



Custom Embedded Solutions

Network Appliance

**PL-83300**

User's Manual

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# Chapter 1. General Information

## 1.1 Introduction

The PL-83300 is an Intel®-based platform designed for network service applications. Supporting the Intel® Embedded Bay Trail-I (code name) SOC chipset, the PL-83300 is built with exceptional Intel® embedded components guaranteeing longevity. The PL-83300 is a rugged design DIN-rail mountable, fanless hardware platform designed for industrial automation, power substation, transportation and potentially explosive environments. The PL-83300 series implement isolated protection design on Serial, Ethernet, power input and DI/DO ports for supporting comprehensive challenging industrial applications. The system provides a power input range of 9 to 48 VDC to enable the use of the same type of power source at different system voltage requirements around the globe. In addition, the power module supports dual isolated redundant functionality to increase the reliability of your communications system and to save on cabling/wiring costs.

The PL-83300 series includes two models according to different communication requirements. PL-83300E features 6 isolated Ethernet RJ45 GbE and 2 isolated Serial ports (RS-232/422/485).

PL-83300E and PL-83300S support 1 pair of bypass function for greater operational flexibility. Models with an extended operating temperature range of -40 to 75°C are also available. The PL-83300 series are compliant with a number of particular sections in terms of power, transportation and industrial automation applications; covering operating temperature, power input voltage, surge, ESD and vibration, making the system suitable for a variety of industrial applications.

The platform supports onboard DDR3L 2GB memory up to a maximum of 4GB according to the type of SoC selected. In order to provide the best network performance and utilization, the device is equipped with storage interfaces including swappable 2.5" SATA HDD and CompactFlash™. For network security, the PL-83300 is equipped with 6 Copper GbE, USB 2.0 ports, RJ-45 console port and an mini-card socket with LED indicators for monitoring power, storage device activities for local system management, maintenance and diagnostics.

## 1.2 Specifications

<b>Processor System</b>	CPU	Intel® Bay Trail-I E3815/E3827/E3845 processor
	Chipset	Intel® Bay Trail-I SOC
	BIOS	AMI BIOS
<b>Memory</b>	Technology	Onboard Un-buffered and Non-ECC DDR3L
	Capacity	Onboard 2 GB (E3815) and 4 GB (E3827/E3845)
<b>Expansion</b>	Expansion Slots	Mini-PCIe Slot (optional)
<b>Ethernet</b>	GbE Ethernet	PL-8330E: 6 RJ45 GbE ports, Intel I210IT PL-8330S : 2 RJ45 GbE ports Intelli210IT
	LAN bypass	One pair
<b>Storage</b>	SATA HDD	One swappable SATA 2.5" SSD/HDD bay
	Compact Flash Socket	One CompactFlash™ Type II
<b>I/O</b>	USB	Three USB ports
	Serial (RS-232/422/485)	PL-8330E : 2 RJ45 isolated Serial ports PL-8330S : 6 RJ45 isolated Serial ports
	PS/2 KB/Mouse	N/A
	GPIO	4 isolated GPI and 4 isolated GPI pins
<b>Power Supply (Optional)</b>	Watt	DIN-rail 60W power supply, AC to DC 12V
<b>Mechanical and Environment</b>	Form Factor	DIN-rail
	LED	Power, Status, HDD and Bypass LEDs Ethernet ports Active/Link status LEDs
	Dimension ( W x D x H )	80 mm (W) x 140 mm (D) x 170 mm (H) (3.1" W x 5.5" D x 6.7" H)
	Operating Temperature	Operating: -40 ~ 75°C ( -40 ~ 167°F )
	Storage Temperature	-40 ~ 85°C (-40 ~ 185°F)
	Humidity	5 ~ 95% relative humidity, non-operating, non-condensing
	Certification	CE/FCC Optional - UL508,

## 1.3 Ordering Information

### Accessories for PL-83300 appliance

<b>PL-8330E-S15 / D17 / Q19</b>	DIN-rail Fanless System with Intel ATOM E3815 / E3827 / E3845, DDR3, 6 copper GbE and 2 Serial ports, SATA, CF, Bypass
<b>PL-8330S-S15 / D17 / Q19</b>	DIN-rail Fanless System with Intel ATOM E3815 / E3827 / E3845, DDR3, 2 copper GbE and 6 Serial ports, SATA, CF, Bypass
<b>DK</b>	<p><b>Cable development kit</b></p> <p>CB-CO5204-00 Cross over cable</p> <p>CB-EC5200-00 Ethernet cable</p> <p>CB-RJDB97-00 RJ45 to DB9 cable</p> <p>CB-IVGA01-00 VGA cable</p> <p>CB-IPS200-00 KB/MS cable</p> <p><b>DIN-rail power supply</b></p> <p>GP006-205 12VDC/75W dual output power supply</p>

## 1.4 Packaging

Please make sure that the following items have been included in the package before installation.

1. PL-83300 Appliance
2. DIN-rail Kit
3. Quick Installation Guide (Optional)
4. Cables (Optional)

If any of the above items are missing or damaged, please contact WIN Enterprises. Keep the box and carton for possible shipment or storage use. After you unpack the goods, inspect and make sure the packaging is intact. Do not plug the power adapter to the PL-83300 if it appears damaged.

*Note: Keep the PL-83300 in the original packaging until you begin installation.*

## 1.5 Precautions

Please make sure you properly ground yourself before handling the PL-83300 appliance or other system components. Electrostatic discharge can be easily damage the PL-83300 appliance.

Do not remove the anti-static packing until you are ready to install the PL-83300 appliance.

Ground yourself before removing any system component from the protective anti-static packaging. To ground yourself grasp the expansion slot covers or other unpainted parts of the computer chassis.

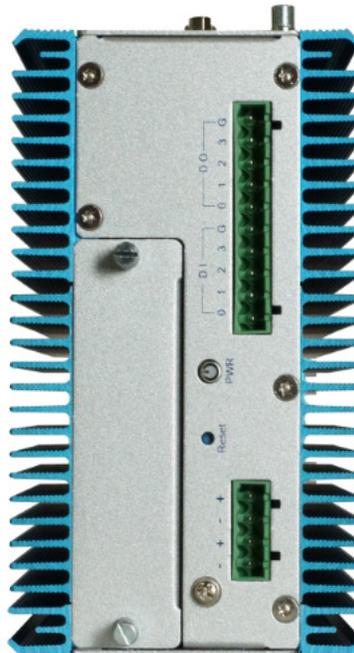
Handle the board of the PL-83300 appliance by its edges and avoid touching the components.

## 1.6 System Layout

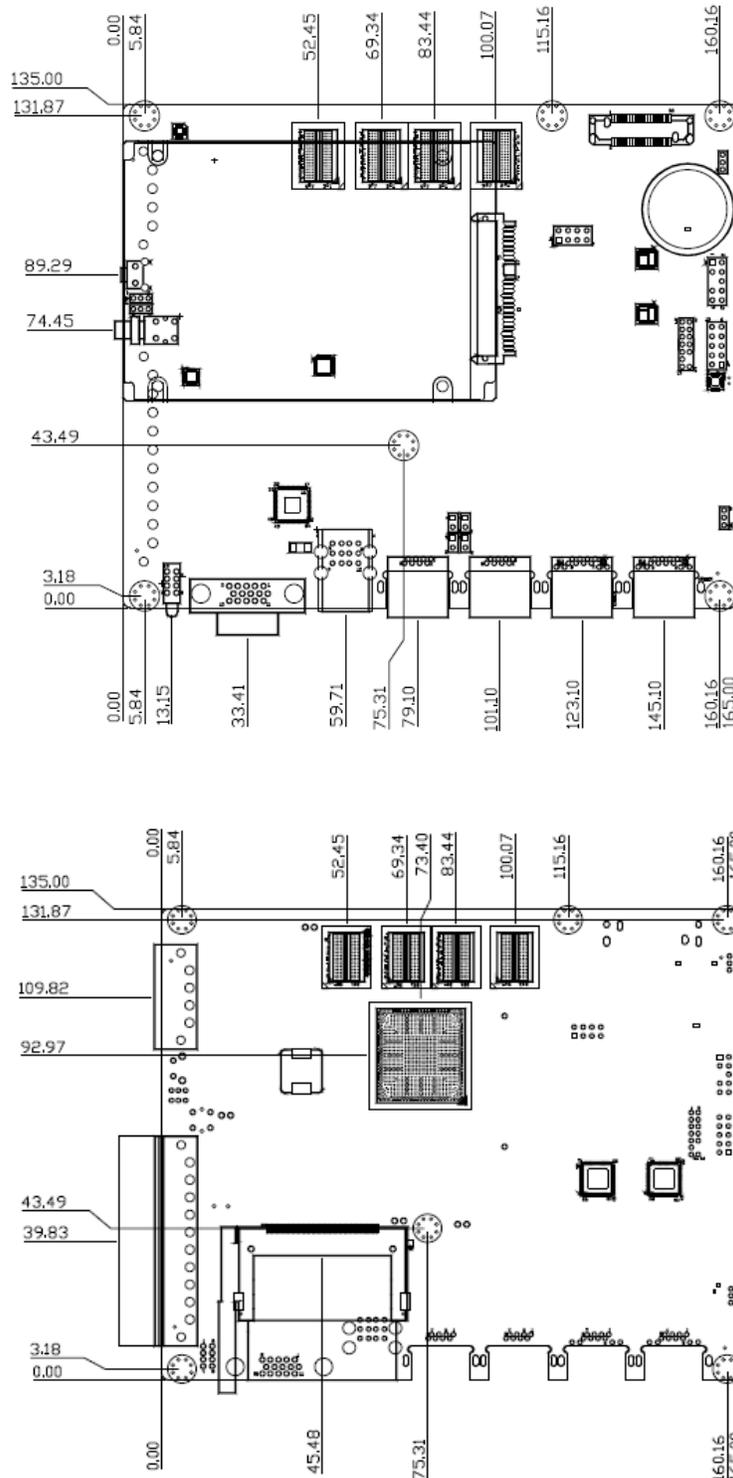
**PL-83300 Front Side Layout**



**PL-83300 Top Side Layout**

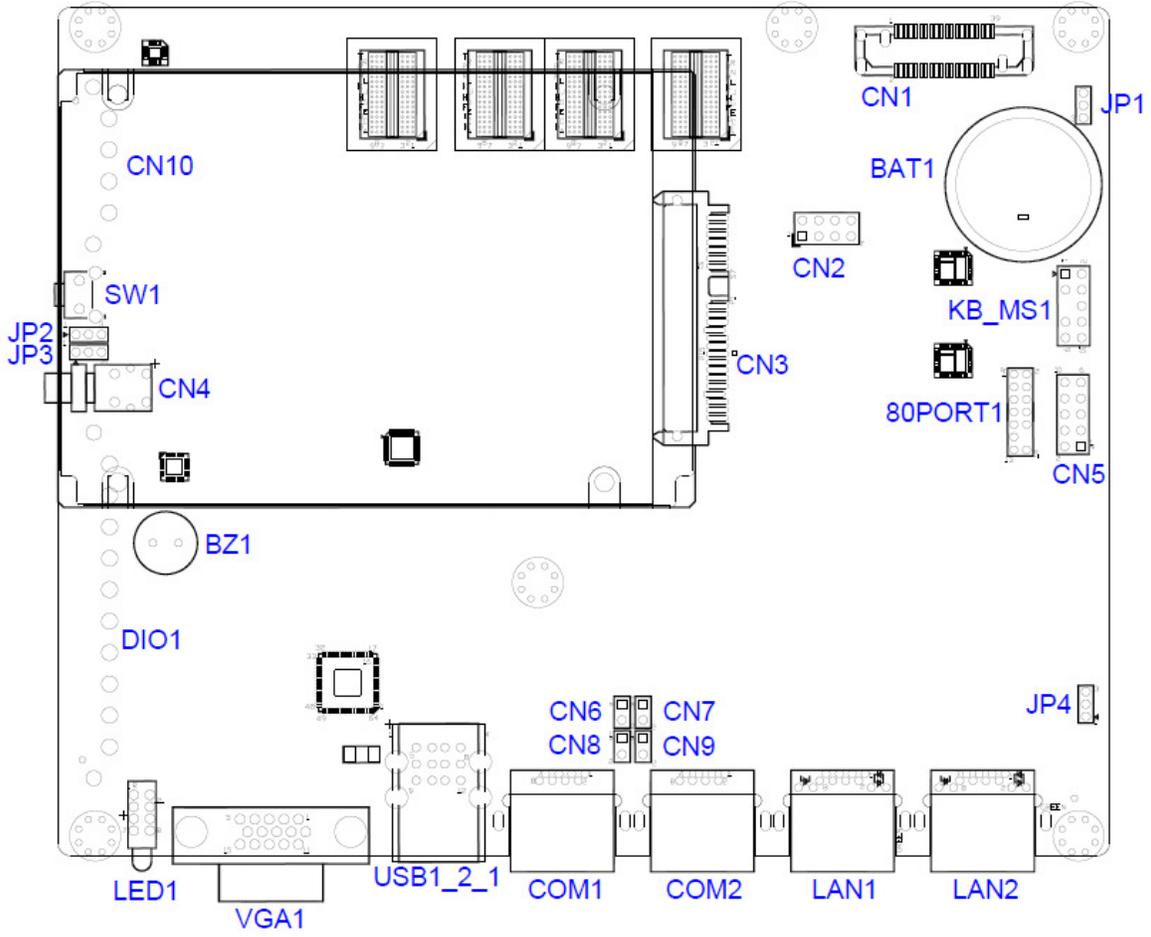


### 1.7 Board Dimensions



# Chapter 2. Connector/Jumper Configuration

## 2.1 Connector/Jumper Location and Definition



*MB-83300 Connectors and Jumpers:*

Connector List			
Connector	Description	Connector	Description
CN1	PCIE AND USB AND LPC INTERFACE		Clear CMOS
CN2	SPI FLASH PIN HEAD	JP1	1-2: Normal (Default)
CN3	SSD OR HD CONNECTOR		2-3: Clear CMOS
CN4	POWER BOTTOM		RESET SELECT
CN5	GEN 3 BYPASS JATAG PIN HEAD	JP2	Power LED
CN6 – CN9	IMPEDANCE MATCHING for RS422/485		HDD LED
CN10	DUAL POWER INPUT CONNECTOR		POWER BOTTOM SELECT
DIO1	GPIO CONNECTOR	JP3	1-2 ATX POWER ON
VGA1	VGA CONNECTOR		2-3 AC POWER ON
USB_1_2_1	USB 2.0 CONNECTOR		
COM1	RS-232/422/485 CONNECTOR	JP4	GEN3 BYPASS SELECT
COM2	RS-232/422/485 CONNECTOR		1-2 GEN3 BYPASS ENABLE
LAN1	LAN CONNECTOR		2-3 GEN3 BYPASS DISABLE
LAN2	LAN CONNECTOR	80PORT1	FOR DEBUG 80 PORT PIN HEAD
		KB_MS1	KEY BOARD AND MOUSE PIN HEAD

## 2.2 Connector and Jumper Setting

### MINI-PCIE



Pin	Define	Pin	Define	Pin	Define	Pin	Define
1	WAKE#	2	3.3V	3	Reserved	4	GND
5	Reserved	6	1.5V	7	CLKREQ#	8	Reserved
9	GND	10	Reserved	11	REFCLK-	12	Reserved
13	REFCLK+	14	Reserved	15	GND	16	Reserved
17	Reserved	18	GND	19	Reserved	20	Reserved
21	GND	22	PERST#	23	PERN0	24	+3.3VAUX
25	PERP0	26	GND	27	GND	28	+1.5V
29	GND	30	SMB_CLK	31	PETN0	32	SMB_DATA
33	PETP0	34	GND	35	GND	36	USB_D-

37	Reserved	38	USB_D+	39	Reserved	40	GND
41	Reserved	42	LED_WWAN#	43	Reserved	44	LED_WLAN#
45	Reserved	46	LED_WPAN#	47	Reserved	48	+1.5V
49	Reserved	50	GND	51	Reserved	52	+3.3V

### USB Connector



Pin	Define	Pin	Define	Pin	Define	Pin	Define
1	+5V	2	DATA0-	3	DATA0+	4	GND
5	+5V	6	DATA1-	7	DATA1+	8	GND

### CN11/CN12/CN13/CN14: LAN RJ-45 Connector



Pin	Define
1	TX+
2	TX-
3	RX+
4	Chassis Ground
5	Chassis Ground
6	RX-
7	Chassis Ground
8	Chassis Ground
<b>D1: Speed indicated LED</b>	
1 Gbps	GREEN
100 Mbps	YELLOW
<b>D2 :Link/Activity LED</b>	
Link	GREEN
Activity	BLINKING

### COM1 (Console) Connector



RJ45	
Pin	Define
1	DSR
2	RTS
3	GND
4	TxD
5	RxD
6	DCD
7	CTS
8	DTR

### CN16: DC +12V Power Jack (2Pin)



Pin	Define	Pin	Define
1	+12V	2	GND

### Jumper Setting

#### JP1: Clear CMOS

Pin	Setting
	1-2 Normal Operation
	2-3 Clear CMOS

## 2.3 CompactFlash™ Card Socket Pin Define

CompactFlash™ card is a small removable mass storage device. It can provide complete PCMCIA-ATA functionality and compatibility plus True IDE functionality compatible with ATA/ATAPI-4.

CompactFlash™ storage products are solid state form factors. This means they contain no moving parts. Thus, they provide users with much greater data protection than conventional magnetic disk devices.



Pin	Define	Pin	Define	Pin	Define	Pin	Define	Pin	Define
1	Ground	11	Ground	21	D00	31	D15	41	RESET
2	D03	12	Ground	22	D01	32	CS	42	ORDY
3	D04	13	VCC	23	D02	33	NC	43	DREG
4	D05	14	Ground	24	WP	34	IOR	44	DACK
5	D06	15	Ground	25	NC	35	IOW	45	LED
6	D07	16	Ground	26	NC	36	WE	46	BVD
7	CS	17	Ground	27	D11	37	RDY/BSY	47	D08
8	Ground	18	A02	28	D12	38	VCC	48	D09
9	Ground	19	A01	29	D13	39	SCSE	49	D10

10	Ground	20	A00	30	D14	40	NC	50	Ground
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## Chapter 3. BIOS Setup

The ROM chip of your PL-83300 board (i.e., MB-83300) is configured with a customized Basic Input/Output System (BIOS) from AMI BIOS. The BIOS is a set of permanently recorded program routines that gives the system its fundamental operational characteristics. It also tests the computer and determines how the computer reacts to instructions that are part of the programs.

The BIOS is made up of code and programs that provide the device-level control for the major I/O devices in the system. It contains a set of routines (called POST, for Power-On Self Test) that checks the system when you turn it on. The BIOS also includes CMOS Setup program, so no disk-based setup program is required. CMOS RAM stores information for:

- Date and time
- Memory capacity of the appliance
- Type of display adapter installed
- Number and type of disk drives

The CMOS memory is maintained by a battery installed on the PL-83300 board. By using the battery, all memory in CMOS can be retained when the system power is switched off. The system BIOS also supports an easy way to reload the CMOS data when you replace the battery or when the battery power is lost.

### 4.1 Quick Setup

In most cases, you can quickly configure the system by choosing the following main menu options:

1. Choose "Exit" → "Load Optimal Defaults" from the main menu. This loads the setup default values from the BIOS Features Setup and Chipset Features Setup screens.
2. Choose "Main" & "Advanced" from the main menu. This option lets you configure the date and time, hard disk type, floppy disk drive type, primary display and more.

In the main menu, press F10 ("Save Changes and Exit") to save your changes and reboot the system.

### 4.2 Entering the CMOS Setup Program

Use the CMOS Setup program to modify the system parameters to reflect the options installed in your system and to customize your system. For example, you should run the Setup program after:

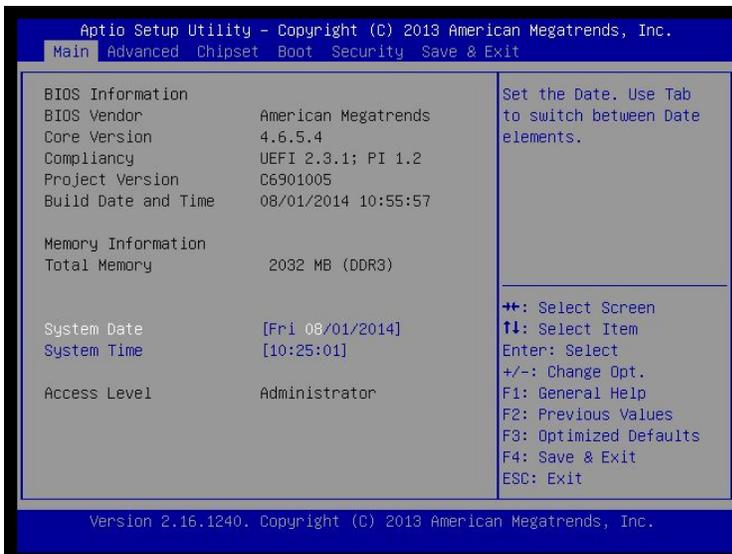
- Receiving an error code at startup
- Installing another disk drive
- Using your system after not having used it for a long time
- Finding the original setup missing
- Replacing the battery

- Changing to a different type of CPU
- Running the AMI Flash program to update the system BIOS

Run the CMOS Setup program after you turn on the system. On-screen instructions explain how to use the program.

### ↓ Enter the CMOS Setup program's main menu as follows:

1. Turn on or reboot the system. After the BIOS performs a series of diagnostic checks, the following message appears:  
"Press DEL to enter SETUP"
2. Press the <DEL> key to enter CMOS Setup program. The main menu appears:



3. Choose a setup option with the arrow keys and press <Enter>. See the following sections for a brief description of each setup option.

**AMI BIOS:** Displays the auto-detected BIOS information.

**Processor:** Displays the auto-detected CPU specification.

**System Memory:** Displays the auto-detected system memory.

**SystemTime: [hour:min:sec]:**

Allows you to set the system time.

**System Date [Day mm/dd/yyyy]:**

This item allows you to set the system date.

In the main menu, press F10 (“Save Changes and Exit”) to save your changes and reboot the system. Choosing “Discard Changes and Exit” ignores your changes and exits the program. Pressing <ESC> anywhere in the program returns you to the main menu.

### 4.3 Menu Options

The main menu options of the CMOS Setup program are described in the following and the following sections of this chapter.

**Main:** For changing the basic system configurations.

**Advanced:** For changing the advanced system settings.

**Chipset:** For changing the chipset settings.

**Boot:** For changing the system boot configurations.

**Security:** Use this menu to set User and Supervisor Passwords.

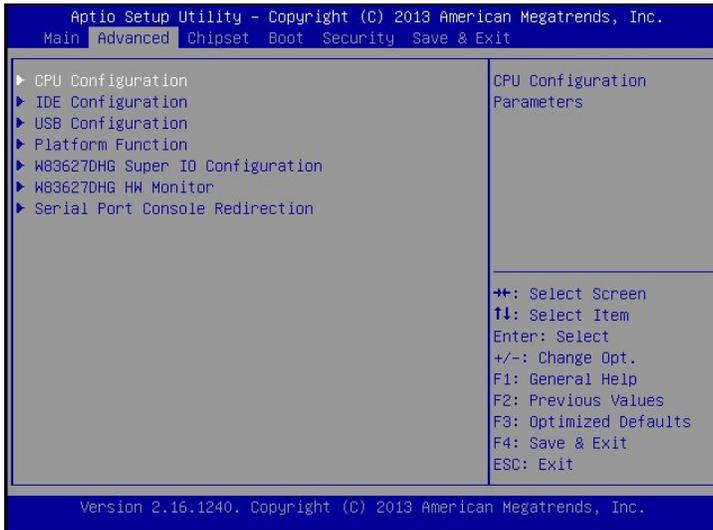
**Save & Exit:** For selecting the exit options and loading default settings.

## 3.4 Advanced Menu

The Advanced menu items enable changing the settings for the CPU and other system devices.

### ↓ Use the Advanced Setup option as follows:

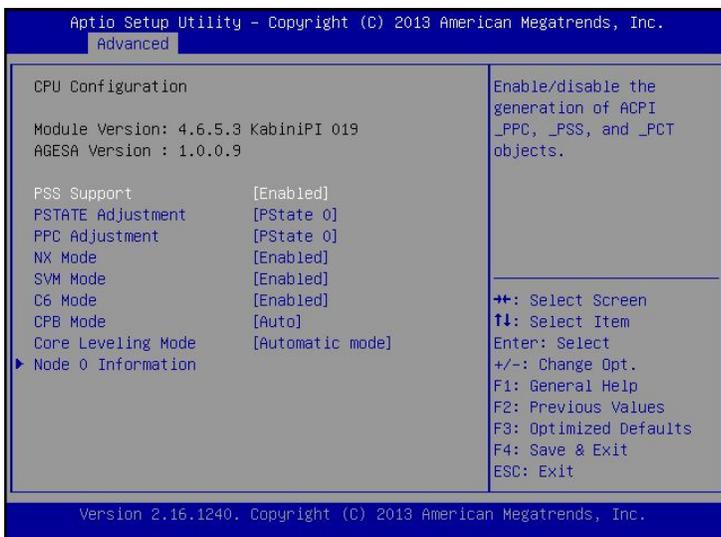
1. Choose “Advanced” from the main menu. The following screen appears:



2. Use the arrow keys to move between fields. Modify the selected field using the PgUP/PgDN/+/- keys. Some fields let you enter numeric values directly.
3. After you have finished with the Advanced setup, press the <ESC> key to return to the main menu.

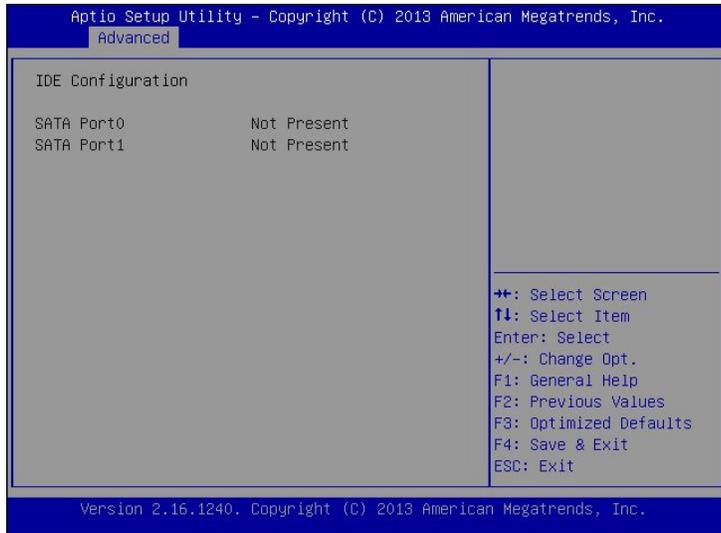
### 4.4.1 CPU Configuration

This sub menu shows the CPU-related information which is automatically detected by BIOS.



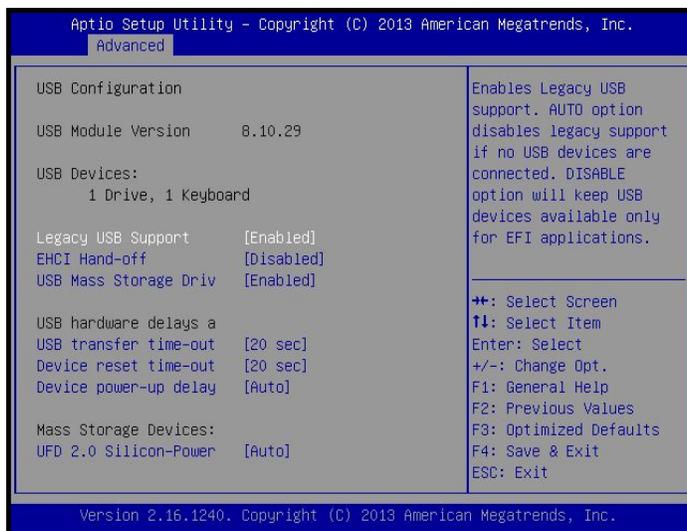
## 4.4.2 IDE Configuration

This sub menu enables the setting or changing of the configurations for the IDE devices installed in the system.



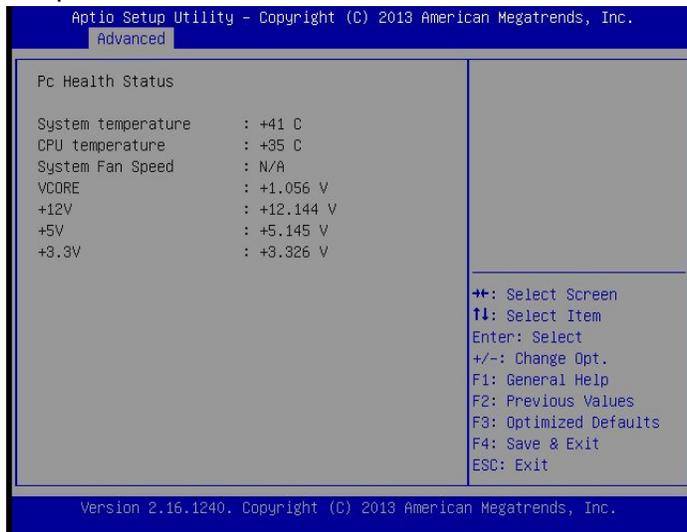
## 3.4.3 USB Configuration

This sub menu allows you to change the USB-related features.



### 4.4.3 Hardware Health Configuration

This screen shows you the CPU core voltage, System voltage, System temperature and CPU temperature.



#### System Temperature

Show you the current system temperature.

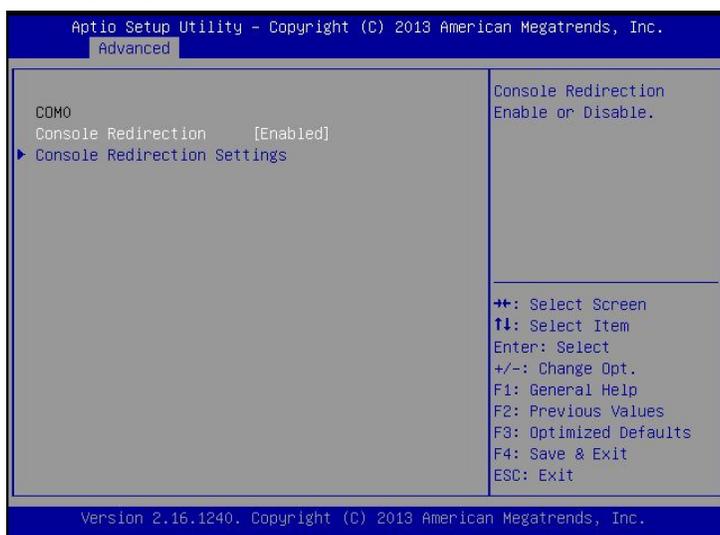
#### CPU Temperature

These read-only fields show the functions of the hardware thermal sensor by CPU thermal diode that monitors the chip blocks to ensure a stable system.

#### Vcore 12V / 5V / 3.3V

Show you the voltage of 12V / 5V / 3.3V and etc.

### 4.4.5 Console Redirection



## 4.5 Boot Menu

### Use the Boot Setup option as follows:

1. Choose "Boot" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PnUP/PgDN Keys. For information on the various options, press <F1> key.

3. After you have finished with the Boot setup, press the <ESC> key to return to the main menu.

### Setup Prompt Timeout

Number of seconds to wait for setup activation key. 65535(0xFFFF) means indefinite waiting.

### Bootup NumLock State

Use this item to select the power-on state for the NumLock.

### Quiet Boot

Enable or disable quiet boot option.

### Boot Option Priorities

Set the system boot priority order.

## 4.6 Security Menu

### Use the Security Setup option as follows:

1. Choose "Security" from the main menu. The following screen appears:



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. Please press the <F1> key for information on the various options.

After you have finished with the Security setup, press the <ESC> key to return to the main menu.

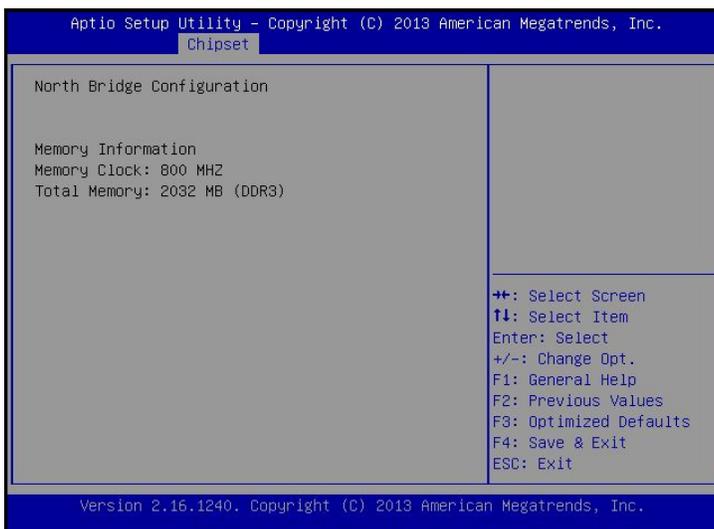
## Supervisor Password

This item indicates whether an administrator password has been set (installed or uninstalled).

## 4.7 Chipset Menu

↓ Use the Chipset Setup option as follows:

1. Choose "Chipset Configuration" from the Advanced menu. The following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected field the PgUP/PgDN keys. For information on the various options, press <F1> key.

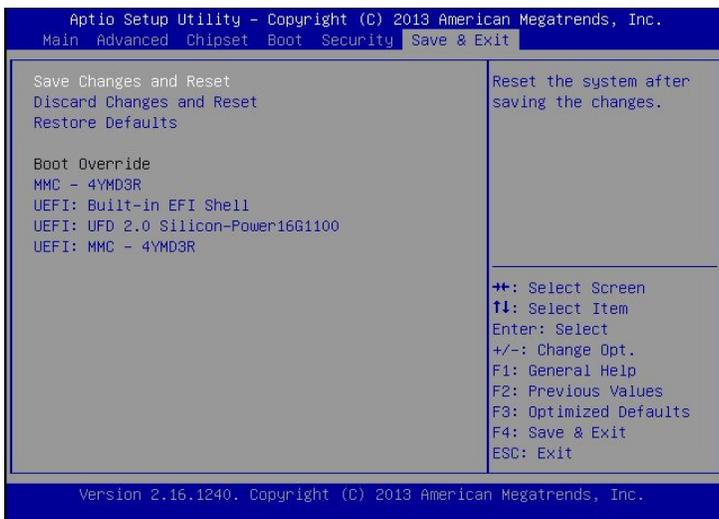
After you have finished with the Chipset Setup, press the <ESC> key to return to the main menu.

## 4.8 Exit Menu

The item allows you to save or discard your changes to the BIOS items, and load the optimal defaults or failsafe defaults for the BIOS items.

### ↓ Use the Exit option as follows:

1. Choose "Exit" from the main menu, the following screen appears.



2. Move between items and select values by using the arrow keys. Modify the selected fields using the PgUP/PgDN keys. For information on the various options, please press <F1> key.
3. Please press the <ESC> key to return the main menu after finishing with the Exit Options.

### Save Changes and Exit:

Save changes of values to CMOS and exit the CMOS setup program. F10 key can be used for this operation.

### Discard Changes and Exit:

Discard all CMOS changes and exit the CMOS setup program. ESC key can be used for this operation.

## Chapter 4. Utility & Driver Installation

Please install all modules properly before you install the OS, driver or other software.

### 4.1 Operation System Support

PL-83300 can support Windows® and Linux® operating systems as follows. Before installation, please check your OS version. If your OS is not in the following list, please upgrade your OS version.

OS	Version
DOS	DOS 6.22
Windows®	Windows 7 Ultimate SP1x64
Linux®	Red Hat Enterprise Linux 6.4 x86_64 / Ubuntu 14.04

### 4.2 Sample Code and Im-sensor

Sample Code	Availability
WDT	Yes
GPI	Yes
Im-sensor	Yes

## Appendix A: Cable Development Kit

The PL-83300 offers some cables for development use.

### Optional Development Kit

Item & Description	Part No.
Ethernet Cat.5 Cable 2M/ RoHS	CB-EC5200-00
Cross Over 2M Color/ RoHS	CB-CO52024-00
RJ45 to DB9 2M Cable/ RoHS	CB-RJDB97-00
KB/MS cable	CB-IPS200-00
VGA CABLE (2mm) 15CM/ RoHS	CB-IVGA01-00
12VDC/75W Dual output power supply	GP006-205



### ATTENTION

- ❖ Check battery polarity before installation/replacement. Installing battery with reverse polarity can cause explosion. Dispose of used batteries according to your local regulations.
- ❖ Replace only with the same or equivalent type recommended by the manufacturer.

