

# **VITAM-9XXD** Series

Fanless Stainless Steel Panel PC

# **User Manual**

#### **Release Date**

Dec 2024

Revision

V1.0

\*2024 Aplex Technology, Inc. All Rights Reserved. Published in Taiwan Aplex Technology, Inc.
 15F-1, No.186, Jian Yi Road, Zhonghe District, New Taipei City 235, Taiwan
 Tel: 886-2-82262881 Fax: 886-2-82262883 URL: www.aplex.com

# **Revision History**

Reversion	Date	Description
1.0	2024/12/13	Official Version

## 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.

### **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.

### TABLE OF CONTENT

Warnir	ing!	2
Cautio	on	2
Packin	ng List	3
-	/ Precautions	
Figur	res	
Chapte	er 1 Getting Started	7
1.1	Features	7
1.2	Specifications	
1.3	Block Diagram	11
1.4	Dimensions	
1.5	Brief Description of VITAM-9XXD Series	15
1.6	Yoke Mounting and VESA Mounting	16
Chapte	er 2 Hardware	17
	otherboard Introduction	
2.2 Spe	ecifications & Dimensions	17
2.3 Jun	mpers and Connectors Location	19
2.4 Jun	mpers Setting and Connectors	20
Chapte	-	
3.1 Op	perations after POST Screen	29
3.2 BIC	OS SETUP UTILITY	29
3.3 Ma	ain Settings	30
3.4 Ad	dvanced Settings	31
3.5 Ch	hipset Settings	53
3.6 Se	ecurity Settings	62
3.7 Bc	oot Settings	63
3.8 Sa	ave & Exit Settings	64
Chapte	er 4 Installation of Drivers	65
4.1	Intel Chipset	
4.2	Intel® HD Graphics Chipset	
4.3	Audio Chipset	
4.4	I LAN Driver	
4.5	Intel® Management Engine Interface	
4.6	Intel® Speed Select Technology	
4.7	Resistive Touch Screen Installation	
VITAM-9	-9XXD Series User Manual	5

### **Figures**

FIGURE 1. 1 DIMENSIONS OF VITAM-915DP/R(H)	
FIGURE 1. 2 DIMENSIONS OF VITAM-916DP/R(H)	
FIGURE 1. 3 DIMENSIONS OF VITAM-917DP/R(H)	
FIGURE 1. 4 DIMENSIONS OF VITAM-919DP/R(H)	
FIGURE 1. 5 DIMENSIONS OF VITAM-921DP/R(H)	
FIGURE 1. 6 DIMENSIONS OF VITAM-924DP(H)	
FIGURE 1. 7 FRONT VIEW AND TOUCH ON/OFF BUTTON OF VITAM-9XXD SERIES	15
FIGURE 1. 8 REAR VIEW OF VITAM-9XXD SERIES	15
FIGURE 1. 9 YOKE MOUNTING OF VITAM-9XXD SERIES	16
FIGURE 1. 10 VESA MOUNTING OF VITAM-9XXD SERIES	16

FIGURE 2. 1 MOTHERBOARD DIMENSIONS	19
FIGURE 2. 2 JUMPERS AND CONNECTORS LOCATION- BOARD TOP	19
FIGURE 2. 3 JUMPERS AND CONNECTORS LOCATION- BOARD BOTTOM	20

# Chapter 1

# **Getting Started**

### 1.1 Features

- 15"~23.8" Fanless Stainless Steel Panel PC
- 12th /13th Gen. Intel<sup>®</sup> Core i3/i5 BGA type Processors
- True Flat Front Bezel Design and Grade 304 Stainless Steel Enclosure (Grade 316 for Option)
- Support Projective capacitive touch/Resistive touch window
- Touch on/off Button on the Side Edge for Hygienic Cleaning
- Totally IP66/IP69K for meet indoor/semi-outdoor waterproof applications
- M12 Connectors with waterproof caps
- 9~36V DC wide-ranging power input
- Support Ergonomic Versatile Mounting: Yoke Mounting / VESA Mounting

	VITAM-915	VITA	M-916	VITAM-917	VITAM-919	VITAM-921	VITAM-924	
	DP/R(H)	DP	/R(H)	DP/R(H)	DP/R(H)	DP/R(H)	DP(H)	
System								
CPU	12th /13th	Gen. Int	el® Core™	' i5/i3 SoC :				
	Intel <sup>®</sup> Co	ore <sup>™</sup> i3-:	1215U, 2P	+4E up to 4.4G	Hz(P-Core) 3.30	GHz(E-Core), TDP	=15W	
	Intel <sup>®</sup> Co	ore <sup>™</sup> i5-:	1235U, 2P	+8E up to 4.4G	Hz(P-Core) 3.30	GHz(E-Core), TDP	=15W	
	Intel <sup>®</sup> Co	ore <sup>™</sup> i3-:	1315UE, 2	P+4E, up to 4.5	GHz(P-Core) 3.	3GHz(E-Core), TD	0P=15W	
	Intel <sup>®</sup> Co	ore <sup>™</sup> i5-:	1335UE, 2	P+8E, up to 4.5	GHz(P-Core) 3.	3GHz(E-Core), TD	DP=15W	
Chipset				So	ъC			
Memory	2 x D	DR4-320	00MHz SO	-DIMM (Dual C	hannel ,Non-EC	CC) sockets, up to	64GB	
Graphics		Intel® l	JHD Grapł	hics for 12th Ge	en. Intel® Proce	ssors (1100 MHz	)	
		Intel <sup>®</sup> UHD Graphics for 13th Gen. Intel <sup>®</sup> Processors (1200 MHz)						
Outside IO Port – Star	ndard M12 I/O	) Connec	ctor on the	e Rear Side				
USB	1 x M12 8-pin for 2x USB2.0 with waterproof cover and chain							
	USB1/2:							
		CN1	Pin Defin	ne				
		1	USB1 5\	/				
		3	D1-					
		4	D1+					

### **1.2 Specifications**

	I		1	
		7	GND	
		2	USB2 5V	V 8-2-1
		5	D2-	3
		6	D2+	
		8	GND	4-5-6
				Pin Assignments Front View 正視圖
Serial/Parallel				35, Default RS-232,
	with	waterpr	oof cover and	d chain
			Pin Define	2 2 2 2 1
		1	DCD	8
		2	RXD	3 3 7
		3	TXD	
		4	DTR	4-5-6
		5	GND	Pin Assignments Front View 正視圖
		6	DSR	
		7	RTS	
		8	СТЅ	
LAN	1 x M12 8-pin fo	or LAN w	vith waterproof	of cover and chain
			LAN:	
			Pin Define	
		1	LAN1_0+	8
		2	LAN1_0-	3
		3	LAN1_1+	
		4	LAN1_1-	4-5-6
		5	LAN1_2+	Pin Assignments Front View 正視圖
		6	LAN1_2-	
		7	LAN1_3+	
		8	LAN1_3-	

Power	1 x M12 3-pin fc	~							
		chain			10				
		Pin Define							
		1 NC			00	1			
		3 VCC				2			
		4 GND			Pin Assignmen	ts			
					Front View				
Others			1 x Power Swi	tch on the rear					
	1 x Touch or	n/off button at the	e side ( <mark>Touch o</mark>	n-default/Touch	off-option: pres	s downward)			
Option I/O Port (Eithe	er two)								
	2 x optional b	lank M12 connec	tors with water	proof cap for se	electing two from	the following			
	options:								
Option	2	x USB2.0							
(Priority: COM,USB,LAN)	1	x USB3.2 Gen1							
(		x GbE LAN							
		x COM Port							
	1 x HDMI								
Storage Space									
Storage			1 x M.2 M-Key	/ 2280 (PClex4)					
Expansion				<u> </u>	· c· /o+				
Expansion Slot		И.2 2230 E-Key (U 4 2 2402/2052 р		•					
		И.2 3402/3052 В- IM card	Key (PCIE XI, U	5B3.2 Gen1) Ior	optional LTE/SG	module			
RFID module	1 1 2		odule design or	the front side	(ontion)				
Display – Standard LC	D								
Display Type	15" TFT LCD	15.6" TFT LCD	17" TFT LCD	19" TFT LCD	21.5" TFT LCD	23.8″ TFT			
						LCD			
Max. Resolution	1024 x 768	1366 x 768	1280 x 1024	1280 x 1024	1920 x 1080	1920 x 1080			
		1980 x 1080							
Max. Color	16.2M		·	16.7M	·	·			
Luminance (cd/m <sup>2</sup> )	300	400	350	350	250	250			
	350	500							
Contrast Ratio	2000:1	500:1	800:1	1000:1	1000:1	3000 : 1			
	1000:1	1000:1							
Viewing Angle(H/V)	176/176	178/178	170/160	170/160	178/178	178/178			

	470/470								
	178/178								
Backlight Lifetime	70,000hrs	50,000hrs	50,000hrs	50,000hrs	50,000hrs	30,000 hrs			
	50,000hrs								
Option			Optical	bonding					
Display – High Brightn	ess LCD (optio	n)							
Display Type	15" TFT LCD	15.6" TFT LCD	17" TFT LCD	19" TFT LCD	21.5" TFT LCD	23.8"TFT LCD			
Max. Resolution	1024 x 768	1366 x 768	1280 x1024	1280 x 1024	1920 x 1080	1920 x 1080			
		1920 x 1080							
Max. Color	16.2M	16.7M	16.2M		16.7M				
Luminance (cd/m <sup>2</sup> )	1000	1000	1000	1000	1500/1000	1000			
Contrast Ratio	1000:1	500:1	800:1	1000:1	1000:1	3000:1			
		1000:1							
Viewing Angle(H/V)	176/176	160/160	170/160	170/160	178/178	178/178			
		170/170							
Backlight Lifetime	50,000hrs	50,000hrs	50,000hrs	50,000hrs	50,000hrs	30,000hrs			
Option			Optical	bonding					
Touch Screen									
Туре		Resistive touch window (for R model) (not available for 23.8")							
		Projected capa	citive touch sc	reen (for P mod	lel)				
Interface			U	SB					
Light Transmission		Re	esistive touch v	vindow: over 80	)%				
		Project	ed capacitive t	ouch screen: ov	ver 90%				
Power									
Power Input			DC 9	~36V	T	T			
Power Consumption	MAX:64.73W	TBD	MAX:63.29W	MAX:73.98W	MAX:89.06W	TBD			
	(915DP)		(917DR)	(919DP)	(921DP)				
Mechanical									
Color	304 Stainless steel enclosure (default)								
	316 Stainless steel enclosure (option)								
Construction				eel enclosure					
Mounting	VESA mount 75 x 75, VESA mount 100 x 100, VESA moun								
	Yoke mount Yoke mount 200 x 100								
			1000			Yoke mount			
IP Rating	IP66/IP69K								
Dimension (mm)	399 x 324 x	440 x 290 x	432 x 358 x	470 x 388.6 x	571 x 362 x	656 x 423 x			

	52.8	55	55.3	60	55	53			
Net Weight	6.9 Kgs	TBD kgs	7.9 kgs	9.5 Kgs	9.75 Kgs	TBD kgs			
Environmental									
Operating		0~50°C 0~50°C							
temperature	(-20~60°C for optional)								
Storage temperature		-30~70°C							
Storage humidity		10 to 90% @ 40°C, non- condensing							
Certification	CE / FCC Class A								
Operating System	Windows 10 IoT 2021 LTSC								
Support	Windows 11 IoT 2024 LTSC/PRO								

### 1.3 Block Diagram



### 1.4 Dimensions



Figure 1. 1 Dimensions of VITAM-915DP/R(H)











Figure 1. 4 Dimensions of VITAM-919DP/R(H)







Figure 1. 6 Dimensions of VITAM-924DP(H)

### **1.5 Brief Description of VITAM-9XXD Series**

There are 15", 15.6", 17", 19", 21.5", and 23.8" new generation adopt the SUS304 grade stainless steel housing (SUS316 grade for option) panel PC in VITAM-9XXD series, which comes with 100% dust and waterproof guarantee, and the all-inone fanless design. It is powered by 12<sup>th</sup>/13<sup>th</sup> Gen. Intel Core i3-1215U/i5-1235U and i3-1315UE/i5-1335UE processor, 2 x SO-DIMM up to 64GB DDR4 3200MHz memory, and 1 x M.2 M-Key 2280 space for storage. VITAM-9XXD series is wide range DC 9~36V power input and IP66/IP69K rated with M12 connectors. Furthermore, the models support resistive touch and projected capacitive touch for option, and can be high brightness LCD and optical bonding designed for option. It supports touch on/off button on the side edge for hygienic cleaning and ergonomic versatile mounting: Yoke mounting and space-saving VESA mounting.



Figure 1. 7 Front View and Touch on/off Button of VITAM-9XXD Series



Figure 1. 8 Rear View of VITAM-9XXD Series

VITAM-9XXD Series User Manual

### 1.6 Yoke Mounting and VESA Mounting

The VITAM-9XXD Series model can be Yoke mounted and VESA mounted as shown in Picture below.



Figure 1. 9 Yoke mounting of VITAM-9XXD Series



Figure 1. 10 VESA mounting of VITAM-9XXD Series

### **2.1 Motherboard Introduction**

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.

### 2.2 Specifications & Dimensions

Specifications	
Board Size	146mm x 101.6mm
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)/Edp(option by BOM)
Support Resolution	HDMI: support up to 1920x1080@60Hz LVDS: support up to 1920x1200@60Hz eDP: support up to 3840x2160@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(PCIe 3.0 x4) 2280 for Storage 1 x M.2 B-Key(SATA/PCIE) 2242 for Storage(Select by BOM
Ethernet	1 x 10/100/1000M GbE LAN via intel <sup>®</sup> I210-AT controller (PXE/WOL) 1 x 10/100/1000M GbE LAN via intel <sup>®</sup> I219-V 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) 2 x USB2.0 via SHD 1.25mm 2x5pin header (F_USB1) 1x USB2.0 for M.2 B-Key 1x USB2.0 for M.2 E-Key
Serial	1 x RS-232(default)/422/485, signals select via BIOS (COM1), pin9 RI(default)/5V/12V, select via COM1_PIN9SEL. (DB9, COM1) 1 x RS-232(default)/422/485 via SHD 1.25mm 2x5pin header, signals select via BIOS (COM2) 4 x 2wired RS232 via SHD 1.25mm 2x5pin header (COM3-6)
GPIO	8-bit digital I/O by SHD 1.25mm 2x5pin header (GPIO1)
Audio	Support Audio via Realtek ALC887-VA2-CG HD audio codec Support Line-in,Line-out,MIC by SHD 1.25mm 2x5pin 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
FAN	1x 2pin fan connector
Watchdog Timer	Software programmable 1–255 level
ТРМ	Onboard TPM IC Infineon_SLB9670AQ2.0
Switches and LED Indicators	Power button/reset button/power LED/HDD LED via SHD 1.25mm 2x5pin header (F_Panel1)
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°C to 70°C Storage: -40°C to 85°C
Humidity	10% - 90% relatively, non-condensing, operating
Power Consumption	24V/1.6A (Intel i3-8145UE Processor with 16GB DDR4/HDD) 24V/2.0A (Intel i5-8365UE Processor with 16GB DDR4/HDD)
Certifications	Meet CE/FCC class A UL RoHS2.0

Dimensions: 146 x 101.6 (Unit: mm)



Figure 2. 1 Motherboard Dimensions

### 2.3 Jumpers and Connectors Location



Figure 2. 2 Jumpers and Connectors Location- Board Top





Figure 2. 3 Jumpers and Connectors Location- Board Bottom

## 2.4 Jumpers Setting and Connectors

<u>1. CPU1:</u>

### (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		Option
SBC-7134-I3 1215UE	1215UE	Up to 4.4GHz(P-Core) 3.3GHz(E- Core)	2C+4A / 8	15W-55W	Option
SBC-7134-I5 1245UE	1245UE	Up to 4.4GHz(P-Core) 3.3GHz(E- Core)	2C+8A / 12	15W-55W	Option
SBC-7134-I7 1265UE	1265UE	Up to 4.7GHz(P-Core) 3.5GHz(E- Core)	2C+8A / 12	15W-55W	Option

SBC-7134-I3 1315U	1315U	Up to 4.5GHz(P-Core) 3.3GHz(E- Core)	2C+4A / 8	15W-55W	Option
SBC-7134-I5 1335U	1335U	Up to 4.6GHz(P-Core) 3.4GHz(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
SBC-7134-I7 1365UE	1365UE	Up to 4.9GHz(P-Core) 3.7GHz(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 <DEL> 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.

ſ	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
	BKLT_PWM_OUT	3	4	BKLT_EN	
	GND	5	6	GND	
	LVDS_VDD5	7	8	LVDS_VDD5	
	LVDS_VDD3.3	9	10	LVDS_VDD3.3	
LVDS/eDP	GND	11	12	GND	LVDS/eDP
Signals	LA_D0-/EDP D0-	13	14	LA_D0+/EDP D0+	Signals
	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	21	22	LA_CLK+/EDP	

	AUX-			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	
0383	USB2 9D-	35	36	USB2 9D+	USB3
SMbus	SM bus DAT	37	38	5V_S5	
SUCIVIC	SM bus CLK	39	40	Power LED+	Power LED

9. HDMI1:



(Vertical HDMI Connector) HDMI Interface connector. HDMI 1.4, Support resolution up to 1920x1080@60Hz.

<u>10. LAN1:</u>



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

Status	Description
Green	100Mbps
Yellow	1Gbps

<u>11. LAN2:</u>



(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

#### <u>13. USB1 \ USB2:</u>

(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:

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

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

#### <u>15. COM1:</u>

(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

#### <u>17. COM2:</u>

(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

#### <u>18. COM3-6:</u>

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

Signal Name	Pin#	Pin#	Signal Name
-------------	------	------	-------------

COM3_RX	1	2	COM3_TX
COM4_RX	3	4	COM4_TX
COM5_RX	5	6	COM5_TX
COM6_RX	7	8	COM6_TX
GND	9	10	GND

#### <u>19. GPIO1:</u>

(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

Note:

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

27. AUTO BTN:

The AUTO\_BTN button allows you to select automatic power on after the motherboard is powered on.

state	function
Pin1-2 short circuit	Default: AT Mode (Auto Power ON)
Pin2-3 short circuit	ATX Mode (Manual Power ON)

### 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	
Silicon Version	-0006-000700080009 0C.00.A4.10	↔: Select Screen ↑↓: Select Item Enter: Select
System Language	[English]	+/−: Change Opt. F1: General Help
System Date System Time	[Tue 08/27/2024] [16:30:37]	F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version :	2.22.1288 Copyright (C) 2024	АМТ

#### 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	
<ul> <li>CPU Configuration</li> <li>Power &amp; Performance</li> <li>Trusted Computing</li> <li>ACPI Settings</li> <li>IT8786 Super IO Configuration</li> <li>S5 RTC Wake Settings</li> <li>USB Configuration</li> <li>Network Stack Configuration</li> <li>NVMe Configuration</li> </ul>	CPU Configuration Parameters
<ul> <li>Intel(R) I210 Gigabit Network Connection - 00:35:12:11:20:2E</li> <li>Intel(R) Ethernet Connection (16) I219-V - 00:35:12:11:20:2D</li> </ul>	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

#### 6.4.1 CPU Configuration

Advanced	Aptio Setup – AMI	
CPU Configuration ▶ Efficient-core Information ▶ Performance-core Information		Displays the E-core Information
ID Brand String	0xB06A3 13th Gen Intel(R) Core(TM) i3-1315U	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

6.4.1.1	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 &amp; Exit ESC: Exit</pre>

#### 6.4.1.2 Performance-core Information

Advanced	Aptio Setup — AMI	
Performance-core Information		
L1 Data Cache L1 Instruction Cache L2 Cache L3 Cache	48 KB x 2 32 KB x 2 1280 KB x 2 10 MB	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

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

#### 6.4.2 Power & Performance

#### 6.4.2.1 CPU-Power Management Control



Advanced	Aptio Setup — AMI	
<pre>CPU - Power Management Control Boot performance mode Intel(R) SpeedStep(tm) Intel(R) Speed Shift Technology Turbo Mode ► Config TDP Configurations</pre>	[Turbo Performance] [Enabled] [Enabled] [Enabled]	Select the performance state that the BIOS will set starting from reset vector.
	Boot performance mode Max Battery Max Non-Turbo Performance Turbo Performance	<pre>+: Select Screen 4: Select Item nter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

#### 6.4.2.1.1 Boot performance mode

6.4.2.1.2 Config TDP Configurations



Aptio Setup – AMI Advanced		
GT - Power Management Control RC6(Render Standby) Maximum GT frequency Disable Turbo GT frequency	[Enabled] [Default Max Frequency] [Disabled]	Check to enable render standby support.

#### Maximum GT frequency

Aptio Setup - AMI Advanced		
GT - Power Management Control RC6(Render Standby) Maximum GT frequency Disable Turbo GT frequency	Maximum GT frequency Default Max Frequency 100Mhz 150Mhz 200Mhz 250Mhz 300Mhz 350Mhz 400Mhz 450Mhz 500Mhz 550Mhz 600Mhz 650Mhz 700Mhz 750Mhz 800Mhz 850Mhz	Maximum GT frequency limited by the user. Choose between 100MHz (RPN) and 1250MHz RPO). Value beyond the range ill be clipped to min/max upported by SKU +: Select Screen 4: Select Item nter: Select /-: Change Opt. 1: General Help 2: Previous Values 3: Optimized Defaults
	900Mhz 950Mhz V	4: Save & Exit SC: Exit
TPM 2.0 Device Found		Enables or Disables BIOS
---	------------------	---
Firmware Version:	7.85	support for security device.
Vendor:	IFX	O.S. will not show Security
	-	Device. TCG EFI protocol and
Security Device Support	[Enable]	INT1A interface will not be
Active PCR banks Available PCR banks	SHA256 SHA256	available.
HVAIIADIE FUR DANKS	308230	
SHA256 PCR Bank	[Enabled]	
Pending operation	[None]	
Platform Hierarchy	[Enabled]	
Storage Hierarchy	[Enabled]	
Endorsement Hierarchy	[Enabled]	→+: Select Screen
Physical Presence Spec Version	[1.3]	↑↓: Select Item
TPM 2.0 InterfaceType	[TIS]	Enter: Select
Device Select	(Auto)	+/-: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults
		ESC: Exit
		F4: Save & Exit ESC: Exit

#### 6.4.3 Trusted Computing

#### 6.4.3.1 Pending operation





#### 6.4.3.2 Physical Presence Spec Version

#### 6.4.3.3 Device Select



#### 6.4.4 ACPI Settings

Advanced	Aptio Setup — AMI	
ACPI Settings Enable ACPI Auto Configuration Enable Hibernation ACPI Sleep State	[Disabled] [Enabled] [S3 (Suspend to RAM)]	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
	ACPI Sleep State Suspend Disabled S3 (Suspend to RAM)	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

#### 6.4.5 Super IO Configuration

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

#### 6.4.5.1 Serial Port 1 Configuration



#### 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 RS232 RS422 RS485	: Select Screen : Select Item ter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

6.4.5.2 Serial Port 2 Configuration







#### 6.4.5.3 Serial Port 3 Configuration



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



#### 6.4.5.5 Serial Port 5 Configuration



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

Advanced	Aptio Setup - AMI	
Watch Dog Configuration WDT Timeout Mode	[Disabled]	WDT Timeout Mode Select: Minute or Second
	WDT Timeout Mode Disabled Minute Second	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

## 6.4.5.7 Watch Dog Configuration



Advanced	Aptio Setup — AMI	
Watch Dog Configuration WDT Timeout Mode WDT Timeout Value	[Minute] <mark>30</mark>	Input Timeout Value(Range:0 – 255)
		<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
	2 22 1288 Conuright (C) 2024	AVT

VITAM-9XXD Series User Manual

### WDT Timeout Value:0~255 Second.

Advanced	Aptio Setup – AMI	
Watch Dog Configuration WDT Timeout Mode	[Second]	Input Timeout Value(Range:O – 255)
WDT Timeout Value	30	
		++: Select Screen f↓: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit
		ESC: Exit

6.4.6 S5 RTC Wake Settings

Wake system from S5       [Disabled]       Enable or disable System u         on alarm event. Select       FixedTime, system will wak         the hr::min::sec specified       Select DynamicTime, System         will wake on the current t       + Increase minute(s)         ++: Select Screen	
<pre>\$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$ \$\$</pre>	lect will wake on becified. , System urrent time s)
F3: Optimized Defaults F4: Save & Exit ESC: Exit	11(5

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 Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

### 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 Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; 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	<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 &amp; Exit ESC: Exit</pre>

#### select 0-59 for Second

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	<pre>select 0-59 for Second  **: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>



#### 6.4.7 USB Confiruration

#### 6.4.7.1 USB transfer time-out







#### 6.4.7.3 Device power-up delay



Advanced	Aptio Setup – AMI	
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack
		<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
6.4	4.8.1 PXE boot wait time	
Advanced	Aptio Setup – AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PXE Support IPv6 HTTP Support PXE boot wait time Media detect count	[Enabled] [Disabled] [Disabled] [Disabled] [Disabled] 0 1	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.
		++: 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

## 6.4.8 Network Stack Configuration

VITAM-9XXD Series User Manual



#### 6.4.8.2 Media detect count

6.4.9 NVMe Configuration

Aptio Setup - AMI Advanced	
NVMe Configuration	
▶ Netac NVMe SSD 128GB	++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

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

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

#### 6.4.10 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) PR0/1000 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]	<pre>++: Select Screen f↓: Select Item</pre>
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
		LOG - LITLE

#### **NIC Configuration**



#### 6.4.11 Intel(R) Ethernet Connention(16) I219-V



## **3.5 Chipset Settings**

Main Advanced Chipset Security	Aptio Setup – AMI Boot Save & Exit	
<ul> <li>System Agent (SA) Configuration</li> <li>PCH-IO Configuration</li> <li>LCD Control</li> </ul>		System Agent (SA) Parameters ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

## 6.4.1 System Agent (SA) Configuration

Aptio Se Chipset	etup – AMI
System Agent (SA) Configuration	Memory Configuration Parameters
/T-d Supported	t l
Memory Configuration Graphics Configuration /MD setup menu	
/T-d [Enabled]	
	++: Select Screen
	Enter: Select
	+/-: Change Opt. F1: General Help
	F2: Previous Values F3: Ontimized Defaults
	F4: Save & Exit
	ESC: Exit
	↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults

#### 6.4.1.1 Memory Configuration

Chipset	Aptio Setup — AMI	
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 †4: Select Screen †1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

### 6.4.1.2 Graphics Configuration





Aptio Setup — AMI Chipset		
VMD Configuration Enable VMD controller	[Disabled]	Enable/Disable to VMD controller
		++: Select Screen †↓: Select Item Enter: Select +/-: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

#### 6.4.1.3 VMD Configuration

6.4.2 PCH-IO Configuration





## Restore AC Power Loss: Power ON(Default)

## 6.4.2.1 SATA Configuration

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

Aptio Setup - AMI Chipset		
Software Preserve Port 1 Hot Plug Configured as eSATA External Spin Up Device SATA Device Type Topology SATA Port 1 DevSlp DITO Configuration	Unknown [Enabled] [Disabled] Hot Plug supported [Disabled] [Disabled] [Hard Disk Drive] [Unknown] [Disabled] [Disabled]	Enable/Disable 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	625 15 Empty Unknown [Enabled] [Disabled] Hot Plug supported [Disabled] [Disabled] [Hard Disk Drive] [Unknown] [Disabled] [Disabled] 625 15	<pre>++: Select Screen 1↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

Version 2.22.1288 Copyright (C) 2024 AMI





Aptio Setup – AMI Chipset		
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 fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

#### 6.4.3 LCD Control







#### 6.4.3.2 LCD Panel Select

6.4.3.3 Backlight Control





#### 6.4.3.4 Brightness Setting

## **3.6 Security Settings**

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 3		Set Administrator Password
Minimum length Maximum length Administrator Password User Password	20	<pre>++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

#### 6.6.1 Administrator Password

Aptio Setup – AMI Main Advanced Chipset Security 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 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

#### 6.6.2 User Password

Aptio Setup – AMI Main Advanced Chipset <mark>Security Boot</mark> 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: Create New Password	Set User Password
Minimum length Maximum length Administrator Password User Password	<pre>++: Select Screen  f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>

## **3.7 Boot Settings**

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

## 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 Default Options Restore Defaults Boot Override	Exit system setup after saving the changes.
	<pre> ++: Select Screen  14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save &amp; Exit ESC: Exit</pre>
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<sup>®</sup> 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

## 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.

Readme F	ile Information				inter
******	**********	******	*****	*****	****
* Packa * Insta	ct: Intel(R) ge version: 1 ller version: 10/20/2022	0.1.19284.83		re	
*******	*********	********	******	*******	******
NOTE:		ist of suppo lease Notes	orted chip	sets, plea	se refer
*******	**************************************	OCUMENT	******	*********** **************************	*****
1. Over					
	em Requiremen	ts			
C					>

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



## 4.2 Intel® HD Graphics Chipset

To install the Intel<sup>®</sup> 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.



VITAM-9XXD Series User Manual



Step 4. Click Finish to complete installation.
# 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

	InstallShield Wizard Complete The InstallShield Wizard has successfully installed Realtek Audio Driver. Before you can use the program, you must restart your computer.
	<ul> <li>Yes, I want to restart my computer now.</li> <li>No, I will restart my computer later.</li> <li>Remove any disks from their drives, and then click Finish to complete setup.</li> </ul>
InstallShied	< Back Finish Cancel

# 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 f	or Intel® Network Conn	ections.	
	OK	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<sup>®</sup> 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 next=""> Ca</back>	ncel

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

Setup	$\times$
Intel® Management Engine Components License Agreement	
INTEL SOFTWARE LICENSE AGREEMENT (OEM / IHV / ISV Distribution & Single User)	^
IMPORTANT - READ BEFORE COPYING, INSTALLING OR USING. Do not use or load software (including drivers) from this site or any associated materials (collectively, the "Software") until you have carefully read the following terms and conditions. By loading or using the Software, you agree to the terms of this Agreement, which Intel may modify from time to time following reasonable notice to You. If you do not wish to so agree, do not install or use the Software.	
Please Also Note: • If you are an Original Equipment Manufacturer (OEM), Independent Hardware Vendor (IHV) or Independent Software Vendor (ISV), this complete LICENSE AGREEMENT applies; • If you are an End-User, then only Exhibit A, the INTEL SOFTWARE LICENSE AGREEMENT, applies.	
For OEMs, IHVs and ISVs:	
LICENSE. Subject to the terms of this Agreement, Intel grants to You a nonexclusive,	¥
☑ I accept the terms in the License Agreement.	
Intel Corporation < Back Next > Cano	cel

### Step 3. Click Next to continue.

Setup	×
Intel® Management Engine Components Destination Folder	(intel)
Click Next to install to the default folder, or click Change to choose anothe	er destination folder.
C:\Program Files (x86)\Intel\Intel(R) Management Engine Components	
	Change
Intel Corporation < Back	Next > Cancel

Step 4.	Click	Finish	to	comp	lete	the	installation.
---------	-------	--------	----	------	------	-----	---------------



# 4.6 Intel® Speed Select Technology

To install the Intel<sup>®</sup> 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.



	×
🕂 📱 Update Drivers - Multimedia Audio Controller	
Browse for drivers on your computer	
Search for drivers in this location:	
ADP351_ADN351_AUDIO_DRIVER\Intel SST ADSP-10.29.00.7919-adl V Browse	
✓ Include subfolders	
→ Let me pick from a list of available drivers on my computer This list will show available drivers compatible with the device, and all drivers in the	
same category as the device.	
Next Cance	

		×
~	Update Drivers - Intel® Smart Sound Technology BUS	
	Windows has successfully updated your drivers	
	Windows has finished installing the drivers for this device:	
	Intel® Smart Sound Technology BUS	
		Close

# 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.

# PenMount Windows Universal Driver V2.4.5.355 (WHQL) Setup – Welcome to the PenMount Windows Universal Driver V2.4.5.355 (WHQL), Setup Wizard This wizard will guide you through the installation of PenMount Windows Universal Driver V2.4.5.355 (WHQL). It is recommended that you close all other applications before starting Setup. This will make it possible to update relevant system files without having to reboot your computer. Click Next to continue. Next > Cancel

#### Step 1. Click Next to continue.

Agreement Please review the license terms before installing PenMount Windows Universal Driver V2.4,5,355 (WHQL). Press Page Down to see the rest of the agreement. PLEASE READ THE LICENSE AGREEMENT PenMount touch screen driver software is only for using with PenMount touch screen controller or control board. Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.  If you accept the terms of the agreement, dick I Agree to continue. You must accept the agreement to install PenMount Windows Universal Driver V2.4,5,355 (WHQL).  Isoft Install System v2.46	PenMount Windows Universal Driver V2.4.5	5.355 (WHQL) Setup		1
V2.4.5.355 (WHQL). Press Page Down to see the rest of the agreement. PLEASE READ THE LICENSE AGREEMENT PenMount touch screen driver software is only for using with PenMount touch screen controller or control board. Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law. If you accept the terms of the agreement, dick I Agree to continue. You must accept the agreement to install PenMount Windows Universal Driver V2.4.5.355 (WHQL).	cense Agreement			2.
PLEASE READ THE LICENSE AGREEMENT PenMount touch screen driver software is only for using with PenMount touch screen controller or control board. Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.		g PenMount Windows Un	iversal Driver	
PenMount touch screen driver software is only for using with PenMount touch screen controller or control board. Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.	Press Page Down to see the rest of the agreen	nent.		
PenMount touch screen controller or control board. Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.	PLEASE READ THE LICENSE AG	GREEMENT	· · · · · · · · · · · · · · · · · · ·	
PenMount touch screen controller or control board. Any person or company using a PenMount driver on any piece of equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.	PenMount touch screen driver softwa	are is only for using	with	
equipment which does not utilize an PenMount touch screen controller will be prosecuted to the full extent of the law.		-		
will be prosecuted to the full extent of the law.	Any person or company using a Penl	Mount driver on any	piece of	
If you accept the terms of the agreement, click I Agree to continue. You must accept the agreement to install PenMount Windows Universal Driver V2.4.5.355 (WHQL).	equipment which does not utilize an F	PenMount touch scr	een controller	
agreement to install PenMount Windows Universal Driver V2.4.5.355 (WHQL).	will be prosecuted to the full extent of	f the law.		è
agreement to install PenMount Windows Universal Driver V2.4.5.355 (WHQL).	f you accept the terms of the agreement dick	T Agree to continue. Yo	u must accept the	
soft Install System v2.46				
soft Install System v2.46				
	soft Install System v2.46			_

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

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

Choose Install Location	5
Choose the folder in which to install Pe (WHQL).	enMount Windows Universal Driver V2.4.5.355
	niversal Driver V2.4.5.355 (WHQL) in the following dick Browse and select another folder. Click Install to
Destination Folder	
Destination Folder C:\Program Files (x86)\PenMount	Windows Universal Driver Browse
	Windows Universal Driver Browse
C:\Program Files (x86)\PenMount	Windows Universal Driver Browse
C:\Program Files (x86)\PenMount Space required: 0.0KB	Windows Universal Driver Browse

#### 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	
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. **VITAM-9XXD Series User Manual** 86



Plot Calibration	Check this function and a touch panel linearity
Data	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
storage	write in Controller. The default setting is
	Enable.

# Setting

🔏 Device 0 (PenMount 6000 US	B)	
Calibrate Setting Edge Comper	nsation About	
Operation Mode	Mouse Emulation	
Beep Sound	Kind of Sound	Buzzer Beep 💌
Beep Mode Beep on pen down Beep on pen yp Beep on both	Beep Frequency Beep Duration	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	и <u>т</u> ОК

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
	<b>Beep Duration – modifies sound duration</b>
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.

🟒 Device 0 (PenMou	int 6000 USB)		
Calibrate Setting E	dge Compensation About		
	DepMariat (000 LICD (10 kit)		
	PenMount 6000 USB (10-bit) Driver Version	2.4.2	
		2.4.2	
	Firmware Version	6000.6.0.0	
	Firmware Config Data	2,36864,852,32,7,500,12	
			ОК

#### **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: VITAM-9XXD Series User Manual

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	
Multiple Monitor Support	
Map Touch 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 touch the panel to calibrate in the following scree	in.

**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 Monitors Option About	
PenMount DMC9000 and DMC9100	
Driver Version 4.01	
Firmware Version	
A1.20 [COM1@19200bps] A2.00 [COM2@19200bps]	
E-mail: <u>salt@salt.com.tw</u> Website: <u>www.salt.c</u>	om.tw
Copyright(C) 2003 Salt Int'l Corp.	
	OK

#### 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	Open Control Panel Windows
Веер	Setting Beep function for each device
Right Button	When you select this function, a mouse icon appears in
VITAM-9XXD Series	User Manual 93

	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.

lease touch t	he point		

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