USER'S MANUAL

PA-3570 Series

POS System Powered by

Intel® 2nd Gen. Core™

PA-3570 Series M2

PA-3570 Series POS System
With LCD/Touchscreen

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DISCLAIMER

This user's manual is meant to assist you 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 touch screen are easily breakable, please handle them with extra care.

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CHAPTER 4 AMI BIOS SETUP

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for the PA-3570. 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-3570 Series System. The PA-3570 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3570 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 Diagrams

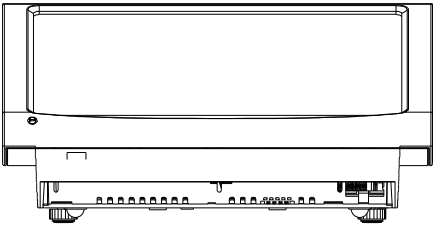
This appendix gives you the exploded diagrams and part numbers of PA-3570 parts.

Appendix B Technical Summary

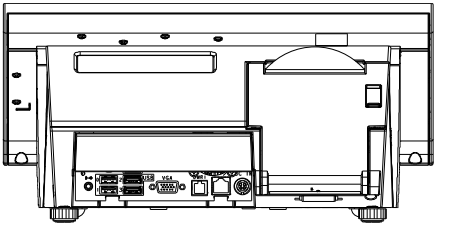
This appendix gives you the information about the allocation maps for the system resources, Watchdog Timer Configuration, and Flash BIOS Update.

1-2. POS SYSTEM ILLUSTRATION

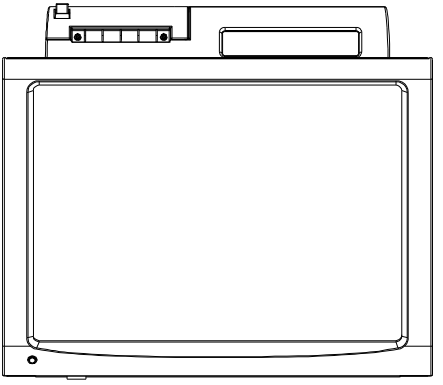
Front View



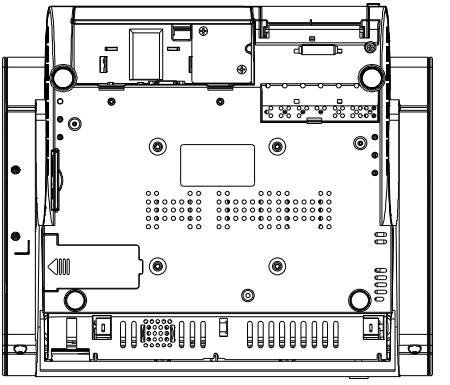
Rear View



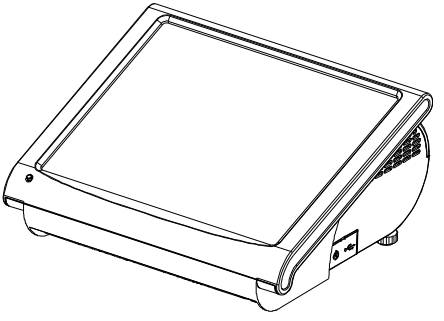
Top View



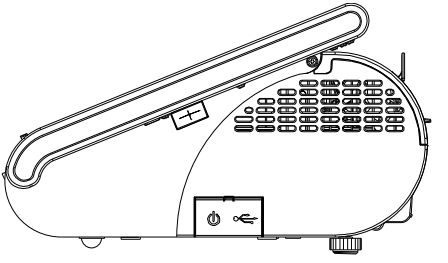
Bottom View



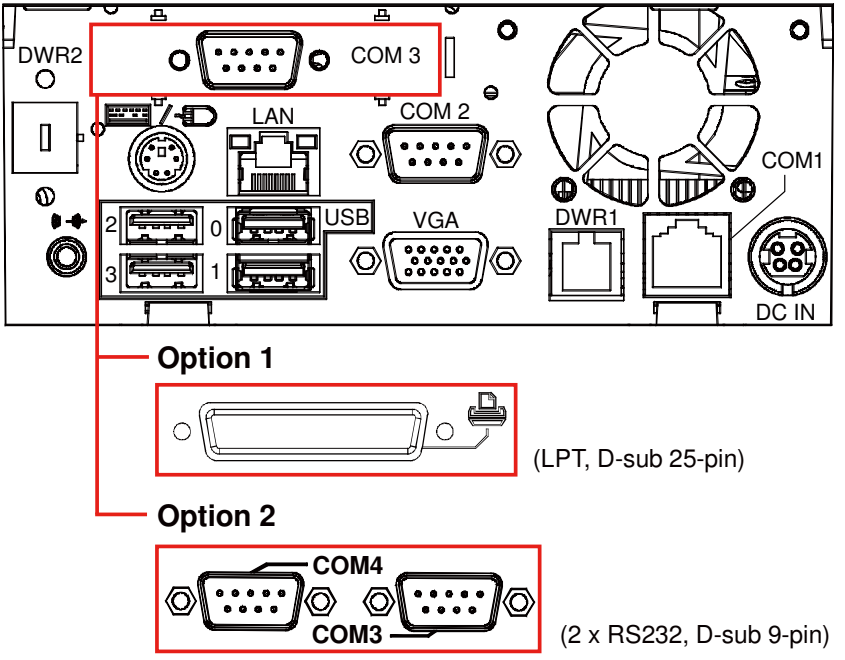
Quarter View



Side View



Rear I/O View


DWR2
COM 3
LAN
COM 2
COM1
2
0
USB
VGA
DWR1
3
1
DC IN
Option 1
(LPT, D-sub 25-pin)
Option 2
COM4
COM3
(2 x RS232, D-sub 9-pin)

1-3. SYSTEM SPECIFICATIONS

MAINBOARD (PB-3251)

System

CPU Support	Intel® 2nd Gen. Core™: ▪ Core i3-2120 3.3 GHz, L2 Cache-3MB ▪ Pentium G850 2.9 GHz, L2 Cache-3MB ▪ Celeron G530 2.4 GHz, L2 Cache-2MB
Chipset	Intel® H61
Memory	1X 204-pin DDRIII SO-DIMM socket on board, up to 4GB
OS Support	Windows XP/7, POSReady7/2009
BIOS	AMI SPI BIOS, 8Mbits with VGA BIOS
Power Supply	120~150 Watt DC-in power adapter
System Weight	5.7 kg
Dimension (W x H x D)	356mm x 309mm x 167mm
Certificate	FCC/CE
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)
Printer	2" or 3" easy loading thermal printer with auto cutter

Storage

HDD	1 x 2.5" SATA HDD
SD/MMC	1 x SATA half-slim type SSD

I/O Ports

USB	4 x USB2.0 ports 1 x USB2.0 on side bezel
Serial Port	1 x RJ45 (COM1) 1 x DB-9 (COM 2) 2 x DB-9 (COM 2/3, Wafer or DB-9 optional) +5/12V Selectable (COM 1~4)
Keyboard, Mouse & Y-Cable	1 x PS/2 port (default at keyboard)
LAN	1 x RJ45 (10/100/1000 Mbps)
VGA	1 x DB-15 VGA Interface
Cash Drawer	1 x RJ11 (12V/24V selectable)
DB-25 Printer (Optional)	1 port
Audio	1 x 2W Speaker
Wireless LAN (Optional)	Mini PCI-e Wireless LAN Module (802.11b/g)

Display

LCD Interface	15" TFT XGA
Max. Resolution	1024 x 768
Brightness	250 cd/m^2
Touch Panel	5wire analog resistive
Viewing Angel	24~30˚

Environment

Temperature	Operation: 0~35°C (32~95°F) Storage: -20~60°C (-4~140°F)
Humidity	20~90%

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-3570 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.

b. Avoid installing your PA-3570 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-3570 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-3570 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

JUMPER / CONNECTOR	NAME	PAGE
COM Port & VGA Connector	COM1, COM3*, COM3-1, COM4*, COM4-1, COM4-2, JVGACOM2 *COM3 & COM4 are connected from COM3-1 & COM4-1 on board.	2-8
COM Port RI and Voltage Selection	JP_COM1, JP_COM2, JP_COM3, JP_COM4	2-11
I-Button Connector	JI-BUTTON1	2-11
I-Button Function Selection	JP14, JP15, JP16	2-12
LAN & USB Connector	JRJ45USB23	2-13
Mini-DIN & USB Connector	JPS2USB01	2-13
USB Connector	USB5, USB 8, USB9, USB10-1, USB10-2	2-14
Cash Drawer Connector	DRW1	2-15
Cash Drawer Power Selection	JP13	2-16
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Fan Connector	FAN1, FAN2	2-18
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Power Switch Connector	SW2-1, SW2-2	2-19
Power for Thermal Printer Connector	PRT_PWR1	2-20
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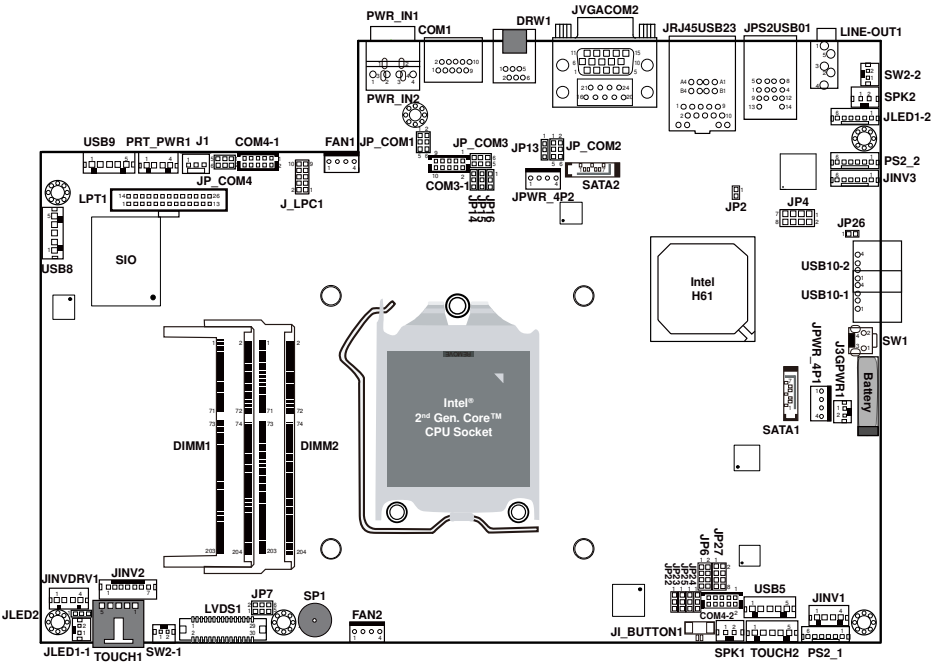
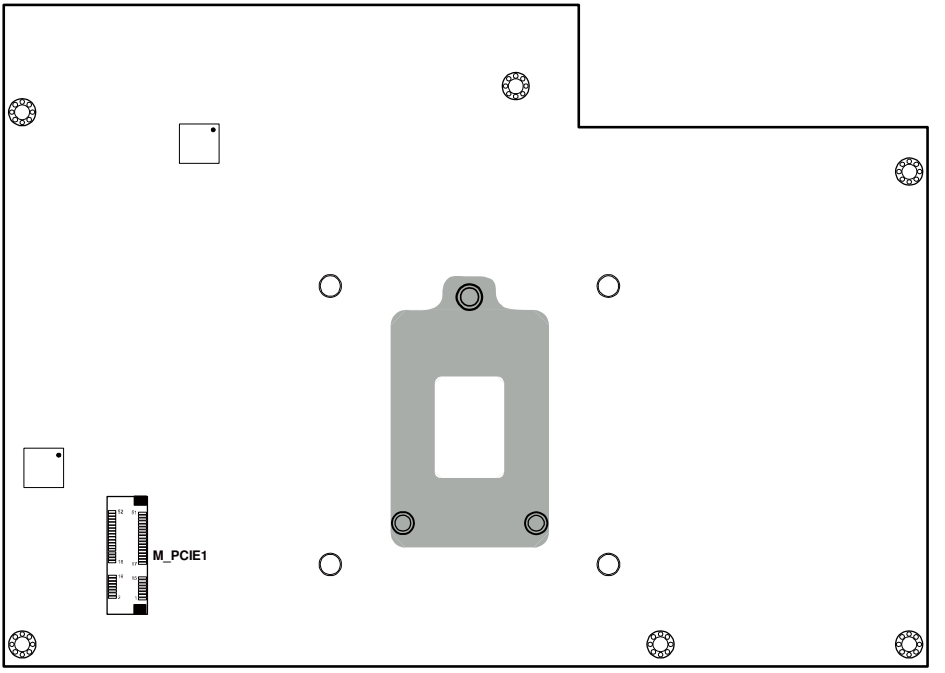
Inverter Connector	JINV1, JINV2, JINV3	2-21
LVDS Voltage Selection	JP7	2-22
LVDS Connector	LVDS1	2-23
MSR/Card Reader Connector	PS2_1, PS2_2	2-23
SATA & SATA Power Connector	SATA1, SATA2, JPWR_4P1, JPWR_4P2	2-24
Touch Panel Connector	TOUCH1, TOUCH2	2-25
Touch Panel Selection	JP6, JP27	2-26

2-2. COMPONENT LOCATIONS

M/B: PB-3251



PA-3570 Front Connector, Jumper and Component Locations



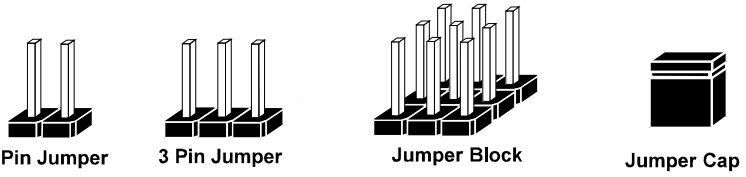
PA-3570 Rear Connector, Jumper and Component Locations

2-3. HOW TO SET THE JUMPERS

You can configure your board by setting the jumpers. A jumper 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.

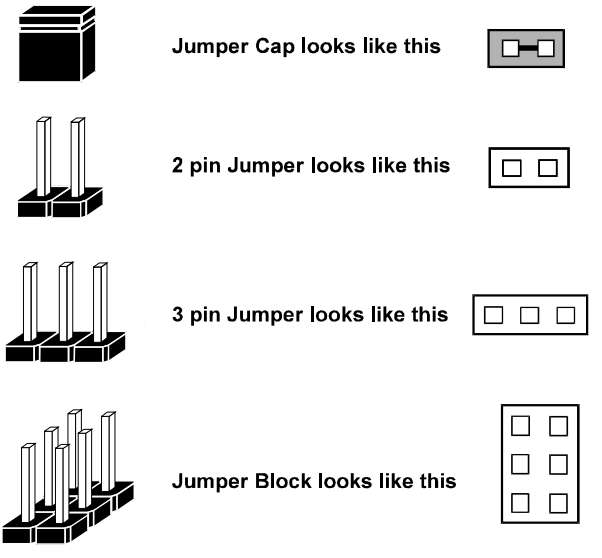
Jumpers can be combined into sets that called jumper blocks. When jumpers are all in the block, you have to put them together to set up the hardware configuration. The figure below shows what this looks like.

JUMPERS AND CAPS

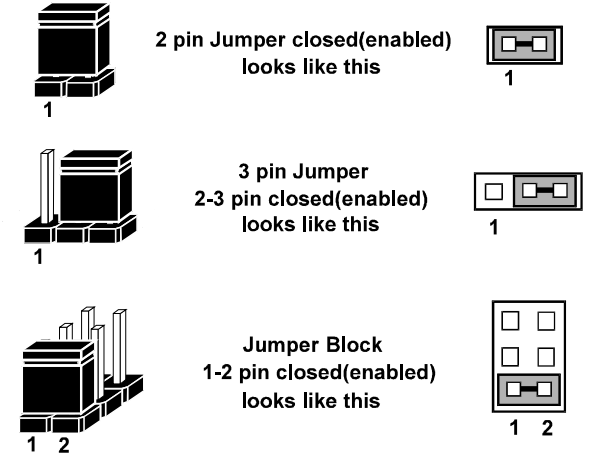


If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

JUMPER DIAGRAMS



JUMPER SETTINGS



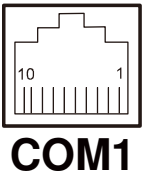
2-4. COM PORT & VGA CONNECTOR

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

Caution: When using a 72W power adaptor, do not set the voltage at "12V" for three COM ports or above; otherwise, the system may shut down due to power deficiency.

COM1: COM1 Connector
The pin assignments are as follows:

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



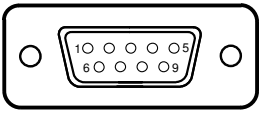
COM3-1, COM4-1, COM4-2: Connectors (wafers on board)
The pin assignments are as follows:

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

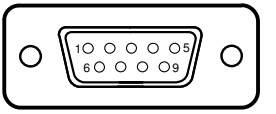
Note: The COM connectors or wafers named after the corresponding serial numbers can't be used at the same time. (e.g. COM4 can't be used along with COM4-1 or COM4-2.)

COM3, COM4: COM3 & COM4 Connectors, connected from COM3-1 & COM4-1
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

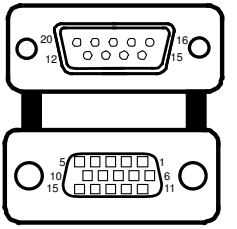
Note: COM3 & COM3-1 will not function when the jumpers are set as "i-Button." Refer to the section *2-7. i-Button Function Selection* for details.

COM4 & COM4-2 will not function when COM4-1 is selected as the printer control interface.

JVGACOM2: VGA & COM2 Connectors

The pin assignments are as follows:

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



JVGACOM2

Note: The COM2 connector will not function when RS232 is selected for the Touch Panel Control Interface.

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 SETTING	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

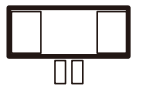
Note: Manufacturing Default – RI

Caution: When using a 120 Watt power adaptor, do not set the voltage at "12V" for three COM ports or above; otherwise, the system may shut down due to power deficiency.

2-6. I-BUTTON CONNECTOR

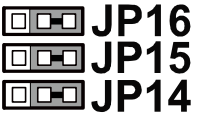
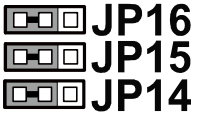
JI-BUTTON1: i-Button Connector
The pin assignments are as follows:

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 SETTING	JUMPER ILLUSTRATION
i-Button*	2-3	
COM 3	1-2	

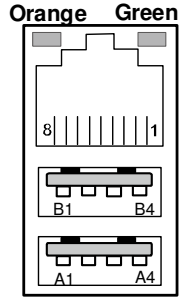
Note: Manufacturing Default – COM3

*When these jumpers are set as 'i-Button,' the COM3-1 connector will not function.

2-8. LAN & USB CONNECTOR

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

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

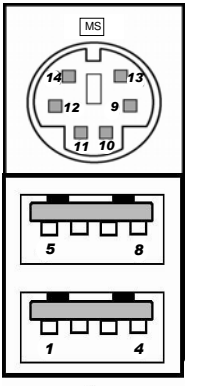


JRJ45USB23

2-9. MINI-DIN & USB CONNECTOR

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

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

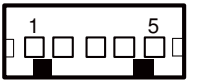


JPS2USB01

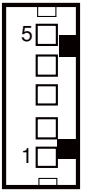
2-10. USB CONNECTOR

USB5, USB8, USB9 on board wafer.
The pin assignments are as follows:

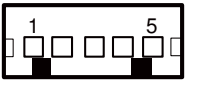
PIN	ASSIGNMENT
1	USB-
2	USB+
3	GND
4	5V
5	GND



USB5



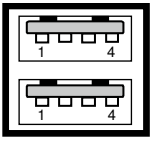
USB8



USB9

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

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



USB10-1
USB10-2

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-3251RB 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:

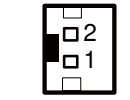
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
+12V	2-3	 JP13
+24V	1-2	 JP13

Note: Manufacturing Default – +24V

2-13. LED CONNECTOR

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

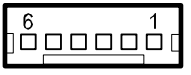
PIN	ASSIGNMENT
1	PWR_LED
2	5V



JLED1-1

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

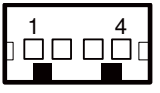
PIN	ASSIGNMENT
1	5V
2	PWR_LED
3	3.3V
4	HDD_LED
5	LAN1_LINK_ACTJ
6	LAN1_LED0



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

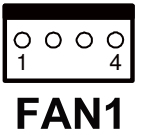


JLED2

2-14. FAN CONNECTOR

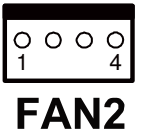
FAN1: System Fan Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	SYS_FANIN
4	SYS_FANOUT



FAN2: CPU Fan Connector
The pin assignments are as follows:

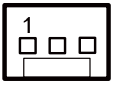
PIN	ASSIGNMENT
1	GND
2	VCC12
3	SYS_FANIN
4	SYS_FANOUT



2-15. POWER CONNECTOR

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

PIN	ASSIGNMENT
1	VCC12
2	GND
3	VCC12

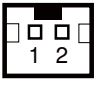


J1

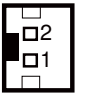
2-16. POWER SWITCH CONNECTOR

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

PIN	ASSIGNMENT
1	LPC_PWRBTNJ
2	PCH_PWRBTNJ_LOW



SW2-1

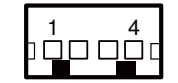


SW2-2

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

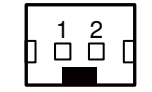


PRT_PWR1

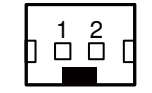
2-18. EXTERNAL SPEAKER CONNECTOR

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

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT



SPK1

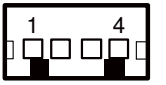


SPK2

2-19. INVERTER CONNECTOR

JINV1: Inverter Connector
The pin assignments are as follows:

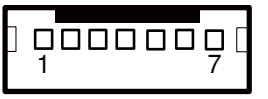
PIN	ASSIGNMENT
1	+12V
2	GND
3	LVDS_BKLTEN
4	BRCTR



JINV1

JINV2: Inverter Connector
The pin assignments are as follows:

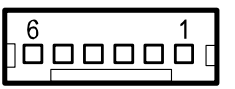
PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	GND
5	LVDS_BKLTEN_R
6	BRCTR
7	GND



JINV2

JINV3: Inverter Connector
The pin assignments are as follows:

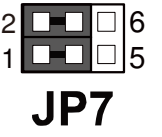
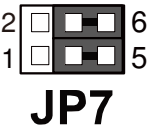
PIN	ASSIGNMENT
1	+12V
2	GND
3	GND
4	BRCTR
5	LVDS_BKLTEN
6	+12V



JINV3

2-20. LVDS VOLTAGE SELECTION

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

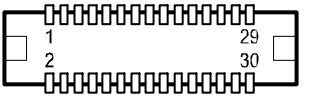
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
3.3V	1-3 2-4	
5V	3-5 4-6	

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

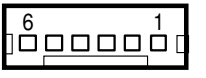


LVDS1

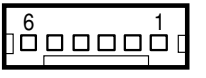
2-22. MSR/CARD READER CONNECTOR

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

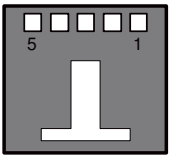
JPWR_4P1

JPWR_4P2

2-24. TOUCH PANEL CONNECTOR

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

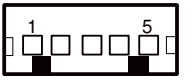
PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)



TOUCH1

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

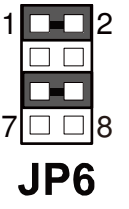
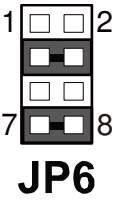
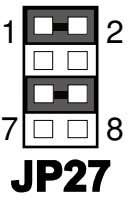
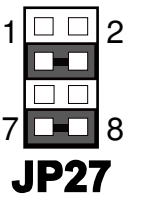
PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)



TOUCH2

2-25. TOUCH PANEL SELECTION

JP6, JP27: Touch Panel Selection
The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Elo	1-2 5-6	 **JP6**
e-Turbo	3-4 7-8	 **JP6**
Elo	1-2 5-6	 **JP27**
3M	3-4 7-8	 **JP27**

Note: Manufacturing Default – Elo

2-26. CLEAR CMOS DATA SELECTION

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

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	Open	
Clear CMOS*	1-2	

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.

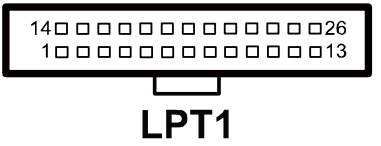
2-27. COMPACT FLASH CONNECTOR

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

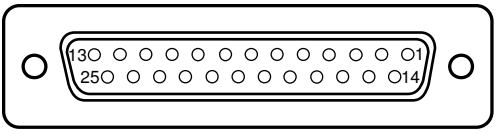
2-28. PRINTER CONNECTOR

LPT1: Printer Connector (wafer on board)
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

JPRNT1: Printer Connector, connected from LPT1
The pin assignments are as follows:

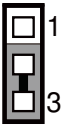
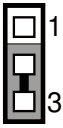
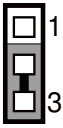
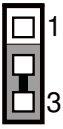
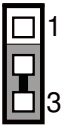
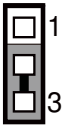
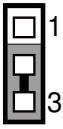
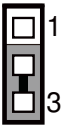
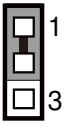
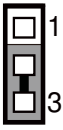
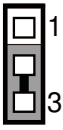
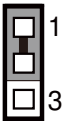
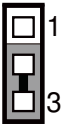
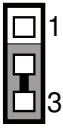
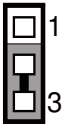


JPRNT1

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		

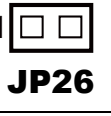
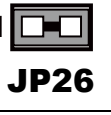
2-29. LVDS OUTPUT RESOLUTION SELECTION

JP22~JP25:LVDS Output Resolution Selection
The jumper setting are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION			
10.4" 18bit 1024 x768	JP22 (1,2) JP23 (2,3) JP24 (2,3) JP25 (2,3)	 JP22	 JP23	 JP24	 JP25
10.4" 18bit 800 x600	JP22 (2,3) JP23 (2,3) JP24 (2,3) JP25 (2,3)	 JP22	 JP23	 JP24	 JP25
15" 24bit 1024 x768	JP22(2,3) JP23(1,2) JP25(2,3) JP24(2,3)	 JP22	 JP23	 JP24	 JP25
15" 18bit 1024 x768	JP22(1,2) JP23(2,3) JP25(2,3) JP24(2,3)	 JP22	 JP23	 JP24	 JP25

2-30. SECURITY OVERRIDE MODE SETTING

JP26: Flash Descriptor Security Override / Intel ME Debug Mode
The jumper setting are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Disable	Open	 **JP26**
Enable	1-2	 **JP26**

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 the PA-3570 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	The Intel Chipset Device Software installs Windows INF files to the target system
D:\Driver\Plaform\[OS]\VGA	Intel HD Graphics installer for Embedded Media and Graphics Driver installation
D:\Driver\Plaform\[OS]\LAN	\RB\ Realtek 8111DL For LAN Driver installation \RC\ Realtek 8111F For LAN Driver installation
D:\Driver\Plaform\[OS]\SOUND	Realtek ALC888S For Sound driver installation
D:\Driver\Plaform\[OS]\ME_SW	Intel Management Engine software components
D:\Driver\Device\Touch Screen\RC	eGalax Touch Utility
D:\Driver\Flash_BIOS	AMI BIOS Update Utility

Note: 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

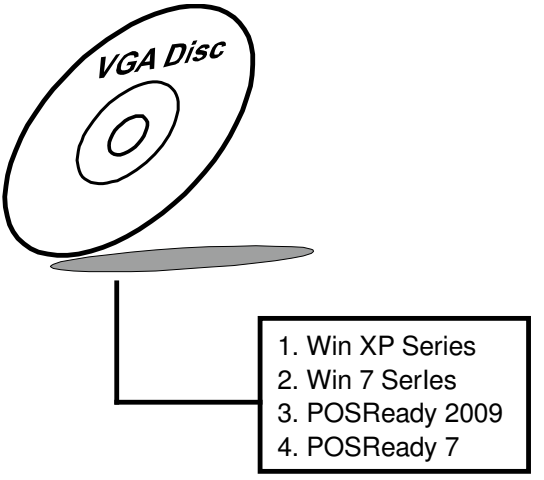
3-2-2. Installation of Intel® Chipset Driver

The utility pack is to be installed only for Windows XP/7 & POSReady7/2009 series, 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-3570 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-3570 for the changes to take effect.

3-3. VGA DRIVER UTILITY

The VGA interface embedded with the PA-3570 series can support a wide range of display types. You can have dual displays via CRT and LVDS interfaces work simultaneously.



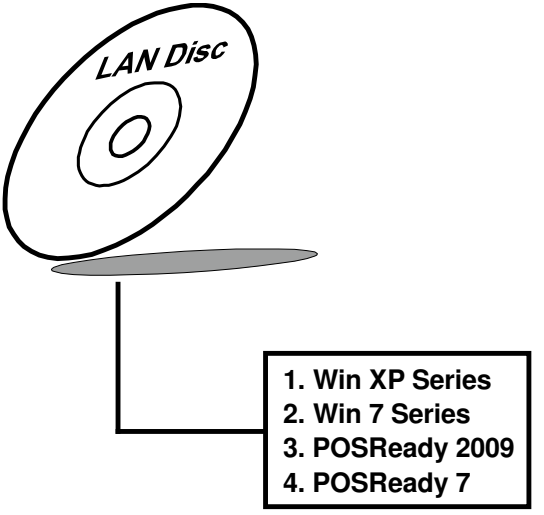
3-3-1. Installation of VGA Driver

To install the VGA Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3570 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-3570 for the changes to take effect.

3-4. LAN DRIVER UTILITY

The PA-3570 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.

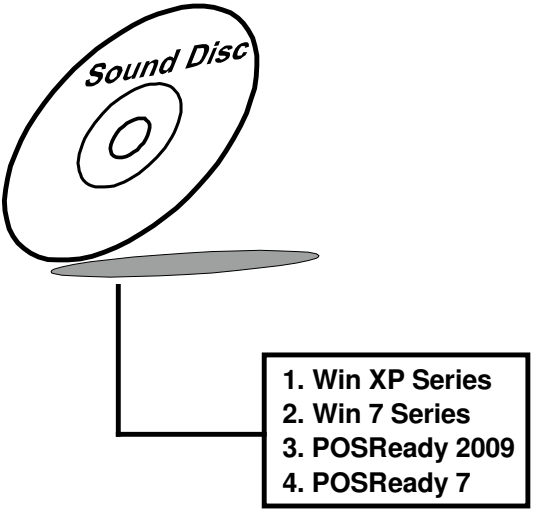
3-4-1. Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3570 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-3570 for the changes to take effect.

3-5. SOUND DRIVER UTILITY

The sound function enhanced in this system is fully compatible with Windows XP/7 & POSReady7/2009 series. Below, you will find the content of the Sound driver.



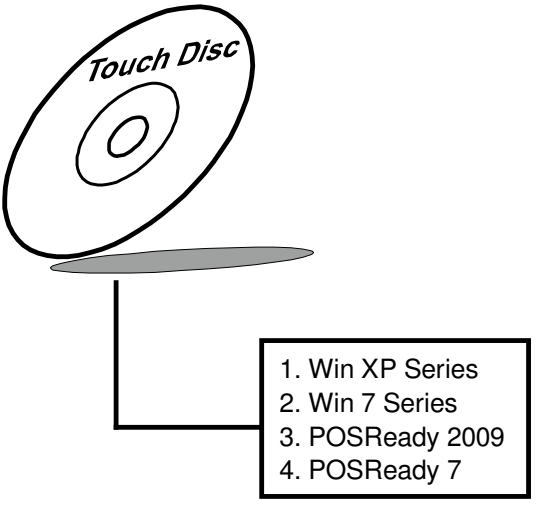
3-5-1. Installation of Sound Driver

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-3570 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-3570 for the changes to take effect.

3-6. TOUCHSCREEN DRIVER UTILITY

The touchscreen driver utility can only be installed on a Windows platform (XP/7 & POSReady7/2009 series), and it should be installed right after the OS installation.



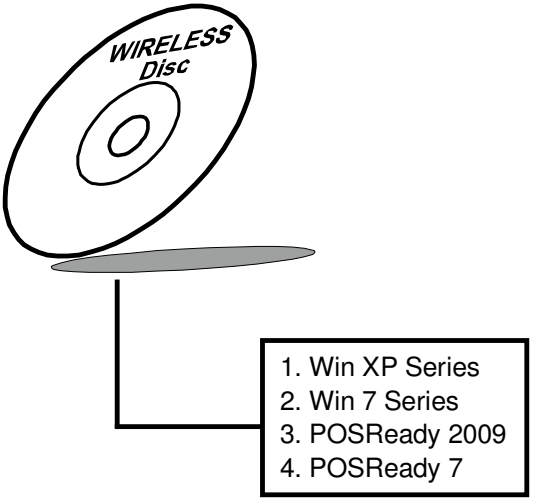
3-6-1. Installation of Touchscreen Driver

To install the Touchscreen Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3570 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-3570 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/7 & POSReady7/2009 series), 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-3570 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-3570 for the changes to take effect.

AMI BIOS SETUP

CHAPTER 4

This chapter shows how to set up the AMI BIOS.

Sections included:

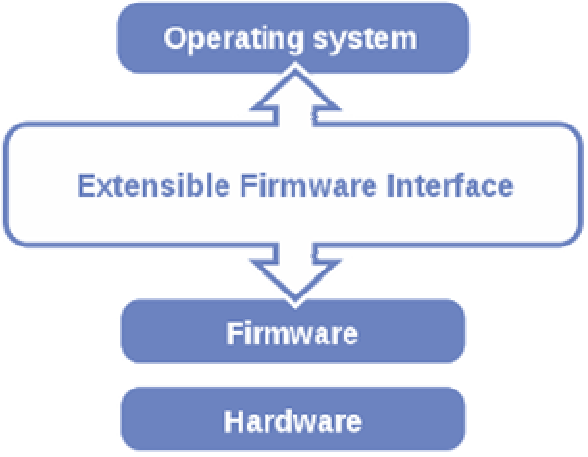
- Introduction
- Entering Setup
- Main
- Advanced
- Chipset
- Boot
- Security
- Save & Exit

4-1. INTRODUCTION

The board PB-3251RB 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.

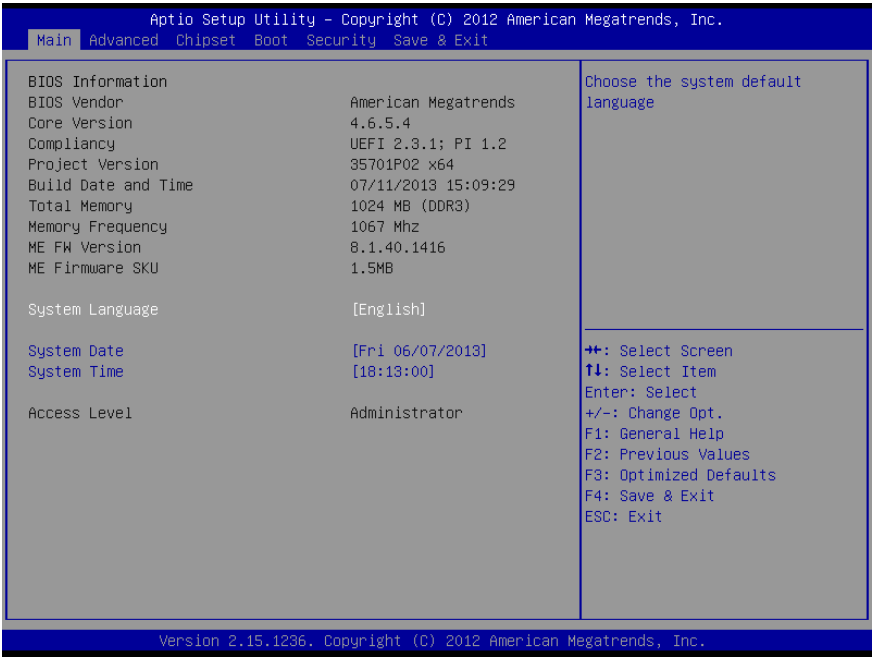
4-2. ENTERING SETUP

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.

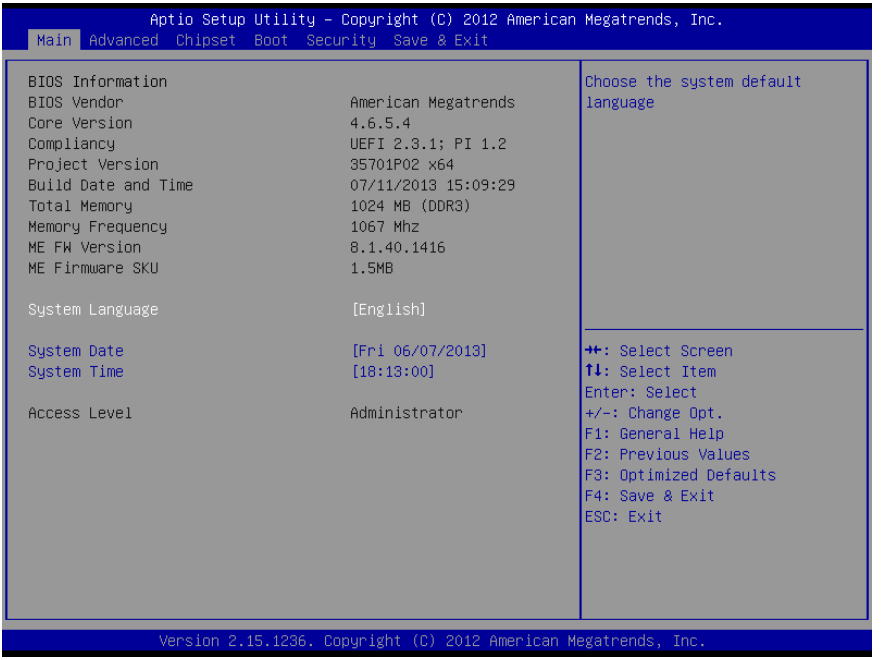
In a moment, the main menu of the Aptio Setup Utility will appear on the screen:



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.

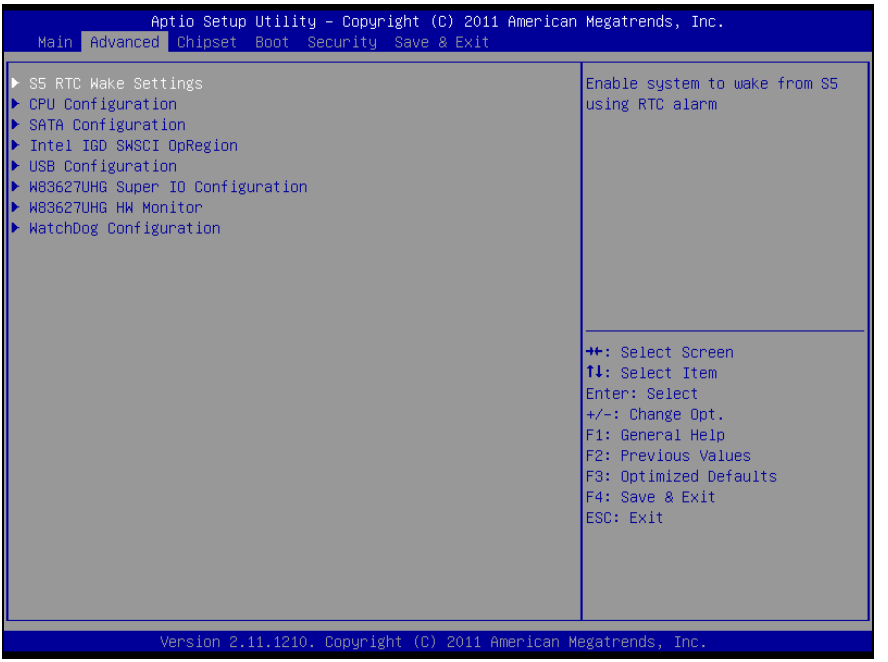
4-3. MAIN



Main screen

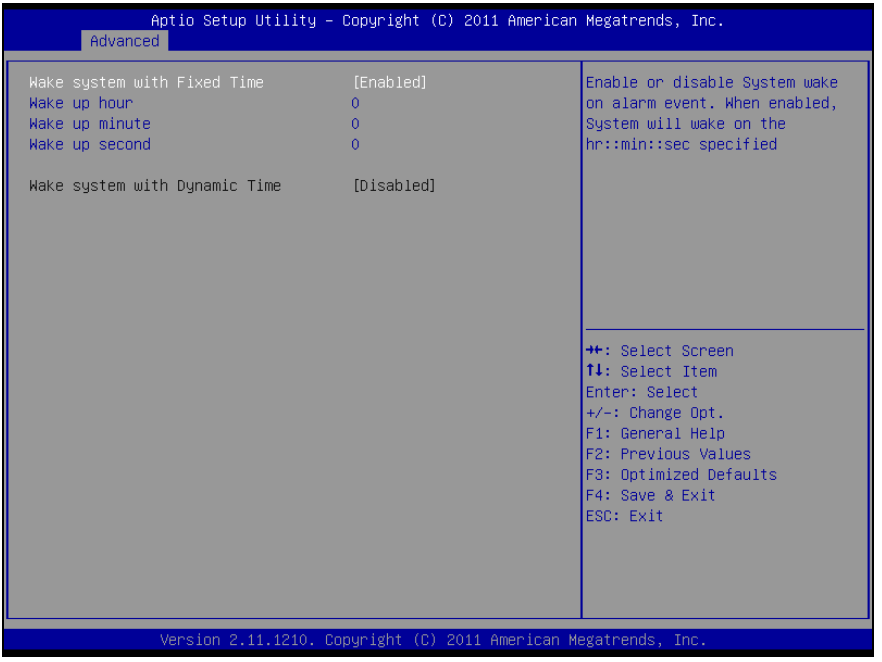
BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date	No changeable 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.

4-4. ADVANCED



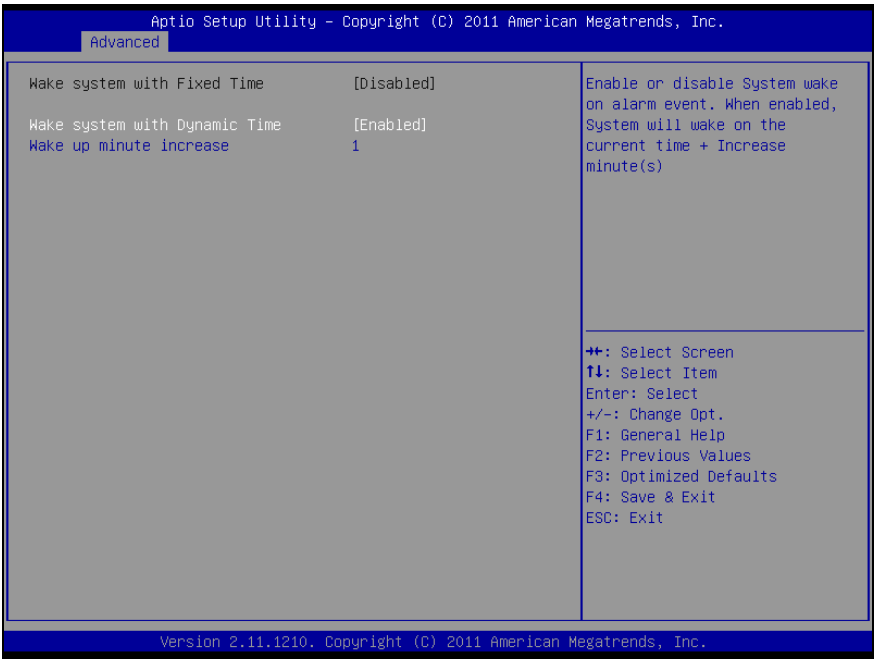
Advanced screen

4-4-1. ADVANCED - S5 RTC WAKE SETTINGS



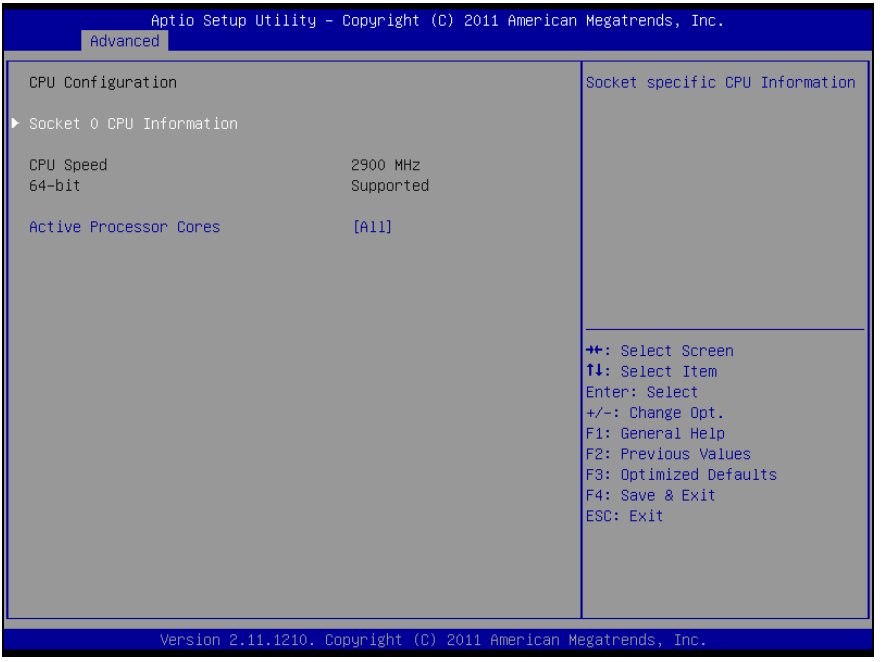
5S RTC Wake settings screen

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.



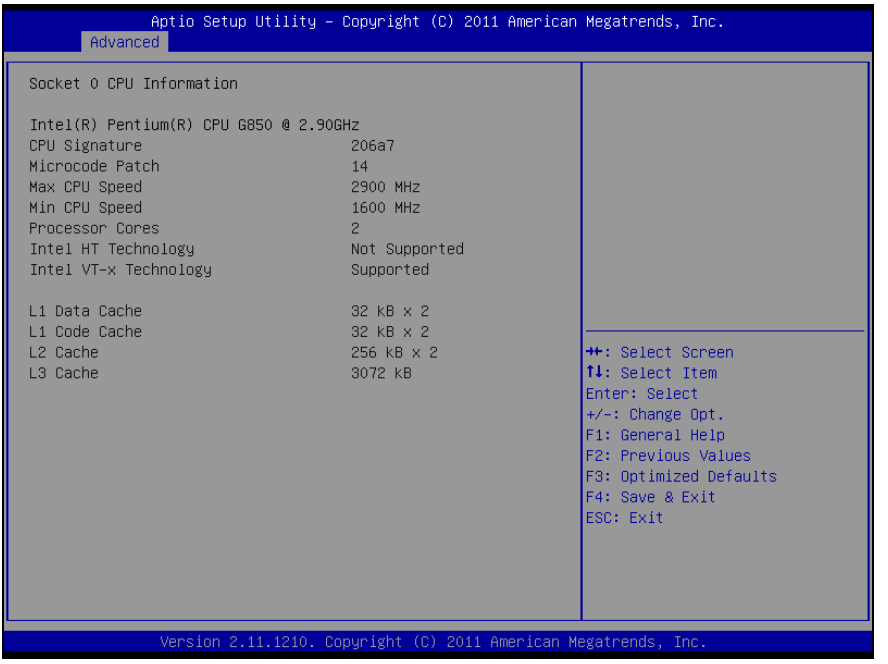
BIOS Setting	Options	Description/Purpose
Wake system with dynamic time	-Disabled -Enabled	Enable wake up feature with dynamic time.
Wake up minute increase	Multiple options ranging from 1 to 5	Sets the minute for wake up.

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.

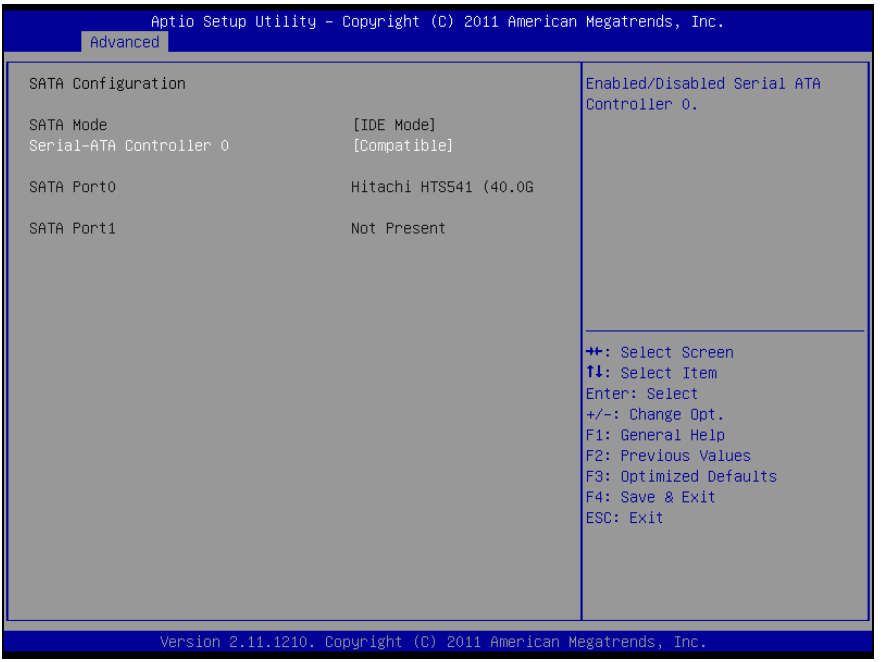


Socket 0 CPU Information screen

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.

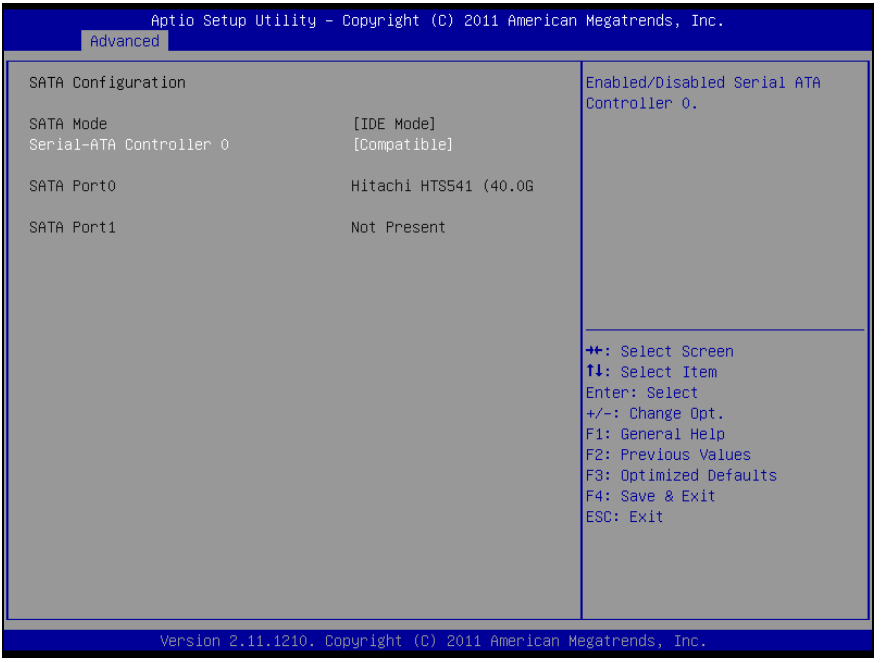
BIOS Setting	Options	Description/Purpose
L1 data cache	No changeable options	Displays amount of Level 1 data cache.
L1 code cache	No changeable options	Displays amount of Level 1 code cache.
L2 cache	No changeable options	Displays amount of Level 2 cache.
L3 cache	No changeable options	Displays amount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

4-4-3. ADVANCED - SATA CONFIGURATION SETTINGS



SATA Configuration settings screen

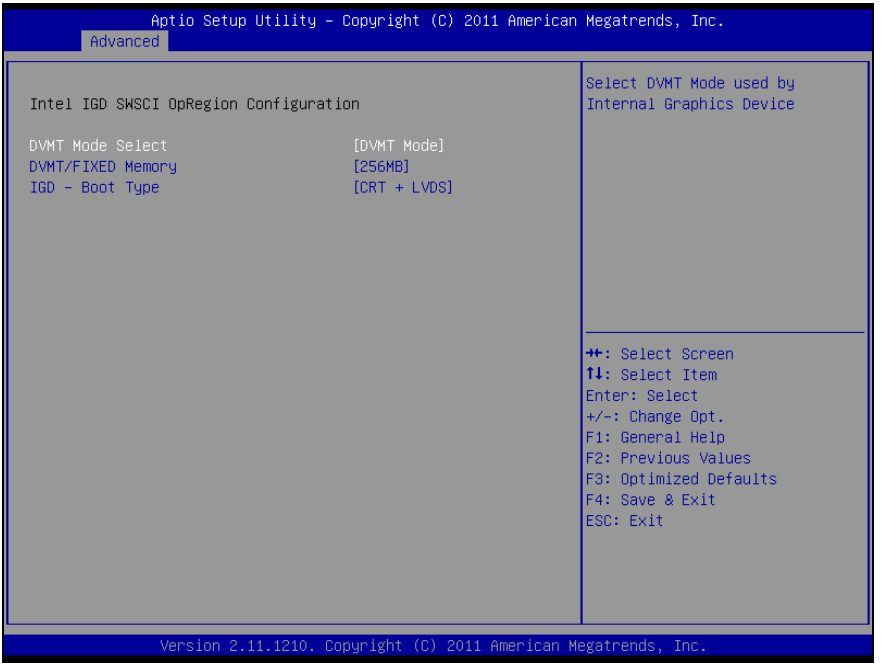
BIOS Setting	Options	Description/Purpose
SATA Port0	[drive]	Displays the drive installed on this SATA port. Shows [Not Present] if no drive is installed.
SATA Port1	[drive]	Displays the drive installed on this SATA port. Shows [Not Present] if no drive is installed.



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.

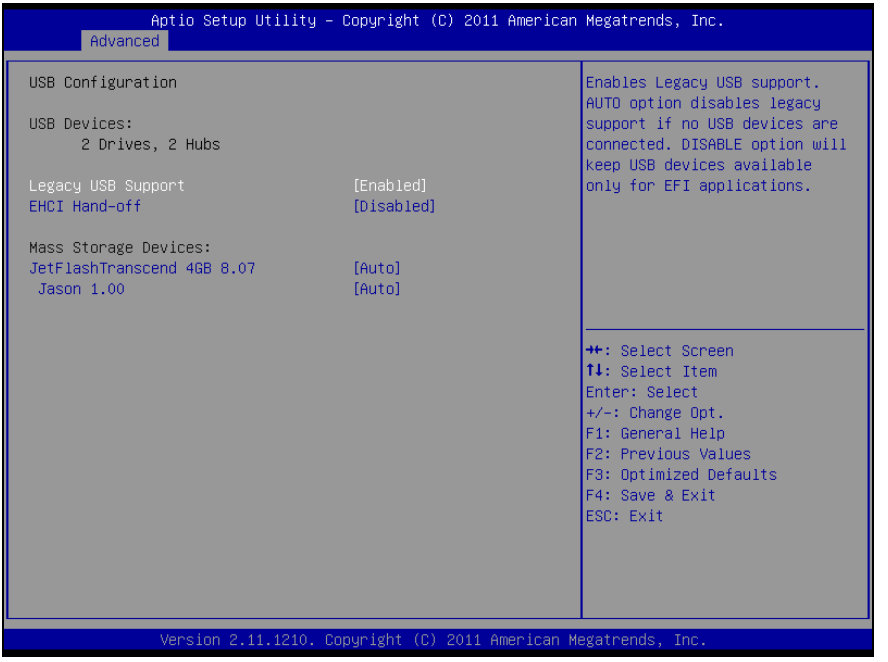
4-4-4. ADVANCED - INTEL IGD SWSCI OPREGION CONFIGURATION SETTINGS



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.

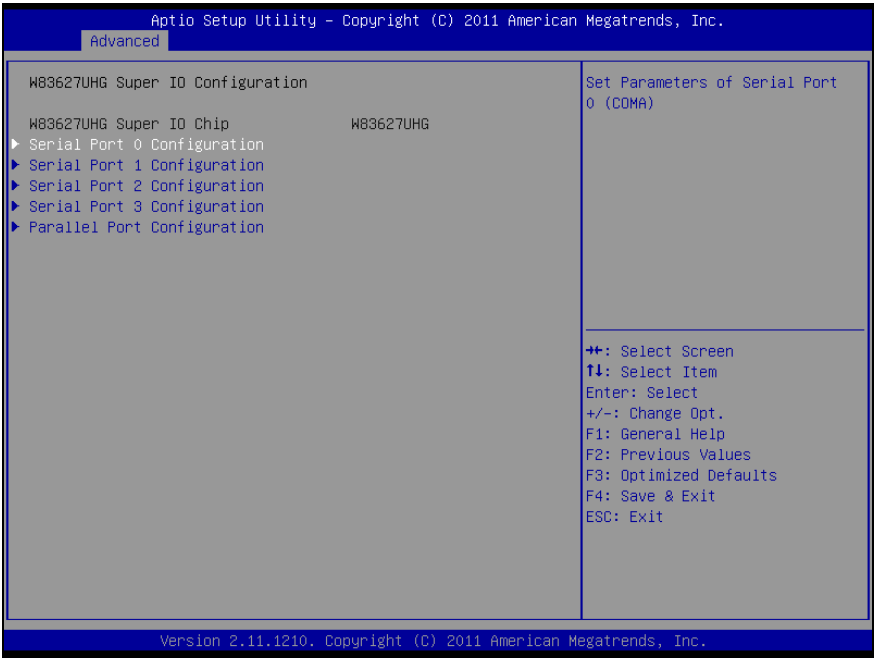
4-4-5. ADVANCED - USB CONFIGURATION SETTINGS



USB configuration settings screen

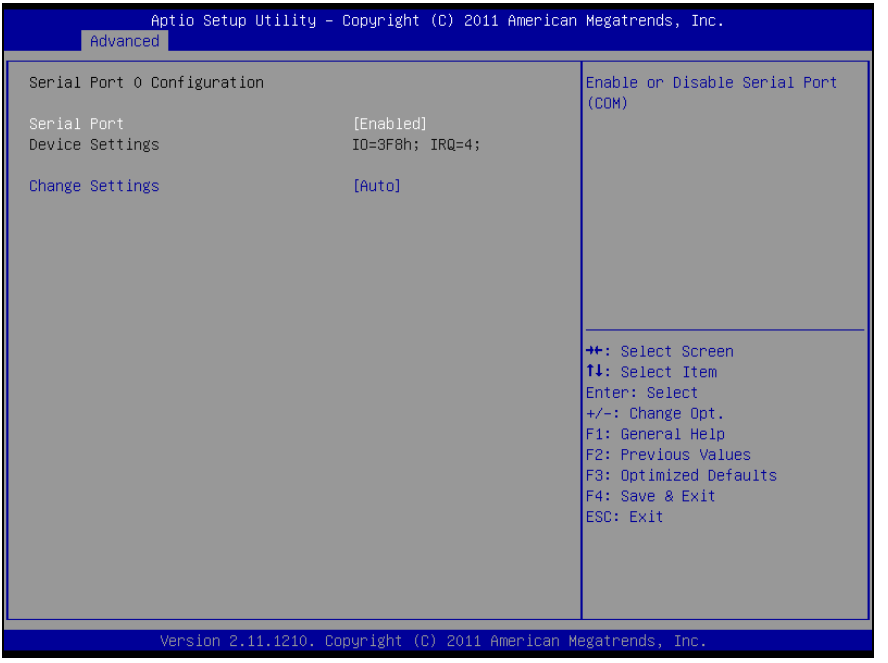
BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays number of available USB devices.
Legacy USB Support	-Disabled -Enabled -Auto	Enables support for legacy USB.
EHCI Hand-off	-Disabled -Enabled	When enabled it allows BIOS support control of the EHCI controller and the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

4-4-6. ADVANCED - W83627UHG SUPER IO CONFIGURATION SETTINGS



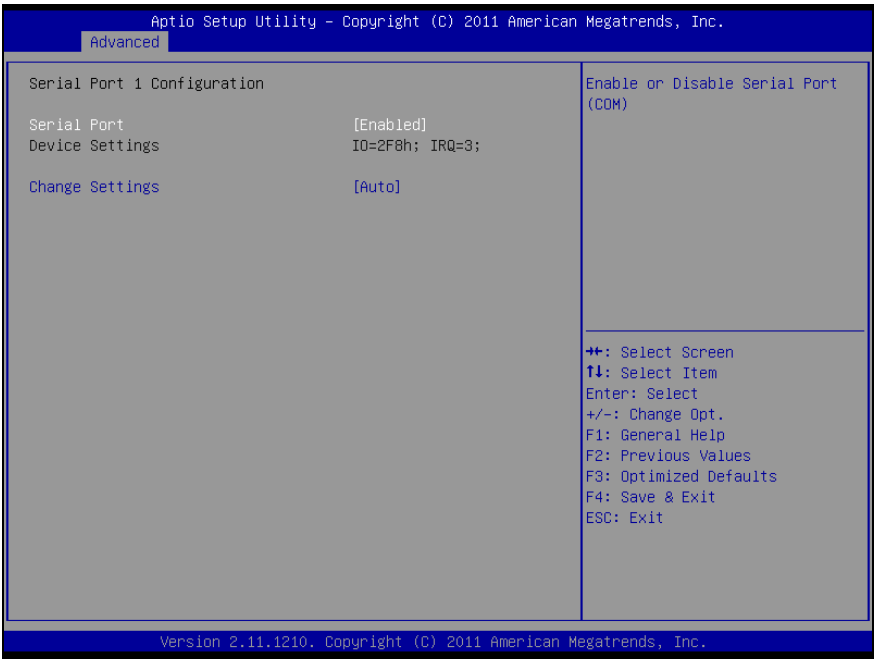
W83627UHG Super IO configuration settings screen

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



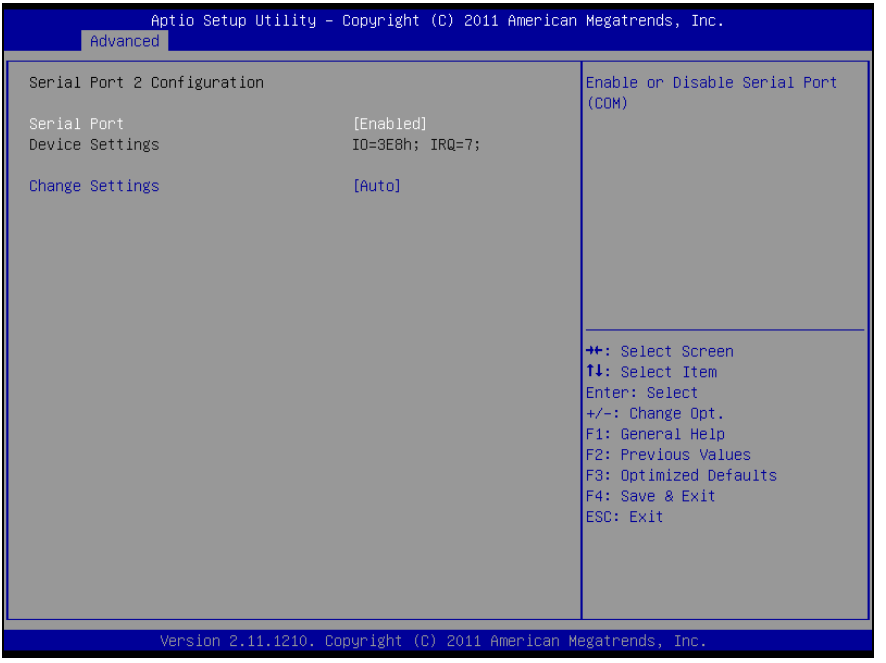
Serial Port 0 Configuration screen

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.



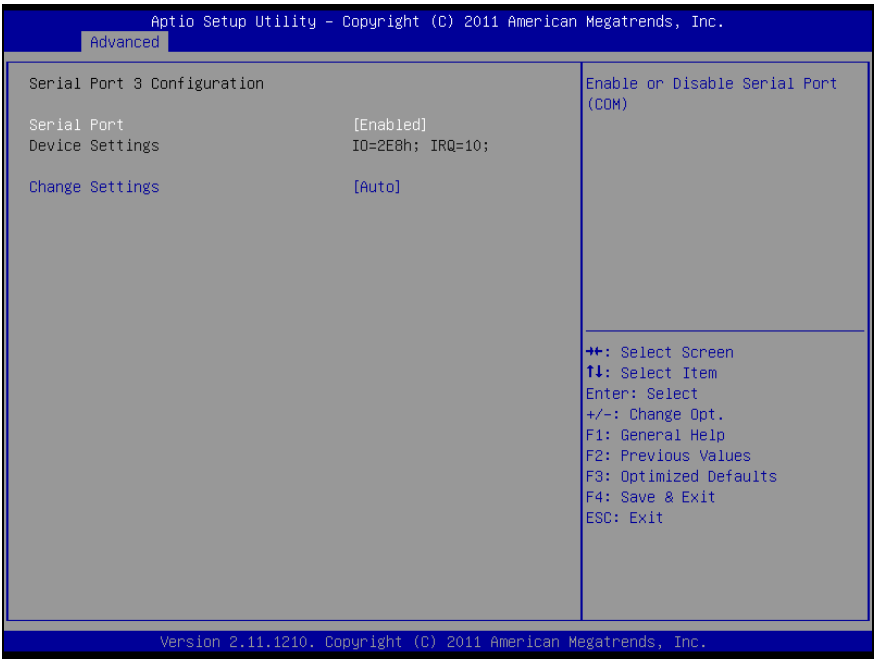
Serial Port 1 Configuration screen

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.



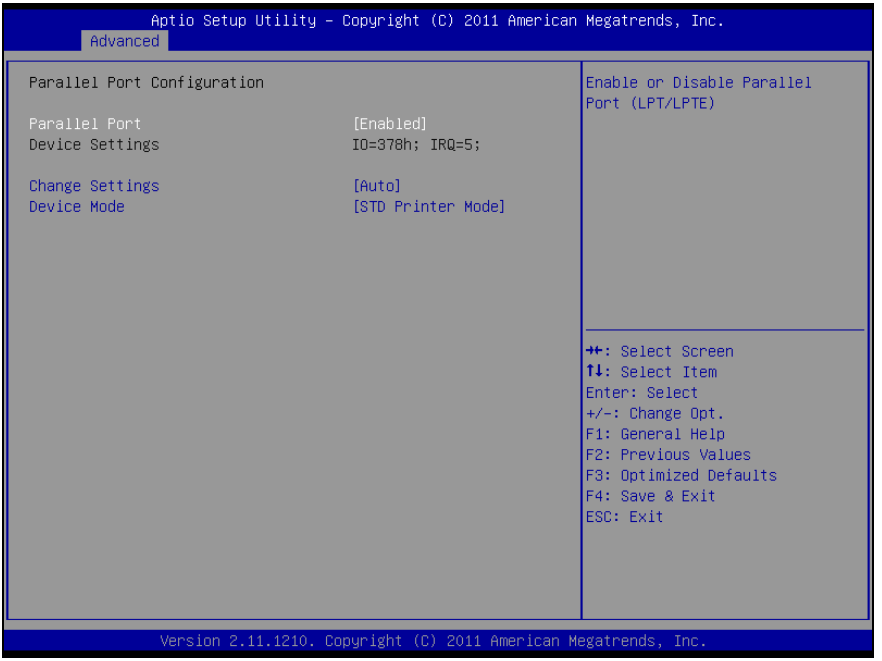
Serial Port 2 Configuration screen

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	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	Specifies the base I/O address and interrupt request for the serial port 3 if enabled.

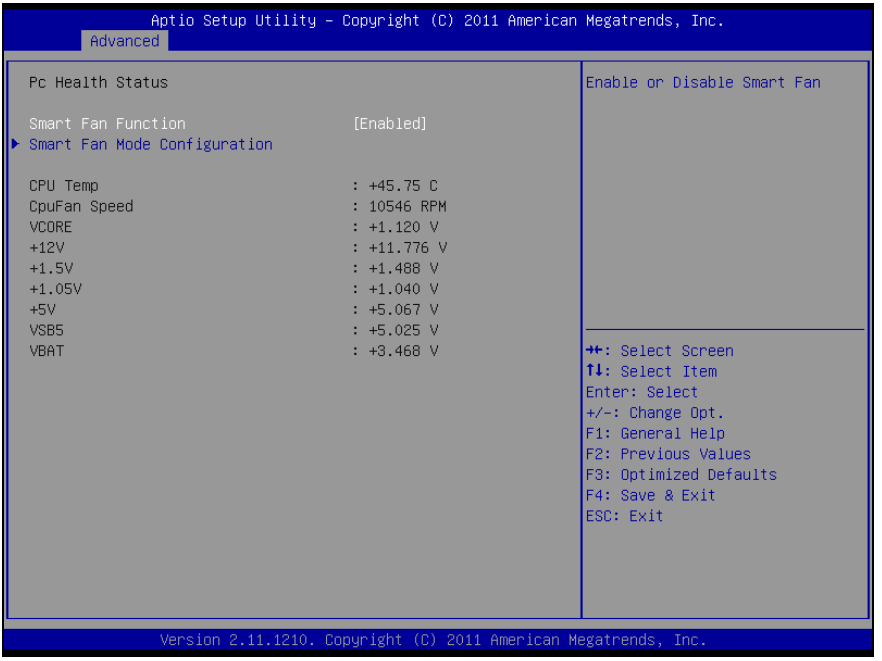


Parallel Port Configuration screen

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.

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.

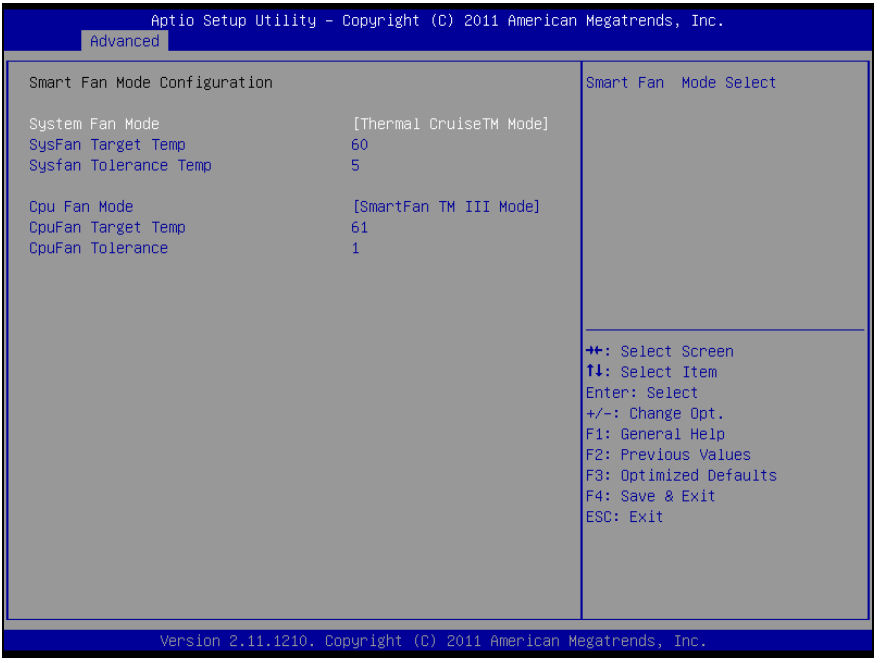
4-4-7. ADVANCED - H/W MONITOR SETTINGS



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.

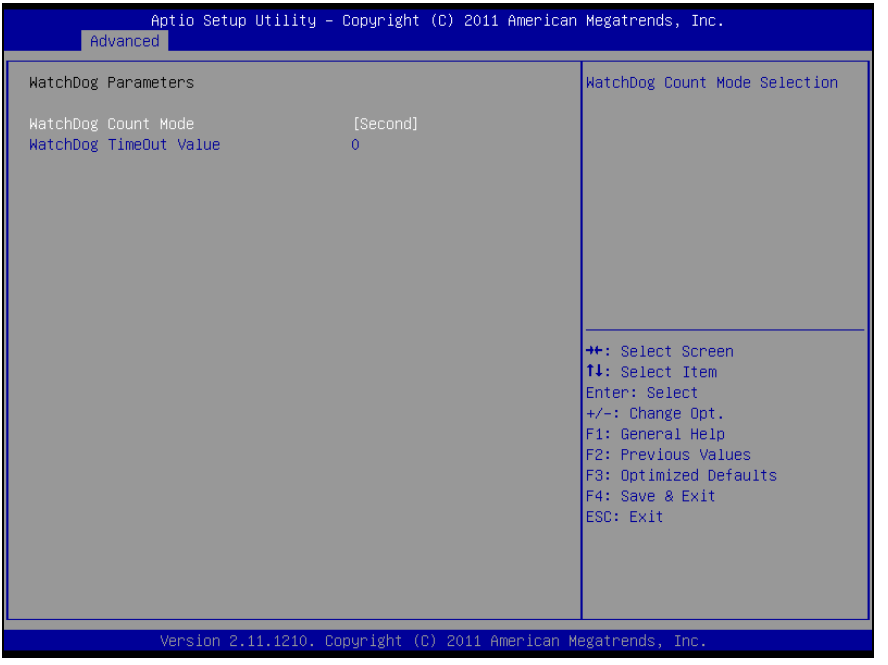
BIOS Setting	Options	Description/Purpose
+1.05V	No changeable options	Displays voltage level of the +1.5V in supply.
+5V	No changeable options	Displays voltage level of the +5V in supply.
VSB5	No changeable options	Displays voltage level of the +5VSB in supply.
VBAT	No changeable options	Displays voltage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



Smart Fan mode configuration screen

BIOS Setting	Options	Description/Purpose
System fan mode	-Manual Mode -Thermal CruiseTM Mode	Configures the smart fan.
System fan PWM output duty	Multiple options ranging from 0 to 255	CPU Fan PWM output duty
CPU fan mode	-Manual Mode -Thermal CruiseTM Mode	Configures the smart fan.
CPU fan PWM output duty	Multiple options ranging from 0 to 255	CPU Fan PWM output duty

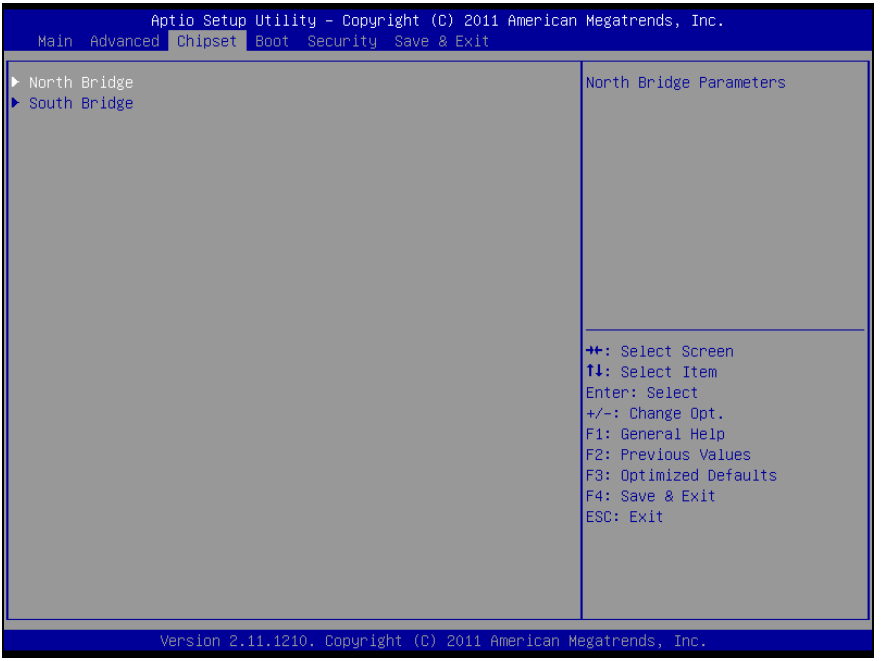
4-4-8. ADVANCED - WATCHDOG CONFIGURATION SETTINGS



Watchdog configuration settings screen

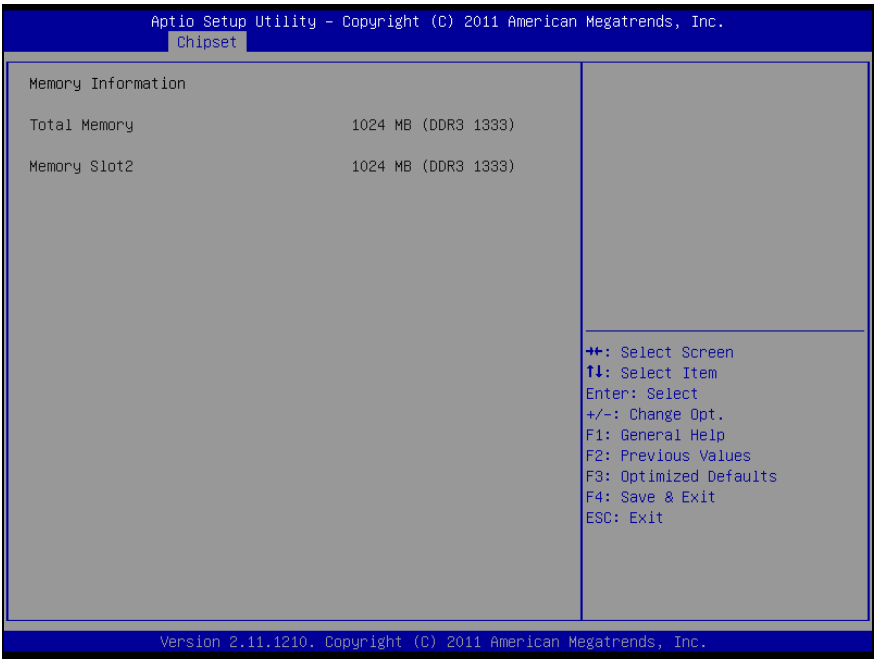
BIOS Setting	Options	Description/Purpose
Watchdog count mode	-Second -Minute	Selects unit for watchdog timer.
Watchdog timeout value	Multiple options ranging from 0 to 255	Sets the desired value for watchdog timer. 0 means disabled.

4-5. CHIPSET



Chipset screen

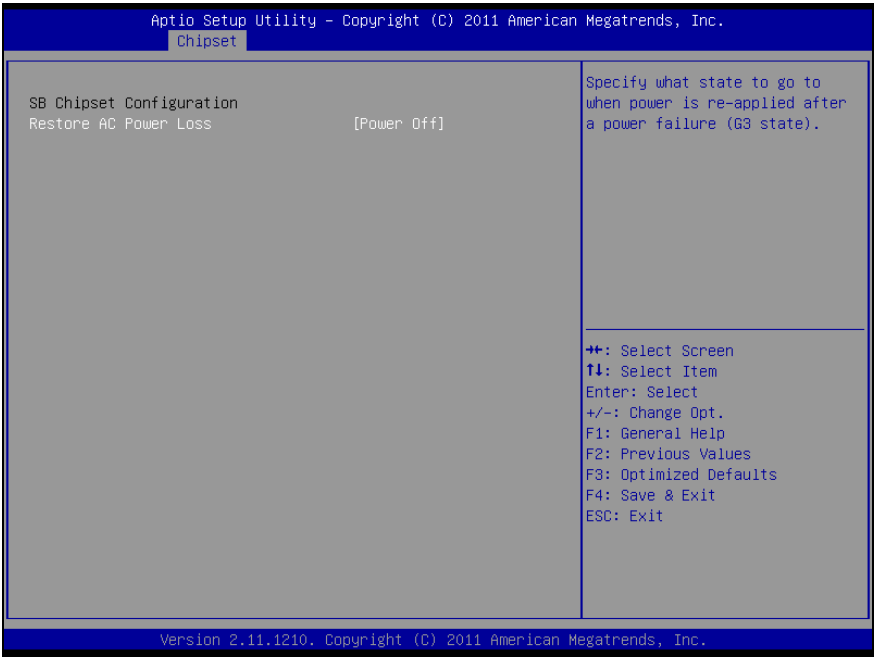
4-5-1. NORTH BRIDGE CHIPSET CONFIGURATION



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.

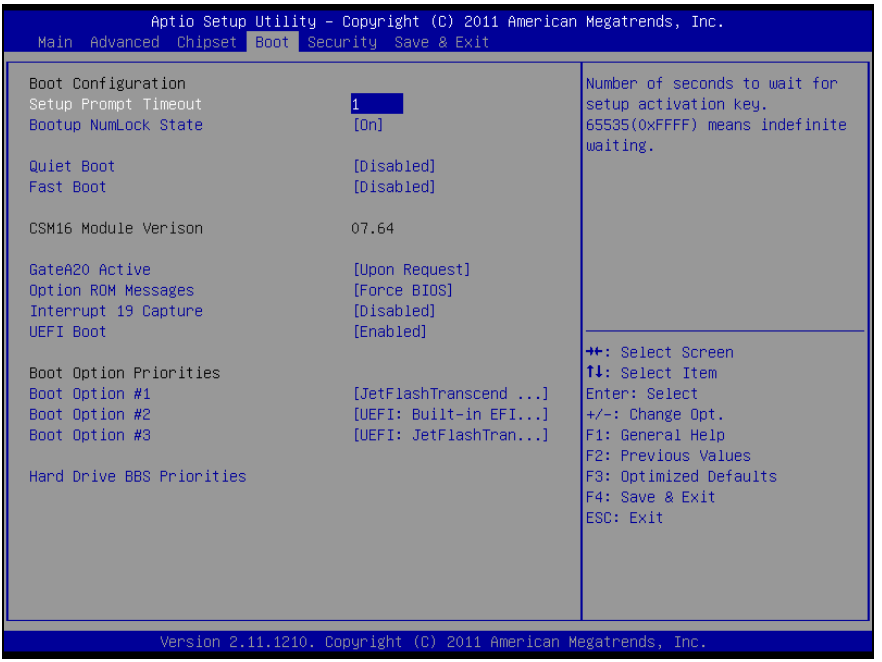
4-5-2. SOUTH BRIDGE CHIPSET CONFIGURATION



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

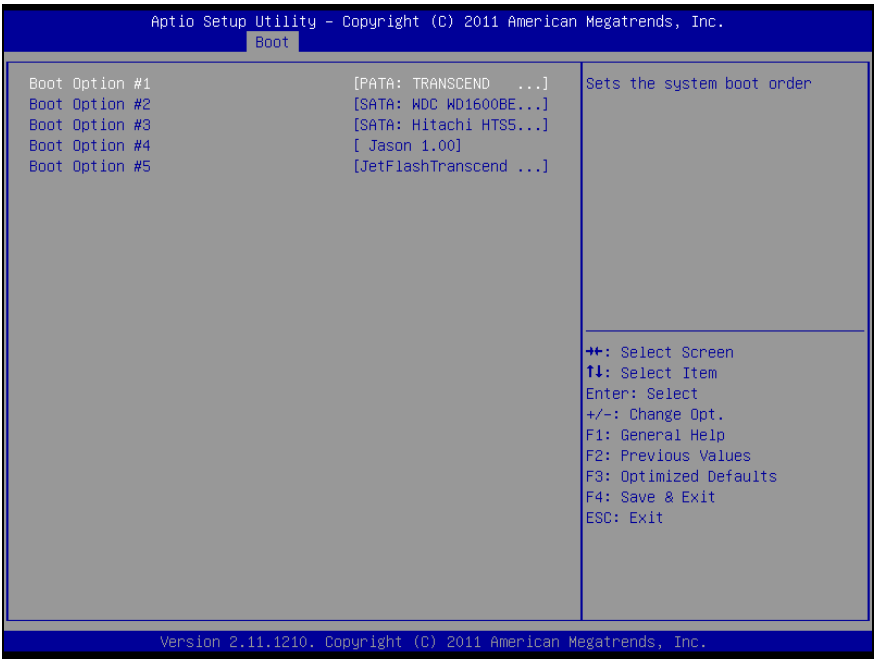


Boot screen

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.
Fast Boot	-Disabled -Enabled	When fast boot is enabled, it boots with minimal set of devices required to launch active boot option.

BIOS Setting	Options	Description/Purpose
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.

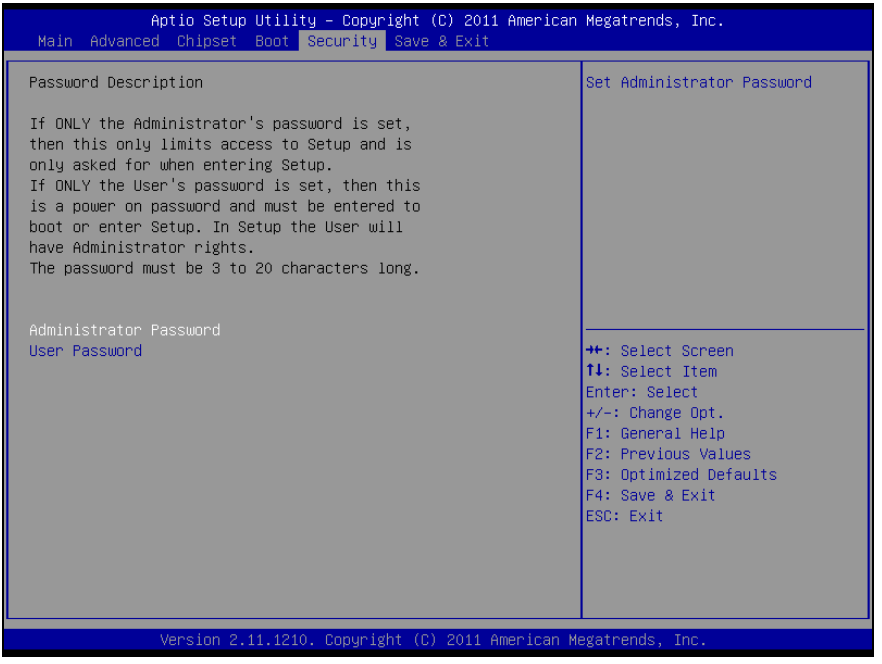
4-6-1. HARD DRIVE BBS PRIORITIES



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).

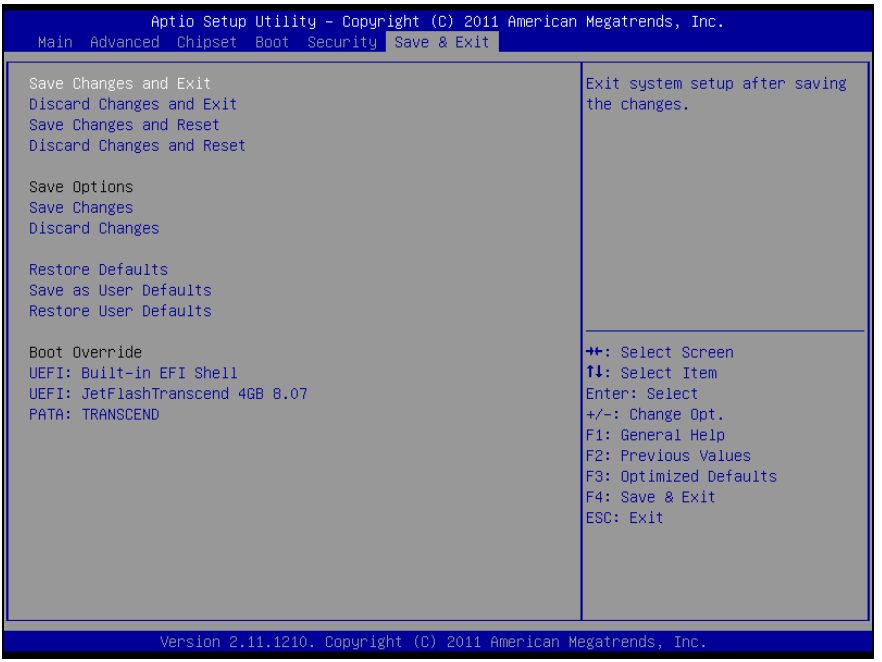
4-7. SECURITY



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.
Save Changes	No changeable options	Saves the changes done in BIOS settings so far.

BIOS Setting	Options	Description/Purpose
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

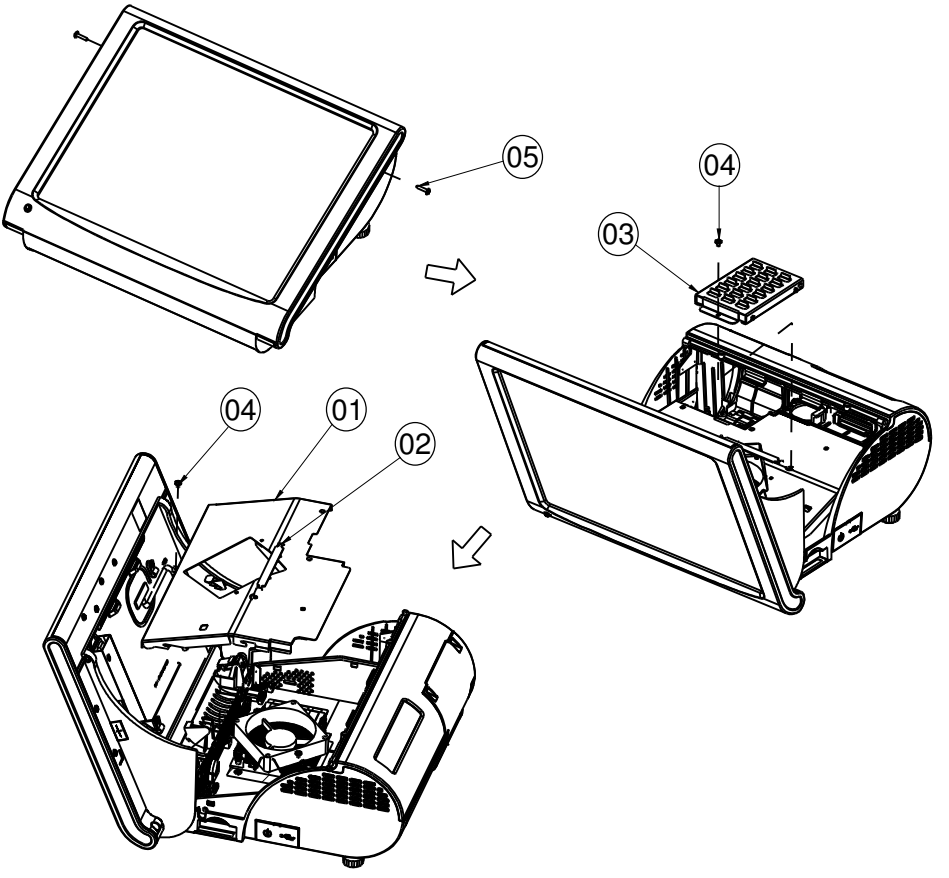
A

This appendix contains exploded diagrams and part numbers of the PA-3570 system.

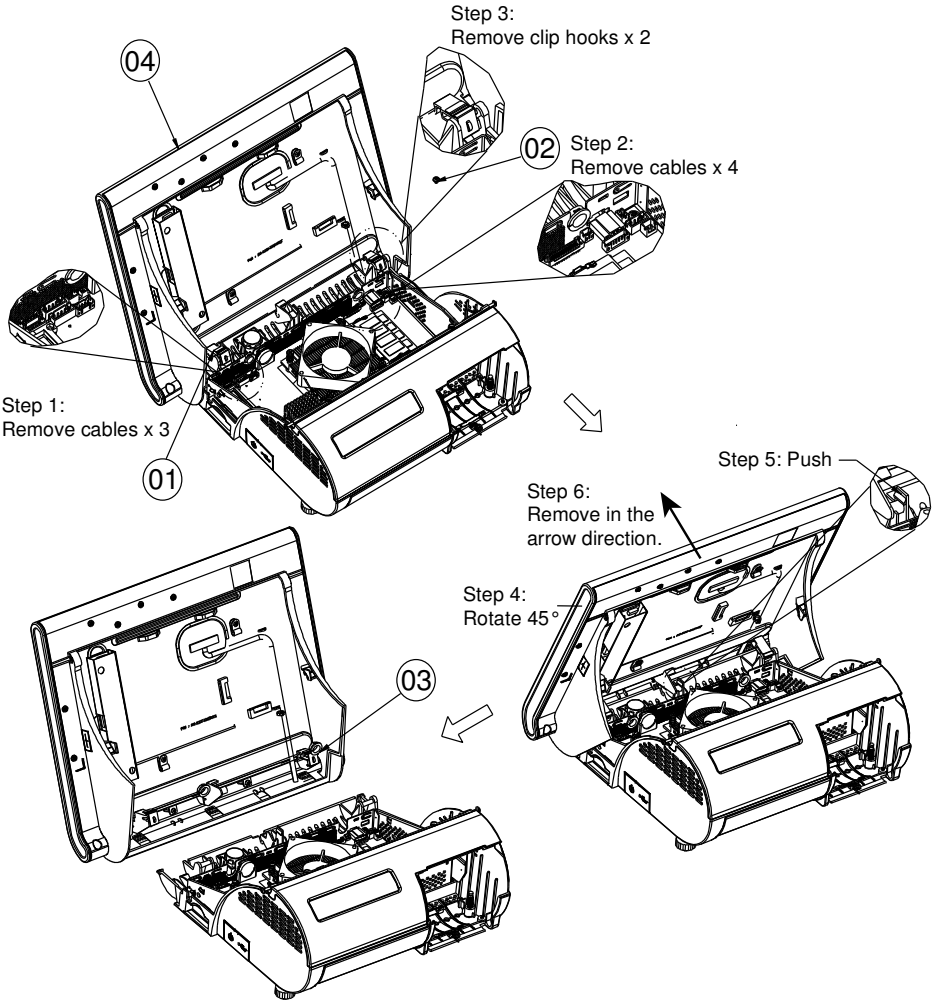
Sections included:

- Exploded Diagram for System Top Module
- Exploded Diagram for Printer
- Exploded Diagram for System Bottom Module
- Exploded Diagram for Main Board
- Exploded Diagram for LCD Panel
- Exploded Diagram for VFD
- Exploded Diagram for HDD
- Exploded Diagram for MSR & i-Button

EXPLODED DIAGRAM FOR SYSTEM TOP MODULE

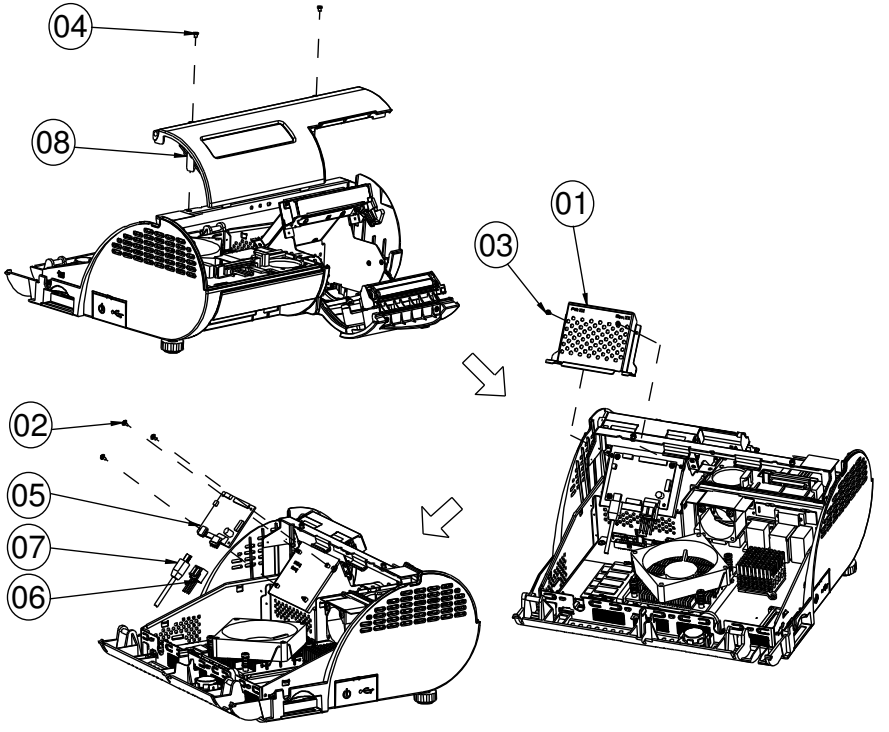


NO.	Component Name	Part No.	Q'ty
1	INSIDE TOP CASE	20-001-03001254	1
2	PULLER	30-080-04100000	1
3	HDD ASSY	----------	1
4	SCREW	22-242-30005311	2
5	SCREW	22-235-30014011(BLACK) 22-232-30014011(NI)	2



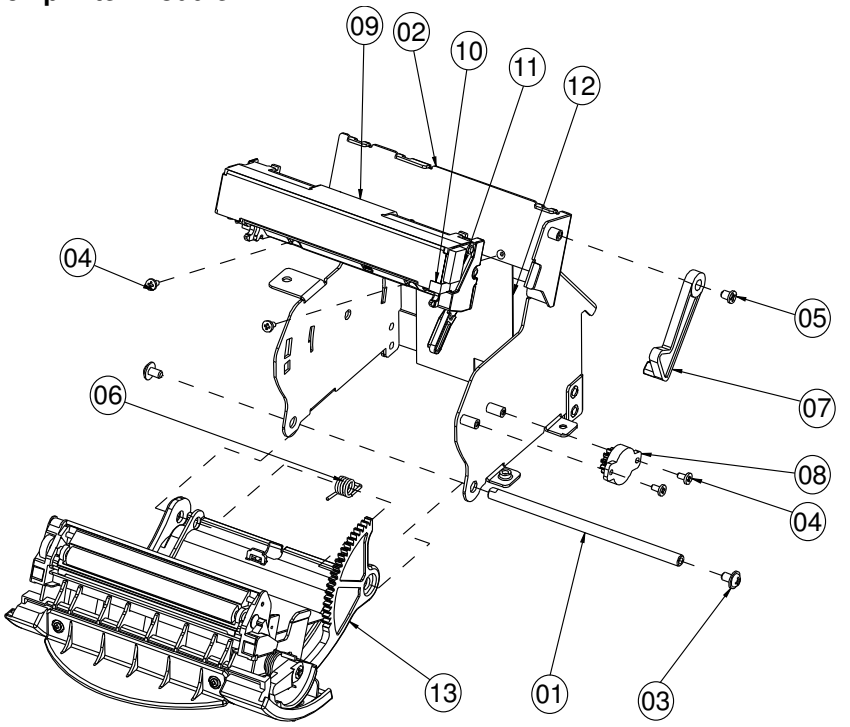
NO.	Component Name	Part No.	Q'ty
1	CLIP HOOK	20-011-28001210	2
2	SCREW	22-242-30005311	1
3	OPEN CLOSED BUSHING	30-026-04300000	2
4	TOP ASSY	----------	1

EXPLODED DIAGRAM FOR PRINTER



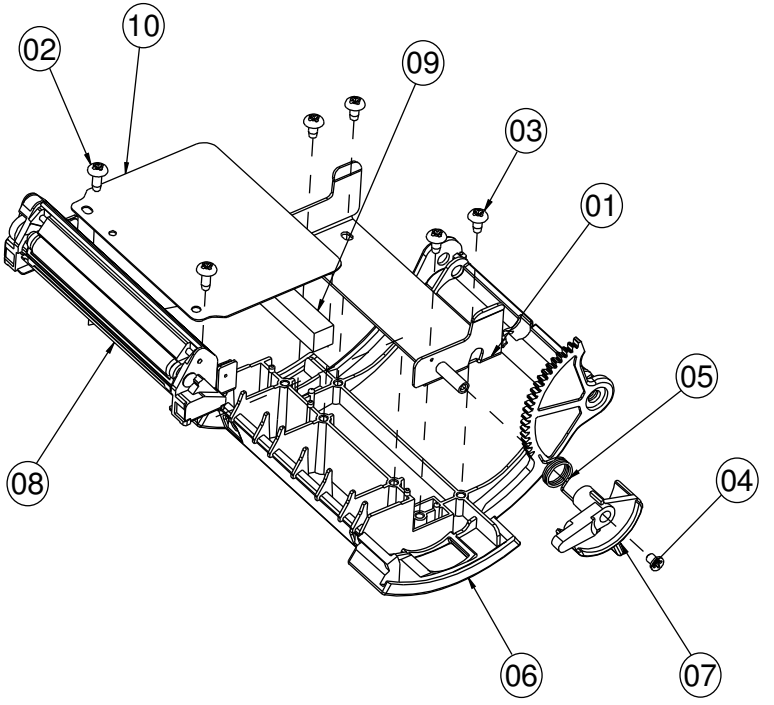
NO.	Component Name	Part No.	Q'ty
1	PCB COVER	20-004-03001165	1
2	SCREW	22-232-20004311	3
3	SCREW	22-232-25004011	2
4	SCREW	22-272-30004318	2
5	PRINTER PCB	SEE ORDER	1
6	PRINTER POWER CABLE	SEE ORDER	1
7	PRINTER USB CABLE	SEE ORDER	1
8	VFD ASSY	----------	1

3 inch printer module



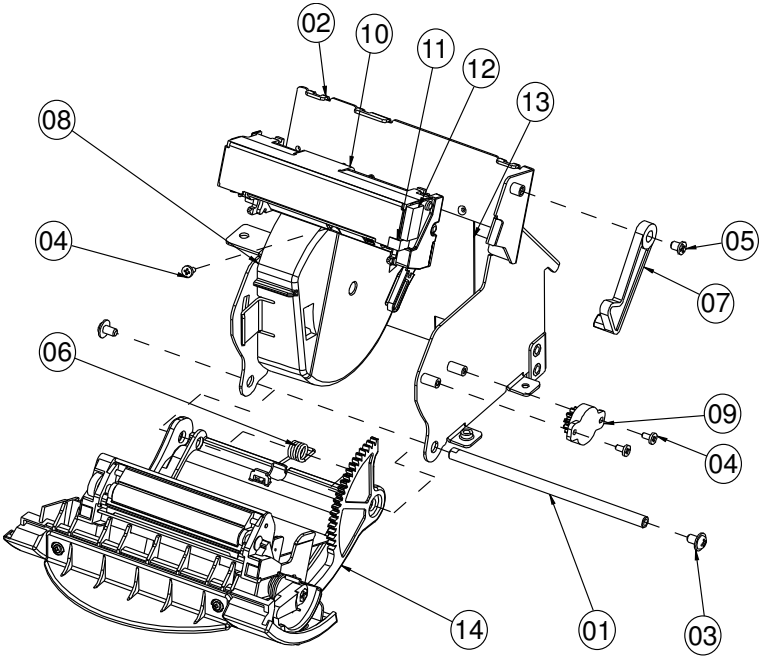
NO.	Component Name	Part No.	Q'ty
1	PAPER COVER PIN	20-004-10011165	1
2	PRINTER BOX	20-040-03004165	1
3	SCREW	22-242-30005311	2
4	SCREW	22-272-20004011	4
5	SCREW	22-272-30004318	1
6	SPRING	23-002-00000701	1
7	PRINTER ADD ARM(BLACK)	30-002-09110165	1
8	ROTARY DAMPER	30-022-09110000	1
9	THERMAL PRINTER	52-701-00017003	1
10	GASKET_A	90-050-31200165	1
11	GASKET_B	90-050-31300165	1
12	MYLAR	90-056-02200165	1
13	PAPER COVER ASSY	----------	1

3 inch printer cover



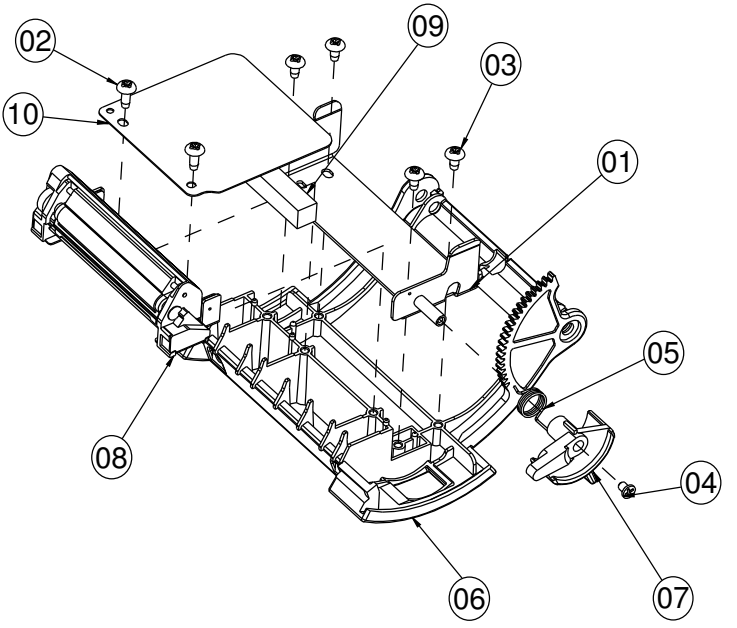
NO.	Component Name	Part No.	Q'ty
1	INCLUDE HOLDER	20-029-03003165	1
2	SCREW	22-122-30080011	2
3	SCREW	22-132-30060011	4
4	SCREW	22-272-30004318	1
5	SPRING	23-002-00001021	1
6	PAPER COVER(BLACK)	30-002-02530165	1
7	PRINTER COVER EJECTOR	30-002-09210165	1
8	THERMAL PRINTER	52-701-00017003	1
9	2IN ADD EVA	90-013-15200165	1
10	3IN ADD MYLAR	90-056-02600165	1
11	PAPER COVER ASSY	----------	1

2 inch printer module



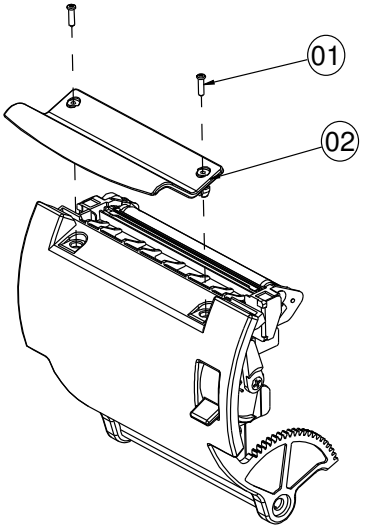
NO.	Component Name	Part No.	Q'ty
1	PAPER COVER PIN	20-004-10011165	1
2	PRINTER BOX	20-040-03004165	1
3	SCREW	22-242-30005311	2
4	SCREW	22-272-20004011	3
5	SCREW	22-272-30004318	1
6	SPRING	23-002-00000701	1
7	PRINTER ADD ARM(BLACK)	30-002-09110165	1
8	PAPER WALL	30-002-28310165	1
9	ROTARY DAMPER	30-022-09110000	1
10	THERMAL PRINTER	52-701-00020003	1
11	GASKET_A	90-050-31200165	1
12	GASKET_B	90-050-31300165	1
13	MYLAR	90-056-02200165	1
14	PAPER COVER ASSY	----------	1

2 inch printer cover

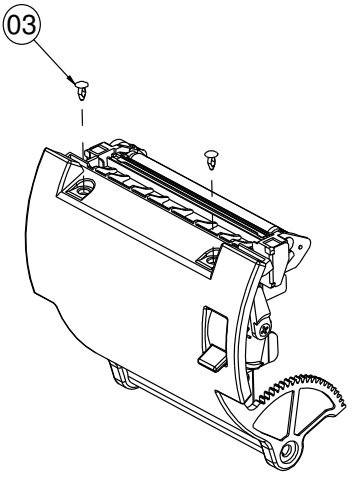


NO.	Component Name	Part No.	Q'ty
1	INCLUDE HOLDER	20-029-03003165	1
2	SCREW	22-122-30080011	2
3	SCREW	22-132-30060011	4
4	SCREW	22-272-30004318	1
5	SPRING	23-002-00001021	1
6	PAPER COVER(BLACK)	30-002-02530165	1
7	PRINTER COVER EJECTOR	30-002-09210165	1
8	THERMAL PRINTER	52-701-00020003	1
9	2IN ADD EVA	90-013-15200165	1
10	2IN ADD MYLAR	90-056-02300165	1
11	PAPER COVER ASSY	----------	1

With paper holder

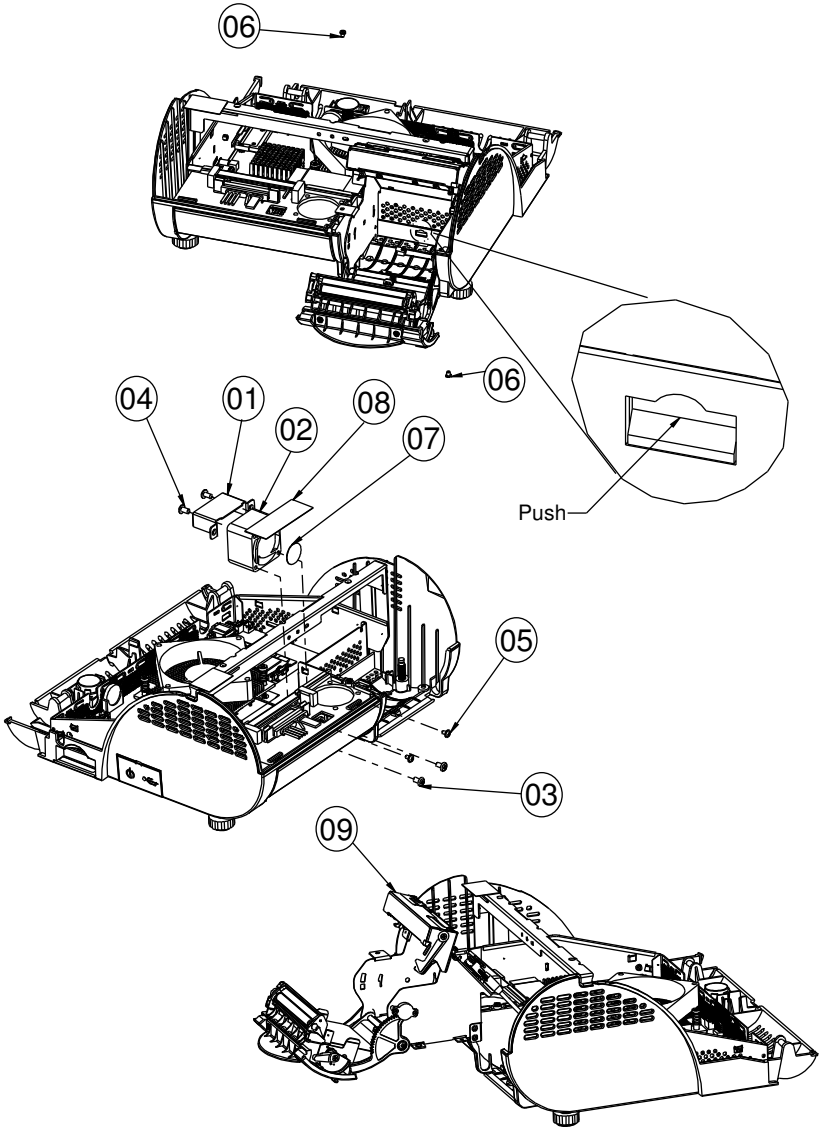


Without paper holder

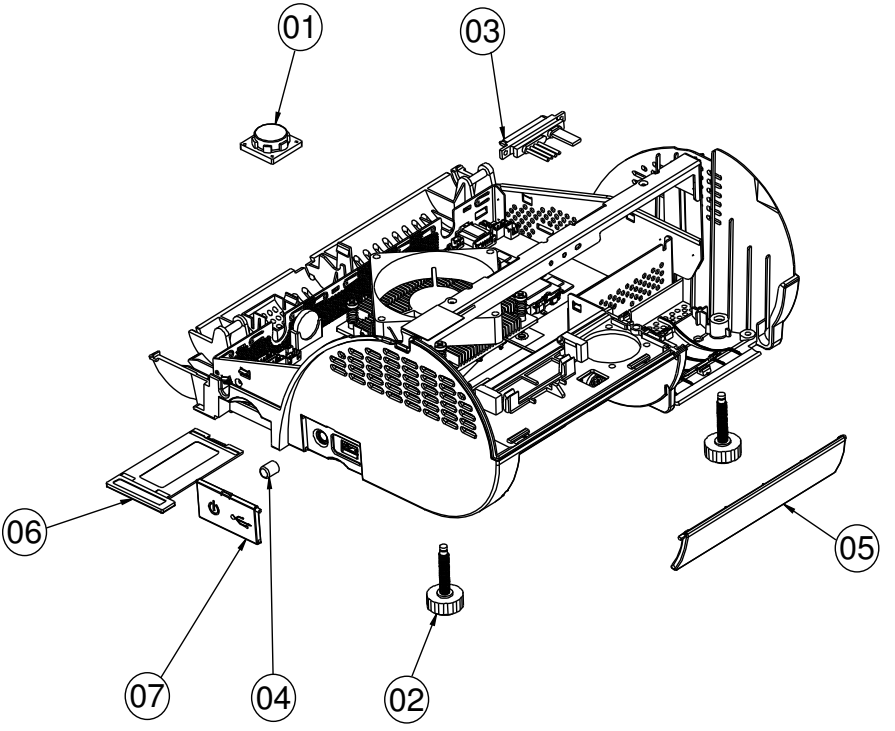


NO.	Component Name	Part No.	Q'ty
1	SCREW	22-125-20008011	2
2	PAPER HOLDER	30-012-10130210	1
3	PLASTIC RIVET	90-076-04110000	2

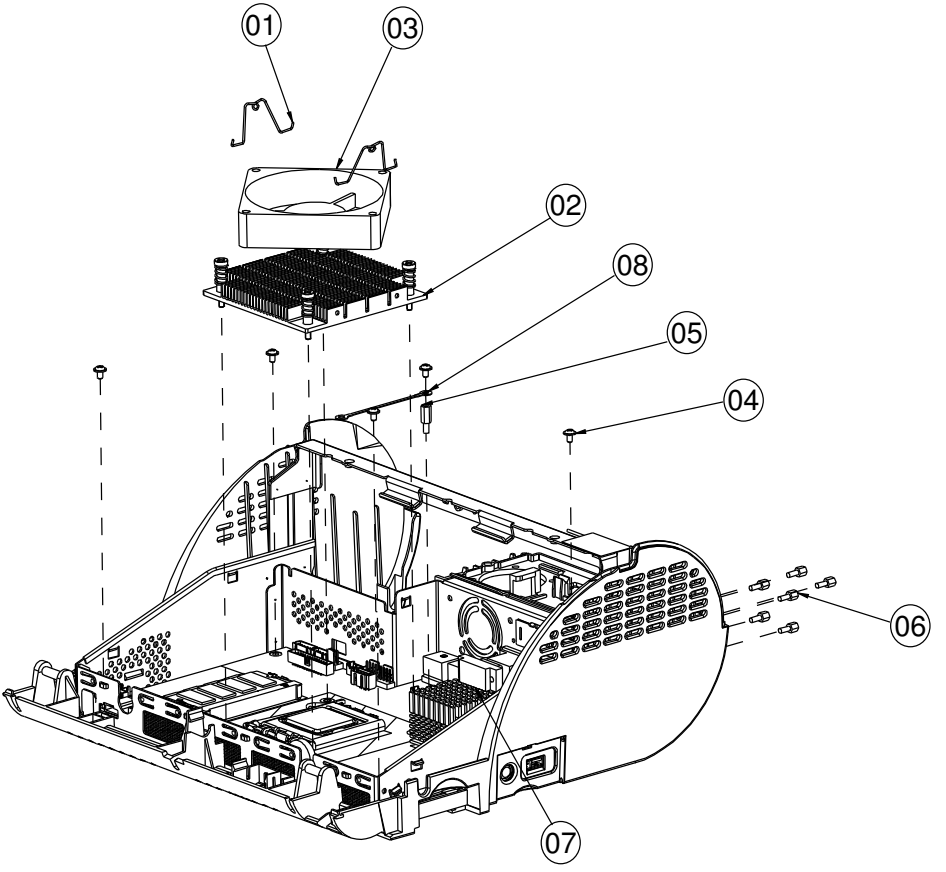
EXPLODED DIAGRAM FOR SYSTEM BOTTOM MODULE



NO.	Component Name	Part No.	Q'ty
1	FAN HOLDER	20-006-03001220	1
2	FAN	21-004-04040162	1
3	SCREW T4	22-122-40080011	2
4	SCREW T4	22-122-40080011	2
5	SCREW	22-242-30005311	3
6	SCREW	22-272-30004318	2
7	PORON CIRCULAR	90-013-24100220	1
8	PORON STRIP	90-013-24200220	1
9	PRINTER ASSY	----------	1

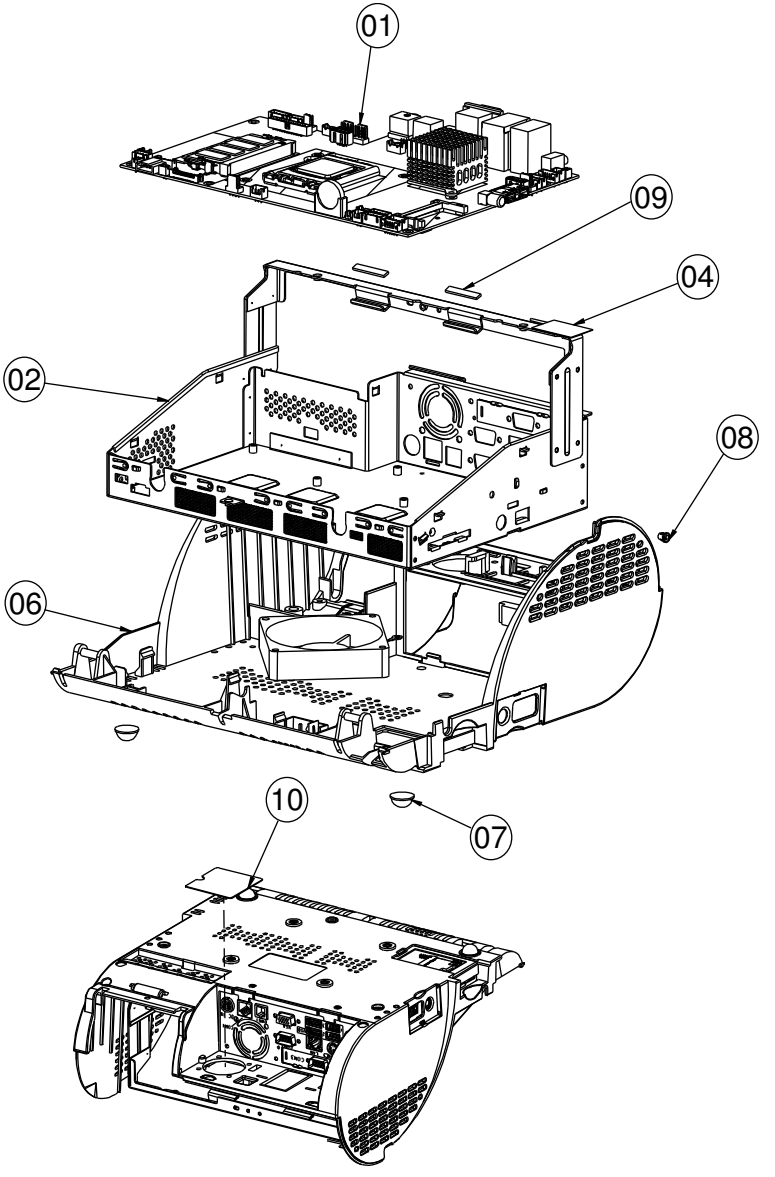


NO.	Component Name	Part No.	Q'ty
1	SPEAKER	13-500-08280018	1
2	FOOT	22-289-60035007	2
3	SATA HDD CABLE	27-012-16504081	1
4	SWITCH CAP	30-001-28100099	1
5	IO COVER(BLACK)	30-002-28110165	1
6	MINI PCIE DOOR(BLACK)	30-007-28110165	1
7	SIDE DOOR	30-007-28210165	1



NO.	Component Name	Part No.	Q'ty
1	FAN CLIP	21-001-60000002	2
2	CPU HEATSINK	21-002-19090002	1
3	FAN	21-004-08080132	1
4	SCREW	22-242-30005311	5
5	HEX STANDOFF	22-290-30010001	1
6	NO.4 BOSS	22-692-40048051	6
7	DB-9 CABLE	27-024-20804031	1
8	PRINTER GROUND CABLE	27-030-16504071	1

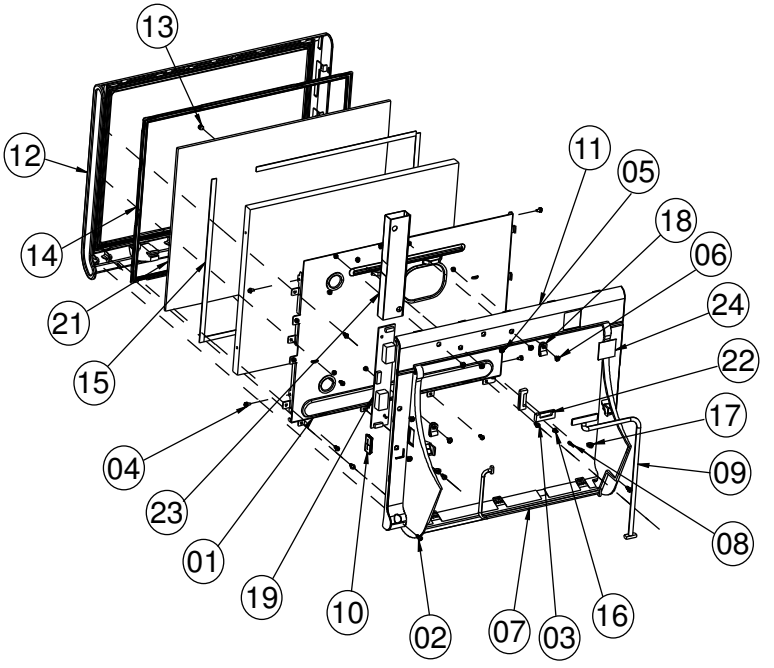
EXPLODED DIAGRAM FOR MAIN BOARD



NO.	Component Name	Part No.	Q'ty
1	PB-3251	----------	1
2	INSIDE BOX	20-040-03002165	1
3	FAN	21-004-08080132	1
4	WIRELESS ANTENNA	27-029-16506071	1
5	PRINTER GROUND CABLE	27-030-16504071	1
6	BOTTOM CASE(BLACK)	30-002-12210210	1
7	RUBBER FOOT	30-004-01500000	2
8	SB-0305	30-026-04100008	1
9	EMI SPONGE	30-050-31200000	2
10	PC SHEET	90-056-02100254	1

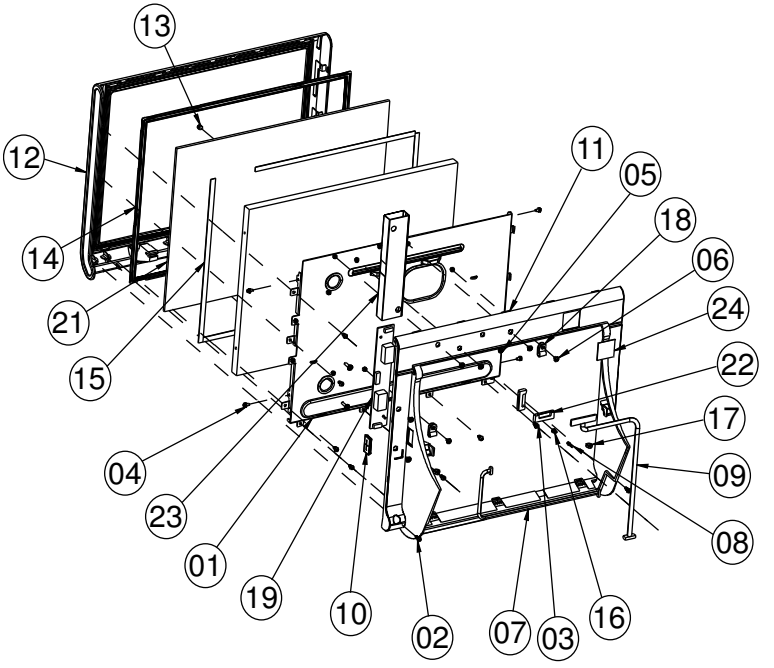
EXPLODED DIAGRAM FOR LCD PANEL

Black



NO.	Component Name	Part No.	Q'ty
1	LCD METAL HOUSING	20-006-03001210	1
2	SCREW	22-122-30080011	2
3	SCREW	22-132-30060011	7
4	SCREW	22-232-30060211	4
5	SCREW	22-235-30005011	6
6	SCREW	22-242-30005311	2
7	INVERTER CABLE	27-015-21006111	1
8	LED CABLE	27-018-21003071	1
9	LVDS CABLE	27-020-21007111	1
10	RUBBER CAP	30-002-01100210	1
11	REAR COVER	30-002-12121210(BLACK)	1
12	FRONT COVER	30-002-12310210(BLACK)	1
13	LED CAP	30-012-02100000	1
14	TOUCH RUBBER	30-013-01100086	1
15	PORON	30-013-24100000	4
16	LED HOLDER	30-014-04100165	1
17	CABLE TIES	30-015-04100044	2
18	CABLE CLAMP	30-023-04100188	2
19	INVERTER	52-101-15020503	1
20	PANEL	52-351-03150302	1
21	TOUCH PANEL	52-351-03650511	1
22	FLAT CABLE CLAMP	90-042-04200000	2
23	MYLAR	90-056-35100210	1
24	LABEL	94-017-01601210	1

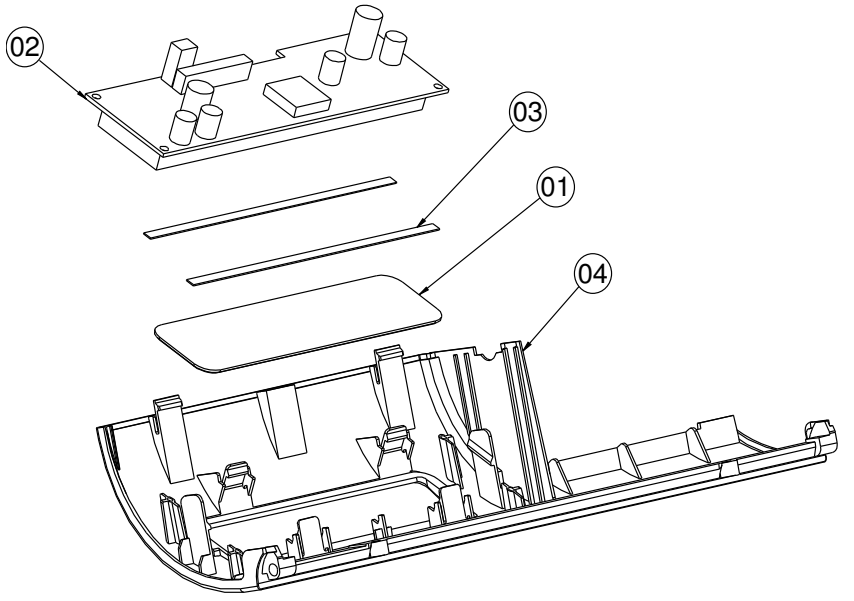
White



NO.	Component Name	Part No.	Q'ty
1	LCD METAL HOUSING	20-006-03001210	1
2	SCREW	22-122-30080011	2
3	SCREW	22-132-30060011	7
4	SCREW	22-232-30060211	4
5	SCREW	22-242-30005311	8
6	SCREW	22-275-30010011	2
7	INVERTER CABLE	27-015-21006111	1
8	LED CABLE	27-018-21003071	1
9	LVDS CABLE	27-020-21007111	1
10	RUBBER CAP	30-002-01100210	1
11	FRONT COVER	30-002-12123210(WHITE)	1
12	REAR COVER	30-002-12320210(WHITE)	1
13	LED CAP	30-012-02100000	1
14	TOUCH RUBBER	30-013-01100086	1
15	PORON	30-013-24100000	4
16	LED HOLDER	30-014-04100165	1
17	CABLE TIES	30-015-04100044	2
18	CABLE CLAMP	30-023-04100188	2
19	INVERTER	52-101-15020503	1
20	PANEL	52-351-03150302	1
21	TOUCH PANEL	52-351-03650511	1
22	FLAT CABLE CLAMP	90-042-04200000	2
23	MYLAR	90-056-35100210	1
24	LABEL	94-017-01601210	1

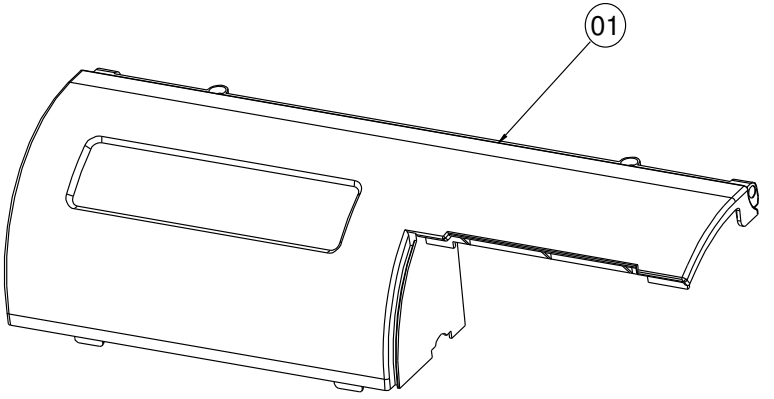
EXPLODED DIAGRAM FOR VFD

VFD Module



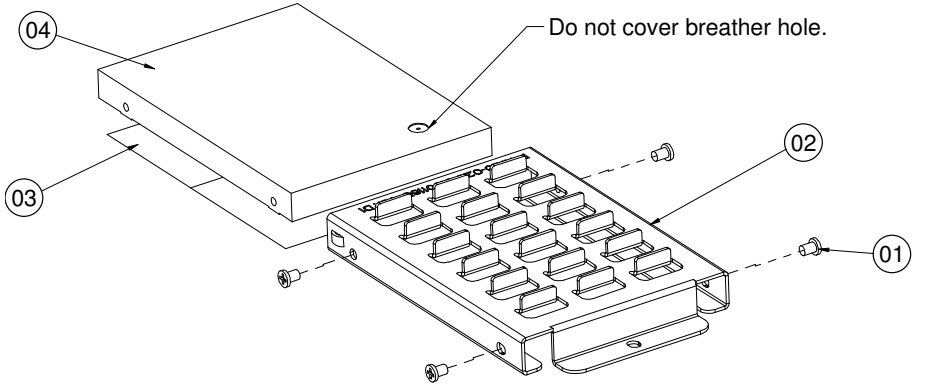
NO.	Component Name	Part No.	Q'ty
1	VFD WINDOWS	30-002-02230165	1
2	VFD MOUDULE	52-901-17001703	1
3	PORON	90-013-24100165	2
4	VFD COVER(BLACK)	30-002-28114165	1
	VFD COVER(WHITE)	30-002-28113165	
	VFD COVER(RED)	30-002-28610165	
	VFD COVER(BLUE)	30-002-28410165	

Without VFD Module



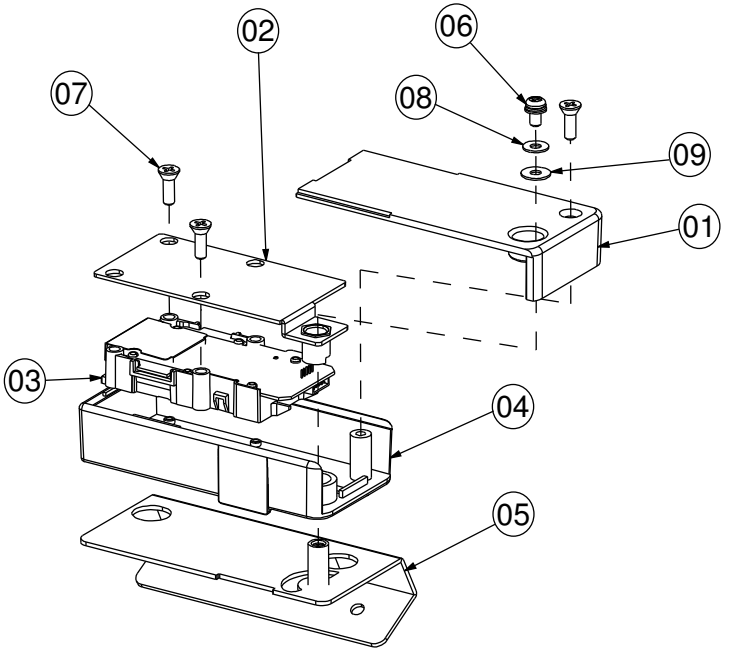
NO.	Component Name	Part No.	Q'ty
1	WITHOUT VFD COVER(BLACK)	30-002-28112165	1
	WITHOUT VFD COVER(WHITE)	30-002-28111165	1
	WITHOUT VFD COVER(RED)	30-002-28710165	1
	WITHOUT VFD COVER(BLUE)	30-002-28510165	1

EXPLODED DIAGRAM FOR HDD

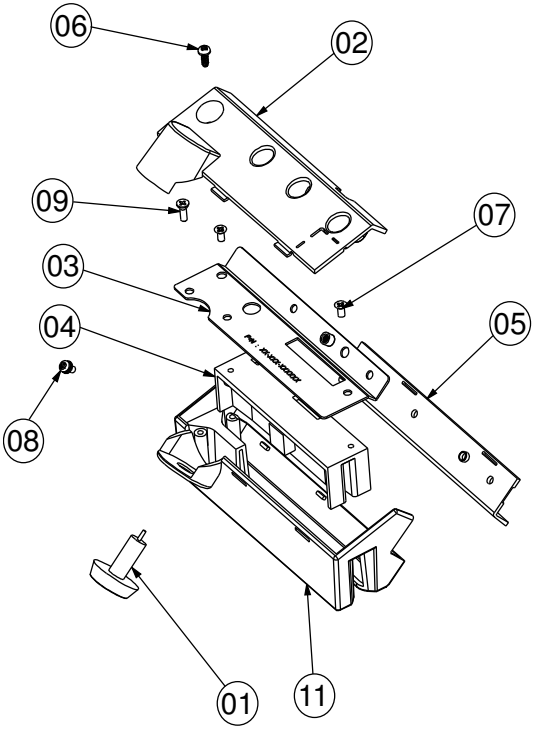


No.	Name	P/N No.	Qt'y
1	M3_L4_I_B	22-272-30004318	4
2	HDD_holder	20-029-01001165	1
3	Thermal Pad	21-006-84535001	2
4	HDD	SEE ORDER	1

EXPLODED DIAGRAM FOR MSR & I-BUTTON



NO.	Component Name	Part No.	Q'ty
1	FINGERPRINTER BOTTOM COVER	30-002-12820210(BLACK)	1
2	FINGERPRINTER BRACKET	20-006-03002210	1
3	FINGERPRINTER MODULE	52-551-00501205	1
4	FINGERPRINTER TOP COVER	30-002-12720210(BLACK)	1
5	MSR BRACKET	20-006-03061210(BLACK)	1
6	SCREW	22-232-30060211	1
7	SCREW	22-712-30010011	3
8	WASHER-A	23-202-30050071	1
9	WASHER-B	23-370-30010801	1



NO.	Component Name	Part No.	Q'ty
1	1-BUTTON	52-551-00100002	1
2	MSR BTM COVER	30-002-12020210(BLACK)	1
3	MSR FIX BRACKET	20-006-03004210	1
4	MSR MODULE	SEE ORDER	1
5	MSR SIDE COVER	30-002-12122210(BLACK)	1
6	SCREW	22-122-30080011	1
7	SCREW	22-215-30060011	2
8	SCREW	22-232-30060211	1
9	SCREW	22-712-30010011	1
11	MSR TOP COVER	----------	1

TECHNICAL SUMMARY

APPENDIX

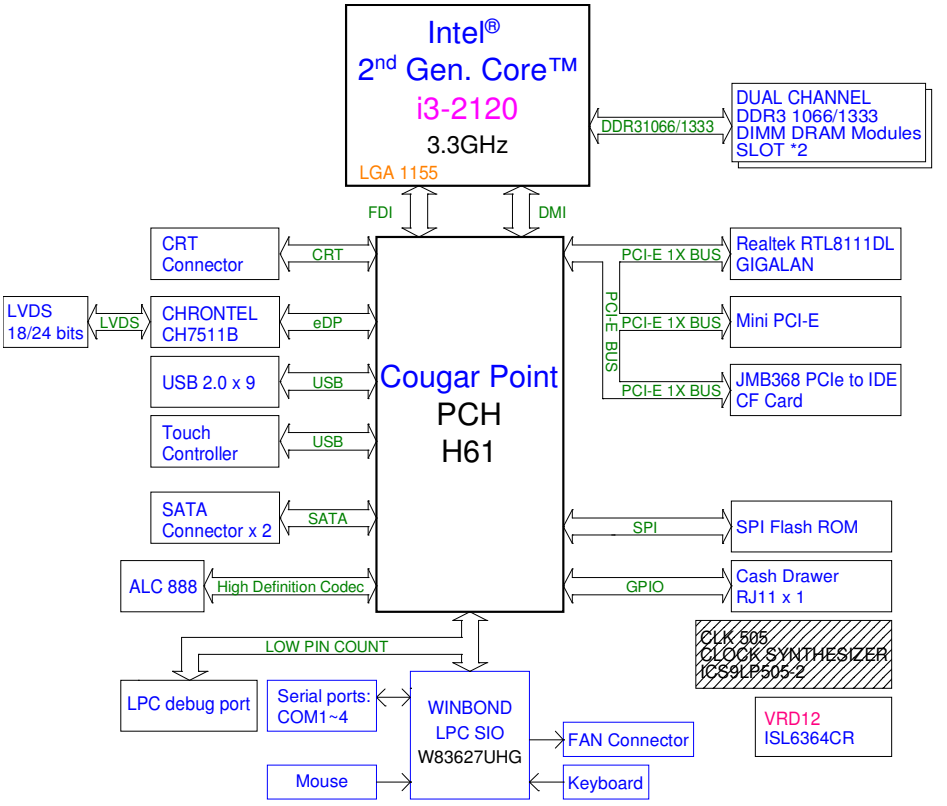
B

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® 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® 6 Series/C200 Series Chipset Family USB Enhanced Host Controller - 1C2D
16	Intel® Management Engine Interface
18	Standard Dual Channel PCI IDE Controller
19	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
22	High Definition Audio Controller
23	Intel® 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

IRQ	ASSIGNMENT
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
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102	Microsoft ACPI-Compliant System
103	Microsoft ACPI-Compliant System
104	Microsoft ACPI-Compliant System
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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

IRQ	ASSIGNMENT
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
135	Microsoft ACPI-Compliant System
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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

IRQ	ASSIGNMENT
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
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® HD Graphics Family
4294967292	Intel® 6 Series/C200 Series Chipset Family PCI Express Root Port 3 - 1C14
4294967293	Intel® 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
4294967294	Intel® 6 Series/C200 Series Chipset Family PCI Express Root Port 1 - 1C10

Note: The resource information is gathered in Windows 7 (the IRQ may be assigned differently depending on your OS).

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)

I/O MAP	ASSIGNMENT
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000376-0x00000376	ATA Channel 1
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003B0-0x000003BB	Intel® HD Graphics Family
0x000003B0-0x000003BB	PCI bus
0x000003C0-0x000003DF	Intel® 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® 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® 6 Series/C200 Series Chipset Family PCI Express Root Port 2 - 1C12
0x0000E000-0x0000EFFF	Realtek PCIe GBE Family Controller
0x0000F000-0x0000F03F	Intel® HD Graphics Family
0x0000F040-0x0000F05F	Intel® 6 Series/C200 Series Chipset Family SMBus Controller - 1C22
0x0000F060-0x0000F06F	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F070-0x0000F07F	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08

I/O MAP	ASSIGNMENT
0x0000F080-0x0000F083	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F090-0x0000F097	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F0A0-0x0000F0A3	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F0B0-0x0000F0B7	Intel® 6 Series/C200 Series Chipset Family 2 port Serial ATA Storage Controller - 1C08
0x0000F0C0-0x0000F0CF	Intel® 6 Series/C200 Series Chipset Family 4 port Serial ATA Storage Controller - 1C00
0x0000F0D0-0x0000F0DF	Intel® 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

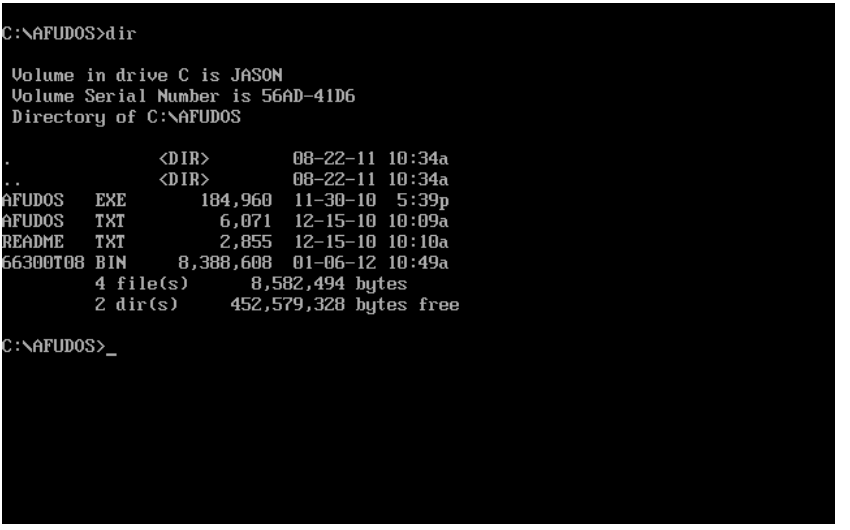
Enable watchdog timer and set 30 sec. as timeout interval.

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

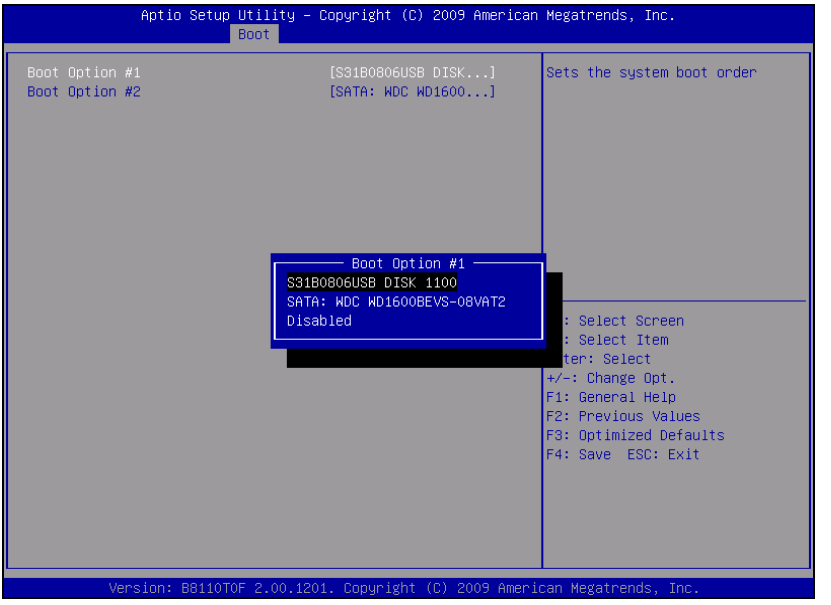
Flash BIOS Update

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.
   a. Connect the bootable USB device.
   b. Turn on the computer and press <F2> or <Del> key during boot to enter BIOS Setup.
   c. System will go into the BIOS setup menu.
   d. Select [Boot] menu.
   e. Select [Hard Drive BBS Priorities], set the USB bootable device to be the 1st boot device.
   f. 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]….

You 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

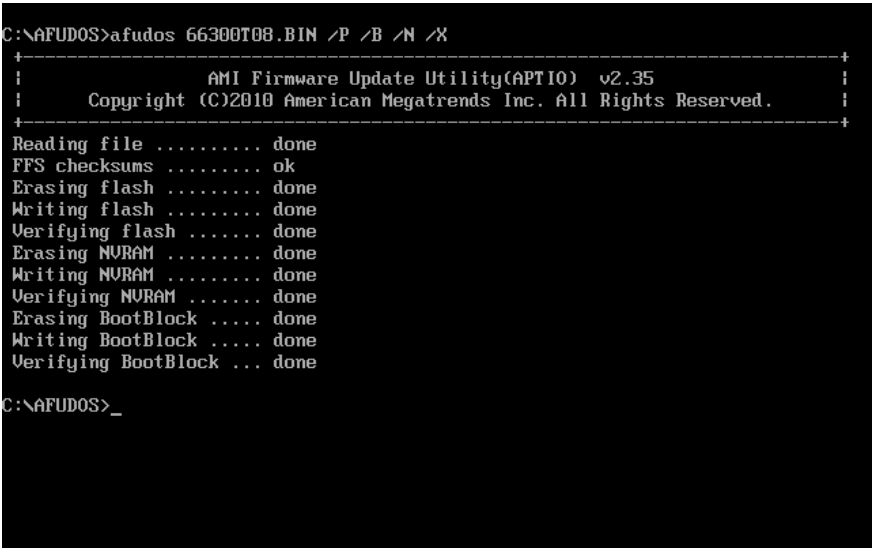
/B: Program Boot Block

/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.


American
Megatrends
Version: 2.11.1210. Copyright (C) 2010 American Magatrends, Inc.
BIOS Date: 01/11/2012 11:36:33 Ver: 66300T08
Press <DEL> or <F2> to enter Setup.