# WEBS-2190

# Fan-less Embedded System



# User's Manual

Version 1.0

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## How to Use This Manual

The manual describes how to configure WEBS-2190 system to meet various operating requirements. It is divided into five chapters, with each chapter addressing a basic concept and operation of Fan-less Embedded System.

**Chapter 1: System Overview.** Present what may have in the box and give 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 can easily configure the 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	Date	Details of Change(s)			
V1.0	2015/4/21	Initial Release			

## Chapter 1 System Overview

### 1.1 Introduction

Portwell Inc., a world-leading innovator in the Industrial PC (IPC) market and a Premier Member of the Intel® Internet of Things (IoT) Solutions Alliance, announced WEBS-2190, a fan-less embedded system. Builds on Intel® Baytrail SoC and takes advantages of Intel® Atom<sup>™</sup> E3800 Series processor technologies, especially its compact design plus low power consumption.

Portwell's WEBS-2190 is designed to be power-optimized and value-optimized. Instead of adopting a mobile CPU like a traditional embedded system, WEBS-2190 utilizes the newest Intel® Atom<sup>™</sup> platform including two sku of Intel® Atom<sup>™</sup> E3845 and Intel® Atom<sup>™</sup> E3827, and Intel® Baytrail SoC chipset, which is more economical compared to its mobile counterpart and provides great efficacy as well as ultra low power consumption; this makes WEBS-2190 not only competitive but outstanding in the market. The system further takes advantage of the Intel® Atom<sup>™</sup> processor technologies supporting single channel DDR3L memory up to 4GB. Furthermore, the WEBS-2190 embedded system include rich I/O interfaces and fast connectivity with: two independent display (Display Port/VGA) interfaces, two Gigabit Ethernet ports, one RS-232/422/485 port, two USB 3.0 ports, and Line-out. An optional wireless or 3G module can be added via a Half-size Mini-PCIe socket.

The rugged, fan-less design makes the WEBS-2190 durable in harsh environment applications, such as factory automation and industrial automation. Portwell's WEBS-2190 has already passed a vibration test of 5Grms/ 5~500Hz and a shock test of 50G, assuring its solidity and reliability. In addition, the system accepts 12V input voltage. Moreover, the WEBS-2190 is more than a robust and dependable embedded system with high performance and graphics efficacy. Its stylish mechanical design enhances the system's artistry. Potential applications include POS, kiosk and digital signage, transportation and automation, etc.

## 1.2 Check List

The WEBS-2190 package should cover the following basic items:

- ✓ One WEBS-2190 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	NANO-6060	
System Chipset	Intel® Baytrail SoC	
CPU	Intel® Atom™ CPU E3845.	
	1.91GHz /4C/4T/DDR3 CPU.2M Cache.	
	Intel® Atom™ CPU E3827.	
	1.75 GHz /2C/2T/DDR3 CPU.1M Cache.	
BIOS	Phoenix BIOS Portwell ,Inc NANO-6060	
System Memory	One 204-pin SO-DIMM socket supports DDR3L 1066/1333	
	up to 4GB	
Storage	1x 2.5" SATA HDD/SSD, 1x Micro SD card	
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 Half-size Mini-PCIe socket	
External I/O		
Series Ports	1x RS-232/422/485 COM Port (selected by BIOS)	
Display	1x VGA, 1x DP	
USB	2x USB 3.0	
	(Expanded to 4x USB 3.0 + 2x USB 2.0 by customizing)	
Audio	Lin-out (Realtek ALC892)	
LAN	2x Gigabit Ethernet (Intel® I210IT)	
Other	1x Antenna hole for WIFI or 3G/GPS module	
Power Supply Unit		
Power Supply	DC 12V	
Environment		
Operating	-20°℃ to 60°℃	
Temperature		
Storage Temperature	-40°C to 80°C	
Relative Humidity	95% @ $40^{\circ}$ C , non-condensing	
Operating Vibration	5Grms/5~500Hz, IEC 60068-2-64	
Operating Shock	50G, 11 msec, IEC 60068-2-27	
Mechanical		
Dimension (WxDxH)	150x 150 x 53 mm; 5.9" x 5.9" x 2.1"	
Weight	1.3kg	
Mounting	Wall, Panel, and DIN Rail mounting	

## 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 NANO-6060."

## 2.1 HDD Installation

It's easy to install and maintenance the 2.5" HDD/SSD by just open the back cover. (The height must be less than 10mm)



Step 7. Position the back cover	Step 8. Tighten the 4 screws of the
	back cover
	e 
State State State	

## 2.2 Half-size Mini-PCIe Device Installation

It's easy to install and maintenance the 1x Half-size Mini-PCIe device by just open the back cover.



## 2.3 DIN Rail Mounting Device Installation

It's easy to install and maintenance the Din Rail mounting device by just open the back cover.



## 2.4 Micro SD card Installation

It's easy to install and maintenance the Micro SD card by just open the back cover.



## 2.5 AT mode setting

AT mode: Once the power supply plug in, the system starts automatically, don't need press the power button.

SW2: Power on selection



1

## 2.6 I/O Interfaces

### 2.6.1 Front View



### 2.6.2 Rear View



#### **Power Button:**

Press the power button to turn ON/OFF the system

#### HDD Led:

Shows real-time read and write activity of your HDD/SSD as a small blinking indicator

#### DC in: (12V)

Using the provided DC source to connect to the system

#### Antenna Hole:

Antenna holes for WiFi or 3G/GPS module

### Audio:

Connectors for Line-Out

### LAN:

Two Gigabit Ethernet (10/100/1000 Mbits/sec) LAN ports by using Intel 210IT Ethernet Controller

### <u>USB3.0</u>

Two USB 3.0 (Universal Serial Bus) ports

### VGA:

VGA – CRT display output

PIN No.	Signal Description	PIN No.	Signal Description
1	RED	2	SCL
3	GREEN	4	GND
5	BLUE	6	SDA
7	VSYNC	8	GND
9	HSYNC	10	+5V

PIN No.	Signal Description	PIN No.	Signal Description
1	D0+	2	GND
3	D0-	4	D1+
5	GND	6	D1-
7	D2+	8	GND
9	D2-	10	D3+
11	GND	12	D3-
13	AUX_EN#	14	GND
15	AUX+	16	GND
17	AUX-	18	Hot plug
19	GND	20	VCC3

#### **DP:** DP (Display Port) display output

### COM port:

• RS-232/4222/485

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

	U
Pin	Signal
1	DCD#/DT-
2	RXD#/DT+
3	TXD#/422R+
4	DTR#/422R-
5	GND
6	DSR#
7	RTS#
8	CTS#
9	RI#

## 2.7 Getting Started

It is easy to get the system started.

 Step 1. Make sure the power supply (12V) is connected properly
 Step 2. Press the power button to turn on the system

 Image: Construction of the system
 Image: Construction of the system



## Chapter 3 BIOS Setup Information

WEBS-2190 system adopts NANO-6060 mother board. NANO-6060 is equipped with the Phoenix BIOS stored in Flash ROM. These BIOS has a built-in Setup program that allows users to modify the basic system configuration easily. This type of information is stored in CMOS RAM so that it is retained during power-off periods. When system is turned on, NANO-6060 communicates with peripheral devices and checks its hardware resources against the configuration information stored in the CMOS memory. If any error is detected, or the CMOS parameters need to be initially defined, the diagnostic program will prompt the user to enter the SETUP program. Some errors are significant enough to abort the start up.

### 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 <F2> key will enter BIOS setup screen.

#### Press <F2> 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.

General Help
Setup changes system behavior by modifying the BIOS configuration. Selecting incorrect values may cause system boot failure; load Setup Default values to recover.
<pre><up down=""> arrows select fields in current menu. <pgup pgdn=""> moves to previous/next page on scrollable menus. <home end=""> moves to top/bottom item of current menu.</home></pgup></up></pre>
Within a field, <f5> or &lt;-&gt; selects next lower value and <f6> or &lt;+&gt; selects next higher value.</f6></f5>
<left right=""> arrows select menus on menu bar. <enter> displays more options for items marked with <math display="inline">\blacktriangleright</math>.</enter></left>
<f9> loads factory installed Setup Default values. <f10> saves current settings and exits Setup.</f10></f9>
${\rm \langle Esc \rangle}$ or ${\rm \langle Alt-X \rangle}$ exits Setup; in sub-menus, pressing these keys returns to the previous menu.
${\rm }$ or ${\rm }$ displays General Help (this screen) .

## 3.2 Main

Once you enter NANO-6060 Phoenix BIOS CMOS Setup Utility, a Main Menu is presented. The Main Menu allows user to select from eleven setup functions and two exit choices. Use arrow keys to switch among items and press <Enter> key to accept or bring up the sub-menu.

This setup page includes all the items in standard compatible BIOS. Use the arrow keys to highlight the item and then use the <PgUp>/<PgDn> or <+>/<-> keys to select the value or number you want in each item and press <Enter> key to certify it.

Follow command keys in CMOS Setup table to change Date, Time, Drive type, and Boot Sector Virus Protection Status.

### <u>Main</u>

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



### System Date

View or set system date

The date format is <Day>, <Month> <Date> <Year>. Use [+] or [-] to configure system Date.

### System Time

View or set system time The time format is <Hour> <Minute> <Second>. Use [+] or [-] to configure system Time.

### <u>System Information</u> Display System Information

	Phoenix SecureCore Technology Setup	
Hain		
	System Information	
HIOS Version BIOS Build Date EC Version EC Build Date Processor Type Processor Speed Systen Menory Speed L2 Cache RAM Total Menory 111 121	R1.00.W0 12/30/2013 31218701 12/18/2013 Intel(R) Atom(TH) CPU E3827 @ 1.74GHz 1.750 GHz 4 1333 MHz 512 KB 2040 MB 2048 MB 2048 MB (DDR3- 1333) @ DIMM0 0 MB	
	F1 Help 14 SelectItem →/- ChangeValues F9 SetupDefaults Esc Exit +→ SelectMenu Enter Select≻Sub-Menu F10 Save and Exit	

### **Boot Features**

#### Select Boot features

Phoenix SecureCore Technology Setup							
Hain Hain							
	Boot	Features					Item Specific Help
NumLock: Timeout Quick Boot Diagnostic Splash Screen Diagnostic Summary Screen HIOS Level USB Console Redirection Allow Hotkey in S4 resume UEFI Boot	Enable] Enable] Disable] Disable] Enable] Enable] Enable]						Selects Power-on state for NumLock.
		0.1.1.71				-	
F1	Help 14	Select Item	+/-	Change Valu	les l	19 Si	etup Vefaults
LSC	EXIC 🕶	Select Henu	Enter	Select ► Su	io-nenu I	10 2	ave and LXIT

#### NumLock:

Selects Power-on state for NumLock Choices: On, Off.

#### **Timeout**

Number of seconds that P.O.S.T will wait for the user input before booting Choices: 0-99 seconds.

#### Quick Boot

Enable/Disable quick boot Choices: Disable, Enable.

#### **Diagnostic Splash Screen**

If you select 'Enabled' the diagnostic splash screen always displays during boot. If you select 'Disabled' the diagnostic splash screen does not displays unless you press HOTKEY during boot Choices: Disable, Enable.

#### **Diagnostic Summary Screen**

Display the Diagnostic summary screen during boot Choices: Disable, Enable.

#### **BIOS Level USB**

Enable/Disable all BIOS support for USB in order to reduce boot time. Note that this will prevent using a USB keyboard in setup or a USB biometric scanner such as a finger print reader to control access to setup, but does not prevent the operating system from supporting such hardware Choices: Disable, Enable.

#### **Console Redirection**

Enable/Disable Universal Console Redirection Choices: Disable, Enable.

#### Allow Hotkey in S4 Resume

Enable hotkey detection when system resuming from Hibernate state Choices: Disable, Enable.

#### **UEFI Boot**

Enable the UEFI boot. Choices: Disable, Enable.

### Error Manager

	Phoenix Secure	Core Technology Setup	
Hain Hain			
	Error Manager		Item Specific Help
View Error Manager Log (Ente Clear Error Manager Log (Ente	Error Manager		Item Specific Help Display Error Manager Log information.
F1 He	lp 11 Select Iten +/-	Change Values F9 S	etup Defaults
Esc Ex	it 🕶 Select Menu Enter	Select > Sub-Menu F10 S	ave and Exit

### Display Error Manager Log information.

#### View Error Manager Log Display Error Manager Log information

(	Phoenix Secure	Core Technology Setup	
Hain			
	View Err	ror Manager Log	
01020003: Error minor, Mouse Type: 40000002 Handle: 0 TimeStamp: 01/07/2014 14: Summary Text: PS/2 Mouse M	> NOT_DETECTED 26 of Detected		
F1 Esc	Help 11 Select Iten +/- Exit ↔ Select Menu Enter	Change ValuesF9Select ► Sub-MenuF10	Setup Defaults Save and Exit

## Clear Error Manager Log

Clear Error Manager Log.

## 3.3 Advanced

This section allows you to configure your system for basic operation. You have the opportunity to select the system's default speed, boot-up sequence, keyboard operation, shadowing and security. **Setup Warning:** 

Setting items on this screen to incorrect values may cause system to malfunction!

**Advanced** 

Hain Advanced Others	s Security Boot Exit	
Setup Warning: Setting items on this screen values may cause system to ma	to incorrect ilfunction!	Item Specific Help
Select Language • CPU Configuration • Uncore Configuration • System Component • South Cluster Configuration	[English]	
• Security Configuration OS Selection	[Vindows]	
F1 Esc	telp †4 Select Item →/- Change Values F9 Se Exit ↔ Select Menu Enter Select > Sub-Menu F10 Sa	tup Defaults ve and Exit

**<u>CPU Configuration</u>** 

Advanced	Phoenix Sec	ureCore Technology Setup	
	CPU Configuration		Item Specific Help
CPU Configuration Active Processor Cores Execute Disable Bit Limit CPUID Maximum Bi-directional PROCHOTS UTX-2 TM1 DTS	(111) Enable] Disable] Enable] Enable] Enable] Enable] Enable]		Number of cores to enable in each processor package
▶ CPU Power Management			
F	1 Help 14 SelectItem →/ Sc Exit ↔ SelectMenu En	– Change Values F9 Sø ter Select 🕨 Sub-Menu F10 Sø	etup Defaults ave and Exit

#### **Active Processor Cores**

Number of cores to enable in each processor package Choices: All, 1.

#### **Execute Disabled Bit**

Execute Disabled Bit prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS Choices: Disable, Enable.

#### Limit CPUID Maximum

Disabled for Windows XP Choices: Disable, Enable.

#### **Bi-directional PROCHOT#**

When a processor thermal sensor trips (either core), the PROCHOT# will be driven If bi-direction is enabled, external agents can drive PROCHOT# to throttle the processor Choices: Disable, Enable.

#### <u>VTX-2</u>

To enable or disable the VTX-2 Mode support Choices: Disable, Enable.

#### <u>TM1</u>

Enable/Disable TM1 Choices: Disable, Enable.

### <u>DTS</u>

Enabled/Disable Digital Thermal Sensor Choices: Disable, Enable.

#### <u>CPU Power Management</u> System Power Options

Phoenix SecureCore Technology Setup	
CPU Power Management	Item Specific Help
CPU Power Management System Power Options Intel OP SpeedStep (ta) Intel® Turbo Boost Technology C-States Intel® Turbo Boost Technology Disable Intel®	Item Specific Help Enable processor performance states (P-States).
F1 Help 11 Select Item +/- Change Values F9 : Esc Exit ↔ Select Menu Enter Select > Sub-Menu F10 :	Setup Defaults Save and Exit

### Intel® SpeedStep™

Enable processor performance status (P-Status) Choices: Disabled, Enabled.

#### **Boot performance mode**

Select the performance state that the BIOS will set before OS handoff Choices: Max Performance, Max Battery.

#### Intel® Turbo Boot Technology

Enable to automatically allow processor cores to run faster than the base operation frequency if it's operating below power, current, and temperature specification limits.

Choices: Disable, Enable.

#### **C-States**

Enable/Disable C States Choices: Disable, Enable.

#### **Enhanced C-States**

Enable/Disable C1E, C2E and C4E. When enabled, CPU will switch to minimum speed when all cores enter C-State Choices: Disable, Enable.

#### Max C State

This option controls the Max C State that the processor will support Choices: C7, C6, C4, C1.

### **Uncore Configuration**

Advanced	Phoenix SecureCore Technology Setup	
	Uncore Configuration	Item Specific Help
GOP Configuration GOP Driver	[Enable]	
IGD Configuration Integrated Graphics Device Primary Display RCG (Render Standby) PAUC GTT Size Aperture Size DUMT Pre-Allocated Spread Spectrum clock	[Enable] [Auto] [Disable] [LITE Mode] [2M8] [256MB] [64M] [Disable]	
IGD - LCD Control Force Lid Status BIA LCD Panel Type IGD Boot Type Panel Scaling	ION] [Auto] [Auto] [UGA Port] [Auto]	
F1 Esc	Help 14 Select Item +/- Change Values F9 Se Exit ↔ Select Menu Enter Select ▶ Sub-Menu F10 Sa	stup Defaults we and Exit

### **GOP Configuration (Show only)**

#### **GOP Driver (Show only)**

Enable GOP Driver will unload VBIOS; Disable it will load VBIOS Choices: Enable, Disable.

#### IGD Configuration (Show only)

Integrated Graphic Device (Show only) Enable: Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adapter. Disable: Always disable IGD Choices: Disable, Enable.

#### Primary Display (Show only)

Select which of IGD/PCI Graphics device should be Primary Display. Choices: Auto, IGD, PCIe.

#### RC6 (Rander Standby) (Show only)

Check to enable render standby support Choices: Enable, Disable.

#### PAVC (Show only)

Enable/Disable Protected Audio Video control. Choices: Enable, Disable.

#### GTT Size (Show only)

Select the GTT Size Choices: 1MB, 2MB.

#### Aperture Size (Show only)

Select the Aperture Size Choices: 128MB, 256MB, 512MB.

#### **DVMT Pre-Allocated (Show only)**

Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory sized used by the Internal Graphic Device Choices: 32M, 64M, 96M, 128M, 160M, 192M, 224M, 256M, 288M, 320M, 352M, 384M,416M, 448M, 480M, 512M.

#### Spread Spectrum clock (Show only)

Enable clock chip Spread Spectrum feature Choices: Disable, Enable.

#### IGD - LCD Control (Show only)

#### Force Lid States (Show only)

For test: Force to set lid status as on or off Choices: OFF, ON.

#### <u>BIA</u> Chairea

Choices: Auto.

#### LCD Panel type

Choices: 640 x 480, 800 x 600, 1025 x 768, 1280 x1024, 1400 x1050, 1600 x 1200, 1360 x768, 1680 x 1050, etc.

#### IGD Boot Type

Select preference for Integrated Graphics Device (IGD) display interface used when system boots Choices: Auto, VGA Port, DP, LVDS.

### Panel Scaling (Show only)

Select the LCD Panel scaling option used by Internal Graphic device Choices: Auto, Centering, Stretching.

### System Component

				Pho	oenix	SecureC	iore Tec	hnology Set	ıp	
Advanced										
										1
		5	Syste	n Conpoi	nent					Item Specific Help
PMIC Configuration PMP Setting	(Power8	iPer for	manc							Select PMP setting mode, Disable, Performance, Power or Power&Performance mode
	F1	Hele	11	Select	Ttee	+/-	Change	llaines	Fq	Setun Defaults
	Esc	Exit	++	Select	Menu	Enter	Select	▶ Suh-Menu	FIR	Save and Exit
	106	2012-0		001001	-sound	Antel	001006	- ouo nonu	1.10	ANA NIM TUTA

### **PMIC Congfiguration**

#### **PNP Setting**

Select PNP setting mode, Disable, Performance, Power or Power&Performance mode.

Choices: Disable, Performance, Power, Power & Performance

### **South Cluster Configuration**

Phoenix SecureCore Technology Setup Advanced								
South Cluster Configuration	Item Specific Help							
<ul> <li>PCI Express Configuration</li> <li>USB Configuration</li> <li>SMTA Drives</li> <li>LPSS &amp; SCC Configuration</li> <li>Miscellaneous Configuration</li> </ul>	PCI Express Configuration Settings							
F1 Help †1 SelectIten +/- Change Values F9 Sa Esc Exit ↔ SelectMenu Enter Select ▶ Sub-Menu F10 Sa	etup Defaults nve and Exit							

PCI Express Configuration PCI Express Configuration Settings

		Phoenix	SecureC	ore Technology S	etup	
Advanced						
	PCI Expre	ess Configurati	on			Item Specific Help
PCI Express Root Port 1 PCI Express Root Port 2 PCI Express Root Port 3 PCI Express Root Port 4	PCI Expre	ess Configurati	on			Item Specific Help Control the PCI Express Root Port.
F	1 Help 14	Select Item	+/-	Change Values	F9 S	etup Defaults
E	lsc Exit ↔	Select Menu	Enter	Select ► Sub-Me	nu F10 S	ave and Exit

### PCI Express Root Port #1 - #4

Control PCI Express root port Choices: Enable, Disable.

### **USB** Configuration

USB Configuration settings

Advanced	Phoenix SecureCore Technology Setup	
	USB Configuration	Item Specific Help
XHCI Mode XHCI Link Power Management USB OTG Support EHCI Controller USB Per-Port Disable Control USB Port #0 Disable USB Port #2 Disable USB Port #2 Disable USB Port #3 Disable	USB Configuration Thable Enable Disable En	Mode of operation of XHCI controller.
F1 H Esc E	elp 14 SelectItem +/- Change Values F9 So xit ↔ SelectMenu Enter Select⊁Sub-Menu F10 So	etup Defaults we and Exit

#### XHCI Controller

Enable/Disable XHCI Controller Choices: Enable, Disable.

#### xHCI Mode

Mode of operation of xHCI controller Choices: Smart Auto, Auto, Enable, Disable.

#### **USB OTG Support**

Enable/Disable USB OTG Support Choices: Disable, PCI Mode, ACPI Mode.

### **EHCI Controller (Show only)**

Control each of the USB ports (0~9) disabling Choices: Enable, Disable.

#### **USB Per-Port Disable Control**

Control each of the USB ports (0~3) disabling Choices: Disable, Enable.

#### USB Per-Port #0 ~ #3 Disable

Disable USB port Choices: Disable, Enable.

#### **Audio Configuration**

Audio Configuration Settings

Advanced		FIDENTA SECURE	ore recamorogy setu	Ϋ́		
	Audio Confi	iguration			Item Specific Help	
Audio Configuration LPE Audio Support Audio Controller	( <mark>Disable</mark> ) (Enable)					
	F1 Help 14 Se Esc Exit ↔ Se	lect Iten +/- lect Menu Enter	Change Values Select ► Sub-Menu	F9 Setup l F10 Save a	Defaults nd Exit	

#### LPE Audio Support

Choices: Disable, LPE Audio PCI mode, LPE Audio ACPI mode.

#### Audio Controller

Control Detection of the Azalia device. Disabled = Azalia will be unconditionally disabled. Enabled = Azalia will be unconditionally enabled. Choices: Disable, Enable.

### SATA Drives

Press<Enter> to select the SATA Device Configuration Setup options.

Advanced	Phoenix Secure	iore Technology Setup	
SATA	Drives		Item Specific Help
SATA Drives Chipset SATA Controller Configuration Chipset SATA SATA Test Mode Chipset SATA Mode SATA Port 0 Hot Plug Capability SATA Port 1 Hot Plug Capability	( <mark>Inable)</mark> Disable] (AHCI) Disable] Disable]		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).
F1 Help †∔ : Esc Exit ↔ :	Select Iten +/- Select Menu Enter	Change Values P9 Select ► Sub-Menu F1	9 Setup Defaults 10 Save and Exit

#### Chipset SATA

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

#### SATA Test Mode

Test Mode Enable/Disable Choices: Enable, Disable.

#### **Chipset SATA Mode**

IDE: Compatibility mode disables. AHCI support: Supports advanced SATA features such as Native Command Queuing. Warning: OS may not boot if this setting is changed after OS install. Choices: IDE, AHCI.

#### Serial Port 0/1 Hot Plug Capability

If enabled, SATA port 0/1 will be reported as Hot Plug capable. Choices: Enable, Disable.

### LPSS & SCC Configuration

Phoenix Secure	Core Technology Setup
Advanced	
LPSS & SCC Configuration	Item Specific Help
OS Selection [ <u>Windows</u> ]	
LPSS & SCC Devices Mode [PCI Mode]	
SCC SD Card Support [Enable]	
F1 Help †4 Select Item +/- Esc Exit ↔ Select Menu Enter	Change Values F9 Setup Defaults Select > Sub-Menu F10 Save and Exit

#### **OS** Selection

Choices: Windows, Android.

### LPSS & SCC Devices Mode

Choices: ACPI Mode, PCI Mode.

### SCC SD Card Support

Choices: Disable, Enable.

### **Miscellaneous** Configuration

	Phoenix SecureCore Technology Setup	
Advanced		
Mi	scellaneous Configuration	Item Specific Help
Miscellaneous Configuration State After 63 SMM LOCK Pci Mmio Size	[5 State] [Enable] [168]	Specify what state to go to when power is re-applied after a power failure (G3 state)
F1 Esc	Help 14 SelectItem +/- ChangeValues F9 Se Exit ↔ SelectMenu Enter SelectトSub-Menu F10 Se	etup Defaults ave and Exit

#### State After G3

Specify what state to go to when power is re-applied after a power failure (G3 state)

Choices: S0 State, S5 State.

#### SMM LOCK

Enable/Disable SMM Lock feature. It will lock the SMRAM and unable load SMM driver any more. Choices: Disable, Enable.

#### Pci Mmio Size

Pci Mmio Size. Choices: 2 GB, 1.5 GB, 1.25 GB, 1GB. **3.4 Others** 



## SIO Configuration

	Phoenix SecureCore Technology Setup	
Ot	hers	
	SID Configuration	Item Specific Help
Serial Port Serial Port 1	( <u>3F9/TRQ4</u> )	
CDM1 Configuration	IRS-2321	
Vatch Dog Timer Vatch Dog Timer Select	Disable)	
F1 Es	Help 14 Select Iten →/- Change Values F9 Se c Exit ↔ Select Menu Enter Select → Sub-Menu F10 Sa	tup Defaults ve and Exit

#### Serial Port 1

Choices: Disable 3F8/IRQ4.

## **COM1** Configuration

Select COM1 Configuration. Choices: RS-232, RS-422, RS-285.

### Watch Dog Timer Select

Choices: Disable, 15 secs, 30 secs, 1 min, 2 mins, 3 mins.

### Hardware Monitor

Oth	ers	Phoenix Secure	Core Technology Setup		
		Hard	ware Monitor		
CPU_TEMP [ 37 °C ] SYS_TEMP [ 29 °C ] UCORE [ 0.04 U ] 3.3U [ 3.29 U ] 5.0U [ 5.01 U ] 12.0U [ 12.17 U ] 1.35U [ 1.32 U ]		Hard	ware Monitor		
F1 Esc	Help 1↓ Exit ↔	Select Item +/- Select Menu Enter	Change Values I Select ► Sub-Menu I	9 Setup Defaults 10 Save and Exit	

### **APM Configuration**

				Pho	enix 🛛	SecureC	ore Tec	hnology Setu	ıp		
	Other	S 📕									
						APM Co	mfigura	tion			
	Disa	ble									
Wake on Lan1	(Enab	lel									
Wake up by King	LDisa	blej									
	F1 Fee	Help	11	Select	Iten	+/- Enter	Change Select	Values	F9 F10	Setup Defaults Saug and Exit	
	LSU	LAIL	**	JEIECT	nend	Liner	JEIECT	➤ ouu-menu	110	Jave and LAIL	

#### Power On By RTC Alarm

Choices: Disable, Enable.

#### Wake on LAN1

Choices: Disable, Enable.

#### Wake up by Ring

Choices: Disable, Enable.

### 3.5 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. Some systems have a single password, while many newer ones now have two: a supervisor and a user password.

Bits       Mdwared       Utwess       Security       Most       Edit         Supervisor Password is:       Cleared       Item Specific Help         Set Supervisor Password is:       Cleared       Set or clear the Supervisor         Set Supervisor Password is:       Cleared       Set or clear the Supervisor         Set User Password       Enterl       Item Specific Help         User Hint String       I       I       Set or clear the Supervisor         Authenticate User on Boot       Disable       Item Specific Help       Set or clear the Supervisor         HD9 Security States       Item Password       Enterl       Item Specific Help         HD9 Actected       Trustel Platform Robule (TRO)       Item Specific Help       Item Specific Help         TM not detected       Trustel Platform Robule (TRO)       Item Specific Help       Item Specific Help         Efficient Robule (TRO)       Item Specific Help       Item Specific Help       Item Specific Help         If Help 11 Select Item 2       Change Waltes       P. Sciep Defaults		Phoen i	x SecureCore Te	chnology Setup	
Image: Password is:       Cleared       Set Cleared         Set Supervisor Password is:       Cleared       Set or clear the Supervisor account's password.         Set User Password is:       Cleared       Image: Password is:       Set or clear the Supervisor account's password.         Set User Password length       I       I       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       I       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       Image: Password is:       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       Image: Password is:       Set or clear the Supervisor account's password.         Min. password length       I       Image: Password is:       Set or clear the Supervisor account's password.         Tracted Platform Mobile (TMO)       Image: Password is:       Set or clear the Supervisor account's password.	Main Advanced Others	Security	oot Exit		
Set Supervisor Passaord       Impact of the Supervisor account's passaord.         Set User Passaord       Enterl         User Hint String       I         Hin. passaord length       I         Athenticate User on Boot       Disable)         HOD Security Status         No HDD detected         Trusted Platform Module (TM)         TM not detected         Invoted Platform Module (TM)         TM not detected         Platform Module (TM)         TM not detected         Platform Module (TM)         TM not detected         Platform Module (TM)         Platform Module (TM)         TM not detected         Platform Module (TM)         Platform (TM)<	Supervisor Password is: User Password is:	Cleared Cleared			Item Specific Help
Set User Passord       [Enter]         User Hint String       I         Hin. passord length       I 1         Authenticate User on Boot       Disable]         HOD Security Status No HOD detected       Insatel Platform Module CTMO Tiff not detected         Trusted Platform Module CTMO       If Not detected         If not detected       If Not detected	Set Supervisor Password Supervisor Hint String	( <mark>Enter</mark> ) C	1		Set or clear the Supervisor account's password.
Hin. password length       1 11         Authenticate User on Boot       Disable1         HDD Security Status       No HDD detected         Trustel Platform Module (TPM)       Tested Platform Module (TPM)         TM not detected	Set User Password User Hint String	[Enter] [	1		
Authenticate User on Boot Disable HDD Security Status No HDD detected Trusted Platform Module (TPM) I'M not detected EI Help 11 Select Item :/- Change Values PJ Setup Defaults	fin. password length	111			
HDD Security Status No HDD detected Trusted Platform Module (TPM) TMT mot detected	Authenticate User on Boot	(Disable)			
Irusted Platform Module (TPM) IPM not detected  F1 Help 11 Select Item -/- Change Values F9 Setup Defaults	HDD Security Status No HDD detected				
F1 Help 11 Select Item +/- Change Values F9 Setup Defaults	Trusted Platform Module (TPM) TPM not detected				
F1 Help 11 Select Iten +/- Change Values P9 Setup Defaults					
F1 Help 14 Select Item +/- Change Values F9 Setup Defaults					
Scr. Exit 44 Select News Enter Select & Sub-News Fill Save and Feit	F1 H	elp 14 Select Ite	n +/- Changu u Enter Selec	e Values F9 t N Sub-Manu E10	Setup Defaults Saug and Exit

#### Set Supervisor Password

Set or clear the Supervisor account's password.

#### **Supervisor Hint String**

Press Enter to type Supervisor Hint String.

### Set User Password (Show only)

Set or clear the User account' password.

### **Supervisor Hint String (Show only)**

Press Enter to type User Hint String.

#### Min. password length

Set the minimum number of characters for password (1-20).

## 3.6 Boot

Use this menu to specify the priority of boot devices.



### **Boot Priority Order**

Keys used to view or configure devices:  $\uparrow$  and  $\downarrow$  arrows Select a device. '+' and '-'move the device up or down. 'Shift + 1' enabled or disables a device. 'Del' deletes an unprotected device.

## 3.7 Exit

This menu allows you to load the BIOS default values or factory default settings into the BIOS and exit the BIOS setup utility with or without changes.



#### **Exit Saving Changes**

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

#### **Exit Discarding Changes**

Equal to ESC, never save changes, then exit setup configure driver.

#### Load Setup Defaults

Equal to F9. Load standard default values.

#### **Discard Changes**

Load the original value of this boot time. Not the default Setup value.

#### Save Changes

Save all changes of all menus, but do not reset system.

## **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

### **EMC**

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: 2007, Class A EN 61000-3-2: 2006 EN 61000-3-3: 1995 + A1: 2001 + A2: 2005 EN 55024: 1998 + A1: 2001 + A2: 2003 IEC 61000-4-2: 2008 IEC 61000-4-3: 2006 + A1: 2007 IEC 61000-4-3: 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: When forget the password of system BIOS, what supposed to do?

Answer:

Please turn off the power supply, and then find the JP7/8 to set it from 1-2 short to 2-3 short and wait 5 seconds to clean password then set it back to 1-2 short to turn on power supply.

|--|

JP7/8	Function
1-2 Short	Normal Operation (default)
2-3 Short	Clear CMOS Contents





### Q2: How to update BIOS?

Answer:

**Step1.** Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <F2> key will enter BIOS setup screen.



**Step2.** Set the Boot priority Order "Internal Shell" to the first one.



**Step3.** Exit Boot and saving changes.



**Step4.** Please plug in USB device with the BIOS file. And then restart the system. (Portwell Download Center:

http://www.portwell.com.tw/support/download\_center.php)



If didn't get the USB device, please restart the system. <Ctrl+Alt+Delete>

**Step5.** Change direction to USB device (ex. fs0:), and then change to BIOS file folder(ex. cd BIOS\_NANO-6060\_R100W4). Now, please key in "UPDATE" to start to update the latest BIOS.



Step6. The BIOS update is finish!



Step7. Reset the system<Ctrl+Alt+Delete>, and check the BIOS version is updated.



### $\ensuremath{\mathrm{Q3:}}$ How to set OS Selection for different OS?

Answer:

**Step1.** Power on the computer and the system will start POST (Power On Self Test) process. When the message below appears on the screen, press <F2> key will enter BIOS setup screen.



**Step2.** In page "Advanced", please choose the corresponding OS. **\*\***Linux please chooses Windows7.

BATH	Advanced	Others -	Statut Lto	Unot	Exit	THE OTHER PROPERTY.		
Setup U	arnings							Item Specific Help
Setting	items on this may cause syst	screen to en to malfi	incorrect motion!					OS Selection
Select CPU Con Uncore System South C Securit	Language figuration Configuration Component Cluster Configuration by Configuration	IE aration on	oglishi					
US Sele		Q	Indous?					
					Vindows 8.) Android VIndows7			
		F1 He Esc Ex	lp 11 Selec it ↔ Selec	t Iten 🛷 t Menu En	ter Select	Values • Sub-Menu	F9 F10	Setup Defaults Save and Exit

 ${\rm Q4}{\rm :}$  The keyboard and mouse cannot work at desktop screen, what supposed to do?

Answer:

The hanging up situation happened, and the keyboard and mouse cannot work anymore, the system just freeze and no more reaction from any operation. Please unplug the power adapter and power on again, the system works properly. Enter the BIOS again, and please change the USB setting to: XHCI => Enable, EHCI => Disable.

	ton Configuration
NHCE Hode NHCE Link Power Hanagement ISB DTG Support	IEnablel (Disable)
DECL Controller USB Per-Part Control USB Part #0 USB Part #1 USB Part #2 USB Part #3	[Disable] Enable] (Enable] (Enable] (Enable] (Enable]

The Windows works properly, and it's no freezing issue after restart the system. Those two USB 3.0 ports will control by XHCI as well.



# $\rm Q5:$ The screen cannot display while using DP to HDMI cable, what supposed to do?

Answer:

Because NANO-6060 DP Spec don't support Dual mode display function, please use DP to HDMI Converter cable with active mode support

Reference DP to HDMI Converter Cable spec: http://www.lpc.com.tw/product\_info.php/products\_id/1504



The system with new DP port works properly, please use the same spec cable.

### Q6: The BIOS can't get TXE version, what supposed to do?

Answer:

When entering the BIOS screen, the TXE version shows "0.0.0.0". Please update to the latest BIOS version, and then it shows TXE version normally.

(Portwell Download Center:

http://www.portwell.com.tw/support/download\_center.php)

Advanced	
Sec	urity Configuration
THE Configuration	
TXE FW Version	0.0.0
TXE FV Capabilites	N/A
IXE FW Features	N/A
TXE FW OEH Tag	N/A
TXE Firnware Mode	Normal
TXE File System Integrity Value	θ
THE	(mable)
THE HHRFPO	[Disable]
THE Firmware Update	[Enable]
TXE EOP Message	[Enable]
TXE Unconfiguration Perform	

Advanced	Phoenix SecureCore Techno
Sec	curity Configuration
THE Configuration THE FW Version THE FW Capabilites THE FW Features THE FW DEM Tag THE Firmware Mode THE File System Integrity Value THE THE HMRFPO THE Firmware Update THE FOP Message THE Unconfiguration Perform	1.0.2.1060 A0001040 A0001040 00000000 Normal 0 Intable Enable Enable Enable

### Q7: How to use the USB 3.0 and install the driver in Windows 7?

Answer:

This situation only happened in Windows 7. If the operating system is Windows 8, the following operation doesn't need.

Windows 7 USB 3.0 driver installation procedure:

**Step1**. Set XHCI Mode to [Disable] and EHCI Controller to [Enable] before installing Windows 7.

	USB Configuration
XHCI Mode	Disable]
XHCI Link Power Management	(Enable)
USB OTG Support	( <mark>Disable</mark> )
EHCI Controller	Enable]
USB Per-Port Disable Control	Enable]
USB Port #0 Disable	Enable]
USB Port #1 Disable	Enable]
USB Port #2 Disable	Enable]
USB Port #3 Disable	Enable]

**Step2.** After complete the Windows 7 installation, and then adjust the BIOS setting of XHCI mode to [Smart Auto] and keep EHCI Controller as [Enable].

Advanced Advanced	Phoenix SecureCore Technology S
	USB Configuration
XHCI Mode	[Smart Auto]
XHCI Link Power Management	IEnablel
USB OTG Support	Disable
EHCI Controller	[Enable]
USB Per-Port Disable Control	[Enable]
USB Port #0 Disable	IEnableJ
USB Port #1 Disable	IEnablel
ISH Port #2 Disable	[Enable]
tion for c we preatore	

Step3. Boot into Windows 7 and install the USB 3.0 driver.



**Step4.** After installing the USB 3.0 driver, set XHCI Mode to [Enable] and EHCI Controller to [Disable] for preventing the system freeze problem.

	USB Configuration
	Con contriguration
WHCI Mode	Enablel
WHCI Link Power Management	[Enable]
USB OTG Support	Misshlal
	(DISAUTE)
ISR Per-Pert Disable Control	Disable
USB Port #0 Bisable	ILDADIEJ [Enable]
USB Port #1 Disable	[Enable]
USB Port #2 Disable	[Enable]
	Itnablei

Follow the above 4 steps, the USB 3.0 can work fine on Windows 7.

# Q8: It cannot detect the CPU core amount correctly at the device management, what supposed to do?

Answer:

This situation is happened in using the windows 7 32bit.

It cannot detect the two CPU core at the device management, but it can detect the two CPU core at the task manager.



The solution is to upgrade the BIOS, and then it can detect the two CPU core at the device management.

### (Portwell Download Center:



### http://www.portwell.com.tw/support/download center.php)

### Q9: There are three unknown devices in device management, what supposed to do?

Answer:

This situation is happened in Windows 7 32 bit or 64 bit. Those devices are no need to use for Bay Trail platform. Please upgrade to the latest BIOS. It will hide them and won't confuse for that.

(Portwell Download Center:

http://www.portwell.com.tw/support/download\_center.php)

