HPM-SRSUA

Intel® single 4th Gen. Xeon® Scalable Processor ATX Server Board with Intel® C741 Chipset and IPMI2.0 Processor supports up to 250W TDP

User's Manual

1st Ed –06 March 2023

Part No: E2047A4S000R

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(1) THIS DEVICE MAY NOT CAUSE HARMFUL INTERFERENCE.

(2) THIS DEVICE MUST ACCEPT ANY INTERFERENCE RECEIVED INCLUDING INTERFERENCE THAT MAY CAUSE UNDESIRED OPERATION.

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- 5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

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1. Getting Started

1.1 Safety Precautions

Warning!



Always completely disconnect the power cord from your chassis whenever you work with the hardware. Do not make connections while the power is on. Sensitive electronic components can be damaged by sudden power surges. Only experienced electronics personnel should open the PC chassis.

Caution!



Always ground yourself to remove any static charge before touching the CPU card. Modern electronic devices are very sensitive to static electric charges. As a safety precaution, use a grounding wrist strap at all times. Place all electronic components in a static-dissipative surface or static-shielded bag when they are not in the chassis.

1.2 Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

- 1 x HPM-SRSUA motherboard
- 1 x I/O Shield



If any of the above items is damaged or missing, contact your retailer.

1.3 Document Amendment History

Revision	Date	Ву	Comment
1 st	March 2023		Initial Release

1.4 Manual Objectives

This manual describes in details HPM-SRSUA Single Board.

We have tried to include as much information as possible but we have not duplicated information that is provided in the standard IBM Technical References, unless it proved to be necessary to aid in the understanding of this board.

We strongly recommend that you study this manual carefully before attempting to set up HPM-SRSUA or change the standard configurations. Whilst all the necessary information is available in this manual we would recommend that unless you are confident, you contact your supplier for guidance.

Please be aware that it is possible to create configurations within the CMOS RAM that make booting impossible. If this should happen, clear the CMOS settings, (see the description of the Jumper Settings for details).

If you have any suggestions or find any errors regarding this manual and want to inform us of these, please contact our Customer Service department with the relevant details.

1.5 System Specifications

System					
CPU	Supports single 4th Gen. Intel® Xeon® Scalable Processors up to 250W TDP in				
	Socket E				
BIOS	AMI UEFI BIOS				
System Chipset	Intel C741 Chipset				
System Memory	6 x DDR5 4800MT/s RDIMM up to 1.5TB				
	System reset event				
watchdog Timer	0~6553 second.				
	Temperature.				
H/W Status	Fan.				
Monitor	Voltage.				
	Case open. (1 x 2.5mm pitch Box Wafer, Pinrex 753-71-02TW07 or equivalent)				
DAID	Intel VMD and Virtual RAID on CPU(VROC)				
RAID	1 x Intel VROC header				
TDM	TPM 2.0 NuvoTon NPCT750AADYX or equivalent				
I PIVI	TCM Nationz Z32H330TC or equivalent (Optional)				
Other	IPMI 2.0 with AST 2600 BMC controller onboard.				
Expansion Slot					
	4 x PCIe Gen5 x16 slots and 3 x PCIe Gen5 x4 slots				
	Slot 1, PCIe Gen5 x16				
	Slot 2, PCIe Gen5 x4				
DOIn	Slot 3, PCIe Gen5 x16				
PCIe	Slot 4, PCIe Gen5 x4				
	Slot 5, PCIe Gen5 x16				
	Slot 6, PCIe Gen5 x4				
	Slot 7, PCIe Gen5 x16 (The slot closest to CPU)				
Storage					
MO	1 x M.2 M-Key Slot to support 1 x SATA or 1 x PCIe 3.0 x4 NVMe SSD				
IVI.Z	2242/2260/2280/22110 form factor				
CATA	5 x SATA III Supports up to 6.0 Gb/s				
SATA	(Note: SATA 1~4 support RAID 0,1,5,10)				
Edge I/O					
COM	1 x DB-9 male connector				
CON	(Connector : DB-9(male) and DB-15(female) dual port right angle)				
	5 x RJ45 (Including MGMT, LAN1, 2, 3, and 4)				
LAN	MGMT port : Dedicated IPMI function access				
	LAN 1 : 1GbE Ethernet port, LAN1 shared with IPMI function access				

	(Connector : 1 x 1G Base-T RJ45 module jack over 2 x USB 3.1 Gen1 stacked				
	receptacle)				
	LAN 2 : 2.5GbE Ethernet port				
	(Connector : 1 x 2.5G Base-T RJ45 module jack over 2 x USB 3.1 Gen1 stacked				
	receptacle)				
	LAN 3 a	nd 4 : 2 x 10GbE	Ethernet ports (Optional)		
	(Connec	tor : 1 x 2X1 100	Base-T RJ45 module jack)		
	2 x USB	2.0 type A ports	. ,		
USB 2.0	(Connector : USB 2.0 type A double stacked USB receptacle)				
	4 x USB	3.1 type A ports			
	(Connec	tor : 1 x 1G Base	e-T RJ45 module jack over 2 x USB 3.1 (Gen1 stacked	
USB 3.1	receptad	cle)	· · · · · · · · · · · · · · · · · · ·		
	(Connec	rtor : 1 x 2 5G Ba	se-T R.I45 module jack over 2 x USB 3 1	I Gen1 stacked	
	receptad				
		15 female connec	tor (Connector : DB-9(male) and DB-15/	(fomale) dual	
VGA	nort righ	t angle)		(iemale) duai	
Onhoard I/O	port righ	t angle)			
СОМ	1 x KS232 ports (1 x 2.0mm pitch Box Header)				
	Pin definition: Follow our standard.				
	4 x USB 3.1 Gen1 ports (2 x USB 3.1 Gen1 2.0mm pitch Box Header (Pinrex				
	52X-8020GB52 or equivalent)				
	Pin defir	nition :			
			Key		
	••		► Over		
	•		Current		
	Vbus	GND GND	, role and		
	Pin No.	Signal	Description		
	1	Vbus	Power		
	2	IntA_P1_SSRX+	USB3 ICC Port1 SuperSpeed Rx- USB3 ICC Port1 SuperSpeed Rx+		
USB 3.1	4	GND	GND		
	5	IntA_P1_SSTX-	USB3 ICC Port1 SuperSpeed Tx-		
	6	GND	USB3 ICC Port1 SuperSpeed Tx+		
	8	IntA_P1_D-	USB3 ICC Port1 D- (USB2 Signal D-)		
	9	IntA_P1_D+	USB3 ICC Port1 D+ (USB2 Signal D+)		
	10	ID IntA P2 D+	Over Current Protection		
	12	IntA_P2_D-	USB3 ICC Port2 D- (USB2 Signal D-)		
	13	GND	GND		
	14	IntA_P2_SSTX+	USB3 ICC Port2 SuperSpeed Tx+		
	15	GND	GND		
	17	IntA_P2_SSRX+	USB3 ICC Port2 SuperSpeed Rx+		
	18	IntA_P2_SSRX-	USB3 ICC Port2 SuperSpeed Rx-		
	19	vous	Power	l	
CPU/System FAN	1 x 4 Pir	n CPU Fan Head	er (4 Pin PWM)		

	6 x 4 Pin Chassis Fan Header (4 Pin PWM, 2 for front fans and 4 for rear fans)							
Buzzer	1 x onboard buzzer							
	1 x front panel connector (2.54 mm Pitch)							
	Pin	Functi	on	Pin	Function	Function		
	1-3	HDD L	ED	2-4	POWER L	POWER LED		
Front Donal	5-7	RESE	T BUTTON	6-8	POWER B	POWER BUTTON		
Front Panel	9-11	STATUS LED		10-12	LAN1 ACT	LAN1 ACT LED		
	13-15	UID LED		14-16	STBY POV	STBY POWER LED		
	17-19	UID B	UTTON	18-20	LAN2-X AG	LAN2-X ACT LED		
	Notes: LAN	Notes: LAN2-X ACT LED, "X" means the max number of Ethernet ports.						
RTC Battery	1 x Horizor	ntal Soc	ket Type CM	OS Battery	Holder with	CR2450		
Clear CMOS	1 x Clear C	CMOS h	eader (1 x 2.0) mm pitch	Header)			
	1 x our HD	audio i	nterface (1 x (6x2 2.0mn	n pitch wafer	connector)		
	Sign	al	Pin		Pin	Signal		
	ACZ_V	CC3	1		2	GND		
	ACZ_S	YNC	3		4	ACZ_BITC	CLK	
Audio	ACZ_SDOUT		5		6	ACZ_SDI	N0	
	ACZ_SDIN1		7		8	ACZ_RS	T#	
	ACZ_5VSB		9		10	GND-Cha	ssis	
	GND		11		12	NC		
Display								
Onembie Obinest	1 x VGA port (DB15 on edge I/O)							
Graphic Chipset	AST2600 BMC controller							
Spec. & Resolution	1920 x 120	0@60H	lz 32bpp					
Audio								
Audio Codec	ALC888S	hrough	our HD Audio	o daughter	board.			
Ethernet								
	1 x Intel I2	1 x Intel I210AT						
LAN Chipset	1 x Intel I226-LM							
	1 x Intel X550-AT2 (Optional)							
	1 x 1G Base-T Ethernet Controller							
LAN Spec.	1 x 2.5G Base-T Ethernet controller							
	1 x Dual 10G Base-T Ethernet controller (Optional)							
Mechanical &								
Environmental	ntal							
Power Requirement	1 x Std. 24	pin AT	X Connector					
	3 x 8 Pin S	SI 12V	Connectors					
ACPI	Yes							
Power Mode	H/W: ATX power well design only							

	BMC: AT (Default)				
Operating Tomp	0 °C to 60 °C (without Intel X550)				
Operating remp.	0 °C to 55 °C (with Intel X550)				
Storage Temp.	-40 °C to 85 °C				
Operating Humidity	40°C 95% non-condensing				
Size (L x W)					
(Please consult product	ATX form factor 12" x 9.6" (304.8mm x 243.84mm) PCB thickness is 2.54mm				
engineers for the production					
feasibility if the size is larger					
than 410x360mm or smaller					
than 80x70mm)					
Weight	1.19KG				
	Follow our standard test.				
	Random Vibration Operation				
	1 Test PSD : 0.00454G²/Hz , 1.5 Grms				
	2 System condition : operation mode				
	3 Test frequency : 5~500 Hz				
	4 Test axis : X,Y and Z axis				
	5 Test time : 30 minutes per each axis				
	6 IEC60068-2-64 Test Fh				
	6 Storage : mSATA				
	Random vibration test (Non-operation)				
Vibration Tost	1 PSD: 0.00808G²/Hz , 2.0 Grms				
VIDIATION TEST	2 Non-Operation mode				
	3 Test Frequency : 5-500Hz				
	4 Test Axis : X,Y and Z axis				
	5 30 min. per each axis				
	6 IEC 60068-2-64 Test:Fh				
	Package Vibration Test:				
	1 Test PSD : 0.026G²/Hz , 2.16 Grms				
	2 Test frequency : 5~500 Hz				
	3 Test axis : X,Y and Z axis				
	4 Test time : 30 minutes per each axis				
	5 IEC 60068-2-64 Test Fh				
	Follow our standard test.				
Dren Test	Reference ISTA 2A, Method : IEC-60068-2-32 Test:Ed				
Drop Test	Test Ea : Drop Test				
	1 Test phase : One corner, three edges, six faces				

	2 Test high : 96.5cm
	3 Package weight : 5Kg
	4 Test drawing
	Windows :
	Windows 10 IoT Enterprise LTSC 2021.
	Windows 11 IoT Enterprise.
OS Information	Windows Server IoT 2019 with VT-d disabled.
03 mormation	Windows Server IoT 2022.
	Linux :
	Ubuntu 20.04 LTS or later
	Red Hat Enterprise Linux (RHEL) 8.2 and later



Note: Specifications are subject to change without notice.

*Install 1/2/4/6 RAM

	HPM-SRSUA DIMM Sockets						
	DIMM1	DIMM2	DIMM3	DIMM4	DIMM5	DIMM6	
1 DIMM	V						
1 DIMM		V					
1 DIMM				V			
2 DIMMs	V				V		
2 DIMMs			V	V			
4 DIMMs	V		V	V	V		
6 DIMMs	V	V	V	V	V	V	

Sapphire Rapids DDR5 only DIMM configurations Diagram

1.6 Architecture Overview—Block Diagram

The following block diagram shows the architecture and main components of HPM-SRSUA.



2. Hardware Configuration

2.1 Product Overview



2.2 Jumper and Connector List

You can configure your board to match the needs of your application by setting jumpers. A jumper is the simplest kind of electric switch.

It consists of two metal pins and a small metal clip (often protected by a plastic cover) that slides over the pins to connect them. To "close" a jumper you connect the pins with the clip. To "open" a jumper you remove the clip. Sometimes a jumper will have three pins, labeled 1, 2, and 3. In this case, you would connect either two pins.



The jumper settings are schematically depicted in this manual as follows:

0 0		1 2 3 O •••
Open	Closed	Closed 2-3

A pair of needle-nose pliers may be helpful when working with jumpers.

Connectors on the board are linked to external devices such as hard disk drives, a keyboard, or floppy drives. In addition, the board has a number of jumpers that allow you to configure your system to suit your application.

If you have any doubts about the best hardware configuration for your application, contact your local distributor or sales representative before you make any changes.

Jumpers		
Label	Function	Note
JPFLASHSEC	Flash Security Override	3 x 1 header, pitch 2.00mm
JPME1	ME FW update	3 x 1 header, pitch 2.00mm
JPALLPWRON1	Force PWRON setting	3 x 1 header, pitch 2.00mm
JPBAT1	Clear CMOS	3 x 1 header, pitch 2.00mm
JPBOOT_UART5	Boot UART5 setting	3 x 1 header, pitch 2.00mm

The following tables list the function of each of the board's jumpers and connectors.

Connectors		
Label	Function	Note
SYS_FAN1	System fan connector 1	4 x 1 wafer, pitch 2.54mm
SYS_FAN2	System fan connector 2	4 x 1 wafer, pitch 2.54mm
SYS_FAN3	System fan connector 3	4 x 1 wafer, pitch 2.54mm
SYS_FAN4	System fan connector 4	4 x 1 wafer, pitch 2.54mm

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SYS_FAN5	System fan connector 5	4 x 1 wafer, pitch 2.54mm
SYS_FAN6	System fan connector 6	4 x 1 wafer, pitch 2.54mm
CPU_FAN1	CPU fan connector	4 x 1 wafer, pitch 2.54mm
	Serial port 1 connector	
	VGA connector	
JCOM2	Serial port 2 connector	5 x 2 wafer, pitch 2.00mm
JCOM5	BMC_UART5 debug connector	4 x 1 header, pitch 2.54mm
MGMT1	MGMT port	
JSGPIO1	Serial General Purpose I/O connector	3 x 2 wafer, pitch 2.00mm
PCIE1	PCIe Gen5 x16	
PCIE2	PCIe Gen5 x4	
PCIE3	PCIe Gen5 x16	
PCIE4	PCIe Gen5 x4	
PCIE5	PCIe Gen5 x16	
PCIE6	PCIe Gen5 x4	
PCIE7	PCIe Gen5 x16 (The slot closest to	
	CPU)	
JFP1	Front Panel connector	10 x 2 wafer, pitch 2.54mm
	2 x USB3.1 Gen1 connector	
USB_LAN1	1 x RJ-45 Ethernet (LAN1 Share	
	IPMI Port)	
USB_LAN2	2 x USB3.1 Gen1 connector	
	1 x RJ-45 Ethernet	
	2 x RJ-45 Ethernet	
USB1	2 x USB2.0 connector	40.0
JUSB1	USB3.1 Gen1 connector 1	10 x 2 wafer, pitch 2.00mm
JUSB2	USB3.1 Gen1 connector 2	10 x 2 water, pitch 2.00mm
JSPI1	SPI connector	4 x 2 header, pitch 2.00mm
JESPI1	ESPI connector	6 x 2 header, pitch 2.00mm
SATA1-5	5 x Serial ATA connector	
JRAID_KEY1	SATA RAID KEY connector	4 x 1 header, pitch 2.00mm
DIMM1-6	6 x DDR5 RDIMM socket	
JVR_PRG1	SMBUS VR connector	3 x 1 header, pitch 2.54mm
JCASE_OPEN1	CASE OPEN connector	2 x 1 wafer, pitch 2.50mm
ATX12V1	ATX 12V power connector 1	4 x 2 wafer, pitch 4.20mm
ATX12V2	ATX 12V power connector 2	4 x 2 wafer, pitch 4.20mm

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ATX12V3	ATX 12V power connector 3	4 x 2 wafer, pitch 4.20mm
ATXPWR1	ATX power connector	12 x 2 wafer, pitch 4.20mm
JPMBUS1	Power supply PMBus connector	5 x 1 wafer, pitch 2.54mm
JINLET_SER1	Inlet Thermal Sensor	4 x 1 wafer, pitch 2.00mm
JOUTLET_SER1	Outlet Thermal Sensor	4 x 1 wafer, pitch 2.00mm
JHDD_SER1	HDD Backplane thermal Sensor	5 x 1 wafer, pitch 2.00mm
JPEHPSMB1	CPU PCIE HP SMB connector	5 x 1 header, pitch 2.00mm
JAUDIO1	AZALIA connector	6 x 2 header, pitch 2.00mm
M2(NGFF)1	M.2 M-Key PCIe 3.0 x4 NVMe SSD	
JCPLD_JTAG1	CPLD JTAG header	5 x 2 header, pitch 2.54mm

2.3 Setting Jumpers & Connectors

2.3.1 Flash Security Override (JPFLASHSEC)



* Default

2.3.2 ME FW update (JPME1)



* Default





Enable



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ME Force Update



2.3.3 Force PWRON setting (JPALLPWRON1)



□ 3

Normal Operation*



Enable Force PWR-ON



* Default

2.3.4 Clear CMOS (JPBAT1)



* Default

Normal Operation*



Clear RTC REGISTERS



2.3.5 Boot UART5 setting (JPBOOT_UART5)



Disable*



Enable BOOT FROM UART5



* Default

2.3.6 CPLD JTAG header (JCPLD_JTAG1)



9		1

Signal	PIN	PIN	Signal
JTAG_TCK	1	2	GND
JTAG_TDO	3	4	+3.3VSB
JTAG_TMS	5	6	NC
NC	7	8	NC
JTAG_TDI	9	10	GND

2.3.7 System fan connector 1 (SYS_FAN1)



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Signal	PIN
GND	1
+12V	2
FAN_TACH1	3
SYS_PWM1	4

2.3.8 System fan connector 2 (SYS_FAN2)



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Signal	PIN
GND	1
+12V	2
FAN_TACH2	3
SYS_PWM2	4



2.3.9 System fan connector 3 (SYS_FAN3)



Signal	PIN
GND	1
+12V	2
FAN_TACH3	3
SYS_PWM3	4

2.3.10 System fan connector 4 (SYS_FAN4)





Signal	PIN
GND	1
+12V	2
FAN_TACH4	3
SYS_PWM4	4



2.3.11 System fan connector 5 (SYS_FAN5)

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Signal	PIN
GND	1
+12V	2
FAN_TACH5	3
SYS_PWM5	4

2.3.12 System fan connector 6 (SYS_FAN6)



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Signal	PIN
GND	1
+12V	2
FAN_TACH6	3
SYS_PWM6	4



2.3.13 CPU fan connector (CPU_FAN1)



Signal	PIN
GND	1
+12V	2
FAN_TACH0	3
CPU0_PWM	4

2.3.14 SPI connector (JSPI1)



1		7

Signal	PIN	PIN	Signal
+3.3VSB	1	2	GND
SPI_CS#	3	4	SPI_CLK
SPI_MISO	5	6	SPI_MOSI
SPI_IO3	7	8	SPI_IO2







Signal	PIN	PIN	Signal
COM_DCD#2	1	2	COM_RXD2
COM_TXD2	3	4	COM_DTR#2
GND	5	6	COM_DSR#2
COM_RTS#2	7	8	COM_CTS#2
COM_RI#2	9	10	NC

2.3.16 BMC_UART5 debug connector (JCOM5)



	4
	1

Signal	PIN
+3.3VSB	4
GND	3
UART5_RX	2
UART5_TX	1

2.3.17 Serial General Purpose I/O connector (JSGPIO1)





Signal	PIN	PIN	Signal
GND	2	1	GND
SGPIO_SATA0_DATA0	4	3	SGPIO_SATA0_LOAD
NC	6	5	SGPIO_SATA0_CLOCK

2.3.18 ATX 12V power connector 1 (ATX12V1)





Signal	PIN	PIN	Signal
GND	1	5	+12V
GND	2	6	+12V
GND	3	7	+12V
GND	4	8	+12V

2.3.19 ATX 12V power connector 2 (ATX12V2)





Signal	PIN	PIN	Signal
GND	1	5	+12V
GND	2	6	+12V
GND	3	7	+12V
GND	4	8	+12V

2.3.20 ATX 12V power connector 3 (ATX12V3)





Signal	PIN	PIN	Signal
GND	1	5	+12V
GND	2	6	+12V
GND	3	7	+12V
GND	4	8	+12V



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Signal	PIN	PIN	Signal
+3.3V	1	13	+3.3V
+3.3V	2	14	-12V
GND	3	15	GND
+5V	4	16	PSON#
GND	5	17	GND
+5V	6	18	GND
GND	7	19	GND
PSU_PWRGD	8	20	NC
+V5SB	9	21	+5V
+12V	10	22	+5V
+12V	11	23	+5V
+3.3V	12	24	GND

2.3.22 Power supply PMBus connector (JPMBUS1)





Signal	PIN
SMB_PSU_SCL	1
SMB_PSU_SDA	2
SMB_PSU_ALERT#	3
GND	4
NC	5

2.3.21 ATX power connector (ATXPWR1)



2.3.23 USB3.1 Gen1 connector 1 (JUSB1)



Signal	PIN	PIN	Signal
		1	+5V
+5V	19	2	USB3_RN4
USB3_RN5	18	3	USB3_RP4
USB3_RP5	17	4	GND
GND	16	5	USB3_TN4
USB3_TN5	15	6	USB3_TP4
USB3_TP5	14	7	GND
GND	13	8	USB3_PN8
USB3_PN9	12	9	USB3_PP8
USB3_PP9	11	10	USB_OC1#

2.3.24 USB3.1 Gen1 connector 2 (JUSB2)



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Signal	PIN	PIN	Signal
		1	+5V
+5V	19	2	USB3_RN6
USB3_RN7	18	3	USB3_RP6
USB3_RP7	17	4	GND
GND	16	5	USB3_TN6
USB3_TN7	15	6	USB3_TP6
USB3_TP7	14	7	GND
GND	13	8	USB3_PN11
USB3_PN13	12	9	USB3_PP11
USB3_PP13	11	10	USB_OC2#

2.3.25 Front Panel connector (JFP1)



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Signal	PIN	PIN	Signal				
LAN2-X_LED#	20	19	GND				
LAN2-X_LED_P	18	17	UID_BUTTON#				
GND	16	15	UID_LED_P				
SBPWRLED_P	14	13	UID_LED#				
LAN1_LED#	12	11	STATUS_LED#				
LAN1_LED_P	10	9	STATUS_LED_P				
GND	8	7	GND				
PWRON_BUTTON#	6	5	RESET_BUTTON#				
PWR_LED#	4	3	HDD_LED#				
+3.3VSB	2	1	HDD_LED_P				

19

2.3.26 Inlet Thermal Sensor (JINLET_SER1)





Signal	PIN		
+3.3VSB			
SMB_INLET_TEMPSENSOR_SDA			
SMB_INLET_TEMPSENSOR_SCL			
GND	4		

2.3.27 Outlet Thermal Sensor (JOUTLET_SER1)



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Signal	PIN
+3.3VSB	1
SMB_OUTLET_TEMPSENSOR_SDA	2
SMB_OUTLET_TEMPSENSOR_SCL	3
GND	4

2.3.28 HDD Backplane thermal Sensor (JHDD_SER1)





Signal	PIN
+3.3VSB	1
SMB_HDBP_TEMPSENSOR_SDA	2
SMB_HDBP_TEMPSENSOR_SCL	3
GND	4
SSD LED N	5


2.3.29 CASE OPEN connector (JCASE_OPEN1)

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Signal	PIN
CHASSIS_INTRUSION	1
GND	2

2.3.30 SATA RAID KEY connector (JRAID_KEY1)





Signal	PIN
GND	1
PU_KEY_CONN	2
GND	3
PCH_SATA_RAIDKEY	4

2.3.31 CPU PCIE HP SMB connector (JPEHPSMB1)





Signal	PIN
SMB_CPUHP_SCL	1
GND	2
SMB_CPUHP_SDA	3
GND	4
SMB_CPUHP_ALERT#	5

2.3.32 ESPI connector (JESPI1)



1			11

Signal	PIN	PIN	Signal
ESPI_D0	1	2	+3.3VSB
ESPI_D1	3	4	PLTRST#
ESPI_D2	5	6	ESPI_CS#
ESPI_D3	7	8	ESPI_CLK
NC	9	10	GND
ESPI_RESET#	11	12	ESPI_ALERT#

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2.3.33 AZALIA connector (JAUDIO1)



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Signal	PIN	PIN	Signal
+3.3V	1	2	GND
AUD_AZA_SYNC	3	4	AUD_AZA_BCLK
AUD_AZA_SDO	5	6	AUD_AZA_SDI0
AUD_AZA_SDI1	7	8	AUD_AZA_RST_N
+5VSB	9	10	GND
GND	11	12	NC

2.3.34 SMBUS VR connector (JVR_PRG1)



	1

Signal	PIN
SMB_VR_SDA	1
GND	2
SMB_VR_SCL	3



3.1 Introduction

The BIOS setup program allows users to modify the basic system configuration. In this following chapter will describe how to access the BIOS setup program and the configuration options that may be changed.

3.2 Starting Setup

AMI BIOS[™] is immediately activated when you first power on the computer. The BIOS reads the system information contained in the NVRAM and begins the process of checking out the system and configuring it. When it finishes, the BIOS will seek an operating system on one of the disks and then launch and turn control over to the operating system.

While the BIOS is in control, the Setup program can be activated in one of two ways: By pressing <ESC> or immediately after switching the system on, or By pressing the < ESC> or key when the following message appears briefly at the left-top of the screen during the POST (Power On Self Test).

Press <ESC> or to enter SETUP

If the message disappears before you respond and you still wish to enter Setup, restart the system to try again by turning it OFF then ON or pressing the "RESET" button on the system case. You may also restart by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

3.3 Using Setup

In general, you use the arrow keys to highlight items, press <Enter> to select, use the PageUp and PageDown keys to change entries, press <F1> for help and press <Esc> to quit. The following table provides more detail about how to navigate in the Setup program using the keyboard.

Button	Description
1	Move to previous item
\downarrow	Move to next item
<i>←</i>	Move to the item in the left hand
\rightarrow	Move to the item in the right hand
Esc key	Main Menu Quit and not save changes into NVRAM Status Page Setup Menu and Option Page Setup Menu Exit current page and return to Main Menu
+ key	Increase the numeric value or make changes
- key	Decrease the numeric value or make changes
F1 key	General help, only for Status Page Setup Menu and Option Page Setup Menu
F2 key	Previous Values
F3 key	Optimized defaults
F4 key	Save & Exit Setup

• Navigating Through The Menu Bar

Use the left and right arrow keys to choose the menu you want to be in.

Note: Some of the navigation keys differ from one screen to another.

• To Display a Sub Menu

Use the arrow keys to move the cursor to the sub menu you want. Then press <Enter>. A " \geq " pointer marks all sub menus.

3.4 Getting Help

Press F1 to pop up a small help window that describes the appropriate keys to use and the possible selections for the highlighted item. To exit the Help Window press <Esc> or the <Enter> key again.

3.5 In Case of Problems

If, after making and saving system changes with Setup, you discover that your computer no longer is able to boot, the AMI BIOS supports an override to the NVRAM settings which resets your system to its defaults.

The best advice is to only alter settings which you thoroughly understand. To this end, we strongly recommend that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both BIOS Vendor and your systems manufacturer to provide the absolute maximum performance and reliability. Even a seemingly small change to the chipset setup has the potential for causing you to use the override.

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Once you enter the Aptio Setup Utility, the Main Menu will appear on the screen. The Main Menu allows you to select from several setup functions and exit choices. Use the arrow keys to select among the items and press <Enter> to accept and enter the sub-menu.

3.6.1 Main Menu

This section allows you to record some basic hardware configurations in your computer and set the system clock.

Main Advanced Platform Config	Aptio Setup – AMI Socket Config Server Mgmt S	ecurity Boot Save & Exit
BIOS Information BIOS Vendor Core Version Compliancy Project Version Build Date and Time Access Level	American Megatrends 5.29 UEFI 2.8; PI 1.7 OACOR 0.70 x64 02/20/2023 17:46:33 Administrator	Set the Time. Use Tab to switch between Time elements.
Platform Information Platform Processor PCH RC Revision BIOS ACM SINIT ACM	TypeArcherCityRP 806F8 - SPR-SP E5 EBG A0/A1/B0/B1 SKU - B1 93.D22 1.1.1 1.1.1	++: Select Screen 14: Select Item
Memory Information Total Memory BIOS Name	16384 MB HPSRSU10	Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values
BIOS Version System Language	0.10 [English]	F3: Optimized Defaults F4: Save & Exit ESC: Exit
System Date System Time	[Tue 03/07/2023] [15:08:21]	
	n 2.22.1287 Copyright (C) 2023	AMI

3.6.1.1 System Language

This option allows choosing the system default language.

3.6.1.2 System Date

Use the system date option to set the system date. Manually enter the Month, day and year.

3.6.1.3 System Time

Use the system time option to set the system time. Manually enter the hours, minutes and seconds.



Note: The BIOS setup screens shown in this chapter are for reference purposes only, and may not exactly match what you see on your screen.

3.6.2 Advanced Menu

This section allows you to configure your CPU and other system devices for basic operation through the following sub-menus.

Main Advanced Platform Config	Ap Socket	tio Setu Config	p – AMI Server	Mgmt	Security	Boot	Save & Exit
Trusted Computing ACPI Settings AST2600 Super ID Configuration Serial Port Console Redirection Option ROM Dispatch Policy USB Configuration Network Stack Configuration NVMe Configuration Intel(R) Ethernet Controller X550 Intel(R) Ethernet Controller X550	- 00:0 - 00:0	4:5F:96: 4:5F:96:	D1:AD D1:AE		Trusted	Compu	ting Settings
Uriver Health					<pre>++: Sel f↓: Sel Enter: +/-: Ch F1: Gen F2: Pre F3: Opt F4: Sav ESC: Ex</pre>	ect Sc ect It Select ange O eral H vious imized e & Ex it	reen em pt. elp Values Defaults it
Versio	n 2.22.	1287 Cop	yright	(C) 20	23 AMI		

3.6.2.1 Trusted Computing



Item	Options	Description
Security Device Support	Disable, Enable [Default]	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.

SHA256 PCR Bank	Disabled, Enabled [Default]	Enables or Disables SHA256 PCR Bank.	
SHA384 PCR Bank	Disabled [Default] , Enabled	Enables or Disables SHA384 PCR Bank.	
Pending operation None[Default] TPM Clear		Schedule an Operation for the Security Device. NOTE: Your Computer will reboot during restart in order to change State of Security Device.	
Physical Presence Spec	1.2	Select to Tell O.S. to support PPI Spec Version 1.2	
Version	1.3[Default]	or1.3 Note some HCK tests might not support 1.3.	
Device Select	TPM 2.0 [Default] Auto	TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated.	

3.6.2.2 ACPI Settings

Advanced	Aptio Setup – AMI	
ACPI Settings		Enables or Disables BIOS ACPI
Enable ACPI Auto Configuration		Hato configuration.
Enable Hibernation	[Enabled]	
		14: Select Item
		Enter: Select +/−: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version	2.22.1287 Copyright (C) 20	23 AMI

Item	Options	Description	
Enable ACPI Auto	Disabled[Default]	Enchlos or Dischlos PIOS ACRI Auto Configuration	
Configuration	Enabled	Ellables of Disables BIOS ACFT Auto Configuration.	
	Dischlad	Enables or Disables System ability to Hibernate	
Enable Hibernation	Enabled[Default]	(OS/S4 Sleep State). This option may not be effective	
		with some operating systems.	

3.6.2.3 AST2600 Super IO Configuration

Advanced	Aptio Setup — AMI	
AST2600 Super ID Configuration	0579600	Set Parameters of Serial Port 1 (COMA)
Serial Port 1 Configuration ▶ Serial Port 2 Configuration	H312000	
		<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>
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Item	Description	
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA).	
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB).	

3.6.2.3.1 Serial Port 1 Configuration

Ad	vanced	Aptio Setup – AMI	
Serial Po	rt 1 Configuration		Enable or Disable Serial Port
Serial Po Device Se	nt ttings	[Enabled] IO=3F8h; IRQ=4;	
			++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Ver	sion 2.22.1287 Copyright (C) 2023 AMI
em	0	ption	Description
	Enabled	[Default]	•

Disabled Disable of Disable Centary of (COM).	Serial Port	Enabled [Default] , Disabled	Enable or Disable Serial Port (COM).
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3.6.2.3.2 Serial Port 2 Configuration

Advanced	Aptio Setup – AMI	
Serial Port 2 Configuration		Enable or Disable Serial Port
Serial Port Device Settings	[Enabled] IO=2F8h; IRQ=3;	
		<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>
Versi	on 2.22.1287 Copyright (C) 2	023 AMI

ltem	Option	Description
Serial Port	Enabled [Default] , Disabled	Enable or Disable Serial Port (COM).

3.6.2.4 Serial Port Console Redirection

Advanced	Aptio Setup – AMI	
COMO Console Redirection ▶ Console Redirection Settings	[Disabled]	Console Redirection Enable or Disable.
COM1(Pci Bus0,Dev0,Func0) (Disabled) Console Redirection	Port Is Disabled	
Serial Port for Out-of-Band Managemen Windows Emergency Management Services Console Redirection EMS ▶ Console Redirection Settings	nt∕ s (EMS) [Disabled]	
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Item	Options	Description
Console Redirection	Disabled [Default] , Enabled	Console Redirection Enable or Disable.

Console Redirection EMS	Disabled [Default] , Enabled	Console Redirection Enable or Disable.
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3.6.2.4.1 COM0

Advanced	Aptio Setup – AMI	
COMO Console Redirection Settings Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Putty KeyPad	[ANSI] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [Disabled] [VT100]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100Plus: Extends VT100 to support color, function Keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Item	Option	Description
Terminal Type	VT100 VT100Plus VT-UTF8 ANSI [Default]	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100Plus: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.
Bits per second	9600 19200 38400 57600 115200 [Default]	Selects serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.
Data Bits	7 8 [Default]	Data Bits.
Parity	None [Default] Even Odd Mark Space	A parity bit can be sent with the data bits to detect some transmission errors. Even: parity bit is 0 if the num of 1's in the data bits is even. Odd: parity bit is 0 if num of 1's in the data bits is odd. Mark: parity bit is always 1. Space: Parity bi is always 0. Mark and Space Parity do not allow for error detection.
Stop Bits	1 [Default] 2	Stop bits indicate the end of a serial data packet. (A start bit indicates the beginning). The standard setting is 1 stop bit. Communication with slow devices may require more than 1 stoop bit.
Flow Control	None [Default] Hardware RTS/CTS	Flow control can prevent data loss from buffer overflow. When sending data, if the receiving

		buffers are full, a 'stop' signal can be sent to stop	
		the data flow. Once the buffers are empty, a	
		'start' signal can be sent to re-start the flow.	
		Hardware flow control uses two wires to send	
		start/stop signals.	
VT-UTF8 Combo Key	Disabled	Enable VT-UTF8 Combination Key Support for	
Support	Enabled[Default],	ANSI/VT100 terminals.	
Decender Mede	Disabled[Default],	With this mode enabled only text will be sent.	
Recorder Mode	Enabled	This is to capture Terminal data.	
Peoplution 100x21	Disabled[Default],	Enables or disables ovtended terminal resolution	
Resolution 100x31	Enabled		
	VT100[Default]		
	LINUX		
Putty KeyPad	XTERMR6	Select Eurotion Key and Key Red on Butty	
	SCO		
	ESCN		
	VT400		

3.6.2.5 Option ROM Dispatch Policy

Advanced	Aptio Setup – AMI	
AMI ROM Dispatch Policy : A5.01.29 Restore if Failure	[Enabled]	If system fails to boot and this option is set to
Primary Video Ignore	[Enabled]	'Enabled', software will reset settings of this page as well
Device Group Default ROM Policy (CSM not Active) – 'UEFI' used:		as CSM page to its default values automatically.
Device Class Option ROM Dispatch Pol	icy:	
On Board Mass Storage Controller	[Enabled]	
On Board Mass Storage Controller	[Enabled]	
On Board Display Controller	[Enabled]	
On Board Network Controller	[Enabled]	
Slot # 1 Empty	[Enabled]	
Slot # 2 Empty	[Enabled]	++: Select Screen
Slot # 3 Empty	[Enabled]	II: Select Item
Slot # 4 Empty	[Enabled]	Enter: Select
Slot # 6 Empty	[EndDieu]	+/-: Unange upt.
Slot # 7 Empty	[Enabled]	F1. General netp F2: Provinus Values
STOC # 1 Empty	[Endbied]	F3: Ontimized Defaults
WARNING: Changing Device(s) Ontion R	юм	F4: Save & Evit
dispatch policu mau affect sustem's	ahilitu	ESC: Exit
to post and/or boot/PROCEED WITH CAUTION!		
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ltem	Options	Description
Restore if Failure	Disabled Enabled [Default] ,	If system fails to boot and this option is set to 'Enabled', software will reset settings of this page as well as CSM page to its default values automatically.
Primary Video Ignore	Disabled Enabled [Default] ,	If software will detect that due to the Policy settings. Option ROM of Primary Video Device will not dispatch, it will ignore this device policy settings, and restore it to 'Enable' automatically.
Onboard Mass Storage Controller	Enabled[Default],	Onboard Device has:

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	Disabled	UEFI [X]
		Legacy [X]
		Embedded ROM(s).
		VIDx8086; DIDxA1D2
		@ s0 Bx0 Dx11 Fx5
		Onboard Device has:
		UEFI [X]
	Enabled[Default],	Legacy [X]
Onboard Display Controller	Disabled	Embedded ROM(s).
		VIDx1A03; DIDx2000
		@ s0 BxA Dx0 Fx0
		Onboard Device has:
		UEFI [X]
Only a and Mature de Controllar	Enabled[Default],	Legacy [X]
Onboard Network Controller	Disabled	Embedded ROM(s).
		VIDx8086; DIDx1533
		@ s0 Bx6 Dx0 Fx0
	Enabled[Default],	Enable or Disable Option ROM execution for
Slot#1 Empty	Disabled	selected Slot.
	Enabled[Default],	Enable or Disable Option ROM execution for
Slot#2 Empty	Disabled	selected Slot.
Slot#2 Empty	Enabled[Default],	Enable or Disable Option ROM execution for
Slot#3 Empty	Disabled	selected Slot.
	Enabled[Default],	Enable or Disable Option ROM execution for
Slot#4 Empty	Disabled	selected Slot.
	Enabled[Default],	Enable or Disable Option ROM execution for
Slot#5 Empty	Disabled	selected Slot.
	Enabled[Default],	Enable or Disable Option ROM execution for
	Disabled	selected Slot.
Slot#7 Empty	Enabled[Default],	Enable or Disable Option ROM execution for
	Disabled	selected Slot.

3.6.2.6 USB Configuration

The USB Configuration menu helps read USB information and configures USB settings.

Aptio Setup - AMI Advanced		
USB Configuration		Fnables Legacy USB support.
USB Module Version	31	AUTO option disables legacy support if no USB devices are
USB Controllers:		connected. DISABLE option will keep USB devices available
USB Devices:	2 Hube	only for LFT applications.
5 Di IVES, 2 KEYDUALUS, 2 MILE	, z hubs	
Legacy USB Support	[Enabled]	
XHCI Hand-ott	[Enabled]	
USB Mass Storage Driver Support	[Enabled]	
Port 60/64 Emulation	[Enabled]	Mar Onland, Orman
UCD handware delays and time autor		the Select Screen
USB hardware delays and time-outs:	[20, 202]	T+: Select Item
Device peeet time out	[20 SEC]	Enter: Select
Device reset time-out	[20 SEC]	F1: Concel Hole
Device power-up delag	(Huto)	E2: Require Values
Mass Stopade Devices:		E3: Ontimized Defaults
ADATA USB Flash Drive 1100	[Auto]	F4: Save & Exit
AMI Virtual CDROMO 1.00	[Auto]	FSC: Exit
AMI Virtual HDisk0 1 00	[Auto]	
AMI Virtual CDROM1 1.00	[Auto]	
AMI Virtual CDROM2 1.00	[Auto]	▼

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Item	Options	Description
Legacy USB Support	Enabled [Default] , Disabled Auto	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
XHCI Hand-off	Enabled [Default] , Disabled	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.
USB Mass Storage Driver Support	Disabled Enabled [Default]	Enable/Disable USB Mass Storage Driver
Port 60/64 Emulation	Disabled Enabled [Default] ,	Enables I/O port 60h/64h emulation support. This should be enabled for the complete USB keyboard legacy support for non-USB aware OSes.
USB transfer time-out	1 sec 5 sec 10 sec 20 sec [Default]	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 sec 20 sec [Default] 30 sec 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	Auto [Default] Manual	Maximum time the device will 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.

User's Manual

	Auto[Default]	Mass storage device emulation type. 'AUTO'
	Floppy	enumerates devices according to their media
Mass Storage Devices	Forced FDD	format. Optical drives are emulated as
	Hard Disk	'CDROM', drives with no media will be
	CD-ROM	emulated according to a drive type.

3.6.2.7 Network Stack Configuration

Advanced	Aptio Setup – AMI	
Network Stack	[Disabled]	Enable/Disable UEFI Network Stack
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
	Version 2.22.1287 Copyright (C) 2023 AMI

Item	Options	Description
Network Stack	Enabled Disabled [Default]	Enable/Disable UEFI Network Stack.

Advanced	Aptio Setup – AMI	
Network Stack IPv4 PXE Support IPv4 HTTP Support IPv6 PXE Support PXE boot wait time Media detect count	[Enabled] [Disabled] [Disabled] [Disabled] [Disabled] 0 1	Enable/Disable UEFI Network Stack ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Options	Description	
Network Stack	Enabled [Default] Disabled	Enable/Disable UEFI Network Stack.	
	Disabled[Default]	Enable/Disable IPv4 PXE boot Support. If disabled,	
IPV4 PXE Support	Enabled	IPv4 PXE boot support will not be available.	
	Disabled[Default]	Enable/Disable IPv4 HTTP boot Support. If disabled,	
IPV4 HTTP Support	Enabled	IPv4 HTTP boot support will not be available.	
	Disabled[Default]	Enable/Disable IPv6 PXE boot Support. If disabled,	
IPV6 PXE Support	Enabled	IPv6 PXE boot support will not be available.	
IPv6 HTTP Support	Disabled [Default] Enabled	Enable/Disable IPv6 HTTP boot Support. If disabled,	
		IPv6 HTTP boot support will not be available.	
		Wait time in seconds to press ESC key to abort the	
PXE boot wait time	0	PXE boot. Use either +/- or numeric keys to set the	
		value.	
	1	Number of times the presence of media will be	
Media detect count		checked. Use either +/- or numeric keys to set the	
		value.	

3.6.2.8 NVMe Configuration

Aptio Setup - AMI Advanced	
NVMe Configuration	
No NVME Device Found	
	++: Select Screen
	Enter: Select
	F1: General Help F2: Previous Values
	F3: Optimized Defaults F4: Save & Exit
	ESC: Exit
Vencion 2, 22, 1927, Comminster (C), 2022	амт
VERSION 2.22.1207 Copyright (C) 2023	- UNIT

3.6.3 Platform Config



3.6.3.1 PCH-IO Configuration

Platform Config	Aptio Setup – AMI	
PCH-IO Configuration		PCI Express Configuration
 PCI Express Configuration SATA And RST Configuration USB Configuration HD Audio Configuration 		actinga
Serial IRQ Mode State After 63	[Quiet] [S5_State]	
Port 80h Redirection	[LPC Bus]	
Flash Protection Range Registers (FPRR)	[Enabled] [Disabled]	
SPD Write Disable	[Enabled]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Ontimized Defaults
		F4: Save & Exit ESC: Exit
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ltem	Option	Description
Serial IRQ Mode	Quiet [Default] Continuous	Configure Serieal IRQ Mode.
State After G3	S0 State	Specify what state to go to when power is

	S5 State[Default]	re-applied after a power failure (G3 state).	
Port 80h Redirection	LPC Bus [Default] PCIE Bus	Control where the Port 80h cycles are sent.	
Lock PCH Side band Access	Disabled Enabled [Default]	Lock PCH Sideband access, include SideBand interface lock and SideBand PortID mask for certain end point (e.g. PSFx). The option is invalid if POSTBOOT SAI is set.	
Flash Protection Range	Disabled[Default]	Enable Electro Panas Registers	
Registers(FRRR)	Enabled	Enable Flash Flotection Range Registers.	
SPD Write Disable	Disabled Enabled [Default]	Enable/Disable setting SPD Write Disable bit. For sucurity recommendations, SPD write disable bit must be set.	

3.6.3.1.1 PCI Express Configuration

Platform Config	Aptio Setup – AMI	
PCI Express Configuration		PCI Express Port8xh Decode
PortBxh Decode Compliance Test Mode > PCI Express Root Port 5(M.2 Key-M) > PCI Express Root Port 9(BMC.2600) > PCI Express Root Port 10(Lan 210) > PCI Express Root Port 11(Lan 225)	[Disabled] [Disabled]	Enable/Ulsable.
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Item	Option	Description	
Bortexh Dooodo	Disabled[Default]	PCI Express Port8xh Decode	
Portaxn Decode	Enabled	Enable/Disable.	
Compliance Test Mode	Disabled[Default]	Enable when using Compliance Load	
Compliance Test Mode	Enabled	Board.	

Platform Config	Aptio Setup – AMI	
PCI Express Root Port 5(M.2 Key- ASPM L1 Substates PTM PCIe Speed	M) [Enabled] [Disabled] [Disabled] [Enabled] [Auto]	Control the PCI Express Root Port. +: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Vonci	on 2 22 1287 Conunidht (C)	2023 AMT

3.6.3.1.1.1 PCI Express Root Port 5(M.2 Key-M)

Item	Option	Description
PCI Express Root Port 5(M.2 Key-M)	Enabled [Default] , Disabled	Control the PCI Express Root Port.
ASPM	Disabled [Default] ,	PCI Express Active State Power
	L1	Management settings.
	Disabled[Default]	
L 1 Substates	L1.1	PCI Express I 1 Substates settings
LI Substates	L1.2	POI Express LT Substates settings.
	L1.1 & L1.2	
DTM	Enabled[Default],	Enable/Disable Precision Time
PIM	Disabled	Measurement.
PCIe Speed	Auto[Default]	
	Gen1	Configure DCIe Speed
	Gen2	Conligure Pole Speed.
	Gen3	

3.6.3.1.1.2 PCI Express Root Port 9(BMC.2600)

Diet	form Confid	Aptio Setup – AMI	
	TOPIC CONTIN		
PCI Express Root Port ASPM L1 Substates PTM PCIe Speed	9(BMC.2600)	[Enabled] [Disabled] [Enabled] [Auto]	Control the PCI Express Root Port. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	Version 2	22 1287 Conunight (C) 2023	AMT

Item	Option	Description
PCI Express Root Port 9(BMC.	Enabled[Default],	Control the DCI Everage Dept Dert
2600)	Disabled	Control the PCI Express Root Port.
	Disabled[Default],	PCI Express Active State Power
ASPM	L1	Management settings.
	Disabled[Default]	
	L1.1	DCI Everage 1.1 Substates pattings
LI Substates	L1.2	PCI Express LT Substates settings.
	L1.1 & L1.2	
DTM	Enabled[Default],	Enable/Disable Precision Time
PIM	Disabled	Measurement.
PCIe Speed	Auto[Default]	
	Gen1	Configure DOIs Speed
	Gen2	Conligure PCIe Speed.
	Gen3	

A	ptio Setup – AMI	
Platform Config		
PCI Express Root Port 10(Lan 210) [Ei ASPM [D L1 Substates [D PTM [Ei PCIe Speed [Ai	nabled] isabled] isabled] nabled] uto]	Control the PCI Express Root Port.
		<pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

3.6.3.1.1.3 PCI Express Root Port 10(LAN 210)

Item	Option	Description
PCI Express Root Port 10(LAN 210)	Enabled [Default] , Disabled	Control the PCI Express Root Port.
ASPM	Disabled [Default] ,	PCI Express Active State Power
	Disabled[Default]	
L1 Substates	L1.1 L1.2	PCI Express L1 Substates settings.
	L1.1 & L1.2	
PTM	Enabled [Default] , Disabled	Enable/Disable Precision Time Measurement.
PCIe Speed	Auto[Default]	
	Gen1	Configure PCIe Speed
	Gen2	Comigure r Ole Opeed.
	Gen3	

3.6.3.1.1.4 PCI Express Root Port 11(LAN 225)

	Aptio Setup – AMI	
Platform Config		
PCI Express Root Port 11(Lan 225) ASPM L1 Substates PTM PCIe Speed	[Enabled] [Disabled] [Disabled] [Enabled] [Auto]	Control the PCI Express Root Port. +: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
line term	2 00 4007 0-www.init+ (0) 0000	

Item	Option	Description
PCI Express Root Port 11(LAN	Enabled[Default],	Control the PCI Express Root Port.
225)	Disabled	
ΔSPM	Disabled[Default],	PCI Express Active State Power
	L1	Management settings.
	Disabled[Default]	
l 1 Substates	L1.1	PCI Express I 1 Substates settings
El Substates	L1.2	For Express ET Substates settings.
	L1.1 & L1.2	
РТМ	Enabled [Default] ,	Enable/Disable Precision Time
	Disabled	Measurement.
PCIe Speed	Auto[Default]	
	Gen1	Configure DCIe Speed
	Gen2	
	Gen3	

3.6.3.1.2 SATA And RST Configuration

Aptio Setup — AMI Platform Config	
Platform Config ler 2 SATA And RST Configuration e Feature Mask Configuration for Controller 2 e Feature Mask Configuration for Controller 3 **: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Select Screen F4: Select Defaults F4: Select Defaults	
F4: Save & Exit ESC: Exit	
F2: Previous Valu F3: Optimized Def F4: Save & Exit ESC: Exit Version 2.22.1287 Copyright (C) 2023 AMI	es aults

3.6.3.1.2.1 Controller 2 SATA And RST Configuration

Platform Config	Aptio Setup – AMI	
Controller 2 SATA And RST Configurat	ion	SATA test settings
SATA Configuration SATA Mode Selection SATA Test Mode Aggressive LPM Support Force SATA Gen Speed SATA DevSlp port SATA Port 0(M.2 Key.M SATA) Software Preserve SATA Port 0(M.2 Key.M SATA) Spin Up Device SATA Port 7(Onboard SATA5) Software Preserve SATA Port 7(Onboard SATA5) Spin Up Device SATA Port 7(Onboard SATA5) Spin Up Device SATA Device Type	[Enabled] [AHCI] [Disabled] [Enabled] [Gen3] [None] [Not Installed] Unknown [Enabled] [Hard Disk Drive] [Not Installed] Unknown [Enabled] [Disabled] [Hard Disk Drive]	<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>
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ltem	Options	Description
SATA Configuration	Enabled [Default] Disabled,	SATA test settings.

SATA Mode Selection	AHCI [Default] , RAID	Determines how SATA controller(s) operate.
SATA Test Mode	Enabled Disabled [Default]	Test Mode Enable/Disable (Loop Back).
Aggressive LPM Support	Enabled Disabled [Default]	Enable PCH to aggressively enter link power state.
Force SATA Gen Speed	Gen1 Gen2 Gen3[Default]	Changes SATA Gen Speed for port.
SATA DevSlp port	None [Default] Port0 Port1 Port2 Port3 Port4 Port5 Port6 Port7	Enable SATA DevSlp feature for port. It is possible to enable DevSlp for only one port or none.
SATA Port 0(M.2 Key.M SATA)	Disabled Enabled [Default]	Enable or Disable SATA Port.
Spin Up Device	Disabled [Default] Enabled	If enabled for any of ports Staggerred Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
SATA Device Type	Hard Disk Drive [Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
SATA Port 7(Onboard SATA5)	Disabled Enabled [Default]	Enable or Disable SATA Port.
Spin Up Device	Disabled [Default] Enabled	If enabled for any of ports Staggerred Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
SATA Device Type	Hard Disk Drive [Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

3.6.3.1.2.2 Controller 3 SATA And RST Configuration

Aptio Setup – AMI Platform Config		
Platform Config Controller 3 SATA And RST Configura SATA Configuration SATA Mode Selection SATA Test Mode Aggressive LPM Support Force SATA Gen Speed SATA SGPIO Enable SATA Port 0(Onboard SATA1) Software Preserve SATA Port 0(Onboard SATA1)	Aptio Setup - AMI (Enabled) [AHCI] [Disabled] [Enabled] [Gen3] [Enabled] [Not Installed] Unknown [Enabled]	▲ SATA test settings
Spin Up Device SATA Device Type SATA Port 1(Onboard SATA2) Software Preserve SATA Port 1(Onboard SATA2) Spin Up Device SATA Device Type SATA Port 2(Onboard SATA3) Software Preserve SATA Port 2(Onboard SATA3) Spin Up Device SATA Port 3(Onboard SATA4) Software Preserve SATA Port 3(Onboard SATA4) Spin Up Device SATA Port 3(Onboard SATA4) Spin Up Device SATA Device Type	[Disabled] [Hard Disk Drive] [Not Installed] Uhknown [Enabled] [Disabled] [Hard Disk Drive] [Not Installed] Uhknown [Enabled] [Hard Disk Drive] [Not Installed] Uhknown [Enabled] [Disabled] [Hard Disk Drive]	<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>

ltem	Options	Description
SATA Configuration	Enabled [Default] Disabled,	SATA test settings.
SATA Mode Selection	AHCI [Default] , RAID	Determines how SATA controller(s) operate.
SATA Test Mode	Enabled Disabled [Default]	Test Mode Enable/Disable (Loop Back).
Aggressive LPM Support	Enabled Disabled [Default]	Enable PCH to aggressively enter link power state.
Force SATA Gen Speed	Gen1 Gen2 Gen3 [Default]	Changes SATA Gen Speed for port.
SATA DevSlp port	None [Default] Port0 Port1 Port2 Port3 Port4 Port5 Port6 Port7	Enable SATA DevSlp feature for port. It is possible to enable DevSlp for only one port or none.
SATA Port 0(Onboard SATA1)	Disabled Enabled [Default]	Enable or Disable SATA Port.

Spin Up Device	Disabled [Default] Enabled	If enabled for any of ports Staggerred Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
SATA Device Type	Hard Disk Drive [Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
SATA Port 1(Onboard SATA2)	Disabled Enabled [Default]	Enable or Disable SATA Port.
Spin Up Device	Disabled [Default] Enabled	If enabled for any of ports Staggerred Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
SATA Device Type	Hard Disk Drive [Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
SATA Port 2(Onboard SATA3)	Disabled Enabled[Default]	Enable or Disable SATA Port.
Spin Up Device	Disabled[Default] Enabled	If enabled for any of ports Staggerred Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
SATA Device Type	Hard Disk Drive[Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
SATA Port 3(Onboard SATA4)	Disabled Enabled[Default]	Enable or Disable SATA Port.
Spin Up Device	Disabled[Default] Enabled	If enabled for any of ports Staggerred Spin Up will be performed and only the drives which have this option enabled will spin up at boot. Otherwise all drives spin up at boot.
SATA Device Type	Hard Disk Drive[Default] Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.

3.6.3.1.2.3 Software Feature Mask Configuration for Controller 2

Platform Config	Aptio Setup — AMI	
Software Feature Mask Configuration		If enabled, indicates that the
HDD Unlock LED Locate	[Enabled] [Enabled]	is enabled.
		<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	.22.1287 Conuright (C) 2023	AMT

ltem	Options	Description	
	Disabled,	If enabled, indicates that the HDD password	
Enabled[Defau	Enabled[Default]	unlock in the OS is enabled.	
	Dischlod	If enabled, indicates that the LED/SGPIO	
LED Locate Enabled[Default]		hardware is attached and ping to locate	
	Enabled[Default]	feature is enabled on the OS.	

3.6.3.1.2.4 Software Feature Mask Configuration for Controller 3

Platform Config	Aptio Setup – AMI	
Software Feature Mask Configuration		If enabled, indicates that the HDD password unlock in the OS
HDD Unlock LED Locate	[Enabled] [Enabled]	is enabled.
		↔: Select Screen ↑↓: Select Item
		Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version :	2.22.1287 Copyright (C) 2023	AMI

Item	Options	Description	
	Disabled,	If enabled, indicates that the HDD password	
HDD UNIOCK	Enabled[Default]	unlock in the OS is enabled.	
LED Locate	Dischlad	If enabled, indicates that the LED/SGPIO	
	Disabled,	hardware is attached and ping to locate	
	Enabled[Default]	feature is enabled on the OS.	

3.6.3.1.3 USB Configuration

Platform Config	Aptio Setup — AMI	
USB Configuration		Select 'Disabled' for
USB Overcurrent USB Overcurrent Lock	[Enabled] [Enabled]	pin-based debug. It pin-based debug is enabled but USB overcurrent is not disabled,
USB Port Disable Override	[Disable]	USD DDC QUES HOT WORK.
		++: Select Screen ↑↓: Select Item
		Enter: Select +/-: Change Opt. E1: Ceneral Helm
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
Vancia	n 2 22 1287 Conurid ht (P)	2023 AMT

Item	Options	Description
USB Overcurrent	Disabled, Enabled [Default]	Select 'Disabled' for pin-based debug. If pin-based debug is enabled but USB overcurrent is not disabled, USB DbC does not work.
USB Overcurrent Lock	Disabled, Enabled [Default]	Select 'Enabled'. If Overcurrent functionality is used. Enabling this will make xHCI controller consume the Overcurrent mapping data.
USB Port Disable Override	Disabled [Default] Select Per-Pin	Selectively Enable/Disable the corresponding USB port from reporting a Device Connection to the controller.

3.6.3.1.4 HD Audio Configuration

Platform Config	Aptio Setup — AMI	
HD Audio Subsystem Configuration Set	tings	Control Detection of the
		Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled.
		<pre>++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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Item	Options	Description
HD Audio	Disabled, Enabled [Default]	Control Detection of the HD-Audio device. Disabled=HDA will be unconditionally disabled Enabled=HDA will be unconditionally enabled.

3.6.3.2 Server ME Configuration

Platform Config	Aptio Setup – AMI	
General ME Configuration Oper. Firmware Version Backup Firmware Version Recovery Firmware Version ME Firmware Status #1 ME Firmware Status #2 Current State Error Code Recovery Cause Intel ME Target Image Boot Altitude MCTP Bus Owner	▲ 18:6.0.4.2 N/A 18:6.0.4.2 0x00000355 0x82504006 Operational No Error N/A Success 8000 0	The altitude of the platform location above the sea level, expressed in meters. The hex number is decoded as 2's complement signed integer. Provide the 8000h value if the altitude is unknown.
Server Mc firmware features fist SiEn ICC MeStorageServices BootGuard CpUHotPlug HSIO PECIDverDMI PCHDebug FiaMuxConfiguration PCHThermalSensorInit DirectMeUpdate MctpInfrastructure		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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Item	Option	Description
Altitude	8000	The altitude of the platform location above the sea level, expressed in meters. The hex number is decoded as 2's complement signed integer. Provide the 8000h value if the altitude is unknown.
MCTP Bus Owner	0	MCTP bus owner location on PCIe: [15:8] bus, [7:3] device, [2:0] function. If all zeros sending bus owner is disabled.

3.6.4 Socket Config

Main Advanced Platform	Ap Config Socket	o <mark>tio Setu</mark> : Config	p – AMI Server	Mgmt S	Gecurity Boot Save & Exit
 Processor Configuration Memory Configuration IIO Configuration Advanced Power Management 	Configuration				Displays and provides options to change the Processor Settings
					<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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3.6.4.1 Processor Configuration

	Aptio Setup – AMI Socket Config	
Processor Configuration		Change Per-Socket Settings
 Per-Socket Configuration Processor BSP Revision Processor Socket Processor ID Processor Frequency Processor Max Ratio Processor Min Ratio Microcode Revision L1 Cache RAM(Per Core) L2 Cache RAM(Per Core) 	806F8 - SPR-SP E5 Socket 0 Socket 1 000806F8* N/A 2.000GHz N/A 14H N/A 08H N/A 2B000130 N/A 80KB N/A 2048KB N/A	
L3 Cache RAM(Per Package) Processor 0 Version	/6800KB N/A Intel(R) Xeon(R) Platin um 8450H	++: Select Screen 14: Select Item
Extended APIC	[Enable]	<pre>H/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Vens	sion 2.22.1287 Copyright (C) 202	3 AMI

Item	Option	Description
Extended APIC	Disable Enable [Default]	Enable/disable extended APIC support. Note: When enabled, VT-d_Interrupt Remapping will be automatically enabled.

3.6.4.1.1 Per-Socket Configuration

Aptio Setup - AMI Socket Config	
▶ CPU Socket O Configuration	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
version 2.22.1287 copyright (C) 2023	HUT

3.6.4.1.1.1 CPU Socket 0 Configuration

Aptio Setup - AMI Socket Config		
CPU Socket 0 Configuration	0: Enable all cores. FFFFFFFFFFFFFFFFF Disable all	
Available Bitmap: 0859B232F61191DA	cores. NOTE: At least one core per CPU must be enabled. Disabling all cores is an	
Disable Bitmap: 0	invalid configuration.	
	++: Select Screen †↓: Select Item Enter: Select	
	+/−: Change Opt. F1: General Help F2: Previous Values	
	F3: Optimized Defaults F4: Save & Exit FSC: Evit	
Version 2.22.1287 Copyright (C) 2023 AMI		

Item	Option	Description
Disable Bitmap:	0	0: Enable all cores. FFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFFF

3.6.4.2 Memory Configuration

Aptio Setup - AMI Socket Config		
 Integrated Memory Controller (iMC)		Maximum Memory Frequency Selections in MT/s. If Enforce POR is disabled, user will be able to run at higher frequencies than the memory
Memory Frequency ▶ Memory Topology		support (limited by processor support). Do not select Reserved
		<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>
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Item	Option	Description
Memory Frequency	Auto [Default] 3200 3600 4000 4400 4400 4800 5200	Maximum Memory Frequency Selections in MT/s. If Enforce POR is disabled, user will be able to run at higher frequencies than the memory suppot (limited by processor support). Do not select Reserved.
	5600	

3.6.4.2.1 Memory Topology

Aptio Setup - Socket Config	- AMI
SocketO.ChE.DimmO: 4800MT/S Hynix SRx8 16GB RDIMM	<pre> ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit ident (c) 2023 AMI</pre>
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3.6.4.3 IIO Configuration

	Aptio Setup – AMI Socket Config	
IIO Configuration		
 Socket0 Configuration Intel VT for Directed I/O (VT-d) Intel VMD technology 		
		<pre>++: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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3.6.4.3.1 Socket0 Configuration

Aptio Setup - AMI Socket Config			
IOUO PCIE Slot1 x16 IOU1 PCIE Slot3 x16 IOU2 PCIE Slot5 x16 IOU3 PCIE Slot7 x16 IOU4 PCIE Slot2.4.6.x550 x4 Port 1 Subsystem Mode Port 2 Subsystem Mode Port 3 Subsystem Mode Port 4 Subsystem Mode	[x_x_x_x16] [x_x_x_x16] [x_x_x_x16] [x_x_x_x16] [x4x4x4x4] [Protocol Auto Negotiation] [Protocol Auto Negotiation] [Protocol Auto Negotiation] [Protocol Auto	▲ Selects PCIe port Bifurcation for selected slot(s) Port Format: xDxCxBxA The port can further be x2x2	
Port 5 Subsystem Mode IIO PCIE VC1 Port Bitmap Sck0 RP Correctable Err Sck0 RP Fatal Uncorrectable Err Port OMI Port 1A(PCIE Slot1) Port 2A(PCIE Slot3) Port 3A(PCIE Slot5) Port 4A(PCIE Slot7) Port 5A(X550) Port 5C(PCIE Slot2) Port 5C(PCIE Slot4) Port 5G(PCIE Slot6)	Negotiation] [Protocol Auto Negotiation] 0 [No] [No] [No]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	

ltem	Options	Description
	Auto	
	x4x4x4x4	
	x4x4x_x8	
	x_x8x4x4	
	x_x8x_x8	
	x_x_x16 [Default]	
	x2x2x4x_x8	
	x4x2x2x_x8	
	x_x8x2x2x4	
	x2x2x4x4x4	
	x4x2x2x4x4	
	x4x4x2x2x4	Selects PCIe port Bifurcation for selected
	x2x2x2x2x_x8	Selects I Gle port bildication for selected
IOU0 PCIe Slot1 x16	x2x2x2x2x4x4	slot(s) Port Format: xDxCxBxA The port
	x2x2x4x2x2x4	can further be x2x2
	x4x2x2x2x2x4	
	x2x2x2x2x2x2x4	
	x_x8x4x2x2	
	x4x4x4x2x2	
	x_x8x2x2x2x2	
	x2x2x4x4x2x2	
	x4x2x2x4x2x2	
	x4x4x2x2x2x2	
	x2x2x2x2x4x2x2	
	x2x2x4x2x2x2x2	
	x4x2x2x2x2x2x2	
	x2x2x2x2x2x2x2x2x2	
	Auto	Selects PCIe port Bifurcation for selected
	x4x4x4x4	
IOU1 PCIe Slot3 x16	x4x4x_x8	slot(s) Port Format: xDxCxBxA The port
	x_x8x4x4 x_x8x_x8	can further be x2x2.
	x_x_x_x16[Default] x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x2x4x4 x2x2x2x2	
---------------------	---	--
IOU2 PCIe Slot5 x16	Auto x4x4x4x4 x4x4x_x8 x_x8x_x8 x_x8x_x8 x_xx_x_x16[Default] x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4 x4x2x2x4x4 x4x4x2x2x4 x2x2x4x4x4 x2x2x4x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x4 x2x2x2x2x2x2 x4x4x2x2x2 x4x4x2x2x2 x4x4x2x2x2 x4x2x2x2x2 x2x2x2x2x2x2 x4x2x2x2x2 x2x2x2x2x2x2 x4x2x2x2x2x2 x2x2x2x2x2x2x2 x4x2x2x2x2x2 x2x2x2x2x2x2x2 x4x2x2x2x2x2 x2x2x2x2x2x2x2 x4x2x2x2x2x2 x2x2x2x2x2x2x2 x2x2x2x2x2x2	Selects PCIe port Bifurcation for selected slot(s) Port Format: xDxCxBxA The port can further be x2x2.
IOU3 PCIe Slot7 x16	Auto x4x4x4x4 x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x_x_x16[Default] x2x2x4x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x2x2x4x4	Selects PCIe port Bifurcation for selected slot(s) Port Format: xDxCxBxA The port can further be x2x2.

	x4x4x2x2x4 x2x2x2x2x2x_x8 x2x2x2x2x4x4 x2x2x4x2x2x4 x4x2x2x2x2x4 x4x2x2x2x2	
IOU4 PCIe Slot2.4.6x550 x4	x4x4x4x4[Default] x4x4x_x8 x_x8x4x4 x_x8x_x8 x_x8x_x8 x_x_x_x16 x2x2x4x_x8 x4x2x2x_x8 x4x2x2x_x8 x_x8x2x2x4 x2x2x4x4x4 x4x4x2x2x4 x4x4x2x2x4 x2x2x4x4 x4x4x2x2x4 x2x2x4x4 x4x4x2x2x4 x2x2x2x2	Selects PCIe port Bifurcation for selected slot(s) Port Format: xDxCxBxA The port can further be x2x2.
Port 1 Subsystem Mode	Gen5 Protocol Auto Negotiation [Default]	Select PCIe Subsystem Mode for selected slot(s) Gen4: Gen4 controller only Gen5: Gen5 with or without mix mode Auto: Auto select Force CXL: There is no training discovery, the attached device must also supports this mode.
Port 2 Subsystem Mode	Gen5 Protocol Auto Negotiation [Default]	Select PCIe Subsystem Mode for selected slot(s) Gen4: Gen4 controller only Gen5: Gen5 with or without mix mode Auto: Auto select Force CXL: There is no training discovery, the attached

		device must also supports this mode.
		Select PCIe Subsystem Mode for
		selected slot(s) Gen4: Gen4 controller
	Gen5	only Gen5: Gen5 with or without mix
Port 3 Subsystem Mode	Protocol Auto Negotiation[Default]	mode Auto: Auto select Force CXL: There
		is no training discovery, the attached
		device must also supports this mode.
		Select PCIe Subsystem Mode for
		selected slot(s) Gen4: Gen4 controller
Port / Subsystem Mode	Gen5	only Gen5: Gen5 with or without mix
Fort 4 Subsystem Mode	Protocol Auto Negotiation[Default]	mode Auto: Auto select Force CXL: There
		is no training discovery, the attached
		device must also supports this mode.
		Select PCIe Subsystem Mode for
	Gen5 Protocol Auto Negotiation [Default]	selected slot(s) Gen4: Gen4 controller
Port 5 Subsystem Mode		only Gen5: Gen5 with or without mix
T OIT 5 Subsystem Mode		mode Auto: Auto select Force CXL: There
		is no training discovery, the attached
		device must also supports this mode.
		Enable/Disable PCIe Port VC1 support.
		Port 0 is allocated to DMI or DMI as PCIe.
IIO PCIe VC1 Port Bitman	0	Port 0 bit will have no effect in DMI mode.
		0-VC1 support disabled. 1-VC1 support
		enabled. Example: bit 0= IIO PCIe Port
		0bit n = IIO PCIe Portn.
Sck0 RP Correctable Err	No[Default]	Applies to root ports only. Enabled
	Yes	interrupt on correctable errors.
Sck0 RP NonFatal	Sck0 RP NonFatalNo[Default]Uncorrectable ErrYes	Applies to root ports only. Enabled
Uncorrectable Err		interrupt on a non-fatal error.
Sck0 RP Fatal Uncorrectable Err	No[Default]	Applies to root ports only. Enabled
	Yes	MSI/INTx interrupt on fatal errors.

3.6.4.3.1.1 Port DMI

	Aptio Setup – AMI Socket Config	
Port DMI		Choose Link Speed for this PCIe port
Link Speed PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed PCI-E ASPM Support PCI-E Port Li Exit Latency	[Auto] [-6.0 dB] Linked as x4 Max Width x8 Gen 3 (8.0 GT/s) [Disable] [BuS - 16uS]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
	Auto[Default]	
	Gen 1 (2.5 GT/s)	
Link Speed	Gen 2 (5 GT/s)	Chasses Link Speed for this DCIs part
Link Speed	Gen 3 (8 GT/s)	Choose Link Speed for this PCIe port.
	Gen 4 (16 GT/s)	
	Gen 5 (32 GT/s)	
DCI E Dart DaEmphasia	-6.0 dB [Default]	De-Emphais control (LNKCON2[6]) for this PCIe
PCI-E Port DeEmphasis	-3.5 dB	port.
PCI-E ASPM Support	Disabled[Default]	This option can disable ASPM support in a PCIe
	Auto	root port. 'Auto' keeps hardware default.

3.6.4.3.1.2 Port 1A(PCIe Slot1)

Port 1A(PCIe Slot1)		In auto mode the BIOS will remove the EXP port if there is no device or errors on that
PCI–E Port PCI–E Port Link Disable	[Auto] [No]	device and the device is not HP capable. Enable/Disable is
Link Speed	[Auto]	used to enable/disable the
UVERFIGE MAX LINK WIGTN PCI-E Port DeEmobasis	[AUTO] [-6 0 dB]	port and expose/hide its CFG
PCI-E Port Link Status	Link Did Not Train	space.
PCI–E Port Link Max	Max Width x16	
PCI-E Port Link Speed	Link Did Not Train	
PCI-E Port MPSS	[Auto]	
PCI-E HSPM Support PCI-E Port 11 Evit Latency	[DISable] [809 = 1609]	++ Select Screen
PCI-E Detect Wait Time	[Auto]	14: Select Item
Compliance Mode	[No]	Enter: Select
MCTP	[Yes]	+/-: Change Opt.
Equalization Bypass To Highest	[Enable]	F1: General Help
Rate	[Dischie]	F2: Previous Values
CAE DETEC BUTTER	[DISable]	F4: Save & Exit
		ESC: Exit

ltem	Option	Description
PCI-E Port	Auto [Default] No Yes	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space.
PCI-E Port Link Disable	No [Default] Yes	This option disables the link so that the no training occurs but the CFG space is still active.
Link Speed	Auto [Default] Gen 1 (2.5 GT/s) Gen 2 (5 GT/s) Gen 3 (8 GT/s) Gen 4 (16 GT/s) Gen 5 (32 GT/s)	Choose Link Speed for this PCIe port.
Override Max Link Width	Auto [Default] x1 x2 x4 x8 x8 x16	Override the max link width that was set by bifurcation.
PCI-E Port DeEmphasis	-6.0 dB [Default] -3.5 dB	De-Emphais control (LNKCON2[6]) for this PCIe port.
PCI-E Port MPSS	128B 256B 512B Auto [Default]	Configure Max Payload Size Supported in PCIe Device Capabilities register. 'Auto' keeps hardware default.
PCI-E ASPM Support	Disabled [Default] Auto	This option can disable ASPM support in a PCIe root port. 'Auto' keeps hardware default.

	Disable		
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.	
	Auto[Default]		
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe	
Compliance Mode	Yes	port.	
МСТР	No	Enchle/Dischle MCTD	
	Yes[Default]	Enable/Disable MCTP.	
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support	
Highest Rate	Enable[Default]	Enable/Disable.	
	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a	
	Enable	common referecne clock.	

3.6.4.3.1.3 Port 2A(PCIe Slot3)

Aptio Setup - AMI Socket Config				
Port 2A(PCIe Slot3) PCI-E Port Link Disable Link Speed Override Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Speed PCI-E Port Link Speed PCI-E Port Link Speed PCI-E Port Li Exit Latency PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	[Auto] [No] [Auto] [Auto] [-6.0 dB] Link Did Not Train Max Width x16 Link Did Not Train [Auto] [Disable] [BuS - 16uS] [Auto] [No] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit		
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ltem	Option	Description	
		In auto mode the BIOS will remove the EXP port if	
	Auto[Default]	there is no device or errors on that device and the	
PCI-E Port	No	device is not HP capable. Enable/Disable is used to	
	Yes	enable/disable the port and expose/hide its CFG	
		space.	
PCLE Bort Link Disable	No[Default]	This option disables the link so that the no training	
PCI-E POIT LINK DISable	Yes	occurs but the CFG space is still active.	
	Auto[Default]		
	Gen 1 (2.5 GT/s)		
Link Spood	Gen 2 (5 GT/s)	Change Link Speed for this PCIs part	
Link Speed	Gen 3 (8 GT/s)	Choose Link Speed for this Pole port.	
	Gen 4 (16 GT/s)		
	Gen 5 (32 GT/s)		
Override Max Link Width	Auto[Default]	Override the may link width that was get by	
	x1	overnue the max link width that was set by	
	x2	bilurcation.	

	x4	
	x8	
	x16	
PCI E Port DoEmphasia	-6.0 dB [Default]	De-Emphais control (LNKCON2[6]) for this PCIe
PCI-E POIT DEEIIIpilasis	-3.5 dB	port.
	128B	Configure May Dayland Size Supported in DCIe
	256B	Configure Max Payload Size Supported in PCIe
PCI-E Port MIPSS	512B	Device Capabilities register. Auto keeps hardware
	Auto[Default]	default.
	Disabled[Default]	This option can disable ASPM support in a PCIe
PCI-E ASPM Support	Auto	root port. 'Auto' keeps hardware default.
	Disable	
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.
	Auto[Default]	
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe
Compliance Mode	Yes	port.
MOTO	No	
MCTP	Yes[Default]	
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support
Highest Rate	Enable[Default]	Enable/Disable.
	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a
	Enable	common referecne clock.

3.6.4.3.1.4 Port 3A(PCIe Slot5)

	Aptio Setup – AMI Socket Config	
Port 3A(PCIe Slot5) PCI-E Port PCI-E Port Link Disable Link Speed Override Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Speed PCI-E Port Link Speed PCI-E Port Link Speed PCI-E Port Li Exit Latency PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	[Auto] [No] [Auto] [Auto] [-6.0 dB] Link Did Not Train Max Width x16 Link Did Not Train [Auto] [Disable] [&us - 16uS] [Auto] [No] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
		In auto mode the BIOS will remove the EXP port if
	Auto[Default]	there is no device or errors on that device and the
PCI-E Port	No	device is not HP capable. Enable/Disable is used to
	Yes	enable/disable the port and expose/hide its CFG
		space.

DCI E Dort Link Dischlo	No[Default]	This option disables the link so that the no training
PCI-E FOIT LINK DISable	Yes	occurs but the CFG space is still active.
	Auto[Default]	
	Gen 1 (2.5 GT/s)	
Link Speed	Gen 2 (5 GT/s)	Change Link Speed for this DCIs part
Link Speed	Gen 3 (8 GT/s)	Choose Link Speed for this PCIe port.
	Gen 4 (16 GT/s)	
	Gen 5 (32 GT/s)	
	Auto[Default]	
	x1	
	x2	Override the max link width that was set by
Override Max Link Width	x4	bifurcation.
	x8	
	x16	
	-6.0 dB[Default]	De-Emphais control (LNKCON2[6]) for this PCIe
PCI-E Port DeEmphasis	-3.5 dB	port.
	128B	Configure May Dayland Size Supported in DCIe
	256B	Configure Max Payload Size Supported III Pole
PCI-E POIT MP35	512B	defoult
	Auto[Default]	
PCLE ASPM Support	Disabled[Default]	This option can disable ASPM support in a PCIe
FCI-E ASFM Support	Auto	root port. 'Auto' keeps hardware default.
	Disable	
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.
	Auto[Default]	
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe
	Yes	port.
МСТР	No	Enable/Disable MCTP
	Yes[Default]	
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support
Highest Rate	Enable[Default]	Enable/Disable.
CXL Drift Buffer	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a
	Enable	common referecne clock.

3.6.4.3.1.5 Port 4A(PCIe Slot7)

	Aptio Setup – AMI Socket Config	
Port 4A(PCIe Slot7) PCI-E Port Link Disable Link Speed Overnide Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Status PCI-E Port Link Speed PCI-E Port Link Speed PCI-E ASPM Support PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	[Auto] [No] [Auto] [Auto] [-6.0 dB] Link Did Not Train Max Width x16 Link Did Not Train [Auto] [Disable] [BuS - 16uS] [Auto] [No] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. +*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
PCI-E Port	Auto [Default] No Yes	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space.
PCI-E Port Link Disable	No [Default] Yes	This option disables the link so that the no training occurs but the CFG space is still active.
Link Speed	Auto [Default] Gen 1 (2.5 GT/s) Gen 2 (5 GT/s) Gen 3 (8 GT/s) Gen 4 (16 GT/s) Gen 5 (32 GT/s)	Choose Link Speed for this PCIe port.
Override Max Link Width	Auto [Default] x1 x2 x4 x8 x8 x16	Override the max link width that was set by bifurcation.
PCI-E Port DeEmphasis	-6.0 dB [Default] -3.5 dB	De-Emphais control (LNKCON2[6]) for this PCIe port.
PCI-E Port MPSS	128B 256B 512B Auto [Default]	Configure Max Payload Size Supported in PCIe Device Capabilities register. 'Auto' keeps hardware default.
PCI-E ASPM Support	Disabled [Default] Auto	This option can disable ASPM support in a PCIe root port. 'Auto' keeps hardware default.

	Disable		
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.	
	Auto[Default]		
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe	
Compliance Mode	Yes	port.	
МСТР	No	Enable/Disable MCTP.	
	Yes[Default]		
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support	
Highest Rate	Enable[Default]	Enable/Disable.	
	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a	
	Enable	common referecne clock.	

3.6.4.3.1.6 Port 5A(X550)

	Aptio Setup – AMI Socket Config	
Port SA(X550) PCI-E Port PCI-E Port Link Disable Link Speed Override Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	[Auto] [No] [Auto] [Auto] [-6.0 dB] Linked as x4 Max Width x4 Gen 3 (8.0 GT/s) [Auto] [Disable] [BuS - 16uS] [Auto] [No] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

Item	Option	Description	
	•	In auto mode the BIOS will remove the EXP port if	
	Auto[Default]	there is no device or errors on that device and the	
PCI-E Port	No	device is not HP capable. Enable/Disable is used to	
	Yes	enable/disable the port and expose/hide its CFG	
		space.	
PCI-E Port Link Disable	No[Default]	This option disables the link so that the no training	
	Yes	occurs but the CFG space is still active.	
Link Speed	Auto[Default]		
	Gen 1 (2.5 GT/s)		
	Gen 2 (5 GT/s)	Change Link Speed for this PCIe port	
	Gen 3 (8 GT/s)	Choose Link Speed for this Pole port.	
	Gen 4 (16 GT/s)		
	Gen 5 (32 GT/s)		
	Auto[Default]	Override the max link width that was set by	
	x1	bifurcation.	

	x2	
	x4	
	x8	
	x16	
PCI E Port DoEmphasia	-6.0 dB [Default]	De-Emphais control (LNKCON2[6]) for this PCIe
FCI-E Fort Deemphasis	-3.5 dB	port.
	128B	Configure Max Dayland Size Supported in DCIe
	256B	Configure Max Payload Size Supported in Pole
PCI-E Port MPSS	512B	Device Capabilities register. Auto keeps nardware
	Auto[Default]	detault.
	Disabled[Default]	This option can disable ASPM support in a PCIe
PCI-E ASPM Support	Auto	root port. 'Auto' keeps hardware default.
	Disable	
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.
	Auto[Default]	
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe
Compliance Mode	Yes	port.
мстр	No	Enable/Disable MCTD
MCTP	Yes[Default]	
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support
Highest Rate	Enable[Default]	Enable/Disable.
	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a
	Enable	common referecne clock.

3.6.4.3.1.7 Port 5C(PCle Slot2)

	Aptio Setup – AMI Socket Config	
Port SC(PCIe Slot2) PCI-E Port PCI-E Port Link Disable Link Speed Overnide Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Speed PCI-E Port MPSS PCI-E ASPM Support PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	[Auto] [No] [Auto] [Auto] [-6.0 dB] Link Did Not Train Max Width x4 Link Did Not Train [Auto] [Disable] [BuS - 16uS] [Auto] [No] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. ++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Item	Option	Description
PCI-E Port	Auto [Default] No Yes	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG

		space.
	No[Default]	This option disables the link so that the no training
PCI-E Port LINK Disable	Yes	occurs but the CFG space is still active.
	Auto[Default]	
	Gen 1 (2.5 GT/s)	
	Gen 2 (5 GT/s)	
LINK Speed	Gen 3 (8 GT/s)	Choose Link Speed for this PCIe port.
	Gen 4 (16 GT/s)	
	Gen 5 (32 GT/s)	
	Auto[Default]	
	x1	
Overside Mey Link Width	x2	Override the max link width that was set by
Overnde Max Link width	x4	bifurcation.
	x8	
	x16	
PCI-E Port DeEmphasis	-6.0 dB [Default]	De-Emphais control (LNKCON2[6]) for this PCIe
	-3.5 dB	port.
	128B	Configure May Daylood Size Supported in DCIe
DCLE Port MDSS	256B	Dovice Capabilities register 'Auto' keeps bardware
FCI-E FOIT MF33	512B	dofault
	Auto[Default]	
PCLE ASPM Support	Disabled[Default]	This option can disable ASPM support in a PCIe
	Auto	root port. 'Auto' keeps hardware default.
	Disable	
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.
	Auto[Default]	
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe
	Yes	port.
МСТР	No	Enable/Disable MCTP
	Yes[Default]	
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support
Highest Rate	Enable[Default]	Enable/Disable.
CXL Drift Buffer	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a
	Enable	common referecne clock.

3.6.4.3.1.8 Port 5E(PCIe Slot4)

	Aptio Setup – AMI Socket Config	
Port SE(PCIe Slot4) PCI-E Port Link Disable Link Speed Override Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed PCI-E Port LI Exit Latency PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	Socket Config [Auto] [No] [Auto] [Auto] [Auto] [Auto] [Ink Did Not Train Max Width x4 Link Did Not Train [Auto] [Disable] [8uS - 16uS] [Auto] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
PCI-E Port	Auto [Default] No Yes	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space.
PCI-E Port Link Disable	No [Default] Yes	This option disables the link so that the no training occurs but the CFG space is still active.
Link Speed	Auto [Default] Gen 1 (2.5 GT/s) Gen 2 (5 GT/s) Gen 3 (8 GT/s) Gen 4 (16 GT/s) Gen 5 (32 GT/s)	Choose Link Speed for this PCIe port.
Override Max Link Width	Auto [Default] x1 x2 x4 x8 x8 x16	Override the max link width that was set by bifurcation.
PCI-E Port DeEmphasis	-6.0 dB [Default] -3.5 dB	De-Emphais control (LNKCON2[6]) for this PCIe port.
PCI-E Port MPSS	128B 256B 512B Auto [Default]	Configure Max Payload Size Supported in PCIe Device Capabilities register. 'Auto' keeps hardware default.
PCI-E ASPM Support	Disabled [Default] Auto	This option can disable ASPM support in a PCIe root port. 'Auto' keeps hardware default.

	Disable		
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.	
	Auto[Default]		
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe	
Compliance Mode	Yes	port.	
МСТР	No	Enable/Disable MCTP.	
	Yes[Default]		
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support	
Highest Rate	Enable[Default]	Enable/Disable.	
	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a	
	Enable	common referecne clock.	

3.6.4.3.1.9 Port 5G(PCle Slot6)

	Aptio Setup – AMI Socket Config	
Port 5G(PCIe Slot6) PCI-E Port PCI-E Port Link Disable Link Speed Override Max Link Width PCI-E Port DeEmphasis PCI-E Port Link Status PCI-E Port Link Max PCI-E Port Link Speed PCI-E Dett Wait Speed PCI-E Detect Wait Time Compliance Mode MCTP Equalization Bypass To Highest Rate CXL Drift Buffer	[Auto] [Auto] [Auto] [Auto] [Auto] [Auto] [-6.0 dB] Link Did Not Train Max Hidth x4 Link Did Not Train [Auto] [Disable] [BuS - 16uS] [Auto] [No] [Yes] [Enable] [Disable]	In auto mode the BIOS will remove the EXP port if there is no device or errors on that device and the device is not HP capable. Enable/Disable is used to enable/disable the port and expose/hide its CFG space. ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
	n 2 22 1287 Ponunid at (P)	2023 AMT

Item	Option	Description	
		In auto mode the BIOS will remove the EXP port if	
	Auto[Default]	there is no device or errors on that device and the	
PCI-E Port	No	device is not HP capable. Enable/Disable is used to	
	Yes	enable/disable the port and expose/hide its CFG	
		space.	
PCI-E Port Link Disable	No[Default]	This option disables the link so that the no training	
	Yes	occurs but the CFG space is still active.	
	Auto[Default]		
	Gen 1 (2.5 GT/s)		
Link Spood	Gen 2 (5 GT/s)	Chaosa Link Speed for this PCIe port	
Link Speed	Gen 3 (8 GT/s)	Choose Link Speed for this Pole port.	
	Gen 4 (16 GT/s)		
	Gen 5 (32 GT/s)		
	Auto[Default]	Override the max link width that was not by	
Override Max Link Width	x1	bifuraction	
	x2	bilurcation.	

	x4	
	x8	
	x16	
DCI E Dart DaEmphasia	-6.0 dB [Default]	De-Emphais control (LNKCON2[6]) for this PCIe
PCI-E Port DeEmphasis	-3.5 dB	port.
	128B	Configure May Dayland Size Supported in DCIe
	256B	Configure Max Payload Size Supported in Pole
PCI-E Port MPSS	512B	Device Capabilities register. Auto keeps hardware
	Auto[Default]	default.
	Disabled[Default]	This option can disable ASPM support in a PCIe
PCI-E ASPM Support	Auto	root port. 'Auto' keeps hardware default.
	Disable	
PCI-E Detect Wait Time	500ms	Set PCIe port TxRx detect polling.
	Auto[Default]	
Compliance Mode	No[Default]	Enable/Disable Complicance Mode for this PCIe
Compliance Mode	Yes	port.
мстр	No	Enable/Disable MCTD
MCTP	Yes[Default]	
Equalization Bypass To	Disable	Equalization Bypass To Highest Rate Support
Highest Rate	Enable[Default]	Enable/Disable.
	Disable[Default]	Enable/Disable CXL Drift Buffer if there is a
CXL Drift Buffer	Enable	common referecne clock.

3.6.4.3.2 Intel VT for Directed I/O (VT-d)

	Aptio Setup – AMI Socket Config	
Intel VT for Directed I/O (VT-c	l) 	Enable/Disable Intel Virtualization Technology for Disected I/O (VILd) bu
Intel VT for Directed I/O		Directed I/O (VT-d) by reporting the I/O device assignment to VMM through DMAR ACPI Tables. To disable VT-d, X2AFIC must also be disabled. ++: Select screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
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Item	Options	Description
Intel VT for Directed I/O		Eneble/Disable Intel Virtualization Technology for
	Enable [Default] Disable	Directed I/O (VT-d) by reporting the I/O device
		assignment to VMM through DMAR ACPI Tables. To
		disable VT-d, X2APIC must also be disabled.

3.6.4.3.3 Intel VMD technology



3.6.4.3.3.1 Intel VMD for Volume Management Device on Socket 0

Soc	Aptio Setup — AMI cket Config	
Enable/Disable VMD	[Disable]	Enable/Disable VMD in this
VMD Config for IOU O(PCIe Slot1) Enable/Disable VMD	[Disable]	order.
VMD Config for IOU 1(PCIe Slot3) Enable/Disable VMD	[Disable]	
VMD Config for IOU 2(PCIe Slot5) Enable/Disable VMD	[Disable]	
VMD Config for IOU 3(PCIe Slot7) Enable/Disable VMD	[Disable]	
VMD Config for IOU 4(PCIe Slot2.4.6) Enable/Disable VMD	[Disable]	<pre>t+: Select Screen t4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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Item	Option	Description
Enable/Disable VMD	Disable [Default] Enable	Enable/Disable VMD in this Stack.

2	Aptio Setup – AMI Socket Config	
Enable/Disable VMD PCH Root Port 9 PCH Root Port 10 PCH Root Port 11 Hot Plug Capable CfgBar size CfgBar attribute MemBar1 size MemBar1 attribute MemBar2 size MemBar2 attribute	[Enable] [Disable] [Disable] [Disable] [Disable] 25 [64-bit prefetchable] 26 [32-bit non-prefetchable] 21 [64-bit [64-bit]	▲ Enable/Disable VMD in this Stack.
VMD for Direct Assign	[Disable]	<pre>++: Select Screen tl: Select Item</pre>
VMD Config for IOU 0(PCIe Slot1) Enable/Disable VMD	[Disable]	Enter: Select +/-: Change Opt. F1: General Help
Enable/Disable VMD	[Disable]	F3: Optimized Defaults
VMD Config for IOU 2(PCIe Slot5) Enable/Disable VMD	[Disable]	ESC: Exit
VMD Config for IOU 3(PCIe Slot7)		V

ltem	Option	Description
Enable/Disable VMD	Disable Enable [Default]	Enable/Disable VMD in this Stack.
PCH Root Port 10	Disable [Default] Enable	Configuration PCH root port: Enable – VMD ownership root port.
Hot Plug Capable	Disable [Default] Enable	Enable/Disable Hot Plug for PCIe Root Ports.
CfgBar Size	25	Setup VMD Config BAR size (in bits Min=20, Max=27), ex:20bits=1MB, 27bits=128MB.
CfgBar attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR attribute, like 64-bit or prefectchable.
MemBar1 size	26	Setup VMD Memory BAR1 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar1 attribute	32-bit non-prefetchable [Default] 64-bit non-prefetchable 64-bit prefetchable	Setup VMD Config BAR1 attribute, like 64-bit or prefectchable.
MemBar2 size	21	Setup VMD Memory BAR2 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar2 attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR2 attribute, like 64-bit or prefectchable.
VMD for Direct Assign	Disable [Default] Enable	Enable/Disable VMD for Direct Assign.

VMD Config for IOU 0(PCIe Slot1)

Aptio Setup - AMI Socket Config		
Enable/Disable VMD	[Disable]	▲ Enable/Disable VMD in this
VMD Config for IOU O(PCIe Slot	1)	Stack.
Enable/Disable VMD	[Enable]	
VMD port A	[Disable]	
VMD port B	[Disable]	
VMD port C	[Disable]	
VMD port D	[Disable]	
VMD port E	[Disable]	
VMD port F	[Disable]	
VMD port G	[Disable]	
VMD port H	[Disable]	
Hot Plug Capable	[Disable]	
CfgBar size	25	++: Select Screen
CfgBar attribute	[64–bit prefetchable]	↑↓: Select Item
MemBar1 size	26	Enter: Select
MemBar1 attribute	[32-bit	+/-: Change Opt.
	non-prefetchable]	F1: General Help
MemBar2 size	21	F2: Previous Values
MemBar2 attribute	[64-bit	F3: Optimized Defaults
	non-prefetchable]	F4: Save & Exit
VMD for Direct Assign	[Disable]	ESC: Exit
VMD Config for IOU 1(PCIe Slot	3)	
Enable/Disable VMD	[Disable]	
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ltem	Option	Description
Enable/Disable VMD	Disable [Default] Enable	Enable/Disable VMD in this Stack.
VMD port A	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port B	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port C	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port D	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port E	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port F	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port G	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port H	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
Hot Plug Capable	Disable [Default] Enable	Enable/Disable Hot Plug for PCIe Root Ports.

CfgBar Size	25	Setup VMD Config BAR size (in bits Min=20, Max=27), ex:20bits=1MB, 27bits=128MB.
CfgBar attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR attribute, like 64-bit or prefectchable.
MemBar1 size	26	Setup VMD Memory BAR1 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar1 attribute	32-bit non-prefetchable [Default] 64-bit non-prefetchable 64-bit prefetchable	Setup VMD Config BAR1 attribute, like 64-bit or prefectchable.
MemBar2 size	21	Setup VMD Memory BAR2 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar2 attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR2 attribute, like 64-bit or prefectchable.
VMD for Direct Assign	Disable [Default] Enable	Enable/Disable VMD for Direct Assign.

VMD Config for IOU 1(PCIe Slot3)

	Aptio Setup – AMI Socket Config	
Enable/Disable VMD	[Disable]	▲ Enable/Disable VMD in this
	[Disable]	Stack.
VMD Config for IOU 1(PCIe Slot3) Enable/Disable VMD VMD port A VMD port B VMD port C VMD port C VMD port E VMD port F VMD port F VMD port G VMD port H Hot Plug Capable CfgBar attribute MemBar1 size MemBar1 size MemBar2 size MemBar2 size MemBar2 attribute VMD for Direct Assign	[Enable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] 25 [64-bit prefetchable] 26 [32-bit non-prefetchable] 21 [64-bit non-prefetchable] [Disable]	<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>
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Item	Option	Description
Enable/Disable VMD	Disable [Default] Enable	Enable/Disable VMD in this Stack.
VMD port A	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port B	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on

		specific root port.
VMD port C	Disable [Default]	Enable/Disable Intel Volume
		Management Device Technology on
	Enable	specific root port.
	Dischle lDefeulti	Enable/Disable Intel Volume
VMD port D		Management Device Technology on
	Enable	specific root port.
	DischlatDefaulti	Enable/Disable Intel Volume
VMD port E		Management Device Technology on
	Enable	specific root port.
	Dischle [Default]	Enable/Disable Intel Volume
VMD port F		Management Device Technology on
	Enable	specific root port.
	Dischle [Default]	Enable/Disable Intel Volume
VMD port G		Management Device Technology on
	Enable	specific root port.
	Disable [Default]	Enable/Disable Intel Volume
VMD port H	Disable[Default]	Management Device Technology on
	Ellable	specific root port.
Hot Plug Capable	Disable[Default]	Enable/Disable Hot Plug for PCle Root
Hot Flug Capable	Enable	Ports.
CfgBar Size	25	Setup VMD Config BAR size (in bits
		Min=20, Max=27), ex:20bits=1MB,
		27bits=128MB.
	32-bit non-prefetchable	Setup VMD Config BAR attribute like
CfgBar attribute	64-bit non-prefetchable	64-bit or prefectchable
	64-bit prefetchable[Default]	
		Setup VMD Memory BAR1 size (in bits
MemBar1 size	26	Min=20), ex:20bits=1MB, 22bits=4MB,
		26bits=64MB.
	32-bit non-prefetchable[Default]	Setup VMD Config BAR1 attribute like
MemBar1 attribute	64-bit non-prefetchable	64-bit or prefectchable
	64-bit prefetchable	
		Setup VMD Memory BAR2 size (in bits
MemBar2 size	21	Min=20), ex:20bits=1MB, 22bits=4MB,
		26bits=64MB.
	32-bit non-prefetchable	Setup VMD Config BAR2 attribute. like
MemBar2 attribute	64-bit non-prefetchable	64-bit or prefectchable.
	64-bit prefetchable[Default]	
VMD for Direct Assign	Disable[Default]	Enable/Disable VMD for Direct Assign
	Enable	

VMD Config for IOU 2(PCIe Slot5)

	Aptio Setup – AMI Socket Config	
VMD Config for IOU 2(PCIe Slot5) Enable/Disable VMD VMD port A VMD port B VMD port C VMD port C VMD port E VMD port F VMD port F VMD port H Hot Plug Capable	(Enable) (Disable) (Disable) (Disable) (Disable) (Disable) (Disable) (Disable) (Disable) (Disable) (Disable)	▲ Enable/Disable VMD in this Stack.
CryBar Size CfgBar attribute MemBar1 size MemBar2 size MemBar2 size VMD for Direct Assign	25 [64-bit prefetchable] 26 [32-bit non-prefetchable] 21 [64-bit non-prefetchable] [Disable]	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Enable/Disable VMD	[Disable]	

ltem	Option	Description
Enable/Disable VMD	Disable [Default] Enable	Enable/Disable VMD in this Stack.
VMD port A	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port B	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port C	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port D	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port E	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port F	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port G	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port H	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
Hot Plug Capable	Disable [Default] Enable	Enable/Disable Hot Plug for PCIe Root Ports.

CfgBar Size	25	Setup VMD Config BAR size (in bits Min=20, Max=27), ex:20bits=1MB, 27bits=128MB.
CfgBar attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR attribute, like 64-bit or prefectchable.
MemBar1 size	26	Setup VMD Memory BAR1 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar1 attribute	32-bit non-prefetchable [Default] 64-bit non-prefetchable 64-bit prefetchable	Setup VMD Config BAR1 attribute, like 64-bit or prefectchable.
MemBar2 size	21	Setup VMD Memory BAR2 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar2 attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR2 attribute, like 64-bit or prefectchable.
VMD for Direct Assign	Disable [Default] Enable	Enable/Disable VMD for Direct Assign.

VMD Config for IOU 3(PCIe Slot7)

Aptio Setup - AMI Socket Config		
VMD Config for IOU 2(PCIe Slot5) Enable/Disable VMD	[Disable]	▲ Enable/Disable VMD in this Stack.
VMD Config for IOU 3(PCIe Slot7) Enable/Disable VMD VMD port A VMD port B VMD port C VMD port C VMD port E VMD port E VMD port F VMD port G	[Enable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable]	
VMD port H Hot Plug Capable OfgBar size OfgBar attribute MemBar1 size MemBar1 attribute	[Disable] [Disable] 25 [64-bit prefetchable] 26 [32-bit non-prefetchable]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values E3: Ontimized Defaults</pre>
MemBar2 size MemBar2 attribute	21 [64-bit non-prefetchable]	F4: Save & Exit ESC: Exit
VMD for Direct Assign	[Disable]	

Item	Option	Description
Enable/Disable VMD	Disable Enable [Default]	Enable/Disable VMD in this Stack.
VMD port A	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port B	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.

	Dischle [Default]	Enable/Disable Intel Volume
VMD port C	Enchlo	Management Device Technology on
	Enable	specific root port.
	Disable [Default]	Enable/Disable Intel Volume
VMD port D		Management Device Technology on
		specific root port.
	Disable [Default]	Enable/Disable Intel Volume
VMD port E	Enable	Management Device Technology on
		specific root port.
	Disable [Default]	Enable/Disable Intel Volume
VMD port F	Enable	Management Device Technology on
	Enable	specific root port.
	Disable [Default]	Enable/Disable Intel Volume
VMD port G	Fnable	Management Device Technology on
	Enable	specific root port.
	Disable [Default]	Enable/Disable Intel Volume
VMD port H	Fnable	Management Device Technology on
		specific root port.
Hot Plug Capable	Disable[Default]	Enable/Disable Hot Plug for PCIe Root
	Enable	Ports.
	25	Setup VMD Config BAR size (in bits
CfgBar Size		Min=20, Max=27), ex:20bits=1MB,
		27bits=128MB.
	32-bit non-prefetchable	Setup VMD Config BAR attribute, like
CtgBar attribute	64-bit non-prefetchable	64-bit or prefectchable.
	64-bit prefetchable[Default]	
	20	Setup VMD Memory BAR1 size (in bits
MemBar1 size	26	MIN=20), ex:20bits=1MB, 22bits=4MB,
	22 hit non profetabable [Defeult]	2001IS=04IMB.
MomPort ottribute	32-bit non-prefetchable	Setup VMD Config BAR1 attribute, like
	64 bit profetebable	64-bit or prefectchable.
		Sotup VMD Momory BAR2 size (in hits
MomBor2 size	21	Min-20) ov:20bite-1MR 22bite-4MR
Membal2 Size	21	26bits=64MB
	32-hit non-prefetchable	
MemBar2 attribute	64-bit non-prefetchable	Setup VMD Config BAR2 attribute, like
	64-bit prefetchable [Default]	64-bit or prefectchable.
	e i sit prototonusio[Boldalt]	
	Disable[Default]	

VMD Config for IOU 4(PCIe Slot2.4.6)

Aptio Setup - AMI Socket Config			
VMD Config for IOU 3(PCIe Slot7) Enable/Disable VMD	[Disable]	Enable/Disable VMD in this Stack.	
VMD Config for IDU 4(PCIe Slot2.4.6) Enable/Disable VMD VMD port A VMD port B VMD port C VMD port C VMD port E VMD port F VMD port F VMD port G VMD port H Hot Plug Capable CfgBar size CfgBar attribute MemBar1 size	[Enable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] [Disable] 25 [64-bit prefetchable] 26	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help T0: Devices Values</pre>	
MemBar2 size MemBar2 attribute VMD for Direct Assign	non-prefetchable] 21 [64-bit non-prefetchable] [Disable]	F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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Item	Option	Description
Enable/Disable VMD	Disable [Default] Enable	Enable/Disable VMD in this Stack.
VMD port A	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port B	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port C	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port D	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port E	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port F	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port G	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
VMD port H	Disable [Default] Enable	Enable/Disable Intel Volume Management Device Technology on specific root port.
Hot Plug Capable	Disable [Default] Enable	Enable/Disable Hot Plug for PCle Root Ports.

CfgBar Size	25	Setup VMD Config BAR size (in bits Min=20, Max=27), ex:20bits=1MB, 27bits=128MB.
CfgBar attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR attribute, like 64-bit or prefectchable.
MemBar1 size	26	Setup VMD Memory BAR1 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar1 attribute	32-bit non-prefetchable [Default] 64-bit non-prefetchable 64-bit prefetchable	Setup VMD Config BAR1 attribute, like 64-bit or prefectchable.
MemBar2 size	21	Setup VMD Memory BAR2 size (in bits Min=20), ex:20bits=1MB, 22bits=4MB, 26bits=64MB.
MemBar2 attribute	32-bit non-prefetchable 64-bit non-prefetchable 64-bit prefetchable [Default]	Setup VMD Config BAR2 attribute, like 64-bit or prefectchable.
VMD for Direct Assign	Disable [Default] Enable	Enable/Disable VMD for Direct Assign.

3.6.4.4 Advanced Power Management Configuration

Aptio Setup – AMI Socket Config		
Advanced Power Management Configuration ► CPU P State Control ► CPU C State Control	P State Control Configuration Sub Menu, include Turbo, XE and etc.	
	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	
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3.6.4.4.1 CPU P State Control

Aptio Setup - AMI Socket Config		
CPU P State Control		Intel SST-PP Select allows
Intel SST-PP Dynamic SST-PP	(Auto) (Disable)	AUTO: Choose lowest level hardware supported.
SST-PP Core Level Capable Count	P1 Package Ratio TDP (W) DTS_Max	
0 Yes 028 3 Yes 024 4 Yes 020	20 250 093 19 225 088 19 205 084	
Activate SST-BF Configure SST-BF SpeedStep (Pstates) EIST PSD Function Boot performance mode Energy Efficient Turbo Mode CPU Flex Ratio Override CPU Core Flex Ratio	[Disable] [Enable] [Enable] [HW_ALL] [Max Performa [Enable] [Enable] [Disable] 23	++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
Intel SST-PP	Auto [Default] Level0 Level1 Level2 Level3 Level4	Intel SST-PP Select allows user to choose level. AUTO: Choose lowest level hardware supported.
Dynamic SST-PP	Disable [Default] Enable	Support Dynamic SST-PP selection NOTE: HWP Native Mode is a pre-requisite for enabling Dynamic SST-PP.
Activate SST-BF	Disable [Default] Enable	This Option allows SST-BF to be enabled. NOTE: HWP Native Mode is a pre-requisite for enabling SST-BF; HWP Native Mode with No Legacy is a pre-requisite for configuring SST-BF.
SpeedStep (Pstates)	Disable Enable [Default]	Enable/Disable EIST (P-States).
EIST PSD Function	HW_ALL [Default] SW_ALL	Choose HW_ALL/SW_ALL in _PSD return.
Boot performance mode	Max Performance [Default] Max Efficient Set by Intel Node Manager	Select the performance state that the BIOS will set before OS hand off.
Energy Efficient Turbo	Enable [Default] Disable	Energy Efficient Turbo Disable, MSR 0x1FC[19].
Turbo Mode	Disable Enable [Default]	Enable/Disable processor Turbo Mode (requires EMTTM enabled too).
CPU Flex Ratio Override	Disable [Default] Enable	Enable/Disable CPU Flex Ratio Programming.

3.6.4.4.2 CPU C State Control

	Aptio Setup – AMI Socket Config	
CPU C State Control	[auto]	Allows Monitor and MWAIT instructions, Auto maps to
CPU C1 auto demotion CPU C1 auto undemotion CPU C6 report Enhanced Halt State (C1E) OS ACPI Cx	[Enable] [Enable] [Auto] [Enable] [ACPI C2]	Enduze.
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Fxit</pre>
Versir	an 2 22 1287 Conucidat (C) 20	23 AMT

Item	Option	Description
Enable Monitor MWAIT	Disable Enable Auto [Default]	Allows Monitor and MWAIT instructions, Auto maps to Enable.
CPU C1 auto demotion	Disable Enable [Default]	Allows CPU to automatically demote to C1. Takes effect after reboot.
CPU C1 auto undemotion	Disable Enable [Default]	Allows CPU to automatically undemote from C1. Takes effect after reboot.
CPU C6 report	Disable Enable Auto [Default]	Enable/Disable CPU C6(ACPI C3) report to OS, Auto maps to enable.
Enhanced Halt State (C1E)	Disable Enable [Default]	Core C1E auto promotion Control. Takes effect after reboot. Will be enforced to enable when Optimized Power Mode is enabled.
OS ACPI Cx	ACPI C2 [Default] ACPI C3	Report CC3/CC6 to OS ACPI C2 or ACPI C3.

3.6.5 Server Mgmt

Main Advanced Platform Config	Aptio Setup – AMI Socket Config Server Mgmt	Security Boot Save & Exit
BMC Self Test Status BMC Device ID BMC Device Revision BMC Firmware Revision IPMI Version IPMI BMC Interface	PASSED 32 81 13.26 2.0 KCS	Enable/Disable interfaces to communicate with BMC
IPML Support IPMI Interface Type Wait For BMC FRB-2 Timer timeout FRB-2 Timer Policy OS Watchdog Timer OS Wtd Timer Timeout OS Wtd Timer Policy	[Enabled] [Kcs Interface] [Disabled] 6 [Do Nothing] [Disabled] 10 [Reset]	
BMC Configured Power Control Policy Power Control Policy	Do Not PowerUp [Unspecified]	 +/-: Unange Upt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
 System Event Log Bmc self test log BMC network configuration View System Event Log BMC User Settings BMC Warm Reset 		
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Item	Options	Description
BMC Support	Enabled [Default] Disabled	Enable/Disable interfaces to communicate with BMC.
IPMI Interface Type	Kcs Interface [Default] Ssif Interface Ipmb Interface Usb Interface Oem1 Interface Oem2 Interface	Type of Interface to communicate BMC from HOST.
		Wait For BMC response for specified time out. BMC
Wait For PMC	Enabled	starts at the same time when BIOS starts during AC
Wait For BMC	Disabled[Default]	power ON. It takes around 30 seconds to initialize
		Host to BMC interfaces.
FRB-2 Timer	Enabled [Default] Disabled	Enable or Disable FRB-2 time (POST timer).
	t imeout 6	Enter value Between 3 to 6 min for FRB-2 Timer
FRB-2 Timer timeout		Expiration value.
	Do Nothing[Default]	Configure how the system should respond if the FRB-2
FRB-2 Timer Policy	Reset Power Down	Timer expires. Not available if FRB-2 Timer is
	Power Cycle	disabled.
OS Watchdog Timer	Enabled Disabled [Default]	If enabled, starts a BIOS timer which can only be shut
		off by Management Software after the OS loads. Helps
		determine that the OS successfully loaded or follows

		the OS Boot Watchdog Timer policy.
Power Control Policy	Do Not PowerUp Last Power State Power Restore Unspecified [Default]	Configure how the system should respond if AC Power is lost, Reset not required as selected Power policy will be set in BMC when policy is saved.
BMC Warm Reset	Press <enter> to do Warm Reset BMC.</enter>	

3.6.5.1 System Event Log

	Aptio Setup – AMI Server Mgmt	
Enabling/Disabling Options SEL Components	[Enabled]	Change this to enable or disable event logging for error/progress codes during
Erasing Settings Erase SEL When SEL is Full	[No] [Do Nothing]	boot.
Custom EFI Logging Options Log EFI Status Codes	[Error code]	
NOTE: All values changed here do not effect until computer is resta	take rted.	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
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Item	Option	Description
SEL Componente	Enabled[Default]	Change this to enable or disable event logging
SEL Components	Disabled	for error/progress codes during boot.
	No[Default]	
Erase SEL	Yes, On next reset	Choose options for erasing SEL.
	Yes, On every reset	
	Do Nothing[Default]	
When SEL is Full	Erase Immediately	Choose options for reactions to a full SEL.
	Delete Oldest Record	
	Disabled	
Log EFI Status Codes	Both	Disable the logging of EFI Status Codes or log
	Error code[Default]	only error code or only progress code or both.
	Progress code	

3.6.5.2 Bmc self test log

	Aptio Setup – AMI Server Mgmt	
Log area usage = 00 out of 20 logs		Erase Log Options
Erase Log When log is full	[Yes, On every reset] [Clear Log]	
Log Empty		
		++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Option	Description
Erase Log	Yes, On every reset [Default] No	Erase Log Options.
When log is full	Clear Log [Default] Do not log any more	Select the action to be taken when log is full.

3.6.5.3 BMC network configuration

	Aptio Setup – AMI Server Mgmt	
BMC network configuration ***********************************	[Unspecified] DynamicAddressBmcDhcp 0.0.0.0 62-3E-87-2E-1C-8D 0.0.0.0 00-00-00-00-00 [Enabled] [Unspecified]	 Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase ++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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	Aptio Setup – AMI Server Mgmt	
Current Configuration Address source	DynamicAddressBmcDhcp	Select to configure LAN channel parameters statically
Station IPv6 address ::		BNC). Unspecified option will not modify any BMC network
Prefix Length O		parameters during bios phase
IPv6 address status IPv6 DHCP Algorithm	Disabled DHCPv6	
Configuration Router Lan1 Address	[Unspecified]	
Current Router Configuration Address source	DynamicAddressBmcDhcp	<pre>++: Select Screen f↓: Select Item Enter: Select</pre>
IPv6 Router IP Address ::		+/-: Change Opt. F1: General Help F2: Braviews Values
IPv6 Router Prefix Length 255		F3: Optimized Defaults F4: Save & Exit
IPv6 Router Prefix Value ::		
Version 2	22 1287 Conucidat (C) 2023	

Item	Option	Description	
	Unspecified[Default]	Select configure LAN channel parameters	
Configuration Address	Static	statically or dynamically(by BIOS or BMC).	
source	DynamicBmcDhcp	Unspecified option will not modify any BMC	
	DynamicBmcNonDhcp network parameters during BIOS pha		
IDV6 Support	Enabled[Default]	Frankla er Disakla I ANA ID-0 Overset	
ievo Support	Disabled	Enable of Disable LANT IPv6 Support.	

Configuration Address source	Unspecified [Default] Static DynamicBmcDhcp	Select to configure LAN channel parameters statically or dynamically(by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.
Configuration Router Lan1 Address source	Unspecified [Default] Static DynamicBmcDhcp	Select to configure LAN channel parameters statically or dynamically (by BIOS or BMC). Unspecified option will not modify any BMC network parameters during BIOS phase.

3.6.5.4 BMC User Settings

Aptio Setup – AMI Server Mgmt	
BMC User Settings	Press <enter> to Add a User.</enter>
▶ Add User	
▶ Delete User	
▶ Change User Settings	
	++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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3.6.5.4.1 BMC Add User Details

	Aptio Setup – AMI Server Mgmt	
BMC Add User Details		Enter BMC User Name
User Name User Password User Access Channel No User Privilege Limit	[Disable] O [No Access]	
		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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Item	Description
User Name	Enter BMC User Name.

3.6.5.4.2 BMC Delete User Details

Aptio Setup – AMI Server Mgmt	
BMC Delete User Details	Enter BMC User Name
User Name User Password	
	++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Item	Description	
User Name	Enter BMC User Name.	

3.6.5.4.3 BMC Change User Settings

	Aptio Setup – AMI Server Mgmt	
BMC Change User Settings User Name User Password Change User Password User Access Channel No User Privilege Limit	[Disable] 0 [No Access]	Enter BMC User Name +: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
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ltem	Description
User Name	Enter BMC User Name.

3.6.6 Security

Aptio Setup - AMI						
Main Advance	d Platform Config	Socket Config	Server	Mgmt S	Security Boot	Save & Exit
Password Descr	iption				Set Administr	ator Password
If ONLY the Adi then this only only asked for If ONLY the Us is a power on p boot or enter S have Administra The password l in the followin Minimum length	ministrator's passu limits access to S when entering Setu er's password is se bassword and must b Setup. In Setup the ator rights. ength must be ng range:	word is set, Setup and is up. et, then this we entered to e User will				
Maximum length		20			++: Select Sc	reen
Ĭ					t↓: Select It	em
Administrator A					Enter: Select	
User Password					+/-: Change O F1: General H F2: Previous F3: Optimized F4: Save & Ex	µpt. Help Values ∣Defaults ∷it
► Secure Boot					ESC: Exit	
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• Administrator Password

Set setup Administrator Password

• User Password

Set User Password

3.6.6.1 Secure Boot



3.6.7 Boot

Main Advanced Platform Config	Aptio Setup – AMI Socket Config Server Mgmt	Security Boot Save & Exit
Boot Configuration Setup Prompt Timeout Bootup NumLock State Quiet Boot	<mark>1</mark> [On] [Disabled]	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.
FIXED BOOT ORDER Priorities Boot Option #1 Boot Option #2 Boot Option #3 Boot Option #4 Boot Option #5	[Hand Disk] [NVME] [CD/DVD] [SD] [USB Device:UEFI: 20070 USB Flock Device	
Boot Option #6 Optimized Boot ▶ UEFI USB Drive BBS Priorities	NOATH USB Flash Drive 1100, Partition 1] [Network] [Disabled]	↔: Select Screen ↓: Select Item Enter: Select ↓/: Change Opt. F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit ESC: Exit
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Boot Option #1	[UEFI: ADATA USB Flash Drive 1100, Partition 1]	Sets the system boot order
		++: Select Screen 1: Select Item Enter: Select +/-: Change Opt.
		F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

ltem	Option	Description
Setup Prompt Timeout	1~ 65535	Set the default timeout before system boot. A value of 65535 will disable the timeout completely.
Bootup NumLock State	On [Default] Off	Select the keyboard NumLock state
Quiet Boot	Disabled [Default] Enabled	Enables or disables Quiet Boot option
Boot Option #1	Hard Disk [Default] NVME CD/DVD SD USB Device Network Disabled	Set the system boot order.
Boot Option #2	Hard Disk NVME [Default] CD/DVD SD USB Device Network Disabled	Set the system boot order.
Boot Option #3	Hard Disk NVME CD/DVD [Default] SD USB Device Network Disabled	Set the system boot order.
Boot Option #4	Hard Disk NVME	Set the system boot order.
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	CD/DVD	
	SD[Default]	
	USB Device	
	Network	
	Disabled	
	Hard Disk	
	NVME	
	CD/DVD	
Boot Option #5	SD	Set the system boot order.
	USB Device[Default]	
	Network	
	Disabled	
	Hard Disk	
	NVME	
	CD/DVD	
Boot Option #6	SD	Set the system boot order.
	USB Device	
	Network[Default]	
	Disabled	
		Enables or disables Optimized Boot. Enabling
		Optimized Boot will disable Csm support and
Ontimized Reat	Disabled[Default]	disable connecting Network devices to decrease
Optimized Boot	Enabled	boot time. While disabling Optimized Boot, make
		sure to restore Csm Support option to previous
		value before enabling Optimized Boot.

3.6.8 Save and exit

Aptio Setup – AMI Main Advanced Platform Config Socket Config Server Mgmt	Security Boot Save & Exit
Save Options Save Changes and Exit Discard Changes and Exit Save Changes and Reset Discard Changes and Reset Save Changes Discard Changes Default Options Restore Defaults	Exit system setup after saving the changes.
Save as User Defaults Restore User Defaults Boot Override UEFI: ADATA USB Flash Drive 1100, Partition 1 (ADATA USB Flash Drive 1100) Launch EFI Shell from filesystem device	<pre>++: Select Screen t1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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3.6.8.1 Save Changes and Exit

Use the save changes and reset option to save the changes made to the BIOS options and to exit the BIOS configuration setup program.

HPM-SRSUA User's Manual 3.6.8.2 Discard Changes and Exit

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

3.6.8.3 Save Changes and Reset

Reset the system after saving the changes.

3.6.8.4 Discard Changes and Reset

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The setup program then exits and reboots the controller.

3.6.8.5 Save Changes

Changes made to BIOS settings during this session are committed to NVRAM. The setup program remains active, allowing further changes.

3.6.8.6 Discard Changes

Any changes made to BIOS settings during this session of the BIOS setup program are discarded. The BIOS setup continues to be active.

3.6.8.7 Restore Defaults

This option restores all BIOS settings to the factory default. This option is useful if the controller exhibits unpredictable behavior due to an incorrect or inappropriate BIOS setting.

3.6.8.8 Save as User Defaults

This option saves a copy of the current BIOS settings as the User Defaults. This option is useful for preserving custom BIOS setup configurations.

3.6.8.9 Restore User Defaults

This option restores all BIOS settings to the user defaults. This option is useful for restoring previously preserved custom BIOS setup configurations.

4. Drivers Installation



Note: Installation procedures and screen shots in this section are for your reference and may not be exactly the same as shown on your screen.

4.1 Install Chipset Driver





Note: The installation procedures and screen shots in this section are based on Windows 10 operation system. If the warning message appears while the installation process, click Continue to go on.

Step 3. Click Install.







Step1. Click Next.



Step 2. Click Accept.

×

4.2 Install VGA Driver





Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.



Please select a setup type.

space.)

O Complete

Choose the setup type that best suits your needs.

Setup Type



Step 1. Click Next to continue installation.





All program features will be installed. (Requires the most disk



Step 2. Click Next.

Step 5. Click Install.

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Step 6. Click Finish to complete setup.

4.3 Install Audio Driver



Step 1. Click Yes to continue installation.



Step 2. Setup completed.

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4.4 Install Ethernet Driver

Not	e: The installation procedures and screen shots in this section are based on Windows 10 operation system.
Installing Drivers	
Install or update c	rivers for Intel® Network Connections.

Cancel

Step	1.	Click	ΟΚ	to	continue	installation	

OK

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

Step 2. Setup completed.

4.5 Install QuickAssist Technology Driver



HPM-SRSUA User's Manual 4.6 Install VROC Driver



Note: The installation procedures and screen shots in this section are based on Windows 10 operation system.



Step 1. Click Install to continue installation.



Step 2. Click Next.



Step 3. Click Accept.

intel . Virtual R	AID on CPU	×
() Warnings () Destination	Destination Folder Press Next to install to the default folder, or press Change to choose another destination folder. C\Program Files Intel\Intel(R) Virtual RAID on CPU\ Reset))
8.0.0.4035	← Back Next	



intel . Virtual R	AID on CPU	
 O Warnings O Destination Install ⊡ Summary 	Confirmation You are about to install the following components: Intel(R) Virtual RAID on CPU	
0.0.0.4025	€ Back	Install 🛟

Step 5. Click Install.

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Step 6. Setup completed.













Unit: mm



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