

USER'S MANUAL

PA-3170 Series

POS System Powered by

Intel® 2nd Gen. Core™

PA-3170 Series M2

PA-3170 Series POS System

With LCD/Touch Screen

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DISCLAIMER

This user's manual is meant to assist users in installing and setting up the system. The information contained in this document is subject to change without any notice.

CE NOTICE

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

FCC NOTICE

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

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

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

WARNING! Some internal parts of the system may have high electrical voltage. And therefore we strongly recommend that qualified engineers can open and disassemble the system. The LCD and touch screen are easily breakable, please handle them with extra care.

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INTRODUCTION

CHAPTER

1

This chapter gives you the information for the PA-3170. 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-3170 Series System. The PA-3170 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3170 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the whole system. It contains four chapters and three appendixes. Users can configure the system according to their own needs.

Chapter 1 Introduction

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

Chapter 2 System Configuration

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

Chapter 3 Software Utilities

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

Chapter 4 AMI BIOS Setup

This chapter indicates you how to change the BIOS configurations.

Appendix A System Assembly

This appendix gives you the exploded diagrams and part numbers of the PA-3170.

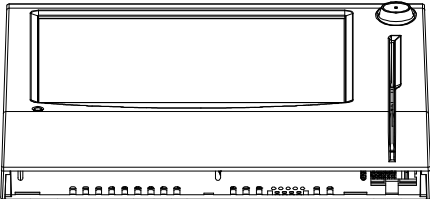
Appendix B Technical Summary

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

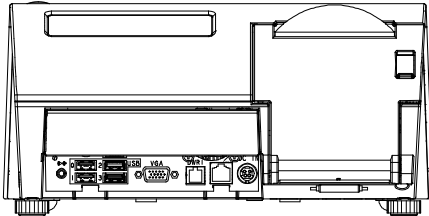
1-2. POS SYSTEM ILLUSTRATION

i-Button Type

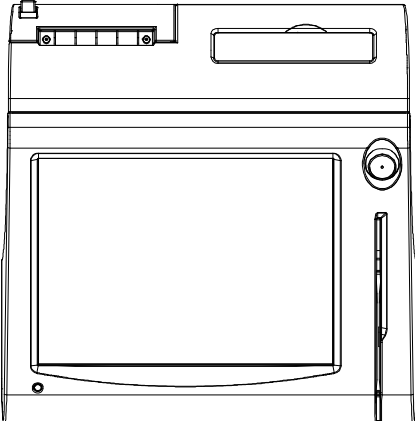
Front View



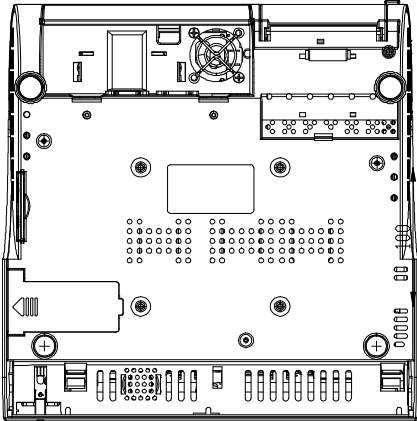
Rear View



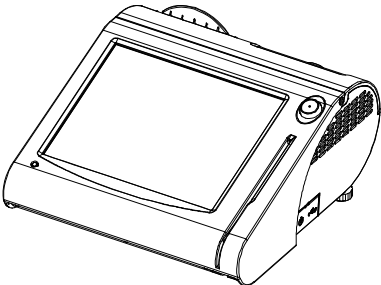
Top View



Bottom View

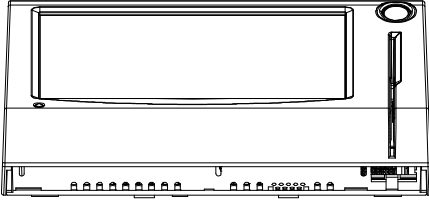


Quarter View

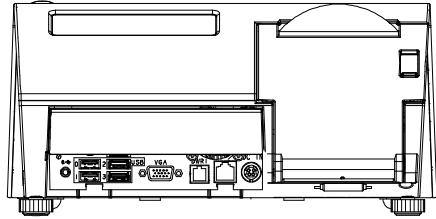


Finger Printer Type

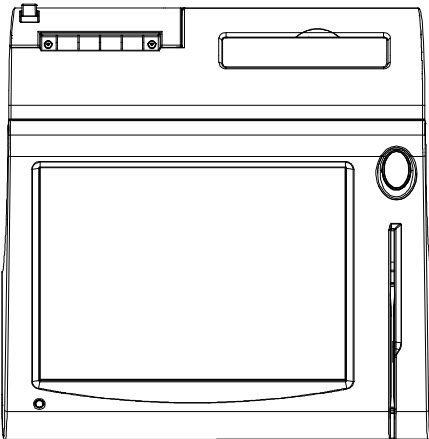
Front View



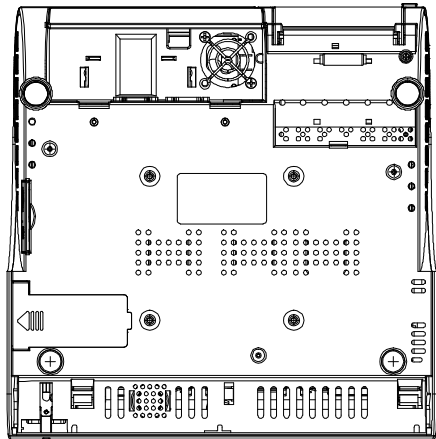
Rear View



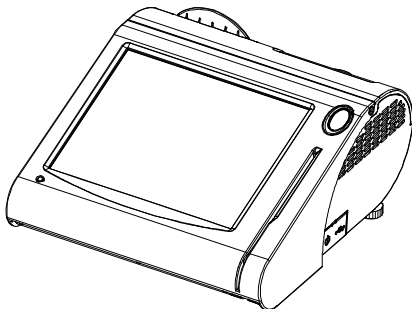
Top View



Bottom View

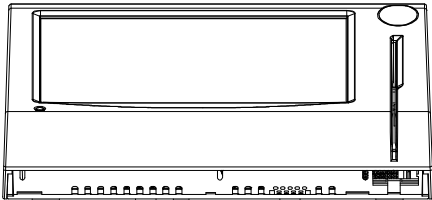


Quarter View

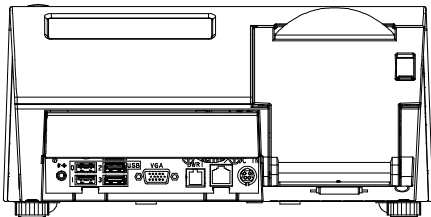


Empty Type

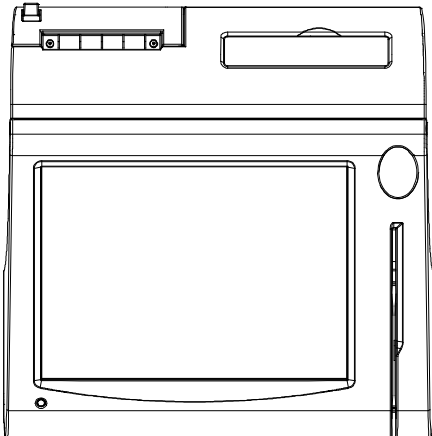
Front View



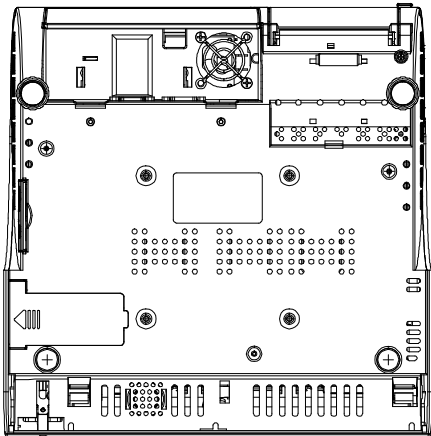
Rear View



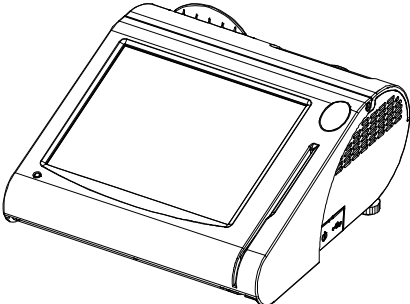
Top View



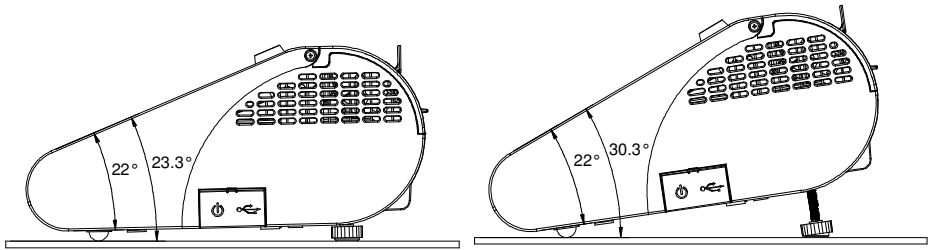
Bottom View



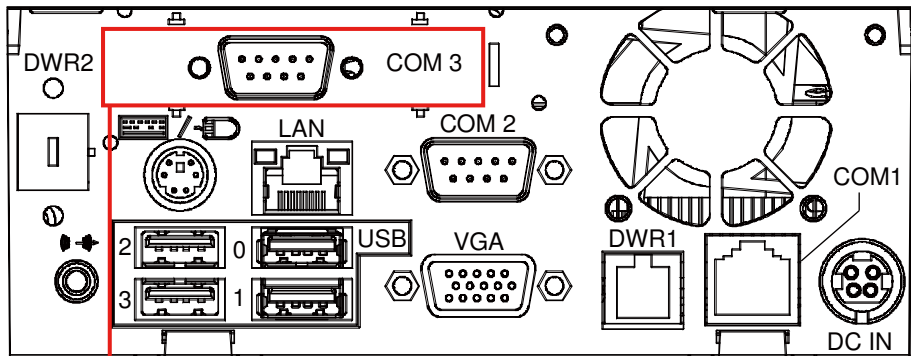
Quarter View



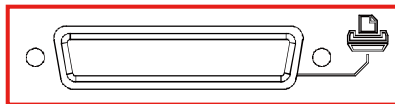
Side View



Rear I/O View

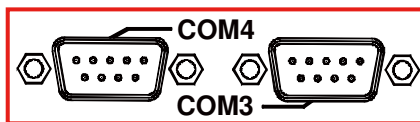


Option 1



(LPT, D-sub 25-pin)

Option 2



(2 x RS232, D-sub 9-pin)

1-3. SYSTEM SPECIFICATIONS

MAIN BOARD (PB-3251)

System

CPU Support	Intel® 2 nd Gen. Core™ CPU series: <ul style="list-style-type: none"> ▪ 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	One 204-pin DDRIII SO-DIMM socket on board, up to 4GB
OS Support	POSReady2009, POSReady7, WES2009, WES7
BIOS	AMI SPI BIOS, 8Mbits with VGA BIOS
Power Supply	120~150 Watt power adapter
System Weight	4.5 kg
Real-Time Clock / Calendar	Embedded in Intel® H61
Dimension (W x H x D)	300mm x 299mm x 135mm
MSR / Fingerprint / i-Button (Optional)	External vertical module: <ul style="list-style-type: none"> ▪ MSR (Read only) ▪ ISO Tracker 1+2+3 (PS/2 KB Interface) ▪ + Fingerprint (USB Interface) ▪ + i-Button (Read only)
Certificate	FCC/CE

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	<ul style="list-style-type: none">▪ 1 x RJ45 (COM1)▪ 1 x DB-9 (COM2)▪ 2 x DB-9 (COM2/3, Wafer or DB-9 optional) +5/12V Selectable (COM 1~4)
LAN	1 x 10/100/1000 Mbps
Wireless LAN (Optional)	Mini PCI-e Wireless LAN Module (802.11b/g)
VGA	1 x DB-15 VGA Interface
Audio	1 x 2W Speaker
Keyboard & Mouse	PS/2 Keyboard with mini DIN connector on rear panel

Display

LCD Interface	10.4" TFT XGA
Max. Resolution	<ul style="list-style-type: none">▪ 1024 x 768▪ 800 x 600
Brightness	<ul style="list-style-type: none">▪ 300 cd/m²▪ 230 cd/m²
Signal Interface	TTL (18-bit)
Viewing Angel	24~30 degrees
Touch Panel	10.4" 5wire Analog resistive

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-3170 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
- b. Avoid installing your PA-3170 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-3170 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-3170 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.

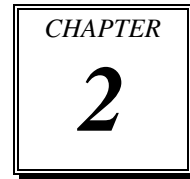
3. Handling

- 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 not 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



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

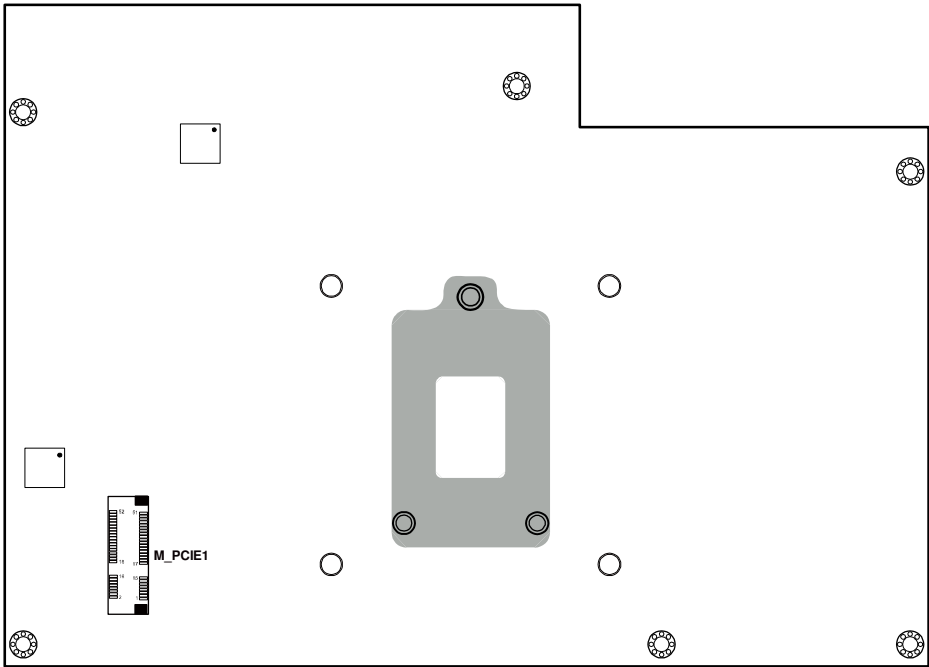
Sections included:

- 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
LED Connector	JLED1-1, JLED1-2, JLED2	2-17
Fan Connector	FAN1, FAN2	2-18
Power Connector	J1	2-19
Power Switch Connector	SW2-1, SW2-2	2-19
Power for Thermal Printer Connector	PRT_PWR1	2-20
External Speaker Connector	SPK1, SPK2	2-20
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

JUMPER / CONNECTOR	NAME	PAGE
Clear CMOS Data Selection	JP2	2-27
Compact Flash Connector	CF1	2-28
Printer Connector	JPRNT1*, LPT1 *JPRNT1 is connected from LPT1 on board.	2-29
LVDS Output Resolution Selection	JP22, JP23, JP24, JP25	2-31
Security Override Mode Setting	JP26	2-31



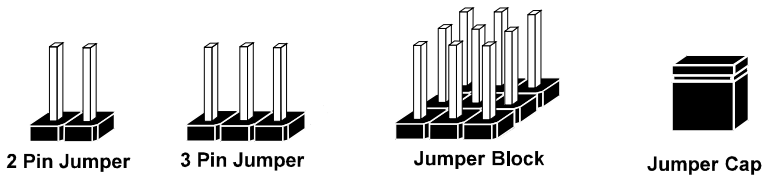
PA-3170 Rear Connector, Jumper and Component Locations

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

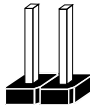


If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

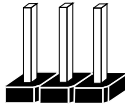
JUMPER DIAGRAMS



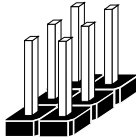
Jumper Cap looks like this



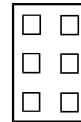
2 pin Jumper looks like this



3 pin Jumper looks like this



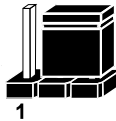
Jumper Block looks like this



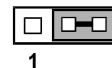
JUMPER SETTINGS



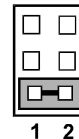
2 pin Jumper closed(enabled)
looks like this



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



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



2-4. COM PORT & VGA CONNECTOR

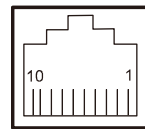
There are four COM ports enhanced in this board namely: COM1, COM3-1, COM4-1, COM4-2 and JVAGCOM2.

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

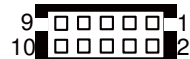


COM1

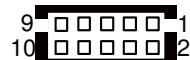
COM3-1, COM4-1, COM4-2: Connectors (wafers on board)

The pin assignments are as follows:

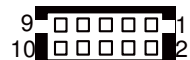
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI / +5V / +12V selectable
5	GND	10	NC



COM3-1



COM4-1



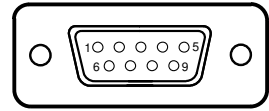
COM4-2

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.)

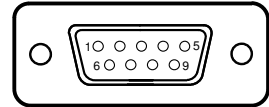
COM3, COM4: COM3 & COM4 Connectors, connected from COM3-1 & COM4-1

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

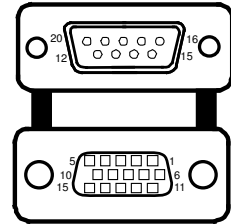
Note: COM3 & COM3-1 will not function when the jumpers are set as “i-Button.” Refer to the section 2-7. *i-Button Function Selection* for details.

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

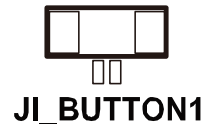
Caution: When using a 120 Watt power adaptor, do not set the voltage at “12V” for three COM ports or above; otherwise, the system may shut down due to power deficiency.

2-6. I-BUTTON CONNECTOR

J1-BUTTON1: i-Button Connector

The pin assignments are as follows:







PIN	ASSIGNMENT
1	COM3_DTR_R_I
2	COM3_RXD_R_I



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	 JP16  JP15  JP14
COM 3	1-2	 JP16  JP15  JP14

Note: Manufacturing Default – COM3

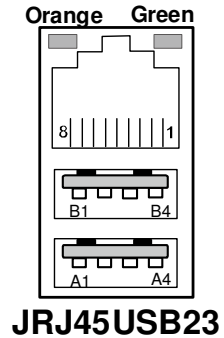
*When these jumpers are set as 'i-Button,' the COM3-1 connector will not function.

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



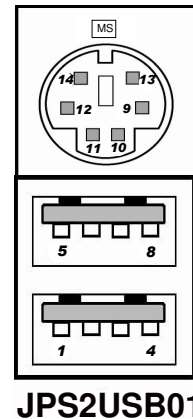
2-9. MINI-DIN & USB CONNECTOR

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

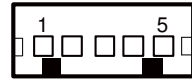


2-10. USB CONNECTOR

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

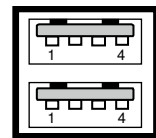


USB9

USB10-1, USB10-2: Internal USB Connector

The pin assignments are as follows:

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



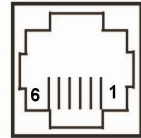
USB10-1
USB10-2

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



DRW1



PB-3251RB cash drawer control in GPIO port

- **To Open Drawer1 (GPIO 7):**
Write "0" to I/O space register "50C" Bit 7
- **To Close Drawer1**
Write "1" to I/O space register "50C" Bit 7
- **Detect Drawer1 Status**
Read I/O space register "50C" (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

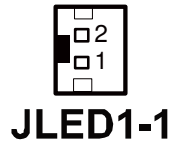
Note: Manufacturing Default – +24V

2-13. LED CONNECTOR

JLED1-1: Power indication LED Connector

The pin assignments are as follows:

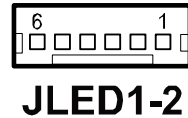
PIN	ASSIGNMENT
1	PWR_LED
2	5V



JLED1-2: Power, HDD, LAN indication LED Connector

The pin assignments are as follows:

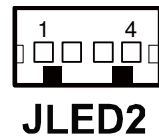
PIN	ASSIGNMENT
1	5V
2	PWR_LED
3	3.3V
4	HDD_LED
5	LAN1_LINK_ACTJ
6	LAN1_LED0



JLED2: Power indication LED Connector

The pin assignments are as follows:

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



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



FAN1

FAN2: CPU Fan Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	VCC12
3	SYS_FANIN
4	SYS_FANOUT



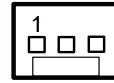
FAN2

2-15. POWER CONNECTOR

J1: Provide 12 Voltage Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC12
2	GND
3	VCC12



J1

2-16. POWER SWITCH CONNECTOR

SW2-1, SW2-2: Power Switch Connectors

The pin assignments are as follows:

PIN	ASSIGNMENT
1	LPC_PWRBTNJ
2	PCH_PWRBTNJ_LOW



SW2-1



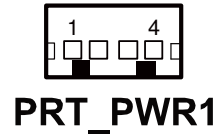
SW2-2

2-17. POWER FOR THERMAL PRINTER CONNECTOR

PRT_PWR1: Power for Thermal Printer Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC24SB
2	VCC24SB
3	GND
4	GND

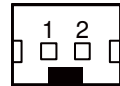
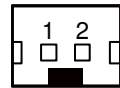


2-18. EXTERNAL SPEAKER CONNECTOR

SPK1, SPK2: External Speaker Connectors

The pin assignments are as follows:

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT

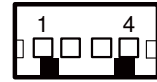


2-19. INVERTER CONNECTOR

JINV1: Inverter Connector

The pin assignments are as follows:

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

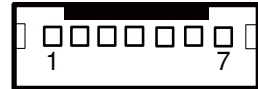


JINV1

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

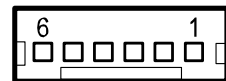


JINV2

JINV3: Inverter Connector

The pin assignments are as follows:

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

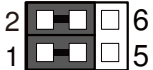
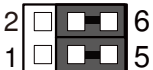


JINV3

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	 JP7
5V	3-5 4-6	 JP7

Note: Manufacturing Default – 3.3V

2-21. LVDS CONNECTOR

LVDS1: LVDS Connector

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	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

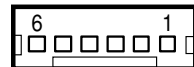


2-22. MSR / CARD READER CONNECTOR

PS2_1 & PS2_2: MSR/ Card Reader Connector

The pin assignments are as follows:

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



PS2_1



PS2_2

2-23. SATA & SATA POWER CONNECTOR

SATA1, SATA2: Serial ATA Connectors

The pin assignments are as follows:

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



SATA1



SATA2

JPWR_4P1, JPWR_4P2: Serial ATA Power Connectors

The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12



JPWR_4P1



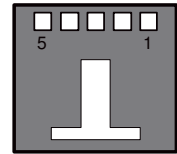
JPWR_4P2

2-24. TOUCH PANEL CONNECTOR

TOUCH1: Touch Panel Connector

The pin assignments are as follows:

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



TOUCH1

TOUCH2: Touch Panel Connector

The pin assignments are as follows:

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

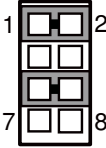
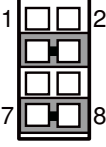


TOUCH2

2-25. TOUCH PANEL SELECTION

JP6: Touch Panel Selection

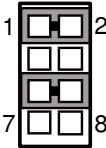
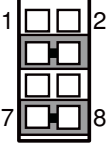
The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Elo	1-2 5-6	 <p style="text-align: center;">JP6</p>
e-Turbo	3-4 7-8	 <p style="text-align: center;">JP6</p>

Note: Manufacturing Default – Elo

JP27: Touch Panel Selection

The jumper settings are as follows:



SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Elo	1-2 5-6	 <p style="text-align: center;">JP27</p>
3M	3-4 7-8	 <p style="text-align: center;">JP27</p>

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	 JP2
Clear CMOS*	1-2	 JP2

Note: Manufacturing Default – Normal

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

2-27. COMPACT FLASH CONNECTOR

CF1: Compact Flash Connector

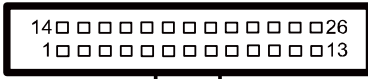
The pin assignments are as follows:

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

2-28. PRINTER CONNECTOR

LPT1: Printer Connector (wafer on board)

The pin assignments are as follows:

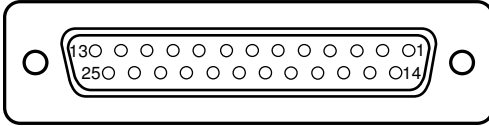


LPT1

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:




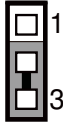

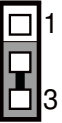
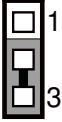
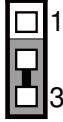


JPRNT1

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, JP23, JP24, JP25: LVDS Output Resolution Selection

The jumper settings 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

Note: Manufacturing Default depends on user's demand.

2-30. SECURITY OVERRIDE MODE SETTING

JP26: Flash Descriptor Security Override/Intel ME Debug Mode

The jumper settings are as follows:

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

Note: Manufacturing Default – Disable

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
- Finger Printer Driver Utility (Optional)
- RFID Module Driver Utility (Optional)
- Wireless Driver Utility (Optional)

3-1. INTRODUCTION

Enclosed with the PA-3170 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\XP,POSReady2009 (32-bit)\Main Chip or D:\Driver\Plaform\Win7,POSReady7(32-bit)\Main Chip	Intel® Chipset Software Installation Utility
D:\Driver\Plaform\XP,POSReady2009 (32-bit)\VGA or D:\Driver\Plaform\Win7,POSReady7(32-bit)\VGA	Intel® HD Graphics Family VGA driver installation
D:\Driver\Plaform\XP,POSReady2009 (32-bit)\LAN or D:\Driver\Plaform\Win7,POSReady7(32-bit)\LAN	<ul style="list-style-type: none"> ▪ For mainboard RC version: Realtek® 8111F for LAN driver installation ▪ For mainboard RB version: Realtek® 8111DL for LAN driver installation
D:\Driver\Plaform\XP,POSReady2009 (32-bit)\Sound or D:\Driver\Plaform\Win7,POSReady7(32-bit)\Sound	Realtek ALC888 for Sound driver installation
D:\Driver\Device	Driver installation for touch screen, embedded printer, wireless, MSR, etc.

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.

- SATA Storage Support (SATA & SATA II)
- USB Support (1.1 & 2.0)
- Identification of Intel® Chipset Components in Device Manager

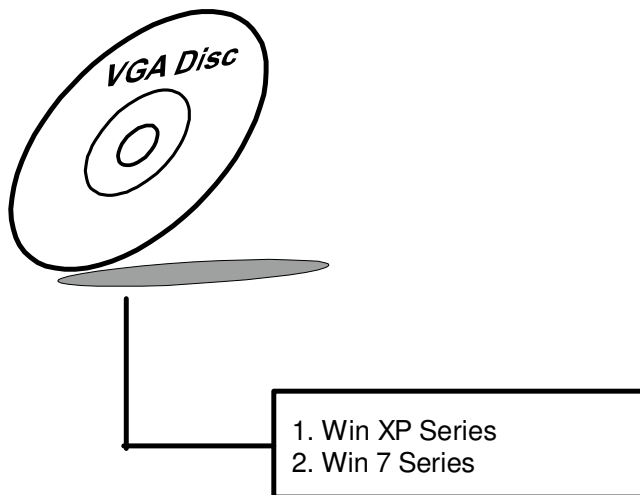
3-2-2. Installation of Intel® Chipset Driver

The utility pack is to be installed only for Windows XP/7 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-3170 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-3170 for the changes to take effect.

3-3. VGA DRIVER UTILITY

The VGA interface embedded with the PA-3170 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

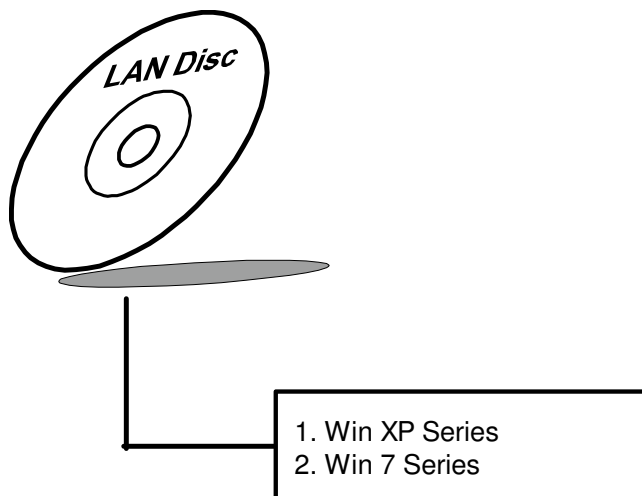
Caution: The screen image will be transmitted by VGA port (on rear I/O, D-sub 15 pin) after VGA driver is installed in Windows XP series platform for PA-3170 adopts an Intel® Desktop solution.

To install the VGA Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3170 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-3170 for the changes to take effect.

3-4. LAN DRIVER UTILITY

The PA-3170 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.

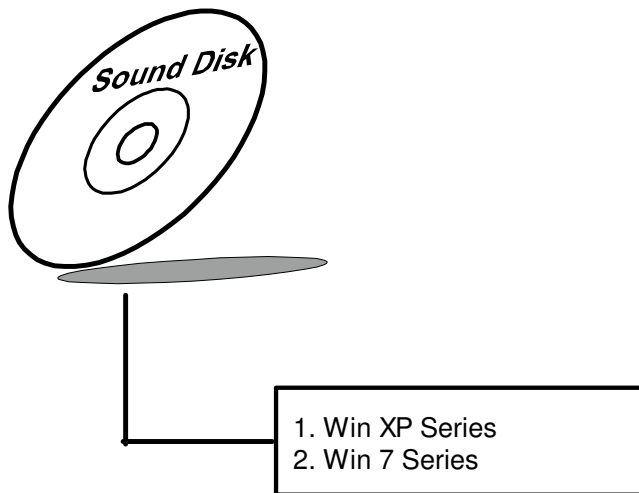
3-4-1. Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3170 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-3170 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 series. Below, you will find the content of the Sound driver.



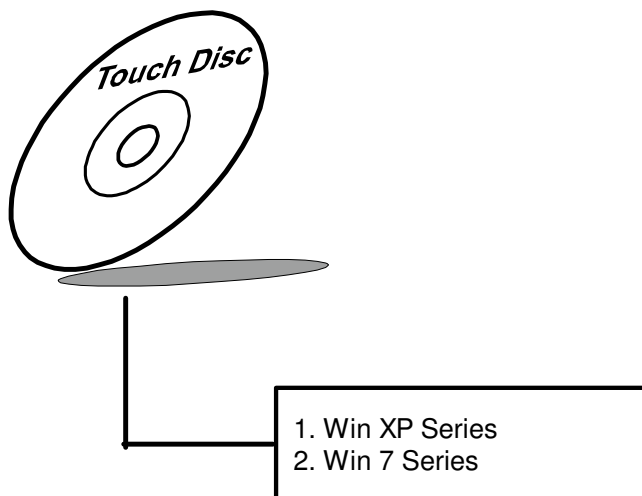
3-5-1. Installation of Sound Driver

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-3170 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-3170 for the changes to take effect.

3-6. TOUCH SCREEN DRIVER UTILITY

The Touch Screen Driver Utility can only be installed on a Windows platform (XP/7 series), and it should be installed right after the OS installation.



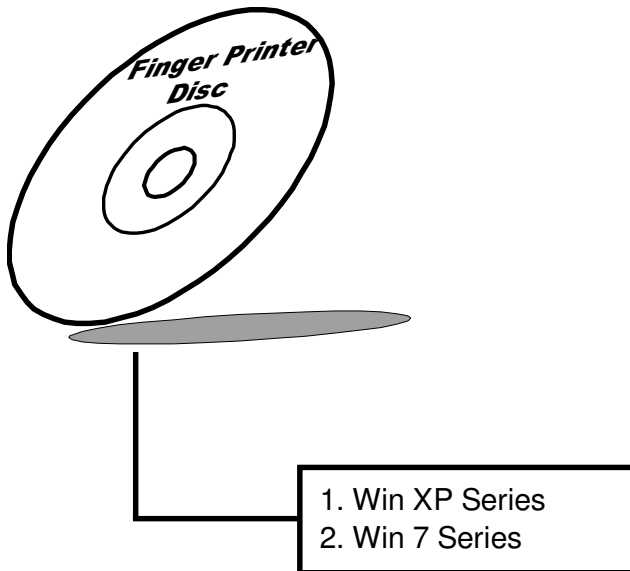
3-6-1. Installation of Touch Screen Driver

To install the Touch Screen Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3170 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-3170 for the changes to take effect.

3-7. FINGER PRINTER DRIVER UTILITY (OPTIONAL)

The Finger Printer Driver Utility can only be installed on a Windows platform (XP/7 series), and it should be installed right after the OS installation.



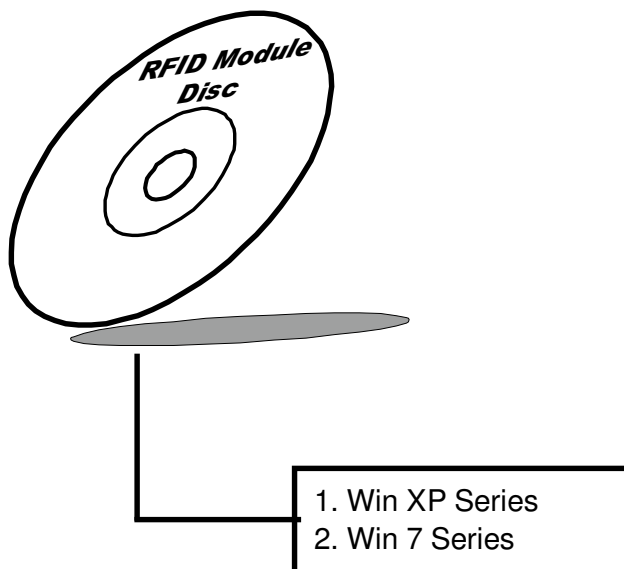
3-7-1. Installation of Wireless Driver

To install the Wireless Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3170 and insert the driver disk inside.
2. Enter the "Device\Embedded Finger Printer" folder where the Finger Printer 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-3170 for the changes to take effect.

3-8. RFID MODULE DRIVER UTILITY (OPTIONAL)

The RFID Driver Utility can only be installed on a Windows platform (XP/7 series), and it should be installed right after the OS installation.



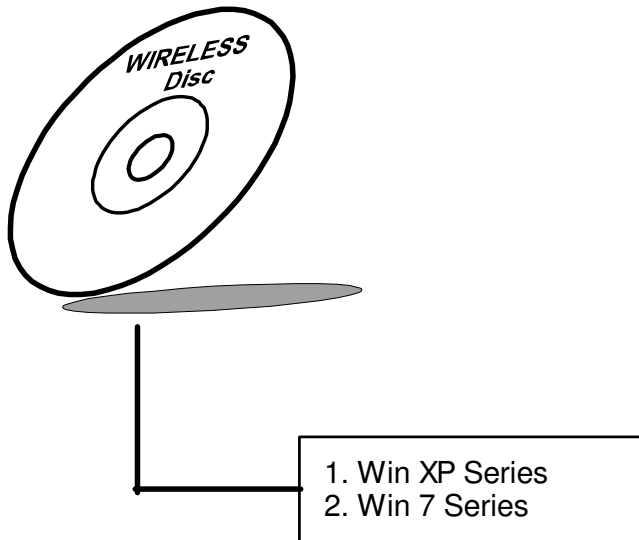
3-8-1. Installation of RFID Module Driver

To install the RFID Module Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3170 and insert the driver disk inside.
2. Enter the "Device\RFID Module" folder where the RFID Module driver is located.
3. Click **Autorun.exe** file for driver installation.
4. Select **Mifare Demo Software V1.5R8**
5. Follow the on-screen instructions to complete the installation.
6. Once installation is completed, shut down the system and restart the PA-3170 for the changes to take effect.

3-9. WIRELESS DRIVER UTILITY (OPTIONAL)

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



3-9-1. Installation of Wireless Driver

To install the Wireless Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3170 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-3170 for the changes to take effect.

AMI BIOS SETUP

CHAPTER

4

This chapter shows how to set up the AMI BIOS.

Sections included:

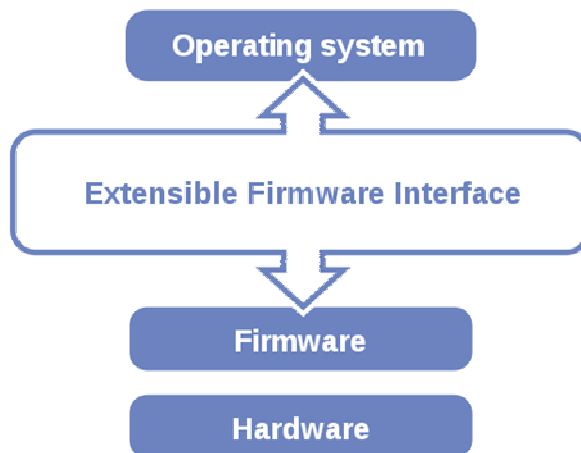
- Introduction
- Entering Setup
- Main
- Advanced
- Chipset
- Boot
- Security
- Save & Exit

4-1. INTRODUCTION

The board PB-3251 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 or <ESC> key after the POST memory test begins and before the operating system boot begins. The settings are shown below.

4-2. ENTERING SETUP

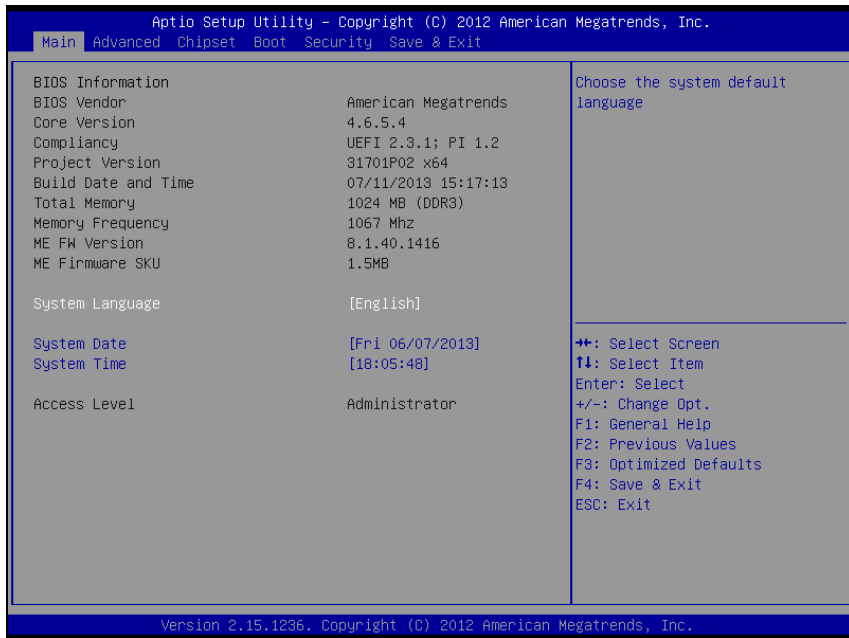
When the system is powered on, the BIOS will enter the Power-On Self Test (POST) routines and the following message will appear on the lower screen:



POST Screen

As long as this message is present on the screen you may press the or <ESC> key to access the Setup program.

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



Setup program initial screen

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

4-3. MAIN

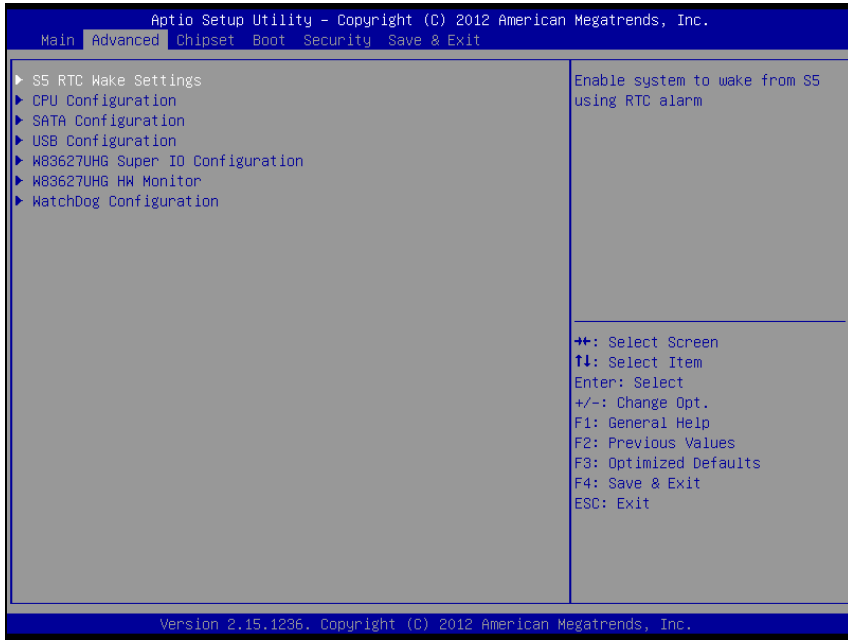


Main screen

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

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

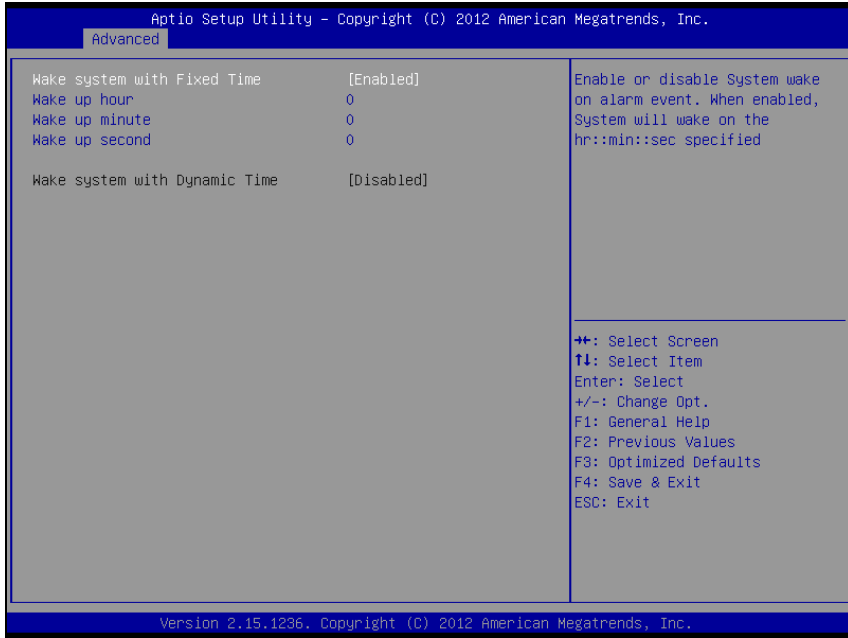
4-4. ADVANCED



Advanced screen

BIOS Setting	Options	Description/Purpose
S5 RTC Wake Settings	Sub-Menu	Enable system to wake from S5 using RTC alarm.
CPU Configuration	Sub-Menu	CPU configuration parameters.
SATA Configuration	Sub-Menu	SATA device options settings.
USB Configuration	Sub-Menu	USB configuration parameters.
W83627UHG Super IO Configuration	Sub-Menu	System super IO chip configuration.
W83627UHG H/W Monitor	Sub-Menu	Monitor hardware status.
WatchDog Configuration	Sub-Menu	Watchdog timer for system reset.

4-4-1. Advanced - S5 RTC Wake Settings



S5 RTC Wake settings screen

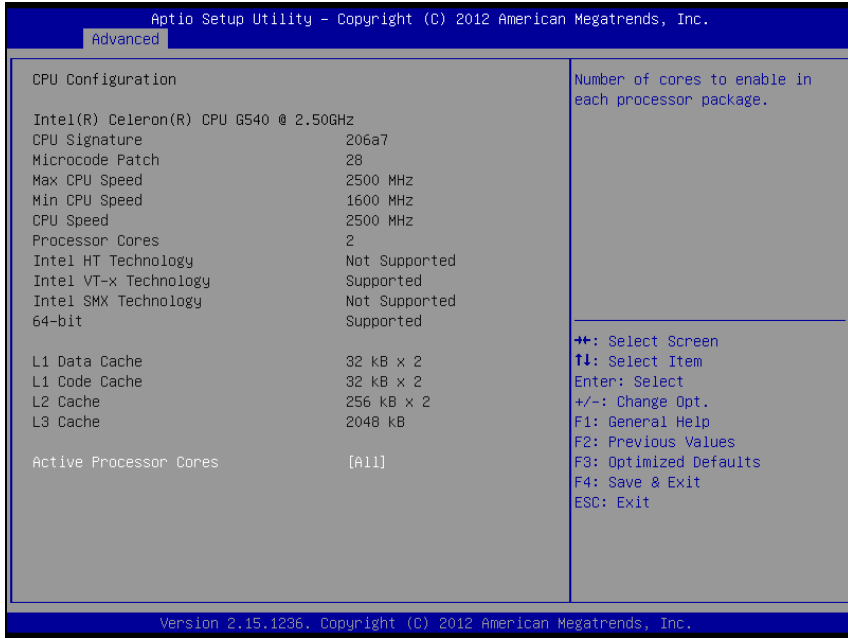
BIOS Setting	Options	Description/Purpose
Wake up with fixed time	- Disabled - Enabled	Enable wake up feature with fixed time.
Wake up hour	Multiple options ranging from 0 to 23	Sets the hour for wake up.
Wake up minute	Multiple options ranging from 0 to 59	Sets the minute for wake up.
Wake up second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



5S RTC Wake settings screen

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

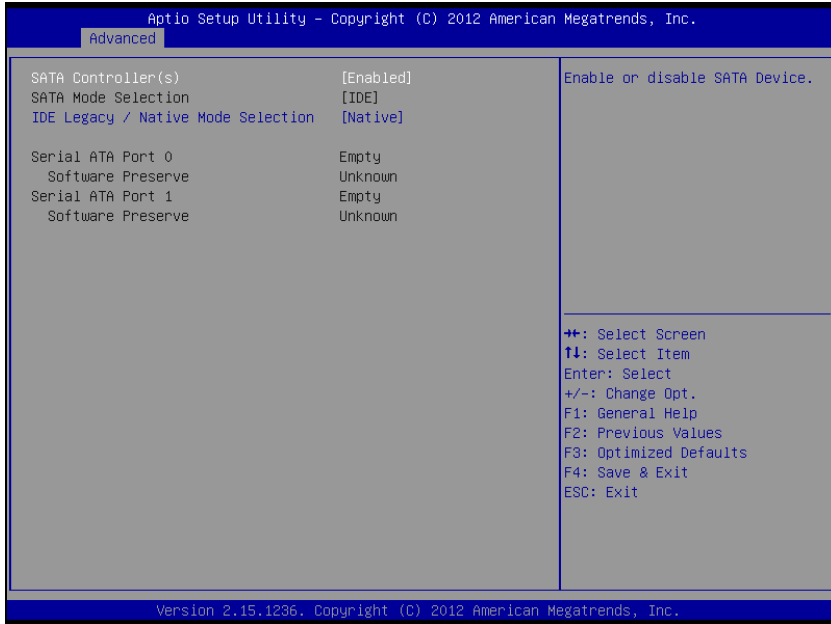


CPU Configuration screen

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

BIOS Setting	Options	Description/Purpose
Intel VT-x Technology	No changeable options	Reports if Intel VT-x Technology is supported by processor.
Intel SMX Technology	No changeable options	Reports if Intel SMX Technology is supported by processor.
64-bit	No changeable options	Reports if 64-bit is supported by processor.
L1 Data Cache	No changeable options	Displays size of L1 Data Cache
L1 Code Cache	No changeable options	Displays size of L1 Code Cache
L2 Cache	No changeable options	Displays size of L2 Cache.
L3 Cache	No changeable options	Displays size of L3 Cache.
Active Processor Cores	- All - 1/2/3...	Choose the number of cores to be enabled in current processor.

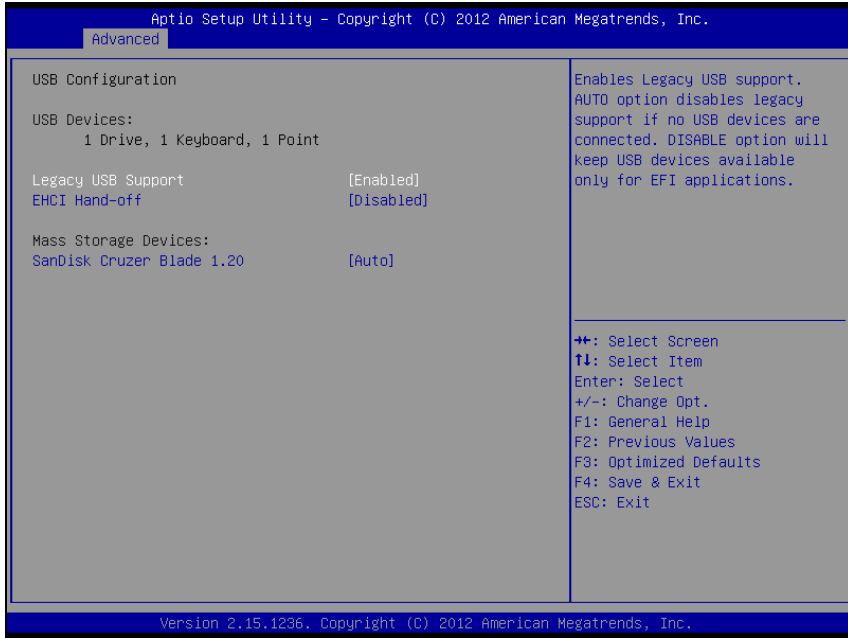
4-4-3. Advanced - SATA Configuration



SATA Configuration screen

BIOS Setting	Options	Description/Purpose
SATA Controller(s)	- Disabled - Enabled	Enable or disable SATA Device.
SATA Mode Selection	No changeable options	Configures SATA as following: IDE: Set SATA operation mode to IDE mode.
IDE Legacy / Native Mode Selection	- Native - Legacy	Select IDE operation mode as Naïve mode or Legacy mode.
SATA0	[drive]	Displays the drive installed on this SATA port 0. Shows [Empty] if no drive is installed.
SATA1	[drive]	Displays the drive installed on this SATA port 1. Shows [Empty] if no drive is installed.

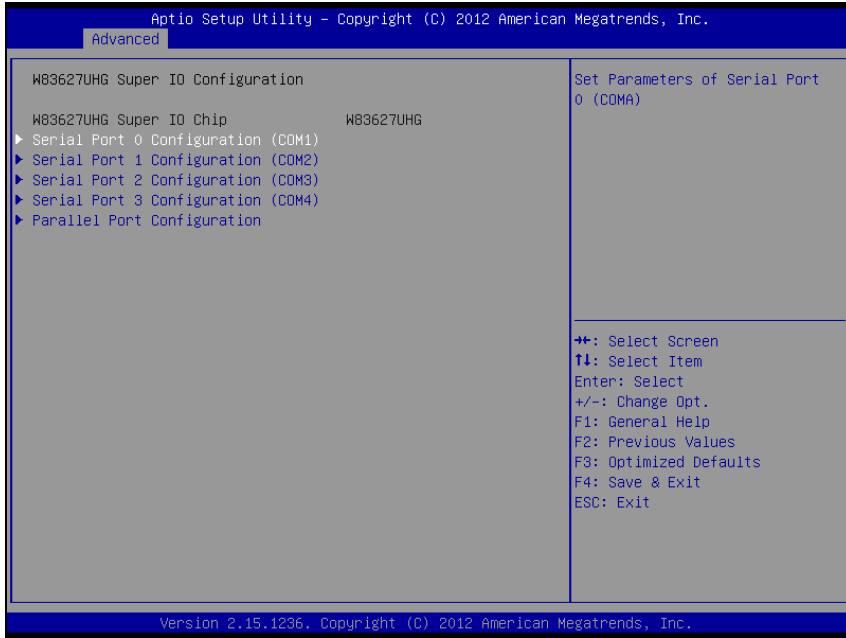
4-4-4. Advanced - USB Configuration



USB configuration screen

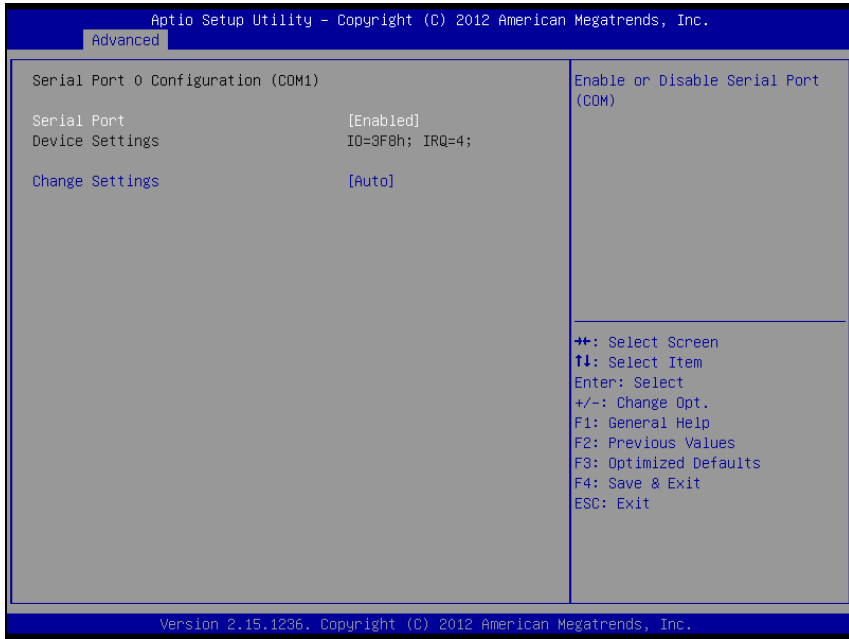
BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays number of available USB devices.
Legacy USB Support	- Disabled - Enabled - Auto	Enables support for legacy USB.
EHCI Hand-off	- Disabled - Enabled	This is a workaround for OSes w/o EHCI hand-off support.

4-4-5. Advanced - W83627UHG Super IO Configuration



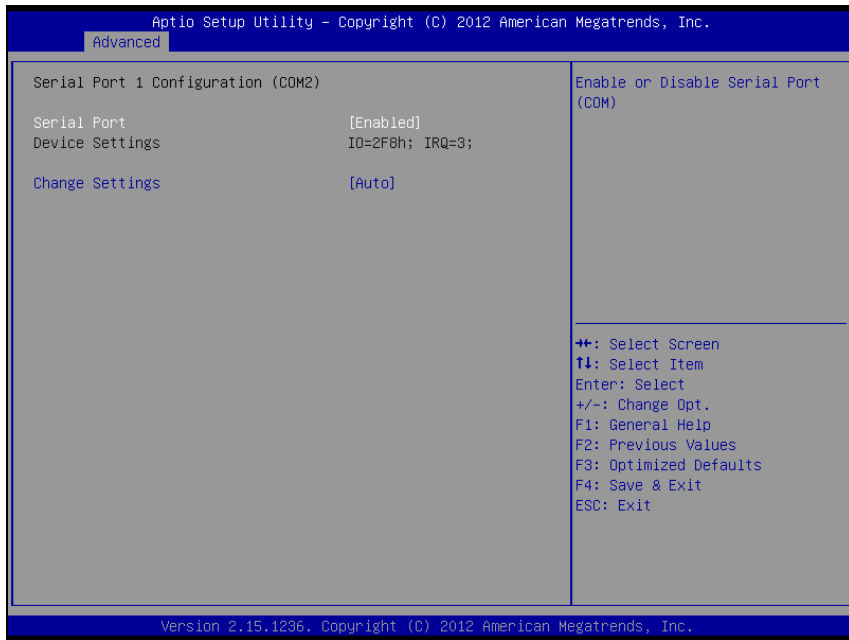
W83627UHG Super IO configuration screen

BIOS Setting	Options	Description/Purpose
Super IO Chip	No changeable options	Displays the super IO chip model and its manufacturer.
Serial Port 0 Configuration (COM1)	Sub-menu	Set Parameters of Serial Port 0 (COM1)
Serial Port 1 Configuration (COM2)	Sub-menu	Set Parameters of Serial Port 1 (COM2)
Serial Port 2 Configuration (COM3)	Sub-menu	Set Parameters of Serial Port 2 (COM3)
Serial Port 3 Configuration (COM4)	Sub-menu	Set Parameters of Serial Port 3 (COM4)
Parallel Port Configuration	Sub-menu	Set Parameters for LPT port.



Serial Port 0 Configuration screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enable or disable COM 1.
Device Settings	No changeable options	Displays current settings of COM 1.
Change Settings	- Auto - IO=3F8h; IRQ=4 - IO=3F8h; IRQ=3,4,5,6,7,10,11,12 - IO=2F8h; IRQ=3,4,5,6,7,10,11,12 - IO=3E8h; IRQ=3,4,5,6,7,10,11,12 - IO=2E8h; IRQ=3,4,5,6,7,10,11,12	Select IRQ and I/O resource for the COM 1.



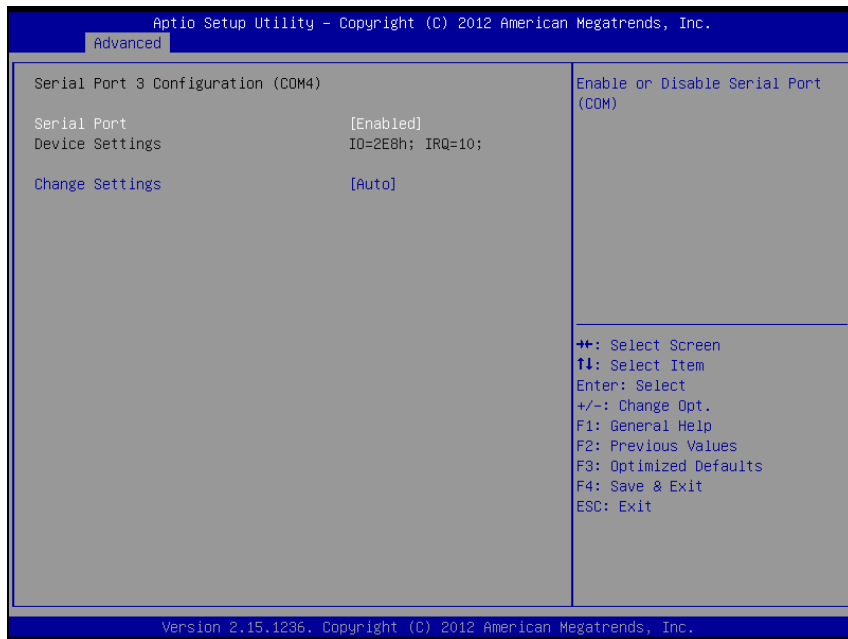
Serial Port 1 Configuration screen

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



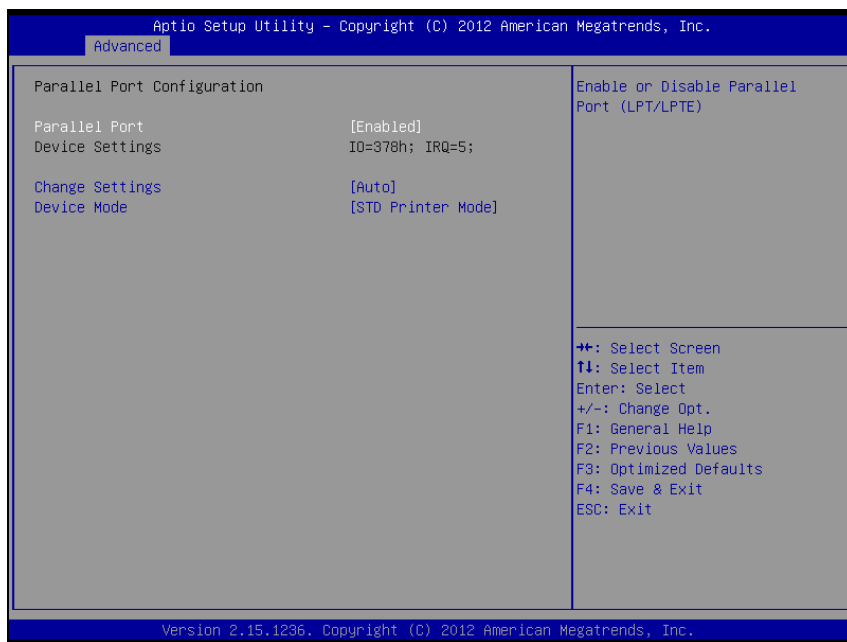
Serial Port 2 Configuration screen

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



Serial Port 3 Configuration screen

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

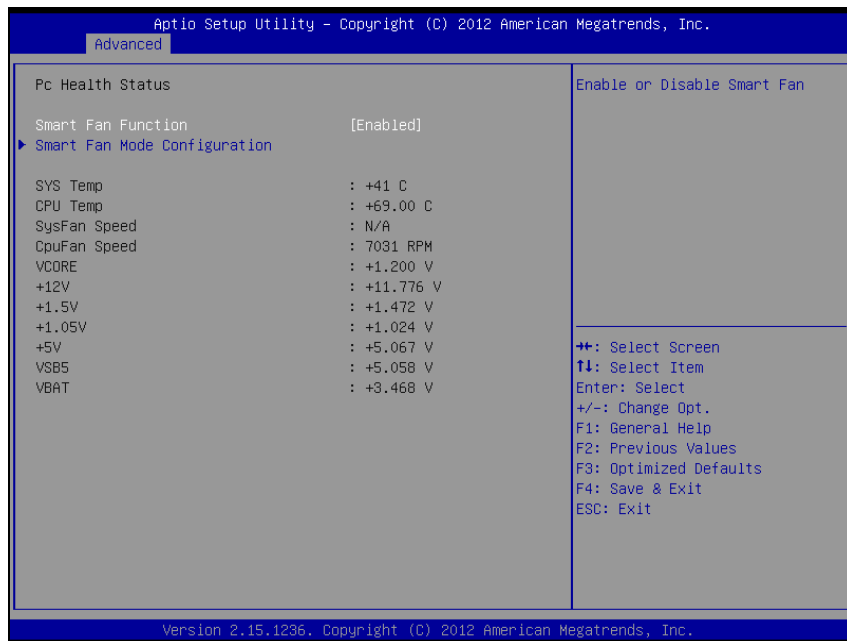


Parallel Port Configuration screen

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

BIOS Setting	Options	Description/Purpose
Device Mode	<ul style="list-style-type: none">- 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	<p>Selects the mode for the parallel port. Not available if the parallel port is disabled.</p> <ul style="list-style-type: none">▪ 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.

4-4-6. Advanced - W83627UHG H/W Monitor

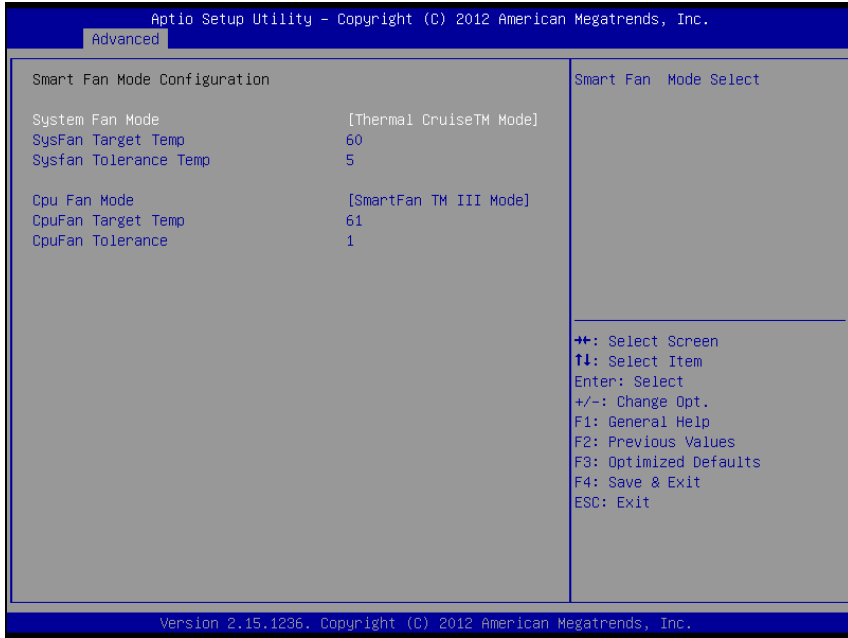


W83627UHG H/W Monitor screen

BIOS Setting	Options	Description/Purpose
Smart Fan Function	- Disabled - Enabled	Enable smart fan feature.
SYS Temp	No changeable options	Displays system's temperature.
CPU Temp	No changeable options	Displays processor's temperature.
SysFan Speed	No changeable options	Displays fan speed of the System fan.
CpuFan Speed	No changeable options	Displays fan speed of the CPU fan.
VCORE	No changeable options	Displays voltage level of the +VCORE in supply.
+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 +1.05V in supply.
+5V	No changeable options	Displays voltage level of the +5V in supply.
VSB5	No changeable options	Displays voltage level of the +5VSB in supply.
VBAT	No changeable options	Displays voltage level of the backup CMOS battery.

4-4-6-1. W83627UHG H/W Monitor – Smart Fan Mode Configuration



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

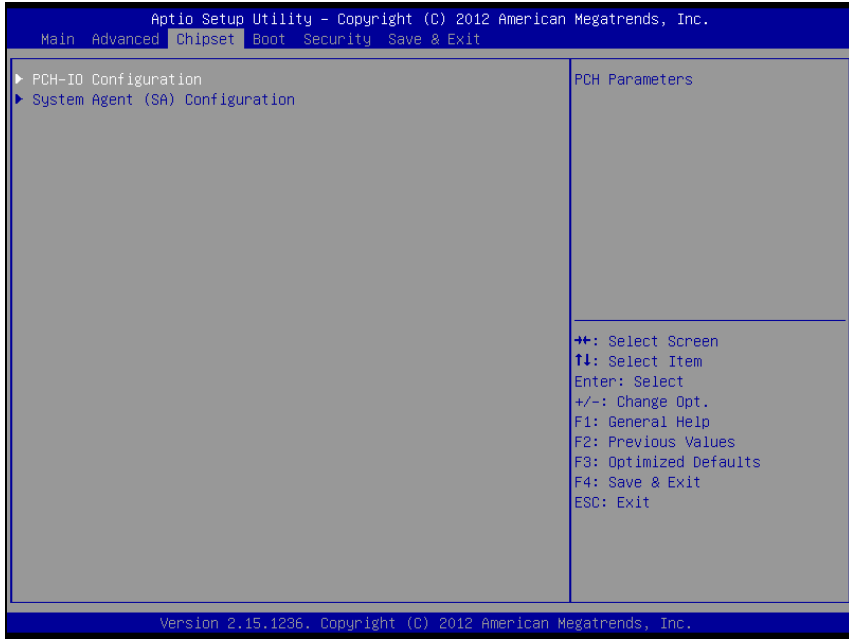
4-4-7. Advanced - Watchdog Configuration



Watchdog configuration 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.

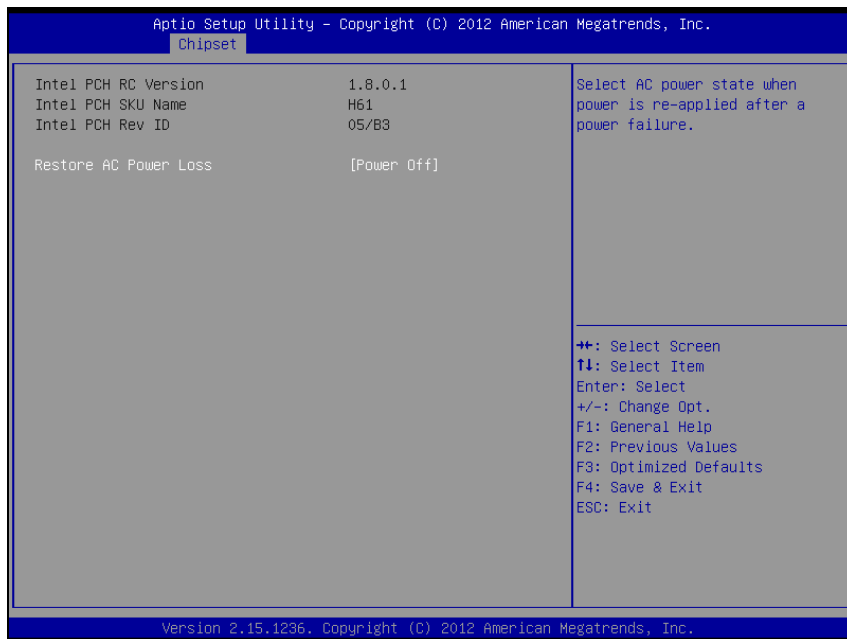
4-5. CHIPSET



Chipset screen

BIOS Setting	Options	Description/Purpose
PCH-IO Configuration	Sub-menu	PCH Parameters.
System Agent (SA) Configuration	Sub-menu	System Agent (SA) Parameters.

4-5-1. Chipset – PCH IO Configuration



PCH IO Configuration screen

BIOS Setting	Options	Description/Purpose
Intel PCH RC Version	No changeable option	Displays the PCH source code module version
Intel PCH SKU Name	No changeable option	Displays PCH product SKU name.
Intel PCH Rev ID	No changeable option	Displays onboard PCH chip revision.
Restore AC Power Loss	- Power Off - Power On	Select AC power state when power is re-applied after a power failure. <ul style="list-style-type: none"> ▪ Power Off keeps the power off till the power button is pressed. ▪ Power On makes system power on after restores AC power to the board.

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



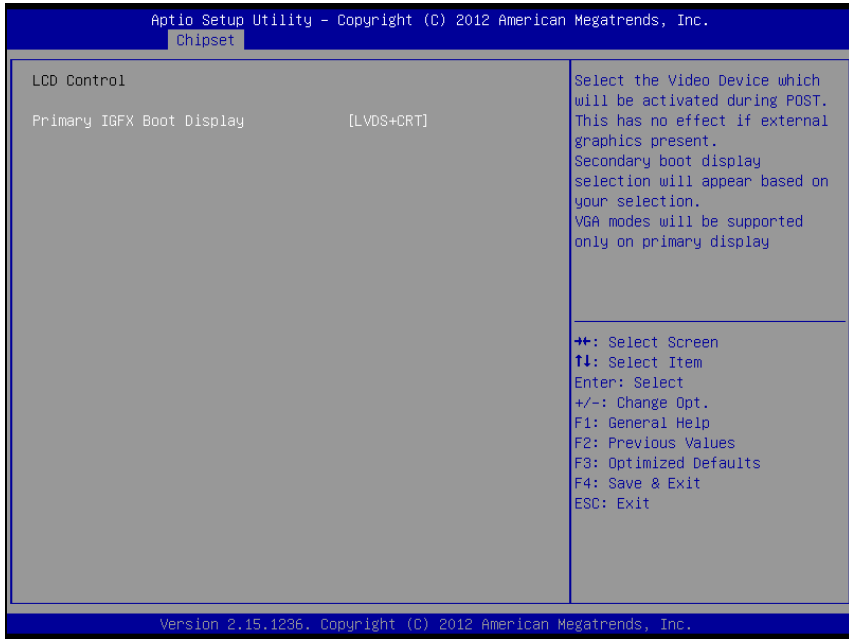
System Agent (SA) Configuration screen

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



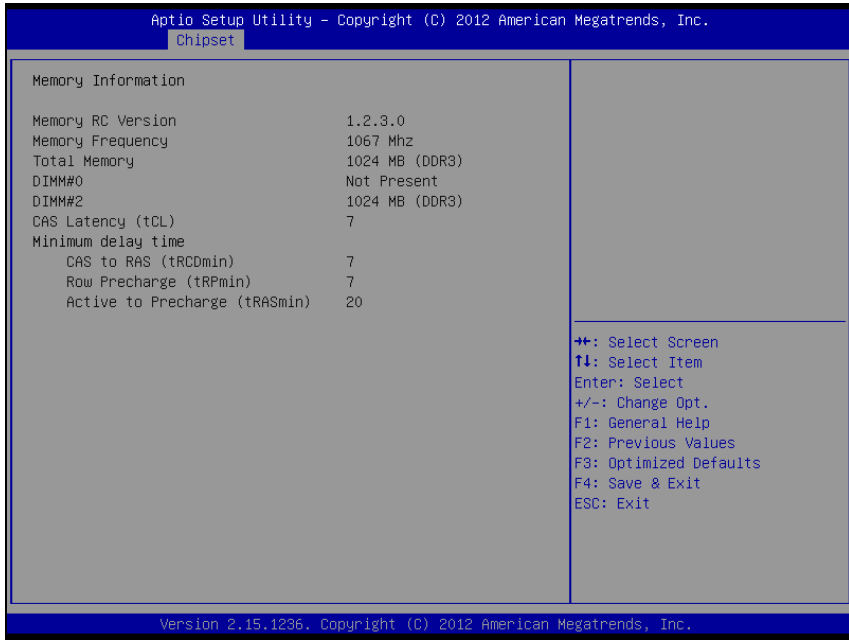
Graphics Configuration screen

BIOS Setting	Options	Description/Purpose
IGFX VBIOS Version	No changeable options	Displays the VBIOS version of integrated graphic controller.
IGfx Frequency	No changeable options	Displays the frequency of integrated graphic controller.
LCD Control	Sub-menu	LCD Control Parameters.



LCD Control screen

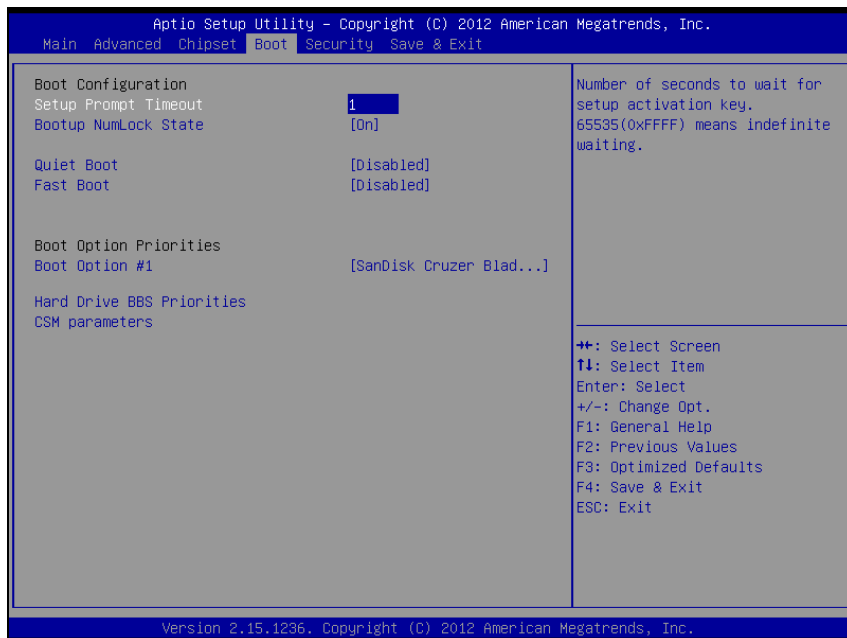
BIOS Setting	Options	Description/Purpose
Primary IGFX Boot Display	- LVDS + CRT - CRT - LVDS	Select primary display device



Memory Configuration screen

BIOS Setting	Options	Description/Purpose
Memory Information	No changeable option lists.	Displays the detail DRAM information on platform.

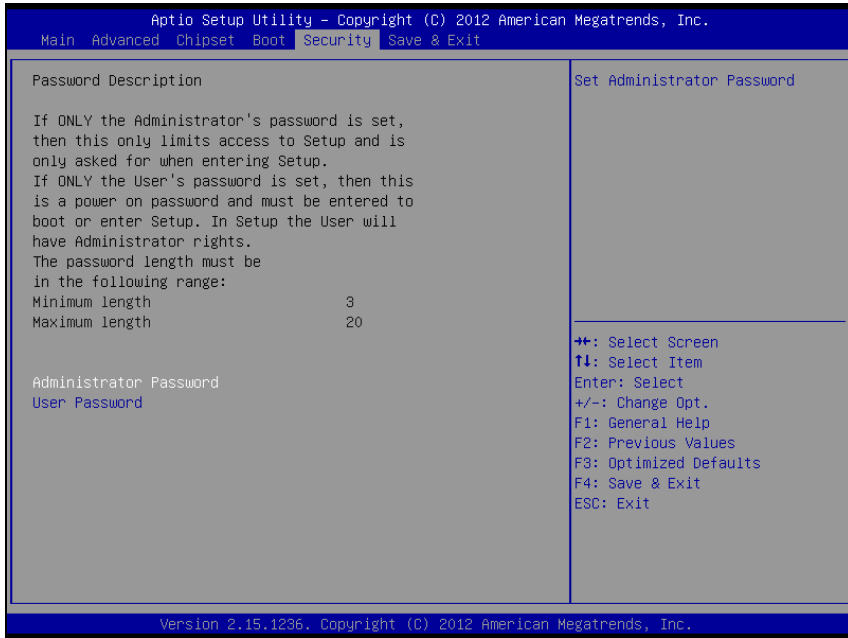
4-6. BOOT



Boot screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Numeric	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On - Off	Specifies the power-on state of the NumLock Key.
Quiet Boot	- Disabled - Enabled	Enable/Disable Quiet Boot Options
Boot Option #1~#n	- [Drive(s)] - Disabled	Allows setting boot option listed in Hard Drive BBS Priorities.
Hard Drive BBS Priorities	Sub-Menu	Allow user to select boot order of available drive(s)
CSM parameters	Sub-Menu	Configure Option ROM execution, boot options filters, etc.

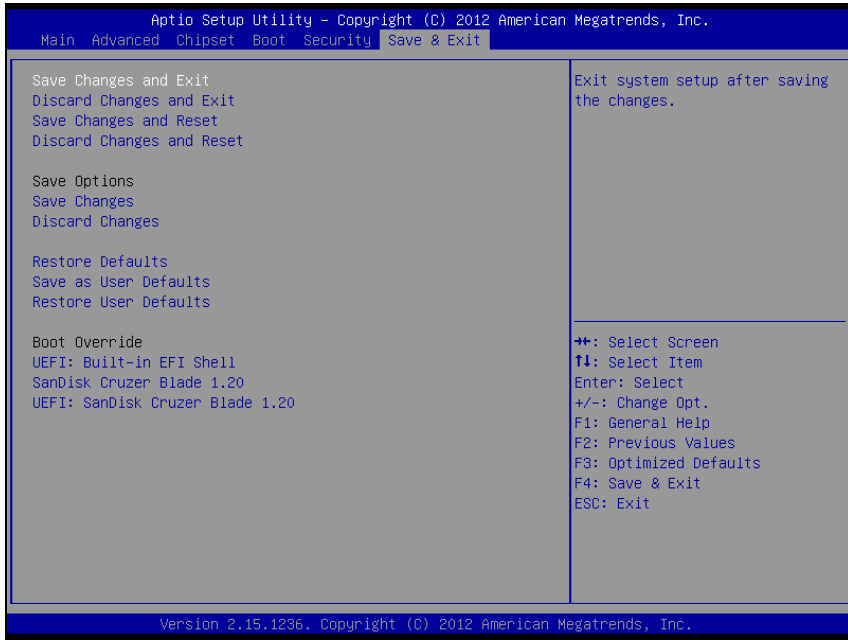
4-7. SECURITY



Security screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.

4-8. SAVE & EXIT

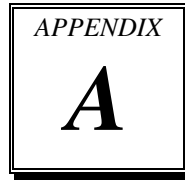


Save & Exit screen

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



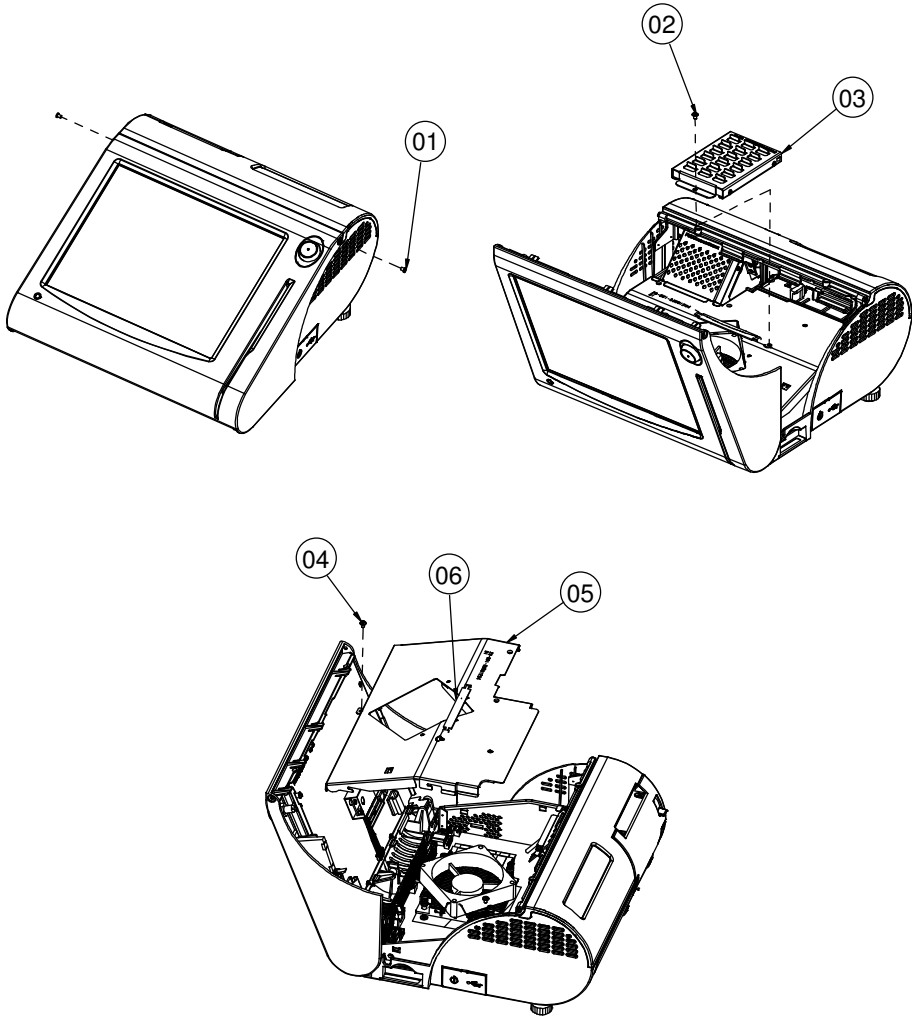
This appendix contains exploded diagrams and part numbers of the PA-3170 system.

Sections included:

- Exploded Diagram for PA-3170 Inside Top
- Exploded Diagram for PA-3170 Open & Close
- Exploded Diagram for PA-3170 Printer Control Board
- Exploded Diagram for PA-3170 Printer Box
- Exploded Diagram for PA-3170 Bottom Case
- Exploded Diagram for PA-3170 CPU Cooler
- Exploded Diagram for PA-3170 Main Board
- Exploded Diagram for PA-3170 i-Button Top Case
- Exploded Diagram for PA-3170 Finger Printer Top Case
- Exploded Diagram for PA-3170 Empty Top Case

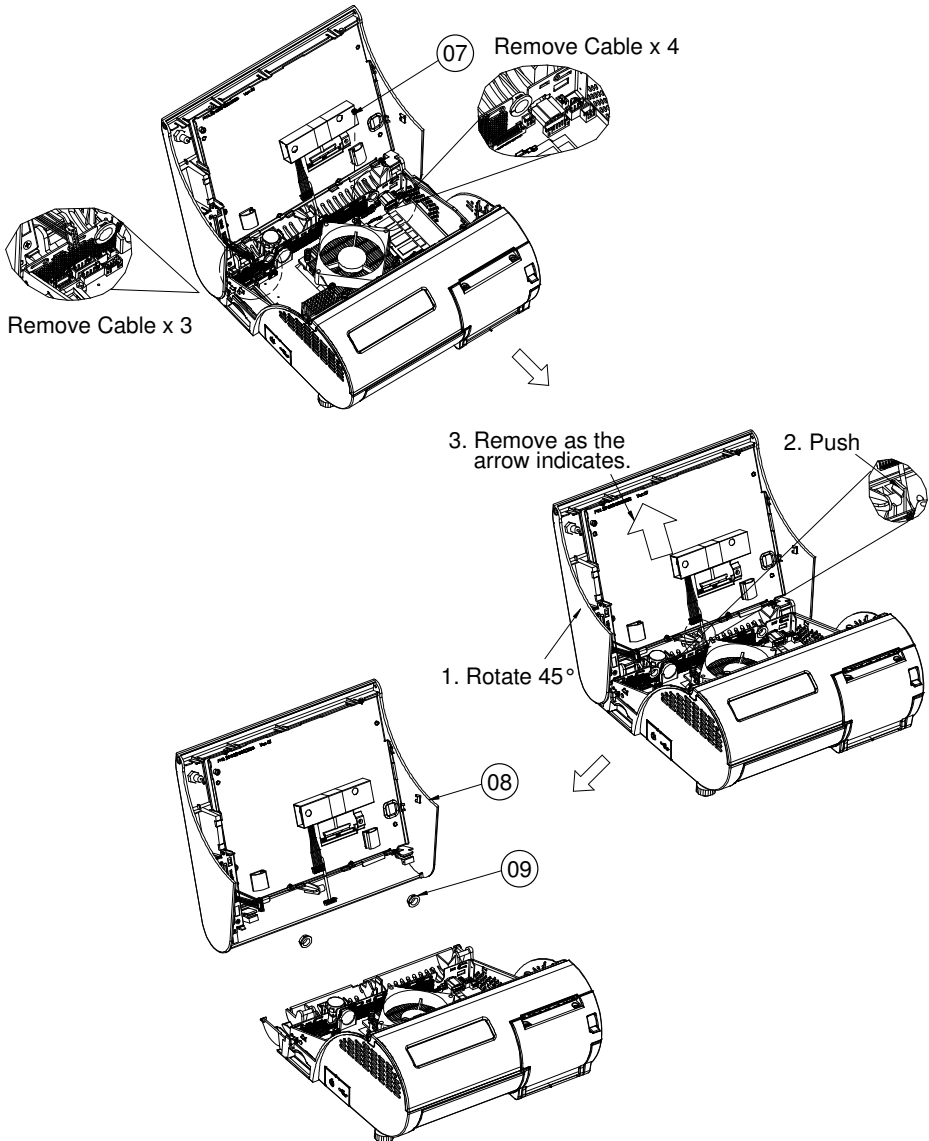
- Exploded Diagram for PA-3170 Top Case
- Exploded Diagram for PA-3170 MSR Holder
- Exploded Diagram for PA-3170 CPT LCD
- Exploded Diagram for PA-3170 Data Image LCD
- Exploded Diagram for PA-3170 VFD Cover
- Exploded Diagram for PA-3170 3 Inch Printer
- Exploded Diagram for PA-3170 2 Inch Printer
- Exploded Diagram for PA-3170 3 Inch Printer Cover
- Exploded Diagram for PA-3170 2 Inch Printer Cover
- Exploded Diagram for PA-3170 Printer Holder
- Exploded Diagram for PA-3170 Hard Disk Drive

EXPLODED DIAGRAM FOR PA-3170 INSIDE TOP



No.	Name	P/N No.	Qty
1	M3_L4_I_B	22-272-30004318	2
2	M3_L5_Washer_Ni	22-242-30005311	1
3	HDD Assembly	SEE PAGE 22	1
4	M3_L5_Washer_Ni	22-242-30005311	1
5	3170 inside tops	20-001-03001254	1
6	PULLER	30-080-04100000	1

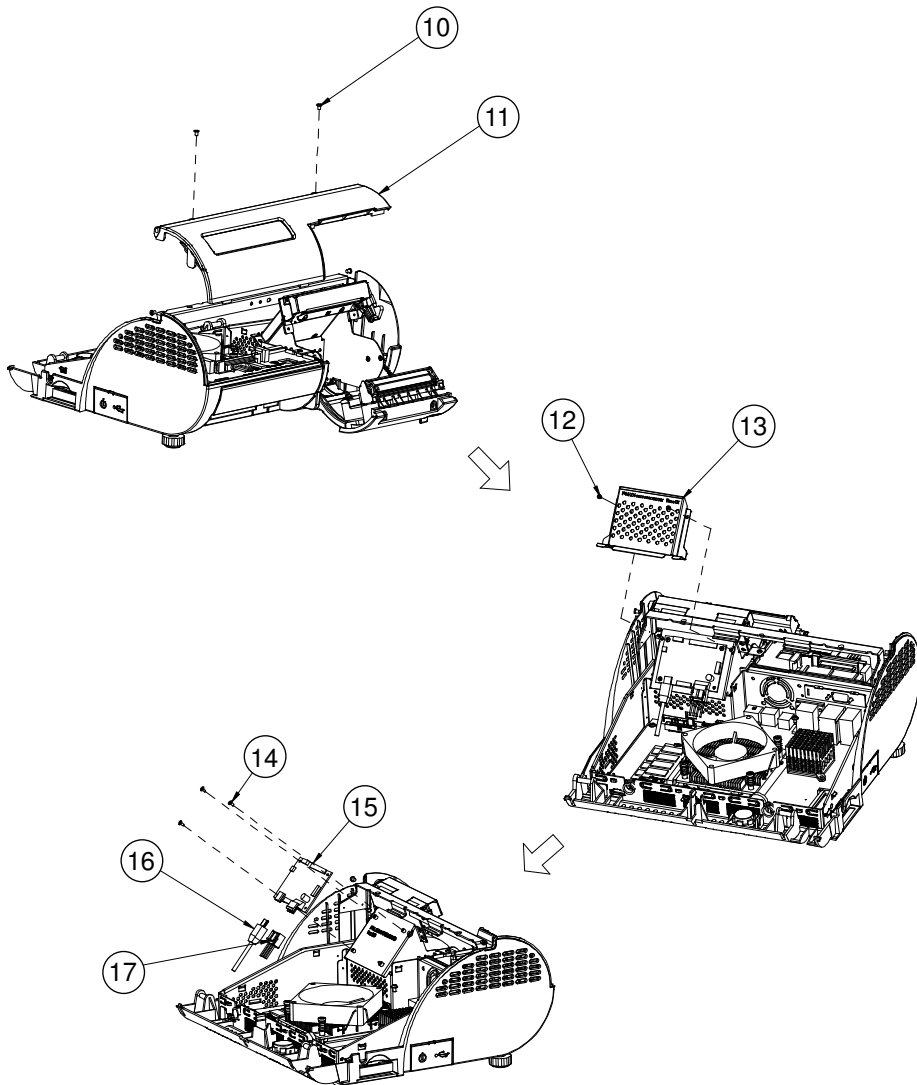
EXPLODED DIAGRAM FOR PA-3170 OPEN & CLOSE



Appendix A System Assembly

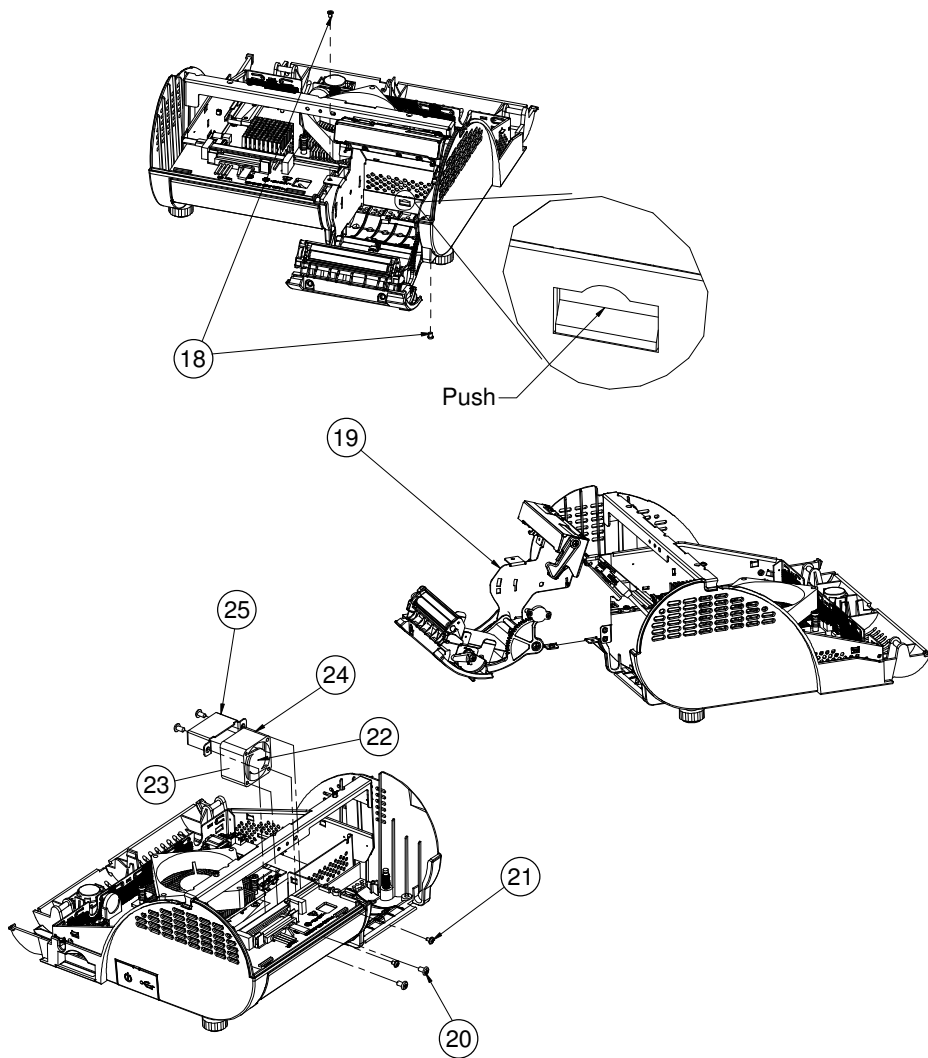
No.	Name	P/N No.	Qty
7	M3_L5_Washer_Ni	22-242-30005311	1
8	TOP Assembly	SEE PAGE 8,9,10	1
9	Open Closed Bushing	30-026-04300000	2

EXPLODED DIAGRAM FOR PA-3170 PRINTER CONTROL BOARD



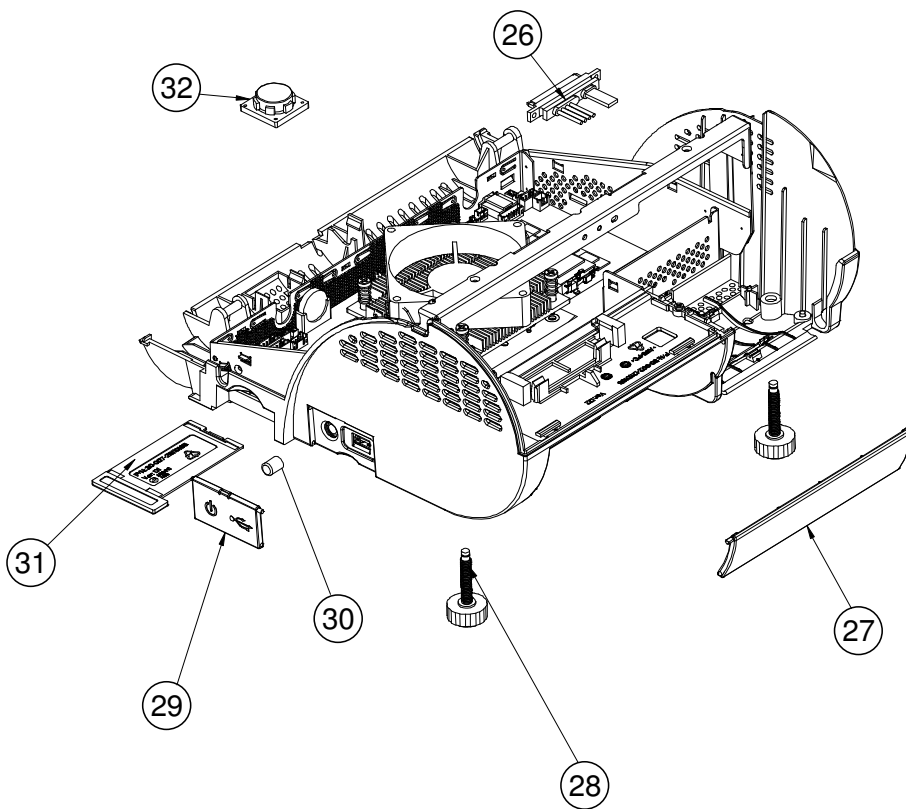
No.	Name	P/N No.	Qt'y
10	M3_L4_i_B	22-272-30004318	2
11	VFD Assembly	SEE PAGE 15,16	1
12	M2.5_L4_R_Ni	22-232-25004011	2
13	PCB_COVER	20-004-03001165	1
14	M2_L4_W_Ni	22-232-20004311	3
15	Printer PCB	See Order	1
16	Printer USB cable	See Order	1
17	Printer Power Cable	See Order	1

EXPLODED DIAGRAM FOR PA-3170 PRINTER BOX



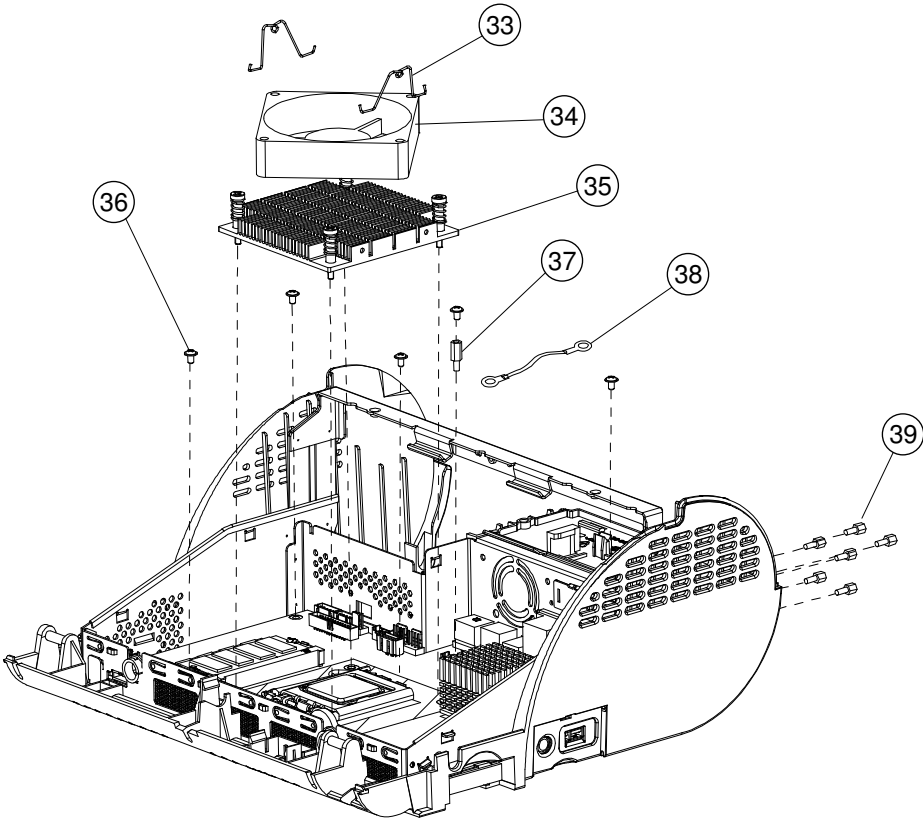
No.	Name	P/N No.	Qt'y
18	M3_L4_i_B	22-272-30004318	2
19	Printer Assembly	SEE PAGE 17,18	1
20	T4_L8	22-122-40080011	4
21	M3_L5_Washer_Ni	22-242-30005311	2
22	Pron_sponge_circular	90-013-24100220	1
23	Fan	21-004-04040162	1
24	Pron_spronge_Strip	90-013-24200220	1
25	fan_holder	20-006-03001220	1

EXPLODED DIAGRAM FOR PA-3170 BOTTOM CASE



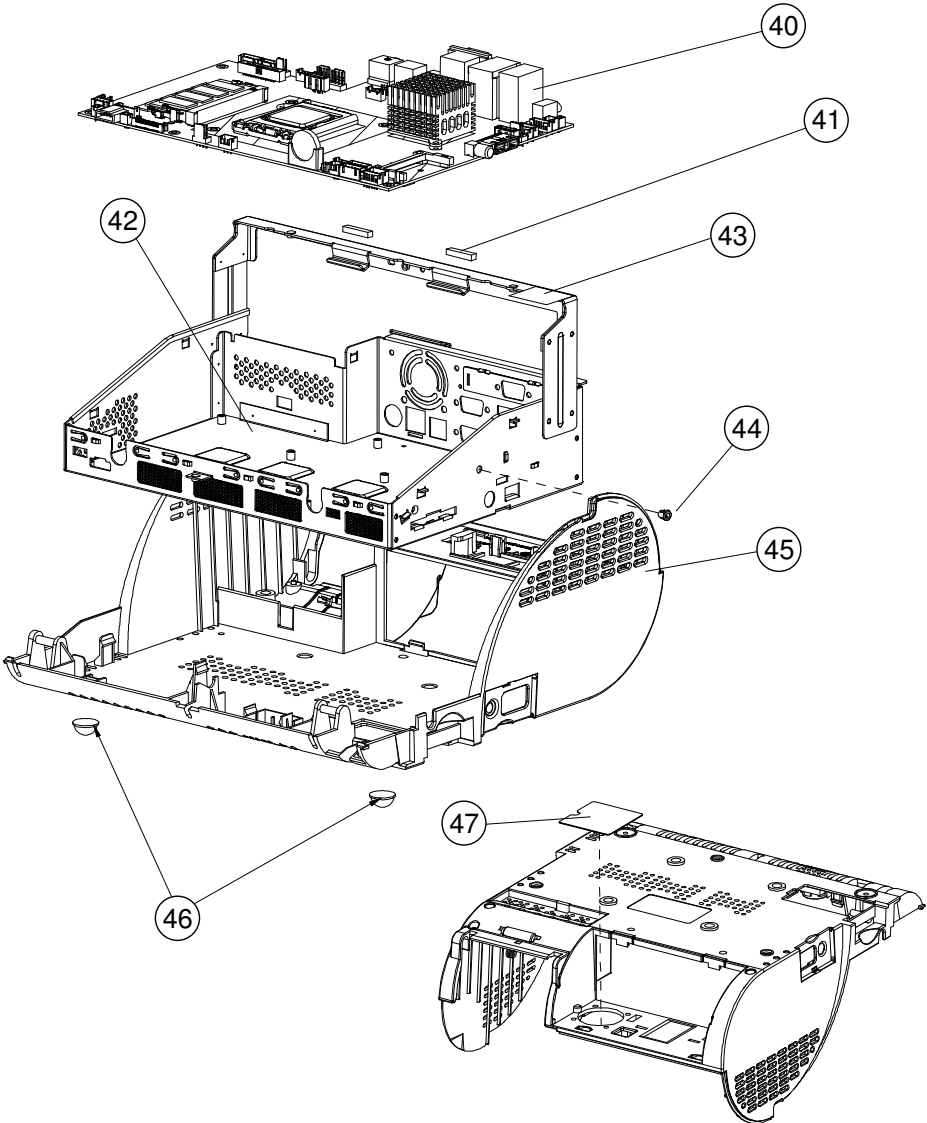
No.	Name	P/N No.	Qty
26	Sata HDD Cable	27-012-16504081	1
27	ID Cover(White)	30-002-28810165	1
	ID Cover(Black)	30-002-28110165	
28	Foot	22-289-60035007	2
29	Side Door(White)	30-007-28410165	1
	Side Door(Black)	30-007-28120165	
30	Switch Cap	30-001-28100099	1
31	MINI_PCIE_DOOR(White)	30-007-28310165	1
	MINI_PCIE_DOOR(Black)	30-007-28110165	
32	Speaker	13-500-08280018	1

EXPLODED DIAGRAM FOR PA-3170 CPU COOLER



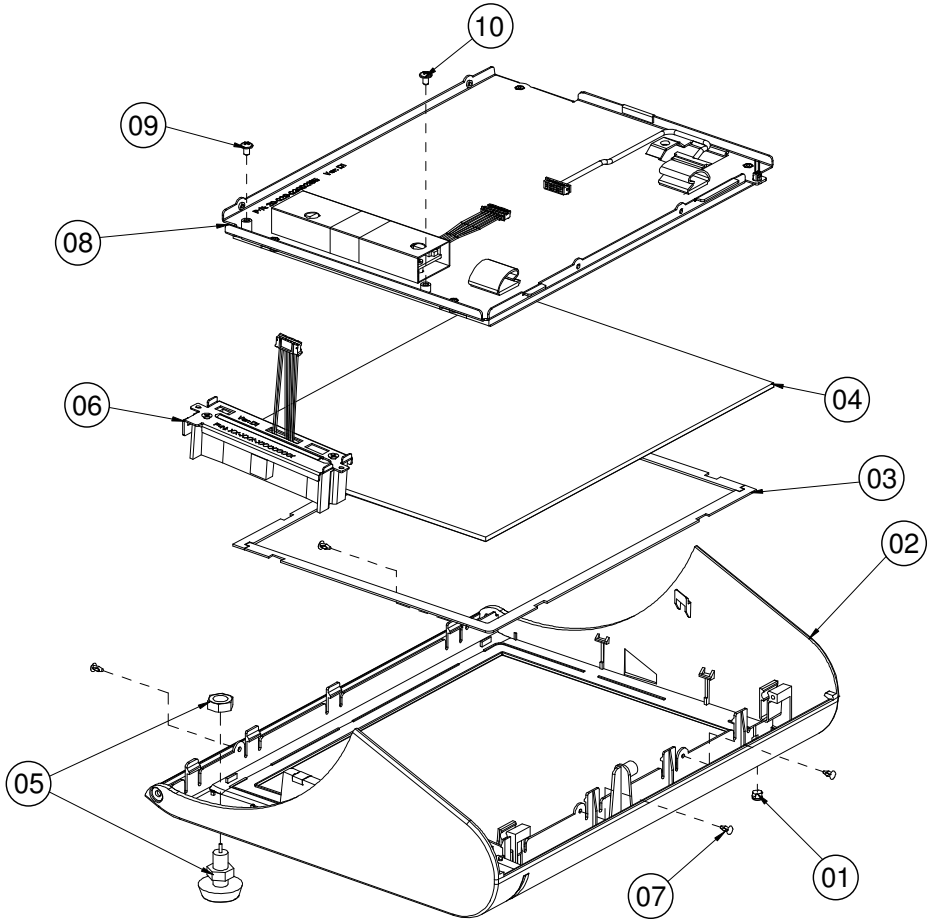
No.	Name	P/N No.	Qt'y
33	fan clip	21-001-60000002	2
34	fan	21-004-08080132	1
35	cpu heatsink	21-002-19090002	1
36	M3_L5_Washer_Ni	22-242-30005311	5
37	M3_H10_BOSS	22-290-30010001	1
38	Printer ground cable	27-030-16504071	1
39	No.4 Boss	22-692-40048051	6

EXPLODED DIAGRAM FOR PA-3170 MAIN BOARD



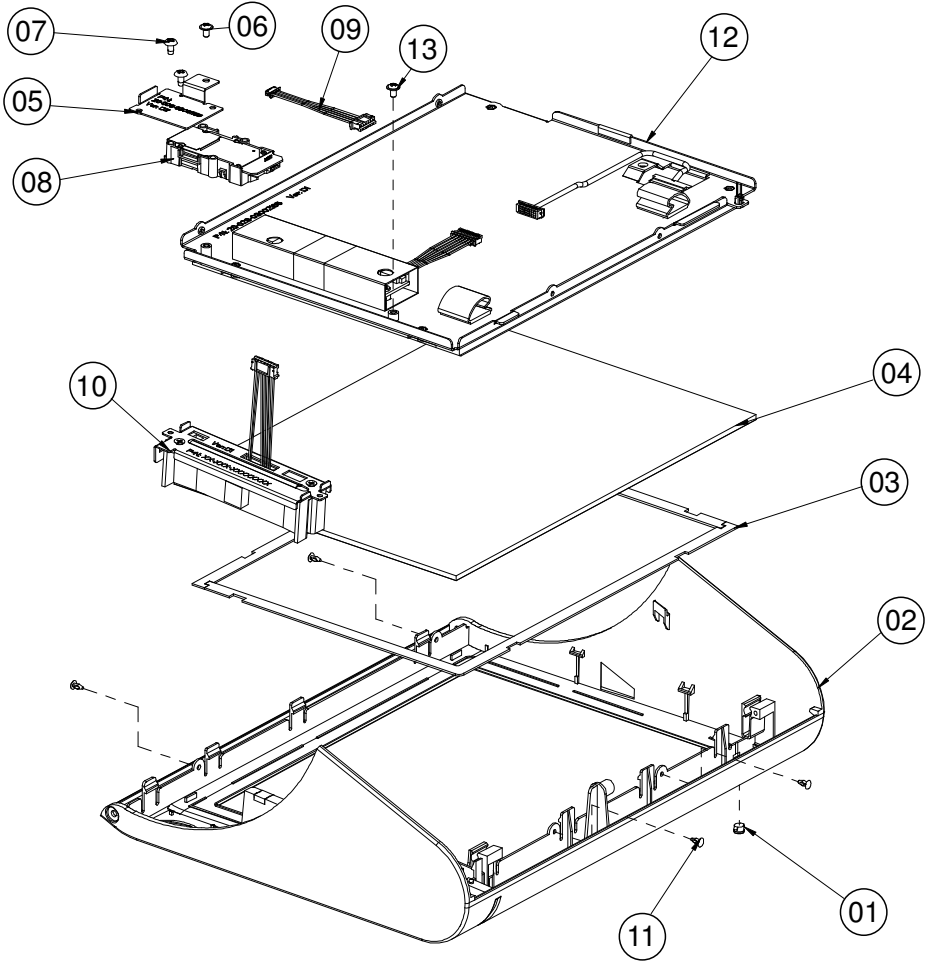
No.	Name	P/N No.	Qt'y
40	PB-3251	PB-3251	1
41	EMI SPONGE	30-050-31200000	2
42	3170 inside box	20-040-03002165	1
43	WIRELESS_ANTENNA(OPTION)	27-029-16506071	1
44	SB-0305	30-026-04100008	1
45	PS3100 BOT CASE(White)	30-002-12110210	1
	PS3100 BOT CASE(Black)	30-002-12210210	
46	Rubber Foot	30-004-01500000	2
47	PC Sheet	90-056-02100254	1

EXPLODED DIAGRAM FOR PA-3170 i-BUTTON TOP CASE



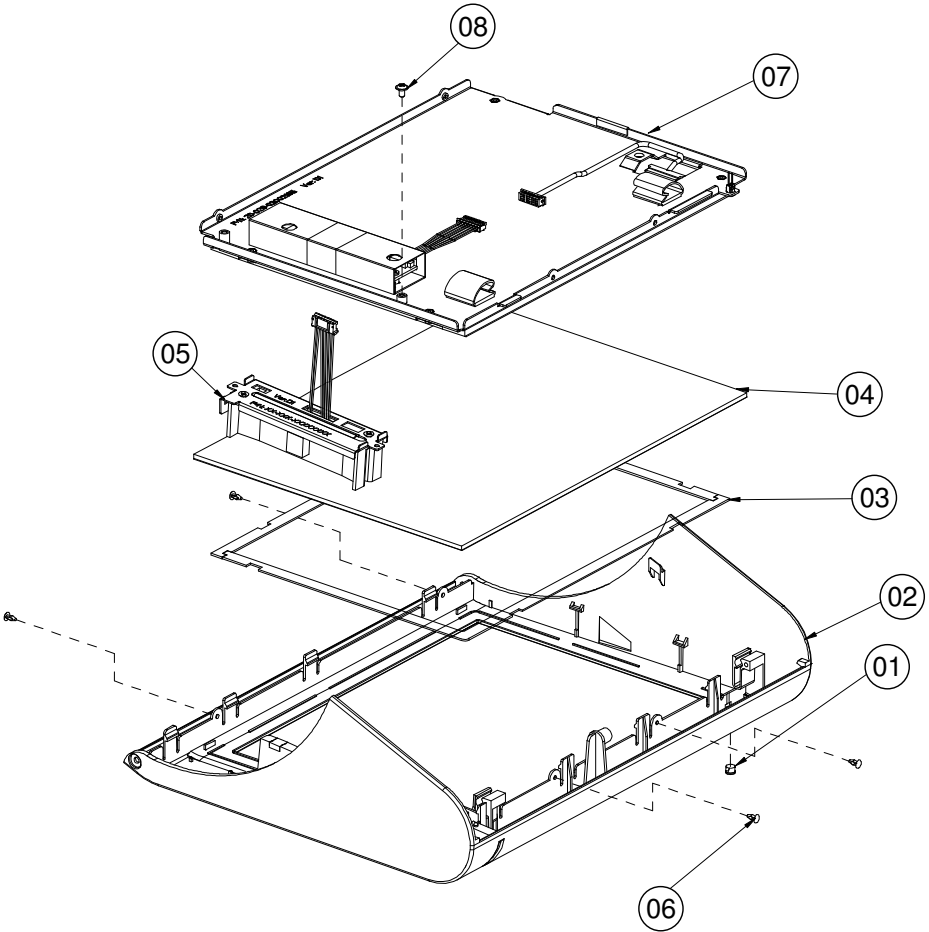
No.	Name	P/N No.	Qt'y
1	LED CAP	30-012-02100000	1
2	I-BOUNT TOP CASE(Blue)	30-003-28310165	1
	I-BOUNT TOP CASE(Red)	30-003-28610165	
	I-BOUNT TOP CASE(Wwhite)	30-003-28112165	
	I-BOUNT TOP CASE(Black)	30-003-28113165	
3	Touch_EVA	30-013-15100166	2
4	ELD 10.4" Touch	52-380-01510401	1
5	I Button	52-551-00100002	1
6	MSR Assembly	SEE PAGE 13	1
7	Plastic rivet	90-042-04100000	4
8	LCD Assembly	SEE PAGE 11,12	1
9	M3_L5_Washer_Ni (I-Button GND screw)	22-242-30005311	1
10	M3_L5_Washer_Ni (MSR GND screw)	22-242-30005311	1

EXPLODED DIAGRAM FOR PA-3170 FINGER PRINTER TOP CASE



No.	Name	P/N No.	Qt'y
1	LED CAP	30-012-02100000	1
2	FINGER-PRINTER TOP CASE(Blue)	30-003-28210165	1
	FINGER-PRINTER TOP CASE(Red)	30-003-28510165	
	FINGER-PRINTER TOP CASE(White)	30-003-28910165	
	FINGER-PRINTER TOP CASE(Black)	30-003-28111165	
3	Touch_EVA	30-013-15100166	2
4	ELD 10.4" Touch	52-380-01510401	1
5	Finger-printer holder	20-006-03001165	1
6	M3_L5_Washer_Ni	22-242-30005311	1
7	T3_L8_R_Ni	22-122-30080011	1
8	Finger-Printr	52-551-00501205	1
9	Finger-Printr cable	27-006-16506111	1
10	MSR Assembly	SEE PAGE 13	1
11	Plastic rivet	90-042-04100000	4
12	LCD Assembly	SEE PAGE 11,12	1
13	M3_L5_Washer_Ni (MSR GND screw)	22-242-30005311	1

EXPLODED DIAGRAM FOR PA-3170 EMPTY TOP CASE

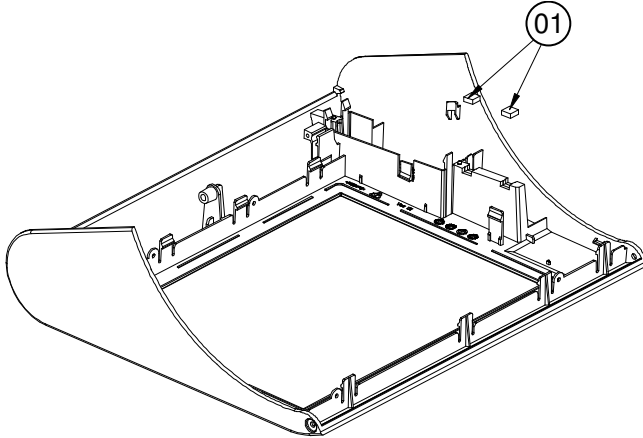


Appendix A System Assembly

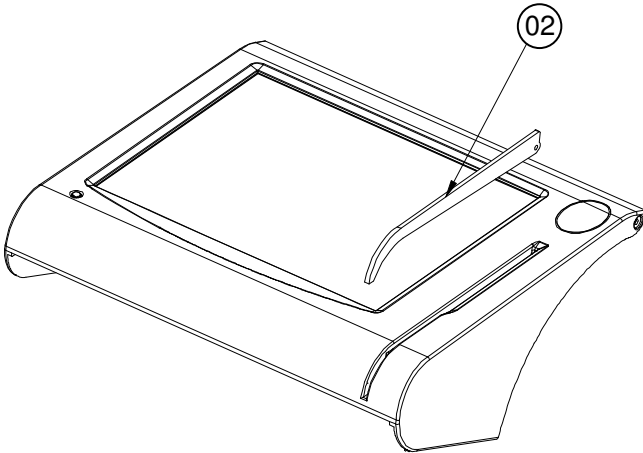
No.	Name	P/N No.	Qty
1	LED CAP	30-012-02100000	1
2	Empty TOP CASSE(Blue)	30-003-28110165	1
	Empty TOP CASSE(Red)	30-003-28410165	
	Empty TOP CASSE(White)	30-003-28710165	
	FINGER-PRINTER TOP CASE(Black)	30-003-28810165	
3	Touch_EVA	30-013-15100166	2
4	ELD 10.4" Touch	52-380-01510401	1
5	MSR Assembly	SEE PAGE 13	1
6	Plastic rivet	90-042-04100000	4
7	LCD Assembly	SEE PAGE 11,12	1
8	M3_L5_Washer_Ni (MSR GND screw)	22-242-30005311	1

EXPLODED DIAGRAM FOR PA-3170 TOP CASE

With MSR

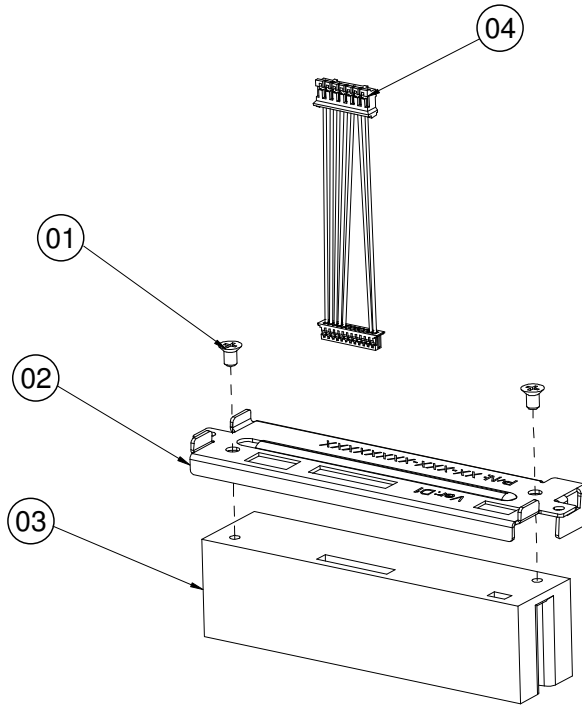


Without MSR



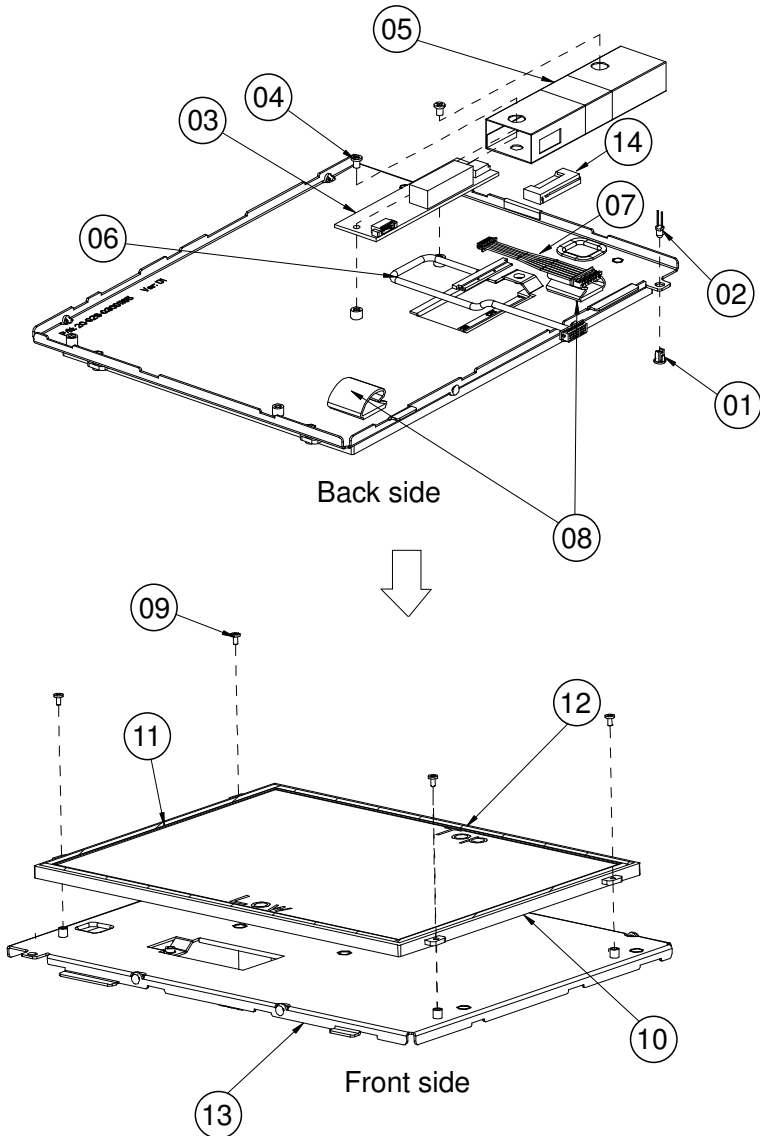
No.	Name	P/N No.	Qt'y
1	EVA BLOCK	30-013-15100165	2
2	MSR EVA	30-013-15200165	1

EXPLODED DIAGRAM FOR PA-3170 MSR HOLDER



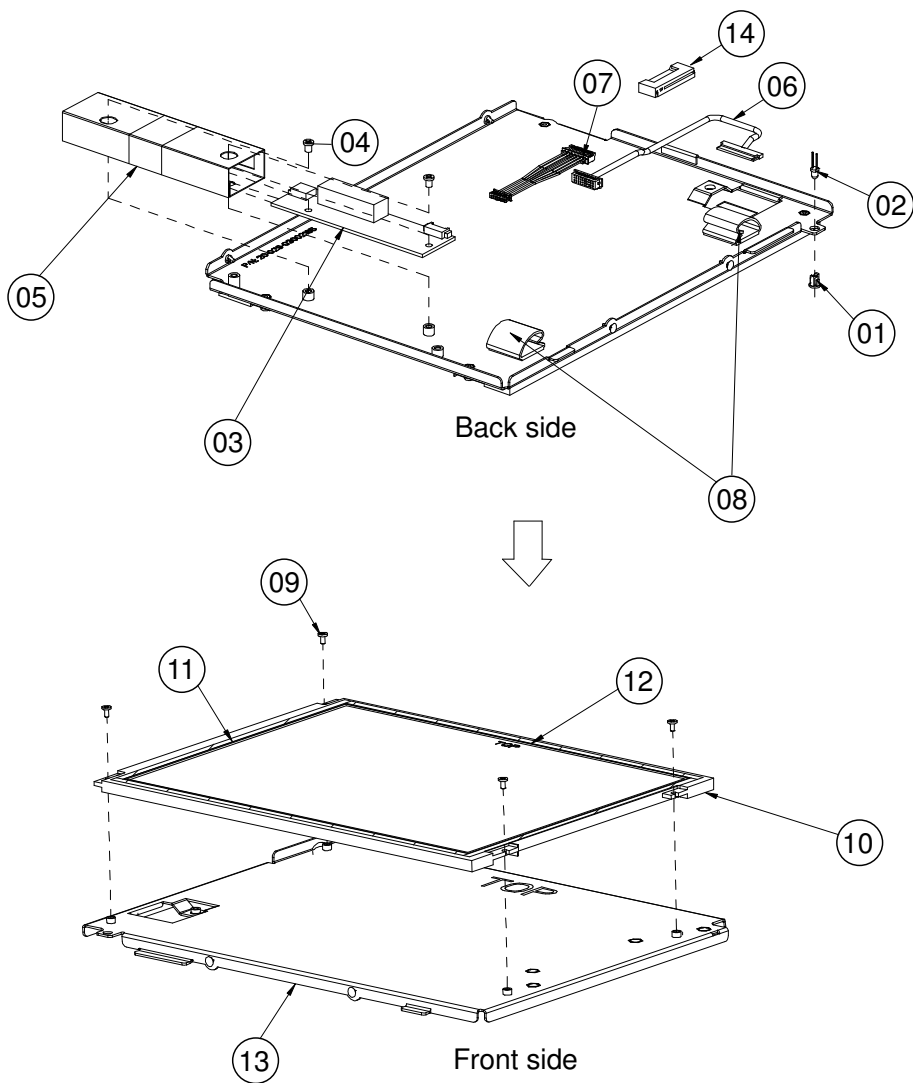
No.	Name	P/N No.	Qt'y
1	M6_L6_F_B	22-215-30060011	2
2	MSR HOLDER	20-029-03004165	1
3	SKH300-061P-ISO	52-551-01300602	1
	SKH300-061P	52-551-00883000	
	IDMB-333433B-NC	52-151-08333416	
4	SKH300-061P-ISO cable	27-014-16504111	1
	SKH300-061P cable	27-014-16504111	
	IDMB-333433B-NC cable	27-014-16504031	

EXPLODED DIAGRAM FOR PA-3170 CPT LCD



No.	Name	P/N No.	Qty
1	LED Housing	30-014-04100165	1
2	Led Cable(PDS3120)	27-018-21003071	1
3	Inverter	52-101-08010203	1
4	M3_L4_I_B	22-272-30004318	2
5	Inverter Mylar	30-056-02100165	1
6	CPT LVDS cable	27-020-16505111	1
7	inverter cable	27-015-16506111	1
8	cable_clamp	30-023-04300010	2
9	M2_L4_I_Ni	22-272-20004011	4
10	CPT 10.4" LCD	52-351-01104019	1
11	167 X 4 X0.5T PDRON	30-013-24700000	2
12	220 X 4 X0.5T PDRON	30-013-24600000	2
13	CPT LCD Holder	20-029-03001165	1
14	cable clip	90-042-04200000	1

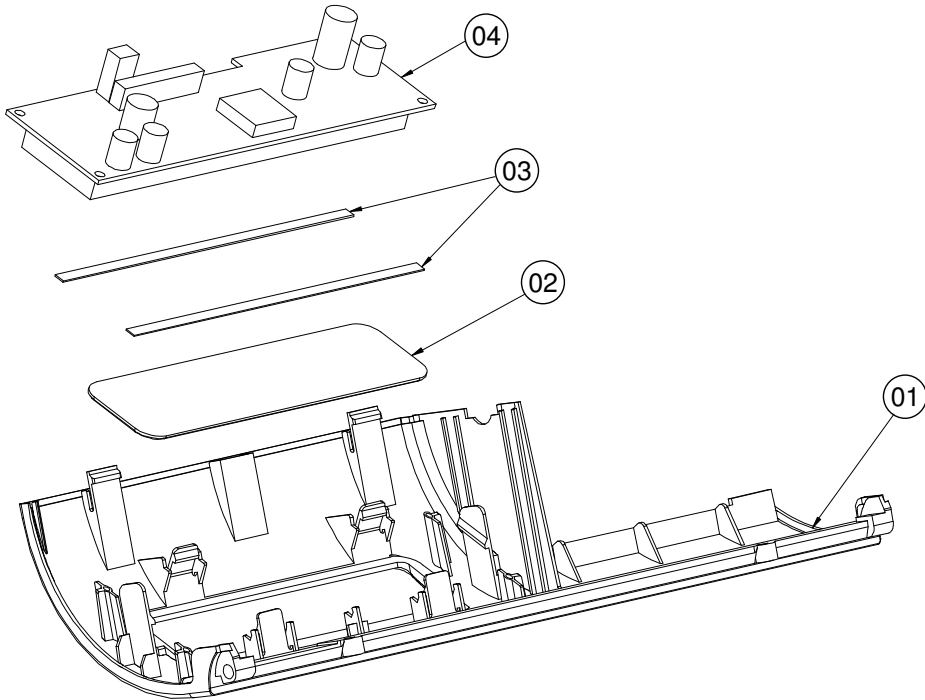
EXPLODED DIAGRAM FOR PA-3170 DATA IMAGE LCD



No.	Name	P/N No.	Qty
1	LED Housing	30-014-04100165	1
2	Led Cable(POS3120)	27-018-21003071	1
3	Inverter	52-101-08010203	1
4	M3_L4_I_B	22-272-30004318	2
5	Inverter Mylar	30-056-02100165	1
6	DATA image LVDS cable	27-020-16505112	1
7	inverter cable	27-015-16506111	1
8	cable_clamp	30-023-04300010	2
9	M2_L4_I_Ni	22-272-20004011	4
10	DATA IMAGE 10.4" LCD	52-351-01100424	1
11	167 X 4 X0.5T PORON	30-013-24700000	2
12	220 X 4 X0.5T PORON	30-013-24600000	2
13	DATA IMAGE LCD Holder	20-029-03002165	1
14	cable clip	90-042-04200000	1

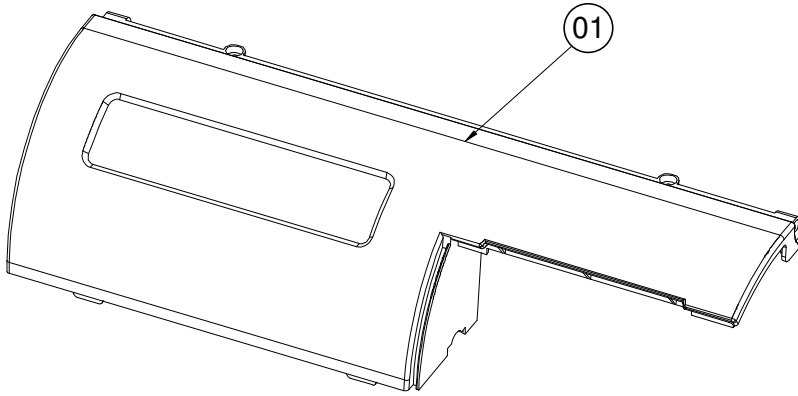
EXPLODED DIAGRAM FOR PA-3170 VFD COVER

With VFD



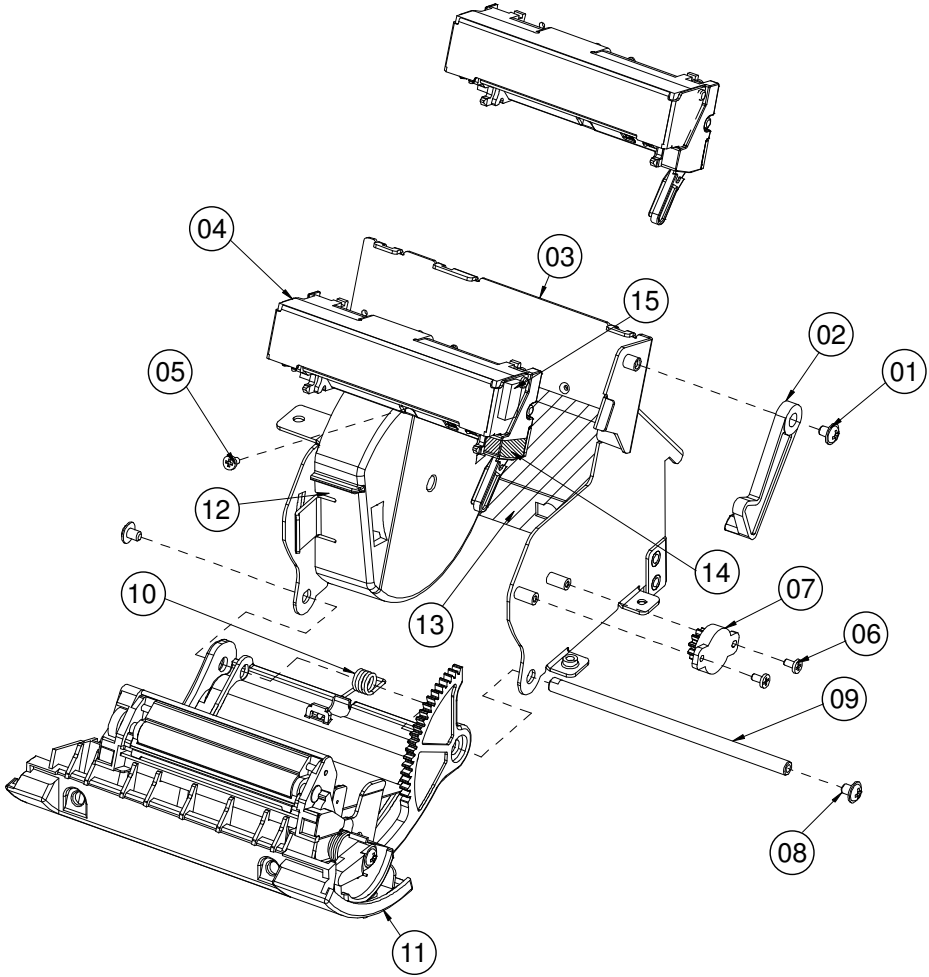
No.	Name	P/N No.	Qt'y
1	VFD_COVER(White)	30-002-28113165	1
	VFD_COVER(Black)	30-002-28114165	
	VFD_COVER(Blue)	30-002-28410165	
	VFD_COVER(Red)	30-002-28610165	
2	VFD_WINDOWS	30-002-02230165	1
3	PORON	90-013-24100165	2
4	VFD_MODULE	52-901-17001703	1

Without VFD



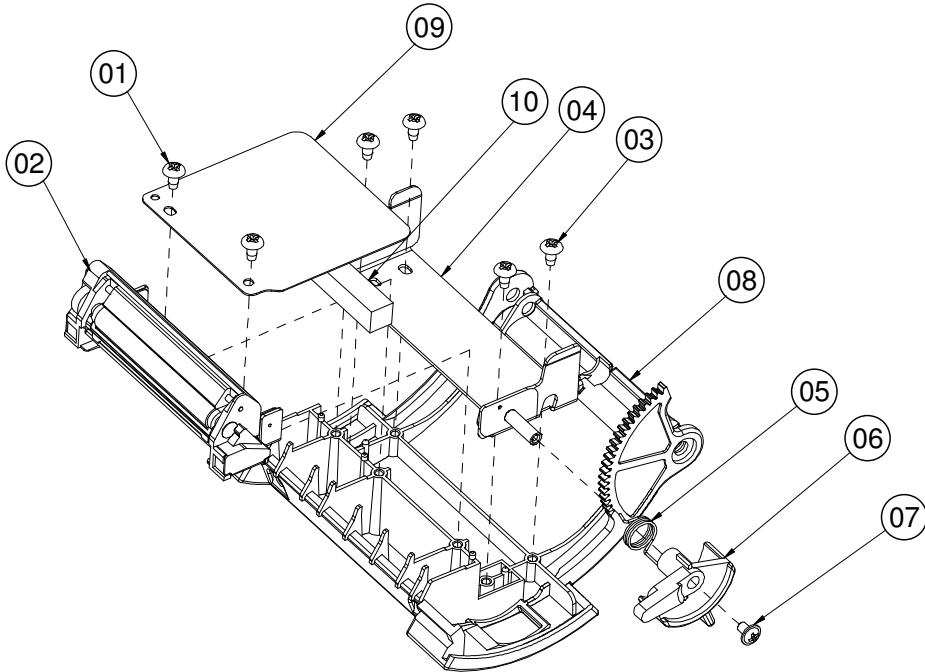
No.	Name	P/N No.	Qt'y
1	WITHOUT VFD_COVER(White)	30-002-28111165	1
	WITHOUT VFD_COVER(Black)	30-002-28112165	
	WITHOUT VFD_COVER(Blue)	30-002-28510165	
	WITHOUT VFD_COVER(Red)	30-002-28710165	

EXPLODED DIAGRAM FOR PA-3170 2 INCH PRINTER



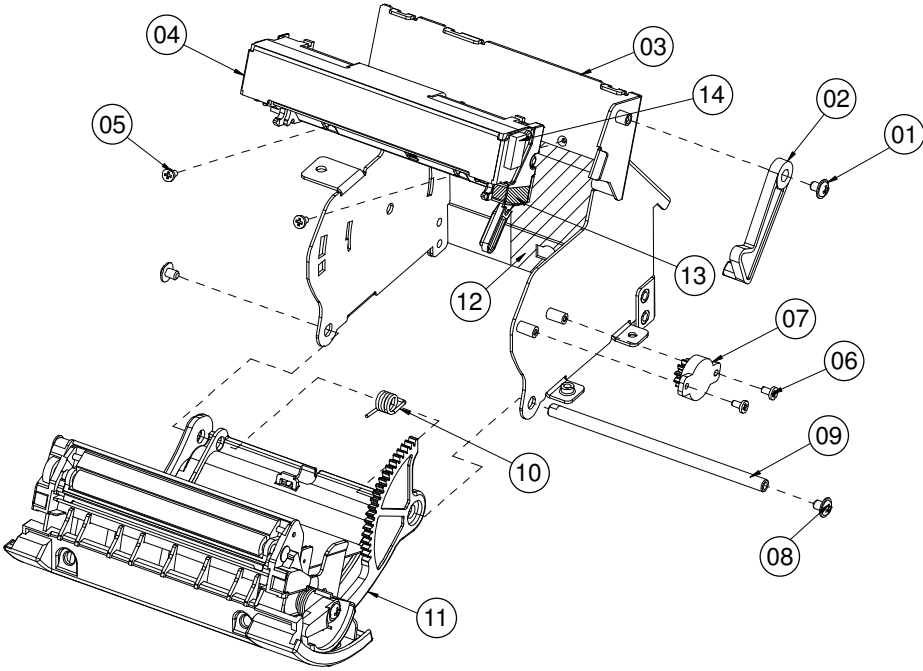
No.	Name	P/N No.	Qt'y
1	M3_I_L4_Black	22-272-30004318	1
2	Printer_add_arm(white)	30-002-09410165	1
	Printer_add_arm(black)	30-002-09110165	
3	PS3100_PRINTER_BOX_V2	20-040-03004165	1
4	CAPD24X_A_03 (2")	52-701-00020003	1/2
5	M2_I_L4_Ni	22-272-20004011	1
6	M2_I_L4_Ni	22-272-20004011	2
7	ROTARY DAMPER	30-022-09110000	1
8	M3_Washer_L5_Ni	22-242-30005311	2
9	Paper_cover_pin	20-004-10011165	1
10	PS3100-SPRING-1	23-002-00000701	1
11	Paper_cover_Assembly	SEE PAGE 19	1
12	ADD_PAPER_WALL	30-002-28310165	1
13	Mylar	90-056-02200165	1
14	Shielding Gasket_A	90-050-31200165	1
15	Shielding Gasket_B	90-050-31300165	1

EXPLODED DIAGRAM FOR PA-3170 2 INCH PRINTER COVER



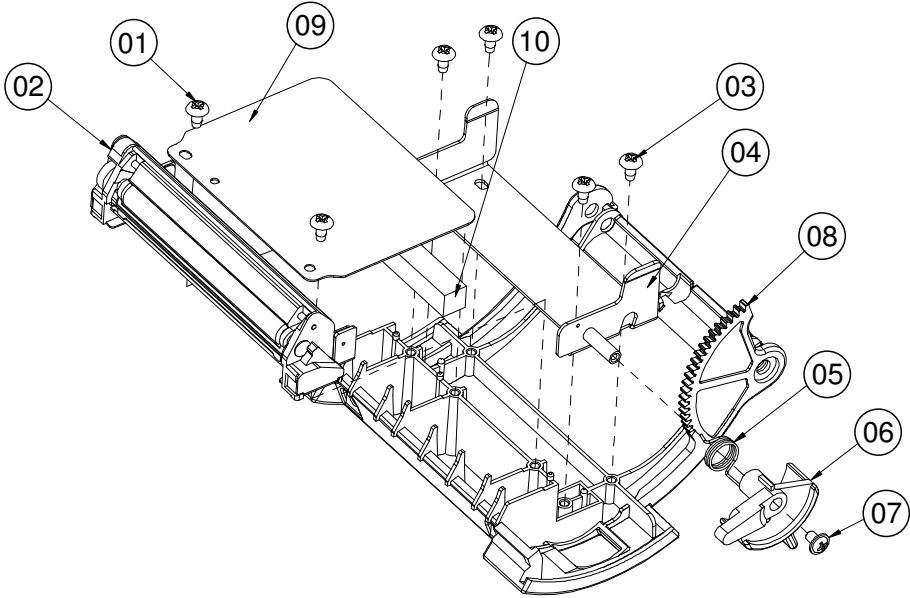
No.	Name	P/N No.	Qty
1	T3_R_L8_Black	22-122-30080011	2
2	CAPD24X_A_03 (2*)	52-701-00020003	1/2
3	T3_R_L6_NI	22-132-30060011	4
4	PS-3100 INCLUDE HOLDER	20-029-03006165	1
5	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
6	PRINTER_COVER_EJECTOR(White)	30-002-09310165	1
	PRINTER_COVER_EJECTOR(Black)	30-002-09210165	
7	M3_I_L4_Black	22-272-30004318	1
8	PS3100_PAPER_COVER_V2(White)	30-002-02630165	1
	PS3100_PAPER_COVER_V2(Black)	30-002-02530165	
9	2INCH_ADD_MYLAR2	90-056-02300165	1
10	2intch_add_EVA	90-013-15200165	1

EXPLODED DIAGRAM FOR PA-3170 3 INCH PRINTER



No.	Name	P/N No.	Qty
1	M3_I_L4_Black	22-272-30004318	1
2	Printer_add_arm(White)	30-002-09410165	1
	Printer_add_arm(black)	30-002-09110165	
3	PS3100_PRINTER_BOX_V2	20-040-03004165	1
4	CAPD34X_A_01 (3')	52-701-00017003	1/2
5	M2_I_L4_Ni	22-272-20004011	2
6	M2_I_L4_Ni	22-272-20004011	2
7	ROTARY DAMPER	30-022-09110000	1
8	M3_Washer_L5_Ni	22-242-30005311	2
9	Paper_cover_pin	20-004-10011165	1
10	PS3100-SPRING-1	23-002-00000701	1
11	Paper_cover_Assembly	SEE PAGE 18	1
12	myler	90-056-02200165	1
13	Shielding Gasket_A	90-050-31200165	1
14	Shielding Gasket_B	90-050-31300165	1

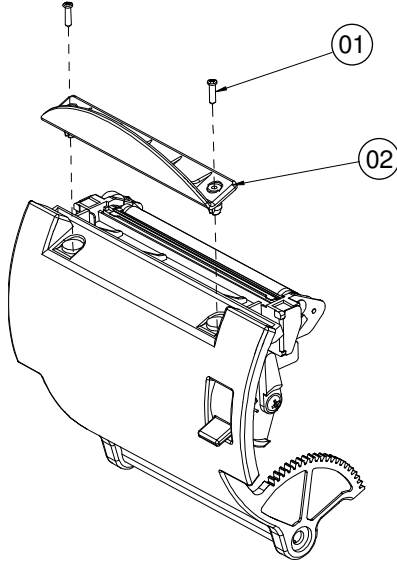
EXPLODED DIAGRAM FOR PA-3170 3 INCH PRINTER COVER



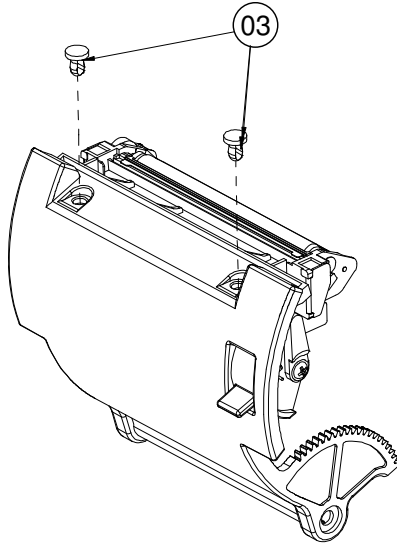
No.	Name	P/N No.	Qt'y
1	T3_R_L8_Black	22-122-30080011	2
2	CAPD34X_A_01 (3")	52-701-00017003	1/2
3	T3_R_L6_Ni	22-132-30060011	4
4	PS-3100 INCLUDE HOLDER	20-029-03006165	1
5	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
6	PRINTER_COVER_EJECTOR(White)	30-002-09310165	1
	PRINTER_COVER_EJECTOR(Black)	30-002-09210165	
7	M3_I_L4_Black	22-272-30004318	1
8	PS3100_PAPER_COVER_V2(White)	30-002-02630165	1
	PS3100_PAPER_COVER_V2(Black)	30-002-02530165	
9	3INCH_ADD_MYLAR2	90-056-02600165	1
10	2Intch_add_EVA	90-013-15200165	1

EXPLODED DIAGRAM FOR PA-3170 PRINTER HOLDER

With Paper Holder

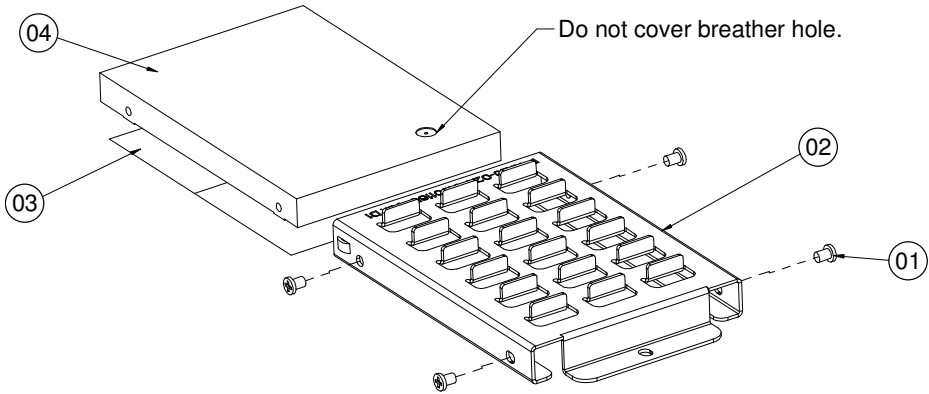


Without Paper Holder



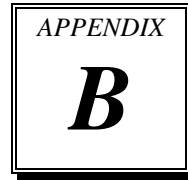
No.	Name	P/N No.	Qty
1	T2_L8_Black	22-125-20008011	2
2	PAPER HOLDER(Transparent)	30-012-02210165	1
	PAPER HOLDER(Black)	30-012-02110165	
3	Ø4 Plastic rivet	90-076-04110000	2

EXPLODED DIAGRAM FOR PA-3170 HARD DISK DRIVE



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

TECHNICAL SUMMARY

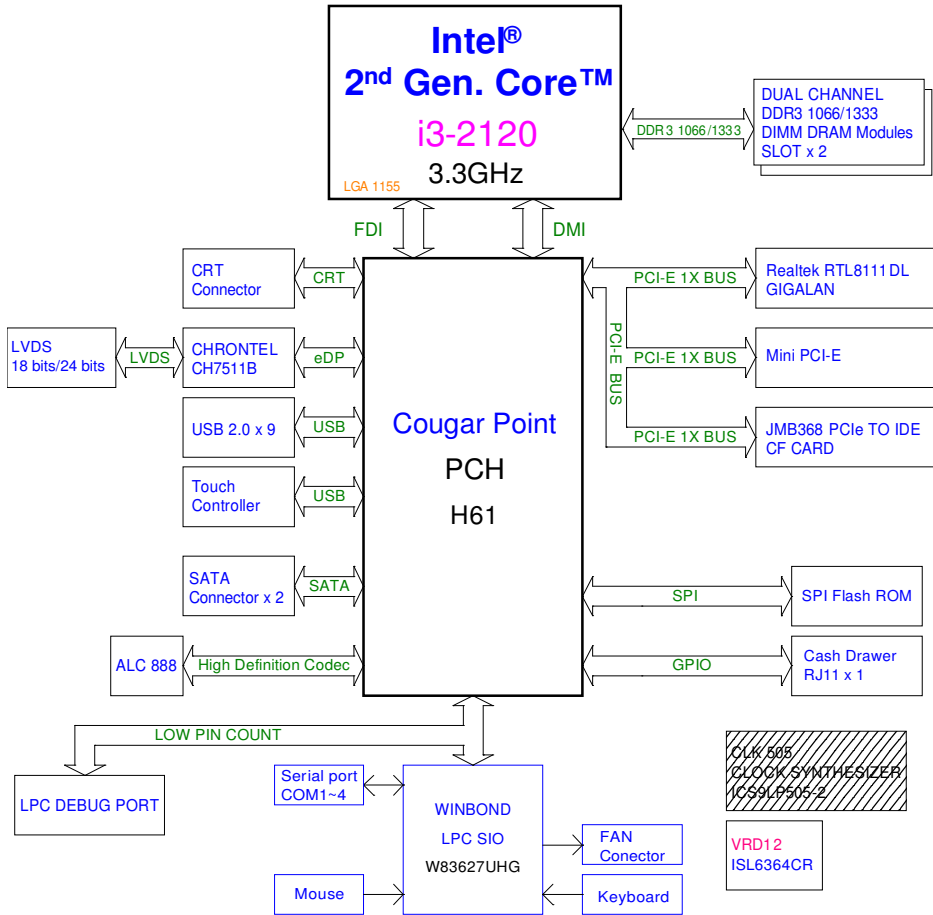


This appendix will give you a brief introduction of the allocation maps for the system resources.

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

Appendix B Technical Summary

IRQ	ASSIGNMENT
90	Microsoft ACPI-Compliant System
91	Microsoft ACPI-Compliant System
92	Microsoft ACPI-Compliant System
93	Microsoft ACPI-Compliant System
94	Microsoft ACPI-Compliant System
95	Microsoft ACPI-Compliant System
96	Microsoft ACPI-Compliant System
97	Microsoft ACPI-Compliant System
98	Microsoft ACPI-Compliant System
99	Microsoft ACPI-Compliant System
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110	Microsoft ACPI-Compliant System
111	Microsoft ACPI-Compliant System
112	Microsoft ACPI-Compliant System
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115	Microsoft ACPI-Compliant System
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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

IRQ	ASSIGNMENT
122	Microsoft ACPI-Compliant System
123	Microsoft ACPI-Compliant System
124	Microsoft ACPI-Compliant System
125	Microsoft ACPI-Compliant System
126	Microsoft ACPI-Compliant System
127	Microsoft ACPI-Compliant System
128	Microsoft ACPI-Compliant System
129	Microsoft ACPI-Compliant System
130	Microsoft ACPI-Compliant System
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152	Microsoft ACPI-Compliant System
153	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
154	Microsoft ACPI-Compliant System
155	Microsoft ACPI-Compliant System
156	Microsoft ACPI-Compliant System
157	Microsoft ACPI-Compliant System
158	Microsoft ACPI-Compliant System
159	Microsoft ACPI-Compliant System
160	Microsoft ACPI-Compliant System
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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

IRQ	ASSIGNMENT
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

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

I/O MAP	ASSIGNMENT
0x000001F0-0x000001F7	ATA Channel 0
0x00000290-0x00000297	Motherboard resources
0x000002E8-0x000002EF	Communications Port (COM4)
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

I/O MAP	ASSIGNMENT
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
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

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

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.

```
C:\AFUDOS>dir

Volume in drive C is JASON
Volume Serial Number is 56AD-41D6
Directory of C:\AFUDOS

.                <DIR>                08-22-11  10:34a
..               <DIR>                08-22-11  10:34a
AFUDOS  EXE           184,960   11-30-10  5:39p
AFUDOS  TXT            6,071    12-15-10  10:09a
README  TXT            2,855    12-15-10  10:10a
66300T08 BIN       8,388,608 01-06-12  10:49a
         4 file(s)          8,582,494 bytes
         2 dir(s)         452,579,328 bytes free

C:\AFUDOS>_
```

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 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.

Aptio Setup Utility - Copyright (C) 2009 American Megatrends, Inc.

Boot

Boot Option #1	[S31B0806USB DISK...]	Sets the system boot order
Boot Option #2	[SATA: WDC WD1600...]	

Boot Option #1

S31B0806USB DISK 1100
SATA: WDC WD1600BEVS-08VAT2
Disabled

: Select Screen
: Select Item
Enter: Select
+/-: Change Opt.
F1: General Help
F2: Previous Values
F3: Optimized Defaults
F4: Save ESC: Exit

Version: B8110TOF 2.00.1201. Copyright (C) 2009 American Megatrends, Inc.

II. AFUDOS Command for System BIOS Update

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

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

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.

```
C:\AFUDOS>afudos 66300T0B.BIN /P /B /N /X
+-----+
|                AMI Firmware Update Utility(APTIO)  v2.35                |
|                Copyright (C)2010 American Megatrends Inc. All Rights Reserved. |
+-----+
Reading file ..... done
FFS checksums ..... ok
Erasing flash ..... done
Writing flash ..... done
Verifying flash ..... done
Erasing NURAM ..... done
Writing NURAM ..... done
Verifying NURAM ..... done
Erasing BootBlock .... done
Writing BootBlock .... done
Verifying BootBlock ... done

C:\AFUDOS>_
```

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.

