USER'S MANUAL

PMB-891LF

Intel® 3rd Gen. Core™ i7/i5/i3 & Pentium® ATX Motherboard With VGA/DP/Audio/4COM/2LAN

PMB-891LF M3

PMB-891LF
Intel® 3rd Gen. Core ™i7/i5/i3 & Pentium® ATX Motherboard
With VAG/DP/Audio/4COM/2LAN

DISCLAIMER

This operation manual is meant to assist both Embedded Computer manufacturers and end users in installing and setting up the system. The information contained in this document is subject to change without any notice.

CE NOTICE

This is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

FCC NOTICE

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

You are cautioned that any change or modifications to the equipment not expressly approve by the party responsible for compliance could void your authority to operate such equipment.

CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.

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CHAPTER

1

INTRODUCTION

This chapter gives you the information for PMB-891LF. It also outlines the system specifications.

Sections included:

- About This Manual
- System Specifications
- Safety Precautions

Experienced users can jump to chapter 2 on page 2-1 for a quick start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our PMB-891LF Intel® 3rd Gen. Core i7/i5/i3 and Pentium® ATX motherboard enhanced with VGA/DP/Audio/4COM/2LAN, which is fully PC / AT compatible. The PMB-891LF provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters:

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, Sound utility, and Flash BIOS Update. It also describes the Watchdog-timer configuration.

Chapter 4 Award BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A Expansion Bus

This appendix introduces you the expansion bus for PCI connector.

Appendix B Technical Summary

This appendix gives you the information about the Technical maps.

1-2. SYSTEM SPECIFICATIONS

System

CPU Support	Intel® 3rd Gen. Core™ i7/i5/i3 and Pentium® Processor
CPU Frequency	3.0~3.4GHz
Chipset	Intel® PCH Q77
DRAM	4 x 240-pin DDR3 DIMM, support dual -channel 1333/1600 Hz SDRAM, Non-ECC Unbuffered DIMM (system max. 32GB)
BIOS	AMI BIOS
Watchdog	1~255 secs Watchdog timer selectable
Power Supply	Support ATX Power
Power Requirement	+5V, +12V, -12V,+3.3V, +5VSB
Dimension	305 mm x 244 mm (12" x 9.6")
Certificate	FCC / CE

I/O Ports

SATA Interface	2 x SATA III (6.0Gb/s), 4 x SATA II (3.0Gb/s), (Raid 0,1,10,5)
Expansion BUS	1 x PCI-E(16x) , 1 x PCI-E(4x) , 4 x PCI slot
TPM	TPM1.2 with 20-pin header on board for TPM (Trusted Platform Module)
Serial Port	4 x COM port, COM 1/3/4 for RS-232, COM 2 for RS-232/422/485
Parallel Port	1 x parallel port (SPP/EPP/ECP)
IrDA	1 (SIR)
Keyboard	PS/2 Connector, with mini DIN connector
Mouse	PS/2 Connector, with mini DIN connector
LAN	LAN 1: Intel® 82579LM (10/100/1000 Mbps) LAN 2: Intel® 82574L (10/100/1000 Mbps), supports Jumbo Frame. Both support Wake-on-LAN.
Audio	High Definition Audio; Realtek ALC888S with Mic / Line-In / Line-Out

DI/O	8 in / 8 out
USB	10 x USB 2.0, 2 x USB 3.0

Display

Graphics	Build-in processor, share system memory Supports VGA, 2 x Display port

*Discrete graphic card is necessary for display if the chosen CPU doesn't have integrated graphics support.

Environment

Operation Temp.	0° ~ 60° C (32° ~ 140° F)
Storage Temp.	- 40° ~ 85° C (- 40° ~ 185° F)
Humidity	Operation humidity 5 ~ 90% (non-condensing)

1-3. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

2. Prevent electric shock. Don‘t touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices.
   For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

CHAPTER

2

HARDWARE CONFIGURATION

** *QUICK START* **

Helpful information describes the jumper & connector settings, and component locations.

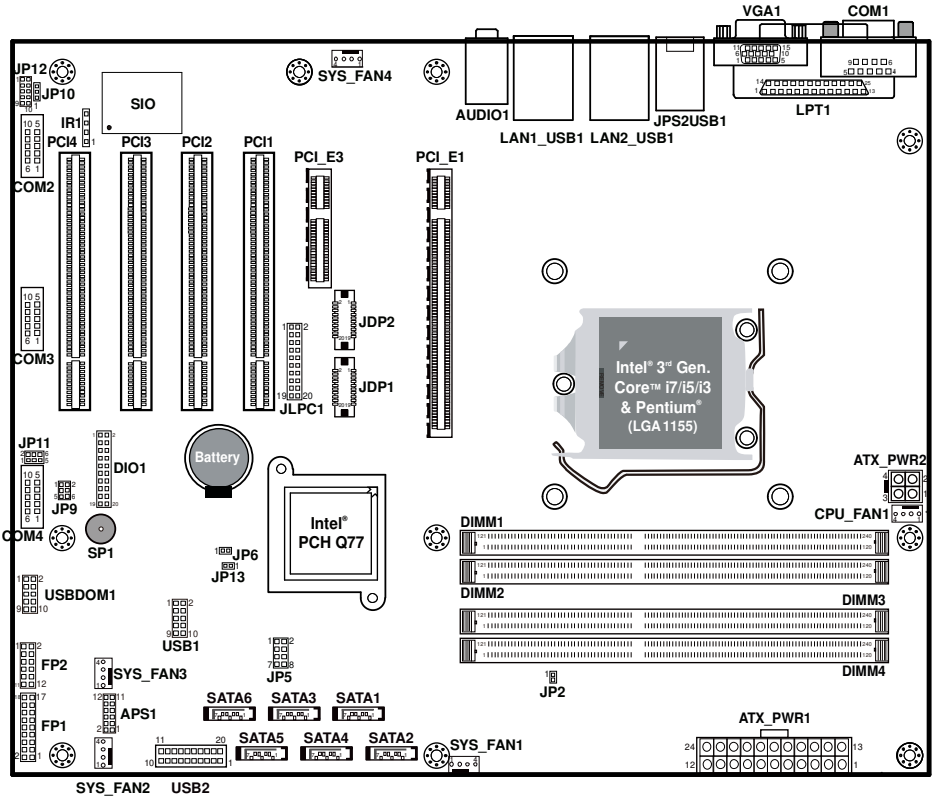
Sections included:

- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

JUMPER/CONNECTOR	NAME
COM Port & Connector	COM1, COM2, COM3, COM4
COM Port RI/Voltage Selection	JP11, JP9
RS-232/422/485 (COM2) Selection	JP12
COM2 Auto Detect Selection	JP10
Clear CMOS Data Selection	JP6
VGA Port	VGA1
Mini-DIN & USB Port	JP2USB1
LAN & USB Port	LAN1_USB1, LAN2_USB1
USB Connector	USB1, USBDOM1
USB3.0 & USB2.0 Connector	USB2
LAN Link LED	FP2
TPM Connector	JLPC1
Front Panel Connector & Selector	FP1
ATX Power Connector	ATX_PWR1
CPU Fan Connector	CPU_FAN1
System Fan Connector	SYS_FAN1, SYS_FAN2, SYS_FAN3, SYS_FAN4
Serial ATA Connector	SATA1, SATA2, SATA3, SATA4, SATA5, SATA6,
IrDA Connector	IR1
Printer Port	LPT1
Display Port Connector	JDP1, JDP2
Digital Input/Output Connector	DIO1
Audio Port	AUDIO1
CPU Selection	JP2

2-2. COMPONENT LOCATIONS



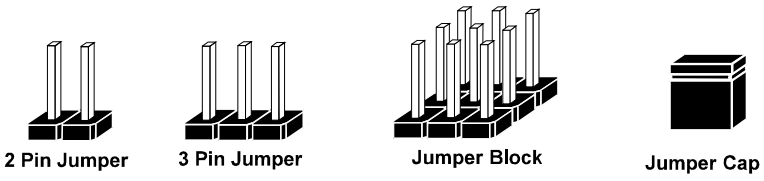
PMB-891LF Front Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting jumpers. Jumper is consists of two or three metal pins with a plastic base mounted on the card, and by using a small plastic "cap", Also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "open" or "close" pins.

The jumper can be combined into sets that called jumper blocks. When the jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows how this looks like.

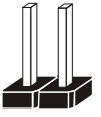
JUMPERS AND CAPS



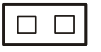
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

JUMPER DIAGRAMS

Jumper Cap looks like this

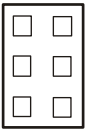


2 pin Jumper looks like this



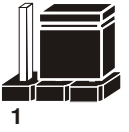
3 pin Jumper looks like this

Jumper Block looks like this

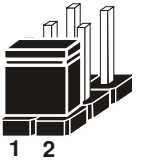


JUMPER SETTINGS

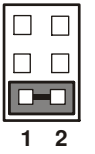
2 pin Jumper close(enabled) Looks like this



3 pin Jumper 2-3 pin close(enabled) Looks like this



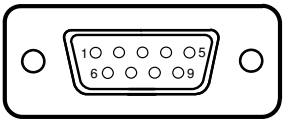
Jumper Block 1-2 pin close(enabled) Looks like this



2-4. COM PORT & CONNECTOR

COM1: COM1 Port, fixed as RS-232
The pin assignments are as follows:

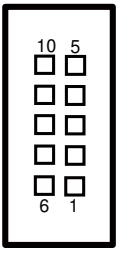
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	COM1_DCD#	6	COM1_DSR#
2	COM1_RX	7	COM1_RTS#
3	COM1_TX	8	COM1_CTS#
4	COM1_DTR#	9	COM1_RI#
5	GND		



COM1

COM2: COM2 Connector, selectable as RS-232/422/485
The pin assignments are as follows:

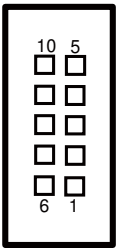
PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	COM2_DCD#	TX-	485-
2	COM2_RX	TX+	485+
3	COM2_TX	RX+	X
4	COM2_DTR#	RX-	X
5	GND	GND	GND
6	COM2_DSR#	X	X
7	COM2_RTS#	X	X
8	COM2_CTS#	X	X
9	COM2_RI#	X	X
10	NC	NC	NC



COM2

COM3: COM3 Connector, fixed as RS-232
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	COM3_DCD#	6	COM3_DSR#
2	COM3_RX	7	COM3_RTS#
3	COM3_TX	8	COM3_CTS#
4	COM3_DTR#	9	COM3_RI#
5	GND	10	NC



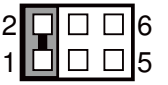
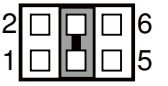
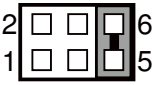
COM3/ COM4

COM4: COM4 Connector, fixed as RS-232
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	COM4_DCD#	6	COM4_DSR#
2	COM4_RX	7	COM4_RTS#
3	COM4_TX	8	COM4_CTS#
4	COM4_DTR#	9	COM4_RI#
5	GND	10	NC

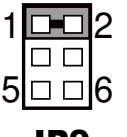
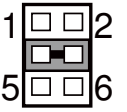
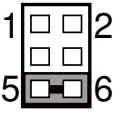
2-5. COM PORT RI & VOLTAGE SELECTION

JP11: COM3 Port RI & Voltage Selection
The pin assignments are as follows:

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
RI	1-2	 **JP11**
12V	3-4	 **JP11**
5V	5-6	 **JP11**

Note: Manufacturing default is RI.

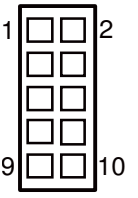
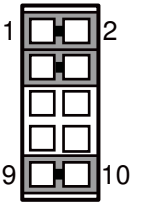
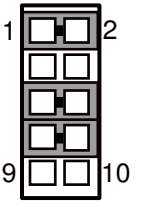
JP9: COM4 Port RI & Voltage Selection
The pin assignments are as follows:

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
RI	1-2	 **JP9**
12V	3-4	 **JP9**
5V	5-6	 **JP9**

Note: Manufacturing default is RI.

2-6. RS-232/422/485 (COM2) SELECTION

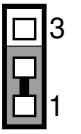
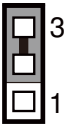
JP12: RS-232/422/485 (COM2) Selection Connector, used to set COM2 function. The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RS-232	All Open	 **JP12**
RS-422	1-2, 3-4, 9-10	 **JP12**
RS-485	1-2, 5-6, 7-8	 **JP12**

Note: Manufacturing default is RS-232.

2-7. COM2 AUTO DETECT SELECTION

JP10: COM2 Auto Detect Selection
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Normal	1-2	 **JP10**
Auto Gating	2-3	 **JP10**

Note: Manufacturing default is Normal.

2-8. CLEAR CMOS DATA SELECTION

JP6: Clear CMOS Data Selection
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Normal	Open	 **JP6**
Clear CMOS*	Close	 **JP6**

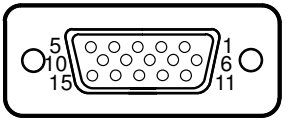
Note: Manufacturing Default is Normal.

*To clear CMOS data, user must power-off the computer and set the jumper to "Clear CMOS" as illustrated above. After five to six seconds, set the jumper back to "Normal" and power-on the computer.

2-9. VGA PORT

VGA1: VGA Port
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	CRTRED	9	CRTVCC_L
2	CRTGREEN	10	GND
3	CRTBLUE	11	NC
4	NC	12	CRTDATA
5	GND	13	HSYNC
6	CRT_ALWAYS_ON	14	VSYNC
7	GND	15	CRTCLK
8	GND		



VGA1

2-10. MINI-DIN & USB PORT

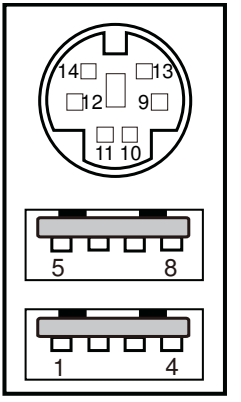
JPS2USB1: Mini-DIN & Two USB Ports
Mini-DIN port supports keyboard, Y-cable and PS/2 mouse.
The pin assignments are as follows:

Mini-DIN Port:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
9	GND	12	5VDUAL
10	KDAT	13	KCLK
11	MDAT	14	MCLK

USB Ports:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	GND
2	USB10+	6	USB11+
3	USB10-	7	USB11-
4	VCC5	8	VCC5



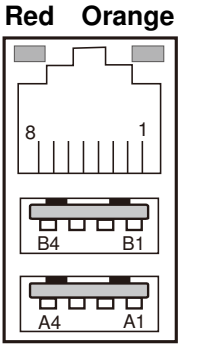
JPS2USB1

2-11. LAN & USB PORT

LAN1_USB1: LAN & Two USB Ports
The pin assignments are as follows:

LAN signal:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LAN1_MDI_0P	5	LAN1_MDI_2P
2	LAN1_MDI_0N	6	LAN1_MDI_2N
3	LAN1_MDI_1P	7	LAN1_MDI_3P
4	LAN1_MDI_1N	8	LAN1_MDI_3N



LAN1_USB1

LAN LED Indicator:
Left Side LED

Red Color On	Giga LAN Speed Indicator
Off	No LAN switch/hub connected.

Right Side LED

Orange Color Blinking	LAN Message Active
Off	No LAN Message Active

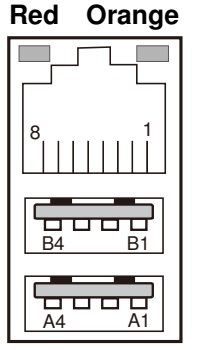
USB signal:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	USB_89_VCC5	B1	USB_89_VCC5
A2	USBN8	B2	USBN9
A3	USBP8	B3	USBP9
A4	GND	B4	GND

LAN2_USB1: LAN & Two USB Ports
The pin assignments are as follows:

LAN signal:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LAN2_MDI_0P	5	LAN2_MDI_2P
2	LAN2_MDI_0N	6	LAN2_MDI_2N
3	LAN2_MDI_1P	7	LAN2_MDI_3P
4	LAN2_MDI_1N	8	LAN2_MDI_3N



LAN2_USB1

LAN LED Indicator:
Left Side LED

Red Color On	Giga LAN Speed Indicator
Off	No LAN switch/hub connected.

Right Side LED

Orange Color Blinking	LAN Message Active
Off	No LAN Message Active

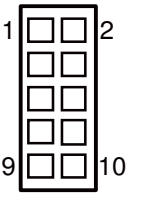
USB signal:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	USB_1213_VCC5	B1	USB_1213_VCC5
A2	USBN12	B2	USBN13
A3	USBP12	B3	USBP13
A4	GND	B4	GND

2-12. USB CONNECTOR

USB1: Universal Serial Bus Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	USB_67_VCC5	6	USBP7
2	USB_67_VCC5	7	GND
3	USBN6	8	GND
4	USBN7	9	NC
5	USBP6	10	GND



USB1/ USBDOM1

USBDOM1: Universal Serial Bus Connector
The pin assignments are as follows:

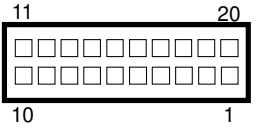
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	USB_45_VCC5	6	USBP5
2	USB_45_VCC5	7	GND
3	USBN4	8	GND
4	USBN5	9	NC
5	USBP4	10	GND

2-13. USB 3.0 & USB2.0 CONNECTOR

USB2: USB3.0 & USB2.0 Connector

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC5	11	USB1+
2	USB3_RX1_N	12	USB1-
3	USB3_RX1_P	13	GND
4	GND	14	USB3_TX2_P
5	USB3_TX1_N	15	USB3_TX2_N
6	USB3_TX1_P	16	GND
7	GND	17	USB3_RX2_P
8	USB0-	18	USB3_RX2_N
9	USB0+	19	VCC5
10	GND	20	NC

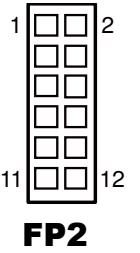


USB2

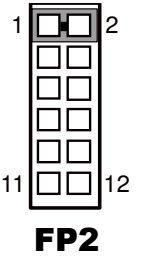
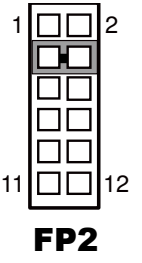
2-14. LAN LINK LED SELECTION

FP2: LAN Link LED Selection
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LAN1_LED+	7	NC
2	LAN1_LED-	8	NC
3	LAN2_LED+	9	NC
4	LAN2_LED-	10	NC
5	NC	11	NC
6	NC	12	NC



LAN Link LED selections are as follows:

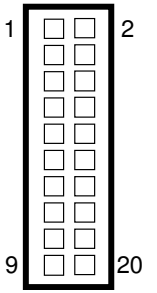
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
LAN1 LED	1-2	
LAN2 LED	3-4	

2-15. TPM CONNECTOR

JLPC1: TPM Connectors

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	CLK	11	LAD0
2	GND	12	GND
3	FRAME	13	SMBCLK
4	NC	14	SMBDATA
5	RESET	15	3VSB
6	VCC5	16	SERIRQ
7	LAD3	17	GND
8	LAD2	18	CLK RUN
9	VCC3	19	SUS_TAT
10	LAD1	20	DREQ0

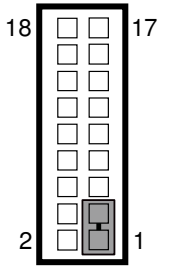


JLPC1

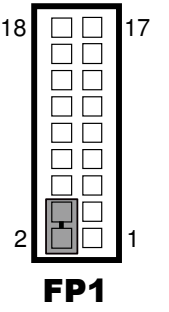
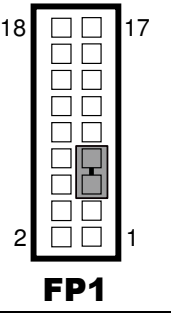
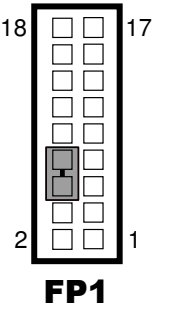
2-16. FRONT PANEL CONNECTOR & SELECTION

FP1: Front Panel Selection

The pin assignments & selections are as follows:

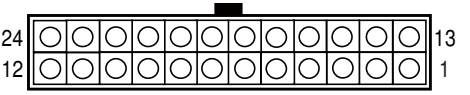
SELECTION	PIN & ASSIGNMENT	JUMPER SETTINGS	JUMPER ILLUSTRATION
HDD LED	1. HDD_LED+	1-3	
	3. HDD_LED-		

FP1

SELECTION	PIN & ASSIGNMENT	JUMPER SETTINGS	JUMPER ILLUSTRATION
Power LED	2. PWR_LED+	2-4	
	4. PWR_LED-		
Reset Button	5. GND	5-7	
	7. RST_BTN		
ATX Power Button	6. PWRBTNSW	6-8	
	8. GND		

2-17. ATX POWER CONNECTOR

ATX_PWR1: ATX Power Connector
The pin assignments are as follows:



ATX_PWR1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+3.3V	13	+3.3V
2	+3.3V	14	-12V
3	GND	15	GND
4	+5V	16	PSON
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	POK	20	-5V
9	5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND

2-18. CPU FAN CONNECTOR

CPU_FAN1: CPU Fan Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	FAN_TAC1
4	FAN_CTL1

CPU_FAN1

2-19. SYSTEM FAN CONNECTOR

SYS_FAN1~SYS_FAN4: System Fan Connectors
The pin assignments are as follows:

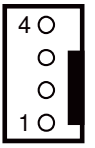
SYS_FAN1:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	SYS_FAN_IN
4	SYS_FAN_CTL

SYS_FAN1/ SYS_FAN4

SYS_FAN2:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	FAN_IN1
4	FAN_CTL1



SYS_FAN2/ SYS_FAN3

SYS_FAN3:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	FAN_IN2
4	FAN_CTL2

SYS_FAN4:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	FAN_IN3
4	FAN_CTL3

2-20. SERIAL ATA CONNECTOR

SATA1~SATA6: Six Serial ATA Connectors
The pin assignments are as follows:

SATA1/
SATA2/
SATA3/
SATA4

SATA1:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC0
2	SATA_TXPC0	6	SATA_RXPC0
3	SATA_TXNC0	7	GND
4	GND		

SATA2:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC1
2	SATA_TXPC1	6	SATA_RXPC1
3	SATA_TXNC1	7	GND
4	GND		

SATA3:

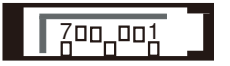
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC2
2	SATA_TXPC2	6	SATA_RXPC2
3	SATA_TXNC2	7	GND
4	GND		

SATA4:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC3
2	SATA_TXPC3	6	SATA_RXPC3
3	SATA_TXNC3	7	GND
4	GND		

SATA5:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC4
2	SATA_TXPC4	6	SATA_RXPC4
3	SATA_TXNC4	7	GND
4	GND		



SATA5/ SATA6

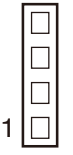
SATA6:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC5
2	SATA_TXPC5	6	SATA_RXPC5
3	SATA_TXNC5	7	GND
4	GND		

2-21. IRDA CONNECTOR

IR1: IrDA (Infrared) Connector
The pin assignments are as follows:

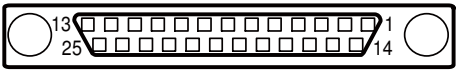
PIN	ASSIGNMENT
1	VCC5
2	NC
3	IRRX
4	GND
5	IRTX



IR1

2-22. PRINTER PORT

LPT1: Printer Port
The pin assignments are as follows:



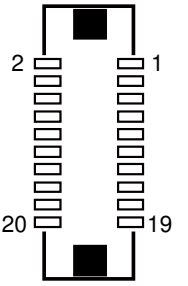
LPT1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STB	14	AFD#
2	PDR0	15	ERR#
3	PDR1	16	INIT#
4	PDR2	17	SLIN#
5	PDR3	18	GND
6	PDR4	19	GND
7	PDR5	20	GND
8	PDR6	21	GND
9	PDR7	22	GND
10	ACK#	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT	26	NC

2-23. DISPLAY PORT CONNECTOR

JDP1 & JDP2: Display Port Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DP_C_DATA0+	11	GND
2	GND	12	DP_C_DATA3-
3	DP_C_DATA0-	13	DP_C_AUX_ENJ
4	DP_C_DATA1+	14	GND
5	GND	15	DP_C_AUX+
6	DP_C_DATA1-	16	DP_C_HPD
7	DP_C_DATA2+	17	DP_C_AUX-
8	GND	18	DP_VCC3_3
9	DP_C_DATA2-	19	DP_VCC5
10	DP_C_DATA3+	20	DP_VCC3_3

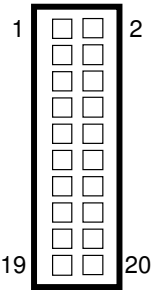


JDP1/ JDP2

2-24. DIGITAL INPUT/OUTPUT CONNECTOR

DIO1: Digital I/O Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC5	11	DIN4
2	VCC12	12	DOUT4
3	DIN0	13	DIN5
4	DOUT0	14	DOUT5
5	DIN1	15	DIN6
6	DOUT1	16	DOUT6
7	DIN2	17	DIN7
8	DOUT2	18	DOUT7
9	DIN3	19	GND
10	DOUT3	20	GND



DIO1

2-25. AUDIO PORT

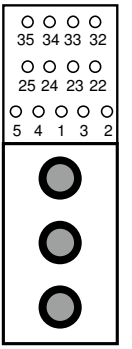
AUDIO1: AUDIO Ports, including Line-In, Line-Out & Mic
The connector can support only MIC Connector.
The pin assignments are as follows:

Line-In:

PIN	ASSIGNMENT
32	HD_LINE-L
33	GND
34	GND
35	HD_LINE-R

Line-Out:

PIN	ASSIGNMENT
22	HD_OUT-L
23	NC
24	NC
25	HD_OUT-R



AUDIO1

Mic-In:

PIN	ASSIGNMENT
1	GND
2	HD_MIC1
3	HD_MIC_GND
4	NC
5	HD_MIC_VCC

SPDIF (Optionally used with the same port as Lin-In):

PIN	ASSIGNMENT
42	GND
43	VCC_AUD
44	SPDIF OUT

2-26. CPU SELECTION

JP2: CPU Selection
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Intel® 2nd Gen. Core™	Open	 JP2
Intel® 3rd Gen. Core™	1-2	 JP2

Note: Manufacturing default is Intel® 2nd Gen. Core™.

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Sound driver.

Sections included:

- Introduction.
- Intel® Chipset Software Installation Utility
- Intel® Rapid Storage Technology Utility
- Intel® USB3.0 eXtensible Host Controller Utility
- Intel® Management Engine Components Utility
- VGA Driver Utility
- LAN Driver Utility
- Sound Driver Utility

3-1. INTRODUCTION

Enclosed with our PMB-891LF package are our driver utilities, which come in a format of CD ROM or floppy disk. Refer to the following table for driver locations:

FILENAME (Assume that CD ROM drive is D:)	PURPOSE
▪ D:\DRIVER\Platform\Win7(32-bit)\UTILITY ▪ D:\DRIVER\Platform\Win7(64-bit)\UTILITY ▪ D:\DRIVER\Platform\Win8(32-bit)\UTILITY ▪ D:\DRIVER\Platform\Win8(64-bit)\UTILITY ▪ D:\DRIVER\Platform\XP(32-bit)\UTILITY	Intel® chipset device software installation utility
▪ D:\DRIVER\Platform\Win7(32-bit)\Intel RST ▪ D:\DRIVER\Platform\Win7(64-bit)\Intel RST ▪ D:\DRIVER\Platform\Win8(32-bit)\Intel RST ▪ D:\DRIVER\Platform\Win8(64-bit)\Intel RST ▪ D:\DRIVER\Platform\XP(32-bit)\Intel RST	Intel® Rapid Storage Technology (RAID) driver installation
▪ D:\DRIVER\Platform\Win7(32-bit)\USB3 ▪ D:\DRIVER\Platform\Win7(64-bit)\USB3	Intel® USB3.0 eXtensible host controller (Windows 7)
▪ D:\DRIVER\Platform\Win7(32-bit)\ME ▪ D:\DRIVER\Platform\Win7(64-bit)\ME ▪ D:\DRIVER\Platform\Win8(32-bit)\ME ▪ D:\DRIVER\Platform\Win8(64-bit)\ME ▪ D:\DRIVER\Platform\XP(32-bit)\ME	Intel® Management Engine Interface
▪ D:\DRIVER\Platform\Win7(32-bit)\VGA ▪ D:\DRIVER\Platform\Win7(64-bit)\VGA ▪ D:\DRIVER\Platform\Win8(32-bit)\VGA ▪ D:\DRIVER\Platform\Win8(64-bit)\VGA ▪ D:\DRIVER\Platform\XP(32-bit)\VGA	Intel® HD Graphics Family for VGA driver installation
▪ D:\DRIVER\Platform\Win7(32-bit)\LAN ▪ D:\DRIVER\Platform\Win7(64-bit)\LAN ▪ D:\DRIVER\Platform\Win8(32-bit)\LAN ▪ D:\DRIVER\Platform\Win8(64-bit)\LAN ▪ D:\DRIVER\Platform\XP(32-bit)\LAN	Intel® 82579LM & 82583V for LAN driver installation

FILENAME (Assume that CD ROM drive is D:)	PURPOSE
▪ D:\DRIVER\Platform\Win7(32-bit)\SOUND ▪ D:\DRIVER\Platform\Win7(64-bit)\SOUND ▪ D:\DRIVER\Platform\Win8(32-bit)\SOUND ▪ D:\DRIVER\Platform\Win8(64-bit)\SOUND ▪ D:\DRIVER\Platform\XP(32-bit)\SOUND	Realtek ALC888S for sound driver installation
▪ D:\DRIVER\Platform\Win7(32-bit)\F6Floppy ▪ D:\DRIVER\Platform\Win7(64-bit)\F6Floppy ▪ D:\DRIVER\Platform\Win8(32-bit)\F6Floppy ▪ D:\DRIVER\Platform\Win8(64-bit)\F6Floppy ▪ D:\DRIVER\Platform\XP(32-bit)\F6Floppy	Intel® F6 Floppy utility
D:\DRIVER\Flash BIOS	Aptio (EFI) BIOS update utility

Note: Be sure to install the Utility right after the OS fully installed.

3-2. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-2-1. Introduction

The Intel® Chipset Device Software installs Windows INF files to the target system. These files outline to the operating system how to configure the Intel® chipset components in order to ensure that the following features function properly:

- Core PCI and ISAPNP Services
- PCIe Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- SATA Storage Support
- USB Support
- Identification of Intel® Chipset Components in the Device Manager

3-2-2. Installation of Utility for Windows XP/7/8

The Utility Pack is to be installed only for Windows XP/7/8 series, and it should be installed right after the OS installation. Please follow the steps below:

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the Utility driver is located.
3. Run the application with administrative privileges.

3-3. INTEL® RAPID STORAGE TECHNOLOGY UTILITY

3-3-1. Introduction

The Intel® RST driver utility supports RAID 0, 1, 5 and 10 and fully compatible with Windows XP/7/8, and it should be installed after the operating system is installed completely. Perform F6 and RAID BIOS configurations prior to installation of this driver for proper operation.

3-3-2. Installation of RST Driver for Windows XP/7/8

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the RST driver is located.
3. Run the application with administrative privileges.

3-4. INTEL® USB3.0 EXTENSIBLE HOST CONTROLLER UTILITY

3-4-1. Introduction

Intel® USB 3.0 eXtensible Host Controller Driver supports the following Intel® Chipsets/Processors:

- 7 Series/C216 Chipset Family
- 3rd generation Core™ Processor Family
- 2nd generation Core™ i3 processor
- 2nd generation Core™ i5 processor
- 2nd generation Core™ i7 processor
- 2nd generation Core™ i7 Extreme processor

3-4-2. Installation Instructions for Windows 7

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the driver is located.
3. Run the application with administrative privileges.

3-5. INTEL® MANAGEMENT ENGINE COMPONENTS UTILITY

3-5-1. Introduction

The Intel® ME software components that need to be installed depend on the system's specific hardware and firmware features. The installer, compatible with Windows XP/7, detects the system's capabilities and installs the relevant drivers and applications.

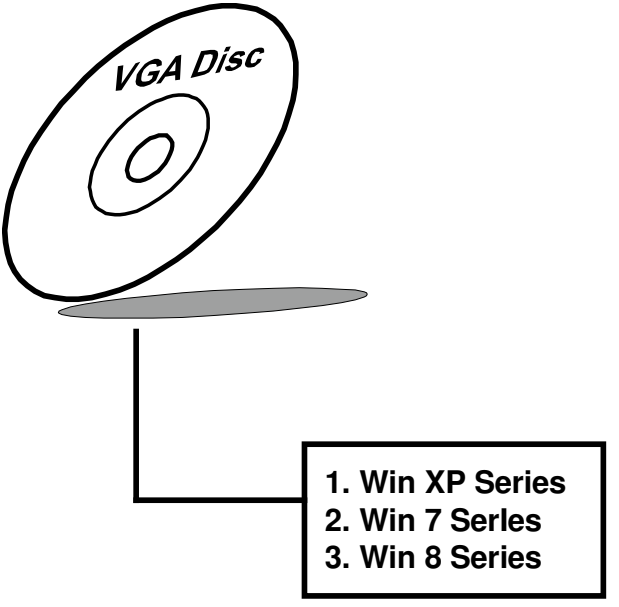
3-5-2. Installation Instructions for Windows XP/7/8

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the driver is located.
3. Run the application with administrative privileges.

3-6. VGA DRIVER UTILITY

3-6-1. Introduction

The VGA interface embedded with our PMB-891LF can support a wide range of display. You can display CRT simultaneously with the same mode.



3-6-2. Installation of VGA Driver

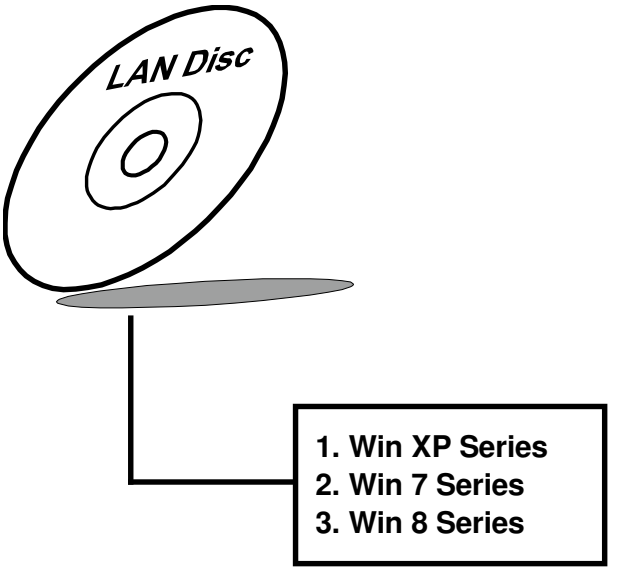
To install the VGA Driver, simply follow the following steps:

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the VGA driver is located.
3. Run the application with administrative privileges..

3-7. LAN DRIVER UTILITY

3-7-1. Introduction

PMB-891LF is enhanced with LAN function that can support various network adapters. Installation programs for LAN drivers are listed as follows:

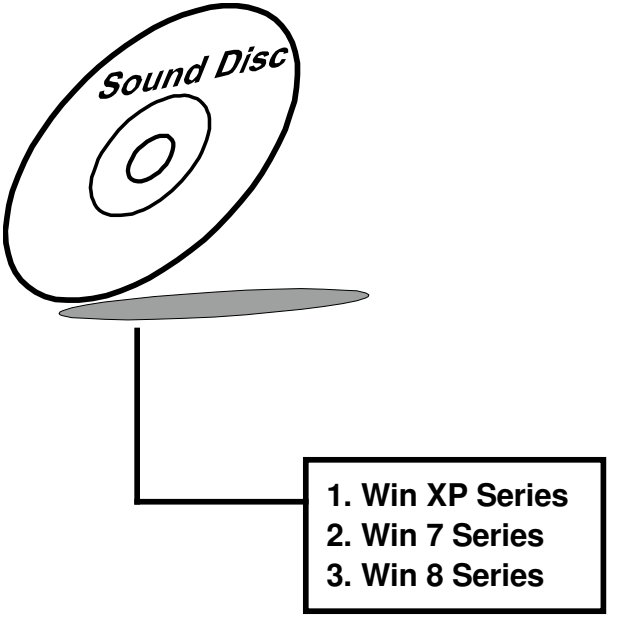


For more details on Installation procedure, please refer to Readme.txt file found on LAN Driver Utility.

3-8. SOUND DRIVER UTILITY

3-8-1. Introduction

The Realtek sound function enhanced in this system is fully compatible with Windows XP and Windows 7. Below, you will find the content of the Sound driver:



3-8-2. Installation of Sound Driver

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the Sound driver is located.
3. Run the application with administrative privileges..
4. Follow the instructions on the screen to complete the installation.
5. Once the installation is completed, shut down the system and restart in order for the changes to take effect.

AMI BIOS SETUP

CHAPTER

4

This chapter shows how to set up the AMI BIOS.

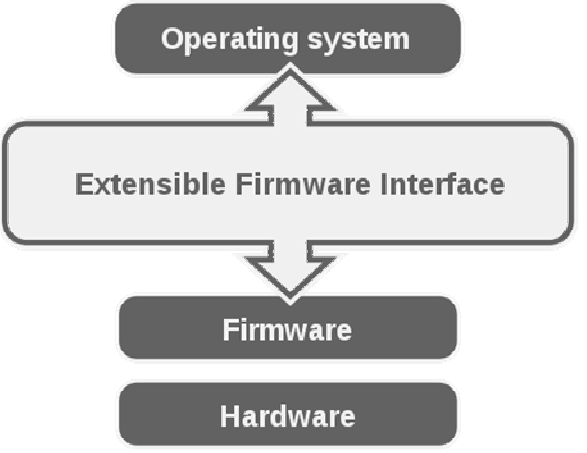
Sections included:

- Introduction
- Entering Setup
- Main
- Advanced
- Chipset
- Boot
- Security
- Save & Exit

4-1. INTRODUCTION

The board PMB-891LF uses an AMI Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the BIOS Setup program, Power-on Self-Test (POST), the PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

Aptio is AMI's BIOS firmware based on the UEFI (Unified Extensible Firmware Interface) Specifications and the Intel Platform Innovation Framework for EFI. The UEFI specification defines an interface between an operating system and platform firmware. The interface consists of data tables that contain platform-related information, boot service calls, and runtime service calls that are available to the operating system and its loader. These provide standard environment for booting an operating system and running pre-boot applications. Following illustration shows Extensible Firmware Interface's position in the software stack.



EFI BIOS provides an user interface allow users the ability to modify hardware configuration, e.g. change system date and time, enable or disable a system component, decide bootable device priorities, setup personal password, etc., which is convenient for modifications and customization of the computer system and allows technicians another method for finding solutions if hardware has any problems.

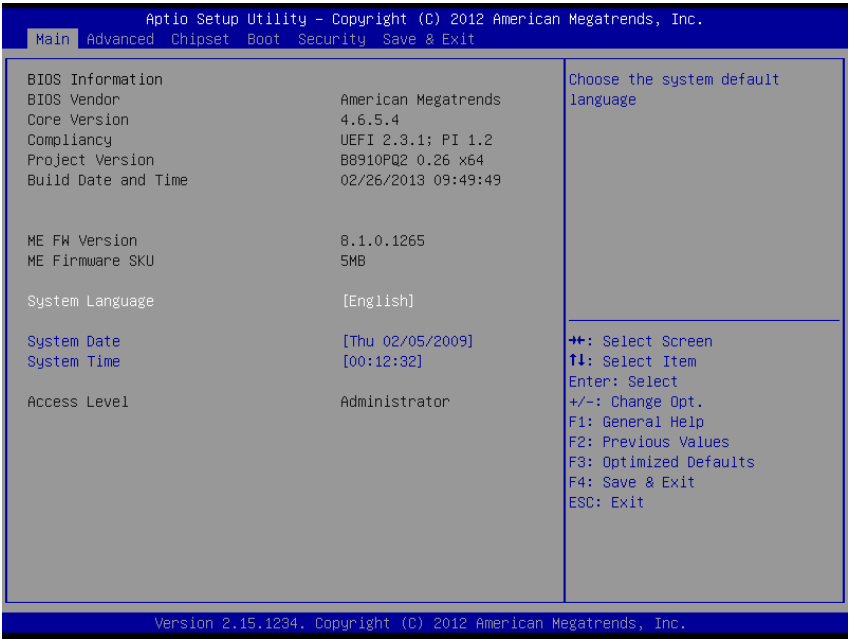
The BIOS Setup program can be used to view and change the BIOS settings for the computer. The BIOS Setup program is accessed by pressing the <Del> or <F2> key after the POST memory test begins and before the operating system boot begins. The settings are shown below.

4-2. ENTERING SETUP

When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:

BIOS POST Screen

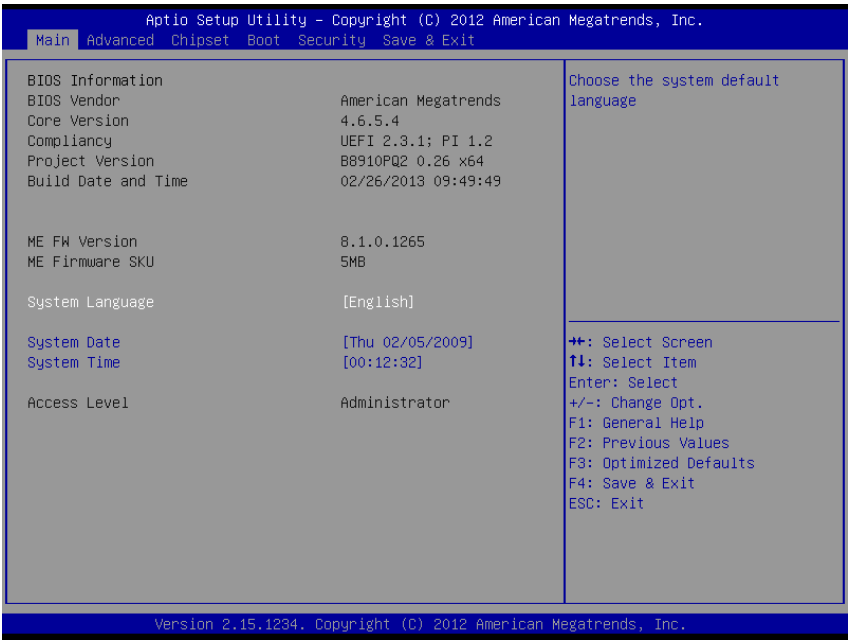
As long as this message is present on the screen you may press the <Del> key to access the Setup program. In a moment, the main menu of the Aptio Setup Utility will appear on the screen:



Setup program initial screen

You may move the cursor by up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. MAIN

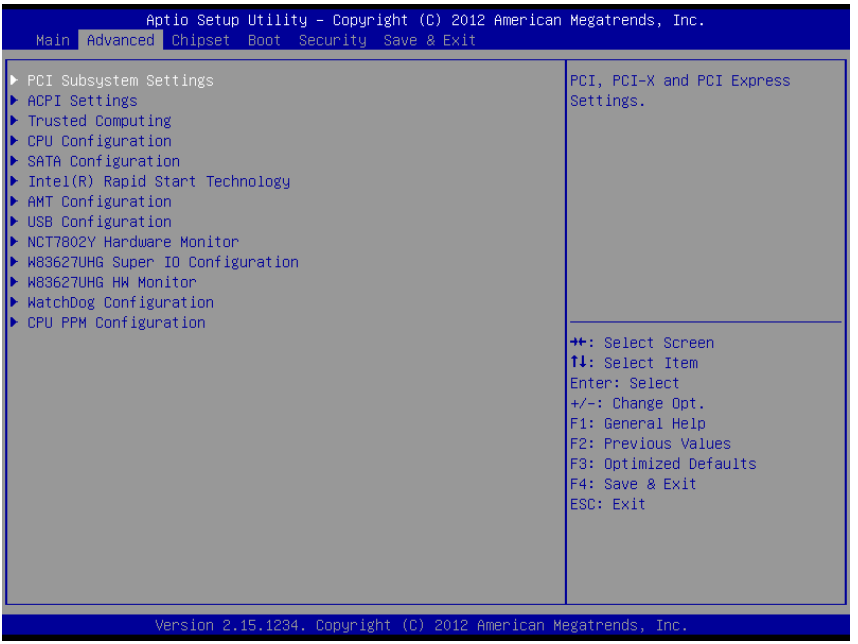


Main screen

BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Compliancy	No changeable options	Displays the current UEFI version.
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date and Time	No changeable options	Displays the date of current BIOS version.
ME FW Version	No changeable options	Displays the current ME version.
ME Firmware SKU	No changeable options	Displays the current ME SKU.
System	English	BIOS Setup language.

BIOS Setting	Options	Description/Purpose
Language		
System Date	month, day, year	Specifies the current date.
System Time	hour, minute, second	Specifies the current time.
Access Level	No changeable options	Displays the current user level.

4-4. ADVANCED

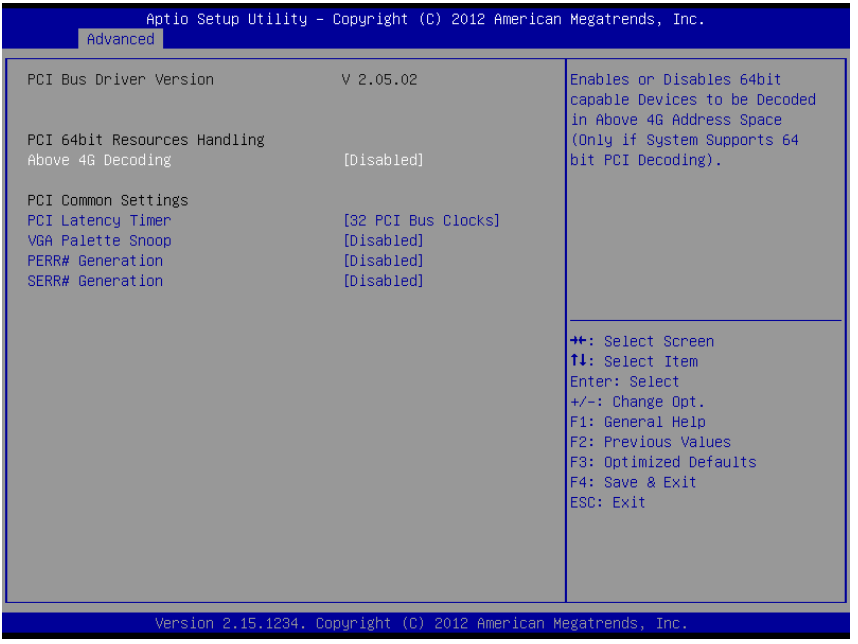


Advanced screen

BIOS Setting	Options	Description/Purpose
PCI Subsystem Settings	Sub-Menu	PCI, PCI-X and PCI Express settings.
ACPI Settings	Sub-Menu	System ACPI Parameters.
Trusted Computing	Sub-Menu	Trusted Computing settings
CPU Configuration	Sub-Menu	CPU Configuration. Parameters.
SATA Configuration	Sub-Menu	SATA Configuration Parameters.
Intel® Rapid Start Technology	Sub-Menu	Intel® Rapid Start Technology settings
AMT Configuration	Sub-Menu	Configure Active Management Technology Parameters.

BIOS Setting	Options	Description/Purpose
USB Configuration	Sub-Menu	USB Configuration Parameters.
NCT7802Y Hardware Monitor	Sub-Menu	Monitor hardware status
W83627UHG SuperIO Configuration	Sub-Menu	System Super IO Chip Configuration.
W83627UHG H/W Monitor	Sub-Menu	Monitor h/w status.
WatchDog Configuration	Sub-Menu	Watchdog timer for system reset.
CPU PPM Configuration	Sub-Menu	CPU power management parameters.

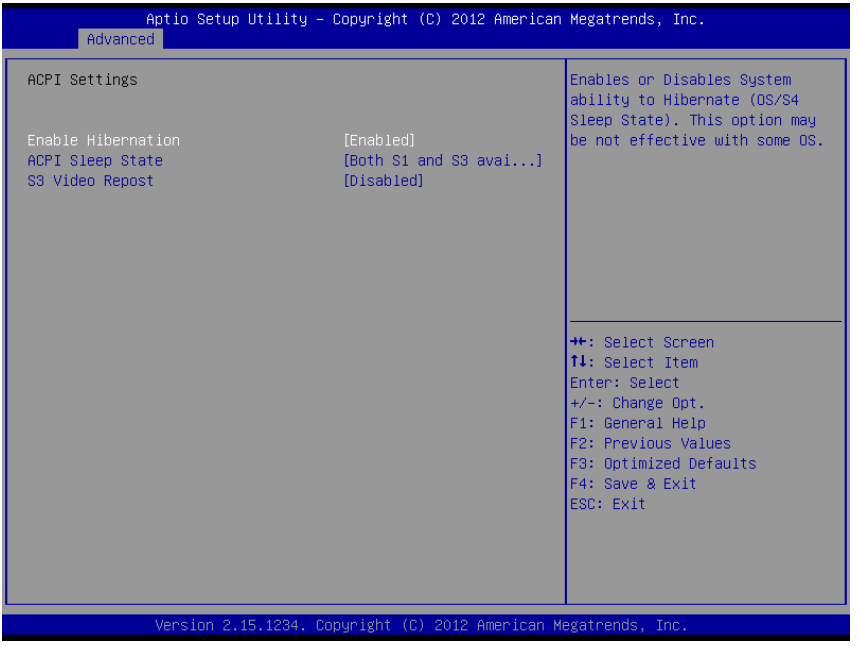
4-4-1. Advanced – PCI Subsystem Settings



PCI Subsystem Screen

BIOS Setting	Options	Description/Purpose
Above 4G Decoding	- Disabled - Enabled	Enables or Disables 64bit capable Devices to be Decoded in Above 4G Address Space (Only if System Supports 64 bit PCI Decoding).
PCI Latency Timer	- 32/64/96/128/160/192/224/248 PCI Bus Clocks	Value to be programmed into PCI Latency Timer Register.
VGA Palette Snoop	- Disabled - Enabled	Enables or Disables VGA Palette Registers Snooping.
PERR# Generation	- Disabled - Enabled	Enables or Disables PCI Device to Generate PERR#.
SERR# Generation	- Disabled - Enabled	Enables or Disables PCI Device to Generate SERR#.

4-4-2. Advanced - ACPI Settings

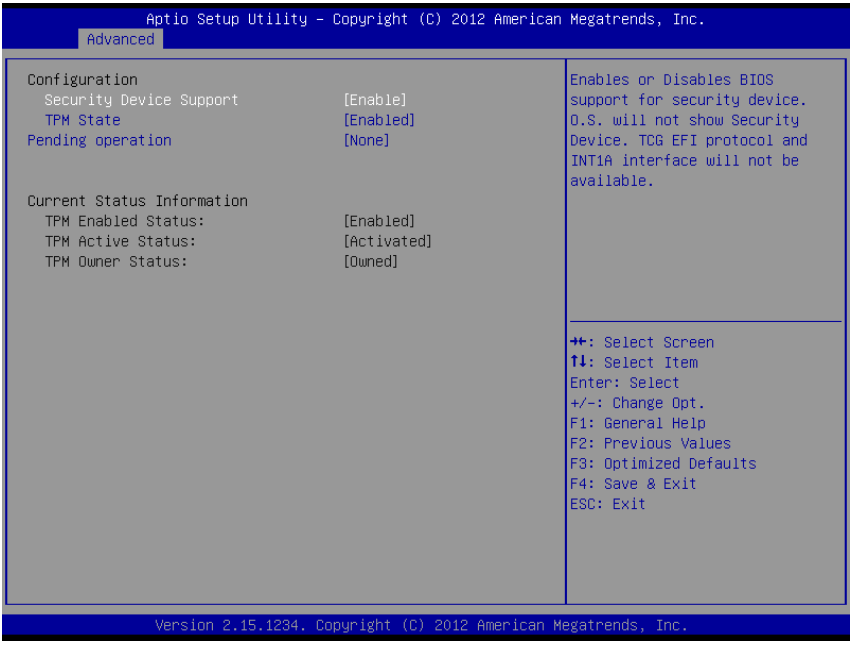


ACPI Settings Screen

BIOS Setting	Options	Description/Purpose
Enable Hibernation	- Disabled - Enabled	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	- Suspend Disabled - S1 Only (CPU Stop Clock) - S3 Only (Suspend to RAM) - Both S1 and S3 available for OS to choose from	Specifies the ACPI sleep state. ▪ **Suspend Disabled** disables ACPI sleep feature. ▪ **S1** mode allows the CPU enter Stop Clock mode to stop executing instructions. ▪ **S3** allows the platform to enter Suspend to RAM mode.

BIOS Setting	Options	Description/Purpose
S3 Video Repost	- Disabled - Enabled	Enable or Disable S3 Video Repost function. (for some of the Linux OS)

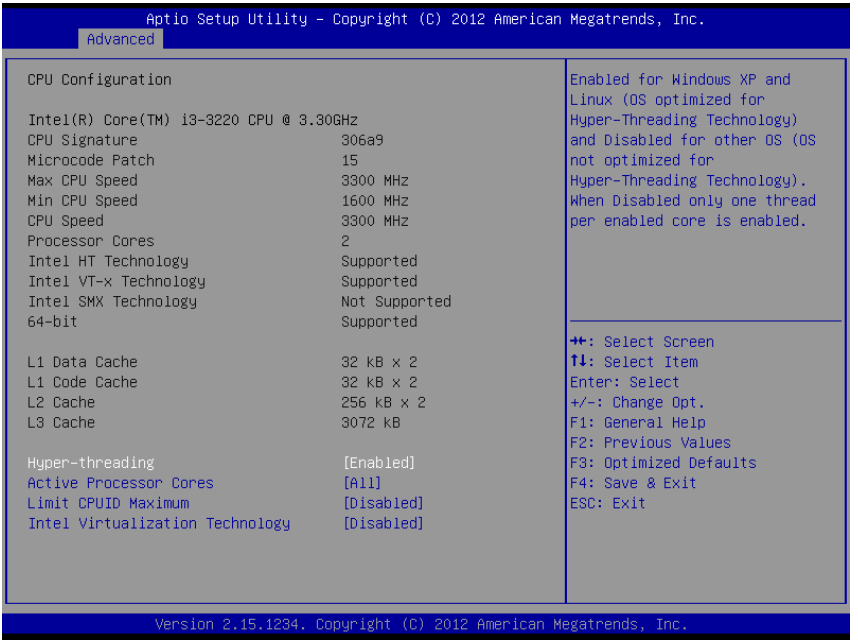
4-4-3. Advanced –Trusted Computing



Trusted Computing Screen

BIOS Setting	Options	Description/Purpose
TPM Support	- Disable - Enable	Allows to active support for Trusted Platform Module.
TPM State	- Disabled - Enabled	Allows enabling TPM.
Pending TPM Operation	- None - Enable Take Ownership - Disable Take Ownership - TPM Clear	Schedule an Operation for the Security Device.
TPM Enabled Status	No changeable options	Reports if TPM is enabled.
TPM Active Status	No changeable options	Reports the current TPM active status.
TPM Owner Status	No changeable options	Reports the current TPM ownership status.

4-4-4. Advanced -CPU Configuration

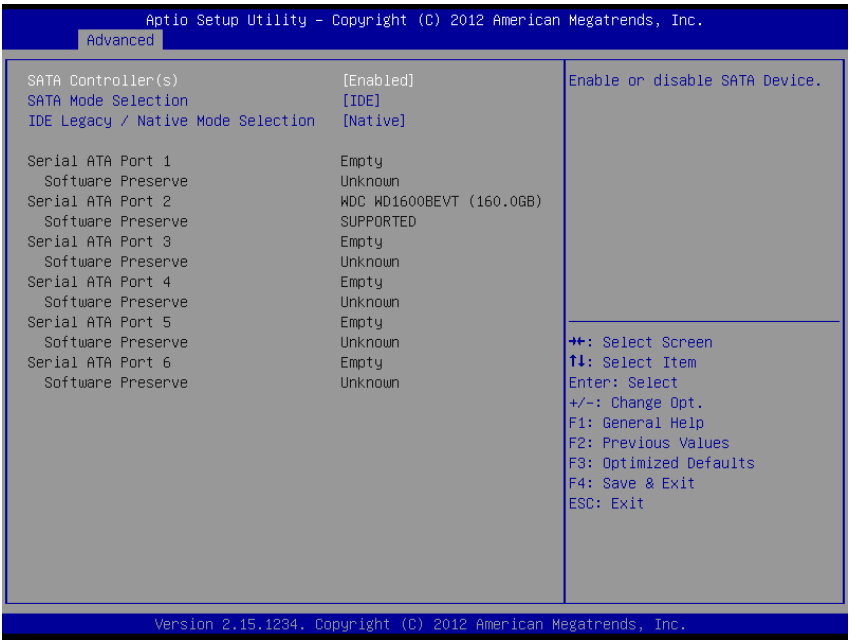


CPU Configuration Screen

BIOS Setting	Options	Description/Purpose
CPU Signature	No changeable options	Reports the CPU Signature
Microcode Patch	No changeable options	Reports the CPU Microcode Patch Version.
Max CPU Speed	No changeable options	Reports the maximum CPU Speed.
Min CPU Speed	No changeable options	Reports the minimun CPU Speed
CPU Speed	No changeable options	Reports the current CPU Speed
Processor Cores	No changeable options	Displays number of physical cores in processor.
Intel HT Technology	No changeable options	Reports if Intel Hyper-Threading Technology is supported by processor

BIOS Setting	Options	Description/Purpose
Intel VT-x Technology	No changeable options	Reports if Intel VT-x Technology is supported by processor.
Intel SMX Technology	No changeable options	Reports if Intel SMX Technology is supported by processor.
64-bit	No changeable options	Reports if 64-bit is supported by processor.
L1 Data Cache	No changeable options	Displays size of L1 Data Cache
L1 Code Cache	No changeable options	Displays size of L1 Code Cache
L2 Cache	No changeable options	Displays size of L2 Cache.
L3 Cache	No changeable options	Displays size of L3 Cache.
Hyper-threading	- Disabled - Enabled	When disabled, only one thread per active core will operate.
Active Processor Cores	- All - 1/2/3	Choose the number of cores to be enabled in current processor.
Limit CPUID Maximum	- Disabled - Enabled	Enables for legacy operating systems to boot processors with extended CPUID functions. Set disable for WinXP.
Intel Virtualization Technology	- Disabled - Enabled	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology(VT).

4-4-5. Advanced –SATA Configuration

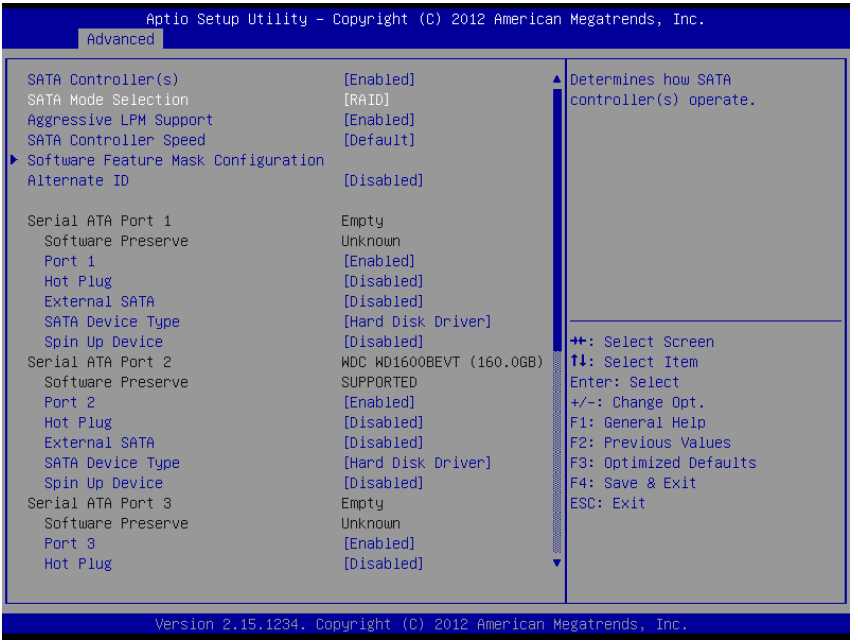


SATA Configuration Screen - IDE Mode Screen

BIOS Setting	Options	Description/Purpose
SATA Controller(s)	- Disabled - Enabled	Enable or disable SATA Device.
SATA Mode Selection	- IDE - AHCI - RAID	Configures SATA as following: **IDE:** Set SATA operation mode to IDE mode. **AHCI:** SATA works as AHCI (Advanced Host Controller Interface) mode for getting better performance. **RAID:** Enables RAID (Redundant Array of Inexpensive Disks) function which may require installing the RAID driver during OS installation.

BIOS Setting	Options	Description/Purpose
		Note that some more items shows up when select to **[AHCI]** or **[RAID]** mode.
IDE Legacy / Native Mode Selection	- Native - Legacy	Select IDE operation mode as Naïve mode or Legacy mode.
Serial ATA Port1	[drive]	Displays the drive installed on this SATA port 0. Shows [Empty] if no drive is installed.
Serial ATA Port2	[drive]	Displays the drive installed on this SATA port 1. Shows [Empty] if no drive is installed.
Serial ATA Port3	[drive]	Displays the drive installed on this SATA port 2. Shows [Empty] if no drive is installed.
Serial ATA Port4	[drive]	Displays the drive installed on this SATA port 3. Shows [Empty] if no drive is installed.
Serial ATA Port5	[drive]	Displays the drive installed on this SATA port 4. Shows [Empty] if no drive is installed.
Serial ATA Port6	[drive]	Displays the drive installed on this SATA port 5. Shows [Empty] if no drive is installed.

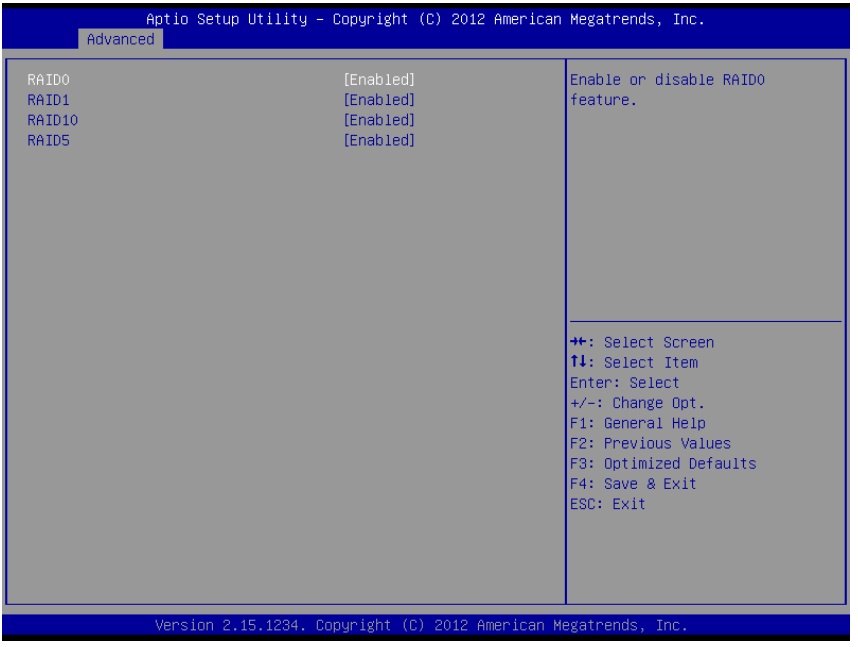
When you select SATA Mode to [AHCI] or [RAID], it shows some more items as below:



SATA Configuration – RAID/AHCI Mode Screen

BIOS Setting	Options	Description/Purpose
Aggressive LPM Support	- Disabled - Enabled	Enable PCH to aggressively enter link power state.
SATA Controller Speed	- Gen1 - Gen2 - Gen3	Indicates the maximum speed the SATA controller can support.
Software Feature Mask Configuration	Sub-menu	RAID OROM/RST driver will refer to the SWFM configuration to enable or disable the storage features.
Alternate ID	- Disabled - Enabled	Report alternate Device ID. (Note that AHCI mode dose not support it.)
Port 1/2/3/4/5/6	- Disabled - Enabled	Enables or disable SATA port.

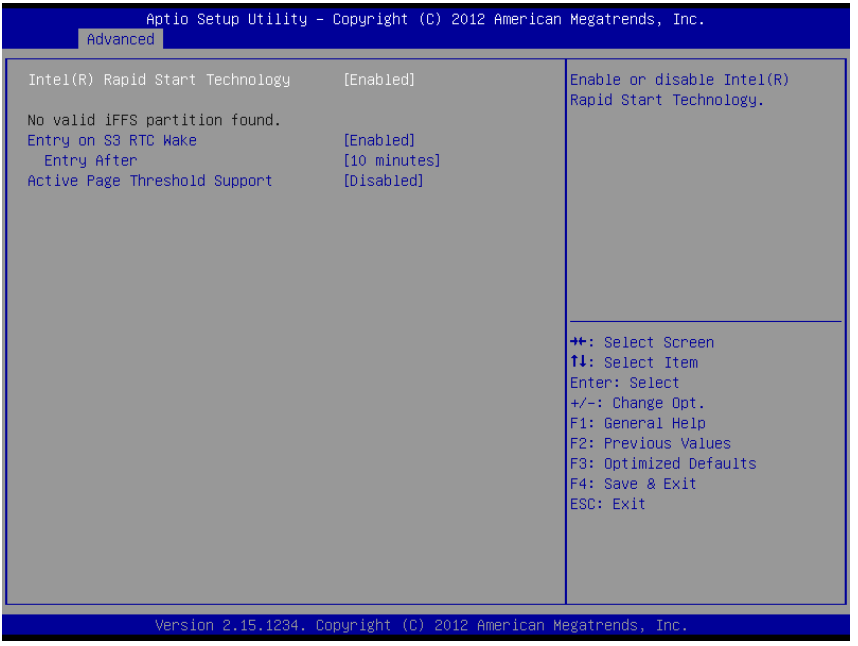
BIOS Setting	Options	Description/Purpose
Hot Plug	- Disabled - Enabled	Designates this port as Hot Pluggable.
External SATA	- Disabled - Enabled	External SATA Support.
SATA Device Type	- Hard Disk Driver - Solid State Drive	Identify the SATA port is connected to Solid State Drive or Hard Disk Drive.
Spin Up Device	- Disabled - Enabled	On an edge detect from 0 to 1, the PCH starts a COMRESET initialization sequence to the device.



RAID/AHCI Mode - Software Feature Mask Configuration Screen

BIOS Setting	Options	Description/Purpose
RAID0	- Disabled - Enabled	Enable or disable RAID 0 feature.
RAID1	- Disabled - Enabled	Enable or disable RAID 1 feature.
RAID10	- Disabled - Enabled	Enable or disable RAID 10 feature.
RAID5	- Disabled - Enabled	Enable or disable RAID 5 feature.

4-4-6. Advanced –Intel(R) Rapid Start Technology

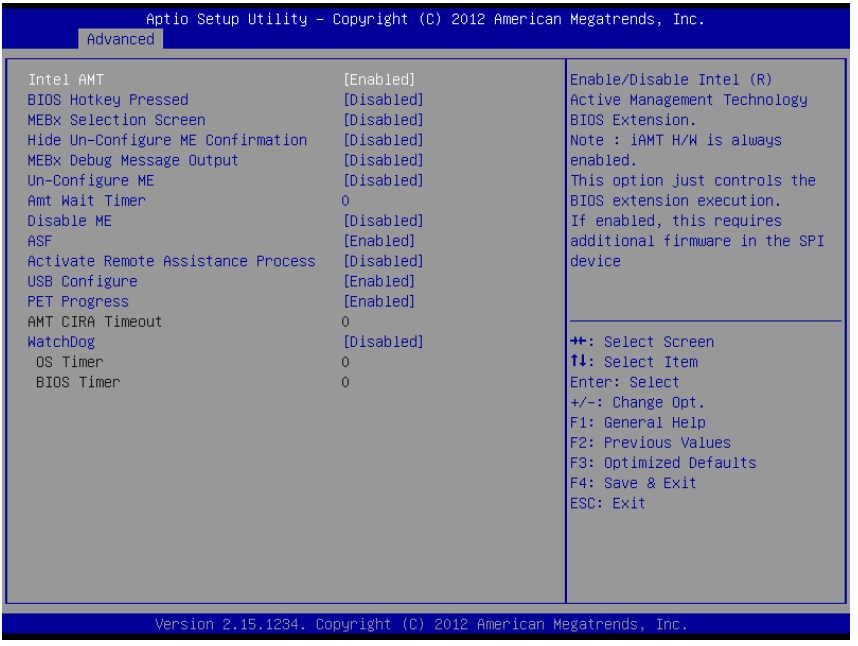


Intel(R) Rapid Start Technology Screen

BIOS Setting	Options	Description/Purpose
Intel(R) Rapid Start Technology	- Disabled - Enabled	Enable or disable the Intel(R) Rapid Start Technology
Entry on S3 RTC Wake	- Disabled - Enabled	iFFS invocation upon S3 RTC wake.
Entry After	- 1 minute - 2 minutes - 5 minutes - 10 minutes - 15 minutes - 30 minutes - 1 hour - 2 hours	Enable RTC wake timer at S3 entry.

BIOS Setting	Options	Description/Purpose
Active Page Threshold Support	- Disabled - Enabled	Support RST with small prtiotion.
Active Memory Threshold	multiple options ranging from 0 to 65535	Try to support RST when partition size > Active Page Threshold size in MB. When setting to zero, it will be in AUTO mode and check if partition size is enough at S3 entry.

4-4-7. Advanced – AMT Configuration

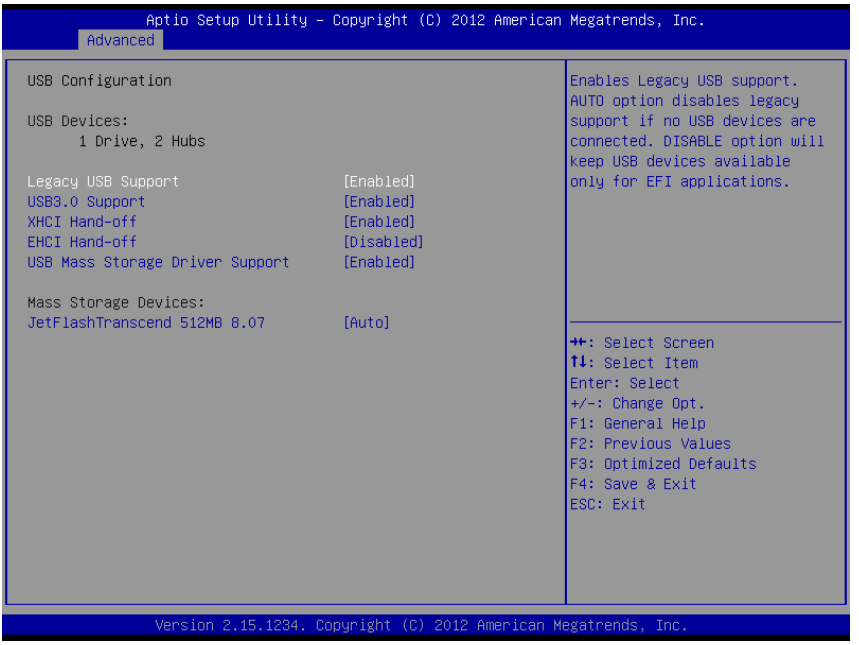


AMT Configuration Screen

BIOS Setting	Options	Description/Purpose
Intel AMT	- Disabled - Enabled	Enable/Disable Intel (R) Active Management Technology BIOS Extension. This option just controls the BIOS extension execution.
BIOS Hotkey Pressed	- Disabled - Enabled	OEMFLag Bit 1: Enable/Disable BIOS hotkey press.
MEBx Selection Screen	- Disabled - Enabled	OEMFLag Bit 2: Enable/Disable MEBx selection screen.
Hide Un-Configure ME Confirmation Prompt	- Disabled - Enabled	OEMFlag Bit 6: Hide Un-Configure ME without password Confirmation Prompt

BIOS Setting	Options	Description/Purpose
MEBx Debug Message Output	- Disabled - Enabled	OEMFlag Bit 14 : Enable MEBx debug message output.
Un-Configure ME	- Disabled - Enabled	OEMFlag Bit 15: Un-Configure ME without password.
Amt Wait Timer	multiple options ranging from 0 to 65535	Set timer to wait before sending ASF_GET_BOOT_OPTIONS.
Disable ME	- Disabled - Enabled	Set ME to Soft Temporary Disabled.
ASF	- Disabled - Enabled	Enable/Disable Alert Specification Format.
Activate Remote Assistance Process	- Disabled - Enabled	Trigger CIRA boot
USB Configure	- Disabled - Enabled	Enable/Disable USB Configure function.
PET Progress	- Disabled - Enabled	User can Enable/Disable PET Events progress to receive PET events or not.
AMT CIRA Timeout	multiple options ranging from 0 to 255	OEM defined timeout for MPS connection to be established. **0**: use the default timeout value of 60 seconds. **255**: MEBX waits until the connection succeeds Note. This setting only available when [Activate Remote Assistance Process] = [Enabled]
WatchDog	- Disabled - Enabled	Enable/Disable WatchDog Timer.
OS Timer	multiple options ranging from 0 to 65535	Set OS watchdog imer. Note. This setting only available when [WatchDog] = [Enabled]
BIOS Timer	multiple options ranging from 0 to 65535	Set BIOS watchdog imer. Note. This setting only available when [WatchDog] = [Enabled]

4-4-8. Advanced –USB Configuration

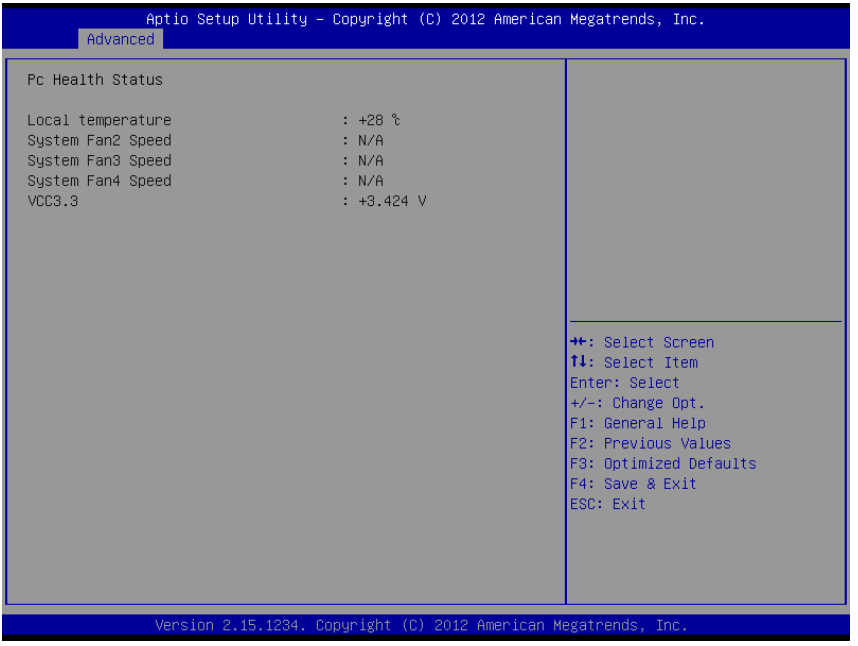


USB Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays number of available USB devices.
Legacy USB Support	- Disabled - Enabled - Auto	Enables support for legacy USB.
USB3.0 Support	- Disabled - Enabled	Enable/Disable USB3.0 (XHCI) Controller support.
XHCI Hand-off	- Disabled - Enabled	This is a workaround for OSes w/o XHCI hand-off support.
EHCI Hand-off	- Disabled - Enabled	This is a workaround for OSes w/o EHCI hand-off support.
USB Mass Storage Driver Support	- Disabled - Enabled	Enable or disable USB Storage Driver support.

BIOS Setting	Options	Description/Purpose
Mass Storage Devices <Device Name>	- Auto - Floppy - Force FDD - Hard Disk - CD-ROM	Display the device name and choose the device emulation type.

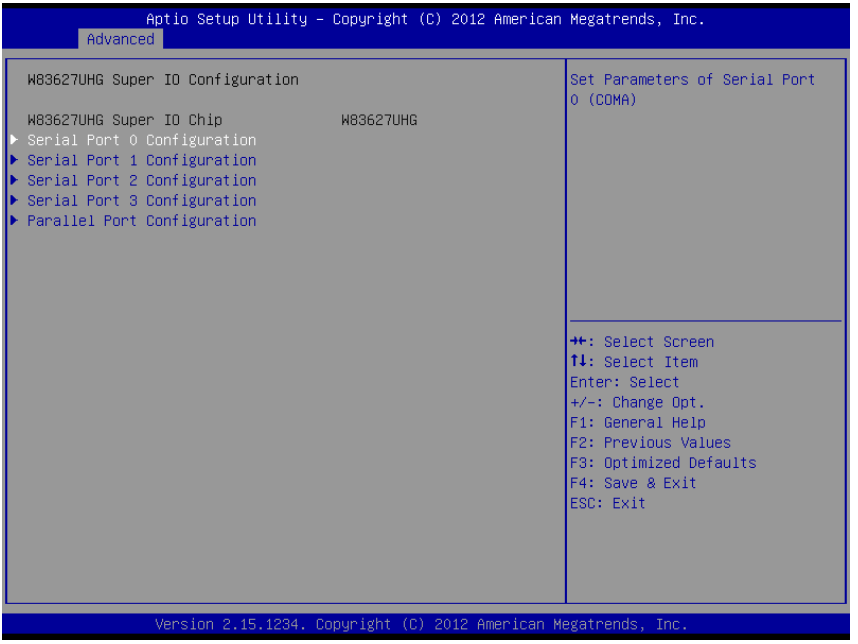
4-4-9. Advanced –NCT7802Y Hardware Monitor



NCT7802Y Hardware Monitor Screen

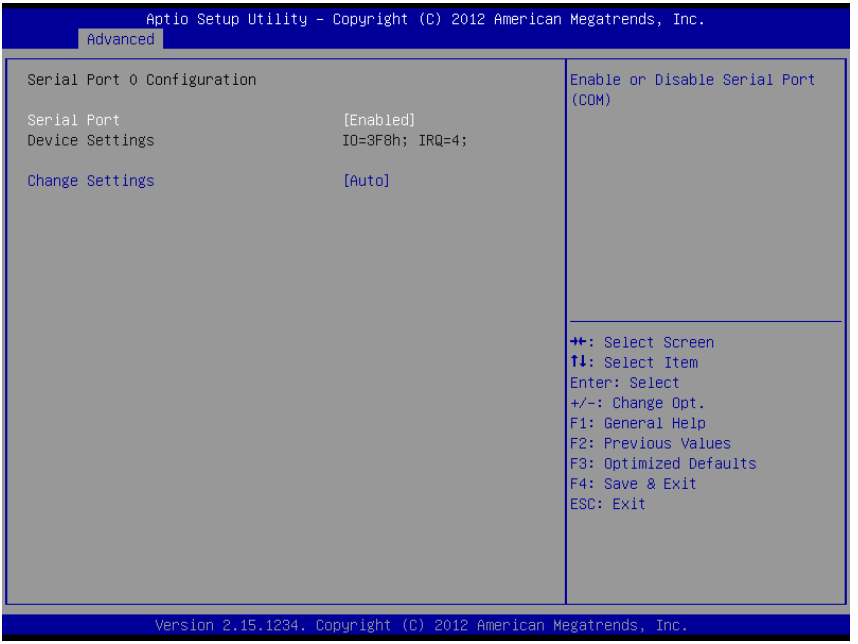
BIOS Setting	Options	Description/Purpose
Local temperature	No changeable options	Displays chassis temperature information.
System Fan2 Speed	No changeable options	Displays the Sys_Fan2 speed.
System Fan3 Speed	No changeable options	Displays the Sys_Fan3 speed.
System Fan4 Speed	No changeable options	Displays the Sys_Fan4 speed.
VCC3.3	No changeable options	Displays voltage level of the VCC3.3 in supply.

4-4-10. Advanced – W83627UHG Super IO Configuration



W83627UHG Super IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Super IO Chip	No changeable options	Displays the super IO chip model and its manufacturer.
Serial Port 0 Configuration	Sub-menu	Set Parameters for COMA
Serial Port 1 Configuration	Sub-menu	Set Parameters for COMB
Serial Port 2 Configuration	Sub-menu	Set Parameters for COMC
Serial Port 3 Configuration	Sub-menu	Set Parameters for COMD
Parallel Port Configuration	Sub-menu	Set Parameters for LPT port.

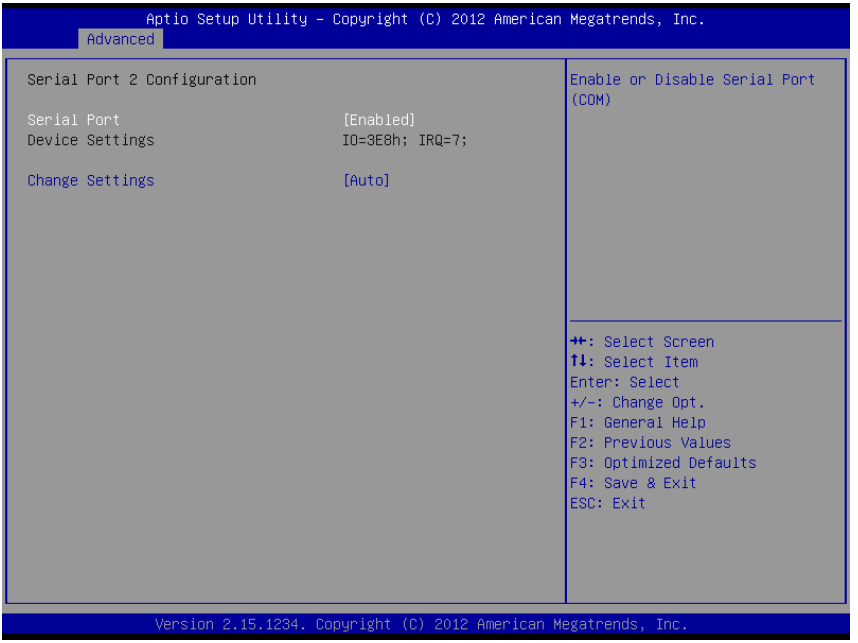


Serial Port 0 Configuration (COM1) Screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Enable or disable serial port 0.
Device Settings	No changeable options	Displays current settings of serial port 0.
Change Settings	-Auto -IO=3F8h; IRQ=4 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select IRQ and I/O resource for the serial port 0.

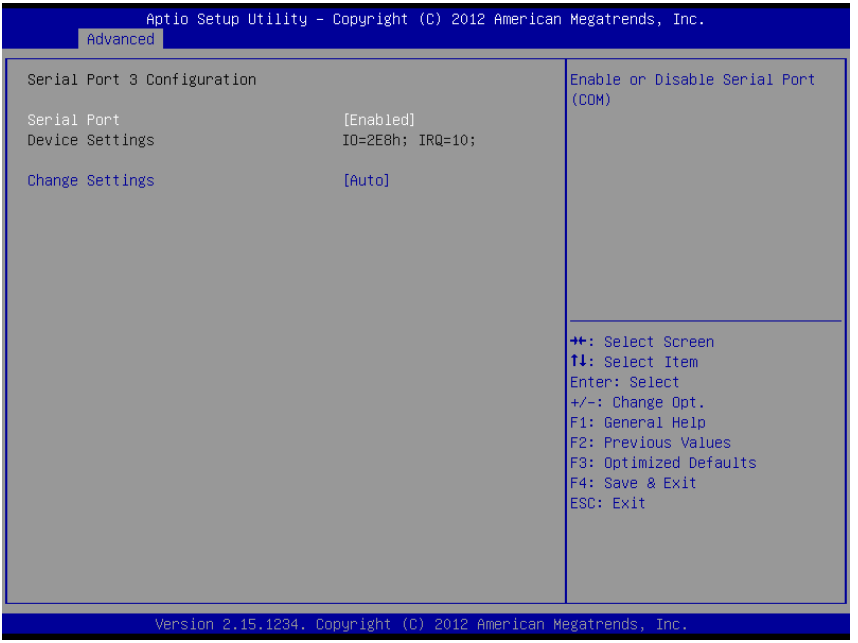
Serial Port 1 Configuration (COM2) Screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Enable or disable serial port 1.
Device Settings	No changeable options	Displays current settings of serial port 1.
Change Settings	-Auto -IO=2F8h; IRQ=3 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select IRQ and I/O resource for the serial port 1.
Device Mode	- Standard Serial Port Mode - IrDA 1.0 (HP SIR) Mode	Choose the operation mode of serial port 1.



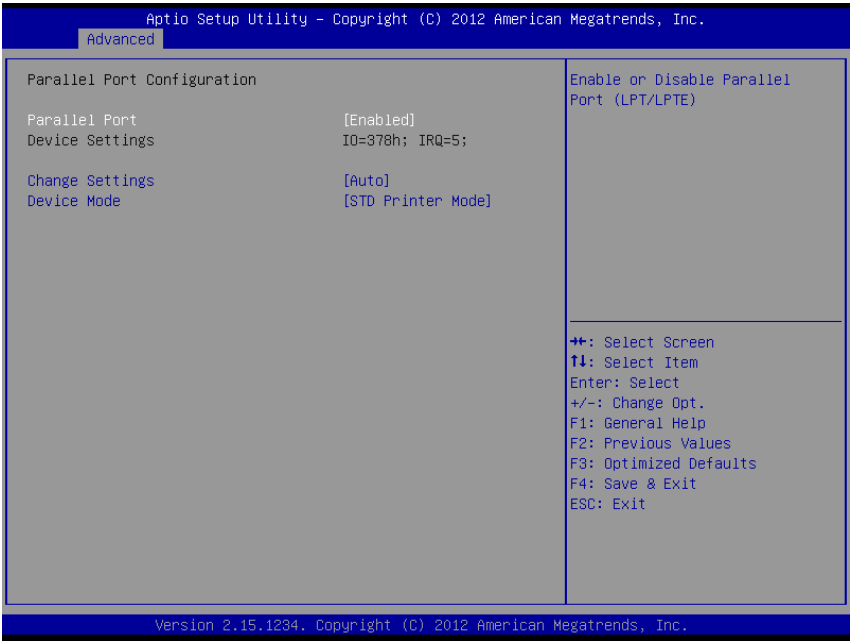
Serial Port 2 Configuration (COM3) Screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Enable or disable serial port 2.
Device Settings	No changeable options	Displays current settings of serial port 2.
Change Settings	-Auto -IO=3E8h; IRQ=7 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select IRQ and I/O resource for the serial port 2.



Serial Port 3 Configuration (COM4) Screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Enable or disable serial port 3.
Device Settings	No changeable options	Displays current settings of serial port 3.
Change Settings	-Auto -IO=2E8h; IRQ=10 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select IRQ and I/O resource for the serial port 3.

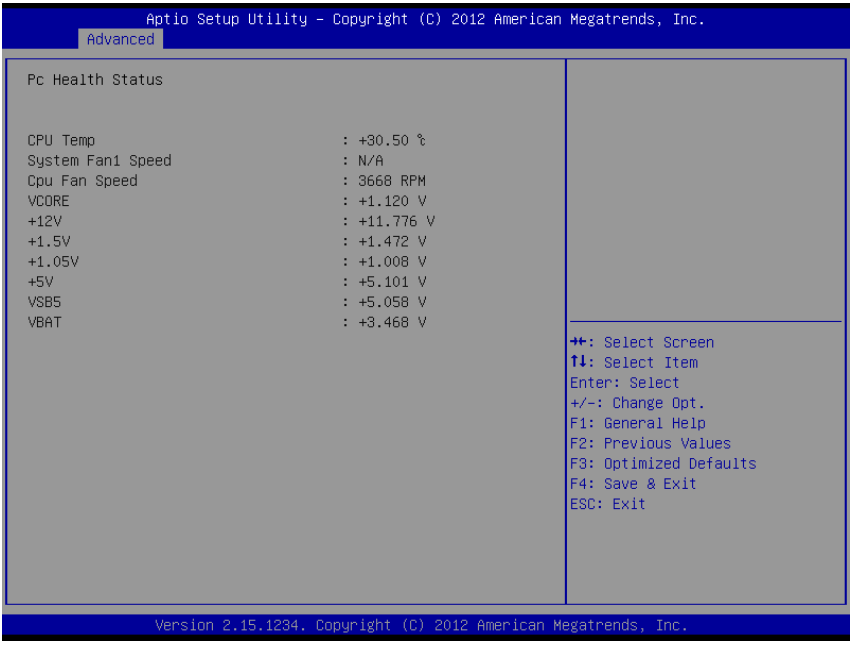


Parallel Port Configuration Screen

BIOS Setting	Options	Description/Purpose
Parallel Port	-Disabled -Enabled	Enable or disable the printer port.
Device Settings	No changeable options	Displays current settings of the printer port.
Change Settings	-Auto -IO=378h; IRQ=5 -IO=378h; IRQ=5,6,7,10,11,12 -IO=278h; IRQ=5,6,7,10,11,12 -IO=3BCh; IRQ=5,6,7,10,11,12	Select IRQ and I/O resource for the printer port..

BIOS Setting	Options	Description/Purpose
Device Mode	-STD Printer Mode -SPP Mode -EPP-1.9 and SPP Mode -EPP-1.7 and SPP Mode -ECP Mode -ECP and EPP 1.9 Mode -ECP and EPP 1.7 Mode	Selects the mode for the parallel port. Not available if the parallel port is disabled. **SPP** is Standard Parallel Port mode, a bi-directional mode for printers. **EPP** is Enhanced Parallel Port mode, a high-speed bi-directional mode for non-printer peripherals. **ECP** is Enhanced Capability Port mode, a high-speed bi-directional mode for printers and scanners.

4-4-11. Advanced –W83627UHG H/W Monitor

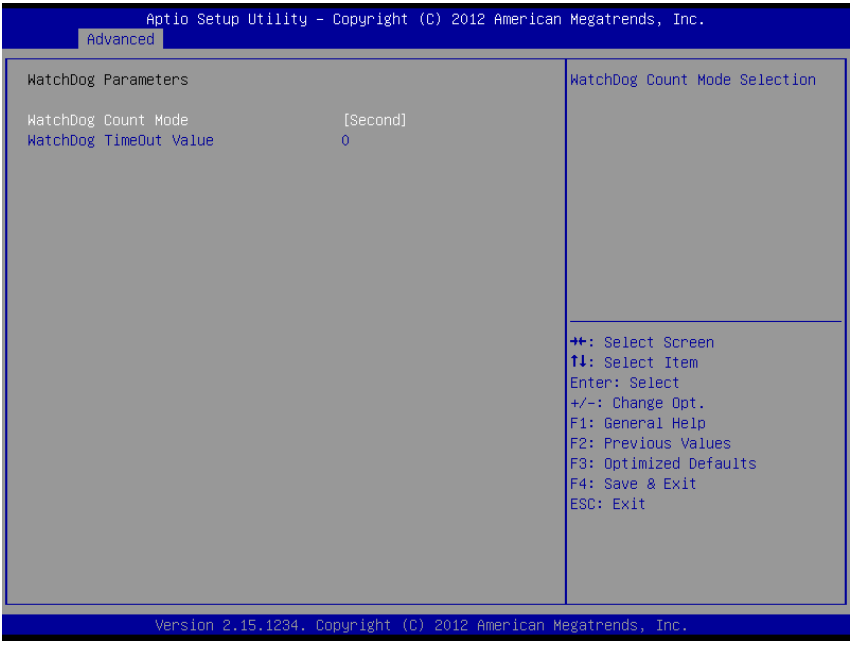


W83627UHG H/W Monitor Screen

BIOS Setting	Options	Description/Purpose
CPU Temperature	No changeable options	Displays processor's temperature.
SysFan Speed	No changeable options	Displays fan speed of the chassis fan.
CpuFan Speed	No changeable options	Displays fan speed of the CPU fan.
VCORE	No changeable options	Displays voltage level of the +VCORE in supply.
+12	No changeable options	Displays voltage level of the +12V in supply.
+1.5	No changeable options	Displays voltage level of the +1.5V in supply.
+1.05	No changeable options	Displays voltage level of the +1.05V in supply.

BIOS Setting	Options	Description/Purpose
+5	No changeable options	Displays voltage level of the +5V in supply.
5VSB	No changeable options	Displays voltage level of the +VSB5 in supply.
VBAT	No changeable options	Displays voltage level of the backup CMOS battery.

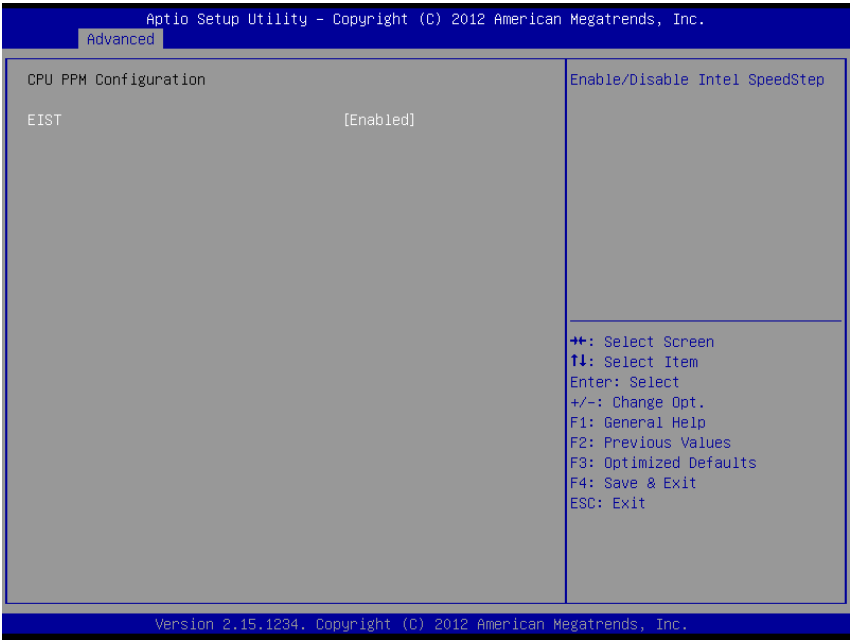
4-4-12. Advanced –Watchdog Configuration



Watchdog Configuration Screen

BIOS Setting	Options	Description/Purpose
Watch Dog Timer Time-Out Value	multiple options ranging from 0 to 255	Sets the desired value (seconds) for watchdog timer.

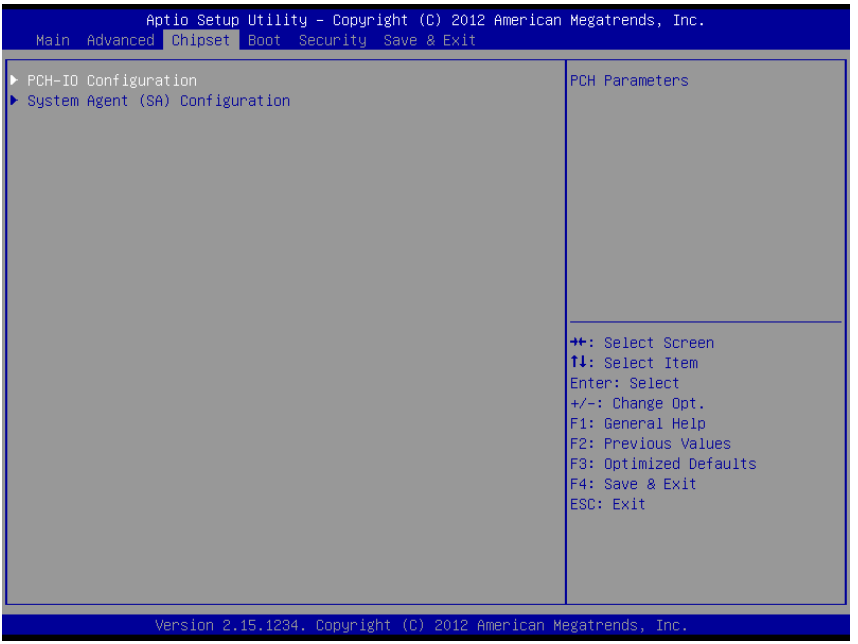
4-4-13. Advanced –CPU PPM Configuration



CPU PPM Screen

BIOS Setting	Options	Description/Purpose
EIST	-Disabled -Enabled	Enable/Disable Intel SpeedStep.

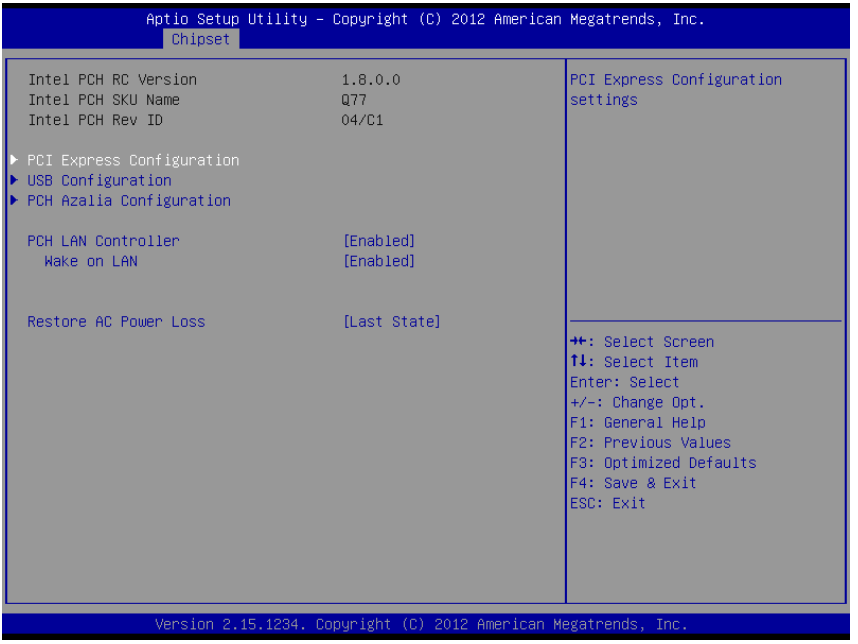
4-5. CHIPSET



Chipset screen

BIOS Setting	Options	Description/Purpose
PCH-IO Configuration	Sub-menu	Sets Parameter for Panther Point (South Bridge) configuration.
System Agent (SA) Configuration	Sub-menu	Sets Parameter for Ivy Bridge (North Bridge) configuration.

4-5-1. Chipset - PCH-IO Configuration



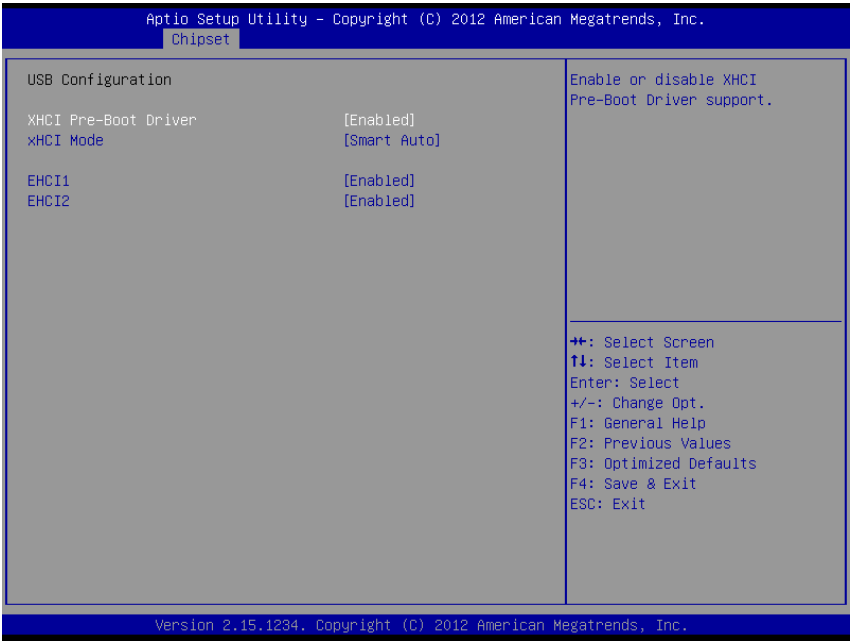
PCH-IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Intel PCH RC Version	No changeable option	Displays the PCH source code module version
Intel PCH SKU Name	No changeable option	Displays PCH product SKU name.
Intel PCH Rev ID	No changeable option	Displays onboard PCH chip revision.
PCI Express Configuration	Sub-menu	Configure PCH PCIE parameters
USB Configuration	Sub-menu	Configure USB parameters.
PCH Azalia Configuration	Sub-menu	Configure Azalia (HD-Audio) parameters.

BIOS Setting	Options	Description/Purpose
PCH LAN Controller	- Disabled - Enabled	Enabled/Disabled onboard NIC.
Wake on LAN	- Disabled - Enabled	Enabled/Disabled integrated LAN to wake up system.
Restore AC Power Loss	- Power Off - Power On - Last State	Select AC power state when power is re-applied after a power failure. **Power Off** keeps the power off till the power button is pressed. **Power On** makes system power on after restores AC power to the board. **Last State** brings system back to the last power state before AC remove.

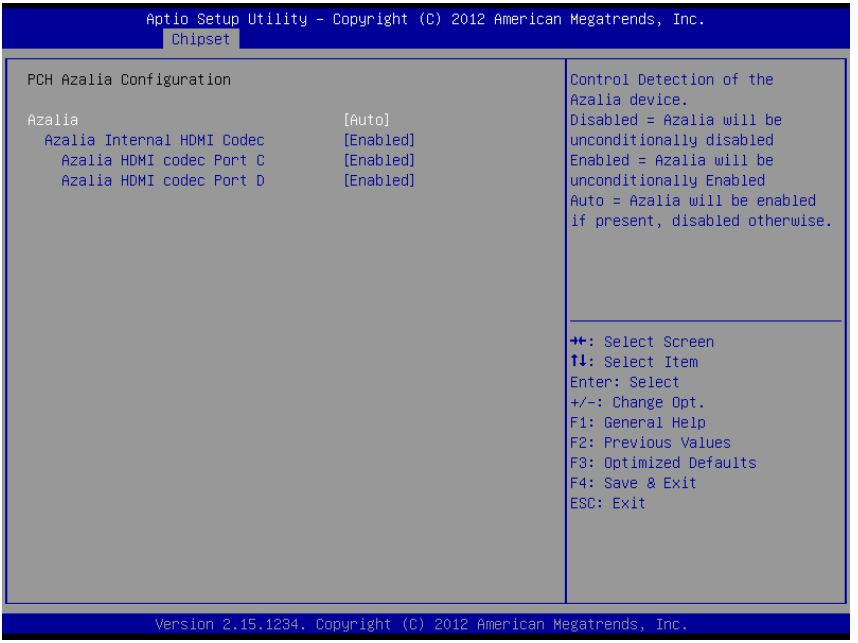
PCI Express Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Clock Gating	- Disabled - Enabled	Enable or disable PCI Express Clock Gating for each root port.
PCIe-USB Glitch W/A	- Disabled - Enabled	PCIe-USB Glitch W/A for bad USB device(s) connected behind PCIE/PEG Port.



USB Configuration Screen

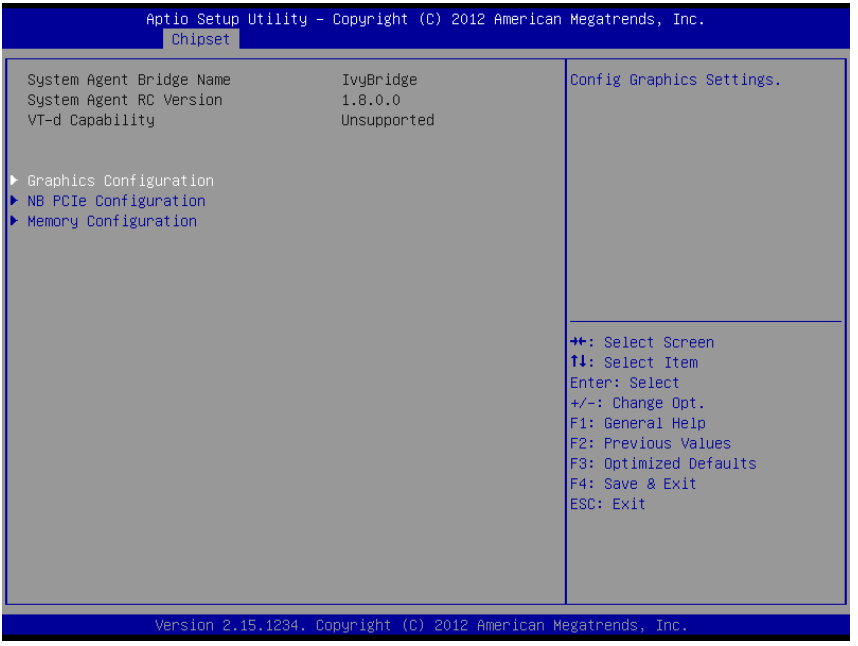
BIOS Setting	Options	Description/Purpose
XHCI Pre-Boot Driver	- Disabled - Enabled	Enable or disable XHCI Pre-Boot Driver support.
XHCI Mode	- Smart Auto - Auto - Enabled - Disabled	Select operation mode of XHCI controller.
EHCI1	- Disabled - Enabled	Enables Enhanced Host Controller Interface 1 for high-speed USB functions (USB 2.0).
EHCI 2	- Disabled - Enabled	Enables Enhanced Host Controller Interface 2 for high-speed USB functions (USB 2.0).



PCH Azalia Configuration Screen

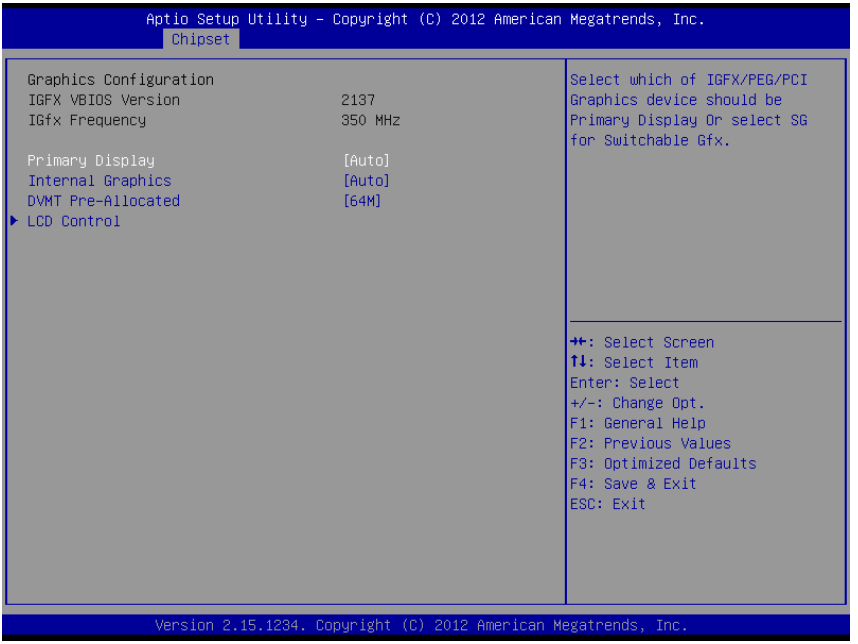
BIOS Setting	Options	Description/Purpose
Azalia	- Disabled - Enabled - Auto	Control detection of the Azalia (HD-Audio) device.
Azalia Internal HDMI Codec	- Disabled - Enabled	Main switch for enable or disable the internal HDMI codec
Azalia HDMI codec Port C	- Disabled - Enabled	Enable or disable the internal HDMI codec for DP1
Azalia HDMI codec Port D	- Disabled - Enabled	Enable or disable the internal HDMI codec for DP2

4-5-2. Chipset - System Agent (SA) Configuration



System Agent (SA) Configuration Screen

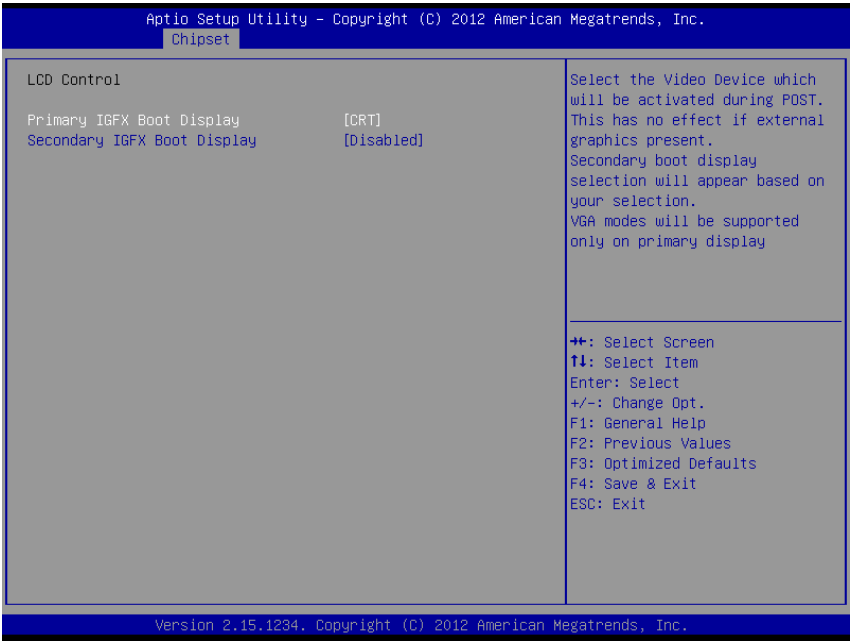
BIOS Setting	Options	Description/Purpose
System Agent Bridge Name	No changeable options	Displays the CPU/NB bridge name
System Agent RC Version	No changeable options	Displays the IVB source code module version
VT-d Capability	No changeable options	Display this chipset support VT-d or not.
Graphics Configuration	Sub-menu	Configure Graphic Settings.
NB PCIe Configuration	Sub-menu	Configure IVB PCIe Settings
Memory Configuration	Sub-menu	Memory Configuration Parameters



Graphics Configuration Screen

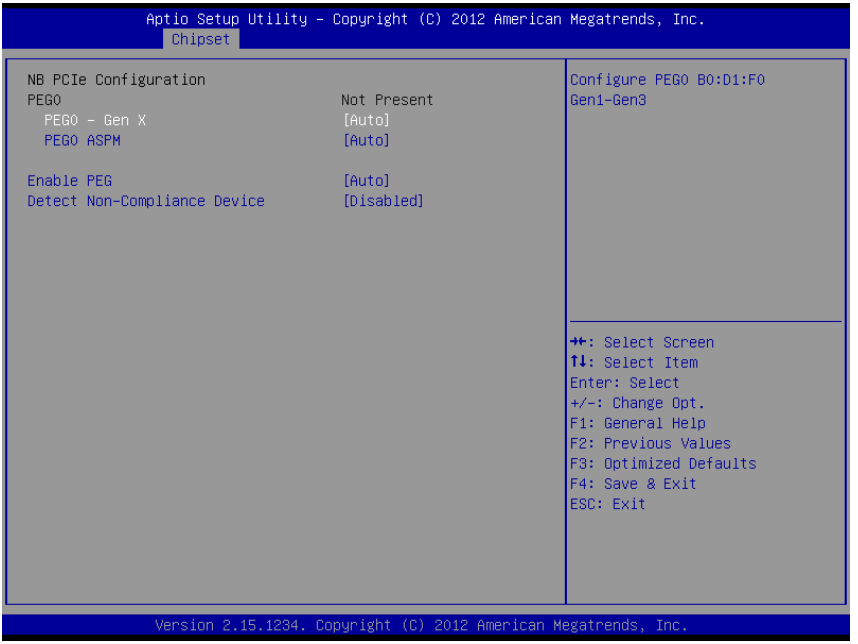
BIOS Setting	Options	Description/Purpose
IGFX VBIOS Version	No changeable options	Displays the VBIOS version of integrated graphic controller.
IGfx Frequency	No changeable options	Displays the frequency of integrated graphic controller.
Primary Display	- AUTO - IGFX - PEG - PCI - SG	Select which of IGFX/PEG/PCI Graphics device should be Primary Display or select SG for Switchable Gfx. Note that select [SG] can enable both internal graphic and an external PCIe graphic at the same time, which support multi-monitor display requirement
Internal Graphics	- AUTO - Disabled - Enabled	Keep IGD enabled based on the setup options.

BIOS Setting	Options	Description/Purpose
DVMT Pre-Allocated	- 32M - 64M - 96M - 128M - 256M - 512M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.
LCD Control	Sub-menu	LCD Control Parameters.



LCD Control Screen

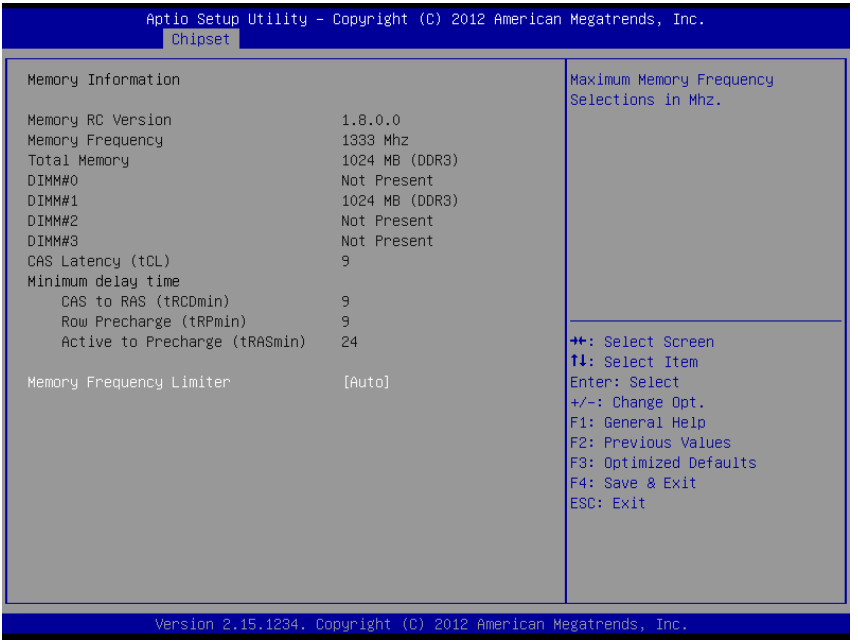
BIOS Setting	Options	Description/Purpose
Primary IGFX Boot Display	- CRT - DP1 - DP2	Select primary display device
Secondary IGFX Boot Display	- Disabled - CRT - DP1 - DP2	Select secondary display device



NB PCIe Configuration Screen

BIOS Setting	Options	Description/Purpose
PEGx - Gen X	- Auto - Gen1 - Gen2 - Gen3	Choose the operation mode for PEx from Gen1-Gen3. For example, [PEG0 – Gen X] control the speed for PEG0 (B0:D1:F0)
PEGx ASPM	- Disabled - Auto - ASPM L0s - ASPM L1 - ASPM L0sL1	Control ASPM support for the PEx. For example, [PEG0 – Genx] control the PEG (locates at Device 1 Function 0) ASPM operation Mode. This has no effect if PEG is not the currently active device.
Enable PEG	- Auto - Disabled - Enabled	To enable or disable the PEG. Set Enable for always enables PEG no matter a device on PEG or not.

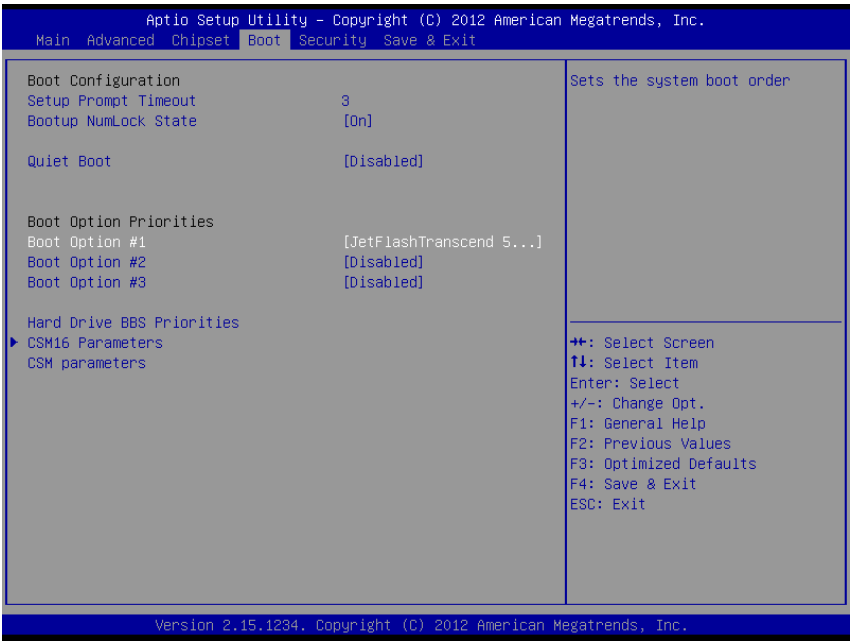
BIOS Setting	Options	Description/Purpose
Detect Non-Compliance Device	- Disabled - Enabled	Detect Non-Compliance PCI Express Device in PEG. For example, if user want to plug a Sunix PCIE-to-SATA(RAID) card on IVB x4(PCI_E2) or x16(PCI_E1) slot, it is recommended to set "Detect Non-Compliance Device" and "Enable PEG" to "Enabled" at the same time.



Memory Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory Information	No changeable option lists.	Displays the detail DRAM information on platform.
Memory Frequency	- AUTO - 1333 - 1600	Maximum memory frequency selection in Mhz.

4-6. BOOT

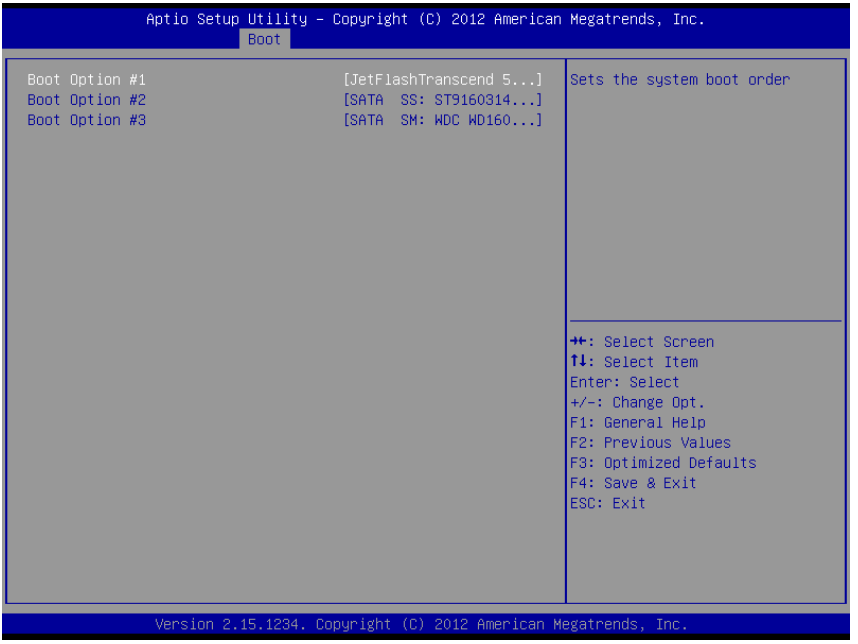


Boot screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Numeric	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On - Off	Specifies the power-on state of the NumLock Key.
Quiet Boot	- Disabled - Enabled	Enable/Disable Quiet Boot Options
Boot Option #1~#n	- [Drive(s)] - Disabled	Allows setting boot option listed in Hard Drive BBS Priorities.
Hard Drive BBS Priorities	Sub-Menu	Allow user to select boot order of available drive(s)
CSM16 Module Version	No changeable options	Displays the current CSM (Compatibility Support Module) version.

BIOS Setting	Options	Description/Purpose
CSM parameters	Sub-Menu	Configure Option ROM execution, boot options filters, etc.

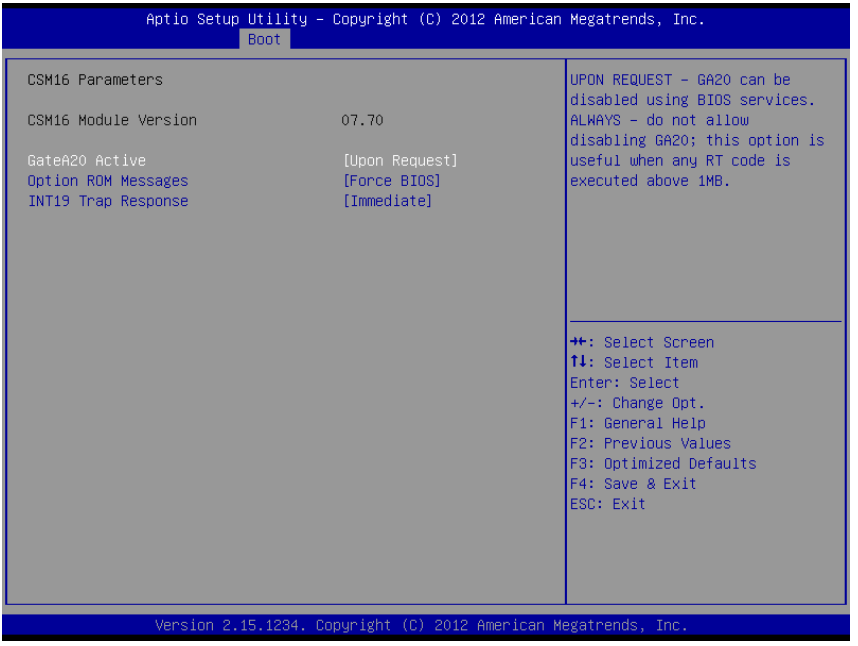
4-6-1. Boot - Hard Drive BBS Priorities Screen



Hard drive BBS priorities screen

BIOS Setting	Options	Description/Purpose
Boot Option #1 - #n	- [Drive(s)] - Disabled	Change the boot order of available drive(s).

4-6-2. Boot - CSM16 parameters

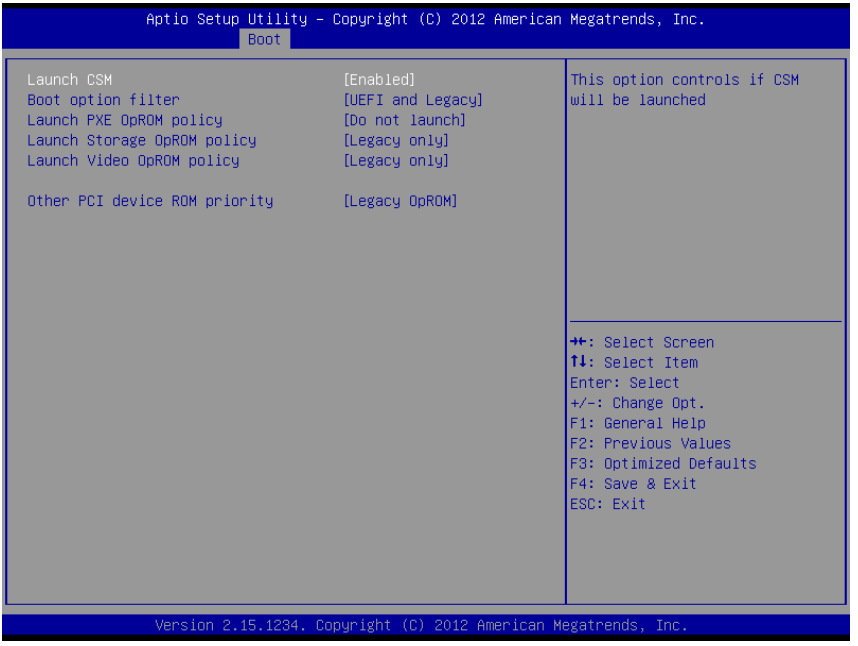


CSM16 parameters Screen

BIOS Setting	Options	Description/Purpose
CSM16 Module Version	No changeable options	Displays the current CSM (Compatibility Support Module) version.
GateA20 Active	- Upon Request - Always	Select Gate A20 operation mode. **UPON REQUEST**: GA20 can be disabled using BIOS services. **ALWAYS:** do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.
Option ROM Messages	- Force BIOS - Keep Current	Set display mode for Option ROM messages.
INT19 Trap Response	- Immediately - Postponed	BIOS reaction on INT19 trapping by Option ROM.

BIOS Setting	Options	Description/Purpose
		Immediate: Execute the trap right away; **Postponed**: Execute the trap during legacy boot.

4-6-3. Boot - CSM Parameters

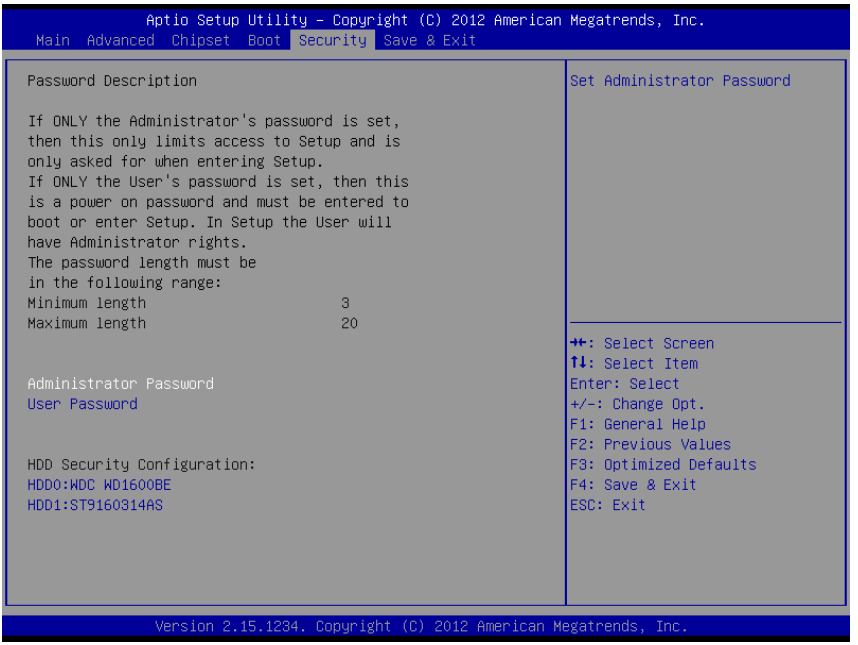


CSM Parameters Screen

BIOS Setting	Options	Description/Purpose
Launch CSM	- Disabled - Enabled	This option controls if CSM will be launched.
Boot option filter	- UEFI and Legacy - Legacy only - UEFI only	This option controls what kind of devices system can boot.
Launch PXE OpROM policy	- Do not launch - UEFI only - Legacy only	Controls the execution of UEFI or Legacy PXE OpROM.
Launch Storage OpROM policy	- Do not launch - UEFI only - Legacy only	Controls the execution of UEFI or Legacy Storage OpROM.

BIOS Setting	Options	Description/Purpose
Launch Video OpROM policy	- Do not launch - UEFI only - Legacy only - Legacy first - UEFI first	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI device ROM priority	- UEFI OpROM - Legacy OpROM	Select launch method for other PCI devices, such as NIC, mass storage or video card.

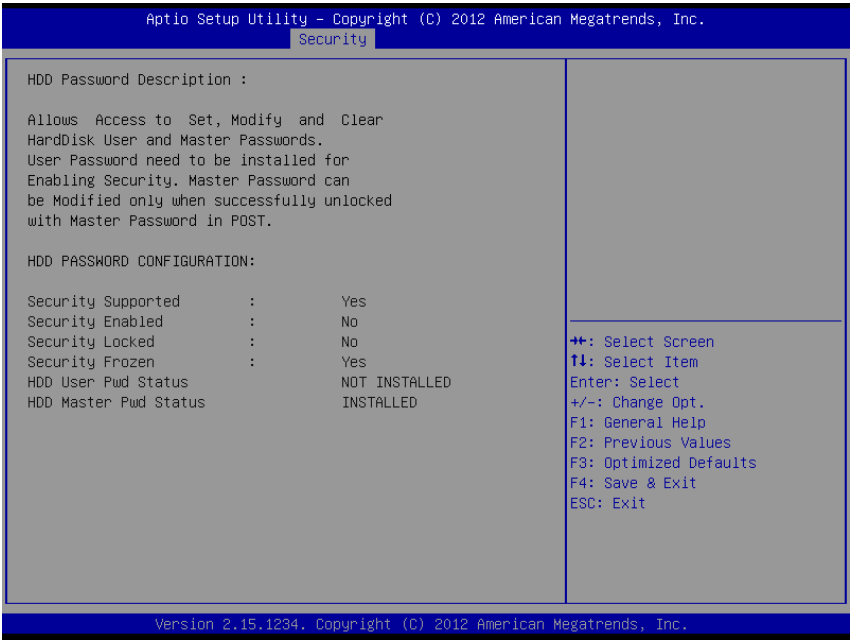
4-7. SECURITY



Security screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.
HDD Security Configuration:	Sub-menu	Set HDD password.

4-7-1. Security - HDD Security Configuration

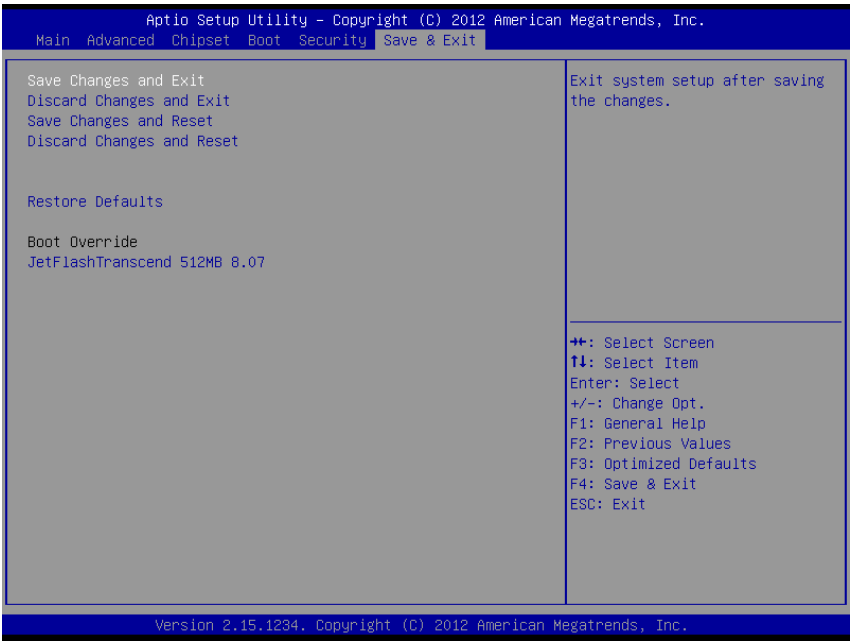


HDD Security Configuration Screen

BIOS Setting	Options	Description/Purpose
Security Supported	No changeable options	Reports if there is security feature available.
Security Enabled	No changeable options	Reports if there is security feature enabled.
Security Locked	No changeable options	Reports if there is security feature locked.
Security Frozen	No changeable options	Reports if there is security feature frozen.
HDD User Pwd Status	No changeable options	Reports if there is HDD User Password installed.
HDD Master Pwd Status	No changeable options	Reports if there is HDD Master Password installed.

BIOS Setting	Options	Description/Purpose
Set User Password	Password can be up to 32 alphanumeric characters.	Specifies the user password. (Need TPM module)
Set Master Password	Password can be up to 32 alphanumeric characters.	Specifies the master password.

4-8. SAVE & EXIT



Save & Exit screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits and saves the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in NVRAM and resets.
Discard Changes and Reset	No changeable options	Resets without saving any changes made in BIOS settings.
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Boot Override	- [Drive(s)]	Forces to boot from selected [drive(s)].

EXPANSION BUS

APPENDIX

A

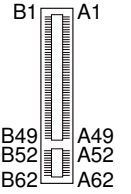
This appendix indicates the pin assignments.

Sections included:

- PCI Bus Connector Pin Assignment

PCI BUS CONNECTOR PIN ASSIGNMENT

You will find four PCI bus connectors on PMB-891LF.
The pin assignments are as follows:



A				B			
PIN	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**	**PIN**	**ASSIGNMENT**
A1	-12V	A31	+3.3V	B1	TRST#	B31	AD18
A2	TCK	A32	AD17	B2	+12V	B32	AD16
A3	GND	A33	C/BE2#	B3	TMS	B33	+3.3V
A4	TDO	A34	GND	B4	TDI	B34	FRAME#
A5	+5V	A35	IRDY#	B5	+5V	B35	GND
A6	+5V	A36	+3.3V	B6	INTA#	B36	TRDY#
A7	INTB#	A37	DEVSEL#	B7	INTC#	B37	GND
A8	INTD#	A38	GND	B8	+5V	B38	STOP#
A9	REQ3#	A39	LOCK#	B9	CLKC	B39	+3.3V
A10	REQ1#	A40	PERR#	B10	+5V(I/O)	B40	SDONE
A11	GNT3#	A41	+3.3V	B11	CLKD	B41	SB0#
A12	GND	A42	SERR#	B12	GND	B42	GND
A13	GND	A43	+3.3V	B13	GND	B43	PAR
A14	CLKA	A44	C/BE1#	B14	GNT1#	B44	AD15
A15	GND	A45	AD14	B15	RST#	B45	+3.3V
A16	CLKB	A46	GND	B16	+5V(I/O)	B46	AD13
A17	GND	A47	AD12	B17	GNT0#	B47	AD11
A18	REQ0#	A48	AD10	B18	GND	B48	GND
A19	+5V(I/O)	A49	GND	B19	REQ2#	B49	AD09
A20	AD31	A52	AD08	B20	AD30	B52	C/BE0#
A21	AD29	A53	AD07	B21	+3.3V	B53	+3.3V
A22	GND	A54	+3.3V	B22	AD28	B54	AD06
A23	AD27	A55	AD05	B23	AD26	B55	AD04
A24	AD25	A56	AD03	B24	GND	B56	GND
A25	+3.3V	A57	GND	B25	AD24	B57	AD02
A26	C/BE3#	A58	AD01	B26	GNT2#	B58	AD00
A27	AD23	A59	+5V(I/O)	B27	+3.3V	B59	+5V(I/O)
A28	GND	A60	ACK64#	B28	AD22	B60	REQ64#
A29	AD21	A61	+5V	B29	AD20	B61	+5V
A30	AD19	A62	+5V	B30	GND	B62	+5V

TECHNICAL SUMMARY

APPENDIX

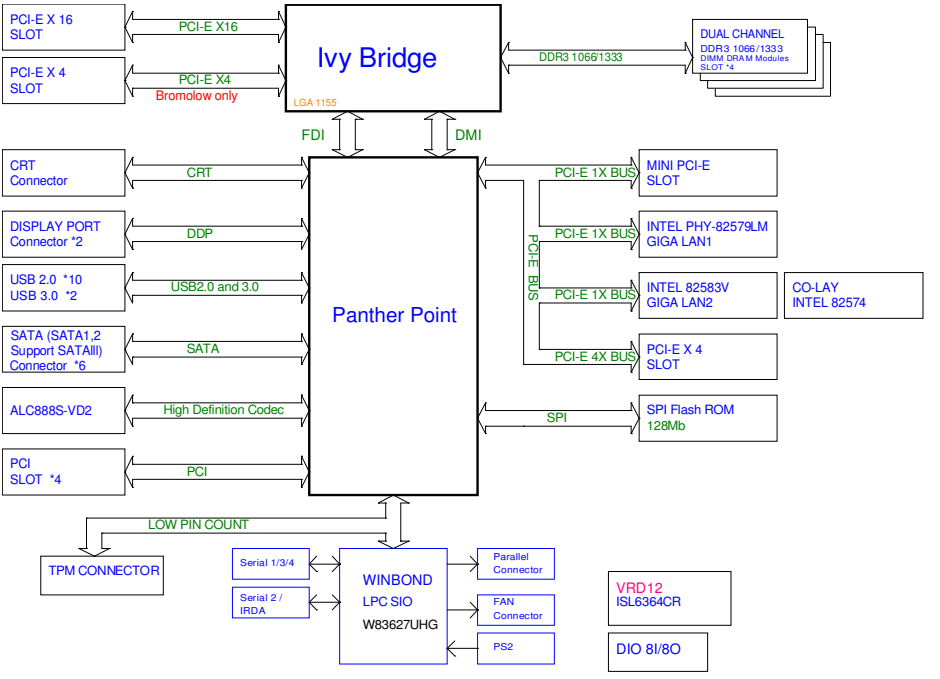
B

This section introduce you the maps concisely.

Sections included:

- Block Diagram
- Interrupt Map
- DMA Channel Map
- I/O Map
- Memory Map
- Watchdog Timer Configuration
- Flash BIOS Update

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System timer
1	Standard PS/2 Keyboard
3	Communications Port (COM2)
4	Communications Port (COM1)
7	Communications Port (COM3)
8	System CMOS/real time clock
10	Communications Port (COM4)
11	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
12	Microsoft PS/2 Mouse
13	Numeric data processor
16	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 1 - 1E10
16	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
16	Intel(R) Management Engine Interface
18	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
19	Intel(R) Active Management Technology - SOL (COM5)
19	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
19	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
22	High Definition Audio Controller
23	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
81	Microsoft ACPI-Compliant System
82	Microsoft ACPI-Compliant System
83	Microsoft ACPI-Compliant System
84	Microsoft ACPI-Compliant System
85	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
86	Microsoft ACPI-Compliant System
87	Microsoft ACPI-Compliant System
88	Microsoft ACPI-Compliant System
89	Microsoft ACPI-Compliant System
90	Microsoft ACPI-Compliant System
91	Microsoft ACPI-Compliant System
92	Microsoft ACPI-Compliant System
93	Microsoft ACPI-Compliant System
94	Microsoft ACPI-Compliant System
95	Microsoft ACPI-Compliant System
96	Microsoft ACPI-Compliant System
97	Microsoft ACPI-Compliant System
98	Microsoft ACPI-Compliant System
99	Microsoft ACPI-Compliant System
100	Microsoft ACPI-Compliant System
101	Microsoft ACPI-Compliant System
102	Microsoft ACPI-Compliant System
103	Microsoft ACPI-Compliant System
104	Microsoft ACPI-Compliant System
105	Microsoft ACPI-Compliant System
106	Microsoft ACPI-Compliant System
107	Microsoft ACPI-Compliant System
108	Microsoft ACPI-Compliant System
109	Microsoft ACPI-Compliant System
110	Microsoft ACPI-Compliant System
111	Microsoft ACPI-Compliant System
112	Microsoft ACPI-Compliant System
113	Microsoft ACPI-Compliant System
114	Microsoft ACPI-Compliant System
115	Microsoft ACPI-Compliant System
116	Microsoft ACPI-Compliant System
117	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
118	Microsoft ACPI-Compliant System
119	Microsoft ACPI-Compliant System
120	Microsoft ACPI-Compliant System
121	Microsoft ACPI-Compliant System
122	Microsoft ACPI-Compliant System
123	Microsoft ACPI-Compliant System
124	Microsoft ACPI-Compliant System
125	Microsoft ACPI-Compliant System
126	Microsoft ACPI-Compliant System
127	Microsoft ACPI-Compliant System
128	Microsoft ACPI-Compliant System
129	Microsoft ACPI-Compliant System
130	Microsoft ACPI-Compliant System
131	Microsoft ACPI-Compliant System
132	Microsoft ACPI-Compliant System
133	Microsoft ACPI-Compliant System
134	Microsoft ACPI-Compliant System
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136	Microsoft ACPI-Compliant System
137	Microsoft ACPI-Compliant System
138	Microsoft ACPI-Compliant System
139	Microsoft ACPI-Compliant System
140	Microsoft ACPI-Compliant System
141	Microsoft ACPI-Compliant System
142	Microsoft ACPI-Compliant System
143	Microsoft ACPI-Compliant System
144	Microsoft ACPI-Compliant System
145	Microsoft ACPI-Compliant System
146	Microsoft ACPI-Compliant System
147	Microsoft ACPI-Compliant System
148	Microsoft ACPI-Compliant System
149	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
150	Microsoft ACPI-Compliant System
151	Microsoft ACPI-Compliant System
152	Microsoft ACPI-Compliant System
153	Microsoft ACPI-Compliant System
154	Microsoft ACPI-Compliant System
155	Microsoft ACPI-Compliant System
156	Microsoft ACPI-Compliant System
157	Microsoft ACPI-Compliant System
158	Microsoft ACPI-Compliant System
159	Microsoft ACPI-Compliant System
160	Microsoft ACPI-Compliant System
161	Microsoft ACPI-Compliant System
162	Microsoft ACPI-Compliant System
163	Microsoft ACPI-Compliant System
164	Microsoft ACPI-Compliant System
165	Microsoft ACPI-Compliant System
166	Microsoft ACPI-Compliant System
167	Microsoft ACPI-Compliant System
168	Microsoft ACPI-Compliant System
169	Microsoft ACPI-Compliant System
170	Microsoft ACPI-Compliant System
171	Microsoft ACPI-Compliant System
172	Microsoft ACPI-Compliant System
173	Microsoft ACPI-Compliant System
174	Microsoft ACPI-Compliant System
175	Microsoft ACPI-Compliant System
176	Microsoft ACPI-Compliant System
177	Microsoft ACPI-Compliant System
178	Microsoft ACPI-Compliant System
179	Microsoft ACPI-Compliant System
180	Microsoft ACPI-Compliant System
181	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
182	Microsoft ACPI-Compliant System
183	Microsoft ACPI-Compliant System
184	Microsoft ACPI-Compliant System
185	Microsoft ACPI-Compliant System
186	Microsoft ACPI-Compliant System
187	Microsoft ACPI-Compliant System
188	Microsoft ACPI-Compliant System
189	Microsoft ACPI-Compliant System
190	Microsoft ACPI-Compliant System
4294967291	Intel(R) 82583V Gigabit Network Connection
4294967292	Intel(R) 82579LM Gigabit Network Connection
4294967293	Intel(R) USB 3.0 eXtensible Host Controller
4294967294	Intel(R) HD Graphics

DMA CHANNELS MAP

TIMER CHANNEL	ASSIGNMENT
Channel 4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x0000001F	Direct memory access controller
0x00000000-0x0000001F	PCI bus
0x00000010-0x0000001F	Motherboard resources
0x00000020-0x00000021	Programmable interrupt controller
0x00000022-0x0000003F	Motherboard resources
0x00000024-0x00000025	Programmable interrupt controller
0x00000028-0x00000029	Programmable interrupt controller
0x0000002C-0x0000002D	Programmable interrupt controller
0x0000002E-0x0000002F	Motherboard resources
0x00000030-0x00000031	Programmable interrupt controller
0x00000034-0x00000035	Programmable interrupt controller
0x00000038-0x00000039	Programmable interrupt controller
0x0000003C-0x0000003D	Programmable interrupt controller
0x00000040-0x00000043	System timer
0x00000044-0x0000005F	Motherboard resources
0x0000004E-0x0000004F	Motherboard resources
0x00000050-0x00000053	System timer
0x00000060-0x00000060	Standard PS/2 Keyboard
0x00000061-0x00000061	Motherboard resources
0x00000062-0x00000063	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000064-0x00000064	Standard PS/2 Keyboard
0x00000065-0x0000006F	Motherboard resources

I/O MAP	ASSIGNMENT
0x00000065-0x0000006F	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000070-0x00000077	System CMOS/real time clock
0x00000070-0x00000077	Motherboard resources
0x00000072-0x0000007F	Motherboard resources
0x00000080-0x00000080	Motherboard resources
0x00000080-0x00000080	Motherboard resources
0x00000081-0x00000091	Direct memory access controller
0x00000084-0x00000086	Motherboard resources
0x00000088-0x00000088	Motherboard resources
0x0000008C-0x0000008E	Motherboard resources
0x00000090-0x0000009F	Motherboard resources
0x00000092-0x00000092	Motherboard resources
0x00000093-0x0000009F	Direct memory access controller
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A2-0x000000BF	Motherboard resources
0x000000A4-0x000000A5	Programmable interrupt controller
0x000000A8-0x000000A9	Programmable interrupt controller
0x000000AC-0x000000AD	Programmable interrupt controller
0x000000B0-0x000000B1	Programmable interrupt controller
0x000000B2-0x000000B3	Motherboard resources
0x000000B4-0x000000B5	Programmable interrupt controller
0x000000B8-0x000000B9	Programmable interrupt controller

I/O MAP	ASSIGNMENT
0x000000BC-0x000000BD	Programmable interrupt controller
0x000000C0-0x000000DF	Direct memory access controller
0x000000E0-0x000000EF	Motherboard resources
0x000000F0-0x000000FF	Numeric data processor
0x00000290-0x00000297	Motherboard resources
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003B0-0x000003BB	Intel(R) HD Graphics
0x000003C0-0x000003DF	Intel(R) HD Graphics
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x00000453	Motherboard resources
0x00000454-0x00000457	Motherboard resources
0x00000458-0x0000047F	Motherboard resources
0x000004D0-0x000004D1	Programmable interrupt controller
0x000004D0-0x000004D1	Motherboard resources
0x00000500-0x0000057F	Motherboard resources
0x00000680-0x0000069F	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x00001000-0x0000100F	Motherboard resources
0x0000164E-0x0000164F	Motherboard resources
0x0000E000-0x0000EFFF	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14

I/O MAP	ASSIGNMENT
0x0000F000-0x0000F03F	Intel(R) HD Graphics
0x0000F040-0x0000F05F	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
0x0000F080-0x0000F08F	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
0x0000F090-0x0000F09F	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
0x0000F0A0-0x0000F0A3	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
0x0000F0B0-0x0000F0B7	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
0x0000F0C0-0x0000F0C3	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
0x0000F0D0-0x0000F0D7	Intel(R) 7 Series/C216 Chipset Family 2 port Serial ATA Storage Controller - 1E08
0x0000F0E0-0x0000F0EF	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
0x0000F0F0-0x0000F0FF	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
0x0000F100-0x0000F103	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
0x0000F110-0x0000F117	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
0x0000F120-0x0000F123	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
0x0000F130-0x0000F137	Intel(R) 7 Series/C216 Chipset Family 4 port Serial ATA Storage Controller - 1E00
0x0000F140-0x0000F147	Intel(R) Active Management Technology - SOL (COM5)
0x0000FFFF-0x0000FFFF	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources

MEMORY MAP

Memory	Assignment
0xF7D39000-0xF7D39FFF	Intel(R) Active Management Technology - SOL (COM5)
0xFF000000-0xFFFFFFFF	Intel(R) 82802 Firmware Hub Device
0xFF000000-0xFFFFFFFF	Motherboard resources
0xF7C00000-0xF7CFFFFF	Intel(R) 7 Series/C216 Chipset Family PCI Express Root Port 3 - 1E14
0xF7C00000-0xF7CFFFFF	Intel(R) 82583V Gigabit Network Connection
0xF7D30000-0xF7D33FFF	High Definition Audio Controller
0xF7800000-0xF7BFFFFF	Intel(R) HD Graphics
0xE0000000-0xEFFFFFFF	Intel(R) HD Graphics
0xF7D35000-0xF7D350FF	Intel(R) 7 Series/C216 Chipset Family SMBus Host Controller - 1E22
0xFED00000-0xFED003FF	High precision event timer
0xF7D00000-0xF7D1FFFF	Intel(R) 82579LM Gigabit Network Connection
0xF7D38000-0xF7D38FFF	Intel(R) 82579LM Gigabit Network Connection
0xF7D36000-0xF7D363FF	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E26
0xF7C20000-0xF7C23FFF	Intel(R) 82583V Gigabit Network Connection
0xF7D37000-0xF7D373FF	Intel(R) 7 Series/C216 Chipset Family USB Enhanced Host Controller - 1E2D
0xF7D20000-0xF7D2FFFF	Intel(R) USB 3.0 eXtensible Host Controller
0xFED40000-0xFED44FFF	System board
0xFED1C000-0xFED1FFFF	Motherboard resources
0xFED10000-0xFED17FFF	Motherboard resources
0xFED18000-0xFED18FFF	Motherboard resources

Memory	Assignment
0xFED19000-0xFED19FFF	Motherboard resources
0xF8000000-0xFBFFFFFF	Motherboard resources
0xFED20000-0xFED3FFFF	Motherboard resources
0xFED90000-0xFED93FFF	Motherboard resources
0xFED45000-0xFED8FFFF	Motherboard resources
0xFEE00000-0xFEEFFFFF	Motherboard resources
0xF7D3B000-0xF7D3B00F	Intel(R) Management Engine Interface
0xA0000-0xBFFFF	Intel(R) HD Graphics
0xA0000-0xBFFFF	PCI bus
0xD0000-0xD3FFF	PCI bus
0xD4000-0xD7FFF	PCI bus
0xD8000-0xDBFFF	PCI bus
0xDC000-0xDFFFF	PCI bus
0xE0000-0xE3FFF	PCI bus
0xE4000-0xE7FFF	PCI bus
0x20000000-0x201FFFFF	System board
0x3DA00000-0xFEAFFFFF	PCI bus
0x3DA00000-0xFEAFFFFF	Motherboard resources
0x40004000-0x40004FFF	System board

WATCHDOG TIMER CONFIGURATION

The I/O port address of the watchdog timer is 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F (hex) is the data port. User must first assign the address of register by writing address value into address port 2E (hex), then write/read data to/from the assigned register through data port 2F (hex).

Configuration Sequence

To program W83627UHG configuration registers, the following configuration sequence must be followed:
(1) Enter the extended function mode
(2) Configure the configuration registers
(3) Exit the extended function mode

(1) Enter the extended function mode

To place the chip into the Extended Function Mode, two successive writes of 0x87 must be applied to Extended Function Enable Registers (EFERs, i.e. 2Eh or 4Eh).

(2) Configure the configuration registers

The chip selects the Logical Device and activates the desired Logical Devices through Extended Function Index Register (EFIR) and Extended Function Data Register (EFDR). The EFIR is located at the same address as the EFER, and the EFDR is located at address (EFIR+1). First, write the Logical Device Number (i.e. 0x07) to the EFIR and then write the number of the desired Logical Device to the EFDR. If accessing the Chip (Global) Control Registers, this step is not required. Secondly, write the address of the desired configuration register within the Logical Device to the EFIR and then write (or read) the desired configuration register through the EFDR.

(3) Exit the extended function mode

To exit the Extended Function Mode, writing 0xAA to the EFER is required. Once the chip exits the Extended Function Mode, it is in the normal running mode and is ready to enter the configuration mode.

Example Steps

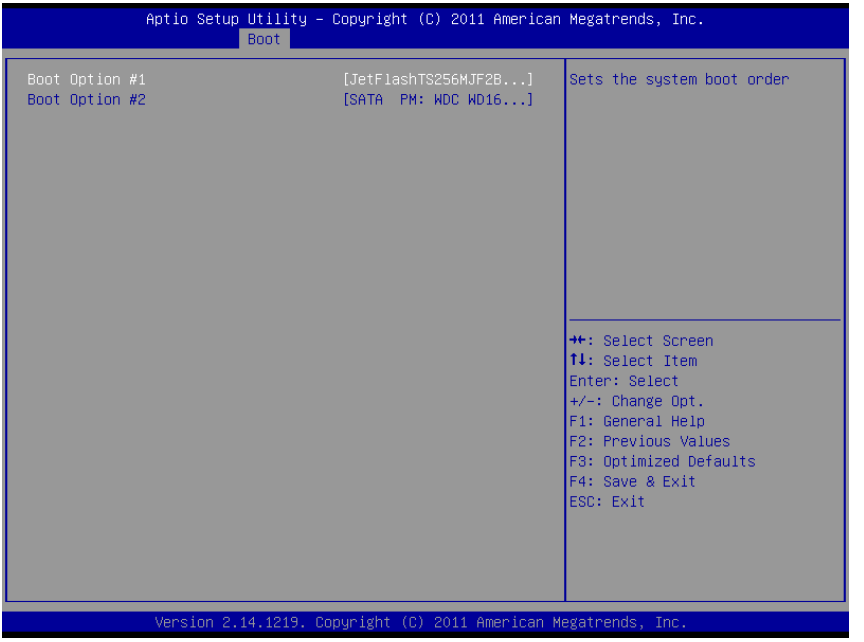
Enable watchdog timer and set timeout interval to 30 seconds.

```
;------ Enter to extended function mode ------------------------------------------------
mov     dx,     2eh
mov     al,     87h
out     dx,     al
out     dx,     al
;------ Select Logical Device 8 of watchdog timer --------------------------------------
mov     al,     07h
out     dx,     al
inc     dx
mov     al,     08h
out     dx,     al
;------ Set second as counting unit ----------------------------------------------------
dec     dx
mov     al,     0f5h
out     dx,     al
inc     dx
in      al,     dx
and     al,     not 08h
out     dx,     al
;------ Set timeout interval as 30seconds and start counting ---------------------
dec     dx
mov     al,     0f6h
out     dx,     al
inc     dx
mov     al,     30
out     dx,     al
;------ Exit the extended function mode ------------------------------------------------
dec     dx
mov     al,     0aah
out     dx,     al
```

Flash BIOS Update

I. Before System BIOS update

1. Prepare a bootable media (ex. USB storage device) which can boot system to DOS prompt.
2. Download and save the BIOS file (ex. B8910TQ8.bin) to the bootable device.
3. Copy AMI flash utility – AFUDOS.exe (v3.03) into bootable device.
4. Make sure the target system can first boot to the bootable device.
   (1) Connect the bootable USB device.
   (2) Turn on the computer and press <F2> or <Del> key during boot to enter BIOS Setup.
   (3) System will go into the BIOS setup menu.
   (4) Select [Boot] menu.
   (5) Select [Hard Drive BBS Priorities], set the USB bootable device to be the 1st boot device.
   (6) Press <F4> key to save configuration and exit the BIOS setup menu.



II. AFUDOS command for system BIOS update

AFUDOS.exe is the AMI firmware update utility; the command line is shown as below:

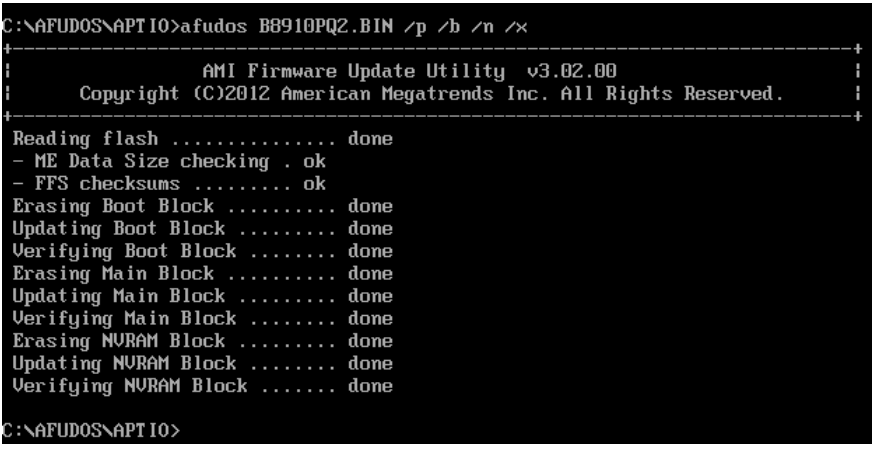
AFUDOS <ROM File Name> [option1] [option2]….

User can type "AFUDOS/ ?" to see all the definition of each control options. The recommended options for BIOS ROM update include following parameters:

/P: Program main BIOS image.
/B: Program Boot Block.
/N: Program NVRAM.
/X: Don't check ROM ID.

III. BIOS update procedure

1. Use the bootable USB storage to boot up system into the DOS command prompt.
2. Type "**AFUDOS B891xxxx.bin/p/b/n/x"** and press enter to start the flash procedure.
   (Note that xxxx means the BIOS revision part, ex. 0PQ1…)
3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM and make system unable to boot up next time.
4. After BIOS update procedures is complete, the messages should be like the figure shown below.



5. User can restart the system and boot up with new BIOS now.

6. Update is complete after restart.
7. Verify during following boot that the BIOS version displayed at initialization screen has changed.