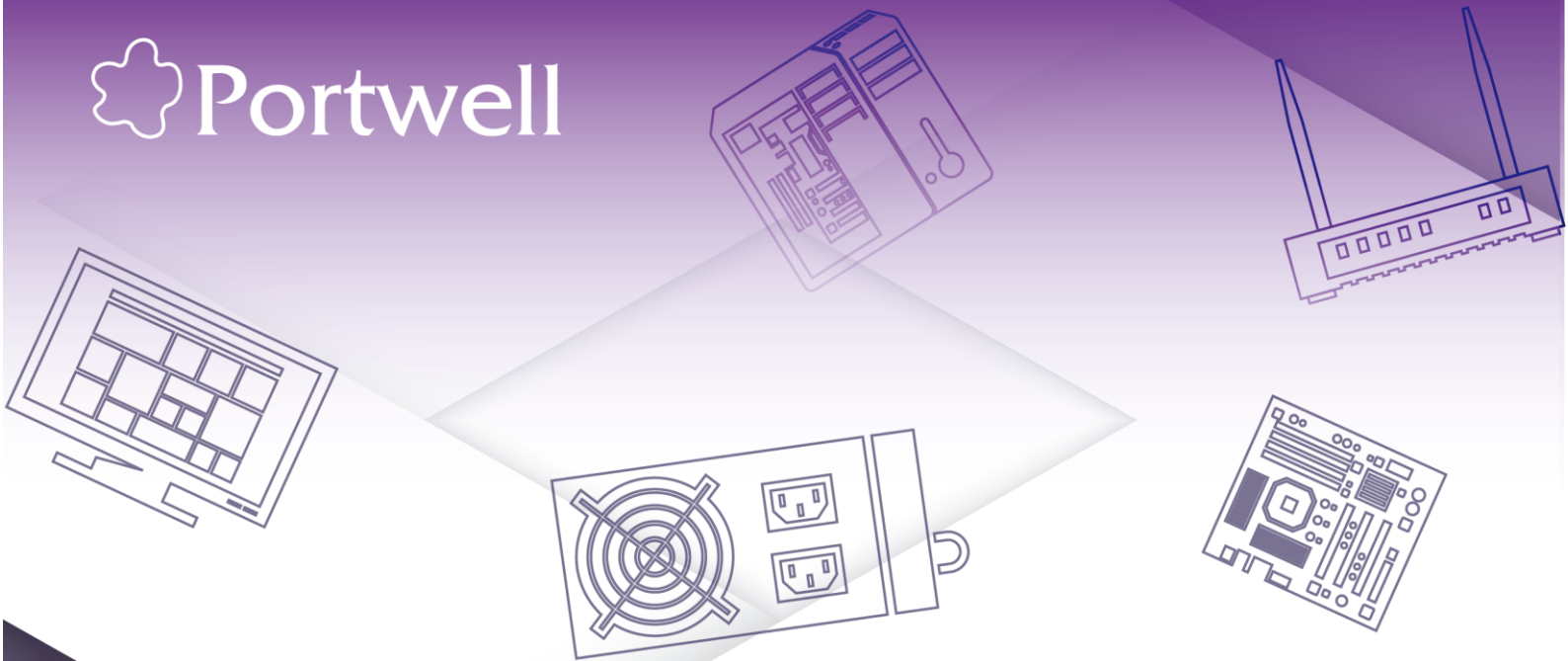
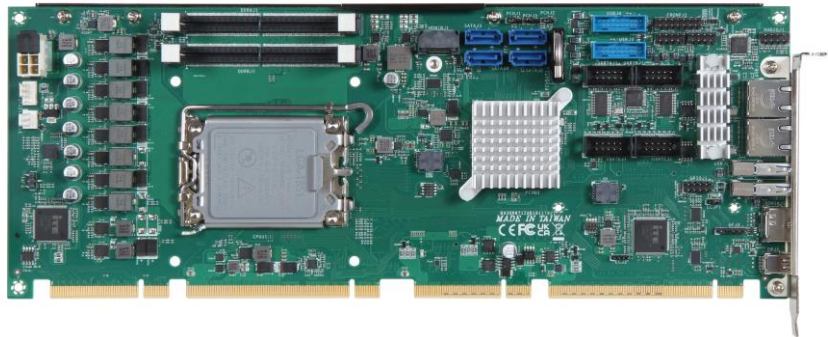




ROB0-8117 Series

PICMG1.3 Single Host Board

User Manual

Version R1.0

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Revision History

R1.0	Official Release Rev. 1.0

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Chapter 1

Overview

1 Introduction

1. Introduction

ROBO-8117G2AR, a PICMG 1.3 Single Host Board (SHB) with the latest Intel 15th Generation Core processors supported Core Ultra 9.7.5 processors. Portwell's ROBO-8117G2AR implements flexible PCI Express Gen 5 expansion by one PCI Express x16 (or two PCI Express x 8) with dedicated processor sku, which is ideal for a range of applications, such as Industrial Automation, Digital Signage, and Medical.

ROBO-8117G2AR adopt Intel W880 and Q870 PCH. Providing up to 96GB DDR5 6400 SO-DIMM (Ultra 9,7support 6400MT/s and Ultra 5 support 5600 MT/s) system memory supported with ECC or non-ECC option. ROBO-8117G2AR with the 15th generation Intel® processor family features and integrated, enhanced graphics engine which provides significant 3D performance, up to DirectX® 12. It supports triple display function via dual HDMI and mini-DP. Rich I/O functions are also provided by ROBO-8117G2AR single host board, which is 2x USB 3.2(Gen2), 4x USB 3.2(Gen2)on board , 4x USB 2 on board, 4x USB 2.0 (4 ports via backplane), 6x SATA III ports (dual ports via backplane), 2x RS232 ports, 2x smart COM ports which select RS232/422/485 mode by bios adjustment, and dual Intel GbE LAN ports. It also supports on board TPM 2.0 to secure your applications.

For the industries who already have large install based systems, ROBO-8117G2AR not only provides a way to upgrade to use the latest Intel processors, but also supporting legacy elements such as four PCI expansion, four Serial ports

Chapter 2

Overview

- 2 Specifications
- 2.1 Supported Operating Systems
- 2.2 Mechanical Dimension
- 2.3 Power Consumption

2. Specifications

Main Processor	◆ Intel® Arrow Lake-S Core™ Ultra Processors				
	Family	Number	Frequency	Cores	Power
	Core Ultra 9	Ultra 9-285T	1.4GHz	24C	35W
	Core Ultra 9	Ultra 9-285	2.5GHz	24C	65W
	Core Ultra 7	Ultra 7-265T	1.5GHz	20C	35W
	Core Ultra 7	Ultra 7-265	2.4GHz	20C	65W
	Core Ultra 5	Ultra 5-225	3.3GHz	10C	65W
	Core Ultra 5	Ultra 5-235	3.4GHz	14C	65W
	Core Ultra 5	Ultra 5-245	3.5GHz	14C	65W
	Core Ultra 5	Ultra 5-225T	2.5GHz	10C	35W
	Core Ultra 5	Ultra5-235T	2.2GHz	14C	35W
	Core Ultra 5	Ultra 5-245T	2.2GHz	14C	35W
System BIOS	◆ AMI UEFI BIOS				
Main Memory	◆ Supports two DDR5 dual channel up to 96GB SO-DIMM sockets. ◆ Supports DDR5-6400 MT/s (Ultra 9,7) and DDR5-5600 MT/s (Ultra 5)				
Graphics	◆ Controller: Intel® Graphic with Xe LPG architecture, up to 4Xe Graphics Engines ◆ mini-DP: Resolution up to 3840x 2160 ◆ HDMI: Resolution up to 4096 x 2160				
Expansion Interface	◆ From CPU: 1x PCI Express x16 or 2x PCI Express x8 by BIOS setting , 1x PCI Express x4(Gen4) via B2B card support connect with Backplane ◆ From PCH: 1x PCI Express x4 or 4x PCI Express x1 by different bios support , 2x PCI Express x4(Gen4) via B2B card connect with Backplane				
SATA Interface	◆ Four SATA III ports (SATA 6Gb/s), dual ports via backplane				
Input/Output	◆ Serial Ports: 2x RS-232 & 2x RS-232/422/485 selectable by bios ◆ USB Port: 2x USB 3.2(Gen2) on bracket, 4x USB 3.2(Gen2) board header , 4x USB 2 board header & 4x USB 2.0 (4 ports via backplane) ◆ GPIO connector: 8GPI + 8GPO ◆ Audio Interface: Mic-In / Line-Out / Line-in (on-board header)				
Ethernet	◆ Supports dual 100/1000/2500 Mbps Ethernet port (s) via PCI Express x1 interface by Intel WGI226 controller ◆ Dual RJ45 connector on bracket				
TPM	◆ On-board TPM 2.0 support (TPM IC: Infineon SLB9670TT2.0)				
High Drive GPIO	◆ One pin-header for GPIO (8bit in & 8bit out)				
SMBus	/				

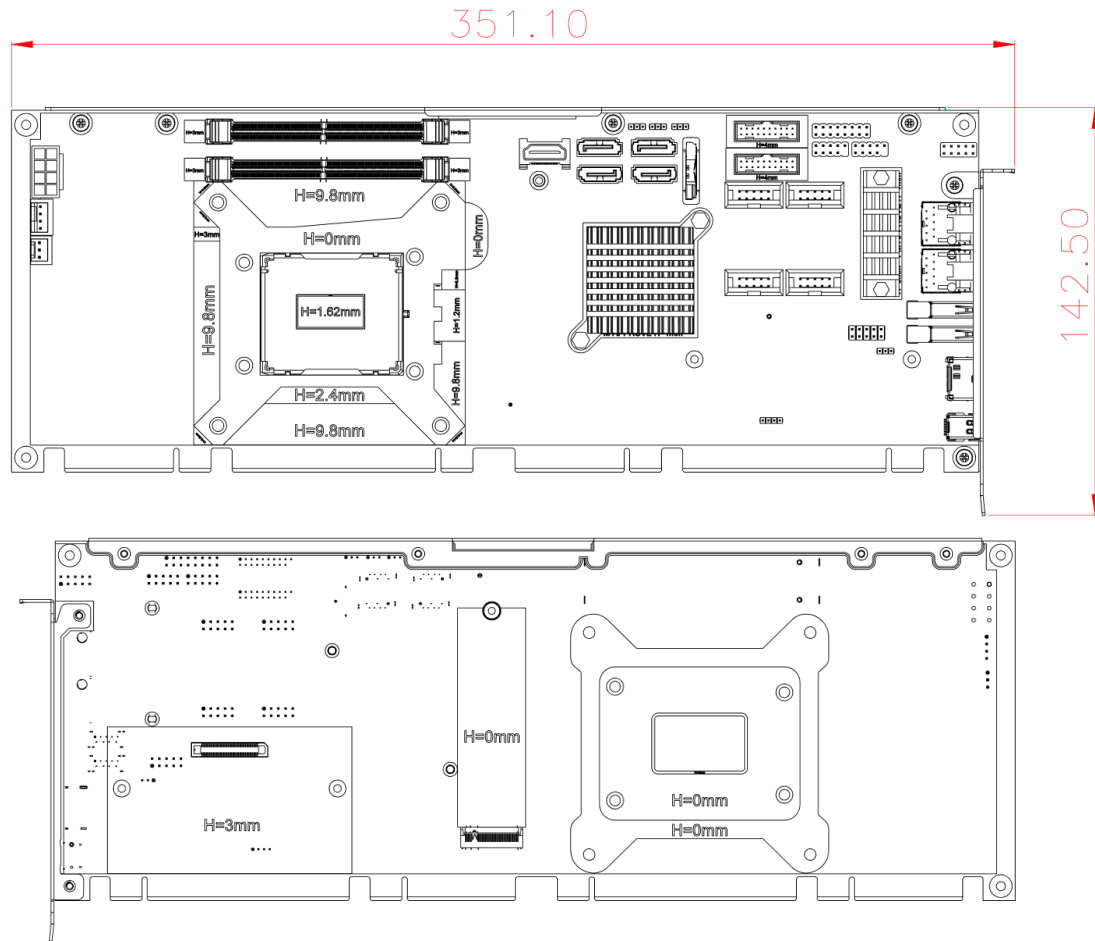
Mechanical and environmental specifications	<ul style="list-style-type: none">◆ Operating temperature: 0 ~ 60° C◆ Storage temperature:-20 ~ 80° C◆ Humidity: 5 ~ 90% non-condensing◆ Power supply voltage: ATX◆ Board size: 338.5mm x 126.39mm, 13.33" (L) x 4.98" (W)
Certification	CE/FCC/UKCA

2.1 Supported Operating Systems

The ROBO-8117 series supports the following operating systems.

- Windows 10 IoT Enterprise LTSC 2021
- Windows 11 IoT Enterprise GAC 24H2
- Windows 11 IoT Enterprise LTSC 2024
- Ubuntu 24.04 LTS
- Redhat Enterprise
- WR Linux 3
- Ubuntu 22.04

2.2 Mechanical Dimensions



2.3 Power Consumption

Test Configuration	
CPU Type	Intel® Core™ Ultra 7 265@2.40GHz,30MBytes
SBC BIOS	Portwell,Inc.BIOS Version & Build Date : 0.0.7 (01062025)
Memory	TeamGroup DDR5 SO-DIMM 5600 48G *2
Graphic Card	Intel® Graphics
Graphic Driver	Intel® Graphics,Version:32.0.101.6129
LAN Card #1	Intel® Ethernet Controller I226-LM
LAN Driver #1	Intel® Ethernet Controller I226-LM,Version:2.1.4.2
LAN Card #2	Intel® Ethernet Controller I226-LM#2

LAN Driver #2	Intel® Ethernet Controller I226-LM#2,Version:2.1.4.2
Audio Card	High Definition Audio Device
Audio Driver	High Definition Audio Device,Version:10.0.26100.1150
Chip Driver	Intel® Chipset Device Software, Version:10.1.19759.8548
USB 2.0 Driver	USB Composite Device,Version:10.0.26100.1882
USB 3.0 Driver	Intel® USB3.2 eXtensible Host Controller --1.20 (Microsoft), Version : 10.0.26100.2454
EC Version	0.2 (01062025)
OS Edition	Windows 11 24H2
Hard Drive	Samsung SSD 980 Pro
Power Supply	GPS-500BBC
Carrier Board	PBPE-10P2_R1
Boot Mode Select	UEFI

Power consumption(12V)		
Item	Power ON	Full Loading 10mins
CPU (+12V)	0.74A	5.68A
System (+12V)	7.64A	8.03A
System (+3.3V)	3.77A	4.34A
System (+5V)	0.64A	1.05A
Device (+12V)	2.95A	0.49A
Device (+5V)	0.88A	1.17A

2.4 Environmental Specifications

Storage Temperature : -40~85° C

Operation Temperature : 0~60° C

Storage Humidity : 5~95%, non-condensing

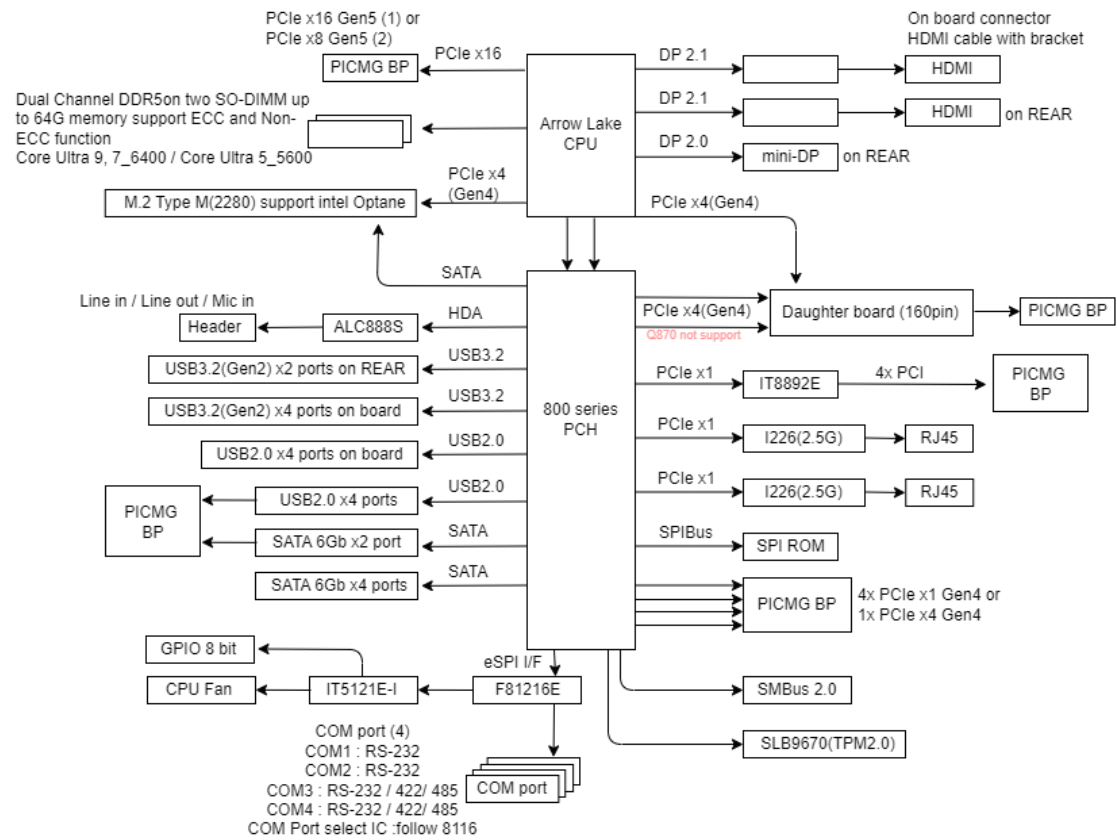
Operation Humidity : 5~95%, non-condensing

Chapter 3

Overview

3 Block Diagram

3 Block Diagram



Chapter 4

Overview

- 4 Hardware Configuration
- 4.1 Jumpers and Connectors
- 4.2 Jumper Settings

4 Hardware Configuration

4.1 Jumpers and Connectors

Figure 1, ROBO-8117 Top View

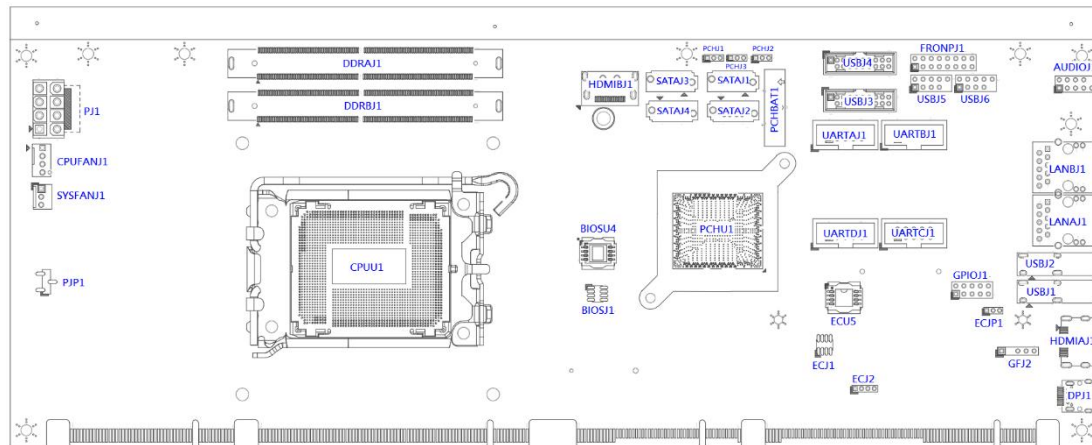
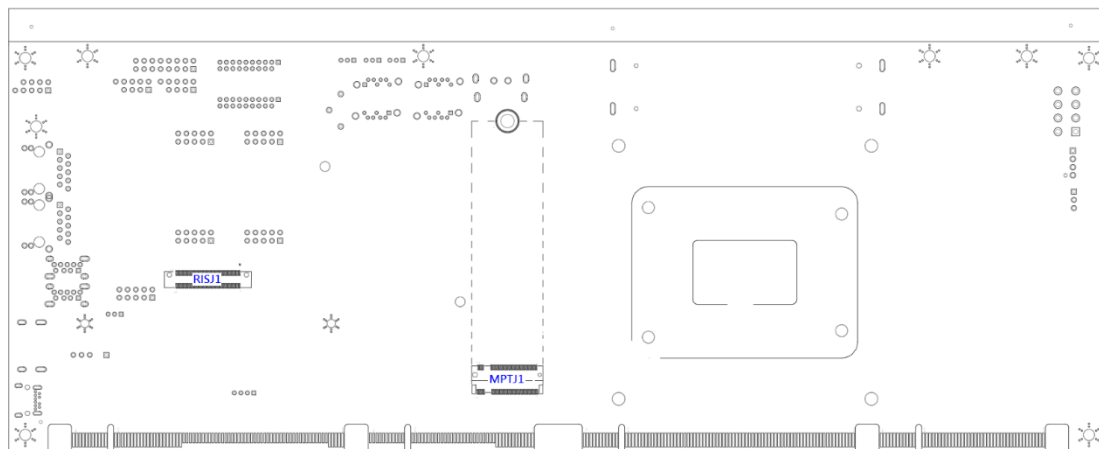


Figure 2, ROBO-8117 Bottom View



4.2 Jumper Settings

For users to customize ROBO-8117's features. In the following sections, Short means covering a jumper cap over jumper pins; Open or N/C (Not Connected) means removing a jumper cap from jumper pins. Users can refer to Figure 1 for the Jumper allocations.

Jumper Table

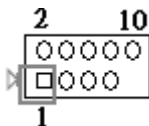
The jumper settings are schematically depicted in this manual as follows:

Connector Function List

Connector	Function	Remark
CPUU1	CPU Socket	125W
PCHU1	PCH	Q870/W880
DDRA	DDR5 SODIMM	Channel A
DDRB	DDR5 SODIMM	Channel B
HDMIJ1	HDMI Connector	HDMI 2.0
HDMIJ2	HDMI Connector	HDMI 2.0
DP	Mini DP Connector	DP 1.4a
USBJ1	USB.30 TYPEA connector	USB 3.2 Gen2 Port1
USBJ2	USB.30 TYPEA connector	USB 3.2 Gen2 Port2
USBJ3	USB3.0 Box Header	USB 3.2 Gen2 Port3&4
USBJ4	USB3.0 Box Header	USB 3.2 Gen1 Port7&8
USBJ5	USB2.0 Header	USB2.0 Port11 & 12
USBJ6	USB2.0 Header	USB2.0 Port13 & 14
SATAJ1	SATA3 Connector	
SATAJ2	SATA3 Connector	
SATAJ3	SATA3 Connector	
SATAJ4	SATA3 Connector	
MPT	M.2 Connector/M Key	PCIE X4 / SATA
RISER	PCIE x12 Connector	PCIE X4 * 3
LANJ1	RJ45 Connector/2.5G	I226-LM
LANJ2	RJ45 Connector/2.5G	I226-LM
UARTJ1	COM1 Connector	

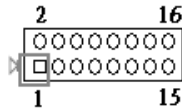
UARTJ2	COM2 Connector	
UARTJ3	COM3-485/422 Connector	
UARTJ4	COM4-485/422 Connector	
GPIO	GPIO Header	
BIOS	BIOS Programmer Header	
ECJ1	EC Programmer Header	
ECJ2	I2C Port 80 Header	
EPS12	ATX 8pin +12V Power Connector	
FRONP	Front panel Header	
PJP1	PWM Controller I2C Header	
AUDIO	Audio Header	
CPUFAN	CPU FAN Connector	
SYSFAN	System FAN Connector	
BAT1	Battery Socket	
BIOSU4	BIOS EEPROM Socket	
ECU5	EC EEPROM Socket	
SMBUS	SMBUS Connector	

USBJ5/ USBJ6:USB2.0 header



PIN No.	Signal Description	PIN No.	Signal Description
1	5V Dual	2	5V Dual
3	USB-	4	USB-
5	USB+	6	USB+
7	Ground	8	Ground
	Key (no pin)	10	N/C

FRONP: Front panel Header



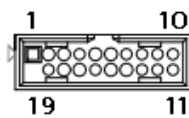
PIN No.	Signal Description	PIN No.	Signal Description
1	PWR_LED(+)_5VDual	2	Speaker(+)_+5V
3	PWR_LED(-)	4	N/C
5	J22 LAN1_ACT(+)	6	N/C
7	J22 LAN1_ACT(-)	8	Speaker(-)
9	J21 LAN2_ACT(-)	10	GND
11	J21 LAN2_ACT(+)	12	PWRBTN#
13	HDD_LED(+)_+3.3V	14	RSTBTN#
15	HDD_LED(-)	16	GND

PJP1: PWM Controller I2C Header



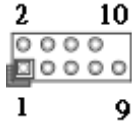
PIN No.	Signal Description
1	VR_MP29000_MP2940_SCL_P
2	Ground
3	VR_MP29000_MP2940_SDA_P

USBJ3/ USBJ4: USB3 Box Connector



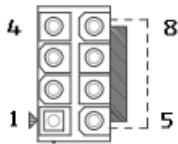
PIN No.	Signal Description	PIN No.	Signal Description
20	N/C	1	5V Dual
19	5V Dual	2	USB3_RX_DN
18	USB3_RX_DN	3	USB3_RX_DP
17	USB3_RX_DP	4	Ground
16	Ground	5	USB3_TX_DN
15	USB3_TX_DN	6	USB3_TX_DP
14	USB3_TX_DP	7	Ground
13	Ground	8	USB2_DN
12	USB2_DN	9	USB2_DP
11	USB2_DP	10	Ground

AUDIO: Audio Header



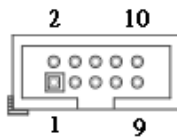
PIN No.	Signal Description	PIN No.	Signal Description
1	MIC	2	Analog Ground
3	Line-in Left	4	Analog Ground
5	Line-in Right	6	Analog Ground
7	Line-out Left	8	Analog Ground
9	Line-out Right	10	N/C

EPS12: ATX 8pin +12V Power Connector



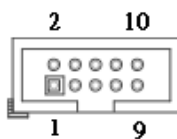
PIN No.	Signal Description	PIN No.	Signal Description
4	Ground	8	+12V
3	Ground	7	+12V
2	Ground	6	+12V
1	Ground	5	+12V

UARTJ1: COM1 Connector



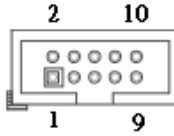
PIN No.	Signal Description	PIN No.	Signal Description
1	DCD (Data Carrier Detect)	2	RXD (Receive Data)
3	TXD (Transmit Data)	4	DTR (Data Terminal Ready)
5	GND	6	DSR (Data Set Ready)
7	RTS (Request to Send)	8	CTS (Clear to Send)
9	RI (Ring Indicator)	10	NC

UARTJ2: COM2 Connector



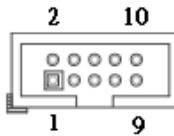
PIN No.	Signal Description	PIN No.	Signal Description
1	DCD (Data Carrier Detect)	2	RXD (Receive Data)
3	TXD (Transmit Data)	4	DTR (Data Terminal Ready)
5	GND	6	DSR (Data Set Ready)
7	RTS (Request to Send)	8	CTS (Clear to Send)
9	RI (Ring Indicator)	10	NC

UARTJ3: COM4/485/422 Connector



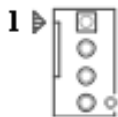
PIN No.	Signal Description	PIN No.	Signal Description
1	DCD# / DT-	2	RXD# / DT+
3	TXD# / 422R+	4	DTR# / 422R-
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	NC

UARTJ4: COM3/485/422 Connector



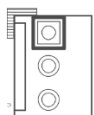
PIN No.	Signal Description	PIN No.	Signal Description
1	DCD# / DT-	2	RXD# / DT+
3	TXD# / 422R+	4	DTR# / 422R-
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	NC

CPUFAN: CPU FAN Connector



PIN No.	Signal Description
1	Ground
2	+12V
3	Fan Speed output
4	Fan Out control

SYSFAN: SYSTEM FAN Connector



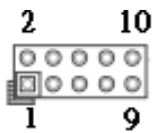
PIN No.	Signal Description
1	Ground
2	Fan speed control
3	Fan on/off output

ECJ2: I2C Port 80 Header



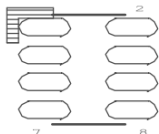
PIN No.	Signal Description
1	V3P3A
2	USB_PD_I2C_CLK
3	USB_PD_I2C_DAT
4	Ground

GPIO: GPIO Header



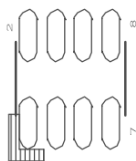
PIN No.	Signal Description	PIN No.	Signal Description
1	GPIO0	2	GPIO4
3	GPIO1	4	GPIO5
5	GPIO2	6	GPIO6
7	GPIO3	8	GPIO7
9	GND	10	+5V

BIOS: BIOS Programmer Header



PIN No.	Signal Description	PIN No.	Signal Description
1	BIOS_PRO_CS0_N	2	VCC_PRO
3	BIOS_PRO_MISO	4	BIOS_PRO_IO3
5	BIOS_PRO_IO2	6	BIOS_PRO_CLK
7	SPI_GND	8	BIOS_PRO_MOSI

ECJ1: EC rogrammer Header



PIN No.	Signal Description	PIN No.	Signal Description
1	EC_ROM_SPI_CS_N	2	EC_ROM_Header_VCC
3	EC_ROM_SPI_SO	4	EC_ROM_HOLD_N
5	EC_ROM_WP_N	6	EC_ROM_SPI_CLK
7	EC_ROM_GND	8	EC_ROM_SPI_SI

RISER: PCIE x12 Connector



PIN No.	Signal Description	PIN No.	Signal Description
1	GND	2	GND
3	CPU_Gen4_RX_0_P	4	CPU_Gen4_TX_0_P
5	CPU_Gen4_RX_0_N	6	CPU_Gen4_TX_0_N
7	GND	8	GND
9	CPU_Gen4_RX_1_P	10	CPU_Gen4_TX_1_P
11	CPU_Gen4_RX_1_N	12	CPU_Gen4_TX_1_N
13	GND	14	GND
15	CPU_Gen4_RX_2_P	16	CPU_Gen4_TX_2_P
17	CPU_Gen4_RX_2_P	18	CPU_Gen4_TX_2_P
19	GND	20	GND
21	CPU_Gen4_RX_3_P	22	CPU_Gen4_TX_3_P
23	CPU_Gen4_RX_3_N	24	CPU_Gen4_TX_3_N
25	GND	26	GND
27	PCH_PCIE_RX_21_P	28	PCH_PCIE_TX_21_P
29	PCH_PCIE_RX_21_N	30	PCH_PCIE_TX_21_N
31	GND	32	GND
33	PCH_PCIE_RX_22_P	34	PCH_PCIE_TX_22_P
35	PCH_PCIE_RX_22_N	36	PCH_PCIE_TX_22_N
37	GND	38	GND
39	PCH_PCIE_RX_23_P	40	PCH_PCIE_TX_23_P
41	PCH_PCIE_RX_23_N	42	PCH_PCIE_TX_23_N
43	GND	44	GND
45	PCH_PCIE_RX_24_P	46	PCH_PCIE_TX_24_P
47	PCH_PCIE_RX_24_N	48	PCH_PCIE_TX_24_N
49	GND	50	GND
51	PCH_PCIE_RX_9_P	52	PCH_PCIE_TX_9_P
53	PCH_PCIE_RX_9_N	54	PCH_PCIE_TX_9_N
55	GND	56	GND
57	PCH_PCIE_RX_10_P	58	PCH_PCIE_TX_10_P
59	PCH_PCIE_RX_10_N	60	PCH_PCIE_TX_10_N
61	GND	62	GND
63	PCH_PCIE_RX_11_P	64	PCH_PCIE_TX_11_P
65	PCH_PCIE_RX_11_N	66	PCH_PCIE_TX_11_N
67	GND	68	GND
69	PCH_PCIE_RX_12_P	70	PCH_PCIE_TX_12_P
71	PCH_PCIE_RX_12_N	72	PCH_PCIE_TX_12_N
73	GND	74	GND
75	PCH_PCIE_CLK_7_P	76	CLKOUT_I_1_P
77	PCH_PCIE_CLK_7_N	78	CLKOUT_I_1_N
79	GND	80	GND

SMBUS: SMBUS Connector



PIN No.	Signal Description
1	SMB_clk
2	
3	Ground
4	SMB_DAT
5	V5P0S

Jump Function List:

Connector	Function	Remark
PCHJ1	RTC & CMOS CLR Jumper	
PCHJ3	PCH_COMFIG	
ATXSEL	AT/ATX Select	

PCHJ1: RTC CLR Jumper



PIN No.	Signal Description
1-2	NORMAL (Default)
2-3	CLR_RTC

PCHJ3: PCH_COMFIG



PIN No.	Signal Description
1-2	NORMAL
2-3	CONFIGURE
N/A	RECOVERY

ATXSEL: AT/ATX Select



PIN No.	Signal Description
1-2	AT MODE
2-3	ATX MODE (Default)

Chapter 5

Overview

- 5 Sample Code
- 5.1 Watch Dog Timer
- 5.2 Signal GPIO Signal

5 Sample Code

5.1 Watch Dog Timer

```
#include <stdio.h>
#include <unistd.h>
#include <stdint.h>
#include <sys/io.h>

#define EC_IOSpace 0xE300 // EC IO Space Base Addr = 0xE000
                          // EC Internal Offset = 0x300
                          // EC IO Address = Base Addr + Internal
                          offset

#define WDTCFG          0x06 // WDT Timer Coutrol Register
                          //          0: System Reset
                          // Bit 1: 1: Min Mode
                          //          0: Second Mode
                          // Bit 0: 1: Enable WDT

#define WDTMIN          0x07 // WDT Timer Counter Register
                          (Minute)

#define WDTSEC          0x08 // WDT Timer Counter Register
                          (Second)

int Read_EC_SRAM(int offset)
{
    int Temp;
    Temp = inb_p(EC_IOSpace+offset);
    return Temp;
}

void Write_EC_SRAM(int offset, int value)
```

```

{
    outb_p(value,EC_IOSpace+offset);
}

//-----
// Reset WDT pin status
//-----
int WDT_Reset()
{
    int Temp;

    Temp = Read_EC_SRAM(WDTCFG);
    Write_EC_SRAM(WDTCFG,(Temp|0x40)); // Bit 6: Write 1 to clear
    WDT pin event
}

//-----
// Main Function
//-----
int main (int argc, char ** argv)
{
    int Temp;

    // Initial
    if(iopl(3)!=0){
        printf("error: I/O Permission Error!\n");
        return 1;
    }

    // Enable WDT 10min, 20sec
    Write_EC_SRAM(WDTSEC,5);           // 5 Sec
    Write_EC_SRAM(WDTMIN,1);          // 1 min

```

```
// Enable WDT 5sec and WDT pin mode
Temp = Read_EC_SRAM(WDTCFG);
Write_EC_SRAM(WDTCFG,(Temp|0x13)); // Bit4: 1: Driving WDT pin
                                   // BIT1: 1: Minute Mode
                                   // Bit0: 1: Enable WDT

// Check Current WDT status
while((Read_EC_SRAM(WDTCFG)&0x01) != 0)
{
    printf("WDT          Counting:          %d          M.,          %d\n",Read_EC_SRAM(WDTMIN),Read_EC_SRAM(WDTSEC));
}
}
}
```

5.2 Signal GPIO Signal

```
//-----
// PWG GPIO Control Sample Code
//-----
// Reg   |    0x2B    |    0x2C    |
//       | Control Reg | Data Reg   |
//-----
// Bit7 | GPIO7 (GPO3) | GPIO7 (GPO7) |
// Bit6 | GPIO6 (GPO2) | GPIO6 (GPO6) |
// Bit5 | GPIO5 (GPO1) | GPIO5 (GPO5) |
// Bit4 | GPIO4 (GPO0) | GPIO4 (GPO4) |
// Bit3 | GPIO3 (GPI3) | GPIO3 (GPO3) |
// Bit2 | GPIO2 (GPI2) | GPIO2 (GPO2) |
// Bit1 | GPIO1 (GPI1) | GPIO1 (GPO1) |
// Bit0 | GPIO0 (GPI0) | GPIO0 (GPO0) |
//       | 0: Output    | 0: Low       |
//       | 1: Input     | 1: High      |
//-----
```

```
//
//
// By PWG F/W
Team
//-----
#include <stdio.h>
#include <unistd.h>
#include <stdint.h>
#include <sys/io.h>

#define EC_IOSpace 0xE300 // EC IO Space Base Addr = 0xE000
                        // EC Internal Offset = 0x300
                        // EC IO Address = IO Space Base Addr
                        + Internal offset

#define GPCR 0x2B // GPIO Control Register, Bit7 = GPO3, Bit6 =
GPO2, ...,
//
// Bit3 = GPI3,
Bit2 = GPI2, ...,
// 0: Output; 1: Input

#define GPDR 0x2C // GPIO Status Register, Bit7 = GPO3, Bit6 =
GPO2, ...,
//
// Bit3 = GPI3,
Bit2 = GPI2, ...,
// 0: Low; 1: High

int Read_EC_SRAM(int offset)
{
    int Temp;
    Temp = inb_p(EC_IOSpace+offset);
    return Temp;
}

void Write_EC_SRAM(int offset, int value)
{

```

```
    outb_p(value,EC_IOSpace+offset);
}

int main (int argc, char ** argv)
{
    int Temp;

    // Initial
    if(iopl(3)!=0){
        printf("error: I/O Permission Error!¥n");
        return 1;
    }
    // Get GPI status
    Temp = Read_EC_SRAM(GPDR);                                //Bit3-0: GPI3-0
status

    // Set GPO3 Output & High
    Temp = Read_EC_SRAM(GPDR);
    Write_EC_SRAM(GPDR,Temp|0x80);                            //Bit7-4: Set GPO3-0
status, 0: Low 1: High

    return 0;
}
```

Chapter 6

Overview

- 6 BIOS Setup Items
- 6.1 Entering Setup -- Launch System Setup
- 6.2 Main
- 6.3 Configuration

6 BIOS Setup Items

ROBO-8117 is equipped with the AMI BIOS stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in SPI Flash so that it is retained during power-off periods. When system is turned on, ROBO-8117 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start up.

6.1 Entering Setup -- Launch System Setup

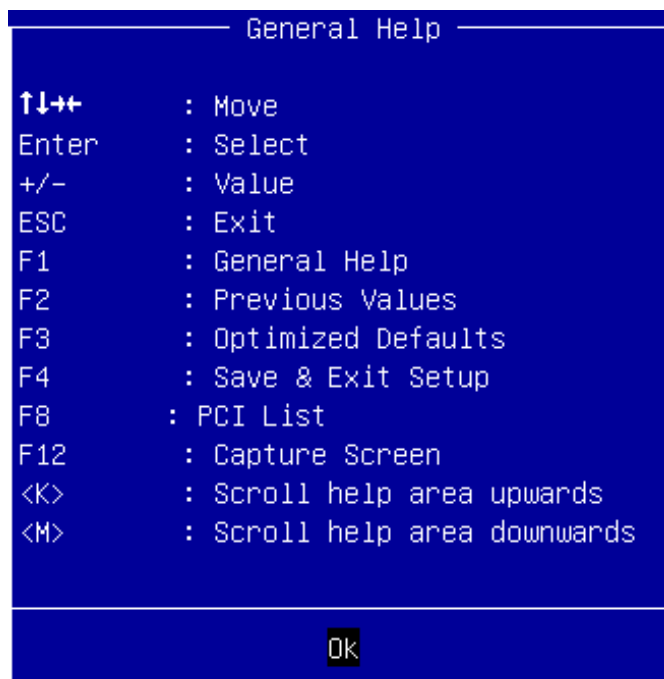
Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press key will enter BIOS setup screen.

Press to enter SETUP

If the message disappears before responding and still wish to enter Setup, please restart the system by turning it OFF and On or pressing the RESET button. It can be also restarted by pressing <Ctrl>, <Alt>, and <Delete> keys on keyboard simultaneously.

Press <F1> to Run General Help or Resume

The BIOS setup program provides a General Help screen. The menu can be easily called up from any menu by pressing <F1>. The Help screen lists all the possible keys to use and the selections for the highlighted item. Press <Esc> to exit the Help screen.



6.2 Main



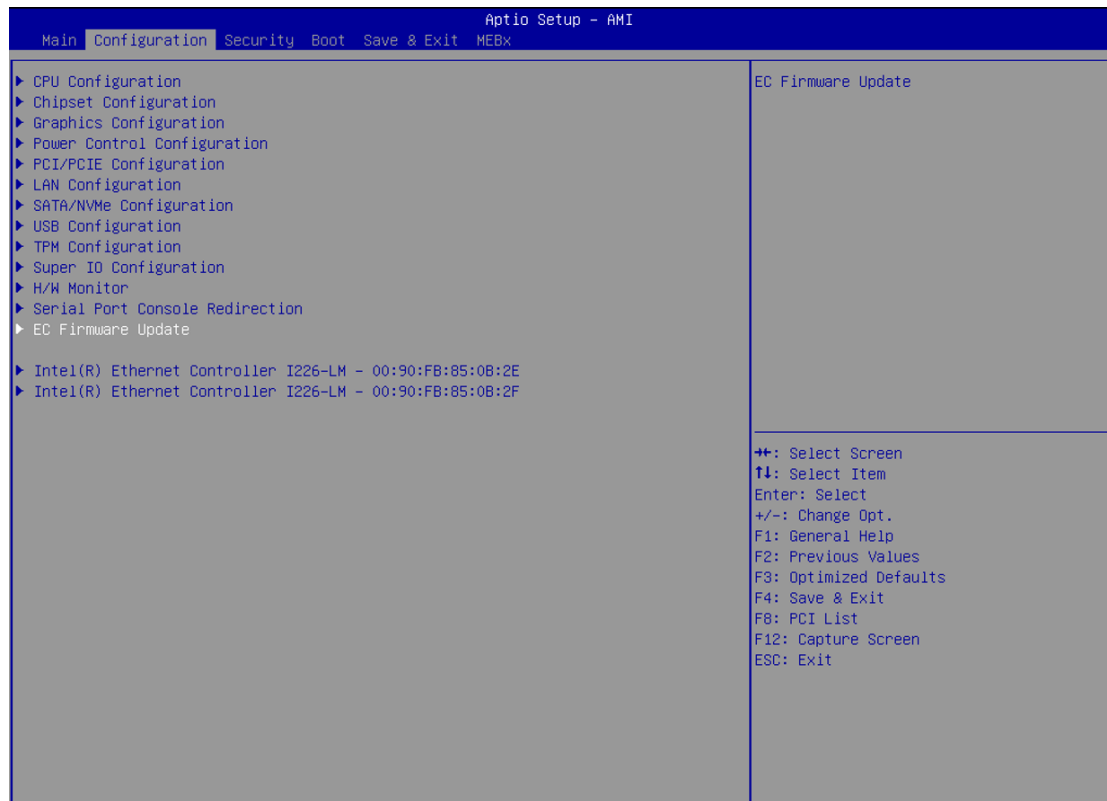
Feature	Description	Options
System Date	The date format is <Day>, <Month><Date><Year>. Use [+] or [-] to configure system Date.	
System Time	The time format is <Hour><Minute><Second>. Use [+] or [-] to configure system Time.	

Detailed System Information

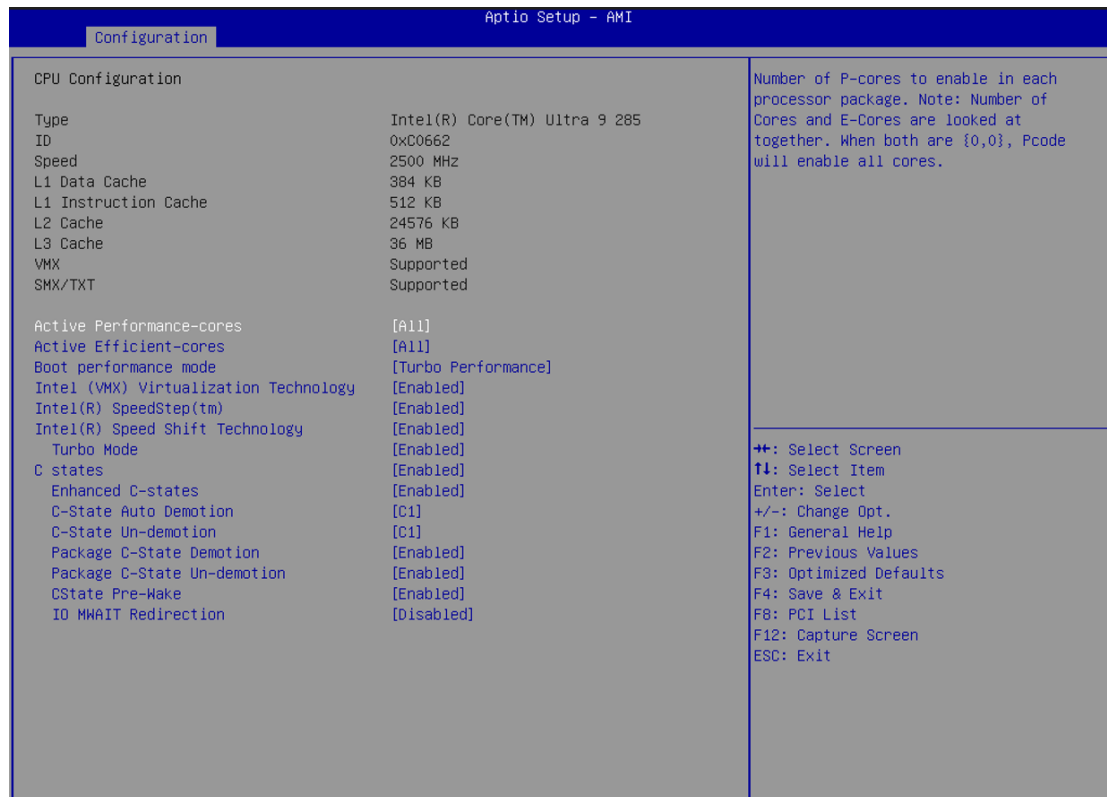
Main	
FSP Information	
FSP version	0D.00.C5.51
RC version	0D.E0.C5.51
Build Date	
FSP Mode	Dispatch Mode
Board Information	
Board Name	ROBO-8117G2AR
Board ID	N/A
Fab ID	Default string
LAN PHY Revision	N/A
Processor Information	
Name	ArrowLake DT
Type	Intel(R) Core(TM) Ultra 9 285
Speed	2500 MHz
ID	0xC0662
Stepping	A0
Package	Not Implemented Yet
Number of Efficient-core(s)	16Core(s) / 16Thread(s)
Number of Performance-core(s)	8Core(s) / 8Thread(s)
Microcode Revision	110
GT Info	0x7D67
IGFX GOP Version	22.0.1055
Memory RC Version	1.4.6.30
Total Memory	16384 MB
Memory Frequency	4800 MHz
MC 0 Ch 0 DIMM 0	Populated & Enabled
Size	16384 MB (DDR5)
MC 0 Ch 0 DIMM 1	Not Populated / Disabled
MC 0 Ch 1 DIMM 0	Not Populated / Disabled
MC 0 Ch 1 DIMM 1	Not Populated / Disabled
MC 1 Ch 0 DIMM 0	Not Populated / Disabled
MC 1 Ch 0 DIMM 1	Not Populated / Disabled
MC 1 Ch 1 DIMM 0	Not Populated / Disabled
MC 1 Ch 1 DIMM 1	Not Populated / Disabled
PCH Information	
Name	MTL PCH-S
PCH SKU	W880
Stepping	B0
ChipsetInit Intel Module Rev	1900.5.99.1007
ChipsetInit OEM Module Rev	0.0.0.0
Package	Not Implemented Yet
TXT Capability of Platform/PCH	Supported
Production Type	Production
Dual Output Fast Read support	Not supported
Read ID/Status Clock Freq	14 MHz
Write and Erase Clock Freq	14 MHz
Fast Read Clock Freq	14 MHz
Fast Read support	Not supported
Number of Components	1 Component
SPI Component 0 Density	32 MB
eSPI Flash Sharing Mode	G3
EC PECI Mode	SI0 PECI
ME FW Version	19.0.0.1797
ME Firmware SKU	Corporate SKU
ISSE FW Version	1100.0.0.1779
PMC FW Version	1900.21.0.1051

Version 2.22.1296 Copyright (C) 2025 AMI

6.3 Configuration



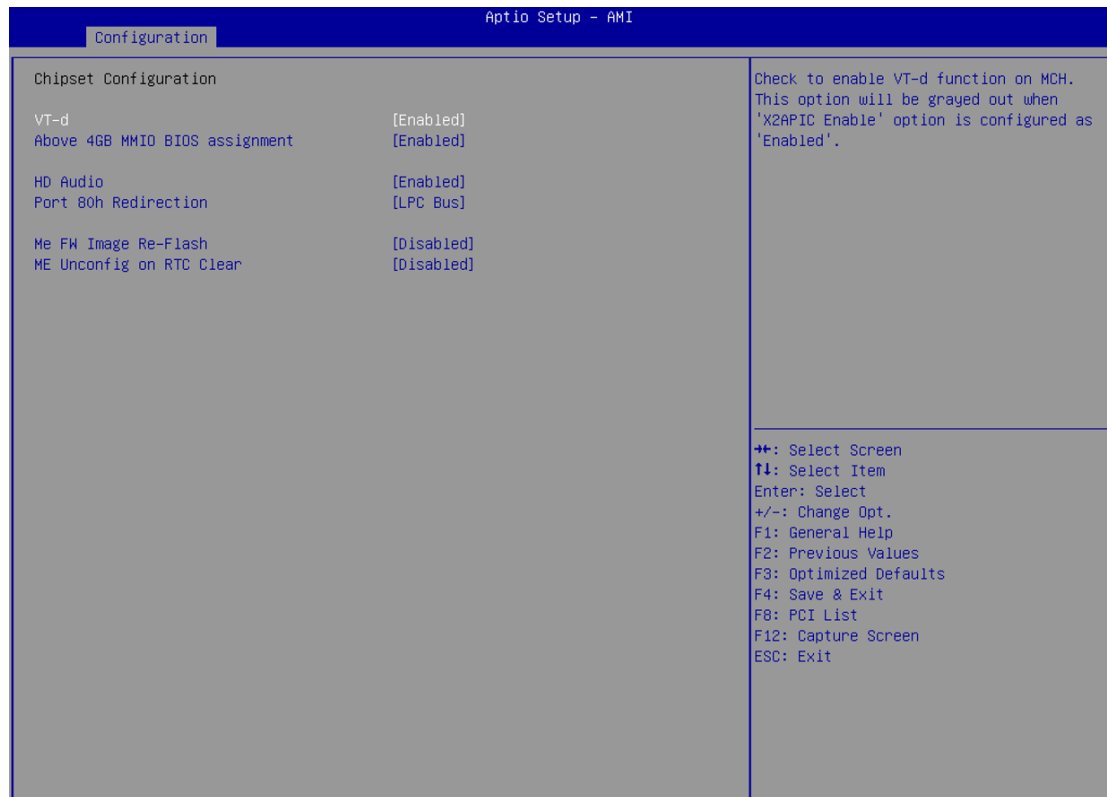
6.3.1 CPU Configuration



Feature	Description	Options
Active Performance-Cores	Number of P-cores to enable in each processor package. Note: Number of Cores and E-cores are looked at together, When both are {0,0}, Pcode will enable all cores.	★All, 1, 2, 3, 4, 5, 6, 7
Active Efficient-Cores	Number of E-cores to enable in each processor package. Note: Number of Cores and E-cores are looked at together, When both are {0,0}, Pcode will enable all cores.	★All, 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15
Boot performance mode	Select the performance state that the BIOS will set starting from reset vector	★Turbo Performance
		Max Battery
		Max Non-Turbo Performance

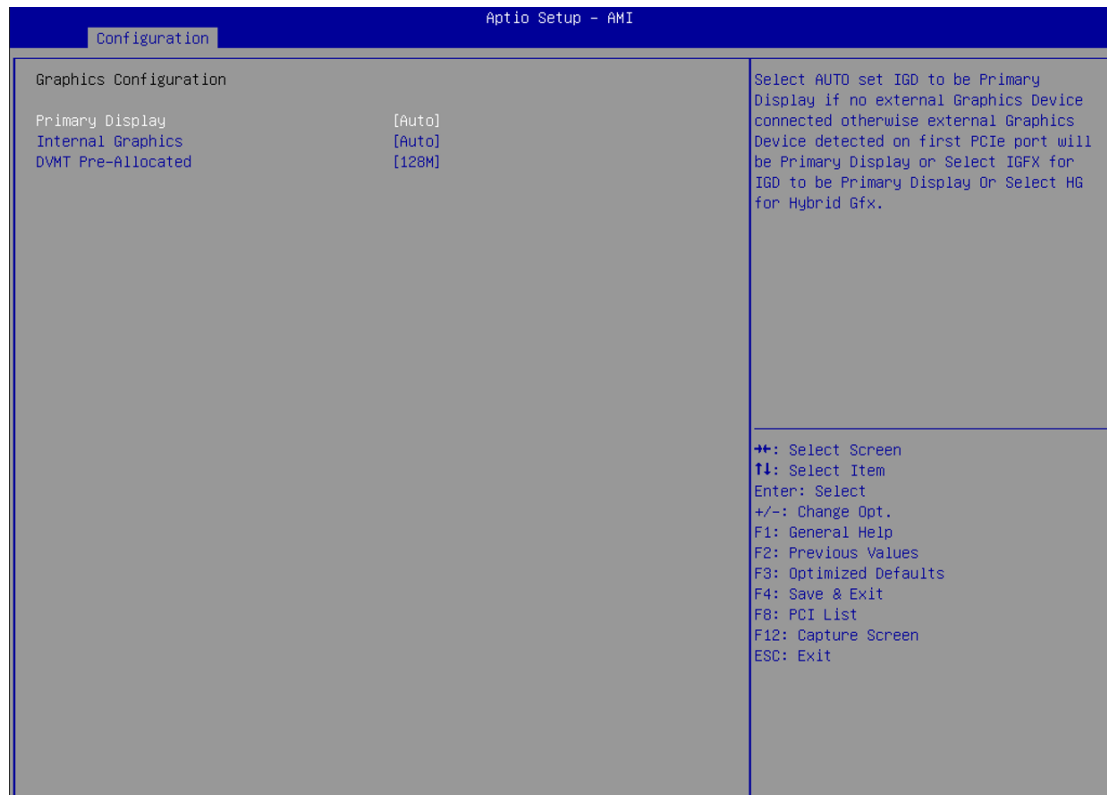
Intel (VMX) Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vander pool Technology.	Disabled, ★Enabled
Intel®Speed Step™	Allows more than two frequency ranges to be supported.	Disabled, ★Enabled
Intel® Speed Shift Technology	Enable/Disable Intel® Speed Shift Technology support. Enabling will expose the CPPC v2 interface to allow for hardware controlled P-states	Disabled, ★Enabled
Turbo Mode	Enable/Disable processor Turbo Mode	Disabled, ★Enabled
C states	Enable/disable CPU Power Management. Allows CPU to go to C states when it's not 100% utilized	Disabled, ★Enabled
Enhanced C-states	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-state	Disabled, ★Enabled
C-State Auto Demotion	Configure C-State Auto Demotion	Disabled, ★C1
C-State Un-demotion	Configure C-State Un-demotion	Disabled, ★C1
Package C State Demotion	Package C-State Demotion	Disabled, ★Enabled
Package C State Un-demotion	Package C-State Un-demotion	Disabled, ★Enabled
CState Pre-Wake	Disable – to 1 to disable the Cstate Pre-Wake	Disabled, ★Enabled
IO MWAIT Redirection	When set, will map IO_read instructions sent to IO registers	★Disabled, Enabled
	PMG_IO_BASE_ADDRBASE+offset to MWAIT(offset)	

6.3.2 Chipset Configuration



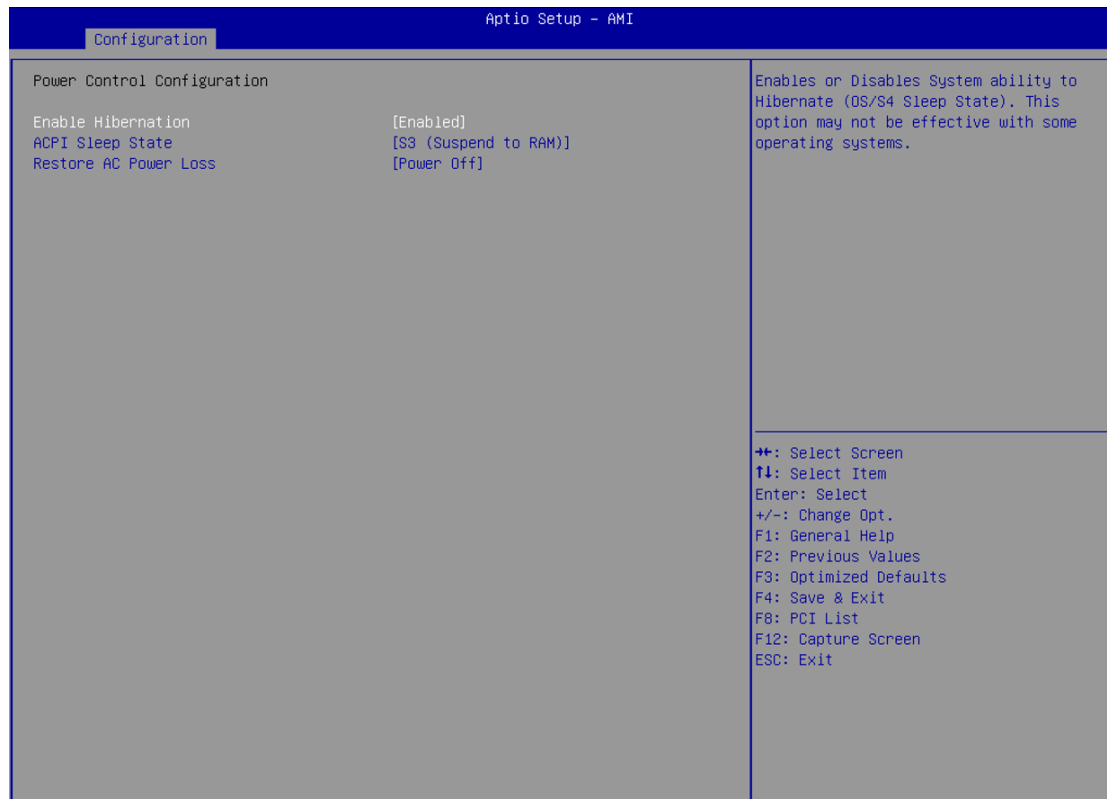
Feature	Description	Options
VT-d	Check to enable VT-d function on MCH. This option will be grayed out when 'X2APIC Enable' option is configured as 'Enabled'.	★Enabled, Disabled
Above 4GB MMIO BIOS assignment	Enable/Disable above 4GB Memory Mapped IO BIOS assignment This is enabled automatically when Aperture Size is set to 2048MB	★Enabled, Disabled
HD Audio	Control Detection of the HD-Audio device. Disabled = HDA will be unconditionally disabled Enabled = HDA will be unconditionally enabled	★Enabled, Disabled
Port 80h Redirection	Control where the Port 80h cycles are sent.	★LPC Bus, PCIE Bus
Me FW Image Re-Flash	Enable/Disable Me FW Image Re-Flash function.	★Disabled, Enabled
ME Unconfig on RTC Clear	When Disabled ME will not be unconfigured on RTC Clear	★Disabled, Enabled

6.3.3 Graphics Configuration



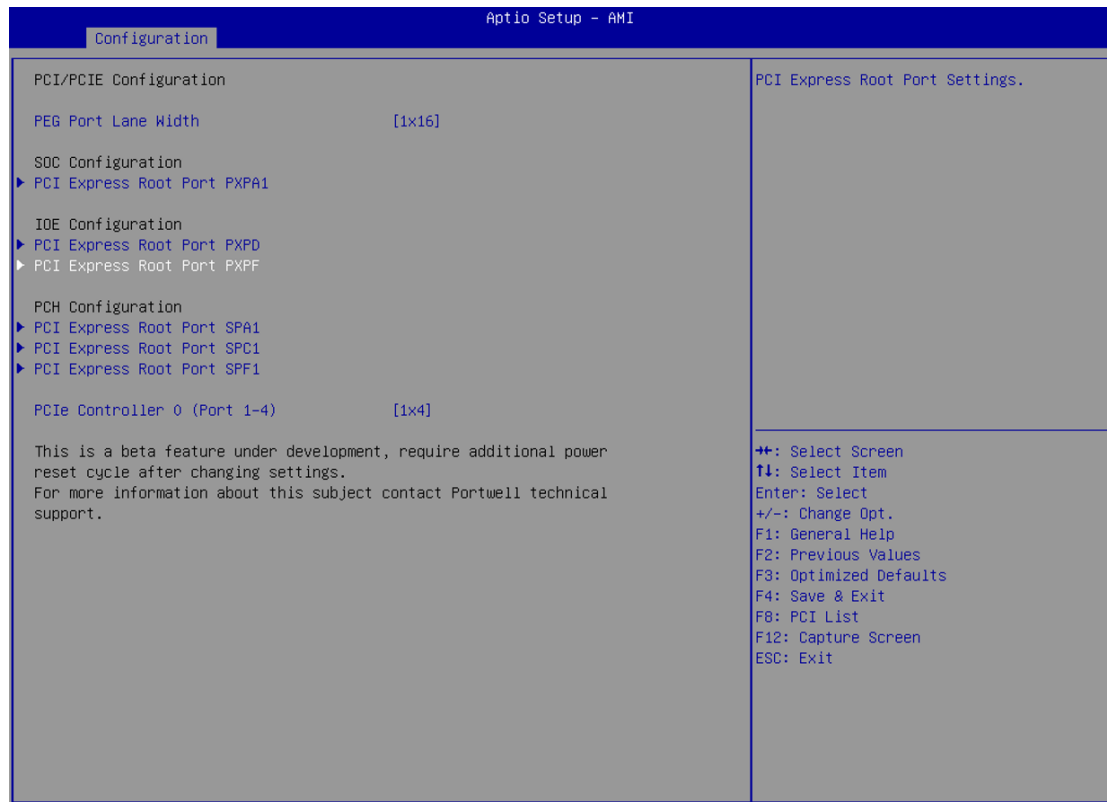
Feature	Description	Options
Primary Display	Select AUTO set IGD to be Primary Display if no external Graphics Device connected otherwise external Graphics Device detected on first PCIe port will be Primary Display or Select IGFX for IGD to be Primary Display Or Select HG for Hybrid Gfx	★Auto, IGFX, HG
Internal Graphics	Keep IGFX enabled based on the setup options.	★Auto, Disabled, Enabled
DVMT Pre-Allocated	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.	32M, 64M, 96M, ★128M, 12M, 16M, 20M, 24M, 28M, 32M/F7, 36M, 40M, 44M, 48M, 52M, 56M, 60M

6.3.4 Power Control Configuration



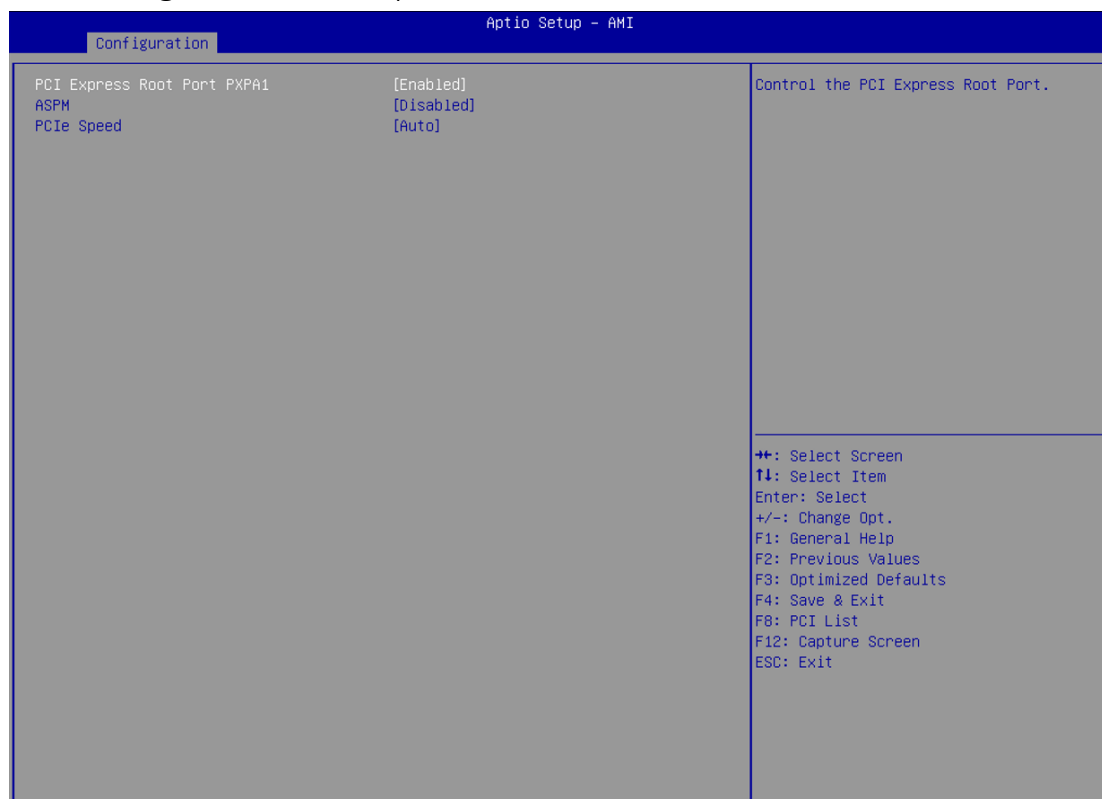
Feature	Description	Options
Enable Hibernation	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may not be effective with some operating systems.	★Enabled, Disabled
ACPI Sleep State	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.	★S3 (Suspend to RAM), Suspend Disabled
Restore AC Power Loss	Specify what state to go to when power is re-applied after a power failure (G3 state)	★Power Off, Power On, Last State

6.3.5 PCI/PCIE Configuration



Feature	Description	Options
PEG Port Lane Width	Set PEG port lane width	★1x16, 2x8
PCI Express Root Port	PCI Express Root Port Settings	
PCIe Controller 0 (Port 1-4)	Control PCH PCIe lane width	★1x4, 4x1, 2x2

SOC Configuration: PCI Express Root Port PXPA1



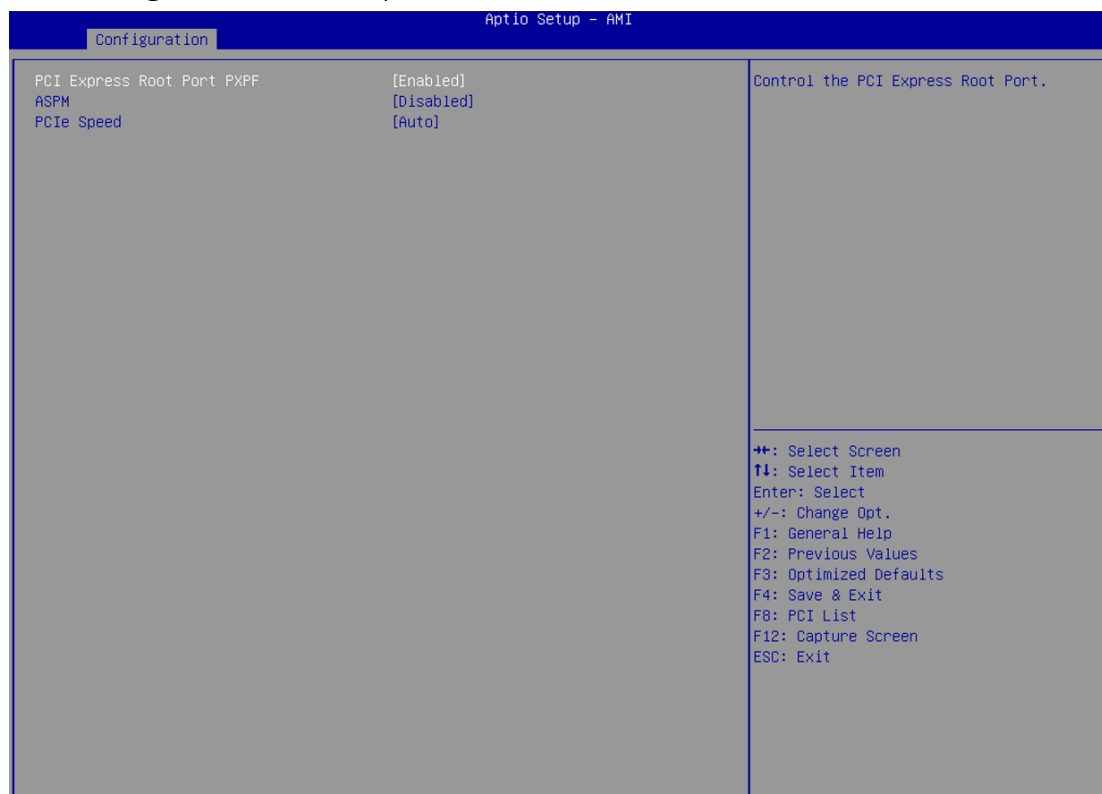
Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled ,Disabled
ASPM	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO-BIOS auto configure DISABLE – Disables ASPM	★Disabled, L0s, L1, L0sL1, Auto
PCIe Speed	Configure PCIe Speed	★Auto, Gen1, Gen2, Gen3, Gen4, Gen5

IOE Configuration: PCI Express Root Port PXP

Configuration		
PCI Express Root Port PXP	[Enabled]	Control the PCI Express Root Port.
ASPM	[Disabled]	
PCIe Speed	[Auto]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled ,Disabled
ASPM	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO-BIOS auto configure DISABLE – Disables ASPM	★Disabled, L0s, L1, L0sL1, Auto
PCIe Speed	Configure PCIe Speed	★Auto, Gen1, Gen2, Gen3, Gen4

IOE Configuration: PCI Express Root Port PXP

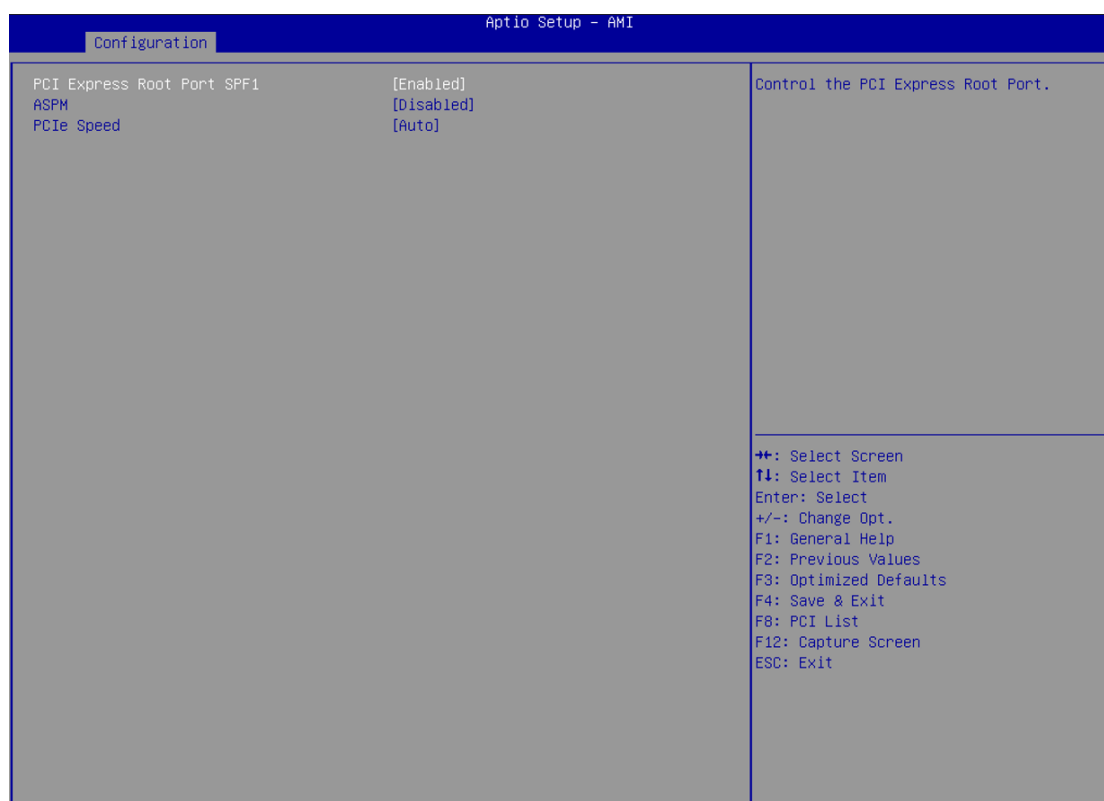


Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled ,Disabled
ASPM	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO-BIOS auto configure DISABLE – Disables ASPM	★Disabled, L0s, L1, L0sL1, Auto
PCIe Speed	Configure PCIe Speed	★Auto, Gen1, Gen2, Gen3, Gen4, Gen5

PCH Configuration: PCI Express Root Port SPA1 / SPC1 / SPF1

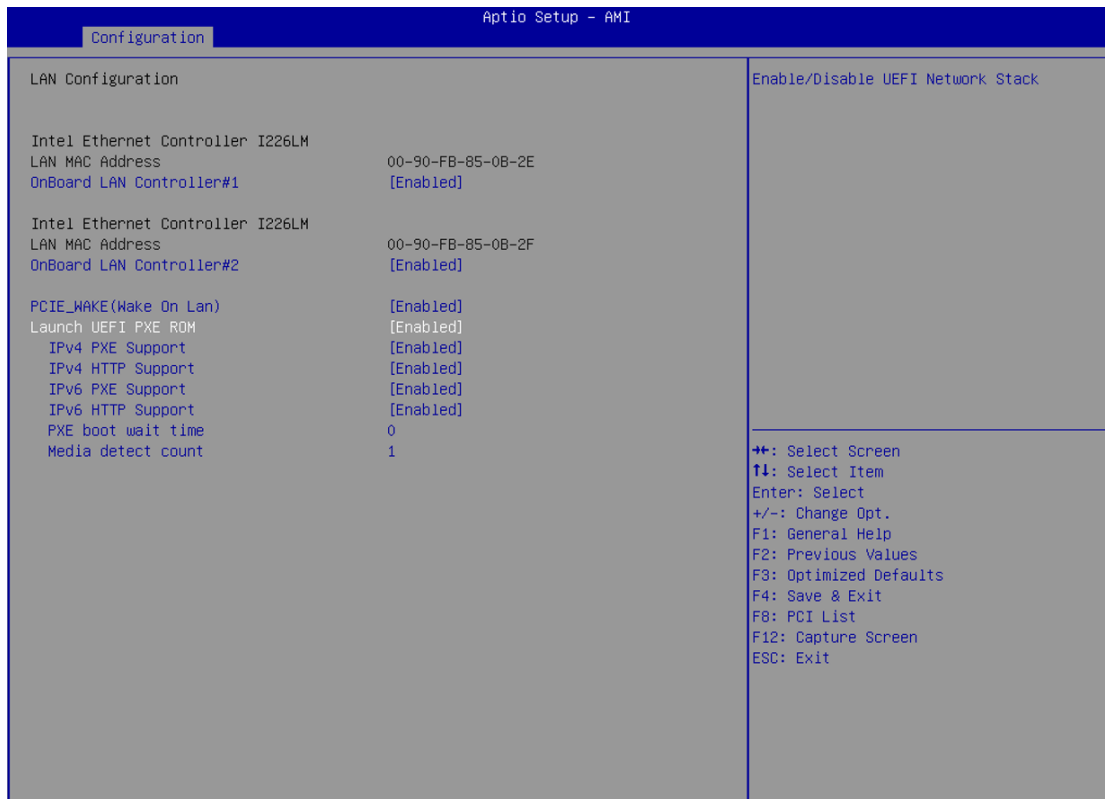
Aptio Setup - AMI		
Configuration		
PCI Express Root Port SPA1	[Enabled]	Control the PCI Express Root Port.
ASPM	[Disabled]	
PCIe Speed	[Auto]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

Aptio Setup - AMI		
Configuration		
PCI Express Root Port SPC1	[Enabled]	Control the PCI Express Root Port.
ASPM	[Disabled]	
PCIe Speed	[Auto]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit



Feature	Description	Options
PCI Express Root Port	Control the PCI Express Root Port.	★Enabled ,Disabled
ASPM	Set the ASPM Level: Force L0s – Force all links to L0s State AUTO-BIOS auto configure DISABLE – Disables ASPM	★Disabled, L0s, L1, L0sL1, Auto
PCIe Speed	Configure PCIe Speed	★Auto, Gen1, Gen2, Gen3, Gen4

6.3.6 LAN Configuration



Feature	Description	Options
OnBoard LAN Controller#1	Control OnBoard LAN Disabled or Enabled.	★Enabled, Disabled
OnBoard LAN Controller#2	Control OnBoard LAN Disabled or Enabled.	★Enabled, Disabled
PCIE_WAKE (Wake On Lan)	Control PCIE Wake# pin for Wake On Lan function	★Enabled, Disabled
Launch UEFI PXE ROM	Enable/Disable UEFI Network Stack	Enabled, ★Disabled
Launch UEFI PXE ROM(Enabled)		
IPv4 PXE Support	Enable/Disable IPv4 PXE boot support. If disabled, IPv4 PXE boot support will not be available.	★Enabled, Disabled
IPv4 HTTP Support	Enable/Disable IPv4 HTTP boot support. If disabled, IPv4 HTTP boot support will not be available.	★Enabled, Disabled
IPv6 PXE Support	Enable/Disable IPv6 PXE boot support. If disabled, IPv6 PXE boot support will not be available.	★Enabled, Disabled
IPv6 HTTP Support	Enable/Disable IPv6 HTTP boot support. If disabled, IPv6 HTTP boot support will not be available.	★Enabled, Disabled
PXE boot wait time	Wait time in seconds to press ESC key to abort the PXE boot. Use either +/- or numeric keys to set the value.	★0
Media detect count	Number of times the presence of media will be checked. Use either +/- or numeric keys to set the value.	★1

Intel(R) Ethernet Controller

Aptio Setup - AMI

Main Configuration Security Boot Save & Exit MEBx

- ▶ CPU Configuration
- ▶ Chipset Configuration
- ▶ Graphics Configuration
- ▶ Power Control Configuration
- ▶ PCI/PCIE Configuration
- ▶ LAN Configuration
- ▶ SATA/NVMe Configuration
- ▶ USB Configuration
- ▶ TPM Configuration
- ▶ Super IO Configuration
- ▶ H/W Monitor
- ▶ Serial Port Console Redirection
- ▶ EC Firmware Update
- ▶ Intel(R) Ethernet Controller I226-LM - 00:90:FB:85:0B:2E
- ▶ Intel(R) Ethernet Controller I226-LM - 00:90:FB:85:0B:2F

Configure Ethernet device parameters

Aptio Setup - AMI

Configuration

```

UEFI Driver:                Intel(R) Ethernet Controller 2.5G 1....
PCI Device ID                125B
PCI Address                  83:00:00
MAC Address                  00:90:FB:85:0B:2E
Link Status                  Disconnected
Link auto-negotiation Timeout 8

```

How long the UEFI PXE driver should wait for link

Aptio Setup - AMI

```

++: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F8: PCI List
F12: Capture Screen
ESC: Exit

```

ROBO-8117 series user manual

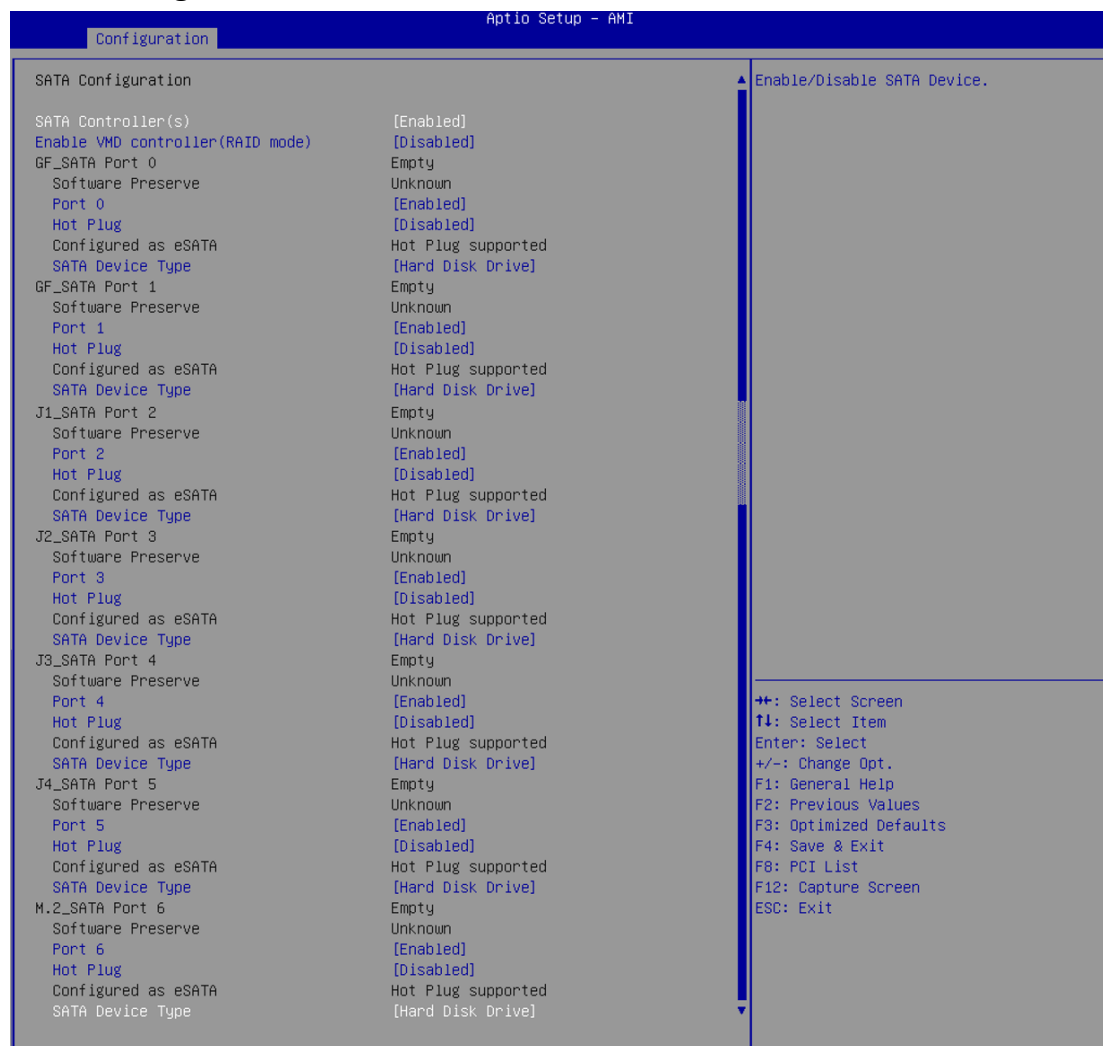
48

Aptio Setup - AMI		
Configuration		
UEFI Driver:	Intel(R) Ethernet Controller 2.5G 1....	How long the UEFI PXE driver should wait for link
PCI Device ID	125B	
PCI Address	84:00:00	
MAC Address	00:90:FB:85:0B:2F	
Link Status	Disconnected	
Link auto-negotiation Timeout	8	
		++: Select Screen F1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

6.3.7 SATA / NVME Configuration

Configuration Aptio Setup - AMI		
<div> <div>Configuration</div> <div> SATA/NVMe Configuration <ul style="list-style-type: none"> SATA Configuration NVMe Configuration </div> <div> SATA Device Options Settings </div> <div> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit </div> </div>		
Feature	Description	Options
SATA Configuration	SATA Device Options Settings	
NVMe Configuration	NVMe Device Options Settings	

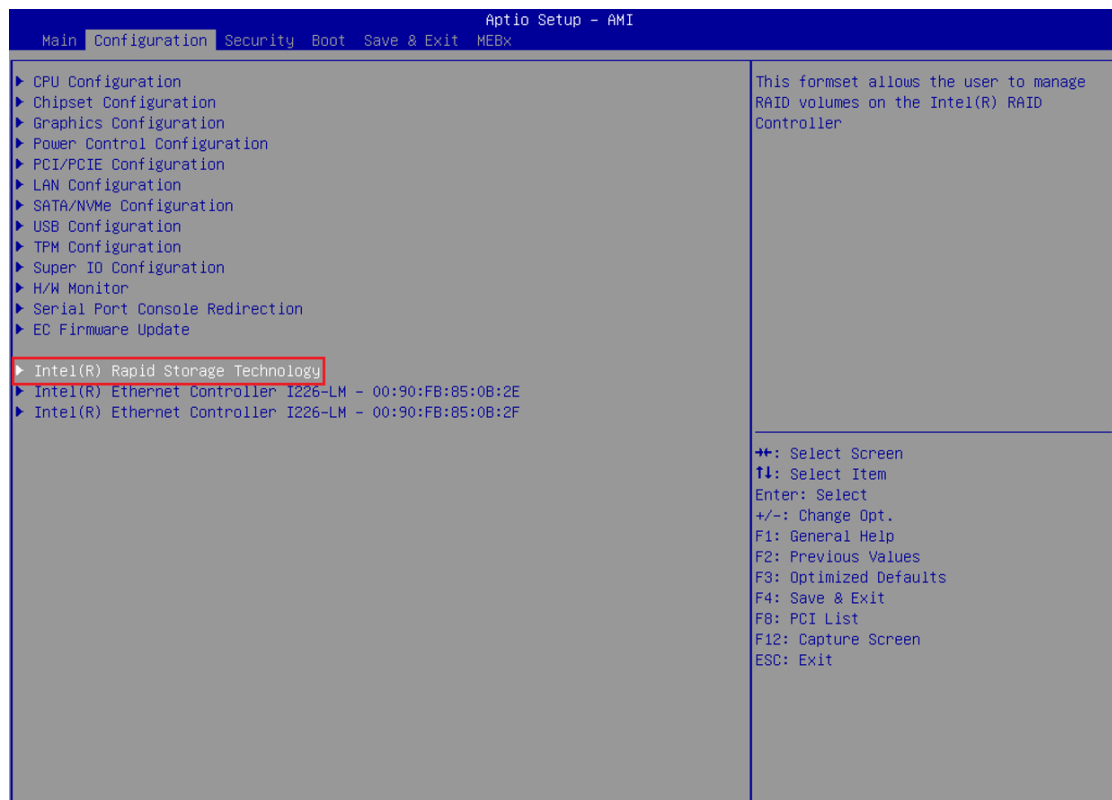
SATA Configuration



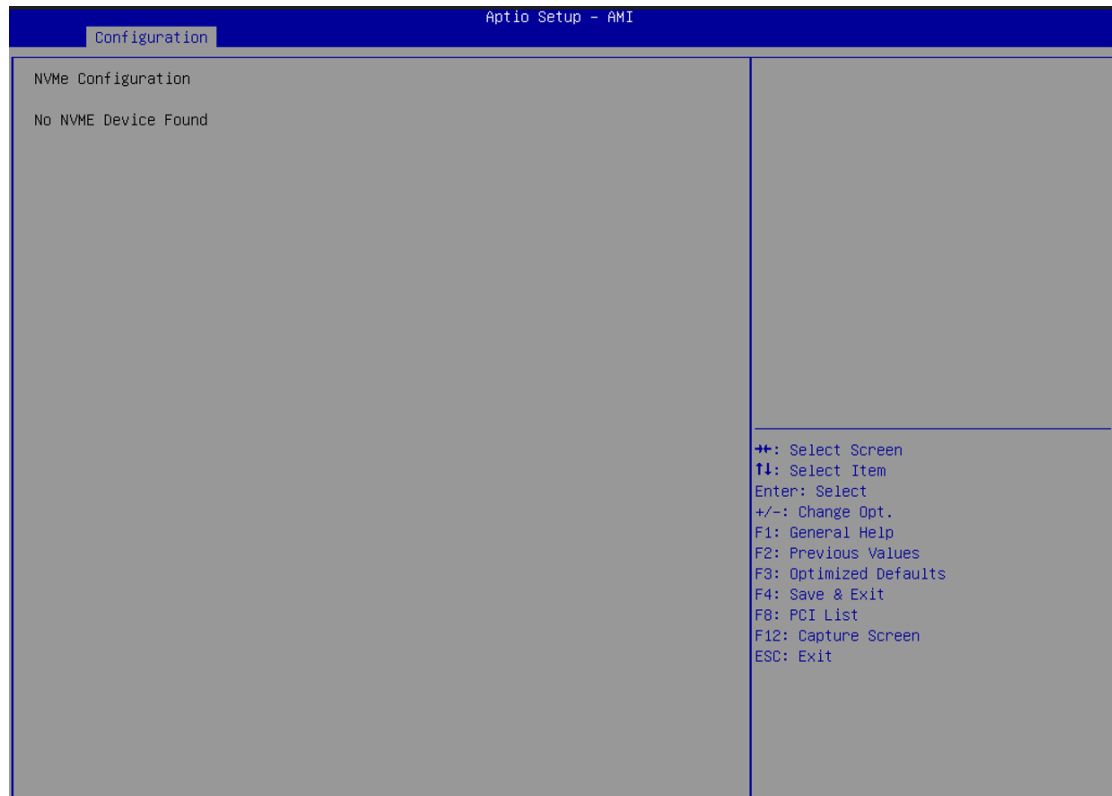
Feature	Description	Options
SATA Controller(s)	Enable/Disable SATA Device	★Enabled, Disabled
Enable VMD controller (RAID mode)	Enable/Disable to VMD controller	★Disabled, Enabled
GF_SATA Port 0		
Port 0	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive
GF_SATA Port 1		
Port 1	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive

J1_SATA Port 2		
Port 2	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive
J2_SATA Port 3		
Port 3	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive
J3_SATA Port 4		
Port 4	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive
J4_SATA Port 5		
Port 5	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive
M.2_SATA Port 6		
Port 6	Enable or Disable SATA Port	★Enabled, Disabled
Hot plug	Designates this port as Hot pluggable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.	★Hard Disk Drive, Solid State Drive

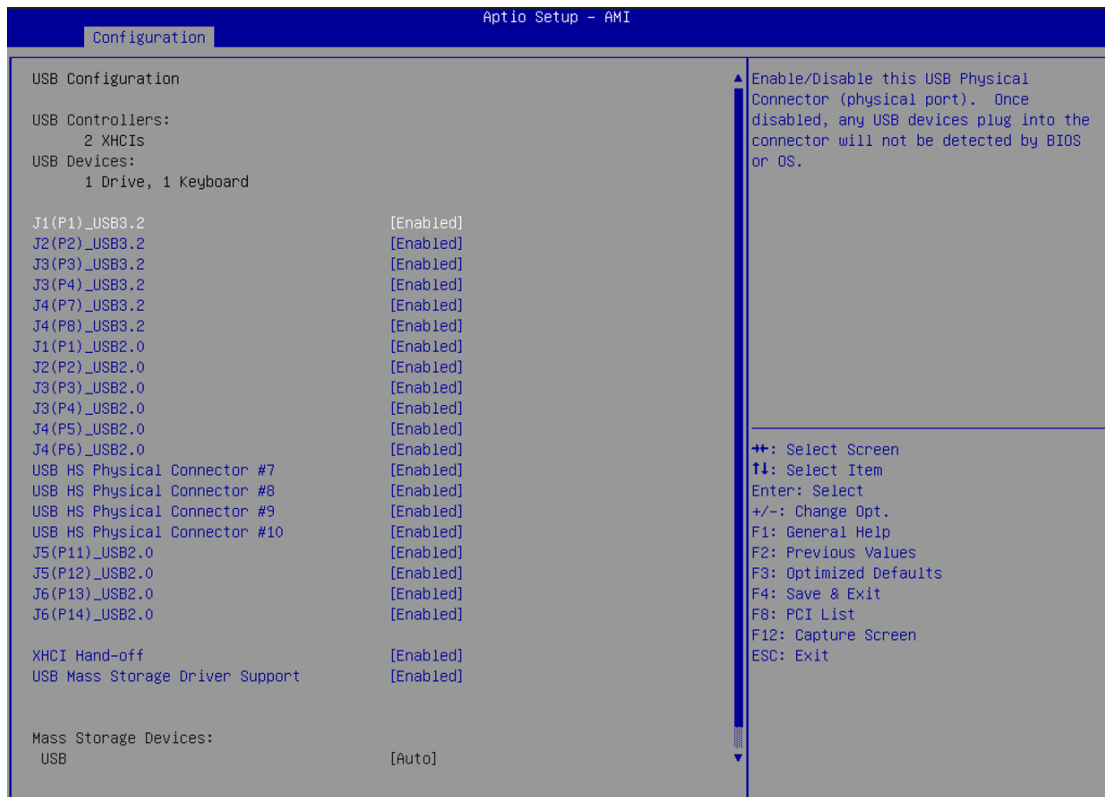
When “Enable VMD controller (RAID mode)” set to Enabled, the following item “Intel Rapid Storage Technology” shows up for RAID configurations



NVMe Configuration



6.3.8 USB Configuration



Feature	Description	Options
J1(P1)_USB3.2	Enable/Disable this USB Physical connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled,
J2(P2)_USB3.2		
J3(P3)_USB3.2		
J3(P4)_USB3.2		
J4(P7)_USB3.2		
J4(P8)_USB3.2		
J1(P1)_USB2.0	Enable/Disable this USB Physical connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled
J2(P2)_USB2.0		
J3(P3)_USB2.0		
J3(P4)_USB2.0		
J4(P5)_USB2.0		
J4(P6)_USB2.0		
USB HS Physical Connector #7	Enable/Disable this USB Physical connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled
USB HS Physical Connector #8		
USB HS Physical Connector #9		
USB HS Physical Connector #10		

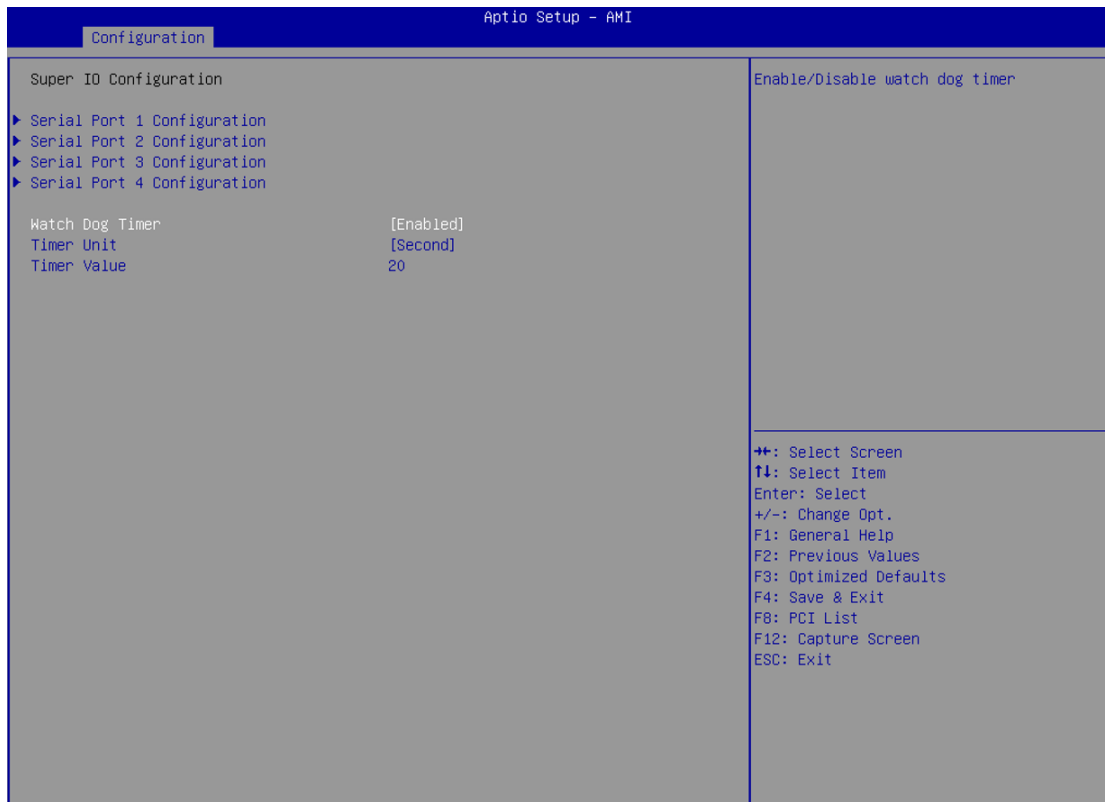
J5(P11)_USB2.0	Enable/Disable this USB Physical connector (Physical port). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enabled, Disabled
J5(P12)_USB2.0		
J6(P13)_USB2.0		
J6(P14)_USB2.0		
XHCI Hand-off	This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver.	★Enabled, Disabled
USB Mass Storage Driver Support	Enable/Disable USB Mass Storage Driver Support.	★Enabled, Disabled

6.3.9 TPM Configuration



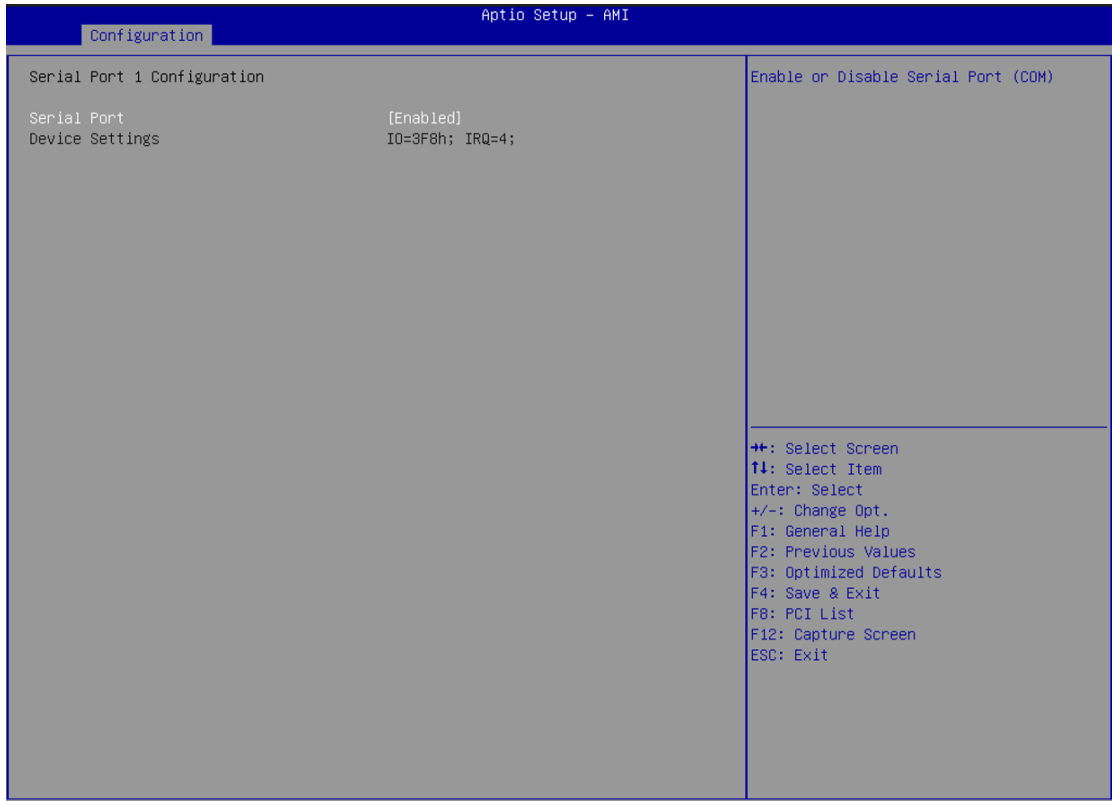
Feature	Description	Options
Security Device Support	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A Interface will not be available.	★Enabled, Disabled
SHA256 PCR Bank	Enables or Disables SHA256 PCR Bank.	★Enabled, Disabled
Pending operation	Schedule an Operation for the Security Device. Note: Your Computer will reboot during restart in order to change State of Security Device.	★None, TPM Clear
Platform Hierarchy	Enables or Disables Platform Hierarchy.	★Enabled, Disabled
Storage Hierarchy	Enables or Disables Storage Hierarchy.	★Enabled, Disabled
Endorsement Hierarchy	Enables or Disables Endorsement Hierarchy.	★Enabled, Disabled
TPM 2.0 UEFI Spec Version	Select the TCG2 Spec Version Support. TCG_1_2: the Compatible mode for Win8/Win10. TCG_2: Support new TCG2 protocol and event format for Win10 or later.	★TCG_2, TCG_1_2
Physical Presence Spec Version	Select to Tell O.S. to Support PPI Spec Version 1.2 or 1.3. Note some HCK tests might not support 1.3.	★1.3, 1.2
Device Select	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 the default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated.	★Auto, TPM 1.2, TPM 2.0

6.3.10 Super IO Configuration



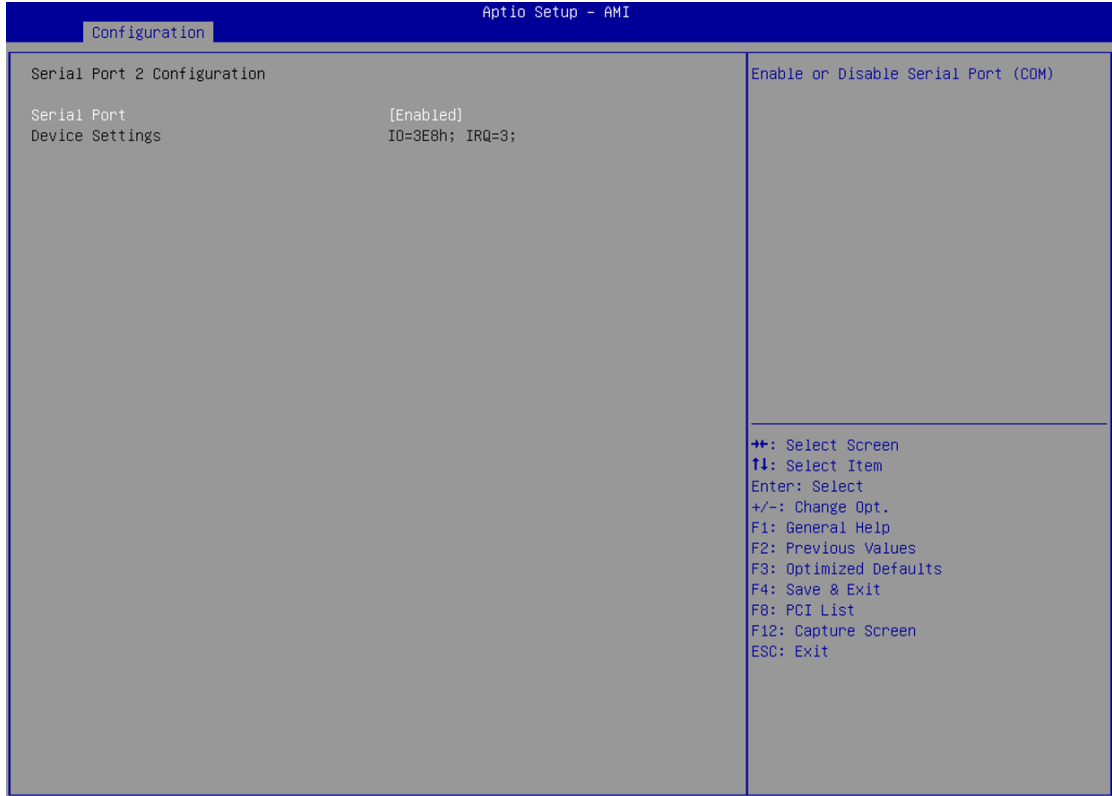
Feature	Description	Options
Serial Port 1 Configuration	Set Parameters of Serial Port 1 (COMA)	
Serial Port 2 Configuration	Set Parameters of Serial Port 2 (COMB)	
Serial Port 3 Configuration	Set Parameters of Serial Port 3 (COMC)	
Serial Port 4 Configuration	Set Parameters of Serial Port 4 (COMD)	
Watch Dog Timer	Enable/Disable Watch Dog Timer	★Disabled, Enabled
Watch Dog Timer [Enabled]		
Timer Unit	Select Timer count unit of WDT	★Second, Minute
Timer value	Set WDT Timer value seconds / minutes	★20

Serial Port 1 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled

Serial Port 2 Configuration



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled

Serial Port 3 Configuration

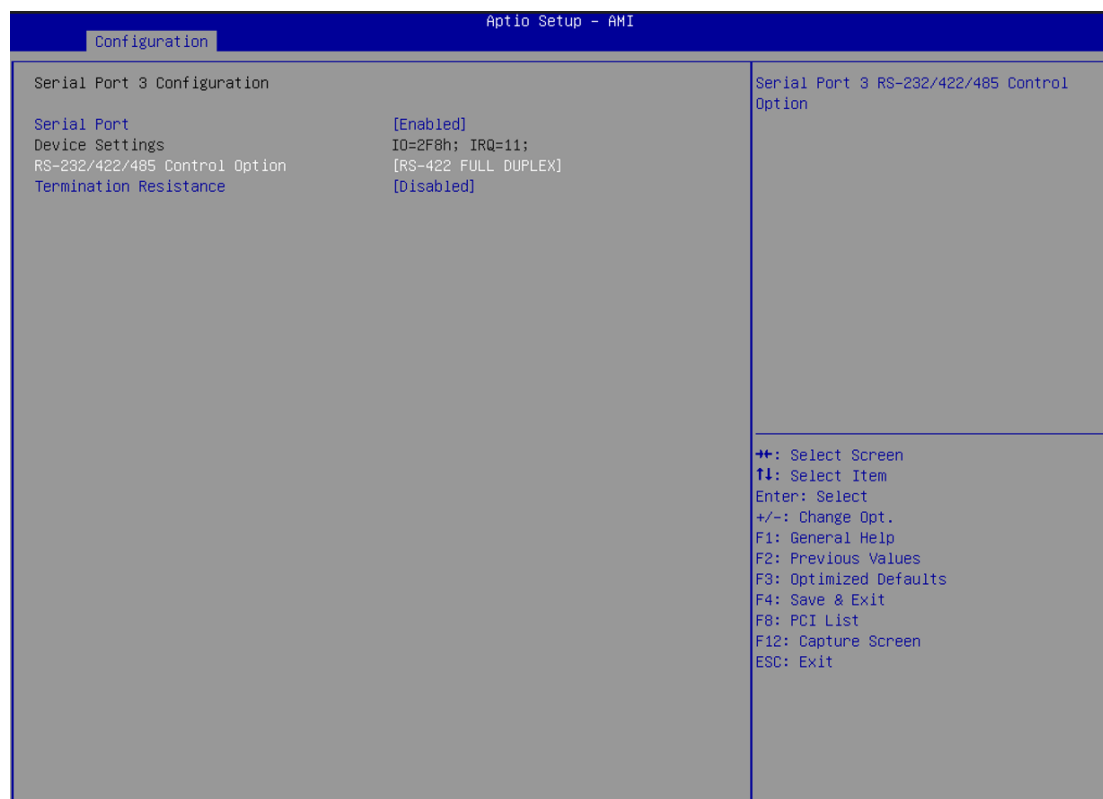
RS-232

Configuration		Aptio Setup - AMI
Serial Port 3 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=11;	
RS-232/422/485 Control Option	[RS-232]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

RS-485

Configuration		Aptio Setup - AMI
Serial Port 3 Configuration		Serial Port 3 RS-232/422/485 Control Option
Serial Port	[Enabled]	
Device Settings	IO=2F8h; IRQ=11;	
RS-232/422/485 Control Option	[RS-485 HALF DUPLEX]	
Termination Resistance	[Disabled]	
RS-485 Auto Flow Control	[Disabled]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

RS-422



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
RS-232/422/485 Control Option	Serial Port 3 RS-232/422/485 Control Option	★RS-232, RS-485 HALF DUPLEX, RS-422 FULL DUPLEX
Set RS-232/422/485 Control Option to [RS-485 HALF DUPLEX]		
Termination Resistance	Serial Port 3 enable or disable termination resistance 120ohm	★Disabled, Enabled
RS-485 Auto Flow Control	Enable/Disable Rs-485 Auto Flow Function	★Disabled, Enabled
Set RS-232/422/485 Control Option to [RS-422 FULL DUPLEX]		
Termination Resistance	Serial Port 3 enable or disable termination resistance 120ohm	★Disabled, Enabled

Serial Port 4 Configuration

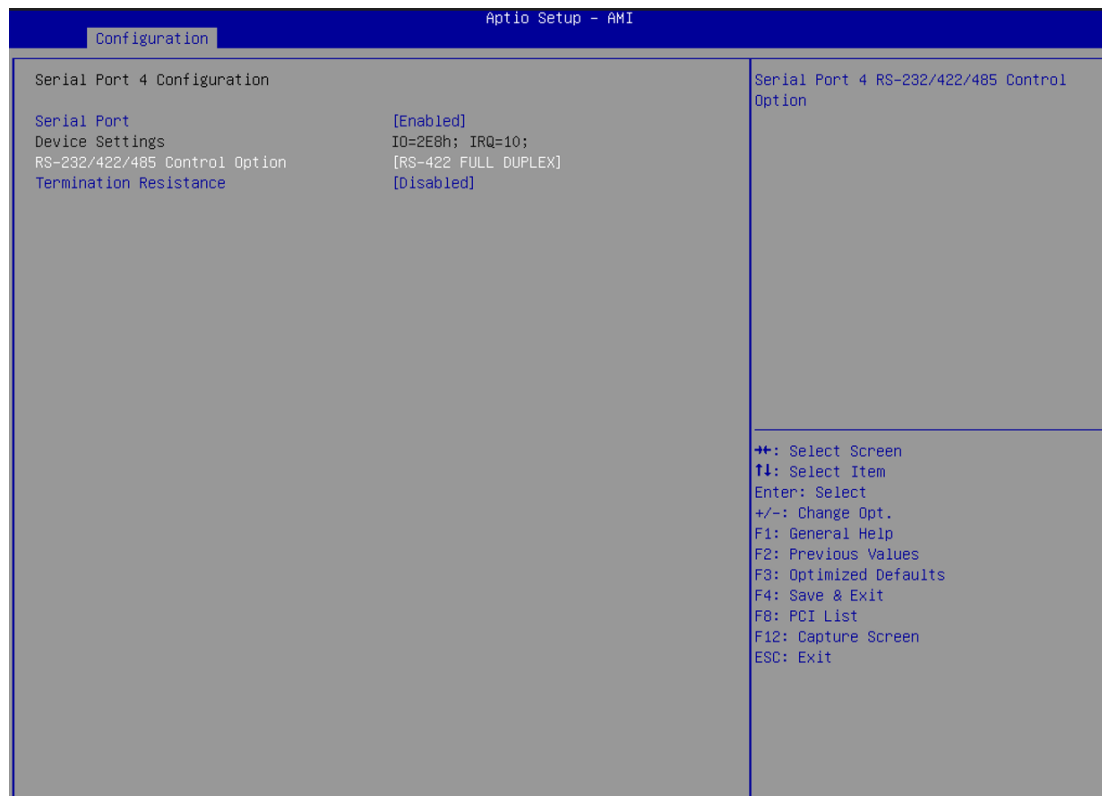
RS-232

Configuration		Aptio Setup - AMI
Serial Port 4 Configuration		Enable or Disable Serial Port (COM)
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=10;	
RS-232/422/485 Control Option	[RS-232]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

RS-485

Configuration		Aptio Setup - AMI
Serial Port 4 Configuration		Serial Port 4 RS-232/422/485 Control Option
Serial Port	[Enabled]	
Device Settings	IO=2E8h; IRQ=10;	
RS-232/422/485 Control Option	[RS-485 HALF DUPLEX]	
Termination Resistance	[Disabled]	
RS-485 Auto Flow Control	[Disabled]	
		++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit

RS-422



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
RS-232/422/485 Control Option	Serial Port 4 RS-232/422/485 Control Option	★RS-232, RS-485 HALF DUPLEX, RS-422 FULL DUPLEX
Set RS-232/422/485 Control Option to [RS-485 HALF DUPLEX]		
Termination Resistance	Serial Port 4 enable or disable termination resistance 120ohm	★Disabled, Enabled
RS-485 Auto Flow Control	Enable/Disable Rs-485 Auto Flow Function	★Disabled, Enabled
Set RS-232/422/485 Control Option to [RS-422 FULL DUPLEX]		
Termination Resistance	Serial Port 4 enable or disable termination resistance 120ohm	★Disabled, Enabled

6.3.11 HW Monitor

Thermal Cruise Mode

Configuration		
Smart Fan 1 Function	[Enabled]	Disable / Enable the smart fan control.
Smart Fan 1 Control Mode	[Thermal Cruise Mode]	
Smart Fan 1 Tolerance Temp	5	
Smart Fan 1 Start Target Temp	40	
Smart Fan 1 Full Target Temp	60	
Smart Fan 1 Low End	5	
CPU Temperature	: +50 °C	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit
System Temperature	: +33 °C	
CPU Fan speed	: 1136 RPM	
System Fan speed	: N/A	
Vcore	: +1.338 V	
+3.3V	: +3.324 V	
+5V	: +4.963 V	
+12V	: +12.018 V	
VDIMM	: +1.104 V	

Fan Control Mode

Configuration		
Smart Fan 1 Function	[Enabled]	Select smart fan control mode.
Smart Fan 1 Control Mode	[Fan Control Mode]	
Smart Fan 1 Speed(%)	100	
CPU Temperature	: +50 °C	
System Temperature	: +33 °C	
CPU Fan speed	: 1136 RPM	
System Fan speed	: N/A	++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit
Vcore	: +1.311 V	
+3.3V	: +3.324 V	
+5V	: +4.982 V	
+12V	: +12.018 V	
VDIMM	: +1.104 V	

Feature	Description	Options
Smart Fan 1 Function	Disable / Enable the smart fan control	★Disabled, Enabled
Set Smart Fan 1 Function to [Enabled], default Smart Fan 1 Control Mode is [Thermal Cruise Mode]		
Smart Fan 1 Control Mode	Select smart fan control mode	★Thermal Cruise Mode, Fan Control Mode
Smart Fan 1 Tolerance Temp	In Thermal Cruise Mode: tolerance of target temperature	★5
Smart Fan 1 Start Target Temp	In Thermal Cruise Mode: start temperature	★40
Smart Fan 1 Full Target Temp	In Thermal Cruise Mode: full speed temperature	★60
Smart Fan 1 Low End	In Thermal Cruise Mode: low end of fan speed (0-100%)	★5
Set Smart Fan 1 Control Mode to [Fan Control Mode]		
Smart Fan 1 Speed(%)	Set smart speed 0-100%	★100

6.3.12 Serial Port Console Redirection

Configuration Aptio Setup - AMI		
<div> <div>Serial Port Console Redirection</div> <div> <div>COM0</div> <div>Console Redirection [Disabled]</div> <div>► Console Redirection Settings</div> </div> </div> <div> <div>Console Redirection Enable or Disable.</div> <div> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit </div> </div>		
Feature	Description	Options
Console Redirection	Console Redirection Enable or Disable	★Disabled, Enabled

COM0 Console Redirection Settings

Aptio Setup - AMI

Configuration

COM0 Console Redirection Settings		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.
Terminal Type Bits per second Data Bits Parity Stop Bits Flow Control VT-UTF8 Combo Key Support Recorder Mode Resolution 100x31 Putty KeyPad	[VT100Plus] [115200] [8] [None] [1] [None] [Enabled] [Disabled] [Disabled] [VT100]	<div style="font-size: x-small;"> ++: Select Screen ↑↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit F8: PCI List F12: Capture Screen ESC: Exit </div>

Feature	Description	Options
Terminal Type	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.	★VT100Plus, ANSI, VT100, VT-UTF8
Bits per second	Select Serial port transmission speed. The speed must be matched on the other side. Long or noisy lines may require lower speeds.	★115200, 9600, 19200, 38400, 57600, 230400, 460800, 921600
Data bits	Data bits	★8, 7
Parity	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 bit is always 0. Mark and Space Parity do not allow for error detection. They can be used as an additional data bit.	★None, Even, Odd, Mark, Space
Stop Bits	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 stop bit.	★1, 2
Flow Control	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.	★None, Hardware RTS/CTS

VT-UTF8 Combo Key Support	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals	★Enabled, Disabled
Recorder Mode	With this mode enabled only text will be sent. This is to capture Terminal data.	★Disabled, Enabled
Resolution 100x31	Enables or disables extended terminal resolution	★Disabled, Enabled
Putty KeyPad	Select FunctionKey and KeyPad on Putty	★VT100, LINUX, XTERMR6, SCO, ESCN, VT400

6.3.13 EC Firmware Update

Aptio Setup - AMI

Configuration

EC Firmware Update

EC Model Name 064-PHG
EC Version & Build Date 0.4 (02/13/2023)

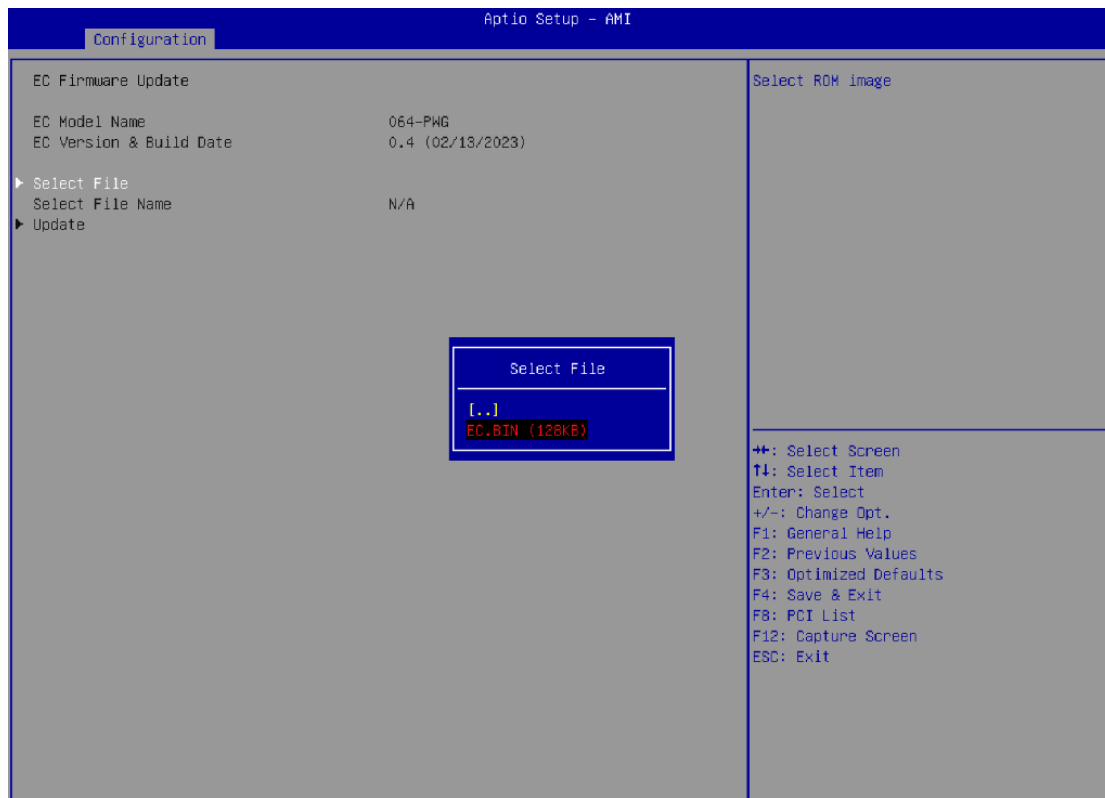
► Select File
Select File Name N/A
► Update

Select ROM image

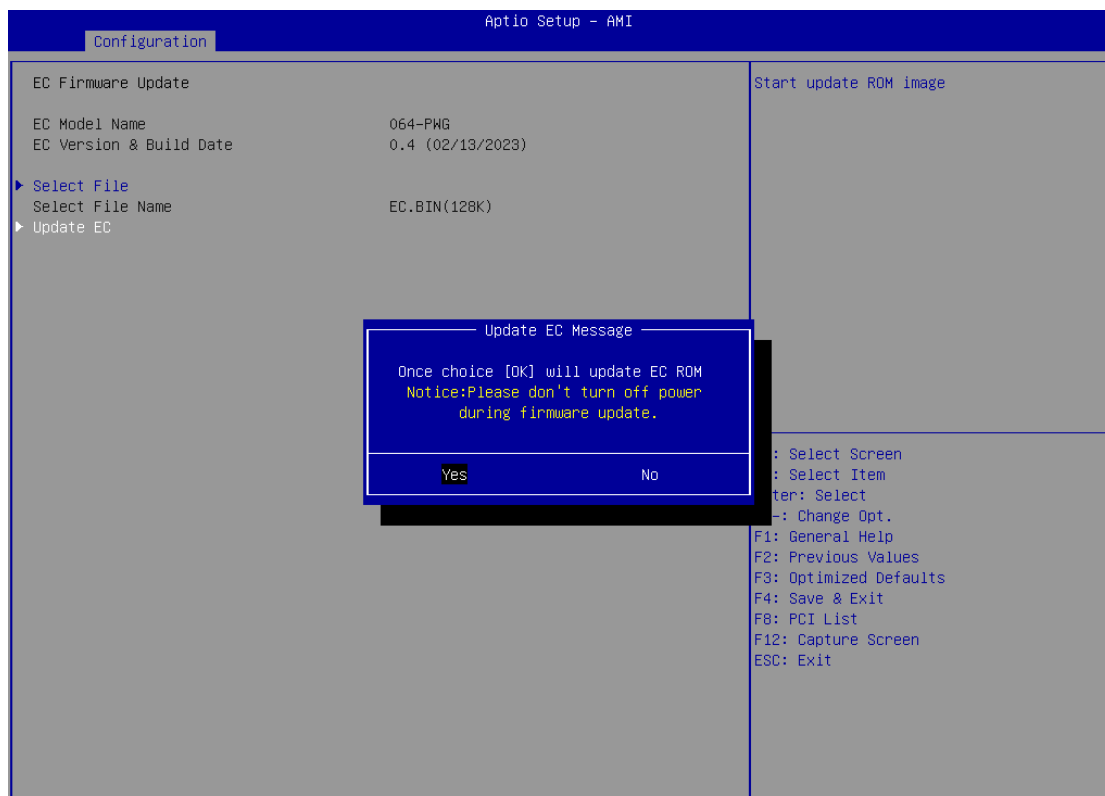
⇐: Select Screen
 ↑↓: Select Item
 Enter: Select
 +/-: Change Opt.
 F1: General Help
 F2: Previous Values
 F3: Optimized Defaults
 F4: Save & Exit
 F8: PCI List
 F12: Capture Screen
 ESC: Exit

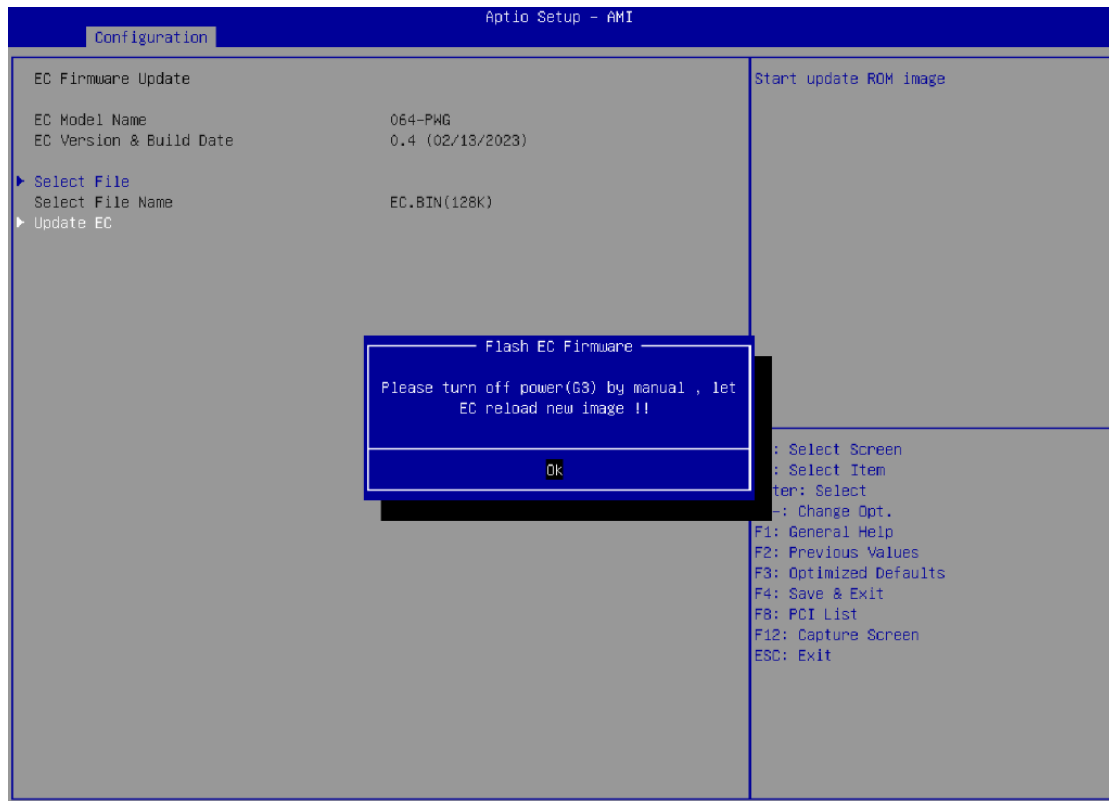
Feature	Description	Options
Select File	Select ROM image EC BIN file in (USB) drive to update	
Update	Start update ROM image	

Select file



6.3.14 Update EC



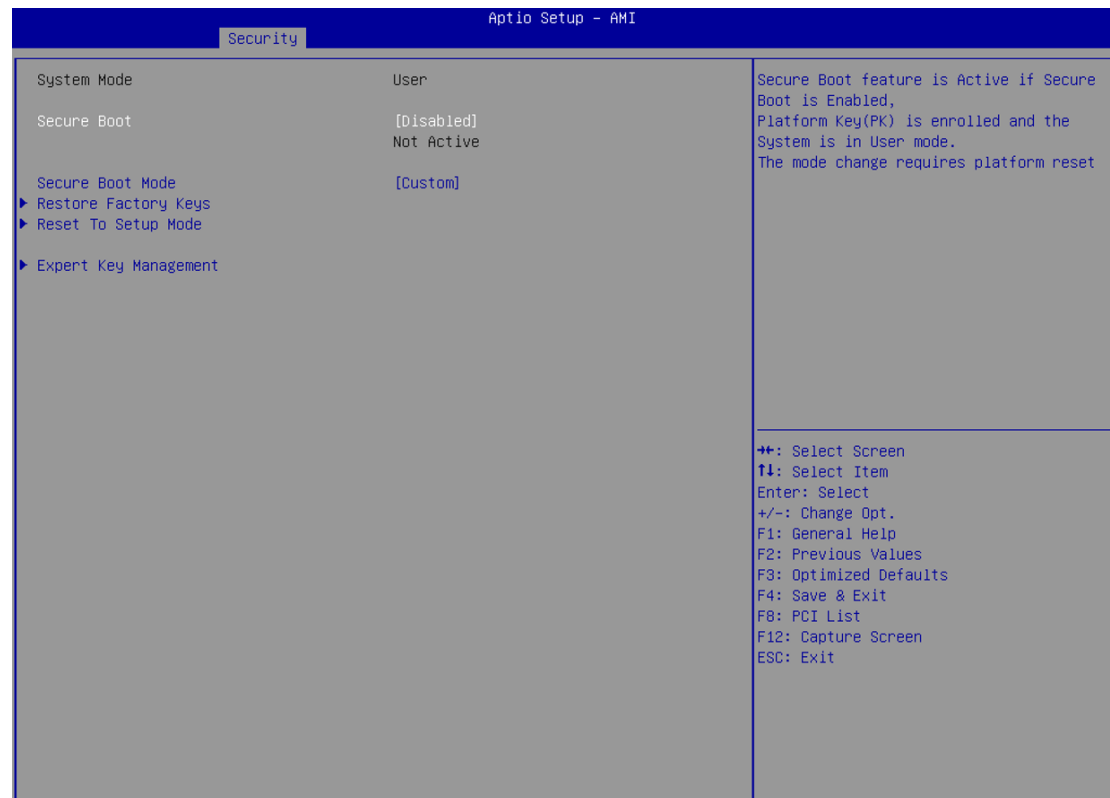


6.3.15 Security



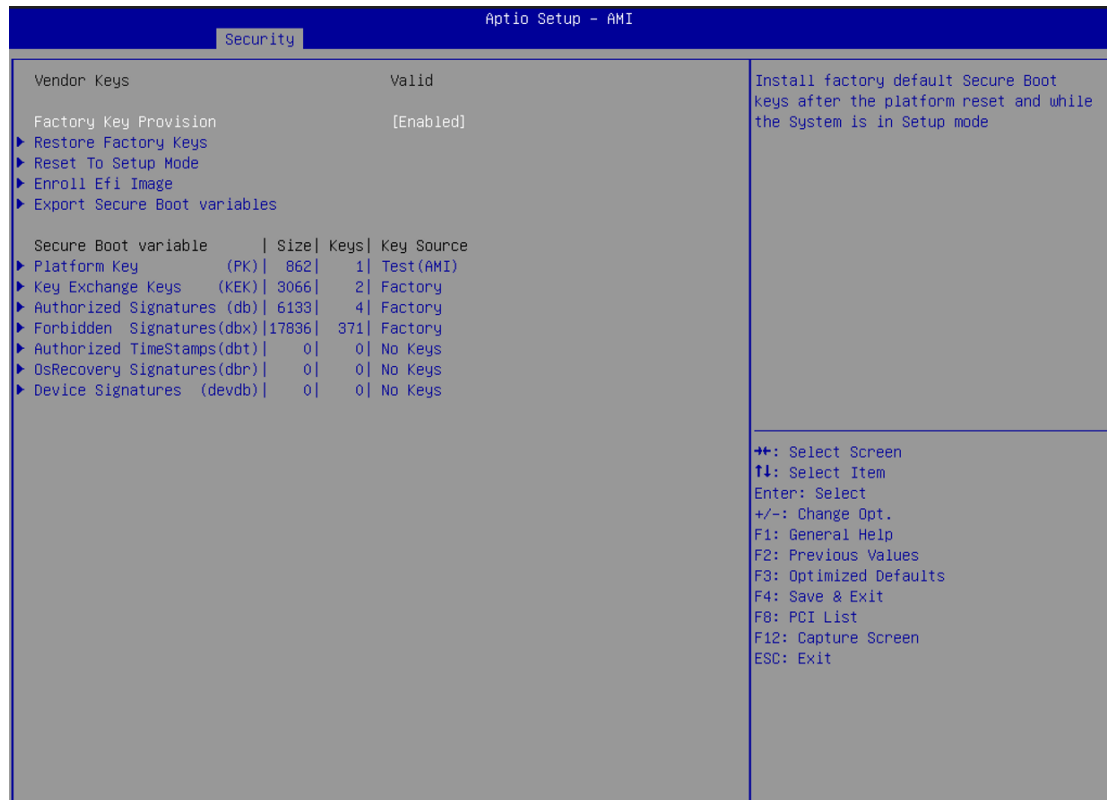
Feature	Description	Options
Password Check Mode	[Setup] check password when enter setup screen. [Power on] check password on every time system power on.	★Setup, Power On
Administrator Password	Set Administrator Password	
Secure Boot	Secure Boot configuration	

Secure Boot



Feature	Description	Options
Secure Boot	Secure Boot feature is Active if Secure Boot is Enabled, Platform Key (PK) is enrolled and the System is in User mode. The mode change requires platform reset.	★Disabled, Enabled
Secure Boot Mode	Secure Boot Mode options: Standard or Custom. In Custom mode, Secure Boot Policy variables can be configured by a physically present user without full authentication	★Custom, Standard
Restore Factory keys	Force System to User Mode. Install factory default Secure Boot key databases	Yes, No
Reset To Setup Mode	Delete all Secure Boot key databases from NVRAM	Yes, No
Expert Key Management	Enables expert users to modify Secure Boot Policy variables without variable authentication	

Expert Key Management



Feature	Description	Options
Factory Key Provision	Install factory default Secure Boot keys after the platform reset and while the System is in Setup mode.	★Enabled, Disabled
Restore Factory keys	Force System to User Mode. Install factory default Secure Boot key databases	Yes, No
Reset To Setup Mode	Delete all Secure Boot key databases from NVRAM	Yes, No
Enroll Efi Image	Allow Efi image to run in Secure Boot mode. Enroll SHA256 Hash certificate of a PE image into Authorized Signature Database (db)	
Export Secure Boot variables	Save NVRAM content of Secure Boot variable to a file	
Platform Key(PK)	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated UEFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, Modified, Mixed	Details, Export, Update, Delete
Key Exchange Keys(KEK)	Enroll Factory Defaults or load certificates from a file:	Details, Export,

	1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated EFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, Modified, Mixed	Update, Append, Delete
Authorized Signatures(db)	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated EFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, Modified, Mixed	Details, Export, Update, Append, Delete
Forbidden Signatures(dbx)	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated EFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, Modified, Mixed	Details, Export, Update, Append, Delete
Authorized TimeStamps(dbt)	Enroll Factory Defaults or load certificates from a file: 1.Public Key Certificate: a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX 2.Authenticated EFI Variable 3.EFI PE/COFF Image(SHA256) Key Source: Factory, Modified, Mixed	Update, Append

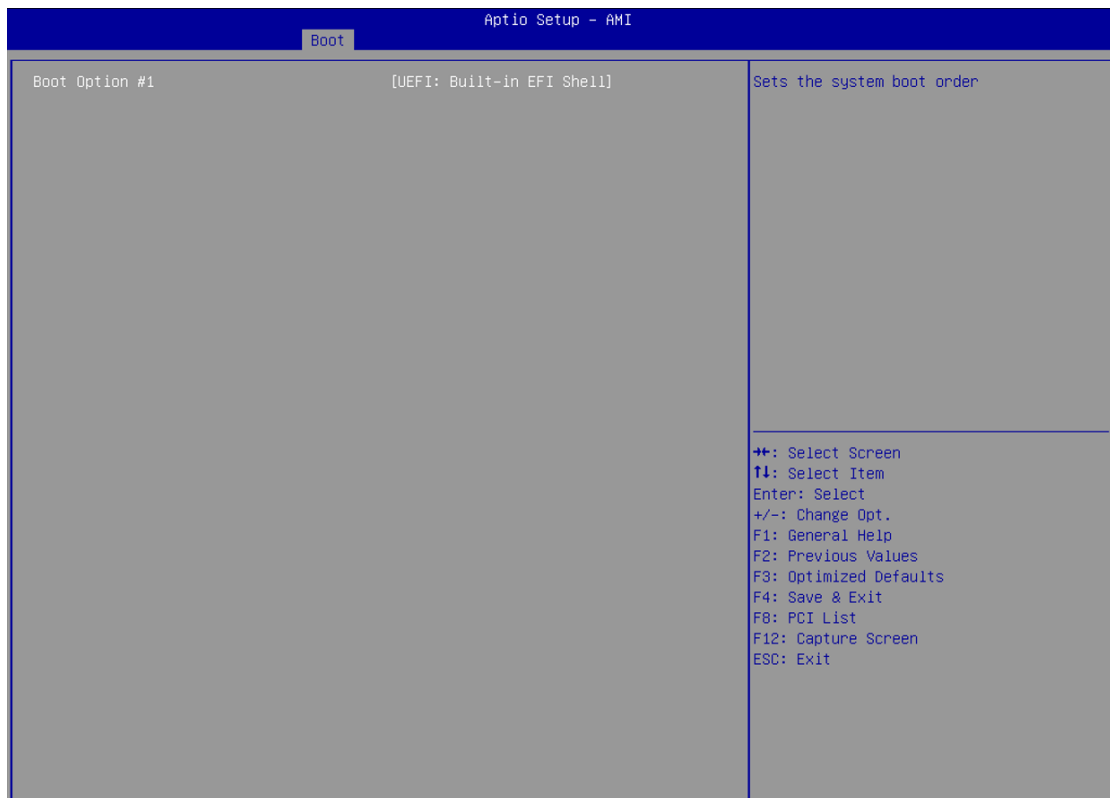
OsRecovery Signatures(dbr)	<p>Enroll Factory Defaults or load certificates from a file:</p> <p>1.Public Key Certificate:</p> <ul style="list-style-type: none"> a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX <p>2.Authenticated EFI Variable</p> <p>3.EFI PE/COFF Image(SHA256)</p> <p>Key Source:</p> <p>Factory, Modified, Mixed</p>	Update, Append
Device Signatures(devdb)	<p>Enroll Factory Defaults or load certificates from a file:</p> <p>1.Public Key Certificate:</p> <ul style="list-style-type: none"> a)EFI_SIGNATURE_LIST b)EFI_CERT_X509 (DER) c)EFI_CERT_RSA2048 (bin) d)EFI_CERT_SHAXXX <p>2.Authenticated EFI Variable</p> <p>3.EFI PE/COFF Image(SHA256)</p> <p>Key Source:</p> <p>Factory, Modified, Mixed</p>	Update, Append

6.3.16 Boot

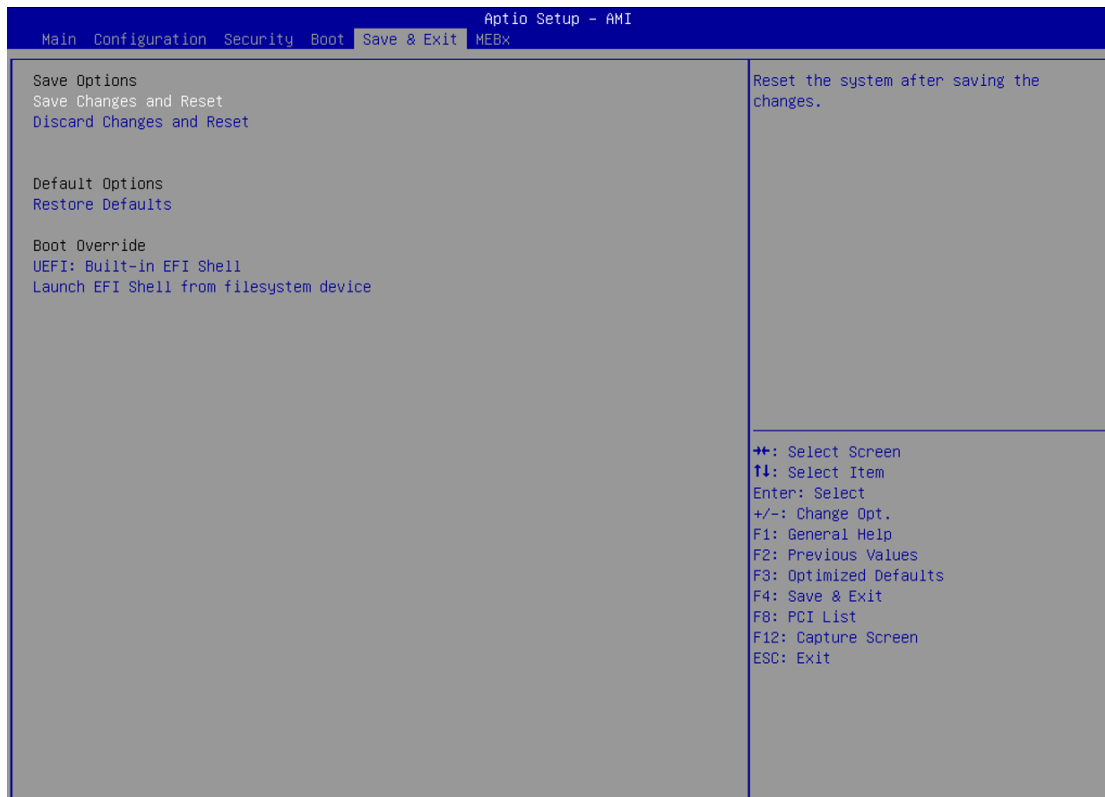


Feature	Description	Options
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.	★1
Bootup NumLock State	Select the keyboard NumLock state.	★On, Off
Full Screen LOGO	Enables or disables Quiet Boot option and Full Screen LOGO.	★Disabled, Enabled
Boot Option #1 ~ #6	Sets the system boot order	Hard Disk, NVME, CD/DVD, USB Device, Network, UEFI AP: UEFI: Built-in EFI Shell, Disabled
UEFI Application Boot Priorities	Specifies the Boot Device Priority sequence from available UEFI Application	

UEFI Application Boot Priorities



6.3.17 Save & Exit



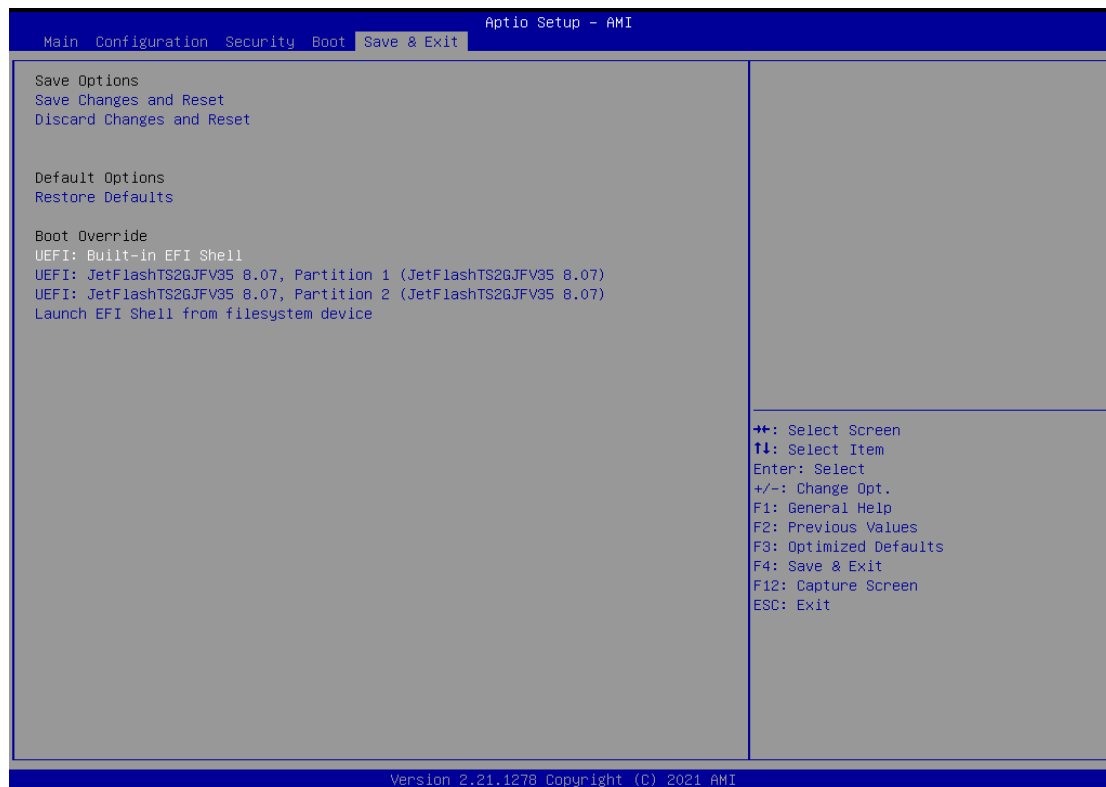
Feature	Description	Options
Save Changes and Reset	Reset the system after saving the changes.	
Discard Changes and Reset	Reset system setup without saving any changes.	
Restore Defaults	Restore/Load Default values for all the setup options.	
UEFI: Built-in EFI Shell		
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.	

BIOS / EC UEFI Update SOP process under UEFI Shell

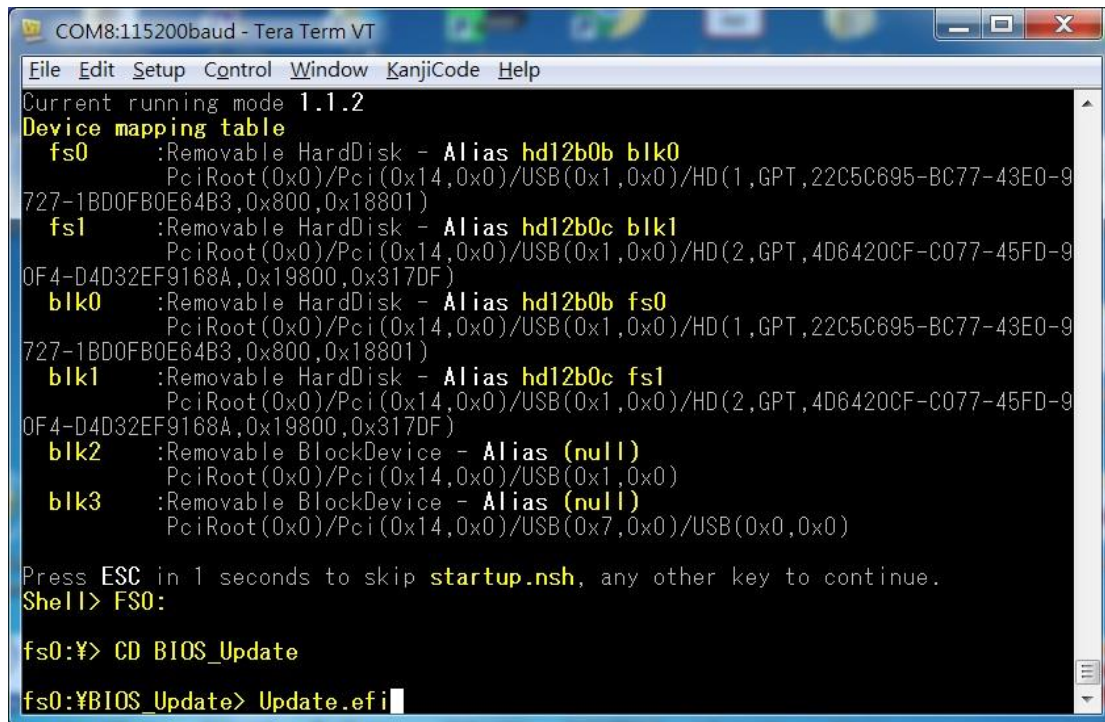
Step 1. Prepare a USB DOK.

Step 2. Unzip BIOS / EC update file to the USB DOK.

Step 3. Plug the USB DOK into the target system and then boot in UEFI Shell by selecting UEFI: Built-in EFI Shell in the BIOS Save & Exit page.



Step 4. Under the UEFI shell, direct to your USB DOK, below picture is an example using fs0. Then direct to the folder with BIOS / EC updated file and then enter command: "Update.efi" to start updating BIOS / EC.



```

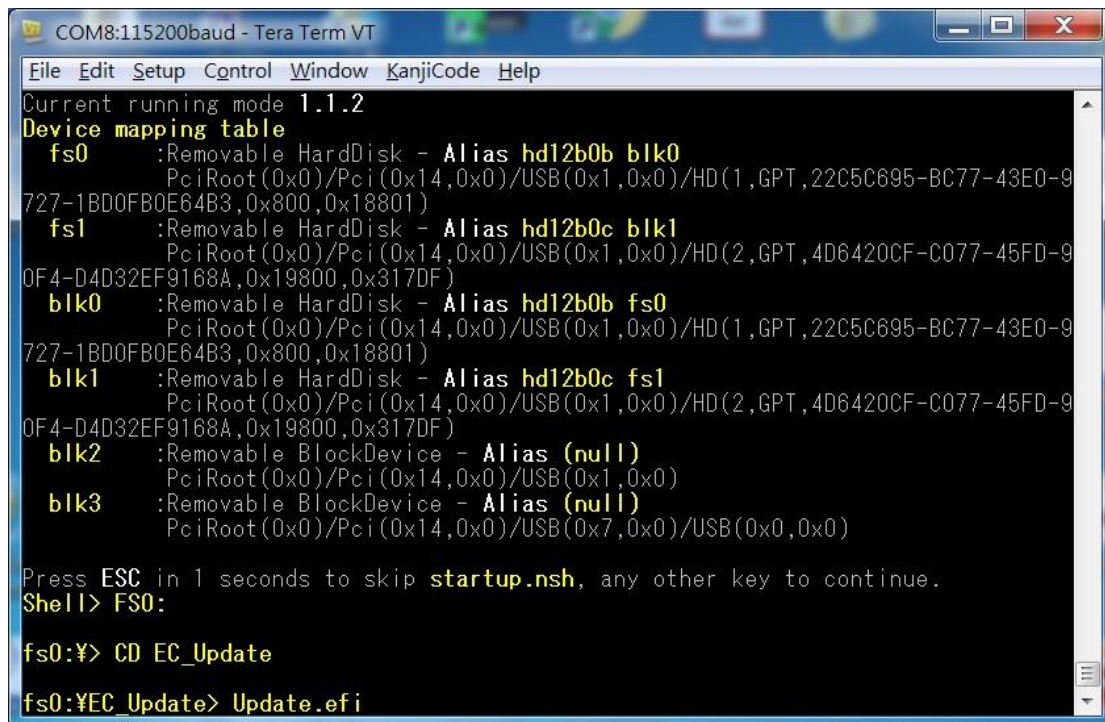
COM8:115200baud - Tera Term VT
File Edit Setup Control Window KanjiCode Help
Current running mode 1.1.2
Device mapping table
fs0 :Removable HardDisk - Alias hd12b0b blk0
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(1,GPT,22C5C695-BC77-43E0-9
727-1BD0FB0E64B3,0x800,0x18801)
fs1 :Removable HardDisk - Alias hd12b0c blk1
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(2,GPT,4D6420CF-C077-45FD-9
0F4-D4D32EF9168A,0x19800,0x317DF)
blk0 :Removable HardDisk - Alias hd12b0b fs0
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(1,GPT,22C5C695-BC77-43E0-9
727-1BD0FB0E64B3,0x800,0x18801)
blk1 :Removable HardDisk - Alias hd12b0c fs1
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(2,GPT,4D6420CF-C077-45FD-9
0F4-D4D32EF9168A,0x19800,0x317DF)
blk2 :Removable BlockDevice - Alias (null)
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)
blk3 :Removable BlockDevice - Alias (null)
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x7,0x0)/USB(0x0,0x0)

Press ESC in 1 seconds to skip startup.nsh, any other key to continue.
Shell> FS0:

fs0:¥> CD BIOS_Update
fs0:¥BIOS_Update> Update.efi

```

(BIOS File Update)



```

COM8:115200baud - Tera Term VT
File Edit Setup Control Window KanjiCode Help
Current running mode 1.1.2
Device mapping table
fs0 :Removable HardDisk - Alias hd12b0b blk0
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(1,GPT,22C5C695-BC77-43E0-9
727-1BD0FB0E64B3,0x800,0x18801)
fs1 :Removable HardDisk - Alias hd12b0c blk1
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(2,GPT,4D6420CF-C077-45FD-9
0F4-D4D32EF9168A,0x19800,0x317DF)
blk0 :Removable HardDisk - Alias hd12b0b fs0
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(1,GPT,22C5C695-BC77-43E0-9
727-1BD0FB0E64B3,0x800,0x18801)
blk1 :Removable HardDisk - Alias hd12b0c fs1
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)/HD(2,GPT,4D6420CF-C077-45FD-9
0F4-D4D32EF9168A,0x19800,0x317DF)
blk2 :Removable BlockDevice - Alias (null)
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x1,0x0)
blk3 :Removable BlockDevice - Alias (null)
      PciRoot(0x0)/Pci(0x14,0x0)/USB(0x7,0x0)/USB(0x0,0x0)

Press ESC in 1 seconds to skip startup.nsh, any other key to continue.
Shell> FS0:

fs0:¥> CD EC_Update
fs0:¥EC_Update> Update.efi

```

(EC File Update)

Step 5. The updating process will start and you can see the updating progress.

When you see the following pictures, which means the BIOS / EC update processes finished.

Please cut the AC power off and wait for 10 seconds before powering on.

```

COM8:115200baud - Tera Term VT
File Edit Setup Control Window KanjiCode Help

        UPDATING...
        >>DO NOT TURN OFF POWER<<
        PLEASE RESET SYSTEM
        AFTER UPDATING COMPLETE!
        ~~~~~
        64 Bit
Intel (R) Flash Programming Tool Version: 15.40.0.1017
Copyright (C) 2005 - 2020, Intel Corporation. All rights reserved.

Reading HSFSTS register... Flash Descriptor: Valid

--- Flash Devices Found ---
ID:0xC22019   Size: 32768KB (262144Kb)

GbE Region does not exist.

- Erasing Flash Block [0x20000000] - 100 percent complete.
- Programming Flash [0x20000000] 32768KB of 32768KB - 100 percent complete.
RESULT: The data is identical.32768KB of 32768KB - 100 percent complete.

FPT Operation Successful.

fs0:¥BIOS_Update>

```

(BIOS update finished)

```

COM8:115200baud - Tera Term VT
File Edit Setup Control Window KanjiCode Help

        UPDATING...
        >>DO NOT TURN OFF POWER<<
        PLEASE RESET SYSTEM
        AFTER UPDATING COMPLETE!
        ~~~~~
        64 Bit
Current shell version is v1.x
ITE EC Flash Utility for UEFI Shell, Version : 1.3.0 (64)
<Re-Write by FoxYang .. 2020/07/21 >

[/NOKBC] support
!!Please don't use KB/MS during updating ...!!
Device ID       : EF 40 14 0
SPI Vendor      : Winbond
Eraseing...     : ~~~~~ -- Erase OK.
                  ~~~~~ -- Erase Verify OK.
Erase Verify... : ~~~~~ -- Programing OK.
Programing...   : ~~~~~ -- Verify OK.
Verify...       : ~~~~~
Please turn off power(G3) by manual , let EC reload new image !!
fs0:¥EC_Update>

```

(EC update finished)

Chapter 7

Overview

- 7 System Resources
- 7.1 Intel® Arrow Lake PCH
- 7.2 Main Memory
- 7.3 Installing the Single Board Computer

7 System Resources

7.1 Intel® Arrow Lake-S PCH

Intel® Q870 Chipset

Intel® W880 Chipset

7.2 Main Memory

ROBO-8117G2AR provides 2 x 262-pin SO-DIMM sockets which supports DDR5 ECC/non-ECC memory. The maximum memory can be up to 96GB. Memory clock and related settings can be detected by BIOS via SPD interface.

Watch out the contact and lock integrity of memory module with socket, it will impact on the system reliability. Follow normal procedures to install memory module into memory socket. Before locking, make sure that all modules have been fully inserted into the card slots.

7.3 Installing the Single Board Computer

To install your ROBO-8117 into standard chassis or proprietary environment, please perform the following:

Step 1 : Check all jumpers setting on proper position

Step 2 : Install and configure memory module on right position

Step 3 : Place ROBO-8117 into the dedicated position in the system

Step 4 : Attach cables to existing peripheral devices and secure it

WARNING

Please ensure that motherboard is properly inserted and fixed by mechanism.

Note:

Please refer to section 6.3 to install Graphic/LAN

7.3.1 Chipset Component Driver

ROBO-8117G2AR is based on Intel® Q870/W880 chipset and desktop processors including Core™ Ultra 9 / 7 / 5 sku . It's a new chipset that some old operating systems might not be able to recognize. To overcome this compatibility issue, for Windows Operating Systems such as Windows 11, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in Portwell download center

7.3.2 Intel® HD Graphics Driver

ROBO-8117 has integrated Intel® HD Graphics which supports DirectX 12、OpenGL 4.5 、OpenCL 3. Processor Graphics indicates graphics processing circuitry integrated into the processor, providing the graphics, compute, media, and display capabilities.

ROBO-8117 supports HDMI, mini-DP display output. This combination makes ROBO-8117 an excellent performance hardware.

Drivers Support

The driver supports Windows 11 IoT Enterprise LTSC 2024

7.3.3 Intel® LAN I226LM Gigabit Ethernet Controller

- Intel I226LM 2.5Gigabit Ethernet controller and 2x RJ45 connectors on bracket

Drivers Support

Please find Intel I226LM LAN driver in Ethernet directory in Portwell download center. The driver supports Windows 11.

PCI Express Base Specification, Revision 2.0 <https://www.pcisig.com/specifications>

Chapter 8

Overview

- 8 Troubleshooting
- 8.1 Hardware Quick Installation
- 8.2 BIOS Setting
- 8.3 FAQ

8 Troubleshooting

This chapter provides a few useful tips to quickly get ROBO-8117 running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

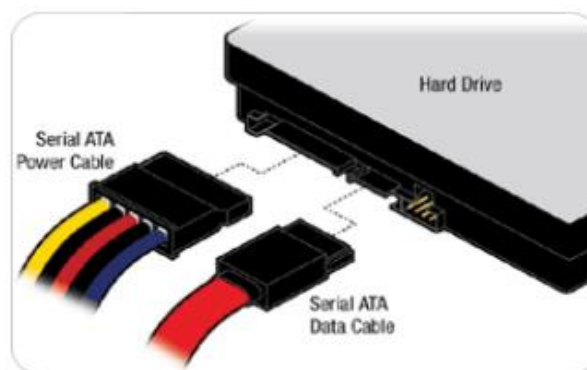
8.1 Hardware Quick Installation

ATX Power Setting

Unlike other Single board computer, ROBO-8117 supports AT/ATX model Select. Therefore, there is no other setting that needs to be set up. However, there are only two connectors that must be connected— J12 (ATX 8 Pin Connector (For CPU Power)) on the ROBO-8117 board & 20 + 4 pins ATX Power Connector on the carrier board

Serial ATA

Serial ATA Hard Disk Setting for SATA Speed Selection



```

System BIOS Main Menu
├── Configuration
│   └── SATA Configuration ..... [Press enter]
│       └── SATA Speed Selection [Auto, Gen1, Gen2, Gen3]
    
```

8.2 BIOS Setting

It is assumed that users have correctly adopted modules and connected all the devices cables required before turning on ATX power. DDR5 So-DIMM Memory, keyboard, mouse, SATA hard disk, HDMI or mini-DP connector, power cable of the device, ATX accessories are good examples that deserve attention. With no assurance of properly and correctly accommodating these modules and devices, it is very possible to encounter system failures that result in malfunction of any device.

To make sure that you have a successful start with ROBO-8117, it is recommended, when going with the boot-up sequence, to hit “delete” or “ESC” key and enter the BIOS setup menu to tune up a stable BIOS configuration so that you can wake up your system far well.

Loading the default optimal setting

When prompted with the main setup menu, please scroll down to “**RestoreDefaults**”, press “**Enter**” and select “**Yes**” to load default optimal BIOS setup. This will force your BIOS setting back to the initial factory configurations. It is recommended to do this so you can be sure the system is running with the BIOS setting that Portwell has highly endorsed. As a matter of fact, users can load the default BIOS setting at any time when system appears to be unstable in boot up sequence.

8.3 FAQ

Information & Support

Question: I forgot my password of system BIOS, what am I supposed to do?

Answer: You can switch off your power supply then find the PCHJ1 on the ROBO-8117 to set it from 1-2 short to 2-3 short and wait 5 seconds to clean your password.

PCHJ1: RTC CLR Jumper



PIN No.	Signal Description
1-2	NORMAL (Default)
2-3	CLR_RTC

Question: How to update the BIOS file of ROBO-8117?

Answer: 1. Please visit web site of Portwell download center as below hyperlink

http://www.portwell.com.tw/support/download_center.php

Registering an account in advance is a must. (The E-Mail box should be an existing Company email address that you check regularly.)

<http://www.portwell.com.tw/member/newmember.php>

2. Type in your Username and password and log in the download center.
3. Select "Search download" and type the keyword "ROBO-8117".
4. Find the "BIOS" page and download the ROM file and flash utility.
5. Unzip file to bootable USB flash drive which can boot to shell mode. Then execute the "update.efi". It will start to update BIOS.
6. When you see the "FPT Operation Passed" message, which means the BIOS update processes finished. Please cut the AC power off and wait for 10 seconds before powering on.

http://www.portwell.com.tw/support/download_center.php

If you have other additional technical information or request which is not covered in this manual, please fill in the technical request form as below hyperlink.

http://www.portwell.com.tw/support/problem_report.php

We will do our best to provide a suggestion or solution for you.

Thanks

Chapter 9

Overview

9 Portwell Software Service

9 Portwell Software Service

Portwell Evaluation Tool (PET)

The Portwell Evaluation Tool (PET) is an API which Portwell's customers can access the GPIO, I2C, SMBus, etc under Windows and Linux OS. For more information, please contact Portwell.

Portwell BIOS web Tool (PBT)

The Portwell BIOS web Tool (PBT) is a brand-new on-line utility which innovated by Portwell. PBT now is available for Portwell's premiere customers who are able to add customized BIOS logo and change BIOS default settings on American Megatrends (AMI) BIOS. Please contact Portwell for more information.

Portwell EC Auto Test Tool (PECAT)

The Portwell EC Auto Test Tool (PECAT) is a brand-new utility which innovated by Portwell. PECAT now is available for Portwell's premiere customers, who are able to Test Embedded Controller Function in UEFI Mode. Please contact Portwell for more information.



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