AVS-53X Series

12th /13th /14th Generation, Intel Core i9/i7/i5/i3 Machine Vision Application System

User Manual

Release Date	Revision
Apr 2025	V1.3

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Revision History

Reversion	Date	Description
1.0	2024/06/17	Official Version
1.1	2024/09/06	Revise 1.1 Features and 1.2 Specifications Revise Ch6 Riser Card Lists and Installing pictures
1.2	2024/12/23	1. Revise Ch1 Memory DDR5 for 16Gx2, delete M.2 2242 for option 2. Add installing information of memory and thermal pad in Ch7 3. Update all dimension graphs in Ch 1.3 4. Add M.2 Heatsink installing information in Ch8 5. Add Burn Hazard in Safety Precautions part
1.3	2025/04/09	1. Add remarks in operating temperature part 2. Revise MB information in Ch2 3. Revise product dimensions and product photos in Ch1 4. Add GPU connecting information with power cable in CH6, revise chapter name.

Warning!_____

This equipment will generate, use and radiate radio frequency energy and if not installed and used in accordance with the instructions manual, it may cause interference to radio communications. It has been tested and found to comply with the limits for a Class A computing device pursuant to FCC Rules, which is designed to provide reasonable protection against such interference when operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference in which case the user with its own expense will be required to take whatever measures may be required to correct the interference.

Electric Shock Hazard – Do not operate the machine with its back cover removed. There are dangerous high voltages inside.

Packing List

Accessories (as ticked) included in this package are:
☐ Adaptor ☐ Driver & manual CD disc ☐ Other._____(please specify)

Safety Precautions

Follow the messages below to prevent your systems from damage:

- Avoid your system from static electricity on all occasions.
- Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.
- Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

	**BURN HAZARD** Touching this surface could result in bodily injury. To reduce risk, allow the surface to cool before touching.

Table of Content

Chapter 1 Getting Started

1.1 Features

- Vertical System for Artificial Intelligent applications such as Machine Vision, Edge Computing, Machine Learning/Inference, Robotic Control, Automation, and so on.
- High performance CPU of Intel 12th /13th /14th Gen. Core i Processor
- Memory Support with DDR5 (4800MHz) SO-DIMM up to 64 GB
- Removable Drive-bays for easy data storage maintenance
- Support extensive GPU Card expansion for Heavy-computing Requirement (with GPU Riser Card) by NVIDIA®/Intel® Graphic Cards up to 125W (L < 195mm)
- Support Numerous Popular Machine Vision Interfaces by PCI Express such as GigE, 10GigE, NBASE-T, Firewire, CoaXPress, and Camera Link etc.
- CPU (35W) Fan-less Design and Smart Fan support for high-end CPU up to 65W (optional).
- Flexible expansion features through I/O module design

1.2 Specifications

	AVS-530 (QL)/532 (QL)/534 (QL)
System	
CPU	14th/13th/12th Gen. Intel Core i9/i7/i5/i3 Processors (LGA 1700) Support CPU consumption: TDP 35W @PL1 / TDP 65W @PL2 Support CPU types: Intel® 14th Gen Core™ CPU (65W TDP) Intel® Core™ i9-14900 Intel® Core™ i7-14700 Intel® Core™ i5-14500 Intel® Core™ i3-14100 Intel® 13th Gen Core™ CPU (35W TDP) Intel® Core™ i9-14900T Intel® Core™ i7-14700T Intel® Core™ i5-14400/i5-14500T Intel® Core™ i3-14100T

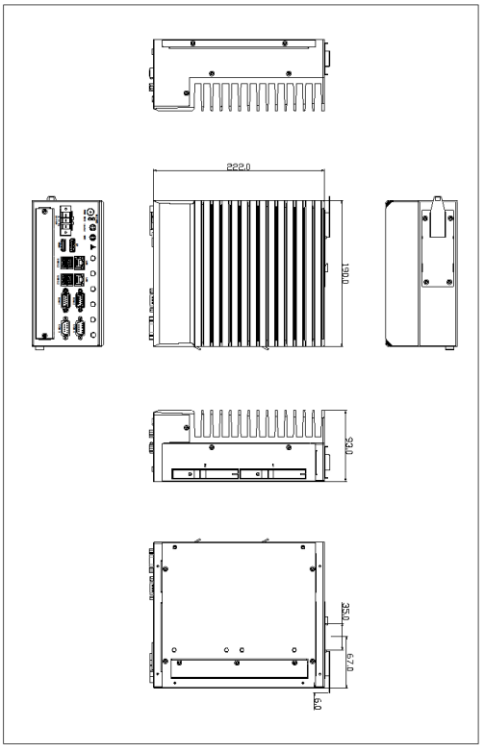
	Intel® 13th Gen Core™ CPU (65W TDP) Intel® Core™ i9-13900E Intel® Core™ i7-13700E Intel® Core™ i5-13500E Intel® Core™ i3-13100E Intel® 13th Gen Core™ CPU (35W TDP) Intel® Core™ i9-13900TE Intel® Core™ i7-13700TE Intel® Core™ i5-13500TE Intel® Core™ i3-13100TE Intel® 12th Gen Core™ CPU (65W TDP) Intel® Core™ i9-12900E Intel® Core™ i7-12700E Intel® Core™ i5-12500E Intel® Core™ i3-12100E Intel® 12th Gen Core™ CPU (35W TDP) Intel® Core™ i9-12900TE Intel® Core™ i7-12700TE Intel® Core™ i5-12500TE Intel® Core™ i3-12100TE
Chipset	Intel® Q670E
BIOS	
BIOS	AMI
Memory	2x 262-pin DDR5 (4800MHz) SO-DIMM Memory, Dual Channel up to 64GB (32GB per Slot) ***Need to use a wide temperature**
External IO Port	
Front I/O Ports	4 x USB 3.2 Gen1 Type-A 1 x DP++ 1.4A, up to 7680 x 4320 @60Hz 1 x HDMI 2.0a, up to 4096 x 2160 @60Hz 1 x 3-pin Terminal Block for DC Power Input 4 x RS-232(default)/422/485 select via BIOS DB-9,Pin9 selectable 5V/12V/Ring COM Port for COM1/COM2/COM3/COM4 2 x 2.5G LAN RJ-45 (i226LM, LAN1 Support iAMT)

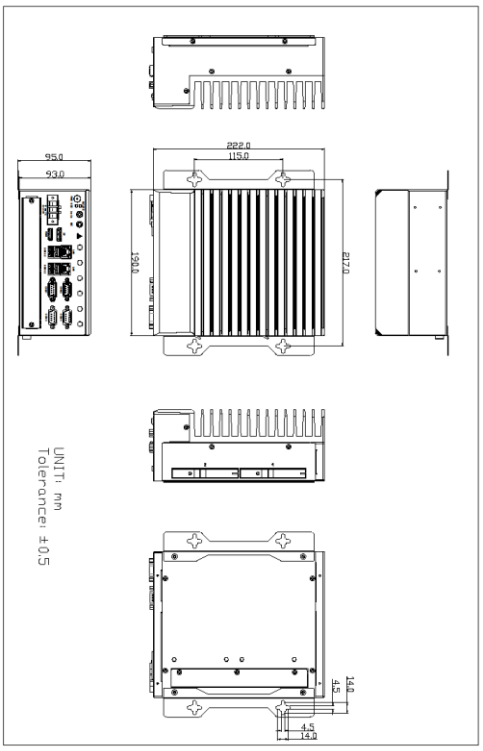
	6 x SMA Connectors
External I/O	1 x Line out 3.5mm Phone Jack 1 x Mic-in 3.5mm Phone Jack 2 x USB 3.2 Gen1 Type-A 2 x GbE LAN RJ-45(i210AT/i211AT) 8 x Digital I/O Terminal Block 1*10-pin,4 x SI, 4 x SO*
Power Button	
Power Button	1 x Power Button w/Power LED(Default)
LED	
LED	1 x M.2 SSD LED 1 x HDD LED via stacked LED 
M.2	
M.2	1 x M.2 key M,2280, SATA 6 Gb/PCIex4 GEN3 NVME SSD auto detect ***Need to use a wide temperature**
AMT	
AMT	1 x AMT support Intel® vPro (only i5/i7/i9)
Storage Space	
Storage	2 x 2.5” SATA3 HDD/SSD , Easy-swappable HDD Tray (BIOS support RAID 0,1)
Expansion	
Expansion Slot	**AVS-530:** NA
	AVS-532 (QL): 1 x PCIe x16 + 1 x PCIe x4 slots (x16 slot support PCIe Gen4 for Graphic card below 75W), PCIe cards over 75W is powered by Power Board *GPU Card Dimension: 199 x 120 x 45 mm * **(Suggest GPU power input: 32V)**
	AVS-534 (QL): 1 x PCIe x 16+ 2 x PCIe x 4or 2 x PCIe x 8+2 x PCIe x 4 slots (x16 slot support PCIe Gen4 for Graphic card below 75W), PCIe cards over 75W is powered by Power Board *GPU Card Dimension(Max): 199 x 120 x 45 mm* **(Suggest GPU power input: 32V)**
	1 x M.2 2230 E-Key for WIFI/BT

	1 x M.2 3042/3052 B-Key, (PCIe 3.0 x 1, USB 3.2 Gen1/USB 2.0) for 4G/5G, w/onboard clamshell type 1 x NANO SIM slot		
Others			
Others	1 x Watchdog Timer (256 steps) 1 x Thermal Copper for PCBA Thermal Detection. 6 x SMA holes for Wi-Fi or Wireless 4G/5G LTE/GPS Antennas. ● 4G/GPS Module + Wi-Fi /BT Modul used Antenna x4 ● 5G/GPS Module +Wi-Fi/BT Module used Antenna x6 BIOS default Setting: ● CPU Turbo Turn Off & Hide Option		
Power			
Power Input	DC 9~36V Power Input *AC/DC Power Adapter 300W (w/o Power Module, AVS-530/532/534) *AC/DC Power Adapter 450W (w/ Power Module, AVS-532/534)		
Mechanical			
Construction	Plating Titanium Gray Aluminum Heatsink and Black Steel Chassis Heatsink AL6063 GRAY		
Mounting	Wall Mount (Default) & Din Rail back side (optional)		
Dimensions(mm)	222 x 190 x 93		
Net Weight(Kg)	AVS-530(QL): 3.9 KG	AVS-532(QL):4.5 KG	AVS-534(QL):5.3 KG
Environmental			
Operating Temperature	-20~60°C(for 35W) *Without expansion cards*	-20~50°C(for 65W) *Without expansion cards*	
Storage Temperature	-40~85°C		
Storage Humidity	10 to 90% @ 40°C, non-condensing		
Certification	CE / FCC Class A UKCA RoHS2.0		
Operating System Support	Microsoft® Win10 IoT LTSC Microsoft® Windows 11 IoT Linux Kernel 5.15 (Ubuntu 22.04)		
TPM	1 x Infineon's Trusted Platform Module (TPM 2.0)		
System FAN	40 x 40 x 25mm FAN for AVS-532 80 x 80 x 25mm FAN for AVS-534		

1.3 Dimensions

AVS-530





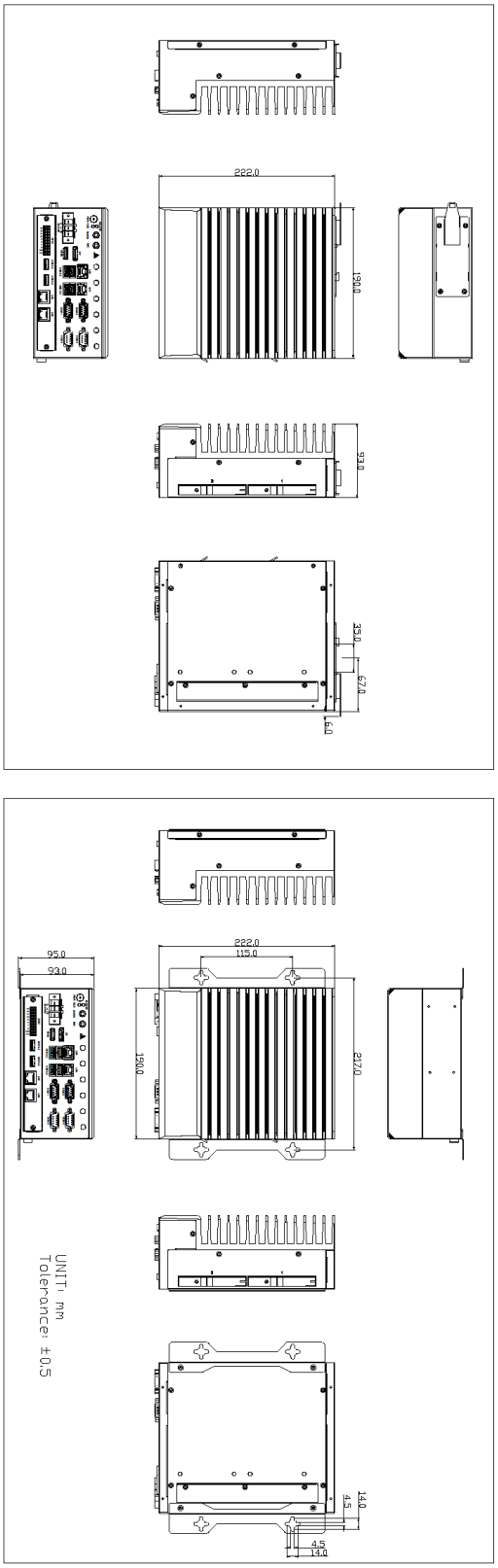
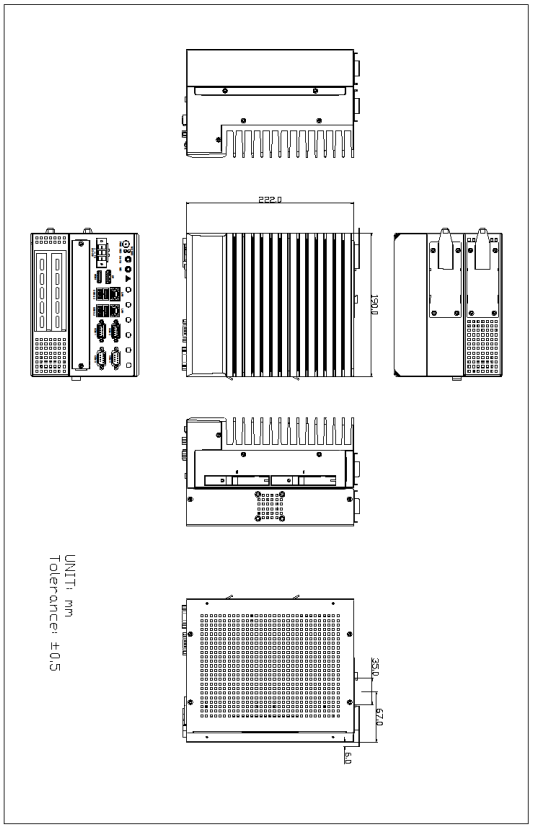
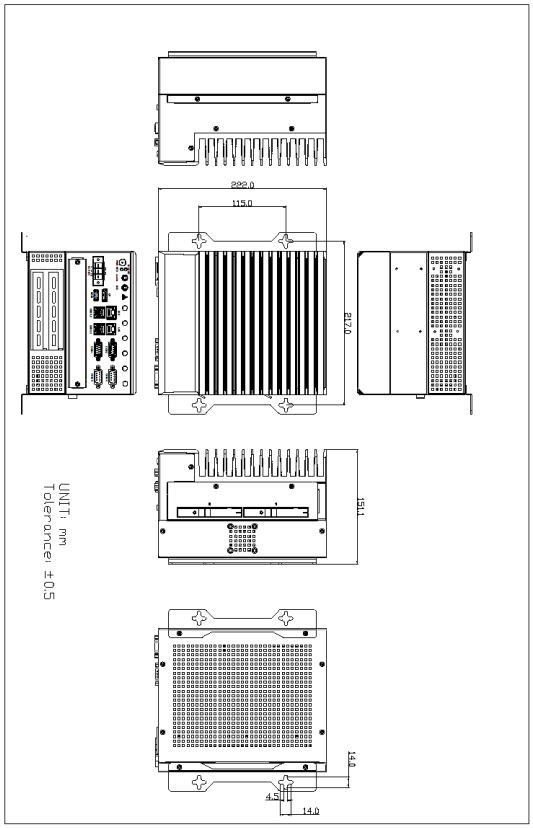


Figure 1.1: Dimension of AVS-530 & AVS-530QL

AVS-532 DIN RAIL



AVS-532 WALL MOUNT



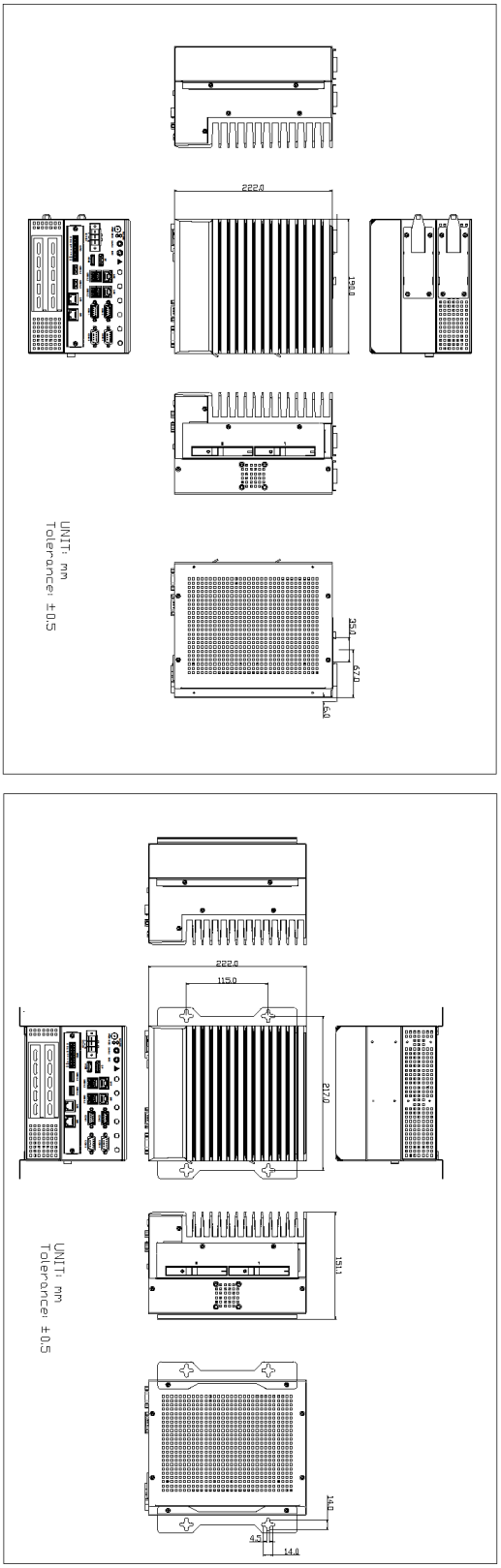
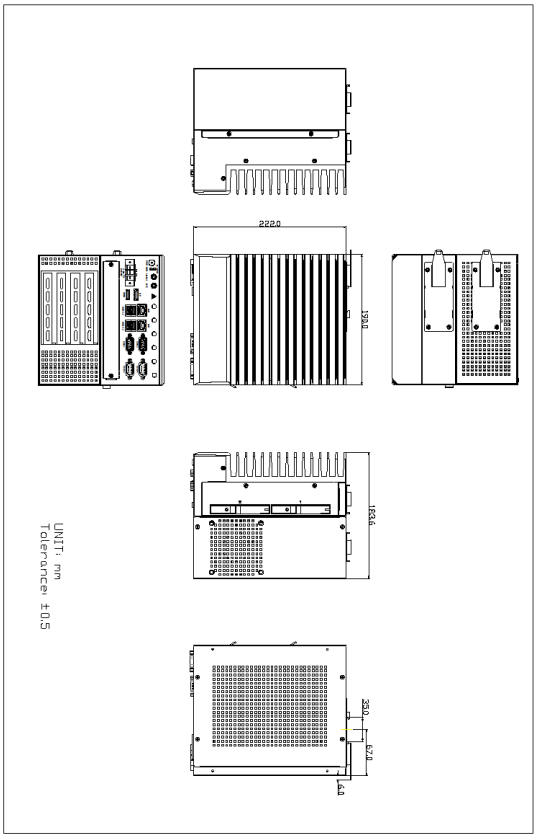
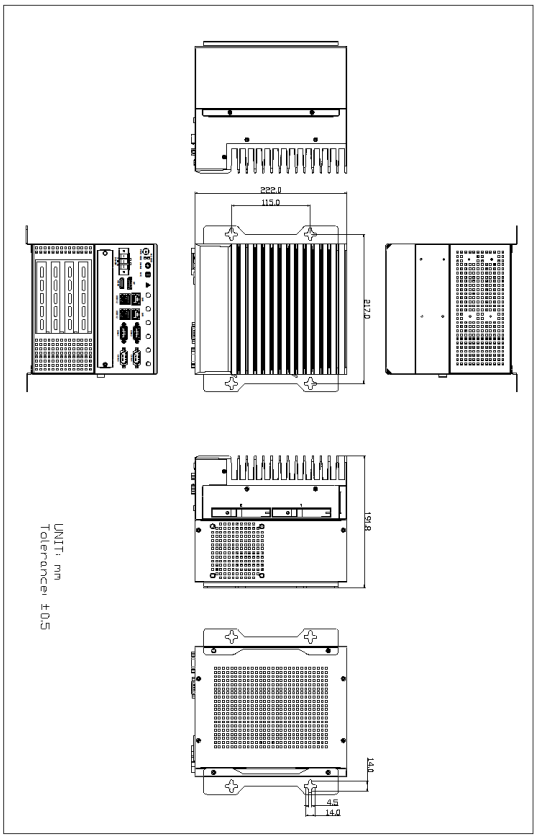


Figure 1.2: Dimension of AVS-532 & AVS-532QL

AVS-534 DIN RAIL



AVS-534 WALL MOUNT



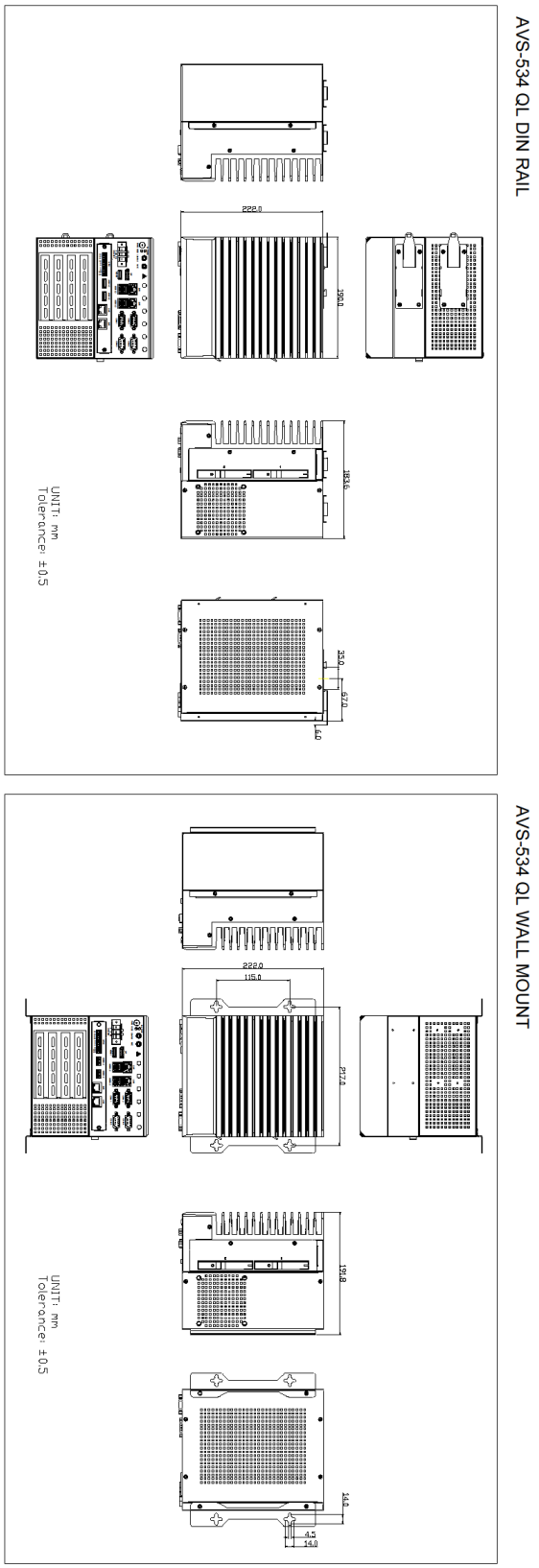


Figure 1.3: Dimension of AVS-534 & AVS-534QL

1.4 Brief Description of AVS-53X Series

AVS-53X series are high-efficiency BOX PC, powered by Intel 12th /13th /14th Generation Core i3/i5/i7/i9 processor and supports 2 x 262-pin DDR5 SO-DIMM memory, up to 64GB. They come with 4 x USB 3.2 Gen1 Type A, 4 x COM ports. The models support 1 x M.2 2280, and 2 x 2.5” SATA3 HDD space, which is easy accessible design and 9~36V DC wide-ranging power input. They have up to 4 x PCI/PCIe slot for expansion. The models are plating titanium gray aluminum heatsink and black steel chassis design, and can be wall-mounted and din-rail mounted. The AVS-53X series work well with our other products and they can provide an absolute easy way to perform control maintenance.

Figure 1.4: Appearance of AVS-530

Figure 1.5: Appearance of AVS-532QL

Figure 1.6: Appearance of AVS-534QL

Chapter 2 Hardware

2.1 Motherboard Introduction

ASB-M9672 is a Non-standard industrial motherboard developed on the basis of Intel Q670E, which provides abundant peripheral interfaces to meet the needs of different customers. Also, it features four GbE ports, 4-COM ports，one M.2 M-key and one M.2 B-key and one M.2 E-key configuration, one DP port, one HDMI port, 4-USB 3.2 Gen1x1 ports, 2-GbE LAN ports. To satisfy the special needs of high-end customers, ADOtec designed 164Pin PCIe x16 Slot expansion interface, ADOtec designed 98Pin five PCIe x8 Slot interface. The product is widely used in various sectors of industrial control. It can also be used in high-end visual control system.

2.2 Specifications

Specifications	
Board Size	200mm x 170mm
CPU Socket	LGA1700 Socket
CPU Support	installing the 12th Generation intel Core i3/i5/i7/i9 Processor -Intel® Core™ i3-12100TE 2.10GHz (up to 4.00GHz) 35W -Intel® Core™ i5-12500TE 1.90GHz (up to 4.30GHz) 35W -Intel® Core™ i7-12700TE 1.00GHz (up to 4.60GHz) 35W -Intel® Core™ i9-12900TE 1.00GHz (up to 4.80GHz) 35W -Intel® Core™ i3-12100E 3.20GHz (up to 4.20GHz) 60W -Intel® Core™ i5-12500E 2.90GHz (up to 4.50GHz) 65W -Intel® Core™ i7-12700E 1.60GHz (up to 4.80GHz) 65W -Intel® Core™ i9-12900E 1.70GHz (up to 5.00GHz) 65W installing the 13th Generation intel Core i3/i5/i7/i9 Processor -Intel® Core™ i3-13100TE 2.40GHz (up to 4.10GHz) 35W -Intel® Core™ i5-13500TE 1.10GHz (up to 4.50GHz) 35W -Intel® Core™ i7-13700TE 1.10GHz (up to 4.80GHz) 35W -Intel® Core™ i9-13900TE 800GHz (up to 5.00GHz) 35W -Intel® Core™ i3-13100E 3.30GHz (up to 4.40GHz) 60W -Intel® Core™ i5-13500E 1.50GHz (up to 4.60GHz) 65W -Intel® Core™ i7-13700E 1.30GHz (up to 5.10GHz) 65W

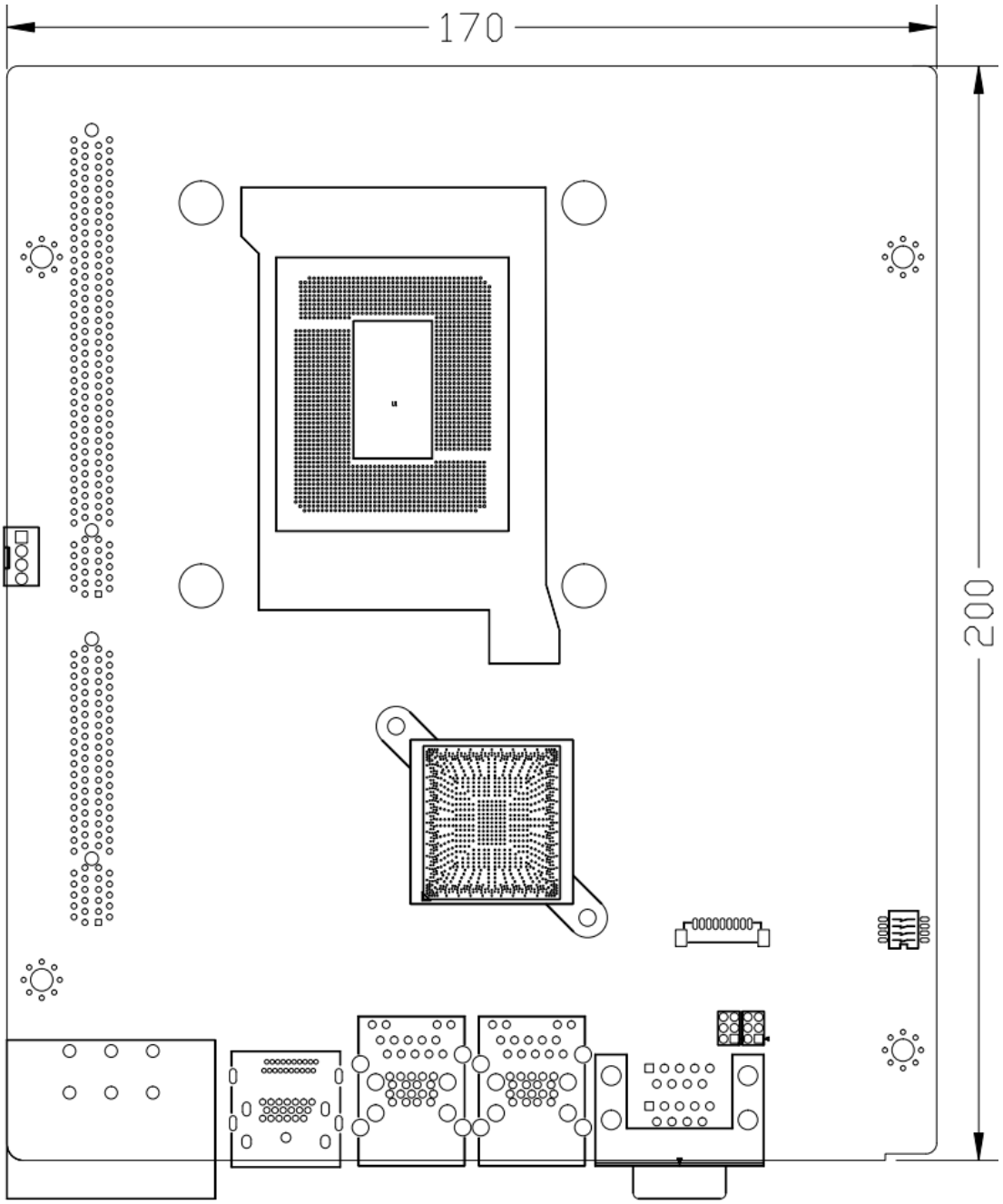
	-Intel® Core™ i9-13900E 1.30GHz (up to 5.20GHz) 65W installing the 14th Generation intel Core i3/i5/i7/i9 Processor -Intel® Core™ i3-14100T 2.70GHz (up to 4.10GHz) 35W -Intel® Core™ i5-14400T 1.10GHz (up to 4.50GHz) 35W -Intel® Core™ i5-14500T 1.20GHz (up to 4.80GHz) 35W -Intel® Core™ i7-14700T 900MHz (up to 5.20GHz) 35W -Intel® Core™ i9-14900T 800MHz (up to 5.50GHz) 35W -Intel® Core™ i3-14100 3.50GHz (up to 4.70GHz) 60W -Intel® Core™ i5-14500 1.90GHz (up to 5.00GHz) 65W -Intel® Core™ i7-14700 1.50GHz (up to 5.40GHz) 65W -Intel® Core™ i9-14900 1.50GHz (up to 5.80GHz) 65W
Chipset	Intel® Q670E Chipset
Memory Support	2x 262-pin DDR5 (4800MHz) SO-DIMM Memory, Dual Channel -Up to 64GB DDR5 4800MT/s (12th Gen Core i3/i5/i7/i9 Processor/ 13thGen Core i3/i5 Processor) -Up to 64GB DDR5 5600MT/s(i7-13700TE/i9-13900TE/i7-13700E/ i9-13900E) -Up to 96GB DDR5 4800MT/s (i3-14100T/i5-14400T/ i5-14500T/ i3-14100/i5-14500) -Up to 96GB DDR5 5600MT/s(i7-14700T/i9-14900T/i7-14700/ i9-14900)
Graphics	Intel® UHD Graphics 730 (i3-12100TE/12100E/i3-13100TE/13100E/ i3-14100T/i3-1440T/i5-14500T/i3-14100/i5-14500) Intel® UHD Graphics 770 (12th/13th /14th Gen Core i5/i7/i9 Processor)
Display Mode	1x HDMI 2.1 interface 1x DP 1.4a interface
Support Resolution	Up to 4096 x 2160 @ 60HZ for HDMI Up to 7680 x 4320 @ 60HZ for DP
Double Display	HDMI + DP
Super I/O	ITE IT8786E-I/HX
BIOS	AMI/UEFI BIOS
Storage	2x SATAIII Connector (SATA1/SATA2) 2x 1x2Pin Wafer,SATA Power Connector
M.2	1x M.2 M-Key(SATA III/PCIe x4 auto detect),2242/2280 for Storage

	1x M.2 B-Key(USB3.2 Gen 1x1/USB2.0),3042/3052 for 4G/5G 1x M.2 E-Key(PCIex1,USB2.0),2230 for WIFI/BT
Ethernet	1x PCIe GbE LAN by Intel I226-LM (LAN1),AMT Technology support Intel® vPro (only i5/i7/i9) 1x PCIe GbE LAN by Intel I226-LM (LAN2)
USB	4x USB 3.2 Gen1x1/USB2.0 stack ports for external (USB3.2：USB3-1/USB3-2/USB3-3/USB3-4) (USB2.0：USB2-1/USB2-2/USB2-3/USB2-4) 1x USB 2.0 Single port for internal (USB2-6) 1x USB 3.2 Gen1x1/USB2.0 internal for M.2 B-Key (USB3-5/USB2-5) 2x USB 3.2 Gen1x1/USB 2.0 Pin header by CN1(USB3-9/USB3-10/ USB2-9/USB2-10)
Serial	1x RS232/422/485 ports, DB9 connector for external (COM1) Pin9 w/5V/12V/Ring select 1x RS232/422/485 ports, DB9 connector for external (COM2) Pin9 w/5V/12V/Ring select 2x RS232/422/485,2x5Pin header (COM3/COM4) Pin9 w/5V/12V/Ring select 2x UART, BTB Connector by CN1(COM5/COM6,to TB-619E2U2G8)
Battery	Support CR2477 Li battery by 2-pin header (1000mAh)
Audio	Support Audio via Realtek ALC888S-VD2 HD audio codec -Support Line-out, Line-in, MIC-in by 2x5Pin header (F_AUDIO1)
Expansion	1x PCI-express x8 extend by 98 pin slot (PCIE8X_1) 1x PCI-express x16 extend by 164 pin slot (PCIE16X_1) CN1 to IO Expansion Board TB-619 Series: 80Pin BTB Connector: JAE_AX01F080VABB 2x USB3.2 Gen1x1Signal 2x USB2.0 Signal 2x PCIe3.0 Signal 2x UART Signal(COM5/COM6) 8x GPIO Signal
Switches and LED Indicators	2 x 5Pin header by FP1 1x Power on/off Signal 1x Power LED Signal

	1x SATA LED Signal 1x M.2 B-Key/M.2 M-Key LED Signal 1x Reset Signal
External I/O port	2x COM Ports (COM1/COM2) 4x USB 3.2 Gen1x1 Ports (stack) 2x RJ45 GbE LAN Ports 1x HDMI interface 1x DP interface
FAN	2x FAN Connector, 1x 4Pin wafer
SIM	1x Nano SIM Card Holder (optional)
TPM	Infineon's Trusted Platform Module (TPM 2.0)
Temperature	Operating: -20℃ to 70℃（for 35W i3/i5 CPU model） Operating: -20℃ to 60℃（for 60/65W i7/i9 CPU model） Storage: -40℃ to 85℃
Humidity	10% - 90%, non-condensing, operating
Power Management	1x 3-Pin power input connector (Wide range DC+9V~36V)
Power Consumption	Total Power Design 200W (w/o：PB-435)
EMI/EMS	Meet CE/FCC class A
TB-619E2U2G8	Board Size:154x60mm(TB-619E2U2G8 R1.00) 80Pin BTB Connector: JAE_AX01R080VABB 8-bit digital I/O by connector, w/Isolated (CN2) 4-bit digital Input 4-bit digital Output 1x Switch, NPN/PNP mode select via dip 2x PCIe GbE LAN by Intel I211AT/I210AT 2x USB 3.2 Gen1x1 Single ports(USB1/USB2) 2x RS232,2x5Pin header (COM5/COM6, N/A)
TB-630	Board Size:45x21mm (TB-630) 1x Power on/off Button + 1x Power LED status. 1x M.2 M-Key/M.2 B-Key LED status. 1x SATA HDD LED status.

	1x Line out 3.5mm Connector 1x Mic-in 3.5mm Connector
PB-435	Board Size:70x40mm (PB-435) 1x 4-Pin Connector,DC9V~DC36V Power input connector (DC_IN1) 2x 2x4-Pin Connector,DC12V Power output connector (ATX1/ATX2) Total Power Design 300W (w/：PB-435/ASB-M9672)
TB-620E42E162	Board Size:190x115mm (TB-620E42E162) 4x PCIe Gen5 Linear Equalizer 2x PCIe x4 Signal，64Pin Slots 2x PCIe x16 164Pin Slots, can expand support one PCIeX16 Signal or two PCIeX8 Signal.
TB-620E42E161	Board Size:190x115mm (TB-620E42E161) 2x PCIe x4 Signal，64Pin Slot 1x PCIe x16 Signal，164Pin Slot
TB-620E41E161	Board Size:190x73mm (TB-620E41E161) 1x PCIe x4 Signal，64Pin Slot 1x PCIe x16 Signal，164Pin Slot

2.3 Motherboard Dimension



(units :mm)

Figure 2.1: Motherboard ASB-M9672 Dimensions

2.4 Jumpers and Connectors Location

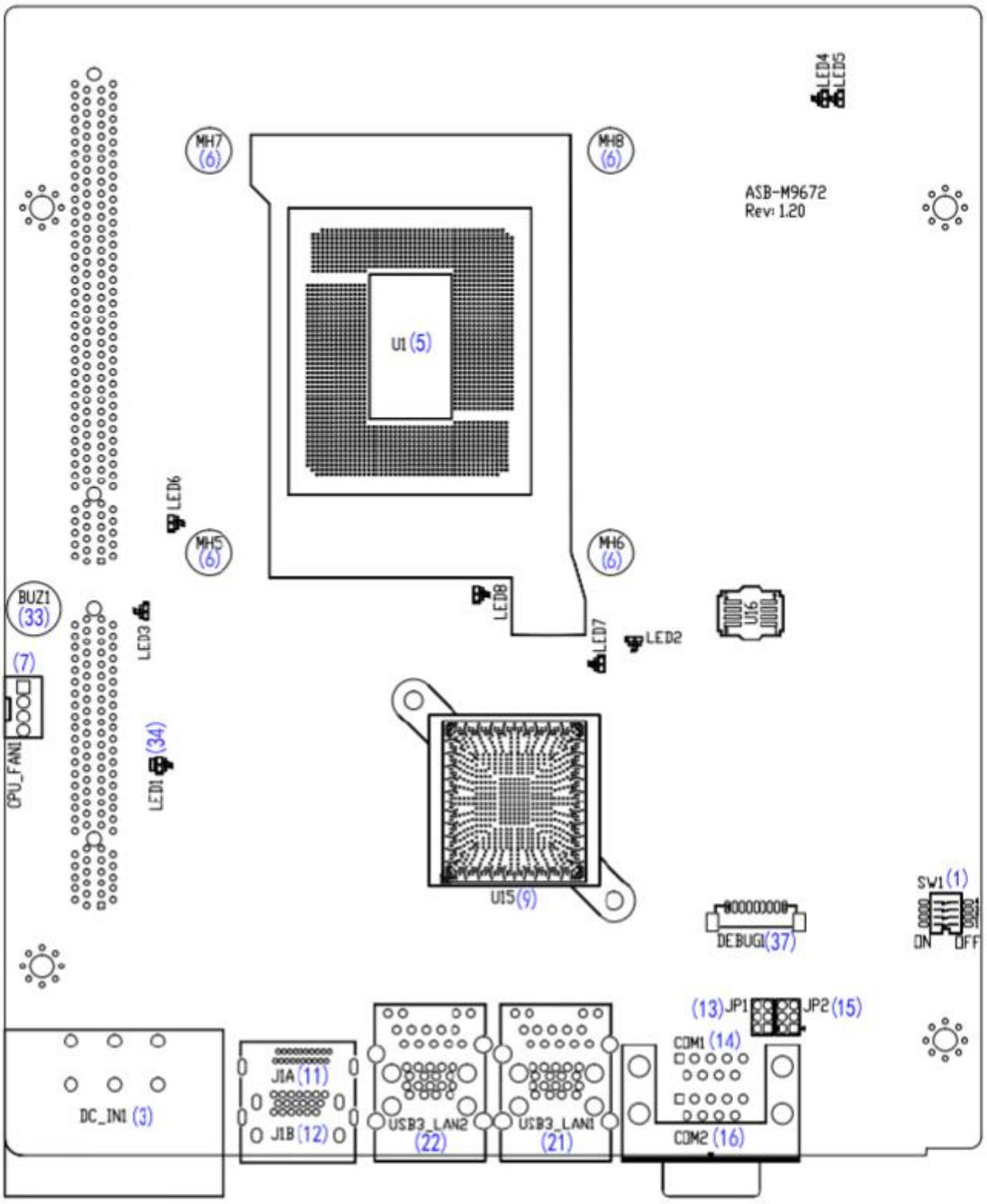


Figure 2.2: Jumpers and Connectors Location- Board Top

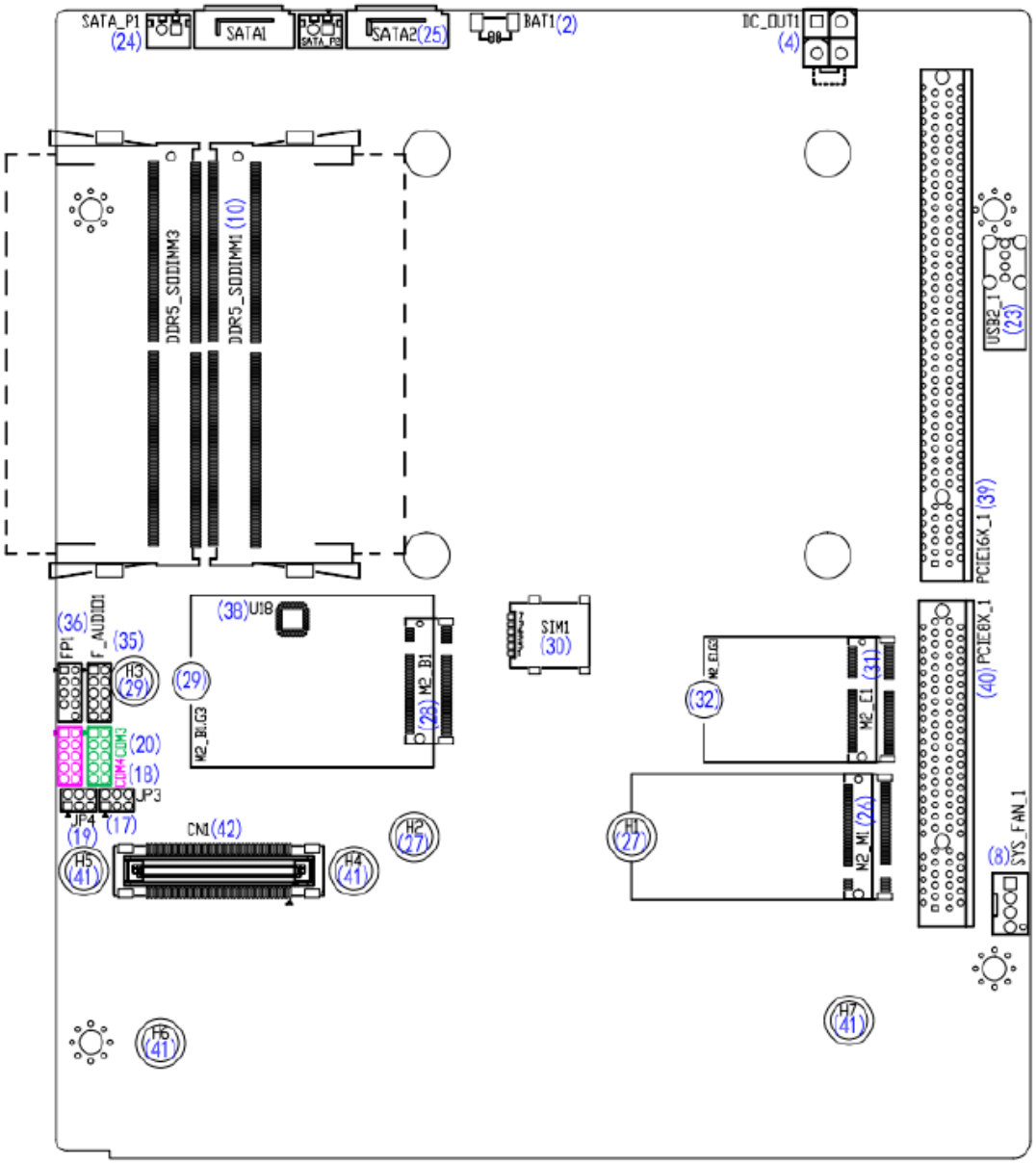


Figure 2.3: Jumpers and Connectors Location- Board Bottom

2.5 Jumpers Setting and Connectors

1. SW1:

CMOS clear switch, CMOS clear operation will permanently reset old BIOS settings to factory defaults.

SW1	CMOS
Pin3 OFF	NORMAL (Default)
Pin3 ON	Clear CMOS
Pin4 OFF	NORMAL (Default)
Pin4 ON	Press power button 10s to clear CMOS(optional)

Procedures of CMOS clear:

a) Turn off the system and unplug the power cord from the power outlet.

b) To clear the CMOS settings, use the switch to Pin3 on for about 3 seconds then move the switch Pin3 and Pin4 off.

c) Power on the system again.

d) When entering the POST screen, press the <DEL> key to enter CMOS Setup Utility to load optimal defaults.

e) After the above operations, save changes and exit BIOS Setup.

Switch, DC Power input setting, Power on/off button and Auto Power on switch setting.

SW1	Function (DC input /DC_IN1)
Pin1 ON	Reserved
Pin1 OFF	**Default**
Pin2 ON	**Auto Power on (Default)**
Pin2 OFF	Power on/Off button (optional)

2. BAT1:

(1.25mm Pitch 1x2 wafer Pin Header) 3.0V Li battery is embedded to provide power for CMOS.

Pin#	Signal Name
Pin1	Ground
Pin2	VCC_RTC

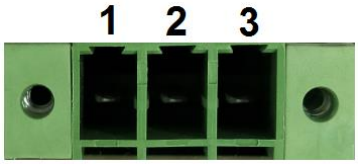
3. DC_IN1:

(7.62mm Pitch 1x3 Pin Connector), DC9V~DC36V System power input connector.

Maximum power consumption of the whole machine is not more than **200 watts.**

If it is used in visual system of light control, please use 24V/250W power adapter.

Note: The power consumption of power supply needs different combination tests.



Pin#	Power Input (DC_IN1)
Pin1	DC+9V~36V
Pin2	Ground
Pin3	PG

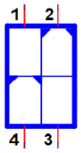
Application	Power Adapter
Vision/ Light Control (DC24V)	**+DC24V input**

4. DC_OUT1:

(5.08mm Pitch 1x4 Pin Connector), DC9V~DC36V System power output connector.

Maximum power consumption of the whole machine is not more than **150 watts.**

ASB-M9672 DC_OUT1 connected to PB-435 DC_IN1**.**



Pin#	Power output (DC_OUT1)
Pin1	DC+9V~36V(Power Adapter input voltage)
Pin2	DC+9V~36V(Power Adapter input voltage)
Pin3	Ground
Pin4	Ground

5. U1:

(LGA1700 Socket), installing the 12/13th /14th Generation intel Core i3/i5/i7/i9 CPU Socket.

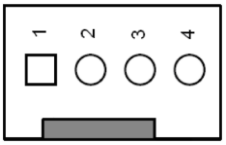
Processor					
Number	PBF/MTF	P-Cores/E-Cores/ Threads	PBP	Embedded	Remarks
I3-12100TE	2.10 up to 4.00GHz	4P/0E/8T	35W	●	optional
i5-12500TE	1.90 up to 4.30GHz	6P/0E/12T	35W	●	optional
i7-12700TE	1.00 up to 4.60GHz	8P/4E/20T	35W	●	optional
i9-12900TE	1.00 up to 4.80GHz	8P/8E/24T	35W	●	optional
I3-12100E	3.20 up to 4.20GHz	4P/0E/8T	60W	●	optional
i5-12500E	2.90 up to 4.50GHz	6P/0E/12T	65W	●	optional
i7-12700E	1.60 up to 4.80GHz	8P/4E/20T	65W	●	optional
i9-12900E	1.70 up to 5.00GHz	8P/8E/24T	65W	●	optional
I3-13100TE	2.40 up to 4.10GHz	4P/0E/8T	35W	●	optional
i5-13500TE	1.10 up to 4.50GHz	6P/8E/20T	35W	●	optional
i7-13700TE	1.00 up to 4.80GHz	8P/8E/24T	35W	●	optional
i9-13900TE	0.8 up to 5.00GHz	8P/16E/32T	35W	●	optional
i3-13100E	3.30 up to 4.40GHz	4P/0E/8T	60W	●	optional
i5-13500E	1.50 up to 4.60GHz	6P/8E/20T	65W	●	optional
i7-13700E	1.30 up to 5.10GHz	8P/8E/24T	65W	●	optional
i9-13900E	1.30 up to 5.20GHz	8P/16E/32T	65W	●	optional
I3-14100T	2.70 up to 4.40GHz	4P/0E/8T	35W	●	optional
i5-14400T	1.10 up to 4.50GHz	6P/8E/16T	35W	●	optional
i5-14500T	1.20 up to 4.80GHz	6P/8E/20T	35W	●	optional
i7-14700T	0.9 up to 5.20GHz	8P/12E/28T	35W	●	optional
i9-14900T	0.8 up to 5.50GHz	8P/16E/32T	35W	●	optional
I3-14100	3.50 up to 4.70GHz	4P/0E/8T	60W	●	optional
i5-14500	1.90 up to 5.00GHz	6P/8E/20T	65W	●	optional
i7-14700	1.50 up to 5.40GHz	8P/12E/28T	65W	●	optional
i9-14900	1.50 up to 5.80GHz	8P/16E/32T	65W	●	optional

6. MH5/MH6/MH7/MH8(CPU SCREW HOLES):

CPU FAN SCREW HOLES, four screw holes for fixed CPU Cooler assemble.

7. CPU_FAN1:

(2.54mm Pitch 1x4 Pin Header), CPU FAN connector, cooling fans can be connected directly for use.



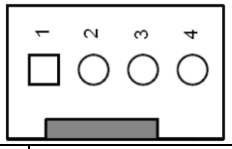
Pin#	Signal Name
1	Ground
2	12V_S0
3	CPU_FANTACH
4	CPU_FANPWM

Note:

Output power of cooling fan must be limited under 5W.

8. SYS_FAN_1:

(2.54mm Pitch 1x4 Pin Header), System FAN connector, cooling fans can be connected directly for use.



Pin#	Signal Name
1	Ground
2	12V_S0
3	SYS_FANTACH
4	SYS_FANPWM

Note:

Output power of cooling fan must be limited under 5W.

9. U15:

(BGA, Package Size:28x25mm), Intel Q670E Chipset.

Model	PCH Chipset	Remarks
ASB-M9672QB	Intel Q670E	Default

10. DDR5_SODIMM1/DDR5_SODIMM3:

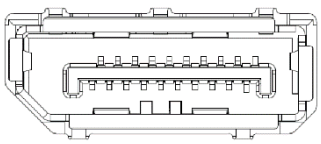
(SO-DIMM 262Pin Socket), DDR5 memory socket, the socket is located at the Bottom of the board and supports 262Pin 5V DDR5 SO-DIMM memory module up to 64GB.

Max Memory Size (dependent on memory type).

CPU	Memory Types	Max Memory Size
I3-12100TE	4800 MT/s	64GB
i5-12500TE	4800 MT/s	64GB
i7-12700TE	4800 MT/s	64GB
i9-12900TE	4800 MT/s	64GB
I3-12100E	4800 MT/s	64GB
i5-12500E	4800 MT/s	64GB
i7-12700E	4800 MT/s	64GB
i9-12900E	4800 MT/s	64GB
I3-13100TE	4800 MT/s	64GB
i5-13500TE	4800 MT/s	64GB
i7-13700TE	5600 MT/s	64GB
i9-13900TE	5600 MT/s	64GB
i3-13100E	4800 MT/s	64GB
i5-13500E	4800 MT/s	64GB
i7-13700E	5600 MT/s	64GB
i9-13900E	5600 MT/s	64GB
I3-14100T	4800 MT/s	96GB
i5-14400T	4800 MT/s	96GB
i5-14500T	4800 MT/s	96GB
i7-14700T	5600 MT/s	96GB
i9-14900T	5600 MT/s	96GB
I3-14100	4800 MT/s	96GB
i5-14500	4800 MT/s	96GB
i7-14700	5600 MT/s	96GB
i9-14900	5600 MT/s	96GB

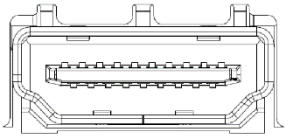
11. DP1(J1A):

(DP Connector), Display Port Interface connector. Support version HDMI1.4a.



12. HDMI(J1B):

(HDMI 19P Connector), High Definition Multimedia Interface connector. Support version HDMI2.1.



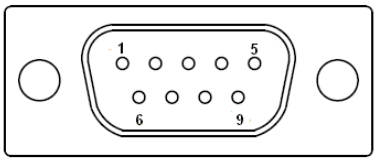
13. JP1:

(2.0mm Pitch 2x3 Pin Header), COM1 jumper setting, pin 1~6 are used to select signal out of pin 9 of COM1 port.

JP1 Pin#	Function
Close 1-2	**COM1 Pin9 RI (Ring Indicator) (Default)**
Close 3-4	COM1 Pin9 = +5V (optional)
Close 5-6	COM1 Pin9 = +12V (optional)

14. COM1:

COM1(Type DB9), Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.



RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)

3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP1 select Setting (RI/5V/12V)**

RS422 (optional):	
Pin#	Signal Name
1	422TX-
2	422TX+
3	422RX+
4	422RX-
5	Ground
6	NC
7	NC
8	NC
9	NC

RS485 (optional):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

BIOS Config:
[RS-232 Mode]
[RS-485 Mode]
[RS-422 Mode]

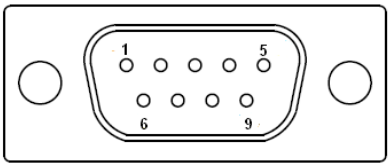
15. JP2:

(2.0mm Pitch 2x3 Pin Header), COM2 jumper setting, pin 1~6 is used to select signal out of pin 9 of COM2 port.

JP2 Pin#	Function
Close 1-2	**COM2 Pin9 RI (Ring Indicator) (Default)**
Close 3-4	COM2 Pin9=+5V/1A (optional)
Close 5-6	COM2 Pin9=+12V/1A (optional)

16. COM2:

COM2(Type DB9), Rear serial port, standard DB9 Male serial port is provided to make a direct connection to serial devices.



RS232 (Default):	
Pin#	Signal Name
1	DCD# (Data Carrier Detect)
2	RXD (Received Data)
3	TXD (Transmit Data)
4	DTR (Data Terminal Ready)
5	Ground
6	DSR (Data Set Ready)
7	RTS (Request To Send)
8	CTS (Clear To Send)
9	**JP2 select Setting (RI/5V/12V)**

RS422 (optional):	
Pin#	Signal Name
1	422TX-
2	422TX+
3	422RX+
4	422RX-
5	Ground
6	NC

7	NC
8	NC
9	NC

RS485 (optional):	
Pin#	Signal Name
1	485-
2	485+
3	NC
4	NC
5	Ground
6	NC
7	NC
8	NC
9	NC

BIOS Config:
[RS-232 Mode]
[RS-485 Mode]
[RS-422 Mode]

17. JP3:

(2.0mm Pitch 2x3 Pin Header), COM3 jumper setting, pin 1~6 is used to select signal out of pin 9 of COM3 port.

JP3 Pin#	Function
Close 1-2	**COM3 Pin9 RI (Ring Indicator) (Default)**
Close 3-4	COM3 Pin9=+5V/1A (optional)
Close 5-6	COM3 Pin9=+12V/1A (optional)

18. COM3:

(2.0mm Pitch 2X5 Pin Header), COM3 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

RS232 (Default):			
Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD

TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP3 select Setting (RI/5V/12V)	9	10	NC
RS422 (optional):			
422TX-	1	2	422TX+
433RX+	3	4	422RX-
Ground	5	6	NC
NC	7	8	NC
JP3 select Setting (5V/12V)	9	10	NC
RS485 (optional):			
485-	1	2	485+
NC	3	4	NC
Ground	5	6	NC
NC	7	8	NC
JP3 select Setting (5V/12V)	9	10	NC

19. JP4:

(2.0mm Pitch 2x3 Pin Header), COM4 jumper setting, pin 1~6 is used to select signal out of pin 9 of COM4 port.

JP4 Pin#	Function
Close 1-2	**COM4 Pin9 RI (Ring Indicator) (Default)**
Close 3-4	COM4 Pin9=+5V/1A (optional)
Close 5-6	COM4 Pin9=+12V/1A (optional)

20. COM4:

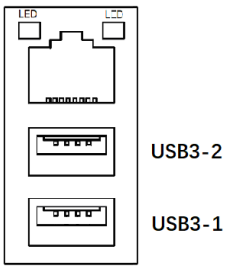
(2.0mm Pitch 2X5 Pin Header), COM4 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

RS232 (Default):			
Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
JP4 select Setting (RI/5V/12V)	9	10	NC

RS422 (optional):			
422TX-	1	2	422TX+
433RX+	3	4	422RX-
Ground	5	6	NC
NC	7	8	NC
JP4 select Setting (5V/12V)	9	10	NC
RS485 (optional):			
485-	1	2	485+
NC	3	4	NC
Ground	5	6	NC
NC	7	8	NC
JP4 select Setting (5V/12V)	9	10	NC

21. USB3_LAN1:

USB3-1/USB3-2：(Double stack USB type A), Rear USB connector, it provides up to 2 USB3.2 ports, USB3.2 Gen1x1 allows data transfers up to 5.0Gb/s, support USB2.0 and full-speed and low-speed signaling.

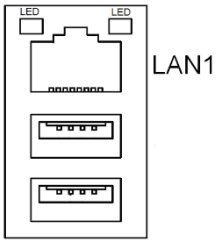


Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.

If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

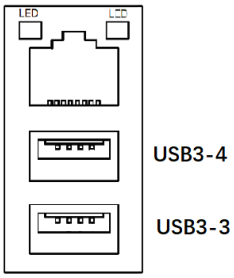
LAN1: (RJ45 Connector), Rear LAN port, one standard 10/100/1000/2500Mbps RJ45 Ethernet port are provided. Used Intel I226-LM chipset.

Corporate LAN1 product with support for Intel® AMT2 technology (only i5/i7/i9).



22. USB3_LAN2:

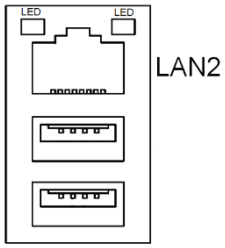
USB3-3/USB3-4：(Double stack USB type A), Rear USB connector, it provides up to 2 USB3.2 ports, USB3.2 Gen1x1 allows data transfers up to 5.0Gb/s, support USB2.0 and full-speed and low-speed signaling.



Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.

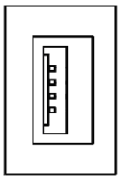
If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

LAN2: (RJ45 Connector), Rear LAN port, one standard 10/100/1000/2500Mbps RJ45 Ethernet port are provided. Used Intel I226-LM chipset.



23. USB2_1:

USB2_6：(Single USB type A), I/O USB 2.0 connector, it provides up to 1 USB2.0 port, USB 2.0 allows data transfers up to 480 Mb/s, support USB2.0 and full-speed and low-speed signaling.



Each USB Type A Receptacle (1 Port) Current limited value is 2.0A.

If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

24. SATA_P1/SATA_P2:

(2.50mm Pitch 1x2 Wafer Pin Header), Four onboard 5V output connectors are reserved to provide power for SATA devices.

Pin#	Signal Name
1	+DC5V_S0
2	Ground

Note:

Output current of the connector must not be above 1A.

25. SATA1/SATA2:

(SATA 7P), SATA Connectors, two SATA connectors are provided, SATA1 and SATA2 transfer speed up to 6.0Gb/s.

RAID controller supporting: RAID0/RAID1.

26. M2_M1:

(M.2 Socket), M.2 M-Key, it is located at the bottom, it supports M.2 M-Key devices with one SATAIII signal. support 2242/2280 size SSD card.

27. H1, H2:

M2_M1 SCREW HOLES, H1/H2 for M2_M1 card assemble.

M2_M1 Card size	H1/H2 (high)	Remarks
2242	H2=6.45mm H1=2.45mm	
2280	H1=6.45mm H2=2.45mm	

28. M2_B1:

(M.2 Socket), M.2 B-Key, it is located at the bottom, it supports M.2 B-Key devices with one USB3.2/USB2.0 and SIM and PCIe signal, support 3042/3052 size 5G card.

Function	Support
USB3.2 Gen1x1/USB2.0 signal	●
PCIe signal	●
SIM signal	●

29. H3, M2.B1.G3:

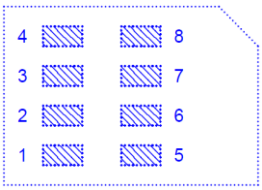
M2_B1 SCREW HOLES, H3 or M2.B1.G3 for M2_B1 card assemble.

The height can be adjusted according to the equipment.

M2_B1 Card size	H3/M2.B1.G3 (high)	Remarks
3042	M2.B1.G3=6.45mm H3=2.45mm	
3052	H3=6.45mm M2.B1.G3=2.45mm	

30. SIM1:

(NANO-SIM Socket), Support nano SIM Card devices.



Pin#	Signal Name
1	SIM_VDD
2	SIM_RST
3	SIM_CLK
5	Ground
6	SIM_VDD
7	SIM_IO

31. M2_E1:

(M.2 Socket), M.2 E-Key, it is located at the top, it supports M.2 E-Key devices with one PCIe and USB2.0 signal. support 2230 size WIFI/BT card.

32. M2.E1.G3:

M2_E1 SCREW HOLES, H7 or M2.B1.G3 for M2_E1 card assemble.

The height can be adjusted according to the equipment.

M2_E1 Card size	H7/ M2.E1.G3 (high)	Remarks
3042	H7=6.45mm M2. B1.G3=2.45mm	
3052	M2. B1.G3=6.45mm H7=2.45mm	

33. BUZ1:

Onboard buzzer.

34. LED1/LED2/LED3/LED4/LED5/LED6/LED7/LED8:

LED1 STATUS. Green LED for M.2 M-Key status.

LED2 STATUS. Green LED for M.2 B-Key status.

LED3 STATUS. Green LED for M.2 E-Key status.

LED4 STATUS. Green LED for Motherboard Power Supply 3.3V_S5 status.

LED5 STATUS. Green LED for Motherboard PGD_DDR5 status.

LED6 STATUS. Green LED for CPU_VRM_RDY status.

LED7 STATUS. Green LED for Motherboard PM_PCH_SYSPWROK status.

LED8 STATUS. Blue LED for CPU_CATERR status.

35. F_AUDIO1(optional):

(2.0mm Pitch 2x5 Pin Header), Front Audio, An onboard Realtek ALC888S-VD2 codec is used to provide high-quality audio I/O ports. Line out can be connected to a headphone or amplifier. Line In is used for the connection of external audio source via a Line in cable. MIC is the port for microphone input audio.

Signal Name	Pin#	Pin#	Signal Name
LINE-OUT-L	1	2	LINE-OUT-R
FRONT-JD	3	4	LINE_IN_JD
LINE-IN-L	5	6	LINE-IN-R
MIC-IN-L	7	8	MIC-IN-R
GND_AUD	9	10	MIC1_JD

36. FP1(optional):

(2.0mm Pitch 2x5 Pin Header), Front panel connector.

Signal Name	Pin#	Pin#	Signal Name
Power LED+(3P3V_S0)	1	2	SATA_LED+(3P3V_S0)
Power LED-(Ground)	3	4	SATA_LED-
FP_PWRBTN-	5	6	FP_RESET-
Ground	7	8	M.2-M/M.2-B LED-
NC	9	10	3P3V_S0

Pin1-3: **POWER LED**, They are used to connect power LED. When the system is powered on or under S0/S1 state, the LED is normally on; when the system is under S4/S5 state, the LED is off.

Pin2-4: **HDD LED**, They are used to connect hard disk activity LED. The LED blinks when the hard disk is reading or writing data.

Pin5-7: **POWER on/off Button**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

Pin6-7: **RESET Button**, They are used to connect reset button. The two pins are disconnected under normal condition. You may short them temporarily to realize system reset.

Pin8-10: **M.2 B-Key LED/M.2 E-Key LED**, They are used to connect M.2 B-key or M.2 E-Key activity LED. The LED blinks when the M.2 B-key or M.2 E-Key is reading or writing data.

Note:

When connecting LEDs, pay special attention to the signal polarity. Make sure that the connector pins have a one-to-one correspondence with chassis wiring, or it may cause boot up failure.

37. DEBUG1(optional):

(1.25mm Pitch 1x9 Pin Header), it supports debug Port.

Pin#	Signal Name
1	3P3V_S5
2	DEBUG_ESPI_IO3
3	DEBUG_ESPI_IO2

4	DEBUG_ESPI_IO1
5	DEBUG_ESPI_IO0
6	DEBUG_ESPI_CLK
7	S_ESPI_CS0-
8	PLT_RST_BUF1-
9	Ground

38. U18(optional):

Infineon's Trusted Platform Module(TPM 2.0) SLB9672VU is a fully standard compliant TPM based on the latest Trusted Computing Group (TCG) specification 2.0.

U18	SLM9672VU2.0
Model	TPM Function
ASB-M9672QB	●

39. PCIE16X_1 (optional):

(PCIe 164 Pin slot), Riser Card expansion connector. Can expand support one PCIeX16 or two PCIeX8 Signal. PCI express X16 supports GEN1 and GEN2 and GEN3 mode. PCI express X8 supports GEN1 and GEN2 and GEN3 mode.

ASB-M9672QB：PCIE16X_1 slot is located at the Bottom.

Model	PC1E16X_1 Slot
ASB-M9672QB	Bottom

40. PCIE8X_1 (optional):

(PCIe 98 Pin slot), Riser Card expansion connector. Can expand support one PCIeX8 or two PCIeX4 Signal. PCI express X8 supports GEN1 and GEN2 and GEN3 mode. PCI express X4 supports GEN1 and GEN2 and GEN3 mode.

ASB-M9672：PCIE8X_1 slot is located at the Bottom.

Model	PC1E8X_1 Slot
ASB-M9672QB	Bottom

Riser Card	Function	ASB-M9672QB
TB-620E42E162	PCIe x4 (64Pin slot) *1 PCIe x4 (64Pin slot) *1 PCIe x16 (164Pin slot) *1 PCIe x16 (164Pin slot) *1	●
TB-620E41E161	PCIe x4 (64Pin slot) *1 PCIe x16 (164Pin slot) *1	●
Note: Please correctly assemble the riser card, otherwise it will burn out the motherboard! If you do not know how to assemble, please contact technical support!		

41. H4/H5/H6/H7:

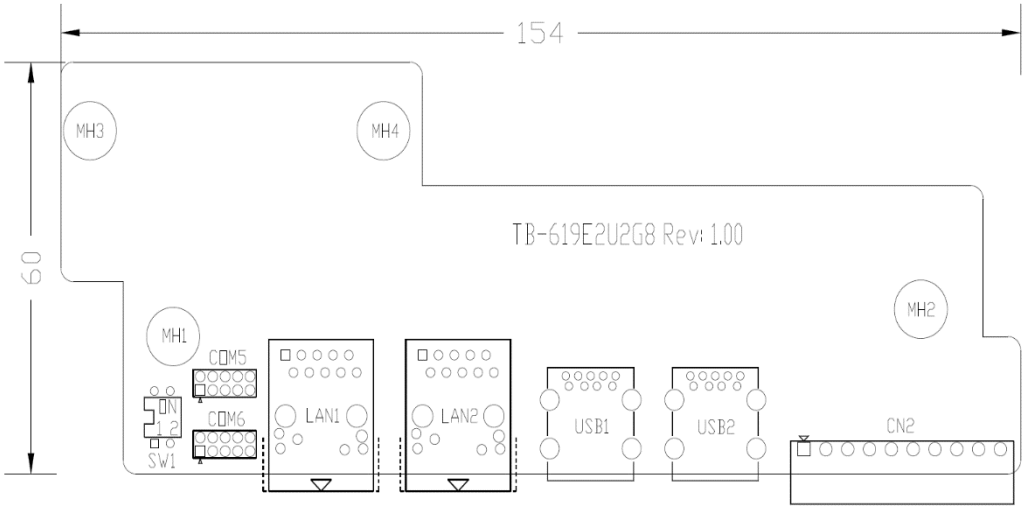
TB-619E2U2G8 SCREW HOLES, MH5 and H4 and H5 and H6 and H7 for TB-619 series card assemble.

42. CN1:

(JAE 2x40Pin Connector),For expand output connector, It provides two PCIeX1 Signal and two USB3.2 Gen1x1 Signal and two UART Signal and eight GPIO Signal, board to board connected to TB-619E2U2G8 series card CN1.

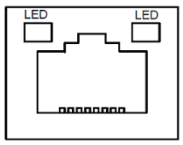
43. TB-619E2U2G8:

IO Expansion Board for AVS-530QL/AVS-532QL/AVS-534QL series, board to board connected to ASB-M9672 CN1.

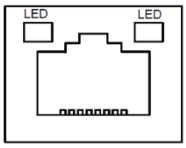


CN1:(JAE 2x40Pin Connector),For expand input connector, It provides two PCIeX1 Signal and two USB3.2 Gen1 Signal and two UART Signal and eight DI/DO Signal, board to board connected to ASB-M9672 card CN1**.**

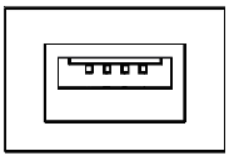
LAN1:(RJ45 Connector), Rear LAN port, one standard 10/100/1000M RJ45 Ethernet port are provided. Used Intel I211AT/I210AT chipset.



LAN2:(RJ45 Connector), Rear LAN port, one standard 10/100/1000M RJ45 Ethernet port are provided. Used Intel I211AT/I210AT chipset.



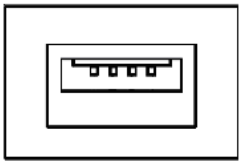
USB1:(Single USB type A), Rear USB connector, it provides up to 1 USB3.2 ports, USB3.2 Gen1 allows data transfers up to 5.0Gb/s, support USB2.0 and full-speed and low-speed signaling.



Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.

If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

USB2:(Single USB type A),Rear USB connector, it provides up to 1 USB3.2 ports,USB3.2 Gen1 allows data transfers up to 5.0Gb/s, support USB2.0 and full-speed and low-speed signaling.



Each USB Type A Receptacle (2 Ports) Current limited value is 2.0A.

If the external USB device current exceeds 2.0A, please separate connectors into different Receptacle.

SW1: Switch, NPN/PNP Setting, GPIO_OUT1 and GPIO_OUT2 and GPIO_OUT3 and GPIO_OUT23 NPN or PNP mode selection for CN2.

SW1	NPN/PNP Mode Setting
Pin1 OFF	PNP
Pin1 ON	NPN
Pin2 OFF	NORMAL (Default)
Pin2 ON	-

CN2:(3.5mm Pitch 1x10 Pin Connector),General-purpose input/output port, it provides 8 group of self-programming interfaces to customers for flexible use.

Pin#	Signal	GPIO	Function
1	GND_24V_GPIO	GND_24V_GPIO	
2	24V_GND_GPIO	24V_GND_GPIO	
3	GPIO_IN1	FT_GPIO_GP27	INPUT
4	GPIO_IN2	FT_GPIO_GP26	INPUT
5	GPIO_IN3	FT_GPIO_GP25	INPUT
6	GPIO_IN4	FT_GPIO_GP24	INPUT
7	GPIO_OUT1	FT_GPIO_GP23	OUTPUT
8	GPIO_OUT2	FT_GPIO_GP22	OUTPUT
9	GPIO_OUT3	FT_GPIO_GP21	OUTPUT
10	GPIO_OUT4	FT_GPIO_GP20	OUTPUT

COM5(N/A):

(2.0mm Pitch 2x5 Pin Header),COM5 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

The COM function is not available by default. If you need to modify BIOS file to support this function, please contact technical support.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

COM6(N/A):

(2.0mm Pitch 2X5 Pin Header),COM6 Port, standard RS232 ports are provided. They can be used directly via COM cable connection.

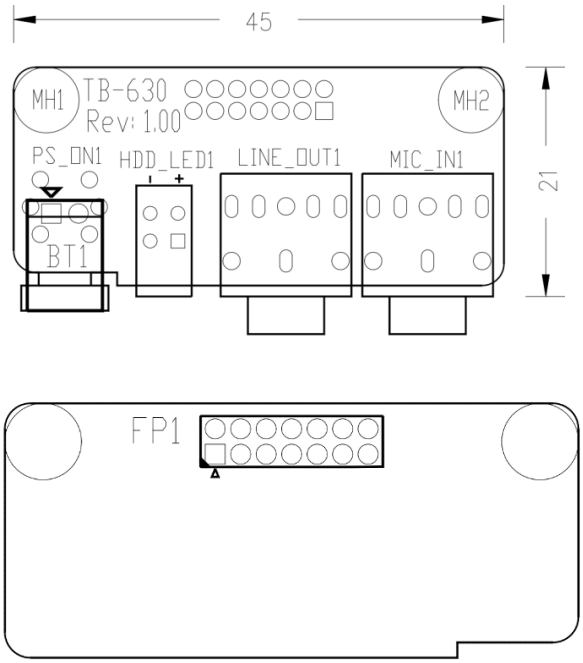
The COM function is not available by default. If you need to modify BIOS file to support this function, please contact technical support.

Signal Name	Pin#	Pin#	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	NC

System Model	Extension I/O
AVS-530-XX	N/A
AVS-532-XX	N/A
AVS-534-XX	N/A
AVS-530QL-XX	TB-619E2U2G8
AVS-532QL-XX	TB-619E2U2G8
AVS-534QL-XX	TB-619E2U2G8

44. TB-630 (optional):

IO Expansion Board for AVS-530/AVS-532/AVS-534 series,TB-630 PF1 connected to ASB-M9672 FP1 and F_AUDIO1.



FP1: (2.0mm Pitch 2x5 Pin Header). It provides input connections for Audio and Power on/off and SATA LED and Power LED and M.2 M-Key/M.2 B-Key LED signals.
They can be used directly via 2x7Pin Y type cable connection.

Signal Name	Pin#	Pin#	Signal Name
OUT-L(LINE-OUT-L)	1	2	OUT-R(LINE-OUT-R)
FRONT_JD	3	4	MIC1_JD
MIC-IN-L	5	6	MIC-IN-R
SATA_LED+	7	8	GND_AUD
SATA_LED-	9	10	PLED+(Power LED+)
M.2_LED-(M.2-M/M.2-B LED-)	11	12	BTN+(FP_PWRBTN-)
M.2_LED+	13	14	Ground

BT1/PS_ON1/POWER LED:

BT1(NC):(2.5mm Pitch 1x2 Pin Connector),**Power on/off**, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from sleep state.

PS_ON1: Power on/off Button, They are used to connect power switch button. The two pins are disconnected under normal condition. You may short them temporarily to realize system startup & shutdown or awaken the system from

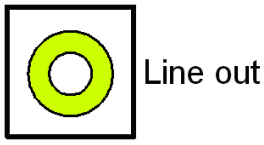
sleep state.

PWR LED: Power LED status.

HDD LED: Red LED for M.2 M-Key/M.2 B-Key LED status.

Red LED for SATA HDD LED status.

LINE_OUT1: (Diameter 3.5mm Jack), High Definition Audio port, Line Out can be connected to a headphone or amplifier.

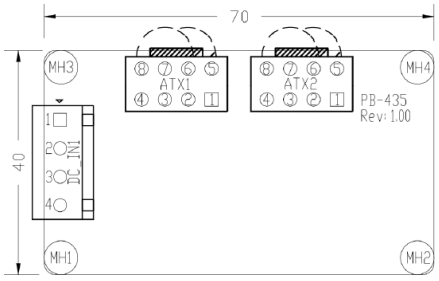


MIC_IN1:(Diameter 3.5mm Jack), High Definition Audio port, MIC is the port for microphone input audio.

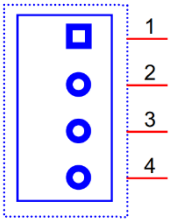
45. PB-435 (optional):

Power Board for AVS-532/AVS-532QL/AVS-534/AVS-534QL series, PB-435 DC_IN1 connected to ASB-M9672 DC_OUT1**.**

Note: The power consumption of power supply needs different combination tests.



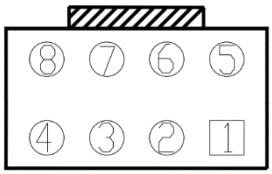
DC_IN1:(5.08mm Pitch 1x4 Pin Connector), DC9V~DC36V power input connector. Maximum power consumption of the whole machine is not more than **150 watts.**



Pin#	PB-435 Power input（DC_IN1）
Pin1	DC+9V~36V (Power Adapter input voltage)
Pin2	DC+9V~36V (Power Adapter input voltage)
Pin3	Ground
Pin4	Ground

ATX1:(4.20mm Pitch 2x4 Pin Connector),DC12V power output connector.

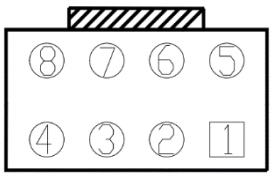
Maximum power consumption of the whole machine is not more than **75 watts.**



PB-435 Power output（ATX1）			
Signal Name	Pin#	Pin#	Signal Name
Ground	5	1	12V_S5
Ground	6	2	12V_S5
Ground	7	3	12V_S5
Ground	8	4	Ground

ATX2:(4.20mm Pitch 2x4 Pin Connector),DC12V power output connector.

Maximum power consumption of the whole machine is not more than **75 watts.**



PB-435 Power output（ATX2）			
Signal Name	Pin#	Pin#	Signal Name
Ground	5	1	12V_S5
Ground	6	2	12V_S5
Ground	7	3	12V_S5
Ground	8	4	Ground

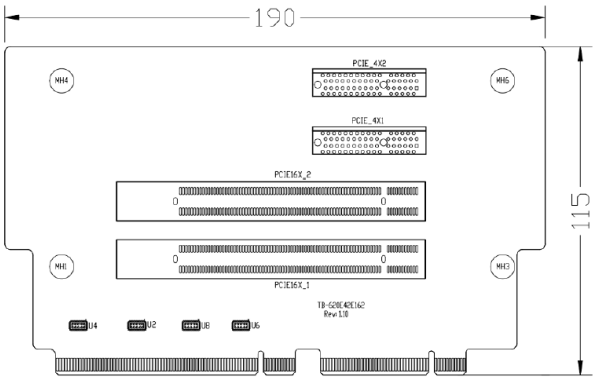
46. TB-620E42E162 (optional):

TB-620E42E162 connect to ASB-M9672 PCIE16X_1 and PCIE8X_1 connector, It provides two 64Pin slots, two 164Pin slots.

PCIe Gen5 Linear Equalizer：LERAIN JYS13008MF01 FCCSP SMD

Can expand support one PCIeX16 or two PCIeX8 Signal. PCI express X16 supports GEN1 and GEN2 and GEN3 mode. PCI express X8 supports GEN1 and GEN2 and GEN3 mode and GEN4 mode.

Can expand support two PCI X4 Signal. PCI express X4 supports GEN1 and GEN2 and GEN3 mode and GEN4 mode.



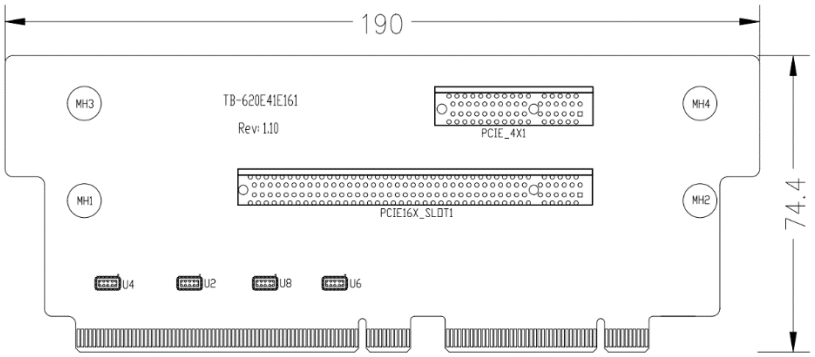
Slot#	Connect	Function	
		Select 1	Select 2
1	164Pin slot	PCIe x16 Signal	PCIe x8 Signal
2	164Pin slot	-	PCIe x8 Signal
3	64Pin slot	PCIe x4 Signal	PCIe x4 Signal
4	64Pin slot	PCIe x4 Signal	PCIe x4 Signal

47. TB-620E41E161 (optional):

TB-620E41E161 connect to ASB-M9672 PCIE_16X1 and PCIE_8X1 connector, It provides one 164Pin slot, one 64Pin slot.

Can expand support one PCIeX16 Signal. PCI express X16 supports GEN1 and GEN2 and GEN3 and GEN4 mode.

Can expand support one PCIeX4 Signal. PCI express X4 supports GEN1 and GEN2 and GEN3 and GEN4 mode.



Slot#	Connect	Function
1	164Pin slot	PCIe x16 Signal
2	64Pin slot	PCIe x4 Signal

Chapter 3 BIOS Setup

3.1 Operations after POST Screen

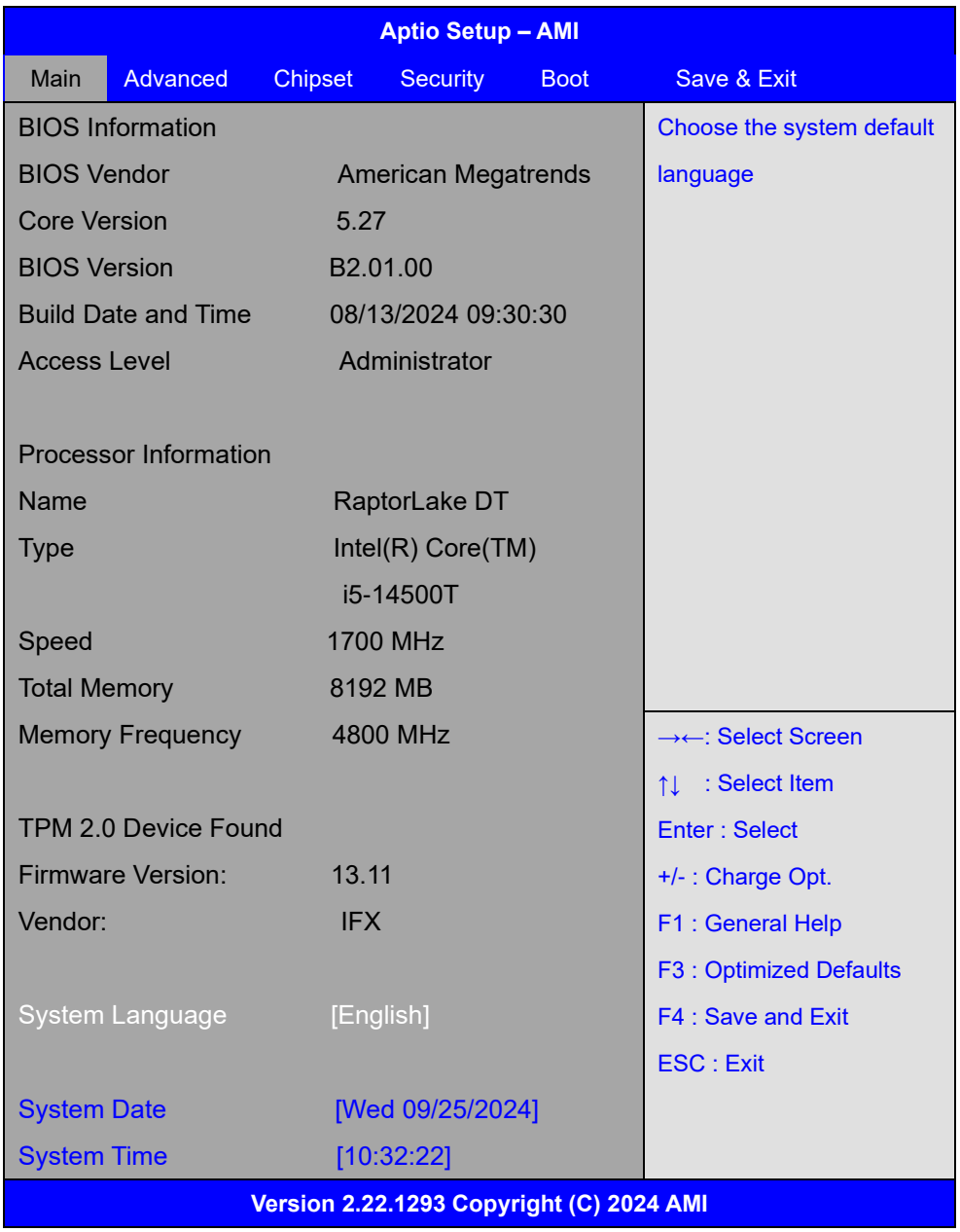
After CMOS discharge or BIOS flashing operation, press [Delete] key to enter CMOS Setup.

After optimizing, exits CMOS Setup.

3.2 BIOS Setup Utility

Press [Delete] key to enter BIOS Setup utility during POST, and then a main menu containing system summary information will appear.

3.3 Main Settings



System Time:

Set the system time, the time format is:

Hour :	0 to 23
Minute :	0 to 59
Second :	0 to 59

System Date:

Set the system date, the date format is:

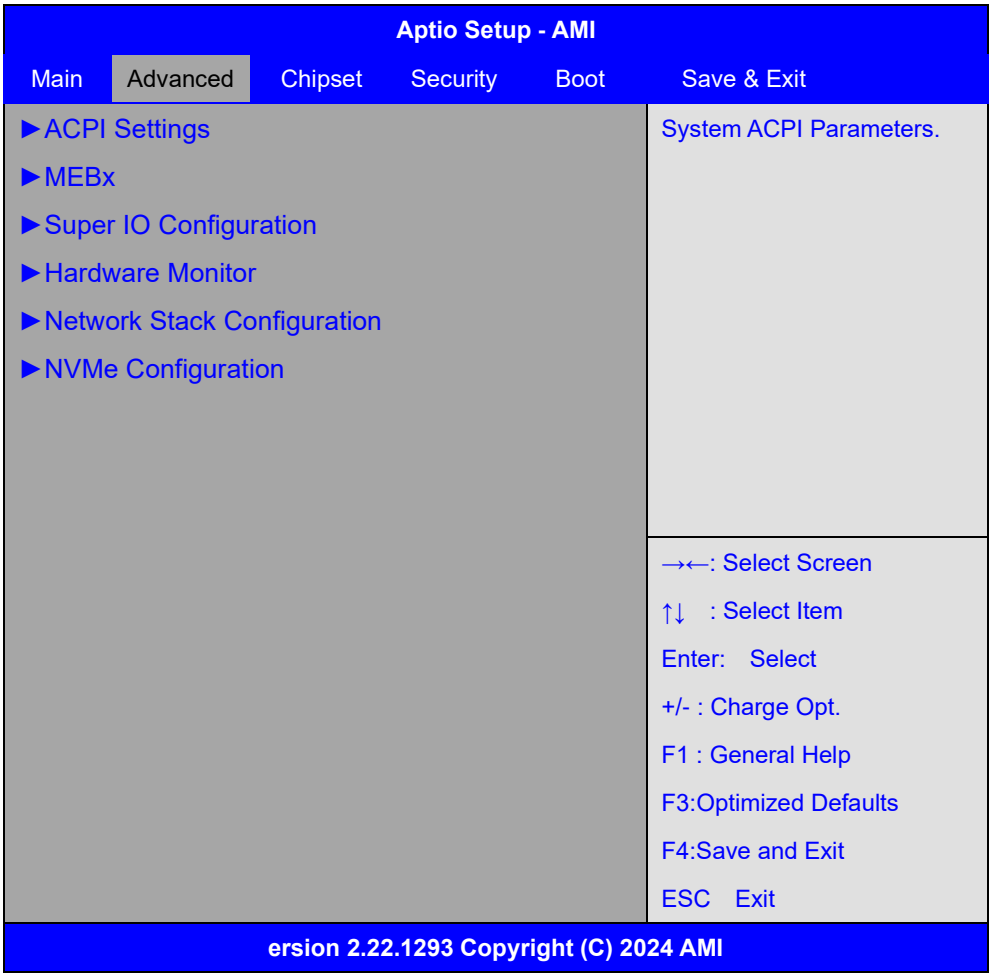
Day: Note that the 'Day' automatically changes when you set the date.

Month: 01 to 12

Date: 01 to 31

Year: 1998 to 2099

3.4 Advanced Settings



3.4.1 ACPI Settings

ACPI Settings

Enable Hibernation:

[Disabled]
[Enabled]

ACPI Sleep State:

[Suspend Disabled]
[S3 (Suspend to RAM)]

Wake system from S5:

[Disabled]

[Fixed Time]

Wake up hour: 0
Wake up minute: 0
Wake up second: 0

[Dynamic Time]

Wake up minute increase: 1

Wake On LAN:

[Disabled]
[Enabled]

3.4.2 MEBx

Intel® ME Password:

Enter Current Password, the default password is：[admin]

Create New Password：

Enter a new password of at least 8 characters and a maximum of 32 characters, containing one uppercase letter, one lowercase letter, one number, and one special character.

Confirm New Password:

Intel® AMT Settings

Intel® AMT:

[Disabled]
[Partially Disabled]

[Enabled]

Intel® AMT Configuration

Redirection features

SOL:

[Disabled]

[Enabled]

Storage Redirection:

[Disabled]

[Enabled]

KVM Feature Selection:

[Disabled]

[Enabled]

User Consent

User Opt-in:

[NONE]

[KVM]

[ALL]

Opt-in Configurable from Remote IT:

[Disabled]

[Enable]

Password Policy:

[Default Password Only]

[During Setup And Configuration]

[Anytime]

Network Setup

Intel® ME Network Name Settings

FQDN

Shared/Dedicated FQDN:

[Disabled]

[Shared]

Dynamic DNS Update:

[Disabled]

[Enabled]

TCP/IP Settings

Wired LAN IPV4 Configuration

DHCP Mode:

[Disabled]

[Enabled]

Network Access State:

[Network Active]

[Network Inactive]

[Full Unprovision]

Remote Setup And Configuration

Provision Record is not present

Provisioning Server address

Provisioning server port number 9971

Remote Configuration **:

[Disabled]

[Enabled]

PKI DNS Suffix

Manage Certificates

GO Daddy Class 2 CA

GO Daddy Class 2 CA:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

C384-6BF2-4B9E-93CA-642

7-4C0E-C67C-1ECC-5E02-4

FFC-ACD2-D740-1935-0E81

-FE54-6AE4

GO Daddy Root CA-G2

GO Daddy Root CA-G2:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

4514-0B32-47EB-9CC8-C5B

4-F0D7-B530-91F7-3292-0

89E-6E5A-63E2-749D-D3AC

-A919-8EDA

Comodo AAA CA

Comodo AAA CA:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

D7A7-A0FB-5D7E-2731-D77

1-E948-4EBC-DEF7-1D5F-0

C3E-0A92-4878-2BC8-3EE0

-EA69-9EF4

Starfield Class 2 CA

Starfield Class 2 CA:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

1465-FA20-5397-B876-FAA

6-F0A9-958E-5590-E40F-C

C7F-AA4F-B7C2-C867-7521

-FB5F-B658

Starfield Root CA-G2

Starfield Root CA-G2:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

2CE1-CB0B-F9D2-F9E1-029

9-3FBE-2151-52C3-B2DD-0

CAB-DE1C-68E5-319B-8391

-54DB-B7F5

VeriSign Class 3 Primary CA-G5

VeriSign Class 3 Primary CA-G5:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
9ACF-AB7E-43C8-D880-D06
B-262A-94DE-EEE4-B465-9
989-C3D0-CAF1-9BAF-6405
-E41A-B7DF
Baltimore CyberTrust Root
Baltimore CyberTrust Root:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
16AF-57A9-F676-B0AB-126
0-95AA-5EBA-DEF2-2AB3-1
119-D644-AC95-CD4B-93DB
-F3F2-6AEB
USERTrust RSA CA
USERTrust RSA CA:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
E793-C9B0-2FD8-AA13-E21
C-3122-8ACC-B081-1964-3
B74-9C89-8964-B174-6D4
-C3D4-CBD2
Verizon Global Root
Verizon Global Root:
Active?:

[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
68AD-5090-9B04-363C-605
E-F135-81A9-39FF-2C96-3
72E-3F12-325B-0A68-61E1
-D59F-6603
Entrust.net CA (2048)
Entrust.net CA (2048):
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
6DC4-7172-E01C-BCB0-BF6
2-580D-895F-E2B8-AC9A-D
4F8-7380-1E0C-10B9-C837
-D21E-B177
Entrust Root CA
Entrust Root CA:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
73C1-7643-4F1B-C6D5-ADF
4-5B0E-76E7-2728-7C8D-E
576-16C1-E6E6-141A-2B2C
-DC7D-8E4C
Entrust Root CA-G2
Entrust Root CA-G2:
Active?:
[NO]
[YES]

Default? [YES]
Hash type [SHA256]
Hash date
43DF-5774-B03E-7FEF-5FE
4-0D93-1A7B-EDF1-BB2E-6
B42-738C-4E6D-3841-103D
-3AA7-F339
VeriSign Universal Root CA
VeriSign Universal Root CA:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
2399-5611-27A5-7125-DE8
C-EFEA-610D-DF2F-A078-B
5C8-067F-4E82-8290-BFB8
-60E8-4B3C
Affirm Trust Premium
Affirm Trust Premium:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
70A7-3F7F-376B-6007-424
B-9045-34B1-1482-D5BF-0
E69-8ECC-498D-F525-77EB
-F2E9-3B9A
DigiCert Global Root CA
DigiCert Global Root CA:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]

Hash date

4348-A0E9-444C-78CB-265
E-058D-5E89-44B4-D84F-9
662-BD26-DB25-7F89-34A4
-43C7-0161

DigiCert Global Root G2

DigiCert Global Root G2:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

CB3C-CBB7-6031-E5E0-138
F-8DD3-9A23-F9DE-47FF-C
35E-43C1-144C-EA27-D46A
-5AB1-CB5F

DigiCert Global Root G3

DigiCert Global Root G3:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

31AD-6648-F810-4138-C73
8-F39E-A432-0133-393E-3
A18-CC02-296E-F97C-2AC9
-EF67-31D0

DigiCert Trusted Root G4

DigiCert Trusted Root G4:

Active?:

[NO]

[YES]

Default? [YES]

Hash type [SHA256]

Hash date

552F-7BDC-F1A7-AF9E-6CE

6-7201-7F4F-12AB-F772-4
0C7-8E76-1AC2-03D1-D9D2
-0AC8-9988

GlobalSign Root CA - R3
GlobalSign Root CA - R3:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
CBB5-22D7-B7F1-27AD-6A0
1-1386-5BDF-1CD4-102E-7
D07-59AF-635A-7CF4-720D
-C963-C53B

GlobalSign ECC Root CA – R5
GlobalSign ECC Root CA – R5:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
179F-BC14-8A3D-D00F-D24
E-A134-58CC-43BF-A7F5-9
C81-82D7-83A5-13F6-EBEC
-100C-8924

GlobalSign Root CA – R6
GlobalSign Root CA – R6:
Active?:
[NO]
[YES]
Default? [YES]
Hash type [SHA256]
Hash date
2CAB-EAFE-37D0-6CA2-2AB
A-7391-C003-3D25-9829-5
2C4-5364-7349-763A-3AB5

-AD6C-CF69

Activate Remote Configuration

Power Control

These configurations are effective only after ME provisioning has started

ME ON in Host Sleep States:

[Desktop: ON in S0]

[Desktop: ON in S0, ME Wake in S3,S4-5]

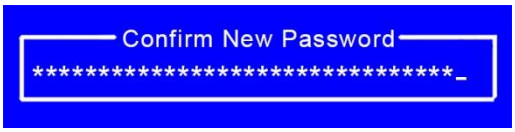
Idle Timeout 65535

Change ME Password

Enter Current Password

Create New Password

Confirm New Password



3.4.3 Super IO Configuration

Super IO Configuration

Serial Port 1 Configuration:

Serial Port 1 Configuration

Serial Port:

[Disabled]

[Enabled]

COM Mode Select:

[RS232]
[RS485]
[RS422]
Device Settings IO=3F8h; IRQ=4;

Serial Port 2 Configuration:
Serial Port 2 Configuration
Serial Port:
[Disabled]
[Enabled]
COM Mode Select:
[RS232]
[RS485]
[RS422]
Device Settings IO=2F8h; IRQ=3;

Serial Port 3 Configuration:
Serial Port 3 Configuration
Serial Port:
[Disabled]
[Enabled]
COM Mode Select:
[RS232]
[RS485]
[RS422]
Device Settings IO=3E8h; IRQ=7;

Serial Port 4 Configuration:
Serial Port 4 Configuration
Serial Port:
[Disabled]
[Enabled]
COM Mode Select:
[RS232]
[RS485]
[RS422]
Device Settings IO=2E8h; IRQ=10;

3.4.4 Hardware Monitor

Pc Health Status

System temperature : +44 C
Cpu temperature2 : +29 C
SysFan Speed : N/A
VCC_CORE : +1.070 V
VIN1_DDR : +1.120 V
Smart Fan Function
Smart Fan 1 Setting
Smart Fan 1 Setting:
Smart Fan 2 Mode
[Software Mode]

[Automatic Mode]

Fan 2 Type:
[PWM]
[RPM]
Temperature select:
[TMPIN1]
[TMPIN2]
[TMPIN3]
Fan off temperature limit: 0
Fan start temperature limit: 30
Fan full speed temperature limit: 90
Fan start PWM: 75
PWM SLOPE SETTING: N/A
ΔTemperature: 4

SysFan2 Setting
SysFan2 Setting:
Smart Fan 3 Mode:
[Software Mode]
[Automatic Mode]
Fan 3 Type:
[PWM]
[RPM]
Temperature select:

[TMPIN1]
[TMPIN2]
[TMPIN3]

Fan off temperature limit: 0
Fan start temperature limit: 30
Fan full speed temperature limit: 90
Fan start PWM: 75
PWM SLOPE SETTING: N/A
ΔTemperature: 4

SysFan3 Setting
SysFan3 Setting:
Ex-Start Limit: 77
Ex-Fan Select:
[None]
[Fan1]
[Fan2]
[Fan3]
Ex-ΔTemperature 4
Ex-Δ Temperature select:
[TMPIN1]
[TMPIN2]
[TMPIN3]
Slope Type:
[Positive]
[Negative]
Range Selection 0
Ex-Slope Value N/A

3.4.5 Network Stack Configuration

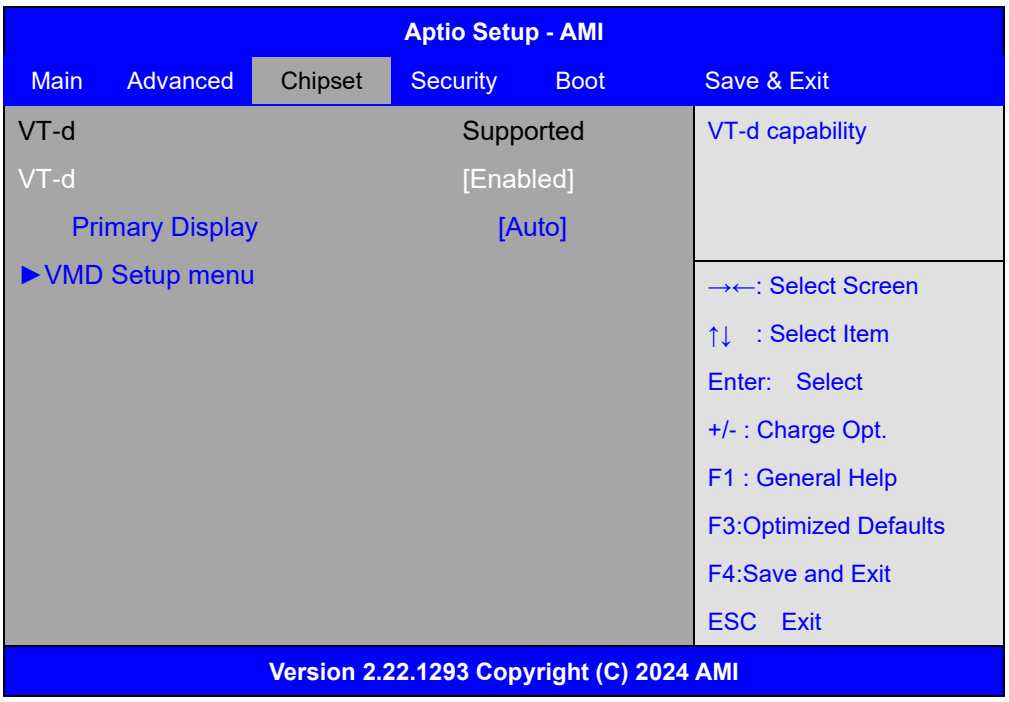
Network Stack:
[Disabled]
[Enabled]

3.4.6 NVMe Configuration

NVMe Configuration:

No NVME Device Found

3.5 Chipset Settings



3.5.1 VT-d Supported

VT-d:

[Enabled]

[Disabled]

3.5.2 Primary Display:

[Auto]

[IGFX]

[PEG Slot]

3.5.3 VMD setup menu

VMD Configuration:

Serial ATA Port 4 Empty

Hot Plug:

[Disabled]

[Enabled]

Serial ATA Port 4 Empty

Hot Plug:

[Disabled]

[Enabled]

Enable VMD controller:

[Disabled]

[Enabled]

3.6 Security Settings

3.6.1 Administrator Password

3.6.2 User Password

3.6.3 Secure Boot

System Mode Setup

Secure Boot:

[Disabled]

[Enabled]

Not Active

Secure Boot Mode:

[Standard]

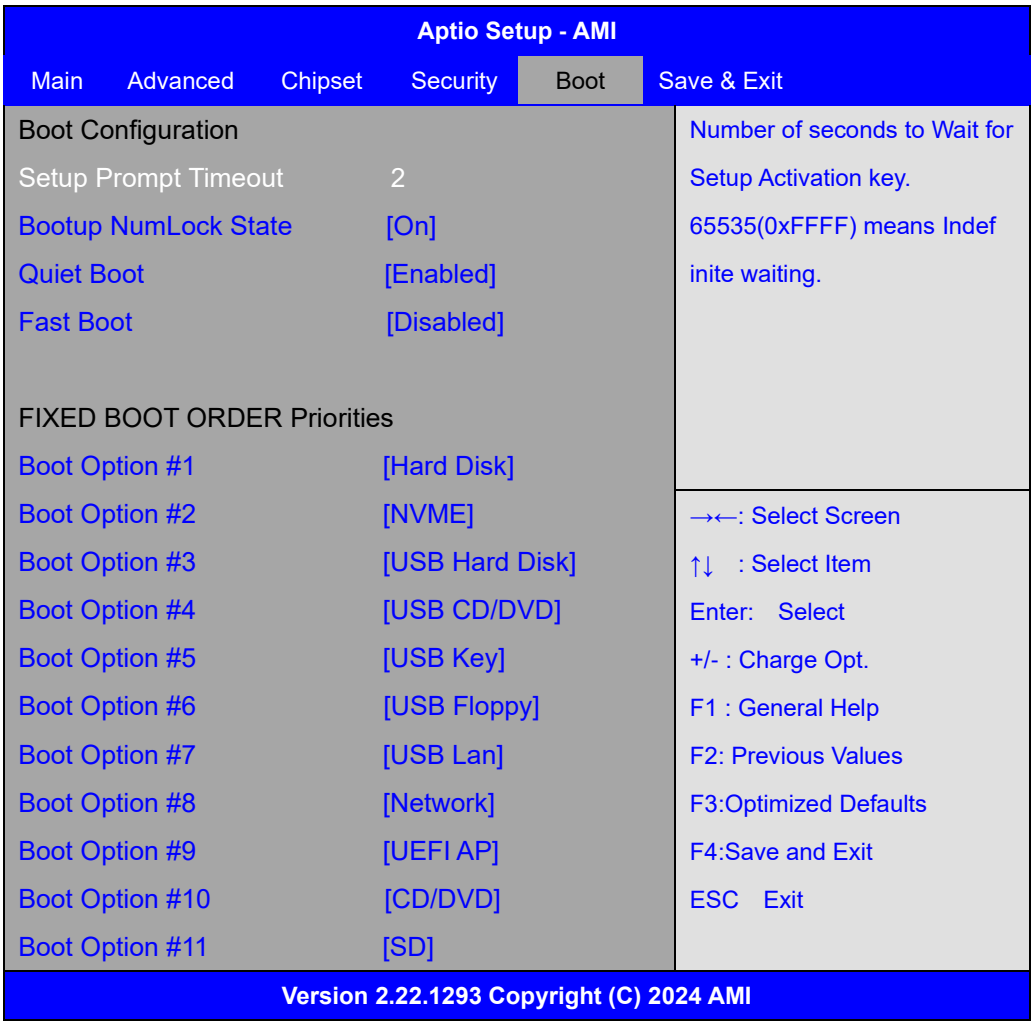
[Custom]

Restore Factory keys

Reset to Setup Mode

Key Management

3.7 Boot Settings



Boot Configuration

Setup Prompt Timeout 2

Bootup Numlock State:

[On]

[off]

Quiet Boot:

[Disabled]

[Enabled]

Fast Boot:

[Disabled]

[Enabled]

FIXED BOOT ORDER Priorities

Boot Option #1:

[Hard Disk]

[NVME]

[USB Hard Disk]

[USB CD/DVD]

[USB Key]

[USB Floppy]

[USB Lan]

[Network]

[UEFI AP]

[CD/DVD]

[SD]

Boot Option #2:

[Hard Disk]

[NVME]

[USB Hard Disk]

[USB CD/DVD]

[USB Key]

[USB Floppy]

[USB Lan]

[Network]

[UEFI AP]

[CD/DVD]

[SD]

Boot Option #3:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #4:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #5:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #6:

[Hard Disk]

[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #7:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #8:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #9:

[Hard Disk]
[NVME]
[USB Hard Disk]

[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

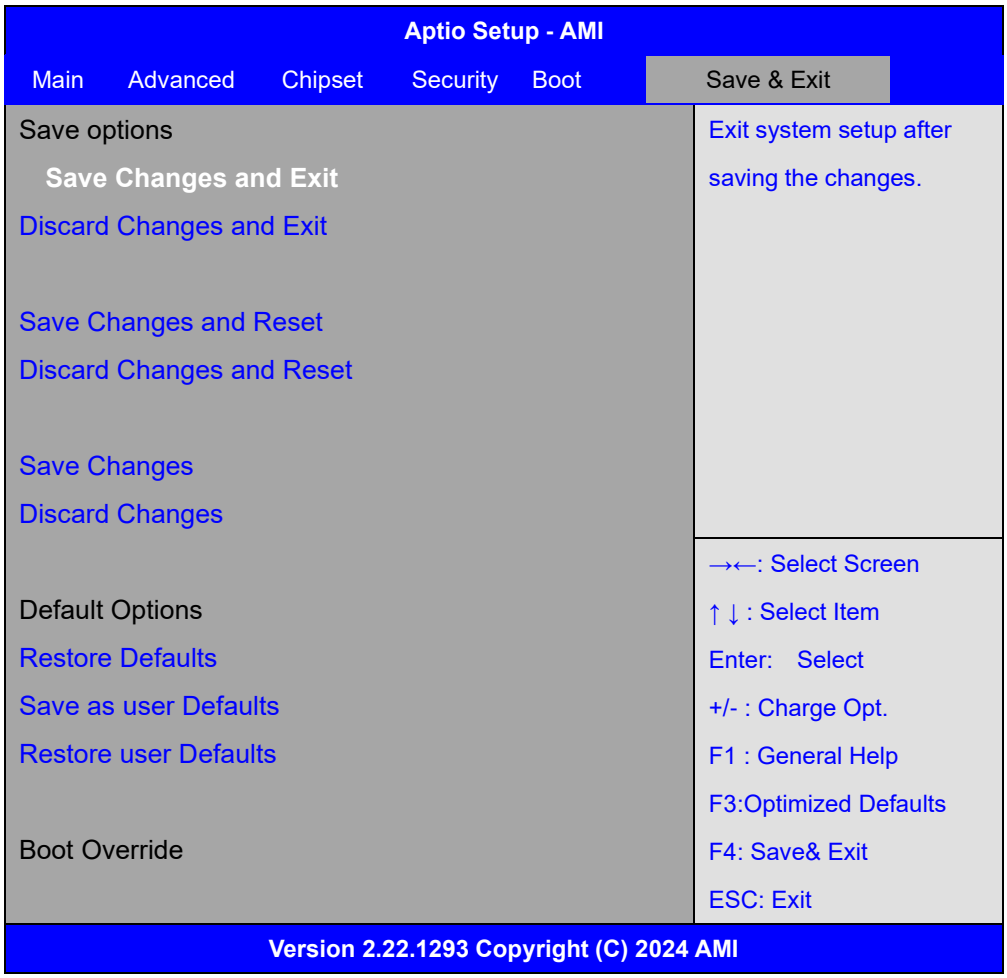
Boot Option #10:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

Boot Option #11:

[Hard Disk]
[NVME]
[USB Hard Disk]
[USB CD/DVD]
[USB Key]
[USB Floppy]
[USB Lan]
[Network]
[UEFI AP]
[CD/DVD]
[SD]

3.8 Save & Exit Settings



Save Options

Save Changes and Exit

Exit system setup after saving the changes?

[Yes]

[No]

Discard Changes and Exit

Exit system setup without saving ang changes?

[Yes]

[No]

Save Changes and Reset

Reset the system after saving the changes?

[Yes]

[No]

Discard Changes and Reset

Reset system setup without saving any changes?

[Yes]

[No]

Save Changes

Save Setup done so far to any of the setup options?

[Yes]

[No]

Discard Changes

Discard Changes done so far to any of the setup options?

[Yes]

[No]

Default Options

Restore Defaults

Restore /Load Defaults values for all the setup options?

[Yes]

[No]

Save as User Defaults

Save the changes done so far as User Defaults?

[Yes]

[No]

Restore User Defaults

Restore the User Defaults to all the setup options?

[Yes]

[No]

Boot Override

Chapter 4 Installation of Drivers

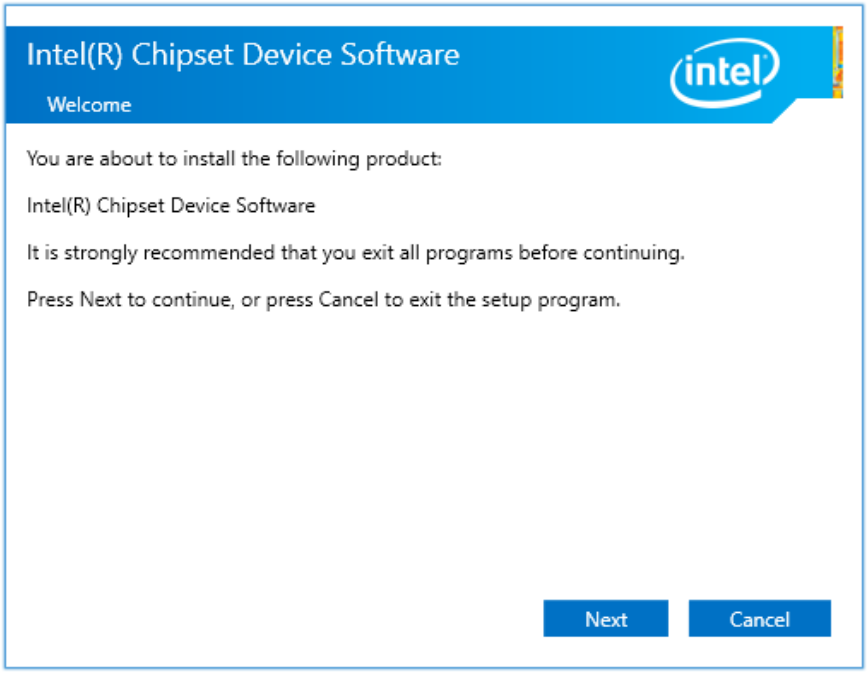
This chapter describes the installation procedures for software and drivers under Windows 8.1 & 10. The software and drivers are included with the motherboard. The contents include **Intel Chipset, Graphics driver, Audio driver, LAN Driver and Intel® ME Driver.**

Important Note:
After installing your Windows operating system, you must install Intel Chipset Software Installation Utility before proceeding with the installation of drivers.

4.1 Intel Chipset

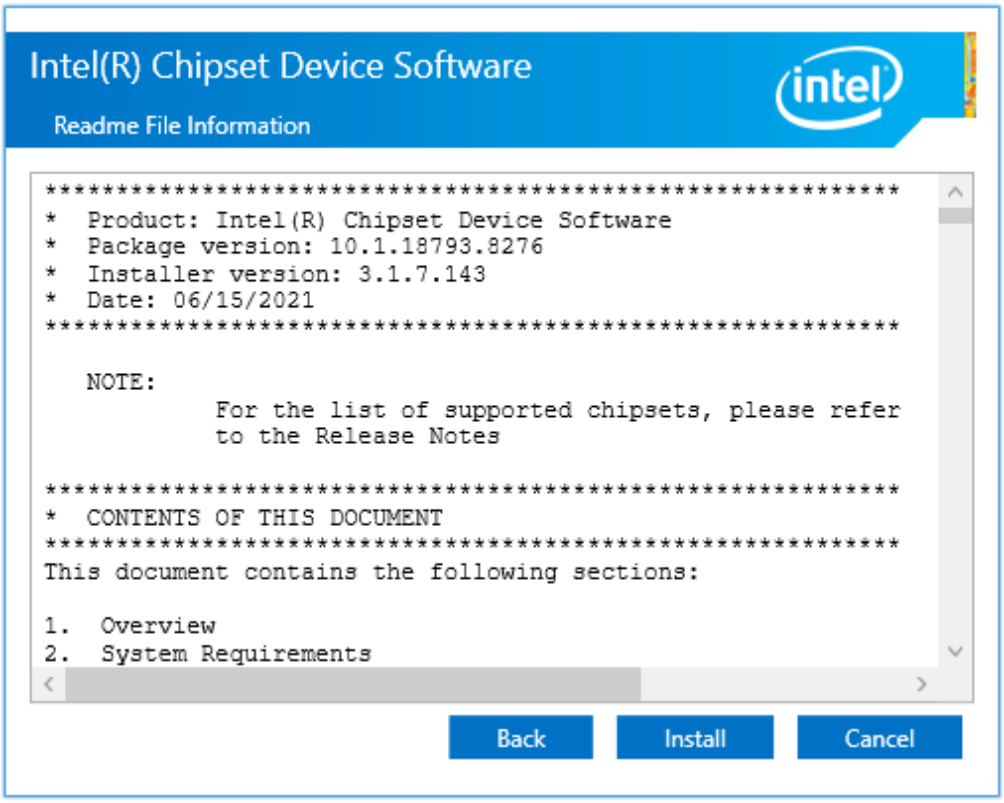
To install the Intel chipset driver, please follow the steps below.

Step1. Click **Next** to setup program.



Step2. Read the license agreement. Click **Accept** to accept all of the terms of the license agreement.

Step3. Click **Install** to begin the installation.



Step5. Click **Finish** to complete the setup process.

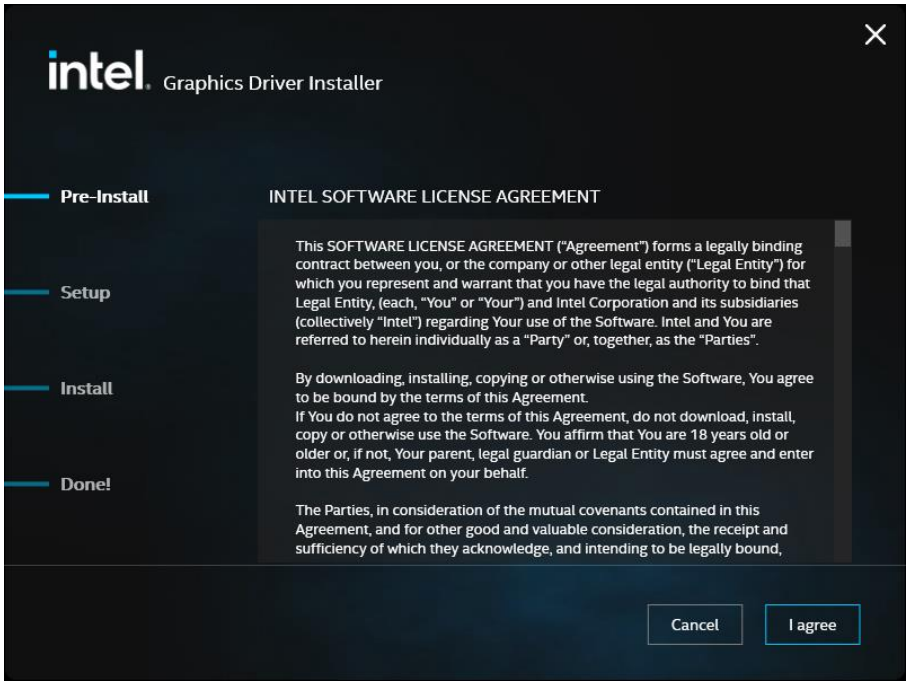
4.2 Intel® UHD Graphics Driver

To install the Intel® UHD Graphics Driver, please follow the steps below.

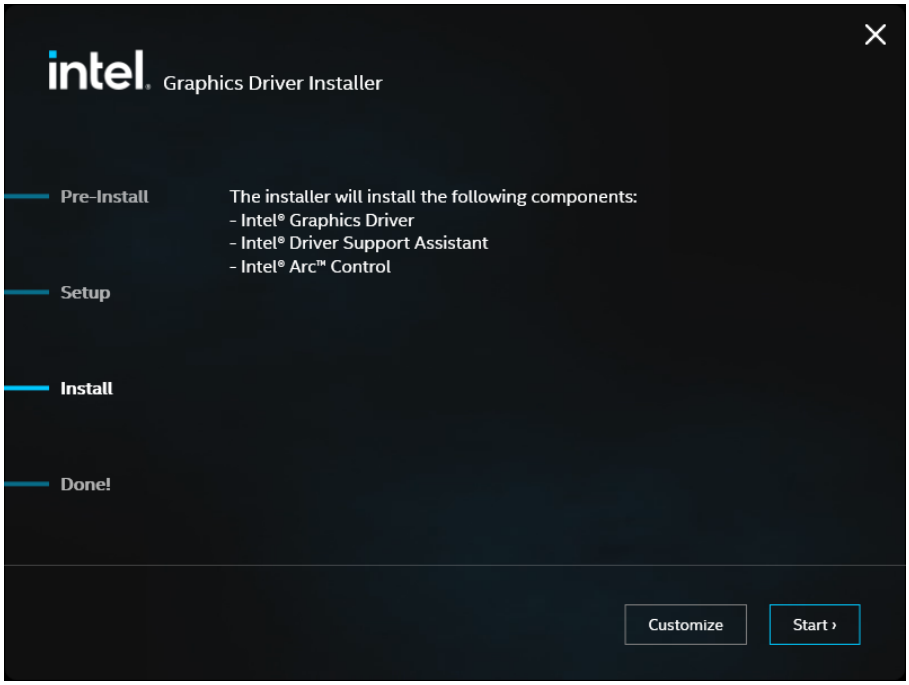
Step1. Select **Graphics Driver Installer** from the list**.**

Step2. Click **Begin Installation.**

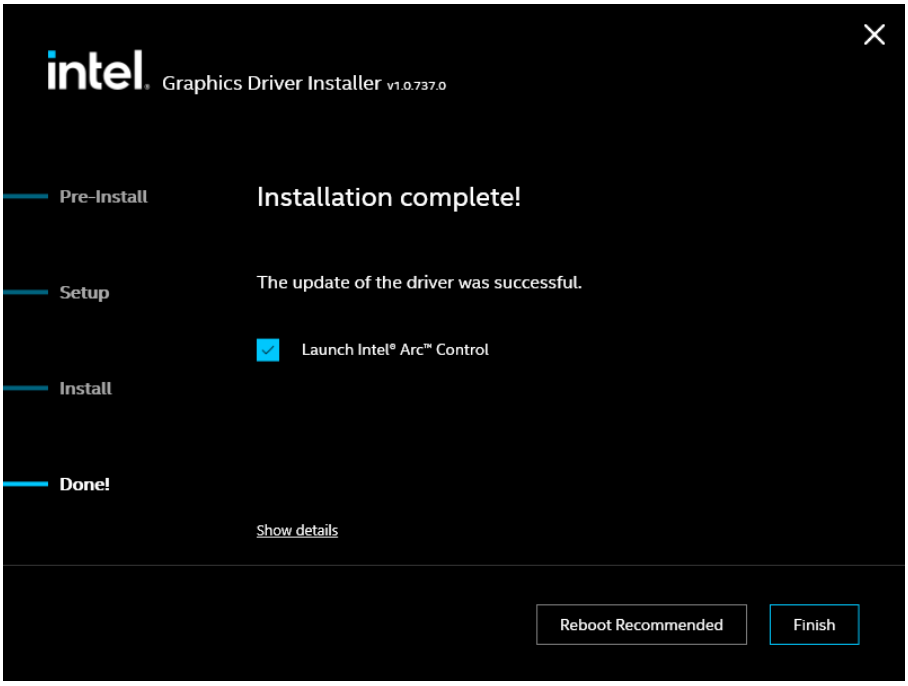
Step3. Read the license agreement. Click **I agree** to accept all of the terms of the license agreement.



Step4. Click **Start** to continue.



Step5. Click **Finish** to complete the setup process.

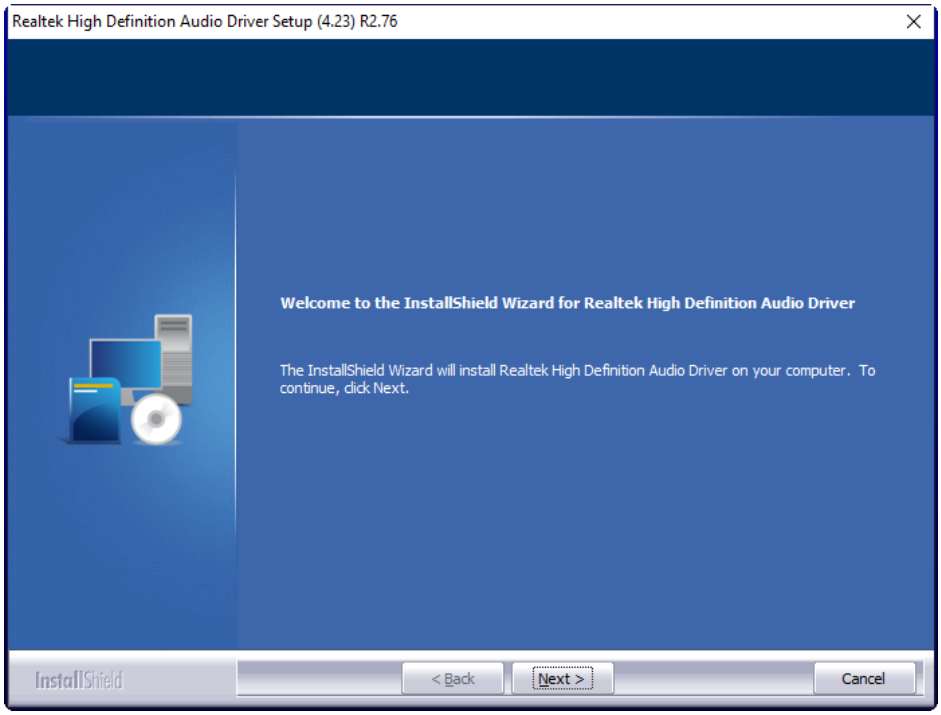


4.3 Realtek HD Audio Driver Installation

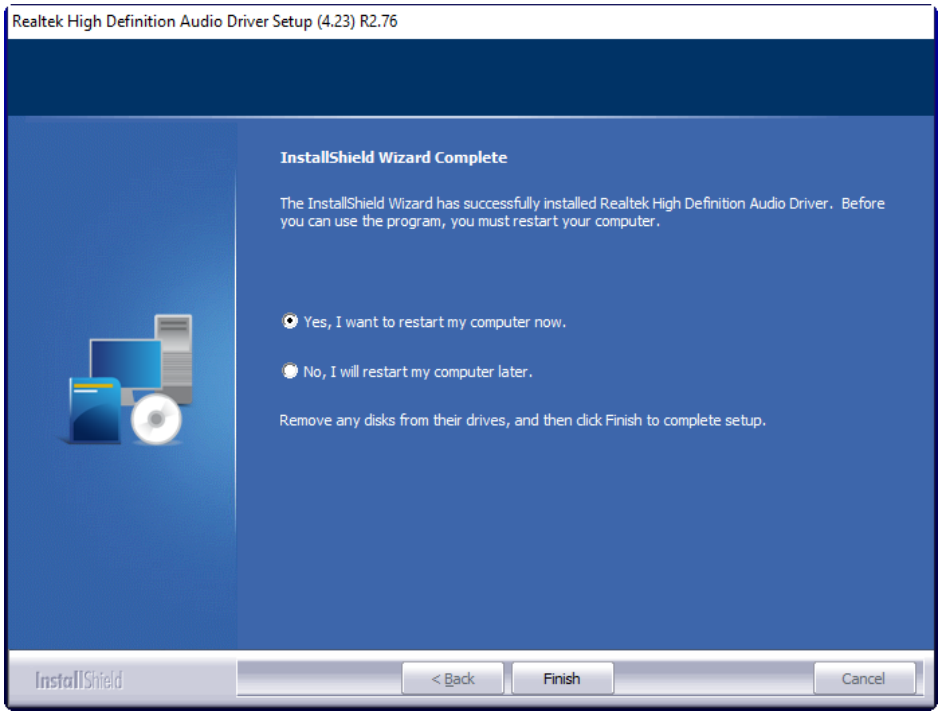
To install Realtek HD Audio Driver, please follow the steps below.

Step1. Select **Realtek HD Audio Driver** from the list**.**

Step2. Click **Next** to continue.



Step3. Click **Yes, I want to restart my computer now**. Click **Finish** to complete the installation.

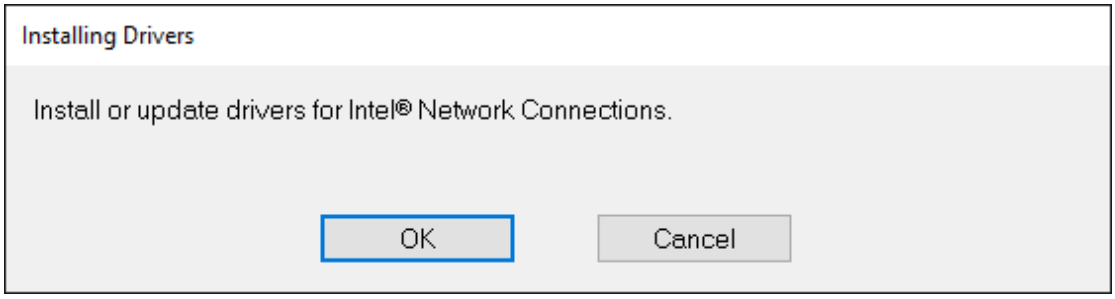


4.4 LAN Driver

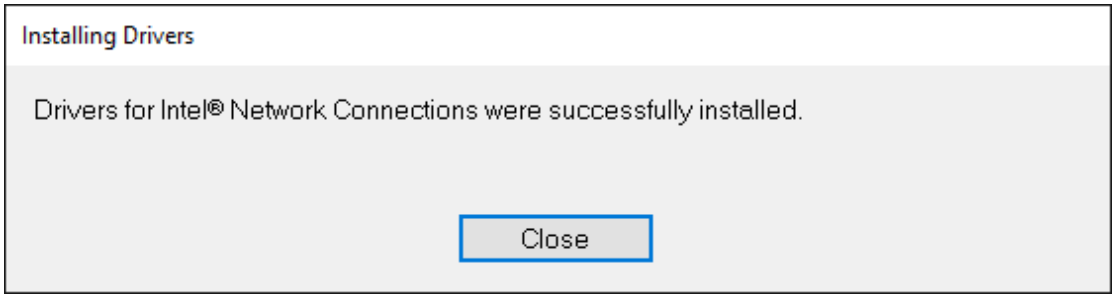
To install the LAN Driver, please follow the steps below.

Step1. Select LAN Driver from the list

Step2. Click **OK** to continue.



Step3. Driver has been installed successfully. Choose **Close** to finish installation.

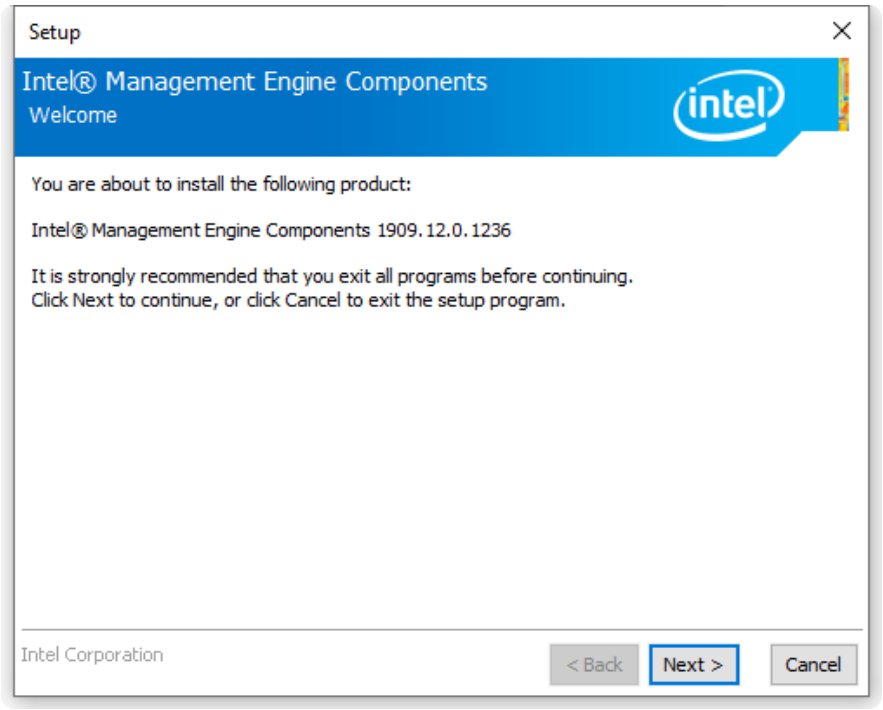


4.5 Intel® ME Driver

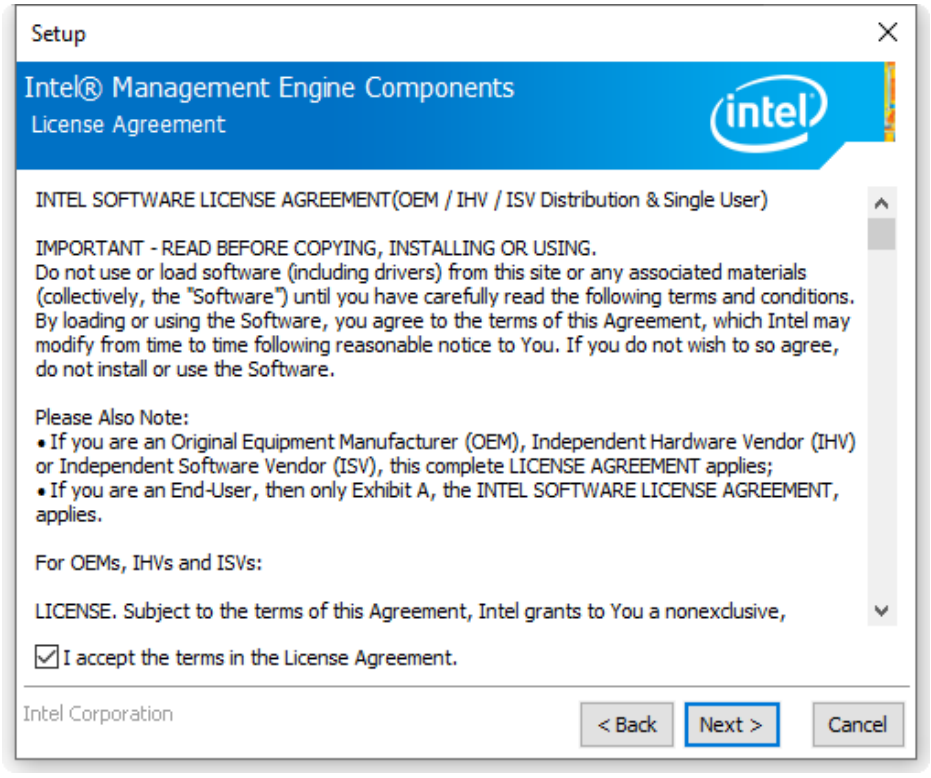
To install the Intel® ME Driver, please follow the steps below.

Step1. Select **Intel® ME Driver** from the list

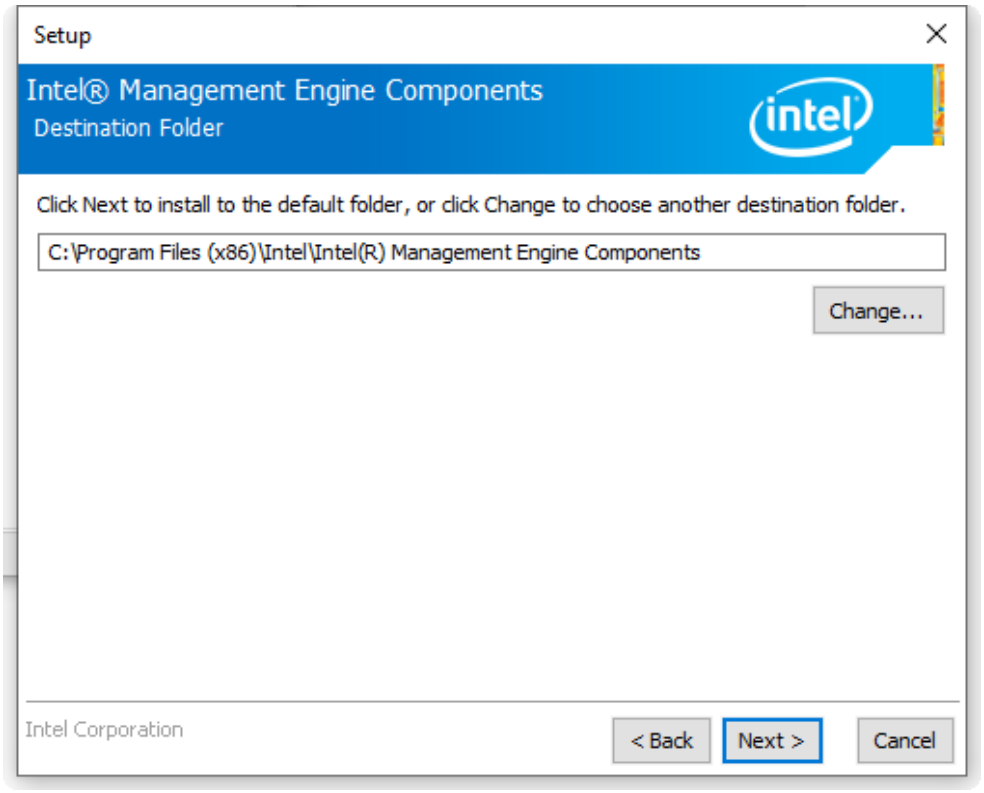
Step2. Click **Next** to continue.



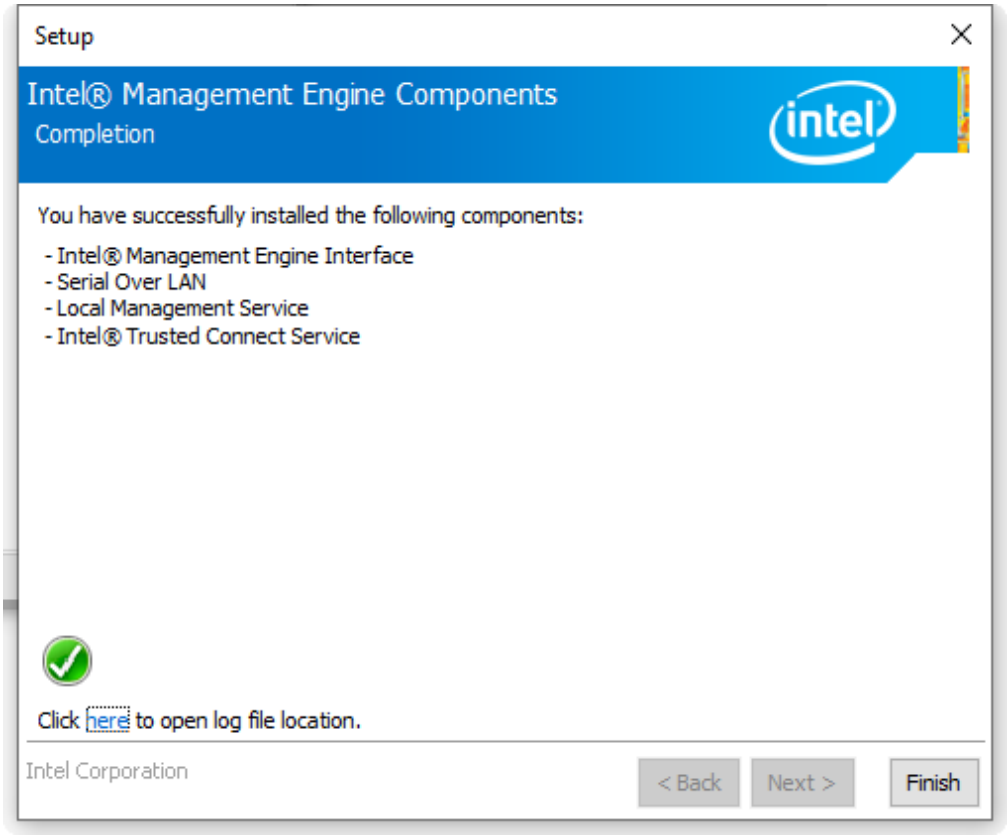
Step3. Choose **I accept the terms in the License Agreement** and click **Next** to begin the installation.



Step4. Click **Next** to continue.



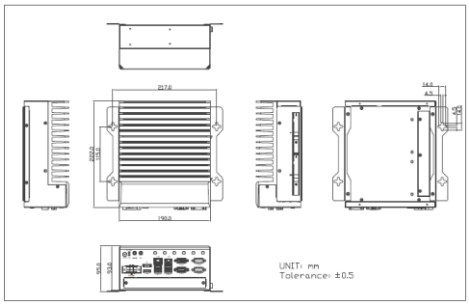
Step6. Click **Finish** to complete the installation.



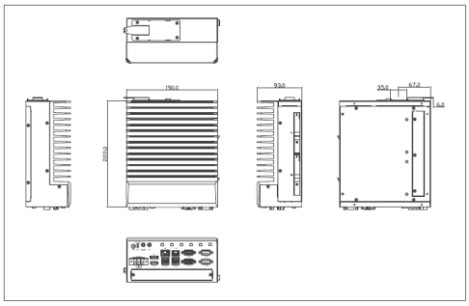
Chapter 5 Mounting Suggestions

5.1 AVS-530 Wall Mount and Din Rail Mount

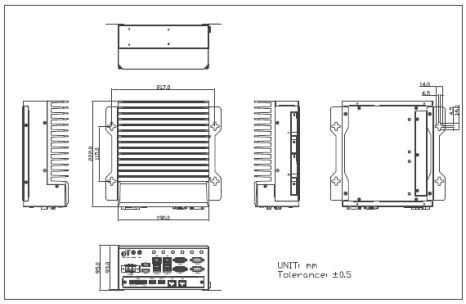
AVS-530 (Wall mount)



AVS-530 (Din Rail)



AVS-530QL (Wall mount)



AVS-530QL (Din Rail)

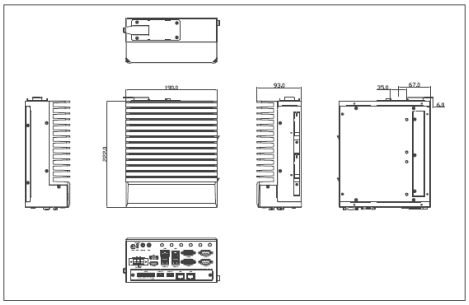
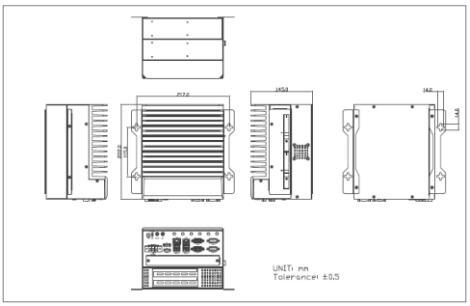


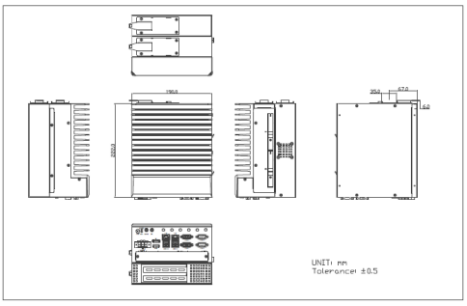
Figure 5.1 Mounting of AVS-530/ AVS-530QL

5.2 AVS-532 Wall Mount and Din Rail Mount

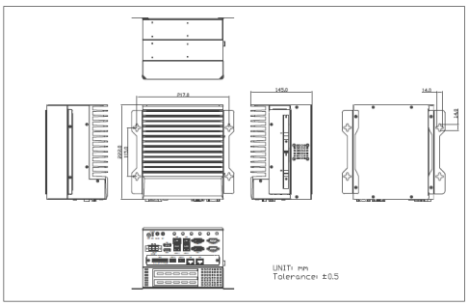
AVS-532 (Wall mount)



AVS-532 (Din Rail)



AVS-532QL (Wall mount)



AVS-532QL (Din Rail)

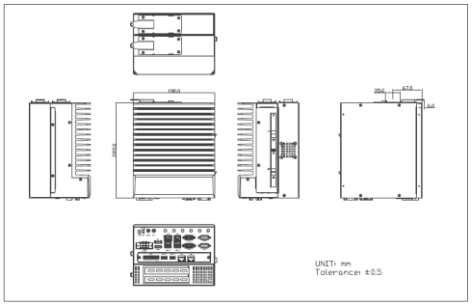
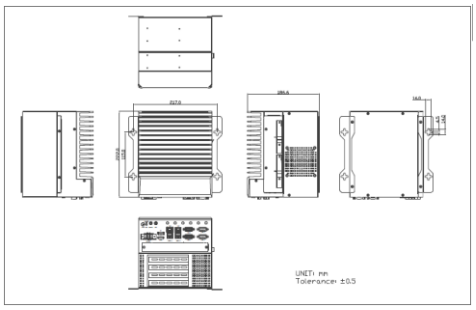


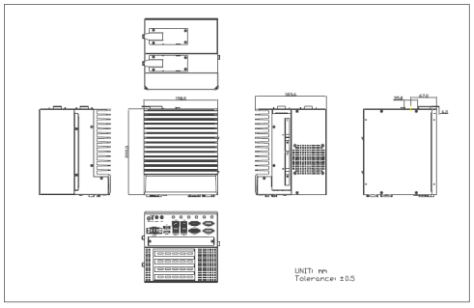
Figure 5.2 Mounting of AVS-532/ AVS-532QL

5.3 AVS-534 Wall Mount and Din Rail Mount

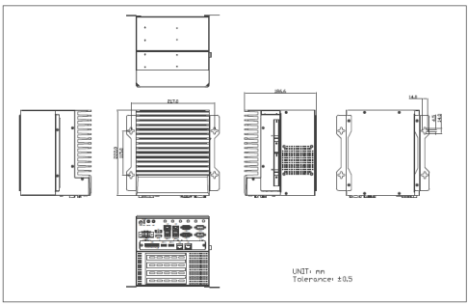
AVS-534 (Wall mount)



AVS-534 (Din Rail)



AVS-534QL (Wall mount)



AVS-534QL (Din Rail)

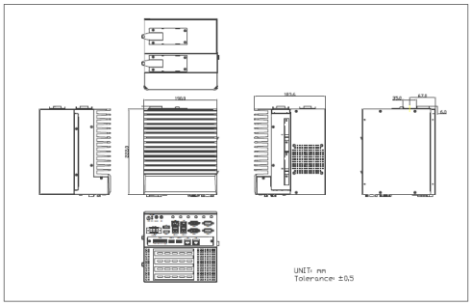
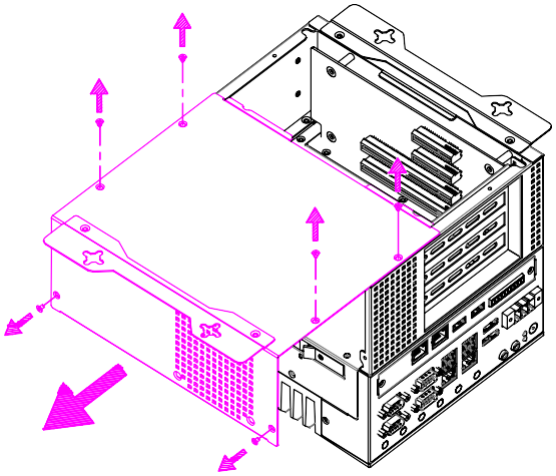


Figure 5.3 Mounting of AVS-534/ AVS-534QL

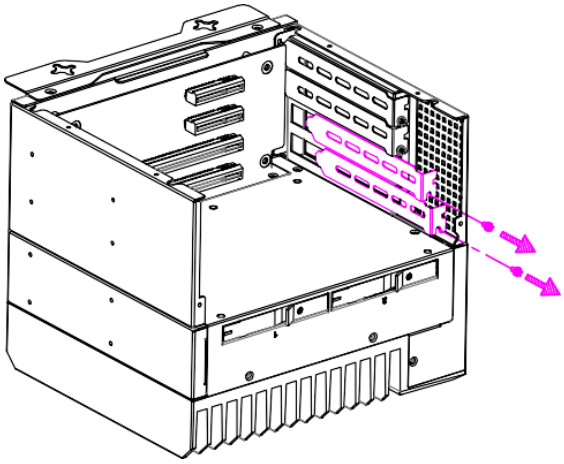
Chapter 6 GPU Card Installation

This chapter describes the installation procedures of GPU Card. Please follow the step to secure your GPU Card.

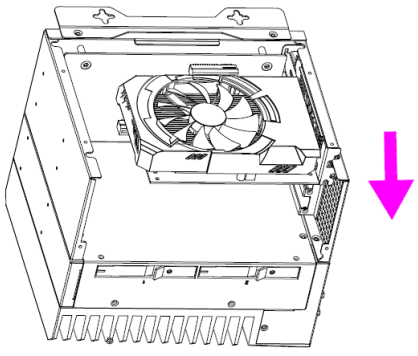
Step1_Teardown six screws from Bottom of AVS-534 and remove the Bottom Cover.



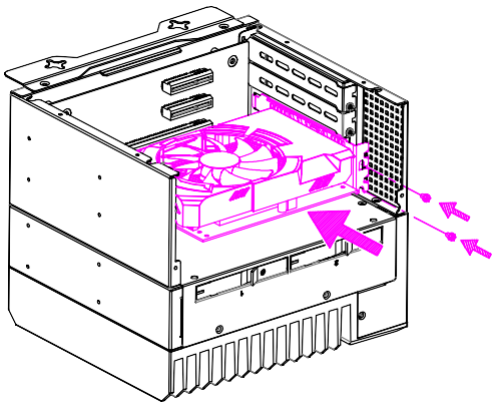
Step2_Teardown two PCIe Bracket Screws and remove two PCIe Bracket.



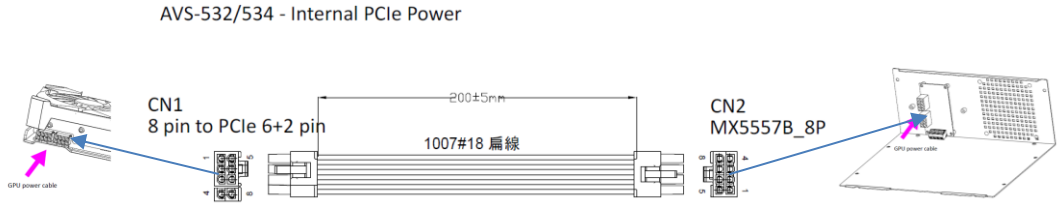
Step3_The PCIe bracket of the GPU card needs to pass through the groove gap of the chassis of BOX PC.



Step4_Install GPU Card into AVS-534, Combine with TB-620E42E162 and screwed two screws PCIe Bracket for fixed the GPU Card.

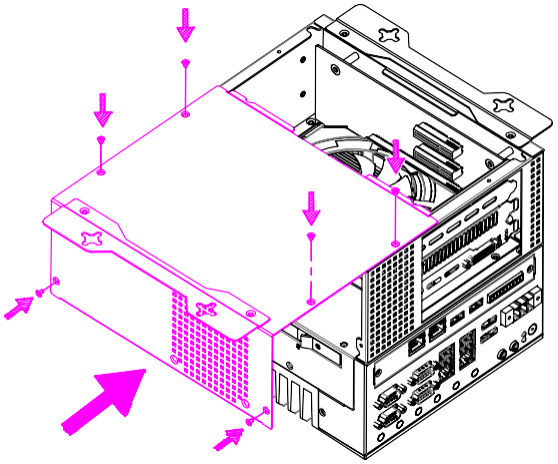


Step5_Connect the CN1 of GPU power cable to the connector on the GPU card.
Both connector ends are locked and can only be connected in one direction.



Use PB-435 cable's CN2_8P side to connect with power board connector, and use PB-435 cable's CN1_8pin+2pin side to connect with GPU card power connector on chassis in only one direction.

Step6_Recover the AVS-534 Bottom Cover and Screwed six screws on AVS-534 Bottom Cover.



Note:

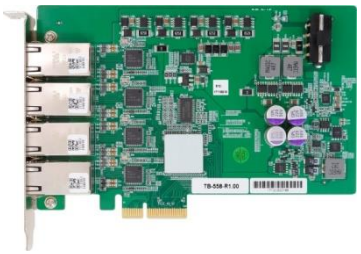
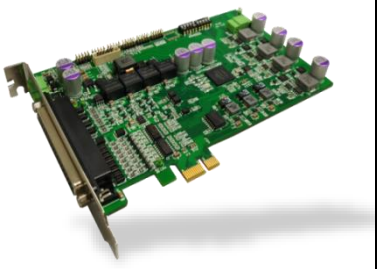
1. If GPU Card need to Provide Extra Power, Please connect GPU power cable Between GPU card and Power Board PB-435.
2. GPU Card golden finger slot has only one direction to install with TB-620E42E162, don't force insert wrong direction.

6.1 Introduction of GPU Card Installation

6.1.1 Illustration of installing the GPU Card by AVS-532

6.1.2 Illustration of installing the GPU Card by AVS-534

6.2 Option List of PCIE Expansion Cards

TB-558P-4	PCIEX4/4xLAN/23.5W EACH	
TB-559-4	PCIEX4/4xUSB3.0 EXTERNAL	
TB-587	PCIEX1/ 4xLIGHTNING CTRL/8xTRIGGER/16xGPIO	

6.2.1 Illustration of installing the TB-558-P PCIE Expansion Card by AVS-532

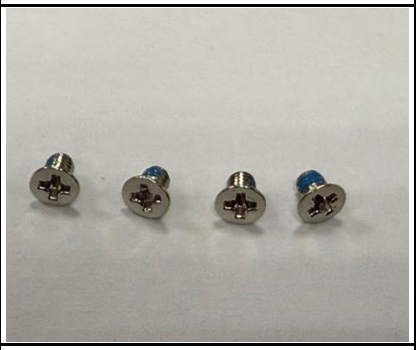
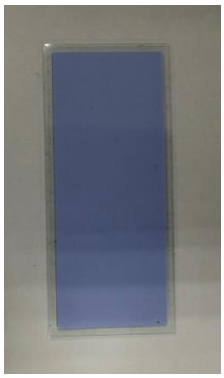
6.2.2 Illustration of installing the TB-559 PCIE Expansion Card by AVS-532

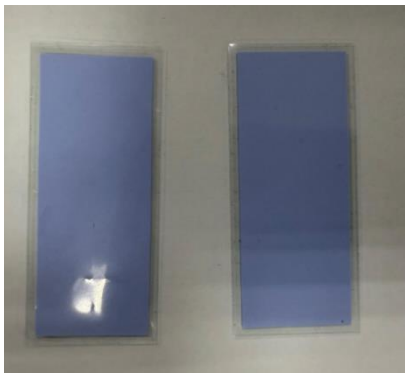
6.2.3 Illustration of installing the TB-558-P and TB-559 PCIE Expansion Card by AVS-532

6.2.4 Illustration of installing the TB-558-P and TB-559 PCIE Expansion Card by AVS-534

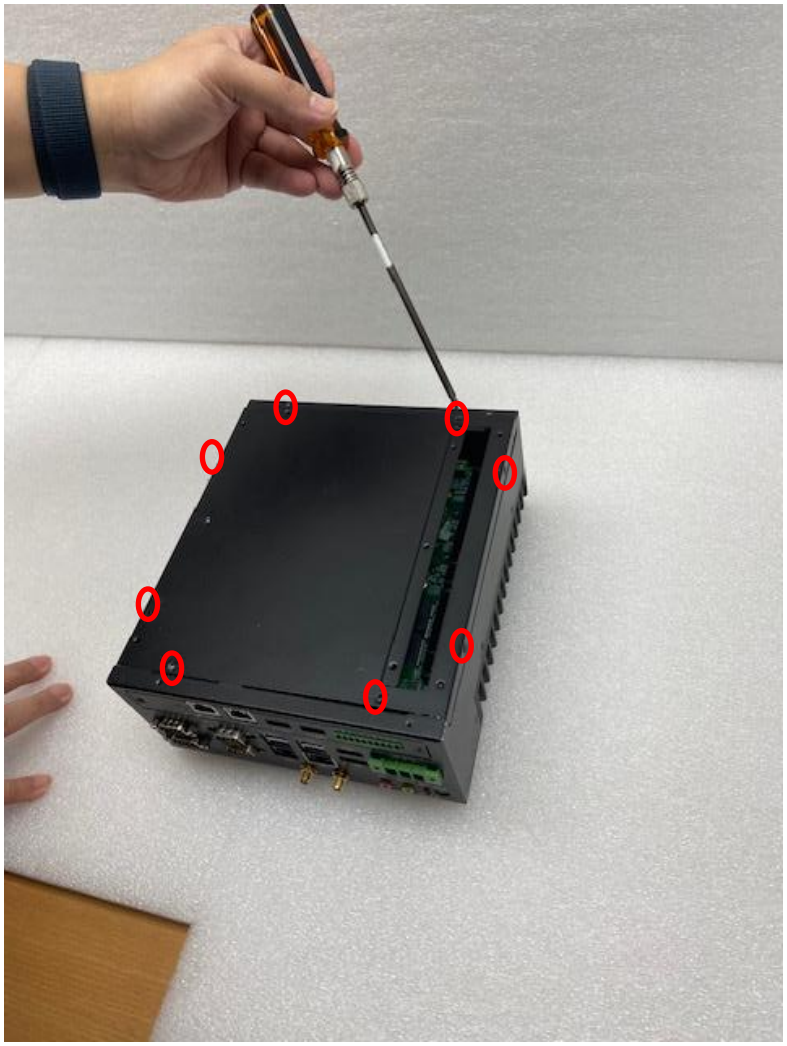
Chapter 7 Installing Memory and Thermal Pad

Step 0: Assembling DDR5 use following parts: (Memory depends on order choice, no default)

5102055300000002	AVS-530 DDR5 HEATSINK PLATE KITS/wo THERMAL PAD	Product Photo	QTY
0120553000000101	M/AVS-530/DDR5 HEATSINK PLATE/AL5052 T=2.0		1
0206103031100100	SPACER SUPPORT/M3x11x4/FE/NI		4
0201030200400101	F SCREW/110/M3x4L/FE/NI/NYLOK		4
1010620240300202	THERMAL PAD/FSL-BS/62x24x3.0mm/K2.5 ***Thickness:3.0mm***		1

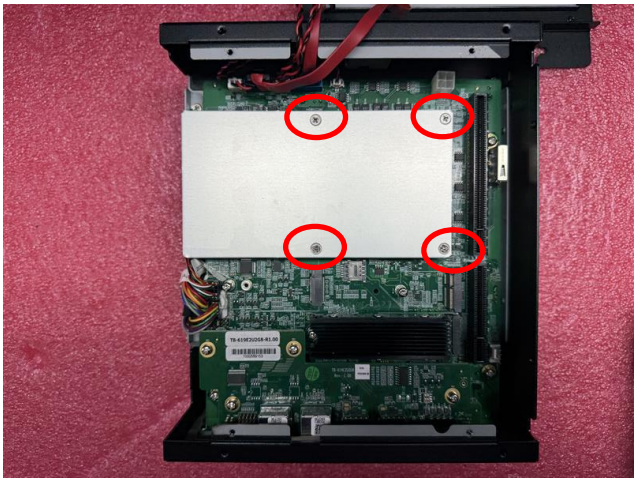
1010620240300201	THERMAL PAD/FSL-BS/62x24x2.0mm/K2.5/FOR AVS-530 DDR5 32G ***Thickness: 2.0mm***		2

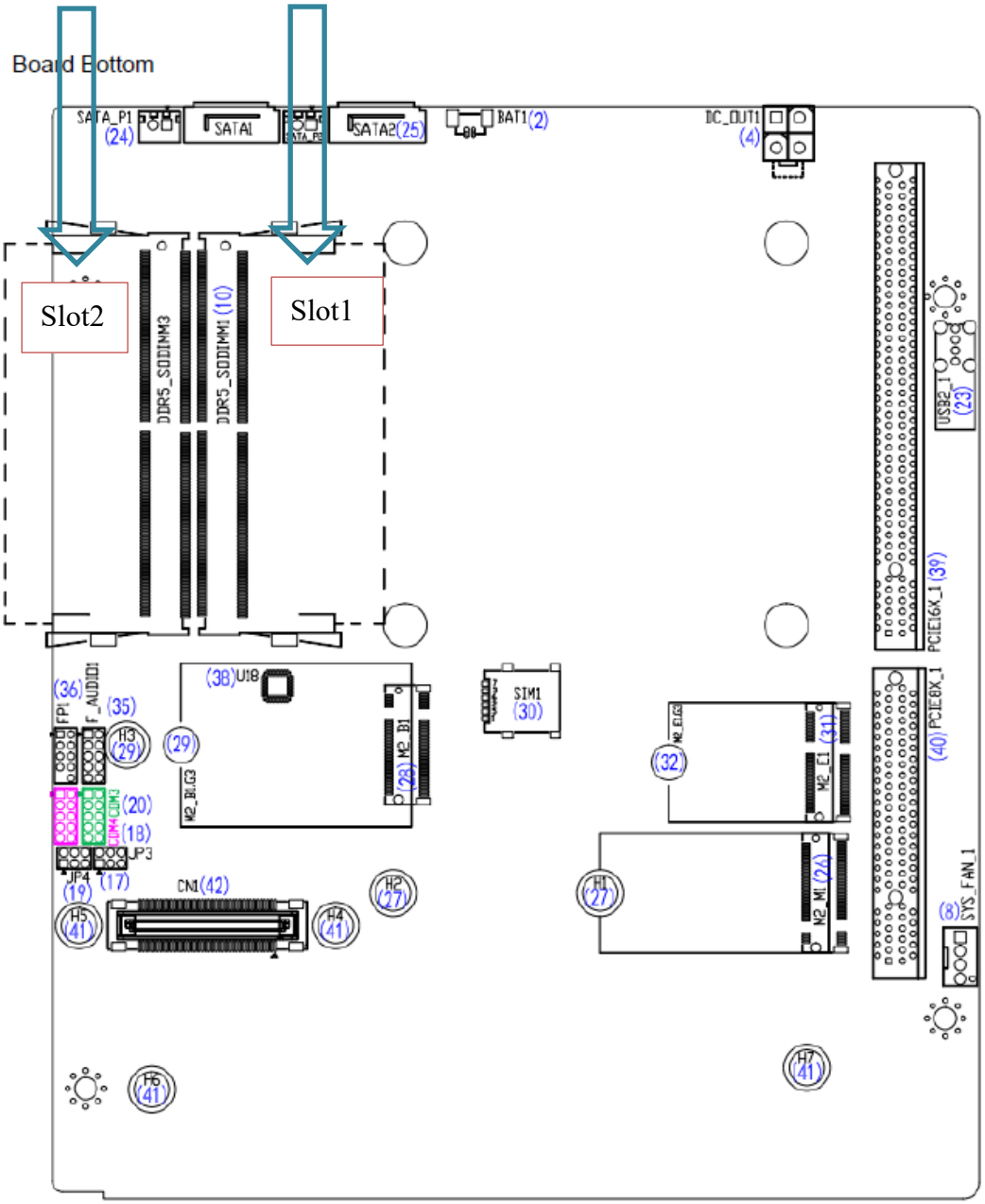
Step1: Draw out screws x 8pcs to open the back cover from the chassis.(Red marks)



Step2: Open the machine to check the install materials. (Heatsink plate was fixed when delivery.)

Step3: Draw out 4pcs of screws to open DDR5 heatsink plate.



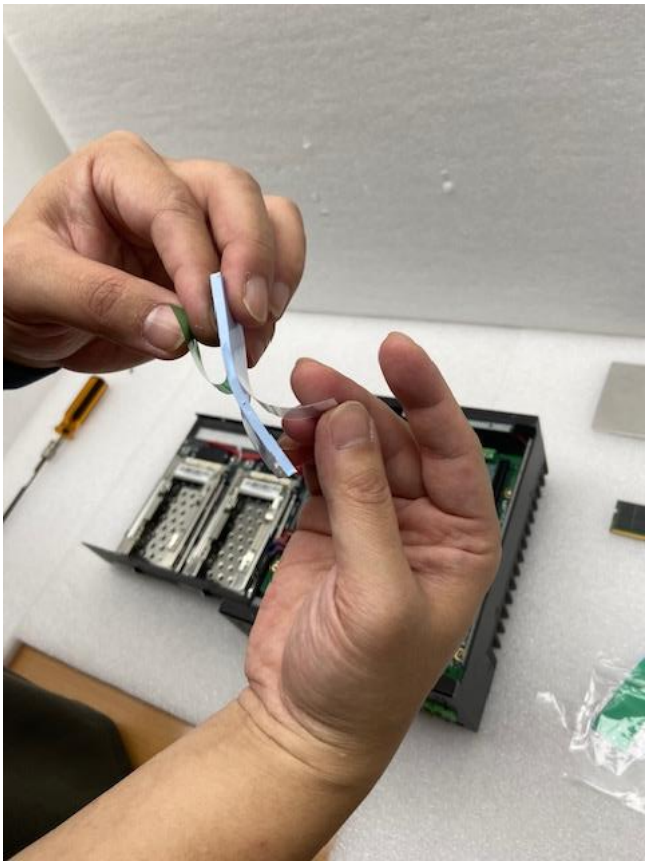


(Table1)

Memory Capacity (GB)	Slot2_Thermal Pad Thickness	Slot1_Thermal Pad Thickness
8G	3.0mm	2.0mm
16G	3.0mm	
32G	2.0mm	2.0mm

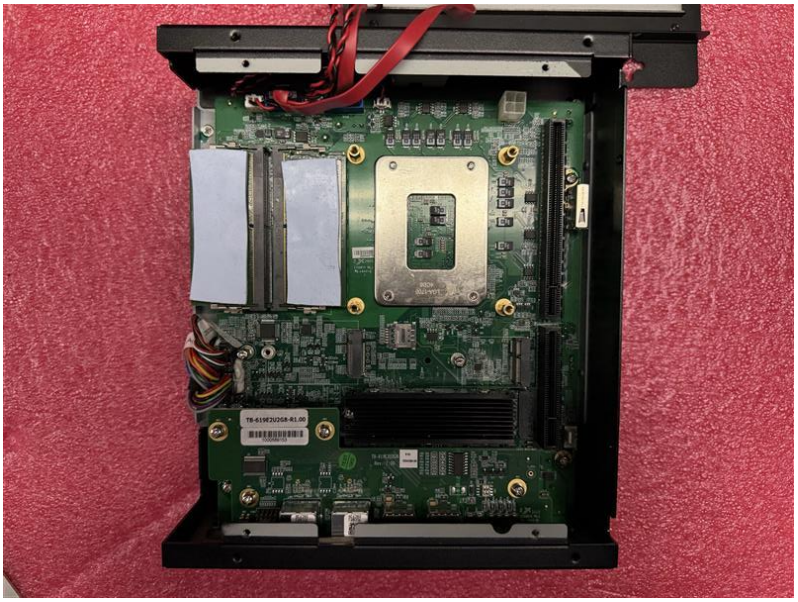
Install 2 pcs of DDR5 Memory in Slot2 and Slot1

Step0: Tear off both sides Release Pater of the thermal pad for preparation

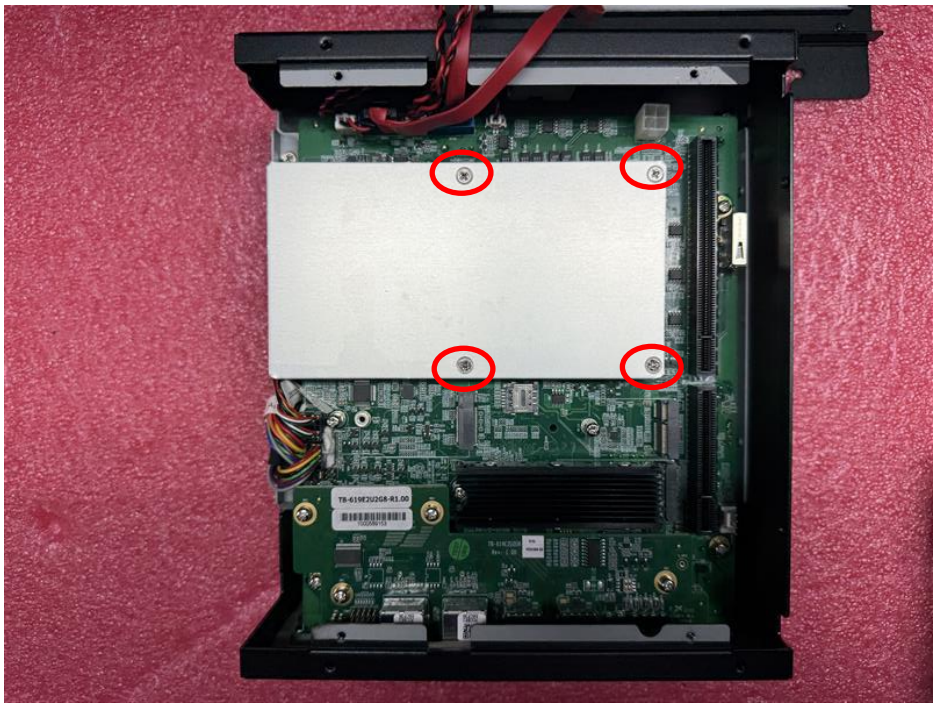


Step1: Insert 1st and 2nd memory into slot 2 and slot1, and click to lock them, and paste 1st thermal pad and 2nd thermal pad.

For thermal pad thickness, please refer to Table 1 on P.99

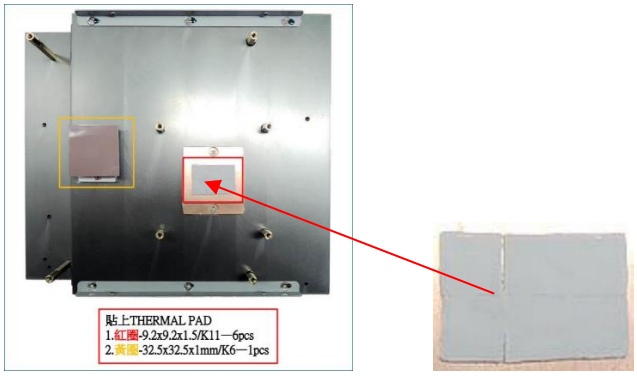


Step2: Put heatsink plate onto 2 x memory & thermal pad set, and fix with screw x 4. (Make sure the heatsink plate's counter sink is at right position)



2. CPU Thermal pad:

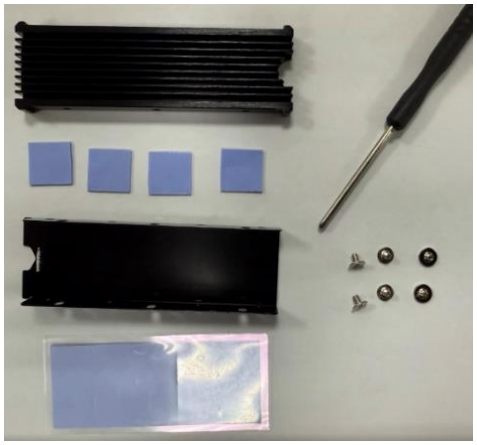
Materials for CPU thermal pad assembly are shown in below picture.



CPU thermal pad P/N# 1010092092151100

Chapter 8 Installing M.2 Heatsink

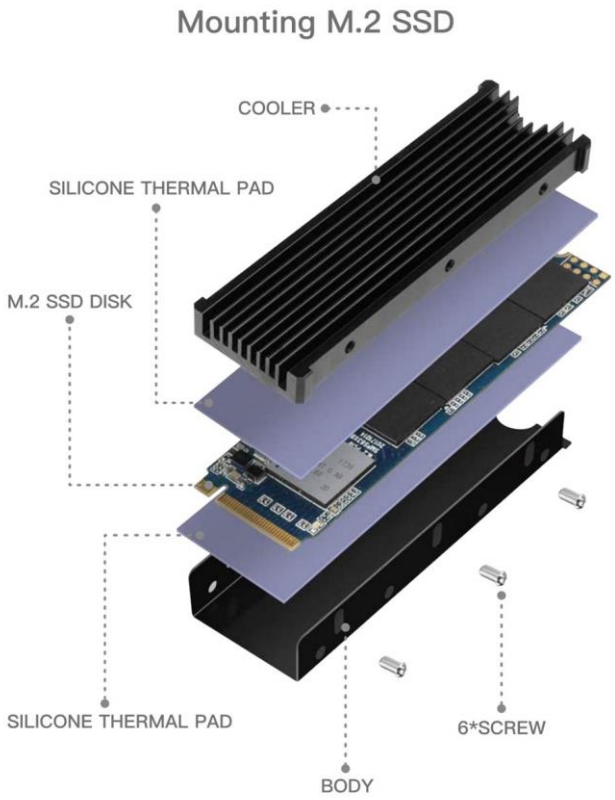
Step 0: The M.2 SSD assembly using the following parts.

Part#	Product Name	Product Photo	Quantity
0920760024000601	M.2 Heat sink		1

SSD heatsink kit installation guide
M.2 2280 HEAT SINK Dimension : 76 x 24 x 6.3mm
M.2 Module : The SSD module we test is Transcends TSXXXGMTE672A Series

Notice:
It is recommended to install an SSD heatsink to prevent the M.2 SSD from overheating during high-speed operations, which could lead to reduced performance or instability.

Step 1 :
Disassemble the SSD heatsink kit, then apply the thermal pad to both the top and bottom sides of the SSD. Secure the SSD to the thermal kit and tighten the screws.



Step 2:

Install the SSD with the thermal kit into the M.2 2280 slot on the motherboard.