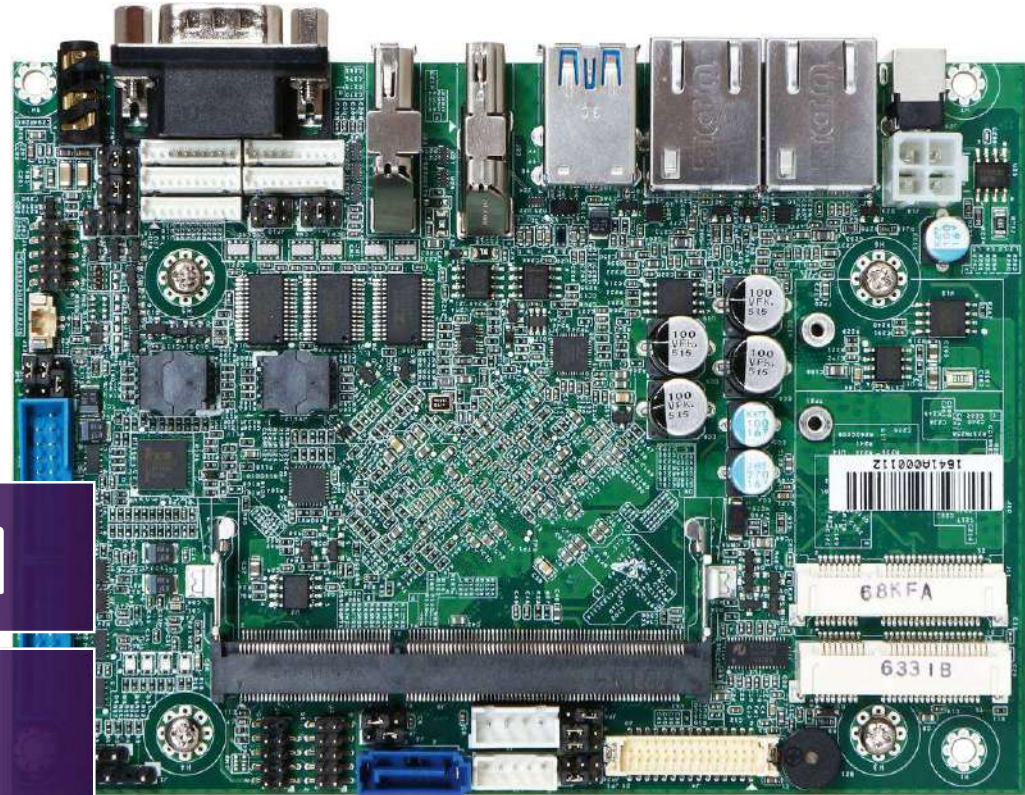


PEB-2773VG2ATM



PEB-2773VG2ATM

3.5" Embedded Motherboard Board

Version 1.4

Revision History

R1.0	Preliminary
R1.1	Update Operation Temperature information
R1.2	Updated J6 80 Port pin-header image
R1.3	Update Graphics & resolution & LAN information
R1.4	Modify P.28 information

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Preface

This user's guide provides information about the components, features, connectors and BIOS Setup menus available on the PEB-2773VG2ATM. This document should be referred to when designing 3.5" Embedded board application. The other reference documents that should be used include the following:

- ✧ Intel Apollo Lake Design Guide
- ✧ Intel Apollo Lake I Specification

Please contact Portwell Sales Representative for above documents.

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1 Introduction

Portwell Inc., a world-leading innovator in the Industrial PC (IPC) market and a member of the Intel® Embedded and Communications Alliance (Intel ECA), announced today the Portwell PEB-2773VG2ATM utilizing the Intel® ECX form factor based on the Intel® Atom™ processor E3900 series and N4200 / N3350 sku, includes integrated, enhanced graphics and memory controllers on 14nm process technology, delivering significant power reduction, performance improvements and smaller platform footprint over the previous Intel® Atom™ processor E3900 series and N4200 / N3350 sku. The PEB-2773VG2ATM can provide the low power consumption for low profile fanless applications such as POS, Print Imaging, ATM, Kiosk, Medical, Panel PC, Digital Security and Digital Signage.

2 Specifications

Main Processor	◆ Intel® Atom™ Dual/Quad Core E3900 series, Pentium N4200 , Celeron N3350 Processor
System BIOS	◆ AMI UEFI BIOS
Main Memory	◆ Up to 8 GB in 1 slots DDR3L SO-DIMM sockets.
Graphics	<ul style="list-style-type: none"> ◆ Controller: Intel® HD Graphics 505 ◆ LVDS: Supports Dual Channel 24bit up to resolution 1920 x 1200 ◆ DP: Supports DP up to resolution 4096 x 2160 ◆ HDMI: Supports HDMI up to resolution 3840 x 2160
Expansion Interface	◆ Two mini-PCle socket (Full size support mSATA / Half size support WiFi/BT)
SATA Interface	◆ One SATA ports(SATA 6Gb/s)
Input/Output	<ul style="list-style-type: none"> ◆ Serial Ports: 5x RS-232 & 1x RS-232/422/485 ◆ USB Port: 2x USB 3.0 on REAR I/O, 4x USB 3.0 on board header ◆ Audio Interface: Audio jack on rear I/O with Line-out ,Line-in, Line-out, and Mic-in on board pin header
Ethernet	◆ Supports two 10/100/1000 Mbps Ethernet port (s) via PCI Express x1 bus which provides 500 MB/s data transmission rate
High Drive GPIO	◆ One pin-header for GPIO(8bit in / out)

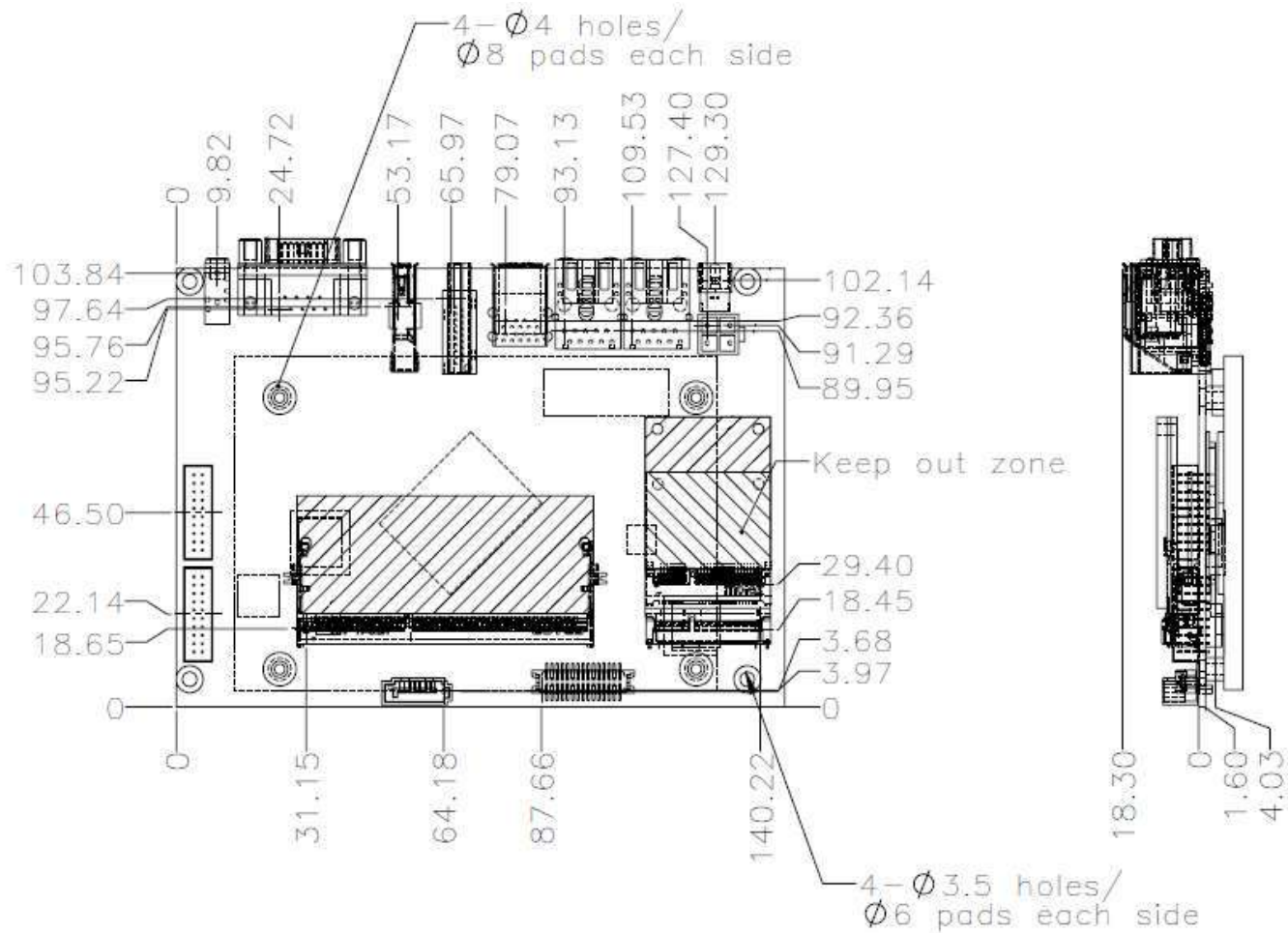
Mechanical and environmental specifications	<ul style="list-style-type: none">◆ Operating temperature: -40 ~ 80° C◆ Storage temperature: -40 ~85°C◆ Humidity: 5 ~ 90% non-condensing◆ Power supply voltage: 12~24V DC in◆ Board size: 146(L) x 102(W) mm; 5.74"(L) x 4.02"(W)
--	---

2.1 Supported Operating Systems

The PEB-2773VG2ATM supports the following operating systems.

- ✧ Windows 10* (64 bit), IoT Core(32/64bit)
- ✧ Wind River* 8.0 Linux Distribution(64 bit)
- ✧ Yocto* Tool-based Embedded Linux Distribution (64 bit)
- ✧ Android* 6.0(64bit)
- ✧ VxWorks*7.0 (RTOS) (64 bit)

2.2 Mechanical Dimensions



2.3 Power Consumption

Test Configuration	
CPU Type	Intel® Atom™ Processor E3940 @ 1.6GHz
SBC BIOS	Portwell,Inc. PEBE-2773 TEST BIOS (61111T00)
Memory	Transcend DDR3L SO-DIMM 1866/4GB (wide temperature)
VGA Card	Onboard Intel® HD Graphics
VGA Driver	Intel® HD Graphics ,Version:21.20.16.4526
LAN Card	Onboard Intel® I210 Gigabit Network Connector
LAN Driver	Intel® I210 Gigabit Network Connector ,Version:12.15.184.0
LAN Card	Onboard Intel® I210 Gigabit Network Connector #2
LAN Driver	Intel® I210 Gigabit Network Connector #2 ,Version:12.15.184.0
Audio Card	Onboard Realtek High Definition Audio
Audio Driver	Realtek High Definition Audio ,Version:6.0.1.7541
Chip Driver	Intel® Chipset Device software ,Version:10.1.1
USB3.0 Driver	Intel® USB3.0 eXtensible Host Controller – 1.0(Microsoft), Ver:10.0.10586.0
EC Version	61107T01(11/07/2016)
Power Supply	FSP GROUP INC. FSP120-AHAN1
Power Supply	GADIWA-B9120(005)

Power consumption(24V)			
ATX:			
Item	Power ON	Full Loading 10Min	Full Loading 30Min
CPU +24V	1.5 A	0.8 A	0.8 A
Device+12V	1.5 A	0.1 A	0.1 A
Device +5V	0.3 A	0.4 A	0.4 A
CPU+ Device +24V+12V	3.1 A	1.0 A	1.0 A
USB3.0 Loading Test	4.93V/ 990 mA		

2.4 Environmental Specifications

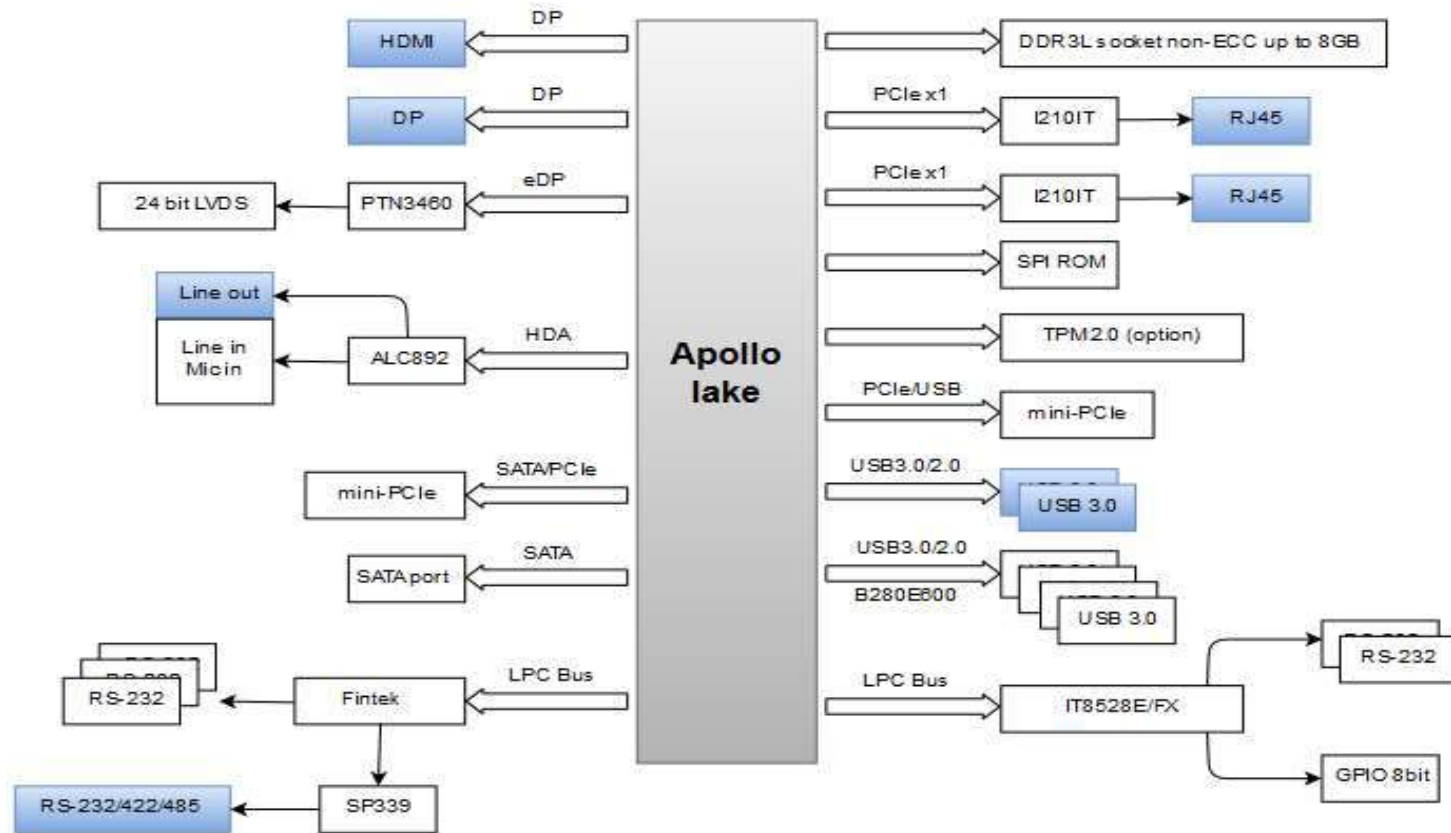
Storage Temperature : -40~85°C

Operation Temperature : -40~80°C

Storage Humidity : 5~90%

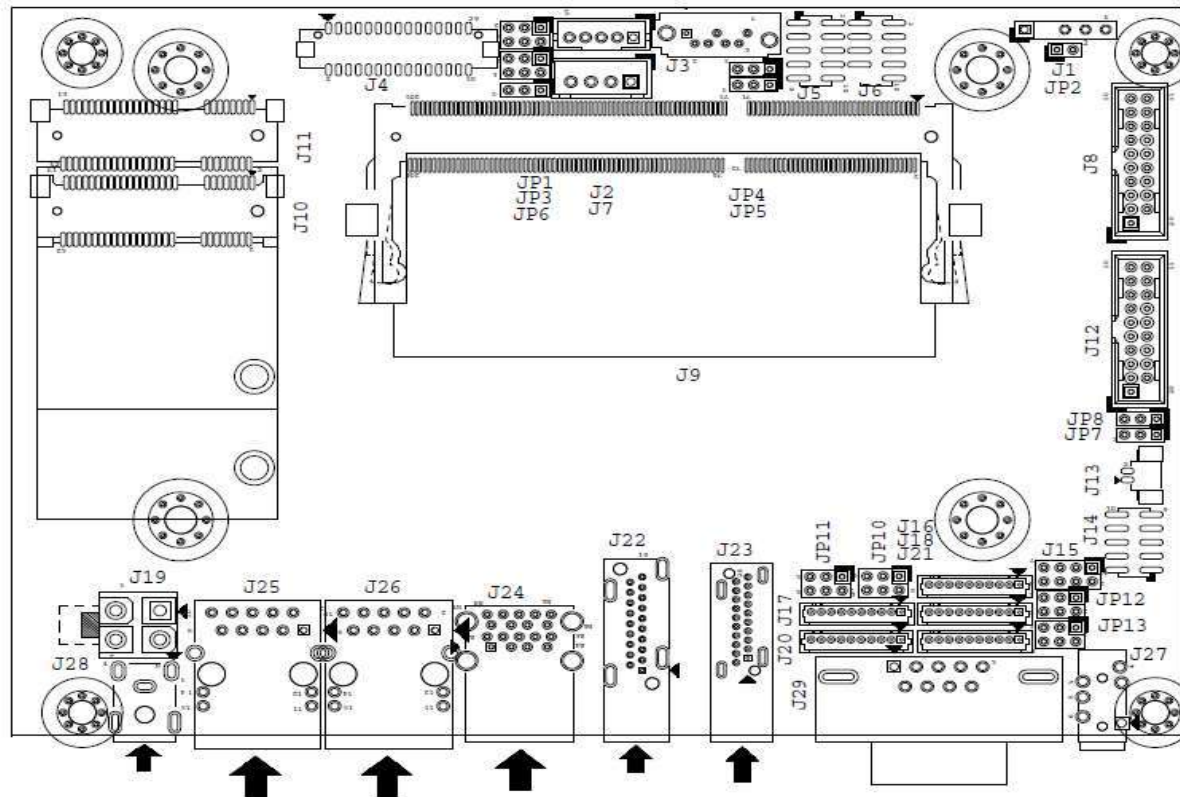
Operation Humidity: 10~90%

3 Block Diagram



4 Hardware Configuration

4.1 Jumpers and Connectors



This chapter indicates jumpers, headers, and connector's locations. Users may find useful information related to hardware settings in this chapter.

4.2 Jumper Settings

For users to customize PEB-2773VGATM'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:

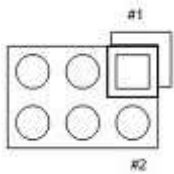
Jumper Function List:

Jumper	Function	Remark
J1	SMBus	
J2	Backlight Connector	
J3	SATA GEN3 Connector	
J4	LVDS Connector	
J5	Front Panel Pin HDR	5x2 pin header
J6	80 Port Connector	10x2 connector
J7	SATA Power Connector	
J8/J12	External USB3 Connector	

J9	DDR3L SO-DIMM Socket	
J10	miniPCIE/USB(half size)	
J11	mSATA/miniPCIE(full size)	
J13	Battery Socket	
J14	GPIO Pin HDR	2x5 pin header
J15	External Audio (Mic + Line_in + Line_out)Pin HDR	4x2 pin header
J16/J17/18/20/21	RS232 Pin HDR	
J19	ATX 4 Pin Connector	+12V Input
J22	HDMI Connector	
J23	DP Connector	
J24	USB3.0 Connector	
J25/J26	RJ45 Connector	
J27	Audio Jack	
J28	DC Jack	+12~24V Input
J29	RS232/422/485 D-SUB Connector	

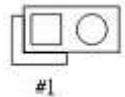
Jumper	Function	Remark
JP1	BKLTCTRL Signal Level Selection	3x2 pin header
JP2	mSATA/miniPCIE Selection	1x2 pin header
JP3	BACKLIGHT Enable Voltage Level Selection	3x2 pin header
JP4	BKLTCTRL Signal Source Selection	1x3 pin header
JP5	BKLTCTRL Level Signal Selection	1x3 pin header
JP6	Power On Mode Selection	1x3 pin header
JP7	GPIO Voltage Output Level Selection	1x3 pin header
JP8	CMOS Clear	1x3 pin header
JP10	COM3 RI Voltage Output Level Selection	3x2 pin header
JP11	COM4 RI Voltage Output Level Selection	3x2 pin header
JP12	COM1 RI Voltage Output Level Selection	3x2 pin header
JP13	COM2 RI Voltage Output Level Selection	3x2 pin header

JP1 : BKL PANEL Voltage Selection



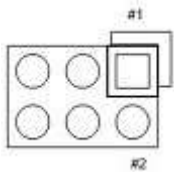
PIN No.	Signal Description
1-3 Short	VCC3 ★
3-5 Short	VCC5
3-4 Short	+12V

JP2 : mSATA/miniPCIE Selection



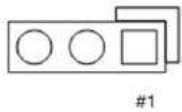
PIN No.	Signal Description
vacancy	mSATA
1-2 Short	miniPCIE ★

JP3 : BACKLIGHT Enable Voltage Level Selection



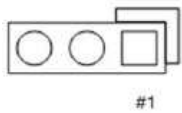
PIN No.	Signal Description
1-3, 2-4	5V, Active High ★
1-3, 4-6	12V, Active High
3-5, 2-4	5V, Active Low
3-5, 4-6	12V, Active Low

JP4 : BKLCTRL Signal Source Selection



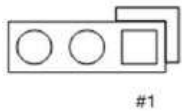
PIN No.	Signal Description
1-2 Short	EC
2-3 Short	SOC ★

JP5 : BKLCTRL Level Signal Selection



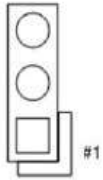
PIN No.	Signal Description
1-2 Short	+3.3V ★
2-3 Short	+5V

JP6: Power On Mode Selection



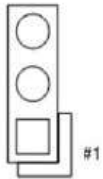
PIN No.	Signal Description
1-2 Short	AT ★
2-3 Short	ATX

JP7 : GPIO Voltage Output Level Selection



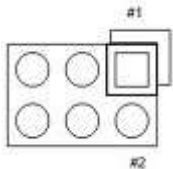
PIN No.	Signal Description
1-2 Short	5V
2-3 Short	3.3V ★

JP8 : CMOS Clear



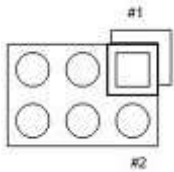
PIN No.	Signal Description
1-2 Short	Normal Operation ★
2-3 Short	Clear CMOS Contents

JP10 : COM3 RI Voltage Output Level Selection



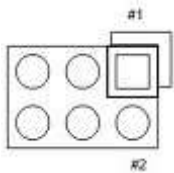
PIN No.	Signal Description
1-2 Short	5V
3-4 Short	RI ★
5-6 Short	12V

JP11 : COM4 RI Voltage Output Level Selection



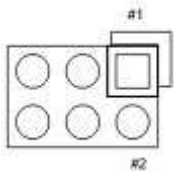
PIN No.	Signal Description
1-2 Short	5V
3-4 Short	RI ★
5-6 Short	12V

JP12 : COM1 RI Voltage Output Level Selection



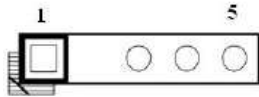
PIN No.	Signal Description
1-2 Short	5V
3-4 Short	RI ★
5-6 Short	12V

JP13 : COM2 RI Voltage Output Level Selection



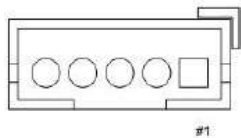
PIN No.	Signal Description
1-2 Short	5V
3-4 Short	RI ★
5-6 Short	12V

J1 : SMBus



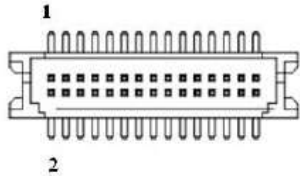
PIN No.	Signal Description	PIN No.	Signal Description
1	SMBus Clock	2	NA
3	Gnd	4	SMBus Data
5	+5V		

J2 : Backlight Connector



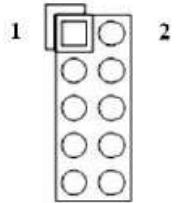
PIN No.	Signal Description	PIN No.	Signal Description
1	+5V	2	BL_CTRL
3	+12V	4	Ground
5	BL_Enable		

J4 : LVDS Connector



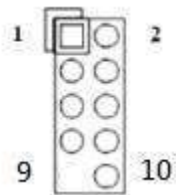
PIN No.	Signal Description	PIN No.	Signal Description
1	VDD_LVDS	2	VDD_LVDS
3	LVDSA_DATA0	4	LVDSA_DATA#0
5	LVDSA_DATA1	6	LVDSA_DATA#1
7	LVDSA_DATA2	8	LVDSA_DATA#2
9	LVDSA_DATA3	10	LVDSA_DATA#3
11	LVDSA_CLKP	12	LVDSA_CLKN
13	DDC_SCL	14	DDC_SDA
15	Ground	16	Ground
17	LVDSB_DATA0	18	LVDSB_DATA#0
19	LVDSB_DATA1	20	LVDSB_DATA#1
21	LVDSB_DATA2	22	LVDSB_DATA#2
23	LVDSB_DATA3	24	LVDSB_DATA#3
25	LVDSB_CLKP	26	LVDSB_CLKN
27	N/C	28	N/C
29	Ground	30	Ground

J5 : Front Panel Pin HDR



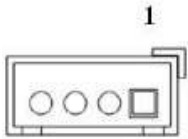
PIN No.	Signal Description	PIN No.	Signal Description
1	Ground	2	NC
3	External Power LED(+)	4	External Power LED(-)
5	HDD_LED(+)	6	HDD_LED(-)
7	Reset (+)	8	Power On(-)
9	Reset (-)	10	Power On(+)

J6 : 80 Port Pin HDR



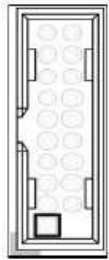
PIN No.	Signal Description	PIN No.	Signal Description
1	LAD0	2	3.3V
3	LAD1	4	RESET
5	LAD2	6	LFRAME_N
7	LAD3	8	CLOCK
9	KEY	10	GND

J7 : SATA Power Connector



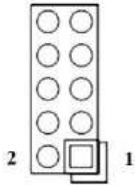
PIN No.	Signal Description
1	+12V
2	Ground
3	Ground
4	+5V

J8/J12 : External USB3 Connector



PIN No.	Description	PIN No.	Description
1	5V_Dual		
2	USB3.0_RX_N	19	5V_Dual
3	USB3.0_RX_P	18	USB3.0_RX_N
4	Ground	17	USB3.0_RX_P
5	USB3.0_TX_N	16	Ground
6	USB3.0_TX_P	15	USB3.0_TX_N
7	Ground	14	USB3.0_TX_P
8	USB2.0_N	13	Ground
9	USB2.0_P	12	USB2.0_N
10	Ground	11	USB2.0_P

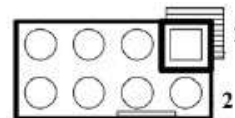
J14 : GPIO Pin HDR



PIN No.	Signal Description	PIN No.	Signal Description
1	GPI#0	2	GPO#0
3	GPI#1	4	GPO#1
5	GPI#2	6	GPO#2
7	GPI#3	8	GPO#3
9	GND	10	5V

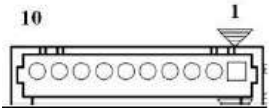
J15 : External Audio (Mic + Line in + Line out)Pin HDR

PIN No.	Signal Description	PIN No.	Signal Description
1	MIC_L	2	Line_in_L
3	Ground	4	Line_in_R
5	Line_out_L	6	Ground
7	Line_out_R	8	MIC_R



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J16/J17/J18/J20/J21 : COM2/COM4/COM 5/COM 3/COM 6 RS232 Pin HDR

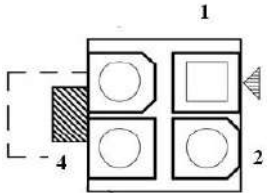


PIN No.	Signal Description	PIN No.	Signal Description
1	DCD#	2	DSR#
3	RXD#	4	RTS#
5	TXD#	6	CTS#
7	DTR#	8	RI
9	GND	10	NC

J29 : COM1 RS422 /485 Pin HDR

PIN No.	Signal Description	PIN No.	Signal Description
1	TX-/DATA-	2	TX+/DATA+
3	RX+/NC	4	RX-/NC
5	GND/GND	6	NC/NC
7	NC/NC	8	NC/NC
9	NC/NC	10	NC/NC

J19 : ATX 4 Pin Connector



PIN No.	Signal Description	PIN No.	Signal Description
1	GND	2	GND
3	+12V	4	+12V

5 Signal Descriptions

5.1 Watch Dog Signal

```
#Define WDTCFG 0x06      // WDT Timer Control Register
#Define WDTMIN 0x07      // WDT Timer Counter Register (Minute)
#Define WDTSEC 0x08      // WDT Timer Counter Register (Second)
#Define EC_IOPort 0xE300  // Default, reference to BIOS configuration
```

```
VOID Write_EC_SRAM(UINT8 Offset,UINT8 Value){
```

```
    IoWrite8(EC_IOPort+Offset,Value);
}
```

```
Byte Read_EC_SRAM(UINT8 Offset){
    IoRead8(EC_IOPort+offset,Value);
    return Value;
}
```

```
void WDT()
{
    // Enable WDT 30sec
```

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```
Write_EC_SRAM(WDTSEC,30);
Write_EC_SRAM(WDTCFG,0x01); //Bit0: WDT Enable, BIT1: 0:Second Mode

// Enable WDT 5min
Write_EC_SRAM(WDTSEC,5);
Write_EC_SRAM(WDTCFG,0x03); //Bit0: WDT Enable, BIT1: 1:Minute Mode

// Enable WDT 10min, 20sec
Write_EC_SRAM(WDTSEC,20);
Write_EC_SRAM(WDTSEC,10);
Write_EC_SRAM(WDTCFG,0x03); //Bit0: WDT Enable, BIT1: 1:Minute Mode
}
```

5.2 Signal GPIO Signal

```
#Define GPCR 0x2B // GPIO Control Register, Bit7 = GPIO7, Bit6 = GPIO6, ...,
// 0: Output; 1: Input
```

```
#Define GPDR 0x2C // GPIO Status Register, Bit7 = GPIO7, Bit6 = GPIO6, ...,
// 0: Low; 1: High
```

```
#Define EC_IOPort 0xE300 // Default, reference to BIOS configuration
```

```
VOID Write_EC_SRAM(UINT8 Offset,UINT8 Value){
```

```
    IoWrite8(EC_IOPort+Offset,Value);
}

Byte Read_EC_SRAM(UINT8 Offset){
    IoRead8(EC_IOPort+offset,Value);
    return Value;
}

void GPIO()
{
    int Temp;
    // Set GPIO7 Input & get status
    Temp = Read_EC_SRAM(GPCR);
    Write_EC_SRAM(GPCR,Temp|0x80);    //Bit7: GPIO7 control, 0: Output 1: Input
    Temp = Read_EC_SRAM(GPDR);    //Bit7: GPIO7 status, 0: Output 1: Input

    // Set GPIO7 Output & High
    Temp = Read_EC_SRAM(GPCR);
    Write_EC_SRAM(GPCR,Temp&0x7F);    //Bit7: GPIO7 control, 0: Output 1: Input
    Temp = Read_EC_SRAM(GPDR);
    Write_EC_SRAM(GPDR,Temp|0x80);    //Bit7: GPIO7 status, 0: Low 1: High
}
```


6 System Resources

6.1 Intel® Apollo Lake SoC

Intel® Atom™ x7-E3950 Processor(4C, 2M Cache, up to 2.00 GHz)

Intel® Atom™ x5-E3940 Processor(4C, 2M Cache, up to 1.80 GHz)

Intel® Atom™ x5-E3930 Processor(2C, 2M Cache, up to 1.80 GHz)

Intel® Atom™ Pentium® Processor N4200 (4C, 2M Cache, up to 2.5 GHz)

Intel® Atom™ Celeron® Processor N3350 (2C, 2M Cache, up to 2.4 GHz)

6.2 Main Memory

PEB-2773VG2ATM provides 1 x 204-pin SO-DIMM sockets which supports DDR3L non-ECC memory. The maximum memory can be up to 8GB. 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.

6.3 Installing the Single Board Computer

To install your PEB-2773VG2ATM 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

PEB-2773VG2ATM

Step 3 : Place PEB-2773VG2ATM 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 6.3.1 to 6.3.4 to install INF/Graphic/LAN

6.3.1 Chipset Component Driver

The PEB-2773 build with Intel® Atom™ processor E3900 series(E3950 / E3940 / E3930 sku) ,Pentium N4200 and Celeron N3350 . 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 10, please install its INF before any of other Drivers are installed. You can find very easily this chipset component driver in PEB-2773VG2ATM CD-title

6.3.2 Intel® HD Graphics 50X

PEB-2773VG2ATM has integrated Intel® HD Graphics 50X(E3950 / N4200_ Intel® HD Graphics 505, E3940 / E3930 / N3350_ Intel® HD Graphics 500) Processor Graphics indicates graphics processing circuitry integrated into the processor, providing the graphics, compute, media, and display capabilities. Intel® HD Graphics, Iris™ Graphics, Iris Plus Graphics, and Iris Pro Graphics deliver enhanced media conversion, fast frame rates, and 4K Ultra HD (UHD) video PEB-2773VG2ATM supports LVDS, DP, HDMI display output. This combination makes PEB-2773VGATM an excellent performance hardware.

Drivers Support

Please find the Graphic driver in the PEB-2773VG2ATM CD-title. The driver supports Windows 10.

6.3.3 Intel LAN I210IT/I219LM Gigabit Ethernet Controller

- Intel I210IT Gigabit Ethernet controller and 2x RJ45 connectors on rear I/O

Drivers Support

Please find Intel I210IT LAN driver in Ethernet directory of PEB-2773VG2ATM CD/DVD-title. The driver supports Windows 10.

7 BIOS Setup Items

7.1 Introduction

The following section describes the BIOS setup program. The BIOS setup program can be used to view and change the BIOS settings for the module. Only experienced users should change the default BIOS settings.

7.2 BIOS Setup

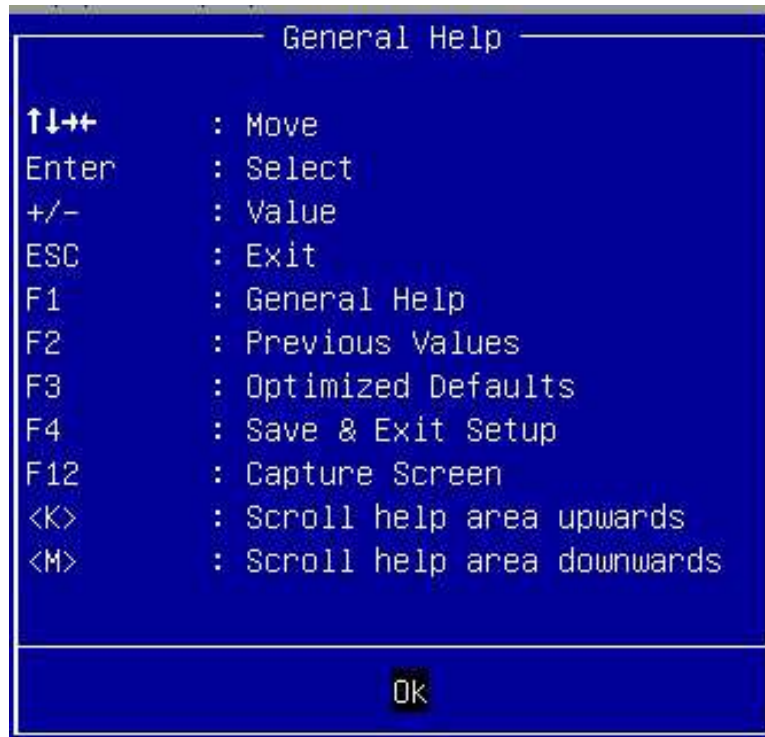
Power on the computer and the system will start POST (Power on Self Test) process. When the message below appears on the screen, press <Delete> or <ESC> key will enter BIOS setup screen.

Press<Delete> or <ESC> 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.



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7.2.1 Main

Use this menu for basic system configurations, such as time, date etc.

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Main Configuration Security Boot Save & Exit

Project Name                PEB-2773
BIOS Version & Build Date   70320T00 (04/24/2017 11:12:54)
EC Version & Build Date     70309T00 (03/09/2017)
Access Level                Administrator

Processor information
Brand String                Intel(R) Atom(TM) Processor E3950 @ 1.60GHz

Platform firmware Information
BXT SOC                    B1
TXE FW                    3.0.10.1129
GOP                        10.0.1030
CPU Flavor                 BXT Notebook/Desktop (1)

Memory Information
Total Memory               8192 MB
Memory Slot0               8192 MB (DDR3L)
Memory Speed               1600 MHz

System Date                 [Tue 05/09/2017]
System Time                 [16:11:56]

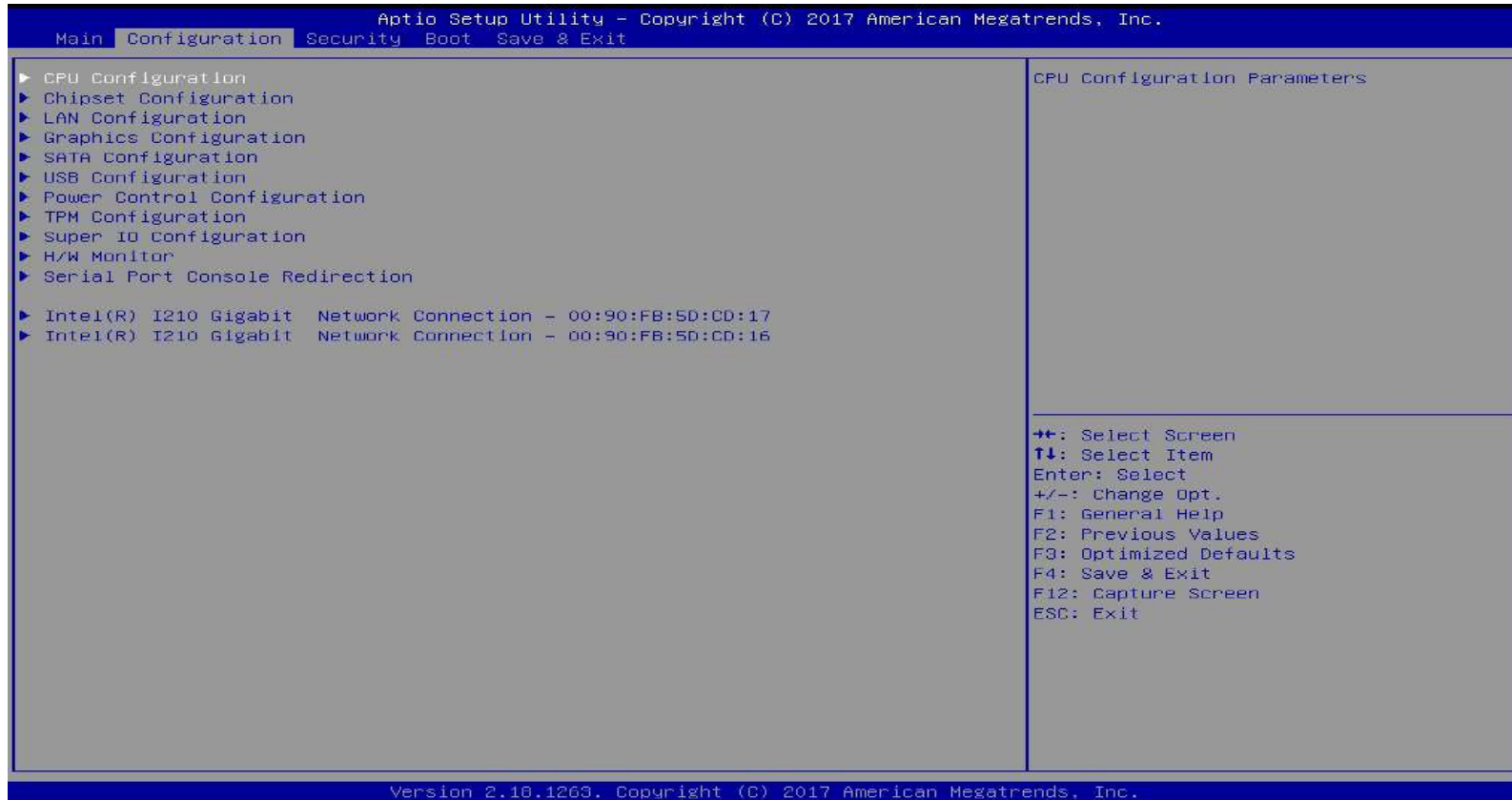
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

PEB-2773VG2ATM

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.	

7.2.2 Configuration

Use this menu to set up the items of special enhanced features



CPU Configuration

CPU Configuration Parameters

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Configuration
CPU Configuration
CPU Signature          506C9
Microcode Patch       20
Max CPU Speed         1600 MHz
Min CPU Speed         800 MHz
Processor Cores       4
Intel HT Technology   Not Supported
Intel VT-x Technology Supported
64-bit               Supported
L1 Data Cache        24 kB x 4
L1 Code Cache        32 kB x 4
L2 Cache             1024 kB x 2
L3 Cache             Not Present

Active Processor Cores [Disabled]
Intel Virtualization Technology [Enabled]
VT-d                 [Enabled]

CPU Power Management Configuration
EIST                 [Enabled]
Turbo Mode           [Enabled]
C-States             [Disabled]

Number of cores to enable in each processor package.

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

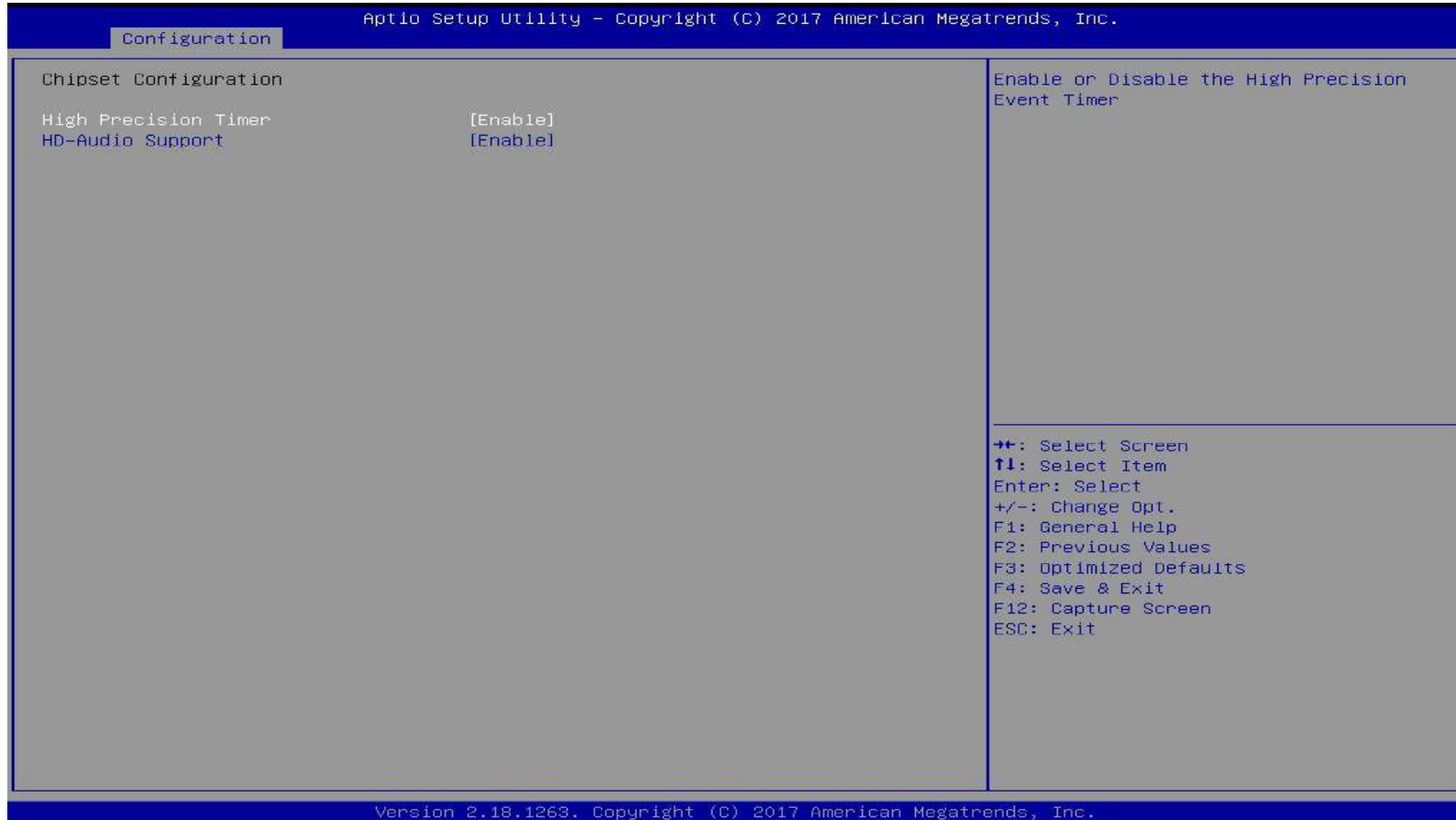
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

PEB-2773VG2ATM

Feature	Description	Options
Active Processor Cores	Number of cores to enable in each processor package.	★Disabled, Enabled
Active Processor Cores [Enabled]		
Core 0		★Enabled
Core 1		★Enabled, Disabled
Core 2		★Enabled, Disabled
Core 3		★Enabled, Disabled
Intel Virtualization Technology	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology.	★Enabled, Disabled
VT-d	Enable/Disable CPU VT-d.	★Enabled, Disabled
EIST	Enable/Disable Intel SpeedStep.	★Enabled, Disabled
EIST [Enabled]		
Turbo Mode	Turbo Mode.	★Enabled, Disabled
CPU C states	Enable or disable CPU C states	★Disabled, Enabled
CPU C states [Enabled]		
Enhanced C-states	Enable/Disable C1E. When enabled, CPU will switch to minimum speed when all cores enter C-State.	★Enabled, Disabled

Chipset Configuration

Configuration Chipset feature



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Feature	Description	Options
High Precision	Enable or Disable the High Precision Event Timer.	★Enabled, Disabled
HD-Audio Support	Enable or Disable HD-Audio Support.	★Enabled, Disabled

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LAN Configuration

Configuration on Board LAN device.



PEB-2773VG2ATM

Feature	Description	Options
LAN1 Controller	Set LAN1 Enable/disable.	★Enabled, Disabled
LAN2 Controller	Set LAN2 Enable/disable.	★Enabled, Disabled
Wake on LAN	Enable or disable the Wake on LAN.	★Disabled, Enable,

Network Stack Configuration

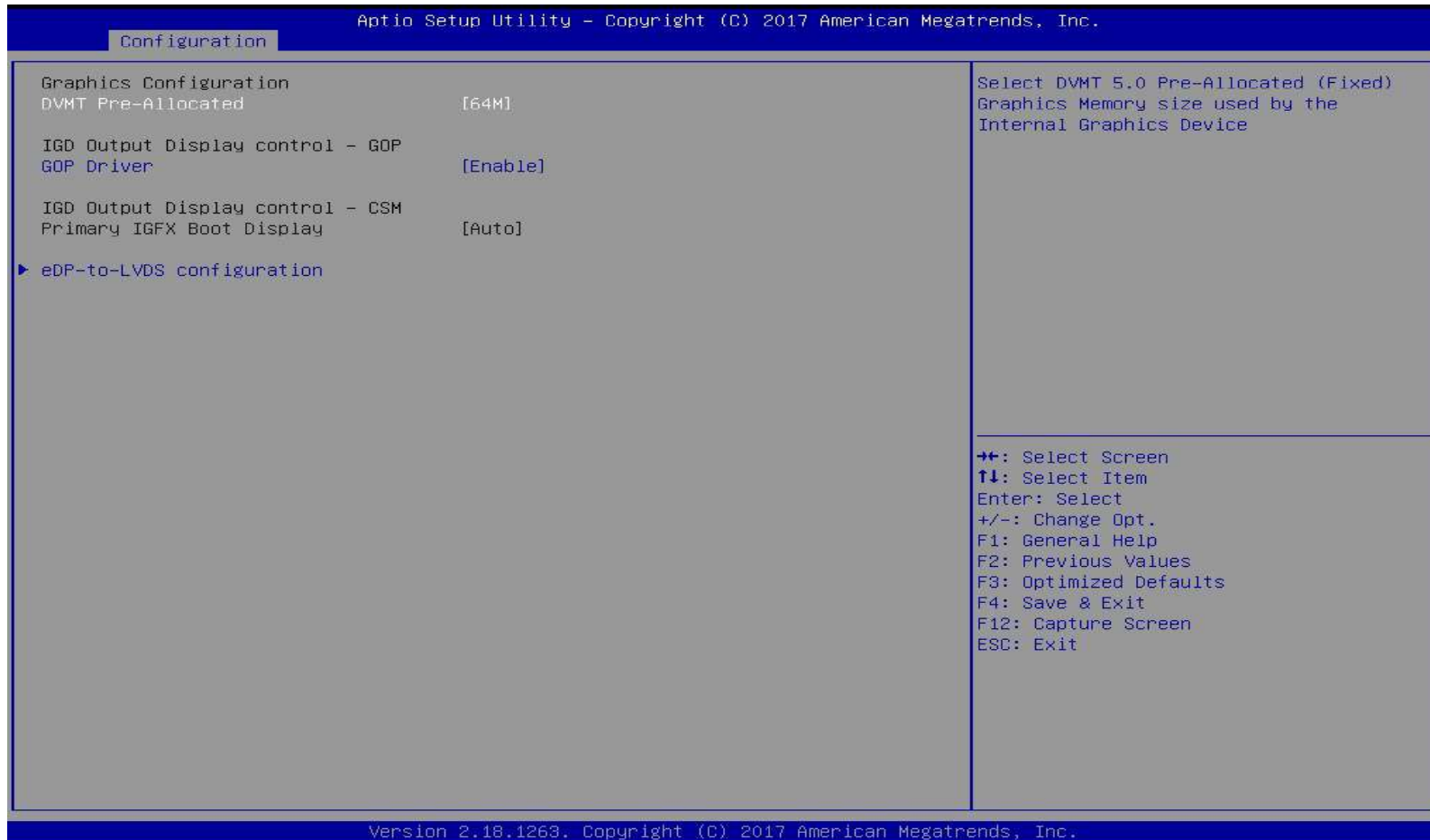
Network Stack Settings.



Feature	Description	Options
Network Stack	Enable/disable UEFI Network Stack	★Disabled, Enable
Network Stack [Enable]		
Ipv4 PXE Support	Enable Ipv4 PXE Boot Support. If disabled Ipv4 PXE Boot Option will not be created.	★Disabled, Enabled
Ipv4 HTTP Support	Enable Ipv4 HTTP Boot Support. If disabled Ipv4 HTTP Boot Option will not be created.	★Disabled, Enabled
Ipv6 PXE Support	Enable Ipv6 PXE Boot Support. If disabled Ipv6 PXE Boot Option will not be created.	★Disabled, Enabled
Ipv6 HTTP Support	Enable Ipv6 HTTP Boot Support. If disabled Ipv6 HTTP Boot Option will not be created.	★Disabled, Enabled
PXE boot wait time	Wait time to press ESC key to abort the PXE boot	★ 0, 1, 2, 3, 4, 5
Media detect count	Number of times presence of media will be checked.	★ 1, Max 50

Graphics Configuration

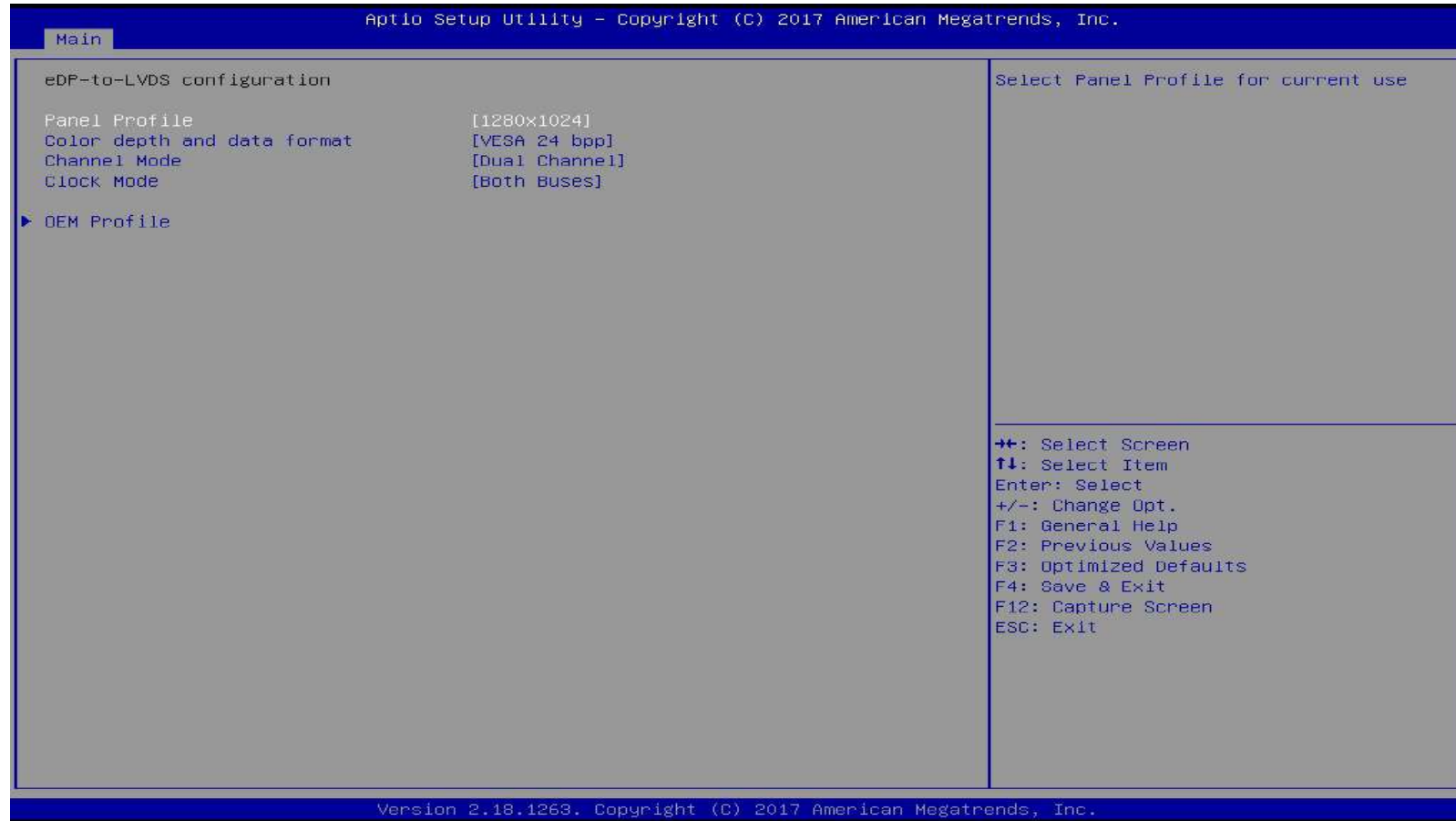
Configuration Graphics Settings



Feature	Description	Options
DVMT Pre-Allocated	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.	★64M, 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M, 416M, 448M, 480M, 512M
IGD Output Display control – GOP (Boot item CSM Support [Disabled])		
GOP Driver	Enable GOP Driver will unload VBIOS; Disable it will load VBIOS.	★Enabled, Disabled
IGD Output Display control – CSM (Boot item CSM Support [Enabled])		
Primary IGFX Boot Display	Select the Video Device which will be activated during POST. This has no effect if external graphics present. Secondary boot display selection will appear based on your selection. VGA mode will be supported only on primary display.	★Auto, HDMI, LVDS, DP

eDP-to-LVDS Configuration

eDP-to-LVDS (PTN3460)



PEB-2773VG2ATM

Feature	Description	Options
Panel Profile	Select Panel Profile for current.	★1280x1024,640x480, 800x480,800x600, 1024x768, 1280x800, 1366x768, 1440x900, 1920x1080, OEM Profile
Color depth and data format	Select Color depth and data format.	★VESA 24 bpp JEIDA 24 bpp VESA and JEIDA 18 bpp
Channel Mode	Select LVDS Channel Mode.	★Dual channel Single channel
Clock Mode	Select Clock output for LVDS.	★Both Bus Even Bus Odd Bus

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OEM Profile

PANEL 1 Help

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Main
PANEL 1 Configuration
Profile Name : empty
Rename Profile
Color depth and data format [VESA and JEIDA 18 bpp]
Channel Mode [Single Channel]
Clock Mode [Even Bus]
Pixel Clock 25.000 Mhz 2500
H Active Pixels 640 640
H Blank Pixels 160 160
H Offset Pixels 16 16
H Width Pixels 96 96
V Active Lines 480 480
V Blank Lines 45 45
V Offset Lines 10 10
V Width Lines 2 2
H & V sync Signal Polarity [Postive]

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

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```

PEB-2773VG2ATM

Feature	Description	Options
Rename Profile	Rename Profile name	
Color depth and data format	Select Color depth and data format.	★ VESA 24 bpp JEIDA 24 bpp VESA and JEIDA 18 bpp
Channel Mode	Select LVDS Channel Mode.	★ Dual channel Single channel
Clock Mode	Select Clock output for LVDS.	★ Both Bus, Even Bus Odd Bus
Pixel Clock	Pixel Clock (10Khz)	★ 2500
H Active Pixels	H Active Pixels (Pixel)	★ 640
H Blank Pixels	H Blank Pixels (Pixel)	★ 160
H Offset Pixels	H Offset Pixels (Pixel)	★ 16
H Width Pixels	H Width Pixels (Pixel)	★ 96
V Active Lines	V Active Lines (Line)	★ 480
V Blank Lines	V Blank Lines (Line)	★ 45
V Offset Lines	V Offset Lines (Line)	★ 10
V Width Lines	V Width Lines (Line)	★ 2
H & V sync Signal Polarity	Flag: 0x1E Signal Polarity is Postive; 0x18 Signal Polarity is Non-Postive	★ Postive, Non-Postive

SATA Configuration

SATA Device Options Settings

Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.

Configuration

SATA Configuration	
SATA Controller	[Enable]
SATA Speed Selection	[Auto]
SATA Port 0	
Port 0	Hitachi HDS721 (82.0GB)
SATA Port 0 Hot Plug Capability	[Enabled]
SATA Device Type	[Disabled]
SATA Port 1	
mSATA	[Not Installed]
Mini-PCIe & mSATA Switch	[Enabled]
mSATA Hot Plug Capability	[mSATA]
SATA Device Type	[Disabled]
[Hard Disk Drive]	

Enables or Disables the Chipset SATA Controller. The Chipset SATA controller supports the 2 black internal SATA ports (up to 3Gb/s supported per port).

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

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PEB-2773VG2ATM

Feature	Description	Options
SATA Controller	Enable or disable the chipset SATA Controller. The Chipset controller supports the 2 back internal SATA ports (up to 3Gb/s supported per port)	★Enabled, Disabled
SATA Speed Selection	Select SATA interface speed.	★Auto, Gen1, Gen2, Gen3
SATA Port 0		
Port 0	Enable or Disable SATA Port.	★Enabled, Disabled
SATA Port 0 Hot Plug Capability	If enable, SATA port will be reported as hot Plug capable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive	★Hard Disk Drive, Solid State Drive
SATA Port 1		
mSATA	Enable or Disable mSATA Port.	★Enabled, Disabled
Mini-PCIe & mSATA Switch	Select Mini-PCIe or mSATA device.	Mini-PCIe, ★mSATA
mSATA Hot Plug Capability	If enable, SATA port will be reported as hot Plug capable.	★Disabled, Enabled
SATA Device Type	Identify the SATA port is connected to Solid State Drive	★Hard Disk Drive, Solid State Drive

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USB Configuration

USB Configuration Parameters.

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Configuration
USB Configuration
USB Controllers:
  1 XHCI
USB Devices:
  1 Drive, 1 Keyboard, 4 Hubs
SoC USB Configuration
USB Port Disable Override      [Disable]
Common USB Configuration
Legacy USB Support             [Enabled]
USB Mass Storage Driver Support [Enabled]
USB hardware delays and time-outs:
USB transfer time-out         [20 sec]
Device reset time-out         [20 sec]
Device power-up delay         [Auto]
Mass Storage Devices:
UFD 3.0 Silicon-Power16G1.00  [Auto]
Selectively Enable/Disable the
corresponding USB port from reporting a
Device Connection to the controller.
++: Select Screen
↑: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F12: Capture Screen
ESC: Exit
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

Feature	Description	Options
SoC USB Configuration		
USB Port Disable Override	Selectively Enables/Disable. The corresponding USB port from reporting a Device Connection to the controller.	★Disabled, Enabled
USB Port Disable Override [Enabled]		
USB Port #0	Enable/Disable USB port. Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enable, Disabled
USB Port #1	Enable/Disable USB port. Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enable, Disabled
USB HUB Port	Enable/Disable USB HUB (#2) for on Board Head USB port (J8x2/J12x2). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enable, Disabled
USB 3 Port #0	Enable/Disable USB port. Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enable, Disabled
USB 3 Port #1	Enable/Disable USB port. Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enable, Disabled
USB 3 HUB Port	Enable/Disable USB 3 HUB (#2) for on Board Head USB port (J8x2/J12x2). Once disabled, any USB devices plug into the connector will not be detected by BIOS or OS.	★Enable, Disabled

Common USB Configuration		
Legacy USB Support	Enables Legacy USB Support. Auto option disable legacy Support if no USB devices are connected. Disable option will keep USB device available only for EFI applications.	★Enabled, Disabled, Auto
USB Mass Storage Driver Support	Enable/Disable USB Mass Storage Driver Support.	★Enable, Disabled
USB Hardware delays and time-outs:		
USB transfer time-out	The time-out value for Control, Bulk, and Interrupt transfers.	★20 sec, 1 sec, 5 sec, 10 sec,
Device reset time-out	USB mass storage device Start Unit command time-out.	★20 sec, 10 sec, 30sec, 40 sec
Device Power-up delay	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.	★Auto, Manual

Power Control Configuration

System Power Control Configuration Parameters

The screenshot shows the Aptio Setup Utility interface. At the top, it says "Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc." and "Configuration". The main area is titled "Power Control Configuration" and contains the following settings:

Enable Hibernation	[Enabled]
ACPI Sleep State	[S3 (Suspend to RAM)]
Restore AC Power Loss	[Power Off]
RTC Wakeup	[Disabled]
System Time	[13:45:04]
Wake up day	0
Wake up Time(HH:mm:ss)	[00:00:00]

On the right side, there is a description: "Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS." Below this, a legend lists the navigation keys:

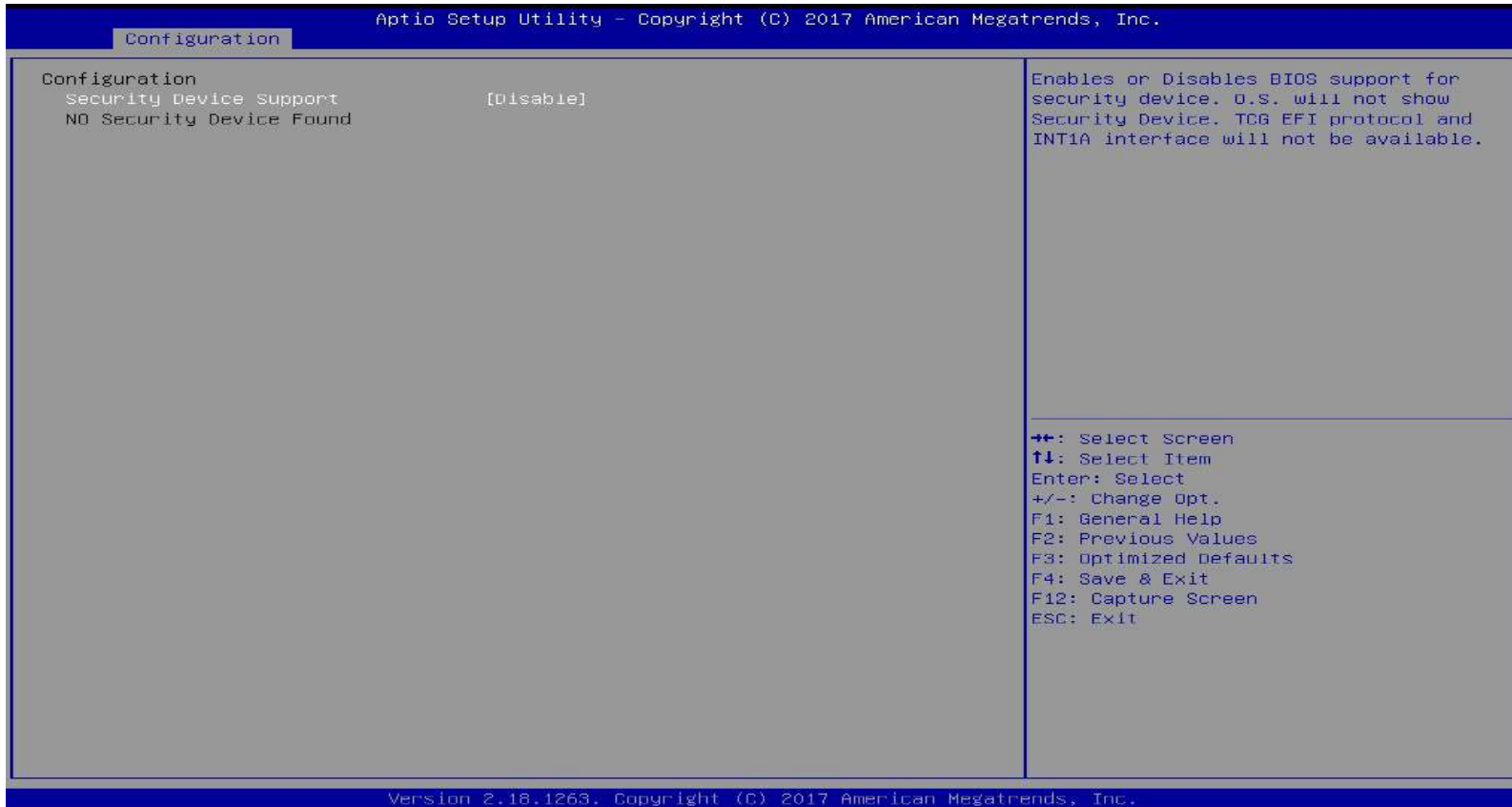
- ⇐: Select Screen
- ↑↓: Select Item
- Enter: Select
- +/-: Change Opt.
- F1: General Help
- F2: Previous Values
- F3: Optimized Defaults
- F4: Save & Exit
- F12: Capture Screen
- ESC: Exit

At the bottom, it says "Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc."

Feature	Description	Options
Enable Hibernation	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.	★Enabled, Disabled
ACPI Sleep State	Select the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.	★Suspend Disabled, S3 (Suspend to RAM)
Restore AC Power Loss	Specify what state to go to when power is re-applied after a power failure (G3 state). Power On: System will boot directly as soon as power applied. Power Off: state until power button is pressed.	★Power Off, Power On, Last State
RTC Wake up	Enable or disable System wake on alarm event. [Enabled], system will wake up the Hour: Min: Sec specified. [Disabled] Turn off RTC Wakeup.	★Disabled, Enabled
RTC Wake up [Enabled]		
Wake up day	Select 0 for daily system wake up 1-31 for which day of the month that you would like the system to wake up	★0, 0-31
Wake up Time(HH: mm: ss)	Use [Enter], [TAB] to select field, HH: 0-23, mm: 0-59, ss: 0-59	HH: 0-23, mm: 0-59, ss: 0-59

TPM Configuration

Trusted Computing settings



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.	★Disabled, Enabled
Security Device Support [Enabled]		
Device Select	Option support integrated TPM 2.0 function (BIOS needs porting) SPI interface SLB9670	

Super IO Configuration

System Super IO Chip Parameters.



Feature	Description	Options
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, 1-255 (Minute), 10-255 (Second)

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Serial Port 1 Configuration

Set Parameters of Serial Port 1 (COMA)



Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled
UART Mode	Set Current UART Mode: RS232, RS485, RS485/422	★ RS-232, RS-485 HALF DUFLEX RS-485/422 FULL DUFLEX

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Serial Port 2 Configuration

Set Parameters of Serial Port 2 (COMB)



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

Serial Port 3 Configuration

Set Parameters of Serial Port 3 (COM3)



PEB-2773VG2ATM

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

Serial Port 4 Configuration

Set Parameters of Serial Port 4 (COM4)

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Configuration
Serial Port 4 Configuration
Serial Port          [Enabled]
Device Settings     IO=2E0h; IRQ=11;
Enable or Disable Serial Port (COM)
+*: Select Screen
↑↓: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save & Exit
F12: Capture Screen
ESC: Exit
Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

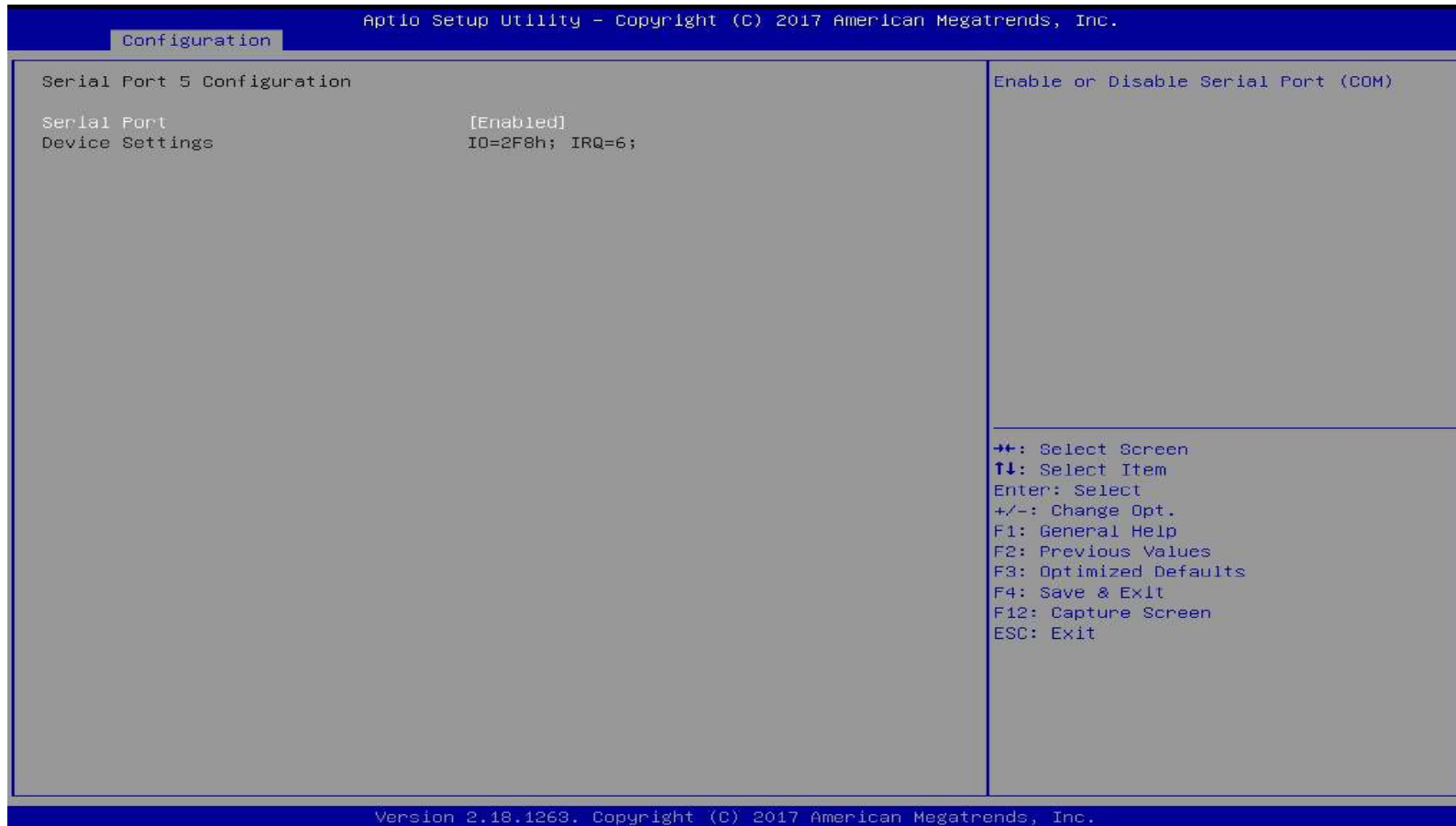

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Feature	Description	Options
Serial Port	Enable or Disable Serial Port (COM)	★Enabled, Disabled

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Serial Port 5 Configuration

Set Parameters of Serial Port 5 (EC_COMA)

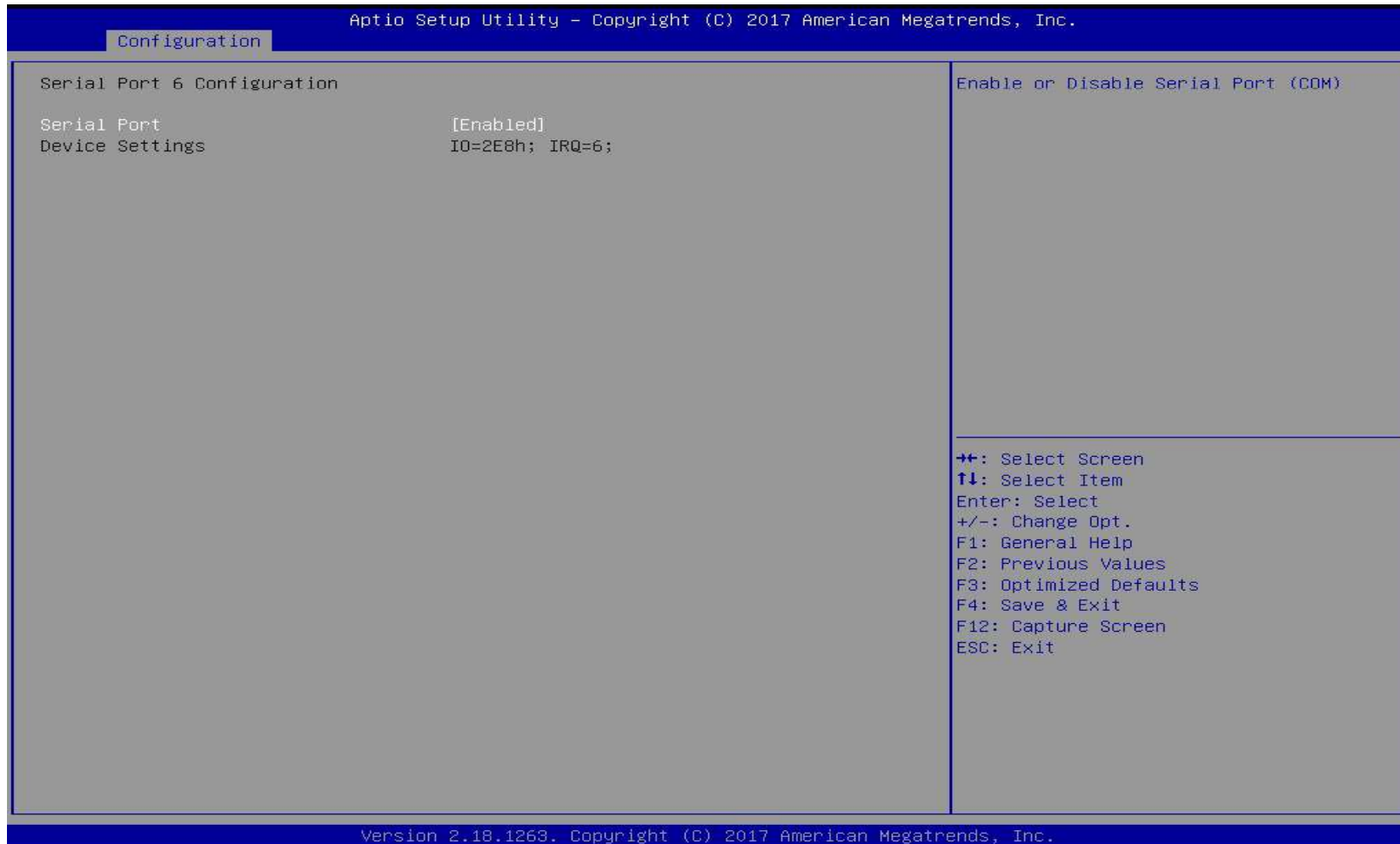


PEB-2773VG2ATM

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

Serial Port 6 Configuration

Set Parameters of Serial Port 6 (EC_COMB)



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

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H/W Monitor Configuration

Monitor hardware status

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Configuration
-----
Pc Health Status
CPU temperature      : +48 °C
System temperature  : +44 °C
Vcore                : +0.921 V
+3.3V                : +3.366 V
+5V                  : +5.174 V
+12V                 : +12.553 V
VDIMM                : +1.388 V

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

Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.
```

Serial Port Console Redirection

Serial Port Console Redirection



PEB-2773VG2ATM

Feature	Description	Options
Console Redirection (Enabled)	Console Redirection Enable or Disable.	★Disabled, Enabled

COM 0 Serial Port Console Redirection Settings

COM0 Serial Port console Redirection settings

```
Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Configuration
COM0
Console Redirection Settings

Terminal Type                [ANSI]
Bits per second              [115200]
Data Bits                    [8]
Parity                       [None]
Stop Bits                    [1]
Flow Control                 [None]
VT-UTF8 Combo Key Support    [Enabled]
Recorder Mode                [Disabled]
Resolution 100x31           [Disabled]
Legacy OS Redirection Resolution [80x24]
Putty KeyPad                 [VT100]
Redirection After BIOS POST  [Always Enable]

Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+:
Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8
encoding to map unicode chars onto 1 or more bytes.

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

Version 2.10.1263. Copyright (C) 2017 American Megatrends, Inc.
```

Feature	Description	Options
Terminal Type	Emulation: ANSI: Extended ASCII char set. VT100: ASCII char set. VT100+: Extends VT100 to support color, function keys, etc. VT-UTF8: Uses UTF8 encoding to map Unicode chars onto 1 or more bytes.	★ANSI, VT100, VT100+, VT-UTF8
Bits per second	Select Serial port transmission speed. The speed must be matched on other side. Long or noisy lines may require lower speeds.	★115200, 9600, 19200, 38400, 57600
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 signal.	★None, Hardware RTS/CTS

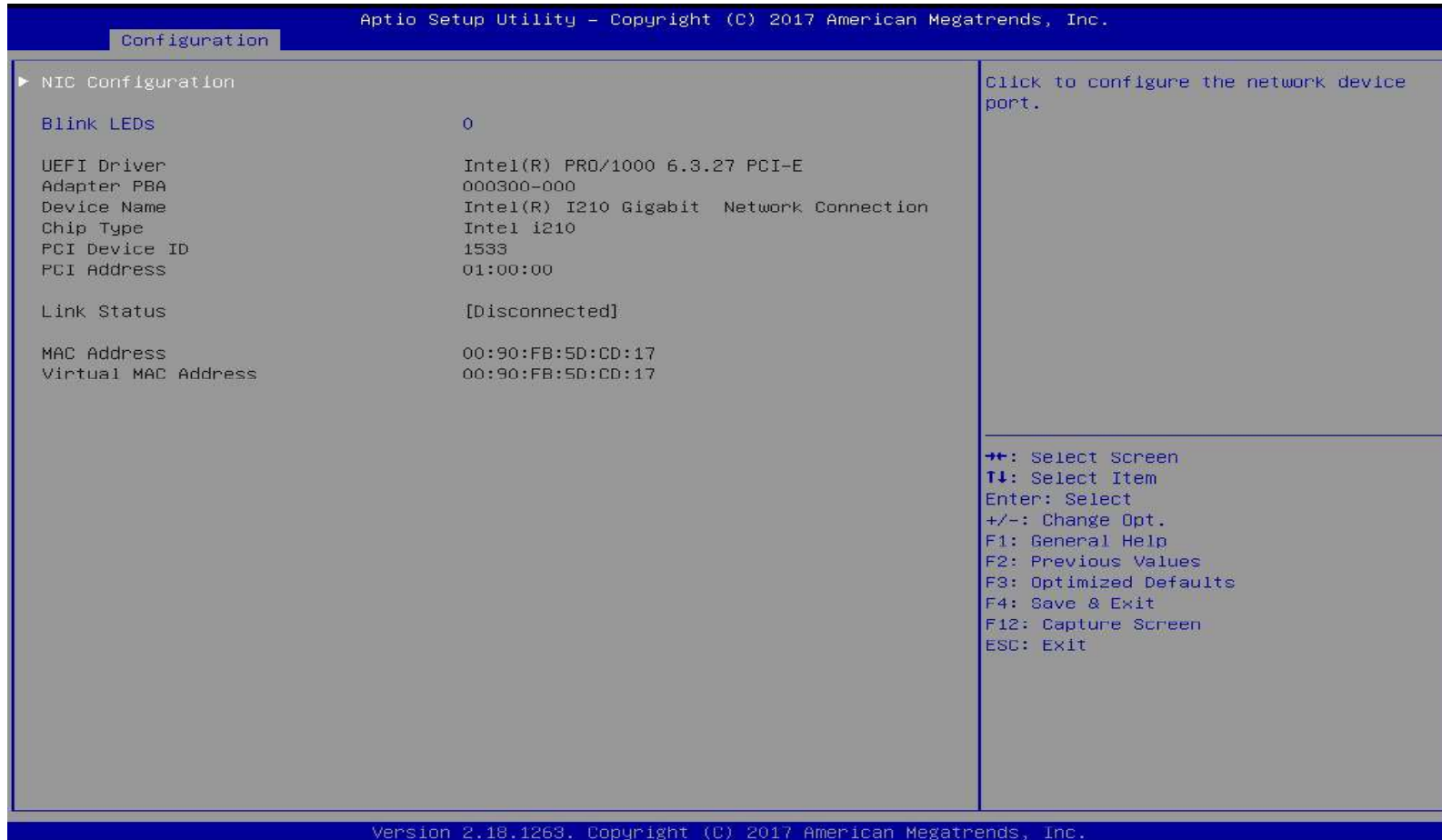
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VT-UTFB Combo Key Support	Enable VT-UTF8 Combination Key Support for ANSI/VT100 terminals	★Enabled, Disabled
Recorder Mode	With this mode enabled only text will be sent. This is to capture Terminal data.	★Disabled, Enabled
Resolution 100x31	Enables or disables extended terminal resolution	★Disabled, Enabled
Legacy OS Redirection Resolution	On Legacy OS, the Number of Rows and Columns supports redirection	★80x24, 80x25
Putty KeyPad	Select FunctionKey and KeyPad on Putty	★VT100, LINUX,XTERMR6, SCO,ESCN,VT400
Redirection After BIOS POST	The settings specify if BootLoader is selected then Legacy console redirection is disabled before booting to legacy OS. Default value is Always Enable with means Legacy console Redirection is enabled for Legacy OS.	★Always Enable, BootLoader

PEB-2773VG2ATM

Intel(R) I210 Gigabit Network Connection

Configure Gigabit Ethernet device parameters.



PEB-2773VG2ATM

Feature	Description	Options
NIC Configuration	Click to configure the network deice port.	
Blink LEDs	Identify the physical network port by blinking the associated LED.	★0

PEB-2773VG2ATM

Intel(R) I210 Gigabit Network Connection

Configure Gigabit Ethernet device parameters.

The screenshot shows the 'Configuration' screen of the Aptio Setup Utility. The title bar reads 'Aptio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.'. The main area is titled 'NIC Configuration' and contains the following settings:

Blink LEDs	0
UEFI Driver	Intel(R) PRO/1000 6.3.27 PCI-E
Adapter PBA	000300-000
Device Name	Intel(R) I210 Gigabit Network Connection
Chip Type	Intel i210
PCI Device ID	1533
PCI Address	02:00:00
Link Status	[Disconnected]
MAC Address	00:90:FB:5D:CD:16
Virtual MAC Address	00:90:FB:5D:CD:16

On the right side of the screen, there is a text box that says 'Click to configure the network device port.' Below this, a list of navigation keys is provided:

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

At the bottom of the screen, the version information is displayed: 'Version 2.18.1263. Copyright (C) 2017 American Megatrends, Inc.'

PEB-2773VG2ATM

Feature	Description	Options
NIC Configuration	Click to configure the network deice port.	
Blink LEDs	Identify the physical network port by blinking the associated LED.	★0

7.2.3 Security

This section lets you set security passwords to control access to the system at boot time and/or when entering the BIOS setup program.

```
ApMio Setup Utility - Copyright (C) 2017 American Megatrends, Inc.
Main Configuration Security Boot Save & Exit

Password Description
If ONLY the Administrator's password is set,
then this only limits access to Setup and is
only asked for when entering Setup.
If ONLY the User's password is set, then this
is a power on password and must be entered to
boot or enter Setup. In Setup the User will
have Administrator rights.
The password length must be
in the following range:
Minimum length          3
Maximum length         20

Password Check Mode      [Setup]
Setup Administrator Password
User Password

HDD Security Configuration:
P0:Hitachi HDS721680PLA380

[Setup] check password when enter setup
screen.
[Power on] check password on every time
system power on.

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

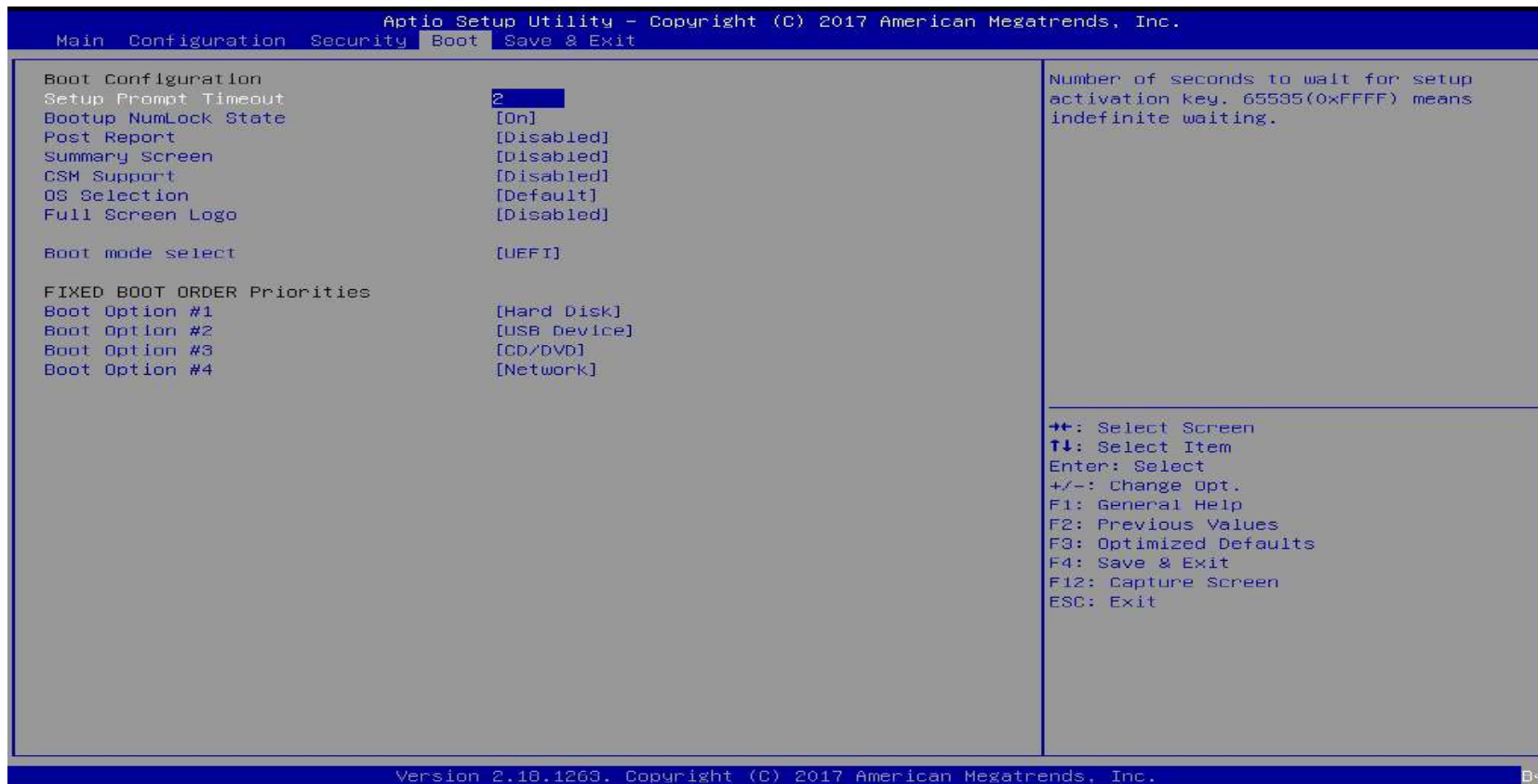
Version 2.18.1263, Copyright (C) 2017 American Megatrends, Inc.
```


PEB-2773VG2ATM

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
Setup Administrator Password	Set Setup Administrator Password	★No default setting
HDD Security Configuration	HDD Security Configuration for selected drive.	

7.2.4 Boot

Use this menu to specify the priority of boot devices.

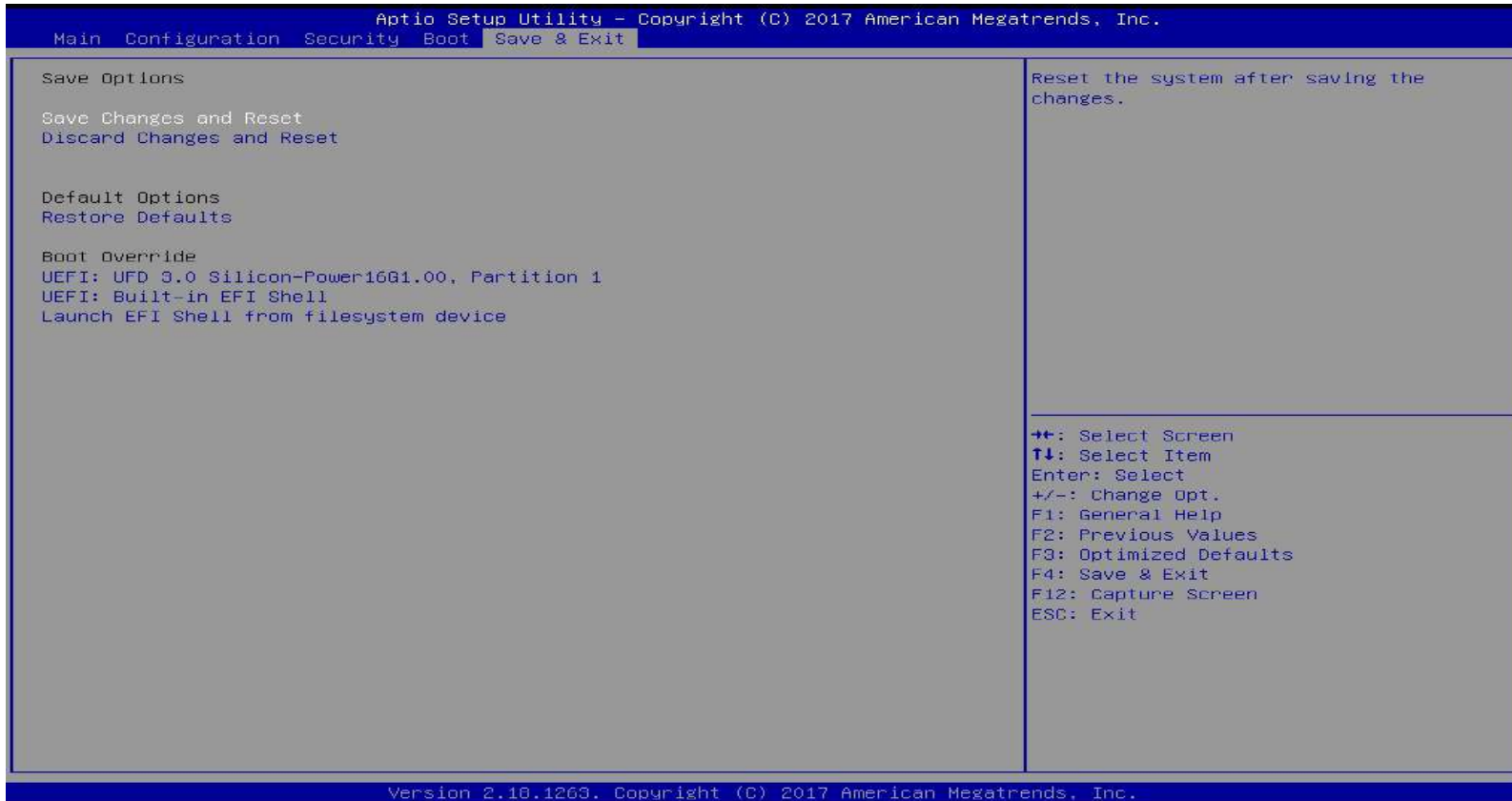


Feature	Description	Options
Setup Prompt Timeout	Number of seconds to wait for setup activation key. 65535 (0xffff) means indefinite waiting.	★2, 1-65535
Bootup NumLock State	Select the keyboard NumLock state	★On, Off
Post Report	Post Report Support Enabled/Disabled	★Disabled, Enabled
Summary Screen	Summary Screen Support Enabled/Disabled	★Disabled, Enabled
CSM Support	Enable/Disable CSM Support	★Disabled, Enabled
CSM Support [Enabled]		
Launch Storage OPROM	Controls the execution of UEFI and Legacy Storage OpROM	★UEFI, Legacy, Do not launch
OS Selection	[Default] To Win8/8.1/10; [Other] Android / Linux; [Legacy System] Win7 / DOS; [Intel Linux] Linux. This item setting will affect LPSS & XHCI Hand-off item setting.	★Default, Android, Legacy System, Intel Linux
Full screen Logo	Enables or disables Quiet Boot option and Full screen Logo.	★Disabled, Enabled
Boot mode select	Select Boot mode LEGACY/UEFI	★UEFI, Legacy
FIXED BOOT ORDER Priorities		
Boot Option #1	Sets the system boot order	★Hard Disk, USB Device, CD/DVD, Network, Disabled
Boot Option #2	Sets the system boot order	★USB Device, Hard Disk, CD/DVD, Network, Disabled

PEB-2773VG2ATM

Boot Option #3	Sets the system boot order	★CD/DVD, USB Device, Hard Disk, Network, Disabled
Boot Option #4	Sets the system boot order	★Network, CD/DVD, USB Device, Hard Disk, Disabled

7.2.5 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 (Boot option filter: UEFI only)	Reset the system after saving the changes.	
Launch EFI Shell from filesystem device	Attempts to Launch EFI Shell application (Shell.efi) from one of the available filesystem devices.	

8 Troubleshooting

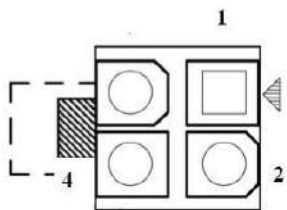
This chapter provides a few useful tips to quickly get PEB-2773 running with success. As basic hardware installation has been addressed in Chapter 2, this chapter will focus on system integration issues, in terms of BIOS setting, and OS diagnostics.

8.1 Hardware Quick Installation

ATX Power Setting

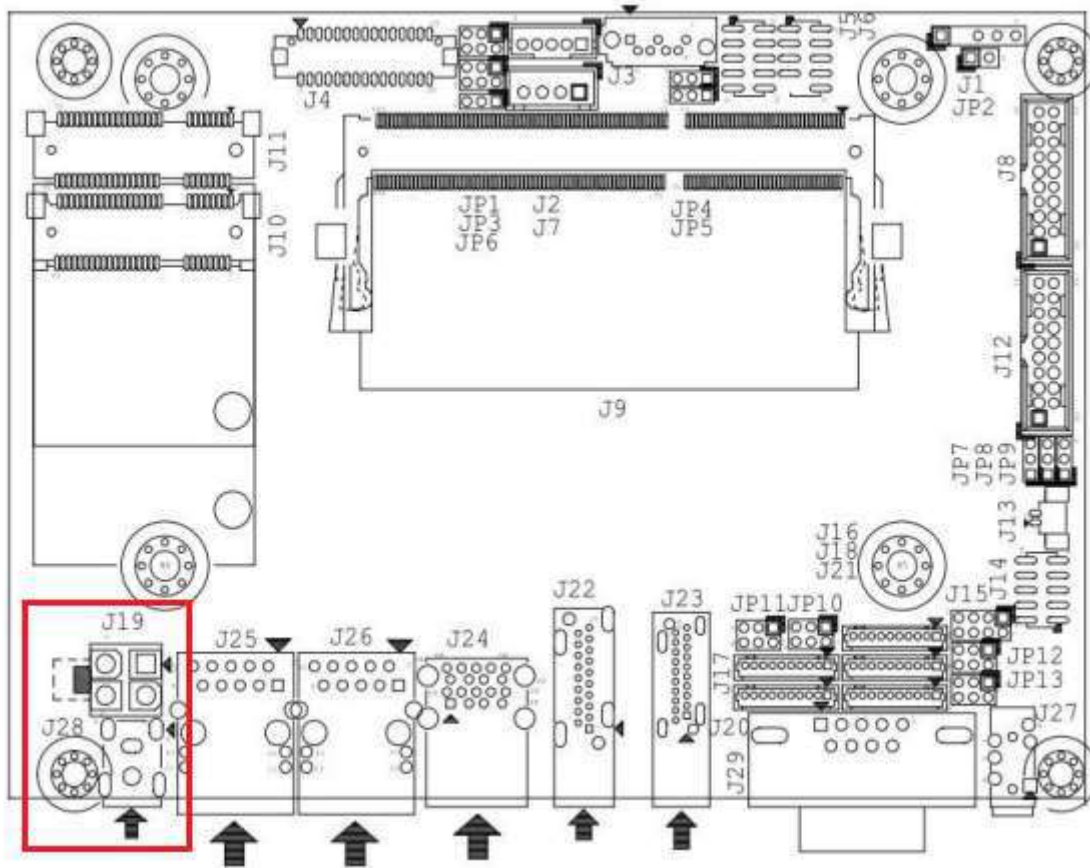
There are two methods to connect the power of PEB-2773 which are 12V DC Jack (J28) & 4 Pins 12V DC input (J19). It's able to be chosen either one for PEB-2773.

J19 : ATX 4 Pin Connector



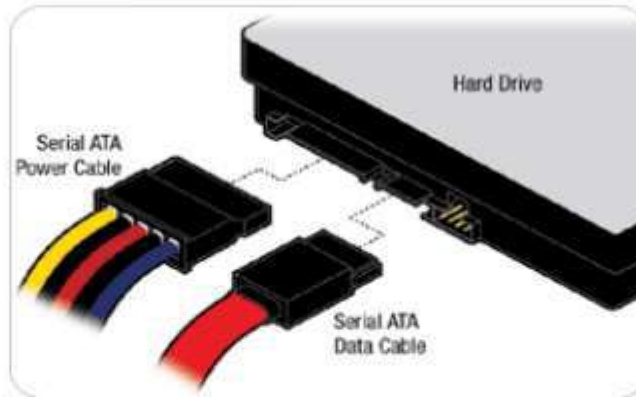
PIN No.	Signal Description	PIN No.	Signal Description
1	+12V	2	+12V
3	GND	4	GND

PEB-2773VG2ATM



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 or DC power. 204-pin DDR3L 1333/1600/1866 MH/z SO-DIMM Memory, keyboard, mouse, SATA hard disk, VGA connector, device power cables, 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 PEB-2773, it is recommended, when going with the boot-up sequence, to hit “Del” 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 “**Restore Defaults**”, 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 JP8 on the PEB-2773 to set it from 1-2 short to 2-3 short and wait 10 seconds to clean your password then set it back to 1-2 short to switch on your power supply.

JP8 : CMOS Clear

PIN No.	Signal Description
1-2 Short	Normal Operation ★
2-3 Short	Clear CMOS Contents

Question: How to update the BIOS file of PEB-2773?

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 User name and password and log in the download center.

3. Select **“Search download”** and type the keyword **“PEB-2773”**.

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 dos mode. Then execute the **“update.efi”**. It will start to update BIOS.

NOTE: Once you use “update.efi” to update BIOS, it must be get into the SHELL MODE 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

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 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.

10 Industry Specifications

The list below provides links to industry specifications that apply to Portwell modules.

Low Pin Count Interface Specification, Revision 1.0 (LPC) <http://www.intel.com/design/chipsets/industry/lpc.htm>

Universal Serial Bus (USB) Specification, Revision 2.0 <http://www.usb.org/home>

PCI Specification, Revision 2.3 <https://www.pcisig.com/specifications>

Serial ATA Specification, Revision 3.0 <http://www.serialata.org/>

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