WEBS-5481

Fan-less Embedded System



User's Manual

Version 1.1

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How to Use This Manual

The manual describes how to configure your WEBS-5481 system to meet various operating requirements. It is divided into four chapters, with each chapter addressing a basic concept and operation of Fan-less Embedded System.

Chapter 1: System Overview. Present what you have in the box and give you an overview of the product specifications and basic system architecture for this fan-less embedded system.

Chapter 2: System Installation. Show the definitions and locations of all the interfaces and describe a proper installation guide so that you can easily configure your system.

Chapter 3: BIOS Setup Information. Specify the meaning of each setup parameters, how to get advanced BIOS performance and update new BIOS. In addition, POST checkpoint list will give users some guidelines of trouble-shooting.

Chapter 4: Important Instructions. Indicate some instructions which must be carefully followed when the fan-less embedded system is used.

Chapter 5: Frequent Asked Questions. Provide the answers for the most frequently asked questions.

The content of this manual is subject to change without prior notice. These changes will be incorporated in new editions of the document. The vendor may make supplement or change in the products described in this document at any time.

Revision History

Revision	n Date	Details of Change(s)
V1.0	2015/1/19	Initial Release
V1.1	2015/5/21	Page 5-1. Add "FAQ part."

Chapter 1 System Overview

1.1 Introduction

Portwell, a world-leading innovator in the industrial PC (IPC) industry and a Premier Member of the Intel® Internet of Things (IoT) Solutions Alliance, announces WEBS-5481, a high performance and low power intelligent Box PC. Powered by the 4th generation Intel® CoreTM ULT (ultra low TDP) SoC (system on chip) processor (formerly codenamed Haswell), this system is an ideal fan-less controller for applications in digital signage, surveillance, image processing and machine automation industries.

The Portwell WEBS-5481 is powerful but not power hungry; it utilizes the dual-core 4th generation Intel® CoreTM processor with Intel® Turbo Boost Technology 2.0 (select CPU SKUs), Intel® Hyper-Threading Technology and Enhanced Intel SpeedStep® Technology. By adopting Intel's SoC platform, which integrates CPU and PCH into a BGA package, WEBS-5481 is much smaller, sleeker and lighter compared to its previous generation. In addition, the elimination of the 2-chip platform enables a more effective thermal design for the WEBS-5481 intelligent Box PC. Thanks to the highly reliable chassis with a thermally-enhanced ripple fin design, WEBS-5481 can operate reliably in a temperature range from -20°C to 55°C. Plus, combining anti-vibration and shock resistance attributes, the fan-less and rugged WEBS-5481 excels in harsh environments.

WEBS-5481 also offers clear and concise video and graphics capabilities because it takes full advantage of the 4th generation Intel® Core[™] processor with integrated HD4400 graphics engine which outperforms its predecessor by over 20%. In addition to the built-in triple-display interfaces, two additional display devices are made available by Portwell's graphics modules; thus, it can support up to five display outputs by extended mode in the OS. Product reliability and stability are definitely uncompromised; WEBS-5481 is rated IP40 and certified by industrial product quality tests, such as an anti-vibration test of up to 5Grms and an anti-shock test of 50G. Portwell's WEBS-5481 has proven itself to be a perfect solution for video/graphics-demanding and automation control systems.

The versatile WEBS-5481 system supports many other important features, including up to 16GB of DDR3L memory, triple display with DVI-D, HDMI and Display Port, 5.1-CH audio and dual Intel® Gigabit Ethernet ports. It also offers rich compact I/O functions including 2 x SATA, 2 x USB 3.0, 2 x USB 2.0, 1 x 8bits GPIO and 6x COM ports. To enhance system flexibility, customers can further augment functions per their specific needs via two antenna interfaces and an onboard SIM card holder for WiFi or 3G/GPS module, and two mini PCIe sockets for expansion; one or more PCIe expansion cassettes can be offered by counterparts of WEBS-5481 for hungry

demand. A wide range of DC power input, 12V~24V, is accepted so that it can not only prevent the system from damage due to power input change, but also expands the application fields of this Box PC to the automotive industry, for example. Last but not least, with wall and panel mounting design, the WEBS-5481 provides a slim and small footprint Box PC weighing only 2 Kg that can fit anywhere easily, no matter if it's in the office or factory.

1.2 Check List

The WEBS-5481 package should cover the following basic items:

- ✓ One WEBS-5481 Fan-less Embedded System
- ✓ One 60W AC/DC Power Adapter DC-plug with screw
- ✓ One Wall Mount Kit
- ✓ Other Accessories

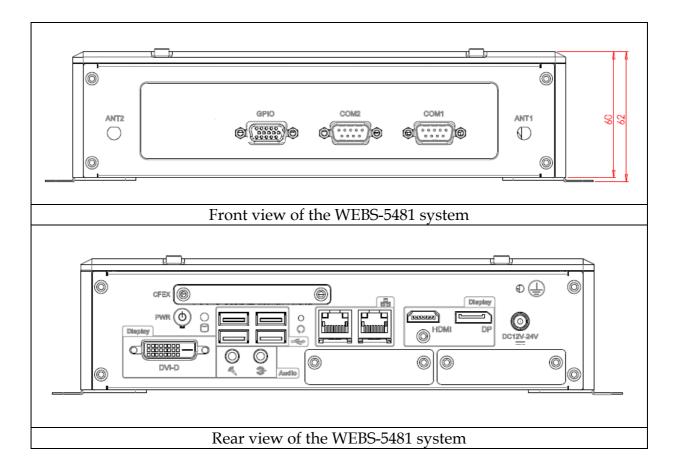
If any of these items is damaged or missing, please contact your vendor and keep all packing materials for future replacement and maintenance.

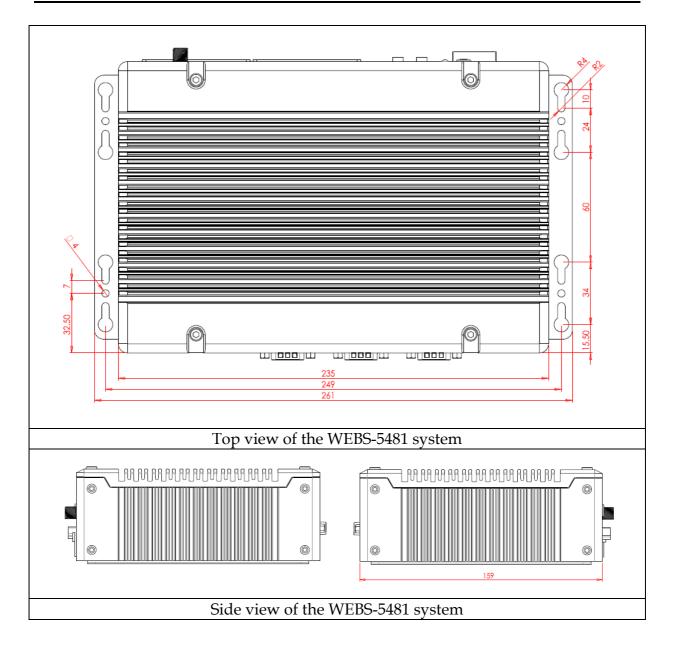
1.3 Product Specification

System		
M/B	PEB-5731	
System Chipset	Intel® Haswell ULT SoC	
CPU	Intel® Core™ i7-4650U,	
	1.7GHz, 4M L2 Cache, up to 3.3GHz, 15W TDP (2C/4T)	
	Intel® Core™ i5-4300U,	
	1.9GHz, 3M L2 Cache, up to 2.9GHz, 15W TDP (2C/4T)	
	Intel® Core™ i3-4010U,	
	1.7GHz, 3M L2 Cache, 15W TDP (2C/4T)	
	Intel® Celeron 2980U,	
	1.6GHz, 2M L2 Cache, 15W TDP (2C/2T)	
BIOS	AMI uEFI BIOS (SPI ROM)	
System Memory	Dual 204-pin SO-DIMM sockets support DDR3L 1333/1600	
	up to 16GB	
Storage	1x 2.5" SATA HDD/SSD, 1x CFEX, 1x mSATA	
Watchdog Timer	Programmable via S/W from 1 sec. to 255 sec.	
H/W Status Monitor	-Temperature (CPU & System)	
	-Voltage (CPU Vcore, VBAT, 5VSB, 12V, 5V, 3.3V)	
Expansion	-1x Full-size Mini-PCIe socket (USB+PCIe) + SIM holder	
	-1x Half-size Mini-PCIe socket (mSATA+PCIe)	
External I/O		
Series Ports	2x COM Ports	
	(1x RS-232/422/485 selectable by BIOS & 1x RS-232)	
Display	1x DVI-D, 1x DP, 1x HDMI	
	2x Optional graphic modules (VGA/DVI-I/HDMI)	

USB	2x USB 3.0, 2x USB 2.0	
Audio	Lin-out/MIC-in (ALC892)	
LAN	2x Gigabit Ethernet (Intel® WGI218LM + WGI210AT)	
GPIO	1x Programmable 8-bit digital I/O	
Other	-2x Antenna holes for WIFI or 3G/GPS module	
Power Supply Unit		
Power Supply	DC 12~24V	
Environment		
Operating	-20°C to 55°C	
Temperature		
Storage Temperature	-40°C to 80°C	
Relative Humidity	95% @ 40°C, non-condensing	
Operating Vibration	5Grms/5~500Hz, IEC 60068-2-64	
Operating Shock	50G, 11 msec, IEC 60068-2-27	
Mechanical		
Dimension (WxDxH)	253 x 160 x 60 mm; 9.2" x 6.2" x 4"	
Weight	2 kg	
Mounting	Wall Mount	

1.4 Mechanical Dimension

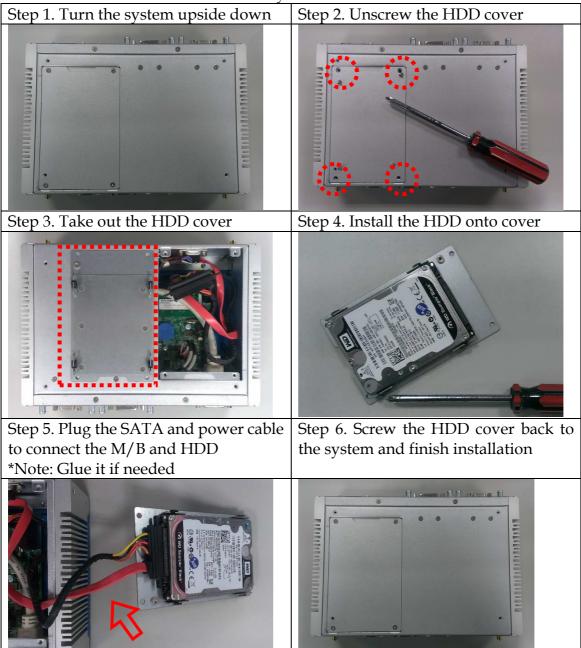




Chapter 2 System Installation

This chapter provides you with instructions to set up your system. Definitions and locations of all the interfaces are described so that you can easily configure your system. For more detailed PIN assignment and jumper setting, please refer to user's manual of PEB-5731-W.

2.1 HDD Installation



HDD cover locates at the back of the system.

2.2 CFEX Installation

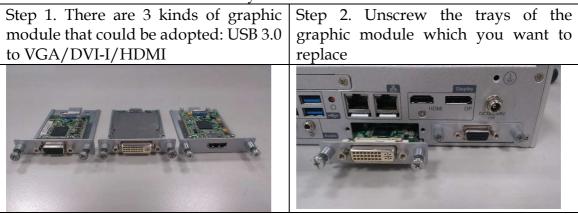
CFEX is a new Compact Flash (CF) technology initiated by Portwell and adapting legacy CF type one with advanced pin definitions. This helps overcome reliability issues with standard commercial memory. CFEX also supports SATA 3.0, SPI and other extensions, and achieves a read speed of 100 to 120Mbyte/s and write speed of 45 to 75Mbyte/s. Compared with other CF devices, it falls in the same low-cost bracket as CF and CF SATA and is less expensive than CFAST.

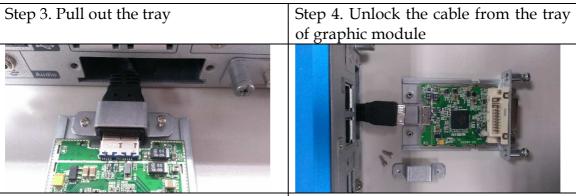


2.3 Replacement of Additional Graphic Modules

In addition to the built-in triple-display interfaces, two additional display devices are made available by Portwell's graphics modules; thus, the WEBS-5481 system can support up to five display outputs by extended mode in the OS.

*Note: Modules must be installed by Portwell factory. It's not recommended to buy USB Graphic Module separately. But customers can replace the graphic module with different interfaces by themselves.







Step 5. Connect the cable to graphic Step 6. Install the tray of graphic module with which you want to module back onto the system replace and lock it



Step 7. Screw the tray of graphic Step 8. Finish installation *Note: Drivers should be installed module properly properly to run the feature





2.4 I/O Interfaces

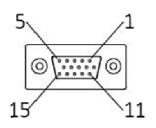
2.4.1 Front View



ANT1 & ANT2 hole:

Antenna holes for WiFi or 3G/GPS module

GPIO:



• GPIO PIN Definition

PIN No.	Signal Description	PIN No.	Signal Description
1	EC_GPI0	2	GPO0 (Voltage from JP6)
3	EC_GPI1	4	GPO1 (Voltage from JP6)
5	EC_GPI2	6	GPO2 (Voltage from JP6)
7	EC_GPI3	8	GPO3 (Voltage from JP6)
9	GND	10	VCC5
11	N/A	12	N/A
13	N/A	14	N/A
15	N/A	Х	Х

• GPIO Output Voltage

JP6	Function
1-2 Short	5V
2-3 Short	$3.3V \bigstar Default$

COM port:

• RS-232

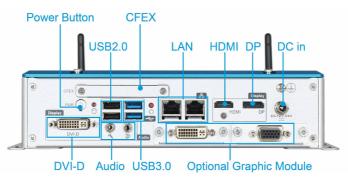
PIN No.	Signal Description
1	DCD#
2	RXD#
3	TXD#
4	DTR#
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

• RS-232/422/485

*Note: RS-232/422/485 configuration is determined by BIOS setting. Check BIOS setting for details.

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#

2.4.2 Rear View



DC in: (Wide range DC source support, 12~24V)

Using the provided DC source to connect to the system

Power Button:

Press the power button to turn ON/OFF the system

USB3.0 & USB 2.0:

Support four USB (Universal Serial Bus) ports, two USB 3.0 and two USB 2.0.

LAN:

Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports by using Intel WGI218LM & WGI210AT GbE Ethernet Controller

HDMI:

Type A HDMI display output

DP:

DP (DisplayPort) display output

DVI-D:

PIN No.	Signal Description.	PIN No.	Signal Description.
1.	TDC0-+2	20	TDC0+ ₄ ,
3₽	GND	4 ₽	GND.
5₽	TDC1-+	6 ₊ ²	TDC1++
7₽	GND	8₽	GND
9₽	TDC2-+	10.0	TDC2++
11.0	GND	12.	GND
13.0	TLC-+2	14.0	TLC-+₊
150	VCC5 _e	16 0	VCC5 ₄
17.0	DDC_SC.	180	DDC_SD.
19 ₀	HPD_IN+	200	Xe

DVI-D display output

Audio:

Connectors for MIC-In and Line-Out

CFEX:

CFEX is a new Compact Flash (CF) technology initiated by Portwell and adapting legacy CF type one with advanced pin definitions. This helps overcome reliability issues with standard commercial memory. CFEX also supports SATA 3.0, SPI and other extensions, and achieves a read speed of 100 to 120Mbyte/s and write speed of 45 to 75Mbyte/s. Compared with other CF devices, it falls in the same low-cost bracket as CF and CF SATA and is less expensive than CFAST.

Optional Graphic Module:

There are 3 kinds of graphic module that could be adopted.

*Note: Modules must be installed by Portwell factory. It's not recommended to buy USB Graphic Module separately.

- USB 3.0 to VGA
- USB 3.0 to DVI-I
- USB 3.0 to HDMI

2.5 Getting Started

It is easy to get the system started.

Step 1. Make sure the power supply	Step 2. Press the power button to turn
$(12\sim24V)$ is connected properly	on the system
	*Note: Power LED shines BLUE when
	system is "ON"; ORANGE when "OFF"
	CFEX O

Chapter 3 BIOS Setup Information

WEBS-5481 system adopts PEB-5731 mother board. PEB-5731-W uses AMI BIOS structure 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 CMOS RAM so that it is retained during power-off periods. When system is turned on, PEB-5731 communicates with peripheral devices on the carrier board 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.

3.1 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.

3.2 Main

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

Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc. Main Configuration Boot Security Save & Exit		
Project Name	PEB-5731-W	
BIOS Version & Build Date	R1.00.E2 (12/27/2014 14:00:57)	
EC Version & Build Date	41104T00 (11/04/2014)	
Processor Information		
Name	Haswell ULT	
Brand String	Intel(R) Core(TM) i5-4300U CPU @ 1.90GHz	
Total Memory	8192 MB (DDR3L)	
Memory Frequency	1600 Mhz	
PCH Information		
Name	LynxPoint-LP	
PCH SKU	Premium SKU	
ME Firmware Mode	Normal Mode	
ME FW Version	9.5.20.1742	
ME Firmware SKU	SMB	
System Date	[Mon 01/05/2015]	
System Time	[14:30:05]	
Access Level	Administrator	
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Build Time, Processor Brand Name, Processor Speed, Install Memory, etc

These items show the firmware and memory specifications of your system.

Build Time

The BIOS Release Date.

Processor Brand Name / Processor Speed

This value will change depend of different CPUs. And please make sure the Processor that you'll install will be compatible with PEB-5731 User's Manual

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.

Access Level

3.3 System Setup Utility

To enter the system setup utility, press <F1> on either the main keyboard or Console Redirection host computer's keyboard during POST.

Table 1 lists the available menus in the system setup utility. Each menu is equivalent to a functional group and consists of all correlated BIOS settings.

Table 1. System Setup Otinty menus		
Menu	Usage	
Main	Display a summary of the system and configure the	
Wall	system date and time.	
	Configure the system interfaces, system	
Configuration	management, power management, thermal	
	management, and other system characteristics.	
Boot	Configure boot device priority settings.	
Security	Configure user authentication requirements.	
	Save changes and exit the system setup utility, or	
Save & Exit	restore default settings.	

Table 1. S	ystem Setup	Utility	menus

3.4 Configuration

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

Aptio Setup Utility – Cop Main <mark>Configuration</mark> Boot Security S	oyright (C) 2012 American Megatrends, Inc. Save & Exit
 CPU Configuration Chipset Configuration LAN Configuration Graphics Configuration PCI/PCIE Configuration SATA Configuration USB Configuration Power Control Configuration TPM Configuration Super IO Configuration H/W Monitor Serial Port Console Redirection 	CPU Configuration Parameters
	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
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<u>CPU Configuration</u>

It is not necessary to make any change just take the default value. Here you'll see the Max Processor Speed/Processor Cores/Intel HT technology then you can adjust if you want to "disabled" the Hyper-threading.

Aptio Setup Utility Configuration	– Copyright (C) 2012 America	an Megatrends, Inc.
CPU Configuration		Enabled for Windows XP and Linux (OS optimized for
Intel(R) Core(TM) i5-4300U CPU @ 1	90GHz	Hyper-Threading Technology)
CPU Signature	40651	and Disabled for other OS (OS
Max CPU Speed	1900 MHz	not optimized for
Min CPU Speed	800 MHz	Hyper-Threading Technology).
Processor Cores	2	When Disabled only one thread
Intel HT Technology	Supported	per enabled core is enabled.
Intel VT–x Technology	Supported	
Intel SMX Technology	Supported	
64-bit	Supported	
EIST Technology	Supported	
CPU C3 state	Supported	
CPU C6 state	Supported	++: Select Screen
CPU C7 state	Supported	1↓: Select Item
		Enter: Select
Hyper-threading	[Enabled]	+/-: Change Opt.
Active Processor Cores	[A11]	F1: General Help
Intel Virtualization Technology	[Enabled]	F2: Previous Values
EIST	[Enabled]	F3: Optimized Defaults
Turbo Mode	[Enabled]	F4: Save & Exit
CPU C states	[Enabled]	ESC: Exit
Enhanced C1 state	[Enabled]	
CPU C3 Report	[Enabled]	
CPU C6 report	[Enabled]	•

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BIOS Item	Usage	Item-Specific Help
Hyper-threading	-Disabled -Enabled ★ Default	Enabled for Windows XP / Linux and Disabled for other OS
Active Processor Cores	-All ★ Default -1	Select the number of physical cores to enable in each processor package
Intel Virtualization Technology	-Disabled -Enabled ★ Default	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology
EIST	-Disabled -Enabled ★ Default	Enabled/Disabled Intel SpeedStep
Turbo Mode	-Disabled -Enabled ★ Default	Turbo Mode
CPU C states	-Disabled -Enabled ★ Default	CPU C states
Enhanced C1 state	-Disabled -Enabled ★ Default	Enhanced C1 state
CPU C3 report	-Disabled -Enabled ★ Default	CPU C3 report
CPU C6 report	-Disabled -Enabled ★ Default	CPU C6 report

Chipset Configuration

It is not necessary to make any change just take the default value.

Aptio Setup Utility Configuration	y – Copyright (C) 2012	American Megatrends, Inc.
Chipset Configuration		Enable or Disable the High Precision Event Timer.
High Precision Timer Azalia	[Enabled] [Enabled]	
VT–d Port 80h Redirection	[Enabled] [LPC Bus]	
 AMT Configuration Memory Configuration 		
		<pre>++: Select Screen 1↓: Select Item Enter: Select</pre>
		+/-: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
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BIOS Item	Usage	Item-Specific Help
High Precision Timer	-Disabled -Enabled★ Default	
Azalia	-Disabled -Enabled★ Default	
VT-d	-Disabled ★ Default -Enabled	Enabled/Disabled VT-d function on MCH
Port 80h Redirection	-LPC Bus -PCIE Bus	

AMT Configuration

AMT Configuration		Enable/Disable Intel (R)
		Active Management Technology
Intel AMT	[Disabled]	BIOS Extension.
Un-Configure ME	[Disabled]	Note : iAMT H/W is always
Disable ME	[Disabled]	enabled.
		This option just controls th
		BIOS extension execution.
		If enabled, this requires
		additional firmware in the S
		device
		++: Select Screen
		14: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit

BIOS Item	Usage	Item-Specific Help
	-Disabled	Disables/Enabled iAMT
Intel AMT	-Enabled ★ Default	function
Lie Configure ME	-Disabled ★ Default	
Un-Configure ME	-Enabled	
Disable ME	-Disabled ★ Default	
	-Enabled	

Memory Configuration

Aptio Setup Configuration	Utility – Copyright (C) 2012 Amer:	ican Megatrends, Inc.
Memory Information		
Total Memory DIMM#0 DIMM#1	8192 MB (DDR3L) Not Present 8192 MB (DDR3L)	
		++: Select Screen fl: Select Item Enter: Select
		+/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

LAN Configuration

Aptio Setup Utility – C Configuration	Copyright (C) 2012 American	Megatrends, Inc.
LAN Configuration		Controls the execution of UEFI and Legacy PXE OpROM
Launch PXE OpROM policy		
Intel(R) Ethernet Connection I218–LM Intel LAN I218 Controller	[Enabled]	
Wake on LAN	[Disabled]	
Intel(R) Ethernet Connection I210 Intel LAN I210 Controller	[Enabled]	
Wake on LAN	[Disabled]	
		++: Select Screen
		t↓: Select Item Enter: Select
		+/-: Change Opt.
		F1: General Help F2: Previous Values
		F3: Optimized Defaults F4: Save & Exit
		ESC: Exit
Version 2.15.1236. Cop	oyright (C) 2012 American Me	egatrends, Inc.

BIOS Item	Usage	Item-Specific Help
Launch PXE OpROM	-Disabled ★ Default	
Policy	-Enabled	
Intel LAN I218 Controller	-Disabled	Enable/Disable Intel
Intel LAN 1218 Controller	-Enabled ★ Default	LAN I218
Wake on LAN	-Disabled ★ Default	
wake on LAIN	-Enabled	
Intel LAN I210 Controller	-Disabled	Enable/Disable Intel
Intel LAN 1210 Controller	-Enabled ★ Default	LAN I210
	-Disabled ★ Default	
Wake on LAN	-Enabled	

Graphic Configuration

Aptio Setup Utilit Configuration	y – Copyright (C) 2012	American Megatrends, Inc.
Graphics Configuration		Select which of IGFX/PEG/PCI Graphics device should be
Primary Display	[IGFX]	Primary Display Or select SG
Internal Graphics	[Enabled]	for Switchable Gfx.
Aperture Size	[256MB]	
DVMT Pre-Allocated	[256M]	
DVMT Total Gfx Mem	[256M]	
Primary IGFX Boot Display	[DVI]	
Secondary IGFX Boot Display	[DP]	
DVI Display Type	[1024×768]	
		++: Select Screen
		14: Select Item
		Enter: Select
		+/-: Change Opt.
		F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
Version 2.15.1236	. Copyright (C) 2012 Am	merican Megatrends, Inc.

BIOS Item	Usage	Item-Specific Help
	-Auto	Select which of IGFX/PCI
	-IGFX ★ Default	Graphics should be
Primary Display	-PCIE	Primary Display or select
		Secondary Display for
		switchable Graphics
	-Auto	Keep IGD Enabled based
Internal Graphics	-Disabled	on the setup options
	-Enabled ★ Default	on the setup options
	-128MB	
Aperture Size	-256MB ★ Default	Select the Aperture Size
	-512MB	
	-32M	
	-64M	
	-96M	Select DVMT 5.0
	-128M	Pre-Allocated (Fixed)
DVMT Pre-Allocated	-160M	Graphics Memory size
	-192M	used by the internal
	-224M	Graphics Device
	-256M ★ Default	
	-288M	

	-320M -352M -384M -416M -448M -480M -512M -1024M	
DVMT Total Gfx Mem	-128MB -256MB ★ Default -MAX	Select DVMT5.0 Total Graphics Memory size used by the Internal Graphics Device
Primary IGFX Boot Display	-VBIOS Default -HDMI -DVI ★ Default -DP	
Secondary IGFX Boot Display	-VBIOS Default -HDMI ★ Default -DVI -DP	
DVI Display Type	-1024x768 ★ Default -1280x1024 -1360x768 -1920x1200	

PCI/PCIE Configuration It is not necessary to make any change just take the default value.

Aptio Setup Utility – Configuration	Copyright (C) 2012 American	
PCI/PCIE Configuration		Set Maximum Read Request Size of PCI Express Device or allow
PCI Common Settings PCI Latency Timer	[32 PCI Bus Clocks]	System BIOS to select the value.
PCI Express Settings Maximum Payload	[Auto]	
Maximum Read Request▶ PCH PCI Express Configuration		
		↔: Select Screen t∔: Select Item
		Enter: Select +/-: Change Opt. F1: General Help
		F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
Version 2 15 1236 Fo	pyright (C) 2012 American M	egatrends Inc

BIOS Item	Usage	Item-Specific Help
	-32 PCI Bus Clocks	
	-64 PCI Bus Clocks	
	-96 PCI Bus Clocks	
PCI Latency Timer	-128 PCI Bus Clocks	
I CI Latency Timer	-160 PCI Bus Clocks	
	-192 PCI Bus Clocks	
	-224 PCI Bus Clocks	
	-248 PCI Bus Clocks	
	-Auto	
	-128 Bytes	
	-256 Bytes	
Maximum Payload	-512 Bytes	
	-1024 Bytes	
	-2048 Bytes	
	-4096 Bytes	
	-Auto	
	-128 Bytes	
Maximum Read Request	-256 Bytes	
	-512 Bytes	
	-1024 Bytes	

-2048 Bytes	
-4096 Bytes	

<u>PCH PCI Express Configuration</u> It is not necessary to make any change just take the default value.

Aptio Setup Utility - Copyright (C) 2012 Configuration	
 PCH PCI Express Configuration PCI Express Root Port 1 PCI Express Root Port 2 PCIE Port 3 is LAN I210 PCI Express Root Port 4 PCIE Port 5 is LAN I218 PCI Express Root Port 6 	PCI Express Root Port 1 Settings. Port 1 (x1)
	<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.15.1236. Copyright (C) 2012 A	American Megatrends, Inc.

<u>PCI Express Root Port 1/2/4/6</u> (Only take Port 1 as an example) It is not necessary to make any change just take the default value.

Aptio Setup Configuration	Utility – Copyright (C) 2012 Amer	rican Megatrends, Inc.
PCI Express Root Port 1 ASPM PCIe Speed	[Enabled] [Disabled] [Auto]	Control the PCI Express Root Port.
		<pre>++: Select Screen f1: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.1	5.1236. Copyright (C) 2012 Americ	can Megatrends, Inc.

BIOS Item	Usage	Item-Specific Help
PCI Express Root Port	-Disabled	Control PCI Express root
1/2/4/6	-Enabled ★ Default	port
	-Disabled ★ Default	
	-LOS	Control PCIe Active State
ASPM	-L1	Power Management
	-L0S L1	setting
	-Auto	
	-Auto ★ Default	Salast PCIs Speed to Cap1
PCIe Speed	-Gen1	Select PCIe Speed to Gen1 or Gen2
	-Gen2	OI Genz

<u>SATA Configuration</u> Determines how SATA controller (s) operate.

Aptio Setup Utility – Configuration	Copyright (C) 2012 American	n Megatrends, Inc.
SATA Configuration		Enable or disable SATA Device.
SATA Controller(s) SATA Mode Selection SATA Controller Speed	[Enabled] [AHCI] [Gen3]	
Serial ATA Port 0 Port 0 Hot Plug External SATA SATA Device Type Device Sleep SATA DEVSLEP Idle Timeout Config	Empty [Enabled] [Disabled] [Disabled] [Hard Disk Drive] [Disabled] [Disabled]	
Serial ATA Port 1 Port 1 Hot Plug External SATA SATA Device Type Device Sleep SATA DEVSLEP Idle Timeout Config	Empty [Enabled] [Disabled] [Disabled] [Solid State Drive] [Disabled] [Disabled]	<pre>++: Select Screen 14: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Serial ATA Port 2 Port 2 Hot Plug	Empty [Disabled] [Disabled]	

BIOS Item	Usage	Item-Specific Help
SATA Controllor(a)	-Enabled ★ Default	Determines how SATA
SATA Controller(s)	-Disabled	controller (s) operate
	-Disabled	
SATA Mode Selection	-IDE	Determines how SATA
SATA Mode Selection	-AHCI ★ Default	controller (s) operate
	-RAID	
	-Default	
SATA Controllor Spood	-Gen1	
SATA Controller Speed	-Gen2	
	-Gen3 ★ Default	
Port 0~3	-Disabled	
FOIL 0/~3	-Enabled ★ Default	
Hot Plug	-Disabled ★ Default	
Hot Plug	-Enabled	
	-Disabled ★ Default	
External SATA	-Enabled	
	-Hard Disk Drive	
SATA Device Type	-Solid State Drive ★	
	Default	

Device Sleep	-Disabled ★ Default -Enabled	
SATA DEVSLEP Idle	-Disabled ★ Default	
Timeout Configuration	-Enabled	

<u>USB Configuration</u> Configure USB controller and other advanced setting.

Aptio Setup Utility – (Configuration	Copyright (C) 2012 Amer	ican Megatrends, Inc.
USB Configuration USB Devices: 1 Keyboard, 1 Mouse, 2 Hubs Legacy USB Support XHCI Mode XHCI Hand-off EHCI Hand-off USB Mass Storage Driver Support	[Enabled] [Smart Auto] [Enabled] [Disabled] [Enabled]	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only for EFI applications.
▶ PCH USB Configuration		<pre>++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>

BIOS Item	Usage	Item-Specific Help
Legacy USB support	-Enabled ★ Default -Disabled	Enables Legacy USB support. AUTO option disables legacy support if no USB devices are connected. DISABLE option will keep USB devices available only
XHCI Mode	-Smart Auto ★ Default -Auto -Enabled -Disabled Manual	for EFI applications.
XHCI Hand-off	-Enabled ★ Default -Disabled	

EHCI Hand-off	-Enabled -Disabled★ Default	
USB Mass Storage Driver Support	-Enabled ★ Default -Disabled	
PCH USB Configuration -USB Ports per-Port 0~7 Disable	-Disabled ★ Default -Enabled	Control each of the USB ports disabling

PCH USB Configuration USB Ports per-Port 0~7

	- Copyright (C) 2012 A	American Megatrends, Inc.
Configuration		
PCH USB Configuration		Disable USB port.
USB Port #0 USB Port #1 USB Port #2 USB Port #3 USB Port #4 SW Resistive Touch Controller USB Port #6	[Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled] [Enabled]	
USB Port #7	[Enabled]	
		++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults
		F4: Save & Exit ESC: Exit
Version 2. <u>1</u> 5.1236. (Copyright (C) 2012 Ame	erican Megatrends, Inc.

Power Control Configuration It is not necessary to make any change just take the default value.

Power Control Configuration Enables or Disables System Enable Hibernation [Enabled] ACPI Sleep State [S3 only(Suspend to] Power Loss Function [Always OFF] Wake system with Fixed Time [Disabled] Wake up Day of Month 0 Wake up four 0 Wake up second 0 Wake on Ring [Disabled] #*: Select Screen 11: Select Item Enternal Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit	Aptio Setup Utility - Configuration	Copyright (C) 2012 American	
ACPI Sleep State Power Loss Function[S3 only(Suspend to] [Always OFF]be not effective with some OS.Wake system with Fixed Time Wake up Day of Month 			-
Power Loss Function [Always OFF] Wake system with Fixed Time [Disabled] Wake up Day of Month 0 Wake up hour 0 Wake up minute 0 Wake up second 0 Wake on Ring [Disabled] #*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	Enable Hibernation		Sleep State). This option may
Wake system with Fixed Time [Disabled] Wake up Day of Month 0 Wake up hour 0 Wake up minute 0 Wake up second 0 Wake on Ring [Disabled] #*: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	ACPI Sleep State	[S3 only(Suspend to]	be not effective with some OS.
Wake up Day of Month0Wake up hour0Wake up minute0Wake up second0Wake on Ring[Disabled]#*: Select Screen11: Select ItemEnter: Select+/-: Change Opt.F1: General HelpF2: Previous ValuesF3: Optimized DefaultsF4: Save & Exit	Power Loss Function	[Always OFF]	
Wake up hour 0 Wake up minute 0 Wake up second 0 Wake on Ring [Disabled] ##: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	-		
Wake up minute 0 Wake up second 0 Wake on Ring [Disabled] ##: Select Screen tl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit		*	
Wake up second 0 Wake on Ring [Disabled] ##: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit		°	
Wake on Ring [Disabled] ++: Select Screen 11: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit		*	
++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit	wake up second	U	
	Wake on Ring	[Disabled]	<pre>fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit</pre>

BIOS Item	Usage	Item-Specific Help
Enable Hibernation	-Disabled	Enable or Disable
	-Enabled ★ Default	Hibernate Funtion
		Select the highest ACPI
ACPI Sleep State	-S3 Only	sleep state when the
ACI I Sleep State	(Suspend to RAM)	SUSPEND button is
		pressed
	-Always Off ★ Default	Select AC Power state
Power loss function	- Always On	when power is re-applied
	-Last State	after a power failure
		Enable or disable System
Wake system with Fixed	-Disabled ★ Default	wake on alarm event.
Time	-Enabled	When enabled, System
Time	-Enabled	will wake on the
		hr:min:sec specified
Wake on Ring	-Disabled ★ Default	N/A
Wake On Ming	-Enabled	1 N/ 2 X

TPM Configuration

Aptio Setup Utility – Copyright (C) 2012 Amer: Configuration	ican Megatrends, Inc.
TPM Configuration Configuration Security Device Support [Disable]	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.
Current Status Information ND Security Device Found	avallable.
	<pre>++: Select Screen fl: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.15.1236. Copyright (C) 2012 America	an Megatrends, Inc.

BIOS Item	Usage	Item-Specific Help
Security Device Support	-Disabled ★ Default	Enabled/Disabled TPM
Security Device Support	-Enabled	Function

Super IO Configuration Enable/Disable Watch Dog Timer

Serial Port 0~6 Configuration

Aptio Setup Utility Configuration	– Copyright (C) 2012 Amer	rican Megatrends, Inc.
Super IO Configuration		Enable/Disable Watch Dog Timer
Watch Dog Timer Timer Unit	[Disabled] [Second]	
Serial Port 1 Device Settings RS-232/422/485 Control Option Terminal Resistor	[Enabled] IO=278h; IRQ=11; [RS-232] [OFF]	
Serial Port 2 Device Settings	[Enabled] IO=270h; IRQ=10;	
Serial Port 3 Device Settings	[Enabled] IO=268h; IRQ=11;	++: Select Screen fl: Select Item Enter: Select
Serial Port 4 Device Settings	<pre>[Enabled] I0=260h; IRQ=10;</pre>	+/-: Change Opt. F1: General Help F2: Previous Values
Serial Port 5	[Disabled]	F3: Optimized Defaults F4: Save & Exit
Serial Port 6	[Disabled]	ESC: Exit
Version 2.15.1236.	Copyright (C) 2012 Americ	can Megatrends, Inc.

BIOS Item	Usage	Item-Specific Help
WDT Controller	-Disable ★ Default	
WD1 Controller	-Enabled	
Timer Unit	- Second ★ Default	
Timer Onit	- Minute	
Timer value	20 ★ Default	
Serial Port 1~6	-Disable	
Serial Port 1~6	-Enable ★ Default	Setting Serial Port 1~6
RS-232/422/485 Control	-RS-232	
1 1	-RS-422	
Option	-RS-485	

Hardware Monitor

Provide on board sensor reading information.

Aptio Setup Utility - Configuration	Copyright (C) 2012 American	Megatrends, Inc.
CPU Smart Fan Control Smart Fan Start Temperature Smart Fan Full Speed Temperature CPU Temperature System Temperature CPU FAN Speed Vcore +5V +12V	: +71 C : +50 C : N/A : +1.776 V : +5.136 V : +12.375 V	Control Which Mode for CPU Smart Fan use
+1.35V	: +1.392 V	++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit
Version 2.15.1236. C	opyright (C) 2012 American M	legatrends, Inc.

BIOS Item	Usage	Item-Specific Help
CPU Smart Fan Control	-Disable ★ Default	
CI O Sillart Pari Control	-Enable	
Smart Fan Start	-50 ★ Default	Disable / Enable Smart
Temperature		Fan function
Smart Fan Full Speed	-50 ★ Default	
Temperature		

<u>Serial Port Console Configuration</u> Configure console redirection on serial port.

Aptio Setup Utility - Configuration	Copyright (C) 2012 American	Megatrends, Inc.
Serial Port Console Redirection		Console Redirection Enable or Disable.
Serial Port 1 (Disabled) Console Redirection Console Redirection	Port Is Disabled [Disabled]	
		<pre>++: Select Screen f↓: Select Item Enter: Select +/-: Change Opt. F1: General Help F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit</pre>
Version 2.15.1236. Co	pyright (C) 2012 American M	egatrends. Inc.

BIOS Item	Usage	Item-Specific Help
Serial Port 1 Console Redirection	-Disabled ★ Default -Enabled	Control Console Redirection enable/disable
Console Redirection	-Disabled ★ Default -Enabled	

3.5 Boot

Boot Priority Order: Please adjust the order depend of your needs.

Boot Configuration Select the keyboard NumLock state Bootup NumLock State [On] GateA20 Active [Upon Request] Option ROM Messages [Force BIDS] INT19 Trap Response [Immediate] Launch Storage OpROM [Disabled] Full Screen Logo [Disabled] Post Report [Disabled] Summary Screen [Disabled] FixED BOOT ORDER Priorities [Disabled] Boot Option #1 [CD/DVD] Boot Option #2 [USB Hand Disk] Boot Option #3 [Network] Boot Option #4 [Hard Disk] Boot Option #5 [Disabled] Boot Option #6 [Disabled] Boot Option #7 [Disabled]	Aptio Setup Util: Main Configuration Boot Sec	<mark>ity – Copyright (C) 2012 Ame</mark> curity Save & Exit	rican Megatrends, Inc.
Bootup NumLock State [On] GateA20 Active [Upon Request] Option ROM Messages [Force BIDS] INT19 Trap Response [Immediate] Launch Storage OpROM [Disabled] Full Screen Logo [Disabled] Post Report [Disabled] Summary Screen [Disabled] Fast Boot [Disable Link] Boot mode select [LEGACV] FIXED BOOT ORDER Priorities [Down of the select in the select is select if the select is select in the select is select if the select is se	Boot Configuration		-
GateA20 Active [Upon Request] Option ROM Messages [Force BIDS] INT19 Trap Response [Immediate] Launch Storage OpROM [Disabled] Full Screen Logo [Disabled] Post Report [Disabled] Summary Screen [Disabled] Boot mode select [LEGACY] FIXED BOOT ORDER Priorities Enter: Select Screen Boot Option #1 [CD/DVD] Boot Option #2 [USB Hard Disk] Boot Option #3 [Network] Boot Option #4 [Hard Disk] Boot Option #5 [Disabled] Boot Option #6 [Disabled] Boot Option #7 [Disabled] Boot Option #7 [Disabled] Boot Option #7 [Disabled]	Bootup Numlock State	[On]	state
Option ROM Messages INT19 Trap Response[Force BIOS] Immediate]Launch Storage OpROM[Disabled]Full Screen Logo Post Report Summary Screen[Disabled] Ibisabled]Fast Boot Boot mode select[Disable Link] 		[Upon Request]	
INT19 Trap Response[Immediate]Launch Storage OpROM[Disabled]Full Screen Logo[Disabled]Post Report[Disabled]Summary Screen[Disabled]Fast Boot[Disable Link]Boot mode select[LEGACY]FIXED BOOT ORDER PrioritiesBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]Boot Option #7[Disabled]	Option ROM Messages		
Full Screen Logo[Disabled]Post Report[Disabled]Summary Screen[Disabled]Fast Boot[Disable Link]Boot mode select[LEGACY]FIXED BOOT ORDER PrioritiesBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]Boot Option #7[Disabled]		[Immediate]	
Post Report[Disabled]Summary Screen[Disabled]Fast Boot[Disable Link]Boot mode select[LEGACY]FIXED BOOT ORDER PrioritiesEnter: Select ItemBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]	Launch Storage OpROM	[Disabled]	
Summary Screen[Disabled]Fast Boot[Disable Link]Boot mode select[LEGACY] FIXED BOOT ORDER PrioritiesEnter: Select ScreenBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]	Full Screen Logo	[Disabled]	
Fast Boot[Disable Link]Boot mode select[LEGACY]FIXED BOOT ORDER PrioritiesEnter: Select ItemBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]	Post Report	[Disabled]	
Boot mode select[LEGACY]+: Select ScreenFIXED BOOT ORDER PrioritiesEnter: Select ItemBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]	Summary Screen	[Disabled]	
II: Select ItemFIXED BOOT ORDER PrioritiesBoot Option #1[CD/DVD]Boot Option #2[USB Hard Disk]Boot Option #3[Network]Boot Option #4[Hard Disk]Boot Option #5[Disabled]Boot Option #6[Disabled]Boot Option #7[Disabled]	Fast Boot	[Disable Link]	
FIXED BOOT ORDER PrioritiesEnter: SelectBoot Option #1[CD/DVD]+/-: Change Opt.Boot Option #2[USB Hard Disk]F1: General HelpBoot Option #3[Network]F2: Previous ValuesBoot Option #4[Hard Disk]F3: Optimized DefaultsBoot Option #5[Disabled]F4: Save & ExitBoot Option #6[Disabled]ESC: Exit	Boot mode select	[LEGACY]	++: Select Screen
Boot Option #1[CD/DVD]+/-: Change Opt.Boot Option #2[USB Hard Disk]F1: General HelpBoot Option #3[Network]F2: Previous ValuesBoot Option #4[Hard Disk]F3: Optimized DefaultsBoot Option #5[Disabled]F4: Save & ExitBoot Option #6[Disabled]ESC: ExitBoot Option #7[Disabled]ESC: Exit			1↓: Select Item
Boot Option #2[USB Hard Disk]F1: General HelpBoot Option #3[Network]F2: Previous ValuesBoot Option #4[Hard Disk]F3: Optimized DefaultsBoot Option #5[Disabled]F4: Save & ExitBoot Option #6[Disabled]ESC: ExitBoot Option #7[Disabled]	FIXED BOOT ORDER Priorities		Enter: Select
Boot Option #3[Network]F2: Previous ValuesBoot Option #4[Hard Disk]F3: Optimized DefaultsBoot Option #5[Disabled]F4: Save & ExitBoot Option #6[Disabled]ESC: ExitBoot Option #7[Disabled]	Boot Option #1	[CD/DVD]	+/-: Change Opt.
Boot Option #4[Hard Disk]F3: Optimized DefaultsBoot Option #5[Disabled]F4: Save & ExitBoot Option #6[Disabled]ESC: ExitBoot Option #7[Disabled]	Boot Option #2	[USB Hard Disk]	F1: General Help
Boot Option #5 [Disabled] F4: Save & Exit Boot Option #6 [Disabled] ESC: Exit Boot Option #7 [Disabled]	1 · · ·	[Network]	F2: Previous Values
Boot Option #6 [Disabled] ESC: Exit Boot Option #7 [Disabled]		[Hard Disk]	
Boot Option #7 [Disabled]			
		[Disabled]	ESC: Exit
	Boot Option #7	[Disabled]	
Vacion 2 45 4000 Convertet (0) 2040 Appriant Negationals			
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Boot NumLock State

Selects Power-on state for NumLock. Choices: OFF, ON.

GateA20 Active

UPON REQUEST – GA20 can be disabled using BIOS service. ALWAYS – do not allow disabling GA20; this option is useful when any RT code is executed above 1MB. Choices: Upon Request, Always.

Option ROM Messages

Set Display mode for Option ROM.

This item is used to determine the display mode when an optional ROM is initialized during POST. When set to [Force BIOS], the display mode used by AMI BIOS is used. Select [Keep Current] if you want to use the display mode of optional ROM.

Choices: Force BIOS, Keep Current.

Interrupt 19 Capture

Interrupt 19 is the software interrupt that handles the boot disk function.

When "Enabled", this BIOS feature allows the ROM BIOS of these host adaptors to "capture" Interrupt 19 during the boot process so that drives attached to these adaptors can function as bootable disks. In addition, it allows you to gain access to the host adaptor's ROM setup utility, if one is available.

When "Disabled", the ROM BIOS of these host adaptors will not be able to "capture" Interrupt 19. Therefore, you will not be able to boot operating systems from any bootable disks attached to these host adaptors. Nor will you be able to gain access to their ROM setup utilities.

Choices: Disabled, Enabled.

Launch Storage OpROM

Choices: Disabled, Enabled.

<u>Full Screen Logo</u> Choices: Disabled, Enabled.

<u>Post Report</u> Choices: Disabled, Enabled.

<u>Summary Screen</u> Choices: Disabled, Enabled.

<u>Fast Boot</u> Choices: Disabled link, Enabled.

Boot mode Select Choices: LEGACY, UEFI.

Boot Option #1 ~#7 Sets the system boot order. Choices: Built-in EFI Shell, other bootable devices, Disabled.

3.6 Security

Set or clear the Supervisor account's password.

Aptio Setup Uti Main Configuration Boot	lity – Copyright (C) 2012 American Accurity Save & Exit	n Megatrends, Inc.
Password Description		Set Administrator Password
If ONLY the Administrator's p then this only limits access only asked for when entering If ONLY the User's password i is a power on password and mu boot or enter Setup. In Setup have Administrator rights. The password length must be in the following range: Minimum length	to Setup and is Setup. s set, then this st be entered to	
Maximum length	20	++: Select Screen
		f↓: Select Item
Administrator Password		Enter: Select
User Password		+/-: Change Opt. F1: General Help
		F2: Previous Values
		F3: Optimized Defaults
		F4: Save & Exit
		ESC: Exit
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Administrator Password

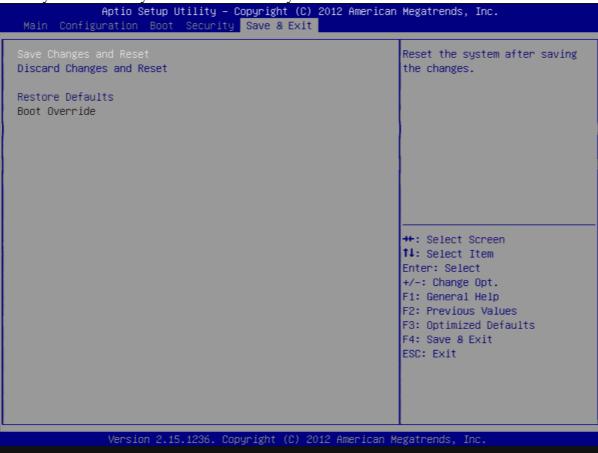
Set Setup Administrator Password

User Password

Set User password

3.7 Exit

Equal to F10, save all changes of all menu, then exit setup configure driver. Finally resets the system automatically.



Save Changes and Exit

Exit system setup after saving the changes

Discard Changes and Reset

Reset the system without saving the changes.

Restore Defaults

Restore/Load Default Values for all the setup options.

Chapter 4 Important Instructions

This chapter includes instructions which must be carefully followed when the fan-less embedded system is used.

4.1 Note on the Warranty

Due to their limited service life, parts which, by their nature, are especially subject to wear are not included in the guarantee beyond the legal stipulations.

4.2 Exclusion of Accident Liability Obligation

Portwell, Inc. shall be exempt from the statutory accident liability obligation if users fail to abide by the safety instructions.

4.3 Liability Limitations / Exemption from the Warranty Obligation

In the event of damage to the system unit caused by failure to abide by the hints in this manual and on the unit (especially the safety instructions), Portwell, Inc. shall not be required to respect the warranty even during the warranty period and shall be free from the statutory accident liability obligation.

4.4 Declaration of Conformity

<u>EMC</u>

CE/FCC Class A

This equipment complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This equipment may not cause harmful interference.

2. This equipment must accept any interference that may cause undesired operation.

Applicable Standards:

EN 55022:	2006 + A1: 200)7, Class A			
EN 61000-3	3-2: 2006				
EN 61000-3	3-3: 1995 + A1	: 2001 + A2: 2005			
EN 55024:	1998 + A1: 200)1 + A2: 2003			
IEC 61000-	4-2: 2008				
IEC 61000-	-4-3: 2006 + A1	: 2007			
IEC 61000-	-4-4: 2004				
IEC 61000-	-4-5: 2005				
IEC 61000-	-4-6: 2007				
IEC 61000-	-4-8: 1993 + A1	: 2000			
IEC 61000-	4-11: 2004				
FCC	47	CFR	Part	15	Subpart

Chapter 5 Frequent Asked Questions

Q1: Why the only DVI resolution option is 1024x768 under OS screen?

Answer:

It's the limitation of the PEB-5731-W board. In the BIOS or DOS, the four selections of resolution are only for BIOS or DOS setting not for OS screen. The DVI signal is converted from LVDS signal by Chrontel Ch7036-Chip. And the Chrontel Ch7036-Chip supports display resolution 1024x768 only. It's the design limitation.

Aptio Setup Utili Configuration	ty – Copyright (C) 2012 Ameri	can Megatrends, Inc.
Graphics Configuration Primary Display Internal Graphics Aperture Size	(IGFX) [Enabled] [256MB]	Select DVI Display Type
DVHT Pre-Allocated DVHT Total Gfx Mem Primary IGFX Boot Display Secondary IGFX Boot Display DVI Display Type	[256M] [256M] [DVI] DVI Display Type 1024x768 1280x1024	
	1360x768 1920x1080 For BIOS/DOS only	<pre>++: Select Screen f4: Select Item Enter: Select +/-: Change Opt. F1: General Help</pre>
	, or biologicous only	F2: Previous Values F3: Optimized Defaults F4: Save & Exit ESC: Exit

$\ensuremath{\mathrm{Q2:}}$ Why cannot detect the CFEX or mSATA device in BIOS or OS?

Answer:

Solution1) Please update the BIOS to the latest version.(After version R1.00.E3)

roject Name	PEB-5731-W
DIOS Version & Build Date	R1.00.E3 (04/22/2015 10:58:26)
C Version & Build Date	40410T00 (04/10/2014)
Processor Information	
lame	Haswell ULT
Brand String	Intel(R) Celeron(R) 2980U @ 1.60GHz
fotal Memory	4096 MB (DDR3L)
Memory Frequency	1333 Mhz
°CH Information Name °CH SKU	Lyn×Point-LP Premium SKU
1E Firmware Mode	N/A
1E FW Version	N/A
1E Firmware SKU	N/A
System Date	[Fri 05/15/2015]
System Time	[17:55:52]
Access Level	Administrator

WEBS-5481 User's Manual

Solution2) In the BIOS setting: **Step1:** Set Launch Storage OpROM as Enabled.

Boot Configuration		Contro
Bootup NumLock State		Enable
GateA20 Active	(0n)	3 December 1
Option ROM Messages	[Upon Request]	
INT19 Trap Response	[Force BIOS]	
and a nop weshouse	[Immediate]	
Launch Stonage OpRom	[Disabled]	
Full Screen Logo		
Post Report	[Enabled]	
Summary Screen	Launch Storage OpROM	
Fast Boot	Disabled	and the second se
Boot mode select	Enabled	Contraction of the
Frank ware stored to be back		tl: Sele
FIXED BOOT ORDER Priorities		Enter: S
Boot Option #1	[Hard Disk: TOSHIBA]	+/-: Cha
Boot Option #2	[USB Key]	F1: Gene
Boot Option #3	[Network]	F2: Prev
Boot Option #4	[Disabled]	F3: Opti
Boot Option #5	[Disabled]	F4: Save
Boot Option #6	[Disabled]	ESC: EXI
Boot Option #7	[Disabled]	COC. LAL

Step 2: In Configuration page, please set the Port 2 (CFEX), Port3 (mSATA) as Enabled. And then save the changes and restart the system. It can detect the CFEX and mSATA properly now.

Aptio Setup Utility - Copyright (C) 2012 Ar Main Configuration Boot Security Save & Exit CPU Configuration Chipset Configuration LAN Configuration Graphics Configuration PCI/PCIE Configuration USB Configuration Power Control Configuration TPM Configuration Super IO Configuration H/W Monitor Serial Port Console Redirection

Configuration	
Serial ATA Port 1	Empty
Port 1	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
SATA Device Type	[Solid State Drive]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]
Serial ATA Port 2	ECF7C-M 16GB (16.0GB)
Port 2	[Enabled]
Hot Plug	[Disabled]
External SATA	[Disabled]
SATA Device Type	[Hard Disk Drive]
Device Sleep	[Disabled]
SATA DEVSLEP Idle Timeout Config	[Disabled]
Serial ATA Port 3 Port 3 Hot Plug External SATA SATA Device Type Device Sleep SATA DEVSLEP Idle Timeout Confix	mSATA mini 3ME (32.068) [Enabled] [Disabled] [Disabled] [Hard Disk Drive] [Disabled]