USER'S MANUAL

PA-3350 Series

POS System Powered by

Intel® 2nd Gen. Core™,

Pentium®, Celeron®

PA-3350 Series   M2

PA-3350 Series POS System
With LCD/Touchscreen

FCC NOTICE

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

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

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

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

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CHAPTER   3   SOFTWARE UTILITIES

CHAPTER   4   AMI BIOS SETUP

APPENDIX   A   SYSTEM ASSEMBLY

APPENDIX B TECHNICAL SUMMARY

INTRODUCTION

This chapter gives you the information for the PA-3350. 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-3350 Series System. The PA-3350 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3350 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-3350.

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

1-2. POS SYSTEM ILLUSTRATION

Front View
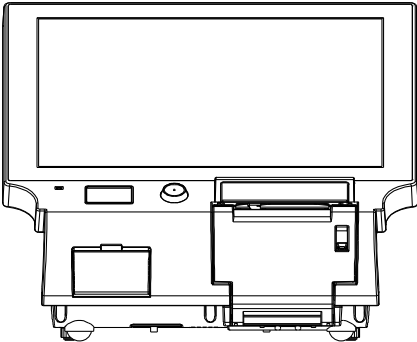
Rear View
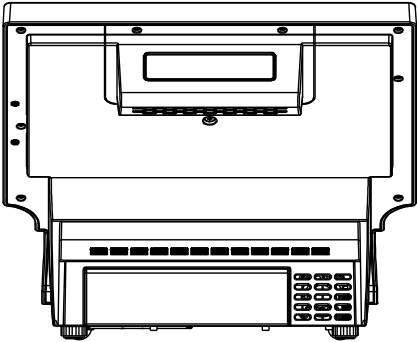
Side View
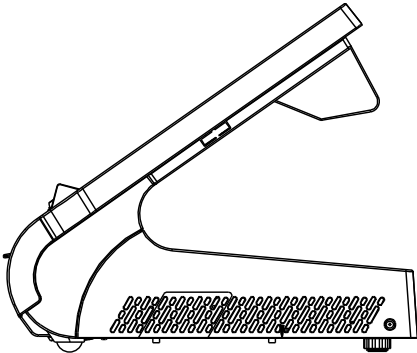
Quarter View
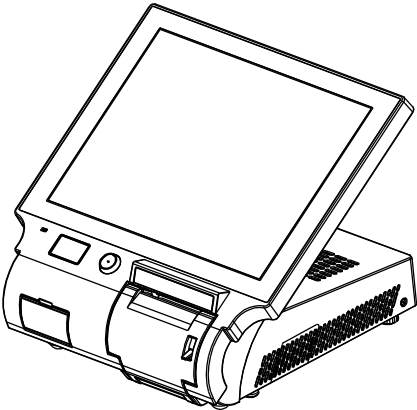
Rear I/O View
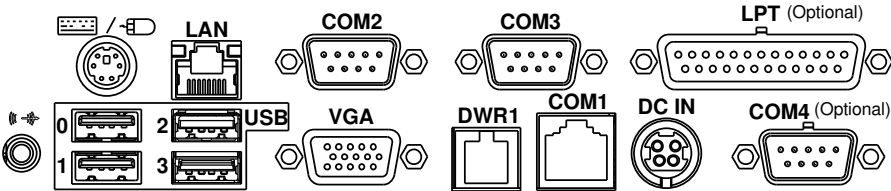
1-3. SYSTEM SPECIFICATIONS

MAINBOARD (PB-3251RB)

System

CPU Support	Intel® 2nd Gen.:
	▪ Core™ i3-2120 3.3 GHz, L2 Cache-3MB
	▪ Pentium® G850 2.9 GHz, L2 Cache-3MB
	▪ Celeron® G540 2.4 GHz, L2 Cache-2MB
Chipset	Intel® H61
Memory	1 x 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	7.5 kg
Real-Time Clock / Calendar	Embedded in Intel® H61
Dimension (W x H x D)	369mm x 301mm x 356mm
MSR / Fingerprint / i-Button (Optional)	External vertical module:
	▪ MSR (Read only)
	▪ ISO Tracker 1+2+3 (PS/2 KB Interface)
	▪ Fingerprint (USB Interface)
	▪ i-Button (Read only)
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 front bezel
Serial Port	1 x RJ45 (COM1) 2 x DB-9 (COM 2/3) +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	15" TFT XGA
Max. Resolution	1024 x 768
Brightness	250 cd/m^2
Signal Interface	TTL (24-bit)
Viewing Angel	30~40˚
Touch Panel	・ Flat 5wire Analog resistive ・ Projected-Capacitive Touch (Optional)

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-3350 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   b. Avoid installing your PA-3350 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-3350 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-3350 against strong vibrations, which may cause hard disk failure.
   g. Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.
   h. Always shutdown the operating system before turning off the power.

3. **Handling**
   a. Avoid placing heavy objects on the top of the system.
   b. Do not turn the system upside down. This may cause the hard drive to malfunction.
   c. Do no allow any objects to fall into this product.
   d. If water or other liquid spills into the product, unplug the power cord immediately.

4. Good Care

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

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

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

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

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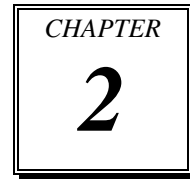
Helpful information that describes the jumper and connector settings, and component locations.

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, COM3-1, COM4-1, COM4-2, JVGACOM2	2-7
COM Port RI and Voltage Selection	JP_COM1, JP_COM2, JP_COM3, JP_COM4	2-9
I-Button Connector	JI-BUTTON1	2-9
I-Button Function Selection	JP14, JP15, JP16	2-10
LAN & USB Connector	JRJ45USB23	2-10
Mini-DIN & USB Connector	JPS2USB01	2-11
USB Connector	USB5, USB 8, USB9; USB10-1 & USB10-2 (both optional)	2-11
Cash Drawer Connector	DRW1	2-13
Cash Drawer Power Selection	JP13	2-13
LED Connector	JLED1-1, JLED1-2, JLED2	2-14
Fan Connector	FAN1, FAN2	2-15
Power Connector	J1	2-16
Power Switch Connector	SW1, SW2-1, SW2-2	2-16
Power for Thermal Printer Connector	PRT_PWR1	2-17
External Speaker Connector	SPK1, SPK2	2-17
Inverter Connector	JINV1, JINV2, JINV3	2-18
LVDS Voltage Selection	JP7	2-19
LVDS Connector	LVDS1	2-20
MSR / Card Reader Connector	PS2_1, PS2_2	2-20
SATA & SATA Power Connector	SATA1, SATA2, JPWR_4P1, JPWR_4P2	2-21
Touch Panel Connector	TOUCH1, TOUCH2	2-22
Touch Panel Selection	JP6, JP27	2-23
Clear CMOS Data Selection	JP2	2-24
Printer Connector	LPT1	2-25
LVDS Output Resolution Selection	JP22, JP23, JP24, JP25	2-26
Security Override Mode Setting	JP26	2-26

2-2. COMPONENT LOCATIONS

M/B: PB-3251RC
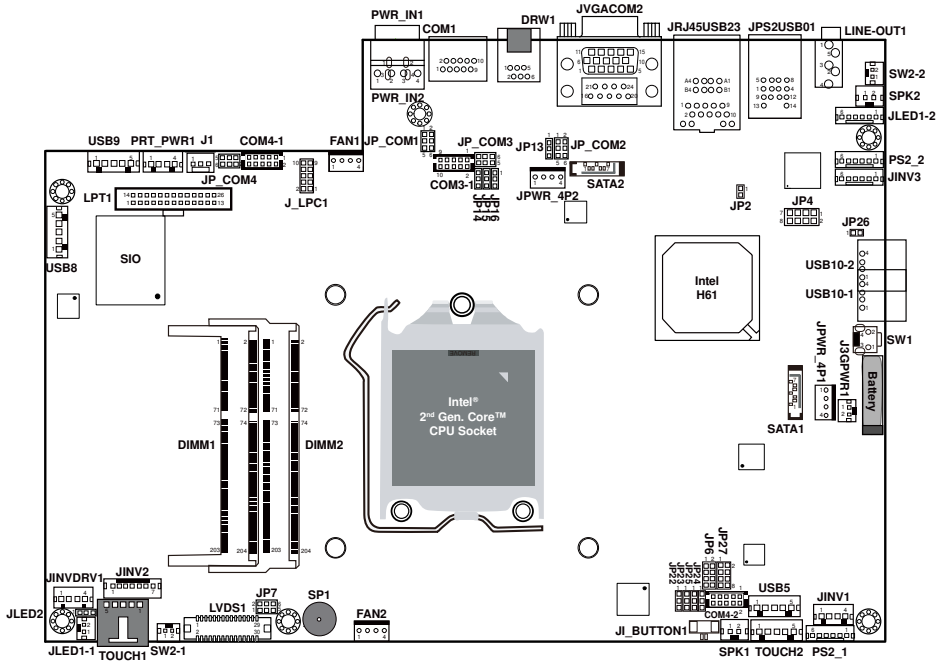
PA-3350 Front Connector, Jumper and Component Locations
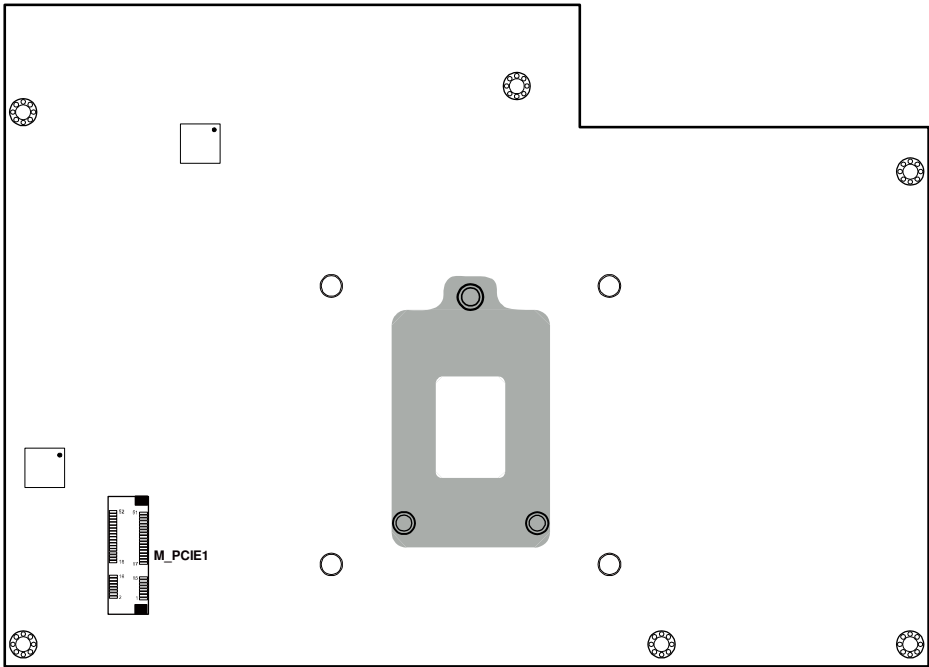
PA-3350 Rear Connector, Jumper and Component Locations

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

2 Pin Jumper   3 Pin Jumper   **Jumper Block**   **Jumper Cap**
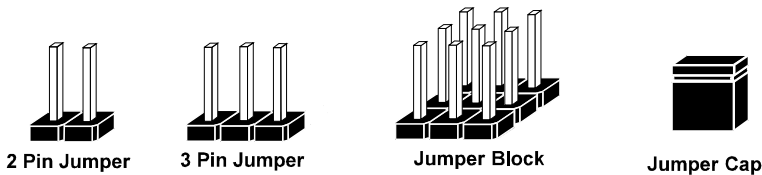
If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

JUMPER DIAGRAMS

Jumper Cap looks like this
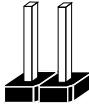
2 pin Jumper looks like this
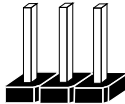
3 pin Jumper looks like this

Jumper Block looks like this
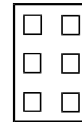
JUMPER SETTINGS

2 pin Jumper closed(enabled) looks like this

1
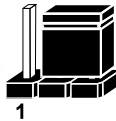
3 pin Jumper 2-3 pin closed(enabled) looks like this

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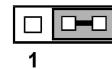
Jumper Block 1-2 pin closed(enabled) looks like this

1 2
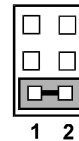
2-4. COM PORT & VGA CONNECTOR

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

COM1: COM1 Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD1	6	DSR1
2	RXD1	7	RTS1
3	TXD1	8	CTS1
4	DTR1	9	RI/+5V/+12V selectable
5	GND	10	NC
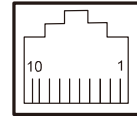
COM3-1: COM3-1 Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD3	6	DSR3
2	RXD3	7	RTS3
3	TXD3	8	CTS3
4	DTR3	9	RI / +5V / +12V selectable
5	GND	10	NC
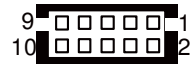
COM4-1, COM4-2: COM4-1, COM4-2 Connectors

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD4	6	DSR4
2	RXD4	7	RTS4
3	TXD4	8	CTS4
4	DTR4	9	RI / +5V / +12V selectable
5	GND	10	NC

Note: All COM ports are selectable for RI, +5V or +12V. For more information, please refer to "*2-5. COM RI & Voltage Selection*" of this manual.

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
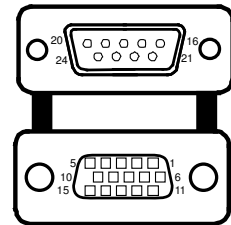
Note: All COM ports are selectable for RI, +5V or +12V. For more information, please refer to "*2-5. COM RI & Voltage Selection*" of this manual.

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 is RI.

2-6. I-BUTTON CONNECTOR

JI-BUTTON1: i-Button Connector
The pin assignments are as follows:
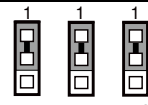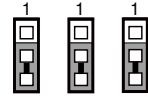
PIN	ASSIGNMENT
1	COM3_DTR_R_I
2	COM3_RXD_R_I
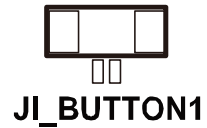
JI_BUTTON1

2-7. I-BUTTON FUNCTION SELECTION

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

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
COM 3	1-2	JP14/15/16
i-Button*	2-3	JP14/15/16

Note: Manufacturing Default is 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

Orange   Green

8 | | | | | | | | 1

B1   B4

A1   A4

JRJ45USB23
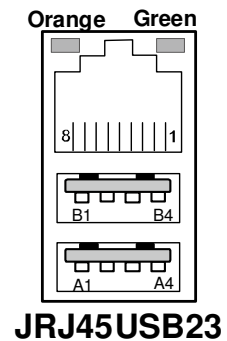
2-9. MINI-DIN & USB CONNECTOR

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

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	8	VCC5
2	USB0+	9	GND
3	USB0-	10	KDAT
4	VCC5	11	MDAT
5	GND	12	V5SB
6	USB1+	13	KCLK
7	USB1-	14	MCLK
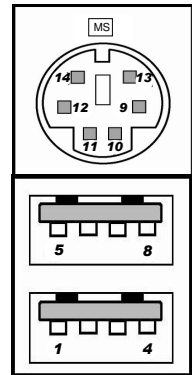
JPS2USB01

2-10. USB CONNECTOR

USB5: Internal USB Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	USB5-
2	USB5+
3	GND
4	5V
5	GND

USB5

USB8: Internal USB Connector

The pin assignments are as follows:

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

USB8
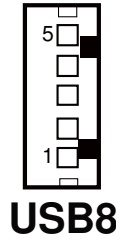
USB9: Internal USB Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	USB9-
2	USB9+
3	GND
4	5V
5	GND

USB9
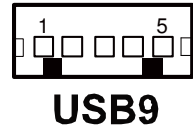
USB10-1, USB10-2 (Optional): Two USB Connectors

The pin assignments are as follows:

PIN	ASSIGNMENT
1	5V
2	USB10-
3	USB10+
4	GND

USB10-1/
USB10-2
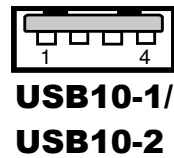
2-11. CASH DRAWER CONNECTOR

DRW1: Cash Drawer Connector

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	4	+12V
2	Drawer Open	5	NC
3	Drawer Sense	6	GND
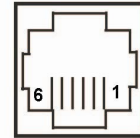
DRW1

PB-3251RB cash drawer control in GPIO port

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

· **To Close Drawer1**
Write "1"h to I/O space register "50C"h Bit 7

· **Detect Drawer1 Status**
Read I/O space register "50C"h (GPIO 6)
Definition (bit4)

2-12. CASH DRAWER POWER SELECTION

JP13: Cash Drawer Power Selection

The jumper settings are as follows:

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

Note: Manufacturing Default is +24V.

2-13. LED CONNECTOR

JLED1-1: Power indication LED Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	PWR_LED
2	5V
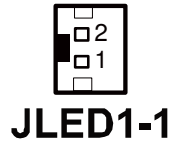
JLED1-1

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

The pin assignments are as follows:

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

JLED1-2
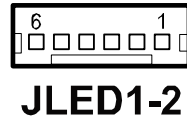
JLED2: Power indication LED Connector

The pin assignments are as follows:

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

JLED2
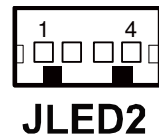
2-14. FAN CONNECTOR

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

PIN	ASSIGNMENT
1	GND
2	VCC12
3	SYS_FANIN
4	SYS_FANOUT

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
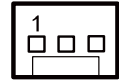
2-16. POWER SWITCH CONNECTOR

SW1, SW2-1, SW2-2: Power Switch Connectors
The pin assignments are as follows:

PIN	ASSIGNMENT
1	LPC_PWRBTNJ
2	PCH_PWRBTNJ_LOW

SW1
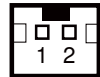
SW2-1

SW2-2

2-17. POWER FOR THERMAL PRINTER CONNECTOR

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

PIN	ASSIGNMENT
1	VCC24SB
2	VCC24SB
3	GND
4	GND

PRT_PWR1
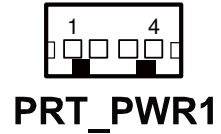
2-18. EXTERNAL SPEAKER CONNECTOR

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

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT

SPK1

SPK2
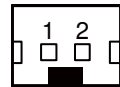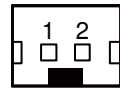
2-19. INVERTER CONNECTOR

JINV1: Inverter Connector

The pin assignments are as follows:

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

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
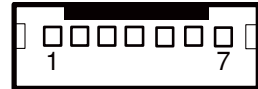
JINV3: Inverter Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	+12V
2	GND
3	GND
4	BRCTR
5	LVDS_BKLTEN
6	+12V
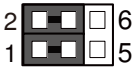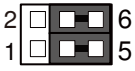
2-20. LVDS VOLTAGE SELECTION

JP7: LVDS Voltage Selection

The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
3.3V	1-3 2-4	2 □■□ 6 1 ■■□ 5 **JP7**
5V	3-5 4-6	2 □■■ 6 1 □■■ 5 **JP7**

Note: Manufacturing Default is 3.3V.

2-21. LVDS CONNECTOR

LVDS1: LVDS Connector

The pin assignments are as follows:

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

LVDS1

2-22. MSR/CARD READER CONNECTOR

PS2_1 & PS2_2: MSR/ Card Reader Connector

The pin assignments are as follows:

PIN	ASSIGNMENT
1	KB_CLK (Output)
2	KB_CLK_C (Input)
3	KB_DATA_C (Input)
4	KB_DATA (Output)
5	+5V
6	GND
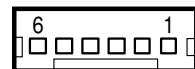
PS2_1
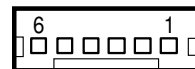
PS2_2

2-23. SATA & SATA POWER CONNECTOR

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

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

SATA1

SATA2

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

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12
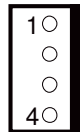
JPWR_4P1

JPWR_4P2

2-24. TOUCH PANEL CONNECTOR

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

PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)
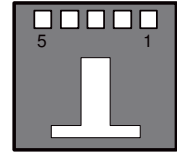
TOUCH2: Touch Panel Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	LR (Low Right)
2	LL (Low Left)
3	Probe
4	UR (Up Right)
5	UL (Up Left)
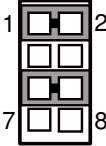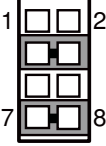
2-25. TOUCH PANEL SELECTION

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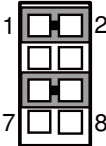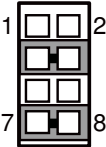
The jumper settings are as follows:

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

Note: Manufacturing Default is Elo.

JP27: Touch Panel Selection

The jumper settings are as follows:

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

Note: Manufacturing Default – Elo

2-26. CLEAR CMOS DATA SELECTION

JP2: Clear CMOS Data Selection

The jumper settings are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	Open	1 ▢ ▢ **JP2**
Clear CMOS*	1-2	1 ▣ **JP2**

Note: Manufacturing Default is 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. PRINTER CONNECTOR

LPT1: LPT Connector

The pin assignments are as follows:

```
14□ □ □ □ □ □ □ □ □ □ □ □ □ 26
 1□ □ □ □ □ □ □ □ □ □ □ □ □ 13
```
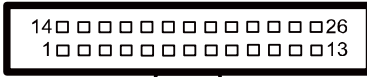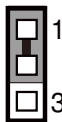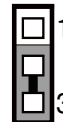
LPT1

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

2-28. LVDS OUTPUT RESOLUTION SELECTION

JP22, JP23, JP24, JP25: LVDS Output Resolution Selection
The jumper settings are as follows:

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

Note: Manufacturing Default is 15" 24bit 1024 x768.

2-29. 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

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

Sections included:

- Intel® Chipset Software Installation Utility

- VGA Driver Utility

- LAN Driver Utility

- Sound Driver Utility

- Touch Screen Driver Utility

- Wireless Driver Utility (Optional)

3-1. INTRODUCTION

Enclosed with the PA-3350 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 ▪ D:\Driver\Plaform\Win7,POSReady7(32-bit)\Main Chip ▪ D:\Driver\Platform\Win7,POSReady7(64-bit)\Main Chip	Intel® Chipset Software Installation Utility
▪ D:\Driver\Plaform\XP,POSReady2009(32-bit)\ ME ▪ D:\Driver\Platform\Win7,POSReady7(32-bit)\ME ▪ D:\Driver\Platform\Win7,POSReady7(64-bit)\ME	Intel® Management Engine driver installation
▪ D:\Driver\Plaform\XP,POSReady2009(32-bit)\VGA ▪ D:\Driver\Plaform\Win7,POSReady7(32-bit)\VGA ▪ D:\Driver\Platform\Win7,POSReady7(64-bit)\VGA	Intel® HD Graphics for VGA driver installation
▪ D:\Driver\Plaform\XP,POSReady2009(32-bit)\LAN ▪ D:\Driver\Plaform\Win7,POSReady7(32-bit)\LAN ▪ D:\Driver\Platform\Win7,POSReady7(64-bit)\LAN	▪ 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 ▪ D:\Driver\Plaform\Win7,POSReady7(32-bit)\Sound ▪ D:\Driver\Platform\Win7,POSReady7(64-bit)\Sound	Realtek ALC888S for Sound driver installation
D:\Driver\Device	Driver installation for touch screen, embedded printer, wireless, MSR, etc.
D:\Driver\FLASH	AMI BIOS Update Utility

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

3-2. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-2-1. Introduction

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

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

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

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

1. Connect the USB-CD ROM device to PA-3350 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-3350 for the changes to take effect.

3-3. INTEL® MANAGEMENT ENGINE COMPONENTS UTILITY

3-3-1. Introduction

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

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

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

3-4. VGA DRIVER UTILITY

The VGA interface embedded with the PA-3350 series can support a wide range of display types. You can have dual displays via CRT and LVDS interfaces work simultaneously.


```
1. Win XP Series
2. Win 7 Series
```
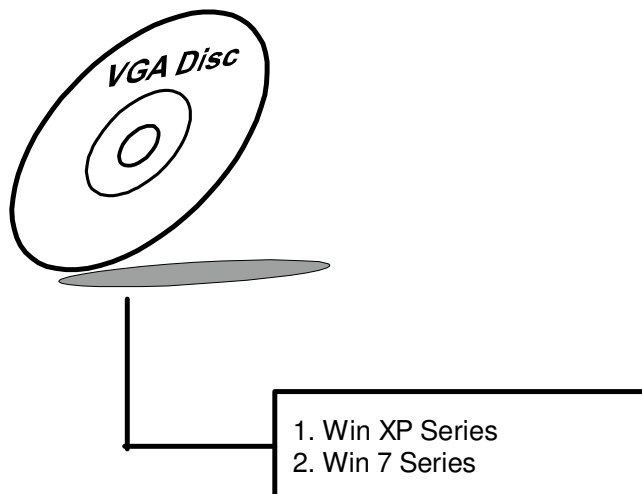
3-4-1. Installation of VGA Driver

To install the VGA Driver, follow the steps below:

1. Connect the USB-CD ROM device to PA-3350 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-3350 for the changes to take effect.

3-5. LAN DRIVER UTILITY

The PA-3350 Series is enhanced with LAN function that can support various network adapters. Installation platform for the LAN driver is listed as follows:


```
1. Win XP Series
2. Win 7 Series
```
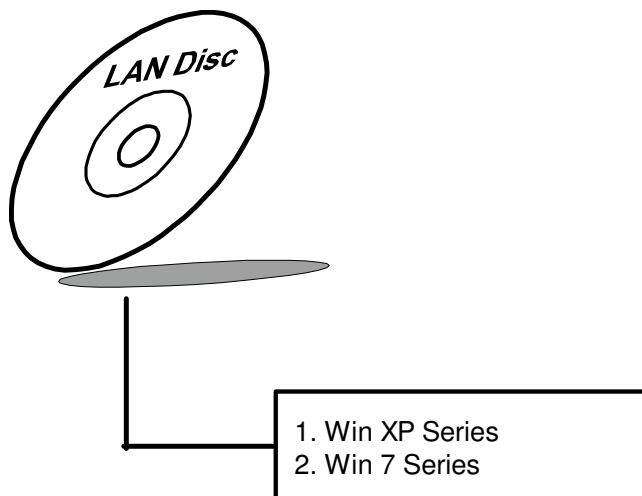
For more details on the Installation procedure, please refer to the Readme.txt file found on LAN Driver Utility.

3-5-1. Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB-CD ROM device to PA-3350 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-3350 for the changes to take effect.

3-6. 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.

```
Sound Disk
```

```
1. Win XP Series
2. Win 7 Series
```
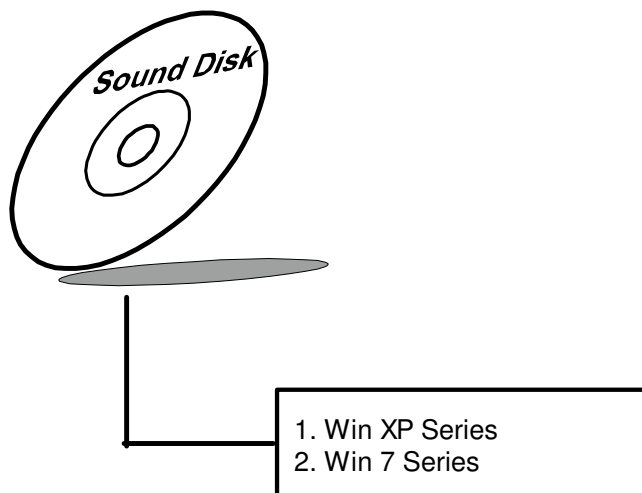
3-6-1. Installation of Sound Driver

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 PA-3350 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-3350 for the changes to take effect.

3-7. 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.

1. Win XP Series
2. Win 7 Series
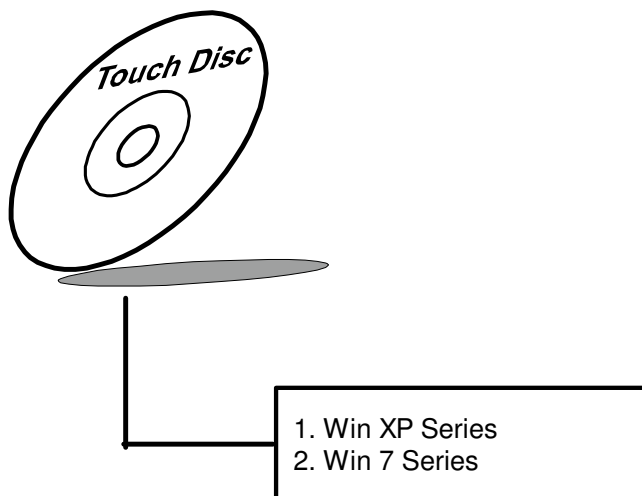
3-7-1. Installation of Touch Screen Driver

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

1. Connect the USB-CD ROM device to PA-3350 and insert the driver disk inside.
2. Enter the "Device/Touchscreen" folder where the Touch Screen 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-3350 for the changes to take effect.

3-8. 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.


```
1. Win XP Series
2. Win 7 Series
```
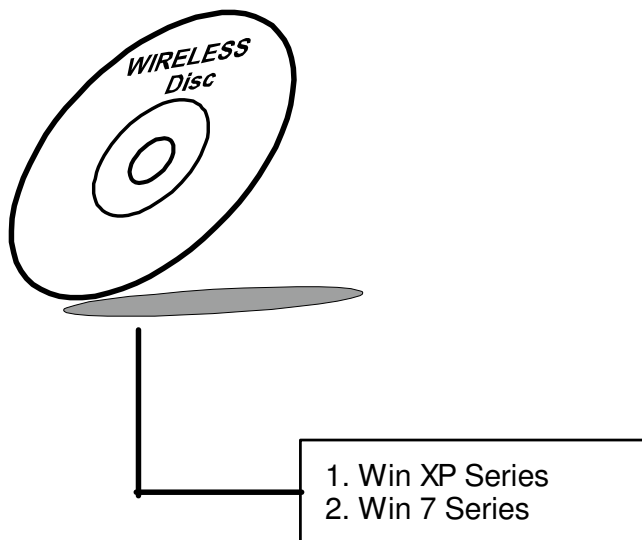
3-8-1. Installation of Wireless Driver

To install the Wireless Driver, follow the steps below:

1. Connect the USB-CD ROM device to PA-3350 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-3350 for the changes to take effect.

AMI
BIOS SETUP

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.
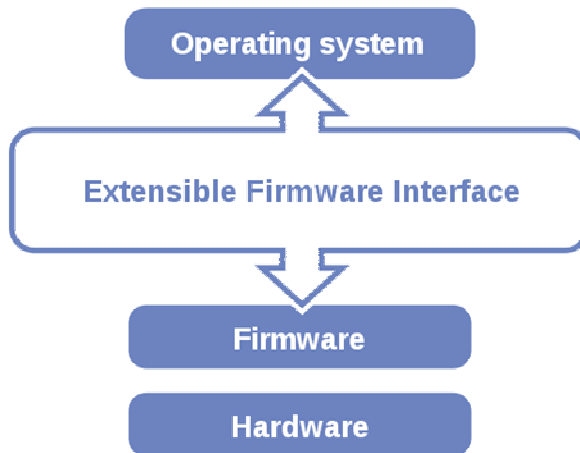
EFI BIOS provides an user interface allow users the ability to modify hardware configuration, e.g. change system date and time, enable or disable a system component, decide bootable device priorities, setup personal password, etc., which is convenient for modifications and customization of the computer 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 <Del> 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 <Del> or <ESC> key to access the Setup program.

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

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
  Main  Advanced  Chipset  Boot  Security  Save & Exit

  BIOS Information                                              Choose the system default
  BIOS Vendor                     American Megatrends           language
  Core Version                    4.6.5.4
  Compliancy                      UEFI 2.3.1; PI 1.2
  Project Version                 33501P02 x64
  Build Date and Time             07/11/2013 14:54:32
  Total Memory                    1024 MB (DDR3)
  Memory Frequency                1067 Mhz
  ME FW Version                   8.1.40.1416
  ME Firmware SKU                 1.5MB

  System Language                 [English]

  System Date                     [Thu 03/27/2014]      →←: Select Screen
  System Time                     [21:07:06]            ↑↓: Select Item
                                                        Enter: Select
  Access Level                    Administrator         +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit




              Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

Setup program initial screen

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

4-3. MAIN

Main screen

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

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

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Main  Advanced  Chipset  Boot  Security  Save & Exit

     ▶ S5 RTC Wake Settings                              Enable system to wake from S5
     ▶ CPU Configuration                                 using RTC alarm
     ▶ SATA Configuration
     ▶ USB Configuration
     ▶ W83627UHG Super IO Configuration
     ▶ W83627UHG HW Monitor
     ▶ WatchDog Configuration


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



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```

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

```
               Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
         Advanced

  Wake system with Fixed Time        [Enabled]              Enable or disable System wake
  Wake up hour                       0                      on alarm event. When enabled,
  Wake up minute                     0                      System will wake on the
  Wake up second                     0                      hr::min::sec specified

  Wake system with Dynamic Time      [Disabled]



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


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```

5S RTC Wake settings screen

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

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Advanced

   Wake system with Fixed Time        [Disabled]          Enable or disable System wake
                                                          on alarm event. When enabled,
   Wake system with Dynamic Time      [Enabled]           System will wake on the
   Wake up minute increase            1                   current time + Increase
                                                          minute(s)




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



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```

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

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Advanced

   CPU Configuration                                      Number of cores to enable in
                                                          each processor package.
   Intel(R) Celeron(R) CPU G540 @ 2.50GHz
   CPU Signature                  206a7
   Microcode Patch                28
   Max CPU Speed                  2500 MHz
   Min CPU Speed                  1600 MHz
   CPU Speed                      2500 MHz
   Processor Cores                2
   Intel HT Technology            Not Supported
   Intel VT-x Technology          Supported
   Intel SMX Technology           Not Supported
   64-bit                         Supported
                                                          →←: Select Screen
                                                          ↑↓: Select Item
   L1 Data Cache                  32 kB x 2               Enter: Select
   L1 Code Cache                  32 kB x 2               +/-: Change Opt.
   L2 Cache                       256 kB x 2              F1: General Help
   L3 Cache                       2048 kB                 F2: Previous Values
                                                          F3: Optimized Defaults
   Active Processor Cores         [All]                   F4: Save & Exit
                                                          ESC: Exit


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```

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

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced

SATA Controller(s)              [Enabled]          Enable or disable SATA Device.
SATA Mode Selection             [IDE]
IDE Legacy / Native Mode Selection   [Native]

Serial ATA Port 0               Empty
  Software Preserve             Unknown
Serial ATA Port 1               Empty
  Software Preserve             Unknown



                                                   →←: Select Screen
                                                   ↑↓: Select Item
                                                   Enter: Select
                                                   +/–: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
                                                   F3: Optimized Defaults
                                                   F4: Save & Exit
                                                   ESC: Exit



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```

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

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
        Advanced

     USB Configuration                                        Enables Legacy USB support.
                                                              AUTO option disables legacy
     USB Devices:                                             support if no USB devices are
          1 Drive, 1 Keyboard, 1 Point                        connected. DISABLE option will
                                                              keep USB devices available
     Legacy USB Support                    [Enabled]          only for EFI applications.
     EHCI Hand-off                         [Disabled]

     Mass Storage Devices:
     SanDisk Cruzer Blade 1.20             [Auto]


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




                Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

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

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
        Advanced

    W83627UHG Super IO Configuration                         Set Parameters of Serial Port
                                                             0 (COMA)
    W83627UHG Super IO Chip              W83627UHG
  ▶ Serial Port 0 Configuration (COM1)
  ▶ Serial Port 1 Configuration (COM2)
  ▶ Serial Port 2 Configuration (COM3)
  ▶ Serial Port 3 Configuration (COM4)
  ▶ Parallel Port Configuration



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



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```

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.

```
            Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Advanced

 Serial Port 0 Configuration (COM1)                        Enable or Disable Serial Port
                                                           (COM)
 Serial Port                        [Enabled]
 Device Settings                    IO=3F8h; IRQ=4;

 Change Settings                    [Auto]




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



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```

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.

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
    Advanced

  Serial Port 1 Configuration (COM2)                        Enable or Disable Serial Port
                                                            (COM)
  Serial Port                        [Enabled]
  Device Settings                    IO=2F8h; IRQ=3;

  Change Settings                    [Auto]




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



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```

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.

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
       Advanced

 Serial Port 2 Configuration (COM3)                        Enable or Disable Serial Port
                                                           (COM)
 Serial Port                       [Enabled]
 Device Settings                   IO=3E8h; IRQ=7;

 Change Settings                   [Auto]




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




              Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```

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.

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
       Advanced

   Serial Port 3 Configuration (COM4)                        Enable or Disable Serial Port
                                                             (COM)
   Serial Port                        [Enabled]
   Device Settings                    IO=2E8h; IRQ=10;

   Change Settings                    [Auto]

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

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```

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.

```
           Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Advanced

   Parallel Port Configuration                            Enable or Disable Parallel
                                                          Port (LPT/LPTE)
   Parallel Port                    [Enabled]
   Device Settings                  IO=378h; IRQ=5;

   Change Settings                  [Auto]
   Device Mode                      [STD Printer Mode]




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




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```

Parallel Port Configuration screen

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

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

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

```
              Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
     Advanced

  Pc Health Status                                         Enable or Disable Smart Fan

  Smart Fan Function              [Enabled]
▶ Smart Fan Mode Configuration

  SYS Temp                        : +41 C
  CPU Temp                        : +69.00 C
  SysFan Speed                    : N/A
  CpuFan Speed                    : 7031 RPM
  VCORE                           : +1.200 V
  +12V                            : +11.776 V
  +1.5V                           : +1.472 V
  +1.05V                          : +1.024 V
  +5V                             : +5.067 V         ↔: Select Screen
  VSB5                            : +5.058 V         ↑↓: Select Item
  VBAT                            : +3.468 V         Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit

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```

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

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
      Advanced

   Smart Fan Mode Configuration                              Smart Fan  Mode Select

   System Fan Mode                    [Thermal CruiseTM Mode]
   SysFan Target Temp                 60
   Sysfan Tolerance Temp              5

   Cpu Fan Mode                       [SmartFan TM III Mode]
   CpuFan Target Temp                 61
   CpuFan Tolerance                   1

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

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```

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

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
        Advanced

    WatchDog Parameters                                      WatchDog Count Mode Selection

    WatchDog Count Mode                    [Second]
    WatchDog TimeOut Value                 0




                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/−: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit


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```

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

```
              Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
     Main  Advanced  Chipset  Boot  Security  Save & Exit

 ▶ PCH-IO Configuration                                    PCH Parameters
 ▶ System Agent (SA) Configuration




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



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```

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

```
               Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
                    Chipset

     Intel PCH RC Version           1.8.0.1            Select AC power state when
     Intel PCH SKU Name             H61                power is re-applied after a
     Intel PCH Rev ID               05/B3              power failure.

     Restore AC Power Loss          [Power Off]



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


               Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
```
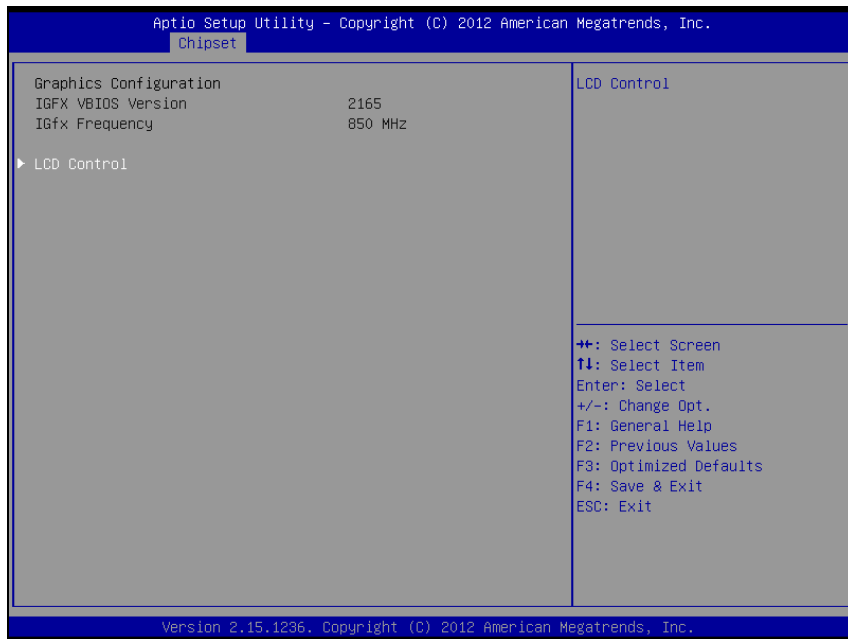
PCH IO Configuration screen

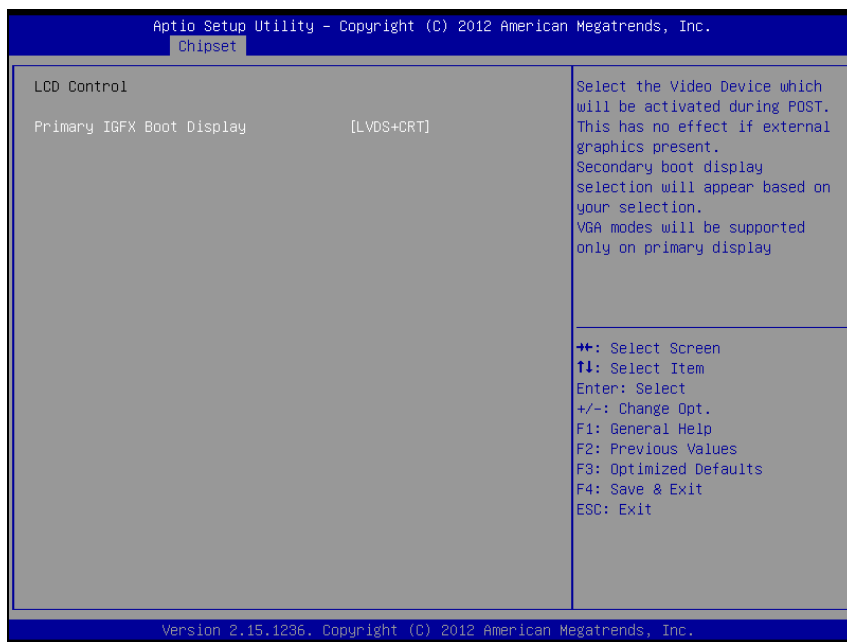| BIOS Setting	Options	Description/Purpose
Intel PCH RC Version	No changeable option	Displays the PCH source code module version
Intel PCH SKU Name	No changeable option	Displays PCH product SKU name.
Intel PCH Rev ID	No changeable option	Displays onboard PCH chip revision.
Restore AC Power Loss	- Power Off - Power On	Select AC power state when power is re-applied after a power failure. ・ **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

```
            Aptio Setup Utility – Copyright (C) 2012 American Megatrends, Inc.
              Chipset

   System Agent Bridge Name          SandyBridge          Config Graphics Settings.
   System Agent RC Version           1.8.0.0
   VT-d Capability                   Unsupported

 ▶ Graphics Configuration
 ▶ Memory Configuration




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



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```

System Agent (SA) Configuration screen

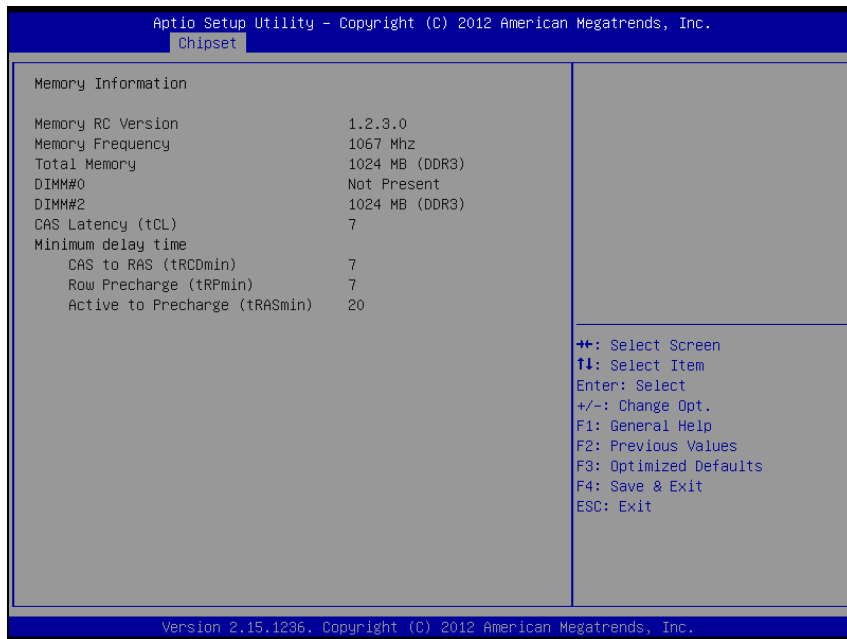| BIOS Setting	Options	Description/Purpose
System Agent Bridge Name	No changeable options	Displays the CPU/NB bridge name
System Agent RC Version	No changeable options	Displays the IVB source code module version
VT-d Capability	No changeable options	Display this chipset support VT-d or not.
Graphics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

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                  Chipset

    Graphics Configuration                                    LCD Control
      IGFX VBIOS Version               2165
      IGfx Frequency                   850 MHz

    ▶ LCD Control




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



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```

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

```
                Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
                 Chipset

      Memory Information

      Memory RC Version              1.2.3.0
      Memory Frequency               1067 Mhz
      Total Memory                   1024 MB (DDR3)
      DIMM#0                         Not Present
      DIMM#2                         1024 MB (DDR3)
      CAS Latency (tCL)              7
      Minimum delay time
         CAS to RAS (tRCDmin)        7
         Row Precharge (tRPmin)      7
         Active to Precharge (tRASmin)  20

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


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```

Memory Configuration screen

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

4-6. BOOT

```
                  Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.
      Main  Advanced  Chipset  Boot  Security  Save & Exit

    Boot Configuration                                       Number of seconds to wait for
    Setup Prompt Timeout                1                    setup activation key.
    Bootup NumLock State               [On]                  65535(0xFFFF) means indefinite
                                                             waiting.
    Quiet Boot                         [Disabled]
    Fast Boot                          [Disabled]


    Boot Option Priorities
    Boot Option #1                     [SanDisk Cruzer Blad...]

    Hard Drive BBS Priorities
    CSM parameters
                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit



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```

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
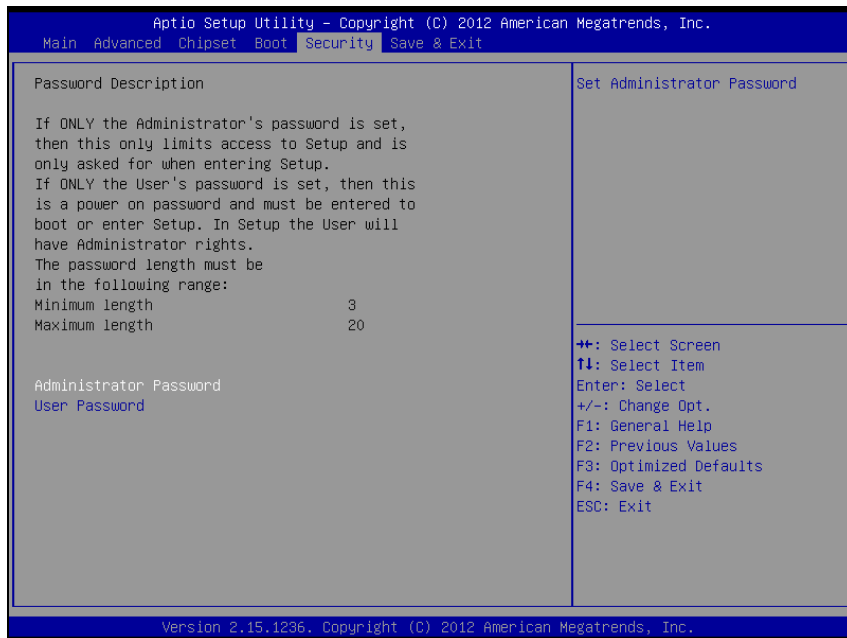
Security screen

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
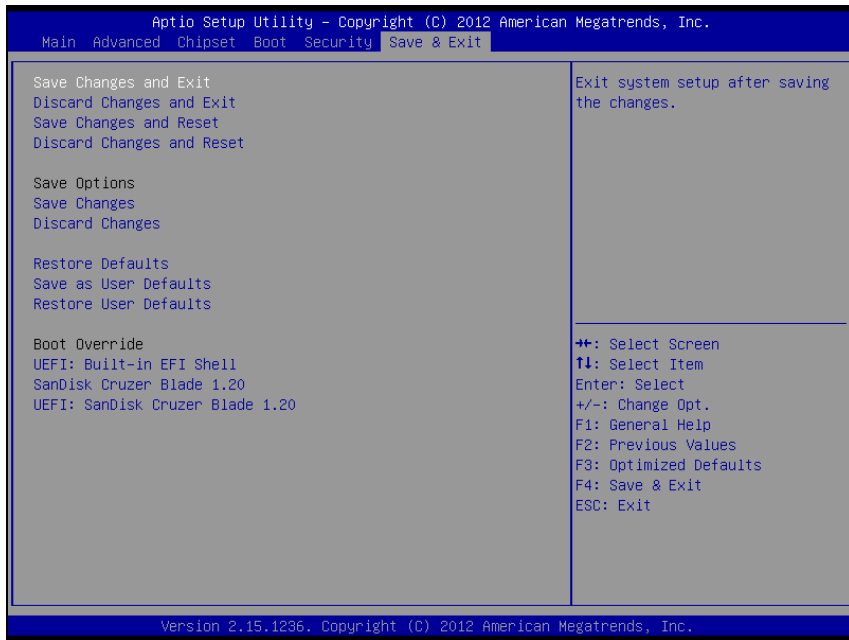
Save & Exit screen

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
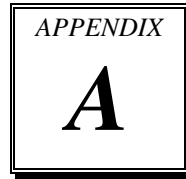
This appendix contains exploded diagrams and part numbers of the PA-3350 system.

Sections included:

- Exploded Diagram for PA-3350 Base Cover

- Exploded Diagram for PA-3350 Top Case

- Exploded Diagram for PA-3350 Inside Box

- Exploded Diagram for PA-3350 Printer Box

- Exploded Diagram for PA-3350 Open & Close

- Exploded Diagram for PA-3350 Mainboard

- Exploded Diagram for PA-3350 Bottom Case

- Exploded Diagram for PA-3350 LCD Front

- Exploded Diagram for PA-3350 LCD Holder

- Exploded Diagram for PA-3350 LCD Panel

- Exploded Diagram for PA-3350 2 Inch Printer

- Exploded Diagram for PA-3350 2 Inch Printer Cover

- Exploded Diagram for PA-3350 3 Inch Printer

- Exploded Diagram for PA-3350 3 Inch Printer Cover

- Exploded Diagram for PA-3350 VFD Cover

- Exploded Diagram for PA-3350 HDD Module

- Exploded Diagram for PA-3350 SSD Module

EXPLODED DIAGRAM FOR PA-3350 BASE COVER
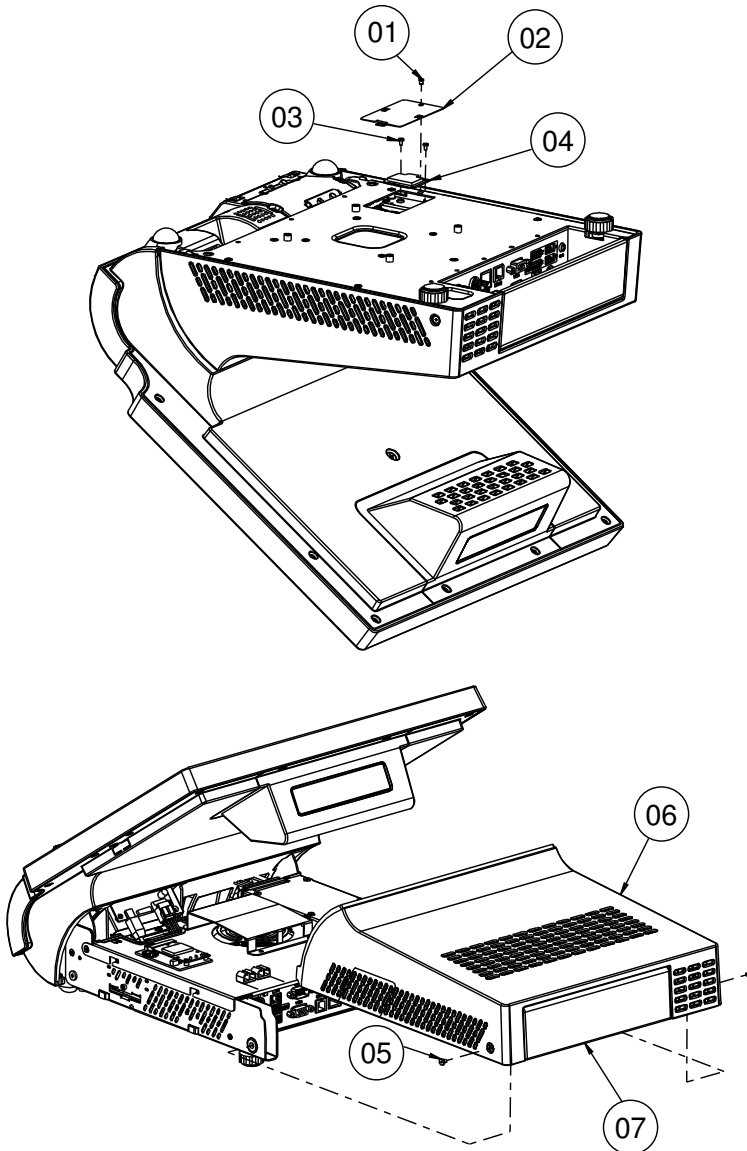
No.	Name	P/N No.	Qt'y
1	M2.5_L4_R_Ni	22-232-25004011	1
2	3350_MINI_PCIE_DOOR	80-047-03001242	1
3	M2_L4_I_Ni	22-272-20004011	2
4	MiniPCIE Card	See Order	1
5	M3_L8_I_B	22-275-30008811	2
6	PA-3350_BASE_COVER	30-002-28410242	1
	PA-3350_BASE_COVER_with_CF	30-002-28510242	
7	PA-3350_CABLE_COVER	30-002-28610242	1

EXPLODED DIAGRAM FOR PA-3350 TOP CASE
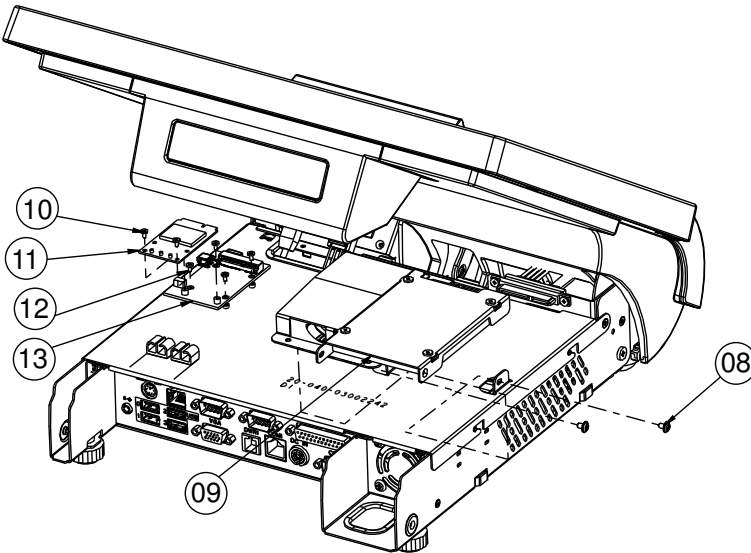
No.	Name	P/N No.	Qt'y
8	M3_L5_W_Ni	22-242-30005311	2
9	HDD Assembly	--	1
10	M2_L4_I_Ni	22-272-20004011	2
11	MiniPCIE Card	See Order	1
12	M2_L4_I_Ni	22-272-20004011	4
13	3G Card	See Order	1

EXPLODED DIAGRAM FOR PA-3350 INSIDE BOX
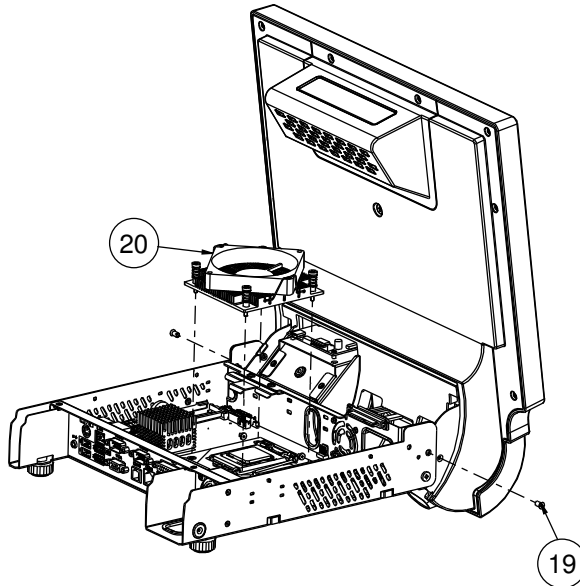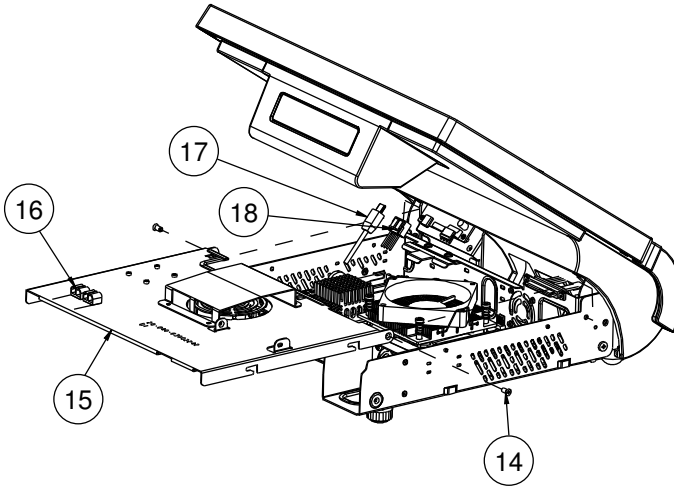
No.	Name	P/N No.	Qt'y
14	M4_L8_F_B	22-215-40008011	2
15	PA-3350_INSIDE_BOX_TOP	20-040-03002242	1
16	Cable_snap(WLLT-1)	90-023-04600000	2
17	Printer Data Cable	See Order	1
18	Printer Power Cable	See Order	1
19	M4_L8_F_B	22-215-40008011	2
20	CPU cooler Assembly	--	1

EXPLODED DIAGRAM FOR PA-3350 PRINTER BOX
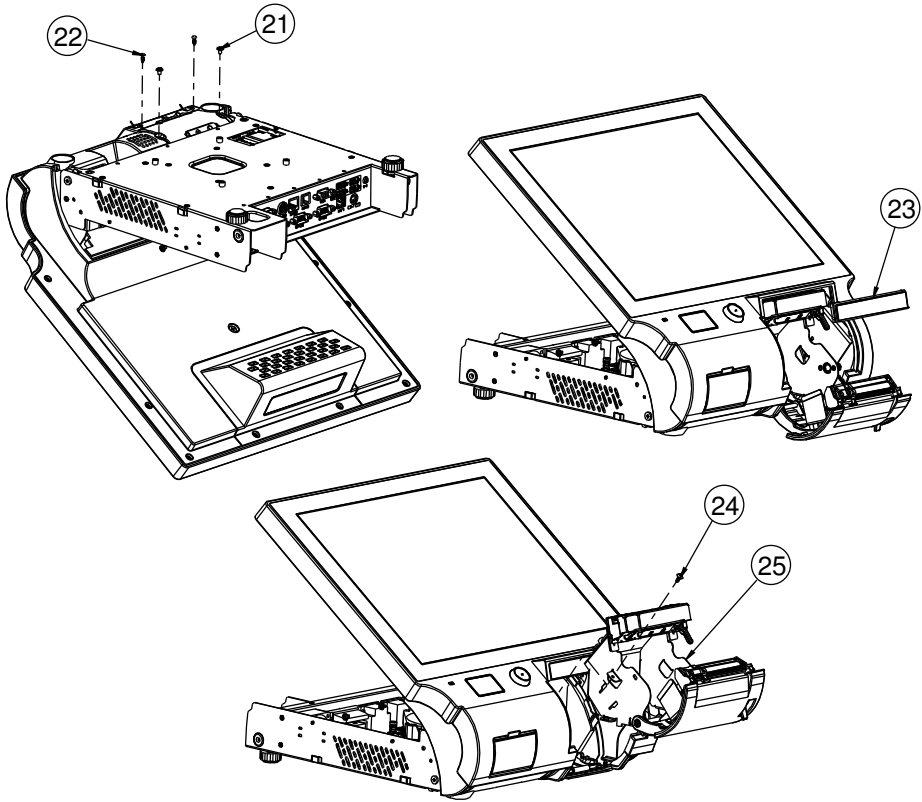
No.	Name	P/N No.	Qt'y
21	M3_L5_Washer_Ni	22-242-30005311	2
22	Plastic Rivet	90-076-04200000	2
23	3350_PRINTER_TOP_COVER	30-002-28310242	1
24	T3_L8_P_B	22-135-30008311	1
25	Printer Assembly	--	1

EXPLODED DIAGRAM FOR PA-3350 OPEN & CLOSE
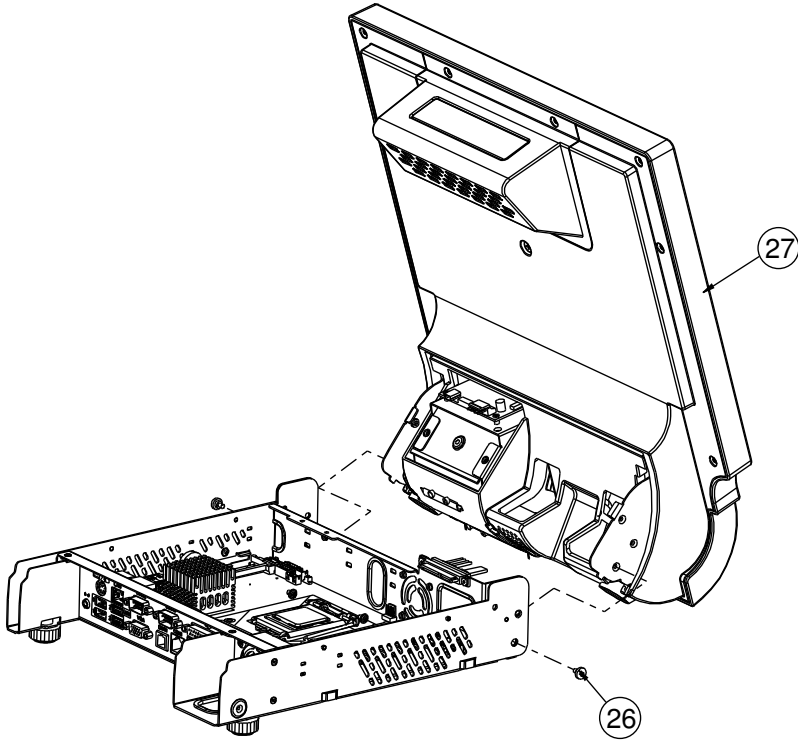
No.	Name	P/N No.	Qt'y
26	M4_L2.2_H4_Ni	22-272-40004911	2
27	LCD_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3350 MAIN BOARD
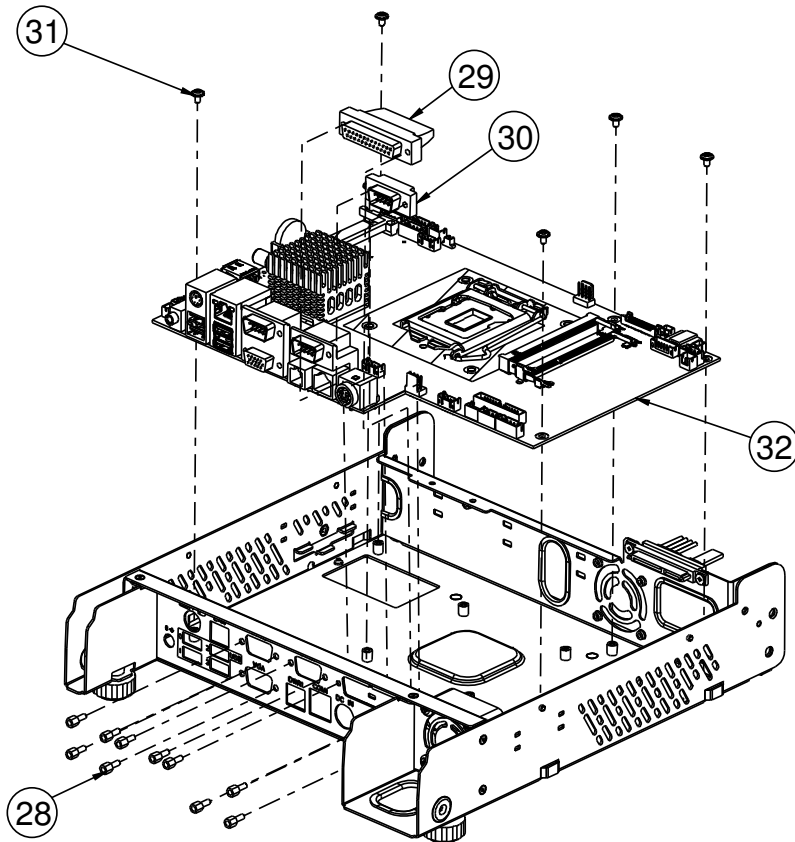
No.	Name	P/N No.	Qt'y
28	No.4 BOSS	22-692-40048051	10
29	Printer cable	27-018-21003071	1
30	COM Cable	27-024-20804031	1
31	M3_L5_Washer_Ni	22-242-30005311	6
32	PB-3251	PB-3251	1

EXPLODED DIAGRAM FOR PA-3350 BOTTOM CASE
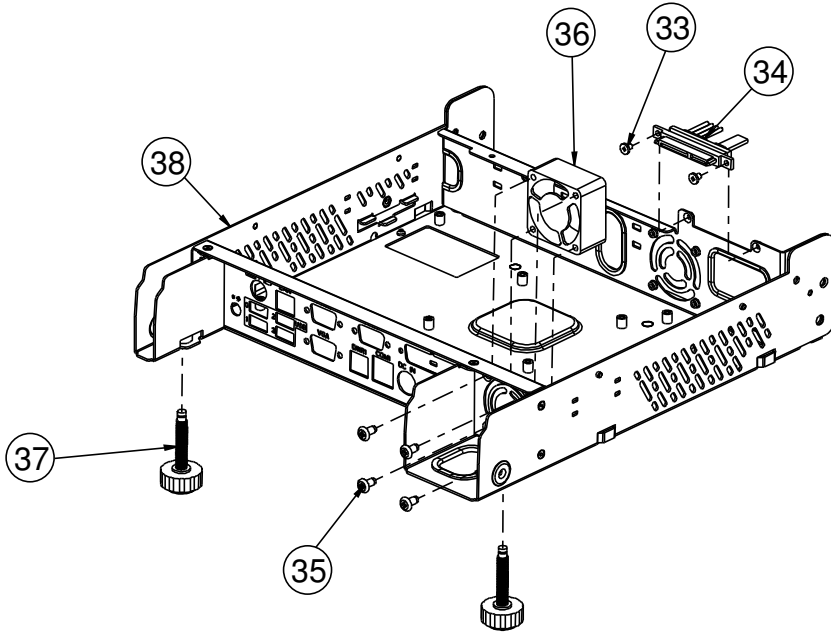
No.	Name	P/N No.	Qt'y
33	M3_L5_W_Ni	22-242-30005311	2
34	Hdd_cable	27-008-24208081	1
35	T4_L8_F_NI	22-112-40010011	4
36	Sys FAN 40x40x28	21-004-04040161	1
37	M6_Foot	22-289-60035007	2
38	PA-3350_INSIDE_BOX	20-040-03001242	1

EXPLODED DIAGRAM FOR PA-3350 LCD FRONT
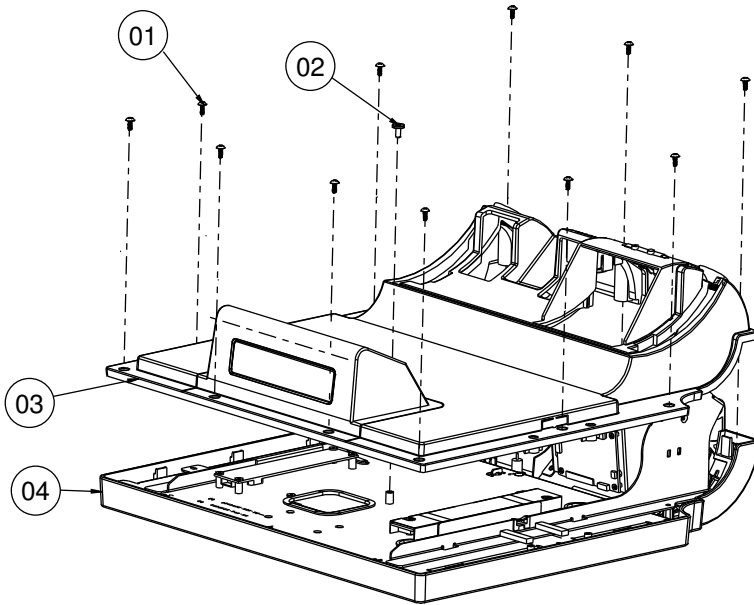
No.	Name	P/N No.	Qt'y
01	T3_L8_P_B	22-135-30008311	11
02	M4_L8_I_B	22-275-40008011	1
03	LCD_Front_Assembly	--	1
04	LCD_Back_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3350 LCD HOLDER
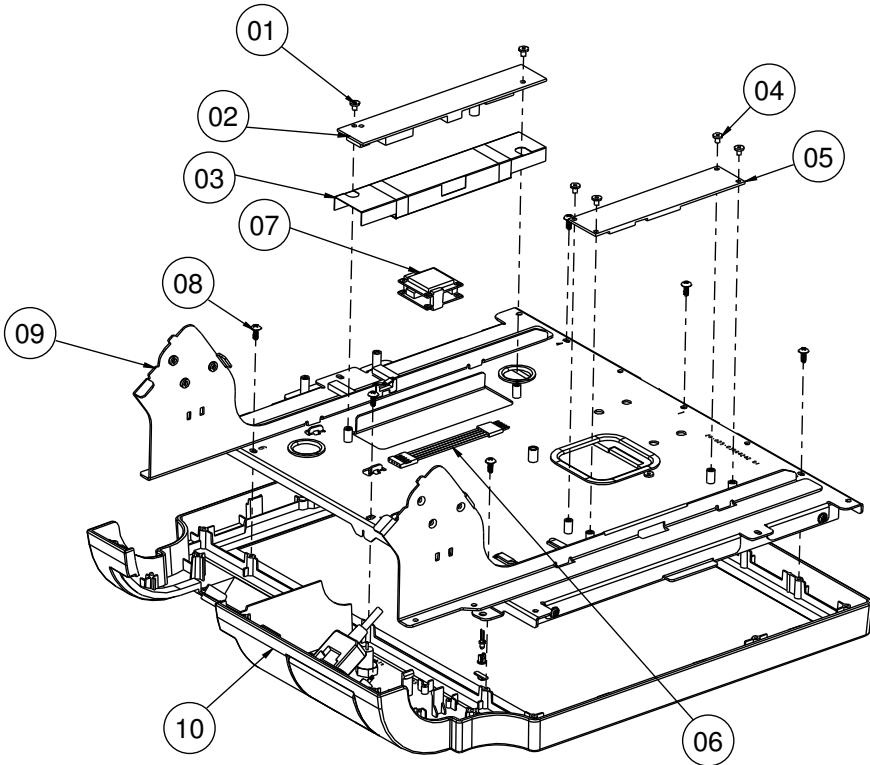
No.	Name	P/N No.	Qt'y
01	M3_L4_1_Ni	82-272-30004018	2
02	Inverter(GPI502-09A)	52-101-15020503	1
02	Inverter cable	27-015-24210111	1
03	INverter Mylar	90-056-02100242	1
04	M3_L4_1_Ni	82-272-30004018	4
05	Touch contral board	52-370-01720007	1
05	Touch Cable	27-006-24414111	1
06	Touch EXTENDED Cable	27-043-12402071	1
07	RFID	52-151-08321015	1
07	RFID Cable	27-068-19907111	1
08	T3_L8_P_B	22-135-30008311	8
09	LCD_Holder Assembly	--	1
10	Front Case Assembly	--	1
No.3&4 for Capacitive type Touch			
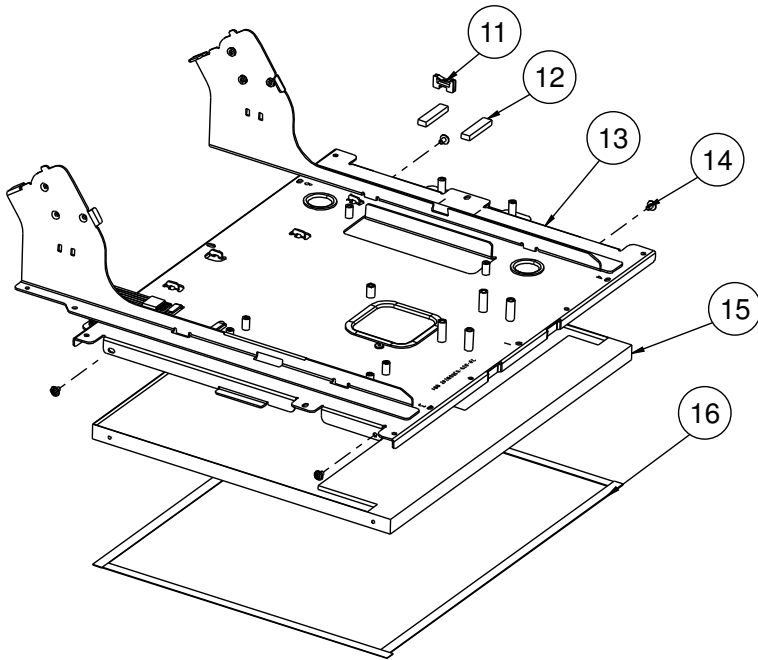
No.	Name	P/N No.	Qt'y
11	Cable Snap(DS-2-N2W)	90-058-04100000	1
12	EVA Sponge	30-013-15100242	2
13	Lcd holder(with VFD)	20-029-03004242	1
	Lcd holder(Without VFD)	20-029-03003242	
14	M3_L5_Washer_Ni	22-242-30005311	4
15	15" lcd Panel	52-351-03150128	1
16	LCD Pron	30-013-24100000	4

EXPLODED DIAGRAM FOR PA-3350 LCD PANEL
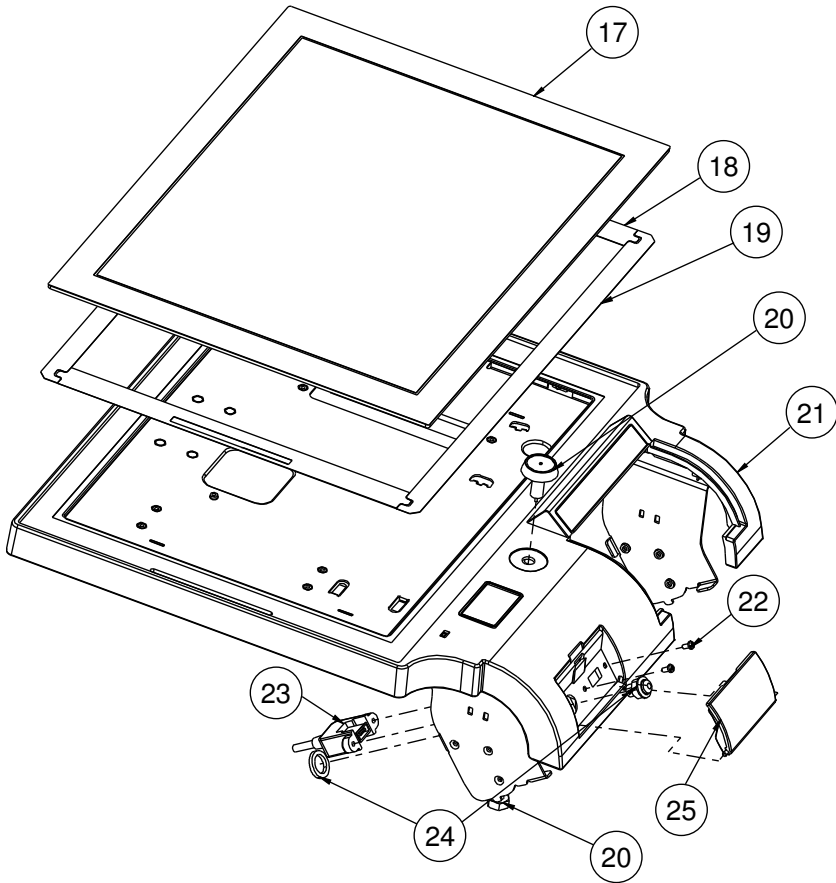
No.	Name	P/N No.	Qt'y
17	ELO Touch	52-380-00114701	1
	Abon Touch(Capacitive)	52-380-00075014	
18	Double Tape B(ELO Use)	94-026-04902220	2
	Double Tape B(Abon Use)	94-026-05002220	
19	Double Tape A(ELO Use)	94-026-04901220	2
	Double Tape A(Abon Use)	94-026-05001220	
20	I-button	52-551-00100002	1
21	PA-3350_LCD_FRONT_COVER	30-002-28210242	1
	PA-3350_LCD_F_COVER_WITHOUT_I	30-002-28110242	
22	No4_L6_R_Ni	22-332-04040311	2
23	USB Cable	27-006-24206111	1
24	Switch Cable	27-019-24203071	1
25	PA-3350-FRONT_DOOR	30-007-28110242	1

EXPLODED DIAGRAM FOR PA-3350 2 INCH PRINTER
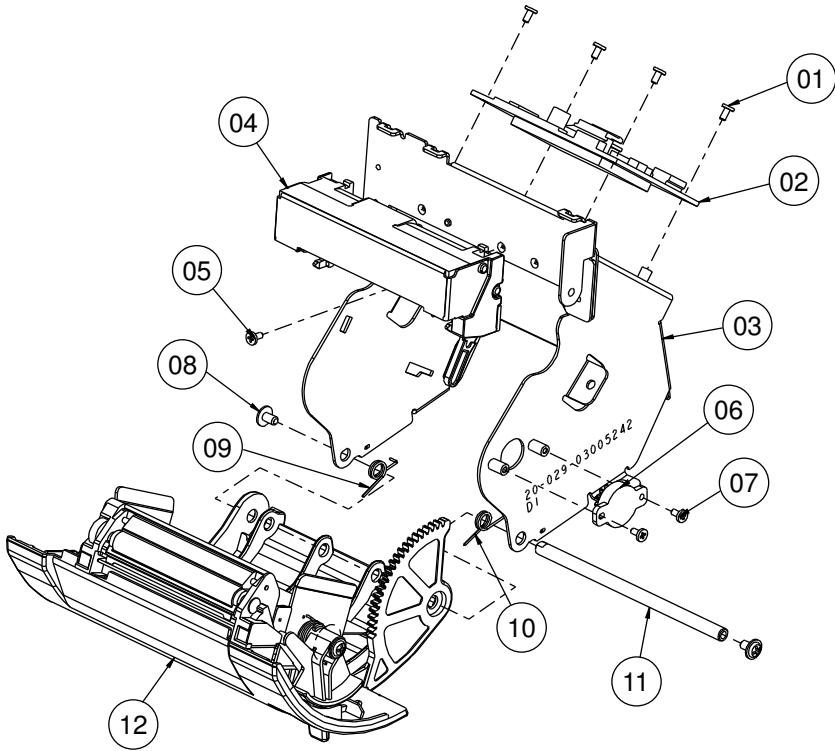
No.	Name	P/N No.	Qt'y
01	M2_L4_W_Ni	22-232-20004311	4
02	Printer Control PCB	See Order	1
03	PA-3350_PRINTER_HOLDER	20-029-03005242	1
04	2" Printer	52-701-00020003	1/2
05	M2_L4_I_Ni	22-272-20004011	1
06	Rotary Damper	30-022-09110000	1
07	M2_L4_I_Ni	22-272-20004011	2
08	M3_L5_W_Ni	22-242-30005311	2
09	PA3350-P_DOOR_SPRING_L	23-000-04000502	1
10	PA3350-P_DOOR_SPRING_R	23-000-03000502	1
11	PAPER_COVER_PIN	20-004-10011165	1
12	Printer Front_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3350 2 INCH PRINTER COVER
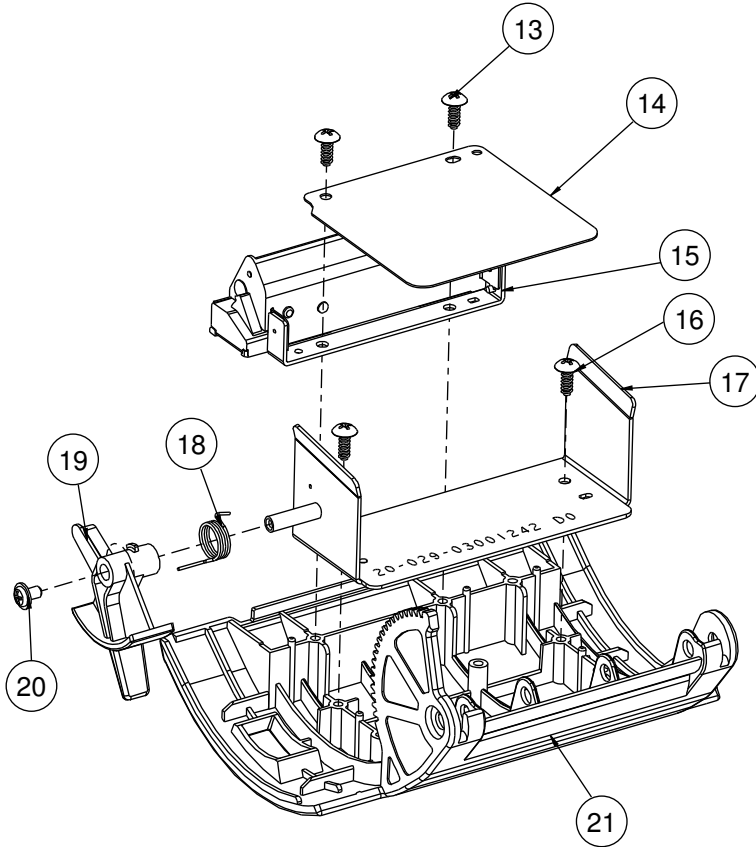
No.	Name	P/N No.	Qt'y
13	T3_L8_P_B	22-135-30008311	2
14	2" Mylar	90-056-02300165	1
15	2" Printer	52-701-00020003	1/2
16	T3_L8_P_B	22-135-30008311	2
17	PA3350_EJECTOR_HOLDER	20-029-03001242	1
18	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
19	PA-3350-EJECTOR	30-019-09130242	1
20	M3_L5_W_Ni	22-242-30005311	1
21	PA-3350_P_DOOR	30-007-02130242	1

EXPLODED DIAGRAM FOR PA-3350 3 INCH PRINTER
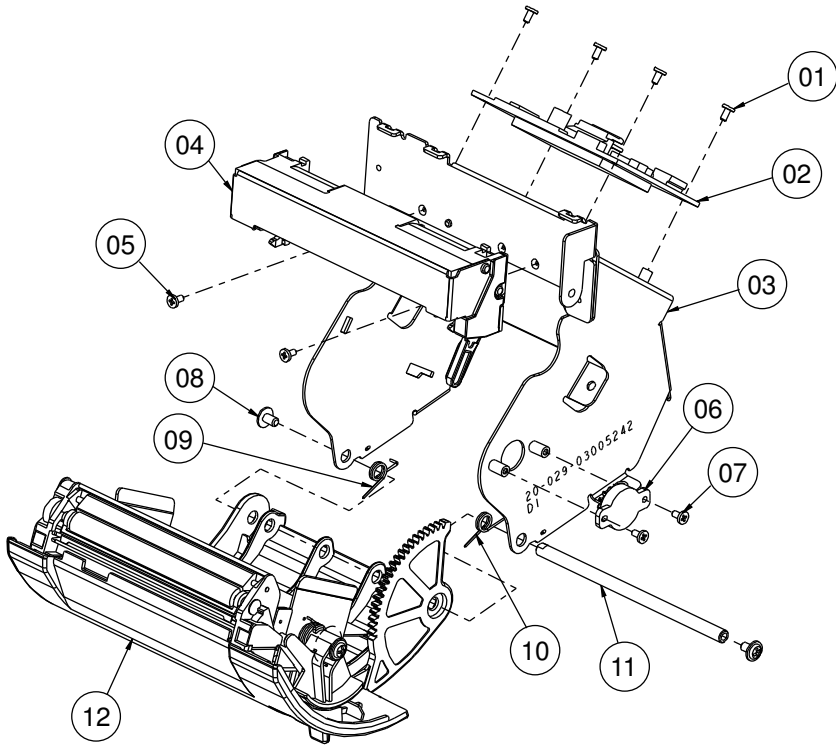
No.	Name	P/N No.	Qt'y
01	M2_L4_W_Ni	22-232-20004311	4
02	Printer Control PCB	See order	1
03	PA-3350_PRINTER_HOLDER	20-029-03005242	1
04	3" Printer	52-701-00017003	1/2
05	M2_L4_I_Ni	22-272-20004011	2
06	Rotary Damper	30-022-09110000	1
07	M2_L4_I_Ni	22-272-20004011	2
08	M3_L5_W_Ni	22-242-30005311	2
09	PA3350-P_DOOR_SPRING_L	23-000-04000502	1
10	PA3350-P_DOOR_SPRING_R	23-000-03000502	1
11	PAPER_COVER_PIN	20-004-10011165	1
12	Printer Front_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3350 3 INCH PRINTER COVER
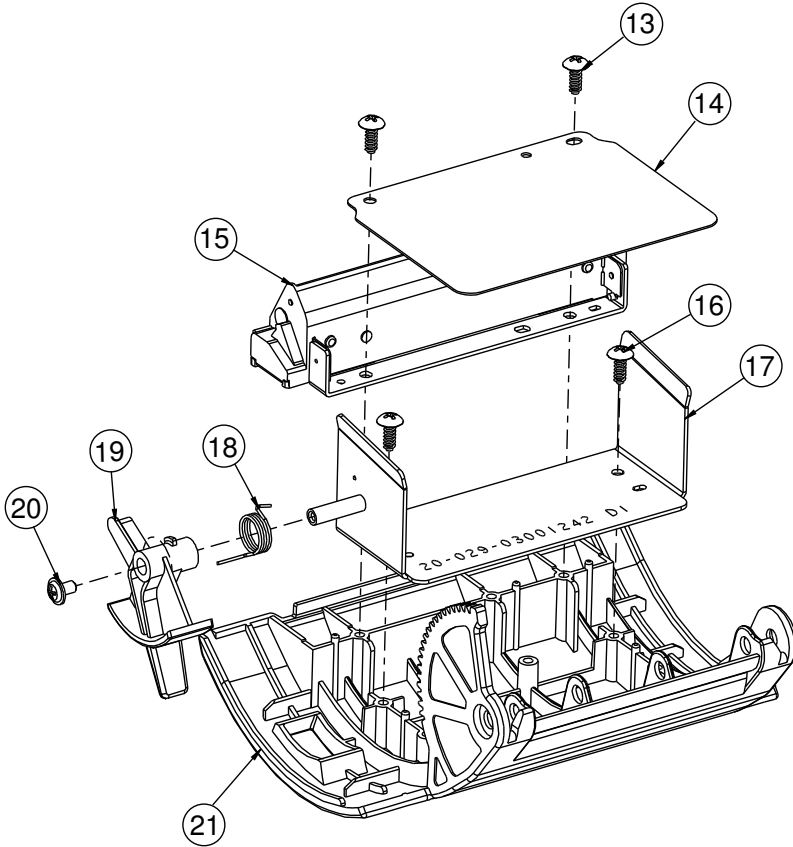
No.	Name	P/N No.	Qt'y
13	T3_L8_P_B	22-135-30008311	2
14	3" Mylar	90-056-02600165	1
15	3" Printer	52-701-00017003	1/2
16	T3_L8_P_B	22-135-30008311	2
17	PA3350_EJECTOR_HOLDER	20-029-03001242	1
18	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
19	PA-3350-EJECTOR	30-019-09130242	1
20	M3_L5_W_Ni	22-242-30005311	1
21	PA-3350_P_DOOR	30-007-02130242	1

EXPLODED DIAGRAM FOR PA-3350 VFD COVER
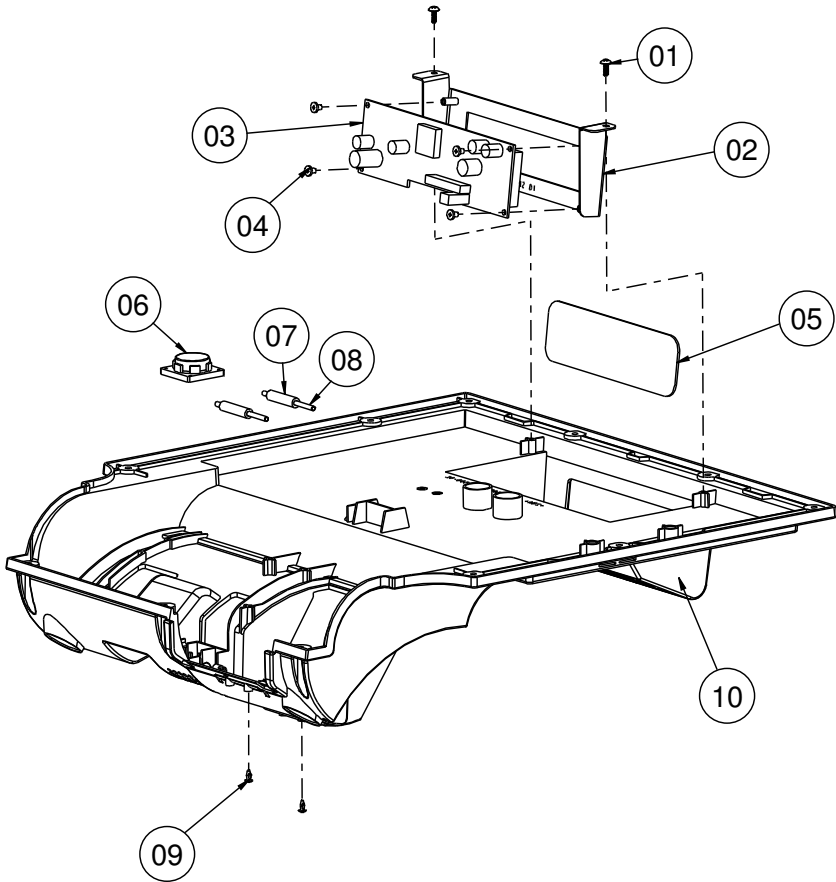
No.	Name	P/N No.	Qt'y
01	T3_L8_P_B	22-135-30008311	2
02	PA-3350_VFD_HOLDER	20-029-03006242	1
03	VFD	52-901-17001703	1
	VFD Cable	27-051-24213111	1
04	M3_L4_1_Ni	82-272-30004018	4
05	POS-6600 VFD LENS	30-021-02130199	1
06	Speaker Cable	XX-XXX-XXXXXXXX	1
07	∅6_L25	30-041-04100165	2
08	D3 PIN	20-045-19012199	2
09	Rivet	90-042-04100000	2
10	PA-3350_LCD_BACK_COVER	30-002-28810242	1
	3350_LCD_BACK_WITHOUT_VFD	30-002-28710242	

EXPLODED DIAGRAM FOR PA-3350 HDD MODULE
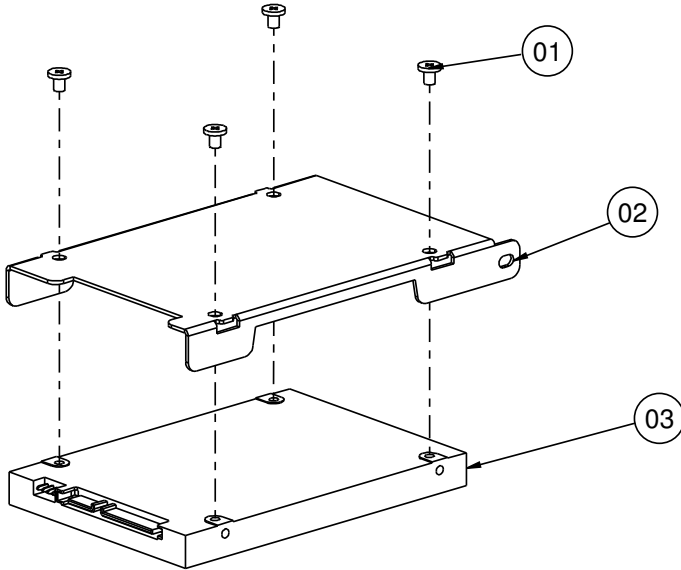
No.	Name	P/N No.	Qt'y
01	M3_L4_I_Ni	82-272-30004018	4
02	PA-3350_HDD_HOLDER	80-029-03001242	I
03	HDD	See Order	I

EXPLODED DIAGRAM FOR PA-3350 SSD MODULE
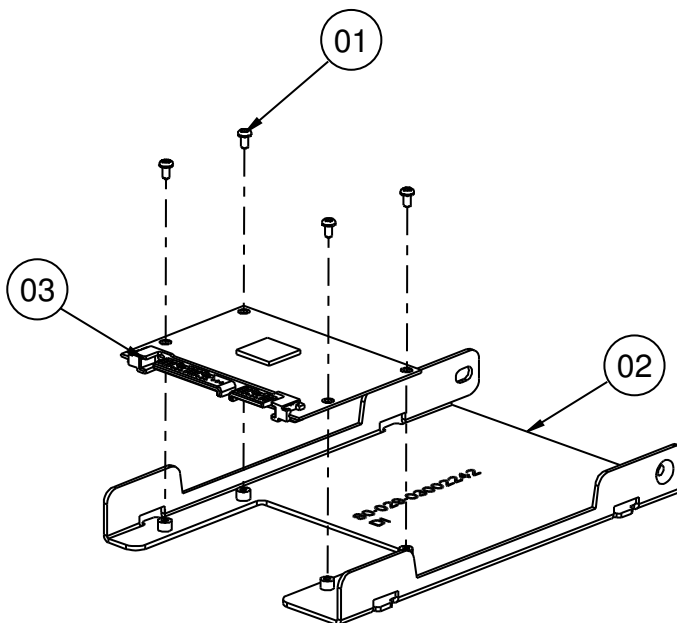
No.	Name	P/N No.	Qt'y
01	M1.6_L3	22-222-16003015	4
02	PA-3350_SSD_HOLDER	80-029-03002242	1
03	SSD	See Order	1

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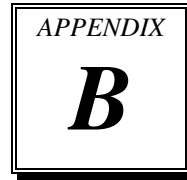
This appendix will give you a brief introduction of the allocation maps for the system resources.

Sections included:

- Block Diagram

- Interrupt Map

- DMA Channels Map

- I / O Map

- Watchdog Timer Configuration

- Flash BIOS Update

BLOCK DIAGRAM
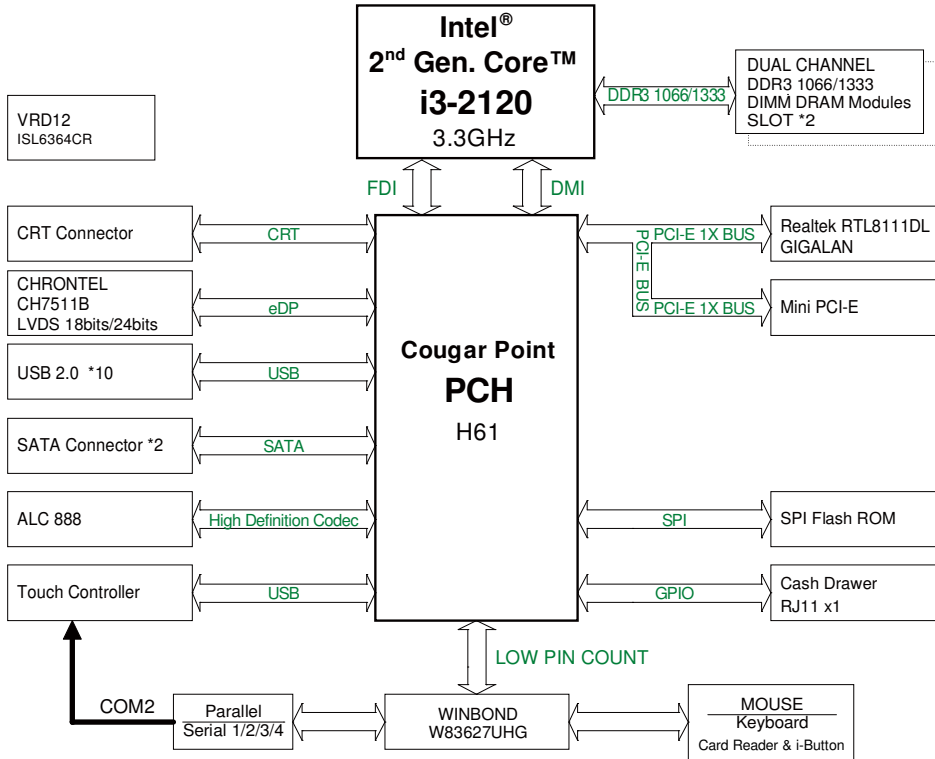
INTERRUPT MAP

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

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

IRQ	ASSIGNMENT
112	Microsoft ACPI-Compliant System
113	Microsoft ACPI-Compliant System
114	Microsoft ACPI-Compliant System
115	Microsoft ACPI-Compliant System
116	Microsoft ACPI-Compliant System
117	Microsoft ACPI-Compliant System
118	Microsoft ACPI-Compliant System
119	Microsoft ACPI-Compliant System
120	Microsoft ACPI-Compliant System
121	Microsoft ACPI-Compliant System
122	Microsoft ACPI-Compliant System
123	Microsoft ACPI-Compliant System
124	Microsoft ACPI-Compliant System
125	Microsoft ACPI-Compliant System
126	Microsoft ACPI-Compliant System
127	Microsoft ACPI-Compliant System
128	Microsoft ACPI-Compliant System
129	Microsoft ACPI-Compliant System
130	Microsoft ACPI-Compliant System
131	Microsoft ACPI-Compliant System
132	Microsoft ACPI-Compliant System
133	Microsoft ACPI-Compliant System
134	Microsoft ACPI-Compliant System
135	Microsoft ACPI-Compliant System
136	Microsoft ACPI-Compliant System
137	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
138	Microsoft ACPI-Compliant System
139	Microsoft ACPI-Compliant System
140	Microsoft ACPI-Compliant System
141	Microsoft ACPI-Compliant System
142	Microsoft ACPI-Compliant System
143	Microsoft ACPI-Compliant System
144	Microsoft ACPI-Compliant System
145	Microsoft ACPI-Compliant System
146	Microsoft ACPI-Compliant System
147	Microsoft ACPI-Compliant System
148	Microsoft ACPI-Compliant System
149	Microsoft ACPI-Compliant System
150	Microsoft ACPI-Compliant System
151	Microsoft ACPI-Compliant System
152	Microsoft ACPI-Compliant System
153	Microsoft ACPI-Compliant System
154	Microsoft ACPI-Compliant System
155	Microsoft ACPI-Compliant System
156	Microsoft ACPI-Compliant System
157	Microsoft ACPI-Compliant System
158	Microsoft ACPI-Compliant System
159	Microsoft ACPI-Compliant System
160	Microsoft ACPI-Compliant System
161	Microsoft ACPI-Compliant System
162	Microsoft ACPI-Compliant System
163	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
164	Microsoft ACPI-Compliant System
165	Microsoft ACPI-Compliant System
166	Microsoft ACPI-Compliant System
167	Microsoft ACPI-Compliant System
168	Microsoft ACPI-Compliant System
169	Microsoft ACPI-Compliant System
170	Microsoft ACPI-Compliant System
171	Microsoft ACPI-Compliant System
172	Microsoft ACPI-Compliant System
173	Microsoft ACPI-Compliant System
174	Microsoft ACPI-Compliant System
175	Microsoft ACPI-Compliant System
176	Microsoft ACPI-Compliant System
177	Microsoft ACPI-Compliant System
178	Microsoft ACPI-Compliant System
179	Microsoft ACPI-Compliant System
180	Microsoft ACPI-Compliant System
181	Microsoft ACPI-Compliant System
182	Microsoft ACPI-Compliant System
183	Microsoft ACPI-Compliant System
184	Microsoft ACPI-Compliant System
185	Microsoft ACPI-Compliant System
186	Microsoft ACPI-Compliant System
187	Microsoft ACPI-Compliant System
188	Microsoft ACPI-Compliant System
189	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
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
0x000001F0-0x000001F7	ATA Channel 0

I/O MAP	ASSIGNMENT
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
0x0000F040-0x0000F05F	Intel® 6 Series/C200 Series Chipset Family SMBus Controller - 1C22

I/O MAP	ASSIGNMENT
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 <Del> key during boot to enter BIOS Setup.
    c.   System will go into the BIOS setup menu.
    d.   Select [Boot] menu.
    e.   Select [Hard Drive BBS Priorities], set the USB bootable device to be the 1st boot device.
    f.   Press <F4> key to save configuration and exit the BIOS setup menu.
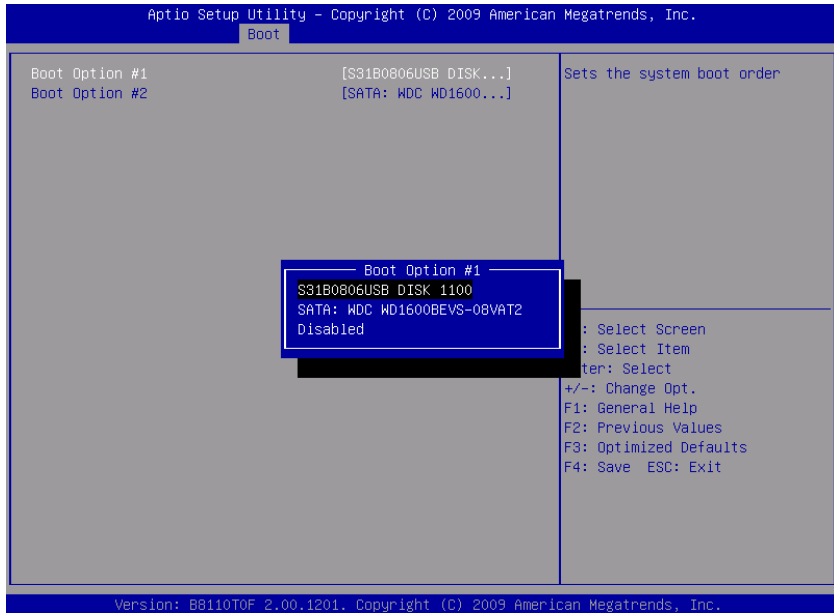
II. AFUDOS Command for System BIOS Update

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

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

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

/P: Program main BIOS image

/B: Program Boot Block

/N: Program NVRAM

/X: Do not check ROM ID

III. BIOS Update Procedure

1. Use the bootable USB storage to boot up system into the DOS command prompt.
2. Type "**AFUDOS 6630xxxx.bin /p /b /n /x"** and press enter to start the flash procedure.
   (Note that xxxx means the BIOS revision part, ex. 0P01…)
3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM and make system unable to boot up next time.
4. After BIOS update procedures is complete, the messages should be like the figure shown below.

```
C:\AFUDOS>afudos 66300T08.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 NVRAM ........ done
Writing NVRAM ........ done
Verifying NVRAM ....... 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.
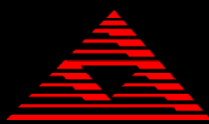
American
Megatrends

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.
BIOS Date: 07/11/2013 14:54:32 Ver: 33501P02

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