USER'S MANUAL

PA-3320

POS Terminal Powered by
Intel® Atom® Platform

PA-3320 M1

PA-3320 Series POS System
With LCD/Touch screen

COPYRIGHT NOTICE

DISCLAIMER

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

CE NOTICE

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

FCC NOTICE

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

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

CAUTION! Danger of explosion if battery is incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer. Dispose of used batteries according to the manufacturer's instructions.
WARNING! Some internal parts of the system may have high electrical voltage. And therefore we strongly recommend that qualified engineers can open and disassemble the system.The LCD and Touchscreen are easily breakable, please handle them with extra care.

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CHAPTER 3 SOFTWARE UTILITIES

CHAPTER 4 AMI BIOS SETUP

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INTRODUCTION

CHAPTER 1

This chapter gives you the information for the PA-3320. 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-3320 Series System. The PA-3320 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3320 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 two 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 jumpers 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.

Chapter 4 AMI BIOS Setup

This chapter indicates you how to change the BIOS configuration.

Appendix A System Assembly

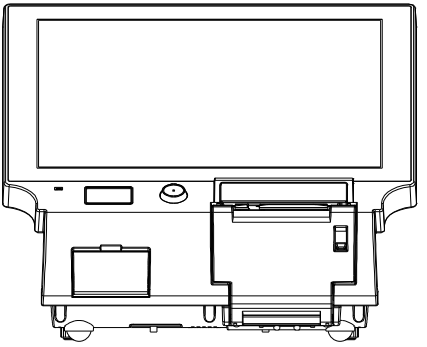
This appendix gives you the exploded diagrams and part numbers of the PA-3320.

Appendix B Technical Summary

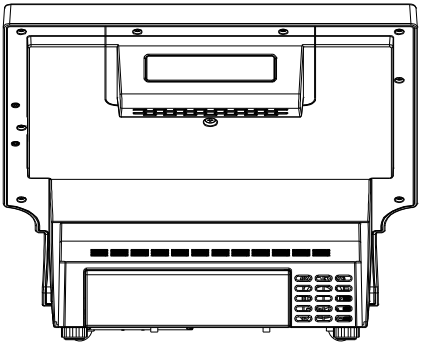
This appendix gives you the information about the allocation maps for the system resources, Watchdog Timer Configuration, and Flash BIOS Update.

1-2. POS SYSTEM ILLUSTRATION

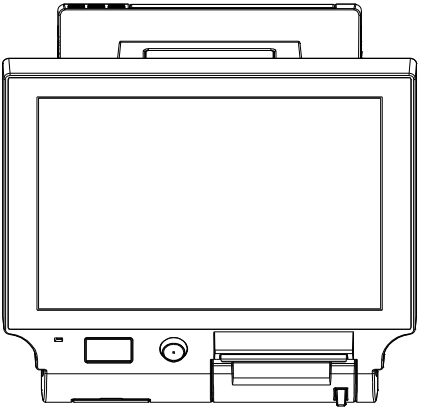
Front View



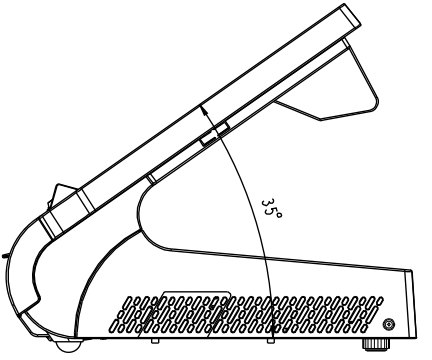
Rear View



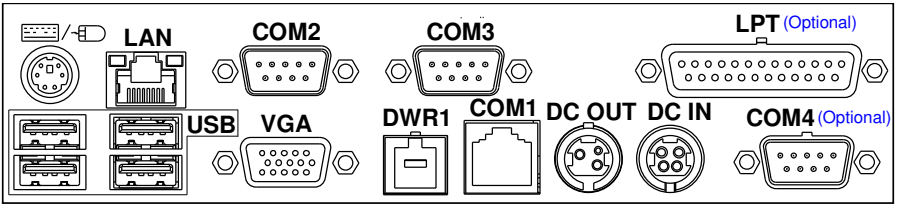
Top View



Side View



I/O View



1-3. SYSTEM SPECIFICATIONS

System

CPU	Intel® Atom™ D525
Chipset	Intel® ICH8M
Operation System	▪ Windows 7/XP Pro ▪ WES 7/2009 ▪ POSReady 7/2009
Memory	1 x 204-pin DDRIII SO-DIMM socket on board, up to 2GB
BIOS	AMI SPI, 8Mbits with VGA
Power Supply	120W DC
Printer	2" or 3" easy loading thermal printer with auto cutter (*Diameter of paper roll cannot exceed 8 cm.)
i-Button	(Optional) Read only, output through PS/2 KB interface
MSR	(Optional) JIS-I or II, ISO Tracker 1+2+3 (PS/2 KB Interface)
Wireless LAN	(Optional) Mini-PCIe wireless LAN module (802.11b/g)
Fingerprint	(Optional) Embedded fingerprint module (USB Interface)
RFID	(Optional) Read/Write, ISO 14443A 13.56MHz (USB Interface)
Dimension (WxHxD)	369 mm x 287 mm x 355 mm
System Weight	9 Kg
Certificate	FCC/CE

I/O Ports

Serial Port	▪ 3 x DB-9 (COM 2/3/4) ▪ 1 x RJ45 (COM1) ▪ +5/12V Selectable (COM1~4)
USB	5 x USB 2.0 (one on front panel)
Keyboard/Mouse	PS/2 with mini-DIN connector on rear panel
LAN	1 x 10/100/1000 Mbps
VGA	1 x DB-15 interface
Audio	1 x 2W speaker

Display

LCD	15” TFT XGA
Max. Resolution	1024 x 768
Brightness	250 cd/m^2
Touch Screen	15” 5-wire analog resistive
Viewing Angle	30˚~40˚

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-3320 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.

b. Avoid installing your PA-3320 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-3320 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-3320 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 operation system before turning off the power.

3. Handling

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

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

c. Do not allow any objects to fall into this product.

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

4. Good Care

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

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

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

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

SYSTEM CONFIGURATION

CHAPTER

2

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

Sections included:

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

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

JUMPER/CONNECTOR	NAME	PAGE
COM Port & VGA Connector	COM1, COM3, COM4-1, COM4-2, JVGACOM2	2-7
COM Port RI and Voltage Selection	JP_COM1, JP_COM2, JP_COM3, JP_COM4	2-9
MINI-DIM and USB Connector	JPS2USB1, USB5, USB67	2-10
LAN & USB Connector	JRJ45USB1	2-11
Cash Drawer Connector	DRW1	2-12
Cash Drawer Power Selection	JP14	2-13
Backlight Type Selection	JP21	2-13
Power LED Connector	LED-1, LED-2,	2-14
Fan Connector	FAN1, FAN2	2-15
Power Connector	FAN3	2-15
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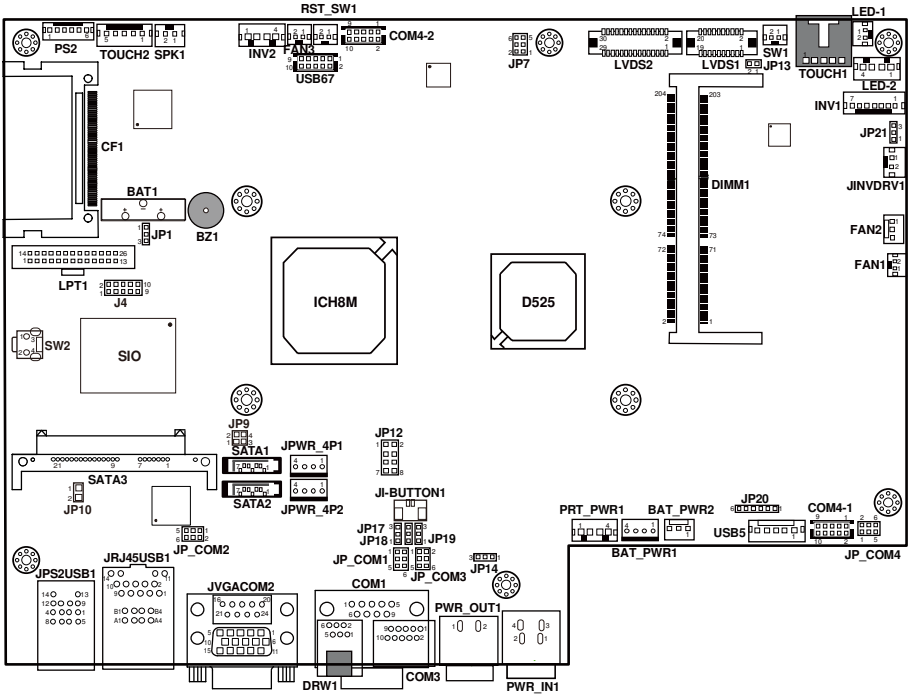
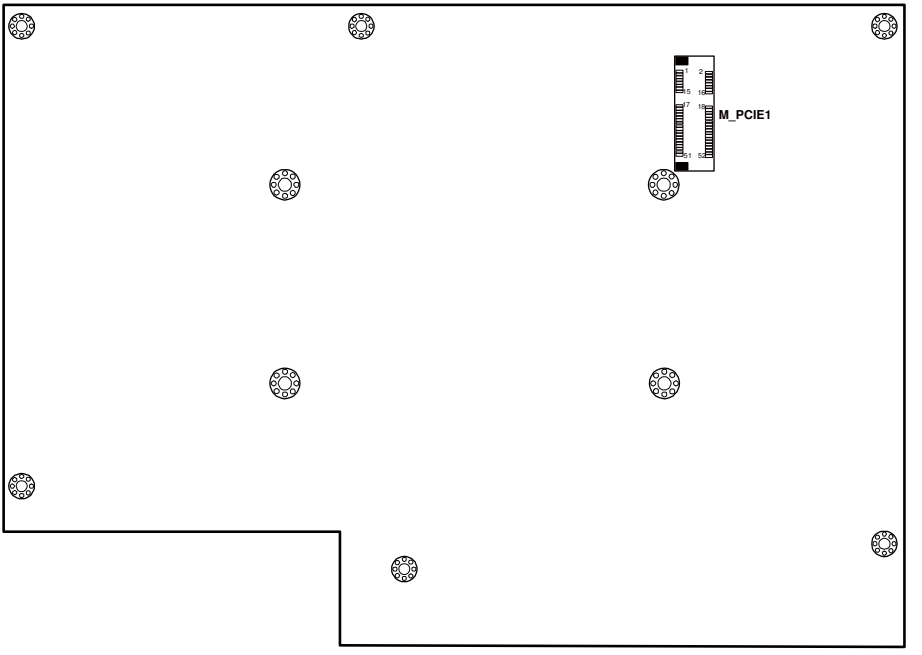
Touch Panel Connector	TOUCH1, TOUCH2	2-22
Clear CMOS Data Selection	JP1	2-22
Compact Flash Connector	CF1	2-23
Printer Connector	LPT1	2-24
Watch Dog Function Selection	JP9	2-25
I-Button Connector and I-Button Function Selection	JI-BUTTON1, JP17, JP18, JP19	2-25

2-2. COMPONENT LOCATIONS

M/B: PROX-A6620LF



PA-3320 Mainboard Front Connector, Jumper and Component locations



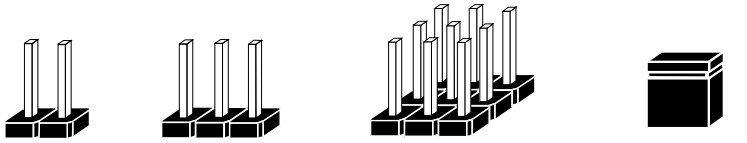
PA-3320 Mainboard Rear Connector, Jumper and Component locations

2-3. HOW TO SET THE JUMPERS

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

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

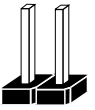
JUMPERS AND CAPS



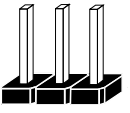
If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

JUMPER DIAGRAMS

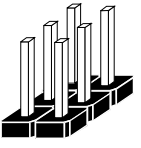
Jumper Cap looks like this



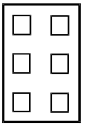
2 pin Jumper looks like this



3 pin Jumper looks like this

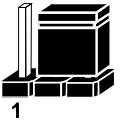


Jumper Block looks like this

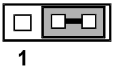


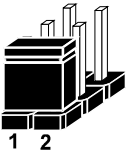
JUMPER SETTINGS

2 pin Jumper closed(enabled)
looks like this

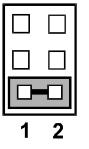


3 pin Jumper
2-3 pin closed(enabled)
looks like this





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



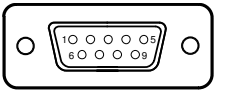
2-4. COM PORT & VGA CONNECTOR

There are four COM ports enhanced in this board namely: COM1, COM3, COM4 and JVGACOM2.

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

COM1: COM1 Connector
The pin assignments are as follows:

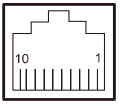
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD2	6	DSR2
2	RXD2	7	RTS2
3	TXD2	8	CTS2
4	DTR2	9	RI/+5V/+12V selectable
5	GND		



COM1

COM3: COM3 Connector
The pin assignments are as follows:

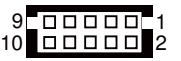
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD3	6	DSR3
2	RXD3	7	RTS3
3	TXD3	8	CTS3
4	DTR3	9	RI / +5V / +12V selectable
5	GND	10	NC



COM3

COM4: COM4-1 & COM4-2 Connectors
The pin assignments are as follows:

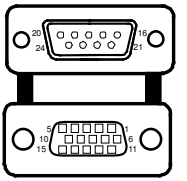
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD4	6	DSR4
2	RXD4	7	RTS4
3	TXD4	8	CTS4
4	DTR4	9	RI/+5V/+12 selectable
5	GND	10	NC



COM4-1/ COM4-2

JVGACOM2: COM2 & VGA Connector
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	DCD1
5	GND	17	RXD1
6	GND	18	TXD1
7	GND	19	DTR1
	GND	20	GND
9	+5V	21	DSR1
10	GND	22	RTS1
11	NC	23	CTS1
12	DDCA DATA	24	RI/+5V/+12 selectable



JVGACOM2

Note: All COM port is selectable for RI, +5V or +12V. For more information, please refer to "*COM RI and Voltage Selection*".

2-5. COM PORT RI & VOLTAGE SELECTION

JP_COM1, JP_COM2, JP_COM3, JP_COM4: COM2, COM3, COM1, COM4-1 & COM4-1 Ports RI & Voltage Selections

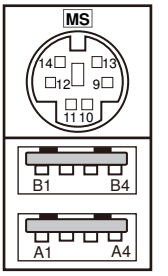
The selections are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION			
		COM2	COM3	COM1	COM4-1 & COM4-2
RI	1-2	 JP_COM1 (default)	 JP_COM2 (default)	 JP_COM3	 JP_COM4 (default)
VCC12	3-4	 JP_COM1	 JP_COM2	 JP_COM3 (default)	 JP_COM4
VCC	5-6	 JP_COM1	 JP_COM2	 JP_COM3	 JP_COM4

2-6. MINI-DIM & USB CONNECTOR

JPS2USB1: Two USB Ports and MINI-DIM Connector
MINI-DIN connector can support keyboard, Y-cable or PS/2 mouse.
The pin assignments are as follows:

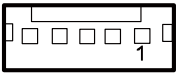
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	8	VCC5
2	USB2+	9	GND
3	USB2-	10	KDAT
4	VCC5	11	MDAT
5	GND	12	V5SB
6	USB3+	13	KCLK
7	USB3-	14	MCLK



JPS2USB1

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

PIN	ASSIGNMENT
1	USB5-
2	USB5+
3	GND
4	VCC5
5	GND



USB5

USB67: Internal USB Port Connector
The pin assignments are as follows:

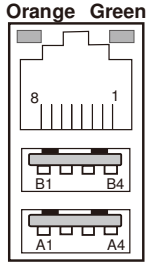
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC5	6	USB7+
2	VCC5	7	GND
3	USB6-	8	GND
4	USB7-	9	GND
5	USB6+	10	GND

USB67

2-7. LAN & USB Connector

JRJ45USB1: LAN & USB Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LAN1_MDIP0	A1	VCC5
2	LAN1_MDIN0	A2	USB0-
3	LAN1_MDIP1	A3	USB0+
4	LAN1_MDIN1	A4	GND
5	LAN1_MDIP2	B1	VCC5
6	LAN1_MDIN2	B2	USB1-
7	LAN1_MDIP3	B3	USB1+
8	LAN1_MDIN3	B4	GND



JRJ45USB1

2-8. CASH DRAWER CONNECTOR

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

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

Cash drawer control in GPIO port:

- **To Open Drawer 1 (GPIO 7)**
  Write "00"h to I/O Port "50C"h Bit 7
- **To Close Drawer**
  Write "01"h to I/O Port "50C"h Bit 7
- **Detect Drawer1 Status**
  Read I/O "50E"h (GPIO 20)
  Definition (bit4)

2-9. CASH DRAWER POWER SELECTION

JP14: Cash Drawer Power Selection
The jumper settings are as follows:

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

Note: Manufactory default – 24V

2-10. BACKLIGHT TYPE SELECTION

JP21: Backlight Type Selection
The jumper settings are as follows:

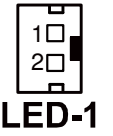
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
CCFL Backlight	1-2	
LED Backlight	2-3	

Note: Manufactory default --- CCFL Backlight. LED Backlight

2-11 POWER LED CONNECTOR

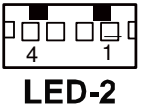
LED-1: LED Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	VCC_PWR_LED



LED-2: LED Connector
The pin assignments are as follows:

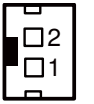
PIN	ASSIGNMENT
1	VCC
2	VCC_PWR_LED
3	PWRLED
4	VCC



2-12. FAN CONNECTOR

FAN1: Fan Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC12
2	GND



FAN1

FAN2: Fan Connector
The pin assignments are as follows:

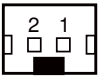
PIN	ASSIGNMENT
1	GND
2	12V
3	CPUFANIN

FAN2

2-13. POWER CONNECTOR

FAN3: Power Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC12
2	GND

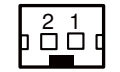


FAN3

2-14. RESET SWITCH CONNECTOR

RST_SW1: Power Reset Switch Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	RST_SW
2	GND

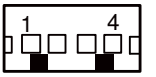


RST_SW1

2-15. 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

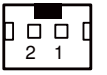


PRT_PWR1

2-16. EXTERNAL SPEAKER CONNECTOR

SPK1: External Speaker Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT



SPK1

2-17. INVERTER CONNECTOR

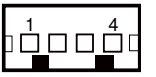
INV1: Inverter Connector
The pin assignments are as follows:

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

INV1

INV2: Inverter Connector
The pin assignments are as follows:

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



INV2

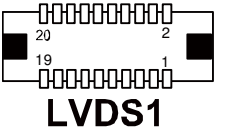
2-18. MSR/CARD READER CONNECTOR

PS2: 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

2-19. LVDS CONNECTOR

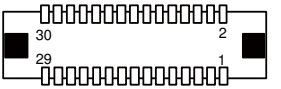
LVDS1: LVDS connector
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	11	LVDS_YAM1
2	LVDS_VCC	12	LVDS_CLKAM
3	LVDS_YAP2	13	GND
4	LVDS_VCC	14	GND
5	LVDS_YAM2	15	LVDS_YAP0
6	GND	16	GND
7	GND	17	LVDS_YAM0
8	GND	18	LVDS_VCC
9	LVDS_YAP1	19	GND
10	LVDS_CLKAP	20	LVDS_VCC

LVDS2: LVDS connector
The pin assignments are as follows:

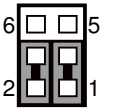
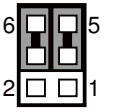
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	16	CLKO+
2	GND	17	CLKO-
3	NC	18	GND
4	NC	19	RINO2+
5	GND	20	RINO2-
6	NC	21	GND
7	NC	22	RINO1+
8	GND	23	RINO1-
9	NC	24	GND
10	NC	25	RINO0+
11	NC	26	RINO0-
12	NC	27	NC
13	NC	28	NC
14	NC	29	LVDS_VCC
15	GND	30	LVDS_VCC



LVDS2

2-20. LVDS VOLTAGE SELECTION

JP7: LVDS voltage selection.
The jumper settings are as follows:

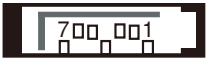
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
3.3V	1-3, 2-4	 JP7
5V	3-5, 4-6	 JP7

Note: Manufactory default – 3.3V

2-21. SATA CONNECTOR

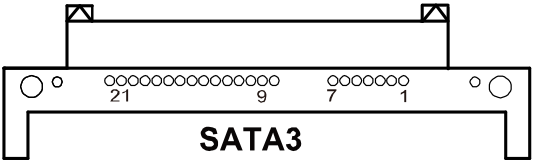
SATA1, SATA2: Serial ATA Connector
The pin assignments are as follows:

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



SATA1/ SATA2

SATA3: Serial ATA and Serial ATA Power Connector
The pin assignments are as follows:

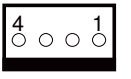


PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	G1	12	GND
2	TX+	13	GND
3	TX-	14	VCC5
4	G2	15	VCC5
5	RX-	16	VCC5
6	RX+	17	GND
7	G3	18	N/A
8	N/A	19	GND
9	N/A	20	VCC12
10	N/A	21	VCC12
11	GND	22	VCC12

2-22. SATA POWER CONNECTOR

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

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12

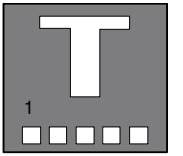


JPWR_4P1/
JPWR_4P2

2-23. TOUCH PANEL CONNECTOR

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

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



TOUCH1

TOUCH2

2-24. CLEAR CMOS DATA SELECTION

JP1: Clear CMOS Data Selection
The selections are as follows:

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
NORMAL	1-2	 JP1
CLEAR CMOS*	2-3	 JP1

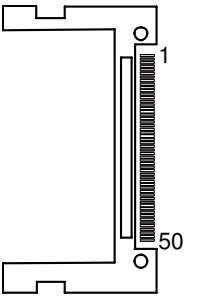
Note: Manufacturing Default – Normal

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

2-25. COMPACT FLASH CONNECTOR

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

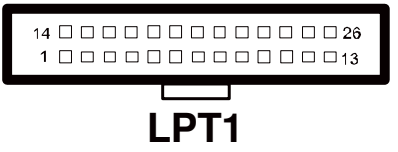
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	26	GND
2	D03	27	D11
3	D04	28	D12
4	D05	29	D13
5	D06	30	D14
6	D07	31	D15
7	CSJ1	32	CSJ3
8	GND	33	GND
9	GND	34	SDIORDJ
10	GND	35	SDIOWRJ
11	GND	36	+5V
12	GND	37	IRQ14
13	+5V	38	+5V
14	GND	39	-CSEL
15	GND	40	NC
16	GND	41	RESETJ
17	GND	42	IORDJ
18	A02	43	REQ
19	A01	44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



CF1

2-26. PRINTER CONNECTOR

LPT1: Printer Connector
The pin assignments are as follows:



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

2-27. WATCH DOG FUNCTION SELECTION

JP9: Watch Dog Function Selection.
The pin assignments are as follows:

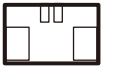
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Reset	1-2	 JP9
NMI	3-4	 JP9

Note: Manufacturing Default – Reset

2-28. I-BUTTON CONNECTOR

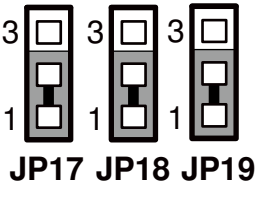
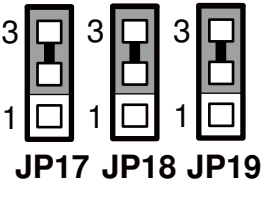
JI-BUTTON1: i-Button Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	COM2_DTR_R_I
2	COM2_RXD_R_I


JI-BUTTON1

2-29. I-BUTTON FUNCTION SELECTION

JP17, JP18, JP19: i-Button Function Selection
The jumper settings are as follows:

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

Note: Manufacturing Default – COM3

SOFTWARE UTILITIES

CHAPTER

3

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

Sections included:

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

3-1. INTRODUCTION

Enclosed with the PA-3320 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\UTILITY	Intel® Chipset Device Software Installation Utility
D:\Driver\VGA	Intel® Graphics Media Accelerator 3150
D:\Driver\LAN	Realtek RTL8111DL for LAN driver installation
D:\Driver\SOUND	Realtek ALC888S High Definition Audio Codecs for Sound driver installation
D:\Driver\Touch	For Win XP & Win 7
D:\Driver\FLASH	For BIOS update utility (AMI)

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

3-2. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-2-1. Introduction

The Intel® Chipset 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

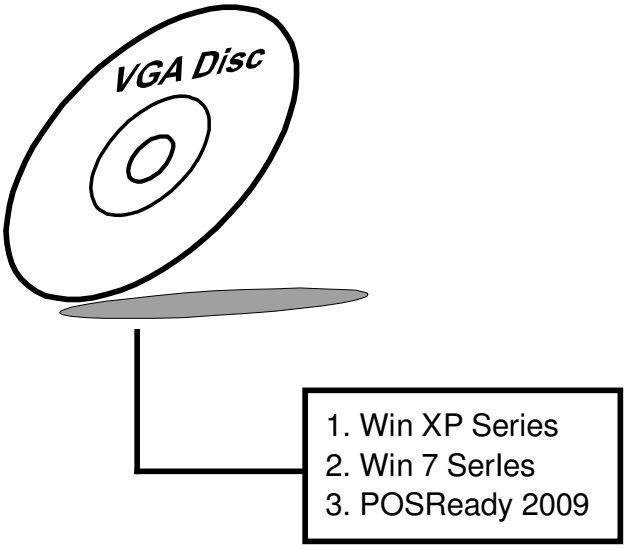
3-2-2. Installation of Intel® Chipset Driver

The utility pack is to be installed only for Windows XP/7 series & POSReady 2009, and it should be installed right after the OS installation. Please follow the steps below:

1. Connect the USB-CD ROM device to the PA-3320 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-3320 for the changes to take effect.

3-3. VGA DRIVER UTILITY

The VGA interface embedded with the PA-3320 series can support a wide range of display types. You can have dual displays via CRT and LVDS interfaces work simultaneously.



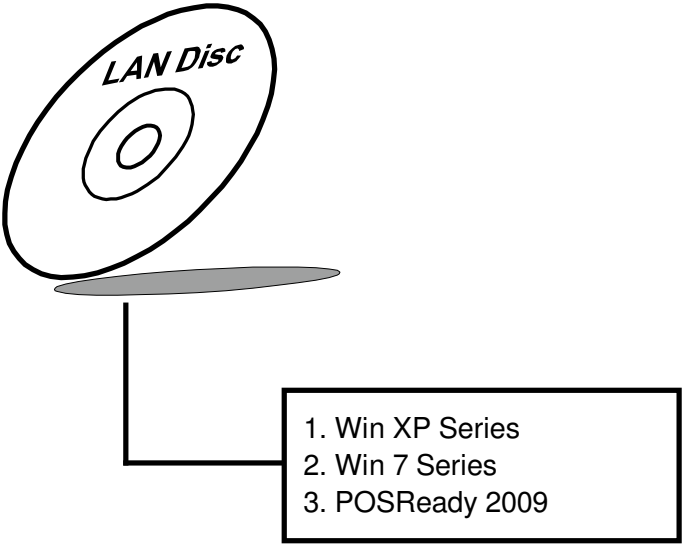
3-3-1. Installation of VGA Driver

To install the VGA Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3320 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-3320 for the changes to take effect.

3-4. LAN DRIVER UTILITY

The PA-3320 Series is enhanced with LAN function that can support various network adapters. Installation platform for the LAN driver is listed as follows:



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

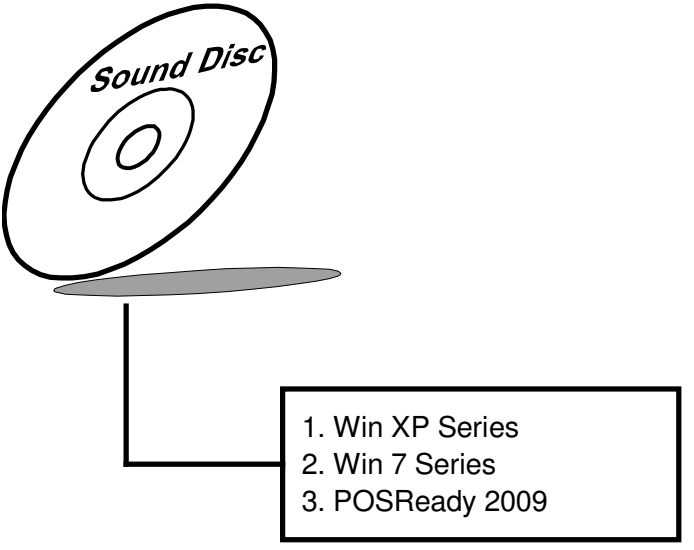
3-4-1. Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3320 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-3320 for the changes to take effect.

3-5. SOUND DRIVER UTILITY

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



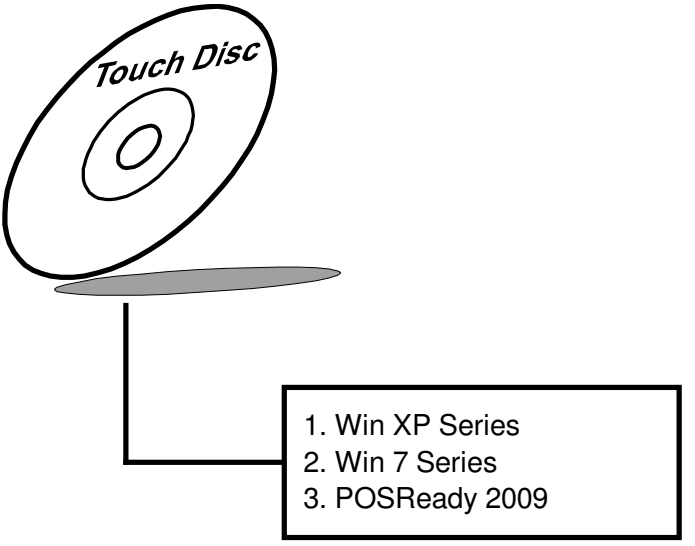
3-5-1. Installation of Sound Driver

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

1. Connect the USB-CD ROM device to the PA-3320 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-3320 for the changes to take effect.

3-6. TOUCH SCREEN DRIVER UTILITY

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



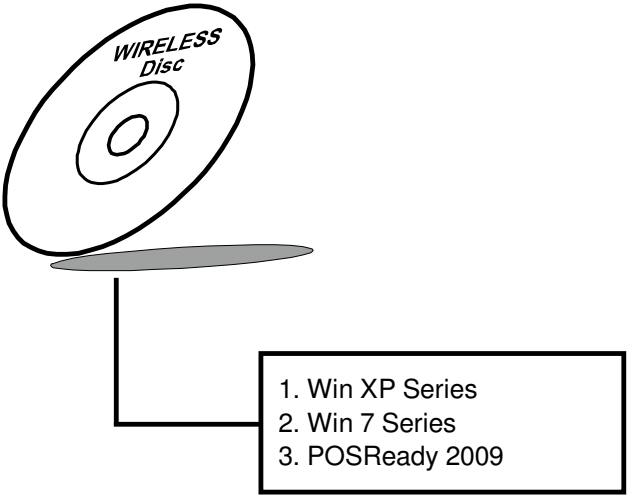
3-6-1. Installation of Touch Screen Driver

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

1. Connect the USB-CD ROM device to the PA-3320 and insert the driver disk inside.
2. Enter the "Device\Touchscreen" folder where the Touchscreen driver is located.
3. Click **Setup.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart the PA-3320 for the changes to take effect.

3-7. WIRELESS DRIVER UTILITY (OPTIONAL)

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



3-7-1. Installation of Wireless Driver

To install the Wireless Driver, follow the steps below:

1. Connect the USB-CD ROM device to the PA-3320 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-3320 for the changes to take effect.

CHAPTER

4

AMI BIOS SETUP

This chapter shows how to configure the AMI BIOS settings.

Sections included:

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

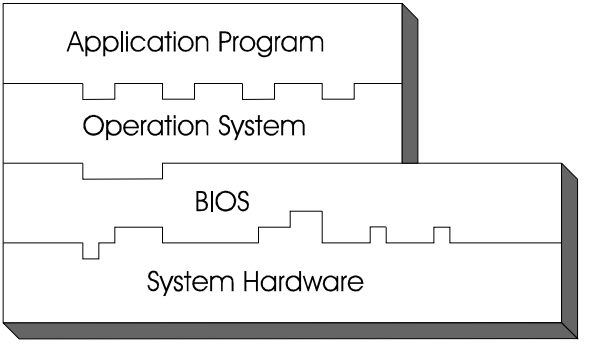
4-1. INTRODUCTION

This chapter will illustrate functions of the BIOS (Basic Input/Output System) in managing features of your system. The **PA-3320** motherboard is equipped with the BIOS from AMI (American Megatrends Inc). Following pages describe how to use the BIOS in order to configure system hardware by BIOS setup menu.

When the PC starts up, its first job for the BIOS is to initialize and identify all system devices such as video display card, keyboard and mouse, hard disk, CD/DVD drive and other hardware. The BIOS then locates operating system(s) saved on storage device (designated as a 'boot device'), be it a hard disk, USB flash disk or a CD/DVD, and loads and executes that operating system, giving it control over the PC.

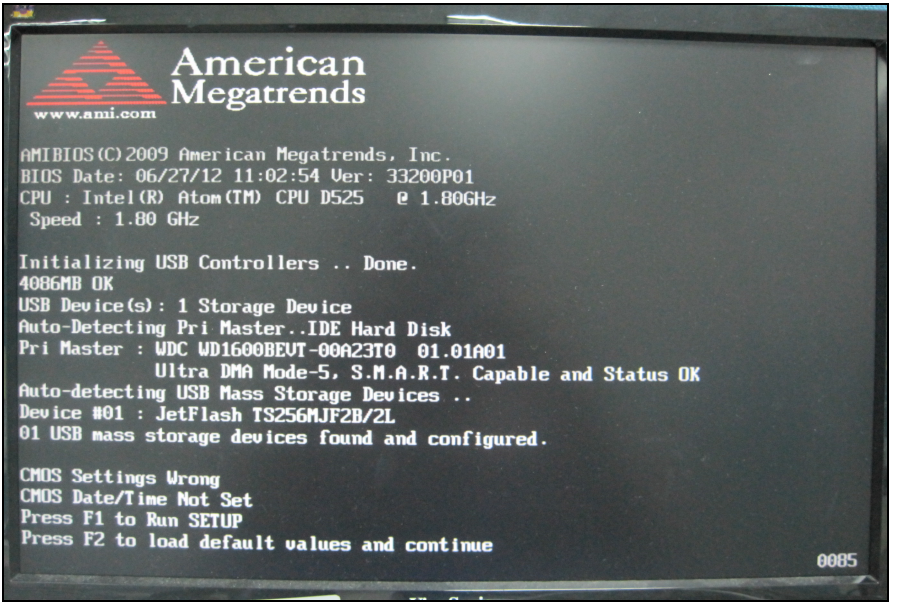
BIOS code is stored on a non-volatile ROM chip built into the system and the BIOS software is specifically designed to work with the particular type of system in question. That includes having understanding of principles for each device included in the PC. BIOS also provides an user interface -- in this document referred to as setup menu -- in a form of a menu system accessed by pressing a certain key on the keyboard when the PC starts. In the BIOS setup menu, user can configure hardware, set the system clock, enable or disable system components, and most importantly, select which devices are eligible to be a potential boot device. It is also possible to set various password prompts, for instance a password for securing access to the BIOS setup menu functions itself and preventing unauthorized users from booting undesirable operating systems from peripheral devices.

Following diagram illustrates the relationships between system hardware, BIOS, operating system and application program:



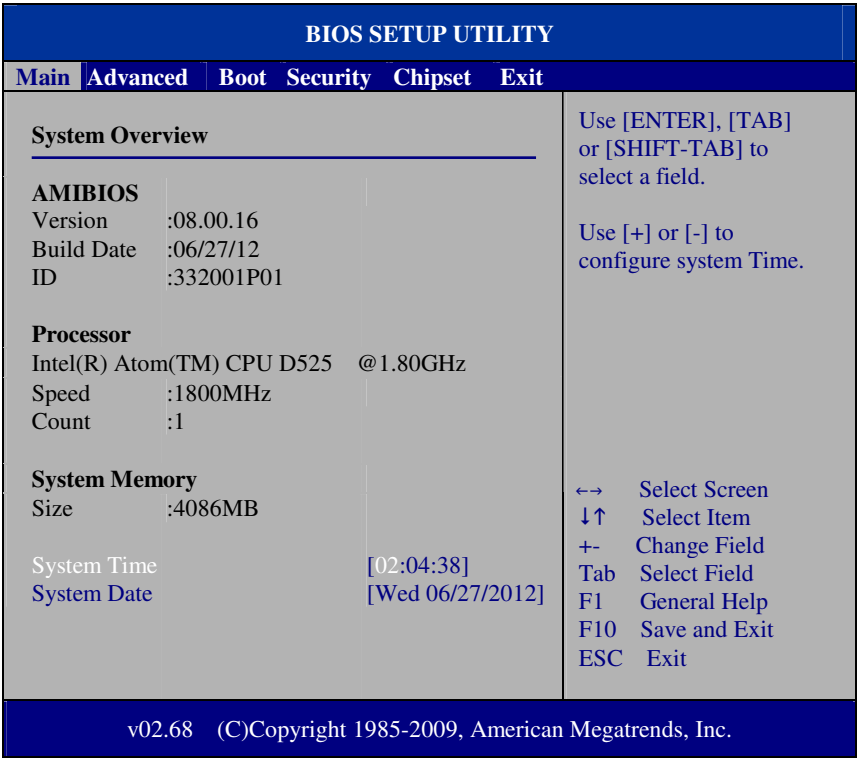
4-2 ENTERING SETUP

When system is powered on, BIOS will enter the Power-On Self Test (POST) routine and it displays screen as shown bellow:



POST Screen

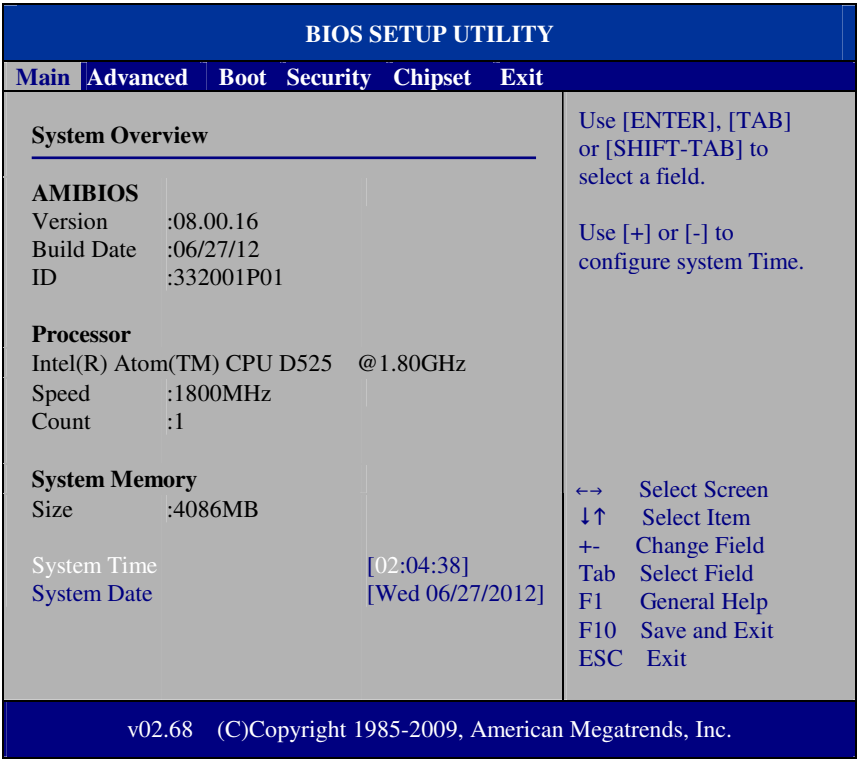
As long as this screen is displayed you may press the <Del> key (the one sharing decimal point at the bottom of the number keypad) to enter the BIOS setup menu. In a moment, the main menu of the AMI BIOS Setup Utility will be shown on the screen:



Setup program initial screen

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

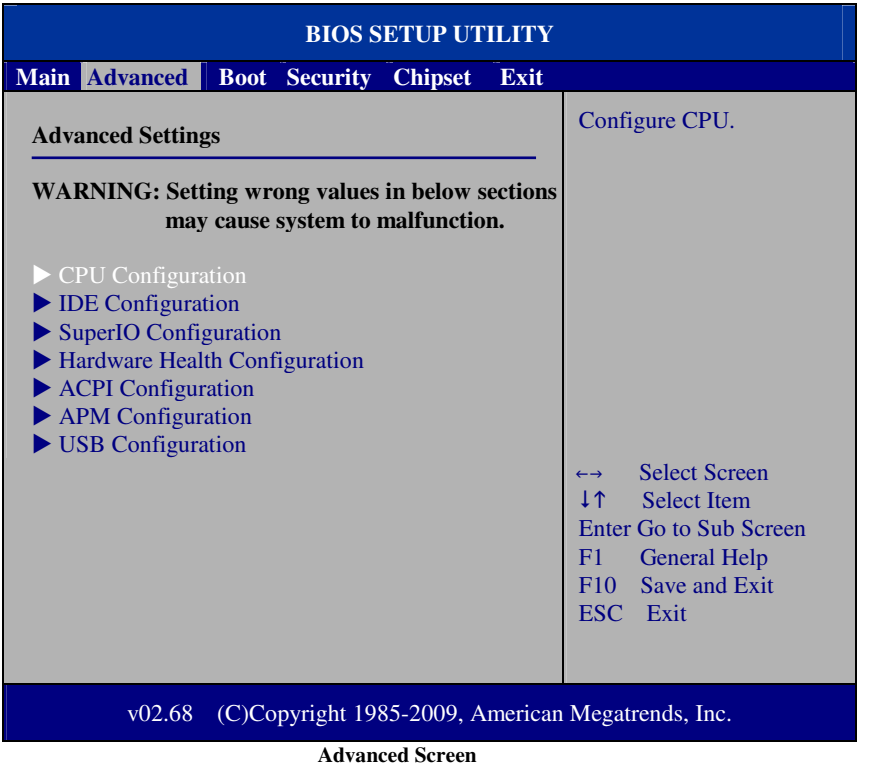
4-3. MAIN



Main Screen

BIOS Setting	Options	Description/Purpose
AMI BIOS, Processor, System Memory	No changeable options	Displays the BIOS version, BIOS build date, processor and system memory information of your system.
System Time	Hour, minute, second	Displays the current time. Type directly or use [+]/[-] keys to increase/decrease each value.
System Date	Day, month, date, year	Type directly or use [+]/[-] keys to set each value.

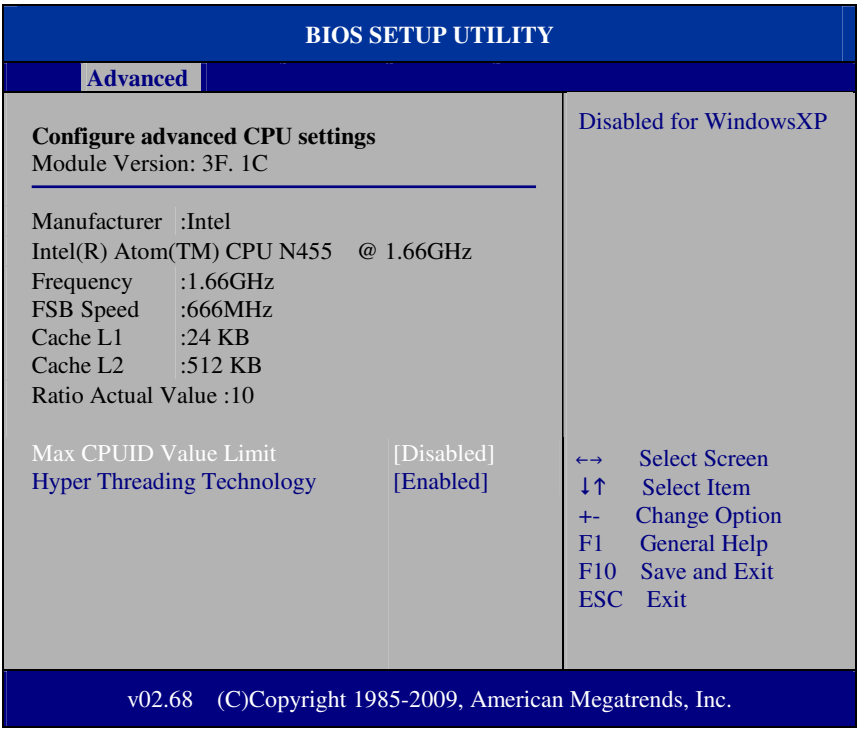
4-4. ADVANCED



Advanced Screen

BIOS Setting	Options	Description/Purpose
CPU Configuration	Sub-menu	Sets CPU configuration parameters.
IDE Configuration	Sub-menu	Sets IDE configuration parameters.
SuperIO Configuration	Sub-menu	Sets system Super I/O chip configuration parameters.

4-4-1. CPU CONFIGURATION

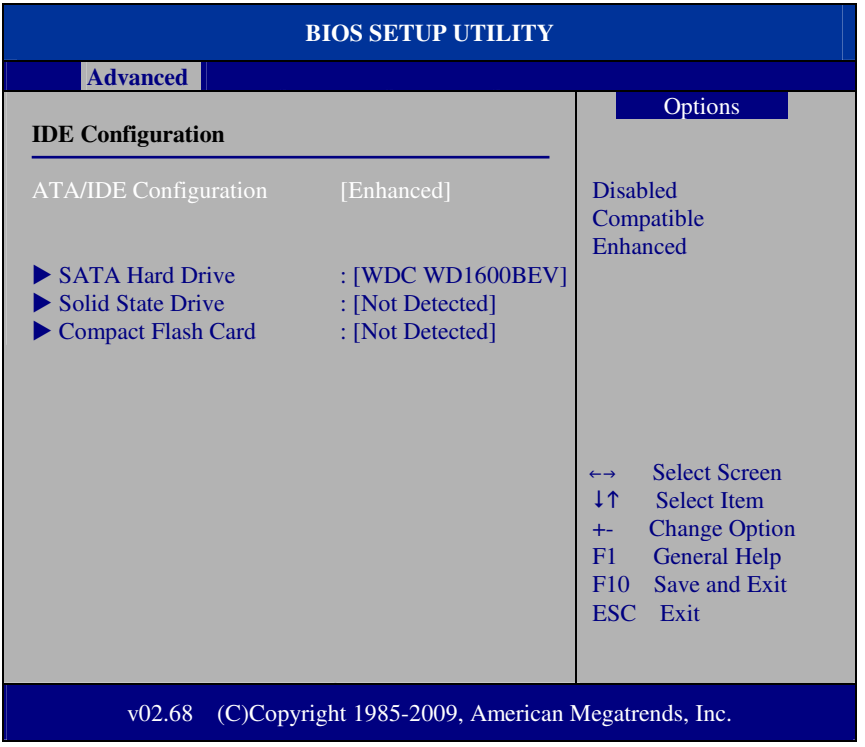


CPU Configuration Screen

BIOS Setting	Options	Description/Purpose
Frequency	No changeable options	Displays the CPU frequency.
FSB Speed	No changeable options	Displays the FSB speed.
Cache L1	No changeable options	Displays the size of Cache L1.
Cache L2	No changeable options	Displays the size of Cache L2.
Ratio Actual Value	No changeable options	Displays the actual value of ratio.
Max CPUID Value Limit	- Enabled - Disabled	[Enabled] allows legacy operating systems to boot even without the support for CPUs with extended CPUID functions.

BIOS Setting	Options	Description/Purpose
Hyper Threading Technology	- Enabled - Disabled	Enables/Ddisables Hyper Threading Technology. Hyper Threading is an Intel's term for its simultaneous multithreading implementation in their CPUs. Enabling this function will improve parallelization of computation performed on PC microprocessor. For each processor core that is physically present, the operation system addresses two virtual processors, and shares the workload between them when possible.

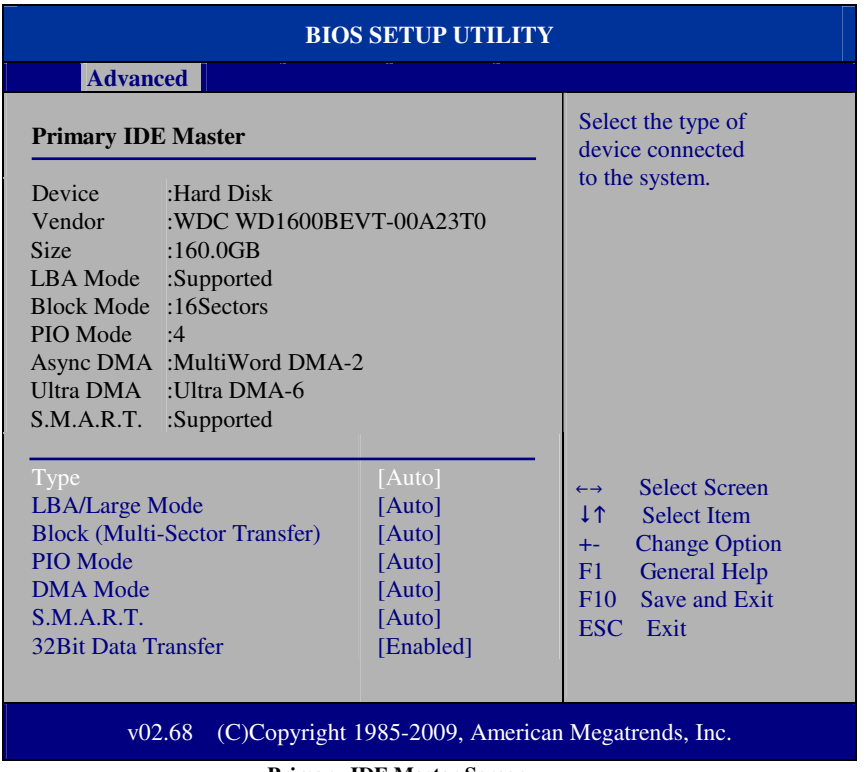
4-4-2. IDE CONFIGURATION



IDE Configuration Screen

BIOS Setting	Options	Description/Purpose
ATA/IDE Configuration	- Compatible - Enhanced	[Compatible] installs legacy operating system such as Windows NT. [Enhanced] betters hard drive performance.
SATA Hard Drive	Sub-menu	Displays the SATA Hard Drive
Solid State Drive	Sub-menu	Detects the solid state drive.
Compact Flash Card	Sub-menu	Detects the compact flash card.

4-4-2-1 Primary IDE Master ~ Secondary IDE Slave

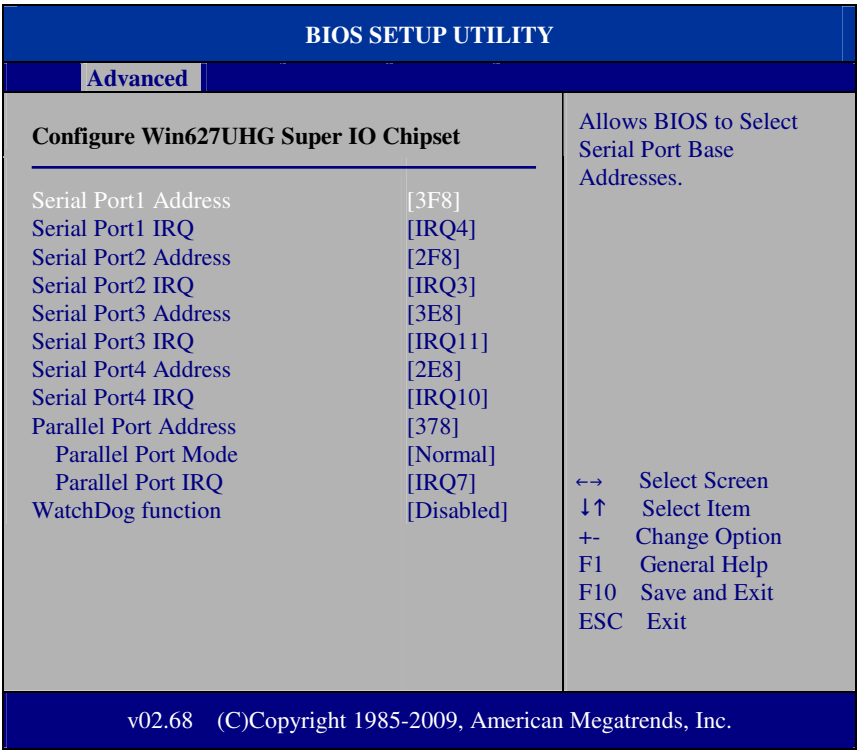


Primary IDE Master Screen

BIOS Setting	Options	Description/Purpose
Type	No changeable options.	Selects the type of device connected to the system.
LBA/Large Mode	- Auto - Enabled - Disabled	Enabling LBA makes Logical Block Addressing be in place of Cylinders, Heads and Sectors.
Block (Multi-Sector Transfer)	- Auto - Enabled - Disabled	Any selection except [Disabled] determines the number of sectors transferred per block.

BIOS Setting	Options	Description/Purpose
PIO Mode	- Auto - Enabled - Disabled	Configures the type of PIO (Programmed Input/Output) mode 0-4 for IDE device. Mode 0 through 4 provides successively increased performance.
DMA Mode	- Auto - Enabled - Disabled	Sets the type of Ultra DMA mode on a hard drive.
S.M.A.R.T	- Auto - Enabled - Disabled	S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) monitors your disk status to predict the hard disk failure. This allows you to move data from a hard disk that is going to fail to a safe place before the hard disk becomes offline.
32Bit Data Transfer	- Enabled - Disabled	Enables/Disables 32-bit data transfer.

4-4-3. SUPER IO CONFIGURATION

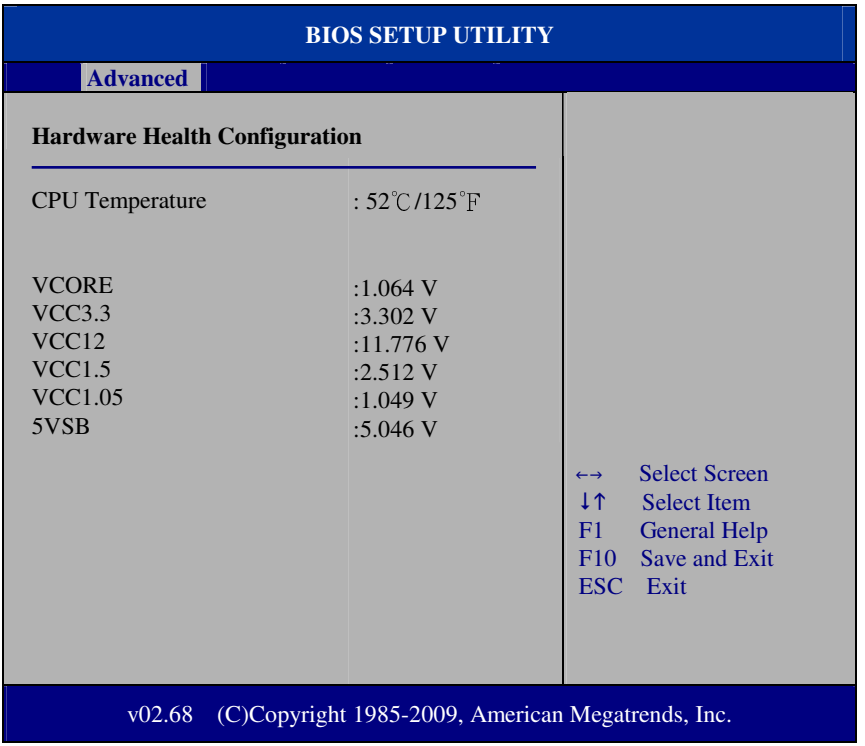


Super IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port1~4 Address	No changeable options	Selects IO address as serial ports default resource.
Serial Port1~4 IRQ	No changeable options	Selects IO IRQ as serial ports default resource.
Parallel Port Address	No changeable options	Selects IO address for parallel ports resource allocation.
Parallel Port Mode	No changeable options	Selects the operation mode for parallel port.
Parallel Port IRQ	No changeable options	Selects IRQ for parallel ports resource allocation.

BIOS Setting	Options	Description/Purpose
WatchDog function	- Enabled - Disabled	Enables/Disables Watchdog function. If the system hangs or doesn't respond, enable watchdog function to trigger a system reset by an user given value count down to zero.

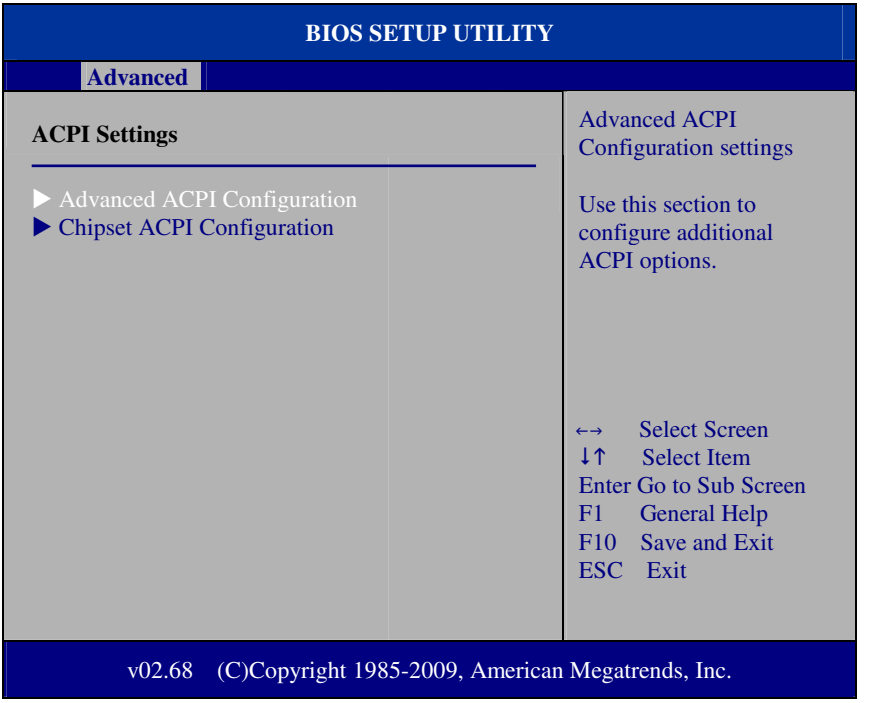
4-4-4. HARDWARE HEALTH CONFIGURATION



Hardware Health Configuration Screen

BIOS Setting	Options	Description/Purpose
CPU Temperature	No changeable options	Shows CPU current temperature.
VCORE/VCC3.3/VCC12/VCC1.5/VCC1.05/5VSB	No changeable options	Provides hardware health information.

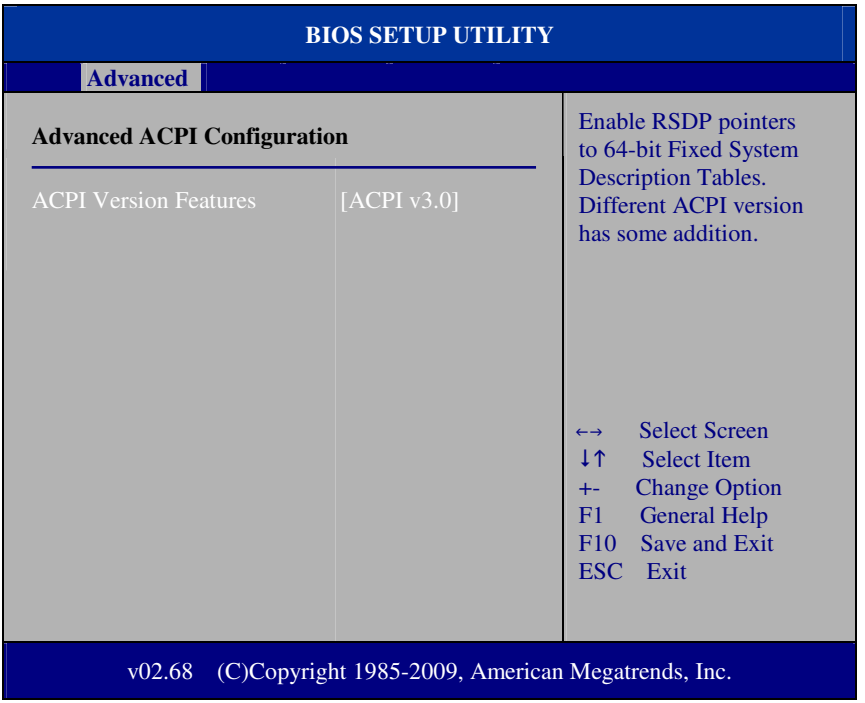
4-4-5. ACPI CONFIGURATION



ACPI Configuration Screen

BIOS Setting	Options	Description/Purpose
Chipset ACPI Configuration	Sub-menu	Sets Chipset ACPI (Advanced Configuration and Power Interface) Configuration parameters.

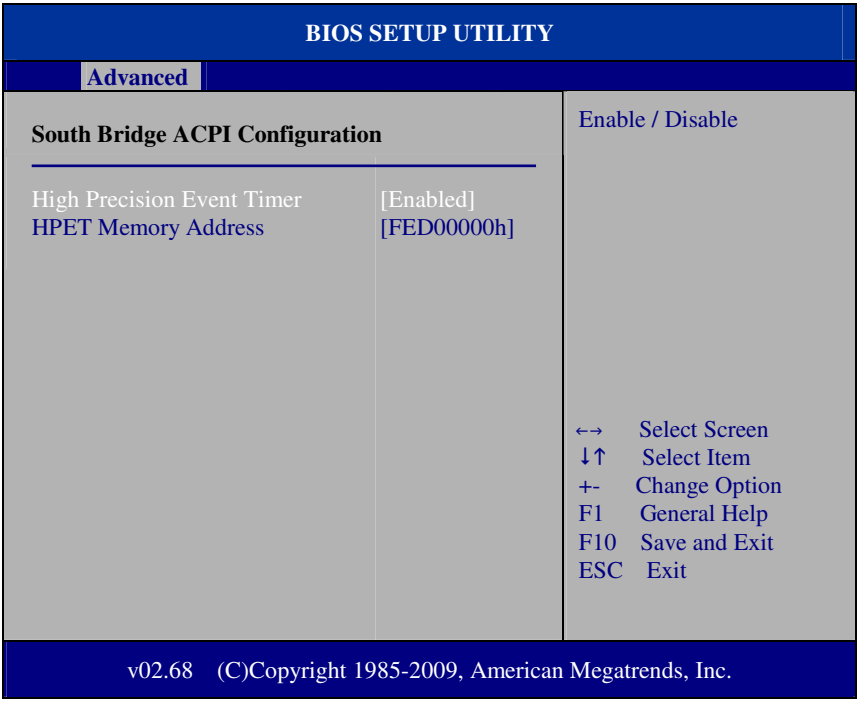
4-4-5-1 ADVANCED ACPI CONFIGURATION



Advanced ACPI Configuration Screen

BIOS Setting	Options	Description/Purpose
ACPI Version Features	No changeable options	Selects which ACPI version that BIOS supports to OS. Newer version brings more benefits to device configuration and power management control capabilities.

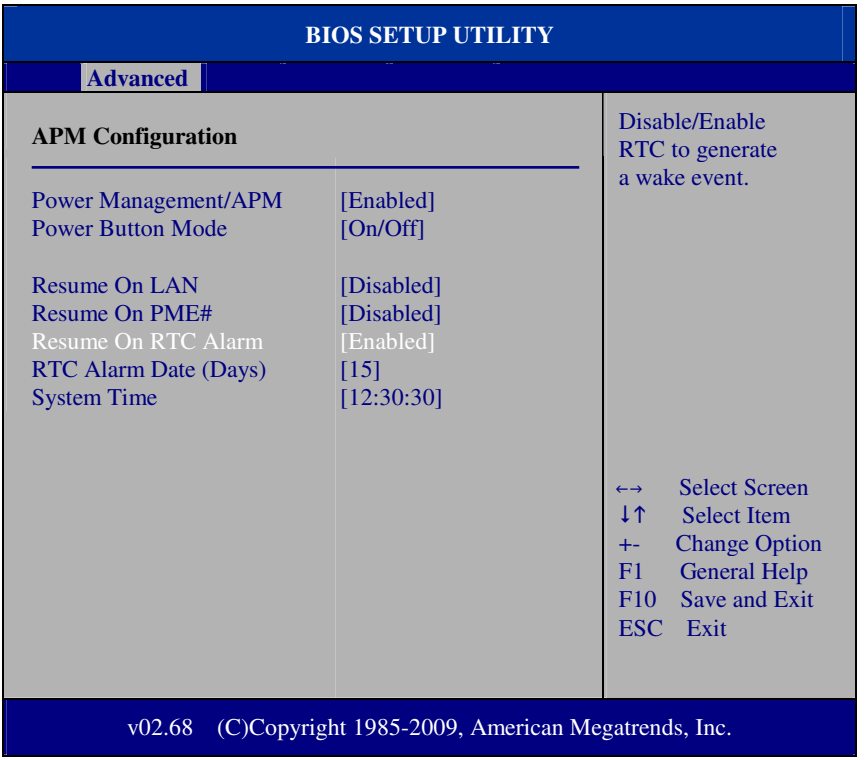
4-4-5-2 CHIPSET ACPI CONFIGURATION



Chipset ACPI Configuration Screen

BIOS Setting	Options	Description/Purpose
High Precision Event Timer	- Enabled - Disabled	The High Precision Event Timer (HPET) can produce periodic interrupts at a much higher resolution than the RTC and is often used to synchronize multimedia streams and to reduce the need to use other timestamp calculations. It can be enabled for Windows Vista/7 operating system.
HPET Memory Address	No changeable options	Selects HPET base memory address.

4-4-6. APM CONFIGURATION

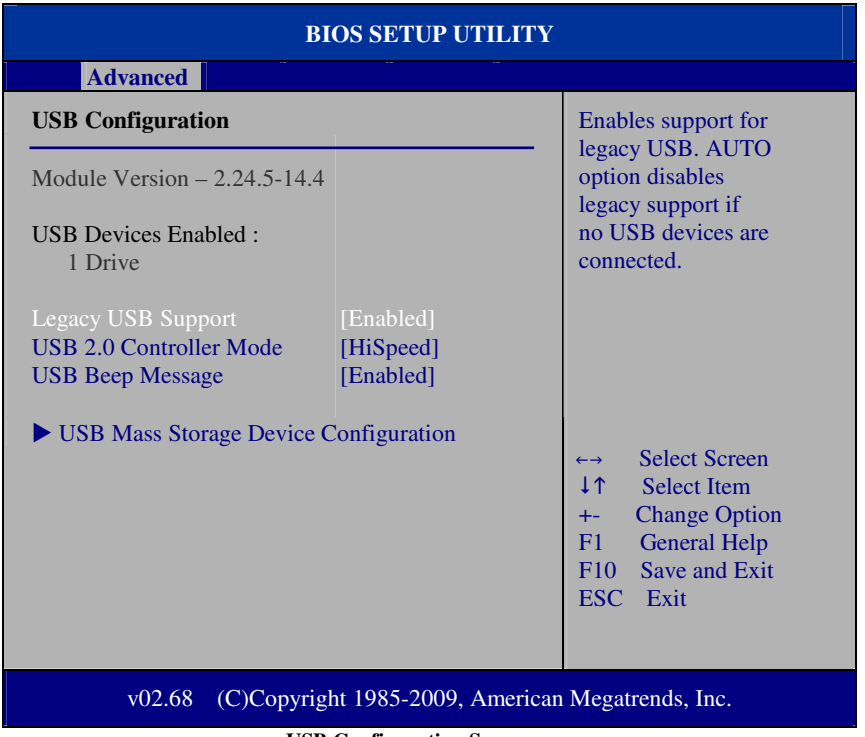


APM Configuration Screen

BIOS Setting	Options	Description/Purpose
Power Management/APM	- Enabled - Disabled	The main control item to enable/disable below APM functions.
Power Button Mode	- On/Off - Delay 4 seconds	[On/Off] controls shutdown by pressing power button; then the system will be shut down immediately. [Delay 4 seconds] makes the system shut down after you press and hold the power button over 4 seconds.

BIOS Setting	Options	Description/Purpose
Resume on LAN	- Enabled - Disabled	[Enabled] wakes up the system from sleep state and boots into OS once the system receives an incoming message from LAN device.
Resume On PME#	- Enabled - Disabled	[Enabled] wakes up the system from sleep state and boots into OS once the system receives PME (power management event) from onboard devices.
Resume On RTC Alarm	- Enabled - Disabled	[Enabled] allows the system to wake up at a specific date/time.
RTC Alarm Date (Days)	No changeable options	Sets a specific date value for RTC alarm function to wake up system from soft off state.
System Time	Hour, minute, second	Sets a specific time value for RTC alarm function to wakeup system from soft off state.

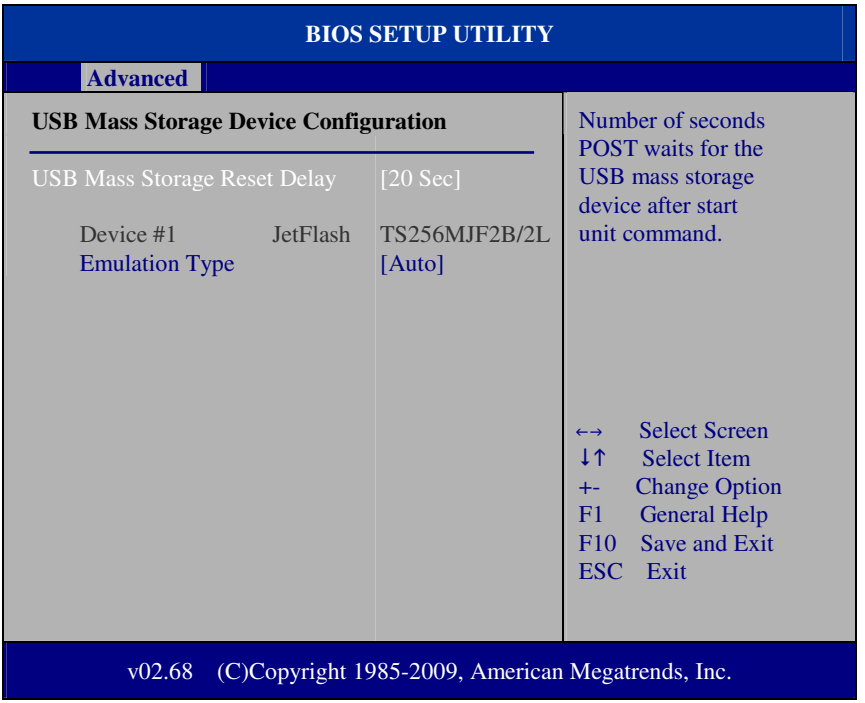
4-4-7 USB CONFIGURATION



USB Configuration Screen

BIOS Setting	Options	Description/Purpose
Legacy USB Support	- Enabled - Disabled	[Enabled] allows you use USB device in the legacy operating system, such as MS-DOS or SCO Unix.
USB 2.0 Controller Mode	- HiSpeed - FullSpeed	Configures the onboard USB 2.0 controller operation mode to high speed or full speed mode.
USB Beep Message	- Enabled - Disabled	[Enabled] allows the system generate beep sound during USB device enumeration.

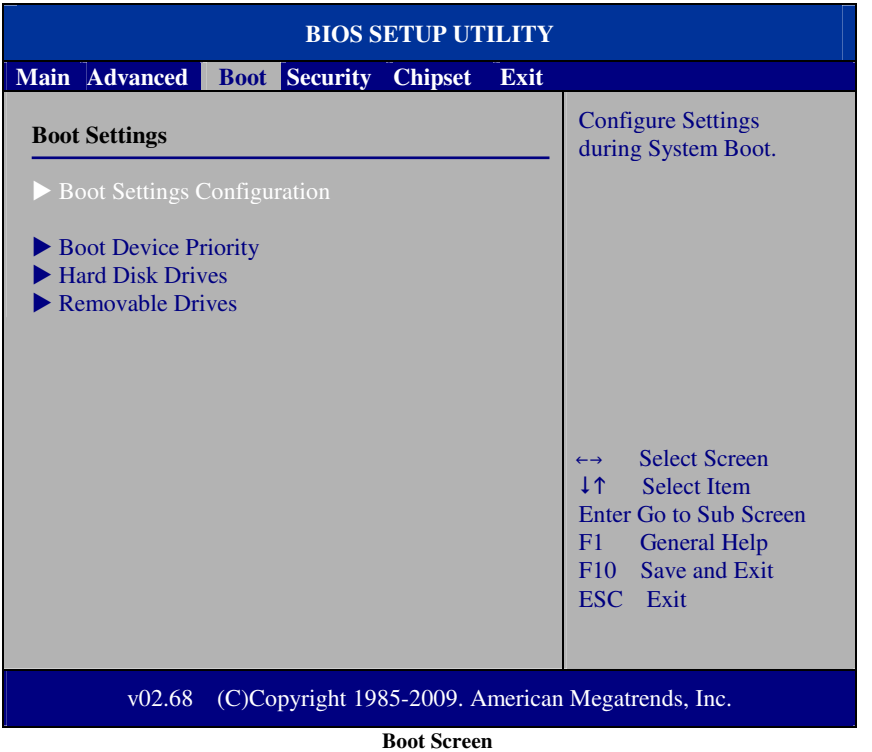
4-4-7-1 USB MASS STORAGE DEVICE CONFIGURATION



USB Mass Storage Device Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Mass Storage Reset Delay	No changeable options	Decides the number of seconds that POST waits for USB mass storage device after start unit command.
Emulation Type	- Auto	Selects a type of USB mass storage emulation device. When you select [Auto], the USB of which storage size is less than 530MB will be emulated as floppy drive and remained as hard drive.

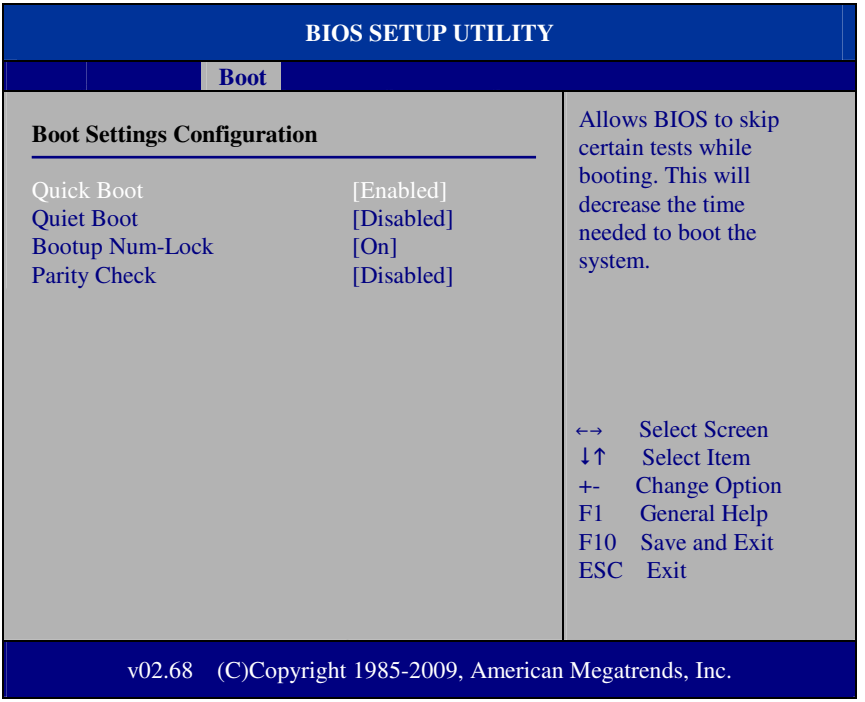
4-5. BOOT



Boot Screen

This menu provides control items for system boot configuration.

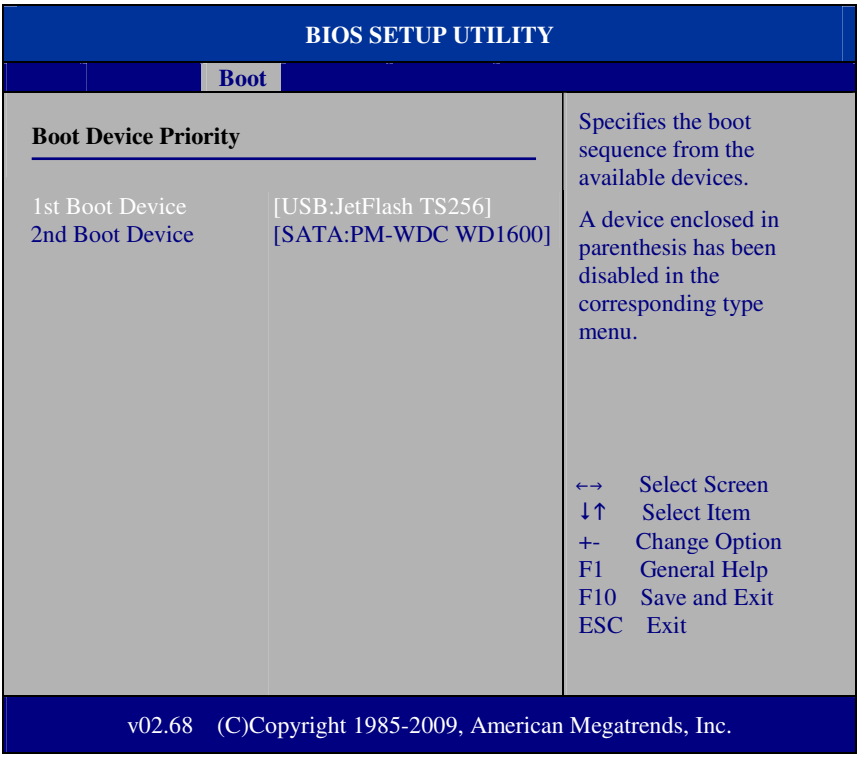
4-5-1 BOOT SETTINGS CONFIGURATION



Boot Settings Configuration Screen

BIOS Setting	Options	Description/Purpose
Quick Boot	- Enabled - Disabled	[Enabled] allows BIOS POST to skip some tests during boot-up for saving boot time.
Quiet Boot	- Enabled - Disabled	[Disabled] makes BIOS display normal POST messages.
Bootup Num-Lock	- On - Off	[On] will enable the Num Lock key when the system is powered on. [Off] means you can use arrow keys on the numeric keypad.
Parity Check	- Enabled - Disabled	Enables/Disables memory or parity error check.

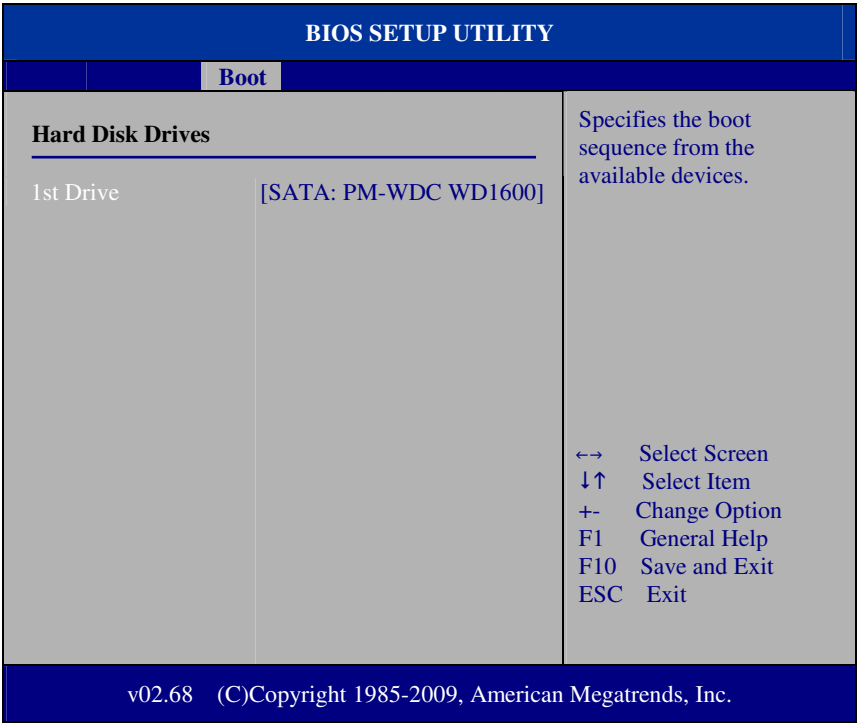
4-5-2 BOOT DEVICE PRIORITY



Boot Device Priority Screen

BIOS Setting	Options	Description/Purpose
1st/2nd/3rd …Boot Device	No changeable options	Sets the boot sequence from the available devices.

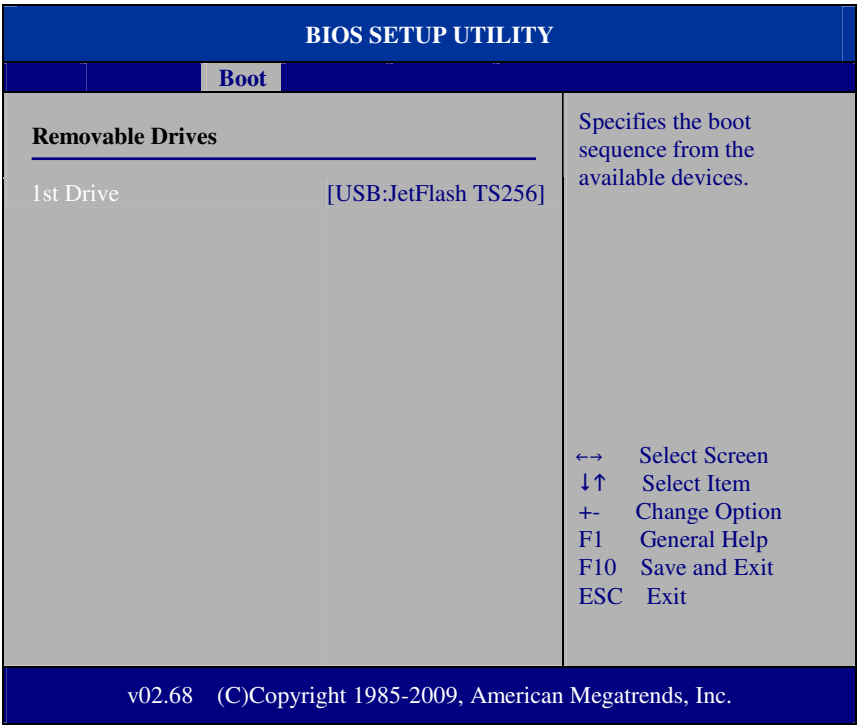
4-5-3 HARD DISK DRIVES



Hard Disk Drives Screen

BIOS Setting	Options	Description/Purpose
1st/2nd …Drive	No changeable options	Sets the priority of hard drive or another bootable USB storage. Press <Enter> to enter the sub-menu and press < ↑ > or < ↓ > arrow keys to select the device. Another way is to press <+> or <-> to move it up/down in the priority list.

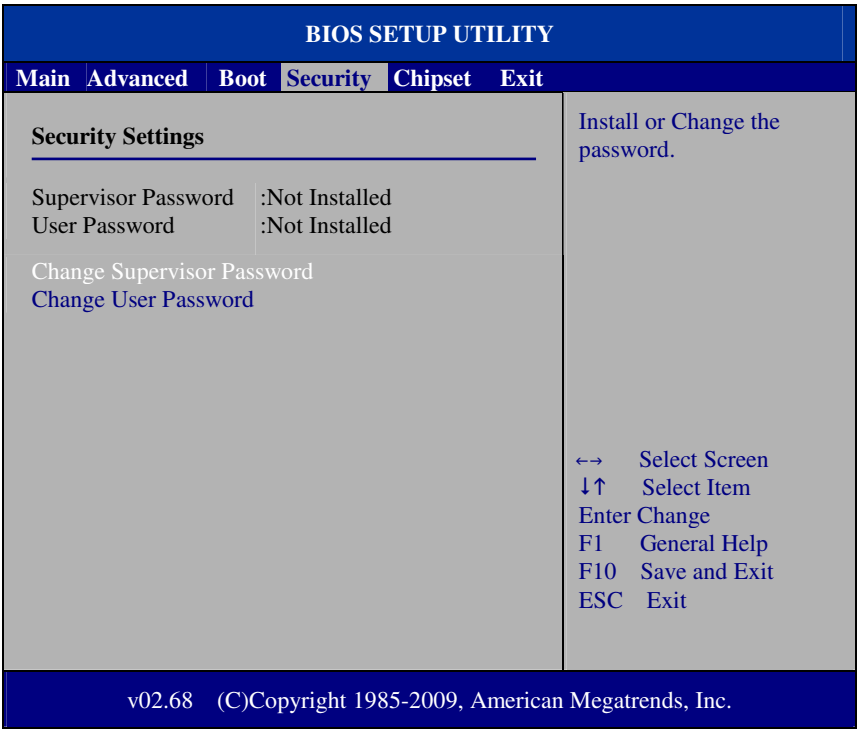
4-5-4 REMOVABLE DRIVES



Removable Drives Screen

BIOS Setting	Options	Description/Purpose
1st/2nd …Drive	No changeable options	Sets the priority of the removable devices such as floppy drive. Press <Enter> to enter the sub-menu and press < ↑ > or < ↓ > arrow keys to select the device. Another way is to press <+> or <-> to move it up/down in the priority list.

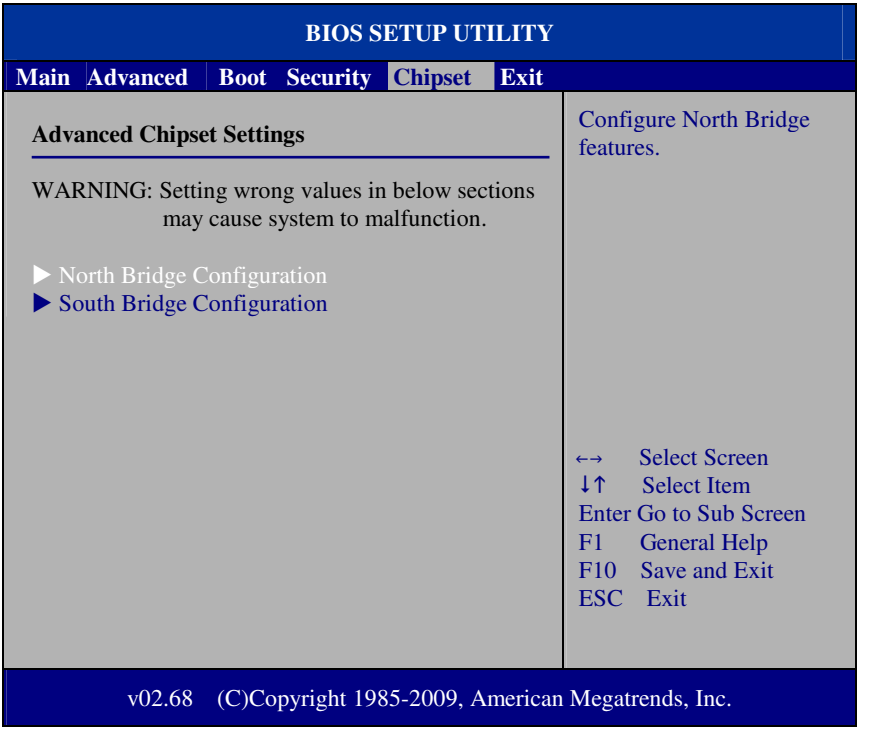
4-6. SECURITY



Security Settings Screen

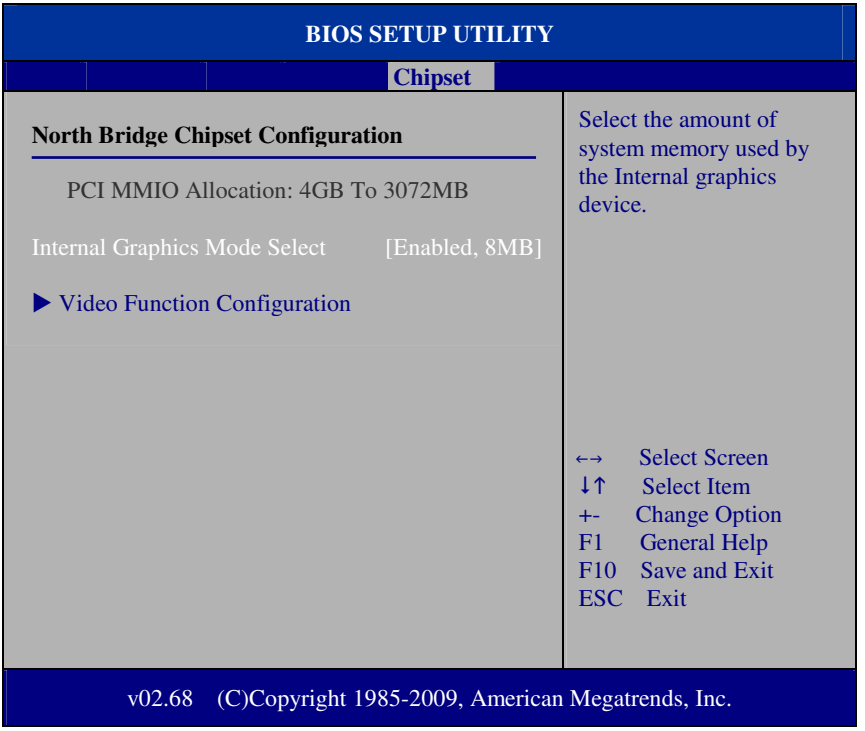
BIOS Setting	Options	Description/Purpose
Change Supervisor Password	No changeable options	Sets or changes the supervisor password, which controls the access right to the BIOS Setup utility.
Change User Password	No changeable options	Sets or changes the user password, which controls the system access right when power on.

4.7 CHIPSET



Advanced Chipset Settings Screen

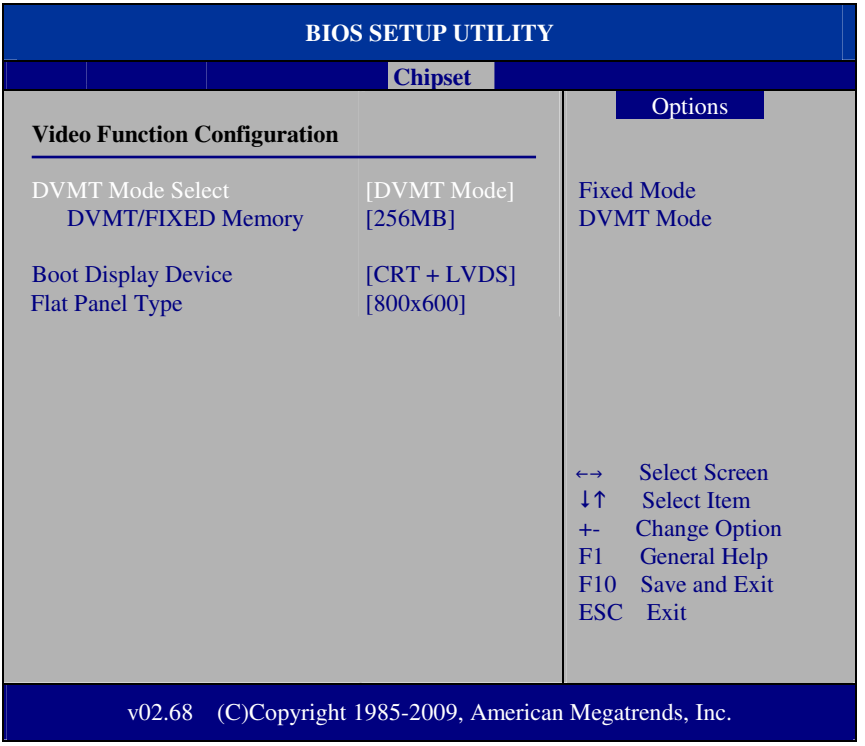
4-7-1 NORTH BRIDGE CHIPSET CONFIGURATION



North Bridge Chipset Configuration

BIOS Setting	Options	Description/Purpose
Internal Graphics Mode Select	- Enabled - Disabled	Selects the amount of system memory that is allocated to the integrated graphics device.

4-7-1-1 VIDEO FUNCTION CONFIGURATION

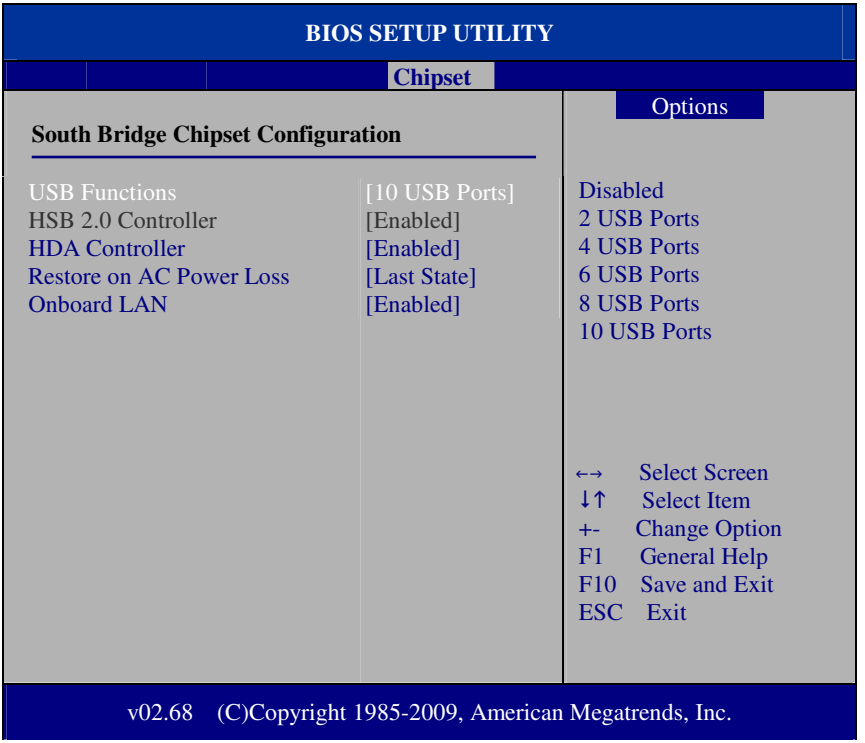


Video Function Configuration Screen

BIOS Setting	Options	Description/Purpose
DVMT Mode Select/DVMT/ FIXED Memory	- DVMT Mode - Fixed Memory	Allows the system to dynamically allocated memory resources according to the demands of the system at any point in time. The key idea in DVMT (Dynamic Video Memory Technology) is to improve the efficiency of the memory allocated to either system or graphics processor. You're recommended to select [DVMT Mode] to make the system memory dynamically allocated for optimal balance between graphics and system performance.

BIOS Setting	Options	Description/Purpose
Boot Display Device	- CRT - LVDS - CRT+LVDS	Sets the default boot display device per your requirement.
Flat Panel Type	- 800x600 - 1024x768	Sets the resolution for the connected LVDS panel.

4-7-2 SOUTH BRIDGE CHIPSET CONFIGURATION

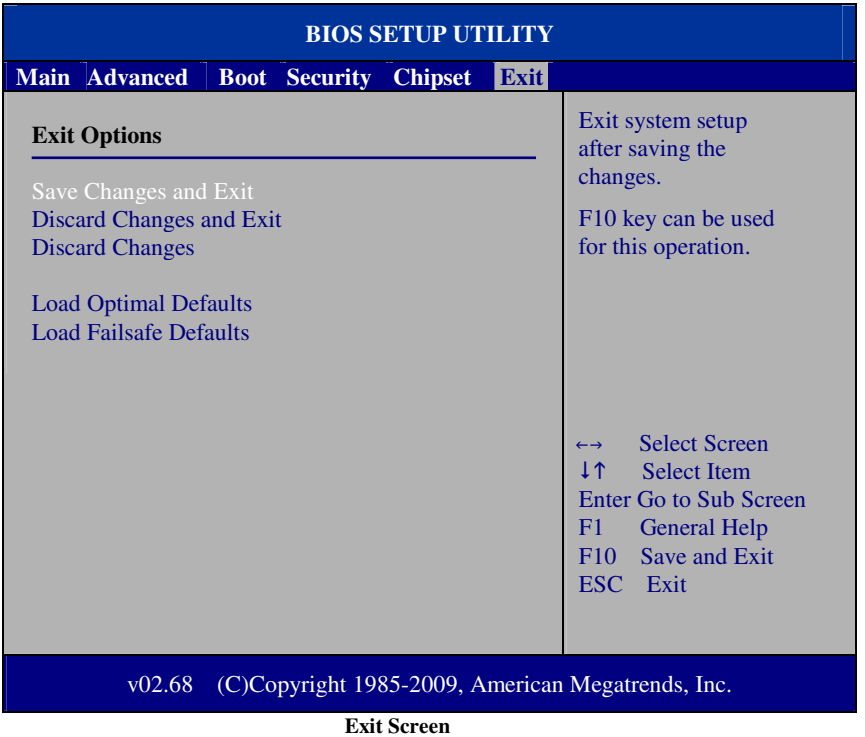


South Bridge Chipset Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Functions	No Changeable options	Selects the number of supported USB ports.
USB 2.0 Controller	- Enabled - Disabled	Enables/Disables the USB 2.0 Controller.
HDA Controller	- Enabled - Disabled	Enables/Disables the onboard High-definition Audio controller.
Restore on AC/Power Loss	No Changeable options	Once a power failure situation happens, this item decides the system power state after AC power restore back.

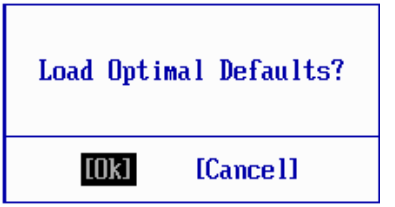
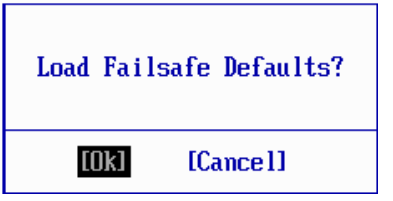
BIOS Setting	Options	Description/Purpose
Onboard LAN	- Enabled - Disabled	Enables/Disables the onboard LAN device.

4.8 EXIT



Exit Screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No Changeable options	Saves changes to CMOS and then exits the BIOS setup screen. You can also press the [F10] key for this operation.
Discard Changes and Exi	No Changeable options	Abandons all changes and exits the BIOS setup screen. You can also press the [ESC] key for this operation.
Discard Changes	No Changeable options	Discards all changes done so far to the setup items. You can press the [F7] key for this operation.

BIOS Setting	Options	Description/Purpose
Load Optimal Defaults	No Changeable options	Press <Enter> on this item to show a confirmation dialog box with a message like below:  Pressing [Ok] to loads the factory recommended optimal setting for system operations. You can also press the [F9] key for this operation.
Load Failsafe Defaults	No Changeable options	Press <Enter> on this item to show a confirmation dialog box with a message like below:  To use the BIOS failsafe default values, change the prompt to [Ok] and press the <Enter > key. You can also press the [F8] key for this operation.

SYSTEM ASSEMBLY

APPENDIX

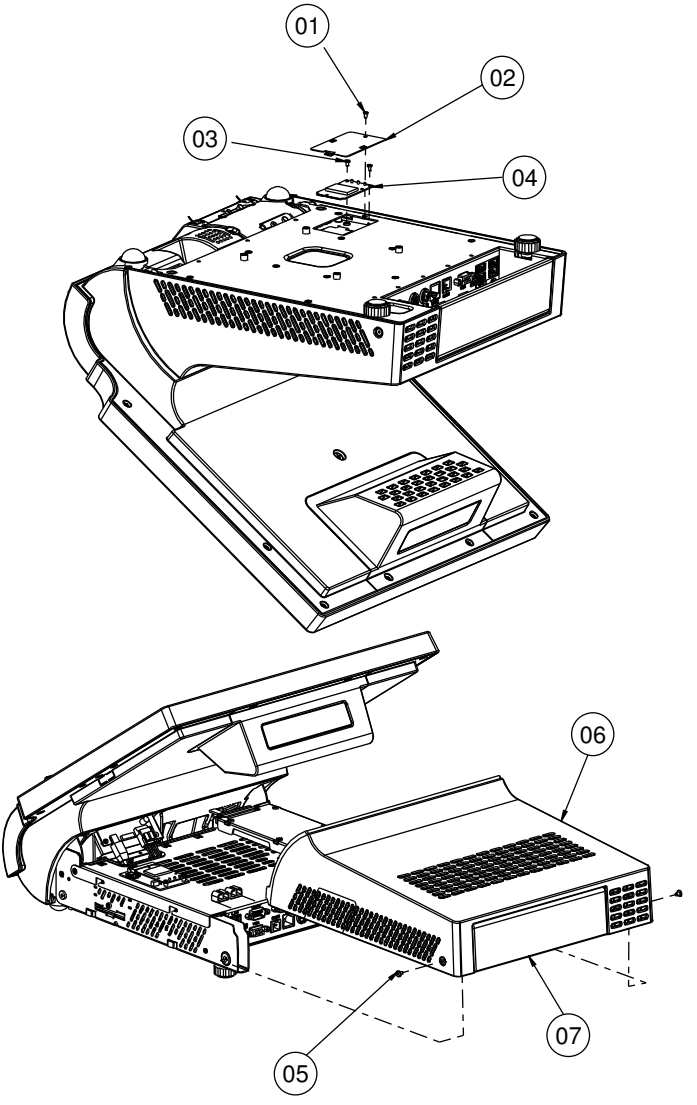
A

This appendix contains exploded diagrams and part numbers of the PA-3320 system.

Sections included:

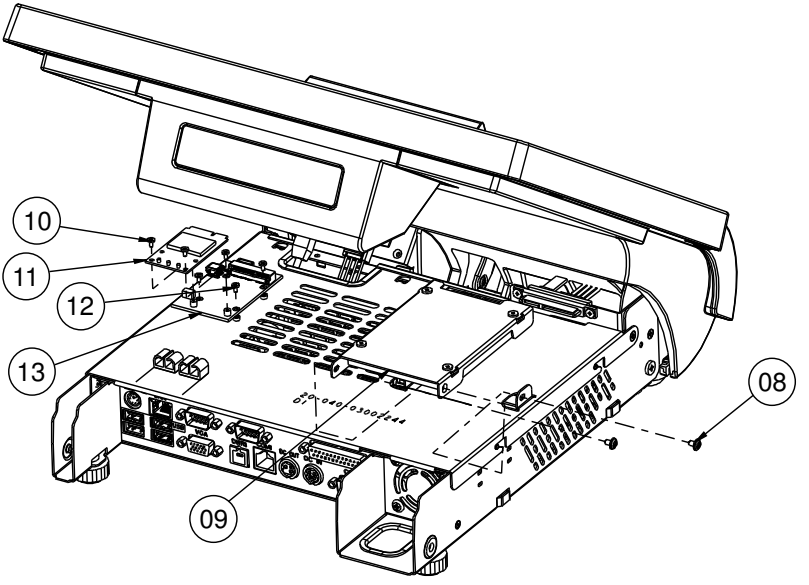
- Exploded Diagram for PA-3320 Base Cover
- Exploded Diagram for PA-3320 Top Case
- Exploded Diagram for PA-3320 CPU Cooler
- Exploded Diagram for PA-3320 Printer Box
- Exploded Diagram for PA-3320 Panel & Base Detachment
- Exploded Diagram for PA-3320 Main Board
- Exploded Diagram for PA-3320 Bottom Case
- Exploded Diagram for PA-3320 LCD Panel
- Exploded Diagram for PA-3320 LCD Holder
- Exploded Diagram for PA-3320 VFD Cover
- Exploded Diagram for PA-3320 3” Printer
- Exploded Diagram for PA-3320 3” Printer Cover
- Exploded Diagram for PA-3320 2” Printer
- Exploded Diagram for PA-3320 2” Printer Cover
- Exploded Diagram for PA-3320 HDD Module
- Exploded Diagram for PA-3320 SSD Module

EXPLODED DIAGRAM FOR PA-3320 BASE COVER



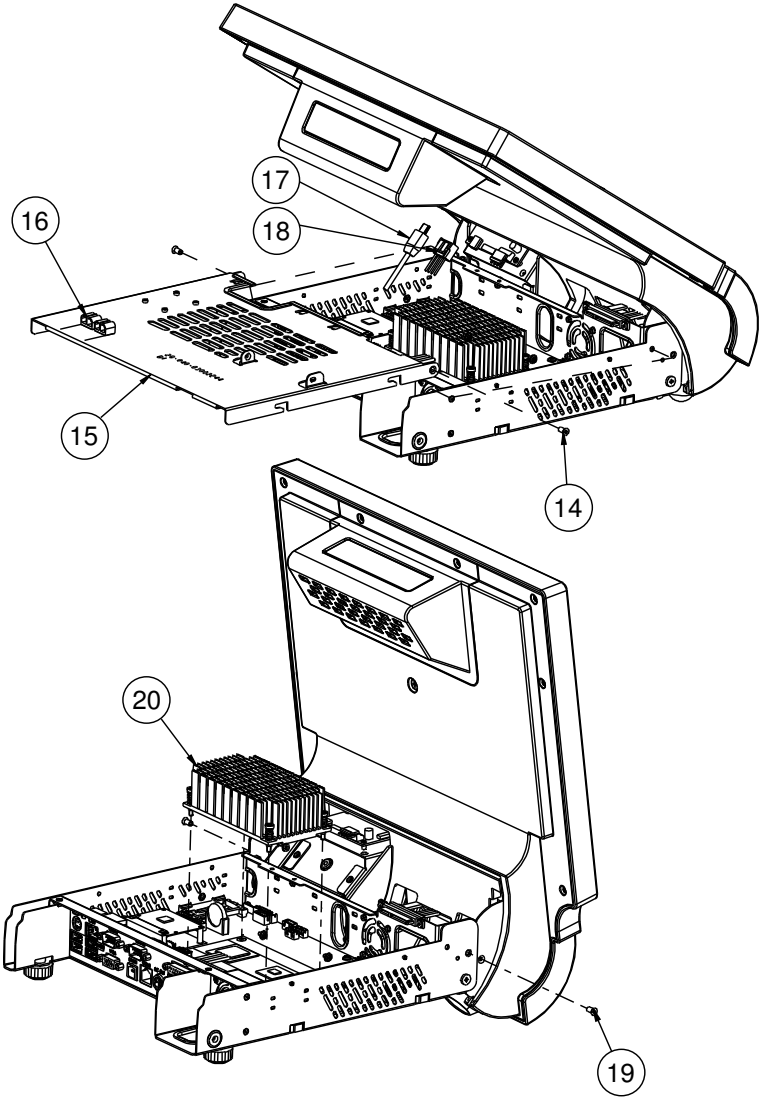
No.	Name	P/N No.	Qt'y
1	M2.5_L4_R_Ni	22-232-25004011	1
2	3350_MINI_PCIE_DOOR	80-047-03001242	1
3	M2_L4_I_Ni	22-272-20004011	2
4	MiniPCIE Card	See Order	1
5	M3_L8_I_B	22-275-30008018	2
6	PA-3350_BASE_COVER	30-002-28410242	1
	PA-3350_BASE_COVER_with_CF	30-002-28510242	
7	PA-3350_CABLE_COVER	30-002-28610242	1

EXPLODED DIAGRAM FOR PA-3320 TOP CASE



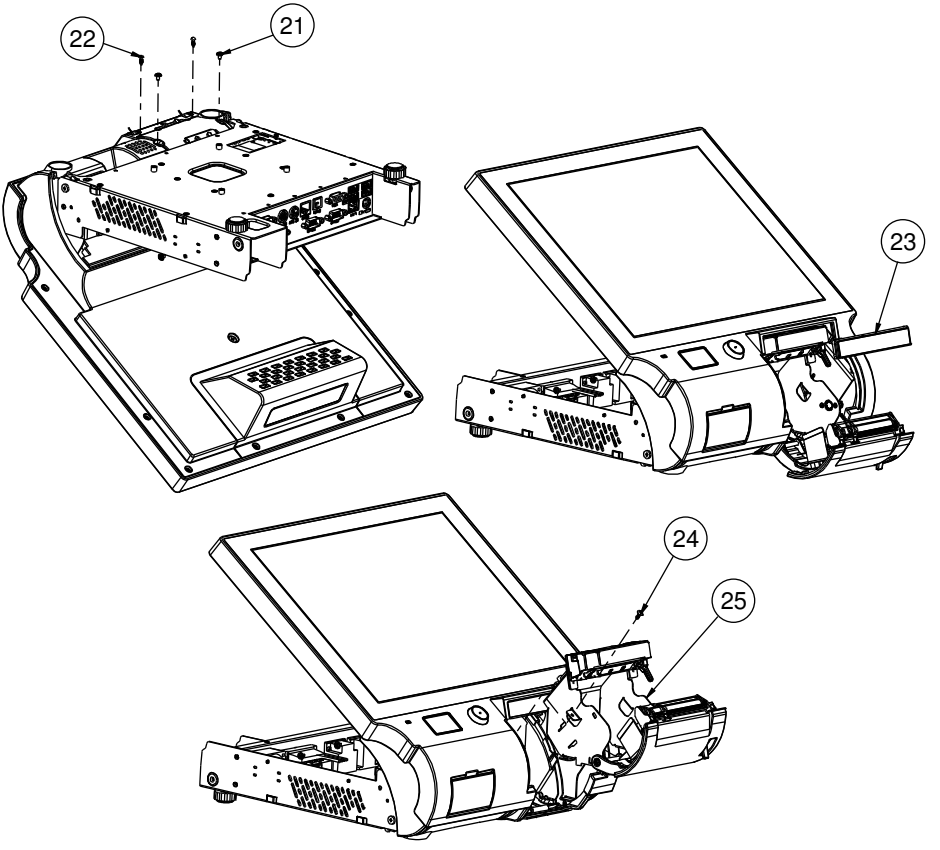
No.	Name	P/N No.	Qt'y
8	M3_L5_W_Ni	22-242-30005311	2
9	HDD Assembly	--	1
10	M2_L4_I_Ni	22-272-20004011	2
11	MiniPCIE Card	See Order	1
12	M2_L4_I_Ni	22-272-20004011	4
13	3G Card	See Order	1

EXPLODED DIAGRAM FOR PA-3320 CPU COOLER



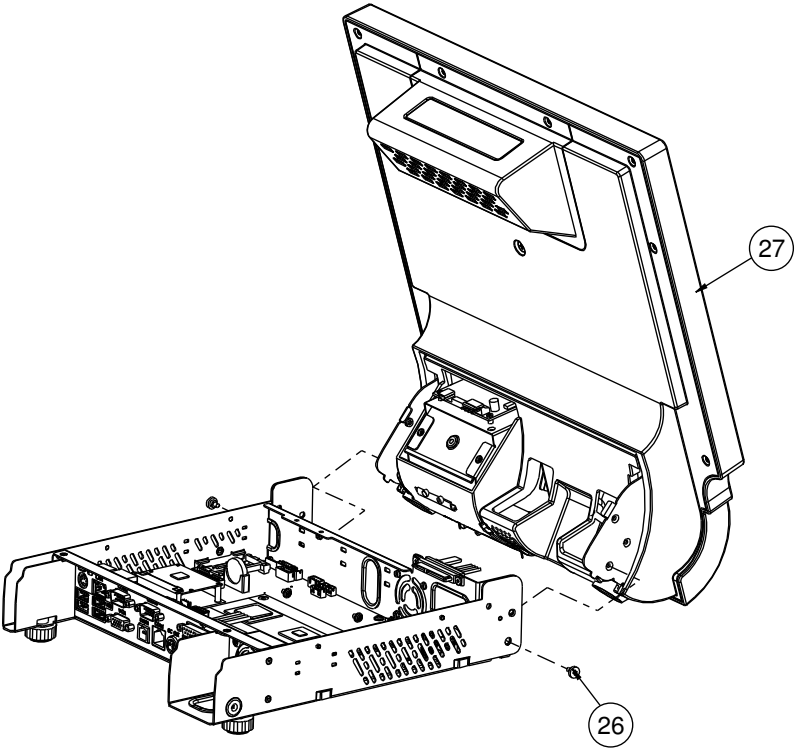
No.	Name	P/N No.	Qt'y
14	M4_L8_F_B	22-215-40008711	2
15	PA-3320_INSIDE_BOX_TOP	20-040-03002244	1
16	Cable_snap(WLLT-1)	90-023-04600000	2
17	Printer Data Cable	See Order	1
18	Printer Power Cable	See Order	1
19	M4_L8_F_B	22-215-40008711	2
20	CPU cooler Assembly	--	1

EXPLODED DIAGRAM FOR PA-3320 PRINTER BOX



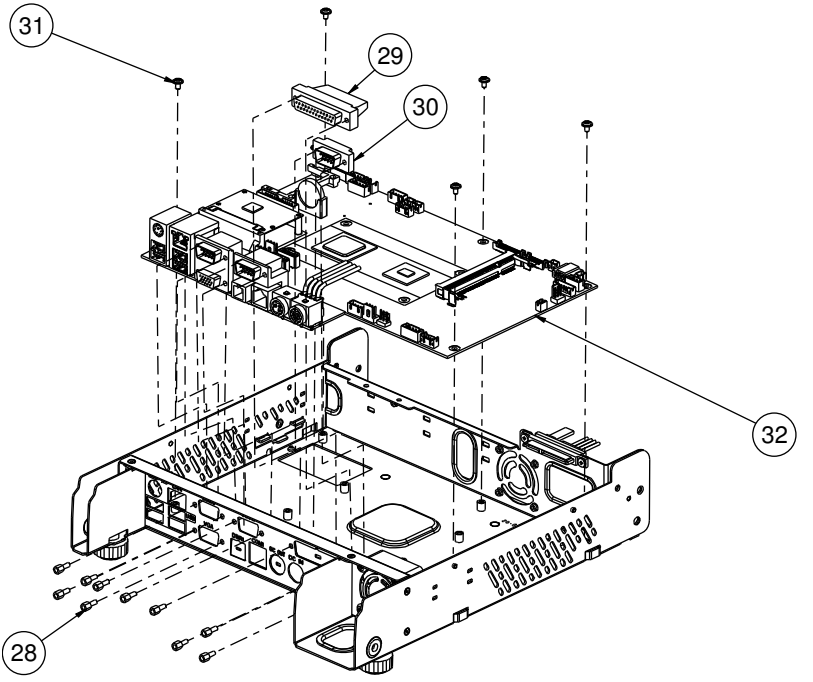
No.	Name	P/N No.	Qt'y
21	M3_L5_Washer_Ni	22-242-30005311	2
22	Plastic Rivet	90-076-04200000	2
23	3350_PRINTER_TOP_COVER	30-002-28310242	1
24	T3_L8_P_B	22-135-30008311	1
25	Printer Assembly	--	1

EXPLODED DIAGRAM FOR PA-3320 PANEL & BASE DETACHMENT



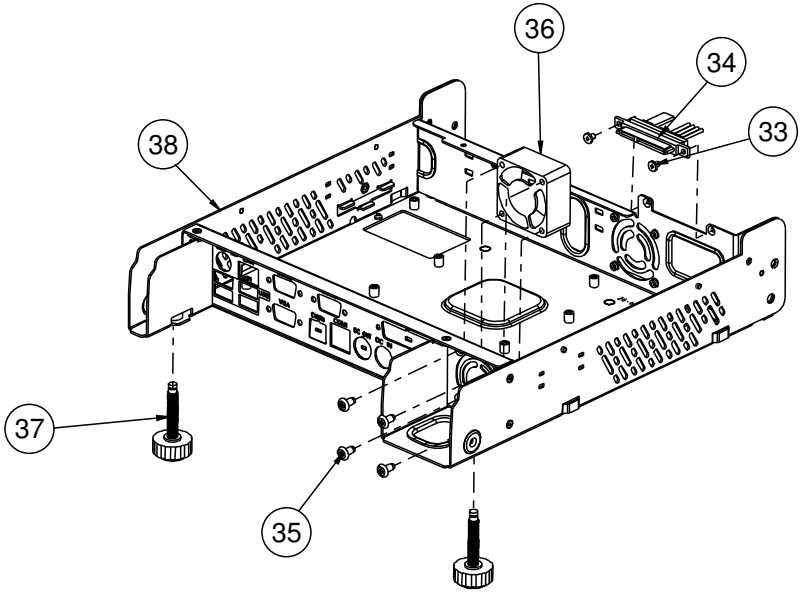
No.	Name	P/N No.	Qt'y
26	M4_L2.2_H4_Ni	22-272-40004911	2
27	LCD_Assembly	--	1

EXPLODED DIAGRAM FOR PA-3320 MAIN BOARD



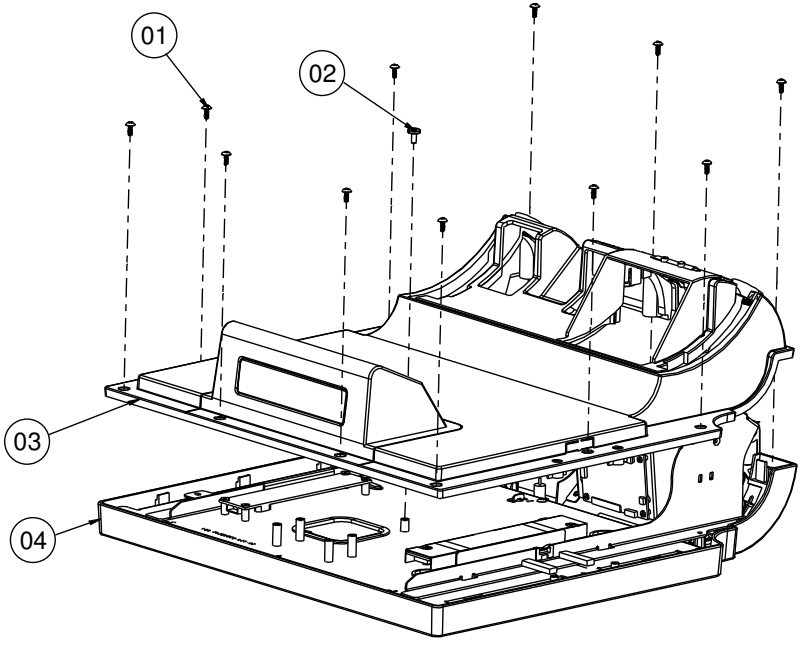
No.	Name	P/N No.	Qt'y
28	No.4 BOSS	22-692-40048051	10
29	Printer cable	27-018-21003071	1
30	COM Cable	27-024-20804031	1
31	M3_L5_Washer_Ni	22-242-30005311	6
32	PD-3201	PB-3251	1

EXPLODED DIAGRAM FOR PA-3320 BOTTOM CASE

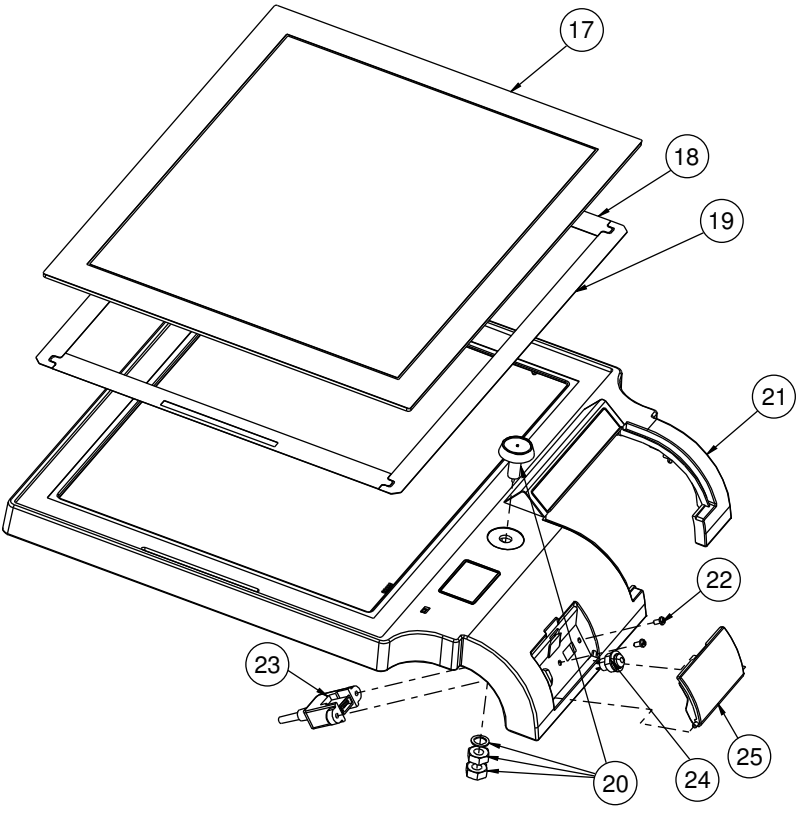


No.	Name	P/N No.	Qt'y
33	M3_L5_W_Ni	22-242-30005311	2
34	Hdd_cable	27-008-24208081	1
35	T4_L8_F_NI	22-112-40010011	4
36	Sys FAN 40x40x28	21-004-04040161	1
37	M6_Foot	22-289-60035007	2
38	PA-3320_INSIDE_BOX	20-040-03001244	1

EXPLODED DIAGRAM FOR PA-3320 LCD PANEL



No.	Name	P/N No.	Qt'y
01	T3_L8_P_B	22-135-30008311	11
02	M4_L8_1_B	22-275-40008011	1
03	LCD_Front_Assembly	--	1
04	LCD_Back_Assembly	--	1


17
18
19
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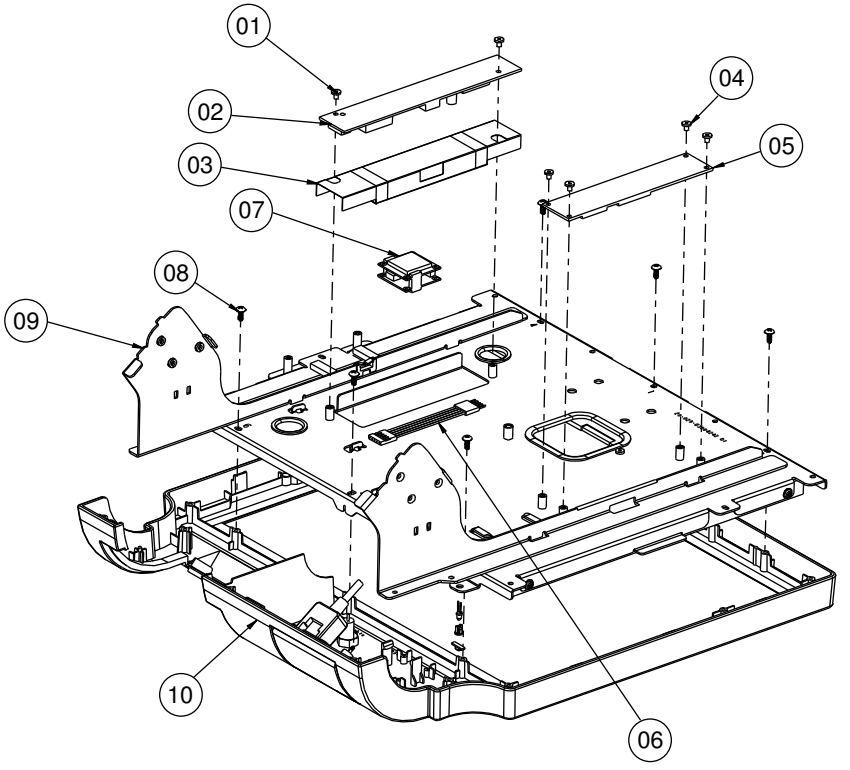
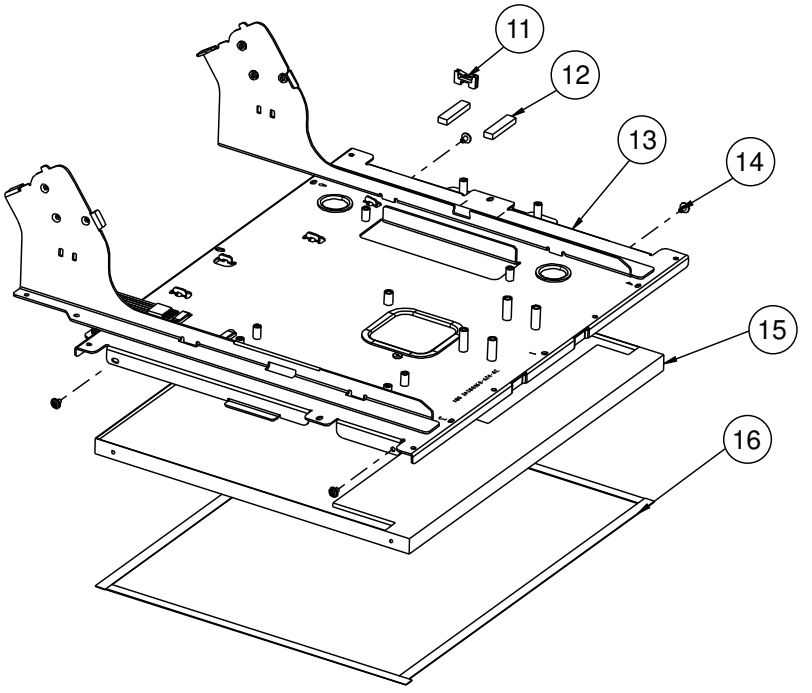
25

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 Kit	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-3320 LCD HOLDER

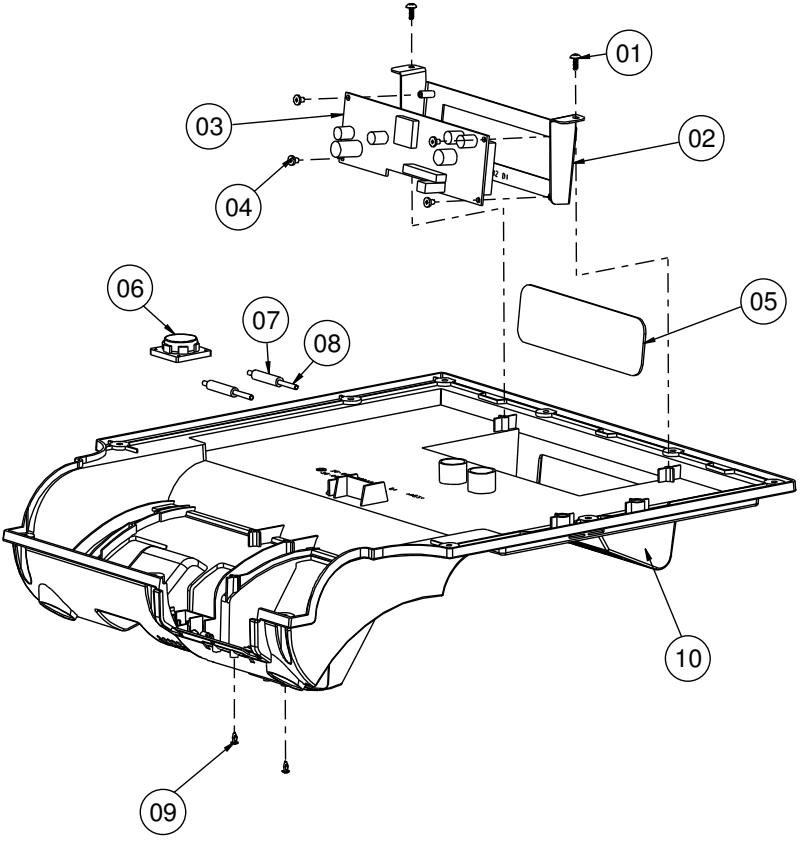


No.	Name	P/N No.	Qt'y
01	M3_L4_I_Ni	82-272-30004018	2
02	Inverter(GPI502-09A)	52-101-15020503	1
	Inverter cable	27-015-24210111	1
03	Inverter Mylar	90-056-02100242	1
04	M3_L4_I_Ni	82-272-30004018	4
05	Touch contral board	52-370-01720007	1
	Touch Cable	27-006-24414111	1
06	Touch EXTENDED Cable	27-043-12402071	1
07	RFID	52-151-08321015	1
	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			



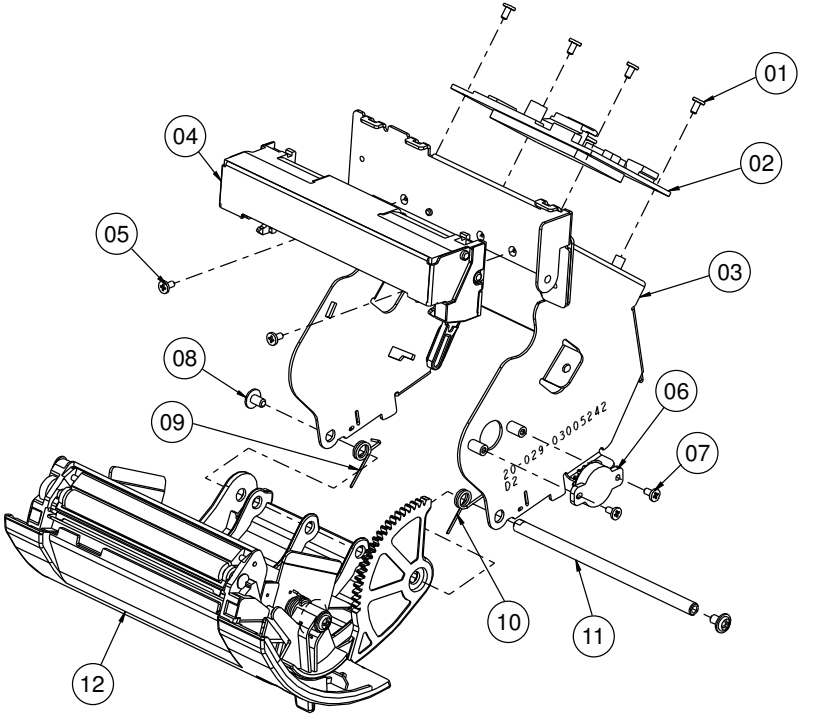
No.	Name	P/N No.	Qt'y
11	Cable Snap(DS-2-N2W)	90-058-04100000	1
12	EVA Sponge	30-013-15100242	2
13	Lcd holder(witch VFD)	20-029-03004242	1
	Lcd holder(Witchout VFD)	20-029-03003242	
14	M3_L5_Washer_Ni	22-242-30005311	4
15	15" lcd Panel	52-351-03150128	1
16	LCD Pron	30-013-24100000	4

EXPLODED DIAGRAM FOR PA-3320 VFD COVER



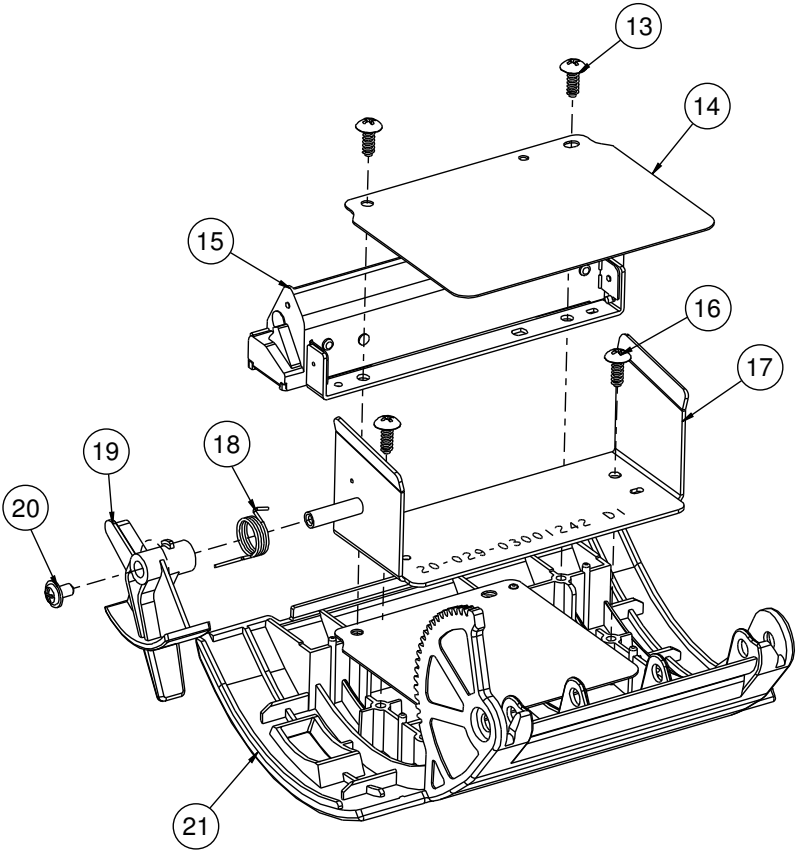
No.	Name	P/N No.	Qt'y
01	T3_L8_P_B	22-135-30008311	2
02	PA-3350_VFD_HOLDER	20-029-03006242	1
03	VFD	52-901-17001703	1
	VFD Cable	27-051-24213111	1
04	M3_L4_1_Ni	82-272-30004018	4
05	POS-6600 VFD LENS	30-021-02130199	1
06	Speaker Cable	XX-XXX-XXXXXXXX	1
07	Ø6_L25	30-041-04100165	2
08	D3 PIN	20-045-19012199	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-3320 3" PRINTER



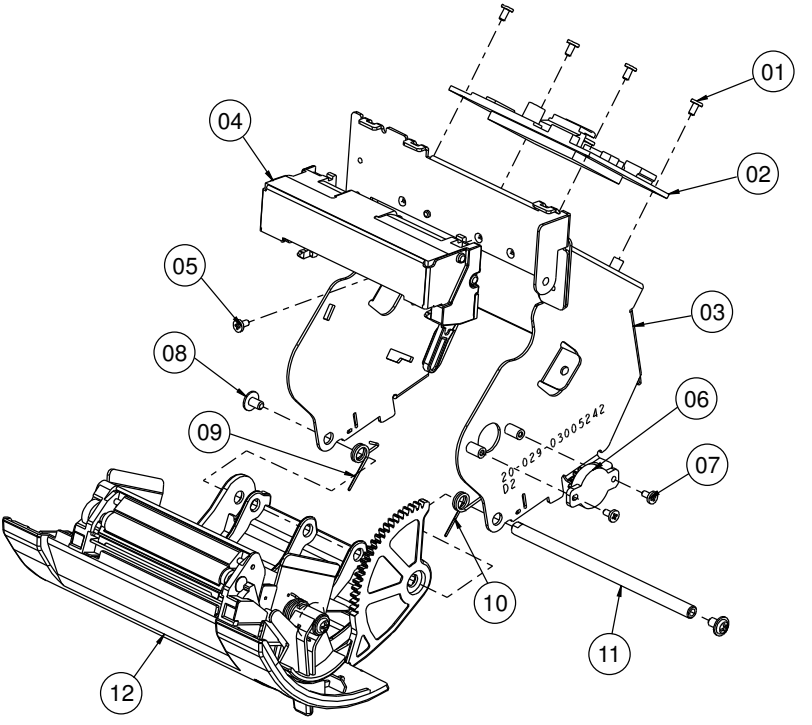
No.	Name	P/N No.	Qt'y
01	M2_L4_W_Ni	22-232-20004311	4
02	Printer Control PCB	See order	1
03	PA-3350_PRINTER_HOLDER	20-029-03005242	1
04	3" Printer	52-701-00017003	1/2
05	M2_L4_I_Ni	22-272-20004011	2
06	Rotary Damper	30-022-09110000	1
07	M2_L4_I_Ni	22-272-20004011	2
08	M3_L5_W_Ni	22-242-30005311	2
09	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-3320 3" PRINTER COVER



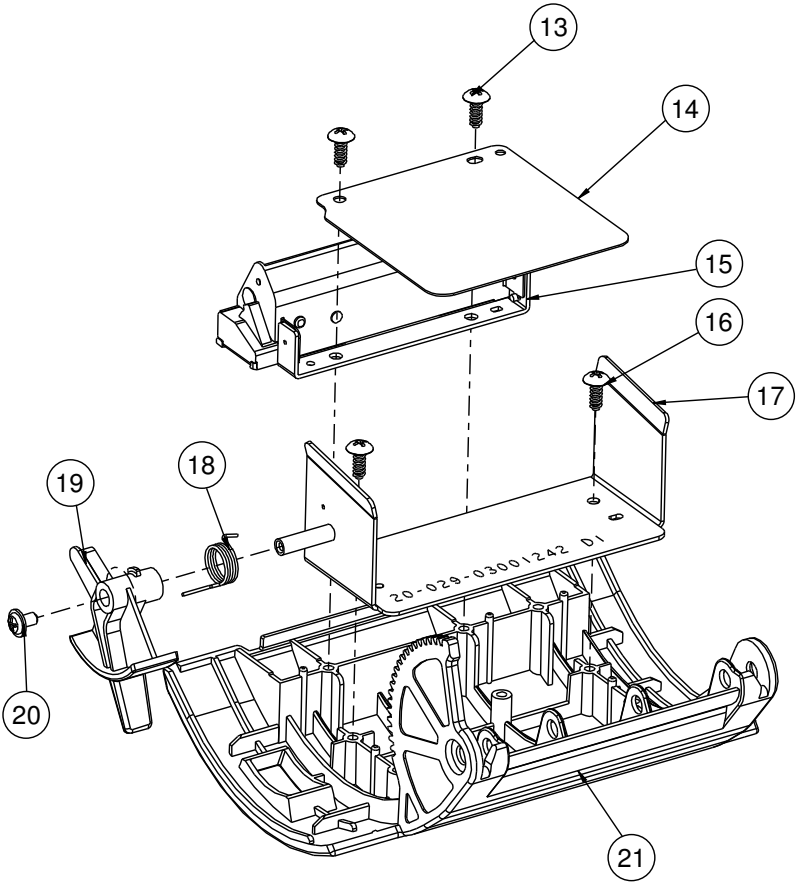
No.	Name	P/N No.	Qt'y
13	T3_L8_P_B	22-135-30008311	2
14	3" Mylar	90-056-02600165	1
15	3" Printer	52-701-00017003	1/2
16	T3_L8_P_B	22-135-30008311	2
17	PA3350_EJECTOR_HOLDER	20-029-03001242	1
18	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
19	PA-3350-EJECTOR	30-019-09130242	1
20	M3_L5_W_Ni	22-242-30005311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

EXPLODED DIAGRAM FOR PA-3320 2" PRINTER



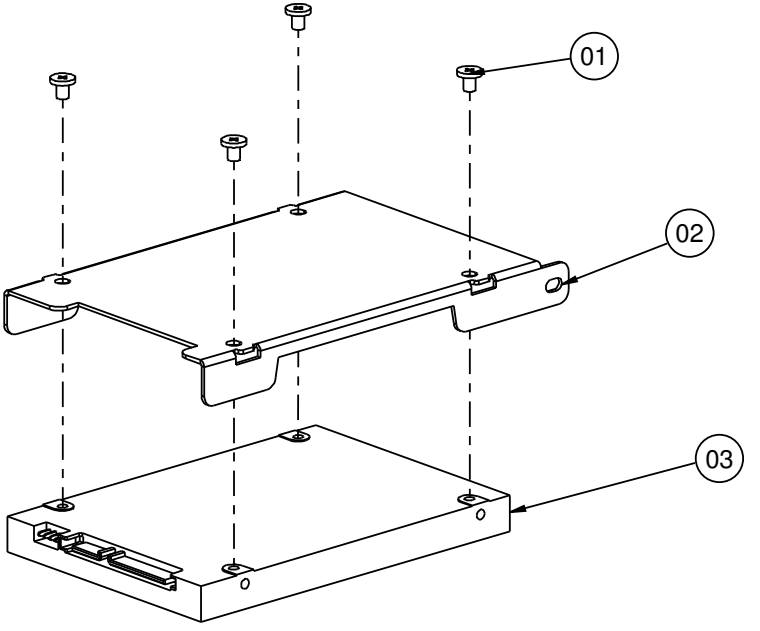
No.	Name	P/N No.	Qt'y
01	M2_L4_W_Ni	22-232-20004311	4
02	Printer Control PCB	See Order	1
03	PA-3350_PRINTER_HOLDER	20-029-03005242	1
04	2" Printer	52-701-00020003	1/2
05	M2_L4_I_Ni	22-272-20004011	1
06	Rotary Damper	30-022-09110000	1
07	M2_L4_I_Ni	22-272-20004011	2
08	M3_L5_W_Ni	22-242-30005311	2
09	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-3320 2" PRINTER COVER



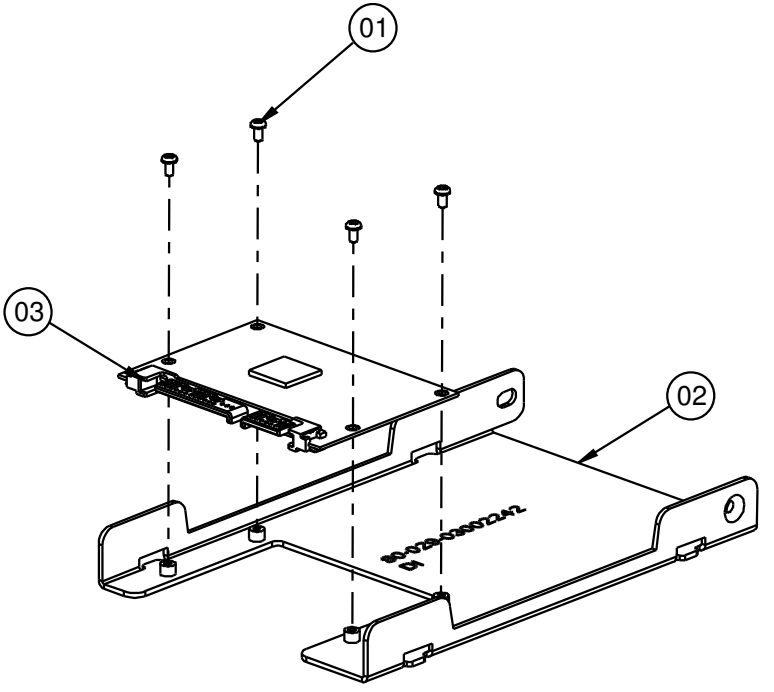
No.	Name	P/N No.	Qt'y
13	T3_L8_P_B	22-135-30008311	2
14	2" Mylar	90-056-02300165	1
15	2" Printer	52-701-00020003	1/2
16	T3_L8_P_B	22-135-30008311	2
17	PA3350_EJECTOR_HOLDER	20-029-03001242	1
18	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	1
19	PA-3350-EJECTOR	30-019-09130242	1
20	M3_L5_W_Ni	22-242-30005311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

EXPLODED DIAGRAM FOR PA-3320 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	1
03	HDD	See Order	1

EXPLODED DIAGRAM FOR PA-3320 SSD MODULE



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

TECHNICAL SUMMARY

APPENDIX

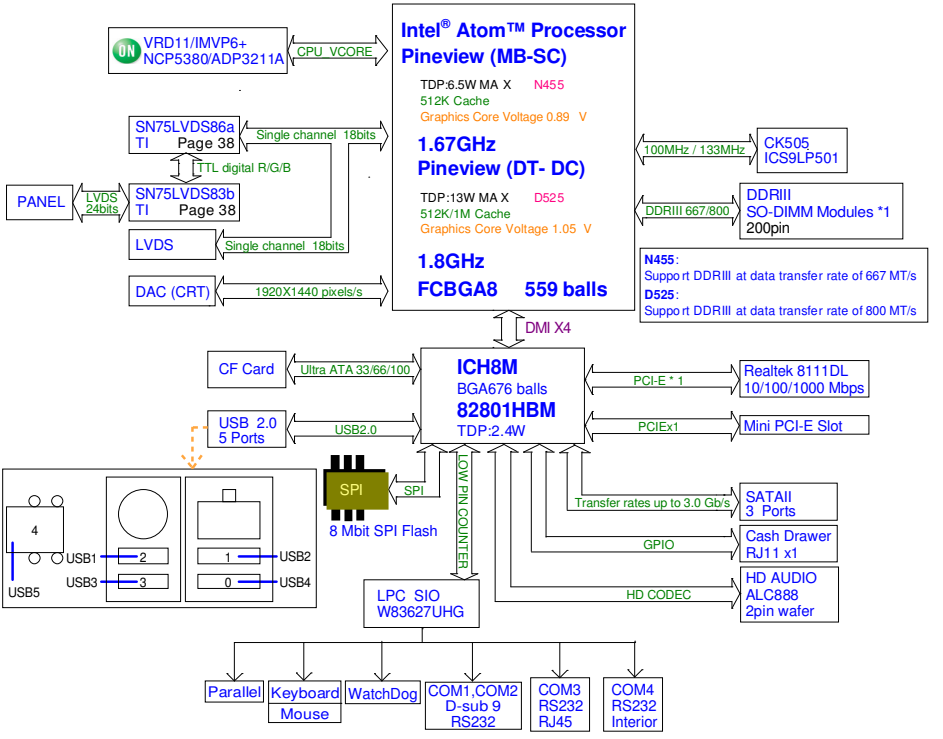
B

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

Sections included:

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

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
0	System timer
1	Standard 101/102-Key or Microsoft Natural PS/2 Keyboard
3	Communications Port (COM2)
4	Communications Port (COM1)
5	Intel® ICH8 Family SMBus Controller - 283E
8	System CMOS/real time clock
9	Microsoft ACPI-Compliant System
10	Communications Port (COM4)
11	Communications Port (COM3)
12	Microsoft PS/2 Mouse
13	Numeric data processor
14	Primary IDE Channel
16	Intel® Graphics Media Accelerator 3150
16	Intel® ICH8 Family USB Universal Host Controller - 2834
17	Realtek PCIe GBE Family Controller
18	Intel® ICH8 Family USB2 Enhanced Host Controller - 283A
18	Intel® ICH8 Family USB Universal Host Controller - 2832
18	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
19	Intel® ICH8 Family USB Universal Host Controller - 2831
21	Intel® ICH8 Family USB Universal Host Controller - 2835
21	Microsoft UAA Bus Driver for High Definition Audio
22	Intel® ICH8 Family PCI Express Root Port 1 - 283F
23	Intel® ICH8 Family PCI Express Root Port 6 - 2849
23	Intel® ICH8 Family USB Universal Host Controller - 2830
23	Intel® ICH8 Family USB2 Enhanced Host Controller - 2836

DMA CHANNELS MAP

TIMER CHANNEL	ASSIGNMENT
4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x0000001F	Direct memory access controller
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	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 101/102-Key or Microsoft Natural PS/2 Keyboard
0x00000061-0x00000061	System speaker
0x00000062-0x00000063	Motherboard resources
0x00000064-0x00000064	Standard 101/102-Key or Microsoft Natural 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

I/O MAP	ASSIGNMENT
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
0x000001F0-0x000001F7	Primary IDE Channel
0x00000274-0x00000277	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003B0-0x000003BB	Intel® Graphics Media Accelerator 3150
0x000003C0-0x000003DF	Intel® Graphics Media Accelerator 3150
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F6-0x000003F6	Primary IDE Channel
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x0000041F	Motherboard resources
0x00000400-0x0000041F	Intel® ICH8 Family SMBus Controller - 283E
0x000004D0-0x000004D1	Motherboard resources
0x00000500-0x0000053F	Motherboard resources
0x00000800-0x0000087F	Motherboard resources

I/O MAP	ASSIGNMENT
0x00000A00-0x00000A0F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x0000C080-0x0000C087	Intel® Graphics Media Accelerator 3150
0x0000C400-0x0000C41F	Intel® ICH8 Family USB Universal Host Controller - 2835
0x0000C480-0x0000C49F	Intel® ICH8 Family USB Universal Host Controller - 2834
0x0000C800-0x0000C81F	Intel® ICH8 Family USB Universal Host Controller - 2832
0x0000C880-0x0000C89F	Intel® ICH8 Family USB Universal Host Controller - 2831
0x0000CC00-0x0000CC1F	Intel® ICH8 Family USB Universal Host Controller - 2830
0x0000D080-0x0000D08F	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D400-0x0000D40F	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D480-0x0000D483	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D800-0x0000D807	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D880-0x0000D883	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000DC00-0x0000DC07	Intel® ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000E000-0x0000EFFF	Intel® ICH8 Family PCI Express Root Port 6 - 2849
0x0000E800-0x0000E8FF	Realtek PCIe GBE Family Controller
0x0000FFA0-0x0000FFAF	Intel® ICH8M Ultra ATA Storage Controllers - 2850

WATCHDOG TIMER CONFIGURATION

Watchdog timer can be configured via I/O port address 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F (hex) is the data port. User can assign the target offset by writing value into address port 2E (hex) and then write/read data to/from the target offset by data port 2F (hex).

Configuration Sequence

Please follow the following steps to program W83627UHG configuration registers.

1. 1 Enter the extended function mode.
2. 2 Configure the configuration registers.
3. 3 Exit the extended function mode.

1. Enter the extended function mode

To place W83627UHG 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

User must select to the desired Logical Device number 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 SuperIO exits the Extended Function Mode, it goes back to the normal running mode.

Code example for watch dog timer

Enable watchdog timer and set timeout interval to 30 seconds.

```
;------ Enter to extended function mode ------------------------------------------------------
mov     dx,     2Eh
mov     al,     87h
out     dx,     al
out     dx,     al
;------ Select Logical Device 8 of watchdog timer --------------------------------------------
mov     al,     07h
out     dx,     al
inc     dx
mov     al,     08h
out     dx,     al
;------ Logic device activation for watch dog timer ------------------------------------------
dec     dx
mov     al,     030h
out     dx,     al
inc     dx
mov     al,     01h
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

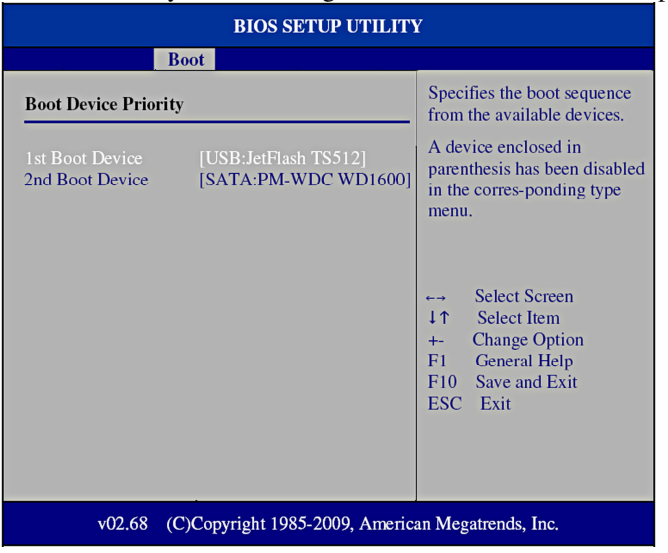
I. Before System BIOS update

1. Prepare a bootable media (ex. USB storage device) which can boot system to DOS prompt.

2. Download and save the BIOS file (ex. 33200P01.ROM) file to the bootable device.

3. Copy AMI flash utility – AFUDOS.exe (v4.38) into bootable device.

4. Make sure the target system can first boot to the bootable device.
   (1) Connect the bootable USB device.
   (2) Turn on the system and press <Del> key during BIOS POST procedure.
   (3) System will go into the BIOS setup menu.
   (4) Select [Boot] menu.
   (5) Select [Boot Devices Priority] sub-menu, set the USB bootable device to be the 1st boot device.
   (6) Press <F10> 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.
/C: Destroy CMOS checksum.
/X: Don't check ROM ID.

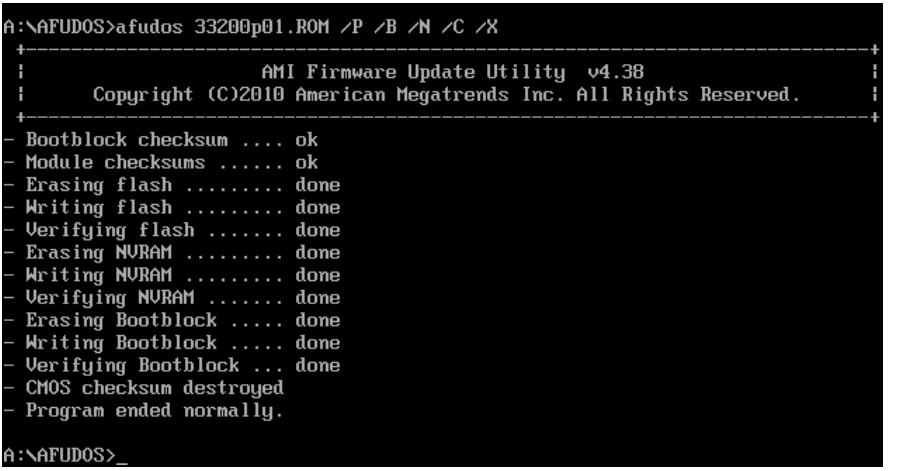
III. BIOS update procedure

1. Use the bootable USB storage to boot up system into the DOS command prompt.

2. Type "**AFUDOS 3320xxxx.ROM/p/b/n/c/x** " and press enter to start the flash procedure.
   (Note that xxxx means the BIOS revision part, ex. 0P01…)

3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM and make system unable to boot up next time.

4. After BIOS update procedures is complete, the messages should be like the figure shown below.



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