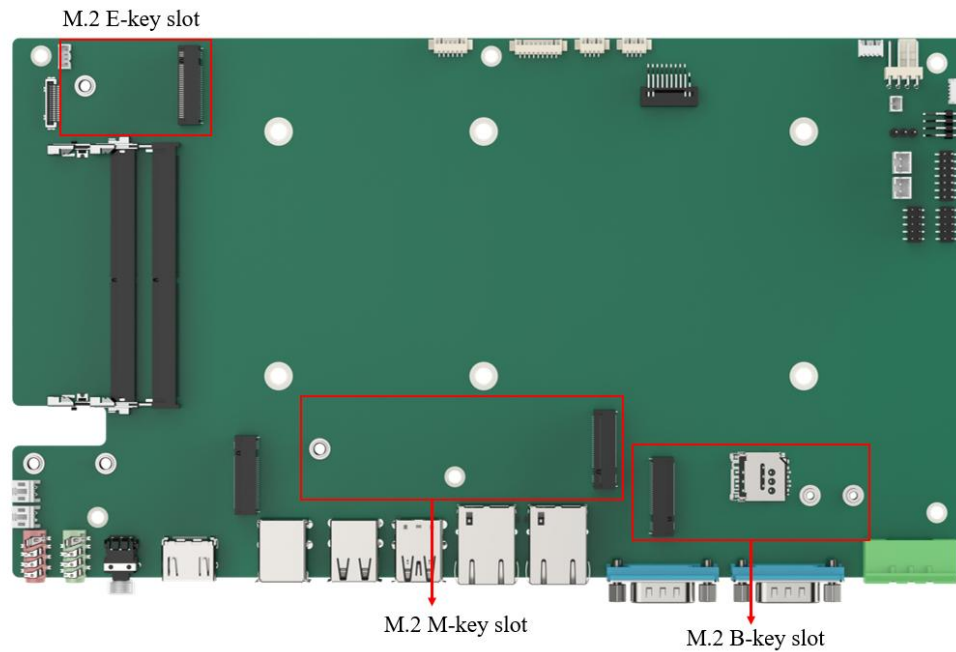


Figure 3-3: M.2 Slot Location

- Step 3:** Line up the notch on the M.2 module with the notch on the connector. Slide the M.2 module into the socket at an angle of about 20°.
- Step 4:** Secure the M.2 module with the retention screw. Push the other end of the M.2 module down and secure the module with the previously removed retention screw. **(Figure 3-4)**

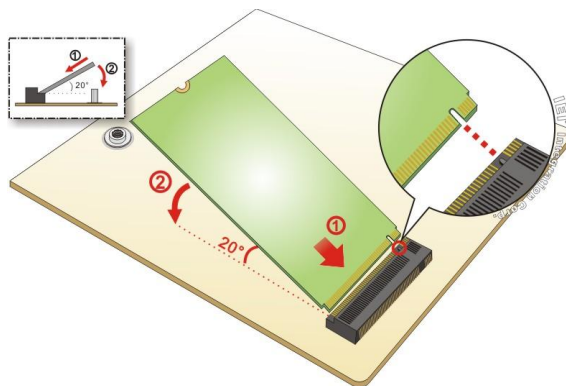


Figure 3-4: M.2 Module Installation

- Step 5:** Close the back cover and secure it using retention screws.

AURA-xxx-MTL Series**3.6 SIM Module Installation**

The SIM card slot allows installation of the SIM card based on M.2 B-key signals. To install a SIM card, please follow the steps below.

Step 1: Slide the upper cover to the release position according to the direction of the unlocking symbol (See Figure 3-5).

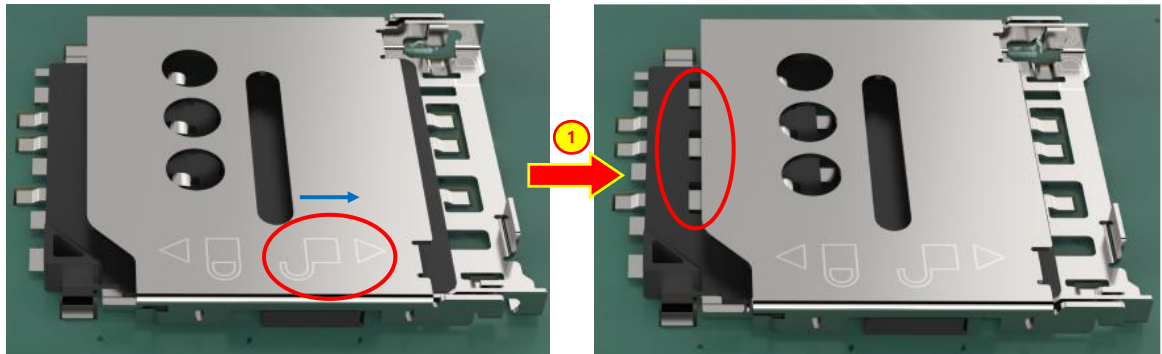


Figure 3-5: Slide the Upper Cover to the Release Position

Step 2: Open the upper cover of the SIM slot, and orient the SIM card to align with the notch of the SIM slot (See Figure 3-6).

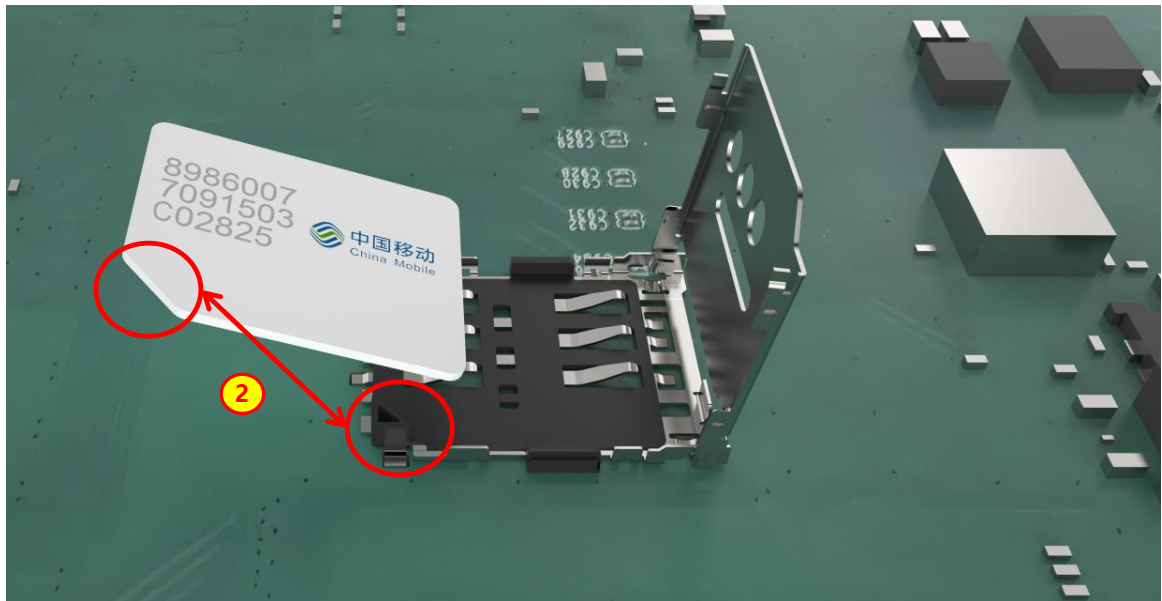


Figure 3-6: Open the Upper Cover of the SIM Slot

Step 3: Place the SIM card onto the SIM card slot, then close the upper cover of the SIM card slot (See Figure 3-7).

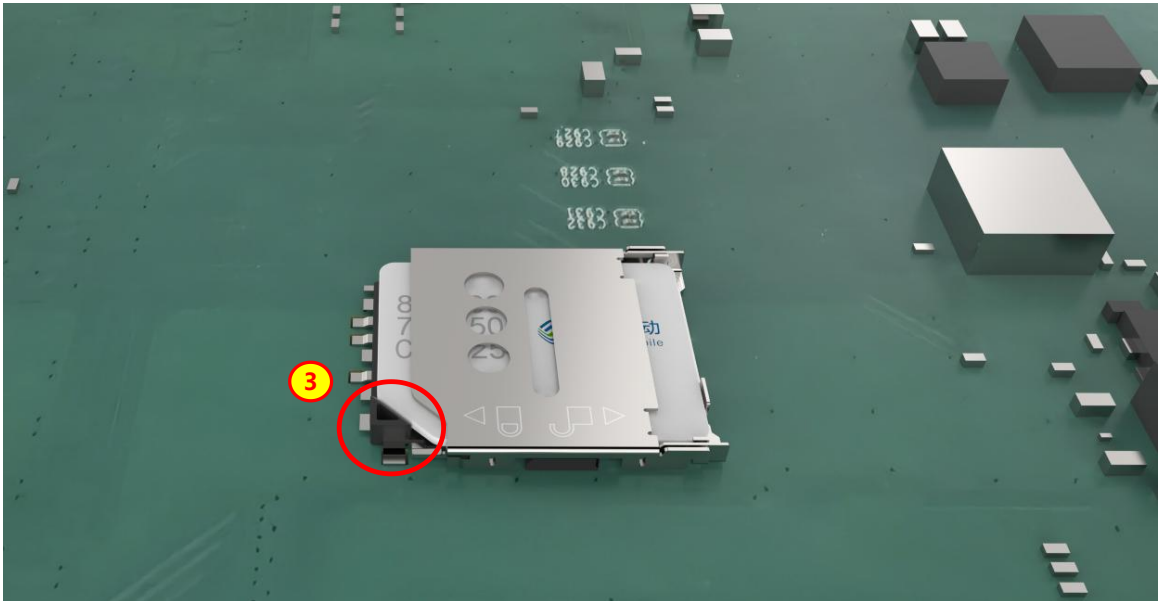


Figure 3-7: Install the SIM Card and Close the Upper Cover

Step 4: Slide the upper cover to the lock position according to the direction of the locking symbol (See Figure 3-8).

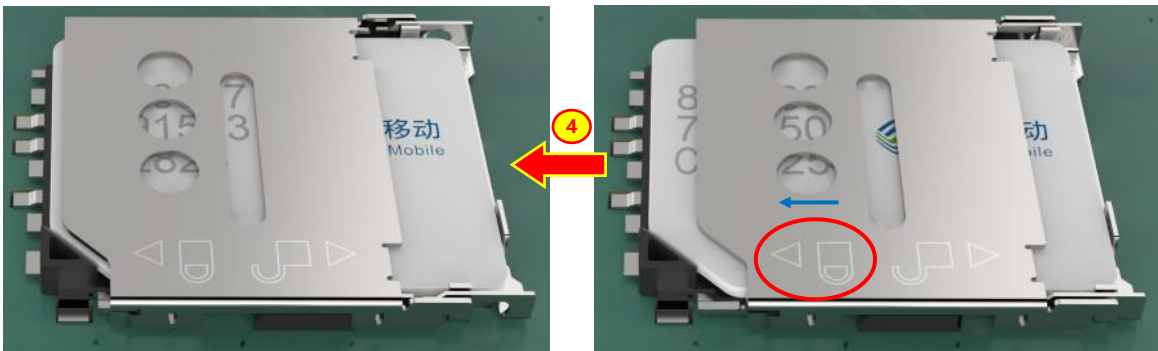


Figure 3-8: Slide the Upper Cover to the Locking Position

AURA-xxx-MTL Series

3.7 2.5' SSD Installation

To install an SSD into the AURA-xxx-MTL Series Panel PC, please follow the steps below.

Step 1: Remove the back cover. See **Section 3.4** above.

Step 2: Locate the Hard disk bracket. Remove the preinstalled retention screw on the hard drive bracket as shown in **Figure 3-9**.



Figure 3-9: Remove the screws from the hard drive bracket

Step 3: Fasten the SSD and the hard drive bracket with screws.

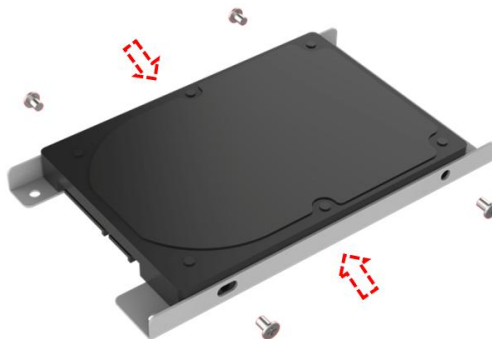


Figure 3-10: Hard disk locking

Step 4: Fasten the hard drive securely to its pre-installed position on the original hard drive bracket using screws.

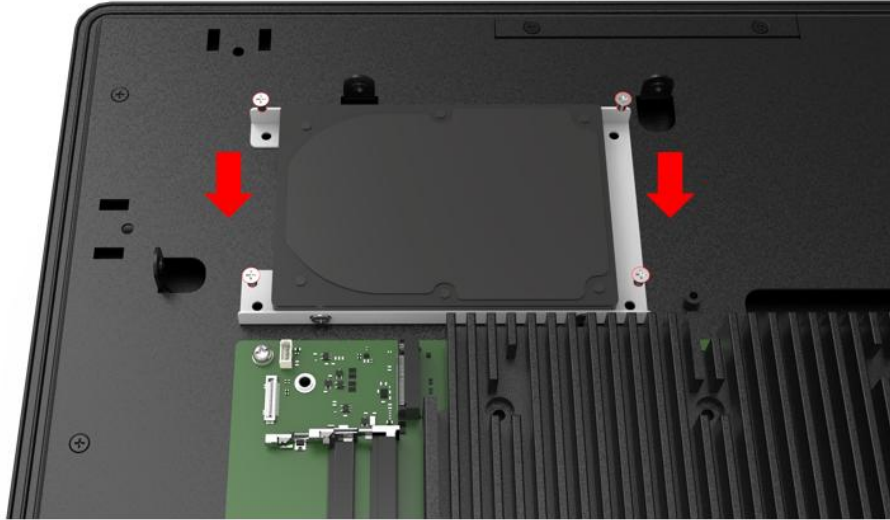


Figure 3-11: Install the hard drive

Step 5: Connect the hard drive interface and the motherboard interface using SATA cables respectively.

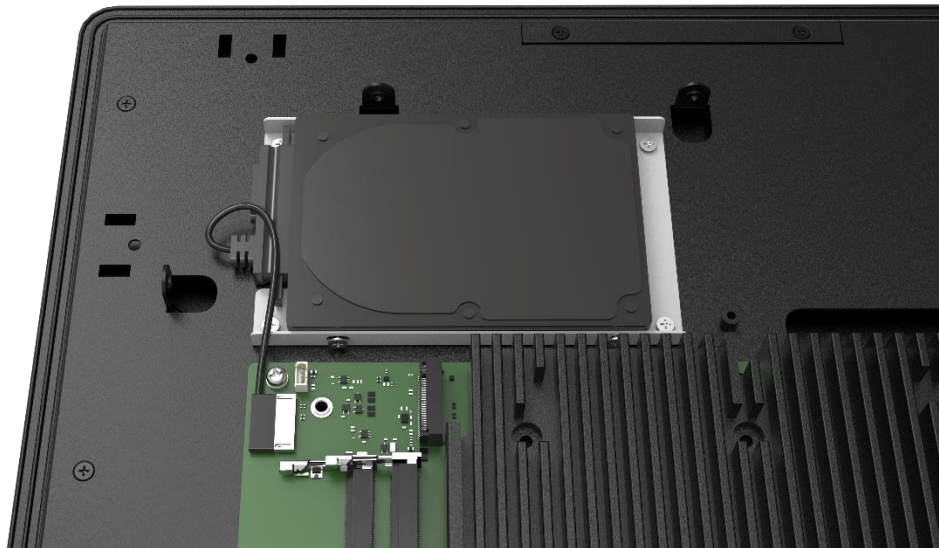


Figure 3-12: Connect the SATA cable

AURA-xxx-MTL Series

3.8 Memory Installation

The AURA-xxx-MTL is pre-installed with 16GB memory module. Users can add or replace memory with different capacity by themselves, the installation procedures are described below.

Step 1: Open the two handles of the memory slot.

Step 2: Remove the old memory module and insert a new memory module. Carefully align the memory module so the notch on the memory lines up with the notch on the memory socket.

Step 3: Once aligned, press down until the memory module is properly seated and the two handles fully clip into place (**See Figure 3-13: Memory installation**)

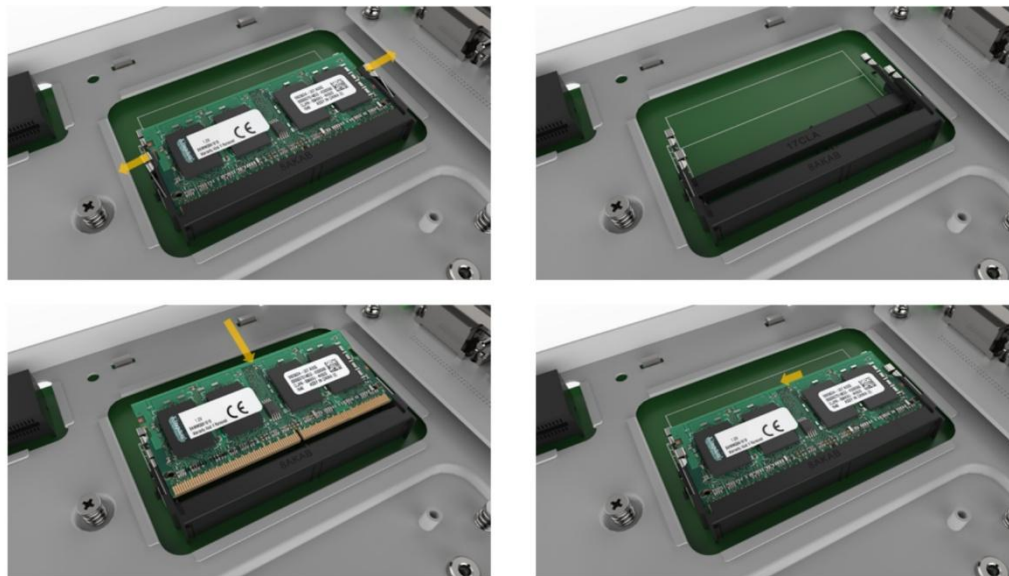


Figure 3-13: Memory installation

3.9 TPM Installation (Optional)

The AURA-xxx-MTL Series supports the installation of an independent TPM (Trusted Platform Module) via the onboard TPM header. Installing this module requires removing the system's thermal heatsink, we recommend ordering the TPM module together with the

system and having it pre-installed by our factory to ensure optimal thermal performance and prevent hardware damage. The installation procedures are described below.

Step 1: Turn off the power and remove the back cover. (See Removing the Back Cover).

Step 2: Locate and carefully remove the 6 retention screws securing the heatsink.

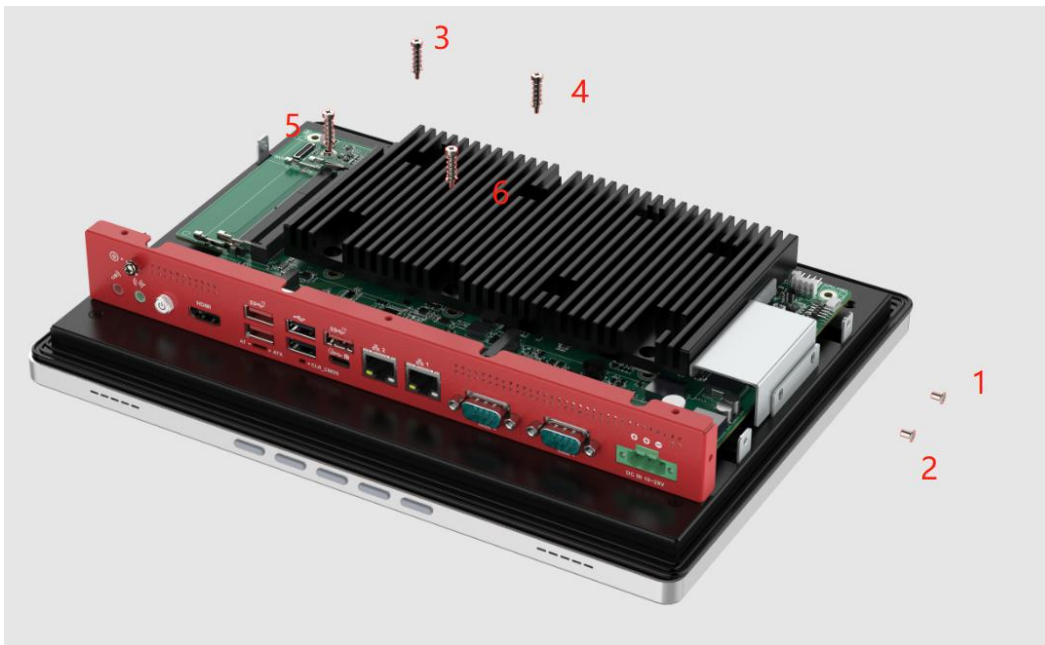


Figure 3-14: CPU cooler mounting screws

Step 3: Gently lift and remove the heatsink from the chassis.

Step 4: Align the TPM module with the 19-pin JTPM1 header on the motherboard and firmly press it into place.

AURA-xxx-MTL Series

Figure 3-15: Align the TPM module

- Step 5:** Reinstall the heatsink and fasten the 6 retention screws. To ensure even pressure, please tighten the screws in a diagonal pattern: pre-tighten each screw halfway first, and then fully tighten them. The required screw torque is $3 \pm 0.5 \text{ kgf}\cdot\text{cm}$.
- Step 6:** Reinstall the back cover to its original position and secure it with screws.
- Step 7:** Enter the BIOS Setup after hardware installation. Go to the Advanced menu, set the TPM Device Selection option to dTPM and press F4 to save the settings.

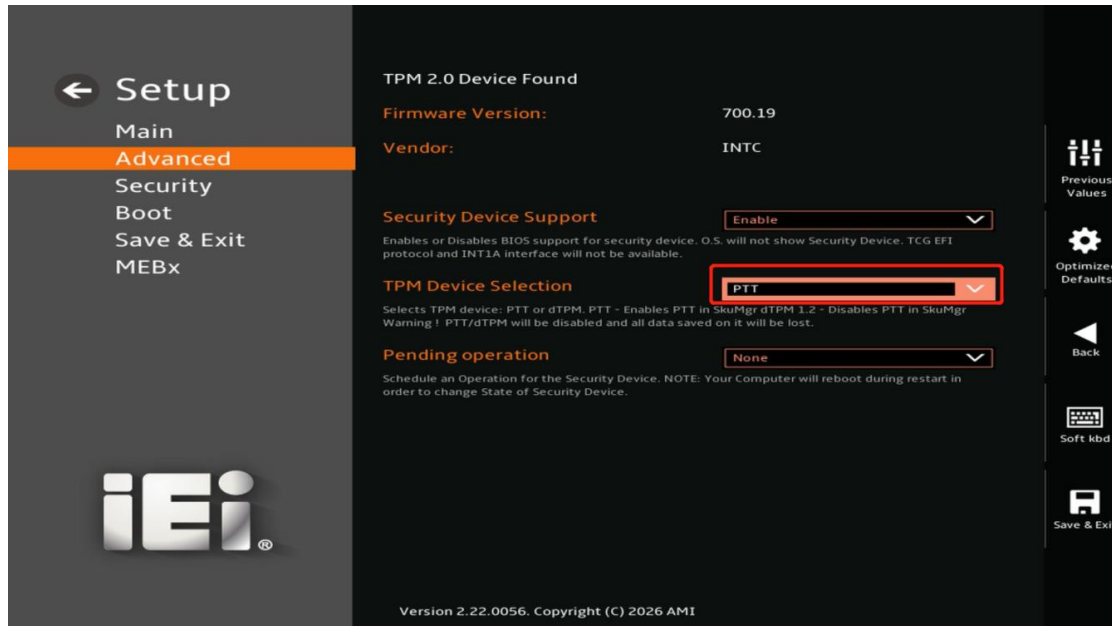


Figure 3-16: TPM BIOS setting



NOTE:

When removing the heatsink, be careful not to wipe off or contaminate the thermal paste applied underneath. Ensure the thermal paste remains intact and free of debris before reinstalling the heatsink to avoid system overheating.

3.10 Chassis Intrusion Cable Installation (Optional)

The chassis intrusion (case open) cable is an optional accessory (P/N: 19800-032500-100-RS) designed to detect unauthorized access to the system's interior. Once this feature is enabled, the system will emit an audible alarm if it detects that the back cover has been opened. To install the chassis intrusion cable, please follow the steps below:

- Step 1:** Turn off the power and remove the back cover. (See 3.4 above).
- Step 2:** Locate the CHASSIS1 connector on the motherboard. (Refer to Figure 5-1 for the exact location).

AURA-xxx-MTL Series

Step 3: Mount the microswitch of the chassis intrusion cable to the designated securing hole on the inner edge of the chassis, and secure it with a screw. Ensure the metal lever of the switch faces outward so it can be pressed when the back cover is closed. (See **Figure 3-17: Chassis Intrusion Cable Installation**)



Figure 3-17: Chassis Intrusion Cable Installation

Step 4: Plug the 2-pin cable connector into the CHASSIS1 header on the motherboard.

Step 5: Reinstall the back cover and secure it with retention screws.

Step 6: Enter the BIOS Setup after hardware installation. Go to the **Advanced** menu, set the **Case Open Detection** option to Enable, and press **F4** to save the settings.



Figure 3-18: Chassis Intrusion Cable Installation (BIOS setting)

3.11 Mounting the System



WARNING!

When mounting the AURA-xxx-MTL Series panel PC, it is advisable to have more than one person help with the installation to prevent accidental damage to the panel and avoid personal injury.

The methods of mounting the AURA-xxx-MTL Series are:

- Panel mounting
- Rack mounting
- Stand mounting
- Wall mounting

The mounting methods are described in the following sections.

3.11.1 Panel, Rack and Cabinet Installation

To mount the AURA-xxx-MTL Series panel PC into a panel, please follow steps 1-5.

For rack and cabinet installation, please follow steps 1-7.

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Figure 3-19: AURA-xxx-MTL Series Panel Mount Kit Installation

- Step 1:** Select the position on the panel to mount the AURA-xxx-MTL Series.
- Step 2:** Cut out a section of the panel that corresponds to the rear panel dimensions of the AURA-xxx-MTL Series. The recommended cutout sizes are shown below (Figure 3-20, Figure 3-21, Figure 3-22, Figure 3-23, Figure 3-24, Figure 3-25, Figure 3-26, Figure 3-27, Figure 3-28, Figure 3-29, Figure 3-30).

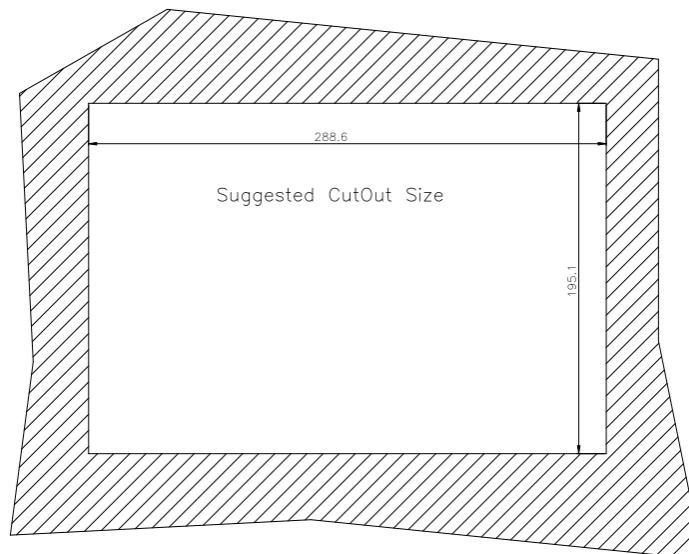


Figure 3-20: AURA-W121-MTL Panel Cutout Dimensions

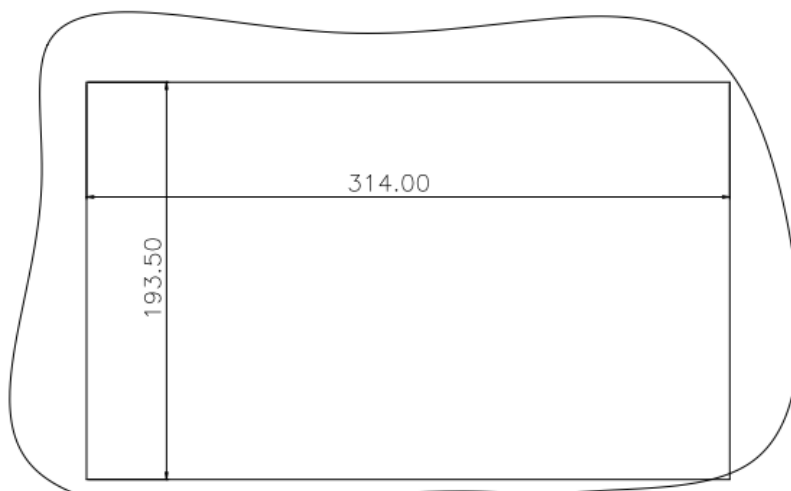


Figure 3-21: AURA-W133-MTL Panel Cutout Dimensions

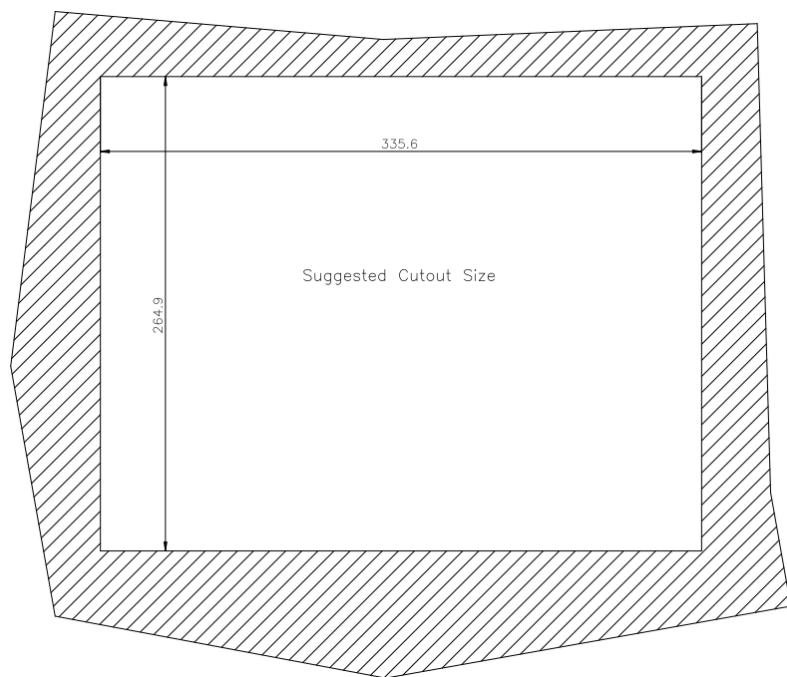
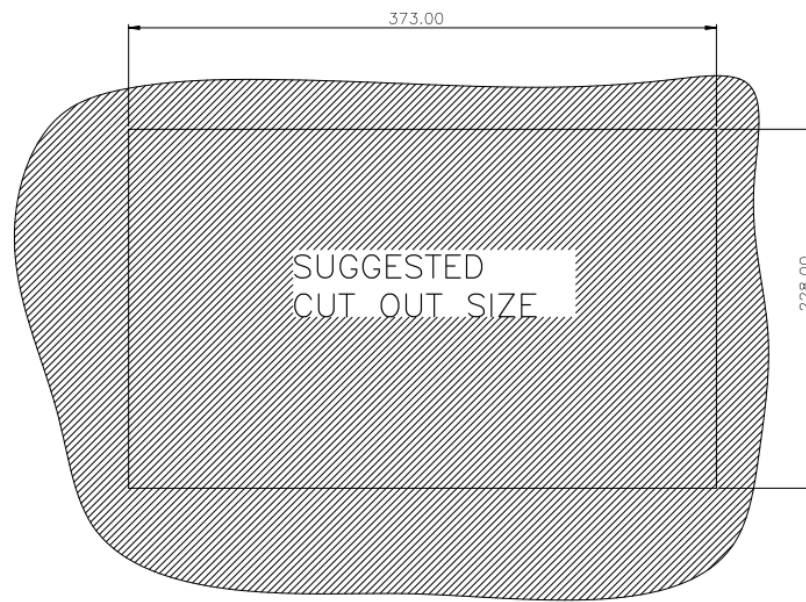
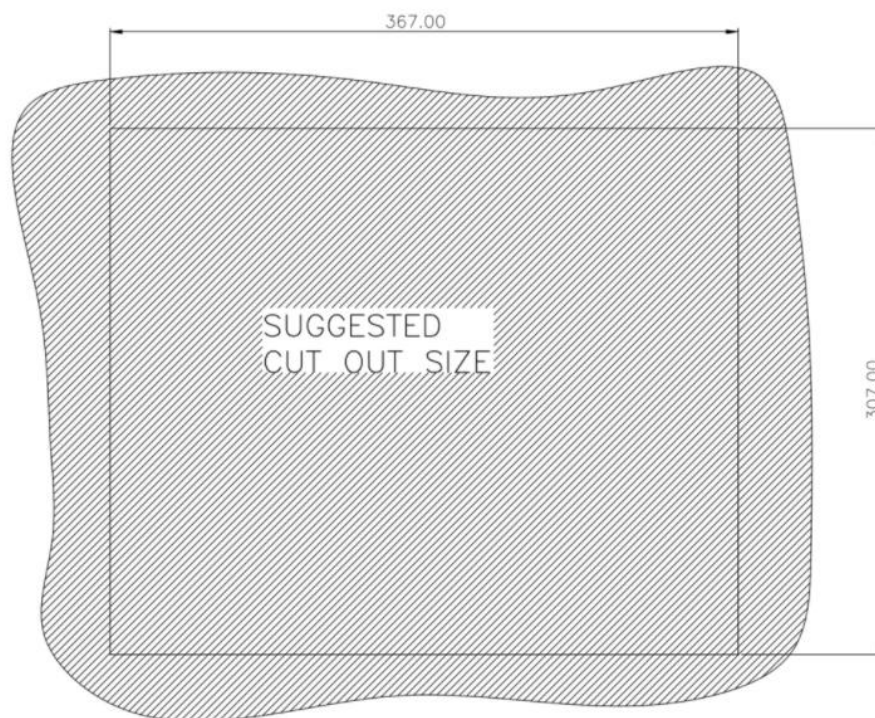


Figure 3-22: AURA-150-MTL Panel Cutout Dimensions

AURA-xxx-MTL Series**Figure 3-23: AURA-W156-MTL Panel Cutout Dimensions****Figure 3-24: AURA-170-MTL Panel Cutout Dimensions**

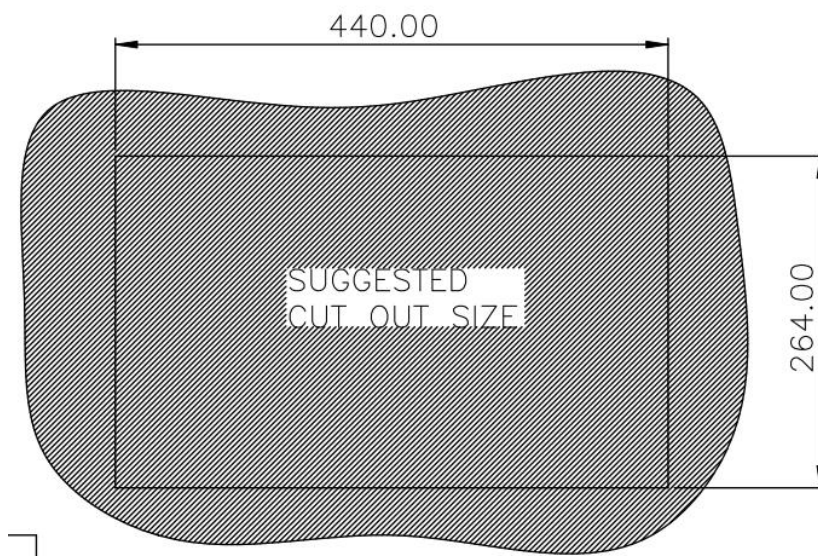


Figure 3-25: AURA-W185-MTL Panel Cutout Dimensions

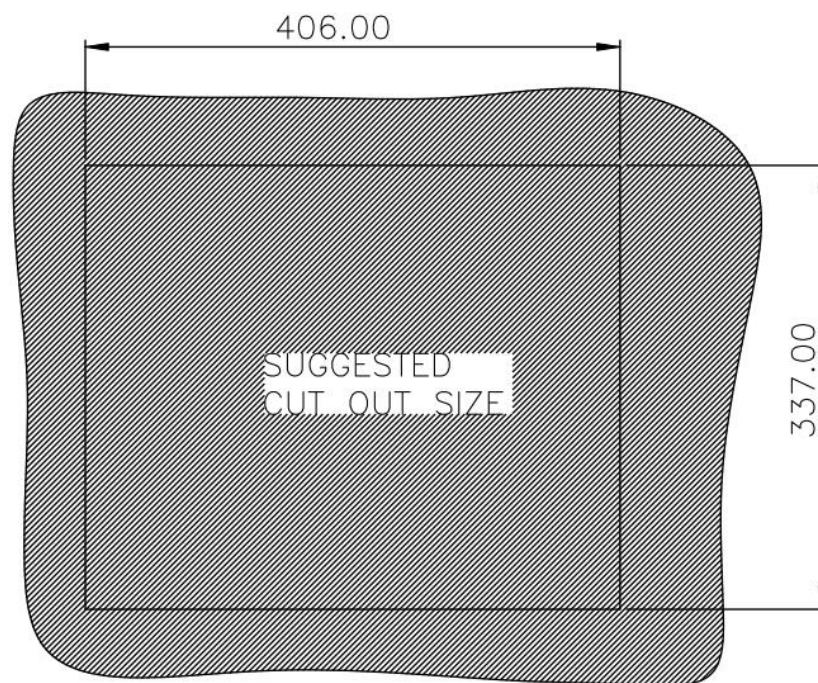


Figure 3-26: AURA-190-MTL Panel Cutout Dimensions

AURA-xxx-MTL Series

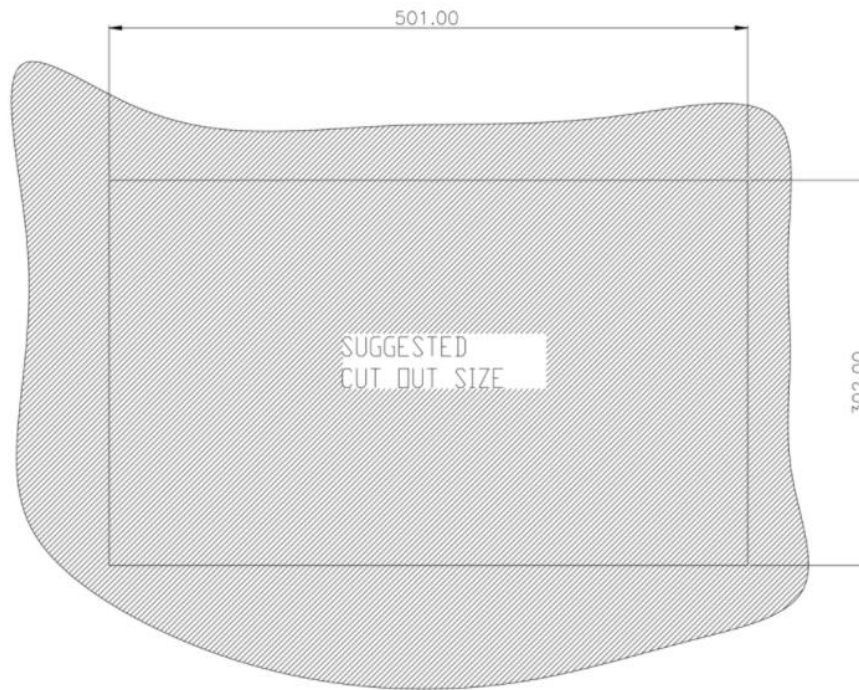


Figure 3-27: AURA-W215-MTL Panel Cutout Dimensions

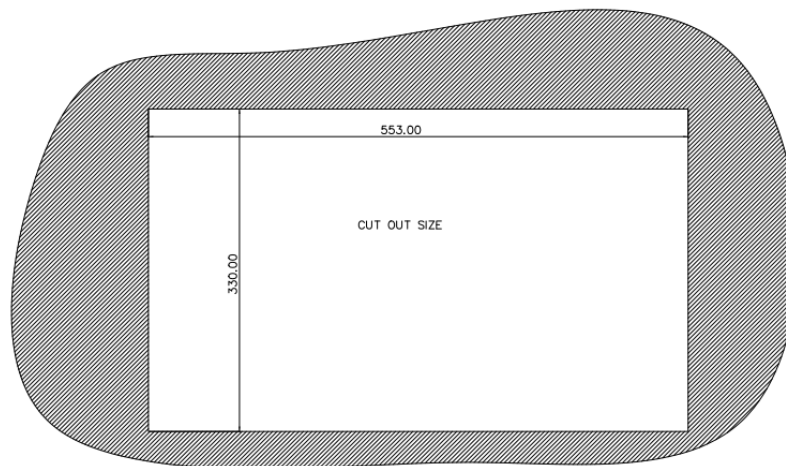


Figure 3-28: AURA-W238-MTL Panel Cutout Dimensions

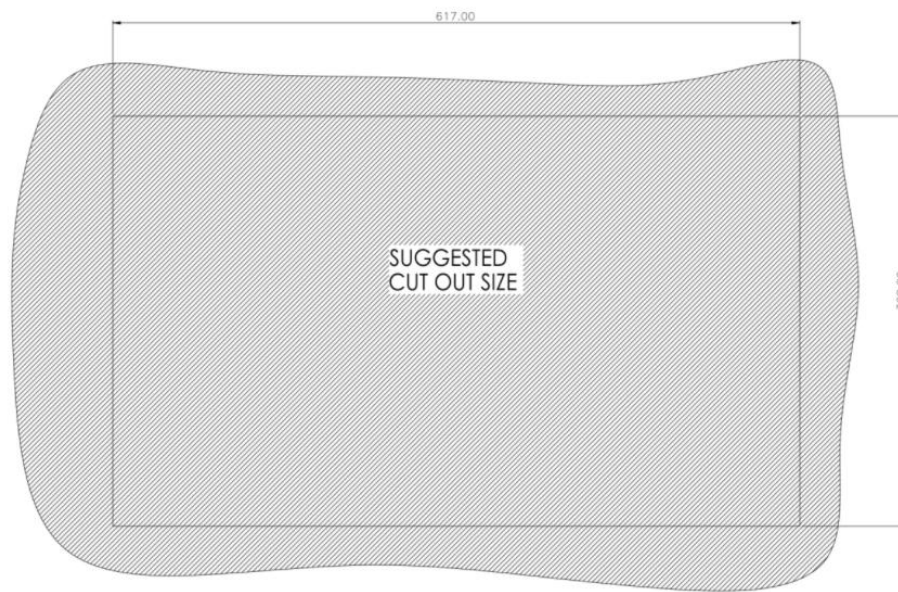


Figure 3-29: AURA-W270-MTL Panel Cutout Dimensions

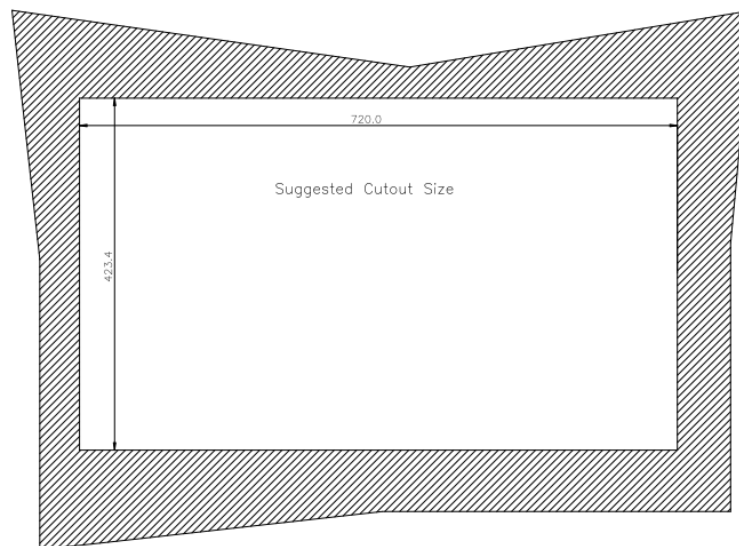


Figure 3-30: AURA-W315-MTL Panel Cutout Dimensions

AURA-xxx-MTL Series

Step 3: Slide the AURA-xxx-MTL Series through the hole until the aluminum frame is flush against the panel (**Figure 3-31**).

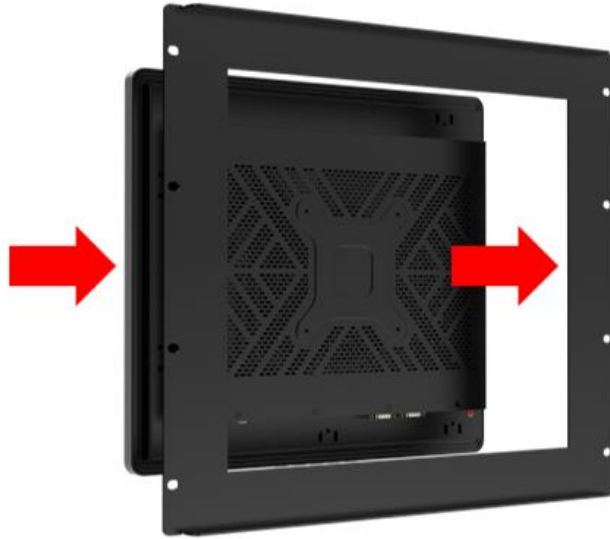


Figure 3-31: Machine mounted to panel

Step 4: Insert the panel mount kit into the prefabricated holes along the rear edge of the AURA-xxx-MTL Series (**Figure 3-32**). The required number of mounting clamps may vary by models.



Figure 3-32: Installation Panel Mount Kit

Step 5: Tighten the screws that pass through the mounting clamps until the plastic caps at the front of all the screws are firmly secured to the panel (**Figure 3-33**).



Figure 3-33: Tighten the Mounting Screws



NOTE:

For the AURA-xxx-MTL Series panel PC, models W121/W133/150/W156/170/W185/190 support rack mounting, but models W215/W238/W270/W315 do not.

Step 6: Slide the AURA-xxx-MTL Series with the attached rack/cabinet bracket into a rack or cabinet (**Figure 3-34**).

AURA-xxx-MTL Series

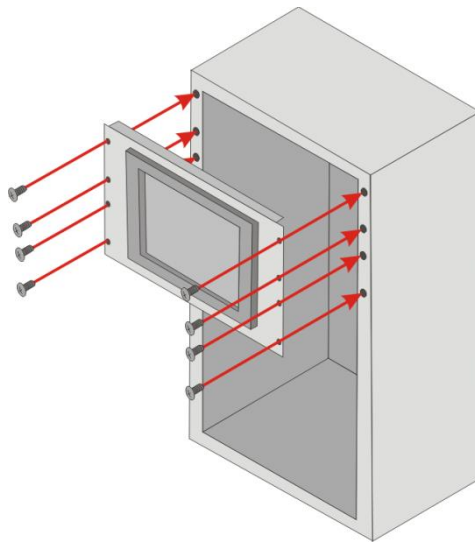


Figure 3-34: Install into a Rack/Cabinet

Step 7: Once the flat panel PC with the attached rack/cabinet bracket has been properly inserted into the rack or cabinet, secure the front of the rack/cabinet bracket to the front of the rack or cabinet (**Figure 3-34**).

3.11.2 Stand Mounting

To mount the AURA-xxx-MTL Series using the stand mounting kit, please follow the steps below.

Note: The stand mounting kit is only compatible with models up to 23.8 inches in size.

Step 1: Locate the screw holes on the rear of the AURA-xxx-MTL Series. This is where the bracket will be attached.

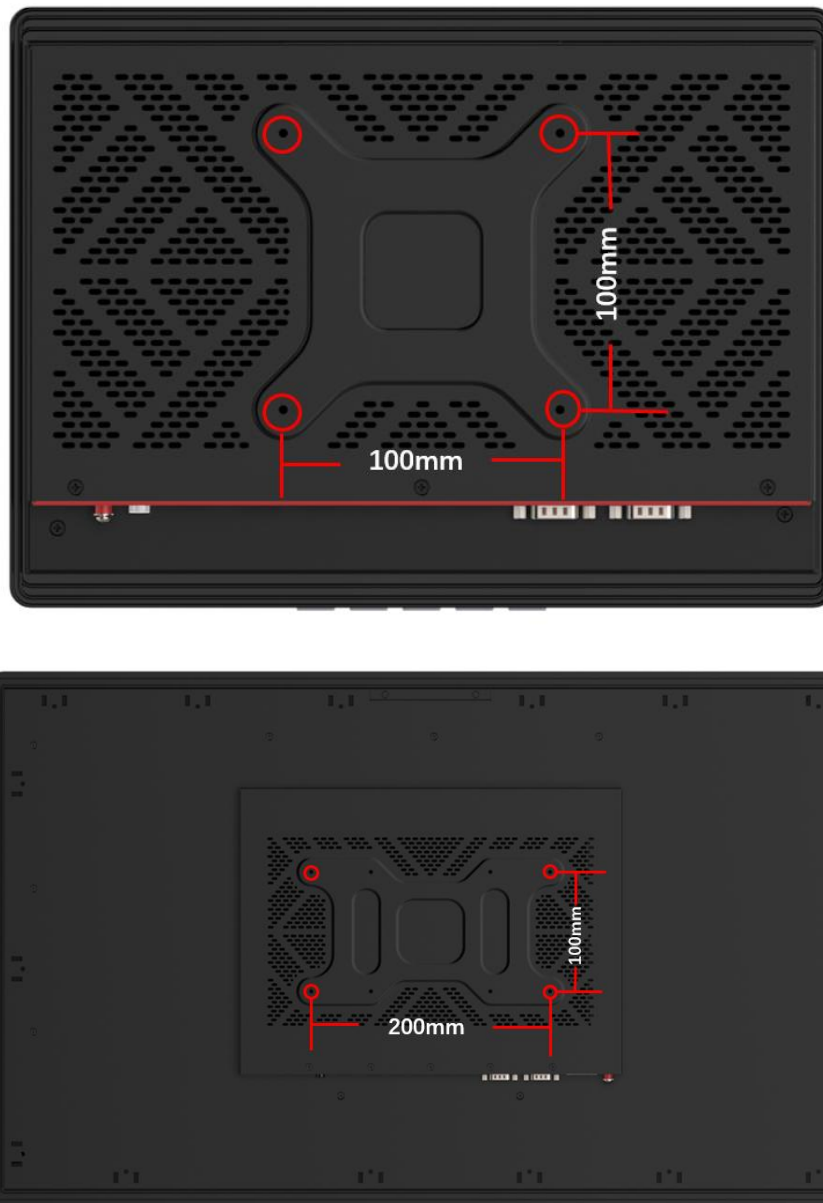


Figure 3-35: Stand Mounting Retention Screw Holes

Step 2: Align the bracket with the screw holes.

Step 3: To secure the bracket to the AURA-xxx-MTL Series, insert the retention screws into the screw holes and tighten them.

AURA-xxx-MTL Series

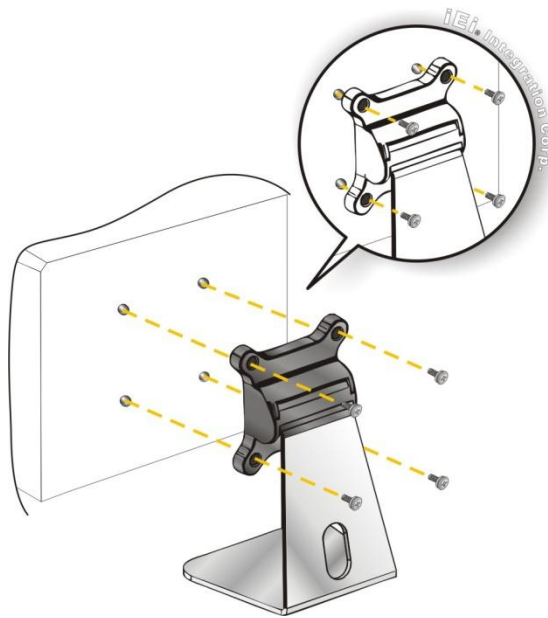


Figure 3-36: Stand Mounting (Stand-Cxx)

3.11.3 Wall Mounting

To mount the AURA-xxx-MTL Series panel PC onto a wall, please follow the steps below.

- Step 1:** Select the location on the wall for the wall-mounting bracket.
- Step 2:** Carefully mark the locations of the four bracket screw holes on the wall.
- Step 3:** Drill four pilot holes at the marked locations on the wall for the bracket retention screws.
- Step 4:** Align the wall-mounting bracket screw holes with the pilot holes.
- Step 5:** Secure the mounting bracket to the wall by inserting the retention screws into the four pilot holes and tightening them (**Figure 3-37**).

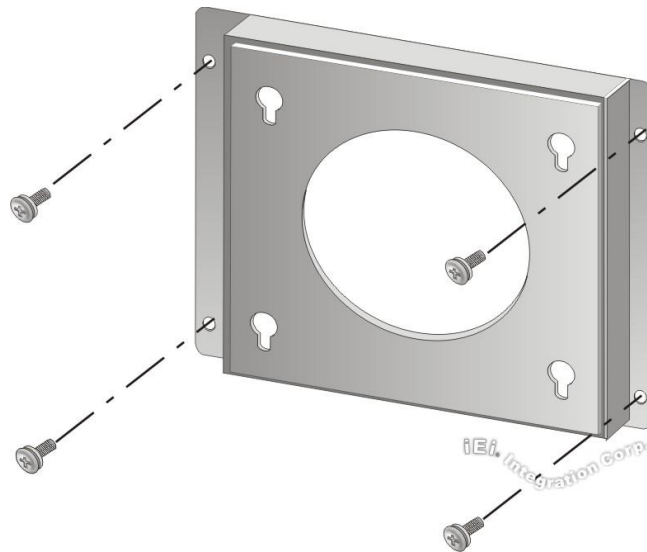


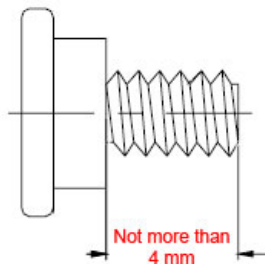
Figure 3-37: Wall-mounting Bracket

Step 6: Insert the four monitor mounting screws provided in the wall mounting kit into the four screw holes on the rear panel of the monitor and tighten until the screw shank is secured against the rear panel (**Figure 3-38**).



WARNING:

Please use the M4 screws provided in the wall mount kit for the rear panel. If the screw is missing, the thread depth of the replacement screw should be not more than 4 mm.



Step 7: Align the mounting screws on the monitor rear panel with the mounting holes on the bracket.

AURA-xxx-MTL Series

Step 8: Carefully insert the screws through the holes and gently pull the monitor downwards until the monitor rests securely in the slotted holes (**Figure 3-38**). Ensure that all four of the mounting screws fit snugly into their respective slotted holes. Always keep the AURA-xxx-MTL in landscape orientation when mounting on the wall.



NOTE:

In the diagram below the bracket is already installed on the wall.

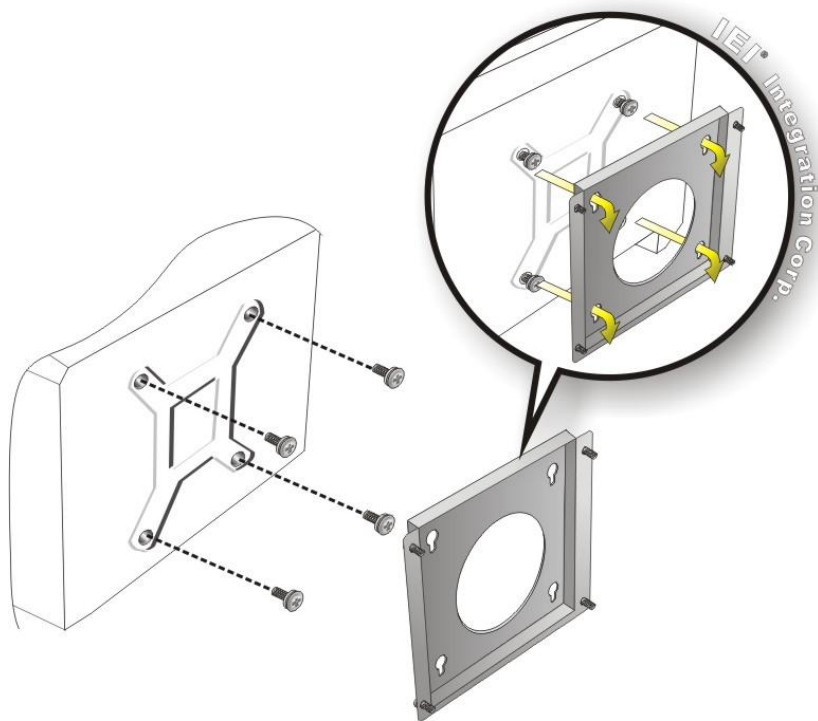


Figure 3-38: Mount the Chassis

Step 9: Secure the panel PC by fastening the retention screw of the wall-mounting bracket (**Figure 3-39**).

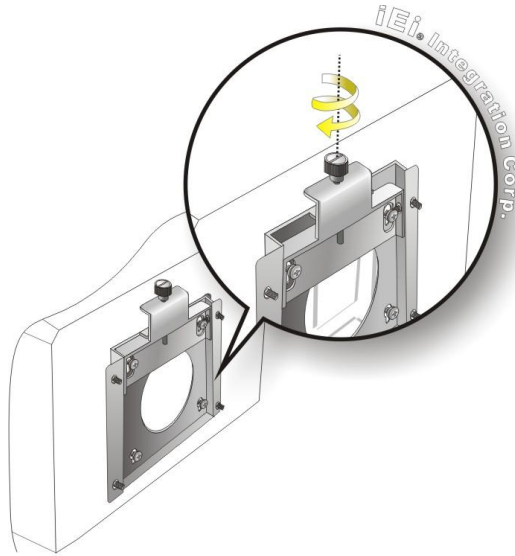


Figure 3-39: Secure the Panel PC

3.12 Powering On the System

To power on the system, follow the steps below:

Step 1: Connect the power cable to the 3-pin power input terminal block. The pinouts of the power input connectors are shown below.

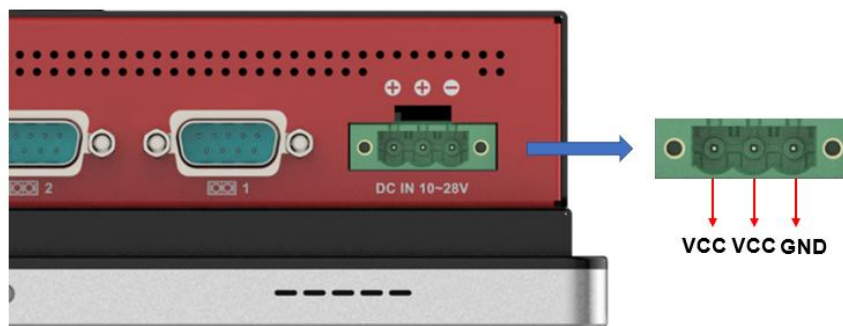


Figure 3-40: Power Input Connector Pinouts

Step 2: Press the power button on the I/O control panel to turn on the system.

AURA-xxx-MTL Series



Figure 3-41: Power Connectors and Power Switch

3.13 AT/ATX Mode Selection

AT or ATX power mode can be used on the AURA-xxx-MTL Series. The selection is made through an AT/ATX switch located on the bottom panel (**Figure 3-42**).



Figure 3-42: AT/ATX Switch Location

3.13.1 AT Power Mode

With the AT mode selected, the power is controlled by a central power unit rather than a power switch. The AURA-xxx-MTL panel PC turns on automatically when the power is connected.

3.13.2 ATX Power Mode

With the ATX mode selected, the AURA-xxx-MTL panel PC enters standby mode when power is applied. It requires a power button press or a network wake signal (Wake-on-LAN) to boot up. When shut down, it remains in standby mode.

3.14 Clear CMOS

If the AURA-xxx-MTL fails to boot due to improper BIOS settings, the clear CMOS button clears the CMOS data and resets the system BIOS information. To do this, push the clear CMOS button for three seconds, then restart the system. The clear CMOS button location is shown in **Figure 3-43**.



Figure 3-43: Clear CMOS Button Location

3.15 Hotkey

AURA-xxx-MTL Series products equipped with five physical hotkeys at the bottom for quick access to frequently used functions.

Forward from left to right	Increase the audio output volume
	Decrease the audio output volume
	Decrease the screen display brightness
	Increase the screen display brightness
	Long press: Enable the device to switch between the on and off states

AURA-xxx-MTL Series



Figure 3-44: Hotkey

3.16 Software Drivers

3.16.1 Available Drivers

All the drivers for the AURA-xxx-MTL Series are available on the IEI Resource Download Center (<https://download.ieiworld.com>). Type AURA-xxx-MTL Series and press Enter to find all the relevant software, utilities, and documentation.

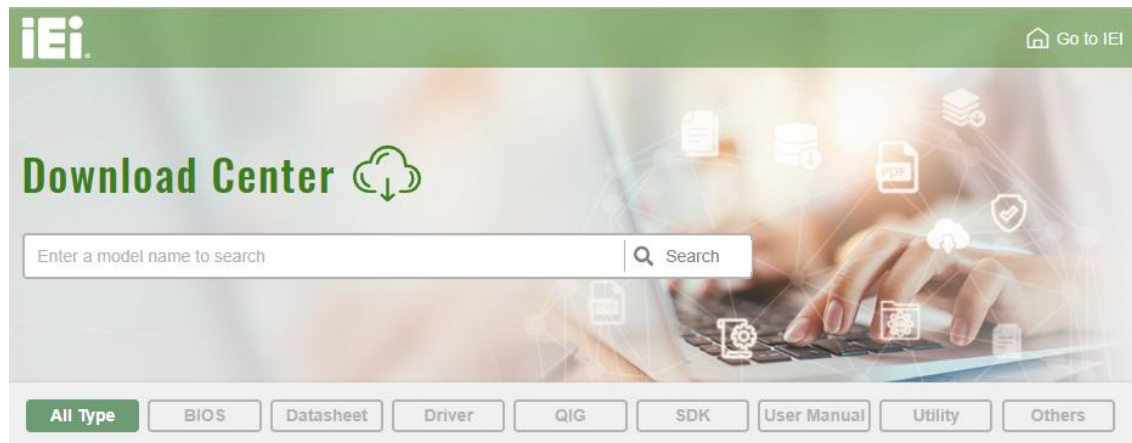
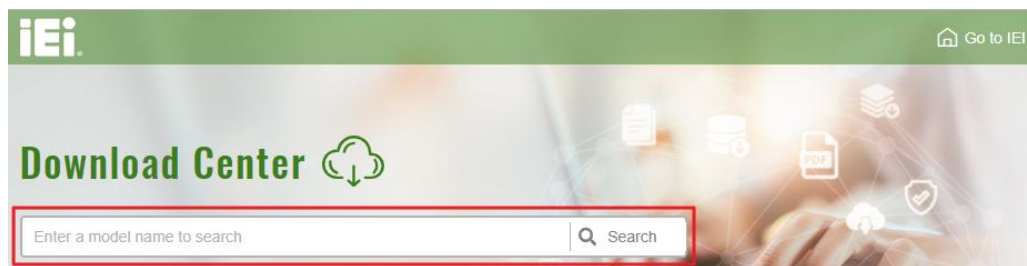


Figure 3-45: IEI Resource Download Center

3.16.2 Driver Download

To download drivers from the IEI Resource Download Center, follow the steps below.

Step 3: Go to <https://download.ieiworld.com>. Type AURA-xxx-MTL Series and press Enter.



Step 4: All product-related software, utilities, and documentation will be listed. You can choose **Driver** to filter the result.

AURA-xxx-MTL Series

[All Type](#)
[BIOS](#)
[Datasheet](#)
[Driver](#)
[QIG](#)
[SDK](#)
[User Manual](#)
[Utility](#)
[Others](#)

Keyword: "WAFER-ASL", Searching Result : 3 Records.

WAFER-ASL [Product Info](#)

Embedded Computer > Single Board Computer > Embedded Board

3.5" SBC supports Intel® Atom™ x7000 RE series on-board SoC, double display with DP, HDMI, triple 2.5 GbE, USB 3.2 gen 2, M.2, SATA 6Gb/s, COM and RoHS, -40°C~85°C

Driver

File Name	Published	Version	File Checksum
WAFER-ASL-R3-R10_V1.0.iso (2.45 GB)	2024/09/05	1.00	E3818527366788AAC32E287899EAA17E

Step 5: Click the driver file name on the page and you will be prompted with the following window. You can download the entire ISO file (❶), or click the small arrow to find an individual driver and click the file name to download (❷).

WAFER-ASL-R3-R10_V1.0.iso [X](#)

❶  [Click here to download entire ISO file. \(2.45 GB\)](#)

* Download individual file *

- Docs
 - 1.Chipset
 - 1.Chipset.zip (4.94 MB)
 - 2.Intel SST
 - 3.Graphics
 - 4.LAN
 - 5.Audio
 - 6.SIO
 - 7.ME
 - 8.ISMM Plus
 - Readme.txt (724 Bytes)

**NOTE:**

To install software from the downloaded ISO image file in Windows 8 or later, double-click the ISO file to mount it as a virtual drive to view its content. On Windows 7 system, an additional tool (such as Virtual CD-ROM Control Panel from Microsoft) is needed to mount the file.



Chapter

4

System Maintenance



AURA-xxx-MTL Series

4.1 System Maintenance Introduction

If the components of the AURA-xxx-MTL Series fail, they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts. Back cover removal instructions for the AURA-xxx-MTL Series are described below.

4.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the maintenance of the AURA-xxx-MTL Series may result in permanent damage to the AURA-xxx-MTL Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AURA-xxx-MTL Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AURA-xxx-MTL Series is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding:*** - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** - When configuring the AURA-xxx-MTL Series, place it on an anti-static pad. This reduces the possibility of ESD damaging the AURA-xxx-MTL Series.
- ***Only handle the edges of the PCB:*** - When handling the PCB, hold the PCB by the edges.

4.3 Turn off the Power

**WARNING:**

Failing to turn off the system before opening it can cause permanent damage to the system and serious or fatal injury to the user.

Before any maintenance procedures are carried out on the system, make sure the system is turned off.

4.4 Reinstalling the Cover

**WARNING:**

Failing to reinstall the cover may result in permanent damage to the system. Please make sure all coverings are properly installed.

When maintenance procedures are complete, please make sure the back cover is replaced.

Chapter

5

Interface Connectors

5.1 Peripheral Interface Connectors

The AURA-xxx-MTL Series panel PC motherboard comes with a number of peripheral interface connectors and configuration jumpers. The connector locations are shown in **Figure 5-1**. The Pin 1 locations of the on-board connectors are also indicated in the diagrams. The connector pinouts for these connectors are listed in the following sections.

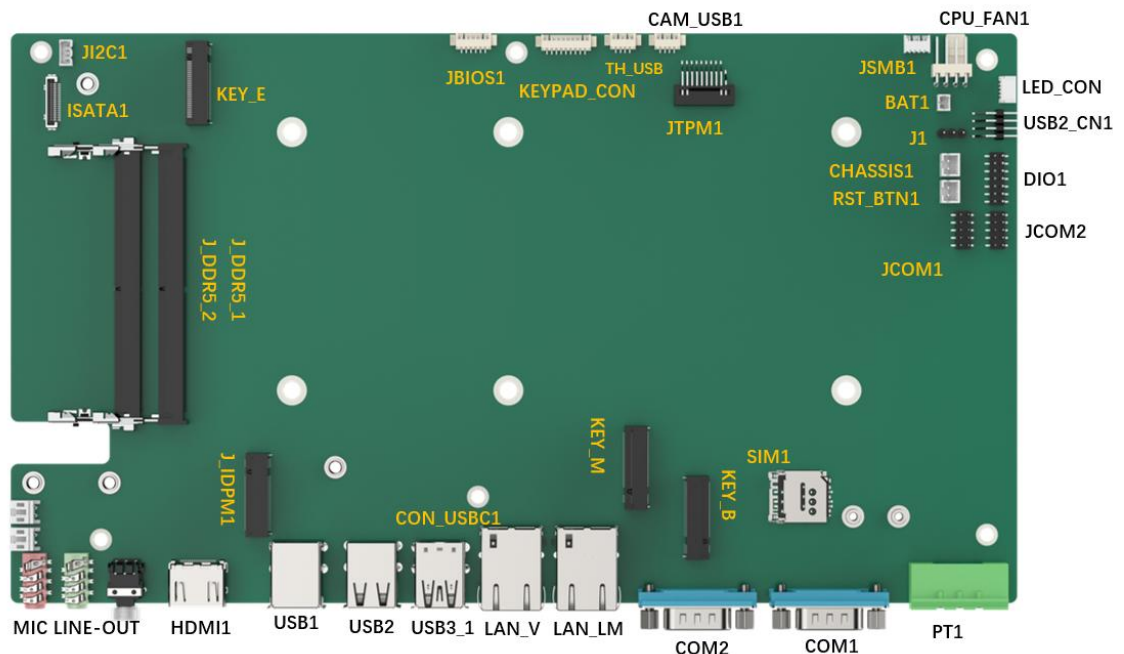


Figure 5-1: Main Board Layout Diagram

5.2 Internal Peripheral Connectors

Internal peripheral connectors are found on the motherboard and are only accessible when the motherboard is outside of the chassis. The table below shows a list of the peripheral interface connectors on the AURA-xxx-MTL Series motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Fan Connector	4-pin wafer; p=2.54mm	CPU_FAN1
SMBUS Connector	4-pin wafer; p=1.25mm	JSMB1

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Connector	Type	Label
Camera Connector	4-pin wafer; p=1.25mm	CAM_USB1
Touch Panel Connector	4-pin wafer; p=1.25mm	TH_USB
Panel Key Connector	9-pin wafer; p=1.25mm	KEYPAD_CON
Flash SPI ROM Connector	6-pin wafer; p=1.25mm	JBIOS1
I ² C Wire-to-Board Connector	4-pin wafer; p=1.25mm	JI2C1
SATA Connector	20-pin wafer; p=0.5mm	ISATA1
RTC Battery Connector	2-pin wafer; p=1.25mm	BAT1
DDR5 SO-DIMM Socket	262-pin DDR5 SO-DIMM	J_DDR5_1&J_DDR5_2
M.2 3042/52 B Key Slot	M.2 B-key slot	KEY_B
SIM Card Slot	SIM slot	SIM1
M.2 2280 M Key Slot	M.2 M-key slot	KEY_M
IDPM1 B Key Slot	B Key Slot	J_IDPM1
M.2 2230 E Key Slot	M.2 E-key slot	KEY_E
USB2.0 Connector	8-pin header; p=2.0mm	USB2_CN1
Power IC Connector	2-pin header; p=2.54mm	JI
Chassis intrusion Connector	2-pin wafer; p=2.0mm	CHASSIS1
Reset Connector	2-pin wafer; p=2.0mm	RST_BTN1
Digital I/O connector	14-pin header; p=2.0mm	DIO1
TPM Connector	19-pin header; p=1.27mm	JTPM1
RS-232 Serial Port Connector	10-pin header; p=2.0mm	JCOM1&JCOM2

Table 5-1: Peripheral Interface Connectors

5.2.1 Fan Connector (CPU_FAN1)

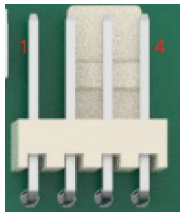
PIN NO.	DESCRIPTION	
1	EC_FANCTL1	
2	EC_FANIN1	
3	+V12	
4	GND	

Table 5-2: Fan Connector (CPU_FAN1) Pinouts

5.2.2 SMBUS Connector (JSMB1)

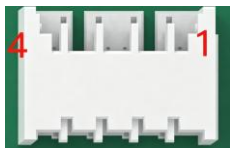
PIN NO.	DESCRIPTION	
1	GND	
2	SMDAT1_EC	
3	SMCLK1_EC	
4	+5V_SMBUS	

Table 5-3: SMBUS Connector (JSMB1) Pinouts

5.2.3 Camera Connector (CAM_USB1)

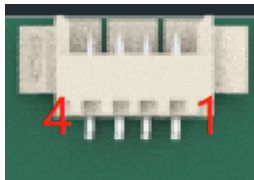
PIN NO.	DESCRIPTION	
1	+V_USB2_CNN_CAM	
2	USB2_HUB_D3N_R	
3	USB2_HUB_D3P_R	
4	GND	

Table 5-4: Camera Connector (CAM_USB 1) Pinouts

5.2.4 Touch Panel Connector (TH_USB)

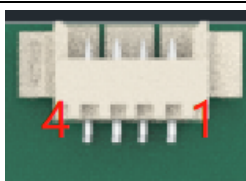
PIN NO.	DESCRIPTION	
1	VCC_USB_TH	
2	USB2_P9_DN_R	
3	USB2_P9_DP_R	
4	GND	

Table 5-5: Touch Panel Connector (TH_USB) Pinouts

AURA-xxx-MTL Series**5.2.5 Panel Key Connector (KEYPAD_CON)**

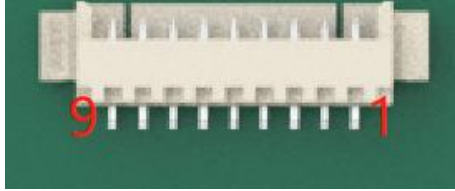
PIN NO.	DESCRIPTION	
1	+V5A_Keypad	
2	+V12A_Keypad	
3	Volume+	
4	Volume-	
5	Brightness+	
6	Brightness-	
7	PWRBTN_SW#	
8	GND	
9	+V3P3DSW_Keypad	

Table 5-6: Panel Key Connector (KEYPAD_CON) Pinouts**5.2.6 Flash SPI ROM Connector (JBIO51)**

PIN NO.	DESCRIPTION
1	+V1P8A_SPI_CON
2	SPI0_CS0_FLASH_N
3	SPI0_MISO_FLASH
4	SPI0_CLK_FLASH
5	SPI0_MOSI_FLASH
6	GND
Notes: This connector is reserved for factory testing and maintenance only. Customers should not connect any devices to this port.	

Table 5-7: Flash SPI ROM Connector (JBIO51) Pinouts**5.2.7 I²C Wire-to-Board Connector (JI2C1)**

PIN NO.	DESCRIPTION
1	GND
2	I2C_SDA_3V3
3	I2C_SCL_3V3
4	+5V_I2C

This connector is reserved for factory testing and maintenance only. Customers should not connect any devices to this port.

Table 5-8: I²C Wire-to-Board Connector (JI2C1) Pinouts

5.2.8 SATA Connector (ISATA1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	11	+V5S
2	GND	12	NA
3	GND	13	NA
4	GND	14	GND
5	GND	15	SATA_RX_P0
6	NA	16	SATA_RX_N0
7	+V5S	17	GND
8	+V5S	18	SATA_TX_N0
9	+V5S	19	SATA_TX_P0
10	+V5S	20	GND



Table 5-9: SATA Connector (ISATA1) Pinouts

5.2.9 RTC Battery Connector (BAT1)

PIN NO.	DESCRIPTION	
1	VBATT	
2	GND	

Table 5-10: RTC Battery Connector (BAT1) Pinouts

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5.2.10 M.2 3042/52 B Key Slot (KEY_B)

No.	DESCRIPTION	No.	DESCRIPTION
1	M2_B1_CGF3_C	2	+P3V3_KEYB
3	GND	4	+P3V3_KEYB
5	GND	6	FULL_CARD_PWR_N
7	USB2_P2_DP_KEYB_R	8	W_DISABLE1#_KEYB
9	USB2_P2_DN_KEYB_R	10	NA
11	GND	12	NA
13	NA	14	NA
15	NA	16	NA
17	NA	18	NA
19	NA	20	NA
21	M2_B1_CGF0_C	22	NA
23	NA	24	NA
25	NA	26	BKEY_GPIO_10
27	GND	28	NA
29	USB3_RX2_N_KEYB	30	SIM_RST
31	USB3_RX2_P_KEYB	32	SIM_CLK
33	GND	34	SIM_DATA
35	USB3_TX2_N_KEYB	36	+V_UIM1_PWR
37	USB3_TX2_P_KEYB	38	NA
39	GND	40	SMBUSCLK_BKEY_P1V8
41	PCIE4_B_KEY_RX_P6	42	SMBUSDAT_BKEY_P1V8
43	PCIE4_B_KEY_RX_N6	44	ALERT#_BKEY_P1V8
45	GND	46	NA
47	PCIE4_B_KEY_TX_P6	48	NA
49	PCIE4_B_KEY_TX_N6	50	BUF_PLT_RST_KEYB
51	GND	52	CLKREQ_KEY_B_N
53	PCIE4_B_KEY_CLKOUT_N2_R	54	PCIE_WAKE_N_KEYB
55	PCIE4_B_KEY_CLKOUT_P2_R	56	NA
57	GND	58	NA
59	NA	60	NA

61	NA	62	NA
63	NA	64	NA
65	NA	66	SIM_DETECT_KEYB
67	KEYB_RESET	68	SUS_CLK_KEYB
69	M2_B1_CGF1_C	70	+P3V3_KEYB
71	GND	72	+P3V3_KEYB
73	VIO_CFG_KEYB	74	+P3V3_KEYB
75	M2_B1_CGF2_C		

Table 5-11: M.2 3042/52 B Key Slot (KEY_B) Pinouts

5.2.11 SIM Card Slot (SIM1)

PIN NO.	DESCRIPTION
C1	+V_UIM1_PWR
C2	SIM_RST
C3	SIM_CLK
C5	GND
C6	NA
C7	SIM_DATA
G1	GND
G2	GND
G3	GND
G4	GND

Table 5-12: SIM Card Slot (SIM1) Pinouts

5.2.12 M.2 2280 M Key Slot (KEY_M)

No.	DESCRIPTION	No.	DESCRIPTION
1	GND	2	+V3P3_KEYM
3	GND	4	+V3P3_KEYM
5	PCIE4_M_KEY_RX_N12	6	PWR_DIS_MKEY_C
7	PCIE4_M_KEY_RX_P12	8	PLN_N_MKEY_C
9	GND	10	10k to +V3P3_KEYM
11	PCIE4_M_KEY_TX_N12	12	+V3P3_KEYM

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13	PCIE4_M_KEY_TX_P12	14	+V3P3_KEYM
15	GND	16	+V3P3_KEYM
17	PCIE4_M_KEY_RX_N11	18	+V3P3_KEYM
19	PCIE4_M_KEY_RX_P11	20	NA
21	GND	22	+V1P8_KEYM
23	PCIE4_M_KEY_TX_N11	24	NA
25	PCIE4_M_KEY_TX_P11	26	NA
27	GND	28	NA
29	PCIE4_M_KEY_RX_N10	30	NA
31	PCIE4_M_KEY_RX_P10	32	NA
33	GND	34	NA
35	PCIE4_M_KEY_TX_N10	36	NA
37	PCIE4_M_KEY_TX_P10	38	MKEY_SSD_SLP_M2
39	GND	40	KEYM_I2C_CLK
41	PCIE4_M_KEY_TX_N9	42	KEYM_I2C_DATA
43	PCIE4_M_KEY_TX_P9	44	KEYM_ALERT_N
45	GND	46	NA
47	PCIE4_M_KEY_TX_N9	48	NA
49	PCIE4_M_KEY_TX_P9	50	BUF_PLT_RST_MKEY_C
51	GND	52	CLKREQ_MKEY
53	PCIE4_M_KEY_CLKOUT_N5	54	PCIE_WAKE#_KEYM
55	PCIE4_M_KEY_CLKOUT_P5	56	NA
57	GND	58	NA
59	NA	60	NA
61	NA	62	NA
63	NA	64	NA
65	NA	66	NA
67	NA	68	KEYM_SUS_CLK_R
69	KEYM_PEDET	70	+V3P3_KEYM
71	GND	72	+V3P3_KEYM
73	VIO_CFG_KEYM	74	+V3P3_KEYM
75	GND		

Table 5-13: M.2 2280 M Key Slot (KEY_M) Pinouts



5.2.13 IDPM1 B Key Slot (J_IDPM1)

No.	DESCRIPTION	No.	DESCRIPTION
1	GND	2	+V3P3A
3	GND	4	+V3P3A
5	GND	6	+V3P3A
7	GND	8	+V3P3A
9	GND	10	+V3P3A
11	+V5A	12	NA
13	NA	14	NA
15	NA	16	NA
17	NA	18	NA
19	NA	20	+V3P3S
21	DISPLAY_DETECT_PIN21	22	+V3P3S
23	DISPLAY_DETECT_PIN23	24	+V3P3S
25	GND	26	+V3P3S
27	GND	28	GND
29	DDIA_TX_N3	30	+V12S
31	DDIA_TX_P3	32	+V12S
33	GND	34	+V12S
35	DDIA_TX_N2	36	+V12S
37	DDIA_TX_P2	38	GND
39	GND	40	SMB_CLK_iDPM
41	DDIA_TX_N1	42	SMB_DATA_iDPM
43	DDIA_TX_P1	44	GND
45	GND	46	EC_BKLT_CTRL_iDPM
47	DDIA_TX_N0	48	EDP_BKLCTL_iDPM
49	DDIA_TX_P0	50	EDP_BKLEN_iDPM
51	GND	52	EDP_VDDEN_iDPM
53	DDIA_AUX_DN	54	EDP_HPD_iDPM
55	DDIA_AUX_DP	56	BUF_PLT_RST_iDPM
57	GND	58	LVDS_EN
59	GND	60	+V5S



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61	GND	62	+V5S
63	GND	64	+V5S
65	GND	66	+V5S
67	GND	68	+V12S
69	GND	70	+V12S
71	GND	72	+V12S
73	GND	74	+V12S
75	GND		
Notes: For IEI proprietary modules only			

Table 5-14: IDPM1 B Key Slot (J_IDPM1) Pinouts**5.2.14 M.2 2230 E Key Slot (KEY_E)**

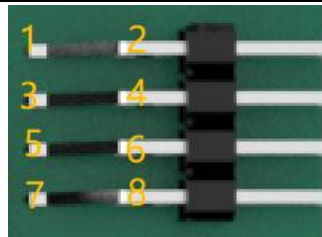
No.	DESCRIPTION	No.	DESCRIPTION
1	GND	2	+V3P3_KEYA
3	USB2_P1_DP_KEYA	4	+V3P3_KEYA
5	USB2_P1_DN_KEYA	6	NA
7	GND	8	NA
9	NA	10	NA
11	NA	12	NA
13	NA	14	NA
15	NA	16	NA
17	NA	18	VIO_CFG_KEYA_C
19	NA	20	NA
21	NA	22	NA
23	GND	24	GND
25	NA	26	NA
27	NA	28	NA
29	GND	30	GND
31	NA	32	NA
33	GND	34	NA
35	PCIE4_A_KEY_TX_P7	36	GND
37	PCIE4_A_KEY_TX_N7	38	NA
39	GND	40	NA

41	PCIE4_A_KEY_RX_P7	42	NA
43	PCIE4_A_KEY_RX_N7	44	NA
45	GND	46	NA
47	PCIE4_A_KEY_CLKOUT_P3	48	NA
49	PCIE4_A_KEY_CLKOUT_N3	50	KEYA_SUS_CLK
51	GND	52	PCIE4_A_KEY_PERST0_N
53	PCIE4_A_KEY_CLKREQ0_N	54	KEYA_W_DISABLE2
55	PCIE4_A_KEY_WAKE0_N	56	KEYA_W_DISABLE1
57	GND	58	NA
59	NA	60	NA
61	NA	62	NA
63	GND	64	NA
65	NA	66	PCIE4_A_KEY_PERST1_N
67	NA	68	PCIE4_A_KEY_CLKREQ1_N
69	GND	70	PCIE4_A_KEY_WAKE1_N
71	NA	72	+V3P3_KEYA
73	NA	74	+V3P3_KEYA
75	GND		

Table 5-15: M.2 2230 E Key Slot (KEY_E) Pinouts

5.2.15 USB2.0 Connector (USB2_CN1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V_USB2_CNN_CAM	2	GND
3	USB2_HUB_D1N_R	4	USB2_HUB_D2P_R
5	USB2_HUB_D1P_R	6	USB2_HUB_D2N_R
7	GND	8	+5V_USB2_CNN_CAM

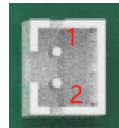

Table 5-16: USB2.0 Connector (USB2_CN1) Pinouts

AURA-xxx-MTL Series**5.2.16 Power IC Connector (J1)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PM_SCL	2	PM_SDA
3	GND		

Notes: This connector is reserved for factory testing and maintenance only. Customers should not connect any devices to this port.

Table 5-17: Power IC Connector (J1) Pinouts**5.2.17 Chassis intrusion Connector (CHASSIS1)**

PIN NO.	DESCRIPTION	
1	GND	
2	CASEOPEN_N	

Notes: To use the chassis intrusion alarm function, an additional cable (P/N: 19800-032500-100-RS) is required, and the corresponding BIOS settings must be configured. For further information, please contact iEi sales team.

Table 5-18: Chassis intrusion Connector (CHASSIS1) Pinouts**5.2.18 Reset Connector (RST_BTN1)**

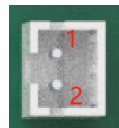
PIN NO.	DESCRIPTION	
1	GND	
2	PM_SYSRST_R#	

Table 5-19: Reset Connector (RST_BTN1) Pinouts**5.2.19 Digital I/O connector (DIO1)**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+5V_RUN_DIO
3	L_DOUT5	4	L_DOUT4
5	L_DOUT3	6	L_DOUT2
7	L_DOUT1	8	L_DOUT0

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
9	L_DIN5	10	L_DIN4
11	L_DIN3	12	L_DIN2
13	L_DIN1	14	L_DIN0

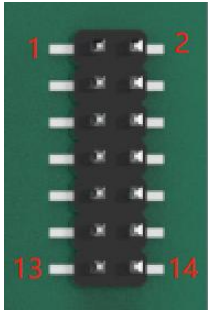


Table 5-20: Digital I/O connector (DIO1) Pinouts

5.2.20 TPM Connector (JTPM1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	NA	2	NA
3	SPI0_TPM_GPIO_R	4	NA
5	GND	6	+V1P8A_TPM_PIN6
7	SPI0_CLK_TPM	8	NA
9	NA	10	SPI0_MISO_TPM
11	NA	12	SPI0_MOSI_TPM
13	SPI0_TPM_CS_N	14	GND
15	NA	16	NA
17	SPI0_TPM_INT_R	18	+V1P8A_TPM_PIN18
19	BUF_PLT_RST_TPM	20	+V1P8A_TPM_PIN20

Notes: For IEI proprietary modules only

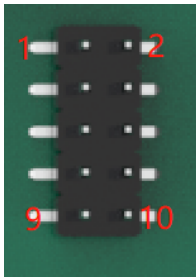
Table 5-21: TPM Connector (JTPM1) Pinouts

5.2.21 RS-232 Serial Port Connector (JCOM1&JCOM2)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
JCOM1			
1	L_NDCD#3	2	L_NDSR#3

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
3	L_NRX#3	4	L_NRTS#3
5	L_NTX#3	6	L_NCTS#3
7	L_NDTR#3	8	L_NRI#3
9	GND	10	NA
JCOM2			
1	L_NDCD#4	2	L_NDSR#4
3	L_NRX#4	4	L_NRTS#4
5	L_NTX#4	6	L_NCTS#4
7	L_NDTR#4	8	L_NRI#4
9	GND	10	NA

**Table 5-22: RS-232 Serial Port Connector (JCOM1&JCOM2) Pinouts**

5.3 External Interface Panel Connectors

The table below lists the rear panel connectors on the AURA-xxx-MTL Series motherboard. Pinouts of these connectors can be found in the following sections.

Connector	Type	Label
Power Connector	DC_IN	PT1
RS-232/422/485 Serial Port Connector	DB9	COM1
RS-232/422/485 Serial Port Connector	DB9	COM2
LAN1 Connector	RJ45	LAN_LM
LAN2 Connector	RJ45	LAN_V
USB Type-C Connector (USB and DP)	USB Type-C (USB4.0)	CON_USBC1
USB 3.2 Gen2 Type-A Connector	USB 3.2	USB3_1

Connector	Type	Label
USB 3.2 Gen2 Type-A Connector	USB 3.2	USB1
USB2.0 Type-A Connector	USB 2.0	USB2
HDMI Connector	HDMI	HDMI1
Audio Jack	PHONE JACK Φ 3.5	LINE-OUT
Audio Jack	PHONE JACK Φ 3.5	MIC

Table 5-23: Rear Panel Connectors

5.3.1 Power Connector (PT1)

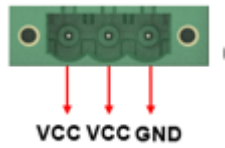
PIN NO.	DESCRIPTION	
1	DC_IN	
2	DC_IN	
3	GND	

Table 5-24: Power Connector (PT1) Pinouts

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5.3.2 RS-232/422/485 Serial Port Connector (COM1/COM2)

PIN NO.	RS232	RS422	RS485
1	DCD#	TX-	TX-
2	RXD	TX+	TX+
3	TXD	RX+	
4	DTR#	RX-	
5	GND		
6	DSR#		
7	RTS#		
8	CTS#		
9	RI#		

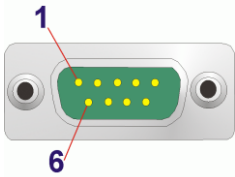


Table 5-25: RS-232 (JCOM1_2) & RS-422/485 (JCOM3_4) Connector Pinouts

5.3.3 LAN Connector (LAN_LM/ LAN_V)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
LAN_LM		LAN_V	
R1	NC	R1	NC
R2	I226LM_MDI_P0	R2	I226V_MDI_P0
R3	I226LM_MDI_N0	R3	I226V_MDI_N0
R4	I226LM_MDI_P1	R4	I226V_MDI_P1
R5	I226LM_MDI_N1	R5	I226V_MDI_N1
R6	I226LM_MDI_P2	R6	I226V_MDI_P2
R7	I226LM_MDI_N2	R7	I226V_MDI_N2
R8	I226LM_MDI_P3	R8	I226V_MDI_P3
R9	I226LM_MDI_N3	R9	I226V_MDI_N3
R10	GND	R10	GND
L1	I226LM_SPEED_2500_N	L1	I226V_SPEED_2500_N

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
L2	I226LM_SPEED_1000_N	L2	I226V_SPEED_1000_N
L3	I226LM_LINK_ACT_N	L3	I226V_LINK_ACT_N
L4	+3.3V_LAN1	L4	+3.3V_LAN2

Table 5-26: LAN Connector (LAN_LM/ LAN_V) Pinouts

The RJ-45 Ethernet connector has two status LEDs, one green and one yellow. The green LED indicates activity on the port and the yellow LED indicates the port is linked.



Figure 5-2: RJ-45 Ethernet Connector

Activity / Link LED		Speed LED	
STATUS	DESCRIPTION	STATUS	DESCRIPTION
Off	No link	Off	10 Mbps connection
Yellow	Linked	Orange	1000 Mbps connection
Blinking	TX/RX activity	Green	2.5 Gbps connection

Table 5-27: RJ-45 Ethernet Connector LEDs

5.3.4 USB Type-C Connector (USB and DP) (CON_USBC1)

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
A1	GND	B1	GND
A2	USBC0_CN_TX0_DP	B2	USBC0_CN_TX1_DP

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PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
A3	USBC0_CN_TX0_DN	B3	USBC0_CN_TX1_DN
A4	+VBUS_USBC0	B4	+VBUS_USBC0
A5	CC1_CN	B5	CC2_CN
A6	USBC0_CN_P3_DP	B6	USBC0_CN_P3_DP
A7	USBC0_CN_P3_DN	B7	USBC0_CN_P3_DN
A8	SUB1_CN	B8	SUB2_CN
A9	+VBUS_USBC0	B9	+VBUS_USBC0
A10	USBC0_CN_RX1_DN	B10	USBC0_CN_RX0_DN
A11	USBC0_CN_RX1_DP	B11	USBC0_CN_RX0_DP
A12	GND	B12	GND

Table 5-28: USB Type-C Connector (USB and DP) (CON_USBC1) Pinouts**5.3.5 USB 3.2 Gen2 Type-A Connector (USB3_1/USB1)**

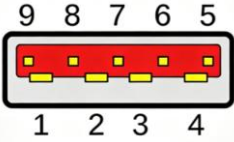
PIN NO.	DESCRIPTION
USB3_1/USB1	
1	VCC_USB32_B
2	USB2_P6_DN_R
3	USB2_P6_DP_R
4	GND
5	USB3_RX3_N_C_R
6	USB3_RX3_P_C_R
7	GND
8	USB3_TX3_N_C_R
9	USB3_TX3_P_C_R
	

Table 5-29: USB 3.2 Gen2 Type-A Connector (USB3_1/USB1) Pinouts

5.3.6 USB2.0 Type-A Connector (USB2)

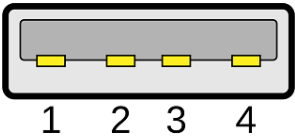
PIN NO.	DESCRIPTION
1	VCC5V
2	D-
3	D+
4	GND
	

Table 5-30: USB 2.0 Type-A Connector (USB2) Pinouts

5.3.7 HDMI Connector (HDMI1)

PIN NO.	DESCRIPTION
1	TCP1_HDMI_TX_P2_R
2	GND
3	TCP1_HDMI_TX_N2_R
4	TCP1_HDMI_TX_P1_R
5	GND
6	TCP1_HDMI_TX_N1_R
7	TCP1_HDMI_TX_P0_R
8	GND
9	TCP1_HDMI_TX_N0_R
10	TCP1_HDMI_TX_P3_R
11	GND
12	TCP1_HDMI_TX_N3_R
13	NA
14	NA
15	HDMI1_SCL
16	HDMI1_SDA
17	GND
18	+V5S_HDMI

AURA-xxx-MTL Series

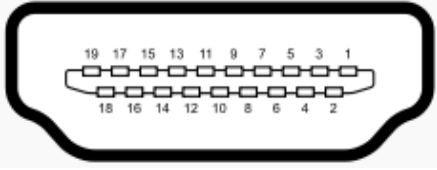
19	HDMI1_HPD
	

Table 5-31: HDMI Connector (HDMI1) Pinouts

5.3.8 AUDIO JACK(LINE-OUT/MIC)

PIN NO.	DESCRIPTION
Line_Out (Green)	Connect this port to headphone or speaker
Microphone (Pink)	Connect this port to microphone

Table 5-32: Audio Line-Out MIC Connector

Chapter

6

BIOS

6.1 Introduction

The BIOS is programmed onto the BIOS chip. The BIOS setup program allows changes to certain system settings. This chapter outlines the options that can be changed.



NOTE:

Some of the BIOS options may vary throughout the life cycle of the product and are subject to change without prior notice.

6.1.1 Starting Setup

The UEFI BIOS is activated when the computer is turned on. The setup program can be activated in one of two ways.

1. **Using keyboard:** Press the **DEL** or **F2** as soon as the system is turned on.
2. **Using touchscreen:** Press the **Setup** button on the upper right corner of the BIOS Starting Menu.

If the message disappears before the **DEL** or **F2** key is pressed, restart the computer and try again, then the BIOS Starting Menu will appear. Select "Setup" and press Enter to get into the BIOS Setup.

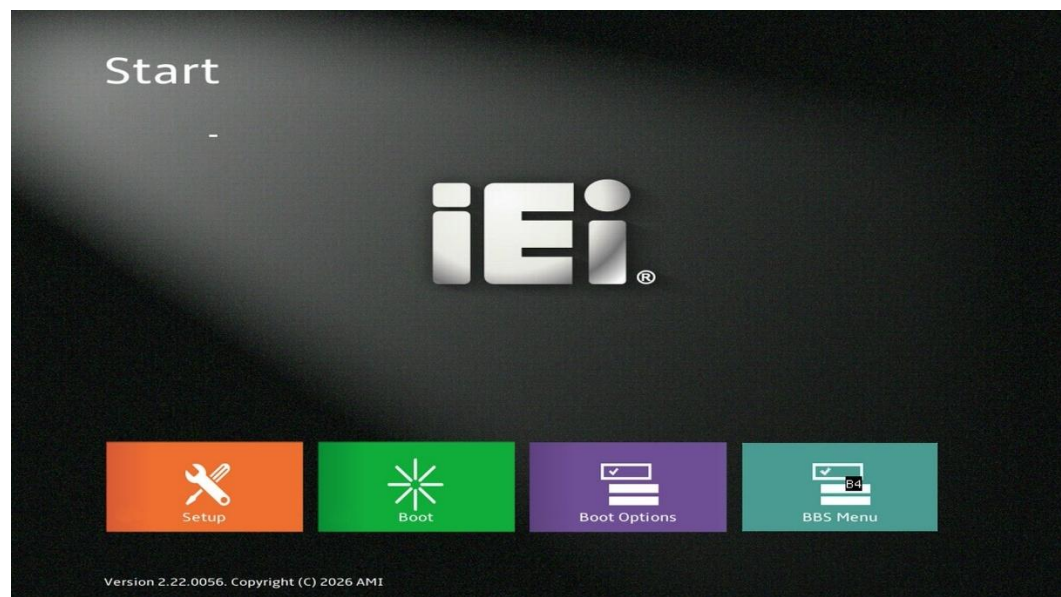


Figure 6-1: BIOS Starting Menu

6.1.2 Using Setup

The BIOS Setup menu can be navigated by using a keyboard or a touchscreen.

6.1.3 Keyboard Navigation

For keyboard navigation, use the navigation keys shown in **Table 6-1**.

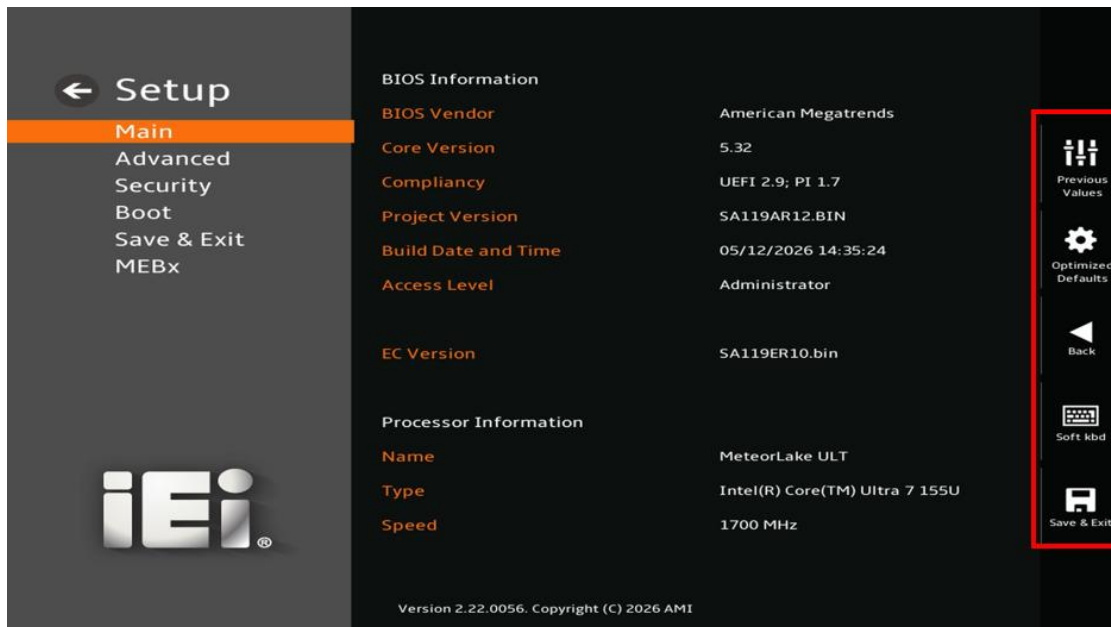
Key	Function
Up arrow	Move to previous item
Down arrow	Move to next item
Left arrow	Move to the item on the left hand side
Right arrow	Move to the item on the right hand side
+	Increase the numeric value or make changes
-	Decrease the numeric value or make changes
Page Up	Move to the previous page
Page Dn	Move to the next page
Esc	Main Menu – Quit and not save changes into CMOS Status Page Setup Menu and Option Page Setup Menu -- Exit current page and return to Main Menu
F1	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2	Load previous values
F3	Load optimized defaults
F4	Save changes and Exit BIOS
<K>	Scroll help area upwards
<M>	Scroll help area downwards

Table 6-1: BIOS Navigation Keys

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6.1.3.1 Touch Navigation

For touchscreen navigation, use the on-screen navigation keys shown below.



On-screen Button	Function
Previous Values	Load the last value you set.
Optimized Defaults	Load the factory default values in order to achieve the best performance.
Back	Return to the previous menu.
Soft kbd	Display the on-screen keyboard.
Save & Exit	Save the changes made to the BIOS options and reset the system.

Table 6-2: BIOS On-screen Navigation Keys

6.1.4 Getting Help

When **F1** is pressed a small help window describing the appropriate keys to use and the possible selections for the highlighted item appears. To exit the Help Window, press the **Esc** key.

6.1.5 Unable to Reboot after Configuration Changes

If the computer cannot boot after changes to the system configuration is made, CMOS defaults. Use the Clear CMOS button described in **3.14**.

6.1.6 BIOS Menu Bar

The **menu bar** on top of the BIOS screen has the following main items:

- Main – Changes the basic system configuration.
- Advanced – Changes the advanced system settings.
- Security – Sets User and Supervisor Passwords.
- Boot – Changes the system boot configuration.
- Save & Exit – Selects exit options and loads default settings
- MEBx – Enters the MEBx password to login

The following sections completely describe the configuration options found in the menu items at the left of the BIOS screen and listed above.

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6.2 Main

The **Main** BIOS menu appears when the **BIOS Setup** program is entered. The **Main** menu gives an overview of the basic system information.

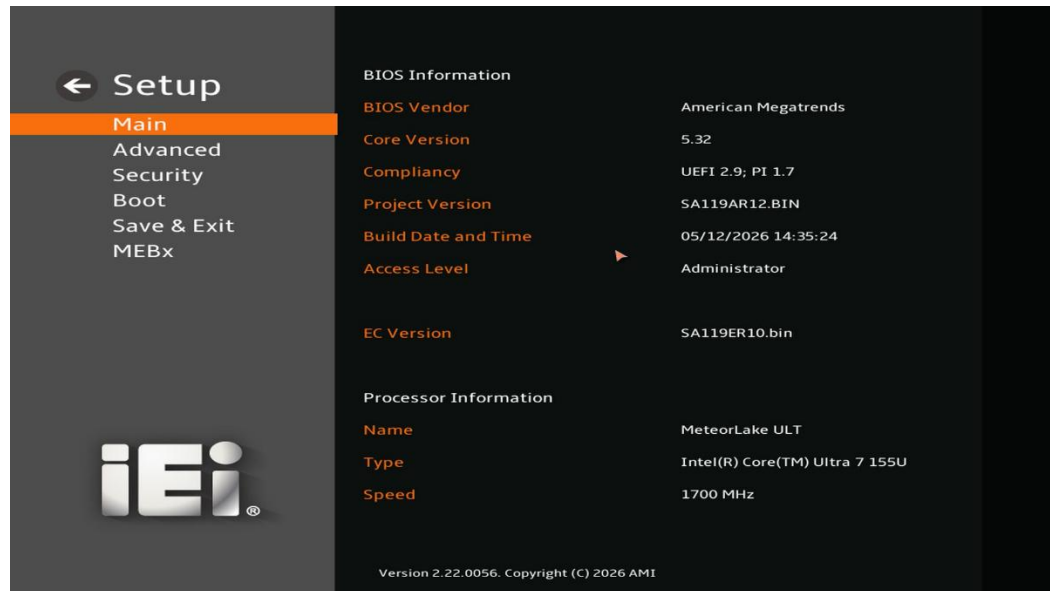


Figure 6-2: BIOS Main (1/3)

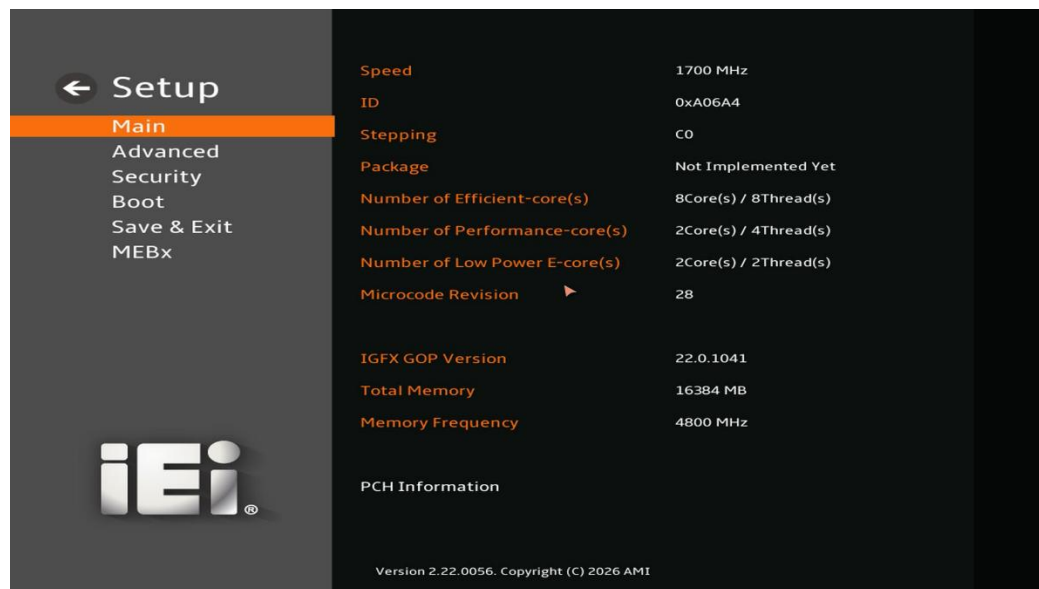


Figure 6-3: BIOS Main (2/3)

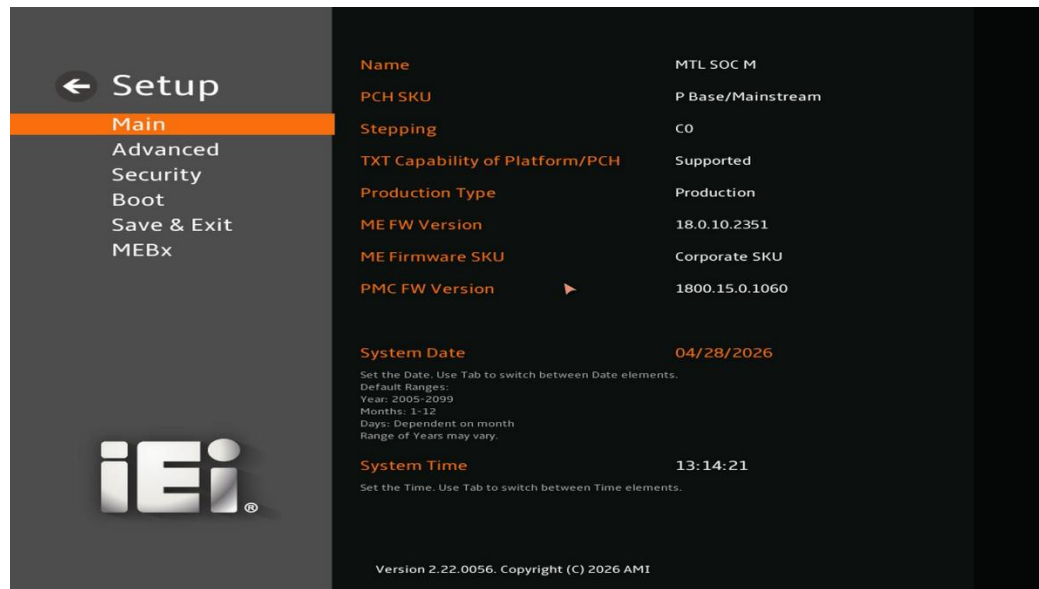


Figure 6-4: BIOS Main (3/3)

➔ BIOS Information

The **BIOS Information** lists a brief summary of the BIOS. The fields in **BIOS Information** cannot be changed. The items shown in the system overview include:

- **BIOS Vendor:** Installed BIOS vendor
- **Core Version:** Current BIOS version
- **Compliance:** Current UEFI & PI version
- **Project Version:** the board version
- **Build Date and Time:** Date the current BIOS version was made
- **Access Level:** Administrator
- **EC Version:** Current EC version

➔ Processor Information

The **Processor Information** lists a brief summary of the Processor. The fields in **Processor Information** cannot be changed. The items shown in the system overview include:

Name: Displays the Processor Details

Type: Displays the Processor Type

Speed: Displays the Processor Speed

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ID: Displays the Processor ID

Stepping: Displays the Processor Stepping

Package: Processor packaging information

Number of Efficient-core(s): Specifies the number of efficiency cores and threads of the processor

Number of Performance-core(s): Specifies the core and thread count of the processor

Number of Low Power E-core(s): Specifies the number of low-power efficiency cores and threads of the processor.

Microcode Revision: CPU Microcode Revision

IGFX GOP Version: Integrated Graphics card Graphics Output Protocol Version

Total Memory: Total Memory in the System

Memory Frequency: Displays the Frequency of Memory

➔ PCH Information

The **PCH Information** lists a brief summary of the PCH. The fields in **PCH Information** cannot be changed. The items shown in the system overview include:

- **Name:** Displays the PCH Name
- **PCH SKU:** Displays the PCH SKU
- **Stepping:** Displays the PCH Stepping
- **TXT Capability of Platform/PCH:** Does the platform support Intel technology
- **Production Type:** Manufacturing Type
- **ME FW Version:** Displays the ME Firmware Version
- **ME Firmware SKU:** Displays the ME Firmware SKU
- **PMC FW Version:** Power management controller firmware version
- **System Date [xx/xx/xx]:** Use the **System Date** option to set the system date. Manually enter the day, month and year.
- **System Time [xx:xx:xx]:** Use the **System Time** option to set the system time. Manually enter the hours, minutes and seconds.

6.3 Advanced

Use the **Advanced** menu to configure the CPU and peripheral devices through the following sub-menus:



WARNING!

Setting the wrong values in the sections below may cause the system to malfunction. Make sure that the settings made are compatible with the hardware.

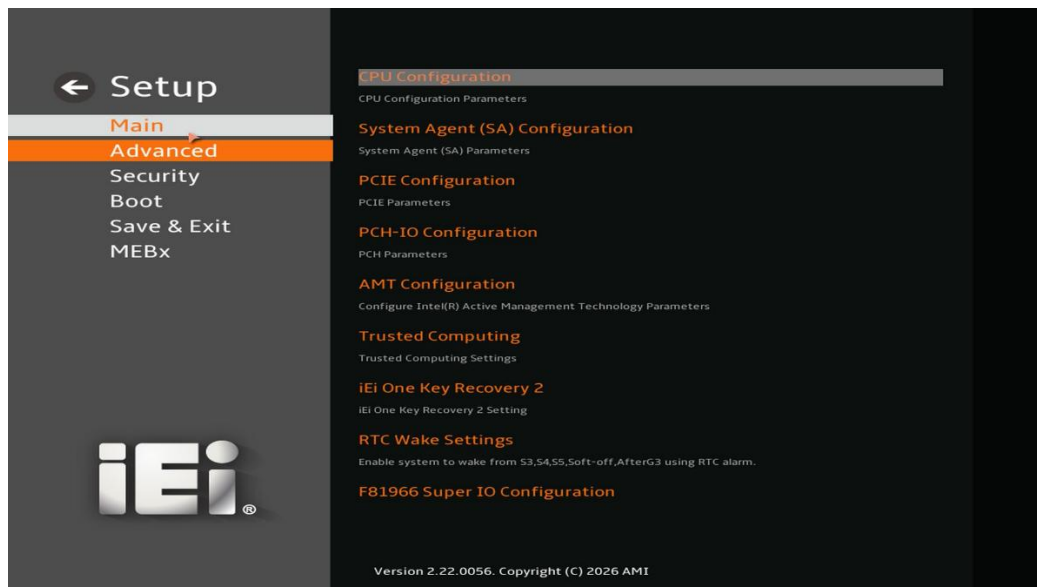


Figure 6-5: BIOS Advanced (1/2)

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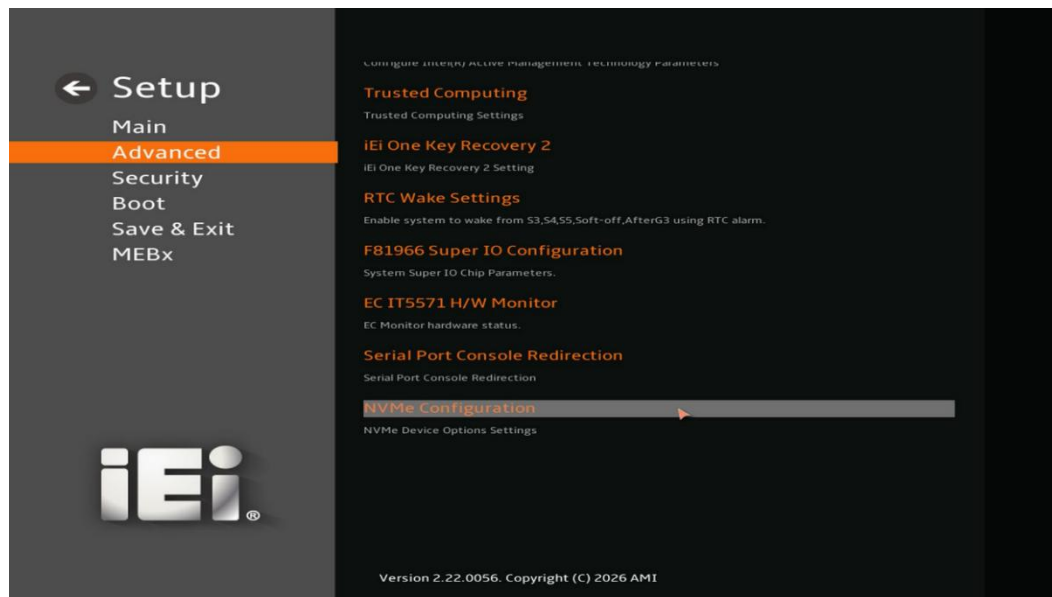


Figure 6-6: BIOS Advanced (2/2)

6.3.1 CPU Configuration

Use the **CPU Configuration** menu to view detailed CPU specifications or enable the Intel Virtualization Technology.

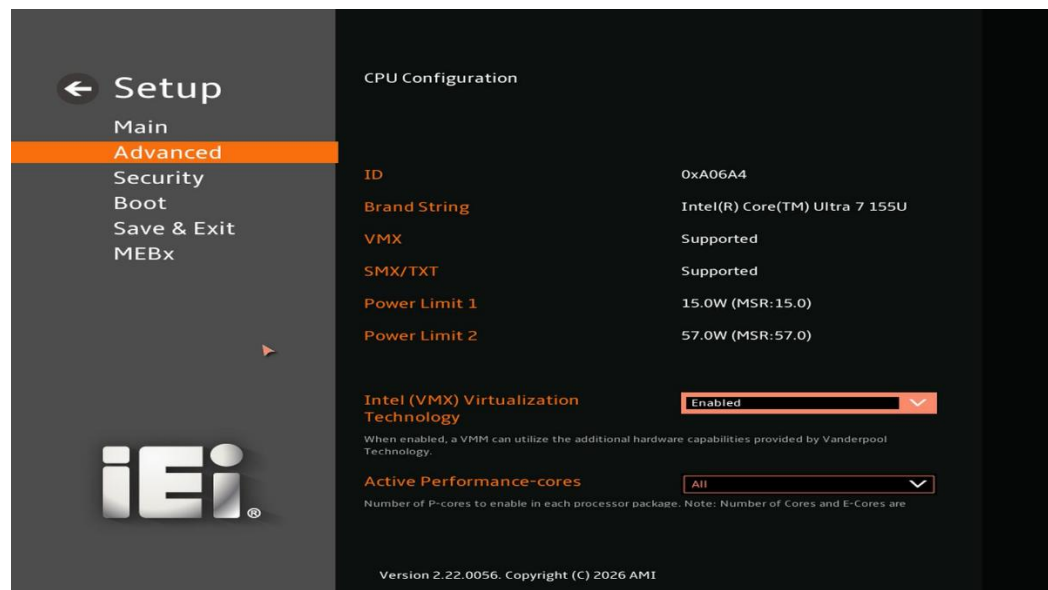


Figure 6-7: CPU Configuration (1/3)

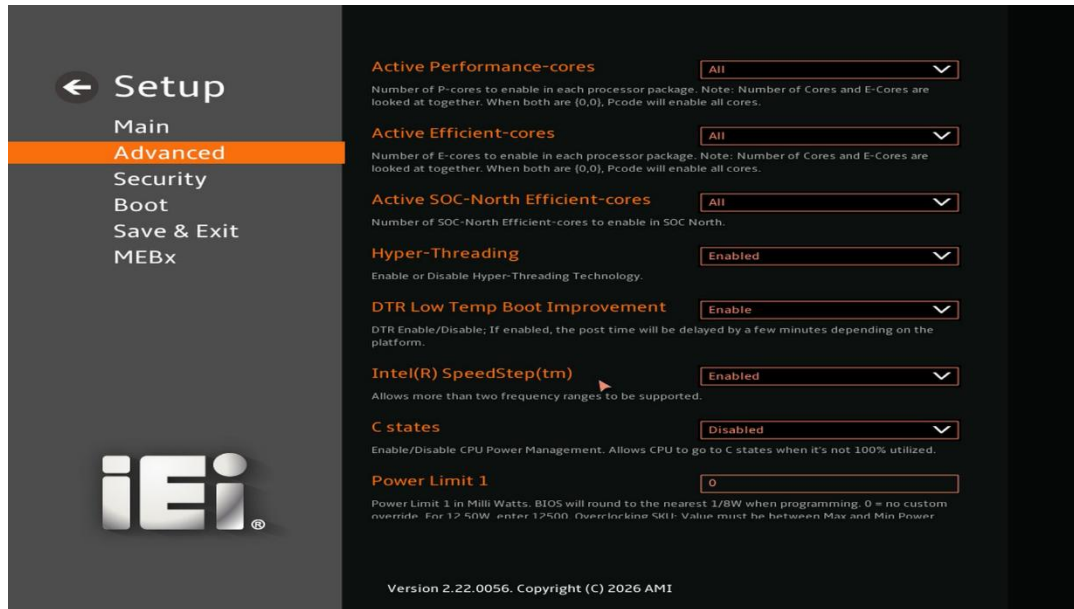


Figure 6-8: CPU Configuration (2/3)

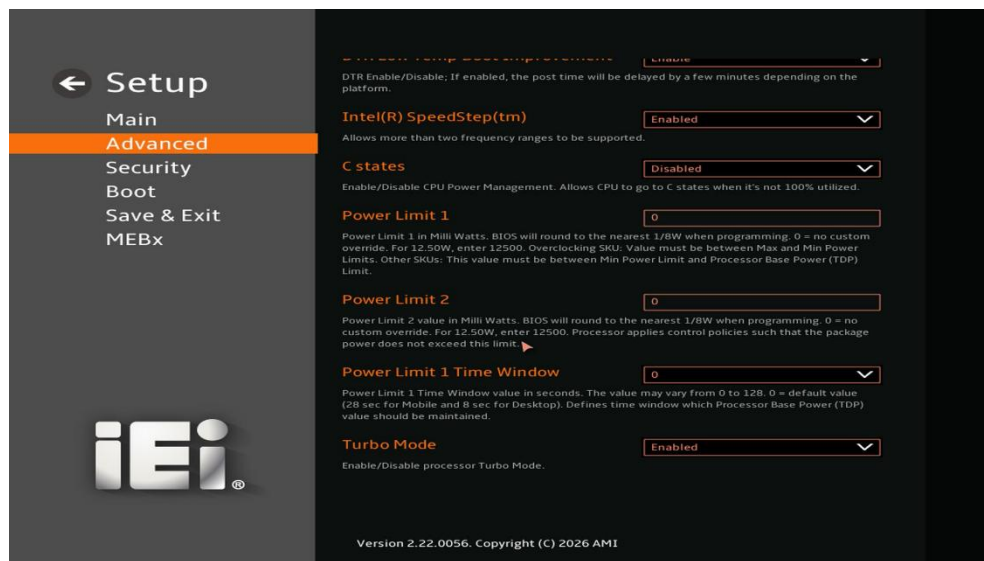


Figure 6-9: CPU Configuration (3/3)

➔ Intel (VMX) Virtualization Technology [Enabled]

Use the **Intel (VMX) Virtualization Technology** option to enable or disable virtualization on the system. When combined with third party software, Intel® Virtualization technology allows several OSs to run on the same system at the same time. When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology

➔ Disabled

Disables Intel Virtualization Technology.

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→ **Enabled** **DEFAULT** Enables Intel Virtualization Technology.

→ **Active Performance-cores [All]**

Use the **Active Performance-cores** BIOS option to enable numbers of Performance-cores in the processor package. Number of P-cores to enable in each processor package. Note: Number of Cores and E-Cores are looked at together. When both are {0,0}, Pcode will enable all cores.

→ **All** **DEFAULT** Enable all cores in the processor package.

→ **1** Enable one core in the processor package.

→ **Active Efficient-cores [All]**

Use the **Active Efficient-cores** BIOS option to enable numbers of Efficient-cores in the processor package. Number of E-cores to enable in each processor package. Note: Number of Cores and E-Cores are looked at together. When both are {0,0}, Pcode will enable all cores.

→ **All** **DEFAULT** Enable all cores in the processor package.

→ **0** Enable no core in the processor package.

→ **1** Enable one core in the processor package.

→ **2** Enable two cores in the processor package.

→ **3** Enable three cores in the processor package.

→ **4** Enable four cores in the processor package.

→ **5** Enable five cores in the processor package.

→ **6** Enable six cores in the processor package.

→ **7** Enable seven cores in the processor package.

→ **Active SOC-North Efficient-cores**

Number of SOC-North Efficient-cores to enable in SOC North.

→ **All** **DEFAULT** Enable all cores in SOC North.

- ➔ 0 Enable no core in SOC North.
- ➔ 1 Enable one core in SOC North.

➔ Hyper-Threading [Enable]

Enable or Disable Hyper-Threading Technology.

- ➔ **Disabled** Disables Hyper-Threading Technology
- ➔ **Enabled** **DEFAULT** Enables Hyper-Threading Technology

➔ DTR Low Temp Boot Improvement [Enabled]

Enables a delay during the POST process to allow components to warm up, ensuring system stability when booting in extreme low-temperature environments.

When **enabled**, the system will intentionally delay the boot sequence for a few minutes to stabilize the hardware timing before entering the OS.

➔ Intel® SpeedStep™ [Enable]

Allows more than two frequency ranges to be supported.

- ➔ **Disabled** Disables Intel® SpeedStep™
- ➔ **Enabled** **DEFAULT** Enables Intel® SpeedStep™

➔ C states [Disabled]

Use the **C states** option to enable or disable the CPU Power Management.

- ➔ **Disabled** **DEFAULT** Disables CPU to go to C states when it's not 100% utilized.
- ➔ **Enabled** Enables CPU to go to C states when it's not 100% utilized.

➔ Power Limit 1

Use the **Power Limit 1** to set Power Limit in Milli Watts. BIOS will round to the nearest 1/8W when programming. 0 = no custom override. For 12.50W, enter 12500. Overclocking SKU: Value must be between Max and Min Power Limits. Other SKUs: This value must be between Min Power limit and TDP Limit. If value is 0, BIOS will program TDP value.

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➔ Power Limit 2

Use the **Power Limit 2** to set Power Limit in Milli Watts. BIOS will round to the nearest 1/8W when programming. If the value is 0, BIOS will program this value as $1.25 \times \text{TDP}$. For 12.50W, enter 12500. Processor applies control policies such that the package power does not exceed this limit.

➔ Power Limit 1 Time Window

Power Limit 1 Time Window value in second. The value may vary from 0 to 128.0, 0 = default value (28 sec for mobile and 8 sec for desktop). Defines time window which TDP value should be maintained.

➔ Turbo Mode

Use the **Turbo Mode** option to enable or disable processor Turbo Mode.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Enabled | DEFAULT | Enable the processor to enter Turbo Mode. |
| ➔ | Disabled | | Disabled the processor to enter Turbo Mode. |

6.3.2 System Agent (SA) Configuration

Use the **System Agent (SA) Configuration** menu to configure the System Agent (SA) parameters.

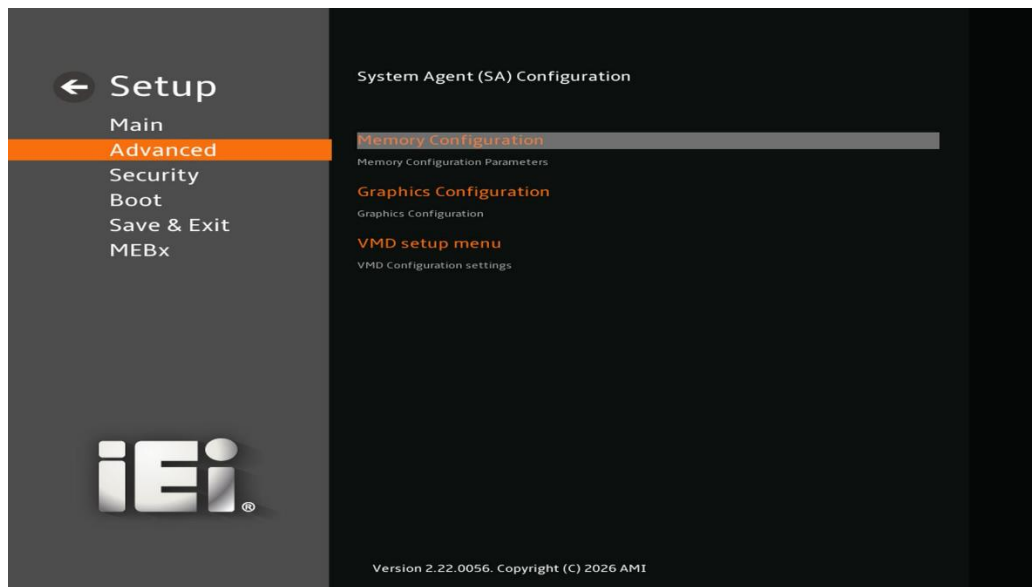


Figure 6-10: System Agent (SA) Configuration

6.3.2.1 Memory Configuration

Use the **Memory Configuration** submenu to view memory information.

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Figure 6-11: Memory Configuration

6.3.2.2 Graphics Configuration

Use the **Graphics Configuration** menu to configure the system's graphics.

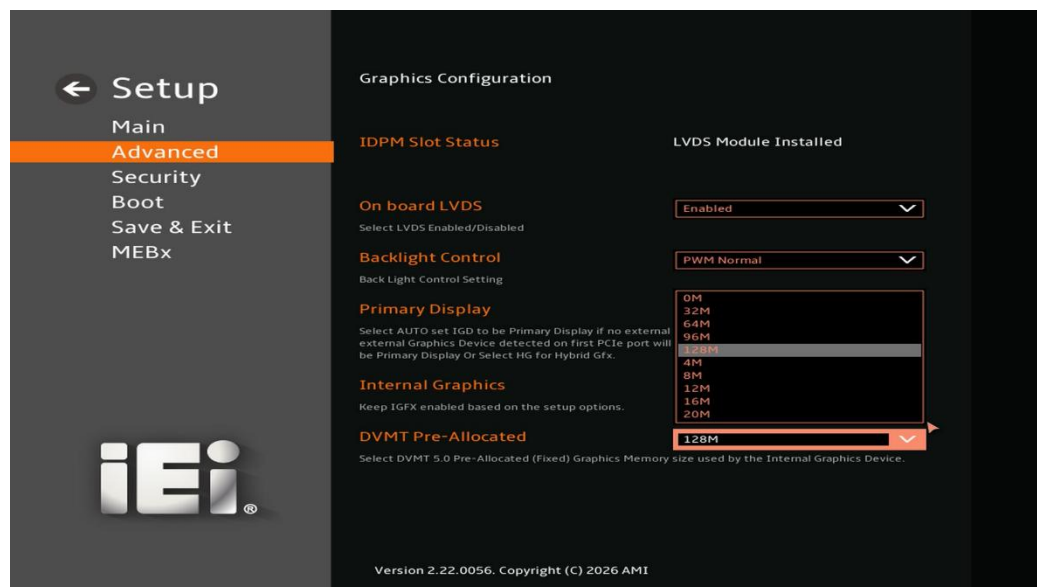


Figure 6-12: Memory Configuration

→ **IDPM Slot Status LVDS Module Installed**→ **On board LVDS [Enabled]****Disabled**

Deselect LVDS.

Enabled**Default**

Select LVDS.

→ **Backlight Control [PWM Normal]**

Backlight Control Settings

- **PWM Normal Default** Uses a standard PWM signal to control the screen backlight brightness.
- **PWM Inverted** Uses an inverted-logic PWM signal to control the backlight.

→ **Primary Display [Auto]**

Use the **Primary Display** option to select the primary graphics controller the system uses.

The following options are available:

- **Auto Default** If no external graphics card is connected, the integrated graphics device (IGD) will function as the primary display device. If an external graphics card is detected in the first PCIe slot, it will be set as the primary display device.
- **IGFX** Always set the integrated graphics as the primary display device.
- **HG** Enable Hybrid Graphics Mode.

→ **Internal Graphics [Enabled]**

Use the Internal Graphics option to configure whether to keep IGFX enabled. If user wants to support dual display by internal graphics and external graphics, this Internal Graphics

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option should be set to Enabled and the above Primary Display option should be set to IGFX.

- | | | | |
|---|-----------------|----------------|---------------|
| ➔ | Auto | | Auto mode |
| ➔ | Disabled | | Disable IGFX. |
| ➔ | Enabled | Default | Enable IGFX. |

➔ DVMT Pre-Allocated [128M]

Use the **DVMT Pre-Allocated** option to set the amount of system memory allocated to the integrated graphics processor when the system boots. The system memory allocated can then only be used as graphics memory, and is no longer available to applications or the operating system. Configuration options are listed below:

- | | | |
|---|------|----------------|
| ▪ | 128M | Default |
| ▪ | 0M | |
| ▪ | 32M | |
| ▪ | 64M | |
| ▪ | 96M | |
| ▪ | 128M | |
| ▪ | 4M | |
| ▪ | 8M | |
| ▪ | 12M | |
| ▪ | 16M | |
| ▪ | 20M | |

6.3.2.3 VMD Setup menu

Use the **VMD Setup menu** to configure the VMD controller.

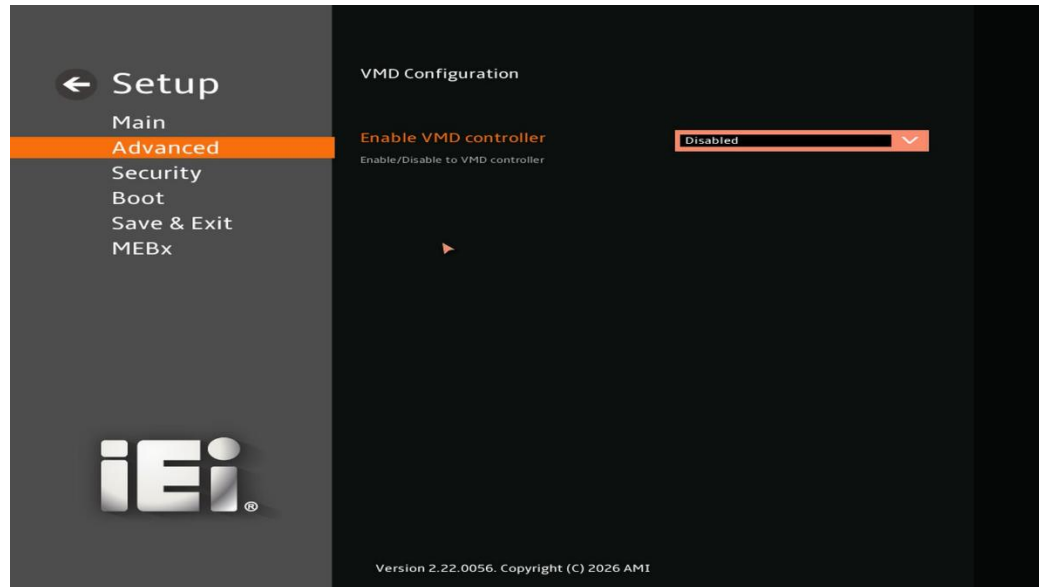


Figure 6-13: VMD Setup menu

→ Enable VMD Controller [Disabled]

VMD Controller is an Intel platform technology for managing NVMe SSDs. When enabled, the system can manage NVMe SSDs connected via PCIe lanes through the VMD controller (typically supporting RAID functionality)

- | | | | |
|---|-----------------|----------------|-------------------------|
| → | Disabled | DEFAULT | Disable VMD Controller. |
| → | Enabled | | Enable VMD Controller. |

6.3.3 PCIE Configuration

Use the **PCIE Configuration** menu to configure the KEY_B, KEY_E and KEY_M.

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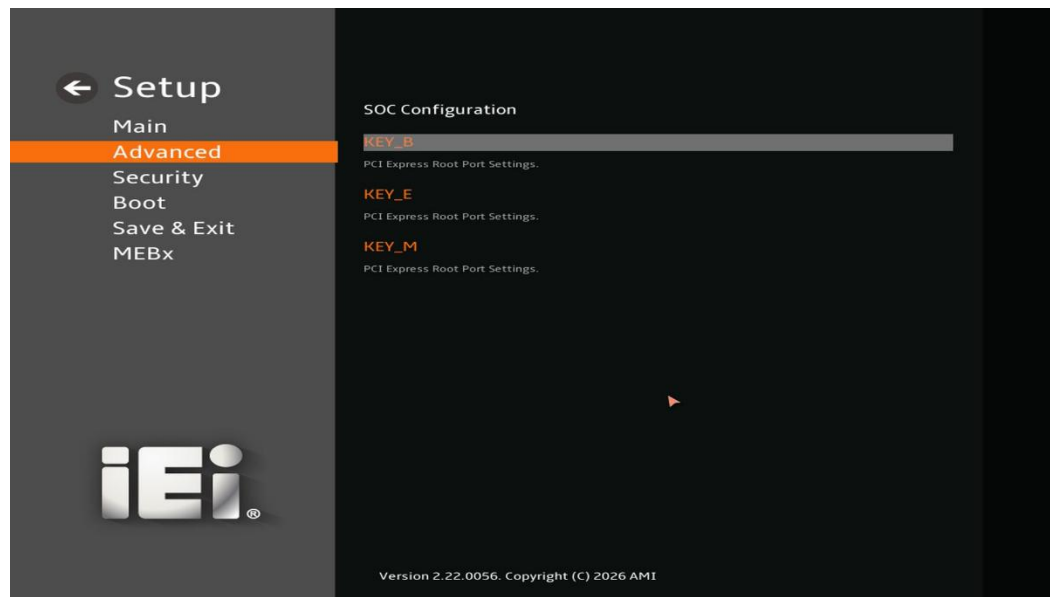


Figure 6-14: PCIe Configuration

6.3.3.1 KEY_B

Use the KEY_B menu to change and/or set the configuration of the KEY_B devices installed in the system.

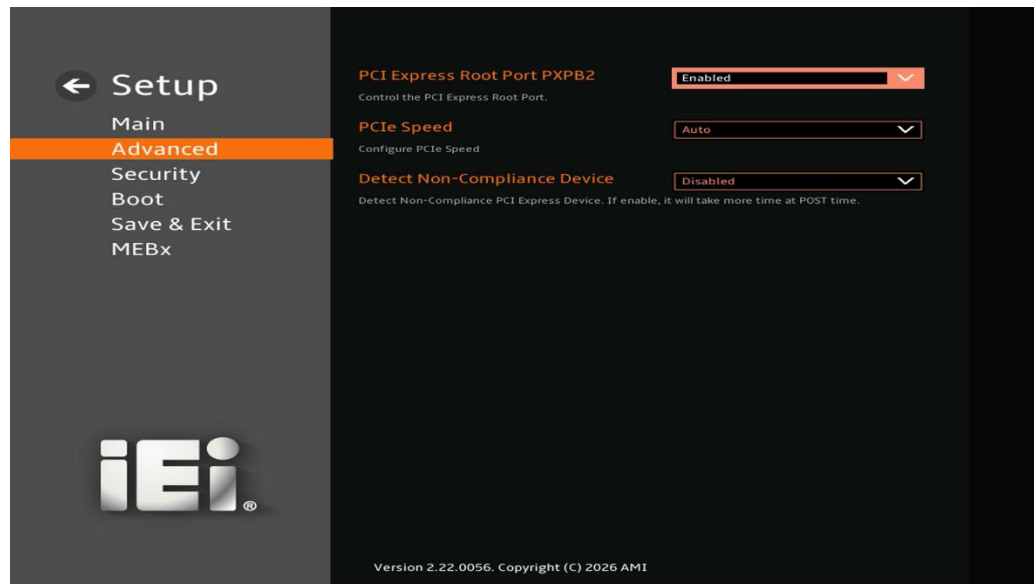


Figure 6-15: KEY_B

→ **PCI Express Root PXPB2 [Enabled]**

Use the **KEY_B** to Control the PCI Express Root Port.

- | | | | |
|---|-----------------|----------------|-------------------|
| → | Disabled | | Disable the KEY_B |
| → | Enabled | DEFAULT | Enable the KEY_B |

→ **PCIe Speed [Auto]**

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- | | | | |
|---|-------------|----------------|-------------------------------|
| → | Auto | DEFAULT | Auto mode. |
| → | Gen1 | | Configure PCIe Speed to Gen1. |
| → | Gen2 | | Configure PCIe Speed to Gen2. |
| → | Gen3 | | Configure PCIe Speed to Gen3. |
| → | Gen4 | | Configure PCIe Speed to Gen4. |

→ **Detect Non-Compliance Device [Disabled]**

Use the **Detect Non-Compliance Device** to detect Non-Compliance PCI Express Device. If enabled, it will take more time at POST time.

- | | | | |
|---|-----------------|----------------|---|
| → | Disabled | | Disable the Detect Non-Compliance Device. |
| → | Enabled | DEFAULT | Enable the Detect Non-Compliance Device. |

6.3.3.2 KEY_E

Use the **KEY_E** menu to change and/or set the configuration of the **KEY_E** devices installed in the system.

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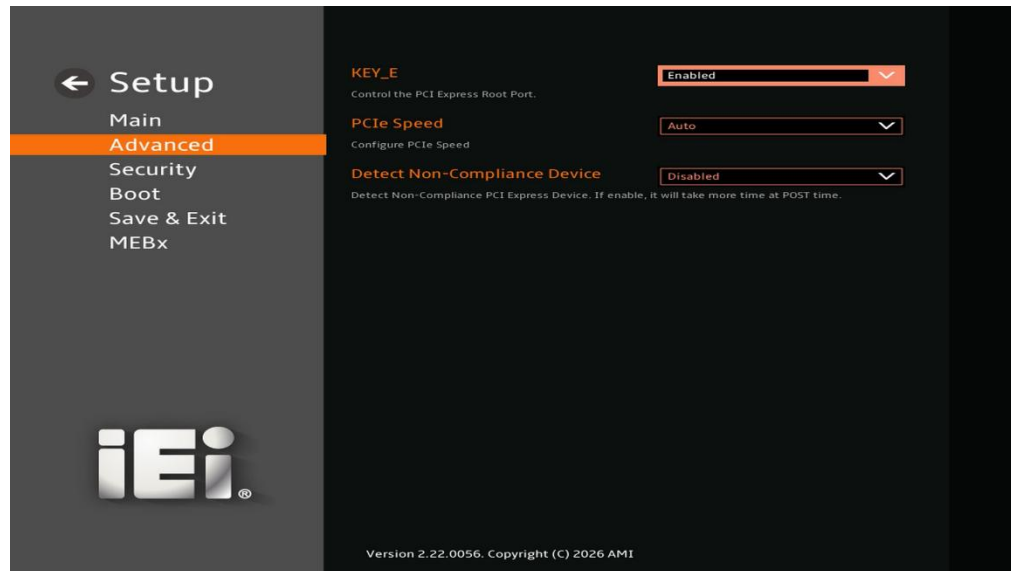


Figure 6-16: KEY_E

→ KEY_E [Enabled]

Use the **KEY_E** to Control the PCI Express Root Port.

- **Disabled** Disable the KEY_E
- **Enabled** **DEFAULT** Enable the KEY_E

→ PCIe Speed [Auto]

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- **Auto** **DEFAULT** Auto mode.
- **Gen1** Configure PCIe Speed to Gen1.
- **Gen2** Configure PCIe Speed to Gen2.
- **Gen3** Configure PCIe Speed to Gen3.
- **Gen4** Configure PCIe Speed to Gen4.

→ Detect Non-Compliance Device [Disabled]

Use the **Detect Non-Compliance Device** to detect Non-Compliance PCI Express Device. If enabled, it will take more time at POST time.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | | Disable the Detect Non-Compliance Device. |
| ➔ | Enabled | DEFAULT | Enable the Detect Non-Compliance Device. |

6.3.3.3 KEY_M

Use the KEY_M menu to change and/or set the configuration of the KEY_M devices installed in the system.

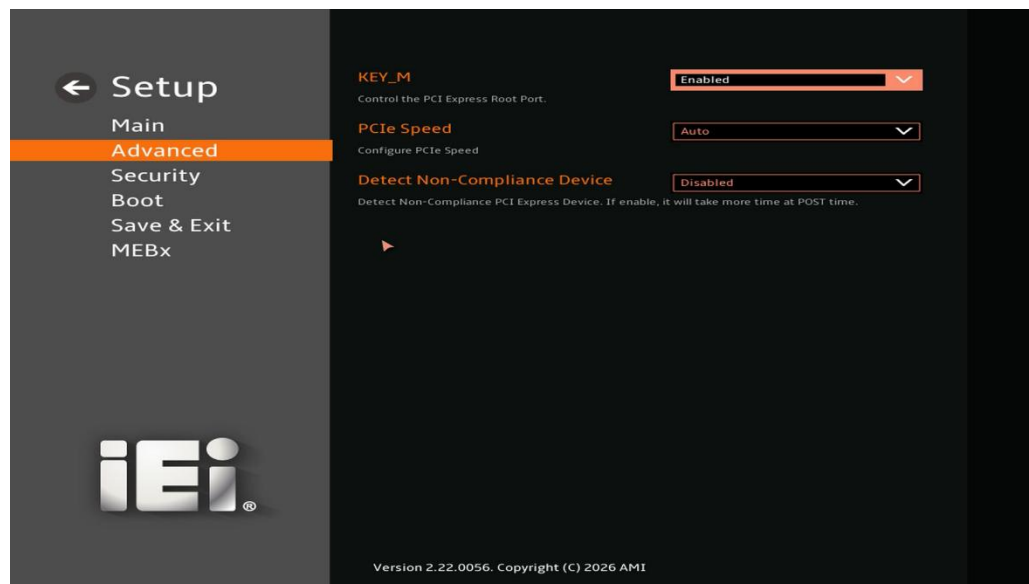


Figure 6-17: KEY_M

➔ KEY_M [Enabled]

Use the **KEY_M** to Control the PCI Express Root Port.

- | | | | |
|---|-----------------|----------------|-------------------|
| ➔ | Disabled | | Disable the KEY_M |
| ➔ | Enabled | DEFAULT | Enable the KEY_M |

➔ PCIe Speed [Auto]

Use the **PCIe Speed** option to specify the PCI Express port speed. Configuration options are listed below.

- | | | | |
|---|-------------|----------------|------------|
| ➔ | Auto | DEFAULT | Auto mode. |
|---|-------------|----------------|------------|

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- ➔ **Gen1** Configure PCIe Speed to Gen1.
- ➔ **Gen2** Configure PCIe Speed to Gen2.
- ➔ **Gen3** Configure PCIe Speed to Gen3.
- ➔ **Gen4** Configure PCIe Speed to Gen4.

➔ Detect Non-Compliance Device [Disabled]

Use the **Detect Non-Compliance Device** to detect Non-Compliance PCI Express Device.
If enabled, it will take more time at POST time.

- ➔ **Disabled** Disable the Detect Non-Compliance Device.
- ➔ **Enabled** **DEFAULT** Enable the Detect Non-Compliance Device.

6.3.4 PCH-IO Configuration

Use the **PCH-IO Configuration** menu to configure the PCH parameters.

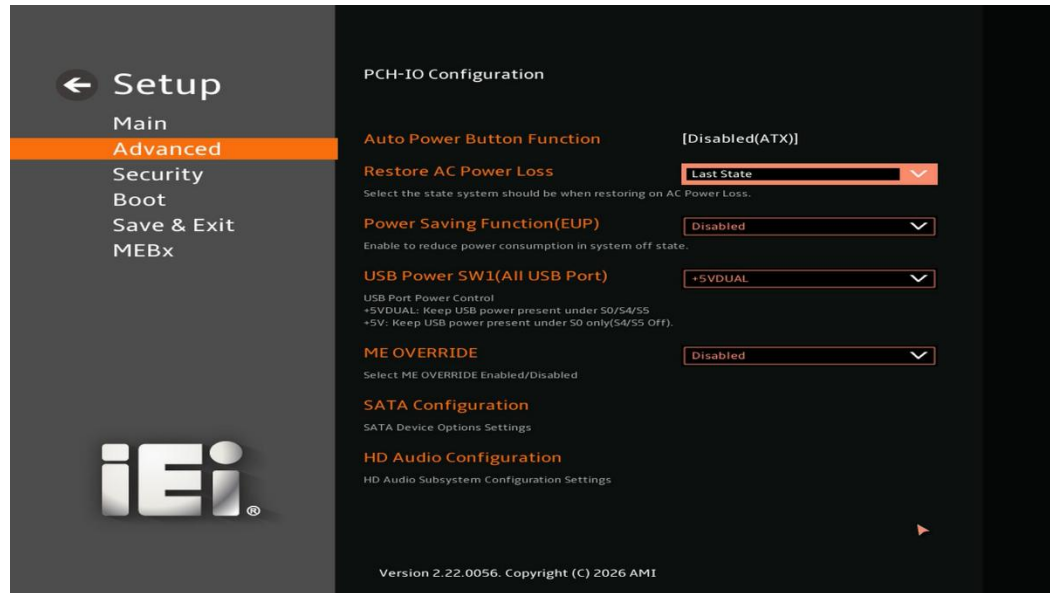


Figure 6-18: PCH-IO Configuration

➔ Auto Power Button Function [Disabled (ATX)]

Use the **Auto Power Button Function** BIOS option to show the power mode state. Use the **J_ATX_AT1** to switch the AT/ATX power mode.

- ➔ **Enabled (AT)** **DEFAULT** The system power mode is AT.
- ➔ **Disabled (ATX)** The system power mode is ATX.

➔ Restore AC Power Loss [Last State]

Use the **Restore AC Power Loss** BIOS option to specify what state the system returns to if there is a sudden loss of power to the system when the power mode is ATX.

- ➔ **Power Off** The system remains turned off
- ➔ **Power On** The system turns on
- ➔ **Last State** **DEFAULT** The system returns to its previous state. If it was on, it turns itself on. If it was off, it remains off.

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➔ Power Saving Function (EUP) [Disabled]

Use the **Power Saving Function (EUP)** BIOS option to enable or disable the power saving function.

- ➔ **Disabled** **DEFAULT** Power saving function is disabled.
- ➔ **Enabled** Power saving function is enabled. It will reduce power consumption when the system is off.

➔ USB Power SW1 (All USB Port) [+5V DUAL]

Use the **USB Power SW1** BIOS option to configure the USB power source for the corresponding USB connectors.

+5V DUAL: Keep USB power present under S0/S4/S5.

+5V: Keep USB power present under so only (S4/S5 off).

- ➔ **+5V DUAL** **DEFAULT** Sets the USB power source to +5V dual
- ➔ **+5V** Sets the USB power source to +5V

➔ ME Override [Disable]

Use the **ME Override** to enable or disable the ME Override.

- ➔ **Disabled** **DEFAULT** ME Override is disabled.
- ➔ **Enabled** ME Override is enabled.

6.3.4.1 SATA Configuration

Use the SATA Configuration menu to change and/or set the configuration of the SATA devices installed in the system.

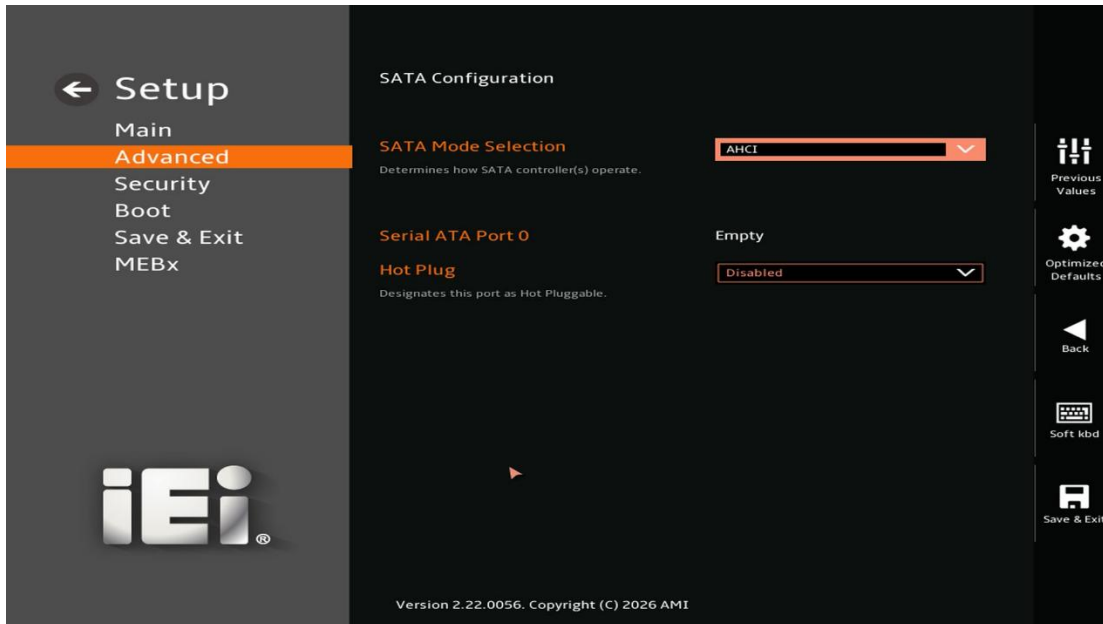


Figure 6-19: SATA Configuration

➔ **SATA Mode Selection [AHCI]**

Use the **SATA Mode Selection** option to determine how the SATA devices operate.

➔ **AHCI** **DEFAULT** Configures SATA devices as AHCI device.

➔ **Serial ATA Port 0 [Empty]**

➔ **Hot Plug [Disabled]**

Use the **Hot Plug** option to designate the SATA port as hot pluggable.

➔ **Disabled** **DEFAULT** Disable the hot-pluggable function of the SATA port.

➔ **Enabled** Designate the SATA port as hot-pluggable.

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6.3.4.2 HD Audio Configuration

Use the **HD Audio Configuration** menu to configure the HD Audio subsystem configuration settings.

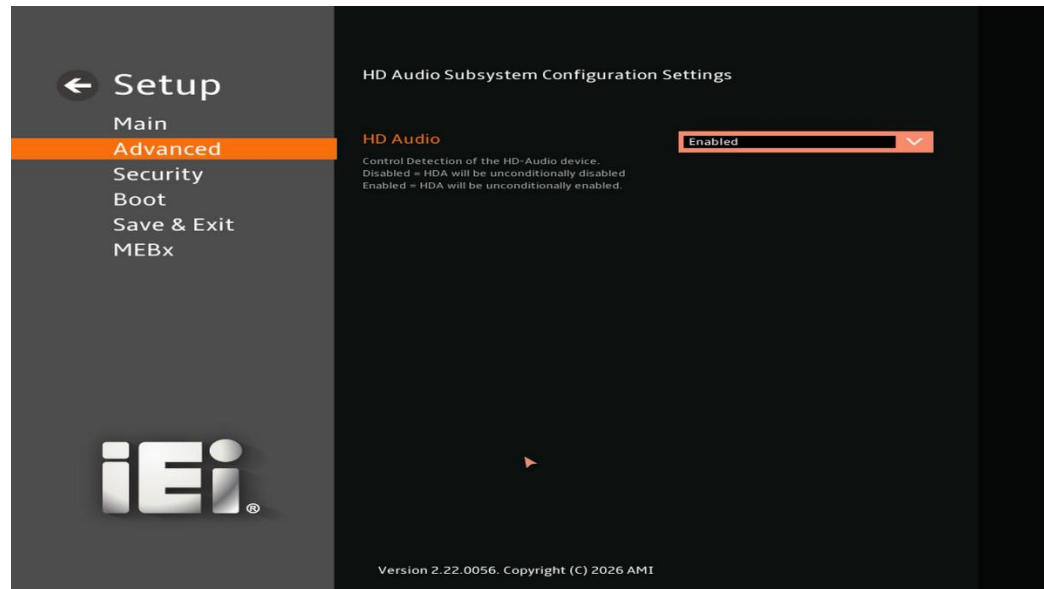


Figure 6-20: HD Audio Configuration

➔ HD Audio [Enabled]

Use the **HD Audio** option to enable or disable the High-Definition Audio controller.

- ➔ **Disabled** The onboard High-Definition Audio controller is disabled.
- ➔ **Enabled DEFAULT** The onboard High-Definition Audio controller is enabled.

6.3.5 AMT Configuration

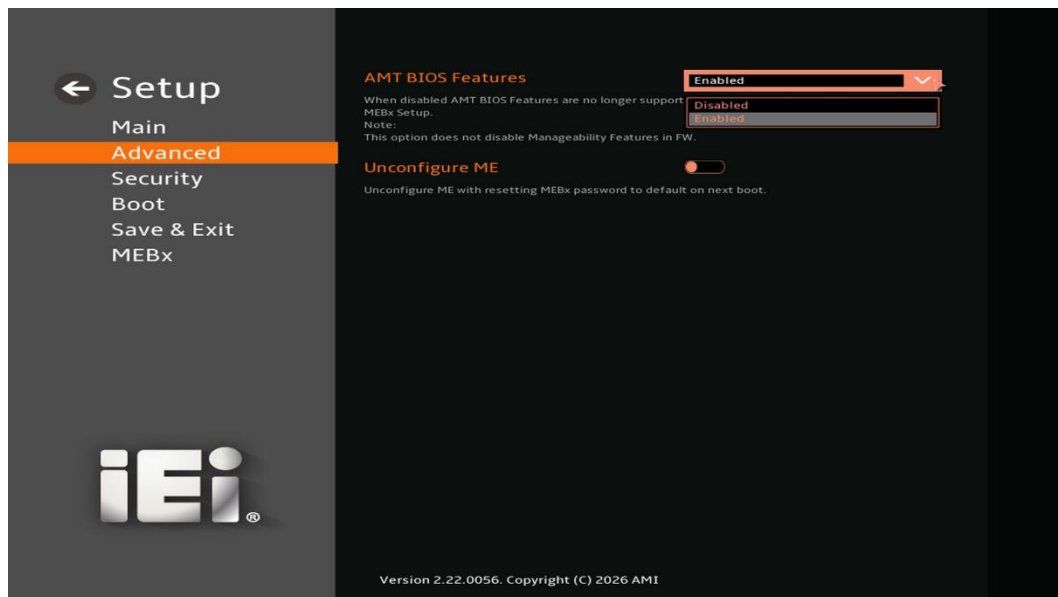


Figure 6-21: AMT Configuration

→ AMT BIOS Features

When disabled **AMT BIOS Features** are no longer supported and user is no longer able to access MEBx Setup.

Note: This option does not disable Manageability Features in FW

- **Disabled** Disabled the AMT BIOS Features can reduce potential security risks and may improve system boot speed.
- **Enabled** **DEFAULT** Enabled the AMT BIOS Features to use remote management capabilities.

→ Unconfigure ME

Use the **Unconfigure ME** option to unconfigure ME with resetting MEBx password to default on next boot.

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6.3.6 Trusted Computing

Use the **Trusted Computing** menu to configure settings related to the Trusted Computing Group (TCG) Trusted Platform Module (TPM).

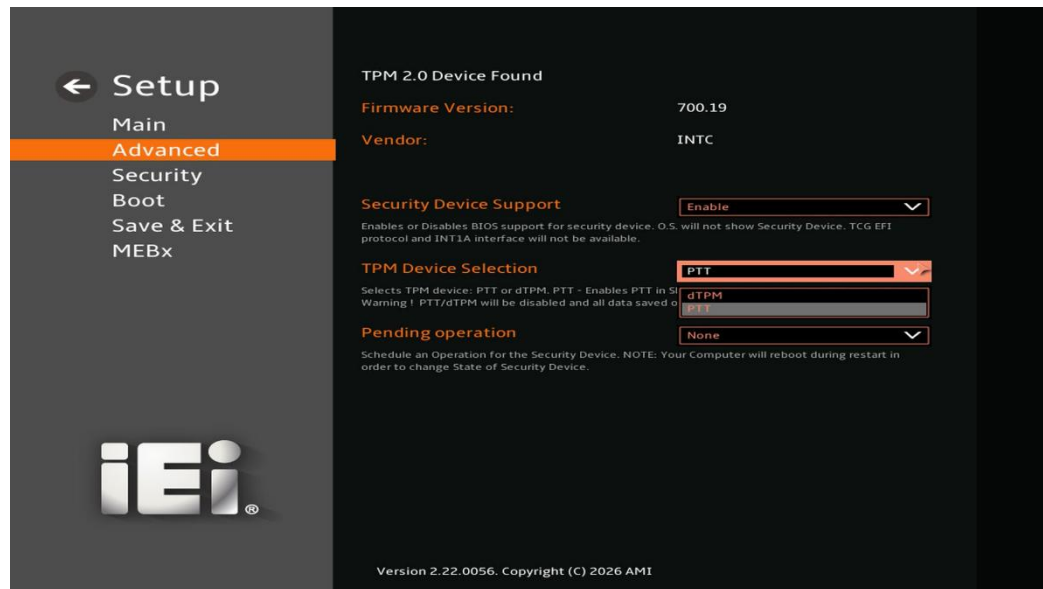


Figure 6-22: Trusted Computing

➔ **Security Device Support [Enabled]**

Use the **Security Device Support** option to configure support for the TPM.

- ➔ **Disable** TPM support is disabled.
- ➔ **Enable DEFAULT** TPM support is enabled.

➔ **TPM Device Selection [PTT]**

Use the **TPM Device Selection** option to enable or disable BIOS support for security devices.

- ➔ **dTPM** dTPM support is enabled.
- ➔ **PTT DEFAULT** PTT support is enabled.

➔ **Pending Operation [None]**

Use the **Pending Operation** option to schedule an operation for the security device.

- ➔ **None** **DEFAULT** TPM information is previous.
- ➔ **TPM Clear** TPM information is cleared

6.3.7 iEi One Key Recovery 2

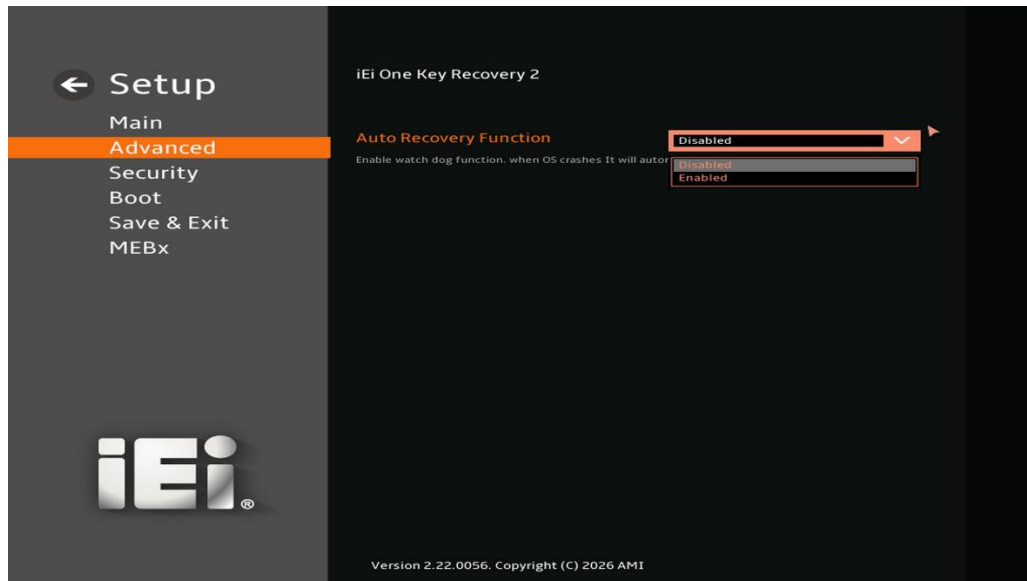


Figure 6-23: iEi One Key Recovery 2

➔ **Auto Recovery Function [Disabled]**

Use the **Auto Recovery Function** option to configure watch dog function.

- ➔ **Disabled** **DEFAULT** Auto recovery support is disabled.
- ➔ **Enabled** Auto recovery support is enabled.

6.3.8 RTC Wake Settings

The **RTC Wake Settings** menu configures RTC wake event.

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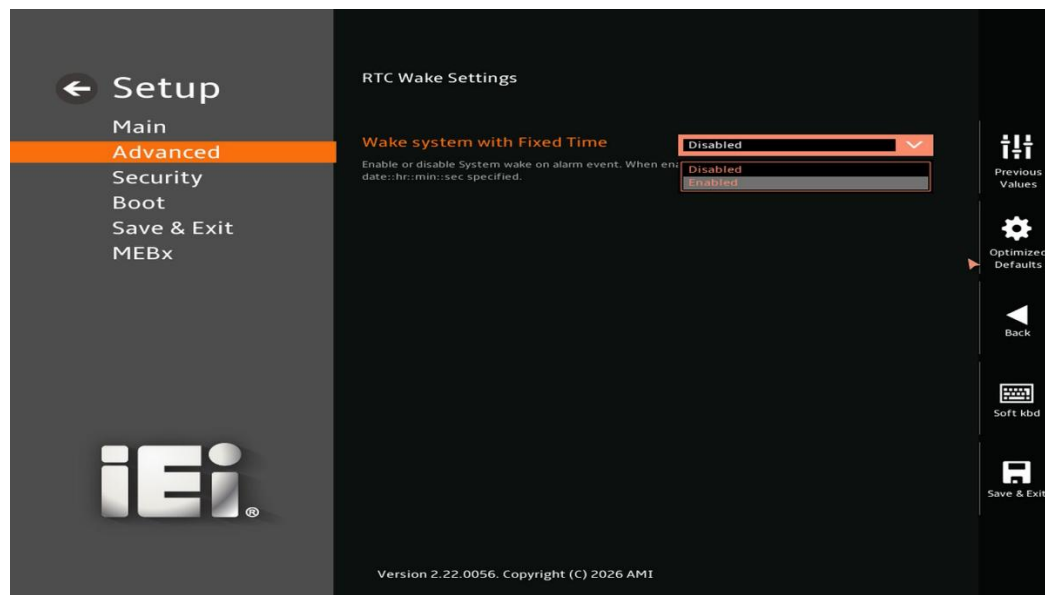


Figure 6-24: RTC Wake Settings

➔ Wake System with Fixed Time [Disabled]

Use the **Wake System with Fixed Time** option to specify the time the system should be roused from a suspended state.

- ➔ **Disabled** **DEFAULT** The real time clock (RTC) cannot generate a wake event
- ➔ **Enabled** If selected, the following appears with values that can be selected:

6.3.9 F81966 Super IO Configuration

Use the **F81966 Super IO Configuration** menu to set or change the configurations for the serial ports.

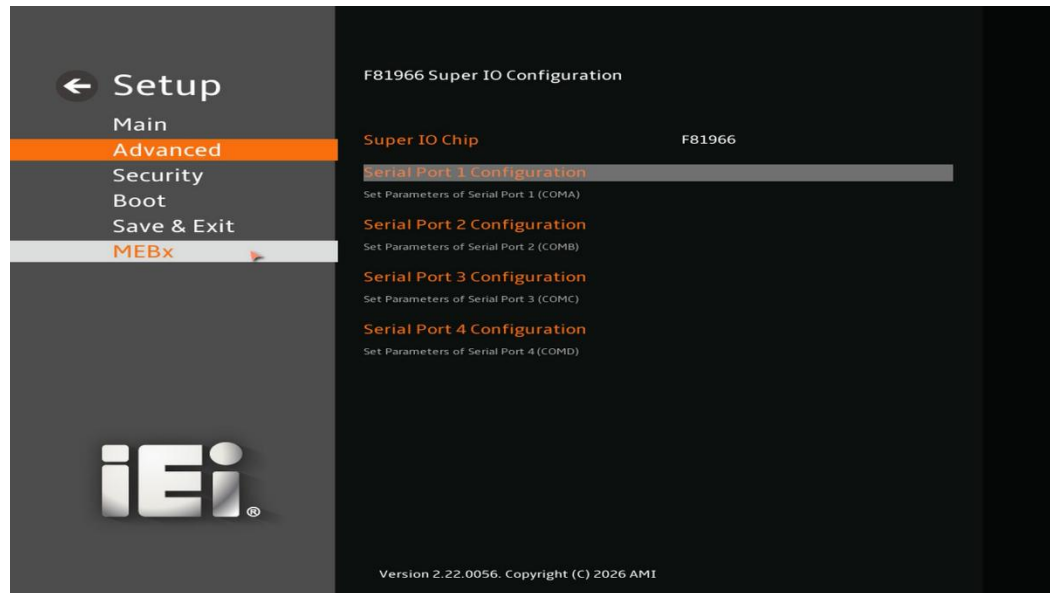


Figure 6-25: F81966 Super IO Configuration

6.3.9.1 Serial Port 1 Configuration

Use the **Serial Port 1 Configuration** to configure the serial port 1.

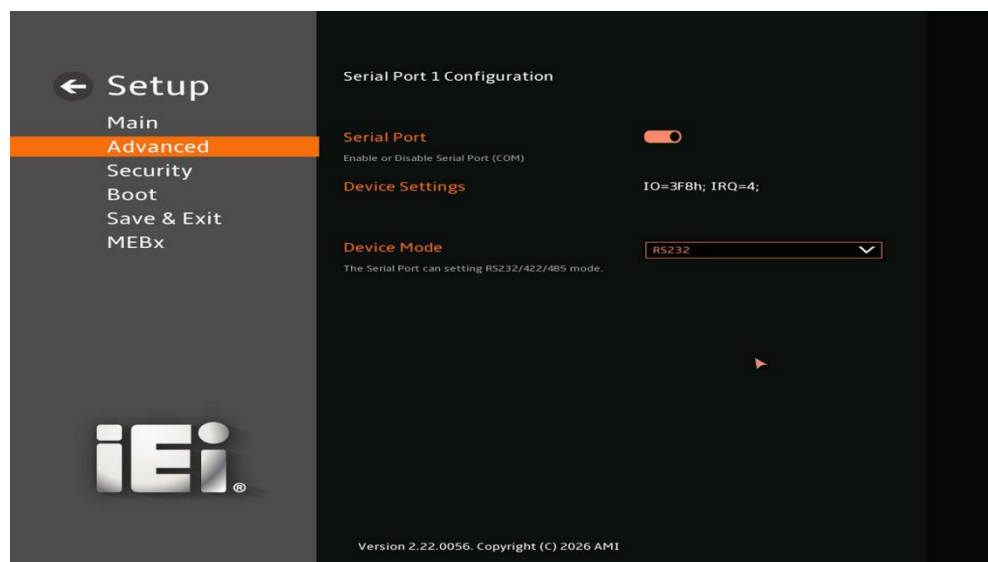


Figure 6-26: Serial Port 1 Configuration

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→ Serial Port [Enabled]

Use the **Serial Port** option to enable or disable the serial port.

- | | | | |
|---|-----------------|----------------|-------------------------|
| → | Disabled | | Disable the serial port |
| → | Enabled | DEFAULT | Enable the serial port |

→ Device Settings

The **Device Settings** option shows the serial port IO port address and interrupt address.

- | | | | |
|---|-----------------|--|--|
| → | IO=3F8h; | | Serial Port I/O port address is 3F8h and the interrupt |
| | IRQ=4 | | address is IRQ4 |

→ Device Mode [RS232]

Use the **Device Mode** option to select the Serial Port 1 signaling mode. Configuration options are listed below.

- | | | | |
|---|----------------------------|----------------|---|
| → | RS232 | DEFAULT | Serial Port 1 signaling mode is RS-232. |
| → | RS422 With resistor | | Serial Port 1 signaling mode is RS-422. |
| → | RS485 With resistor | | Serial Port 1 signaling mode is RS-485. |

6.3.9.2 Serial Port 2 Configuration

Use the **Serial Port 2 Configuration** to configure the serial port 2.

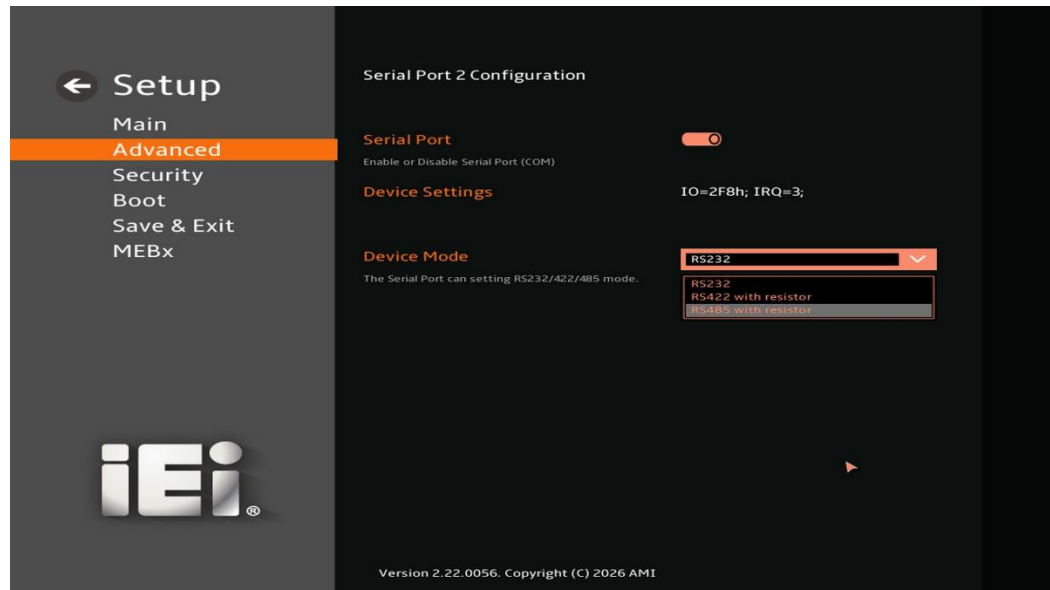


Figure 6-27: Serial Port 2 Configuration

➔ Serial Port [Enabled]

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled** **DEFAULT** Enable the serial port

➔ Device Settings

The **Device Settings** option shows the serial port IO port address and interrupt address.

- ➔ **IO=2F8h;** Serial Port I/O port address is 2F8h and the interrupt
IRQ=3 address is IRQ3

➔ Device Mode [RS232]

Use the **Device Mode** option to select the Serial Port 2 signaling mode. Configuration options are listed below.

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- ➔ **RS232** **DEFAULT** Serial Port 2 signaling mode is RS-232.
- ➔ **RS422 With resistor** Serial Port 2 signaling mode is RS-422.
- ➔ **RS485 With resistor** Serial Port 2 signaling mode is RS-485.

6.3.9.3 Serial Port 3 Configuration

Use the **Serial Port 3 Configuration** to configure the serial port 3.

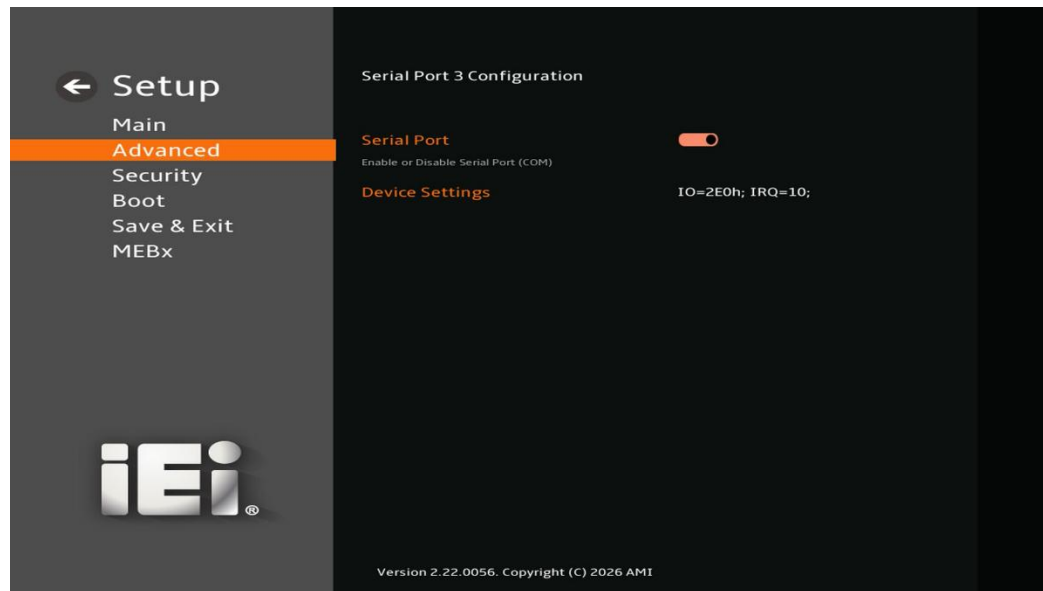


Figure 6-28: Serial Port 3 Configuration

➔ **Serial Port [Enabled]**

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled** **DEFAULT** Enable the serial port

➔ **Device Settings**

The **Device Settings** option shows the serial port IO port address and interrupt address.

- ➔ **IO=2E0h;** Serial Port I/O port address is 2E0h and the interrupt
IRQ=10 address is IRQ10

6.3.9.4 Serial Port 4 Configuration

Use the **Serial Port 4 Configuration** to configure the serial port 4

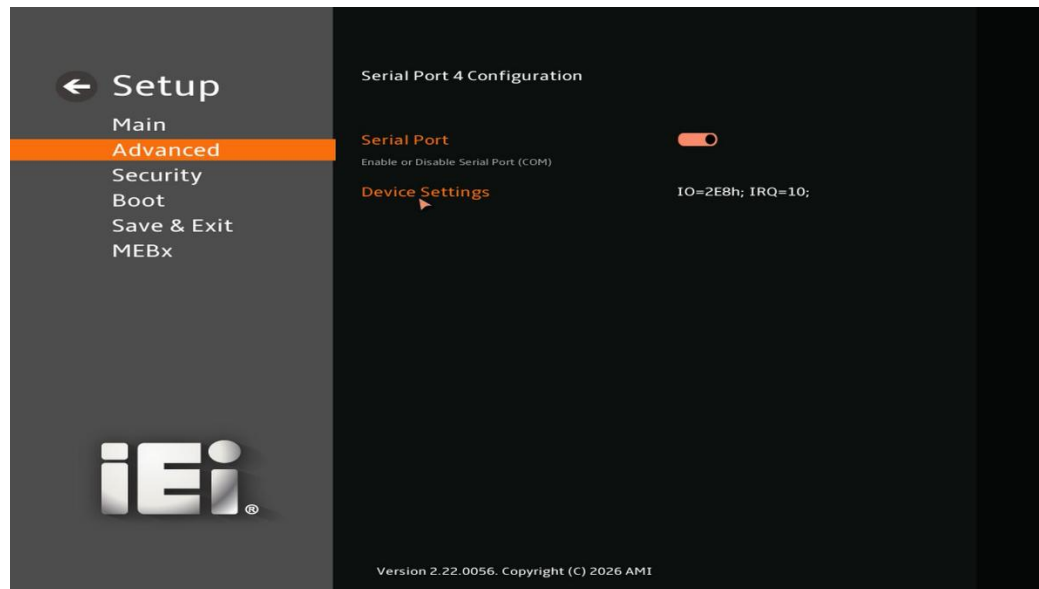


Figure 6-29: Serial Port 4 Configuration

➔ Serial Port [Enabled]

Use the **Serial Port** option to enable or disable the serial port.

- ➔ **Disabled** Disable the serial port
- ➔ **Enabled** **DEFAULT** Enable the serial port

➔ Device Settings

The **Device Settings** option shows the serial port IO port address and interrupt address.

- ➔ **IO=2E8h;** Serial Port I/O port address is 2E8h and the interrupt
IRQ=10 address is IRQ10

6.3.10 EC IT5571 H/W Monitor

The **EC IT5571 H/W Monitor** menu shows the state of H/W real-time operating temperature, fan speed and system voltages, and contains the system thermal control and the smart fan mode configuration submenus.

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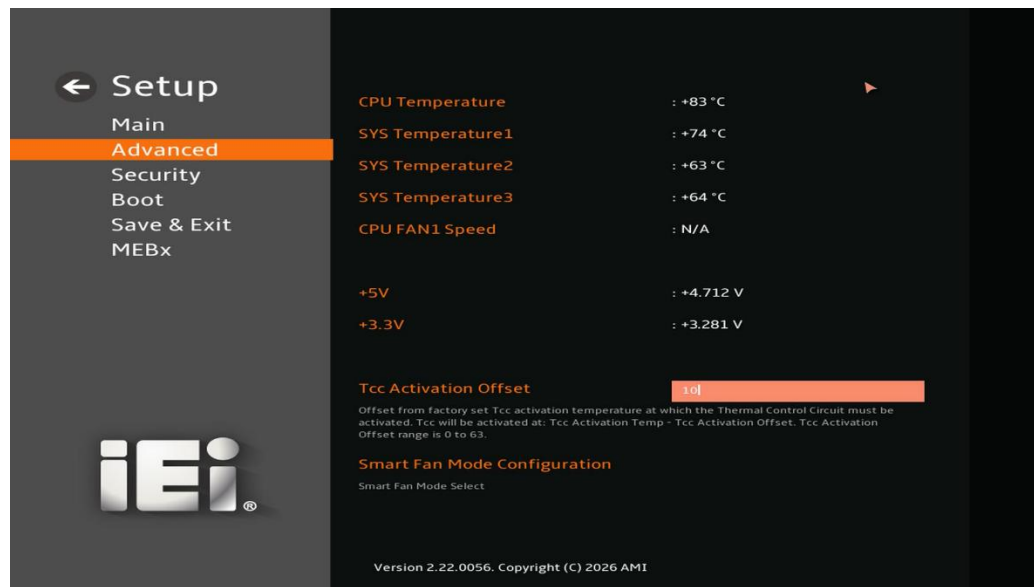


Figure 6-30: EC IT5571 H/W Monitor

➔ Tcc Activation Offset [10]

This setting adjusts the offset from the factory-defined Thermal Control Circuit (TCC) activation temperature, determining when the TCC should activate. The activation temperature is calculated as: $\text{TCC Activation Temperature} = \text{Factory Set Temperature} - \text{TCC Activation Offset}$. The offset range is between 0 and 63.

6.3.10.1 Smart Fan Mode Configuration

Use the **Smart Fan Mode Configuration** submenu to configure the CPU/system fan start/off temperature and control mode.

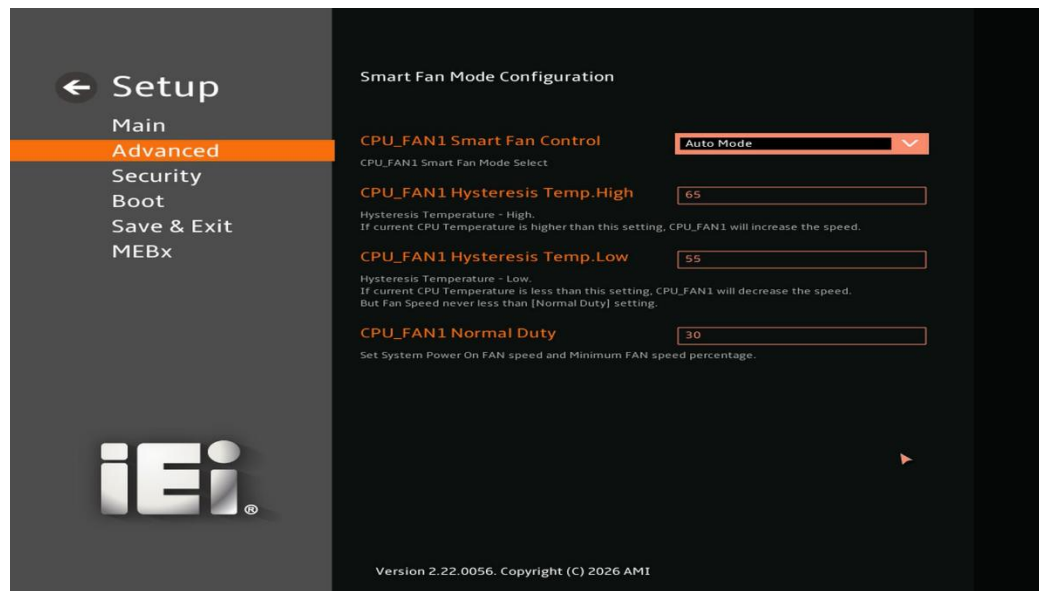


Figure 6-31: Smart Fan Mode Configuration

→ CPU_FAN1 Smart Fan Control [Auto Mode]

Use the **CPU_FAN1 Smart Fan Control** option to configure the CPU Smart Fan.

- **Manual Mode** The fan spins at the speed set in Manual Mode settings.
- **Auto Mode** **DEFAULT** The fan adjusts its speed using Auto Mode settings.

→ CPU_FAN 1 Hysteresis Temp.High [65]

If the CPU temperature is higher than this setting, CPU_FAN 1 will start faster. Use the + or – key to change the value or enter a decimal number between 1 and 100.

→ CPU_FAN 1 Hysteresis Temp.Low [55]

If the CPU temperature is lower than the value set this option, the fan speed change to be lowest. To set a value, Use the + or – key to change the value or enter a decimal number between 1 and 100.

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→ CPU_FAN 1 Normal Duty [30]

Use the CPU_FAN 1 Normal Duty option to set the PWM start value. Use the + or – key to change the value or enter a decimal number between 1 and 100.

6.3.11 Serial Port Console Redirection

The **Serial Port Console Redirection** menu allows the console redirection options to be configured. Console Redirection allows users to maintain a system remotely by re-directing keyboard input and text output through the serial port.

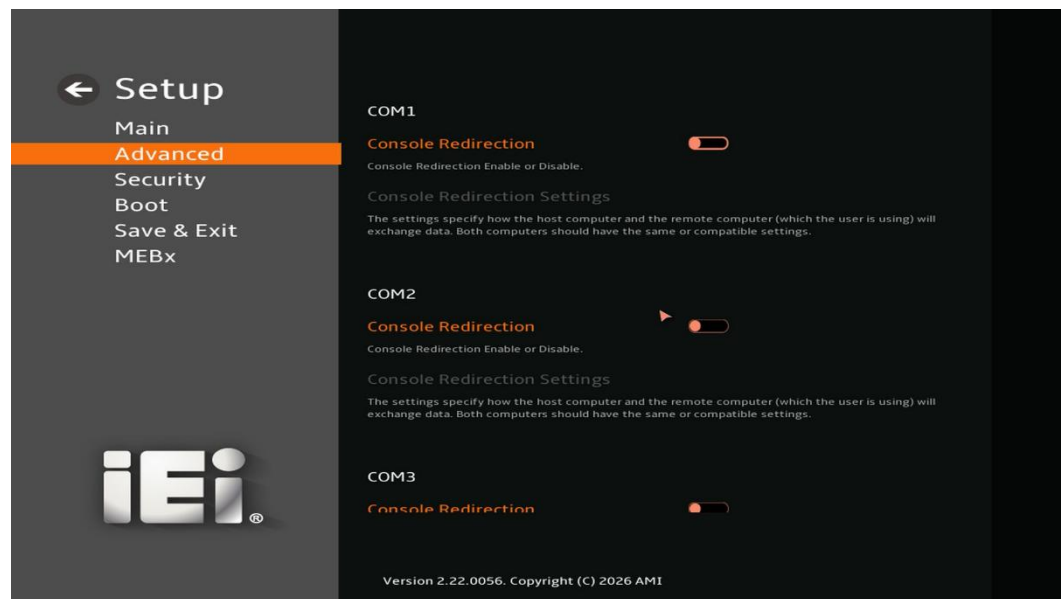


Figure 6-32: Serial Port Console Redirection (1/2)

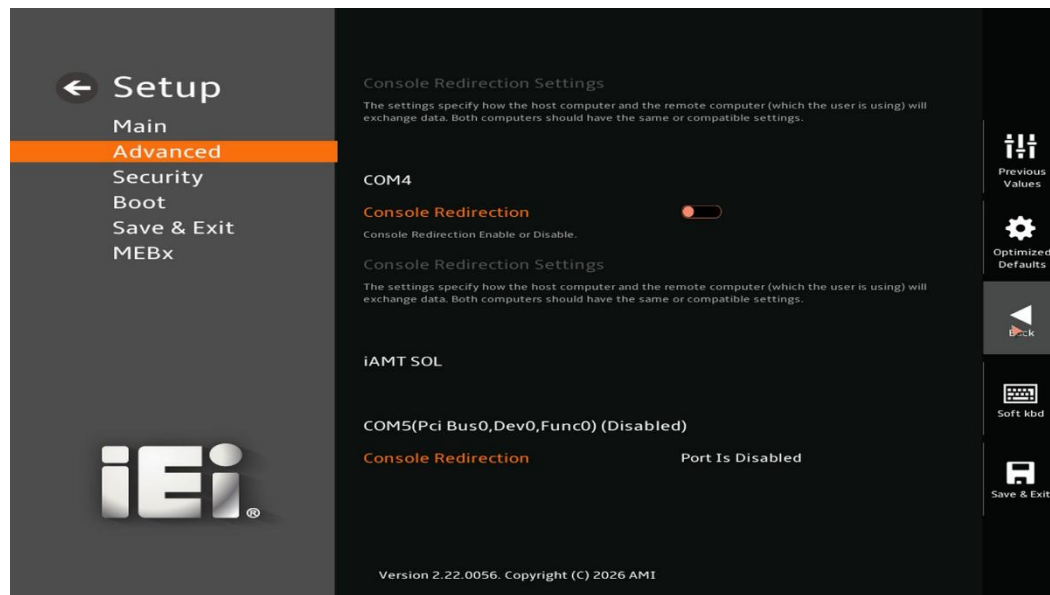


Figure 6-33: Serial Port Console Redirection (1/2)

→ Console Redirection [Disabled]

Use **Console Redirection** option to enable or disable the console redirection function.

- **Disabled** **DEFAULT** Disabled the console redirection function
- **Enabled** Enabled the console redirection function

The **Console Redirection Settings** submenu will be available when the **Console Redirection** option is enabled.

6.3.11.1 Console Redirection Settings

The following options are available in the **Console Redirection Settings** submenu when the COM Console Redirection (for COM1 to COM4) option is enabled.

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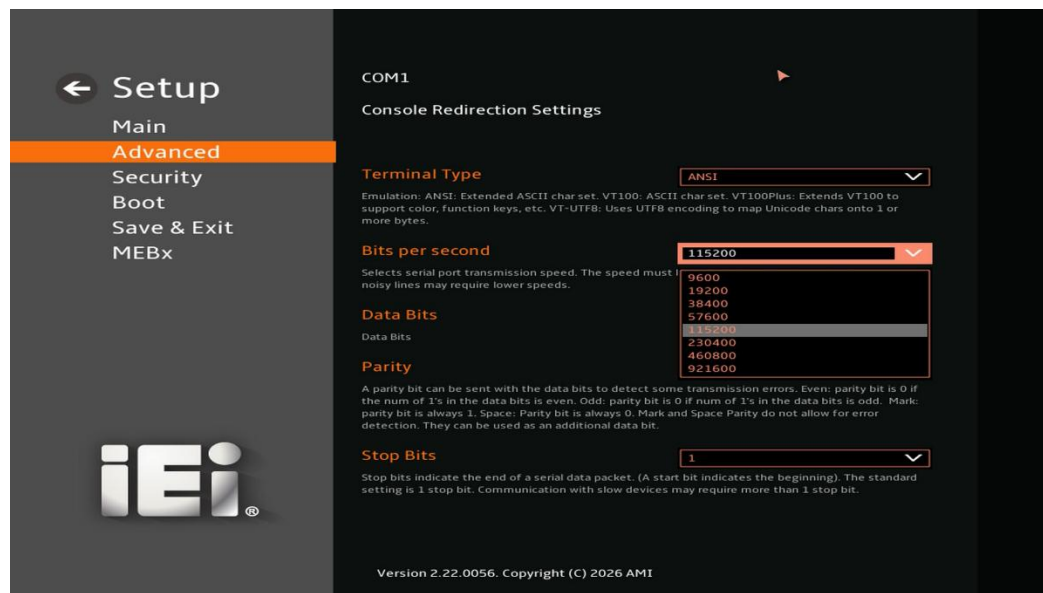


Figure 6-34: Console Redirection Settings

➔ Terminal Type [ANSI]

Use the **Terminal Type** option to specify the remote terminal type.

- ➔ **VT100** The target terminal type is VT100
- ➔ **VT100Plus** The target terminal type is VT100Plus
- ➔ **VT-UTF8** The target terminal type is VT-UTF8
- ➔ **ANSI** **DEFAULT** The target terminal type is ANSI

➔ Bits per second [115200]

Use the **Bits per second** option to specify the serial port transmission speed. The speed must match on the other side. Long or noisy lines may require lower speeds.

- ➔ **9600** Sets the serial port transmission speed at 9600.
- ➔ **19200** Sets the serial port transmission speed at 19200.

→	38400		Sets the serial port transmission speed at 38400.
→	57600		Sets the serial port transmission speed at 57600.
→	115200	DEFAULT	Sets the serial port transmission speed at 115200.
→	230400		Sets the serial port transmission speed at 230400.
→	460800		Sets the serial port transmission speed at 460800.
→	921600		Sets the serial port transmission speed at 921600.

→ **Data Bits [8]**

Use the **Data Bits** option to specify the number of data bits.

→	7		Sets the data bits at 7.
→	8	DEFAULT	Sets the data bits at 8.

→ **Parity [None]**

Use the **Parity** option to specify the parity bit that can be sent with the data bits for detecting the transmission errors.

→	None	DEFAULT	No parity bit is sent with the data bits.
→	Even		The parity bit is 0 if the number of ones in the data bits is even.
→	Odd		The parity bit is 0 if the number of ones in the data bits is odd.
→	Mark		The parity bit is always 1. This option does not allow for error detection.
→	Space		The parity bit is always 0. T This option does not allow for error detection.

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→ Stop Bits [1]

Use the **Stop Bits** option to specify the number of stop bits used to indicate the end of a serial data packet. Communication with slow devices may require more than 1 stop bit.

- 1 **DEFAULT** Sets the number of stop bits at 1.
- 2 Sets the number of stop bits at 2.

6.3.12 NVMe Configuration

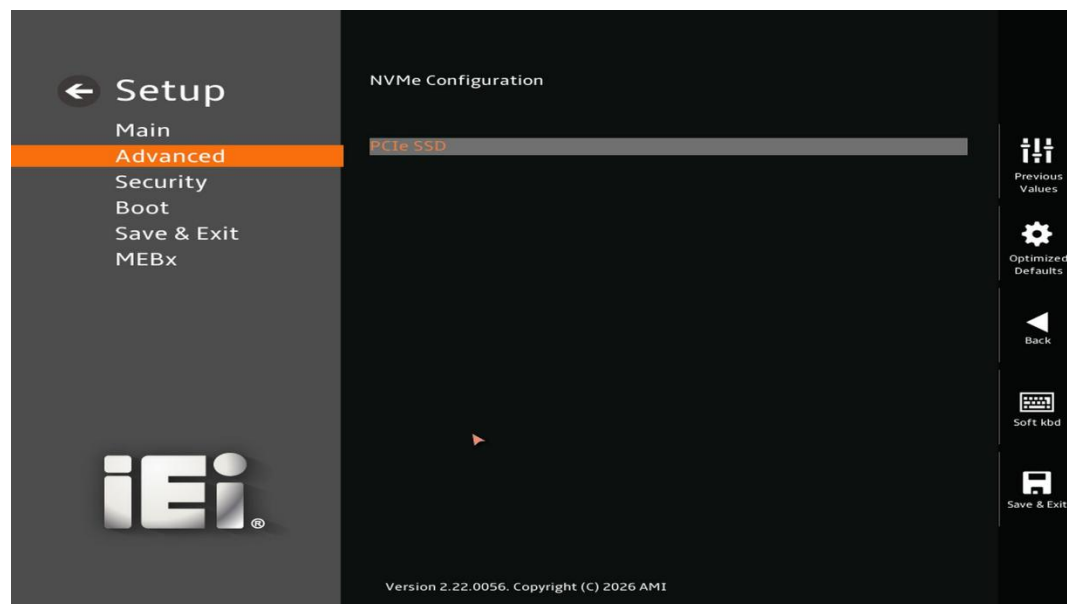


Figure 6-35: NVMe Configuration

6.3.12.1 PCIe SSD

Use the **PCIe SSD** menu to display the NVMe controller and device information.

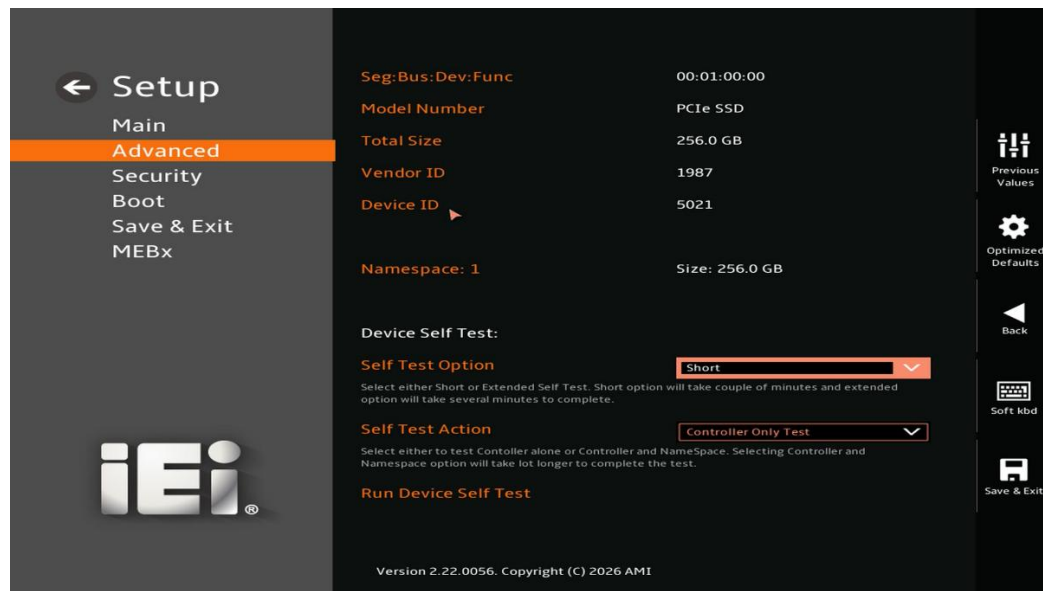


Figure 6-36: PCIe SSD (1/2)

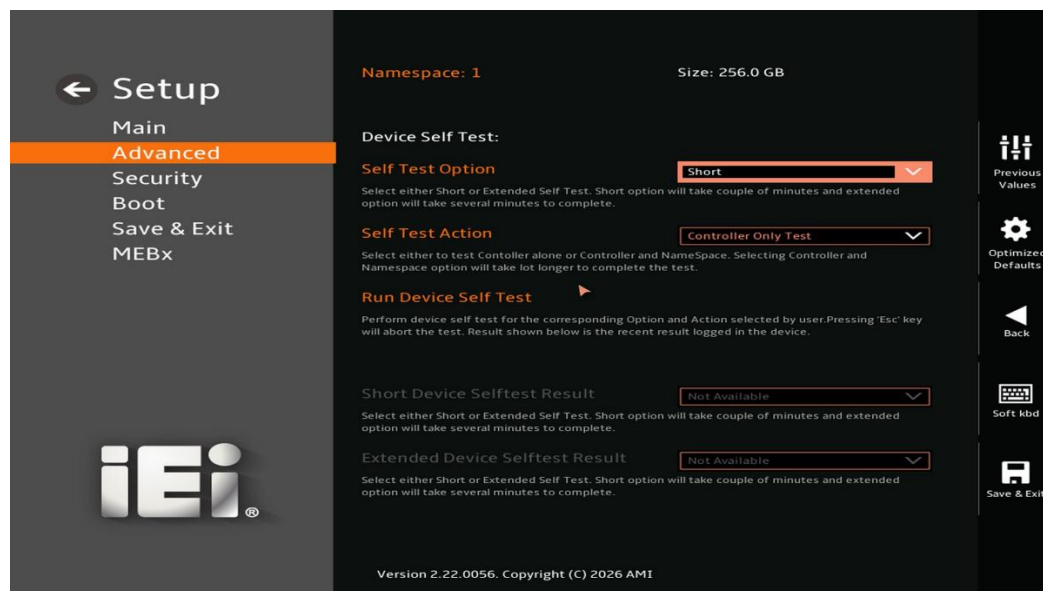


Figure 6-37: PCIe SSD (2/2)

- Seg: Bus: Dev: Func
- Model Number
- Total Size

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- Vendor ID
- Device ID
- Namespace: 1
 - Size: 256.0 GB

➔ Self Test Option [short]

Select either Short or Extended Self Test. Short option will take couple of minutes and extended option will take several minutes to complete.

➔ Self Test Action [Controller only Test]

Select either to test Controller alone or Controller and NameSpace. Selecting Controller and Namespace option will take lot longer to complete the test.

➔ Run Device Self Test

Initiate the SSD self-test procedure based on the above settings to check hardware health.

6.4 Security

Use the **Security** menu to set system and user passwords.

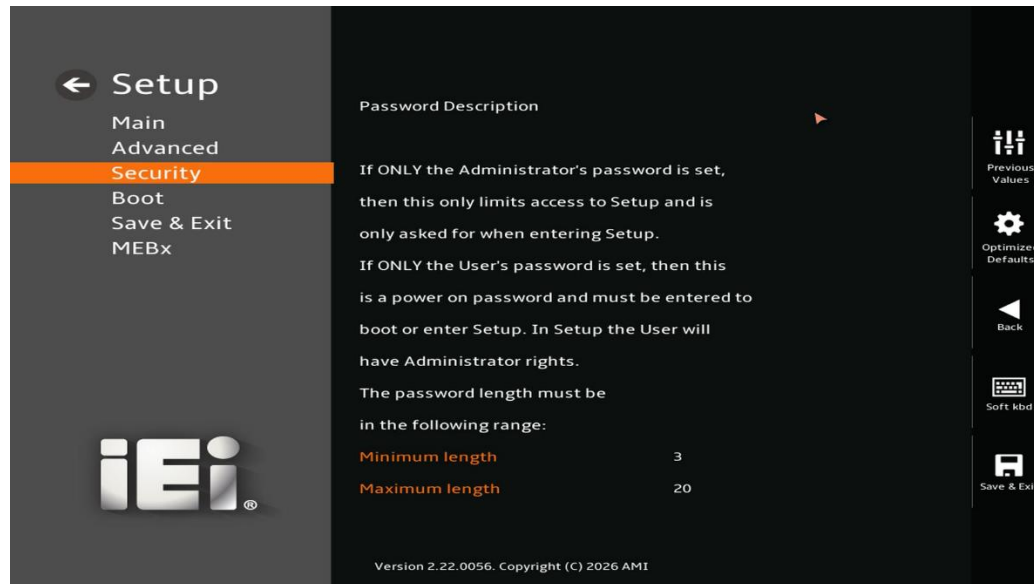


Figure 6-38: Security (1/2)

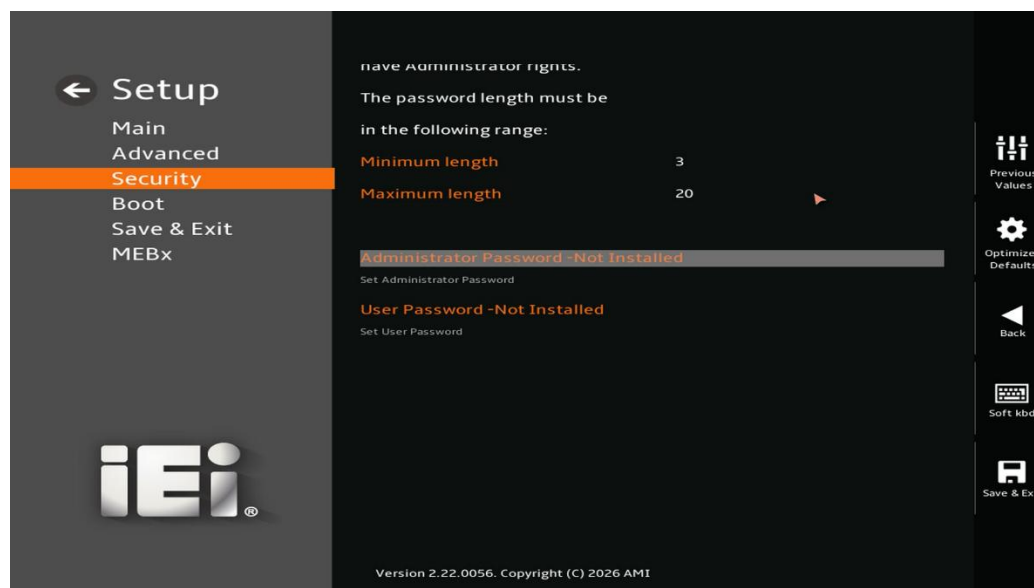


Figure 6-39: Security (2/2)

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➔ Administrator Password

Use the **Administrator Password** to set or change an administrator password.

➔ User Password

Use the **User Password** to set or change a user password.

6.5 Boot

Use the **Boot** menu to configure system boot options.

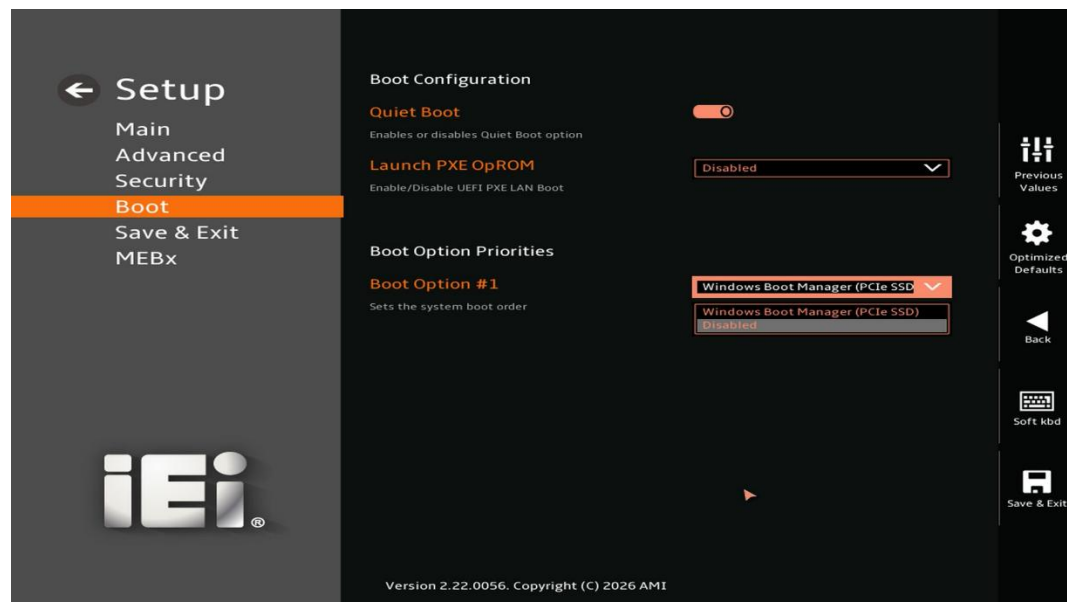


Figure 6-40: Boot

6.5.1 Boot Configuration

➔ Quiet Boot [Enabled]

Use the **Quiet Boot** BIOS option to select the screen display when the system boots.

- | | | | |
|---|-----------------|----------------|---|
| ➔ | Disabled | | Normal POST messages displayed |
| ➔ | Enabled | DEFAULT | OEM Logo displayed instead of POST messages |

→ Launch PXE OpRom [Disabled]

Use the **Launch PXE OpRom** option to enable or disable boot option for legacy network devices.

- **Disabled** **DEFAULT** Ignore all PXE Option ROMs
- **Enabled** Load PXE Option ROMs.

6.6 Save & Exit

Use the **Save & Exit** menu to load default BIOS values, optimal failsafe values and to save configuration changes.

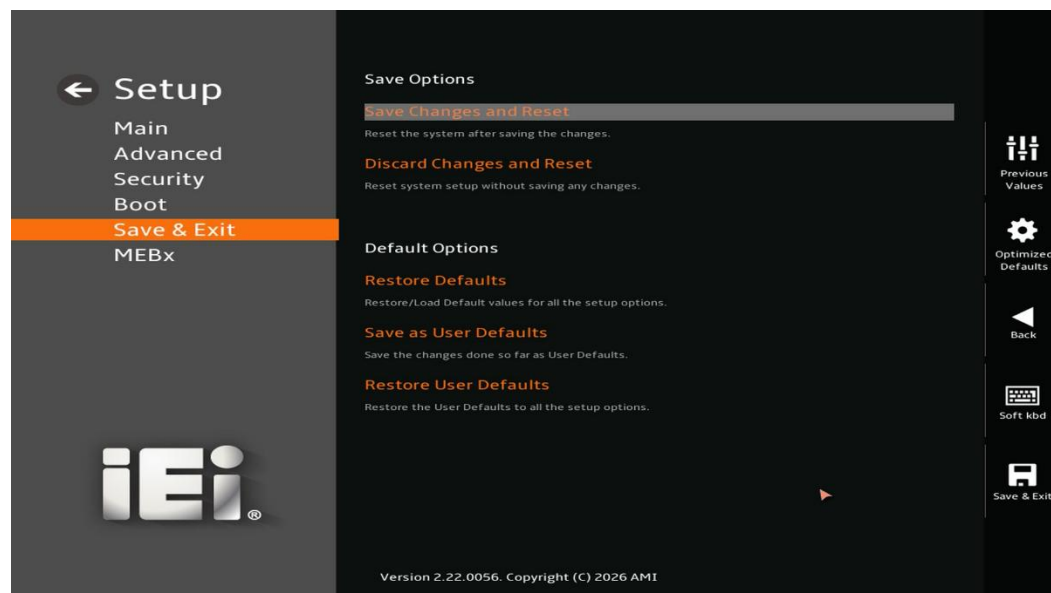


Figure 6-41: Save & Exit

→ Save Changes and Reset

Use the **Save Changes and Reset** option to save the changes made to the BIOS options and reset the system.

→ Discard Changes and Reset

Use the **Discard Changes and Reset** option to exit the system without saving the changes made to the BIOS configuration setup program.

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→ Restore Defaults

Use the **Restore Defaults** option to load the optimal default values for each of the parameters on the Setup menus. **F3 key can be used for this operation.**

→ Save as User Defaults

Use the **Save as User Defaults** option to save the changes done so far as user defaults.

→ Restore User Defaults

Use the **Restore User Defaults** option to restore the user defaults to all the setup options.

6.7 MEBx



Figure 6-42: MEBx

Appendix

A

Regulatory Compliance

DECLARATION OF CONFORMITY

This equipment is in conformity with the following EU directives:

- EMC Directive (2014/30/EU)
- Low-Voltage Directive (2014/35/EU)
- RoHS II Directive (2011/65/EU, 2015/863/EU)
- Ecodesign Directive 2009/125/EC

If the user modifies and/or install other devices in the equipment, the CE conformity declaration may no longer apply.

If this equipment has telecommunications functionality, it also complies with the requirements of the Radio Equipment Directive 2014/53/EU.

English

IEI Integration Corp declares that this equipment is in compliance with the essential requirements and other relevant provisions of Directive 2014/53/EU.

Български [Bulgarian]

IEI Integration Corp. декларира, че този оборудване е в съответствие със съществените изисквания и другите приложими правила на Директива 2014/53/EU.

Česky [Czech]

IEI Integration Corp tímto prohlašuje, že tento zařízení je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 2014/53/EU.

Dansk [Danish]

IEI Integration Corp erklærer herved, at følgende udstyr overholder de væsentlige krav og øvrige relevante krav i direktiv 2014/53/EU.

Deutsch [German]

IEI Integration Corp, erklärt dieses Gerät entspricht den grundlegenden Anforderungen und den weiteren entsprechenden Vorgaben der Richtlinie 2014/53/EU.

Eesti [Estonian]

IEI Integration Corp deklareerib seadme seadme vastavust direktiivi 2014/53/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.

Español [Spanish]

IEI Integration Corp declara que el equipo cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 2014/53/EU.

Ελληνική [Greek]

IEI Integration Corp ΔΗΛΩΝΕΙ ΟΤΙ ΕΞΟΠΛΙΣΜΟΣ ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 2014/53/EU.

Français [French]

IEI Integration Corp déclare que l'appareil est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 2014/53/EU.

Italiano [Italian]

IEI Integration Corp dichiara che questo apparecchio è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 2014/53/EU.

Latviski [Latvian]

IEI Integration Corp deklarē, ka iekārta atbilst būtiskajām prasībām un citiem ar to saistītajiem noteikumiem Direktīvas 2014/53/EU.

Lietuvių [Lithuanian]

IEI Integration Corp deklaruoja, kad šis įranga atitinka esminius reikalavimus ir kitas 2014/53/EU Direktyvos nuostatas.

Nederlands [Dutch]

IEI Integration Corp dat het toestel toestel in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 2014/53/EU.

Malti [Maltese]

IEI Integration Corp jiddikjara li dan prodott jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 2014/53/EU.

Magyar [Hungarian]

IEI Integration Corp nyilatkozom, hogy a berendezés megfelel a vonatkozó alapvető követelményeknek és az 2014/53/EU irányelv egyéb előírásainak.

Polski [Polish]

IEI Integration Corp oświadcza, że wyrobu jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 2014/53/EU.

Português [Portuguese]

IEI Integration Corp declara que este equipamento está conforme com os requisitos essenciais e outras disposições da Diretiva 2014/53/EU.

AURA-xxx-MTL Series

Româna [Romanian]

IEI Integration Corp declară că acest echipament este în conformitate cu cerințele esențiale și cu celelalte prevederi relevante ale Directivei 2014/53/EU.

Slovensko [Slovenian]

IEI Integration Corp izjavlja, da je ta opreme v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 2014/53/EU.

Slovensky [Slovak]

IEI Integration Corp týmto vyhlasuje, že zariadenia spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 2014/53/EU.

Suomi [Finnish]

IEI Integration Corp vakuuttaa täten että laitteet on direktiivin 2014/53/EU oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.

Svenska [Swedish]

IEI Integration Corp förklarar att denna utrustningstyp står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 2014/53/EU.

FCC WARNING

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Federal Communication Commission Interference Statement

This equipment has been assembled with components that comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

Appendix

B

Safety Precautions

**WARNING:**

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the AURA-xxx-MTL Series.

B.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

B.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the device is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the AURA-xxx-MTL Series is being installed, moved or modified.
- ***To prevent the risk of electric shock, make sure power cord is unplugged from wall socket.*** To fully disengage the power to the unit, please disconnect the power cord from the AC outlet. Refer servicing to qualified service personnel. The AC outlet shall be readily available and accessible.
- ***Do not apply voltage levels that exceed the specified voltage range.*** Doing so may cause fire and/or an electrical shock. Use a power cord that matches the voltage of the power outlet, which has been approved and complies with the safety standard of your particular country.
- ***Electric shocks can occur*** if the AURA-xxx-MTL Series chassis is opened when it is running. To avoid risk of electric shock, this device must only be connected to a supply main with protective earth.
- ***Do not drop or insert any objects*** into the ventilation openings of the AURA-xxx-MTL Series.

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- ***If considerable amounts of dust, water, or fluids enter the device***, turn off the power supply immediately, unplug the power cord, and contact the AURA-xxx-MTL Series vendor.
- **DO NOT:**
 - Drop the device against a hard surface.
 - Strike or exert excessive force onto the LCD panel.
 - Touch any of the LCD panels with a sharp object
 - In a site where the ambient temperature exceeds the rated temperature

B.1.2 Anti-static Precautions



WARNING:

Failure to take ESD precautions during the installation of the AURA-xxx-MTL Series may result in permanent damage to the AURA-xxx-MTL Series and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the AURA-xxx-MTL Series. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the AURA-xxx-MTL Series is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband:*** Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding:*** Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad:*** When configuring or working with an electrical component, place it on an anti-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component:*** When handling the electrical component, hold the electrical component by its edges.

B.1.3 Product Disposal

**CAUTION:**

Risk of explosion if battery is replaced by an incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union—If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union—The device that produces less waste and is easier to recycle is classified as electronic device in terms of the European Directive 2012/19/EU (WEEE), and must not be disposed of as domestic garbage.



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

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B.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the AURA-xxx-MTL Series, please follow the guidelines below.



WARNING:

- For safety reasons, turn-off the power and unplug the panel PC before cleaning.
 - If you dropped any material or liquid such as water onto the panel PC when cleaning, unplug the power cable immediately and contact your dealer or the nearest service center. Always make sure your hands are dry when unplugging the power cable.
-

B.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the AURA-xxx-MTL Series, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the device does not require cleaning. Keep fluids away from the device interior.
- Be cautious of all small removable components when vacuuming the device.
- Never drop any objects or liquids through the openings of the device.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the device.
- Avoid eating, drinking and smoking within vicinity of the device.

B.2.2 Cleaning Tools

Some components in the AURA-xxx-MTL Series may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the AURA-xxx-MTL Series.

- **Cloth**— Although paper towels or tissues can be used, a soft, clean piece of

cloth is recommended when cleaning the device.

- ***Water or rubbing alcohol***—A cloth moistened with water or rubbing alcohol can be used to clean the device.
- ***Using solvents***—The use of solvents is not recommended when cleaning the device as they may damage the plastic parts.
- ***Vacuum cleaner***—Using a vacuum specifically designed for computers is one of the best methods of cleaning the device. Dust and dirt can restrict the airflow in the device and cause its circuitry to corrode.
- ***Cotton swabs***—Cotton swabs moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs***—Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

C

Hazardous Materials Disclosure

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the following table.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	O	O	O	O	O	O
Display	O	O	O	O	O	O
Printed Circuit Board	O	O	O	O	O	O
Metal Fasteners	O	O	O	O	O	O
Cable Assembly	O	O	O	O	O	O
Fan Assembly	O	O	O	O	O	O
Power Supply Assemblies	O	O	O	O	O	O
Battery	O	O	O	O	O	O
O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006 (now replaced by GB/T 26572-2011). X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006 (now replaced by GB/T 26572-2011).						

AURA-xxx-MTL Series

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有“环境友好使用期限”的标签，此期限是估算这些物质“不会有泄漏或突变”的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

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)
壳体	O	O	O	O	O	O
显示	O	O	O	O	O	O
印刷电路板	O	O	O	O	O	O
金属螺帽	O	O	O	O	O	O
电缆组装	O	O	O	O	O	O
风扇组装	O	O	O	O	O	O
电力供应组装	O	O	O	O	O	O
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T 11363-2006 (现由 GB/T 26572-2011 取代) 标准规定的限量要求以下。 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 (现由 GB/T 26572-2011 取代) 标准规定的限量要求。						