USER'S MANUAL

PA-3053 Series

POS System Powered by
Intel® Sandy Bridge Platform

PA-3053 Series M1

PA-3053 Series POS System
With LCD / Touchscreen

PREFACE

COPYRIGHT NOTICE

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DISCLAIMER

This user's manual is meant to assist 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.
WARNING! Some internal parts of the system may have high electrical voltage. And therefore we strongly recommend that qualified engineers can open and disassemble the system. The LCD and Touchscreen are easily breakable, please handle them with extra care.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for the PA-3053. It also outlines the system specifications.

Sections included:

- About This Manual
- POS System Illustration
- 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 PA-3053 Series System. The PA-3053 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3053 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 whole system. It contains four chapters and three appendixes. Users can configure the system according to their own needs.

Chapter 1 Introduction

This chapter introduces you to the background of this manual. It also includes illustrations and specifications for the whole system. The final section of this chapter indicates some safety reminders on how to take care of your system.

Chapter 2 System Configuration

This chapter outlines the location of motherboard components and their function. You will learn how to set the jumper and configure the system to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the Intel Utility, VGA Utility, LAN Utility, Sound Utility, and Touch Screen Utility. It also describes the Wireless Utility.

Chapter 4 AMI BIOS Setup

This chapter indicates you how to change the BIOS configurations.

Appendix A System Assembly

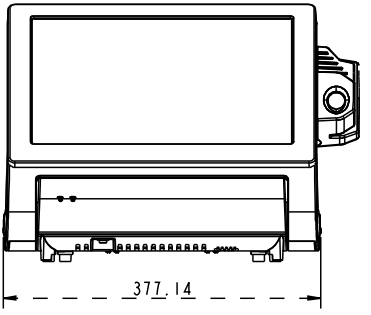
This appendix gives you the exploded diagrams and part numbers of the PA-3053.

Appendix B Technical Summary

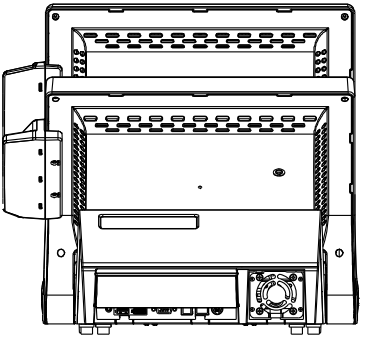
This appendix gives you the information about the allocation maps for the system resources, Watchdog Timer Configuration, and Flash BIOS Update.

1-2. POS SYSTEM ILLUSTRATION

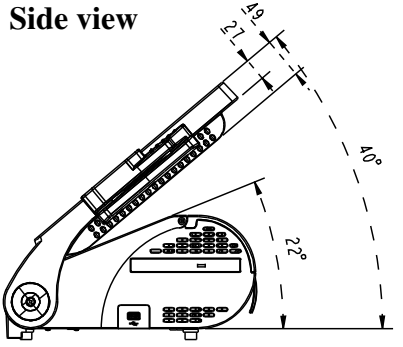
Front view



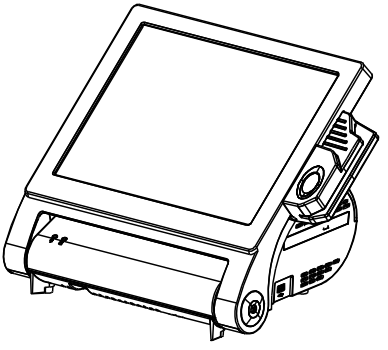
Rear view

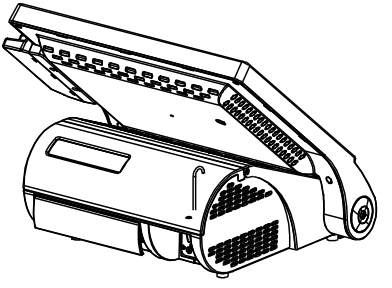


Side view

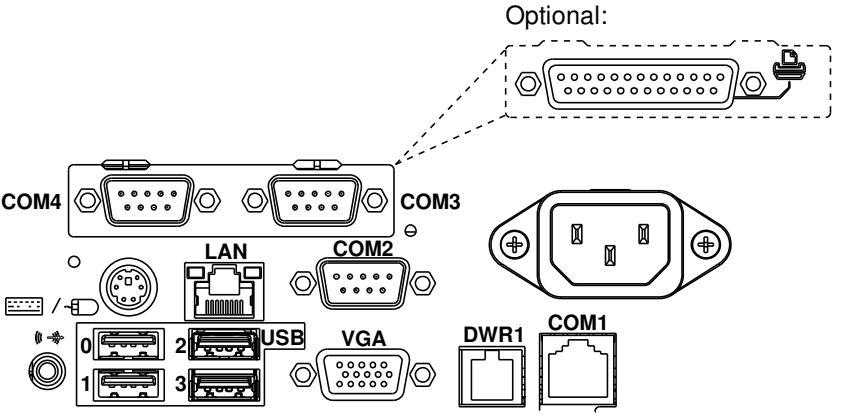


Quarter view





I/O view



1-3. SYSTEM SPECIFICATIONS

MAINBOARD (PB-3251RA-B1N) (PB-3251RA-D1N)

- **CPU Type (Socket Type):**
  Supports Intel® Sandy Bridge CPU series
  Core i3-2120 3.3 GHz, L2 Cache-3MB
  Pentium G850 2.9 GHz, L2 Cache-3MB
  Celeron G540 2.5 GHz, L2 Cache-2MB
  Celeron G530 2.4 GHz, L2 Cache-2MB

- **Chipset:**
  Intel® H61

- **Memory:**
  One 204-pin DDRIII SO-DIMM socket on board, up to 4GB

- **Cache:**
  Depended on CPU

- **Real-Time Clock / Calendar:**
  Embedded in Intel® H61

- **BIOS:**
  AMI SPI BIOS
  8Mbits with VGA BIOS

- **Keyboard & Mouse Connector:**
  PS/2 Keyboard, combined with mini DIN connecter on rear panel.

- **Serial Port:**
  1 x RJ45 (COM1), 3 x DB-9 (COM 2/3/4)
  +5/12V Selectable (COM 1~4)

- **Universal Serial Bus Port:**
  4 x USB2.0 ports
  1 x USB2.0 on side bezel

- **LAN Function:**
  1 x 10/100/1000 Mbps

- **Audio Function:**
  1 x 2W Speaker

- **VGA Function:**
  1 x DB-15 VGA Interface

- **Dimension (W x H x D):**
  385mm x 313mm x 188mm

- **System Weight:**
  8.3 kg

- **LCD Panel:**

Type	XGA
Max. Resolution	1024 x 768
Size/Type	15" / TFT
Viewing Angel (degree)	24~30 degrees
Pixel Pitch	0.297(H) x 0.297(V)
Brightness	250 cd / m^2
Signal Interface (bit)	TTL (24-bit)

- **Touch Panel:**
  15" 5wire Analog resistive

- **WIRELESS LAN (Optional):**
  Mini PCI-e Wireless LAN Module (802.11b/g)

- **MSR / Fingerprint / i-Button (Optional):**
  External vertical module;
  MSR, Read only, ISO Tracker 1+2+3 (PS/2 KB Interface);
  Fingerprint (USB Interface);
  i-Button, Read only;
  RFID ISO14443A Mifare Reader

1-4. SAFETY PRECAUTIONS

The following messages are safety reminders on how to protect your systems from damages, and extending the life cycle of the system.

1. Check the Line Voltage

a. The operating voltage for the power supply should be within the range of 100V to 240V AC; otherwise the system may be damaged.

2. Environmental Conditions

a. Place your PA-3053 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.

b. Avoid installing your PA-3053 Series POS system in extremely hot or cold places.

c. Avoid exposure to sunlight for a long period of time (for example, in a closed car in summer time. Also avoid the system from any heating device.). Or do not use the PA-3053 when it has been left outdoors in a cold winter day.

d. Bear in mind that the operating ambient temperature is between 0°C and 35°C (32°F and 95°F).

e. Avoid moving the system rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside the system.

f. Protect your PA-3053 against strong vibrations, which may cause hard disk failure.

g. Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.

h. Always shutdown the operating system before turning off the power.

3. Handling

a. Avoid placing heavy objects on the top of the system.

b. Do not turn the system upside down. This may cause the hard drive to malfunction.

c. Do no allow any objects to fall into this product.

d. If water or other liquid spills into the product, unplug the power cord immediately.

4. Good Care

a. When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.

b. Never use strong agents such as benzene and thinner to clean the surface of the case.

c. If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.

d. If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

SYSTEM CONFIGURATION

CHAPTER

2

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

Sections included:

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

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

Connector & Jumper	Name	Page
COM Port & VGA Connector	COM1,COM3, COM3-1, COM4, COM4-1, COM4-2, JVGACOM2	2-7
COM Port RI and Voltage Selection	JP_COM1, JP_COM2, JP_COM3, JP_COM4	2-10
I-Button Connector	JI-BUTTON1	2-11
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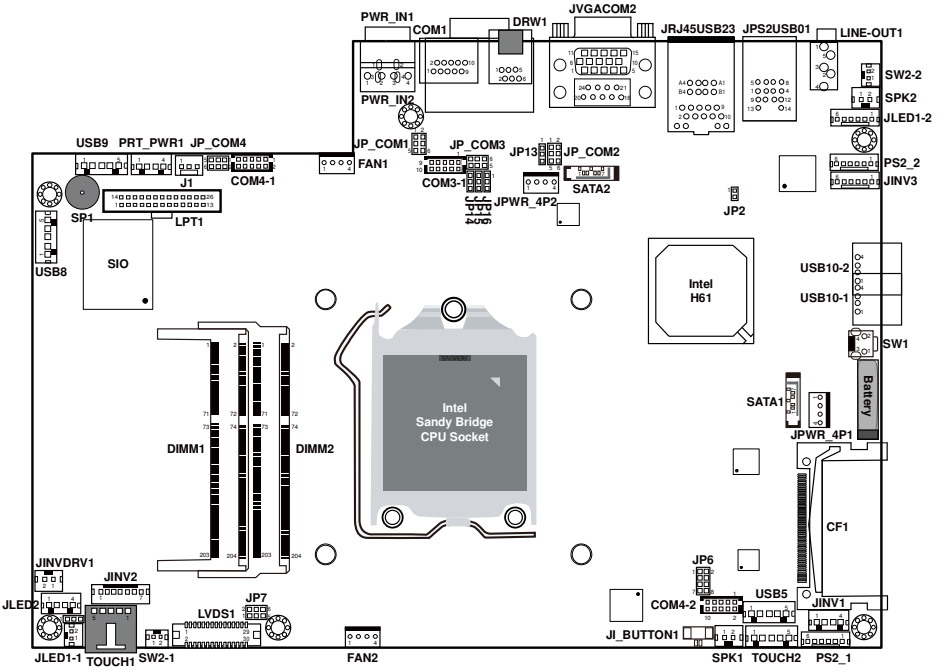
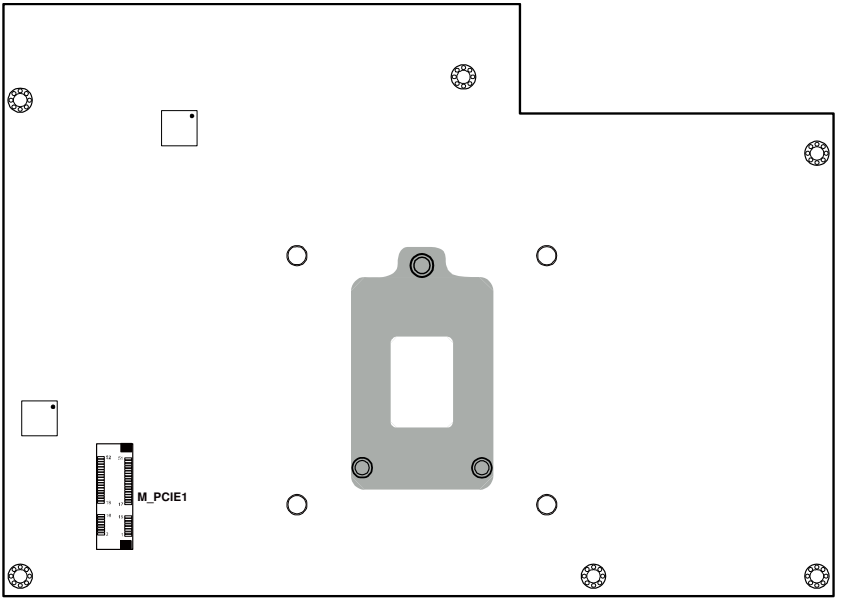
LAN & USB Connector	JRJ45USB23	2-12
USB Connector	USB5, USB8, USB9, USB10-1, USB10-2	2-13
Mini-DIN & USB Connector	JPS2USB01	2-14
Cash Drawer Connector	DRW1	2-15
Cash Drawer Power Selection	JP13	2-15
LED Connector	JLED1-1, JLED1-2, JLED2	2-16
Fan Connector	FAN1, FAN2	2-17
Power Connector	J1	2-17
Power Switch Connector	SW2-1, SW2-2	2-17
Power for Thermal Printer Connector	PRT_PWR1	2-18
External Speaker Connector	SPK1, SPK2	2-18
Inverter Connector	JINV1, JINV2, JINV3	2-19
LVDS Voltage Selection	JP7	2-20
LVDS Connector	LVDS1	2-21
MSR / Card Reader Connector	PS2_1, PS2_2	2-21
SATA & SATA Power Connector	SATA1, SATA2, JPWR_4P1, JPWR_4P2	2-22
Touch Panel Connector	TOUCH1, TOUCH2	2-23
Touch Panel Selection	JP6	2-24
Clear CMOS Data Selection	JP2	2-25
Compact Flash Connector	CF1	2-26
Printer Connector	LPT1	2-27

2-2. COMPONENT LOCATIONS

M/B: PB-3251RB



PA-3053 Front Connector, Jumper and Component Locations



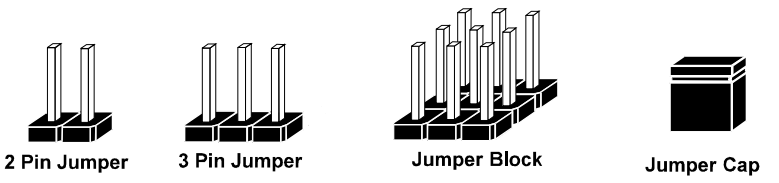
PA-3053 Rear Connector, Jumper and Component Locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting the 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 "opening" or "closing" 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

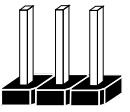


If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

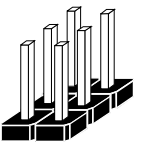
JUMPER DIAGRAMS

Jumper Cap looks like this

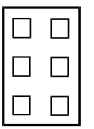
2 pin Jumper looks like this



3 pin Jumper looks like this

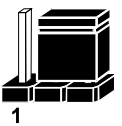


Jumper Block looks like this



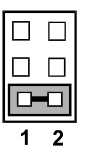
JUMPER SETTINGS

2 pin Jumper closed(enabled)
looks like this



3 pin Jumper
2-3 pin closed(enabled)
looks like this

Jumper Block
1-2 pin closed(enabled)
looks like this

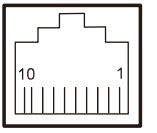


2-4. COM PORT & VGA CONNECTOR

There are four COM ports enhanced in this board namely: COM1, COM3-1, COM4-1, COM4-2 and JVAGCOM2.

COM1: COM1 Connector
The pin assignments are as follows:

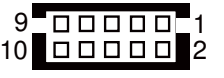
PIN	ASSIGNMENT
1	DCD1
2	RXD1
3	TXD1
4	DTR1
5	GND
6	DSR1
7	RTS1
8	CTS1
9	RI / +5V / +12V selectable
10	NC



COM1

COM3-1, COM4-1, COM4-2: Wafers on board
The pin assignments are as follows:

PIN	ASSIGNMENT
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI / +5V / +12V selectable
10	NC

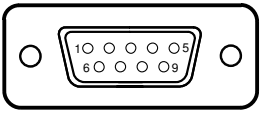


COM3-1/
COM4-1/
COM4-2

Note: The COM3-1 connector will not function when the jumpers are set as "i-Button". Refer to the section **2-7 i-Button Function Selection**.

COM3, COM4: COM3 & COM4 Connectors
The pin assignments are as follows:

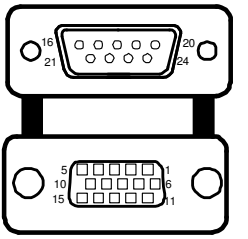
PIN	ASSIGNMENT
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI / +5V / +12V selectable



COM3/ COM4

JVGACOM2: VGA & COM2 Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	NC
12	DDCA DATA
13	HSYNC
14	VSYNC
15	DDCA CLK
16	DCD2
17	RXD2
18	TXD2
19	DTR2
20	GND
21	DSR2
22	RTS2
23	CTS2
24	RI / +5V / +12V selectable



JVGACOM2

Note: All COM ports are selectable for RI, +5V and +12V. Refer to the section **2-5 COM Port RI & Voltage Selection**.
The COM2 connector will not function when RS232 is selected as the interface of Touch Screen Control kit.

2-5. COM PORT RI & VOLTAGE SELECTION

JP_COM1 , JP_COM2, JP_COM3, JP_COM4:
COM Port RI & Voltage Selection
The jumper settings are as follows:

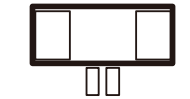
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION			
RI	1-2	 JP_COM1	 JP_COM2	 JP_COM3	 JP_COM4
VCC12	3-4	 JP_COM1	 JP_COM2	 JP_COM3	 JP_COM4
VCC	5-6	 JP_COM1	 JP_COM2	 JP_COM3	 JP_COM4

Note: Manufacturing Default – RI

2-6. I-BUTTON CONNECTOR

JI-BUTTON1: i-Button Connector
The pin assignments are as follows:

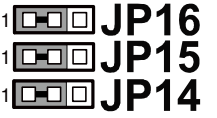
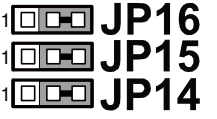
PIN	ASSIGNMENT
1	COM3_DTR_R_I
2	COM3_RXD_R_I



JI_BUTTON1

2-7. I-BUTTON FUNCTION SELECTION

JP14, JP15, JP16: i-Button Function Selection
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
COM 3	1-2	 JP16 JP15 JP14
i-Button*	2-3	 JP16 JP15 JP14

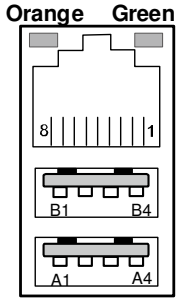
Note: Manufacturing Default – COM3

*When the jumpers are set as 'i-Button', the COM3-1 connector is not functional.

2-8. LAN & USB CONNECTOR

JRJ45USB23: LAN & USB Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	LAN1_MDIP0
2	LAN1_MDIN0
3	LAN1_MDIP1
4	LAN1_MDIN1
5	LAN1_MDIP2
6	LAN1_MDIN2
7	LAN1_MDIP3
8	LAN1_MDIN3
PIN	**ASSIGNMENT**
A1	VCC5
A2	USB2-
A3	USB2+
A4	GND
B1	VCC5
B2	USB3-
B3	USB3+
B4	GND

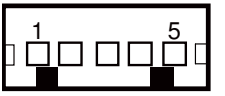


JRJ45USB23

2-9. USB CONNECTOR

USB5, USB8, USB9: Internal USB Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	USB-
2	USB+
3	GND
4	5V
5	GND

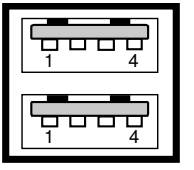


USB5/ USB9

USB8

USB10-1, USB10-2: USB Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	5V
2	USB8-
3	USB8+
4	GND

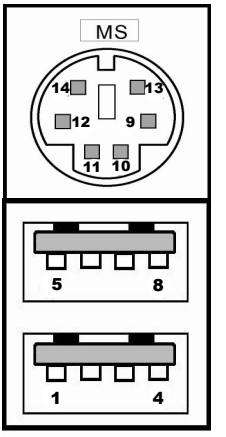


USB10-1 USB10-2

2-10. MINI-DIN & USB CONNECTOR

JPS2USB01: MINI-DIN and USB Connectors
MINI-DIN connector can support keyboard, Y-cable, or PS/2 Mouse.
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	USB0+
3	USB0-
4	VCC5
5	GND
6	USB1+
7	USB1-
8	VCC5
9	GND
10	KDAT
11	MDAT
12	V5SB
13	KCLK
14	MCLK

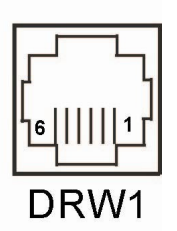


JPS2USB01

2-11. CASH DRAWER CONNECTOR

DRW1: Cash Drawer Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	Drawer Open
3	Drawer Sense
4	+12V
5	NC
6	GND



PB-3251RA cash drawer control in GPIO port

To Open Drawer1 (GPIO 7)
Write "0"h to I/O space register "50C"h Bit 7
To Close Drawer1
Write "1"h to I/O space register "50C"h Bit 7

Detect Drawer1 Status
Read I/O space register "50C"h (GPIO 6)
Definition (bit6)

2-12. CASH DRAWER POWER SELECTION

JP13: Cash Drawer Power Selection
The jumper settings are as follows:

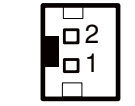
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
+12V	2-3	 JP13
+24V (default)	1-2	 JP13

Note: Manufacturing Default – +24V

2-13. LED CONNECTOR

JLED1-1: Power indication LED Connector
The pin assignments are as follows:

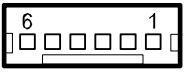
PIN	ASSIGNMENT
1	PWR_LED
2	5V



JLED1-1

JLED1-2: Power, HDD, LAN indication LED Connector
The pin assignments are as follows:

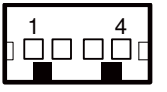
PIN	ASSIGNMENT
1	5V
2	PWR_LED
3	3.3V
4	HDD_LED
5	LAN1_LINK_ACTJ
6	LAN1_LED0



JLED1-2

JLED2: Power indication LED Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	5V
2	HD_LED
3	PWR_LED
4	3.3V

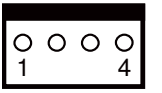


JLED2

2-14. FAN CONNECTOR

FAN1, FAN2: System Fan Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	SYS_FANIN
4	SYS_FANOUT

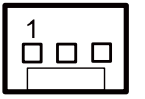


FAN1/ FAN2

2-15. POWER CONNECTOR

J1: Provide 12 Voltage Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC12
2	GND
3	VCC12

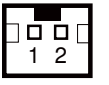


J1

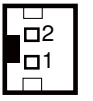
2-16. POWER SWITCH CONNECTOR

SW2-1, SW2-2: Power Switch Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	LPC_PWRBTNJ
2	PCH_PWRBTNJ_LOW



SW2-1

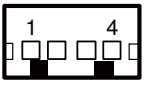


SW2-2

2-17. POWER FOR THERMAL PRINTER CONNECTOR

PRT_PWR1: Power for Thermal Printer Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC24SB
2	VCC24SB
3	GND
4	GND

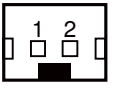


PRT_PWR1

2-18. EXTERNAL SPEAKER CONNECTOR

SPK1, SPK2: External Speaker Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT

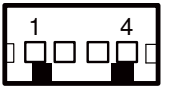


SPK1/ SPK2

2-19. INVERTER CONNECTOR

JINV1: Inverter Connector
The pin assignments are as follows:

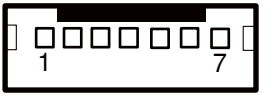
PIN	ASSIGNMENT
1	+12V
2	GND
3	LVDS_BKLTEN
4	BRCTR



JINV1

JINV2: Inverter Connector
The pin assignments are as follows:

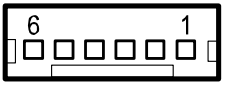
PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	GND
5	LVDS_BKLTEN_R
6	BRCTR
7	GND



JINV2

JINV3: Inverter Connector
The pin assignments are as follows:

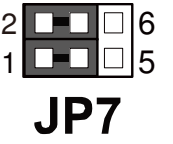
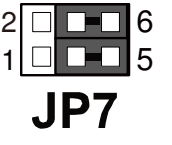
PIN	ASSIGNMENT
1	+12V
2	GND
3	GND
4	BRCTR
5	LVDS_BKLTEN
6	+12V



JINV3

2-20. LVDS VOLTAGE SELECTION

JP7: LVDS Voltage Selection
The jumper settings are as follows:

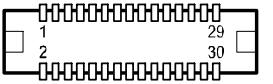
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
3.3V (default)	1-3 2-4	 JP7
5V	3-5 4-6	 JP7

Note: Manufacturing Default – 3.3V

2-21. LVDS CONNECTOR

LVDS1: LVDS Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	2	GND
3	NC	4	NC
5	GND	6	NC
7	NC	8	GND
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	GND	16	CLKO+
17	CLKO-	18	GND
19	RINO2+	20	RINO2-
21	GND	22	RINO1+
23	RINO1-	24	GND
25	RINO0+	26	RINO0-
27	NC	28	NC
29	LVDS_VCC	30	LVDS_VCC

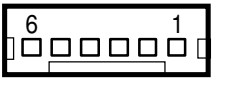


LVDS1

2-22. MSR/ CARD READER CONNECTOR

PS2_1 & PS2_2: MSR/ Card Reader Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	KB_CLK (Output)
2	KB_CLK_C (Input)
3	KB_DATA_C (Input)
4	KB_DATA (Output)
5	+5V
6	GND

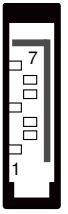


PS2_1/ PS2_2

2-23. SATA & SATA POWER CONNECTOR

SATA1, SATA2: Serial ATA Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	G1
2	TX+
3	TX-
4	G2
5	RX-
6	RX+
7	G3



SATA1

SATA2

JPWR_4P1, JPWR_4P2: Serial ATA Power Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12

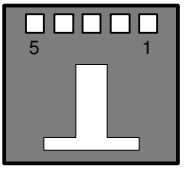
JPWR_4P1

JPWR_4P2

2-24. TOUCH PANEL CONNECTOR

TOUCH1: Touch Panel Connector
The pin assignments are as follows:

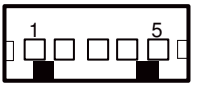
PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)



TOUCH1

TOUCH2: Touch Panel Connector
The pin assignments are as follows:

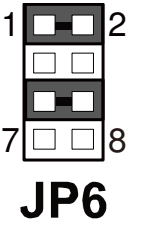
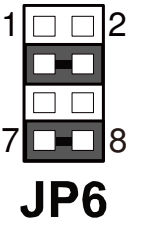
PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)



TOUCH2

2-25. TOUCH PANEL SELECTION

JP6: Touch Panel Selection
The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
e-Turbo	1-2 5-6	
Elo (default)	3-4 7-8	

Note: Manufacturing Default – Elo

2-26. CLEAR CMOS DATA SELECTION

JP2: Clear CMOS Data Selection
The jumper settings are as follows:

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
Normal	Open	 JP2
Clear CMOS*	1-2	 JP2

Note: Manufacturing Default – Normal

*To clear CMOS data, you 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.

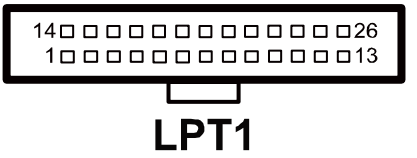
2-27. COMPACT FLASH CONNECTOR

CF1: Compact Flash Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	26	GND
2	D03	27	D11
3	D04	28	D12
4	D05	29	D13
5	D06	30	D14
6	D07	31	D15
7	CSJ1	32	CSJ3
8	GND	33	GND
9	GND	34	SDIORDJ
10	GND	35	SDIOWRJ
11	GND	36	+5V
12	GND	37	IRQ14
13	+5V	38	+5V
14	GND	39	-CSEL
15	GND	40	NC
16	GND	41	RESETJ
17	GND	42	IORDJ
18	A02	43	REQ
19	A01	44	ACKJ
20	A00	45	CF_LEDJ
21	D00	46	-PDIAG
22	D01	47	D08
23	D02	48	D09
24	NC	49	D10
25	GND	50	GND

2-28. PRINTER CONNECTOR

LPT1: Printer Connector
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STBJ	14	ALFJ
2	PDR0	15	ERRJ
3	PDR1	16	PAR_INITJ
4	PDR2	17	SLCTINJ
5	PDR3	18	GND
6	PDR4	19	GND
7	PDR5	20	GND
8	PDR6	21	GND
9	PDR7	22	GND
10	ACKJ	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCTJ	26	NC

SOFTWARE UTILITIES

CHAPTER

3

This chapter provides the detailed information users need to install driver utilities for the system.

Sections included:

- Intel® Chipset Software Installation Utility
- VGA Driver Utility
- LAN Driver Utility
- Sound Driver Utility
- Touch Screen Driver Utility
- Wireless Driver Utility (Optional)

3-1. INTRODUCTION

Enclosed with PA-3053 Series package is our driver utilities, which comes in a CD ROM format. Refer to the following table for driver locations.

Filename (Assume that CD ROM drive is D:)	**Purpose**
D:\Driver\Plaform\[OS]\Main_Chip	Intel® Chipset Software Installation Utility
D:\Driver\Plaform\[OS]\VGA	Intel® HD Graphics installer for Embedded Media and Graphics Driver installation
D:\Driver\Plaform\[OS]\LAN	Realtek® RTL8111DL for LAN Driver installation
D:\Driver\Plaform\[OS]\SOUND	Realtek® ALC888 for Sound driver installation
D:\Driver\Plaform\[OS]\ME_SW	Intel® Management Engine software components
D:\Driver\Device\Touch Screen	eGalax Touch Utility
D:\Driver\Flash_BIOS	AMI BIOS Update Utility

🔔 Be sure to install the driver utilities right after the OS is fully installed.

3-2. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-2-1. Introduction

The Intel® Chipset Software Installation Utility installs to the target system the Windows* INF files that outline to the operating system how the chipset components will be configured. This is needed for the proper functioning of the following features.

- Core PCI and ISAPNP Services
- AGP Support
- SATA Storage Support
- USB Support
- Identification of Intel® Chipset Components in Device Manager

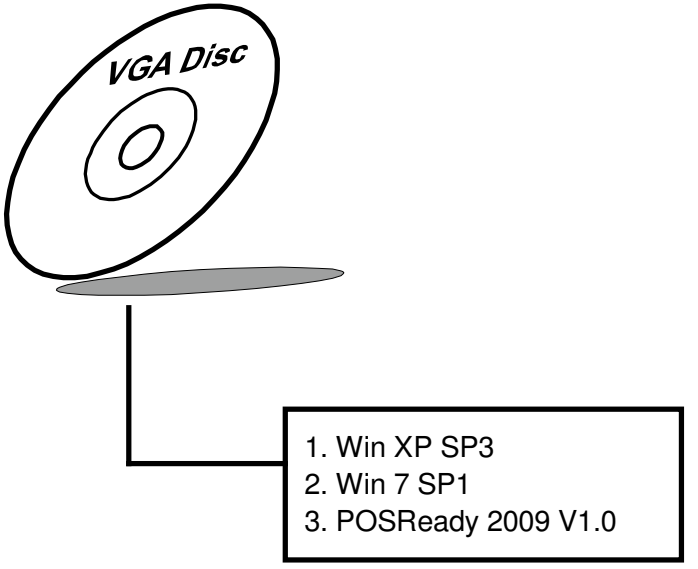
3-2-2. Installation of Intel® Chipset Driver

The utility pack is to be installed only for Windows® XP Professional SP3, Windows® 7 SP1 and POSReady 2009 V1.0, and it should be installed right after the OS installation. Please follow the steps below:

1. Connect the USB-CD ROM device to the PA-3053 and insert the driver disk inside.
2. Enter the "Main Chip" folder where the Chipset driver is located (depending on your OS platform).
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3053 for the changes to take effect.

3-3. VGA DRIVER UTILITY

The VGA interface embedded with the PA-3053 series can support a wide range of display types. You can have dual displays via CRT and LVDS interfaces work simultaneously.



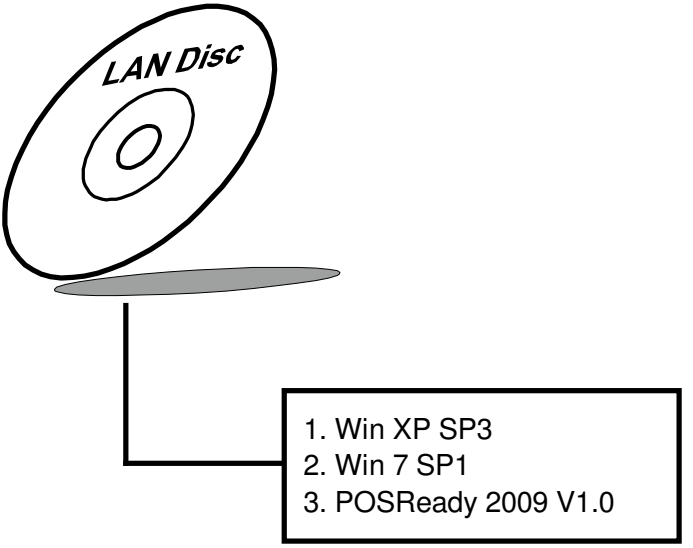
3-3-1. Installation of VGA Driver

To install the VGA Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3053 and insert the driver disk inside.
2. Enter the "VGA" folder where the VGA driver is located (depending on your OS platform).
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3053 for the changes to take effect.

3-4. LAN DRIVER UTILITY

The PA-3053 Series is enhanced with LAN function that can support various network adapters. Installation platform for the LAN driver is listed as follows:



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

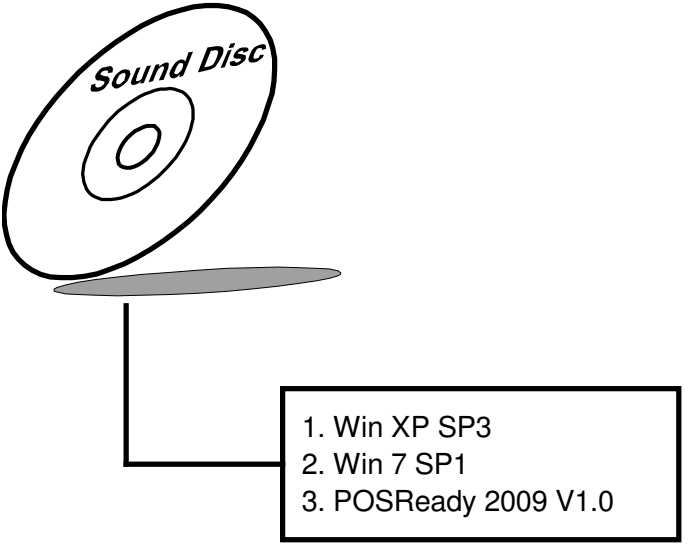
3-4-1. Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3053 and insert the driver disk inside.
2. Enter the "LAN" folder where the LAN driver is located (depending on your OS platform).
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3053 for the changes to take effect.

3-5. SOUND DRIVER UTILITY

The sound function enhanced in this system is fully compatible with Windows® XP Professional SP3, Windows® 7 SP1 and POSReady 2009 V1.0. Below, you will find the content of the Sound driver.



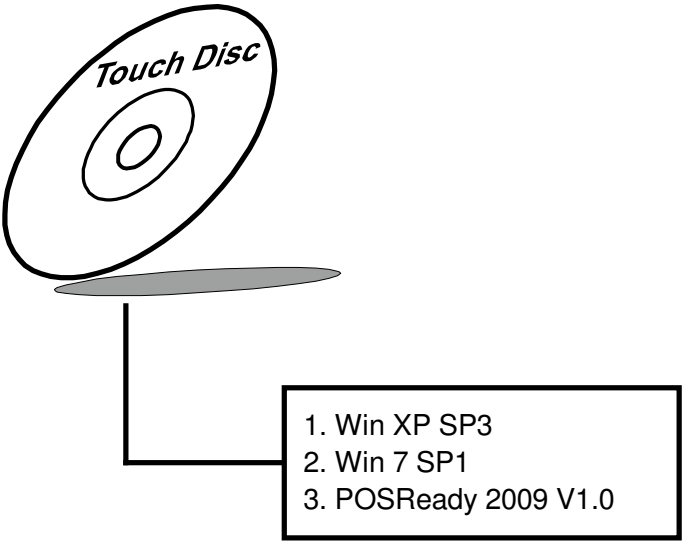
3-5-1. Installation of Sound Driver

To install the Sound Driver, refer to the readme.txt file on the driver disc (:\Sound\Realtek\Readme.txt).

1. Connect the USB-CD ROM device to the PA-3053 and insert the driver disk inside.
2. Enter the "Sound" folder where the Sound driver is located (depending on your OS platform).
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3053 for the changes to take effect.

3-6. TOUCH SCREEN DRIVER UTILITY

The touch screen driver utility can only be installed on a Windows® platform (XP Professional SP3, 7 SP1 and POSReady 2009 V1.0), and it should be installed right after the OS installation.



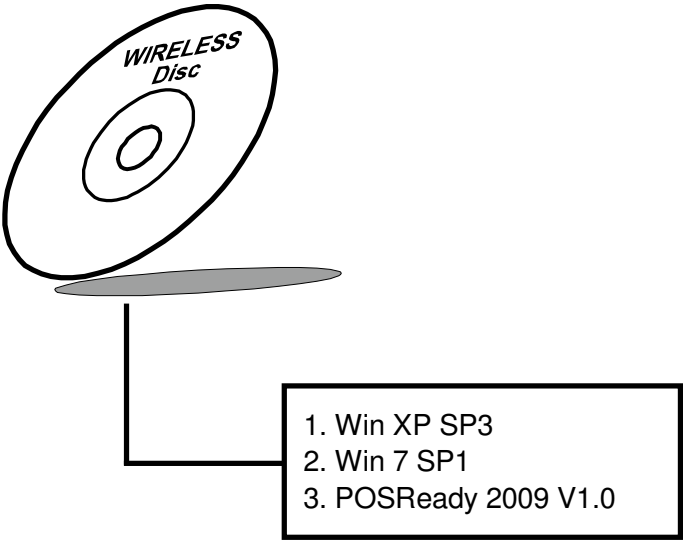
3-6-1. Installation of Touchscreen Driver

To install the Touchscreen Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3053 and insert the driver disk inside.
2. Enter the "Device/Touchscreen" folder where the Touchscreen driver is located.
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3053 for the changes to take effect.

3-7. WIRELESS DRIVER UTILITY (OPTIONAL)

The wireless driver utility can only be installed on a Windows® platform (XP Professional SP3, 7 SP1 and POSReady 2009 V1.0), and it should be installed right after the OS installation.



3-7-1. Installation of Wireless Driver

To install the Wireless Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3053 and insert the driver disk inside.
2. Enter the "Device/Embedded Wireless Module" folder where the Wireless driver is located.
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3053 for the changes to take effect.

AMI BIOS SETUP

CHAPTER

4

This chapter shows how to set up the AMI BIOS.

Sections included:

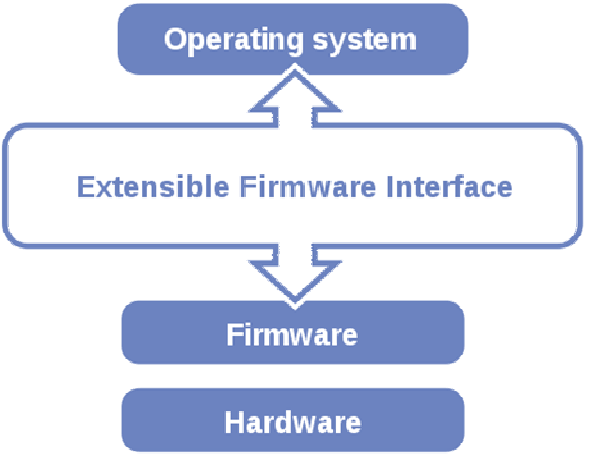
- Introduction
- Entering Setup
- Main
- Advanced
- Chipset
- Boot
- Security
- Save & Exit

4-1. INTRODUCTION

The board PROX-A6630LF 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:

POST Screen

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) 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

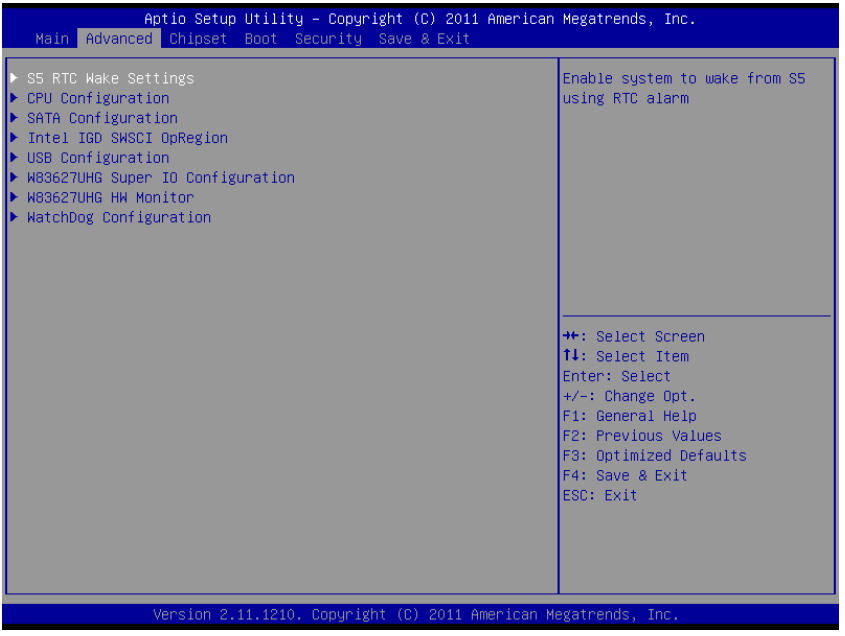
You may move the cursor by up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

4-3. MAIN

Main screen

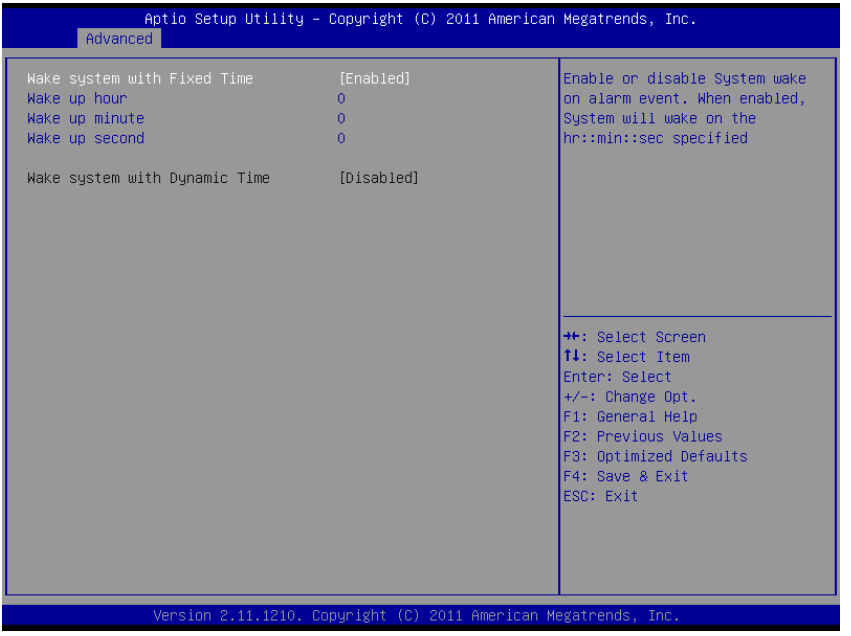
BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date	No changeable options	Displays the date of current BIOS version.
Total Memory	No changeable options	Displays the current memory installed amount and type.
System Date	month, day, year	Specifies the current date.
System Time	hour, minute, second	Specifies the current time.
Access Level	No changeable options	Displays security level currently in use.

4-4. ADVANCED



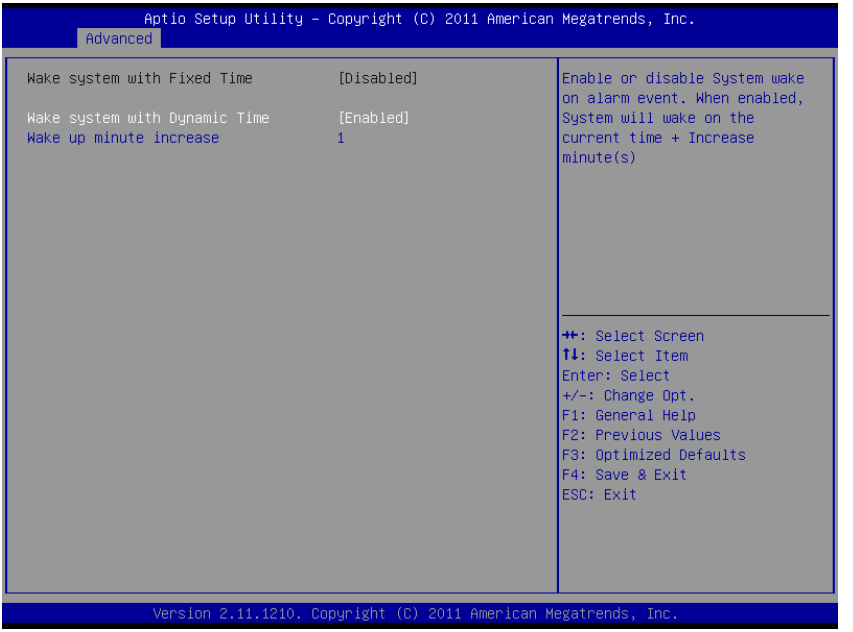
Advanced screen

4-4.1. ADVANCED - S5 RTC WAKE SETTINGS



5S RTC Wake settings screen

BIOS Setting	Options	Description/Purpose
Wake up with fixed time	-Disabled -Enabled	Enable wake up feature with fixed time.
Wake up hour	Multiple options ranging from 0 to 23	Sets the hour for wake up.
Wake up minute	Multiple options ranging from 0 to 59	Sets the minute for wake up.
Wake up second	Multiple options ranging from 0 to 59	Sets the second for wake up.

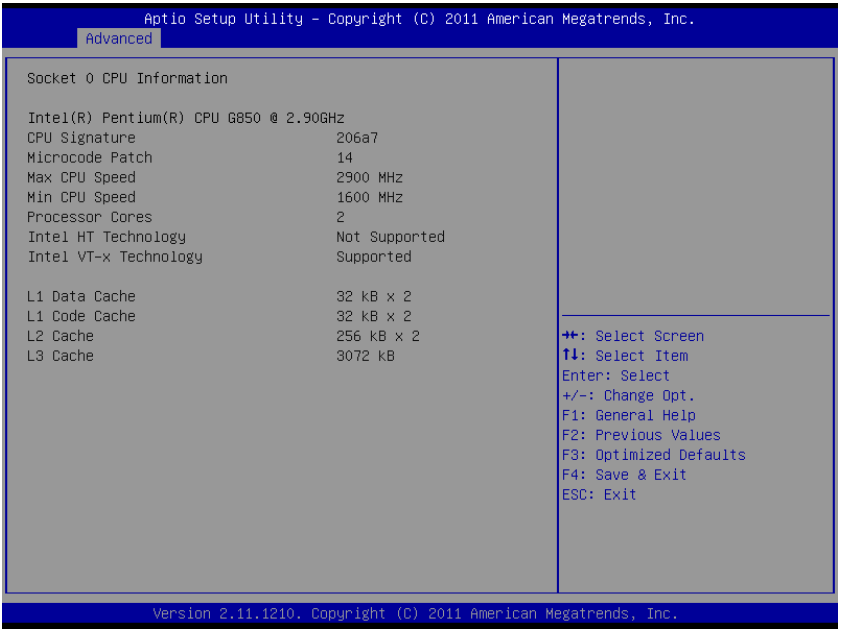


BIOS Setting	Options	Description/Purpose
Wake system with dynamic time	-Disabled -Enabled	Enable wake up feature with dynamic time.
Wake up minute increase	Multiple options ranging from 1 to 5	Sets the minute for wake up.

4-4.2. ADVANCED - CPU CONFIGURATION SETTINGS

CPU Configuration settings screen

BIOS Setting	Options	Description/Purpose
CPU speed	No changeable options	CPU speed
64-bit	No changeable options	Reports if processor supports Intel x86-64
Active Processor Cores	-All -1	Indicates the number of cores to enable in processor.



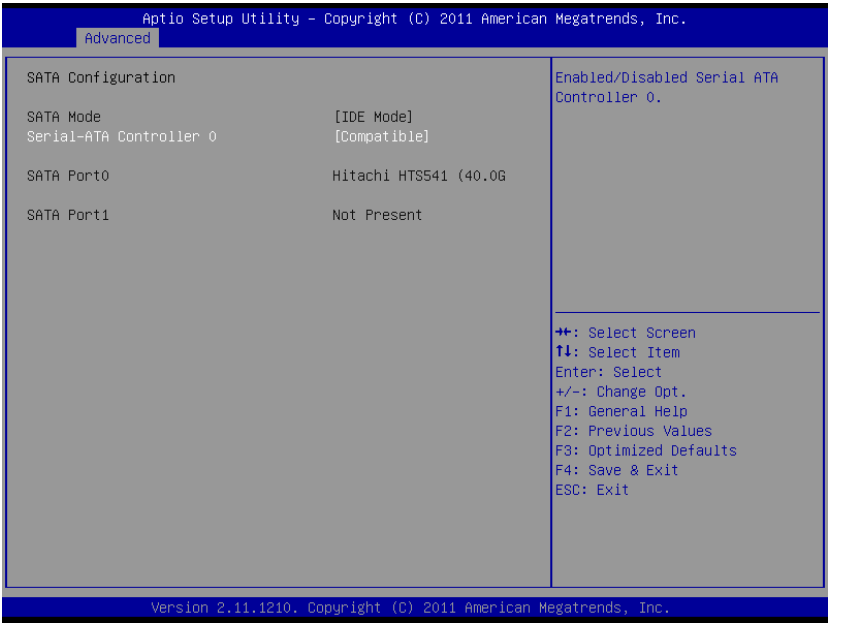
Socket 0 CPU Information screen

BIOS Setting	Options	Description/Purpose
CPU Signature	No changeable options	CPU's stepping, model, and family information.
Macrocode patch	No changeable options	Displays processor's microcode update revision.
Max CPU speed	No changeable options	Max CPU speed
Min CPU speed	No changeable options	Min CPU speed
Processor Cores	No changeable options	Displays information about number of physical cores in processor.
Intel HT technology	No changeable options	Reports if Intel Hyper-Threading Technology is supported by processor.
Intel VT-x technology	No changeable options	Reports if Intel Virtualization Technology (VT-x). is supported by processor.

(Continued)

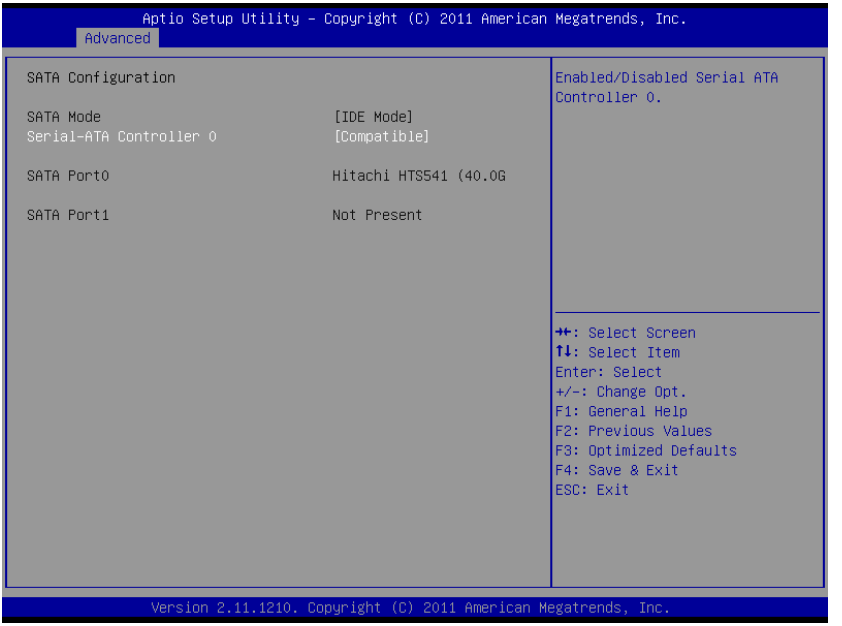
BIOS Setting	Options	Description/Purpose
L1 data cache	No changeable options	Displays amount of Level 1 data cache.
L1 code cache	No changeable options	Displays amount of Level 1 code cache.
L2 cache	No changeable options	Displays amount of Level 2 cache.
L3 cache	No changeable options	Displays amount of Level 3 cache.

4-4.3. ADVANCED - SATA CONFIGURATION SETTINGS



SATA Configuration settings screen

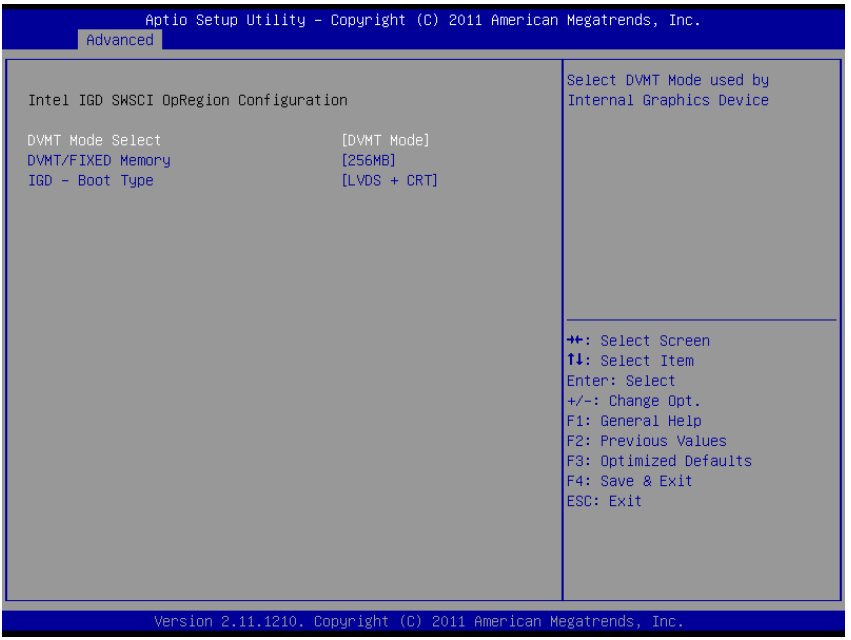
BIOS Setting	Options	Description/Purpose
SATA Port0	[drive]	Displays the drive installed on this SATA port. Shows [Not Present] if no drive is installed.
SATA Port1	[drive]	Displays the drive installed on this SATA port. Shows [Not Present] if no drive is installed.



SATA Configuration - IDE mode screen

BIOS Setting	Options	Description/Purpose
Serial-ATA Controller 0	-Disabled -Enhanced -Compatible	Specifies the integrated IDE controller 0. Disabled disables the integrated IDE controller. Enhanced enables all SATA and PATA resources. Compatible enables up to two IDE channels for OS requiring legacy IDE operation.

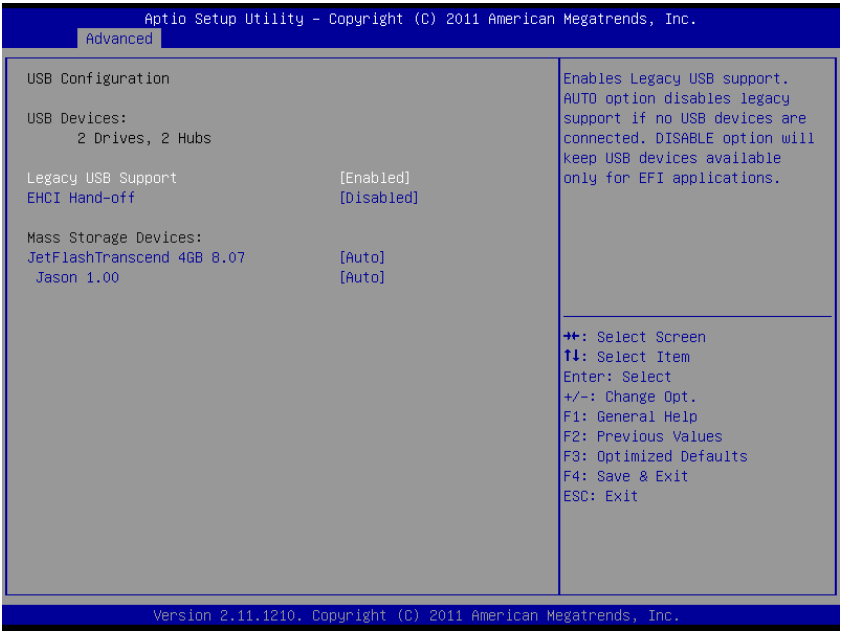
4-4.4. ADVANCED - INTEL IGD SWSCI OPREGION CONFIGURATION SETTINGS



Intel IGD SWSCI OpRegion configuration settings screen

BIOS Setting	Options	Description/Purpose
DVMT Mode Select	-Fixed mode -DVMT mode	Select DVMT mode used by internal graphics device.
DVMT/FIXED Memory	-128MB -256MB -Maximum	Intel Dynamic Video Memory Technology allows additional memory to be allocated for graphics usage based on application need. Once the application is closed, the memory that was allocated for graphics usage is then released and made available for system use.
IGD - Boot Type	-CRT + LVDS -CRT -LVDS	Specifies which graphics output is used on system boot.

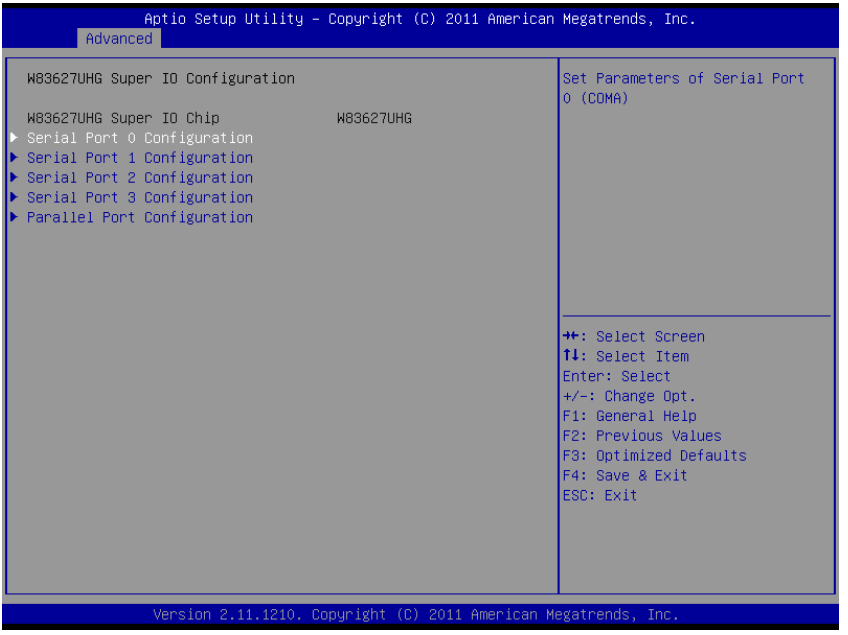
4-4.5. ADVANCED - USB CONFIGURATION SETTINGS



USB configuration settings screen

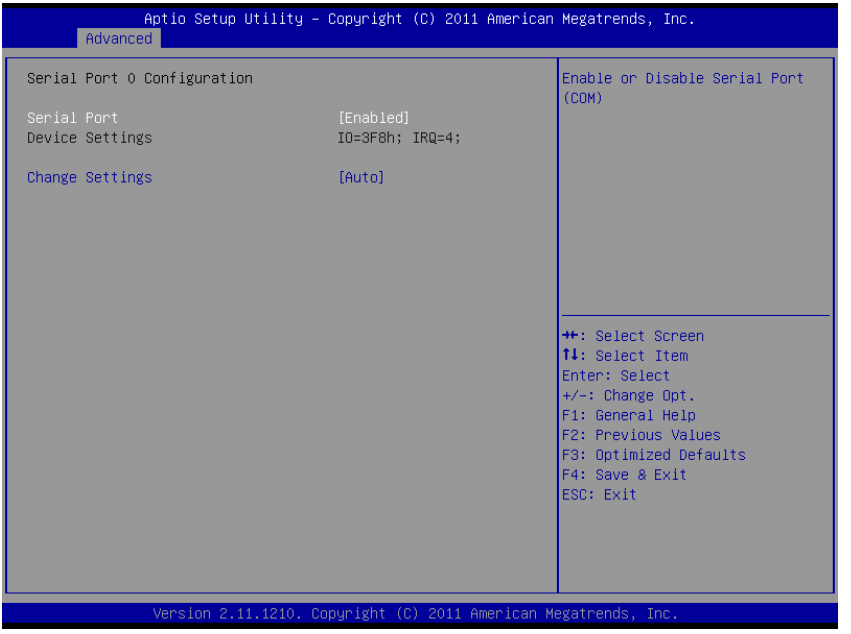
BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays number of available USB devices.
Legacy USB Support	-Disabled -Enabled -Auto	Enables support for legacy USB.
EHCI Hand-off	-Disabled -Enabled	When enabled it allows BIOS support control of the EHCI controller and the OS hand-off synchronization capability.

4-4.6. ADVANCED - W83627UHG SUPER IO CONFIGURATION SETTINGS



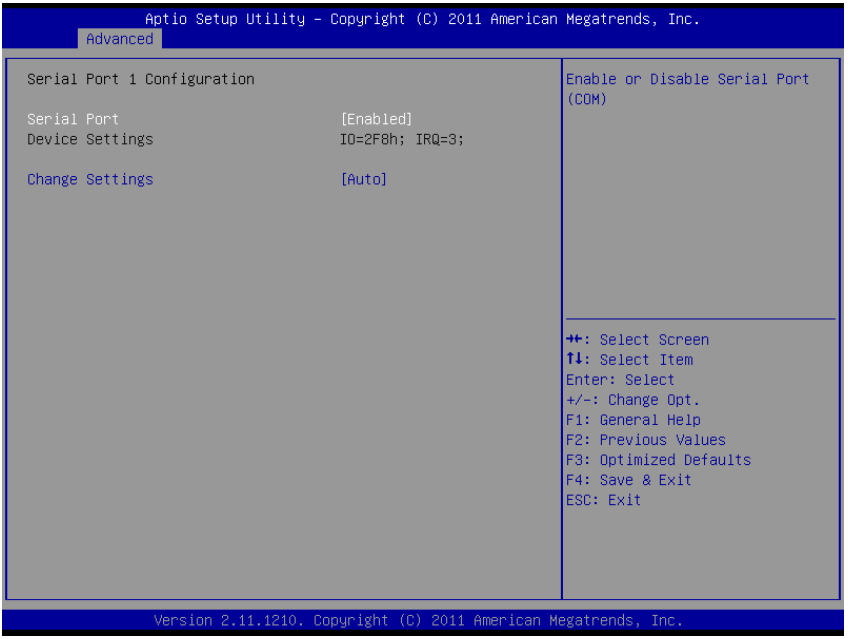
W83627UHG Super IO configuration settings screen

BIOS Setting	Options	Description/Purpose
Super IO Chip	No changeable options	Displays the super IO chip model and its manufacturer.



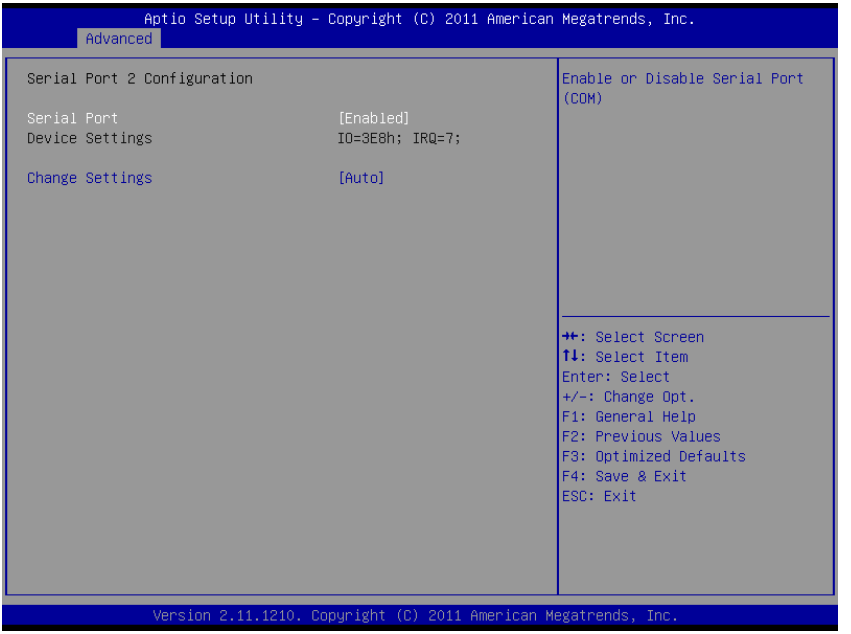
Serial Port 0 Configuration screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Configures the serial port 0.
Device Settings	No changeable options	Reports the current serial port 0 setting.
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	Specifies the base I/O address and interrupt request for the serial port 0 if enabled.



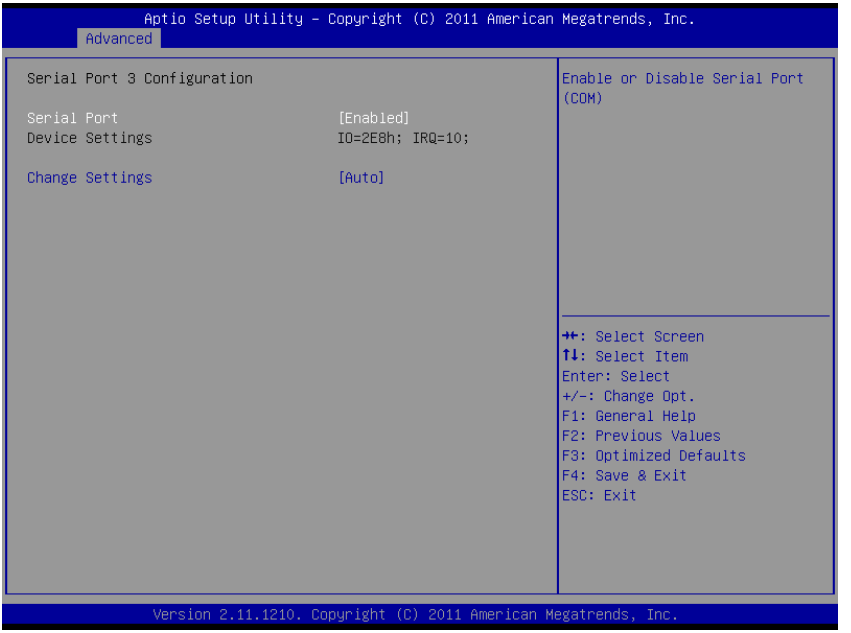
Serial Port 1 Configuration screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Configures the serial port 1.
Device Settings	No changeable options	Reports the current serial port 1 setting.
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	Specifies the base I/O address and interrupt request for the serial port 1 if enabled.



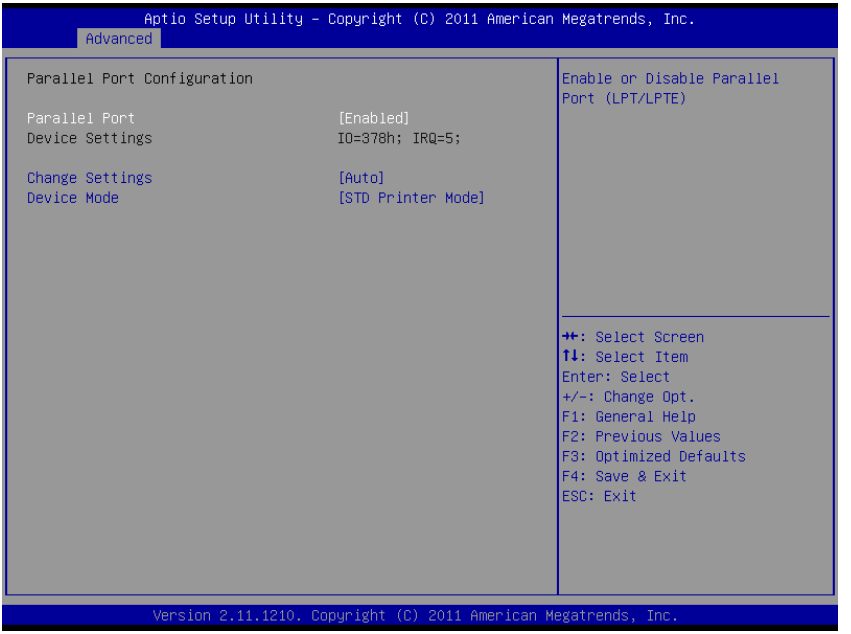
Serial Port 2 Configuration screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Configures the serial port 2.
Device Settings	No changeable options	Reports the current serial port 2 setting.
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 -IO=2E0h; IRQ=3,4,5,6,7,10,11,12 -IO=2F0h; IRQ=3,4,5,6,7,10,11,12	Specifies the base I/O address and interrupt request for the serial port 2 if enabled.



Serial Port 3 Configuration screen

BIOS Setting	Options	Description/Purpose
Serial Port	-Disabled -Enabled	Configures the serial port 3.
Device Settings	No changeable options	Reports the current serial port 3 setting.
Change Settings	-Auto -IO=2E8h; 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 -IO=2E0h; IRQ=3,4,5,6,7,10,11,12 -IO=2F0h; IRQ=3,4,5,6,7,10,11,12	Specifies the base I/O address and interrupt request for the serial port 3 if enabled.



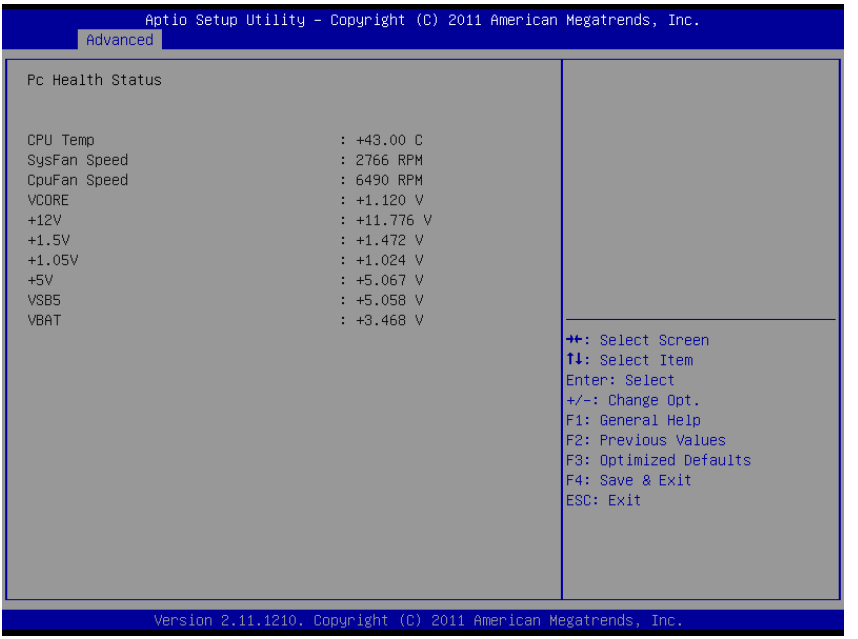
Parallel Port Configuration screen

BIOS Setting	Options	Description/Purpose
Parallel Port	-Disabled -Enabled	Configures the Parallel port
Device Settings	No changeable options	Reports the current Parallel port setting.
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	Specifies the base I/O address and interrupt request for the Parallel port if enabled.

(Continued)

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.

4-4.7. ADVANCED - W83627UHG H/W MONITOR SETTINGS



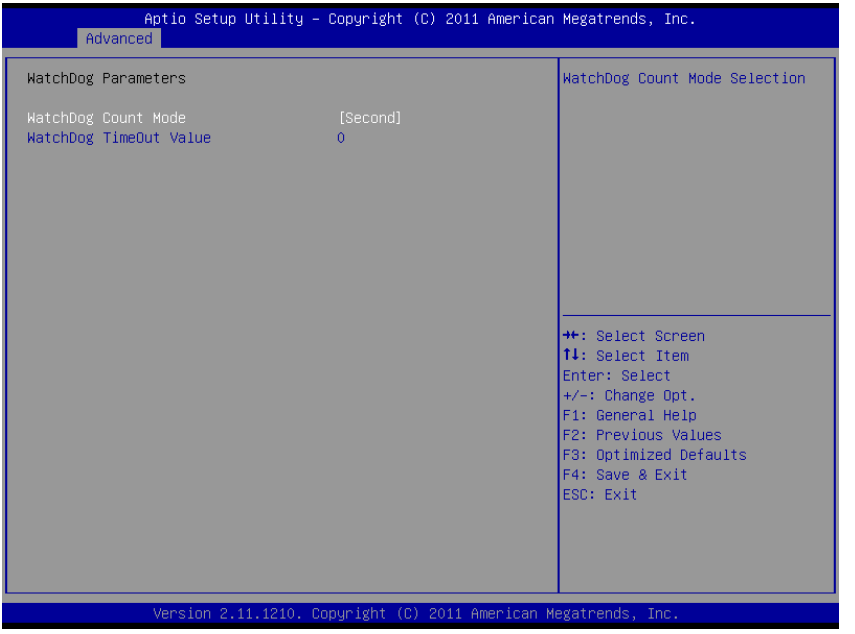
W83627UHG H/W Monitor settings screen

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

(Continued)

BIOS Setting	Options	Description/Purpose
+1.05V	No changeable options	Displays voltage level of the +1.5V in supply.
+5V	No changeable options	Displays voltage level of the +5V in supply.
VSB5	No changeable options	Displays voltage level of the +5VSB in supply.
VBAT	No changeable options	Displays voltage level of the backup CMOS battery.

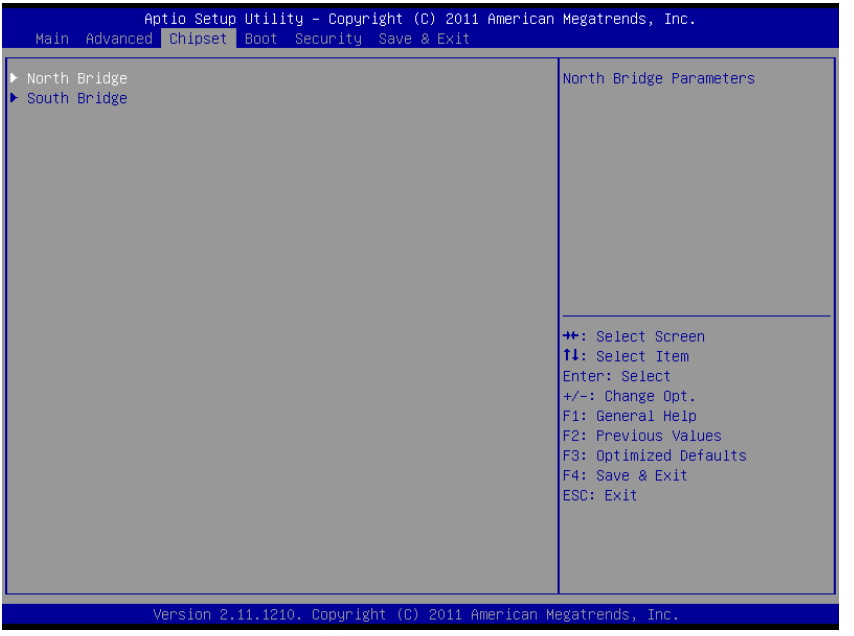
4-4.8. ADVANCED - WATCHDOG CONFIGURATION SETTINGS



Watchdog configuration settings screen

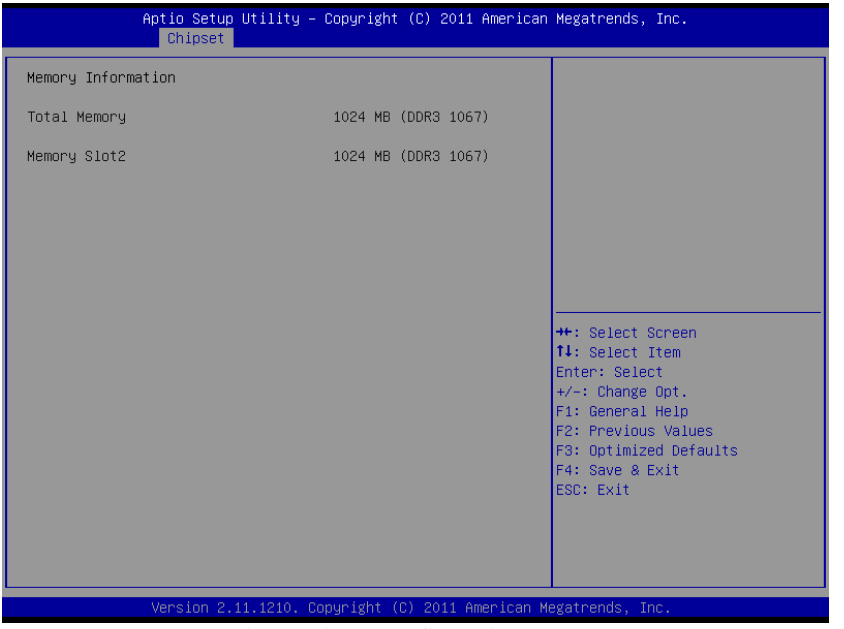
BIOS Setting	Options	Description/Purpose
Watchdog count mode	-Second -Minute	Selects unit for watchdog timer.
Watchdog timeout value	Multiple options ranging from 0 to 255	Sets the desired value for watchdog timer. 0 means disabled.

4-5. CHIPSET



Chipset screen

4-5.1. NORTH BRIDGE CHIPSET CONFIGURATION



North bridge chipset configuration screen

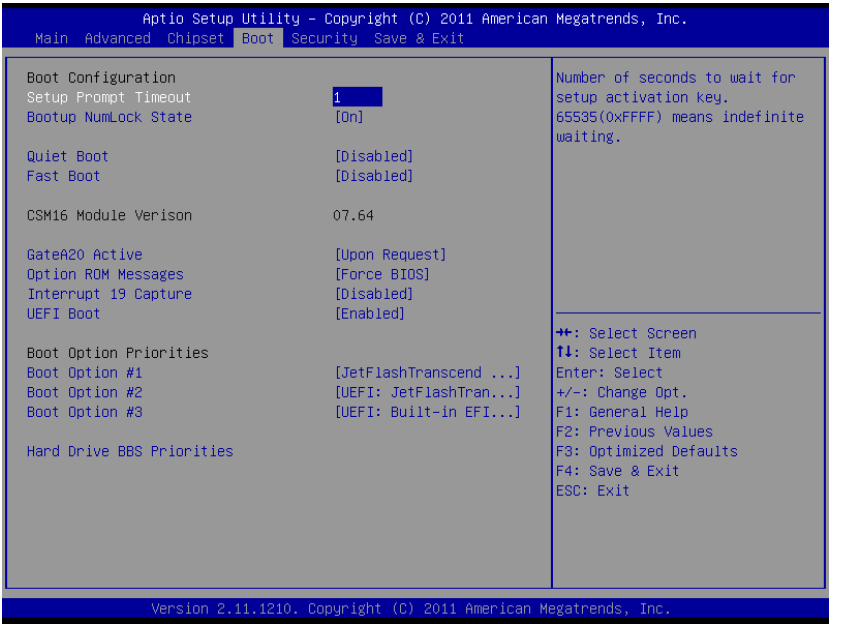
BIOS Setting	Options	Description/Purpose
Total Memory	No changeable options	Displays the total amount of RAM.
Memory Slot2	No changeable options	Display the amount of RAM installed in first memory slot.

4-5.2. SOUTH BRIDGE CHIPSET CONFIGURATION

South bridge chipset configuration screen

BIOS Setting	Options	Description/Purpose
Restore AC Power Loss	-Power Off -Power On -Last State	Determines the mode of operation in case of power loss. Power Off keeps the power off till the power button is pressed. Power On restores power to the computer. Last State restores the previous power state before power loss happened.

4-6. BOOT



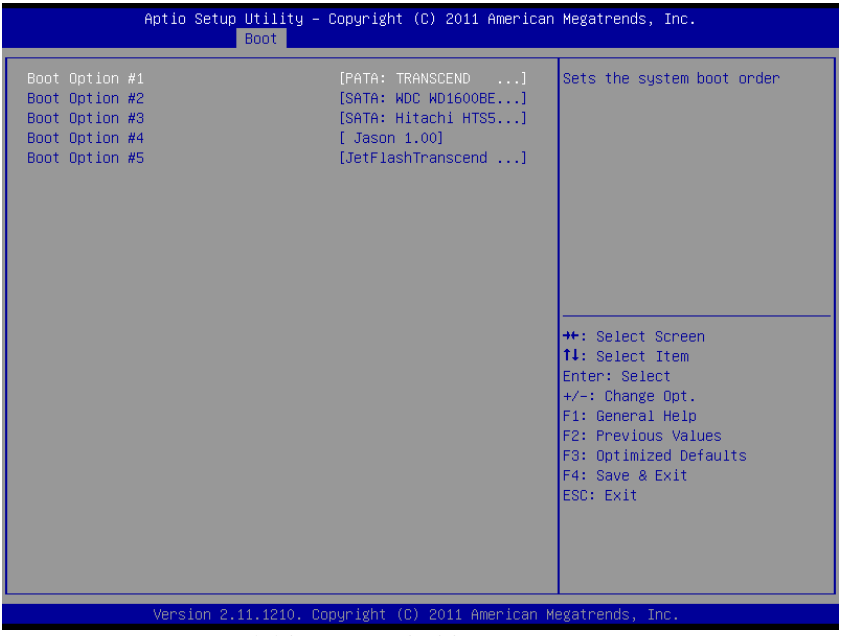
Boot screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Multiple options ranging from 1 to 65535	Specifies number of seconds to wait for setup activation key (value 65535 results in indefinite waiting).
Bootup NumLock Status	-On -Off	Specifies the power-on state of the numlock feature on the numeric keypad of keyboard.
Quiet Boot	-Disabled -Enabled	When quiet boot is enabled, it displays OEM logo instead of POST messages during boot.

(Continued)

BIOS Setting	Options	Description/Purpose
Fast Boot	-Disabled -Enabled	When fast boot is enabled, it boots with minimal set of devices required to launch active boot option.
CSM16 Module Version	No changeable options	Displays the current Compatibility Support Module version.
GateA20 Active	-Upon Request -Always	Specifies Gate-A20 logic gate status. At boot time, Gate-A20 is enabled when counting and testing of all the system's memory and disabled before transferring control to OS.
Option ROM Messages	-Force BIOS -Keep Current	-Force BIOS -Keep Current
Interrupt 19 Capture	-Disabled -Enabled	When enabled it allows host adapters ROM BIOS to capture Interrupt 19 during the boot process and eventually boot from disk(s) connected to those adapters.
UEFI Boot	-Disabled -Enabled	Enabled: Enabled all UEFI boot options. Disabled: Disabled all UEFI boot options.
Boot Option #1	-[drive(s)] -Disabled	Allows setting boot option listed in Hard Drive BBS Priorities.

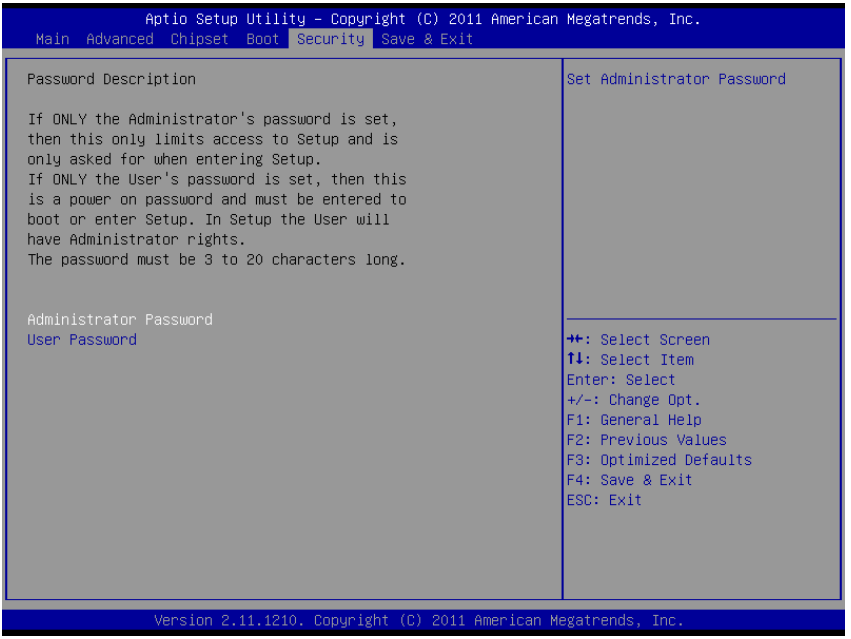
4-6.1. HARD DRIVE BBS PRIORITIES



Hard drive BBS priorities screen

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

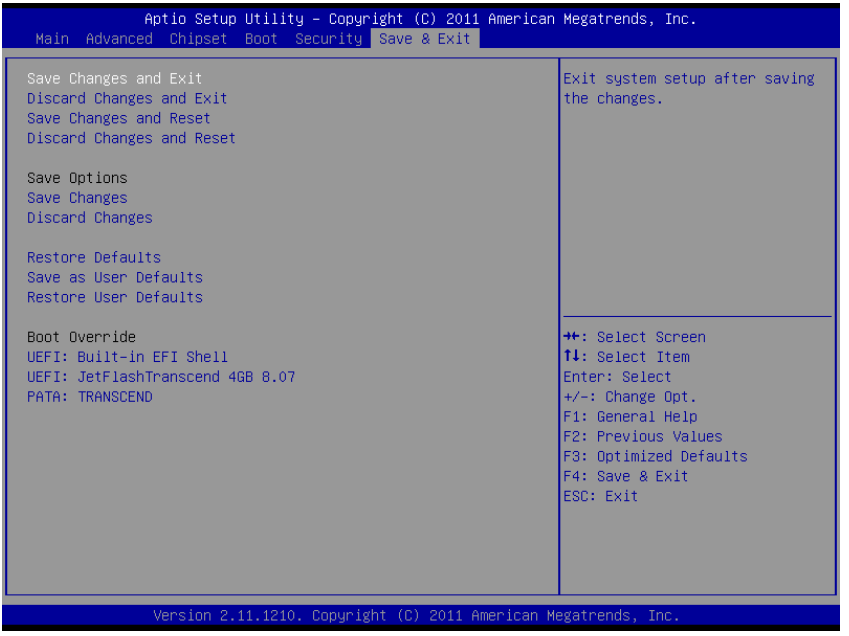
4-7. SECURITY



Security screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be up to 20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be up to 20 alphanumeric characters.	Specifies the user 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 CMOS SRAM.
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 CMOS SRAM and resets.
Discard Changes and Reset	No changeable options	Resets without saving any changes made in BIOS settings.

(Continued)

BIOS Setting	Options	Description/Purpose
Save Changes	No changeable options	Saves the changes done in BIOS settings so far.
Discard Changes	No changeable options	Discards the changes done in BIOS settings so far.
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Save as User Defaults	No changeable options	Saves the current values as user defaults.
Restore User Defaults	No changeable options	Loads the user defaults for BIOS settings.
Boot Override	-[drive(s)]	Forces to boot from selected [drive(s)].

SYSTEM ASSEMBLY

APPENDIX

A

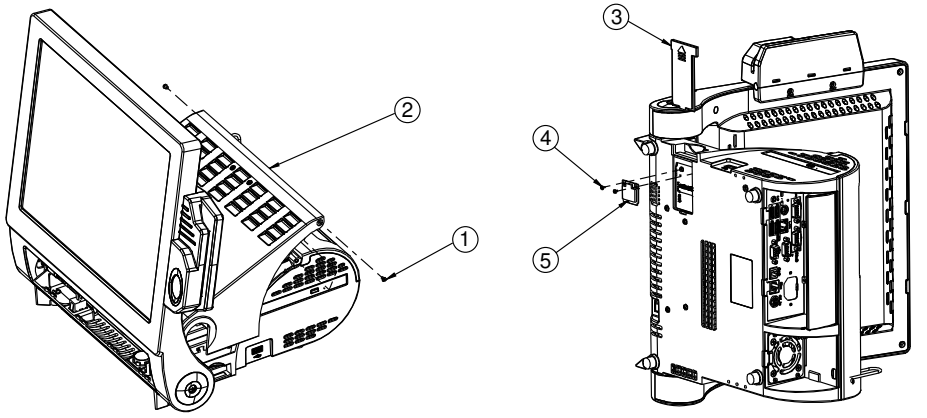
This appendix contains exploded diagrams and part numbers of the PA-3053 system.

Sections include:

- Exploded Diagram for PA-3053 Wireless LAN Card
- Exploded Diagram for PA-3053 Rear Cover
- Exploded Diagram for PA-3053 LCD Panel
- Exploded Diagram for PA-3053 DVD ROM
- Exploded Diagram for PA-3053 Inside Cover
- Exploded Diagram for PA-3053 Bottom Case
- Exploded Diagram for PA-3053 CPU Cooler
- Exploded Diagram for PA-3053 Top Case
- Exploded Diagram for PA-3053 Hard Disk Drive

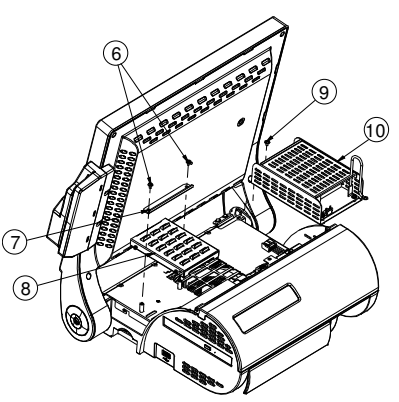
- Exploded Diagram for PA-3053 VFD Cover
- Exploded Diagram for PA-3053 Power Holder

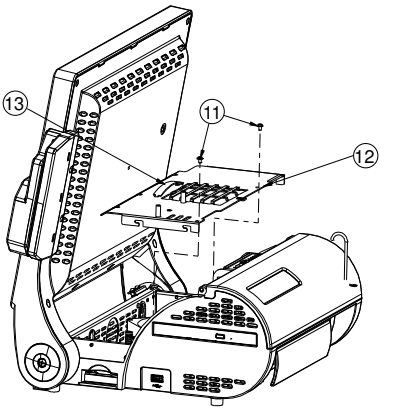
EXPLODED DIAGRAM FOR PA-3053 WIRELESS LAN CARD



No.	Name	P/N No.	Qt'y
5	WIRELESS LAN_CARD	See Order	1
4	M2_L4_1_Ni	22-272-20004011	2
3	MINI_PCIE_DOOR(White)	30-007-28310165	1
	MINI_PCIE_DOOR(Black)	30-007-28110165	
2	POD3150-TOP Assembly	See TOP CASE	1
1	M3_L4_1_Ni(White)	82-272-30004018	2
	M3_L4_1_B(Black)	22-272-30004318	

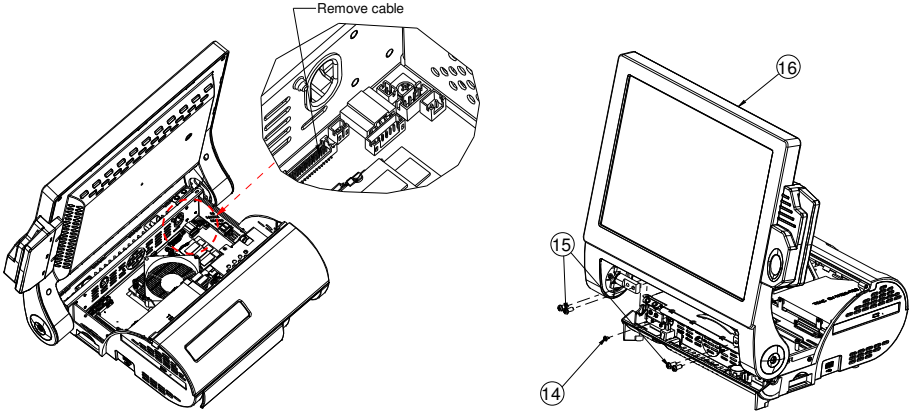
EXPLODED DIAGRAM FOR PA-3053 REAR COVER





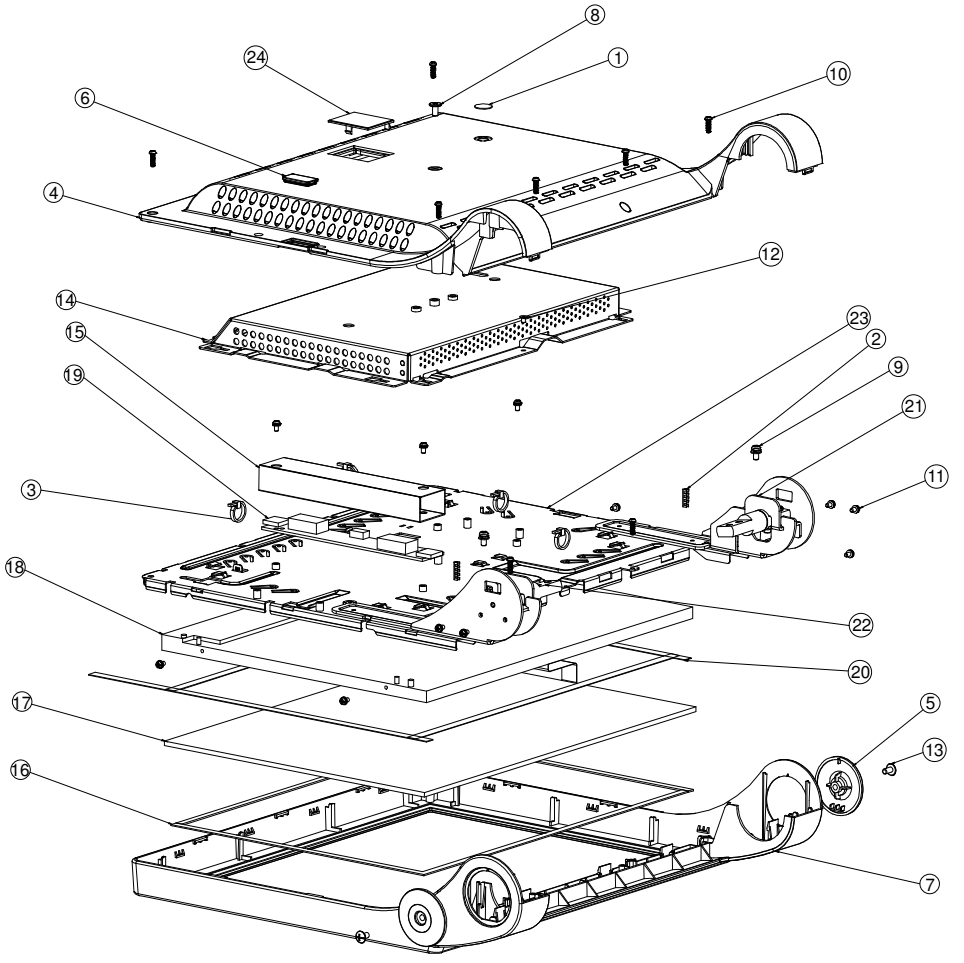
No.	Name	P/N No.	Q'ty
13	Puller	30-080-04100000	1
12	PA-3053_INSIDE_TOP_CASE	20-001-03001241	1
11	M3_L5_Washer_Ni	22-242-30005311	2
10	AC_POWER_Assembly	See POWER HOLDER	1
9	M3_L5_Washer_Ni	22-242-30005311	1
8	HDD Assembly	See HDD	1
7	POD3150 HDD LOCK	80-025-0300118	1
6	M3_L5_Washer_Ni	22-242-30005311	2

EXPLODED DIAGRAM FOR PA-3053 LCD PANEL

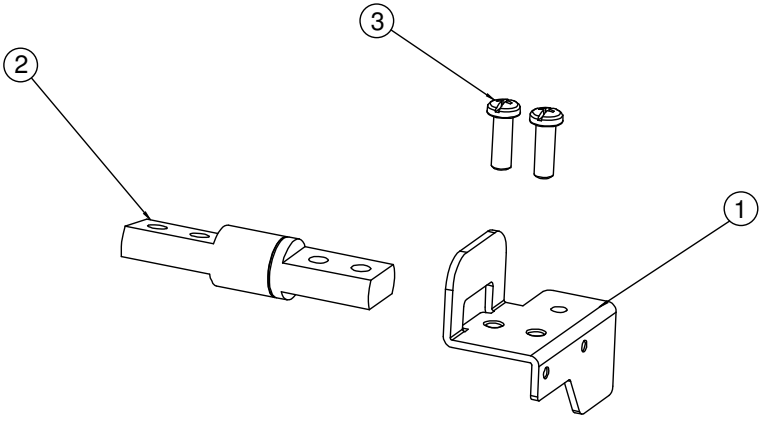


16	LCD Assembly	--	1
15	M5_L15	22 232-50015011	4
14	M3_L5_Washer_Ni	22-242 30005311	1
No.	Name	P/N No.	Qt'y

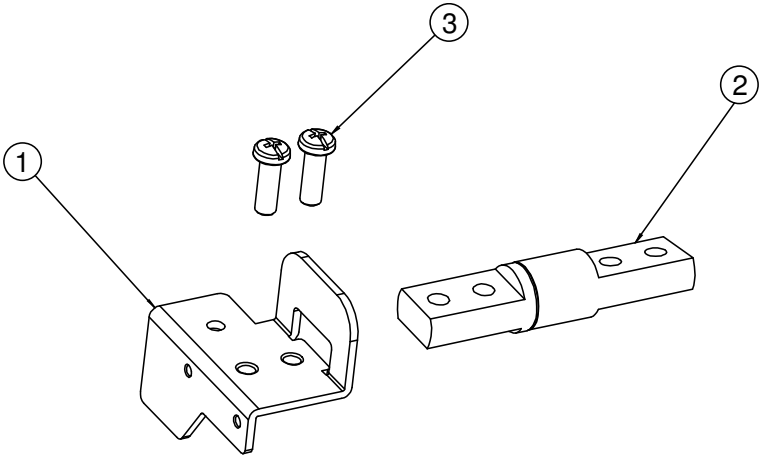
Type 1: Black



NO.	COMPONENT NAME	PART NO.	Q'TY
1	MYLAR FOR ADJUSTOR	90-056-36100181	1
2	MOVEABLE BUSHING	30-018-04100005	2
3	CABLE TIE	30-015-04100044	4
4	15 IN BACK PANEL	30-003-12210208	1
5	HINGE SIDE COVER	30-002-12211181	2
6	FINGERPRINT COVER	30-013-06100124	1
7	15 IN FRONT PANEL	30-003-12120181	1
8	SCREW	22-275-40008011	1
9	SCREW	22-232-40008211	2
10	SCREW	22-125-30010011	8
11	SCREW	22-232-30060211	11
12	SCREW	22-222-30004011	1
13	SCREW	22-245-40008011	2
14	15IN BACK CHASSIS	20-015-03001181	1
15	MYLAR FOR INVERTER	90-056-02100181	1
16	SPONGE	30-013-15100139	2
17	TOUCH PANEL	**-***-********	1
18	15 IN PANEL	**-***-********	1
19	INVERTER	**-***-********	1
20	PORON	30-013-24100000	4
21	HINGE L ASSY	**-***-********	1
22	HINGE R ASSY	**-***-********	1
23	15IN PANEL HOLDER ASSY	20-029-03003181	1
24	VFD COVER	30-002-12110208	1

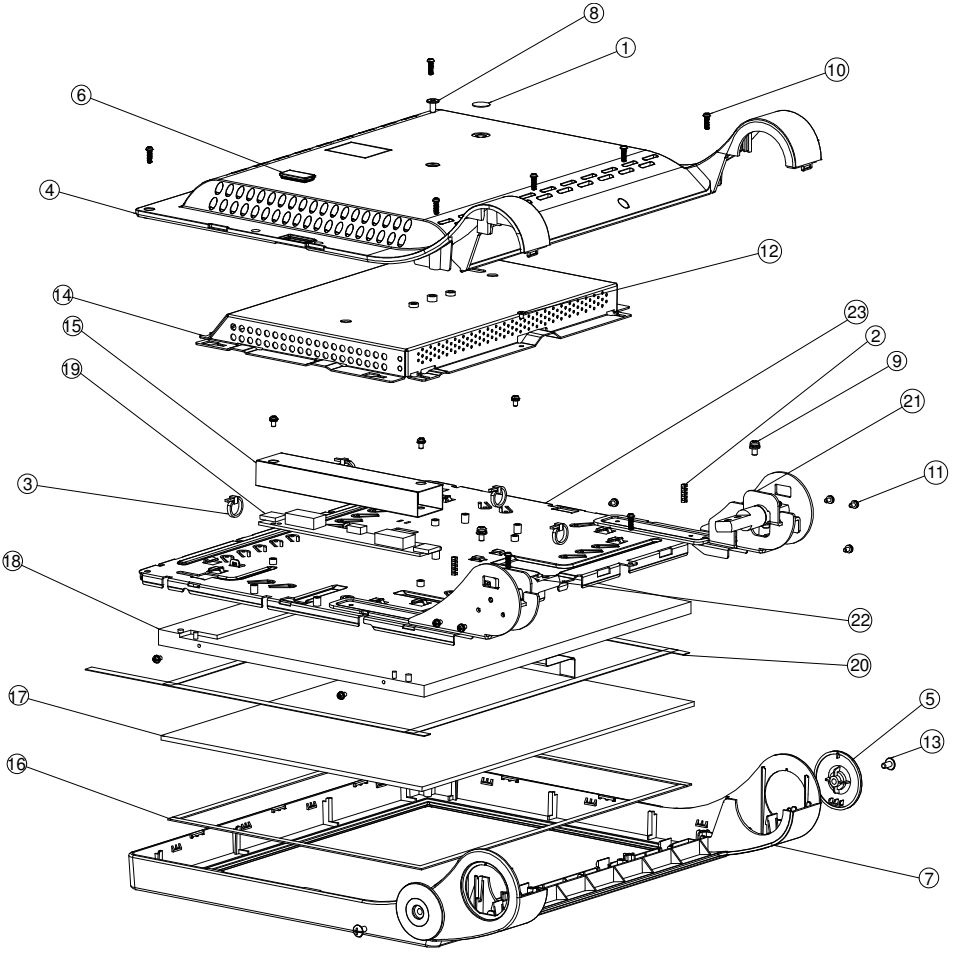


NO.	COMPONENT NAME	PART NO.	Q'TY
1	HINGE BRACKET L	20-006-03002181	1
2	HINGE L	20-012-19002181	1
3	SCREW	22-232-50015011	2

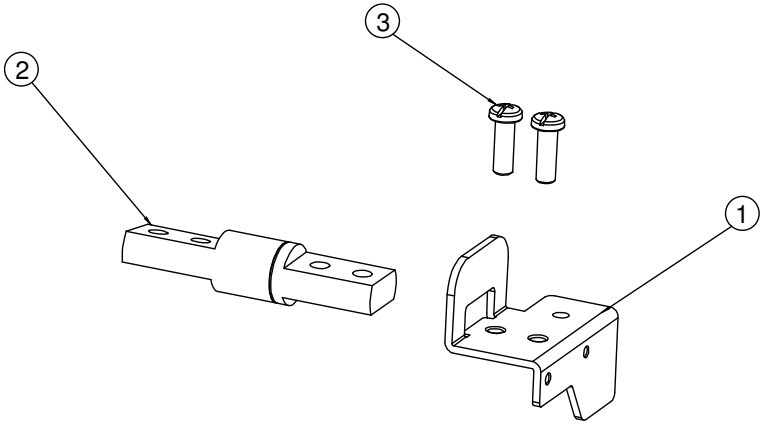


NO.	COMPONENT NAME	PART NO.	Q'TY
1	HINGE BRACKET R	20-006-03001181	1
2	HINGE R	20-012-19001181	1
3	SCREW	22-232-50015011	2

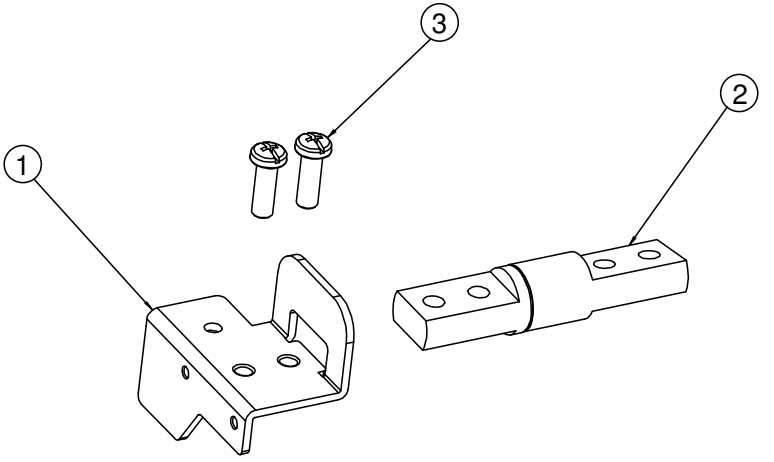
Type 2: White



NO.	COMPONENT NAME	PART NO.	Q'TY
1	MYLAR FOR ADJUSTOR	90-056-43100181	1
2	MOVEABLE BUSHING	30-018-04100005	2
3	CABLE TIE	30-015-04100044	4
4	15 IN BACK PANEL	30-003-12110208	1
5	HINGE SIDE COVER	30-002-12111181	2
6	FINGERPRINT COVER	30-013-06100124	1
7	15 IN FRONT PANEL	30-003-12110181	1
8	SCREW	22-272-40008011	1
9	SCREW	22-232-40008211	2
10	SCREW	22-125-30010011	8
11	SCREW	22-232-30060211	11
12	SCREW	22-222-30004011	1
13	SCREW	22-242-40008011	2
14	15IN BACK CHASSIS	20-015-03001181	1
15	MYLAR FOR INVERTER	90-056-02100181	1
16	SPONGE	30-013-15100139	2
17	TOUCH PANEL	**-****-********	1
18	15 IN PANEL	**-****-********	1
19	INVERTER	**-****-********	1
20	PORON	30-013-24100000	4
21	HINGE L ASSY		1
22	HINGE R ASSY		1
23	15IN PANEL HOLDER ASSY	20-029-03003181	1

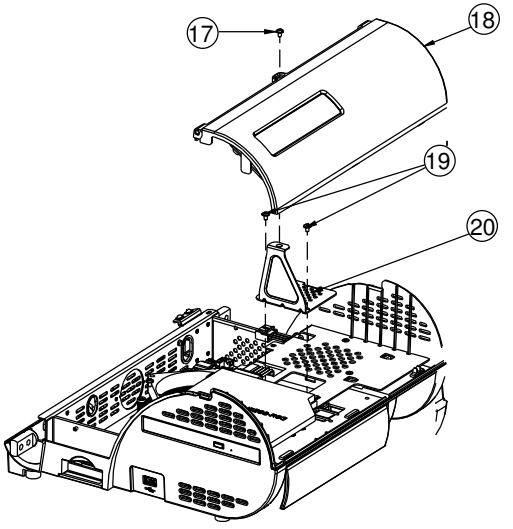


NO.	COMPONENT NAME	PART NO.	Q'TY
1	HINGE BRACKET L	20-006-03002181	1
2	HINGE L	20-012-19002181	1
3	SCREW	22-232-50015011	2

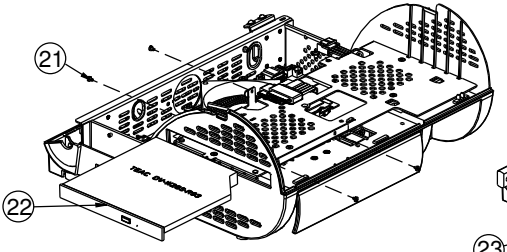


NO.	COMPONENT NAME	PART NO.	Q'TY
1	HINGE BRACKET R	20-006-03001181	1
2	HINGE R	20-012-19001181	1
3	SCREW	22-232-50015011	2

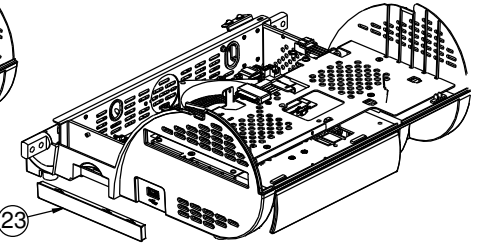
EXPLODED DIAGRAM FOR PA-3053 DVD ROM



With DVD:

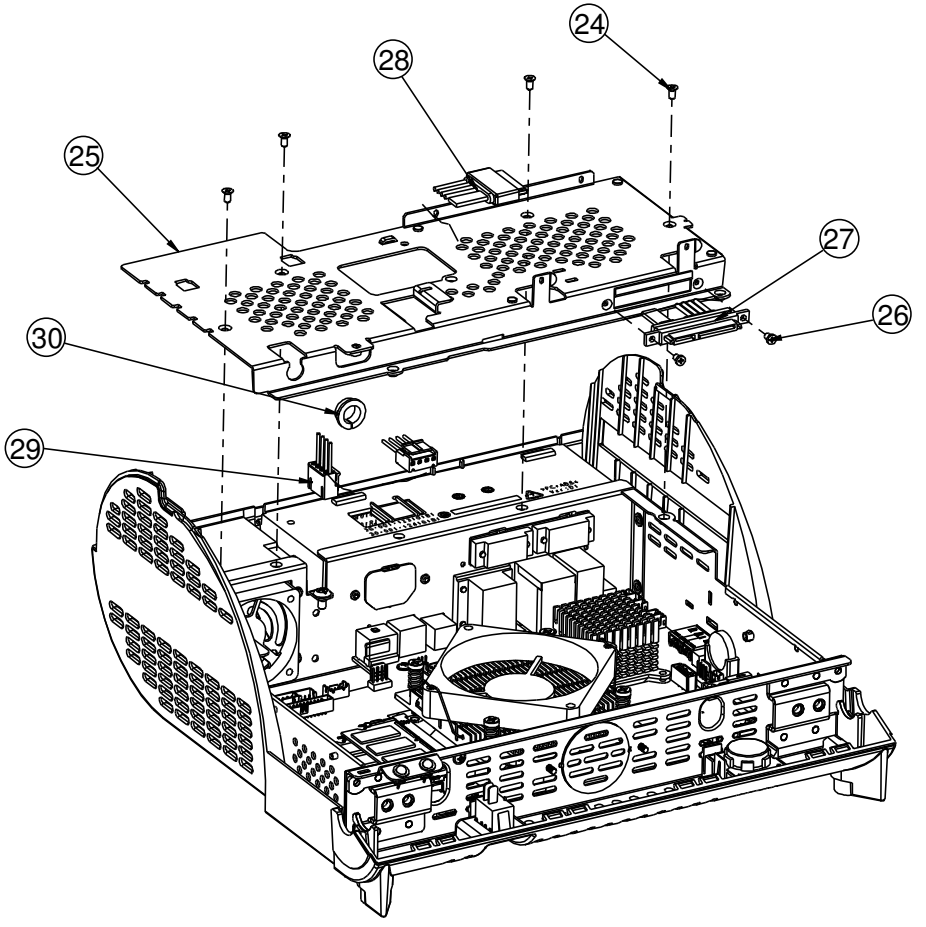


Without DVD:



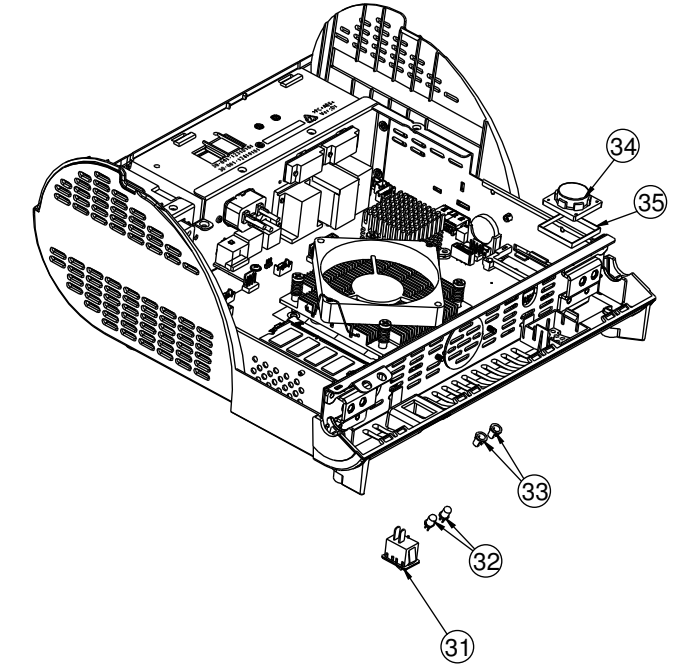
23	DVD Cover(White)	30-002-12610181	1
	DVD Cover(Black)	30-002-12710181	
22	DVD ROM	52-480-05224905	1
21	M2_L2.5_Ni	22-272-20002011	4
20	Jump door	80-047-03001181	1
19	M3_L5_Washer_Ni	22-242-30005311	2
18	VFD Assembly	See Page 11	1
17	M3_L5_Washer_Ni	22-242-30005311	1
No.	Name	P/N No.	Q'ty

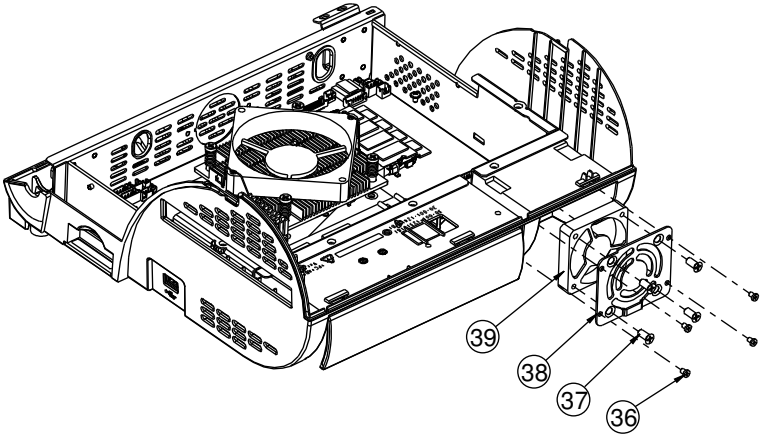
EXPLODED DIAGRAM FOR PA-3053 INSIDE COVER



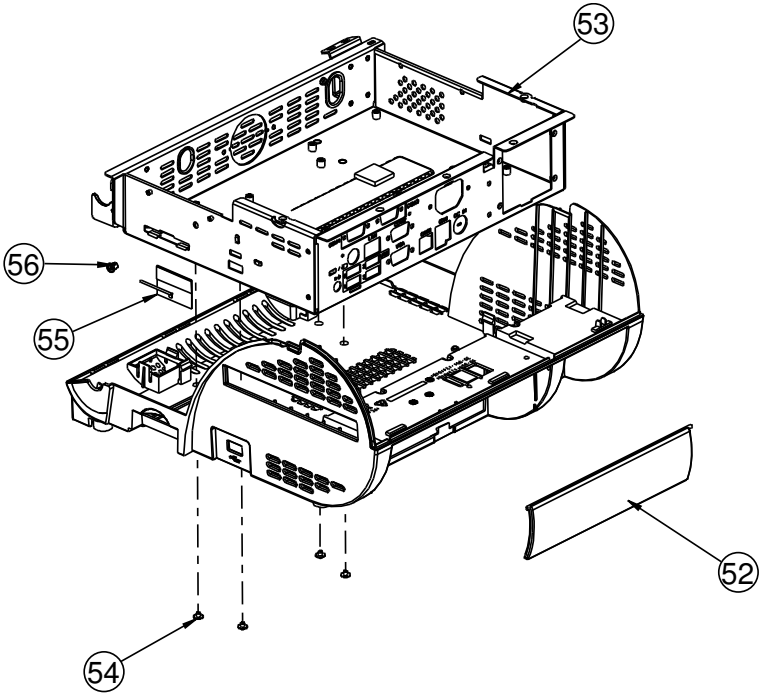
30	OPEN CLOSED BUSHING	30-026-04200008	1
29	DC to DC Cable	27-012-22806071	1
28	DVD CablE	27-008-18105081	1
27	HDD Cable	27-012-16504081	1
26	M3_L4_1_B(Black)	22-272-30004318	2
25	3053_INSIDE-TOP-HOLDER	20-029-03001241	1
24	M3_6_FLAT_B	22-215-30060011	4
No.	Name	P/N No.	Qt'y

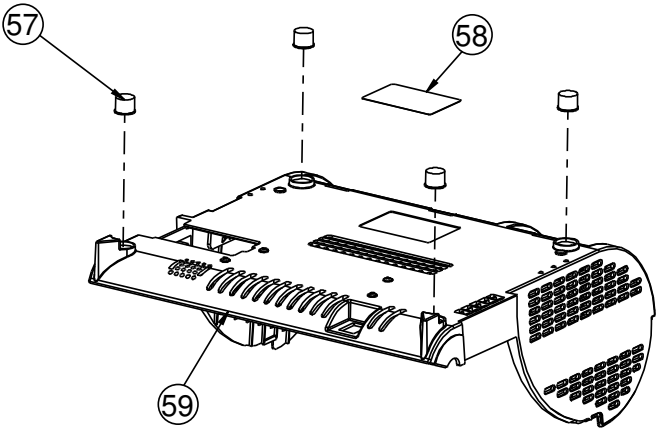
EXPLODED DIAGRAM FOR PA-3053 BOTTOM CASE





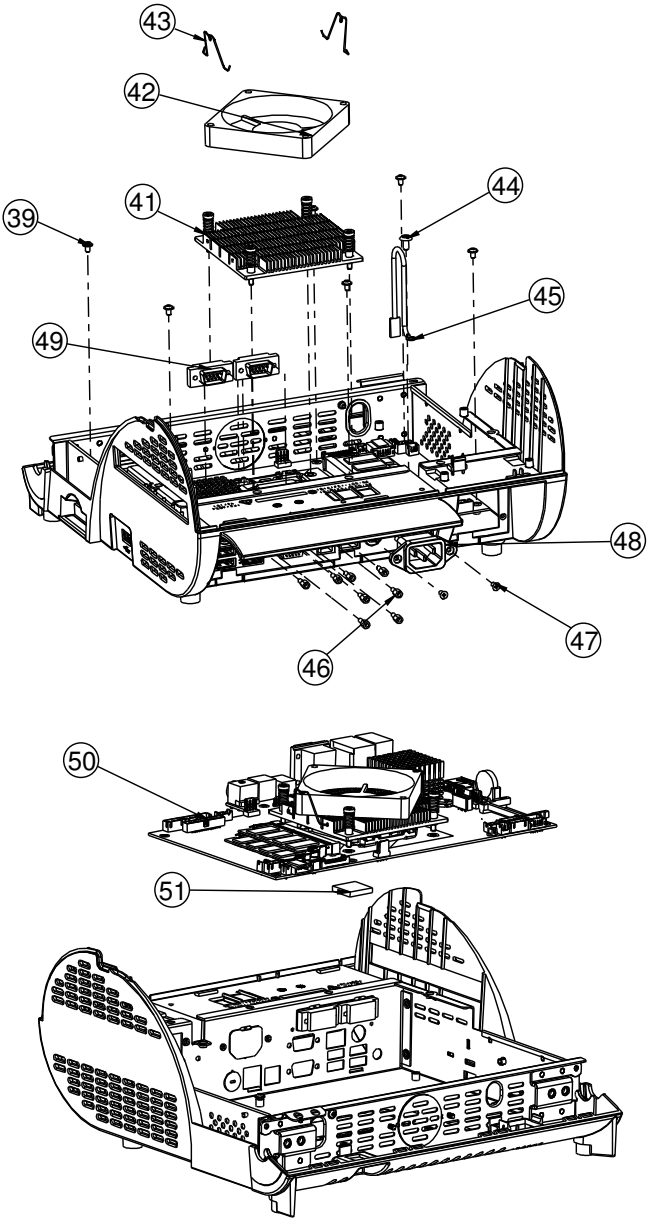
39	SYS fan	21-004-05050181	1
38	fan_holder	80-029-03001208	1
37	T5.0x1.59P_L10	22-112-50010011	4
36	M3_L4_1_B	22-272-30004318	4
35	Speaker Pron	90-013-15200181	1
34	SPEAKER	13-500-08280018	1
33	Led support	30-014-04100009	2
32	LED Cable	27-018-18103071	1
31	Switch Cable	27-019-18104071	1
No.	Name	P/N No.	Q'ty


53
56
55
52
54


57
58
59

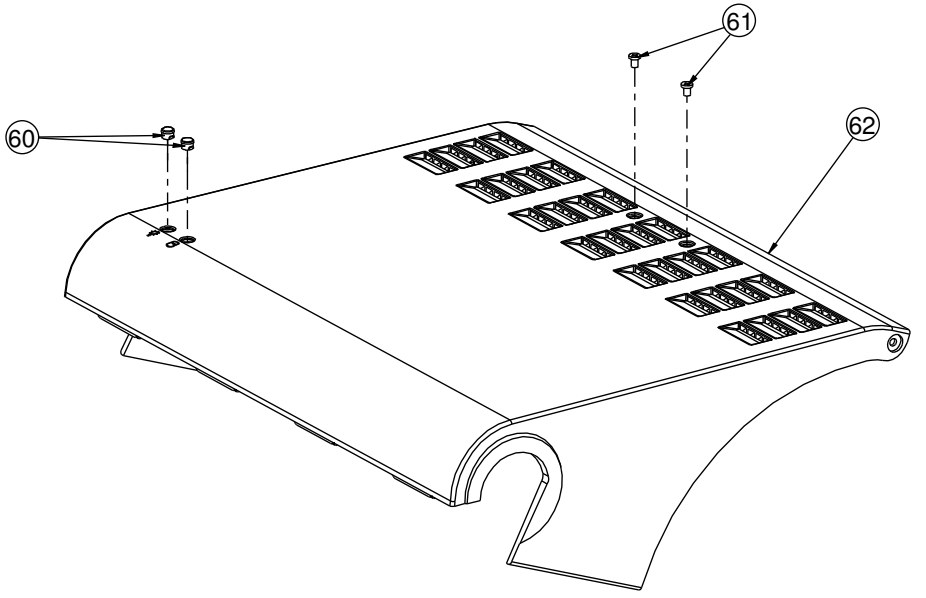
59	POD3150_BOT_CASE(White)	30-001-12310181	1
	POD3150_BOT_CASE(Black)	30-001-12410181	
58	Label	XX-XXX-XXXXXXXX	1
57	Foot(R1511)	90-004-01100181	4
56	OPEN CLOSED BUSHING	30-026-04100008	1
55	WIRELESS_ANTENNA	27-029-00003072	1
54	M3_L3_W_Hi	22-232-30003311	4
53	PA-3053-INSIDE-BOX	20-040-03001241	1
52	POD3150 I/O Cover(White)	30-002-12810181	1
	POD3150 I/O Cover(Black)	30-002-12910181	
No.	Name	P/N No.	Qt'y

EXPLODED DIAGRAM FOR PA-3053 CPU COOLER



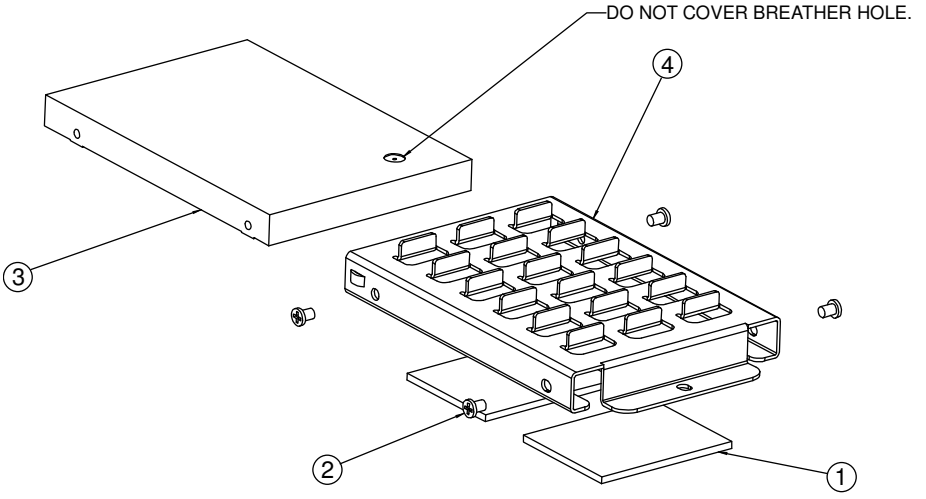
51	Thermal Pad	21-006-82020002	1
50	PD-A7510	--	1
49	COM Cable	27-024-20804031	2
48	AC-cable	27-012-22806111	1
47	M3-L8_F_B	22-275-30008018	2
46	No.4 BOSS	22-692-40048051	8
45	Ground _cable	New	1
44	M4_L8_Ni	22-242-40008011	1
43	FAN_SPRING_CLIP_15MM	21-001-60000004	2
42	80x80x15 Fan	21-004-08080121	1
41	Heatsink	21-002-19090002	1
40	M3_L5_Washer_Ni	22-242-30005311	6
No.	Name	P/N No.	Qt'y

EXPLODED DIAGRAM FOR PA-3053 TOP CASE



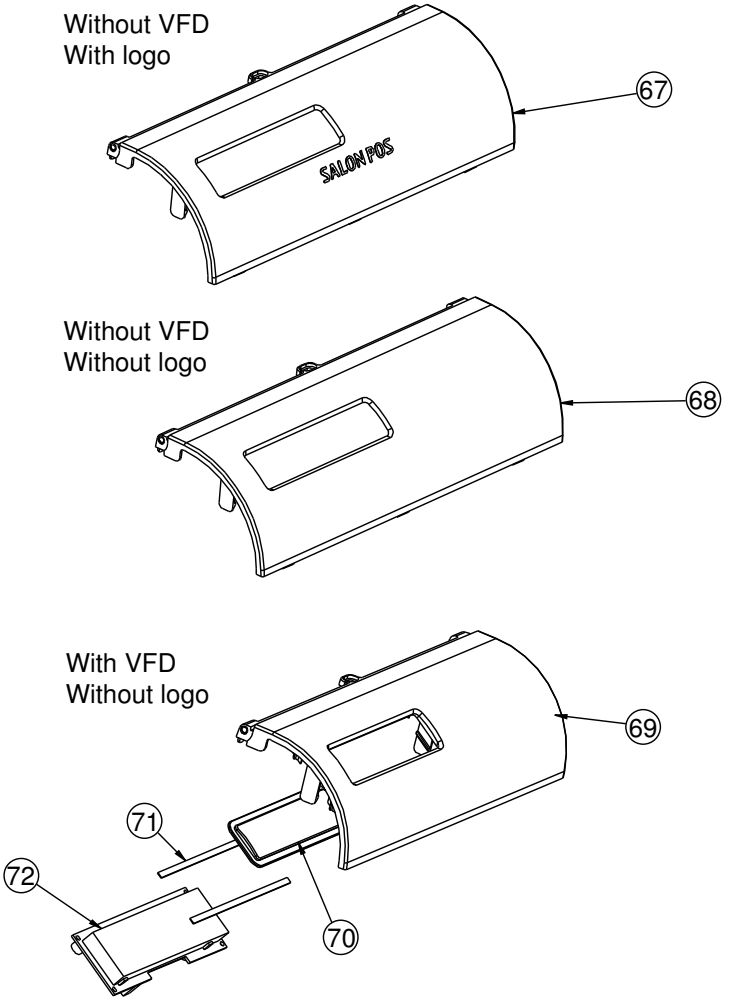
62	POD3150-TOP-CASE V2(White)	30-001-12910181	1
	POD3150-TOP-CASE V2(Paint Black)	30-001-12120181	
	POD3150-TOP-CASE V2(Black)	30-001-12111181	
61	M3_L4_1_Ni(White)	82-272-30004018	2
	M3_L4_1_B(Black)	22-272-30004318	
60	Led Caps(HHP-4F)	30-012-02100000	2
No.	Name	P/N No.	Qt'y

EXPLODED DIAGRAM FOR PA-3053 HARD DISK DRIVE



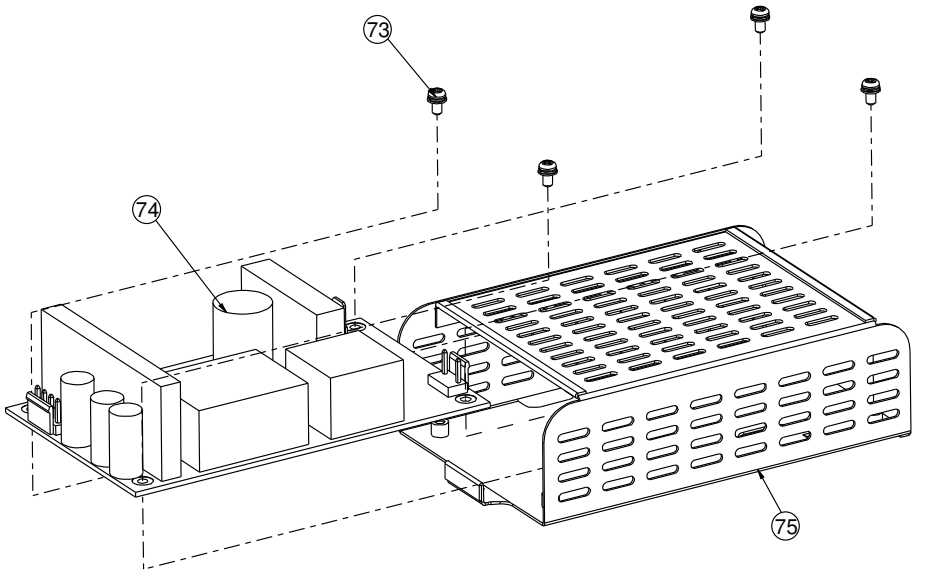
NO.	COMPONENT NAME	PART NO.	Q'TY
1	THERMAL PAD	21-006-84535001	2
2	SCREW	22-272-30004318	4
3	HDD	SEE ORDER	1
4	HDD HOLDER	20-029-01001165	1

EXPLODED DIAGRAM FOR PA-3053 VFD COVER



72	Mini VFD	52-901-17001703	1
71	PRON Tape	30-013-24700000	2
70	vfd windows	30-002-02230165	1
69	WithVFD-COVER(White)	30-002-12010181	1
	WithVFD-COVER(Black)	30-002-12110181	
68	WithoutVFD-COVER(White)	30-002-12210181	1
	WithoutVFD-COVER(Black)	30-002-12310181	
67	WithoutVFD-COVER_SALONPOS(White)	30-002-12410181	1
	WithoutVFD-COVER_SALONPOS(Black)	30-002-12510181	
No.	Name	P/N No.	Q'ty

EXPLODED DIAGRAM FOR PA-3053 2 POWER HOLDER



75	3053_POWER_HOLDER	20-029-03002181	1
74	150 Watt Power	52-001-12015001	1
73	M3_L6_S_W_Ni	22-215-30060011	4
No.	Name	P/N No.	Qt'y

TECHNICAL SUMMARY

APPENDIX

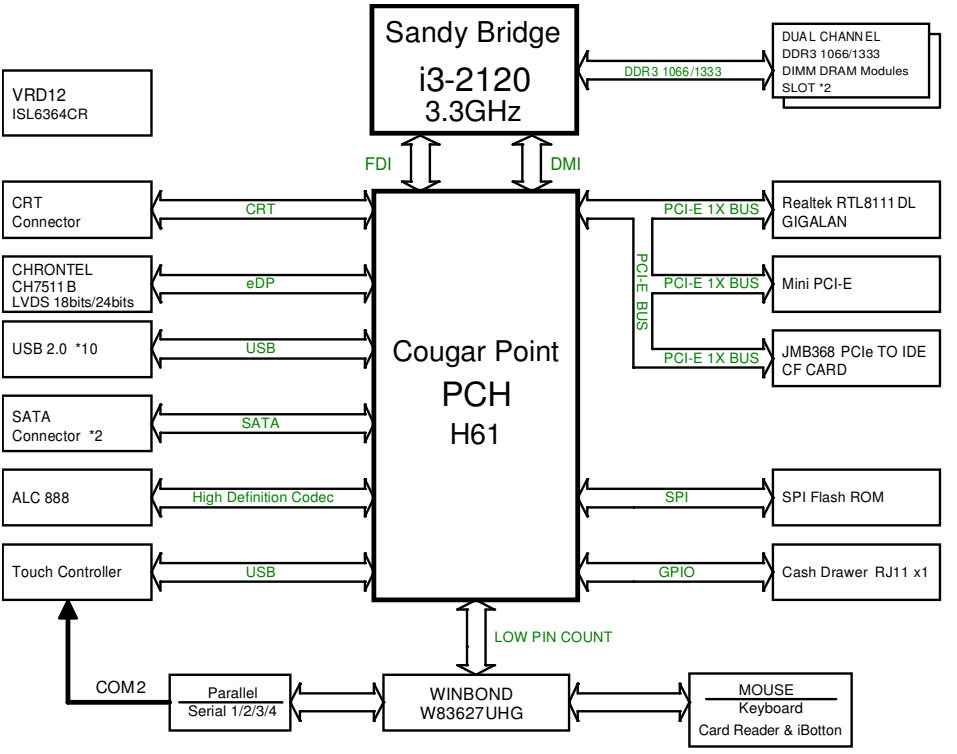
B

This appendix will give you a brief introduction of the allocation maps for the system resources.

Sections included:

- Block Diagram
- Interrupt Map
- DMA Channels Map
- I / O 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) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
12	Microsoft PS/2 Mouse
13	Numeric data processor
14	ATA Channel 0
15	ATA Channel 1
16	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
16	Intel(R) Management Engine Interface
18	Standard Dual Channel PCI IDE Controller
19	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
22	High Definition Audio Controller
23	Intel(R) 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C26
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
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

(Continued)

IRQ	ASSIGNMENT
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
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

(Continued)

IRQ	ASSIGNMENT
131	Microsoft ACPI-Compliant System
132	Microsoft ACPI-Compliant System
133	Microsoft ACPI-Compliant System
134	Microsoft ACPI-Compliant System
135	Microsoft ACPI-Compliant System
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
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144	Microsoft ACPI-Compliant System
145	Microsoft ACPI-Compliant System
146	Microsoft ACPI-Compliant System
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150	Microsoft ACPI-Compliant System
151	Microsoft ACPI-Compliant System
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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
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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

(Continued)

IRQ	ASSIGNMENT
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
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
4294967290	Realtek PCIe GBE Family Controller
4294967291	Intel(R) HD Graphics Family
4294967292	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 3 - 1C14
4294967293	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
4294967294	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10

DMA CHANNELS MAP

DMA CHANNEL	ASSIGNMENT
4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x000003AF	PCI bus
0x00000000-0x000003AF	Direct memory access controller
0x00000010-0x0000001F	Motherboard resources
0x00000020-0x00000021	Programmable interrupt controller
0x00000022-0x0000003F	Motherboard resources
0x00000040-0x00000043	System timer
0x00000044-0x0000005F	Motherboard resources
0x00000060-0x00000060	Standard PS/2 Keyboard
0x00000061-0x00000061	System speaker
0x00000062-0x00000063	Motherboard resources
0x00000064-0x00000064	Standard PS/2 Keyboard
0x00000065-0x0000006F	Motherboard resources
0x00000070-0x00000071	System CMOS/real time clock
0x00000072-0x0000007F	Motherboard resources
0x00000080-0x00000080	Motherboard resources
0x00000081-0x00000083	Direct memory access controller
0x00000084-0x00000086	Motherboard resources
0x00000087-0x00000087	Direct memory access controller
0x00000088-0x00000088	Motherboard resources
0x00000089-0x0000008B	Direct memory access controller
0x0000008C-0x0000008E	Motherboard resources
0x0000008F-0x0000008F	Direct memory access controller
0x00000090-0x0000009F	Motherboard resources
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A2-0x000000BF	Motherboard resources
0x000000C0-0x000000DF	Direct memory access controller
0x000000E0-0x000000EF	Motherboard resources
0x000000F0-0x000000FF	Numeric data processor
0x00000170-0x00000177	ATA Channel 1
0x000001F0-0x000001F7	ATA Channel 0
0x00000290-0x00000297	Motherboard resources
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000376-0x00000376	ATA Channel 1

(Continued)

I/O MAP	ASSIGNMENT
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003B0-0x000003BB	Intel(R) HD Graphics Family
0x000003B0-0x000003BB	PCI bus
0x000003C0-0x000003DF	Intel(R) HD Graphics Family
0x000003E0-0x00000CF7	PCI bus
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F6-0x000003F6	ATA Channel 0
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x00000453	System board
0x00000454-0x00000457	Motherboard resources
0x00000458-0x0000047F	System board
0x000004D0-0x000004D1	Motherboard resources
0x00000500-0x0000057F	System board
0x00000D00-0x0000FFFF	PCI bus
0x00001180-0x0000119F	System board
0x0000D000-0x0000DFFF	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 3 - 1C14
0x0000D000-0x0000DFFF	Standard Dual Channel PCI IDE Controller
0x0000D010-0x0000D013	Standard Dual Channel PCI IDE Controller
0x0000D020-0x0000D027	Standard Dual Channel PCI IDE Controller
0x0000D030-0x0000D033	Standard Dual Channel PCI IDE Controller
0x0000D040-0x0000D047	Standard Dual Channel PCI IDE Controller
0x0000E000-0x0000EFFF	Intel(R) 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
0x0000E000-0x0000EFFF	Realtek PCIe GBE Family Controller
0x0000F000-0x0000F03F	Intel(R) HD Graphics Family
0x0000F040-0x0000F05F	Intel(R) 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
0x0000F060-0x0000F06F	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F070-0x0000F07F	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F080-0x0000F083	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F090-0x0000F097	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08

(Continued)

I/O MAP	ASSIGNMENT
0x0000F0A0-0x0000F0A3	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F0B0-0x0000F0B7	Intel(R) 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F0C0-0x0000F0CF	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
0x0000F0D0-0x0000F0DF	Intel(R) 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00

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.

Code example for watchdog timer

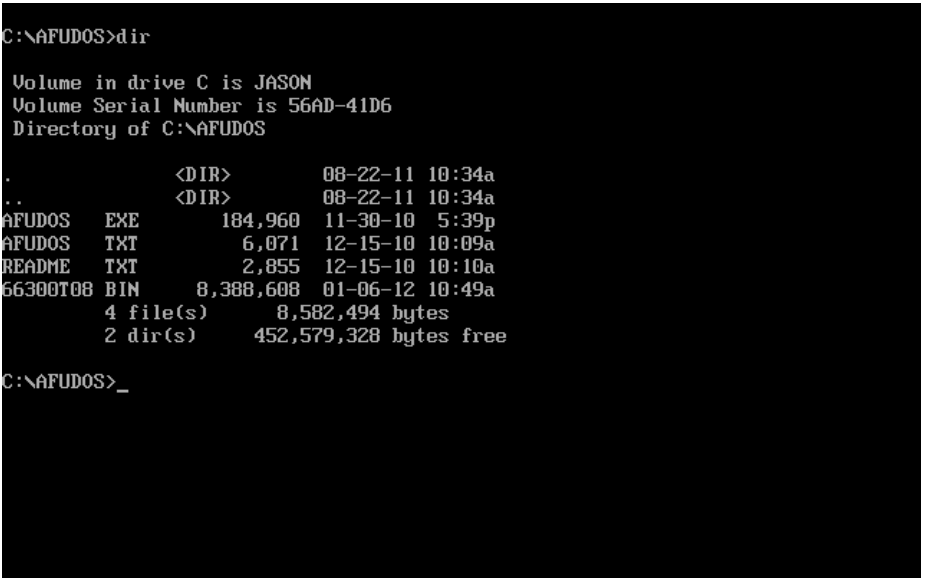
Enable watchdog timer and set 30 sec. as timeout interval.

```
;------ 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
```

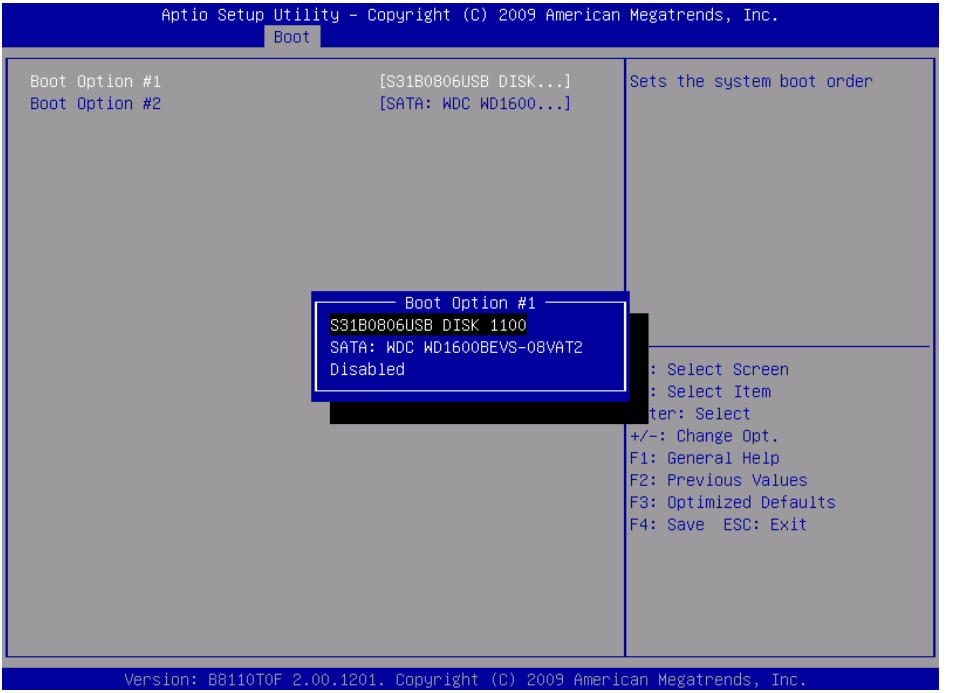
Flash BIOS Update

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. 66300T08.bin) to the bootable device.
3. Copy AMI flash utility – AFUDOS.exe (v2.35) 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.


Aptio Setup Utility – Copyright (C) 2009 American Megatrends, Inc.
Boot
Boot Option #1 [S31B0806USB DISK...]
Boot Option #2 [SATA: WDC WD1600...]
Sets the system boot order
Boot Option #1
S31B0806USB DISK 1100
SATA: WDC WD1600BEVS-08VAT2
Disabled
: Select Screen
: Select Item
ter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save ESC: Exit
Version: B8110T0F 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.

II. AFUDOS Command for System BIOS Update

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

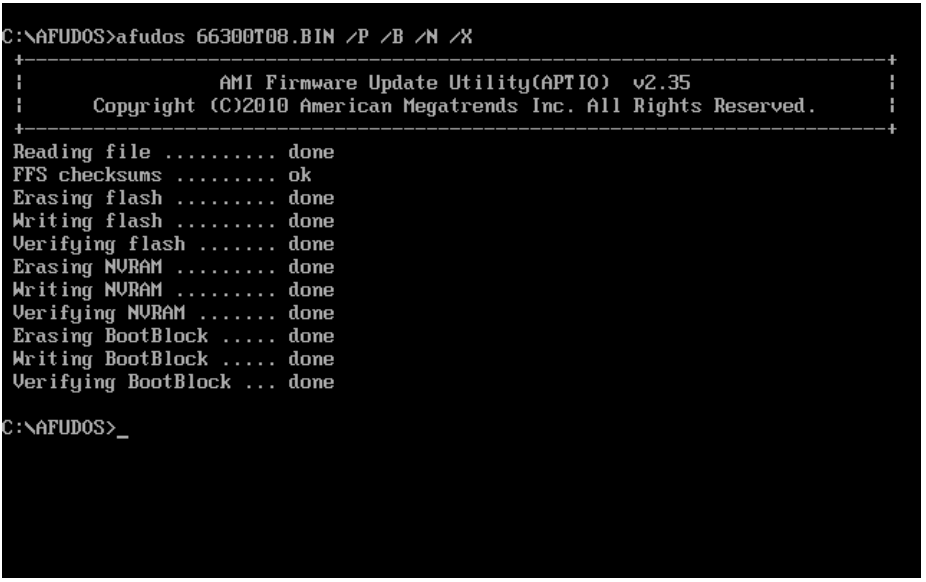
AFUDOS <ROM File Name> [option1] [option2]….

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: Do not 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 6630xxxx.bin /p /b /n /x"** and press enter to start the flash procedure.
   (Note that xxxx means the BIOS revision part, ex. 0P01…)
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.