

ARCHMI-S-9XXD

10.1", 12.1", 12.1W", 15", 15.6", 17", 18.5", 19", 21.5", 23.8" Intel 12th/13th Gen. Fanless Industrial Compact Size Panel PC

User Manual

Release Date		Revision
Feb. 2025		V1.4
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Revision History

Reversion	Date	Description	
1.0	2024/10/28	Initiation	
1.1	2024/11/13	Revised chapter 1.2 Certification description	
1.2	2024/12/31	1. Added page7 storage * Notice 1	
		2. Revised Operating Temperature	
		3. Revised Figure 10 to ARCHMI-S-924DP(H)	
		4. Added 1.11 SSD heatsink kit installation guide	
		5. Added 2.4 Jumpers Setting and Connectors: 27.	
		AUTO_BTN	
		6. Added 1.5 Power Consumption	
		7. Updated 1.2 CPU description	
1.3	2025/1/10	Updated 1.5 Power Consumption	
1.4	2025/2/13	Updated 1.5 Power Consumption	

Warning!

This equipment generates uses and can 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 are 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 at his 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.

Caution

Risk of explosion if the battery is replaced with an incorrect type.

Batteries should be recycled where possible. Disposal of used batteries must be in accordance with local environmental regulations.

Disclaimer

This information in this document is subject to change without notice. In no event shall Aplex Technology Inc. be liable for damages of any kind, whether incidental or consequential, arising from either the use or misuse of information in this document or in any related materials.

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.

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1.1 Features

- Intel 12th Gen. i5-1235U, i3-1215U(Alder lake-P is default platform)
- 10.1" to 23.8" Industrial Compact Size Panel PC
- ARCHMI Series IP66 Compliant Aluminum Front Bezel
- Support 2 x DDR4 3200MHz SO-DIMM, Up to 32G
- Power Input : 9-36V DC
- Support Resistive touch screen(Model : R) and Projected Capacitive Multi-touch screen(Model : P) by SKU
- Support High Brightness LCD Version by sku
- Support Auto-Dimming, Optional
- Fanless Design

1.2 Specifications

	ARCHMI-S-9XXD Series
System	
CPU	12th /13th Gen. Intel® Core™ i5/i3 SoC :
	Intel® Core [™] i3-1215U, 2P+4E up to 4.4GHz(P-Core) 3.3GHz(E-Core), TDP=15W (Default)
	Intel® Core [™] i5-1235U, 2P+8E up to 4.4GHz(P-Core) 3.3GHz(E-Core), TDP=15W (Option)
	Intel [®] Core [™] i3-1315UE, 2P+4E, up to 4.5GHz(P-Core) 3.3GHz(E-Core), TDP=15W (Option)
	Intel [®] Core [™] i5-1335UE, 2P+8E, up to 4.5GHz(P-Core) 3.3GHz(E-Core), TDP=15W (Option)
Chipset	Integrated with SoC
BIOS	AMI UEFI BIOS
Memory	2 x DDR4 3200MHz SO-DIMM, up to 32G
Graphic	Intel [®] UHD Graphics
IO Port	
USB	2 x Type A USB 3.0
	2 x Type A USB 2.0
Serial	2 x DB9 Type RS-485/422/232(COM1/COM2, BIOS selection)
	1 x DB9 Type RS-232(COM3)
LAN	1 x RJ45 Type Intel I210AT 1GbE LAN
	1 x RJ45 Type Intel I229LM 1GbE LAN
Power	1 x Terminal Block Type, 9-36Vdc Power input
Storage Space	
Storage	1 x M.2 Key-M Slot for NVME(PCle x1, 2280)* Notice 1
Expansion	

Expansion Slot	1 x M.2 Key-E Slot (Support WIFI+BT, 2230)
Expansion side	1 x M.2 Key-B Slot (Support 4G/5G, 3042/3052)
Others	
ТРМ	Onboard TPM2.0 SPI I/F TPM IC
Watchdog Timer	1 ~ 255 sec (system)
Wake on LAN	Support WOL
Antenna	
Antenna	Provide 2 x external antenna holes
Power	
Power Input	1 x Terminal Block Type, 9-36V DC power input,
	Power on AT/ATX supported, default AT mode
Mechanical	
Mechanical	Aluminum die-casting chassis
Construction	
Mounting	Panel Mount
	VESA 100 x 100 mm
IP Rating	IP66 Front Bezel Design
Operating System	Support
OS Support	Windows 10 IoT Enterprise 2021 LTSC
	Windows 11 (21H2) or later
	Linux 22.04 or later
Environmental	
Operating	7"~19" : default is 0°C ~50°C, -20°C ~60°C is option
Temperature	0°C ~ 50°C for 21.5" , 23.8" only
Storage Temperature	-30~70°C
Humidity	10 to 95% @ 40°C, non-condensing
Certification	CE / FCC Class A

*Notice 1:

We recommend purchasing the SSD + Heatsink from APLEX.

If you purchase an SSD locally, please remember to install a heatsink kit to prevent overheating, which may cause system instability.

APLEX M.2 2280 Heatsink Dimensions: 76 x 24 x 6.3mm

APLEX Tested M.2 Module: The SSD module we tested is Transcend's TSXXXGMTE672A series.

1.3 Display

1.3.1 Standard LCD

	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-
	910DP/R	912DP/R	912WDP/R	915DP/R	916DP/R
Display Type	10.1" TFT LCD	12.1" TFT LCD	12.1"Wide TFT LCD	15" TFT LCD	15.6W" TFT LCD
Max. Resolution	1280 x 800	800 x 600(SVGA)	1280 x 800	1024 x 768	1920x1080
		1024 x 768(XGA)			
Max. Color	16.7M	16.2M	16.7M	16.7M	16.7M
Luminance(cd/m ²)	350	450(SVGA)	400	350	500
		500(XGA)			
Contrast Ratio	800 : 1	1500:1(SVGA)	1200:1	1000:1	1000:1
		1000:1(XGA)			
Viewing angle(H/V)	170/170	178/178	170 /170	178/178	178 /178
MTBF(Hrs)	30,000	50,000(SVGA)	50,000	50,000	50,000
		30,000(XGA)			

	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-
	917DP/R	918DP/R	919DP/R	921DP/R	924DP
Display Type	17" TFT LCD	18.5" TFT LCD	19" TFT LCD	21.5" TFT LCD	23.8" TFT LCD
Max. Resolution	1280 x 1024	1920 x 1080	1280 x 1024	1920 x 1080	1920 x 1080
Max. Color	16.7M	16.7M	16.7M	16.7M	16.7M
Luminance(cd/m ²)	350	350	350	300	250
Contrast Ratio	1000:1	1000:1	1000:1	1000:1	3000:1
Viewing angle(H/V)	160/140	178/178	170/160	178/178	178/178
MTBF(Hrs)	50,000	50,000	50,000	50,000	30,000

1.3.2 Hig	h Brightness LCD
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	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-
	910DP/R(H)	912DP/R(H)	912WDP/R(H)	915DP/R(H)	916DP/R(H)
Display Type	10.1" TFT LCD	12.1" TFT LCD	12.1"Wide TFT LCD	15" TFT LCD	15.6W" TFT LCD
Max. Resolution	1280 x 800	800 x 600(SVGA)	1280 x 800	1024 x 768	1920 x 1080
		1024 x 768(XGA)			
Max. Color	16.7M	16.7M(SVGA)	16.2M	16.7M	16.7M
		16.2M(XGA)			
Luminance(cd/m ²)			1000		
Contrast Ratio	800:1	1000:1	1300:1	3000:1	1000:1
Viewing angle(H/V)	178 /178	140 /120	170/ 170	176 / 176	176 / 176
MTBF(Hrs)	50,000	50,000(SVGA)	50,000	70,000 (XGA)	50,000
		70,000(XGA)			

	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	ARCHMI-S-	
	917DP/R(H)	918DP/R(H)	919DP/R(H)	921DP/R(H)	924DP(H)	
Display Type	17" TFT LCD	18.5" TFT LCD	19" TFT LCD	21.5" TFT LCD	23.8" TFT LCD	
Max. Resolution	1280 x 1024	1920 x 1080	1280 x 1024	1920 x 1080	1280 x 1024	
Max. Color	16.7M	16.7M	16.7M	16.7M	16.7M	
Luminance(cd/m ²)		1000				
Contrast Ratio	3000:1	1000:1	800:1	1000:1	1000:1	
Viewing angle(H/V)	176/176	170/160	178/178	178/178	178/178	
MTBF(Hrs)	50,000	50,000	30,000	30,000	30,000	

All product specifications are subject to change without notice, * identify as optional function

1.4 Mechanical

	ARCHMI-S- 910DP/R(H)	ARCHMI-S- 912DP/R(H)	ARCHMI-S- 912WDP/R(H)	ARCHMI-S- 915DP/R(H)	ARCHMI-S- 916DP/R(H)	
Mounting		VESA Mount 100 x 100 mm				
Dimensions(mm)	285x189x75	319x244.9x77	328x227x78	410.2x310.2x78.7	412x277.5x78	
Net Weight(Kg)	2.61	3.5	TBD	5	4.2	

	ARCHMI-S- 917DP/R(H)	ARCHMI-S- 918DP/R(H)	ARCHMI-S- 919DP/R(H)	ARCHMI-S- 921DP/R(H)	ARCHMI-S- 924DP(H)		
Mounting		VESA Mount 100 x 100 mm					
Dimensions(mm)	439x348x82	439x348x82 499.6x314.6x82 468x380x82 557.3x362.3x81.4 640x395x88					
Net Weight	TBD	TBD	TBD	7.4	9.44		

1.5 Power Consumption

viax power consumption of each model under window 10					
Model	Max Power Consumption				
ARCHMI-S-910D	34W				
ARCHMI-S-912D	42W				
ARCHMI-S-912WD	37W				
ARCHMI-S-915D	44W				
ARCHMI-S-916D	43W				
ARCHMI-S-917D	41W				
ARCHMI-S-918D	44W				
ARCHMI-S-919D	44W				
ARCHMI-S-921D	44W				
ARCHMI-S-924D	52W				

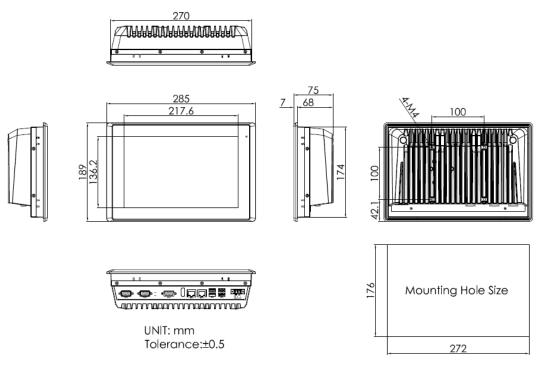
Max power consumption of each model under Window 10

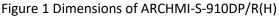
* To record power consumed when system has full loading with external devices attached.

* Power consumption may have 10% tolerance difference due to different MB, parts, test instrument, and so on.

* We suggest to use the adapter that APLEX approved. If you would like to adopt your own power supply or adapter, please add another 20-30% from the above power consumption to make sure the system can work stable.

1.6 Dimensions





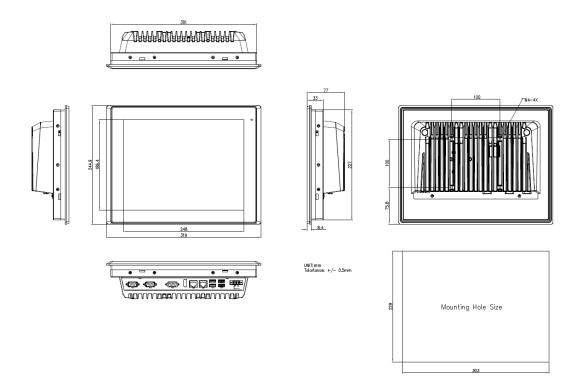


Figure 2 Dimensions of ARCHMI-S-912DP/R(H)

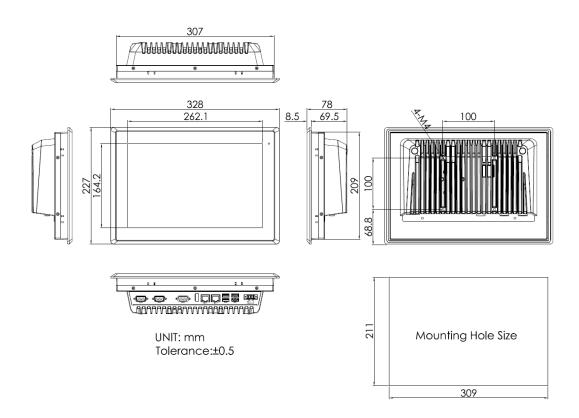


Figure 3 Dimensions of ARCHMI-S-912WDP/R(H)

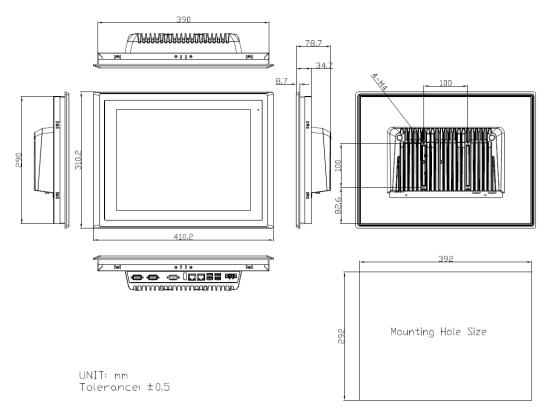
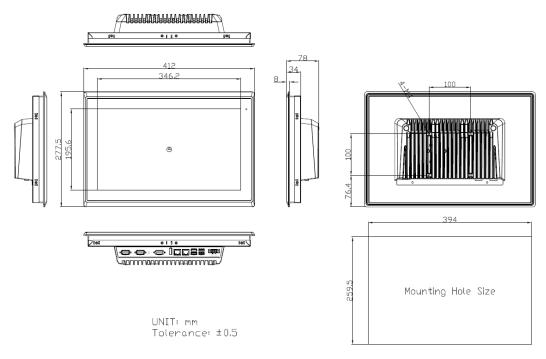
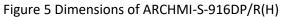


Figure 4 Dimensions of ARCHMI-S-915DP/R(H)





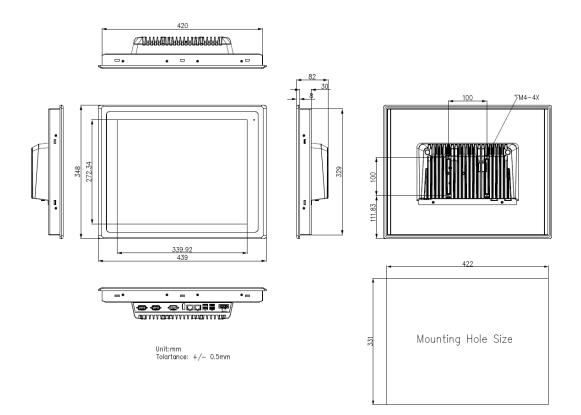
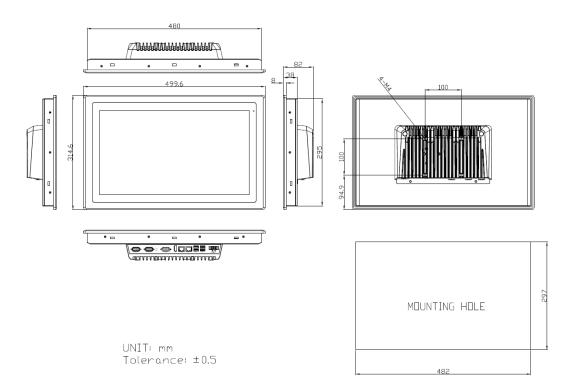
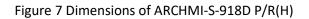


Figure 6 Dimensions of ARCHMI-S-917DP/R(H)





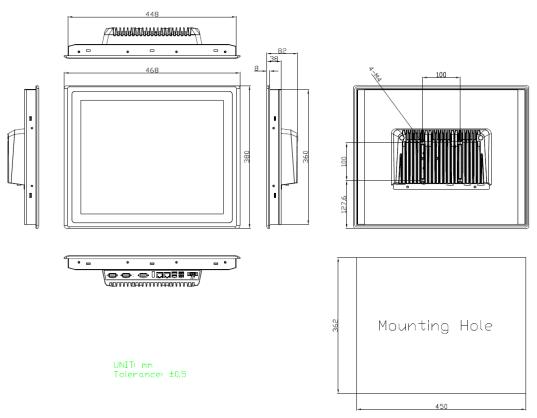
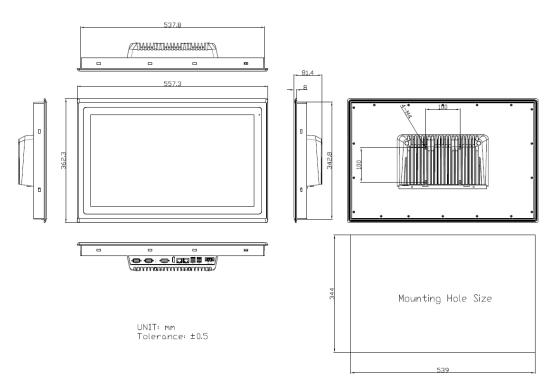
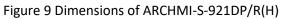


Figure 8 Dimensions of ARCHMI-S-919D P/R(H)





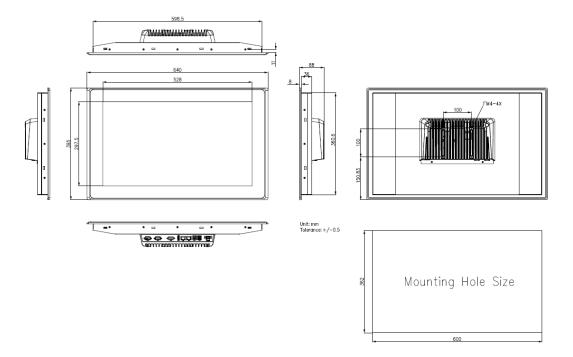


Figure 10 Dimensions of ARCHMI-S-924DP(H)

1.7 Brief Description of ARCHMI-S-9XXB Series

APLEX'S ARCHMI-S-9XXD series products are a newly launched product line, ranging in size from 10.1" to 23.8". They feature a fanless, high-performance, and compact design, making them ideal for use as HMIs and control panels in smart production lines and self-service kiosks. With a protective aluminum enclosure, a full-plane resistive touchscreen or projected capacitive multi-touchscreen technology, and a wide-range power input from 9 to 36Vdc, the ARCHMI-S-9XXD series panel PCs can also be integrated with a variety of optional peripherals and accessories to meet specific application requirements.



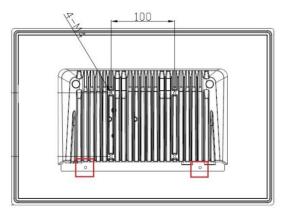
Figure 11 Front View of ARCMHI-S-916D



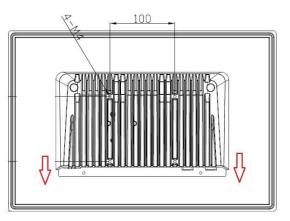
Figure 12 Rear View of ARCMHI-S-916D

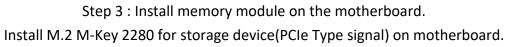
1.8 Installation of Memory and Storage

Step 1 : Remove screws from the bottom side of back chassis.

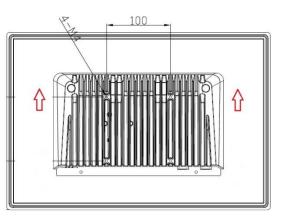


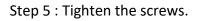
Step 2 : Push down back chassis from the system

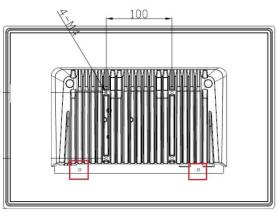




Step 4 : Push the back cover latch into the back cover sliding rail.







1.9 VESA Mounting

The ARCHMI-S-9XXD series support VESA 100 mount. VESA 100, 4-m4 screw x 4 PCs

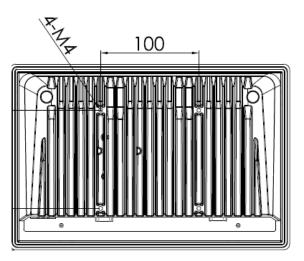


Figure 13 ARCHMI-S-9XXD VESA Mounting

1.10 Panel Mounting

There are mounting holes located along the four sides of the HMI. Position the ARCHMI-S panel pc against the panel mount and insert the mounting kit from the four sides and tighten them with screws.

Description	Qty	Unit
Panel mounting kit for 10.1", 12.1" and 12.1"W	8	PCS
Panel mounting kit for 15", 15.6", 17", 18.5" and 19"	10	PCS
Panel mounting kit for 21.5",23.8"	12	PCS

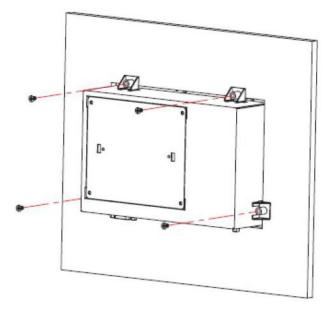


Figure 14 ARCHMI-S-9XXD PANEL Mounting

1.11 SSD heatsink kit installation guide

M.2 2280 HEAT SINK Dimension : 76 x 24 x 6.3mm

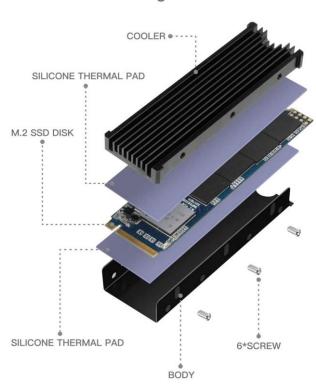
M.2 Module : The SSD module we test is Transcends TSXXXGMTE672A Series

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.



Mounting M.2 SSD

Step 2:

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



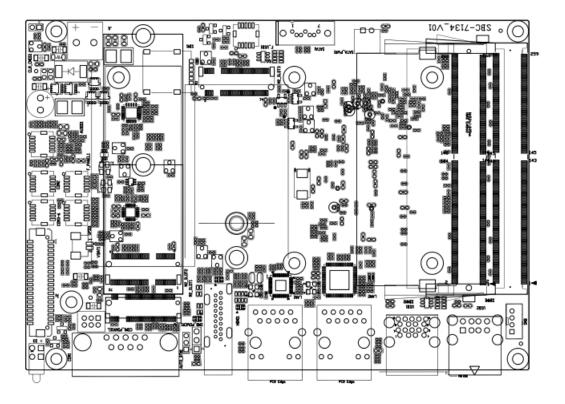
SBC-7134 is a 3.5" industrial motherboard developed on the basis of Intel Alder Lake, which provides abundant peripheral interfaces to meet the needs of different customers.

2.1 Motherboard Specifications

Specifications	
Board Size	146mm x 101.6mm, 3.5"
CPU Support	Intel Core™ i3-1215U,2C+4A,up to 4.4GHz(P-Core) 3.3GHz(E-Core),15W-55W Intel Core™ i5-1235U,2C+8A,up to 4.4GHz(P-Core) 3.3GHz(E-Core),15W-55W Intel Core™ i3-1315UE,2C+4A,up to 4.5GHz(P-Core) 3.3GHz(E-Core),15W-55W Intel Core™ i5-1335UE,2C+8A,up to 4.5GHz(P-Core) 3.3GHz(E-Core),15W-55W
Chipset	SOC
Memory Support	2x SO-DIMM (260pins), up to 64GB DDR4 3200MT/s
Graphics	Integrated Intel UHD Graphics
Display Mode	1 x HDMI1.4b via HDMI Port 1 x LVDS (18/24-bit dual LVDS)
Support Resolution	HDMI: support up to 3840x2160@60Hz LVDS: support up to 1920x1200@60Hz
Super I/O	ITE IT8786E-I/HX
BIOS	AMI/UEFI BIOS
Storage	1 x SATAIII via 7pin SATA connector 1 x M.2 M-Key(2280) for Storage (PCIe signal)
Ethernet	1 x 10/100/1000M GbE LAN via intel [®] I210-AT controller (PXE/WOL) 1 x 10/100/1000M GbE LAN via intel [®] I219-LM controller (PXE/WOL)
USB	2 x USB3.2 gen1/USB2.0,Type-A stack ports (USB1) 2 x USB2.0, Type-A stack ports (USB2) 4 x USB2.0 via header
Serial	1 x RS-232(default)/422/485 select via BIOS, pin9 RI(default)/5V/12V select via jumper, DB9 (COM1) 1 x RS-232(default)/422/485 select via BIOS, wafer header (COM2) 4 x 3W RS232 via wafer header(COM3/COM4/COM5/COM6)
GPIO	8xGPIO (4xDI,4xDO) w/3.3V, via wafer header
SMBus	1xSMBus/I2C via wafer header
Audio	Support Line-in, Line-out, MIC by pin header
Expansion Slots	1 x M.2 B-Key(PClex1, USB3.0, USB2.0),3042/3052 for 4G/5G module with Nano SIM slot (SIM1)

	1 x M.2 E-Key(PClex1,USB2.0),2230 for WIFI/BT module			
Front Panel	1 x power button, 1 x reset button, power LED, HDD LED via wafer header			
LED Indicator	1 x Power LED, 1 x HDD LED via stacked LED (By BOM Change)			
Watchdog Timer	Software programmable 1–255 level			
ТРМ	Support Intel PTT Onboard TPM2.0 Infineon_SLM9670 IC			
Battery	Support 3V RTC Li-battery via 2pin wafer (VBAT1)			
Power Management	Wide range DC 9~36V±10% power input via 2pin terminal block			
Temperature	Operating: -30 $^{\circ}$ C to 70 $^{\circ}$ C Storage: -40 $^{\circ}$ C to 85 $^{\circ}$ C			
Humidity	10% - 90%, non-condensing, operating			
Certifications	Meet CE/FCC class A UL RoHS2.0			

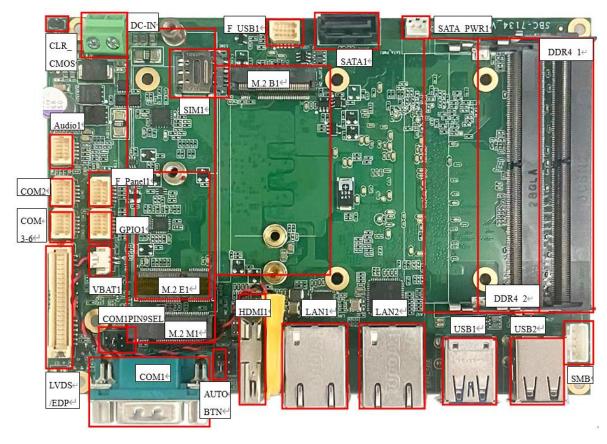
2.2 Board Dimensions



Dimensions: 146 x 101.6 (units :mm)

2.3 Jumpers and Connectors Location

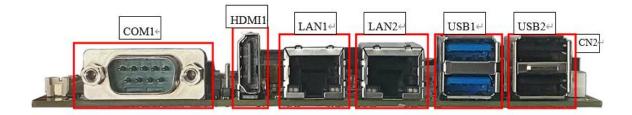
Board Top



Board Bottom



External IO



2.4 Jumpers Setting and Connectors

1. CPU1:

(FCBGA1744) Onboard Intel Alder Lake SoC

	SoC				
Model Numbe		PBF	Cores/	TDP	Remarks
	r		Threads		
SBC-7134-I3 1215U	1215U	Up to 4.4GHz(P-Core) 3.3GHz(E- Core)	2C+4A / 8	15W-55W	Default
SBC-7134-I5 1235U	1235U	Up to 4.4GHz(P-Core) 3.3GHz(E- Core)	2C+8A / 12	15W-55W	Option
SBC-7134-I3 1315UE	1315UE	Up to 4.5GHz(P-Core) 3.3GHz(E- Core)	2C+4A / 8	15W-55W	Option
SBC-7134-I5 1355UE	1355UE	Up to 4.5GHz(P-Core) 3.3GHz(E- Core)	2C+8A / 12	15W-55W	Option

2. DDR4_1 ,DDR4_2:

(SO-DIMM 260Pin slot) DDR4 memory socket, the socket is located at the top of the board and supports 260Pin 1.2V DDR4 SO-DIMM memory module up to 64GB. Max Memory Size (dependent on memory type).

3. VBAT1:

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

Pin#	Signal Name
Pin1	VCC_RTC
Pin2	GND

4. CLR_CMOS1:

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



Procedures of CMOS clear:

- a) Turn off the system and unplug the power cord from the power outlet.
- b) To clear the CMOS settings, close CLR_CMOS1 for 1 second
- c) Power on the system again.
- d) When entering the POST screen, press the key to enter CMOS Setup Utility to load optimal defaults.
- e) After the above operations, save changes and exit BIOS Setup.

5. CPU_FAN1:

(1.25mm Pitch 1x2 wafer Pin Header) Fan connector, cooling fans can be connected directly for use.

Pin#	Signal Name
1	GND
2	VCC(5V_S0)



Note:

Output power of cooling fan must be limited under 3W.

6. DC_IN1:

(5.08mm Pitch 1x2 Pin Connector) DC9~36V System power input connector.

Pin#	Power Input	
Pin1	DC_IN+ (DC+9V~36V)	
Pin2	DC_IN- (Ground)	

7. SMB:

(2.00mm Pitch 1x4 Pin Header) For SMBUS interface Device.

Pin#	Signals
1	GND
2	Data
3	Clock
4	Vcc 3.3V

8. LVDS/EDP:

(1.25mm Pitch 2x20 Connector, DF13-40P) Support 18/24-bit LVDS interface LCM with USB2.0 signal for touch screen.

Function	Signal Name	Pin#		Signal Name	Function	
DC12V	12V_S0	1	2	12V_S0	DC12V	
LVDS Signals	BKLT_PWM_OUT	3	4	BKLT_EN		
	GND	5	6	GND	11/05	
	LVDS_VDD5	7	8	LVDS_VDD5	LVDS /eDP Signals	
	LVDS_VDD3.3	9	10	LVDS_VDD3.3		
	GND		12	GND		
	LA_D0-/EDP D0-	13	14	LA_D0+/EDP D0+		

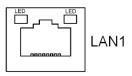
	LA_D1-/EDP D1-	15	16	LA_D1+/EDP D1+	
	LA_D2-/EDP D2-	17	18	LA_D2+/EDP D2+	
	LA_D3-/EDP D3-	19	20	LA_D3+/EDP D3+	
	LA_CLK-/EDP AUX-	21	22	LA_CLK+/EDP AUX+	
	LB_D0-	23	24	LB_D0+	
	LB_D1-	25	26	LB_D1+	
	LB_D2-	27	28	LB_D2+	
	LB_D3-	29	30	LB_D3+	
	LB_CLK-	31	32	LB_CLK+	
USB3	GND	33	34	GND	
0365	USB2 9D-	35	36	USB2 9D+	USB3
SMbus	SM bus DAT	37	38	5V_S5	
Sivibus	SM bus CLK	39	40	Power LED+	Power LED

9. HDMI1:



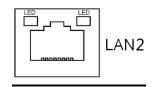
(Vertical HDMI Connector) HDMI Interface connector. HDMI 1.4, Support resolution up to 3840x2160@60Hz.

10. LAN1:



(RJ45 Connector) Provide 100/1000GbE LAN via Intel® I219-V.

Status	Description
Green	100Mbps
Yellow	1Gbps



(RJ45 Connector) Provide 100/1000GbE LAN via Intel® I210-AT.

Status	Description	
Green	100Mbps	
Yellow	1Gbps	

12. F_AUDIO1:

(SHD 1.25mm 2x5pin header) Provide line-in/line-out/mic-in via onboard Realtek ALC897 codec.

Signal Name	Pin#	Pin#	Signal Name
LINE-OUT-R	1	2	LINE-OUT-L
GND	3	4	GND
MIC-IN-R	5	6	MIC-IN-L
GND	7	8	GND
LINE-IN-R	9	10	LINE-IN-L

13. USB1 \ USB2:

(Double stack USB typeA) Rear USB3.2 connector, provides up to 2 USB3.2 gen1/USB2.0 ports, USB3.2 gen1 allows data transfers up to 5.0Gbps.

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

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

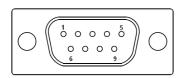
14. F_USB1:

Signal Name	Pin#	Pin#	Signal Name
5V_USB23	1	2	5V_USB23
USB2_N	3	4	USB3_N
USB2_P	5	6	USB3_P
GND	7	8	GND
GND	9	10	GND

(SHD 1.25mm 2x5pin header) Provide 2xUSB2.0 signals.

15. COM1:

(DB9 connector) <u>Provide serial RS232/422/485 via</u> standard DB9 male connector. Default is set to RS232, RS422/485 can be selected via BIOS. Pin 9 RI/5V/12V select via COM1_PIN9SEL.



RS232 (Default):				
Pin#	Signal Name			
1	DCD# (Data Carrier Detect)			
2	RXD (Received Data)			
3	TXD (Transmit Data)			
4	DTR (Data Terminal Ready)			
5	GND			
6	DSR (Data Set Ready)			
7	RTS (Request To Send)			
8	CTS (Clear To Send)			
9	JP1 select Setting (RI/5V/12V)			
BIOS Setup: Serial Port 1 Configuration [RS-232]				

RS422 (option):				
Pin#	Signal Name			
1	422_TX-			
2	422_TX+			
3	422_RX+			
4	422_RX-			
5	GND			
6	NC			
7	NC			

8	NC	
9	NC	
BIOS Setup : Serial Port 1 Configuration [RS-422]		

RS485 (option):				
Pin#	Signal Name			
1	485-			
2	485+			
3	NC			
4	NC			
5	GND			
6	NC			
7	NC			
8	NC			
9	NC			
BIOS Setup: Serial Port 1 Configuration [RS-485]				

16. COM1_PIN9SEL:

(2.0mm Pitch 2x3 Pin Header) For COM1 pin9 signal setting.

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

17. COM2:

(SHD 1.25mm 2x5pin header) Provide RS232 RS422/485, Default is set to RS232, RS422/485 can be selected via BIOS.

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

18. COM3-6:

Signal Name	Pin#	Pin#	Signal Name
COM3_RX	1	2	COM3_TX
COM4_RX	1	2	COM4_TX
COM5_RX	1	2	COM5_TX
COM6_RX	1	2	COM6_TX
GND	9	10	GND

(SHD 1.25mm 2x5pin header) Provide 4x2wired RS232(COM3/4/5/6).

19. GPIO1:

(SHD 1.25mm 2x5pin header) Provide 8Xgpio with 3.3V VCC.

Signal Name	Pin#	Pin#	Signal Name
3.3V_GPIO	1	2	GND
GPIO0	3	4	GPIO1
GPIO2	5	6	GPIO3
GPIO4	7	8	GPIO5
GPIO6	9	10	GPIO7

20. F_Panel1:

(SHD 1.25mm 2x5pin header) Provide power button/reset button/power LED/HDD LED.

Signal Name	Pin#	Pin#	Signal Name
HDD LED+	1	2	Power LED+
HDD LED-	3	4	Power LED-
Reset Button-	5	6	Power Button+
Reset Button+	7	8	Power Button-
NC	9	10	NC

21. SIM1:

(Nano-SIM Slot) Support Nano SIM card for M.2 B Key.

Pin#	Signal Name
1	SIMVCC
2	SIM_RST
3	SIM_CLK
4	GND
5	NC

6	SIM_DAT

22. M2_B1:

(M.2 B-Key Socket) Support 3042/3052 4G/5G module with Nano SIM slot, and Support 2242 Nvme/NGFF interface SSD.

23. M2_M1:

(M.2 M-Key Socket) Provide PCIex4, support M-key 2280 Nvme interface SSD.

24. M2_E1:

(M.2 E-Key Socket) Provide USB2.0/PClex1, support E-key 2230 WiFi/BT expansion cards.

25. SATA1:

(SATA 7Pin) SATA connector provide SATA III signal for storages.

26. SATA_PWR1:

(2.0mm Pitch 1x2 Wafer Pin Header) 5V power supply for SATA1 port device.

Pin#	Signal Name
1	5V_S0
2	GND

B

Note:

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

27. AUTO_BTN:

The AUTO_STN button allows you to select automatic power on after the motherboard is powered on.

state	function
Pin1-2 short circuit	AT Mode(Default, auto power ON)
Pin2-3 short circuit ATX Mode(Manual Power ON)	
*Note: Compatible with BIOS version 02	

Chapter 3

BIOS Setup Description

3.1 Operations after POST Screen

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



After optimizing and exiting 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

Main Advanced Chipset Security	Aptio Setup – AMI Boot Save & Exit	
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level	American Megatrends 5.27 UEFI 2.8; PI 1.7 SBC7134002 08/09/2024 18:24:27 Administrator	Choose the system default language
Product Information Manufacturer Name Product Name Serial Number Product UUID	Default string Default string Default string 03000200–0400–0500 –0006–000700080009	
Silicon Version	0C.00.A4.10	†∔: Select Item Enter: Select
System Language System Date	[English] [Tue 08/27/2024]	+/−: Change Opt. F1: General Help F2: Previous Values
System Time	[16:30:37]	F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version	2.22.1288 Copyright (C) 20	D24 AMI

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

NOTE:

When all selectable items are not listed in the BIOS, it only has two options to "Enabled" or "Disabled".

3.4 Advanced Settings

Aptio Setup – AMI Main Advanced Chipset Security Boot Save & Exit	
 CPU Configuration Power & Performance Trusted Computing ACPI Settings IT8786 Super IO Configuration S5 RTC Wake Settings USB Configuration Network Stack Configuration NVMe Configuration Intel(R) I210 Gigabit Network Connection - 00:35:12:11:20:2E Intel(R) Ethernet Connection (16) I219-V - 00:35:12:11:20:2D 	CPU Configuration Parameters ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

3.4.1 CPU Configuration

Advanced	Aptio Setup — AMI	
CPU Configuration		Displays the E-core Information
 Efficient-core Information Performance-core Information 		
ID Brand String	0xB06A3 13th Gen Intel(R) Core(TM) i3–1315U	++: Select Screen †↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

3.4.1.1 Efficient-core Information

Advanced	Aptio Setup — AMI	
Efficient-core Information		
L1 Data Cache L1 Instruction Cache L2 Cache L3 Cache	32 KB x 4 64 KB x 4 2048 KB 10 MB	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.4.1.2 Performance-core Information

Performance-core Information L1 Data Cache 48 KB x 2 L1 Instruction Cache 32 KB x 2 L2 Cache 1280 KB x 2	
L1 Instruction Cache 32 KB x 2	
L3 Cache 10 MB ++: Select 14: Sel	t Item Elect ge Opt. al Help ous Values hized Defaults & Exit

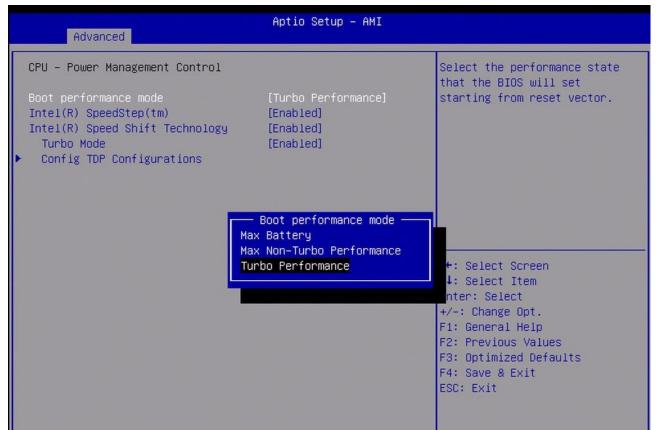
3.4.2 Power & Performance

Aptio : Advanced	Setup — AMI
Power & Performance ▶ CPU – Power Management Control ▶ GT – Power Management Control	CPU – Power Management Control Options
	++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

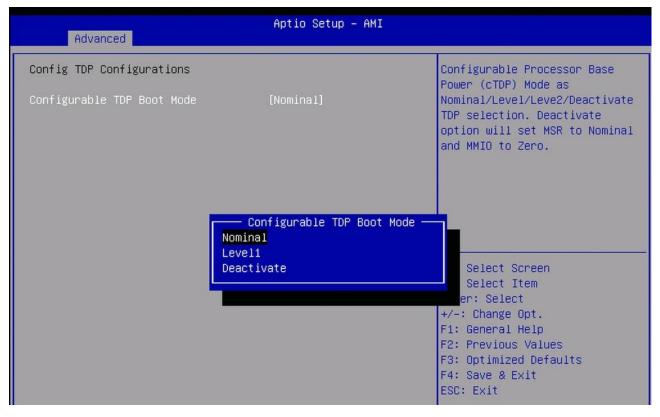
3.4.2.1 CPU-Power Management Control

Advanced	Aptio Setup – AMI	
CPU - Power Management Control Boot performance mode Intel(R) SpeedStep(tm) Intel(R) Speed Shift Technology Turbo Mode Config TDP Configurations	[Turbo Performance] [Enabled] [Enabled] [Enabled]	Select the performance state that the BIOS will set starting from reset vector.

3.4.2.1.1 Boot performance mode



3.4.2.1.2 Config TDP Configurations



3.4.2.2 GT- Power Management Control

Advanced	Aptio Setup – AMI	
GT – Power Management Control RC6(Render Standby)	[Enabled]	Check to enable render standby support.
Maximum GT frequency Disable Turbo GT frequency	[Default Max Frequency] [Disabled]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

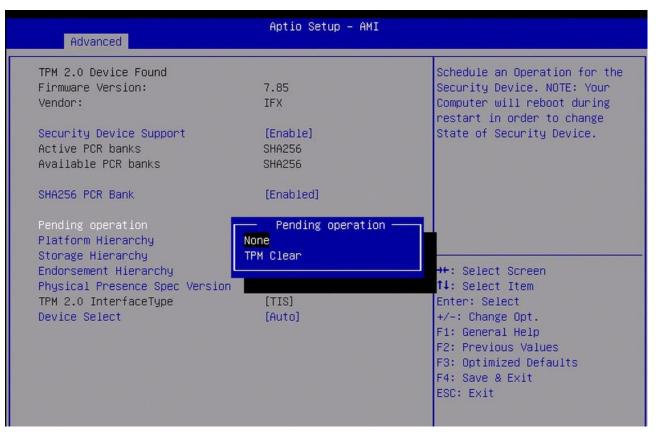
Maximum GT frequency

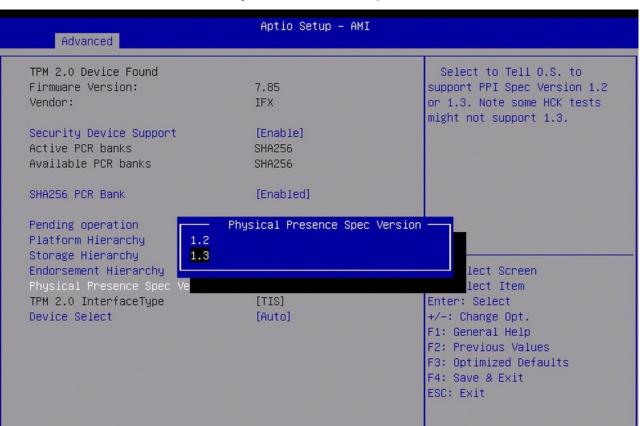
Aptio Setup - AMI Advanced		
GT – Power Management Control		Maximum GT frequency limited by the user. Choose between
RC6(Render Standby) Maximum GT frequency Disable Turbo GT frequency	Maximum GT frequency Default Max Frequency 100Mhz 150Mhz 200Mhz 300Mhz 350Mhz 400Mhz 450Mhz 500Mhz	100MHz (RPN) and 1250MHz RPO). Value beyond the range ill be clipped to min/max upported by SKU
	550Mhz 600Mhz 650Mhz 700Mhz 750Mhz 800Mhz 900Mhz 950Mhz ▼	 ★: Select Screen ↓: Select Item nter: Select /-: Change Opt. 1: General Help 2: Previous Values 3: Optimized Defaults 4: Save & Exit SC: Exit

3.4.3 Trusted Computing

Advanced	Aptio Setup – AMI	
TPM 2.0 Device Found Firmware Version: Vendor: Security Device Support Active PCR banks Available PCR banks SHA256 PCR Bank Pending operation Platform Hierarchy Storage Hierarchy Endorsement Hierarchy Physical Presence Spec Version TPM 2.0 InterfaceType Device Select	7.85 IFX [Enable] SHA256 SHA256 [Enabled] [Enabled] [Enabled] [Enabled] [1.3] [TIS] [Auto]	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

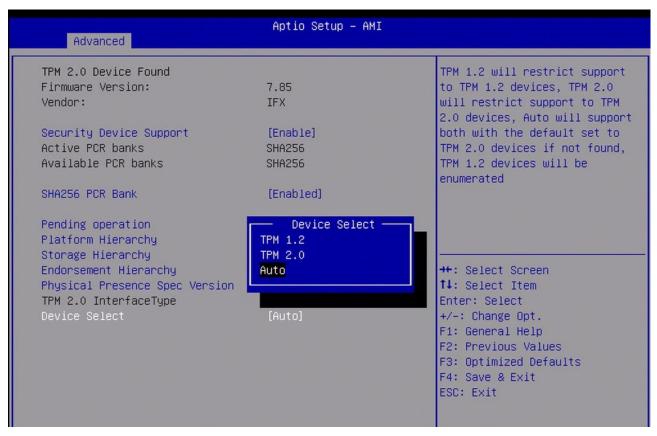
3.4.3.1 Pending operation



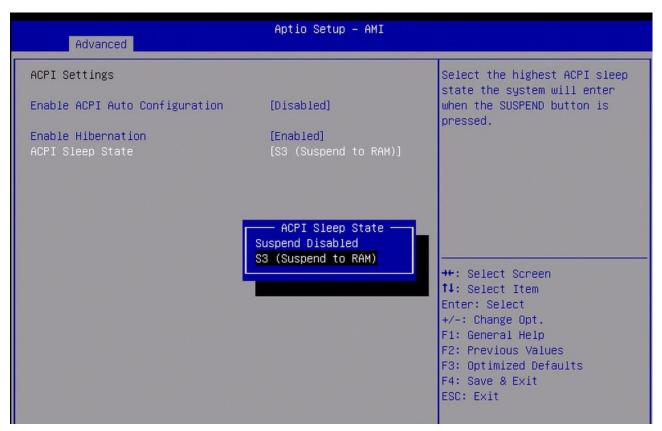


3.4.3.2 Physical Presence Spec Version

3.4.3.3 Device Select



3.4.4 ACPI Settings



3.4.5 Super IO Configuration

Advanced	Aptio Setup – AMI	
IT8786 Super IO Configuration		Set Parameters of Serial Port 1 (COMA)
Super IO Chip Serial Port 1 Configuration Serial Port 2 Configuration Serial Port 3 Configuration Serial Port 4 Configuration Serial Port 5 Configuration Serial Port 6 Configuration Watch Dog Configuration	IT8786	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

3.4.5.1 Serial Port 1 Configuration

Aptio Setup – AMI Advanced		
Serial Port 1 Configuration		Select an optimal settings for Super IO Device
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	Super 10 Device
Change Settings COM1 RS232/422/485 Mode	[Auto] [RS232]	
	Change Settings Auto IO=3F8h; IRQ=4; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12	; Select Screen

Com1 RS232/422/485 Mode

Advanced	Aptio Setup — AMI	
Serial Port 1 Configuration		COM1 RS232/422/485 Mode
Serial Port Device Settings	[Enabled] IO=3F8h; IRQ=4;	
Change Settings COM1 RS232/422/485 Mode	[Auto] [RS232]	
	COM1 RS232/422/485 Mode	: Select Screen : Select Item ter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

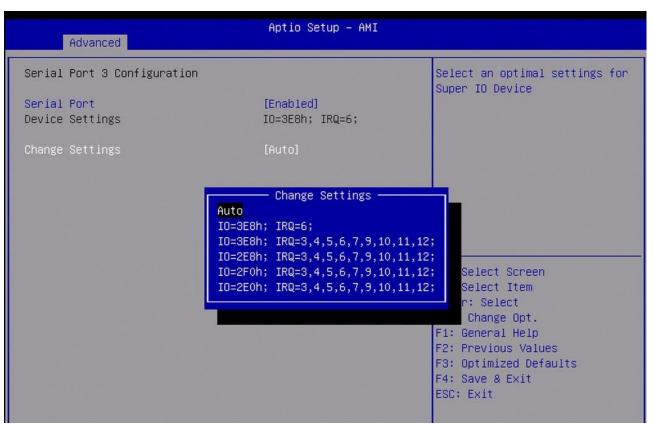
3.4.5.2 Serial Port 2 Configuration

Advanced	Aptio Setup — AMI	
Serial Port 2 Configuration Serial Port Device Settings Change Settings COM2 RS232/422/485 Mode	[Enabled] IO=2F8h; IRQ=3; [Auto] [RS232]	Select an optimal settings for Super IO Device
	Change Settings Auto IO=2F8h; IRQ=3; IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12	; Select Screen

Com2 RS232/422/485 Mode

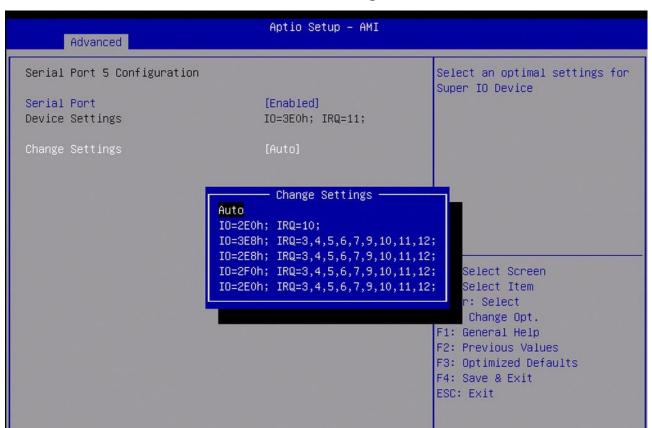
Advanced	Aptio Setup — AMI	
Serial Port 2 Configuration Serial Port Device Settings Change Settings COM2 RS232/422/485 Mode	[Enabled] IO=2F8h; IRQ=3; [Auto] [RS232]	COM2 RS232/422/485 Mode
	COM2 RS232/422/485 Mode	: Select Screen : Select Item ter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit







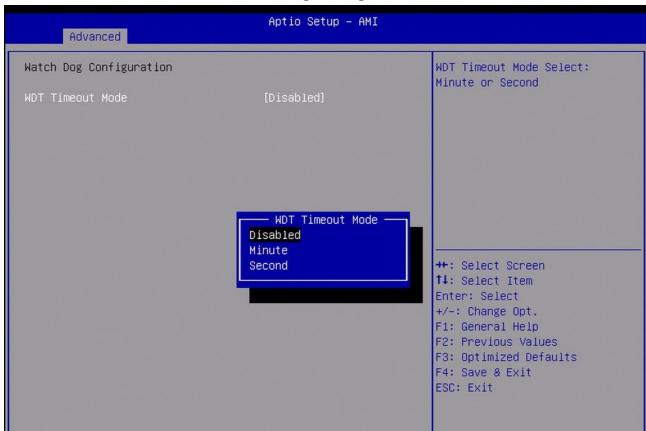
Advanced	Aptio Setup — AMI	
Serial Port 4 Configuration Serial Port Device Settings Change Settings	[Enabled] IO=2E8h; IRQ=7; [Auto]	Select an optimal settings for Super IO Device
	Change Settings Auto IO=2E8h; IRQ=7; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12	; Select Screen



3.4.5.5 Serial Port 5 Configuration

3.4.5.6 Serial Port 6 Configuration

Aptio Setup - AMI Advanced		
Serial Port 6 Configuration	[Enabled]	Select an optimal settings for Super IO Device
Device Settings	IO=2E0h; IRQ=10;	
Change Settings	[Auto] Change Settings Auto IO=3EOh; IRQ=11; IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12 IO=2FOh; IRQ=3,4,5,6,7,9,10,11,12 IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12	2; Select Screen

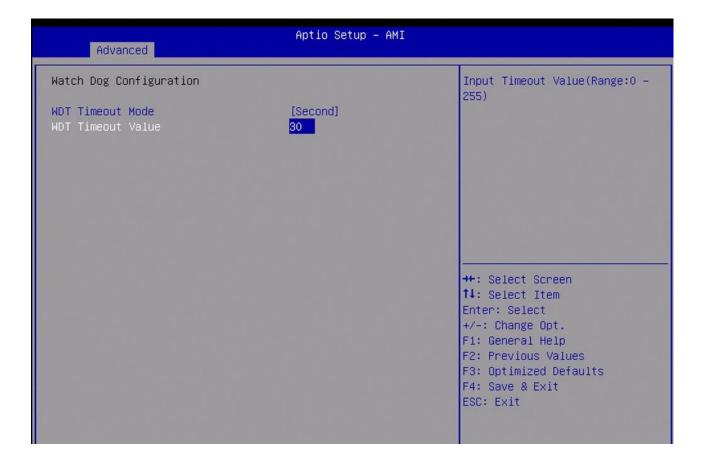


3.4.5.7 Watch Dog Configuration

WDT Timeout Value:0~255 Miunte

Advanced	Aptio Setup – AMI	
Watch Dog Configuration WDT Timeout Mode WDT Timeout Value	[Minute] <mark>30</mark>	Input Timeout Value(Range:O – 255)
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	Version 2.22.1288 Copyright (C) 2024	1 OMT

WDT Timeout Value:0~255 Second.



3.4.6 S5 RTC Wake Settings

Advanced	Aptio Setup – AMI	
Wake system from S5	[Disabled]	Enable or disable System wake on alarm event. Select FixedTime, system will wake on the hr::min::sec specified. Select DynamicTime , System will wake on the current time + Increase minute(s)

Wake up date: Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up

Advanced	Aptio Setup – AMI	
Wake system from S5 Wake up date Wake up hour Wake up minute Wake up second	[Fixed Time] 0 0 0 0	Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up

select 0-23 For example enter 3 for 3am and 15 for 3pm

Advanced	Aptio Setup – AMI	
Wake system from S5 Wake up date Wake up hour Wake up minute Wake up second	[Fixed Time] 0 0 0 0	<pre>select 0-23 For example enter 3 for 3am and 15 for 3pm ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

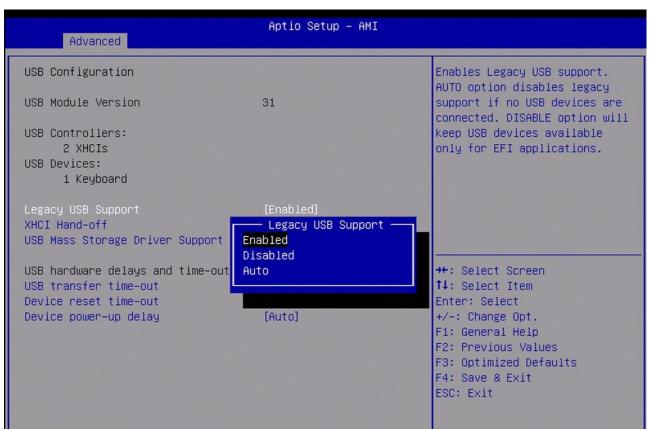
select 0-59 for Minute

Advanced	Aptio Setup – AMI	
Wake system from S5 Wake up date Wake up hour Wake up minute Wake up second	[Fixed Time] 0 0 0 0	<pre>select 0-59 for Minute ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

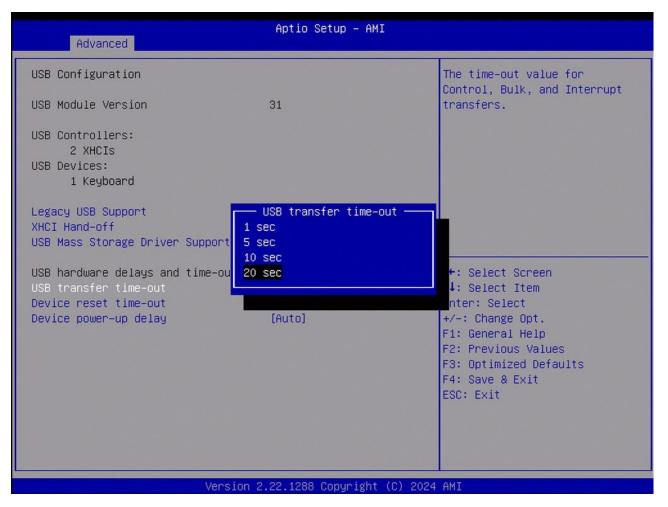
select 0-59 for Second

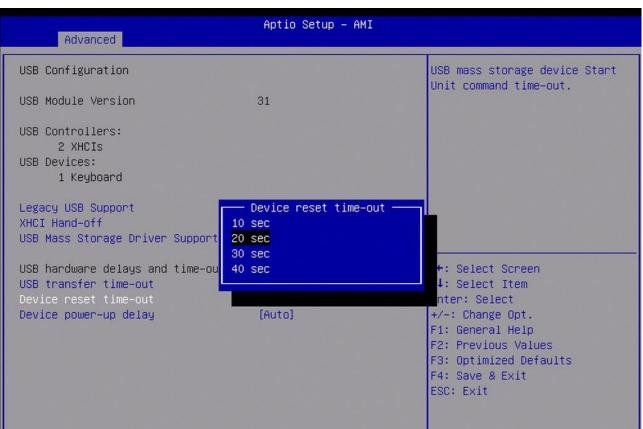
Advanced	Aptio Setup – AMI	
Wake up date Wake up hour Wake up minute Wake up second	[Fixed Time] 0 0 0 0	<pre>select 0-59 for Second **: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.4.7 USB Confiruration



3.4.7.1 USB transfer time-out





3.4.7.2 Device reset time-out

3.4.7.3 Device power-up delay

Advanced	Aptio Setup – AMI	
USB Configuration		Maximum time the device will
USB Module Version USB Controllers: 2 XHCIs USB Devices: 1 Keyboard	31	take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
Legacy USB Support XHCI Hand-off USB Mass Storage Driver Support USB hardware delays and time-ou USB transfer time-out Device reset time-out Device power-up delay	Manual	<pre>+: Select Screen ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Vers	ion 2.22.1288 Copyright (C) 20	024 AMI

3.4.8 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack *+: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

3.4.8.1 PXE boot wait time

Advanced	Aptio Setup — AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PXE Support PXE boot wait time Media detect count	<pre>[Enabled] [Disabled] [Disabled] [Disabled] 0 1</pre>	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2.22.1288 Copyright (C) 2	2024 AMI

3.4.8.2 Media detect count

Advanced	Aptio Setup - AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PXE Support PXE boot wait time Media detect count	<pre>[Enabled] [Disabled] [Disabled] [Disabled] 0 1</pre>	Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.
	/ersion 2.22.1288 Copyright (C) 20	024 AMT



Aptio Setup – AM Advanced	I
NVMe Configuration	
▶ Netac NVMe SSD 1286B	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

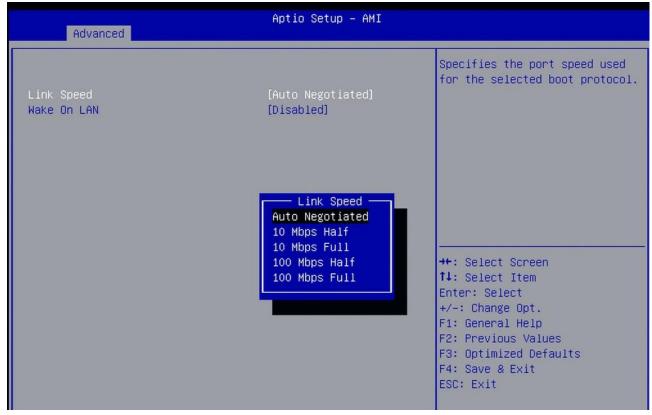
3.4.9.1 Netac NVME SSD 128GB information(This is a sample, and the information displayed by the user is subject to actual conditions)

Advanced	Aptio Setup – AMI	
Seg:Bus:Dev:Func Model Number Total Size Vendor ID Device ID Namespace: 1	00:01:00:00 Netac NVMe SSD 128GB 128.0 GB 1F40 2263 Size: 128.0 GB	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.4.10 Intel(R)I210 Gigabit Network Connention

Advanced	Aptio Setup – AMI	
▶ NIC Configuration		Click to configure the network device port.
Blink LEDs	0	
UEFI Driver	Intel(R) PRO/1000 6.3.27 PCI-E	
Adapter PBA	000200-000	
Device Name	Intel(R) I210 Gigabit Network Connection	
Chip Type	Intel i210	
PCI Device ID	1533	
PCI Address	02:00:00	
Link Status	[Disconnected]	↔: Select Screen ↑↓: Select Item
MAC Address	00:35:12:11:20:2E	Enter: Select
Virtual MAC Address	00:35:12:11:20:2E	+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

NIC Configuration



3.4.11 Intel(R) Ethernet Connention(16) I219-V

Advanced	Aptio Setup - AMI	
Autonegotiation Timeout	8	How long the UEFI PXE driver should wait for link
PORT CONFIGURATION INFORMATION		
UEFI Driver: Adapter PBA: PCI Device ID PCI Address MAC Address	Intel(R) Ethernet Connection I219 0.2.02 FFFFFF-OFF 1A1F 00:1F:06 00:35:12:11:20:2D	
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
LVersion	2.22.1288 Copyright (C) 202	4 AMI

3.5 Chipset Settings



3.5.1 System Agent (SA) Configuration

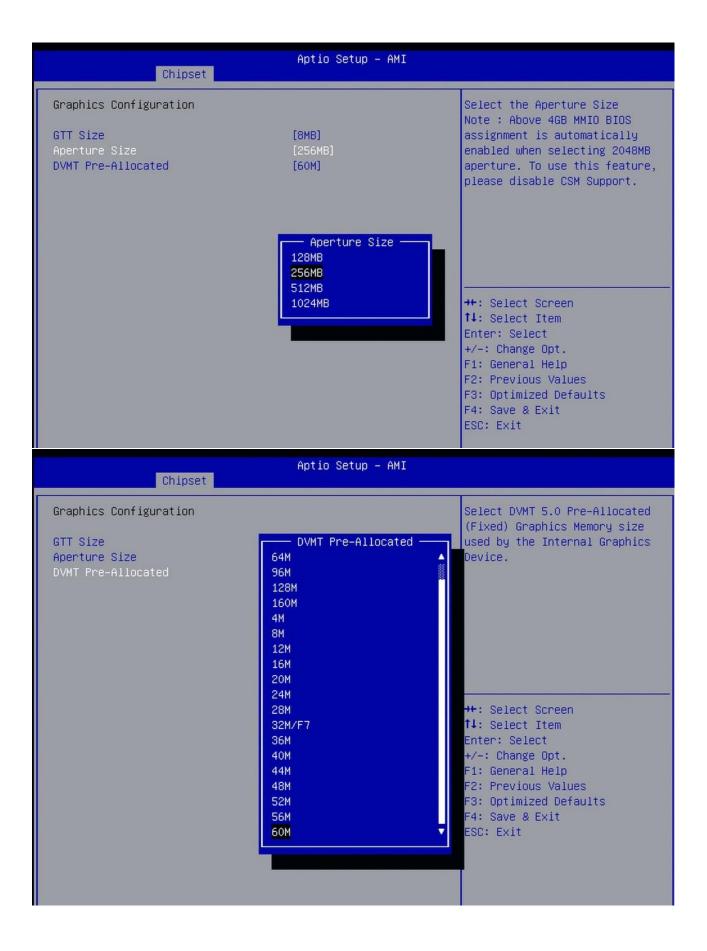
	Chipset	Aptio Setup – AMI	
Γ	System Agent (SA) Configuration		Memory Configuration Parameters
	VT-d	Supported	
Þ	Memory Configuration Graphics Configuration VMD setup menu		
	VT-d	[Enabled]	
			++: Select Screen
			↑↓: Select Item Enter: Select
			+/−: Change Opt. F1: General Help
			F2: Previous Values F3: Optimized Defaults
			F4: Save & Exit ESC: Exit

3.5.1.1 Memory Configuration

Chipset	Aptio Setup — AMI	
Chipset Memory Configuration Memory RC Version Memory Frequency tCL-tRCD-tRP-tRAS MC 0 Ch 0 DIMM 0 MC 0 Ch 0 DIMM 1 MC 1 Ch 0 DIMM 0 Size Number of Ranks Manufacturer MC 1 Ch 0 DIMM 1	0.0.4.133 2667 MHz 19-19-19-43 Not Populated / Disabled Not Populated / Disabled Populated & Enabled 8192 MB (DDR4) 1 Kingston Not Populated / Disabled	++: Select Screen †↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit

3.5.1.2 Graphics Configuration

Chipset	Aptio Setup - AMI	
Graphics Configuration GTT Size Aperture Size DVMT Pre-Allocated	[8MB] [256MB] [60M]	Select the GTT Size
	GTT Size 2MB 4MB 8MB	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>



3.5.1.3 VMD Configuration

Chipset	Aptio Setup — AMI	
VMD Configuration		Enable/Disable to VMD controller
Enable VMD controller	[Disabled]	
		++: Select Screen
		†∔: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Versio	n 2.22.1288 Copyright (C) 202	4 AMI

3.5.2 PCH-IO Configuration

Chipset	Aptio Setup – AMI	
PCH-IO Configuration		SATA Device Options Settings
▶ SATA Configuration		
PCH LAN Controller LAN Wake From DeepSx Wake on LAN Enable SLP_LAN# Low on DC Power	[Enabled] [Enabled] [Enabled] [Enabled]	
Restore AC Power Loss	[Power Off]	
		≁+: Select Screen ↑↓: Select Item
		Enter: Select
		+/−: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
		Loor LAT

3.5.2.1 SATA Configuration

5.5.2.1 SATA Configuration		
Chipset	Aptio Setup – AMI	
SATA Configuration SATA Controller(s) SATA Mode Selection SATA Test Mode Aggressive LPM Support	[Enabled] [AHCI] [Disabled] [Enabled]	▲ Identify the SATA port is connected to Solid State Drive or Hard Disk Drive
Serial ATA Port 0 Software Preserve Port 0 Hot Plug Configured as eSATA External Spin Up Device SATA Device Type Topology SATA Port 0 DevSlp DITO Configuration DITO Value DM Value Serial ATA Port 1 Software Preserve Port 1 Hot Plug Configured as eSATA	Empty Unknown [Enabled] [Disabled] Hot Plug supported [Disabled] [Disabled] [Hard Disk Drive] [Unknown] [Disabled] [Disabled] 625 15 Empty Unknown [Enabled] [Disabled] Hot Plug supported	<pre>**: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Chipset	Aptio Setup – AMI	
Software Preserve Port 1 Hot Plug Configured as eSATA External Spin Up Device SATA Device Type Topology SATA Port 1 DevS1p DITO Configuration DITO Value DM Value Serial ATA Port 2 Software Preserve Port 2 Hot Plug Configured as eSATA External Spin Up Device SATA Device Type Topology SATA Port 2 DevS1p DITO Configuration DITO Value DM Value	Unknown [Enabled] [Disabled] Hot Plug supported [Disabled] [Disabled] [Hard Disk Drive] [Unknown] [Disabled] 625 15 Empty Unknown [Enabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Hard Disk Drive] [Unknown] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled] [Disabled]	 Enable/Disable DITO Configuration **: Select Screen **: Select Item Enter: Select */-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Version 2.22.1288 Copyright (C) 2024 AMI

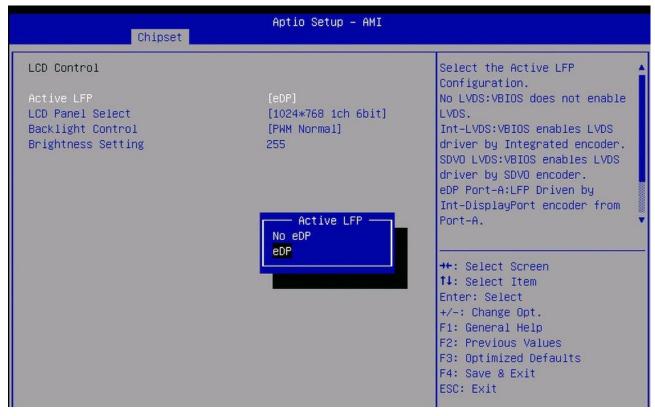
3.5.2.2 Restore AC Power Loss

La contra c	Specify what state to go to when power is re-applied after a power failure (G3 state).
Power Off	<pre>+: Select Screen ↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults</pre>

3.5.3 LCD Control

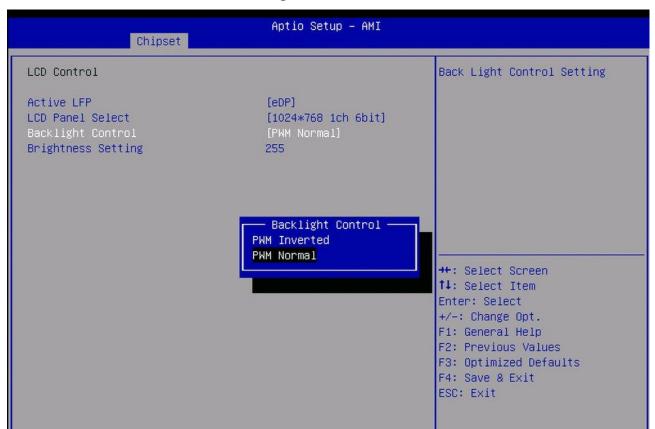
Chipset	Aptio Setup — AMI	
LCD Control Active LFP LCD Panel Select Backlight Control Brightness Setting	[eDP] [1024*768 1ch 6bit] [PWM Normal] 255	Select the Active LFP Configuration. No LVDS:VBIOS does not enable LVDS. Int-LVDS:VBIOS enables LVDS driver by Integrated encoder. SDVO LVDS:VBIOS enables LVDS driver by SDVO encoder. eDP Port-A:LFP Driven by Int-DisplayPort encoder from Port-A. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

3.5.3.1 Active LFP



3.5.3.2 LCD Panel Select

Chipset	Aptio Setup - AMI	
Chipset LCD Control Active LFP LCD Panel Select Backlight Control Brightness Setting	[eDP] LCD Panel Select 800*480 1ch 6bit 800*480 1ch 8bit 800*600 1ch 8bit 1024*600 1ch 8bit 1024*600 1ch 8bit 1024*600 1ch 8bit 1024*768 1ch 8bit 1024*768 1ch 8bit 1280*800 1ch 6bit 1280*800 1ch 8bit 1280*800 1ch 8bit 1280*800 1ch 8bit 1280*800 1ch 8bit 1280*800 1ch 8bit 1280*800 1ch 8bit 1280*800 1ch 8bit	LCD Panel Select ++: Select Screen 14: Select Item
Versic	1366*768 1ch 6bit 1366*768 1ch 8bit 1600*900 2ch 8bit 1600*1200 2ch 8bit 1920*1080 2ch 8bit	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit



3.5.3.3 Backlight Control

3.5.3.4 Brightness Setting

Chipset	Aptio Setup - AMI	
LCD Control		Set Gop Brightness value
Active LFP LCD Panel Select Backlight Control Brightness Setting	[eDP] [1024*768 1ch 6bit] [PWM Normal] 255	
		<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version	2.22.1288 Copyright (C) 2024	AMI

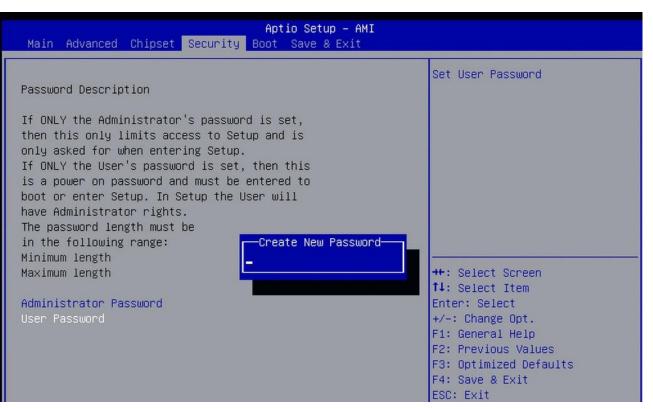
3.6 Security Settings

Aptio Setup – AMI Main Advanced Chipset Security Boot Save & Exit		
Password Description		Set Administrator Password
If ONLY the Administrator's then this only limits acces only asked for when enterin If ONLY the User's password is a power on password and boot or enter Setup. In Set have Administrator rights. The password length must be in the following range:	s to Setup and is g Setup. Wis set, then this must be entered to up the User will	
Minimum length	3	
Maximum length	20	++: Select Screen
		↑↓: Select Item
Administrator Password		Enter: Select
User Password		+/−: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

3.6.1 Administrator Password

Aptio Setup – AMI Main Advanced Chipset <mark>Security</mark> Boot Save & Exit		
Password Description If ONLY the Administrator's password is set, then this only limits access to Setup and is only asked for when entering Setup. If ONLY the User's password is set, then this is a power on password and must be entered to boot or enter Setup. In Setup the User will have Administrator rights. The password length must be in the following range: Minimum length Maximum length Administrator Password User Password	Set Administrator Password ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	

3.6.2 User Password



3.7 Boot Settings

Main Advanced Chipset Secu	Aptio Setup – AMI urity <mark>Boot</mark> Save & Exit	
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	<mark>3</mark> [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
Boot Option Priorities Fast Boot	[Disabled]	
		<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.8 Save & Exit Settings

Aptio Setup – AMI Main Advanced Chipset Security Boot Save & Exit	
Save Options Save Changes and Exit Discard Changes and Exit	Exit system setup after saving the changes.
Default Options Restore Defaults	
Boot Override	
	↔: Select Screen ↑↓: Select Item Enter: Select
	+/−: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
	F4: Save & Exit ESC: Exit
Version 2.22.1288 Copyright (C) 2024	AMI

Chapter 4

Installation of Drivers

This chapter describes the installation procedures for software and drivers under the windows 10. The software and drivers are included with the motherboard. The contents include Intel Chipset, Graphics chipset driver, Audio driver, LAN driver and Intel[®] management engine interface. The instructions are as below.

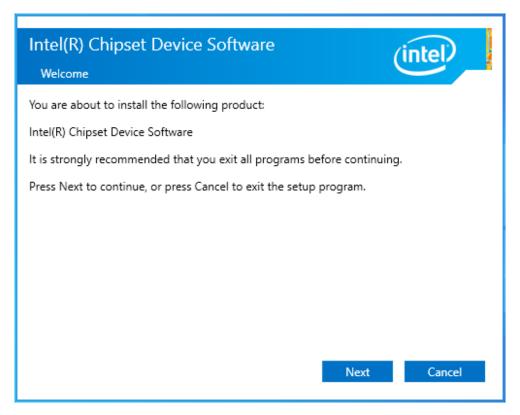
Important Note:

After installing your Windows operating system, you must install first the 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.

Step 1. Here is welcome page. Please make sure you save and exit all programs before install. Click **Next**.



Step 2. Read the license agreement. Click Accept to accept all of the terms of the license agreement.



Step 3. Click Install to begin the installation.

<pre>************************************</pre>	
For the list of supported chipsets, please to the Release Notes * CONTENTS OF THIS DOCUMENT	*****
* CONTENTS OF THIS DOCUMENT	refer
This document contains the following sections:	
1. Overview 2. System Requirements	

Step 4. Select **Restart Now** to reboot your computer for the changes to take effect.

Intel(R) Chipset Device Software Completion	(intel)
You have successfully installed the following product:	
Intel(R) Chipset Device Software	
You must restart this computer for the changes to take effect.	
View Log Files	
Restart Now	Restart Later

4.2 Intel® HD Graphics Chipset

To install the Intel[®] HD Graphics Chipset, please follow the steps below.

Step 1. Click Begin installation.



Step 2. Read the license agreement. Click I agree to accept all the terms of the license agreement.



Step 3. Choose Install function and Click Start to setup program.

intel. _{Gra}	aphics Driver Installer	×
Pre-Install	The installer will install the following components: - Intel® Graphics Driver - Intel® Graphics Command Center	
Setup		
Install		
Done!		
		Start >

Step 4. Click Finish to complete installation.

intel. Grap	nics Driver Installer	×
Pre-Install	Installation complete!	
Setup		
Install		
Done!		
		Optional reboot Finish

4.3 Audio Chipset

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

Step 1. Click Next to continue.

Step 2. Click Yes, I want to restart my computer now. Click Finish to complete the installation. Realtek Audio Driver Setup (4.78) 6.0.9239.1



4.4 I LAN Driver

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

Step 1. Click Zip File to continue.

Step 2. Click OK to begin the installation.

Installing Drivers	
Install or update drivers for Intel® Network Connection	15.
ОК	Cancel

Step 3. Click Close to finish installation.

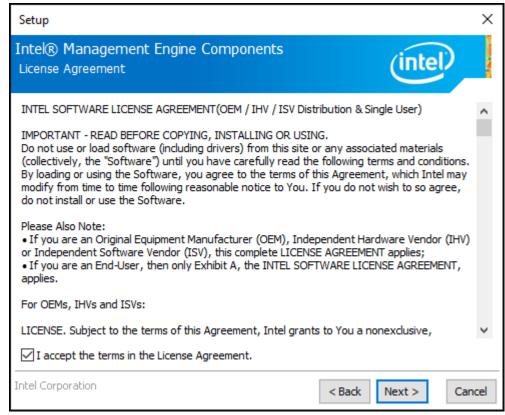
Installing Drivers	
Drivers for Intel® Network Connections were successfully installed.	
Close	

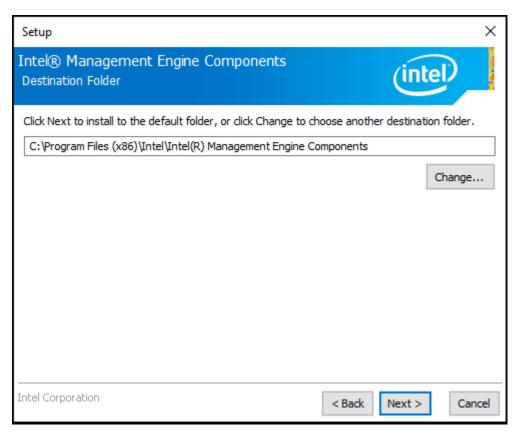
4.5 Intel® Management Engine Interface

To install the Intel[®] Management Engine Interface, please follow the steps below. **Step 1.** Select setup language you need. Click **Next** to continue.

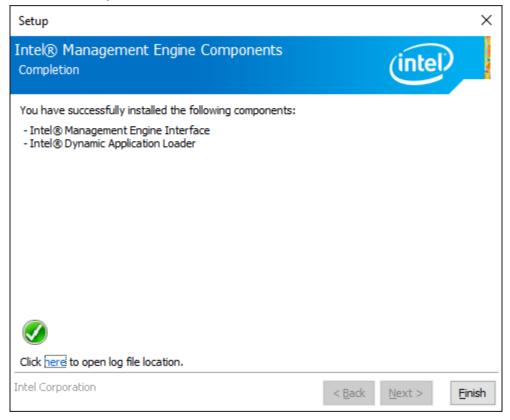
Setup			×
Intel® Management Engine Components Welcome		(intel	
You are about to install the following product: Intel® Management Engine Components 2249.3.39.0 It is strongly recommended that you exit all programs before co Click Next to continue, or click Cancel to exit the setup program			
Intel Corporation	< Back	Vext >	Cancel

Step 2. Choose I accept the terms in the License Agreement and click Next to begin the installation.





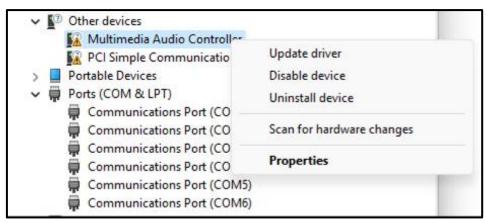
Step 4. Click Finish to complete the installation.



4.6 Intel® Speed Select Technology

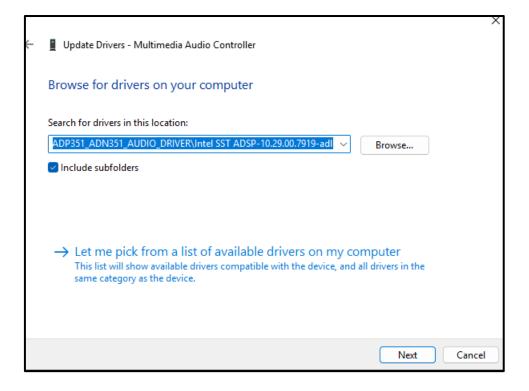
To install the Intel[®] Speed Select Technology, please follow the steps below.

Step 1. Enable Device Manager under Window and you could see there are exclamation mark on Audio Control, please right click you mouse and pop up an property window, then select "update driver"



Step 2. Select "Browse my computer for drivers" then select driver from your driver folder then install it.

	Construction to the Unifer difference	
→	Search automatically for drivers Windows will search your computer for the best available driver and install it on your device.	
\rightarrow	Browse my computer for drivers Locate and install a driver manually.	



4.7 Resistive Touch Screen Installation

This chapter describes how to install drivers and other software that will allow your Resistive touch screen work with different operating systems.

4.7.1 Windows 10 Universal Driver Installation for PenMount 6000 Series

Before installing the Windows 10 driver software, you must have the Windows 10 system installed and running on your computer. You must also have one of the following PenMount 6000 series controller or control boards installed: PM6500, PM6300.

Resistive Touch

If you have an older version of the PenMount Windows 7 driver installed in your system, please remove it first. Follow the steps below to install the PenMount DMC6000 driver.

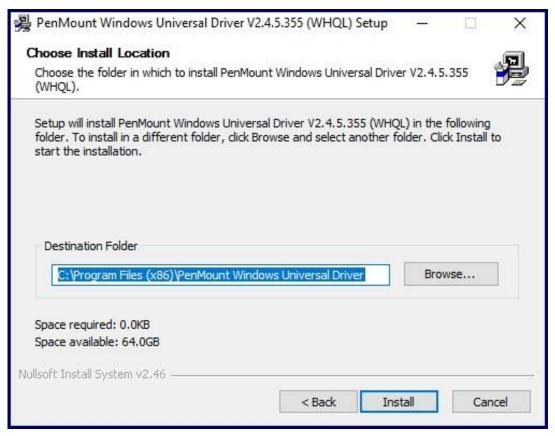
Step 1. Click Next to continue.



Step 2. Read the license agreement. Click I Agree to agree the license agreement.

Please review the license terms before V2.4.5.355 (WHQL).	installing PenMount Windows Universal Driver
Press Page Down to see the rest of the	e agreement.
PLEASE READ THE LICEN	ISE AGREEMENT
PenMount touch screen driver	software is only for using with
PenMount touch screen contro	oller or control board.
Any person or company using	a PenMount driver on any piece of
	ze an PenMount touch screen controller
will be prosecuted to the full ex	xtent of the law.
fuely accept the terms of the acreem	ant dick I Agree to continue. You must accept the
	ent, click I Agree to continue. You must accept the s Universal Driver V2.4.5.355 (WHQL).

Step 3. Choose the folder in which to install PenMount Windows Universal Driver. Click **Install** to start the installation.



Step 4. Click Yes to continue.



Step 5. Click Finish to complete installation.



4.7.2 Software Functions

Resistive Touch

Upon rebooting, the computer automatically finds the new 6000 controller board. The touch screen is connected but not calibrated. Follow the procedures below to carry out calibration.

- 1. After installation, click the PenMount Monitor icon "PM" in the menu bar.
- 2. When the PenMount Control Panel appears, select a device to "Calibrate."

PenMount Control Panel (Resistive Touch)

The functions of the PenMount Control Panel are **Device, Multiple Monitors**, **Tools** and **About**, which are explained in the following sections.

Device

In this window, you can find out that how many devices be detected on your system.

PenMount Control Panel	- - X
Device Multiple Monitors Tools About	
Select a device to configure.	
6	
PenMount 6000 USB	
Configure Refresh	
	ОК

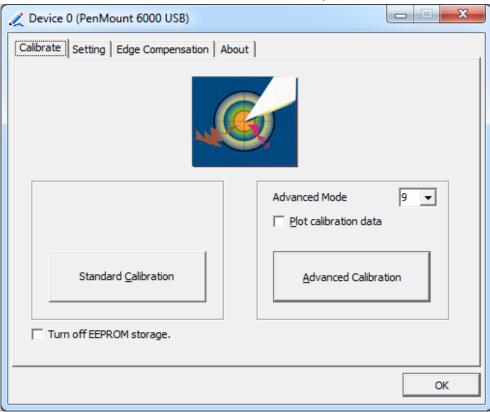
Calibrate

This function offers two ways to calibrate your touch screen. 'Standard Calibration' adjusts most touch screens. 'Advanced Calibration' adjusts aging touch screens.

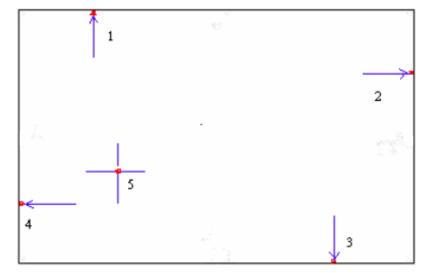
Standard Calibration	Click this button and arrows appear pointing to red squares. Use your finger or stylus to touch the red squares in sequence. After the fifth red point calibration is complete. To skip, press 'ESC'.
Advanced Calibration	Advanced Calibration uses 4, 9, 16 or 25 points to effectively calibrate touch panel linearity of aged touch screens. Click this button and touch the red squares in sequence with a stylus. To skip, press ESC'.

Step 1. Please select a device then click "Configure". You can also double click the device too.

PenMount Control Panel	
Device Multiple Monitors Tools About	
Select a device to configure.	
6	
PenMount 6000 USB	
Configure Refresh	
	ОК



Step 2. Click "Standard Calibration" to start calibration procedure



NOTE: The older the touch screen, the more Advanced Mode calibration points you need for an accurate calibration. Use a stylus during Advanced Calibration for greater accuracy. Please follow the step as below:



Step 3. Select Device to calibrate, then you can start to do Advanced Calibration.

NOTE: Recommend to use a stylus during Advanced Calibration for greater accuracy.



Plot Calibration Data	Check this function and a touch panel linearity		
	comparison graph appears when you have finished		
	Advanced Calibration. The blue lines show linearity		
	before calibration and black lines show linearity after		
	calibration.		
Turn off EEPROM	The function disable for calibration data to write in		
storage	Controller. The default setting is Enable.		

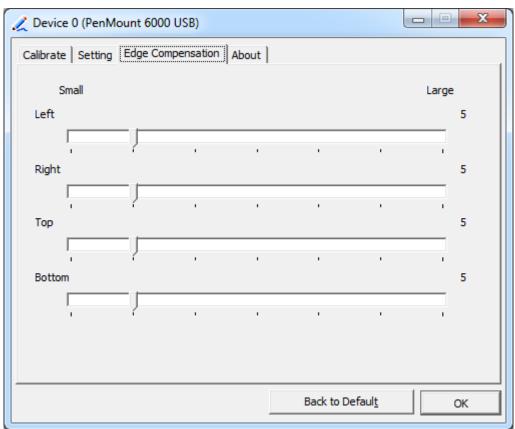
Setting

🗶 Device 0 (PenMount 6000 USB)				
Calibrate Setting Edge Compensation About				
Operation Mode	Mouse Emulation 🗨			
Beep Sound	Kind of Sound	Buzzer Beep 💌		
Beep Mode Beep on pen down Beep on pen up Beep on both	Beep Frequency Beep Duration	1000 Hz 100 ms		
Cursor Stabilizer You can use Cursor Stabilizer to remove jitter of cursor.	Use press and hold as right Delay:	2.0 sec		
	Back to Defa	aul <u>t</u> OK		

Touch Mode	This mode enables and disables the mouse's ability to drag		
	on-screen icons – useful for configuring POS terminals.		
	Mouse Emulation – Select this mode and the mouse		
	functions as normal and allows dragging of icons.		
	Click on Touch – Select this mode and mouse only provides a		
	click function, and dragging is disables.		
Beep Sound	Enable Beep Sound – turns beep function on and off		
	Beep on Pen Down – beep occurs when pen comes down		
	Beep on Pen Up – beep occurs when pen is lifted up		
	Beep on both – beep occurs when comes down and lifted up		
	Beep Frequency – modifies sound frequency		
	Beep Duration – modifies sound duration		
Cursor Stabilizer	Enable the function support to prevent cursor shake.		
Use press and	You can set the time out and area for you need.		
hold as right click			

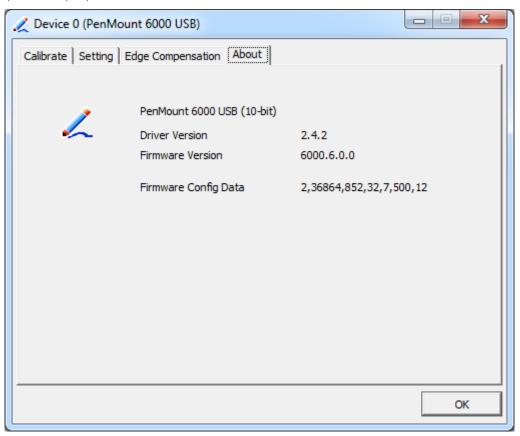
Edge Compensation

You can use Edge Compensation to calibrate more subtly.



About

This panel displays information about the PenMount controller and driver version.



Multiple Monitors

Multiple Monitors support from two to six touch screen displays for one system. The PenMount drivers for Windows 7/8/8.1 support Multiple Monitors. This function supports from two to six touch screen displays for one system. Each monitor requires its own PenMount touch screen control board, either installed inside the display or in a central unit. The PenMount control boards must be connected to the computer COM ports via the USB interface. Driver installation procedures are the same as for a single monitor. Multiple Monitors support the following modes: Windows Extends Monitor Function Matrox DualHead Multi-Screen Function

nVidia nView Function

NOTE: The Multiple Monitor function is for use with multiple displays only. Do not use this function if you have only one touch screen display. Please note once you turn on this function the rotating function is disabled.

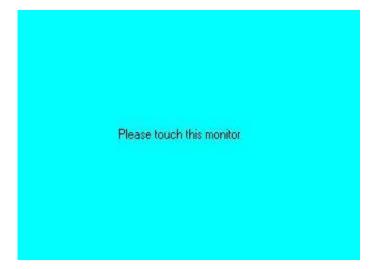
Enable the multiple display function as follows:

1. Check the Enable Multiple Monitor Support box; then click Map Touch Screens to assign touch controllers to displays.

PenMount Control Panel	
Device Multiple Monitors Tools About	1
Multiple Monitor Support	
PonN Fount Formation	
Map <u>T</u> ouch Screens	
	ОК

2. When the mapping screen message appears, click OK.

3. Touch each screen as it displays "Please touch this monitor". Following this sequence and touching each screen is called **mapping the touch screens.**



4. Touching all screens completes the mapping and the desktop reappears on the monitors.

5. Select a display and execute the "Calibration" function. A message to start calibration appears. Click **OK**.

Calibrate	
To start calibration, please to	uch the panel to calibrate in the following screen.

- 6. "Touch this screen to start its calibration" appears on one of the screens. Touch the screen.
- 7. "Touch the red square" messages appear. Touch the red squares in sequence.

8. Continue calibration for each monitor by clicking **Standard Calibration** and touching the red squares.

NOTES:

1. If you use a single VGA output for multiple monitors, please do not use the **Multiple Monitor** function. Just follow the regular procedure for calibration on each of your desktop monitors.

2. The Rotating function is disabled if you use the Multiple Monitor function.

3. If you change the resolution of display or screen address, you have to redo **Map Touch Screens**, so the system understands where the displays are.

About

This panel displays information about the PenMount controller and this driver version.

🙀 PenMount Control Panel					
Calibrate Draw Multiple Monito	ors Option About				
PenMount DMC	9000 and DMC9100				
Driver Vers	ion 4.01				
Firmware V	ersion				
	[COM1@19200bps] [COM2@19200bps]				
E-mail : <u>salt@salt.com.tw</u>	Website : <u>www.salt.com.tw</u>				
Copyright(C) 2003 Salt Int'l Corp.					
1991 1.					
	ОК				

PenMount Monitor Menu Icon

The PenMount monitor icon (PM) appears in the menu bar of Windows 7/8/8.1 system when you turn on PenMount Monitor in PenMount Utilities.



PenMount Monitor has the following function

	Control Panel	
Device 0	Веер	þ
	Right Butto	n
	Exit	

Control Panel	Open Control Panel Windows
Веер	Setting Beep function for each device
Right Button	When you select this function, a mouse icon appears in the right-bottom of the screen. Click this icon to switch between Right and Left Button functions.
Exit	Exits the PenMount Monitor function.

Configuring the Rotate Function

- 1. Install the rotation software package.
- 2. Choose the rotate function (0°, 90°, 180°, 270°) in the 3rd party software. The calibration screen appears automatically. Touch this point and rotation is mapped.

Please touch the	e point		

NOTE: The Rotate function is disabled if you use Monitor Mapping