USER'S MANUAL

POS-3520

15" POS Terminal

With Intel® Atom® D525

Platform

POS-3520   M2

POS-3520 POS System
With LCD / Touchscreen

OPERATION MANUAL

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ACKNOWLEDGEMENTS

CE NOTICE

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.

TABLE OF CONTENTS

APPENDIX   B   TECHNICAL SUMMARY

INTRODUCTION

This chapter gives you the information for POS-3520. It also outlines the System specifications.

Section includes:

● About This Manual

● System Specifications

● Safety precautions

Experienced users can skip to chapter 2 on page 2-1 for a Quick Start.

1-1. ABOUT THIS MANUAL

Thank you for purchasing our POS-3520 System. The POS-3520 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The POS-3520 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. The user can apply this manual for configuration according to the following chapters:

Chapter 1 Introduction

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

Chapter 2 Hardware Configuration

This chapter outlines the Prox3520LF component's location and their function. In the end of this chapter, you will learn how to set jumper and how to configure this card 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, Touch Screen Utility and Flash BIOS Update. It also describes the Wireless Utility.

Chapter 4 AMI BIOS Setup

This chapter indicates you how to set up the BIOS configurations.

Appendix A System Assembly

This section gives you the exploded diagram for the whole system unit.

Appendix B Technical Summary

This section gives you the information about the Technical maps.

1-2. POS SYSTEM ILLUSTRATION

Front View
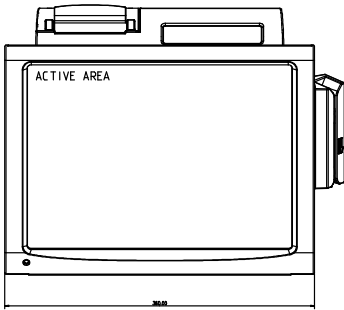
Rear View
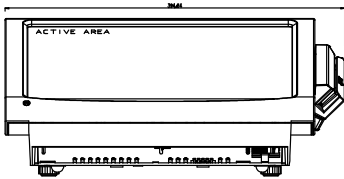
Side View
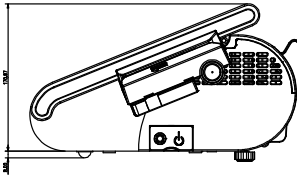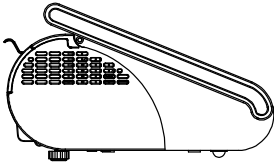
Bottom View
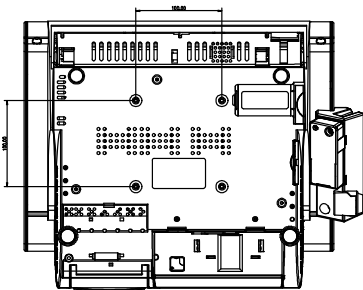
Quarter View
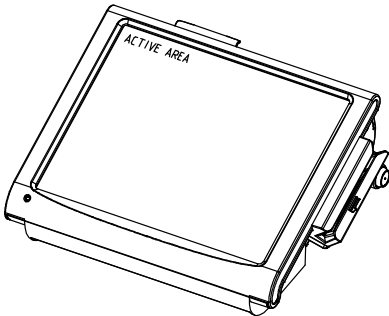
1-3. SYSTEM SPECIFICATIONS

MAINBOARD (PROX3520LF)

● **CPU TYPE :**
Intel® ATOM™ Pineview D525

● **CHIPSET :**
Intel® ICH8M

● **MEMORY :**
2 x DDR3 SO-DIMM Slot, 1G DDR3 SO-DIMM default (up to 4GB)

● **CACHE :**
Depended on CPU

● **REAL-TIME CLOCK / CALENDAR :**
Embedded in Intel® ICH8M South Bridge

● **BIOS :**
AMI BIOS

● **KEYBOARD CONNECTOR :**
PS/2 Keyboard, with mini DIN connecter on rear panel.

● **MOUSE CONNECTOR :**
PS/2 Mouse, with mini DIN connecter on rear panel.

● **SERIAL PORT :**
3 x DB-9 & 1 x RJ45, +5V/ 12V selectable

● **UNIVERSAL SERIAL BUS PORT :**
5 x USB ports

● **LAN FUNCTION :**
1 x 10/100/1000 Mbps

● **AUDIO FUNCTION :**
1 x 2W Speaker

● **VGA FUNCTION :**
   1 x DB-15 VGA interface

● **DIMENSION (WxHxD):**
   356 x 309 x 167 mm (14.02" x 12.17" x 6.57")

● **System Weight:**
   5.7 kg

● **LCD PANEL:**

Type	SVGA
Max. Resolution	1024 x 768
Size/Type	15" / TFT
Viewing Angel (degree)	24~30 degrees
Brightness	250 cd / m^2
Signal Interface (bit)	TTL (18-bit)

● **TOUCH PANEL :**
   15" 5wire Analog resistive.

● **PRINTER :**
   2" or 3" easy loading thermal printer with Auto cutter
   (* Diameter of paper roll can not 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)

1-4. SAFETY PRECAUTIONS

Following messages are safety reminders on how to protect your systems from damages. And thus, helps you lengthen the life cycle of the system.

1. Check the Line Voltage

    a. The operating voltage for the power supply should cover the range of 100VAC-240VAC, otherwise the system may be damaged.

2. Environmental Conditions

    a. Place your POS-3520 on a sturdy, level surface. Be sure to allow enough room on each side to have easy access.

    b. Avoid extremely hot or cold places to install your POS-3520 POS Terminal.

    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 POS-3520 when it's been left outdoors in a cold winter day.

    d. Bear in mind that the operating ambient temperature is from 0°C up to +35°C.

    e. Avoid moving the system rapidly from a hot place to a cold place or vice versa because condensation may come from inside of the system.

    f. Place POS-3520 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 interference.

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

3. Handling

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

4. Good Care

    a. When the outside of the case is stained, remove the stain with neutral washing agent with a dry cloth.

    b. Never use strong agents such as benzene and thinner to clean the system.

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

    d. If dust has been accumulated on the outside, remove it by using a special made vacuum cleaner for computers.

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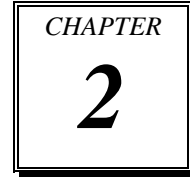
Helpful information that describes the jumper & connector settings, and component locations.

Section includes:

- Jumper & Connector Quick Reference Table

- Component Locations

- Configuration and Jumper settings

- Connector Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

Connector & Jumper	Name	Page
COM Port & VGA Connector	COM1, COM3, COM4, COM2-1, JVGACOM2	2-6
COM Port RI and Voltage Selection	JP_COM1, JP_COM2, JP_COM3, JP_COM4	2-9
MINI-DIN and USB Connector	JPS2USB1, USB5, USB6	2-13
LAN & USB Connector	JRJ45USB1	2-14
Cash Drawer Connector	DRW1, DRW2	2-15
Cash Drawer Power Selection	JP14, JP17	2-16
Power LED Connector	LED-1	2-17
Smart Fan Connector	FAN2	2-17
Power Connector	FAN1	2-17
Reset Switch Connector	JRST1	2-18
Power for Thermal printer Connector	PRT_PWR1	2-18
External Speaker Connector	SPK1	2-18
Inverter Connector	INV1, INV2	2-19
MSR/ Card Reader Connector	PS2	2-20
Printer Connector	LPT1	2-20
LVDS Connector	LVDS1, LVDS2	2-21
SATA Connector	SATA1	2-23
SATA Power Connector	JPWR_4P1	2-23
Touch Panel Connector	TOUCH1	2-24
Touch Panel Selection	JP16	2-24
Touch Panel Interface Type Selection	JP15	2-25
Clear CMOS Data Selection	JP1	2-26
Compact Flash Connector	CF1	2-27

2-2. COMPONENT LOCATIONS
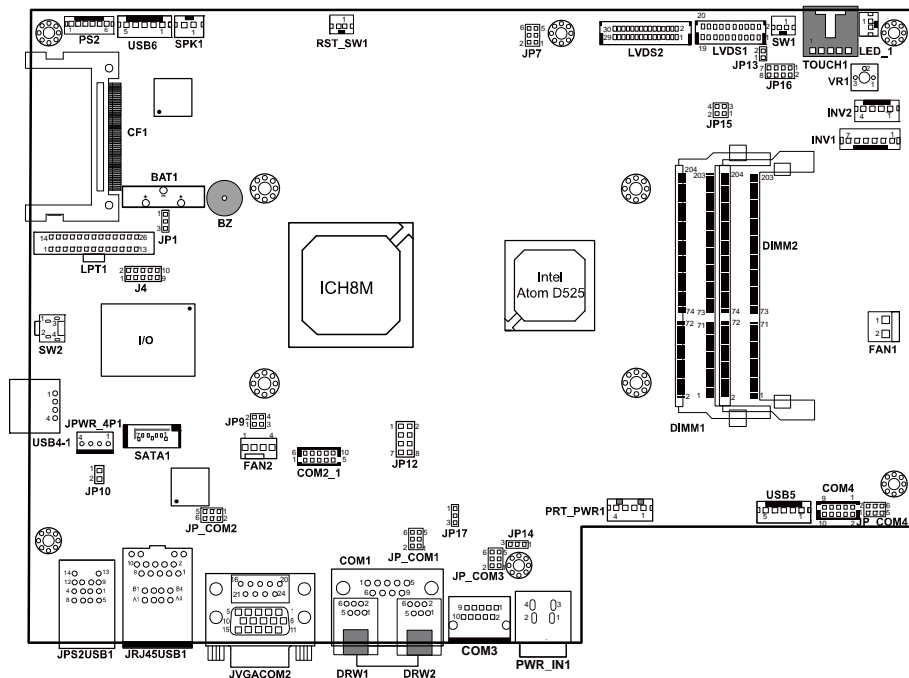
POS-3520 Connector, Jumper and Component locations

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

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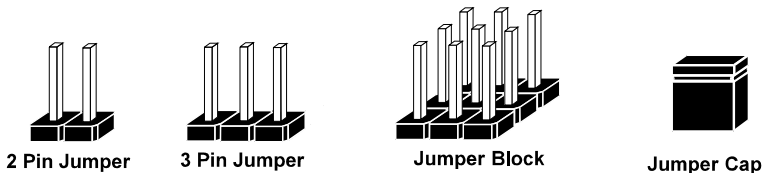
If a jumper has three pins for example, labelled PIN1, PIN2, and PIN3. You can connect PIN1 & PIN2 to create one setting and shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

JUMPER DIAGRAMS

Jumper Cap looks like this
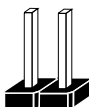
2 pin Jumper looks like this
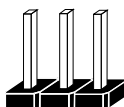
3 pin Jumper looks like this
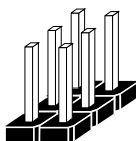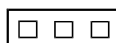
Jumper Block looks like this
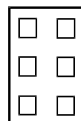
JUMPER SETTINGS

2 pin Jumper closed(enabled)
looks like this

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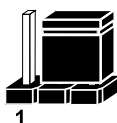
3 pin Jumper
2-3 pin closed(enabled)
looks like this

1

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

1   2
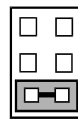
2-4. COM PORT & VGA CONNECTOR

There are four COM ports enhanced in this board namely: COM1, COM2, COM3 and COM4.

COM1: COM1 Connector
The COM1 Connector assignments are as follows:

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

COM1
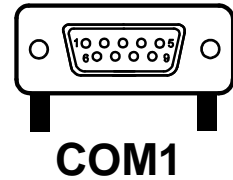
COM3: COM3 Connector
The pin assignments are as follows:

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

1   10

COM3
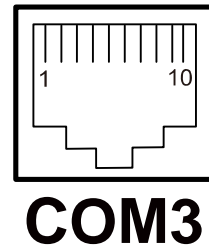
COM4: COM4 Connector
The pin assignments are as follows:

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

9 □ □ □ □ □ 1
10 □ □ □ □ □ 2
COM4

COM2-1: COM2 External Connector
The pin assignments are as follows:

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

6 □ □ □ □ □ 10
1 □ □ □ □ □ 5
COM2_1

JVGACOM2: COM2 & VGA Connector
The COM2 & VGA Connector assignments are as follows:

PIN	ASSIGNMENT
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	+5V
10	GND
11	NC
12	DDCA DATA
13	HSYNC
14	VSYNC
15	DDCA CLK
16	DCD1
17	RXD1
18	TXD1
19	DTR1
20	GND
21	DSR1
22	RTS1
23	CTS1
24	RI/+5V/+12 selectable

JVGACOM2
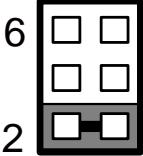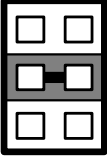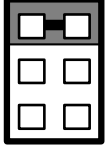
All COM port is selectable for RI, +5V or +12V. For more information, please refer to our "COM RI and Voltage Selection".

2-5. COM PORT RI & VOLTAGE SELECTION

JP_COM1: COM1 RI & Voltage Selection
The selections are as follows:
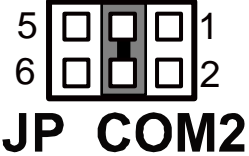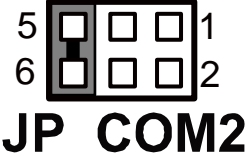
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RI	1-2	6 □ □ 5 □ □ 2 ▨▨ 1 **JP_COM1**
VCC12	3-4	6 □ □ 5 ▨▨ 2 □ □ 1 **JP_COM1**
VCC	5-6	6 ▨▨ 5 □ □ 2 □ □ 1 **JP_COM1**

***Manufacturing Default – RI.

JP_COM2: COM2 RI & Voltage Selection
The selections are as follows:
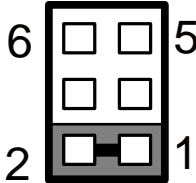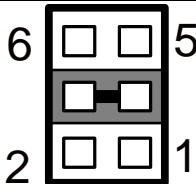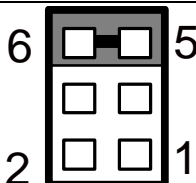
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RI	1-2	5 □ □ ■ 1 6 □ □ ■ 2 **JP_COM2**
VCC12	3-4	5 □ ■ □ 1 6 □ ■ □ 2 **JP_COM2**
VCC	5-6	5 ■ □ □ 1 6 ■ □ □ 2 **JP_COM2**

***Manufacturing Default – RI.

JP_COM3: COM3 RI & Voltage Selection
The selections are as follows:
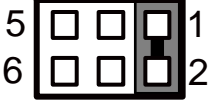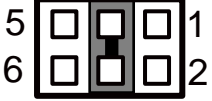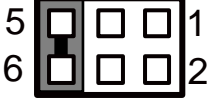
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RI	1-2	6 ☐ ☐ 5 ☐ ☐ 2 ■■ 1 **JP_COM3**
VCC12	3-4	6 ☐ ☐ 5 ■■ 2 ☐ ☐ 1 **JP_COM3**
VCC	5-6	6 ■■ 5 ☐ ☐ 2 ☐ ☐ 1 **JP_COM3**

***Manufacturing Default – RI.

JP_COM4: COM4 RI & Voltage Selection
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RI	1-2	5 □ □ ■ 1 6 □ □ ■ 2 **JP_COM4**
VCC12	3-4	5 □ ■ □ 1 6 □ ■ □ 2 **JP_COM4**
VCC	5-6	5 ■ □ □ 1 6 ■ □ □ 2 **JP_COM4**

***Manufacturing Default – RI.

2-6. MINI-DIN AND USB CONNECTOR

JPS2USB1: Two USB Ports Connector and MINI-DIM
MINI-DIN connector can support keyboard, Y-cable, or PS/2 Mouse
The pin assignment is as follows:

PIN	ASSIGNMENT
1	GND
2	USB2+
3	USB2-
4	VCC5
5	GND
6	USB3+
7	USB3-
8	VCC5
9	GND
10	KDAT
11	MDAT
12	V5SB
13	KCLK
14	MCLK
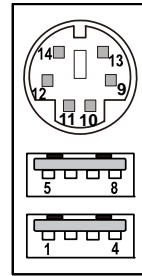
JPS2USB1

USB5: Internal USB Ports Connector
The pin assignment is as follows:

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

USB5

USB6: Internal USB Ports Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	USB6-
2	USB6+
3	GND
4	VCC5
5	GND
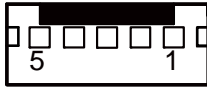
USB6

2-7. LAN & USB CONNECTOR

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

PIN	ASSIGNMENT
1	LAN1_MDIP0
2	LAN1_MDIN0
3	LAN1_MDIP1
4	LAN1_MDIN1
5	LAN1_MDIP2
6	LAN1_MDIN2
7	LAN1_MDIP3
8	LAN1_MDIN3

Orange   Green
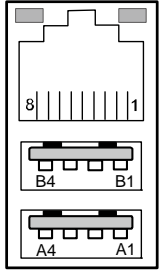
JRJ45USB1

PIN	ASSIGNMENT
A1	VCC5
A2	USB0-
A3	USB0+
A4	GND
B1	VCC5
B2	USB1-
B3	USB1+
B4	GND

2-8. CASH DRAWER CONNECTOR

DRW1, DRW2: Cash Drawer Connector
The pin assignment is as follows:

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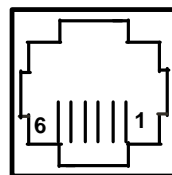
DRW1

PROX-A3520 cash drawer control in GPIO port

To Open Drawer1 (GPIO 7)
Write "00"h to I/O Port "50C"h Bit 7
To Close Drawer1
Write "01"h to I/O Port "50C"h Bit 7

Detect Drawer1 Status
Read I/O "50E"h (GPIO 20)
Definition (bit4)

DRW2

To Open Drawer2 (GPIO 6)
Write "00"h to I/O Port "50C"h Bit 6
To Close Drawer2
Write "01"h to I/O Port "50C"h Bit 6

Detect Drawer2 Status
Read I/O "538"h (GPIO 37)
Definition (bit5)
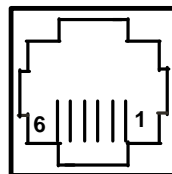
2-9. CASH DRAWER POWER SELECTION

JP14, JP17: Cash Drawer Power Selection
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
+12V	2-3	3 ▢▢▢ 1 **JP14** 1 ▢ **JP17** 3
+24V (default)	1-2	3 ▢▢▢ 1 **JP14** 1 ▢ 3 ▢ **JP17**

*** Manufactory default --- +24V.

2-10. POWER LED CONNECTOR

LED-1: LED Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	GND
2	VCC_PWR_LED

LED_1
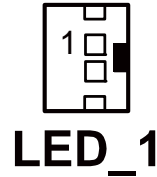
2-11. SMART FAN CONNECTOR

FAN2: CPU Smart Fan Connector.

The pin assignments are as follows:

PIN	ASSIGNMENT
1	GND
2	12V
3	CPUFANIN
4	CPUFANOUT

FAN2
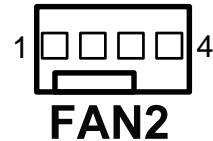
2-12. POWER CONNECTOR

FAN1: Provide 12 Voltage Connector
The pin assignment is as follows:

PIN	ASSIGNMENT
1	VCC12
2	GND

FAN1
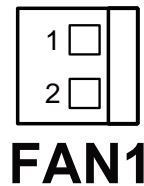
2-13. RESET SWITCH CONNECTOR

RST_SW1: Power Switch Connector
The pin assignment is as follows:

RST_SW1

PIN	ASSIGNMENT
1	RST_SW
2	GND

2-14. POWER FOR THERMAL PRINTER CONNECTOR

PRT_PWR1: Power for Thermal printer Connector
The pin assignment is as follows:

PRT_PWR1

PIN	ASSIGNMENT
1	VCC24SB
2	VCC24SB
3	GND
4	GND
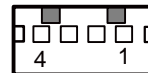
2-15. EXTERNAL SPEAKER CONNECTOR

SPK1: External Speaker Connector
The pin assignment is as follows:

SPK1

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT
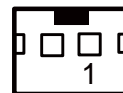
2-16. INVERTER CONNECTOR

INV1: Inverter Connector
The pin assignment is as follows:

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

INV2: Inverter Connector
The pin assignment is as follows:

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

2-17. MSR/ CARD READER CONNECTOR

PS2: MSR/ Card Reader Connector
The pin assignment is 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

2-18. PRINTER CONNECTOR

LPT1: LPT Connector.
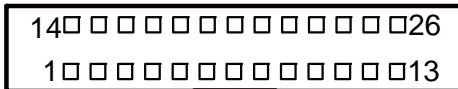
The assignments are as follows:

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

2-19. LVDS Connector

LVDS1: LVDS Connector

LVDS1
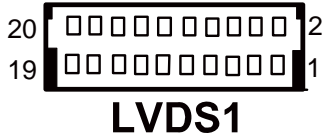
The pin assignments are as follows:

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

LVDS2: LVDS Connector.
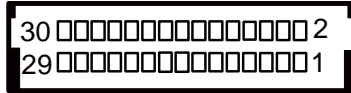
```
30 □□□□□□□□□□□□□□□ 2
29 □□□□□□□□□□□□□□□ 1
```
LVDS2

The pin assignments are as follows:

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

2-20. SATA CONNECTOR

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

PIN	ASSIGNMENT
1	G1
2	TX+
3	TX-
4	G2
5	RX-
6	RX+
7	G3
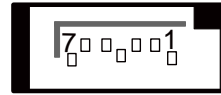
SATA1

2-21. SATA POWER CONNECTOR

JPWR_4P1: Serial ATA Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12
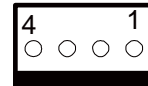
JPWR_4P1

2-22. 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)
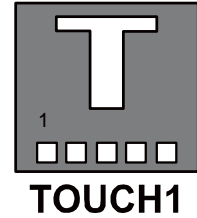
TOUCH1

2-23. TOUCH PANEL SELECTION

JP16: Touch Panel Selection.
The selections are as follows:
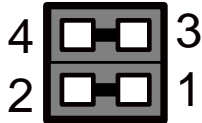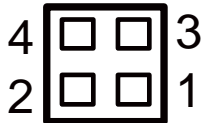
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
e-Turbo	1-2 & 5-6	
Elo	3-4 & 7-8	

*** Manufactory default --- Elo.

2-24. TOUCH PANEL INTERFACE TYPE SELECTION

JP15: Touch Panel Type Selection
The selections are as follows:
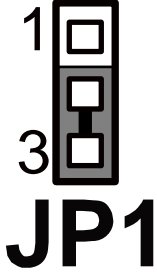
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
USB	1-2 3-4	4 ☐☐ 3 2 ☐☐ 1 **JP15**
RS-232	NC	4 ☐☐ 3 2 ☐☐ 1 **JP15**

*** Manufactory default --- USB.

2-25. CLEAR CMOS DATA SELECTION

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

FUNCTION	JUMPER SETTING (pin closed)	JUMPER ILLUSTRATION
CLEAR CMOS	2-3	1 3 JP1
NORMAL	1-2	1 3 JP1

*** 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.

2-26. 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

SOFTWARE UTILITIES

This chapter comprises the detailed information of VGA driver, LAN driver, and Sound driver. It also describes the OS support table.

Section includes:

● Intel® Chipset Software Installation Utility

● VGA Driver Utility

● LAN Driver Utility

● Sound Driver Utility

● Touch Screen Driver Utility

● OS Support Table

3-1. INTRODUCTION

Enclosed with our POS-3520 package is our driver utility, which may comes in a form of a CD ROM disc or floppy diskettes.   For CD ROM disc user, you will only need some of the files contained in the CD ROM disc, please kindly refer to the following chart:

Filename (Assume that CD ROM drive is D:)	Purpose
D:\Driver\UTILITY	Intel® Chipset Software Installation Utility
D:\Driver\VGA	Intel® Graphics Media Accelerator 3150 For VGA driver installation
D:\Driver\LAN	Realtek 8111DL For LAN Driver installation
D:\Driver\Sound	Realtek ALC888 For Sound driver installation
D:\Driver\TOUCH	Elo Touch driver installation

✍ User should remember to install the Utility 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 Utility for Windows XP, Windows 7 32Bit, Windows 64Bit, POSReady2009

The Utility Pack is to be installed only for Windows XP, Windows 7 32bit, Windows 7 64bit, POSReady 2009 program.
It should be installed right after the OS installation, kindly follow the following steps:

1. Please insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows XP, Windows 7 32bit, Windows 7 64bit, POSReady 2009 system, go to the directory where Utility Disc is located.
3. Click **Setup.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.

Once installation is completed, shut down the system and restart it in order to complete the changes.

3-3. VGA DRIVER UTILITY

The VGA interface embedded with our POS-3520 can support a wide range of display. You can display CRT, LVDS simultaneously with the same mode.

1. Win XP program
2. POSReady 2009
3. Win 7 32bit program
4. Win 7 64bit program
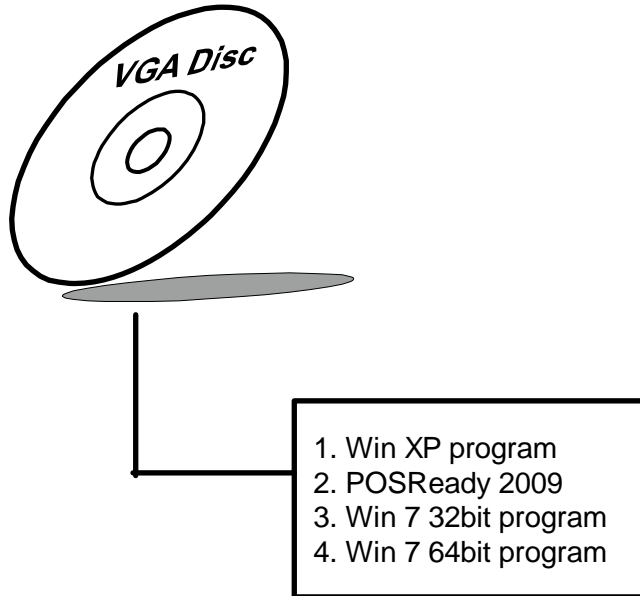
3-3-1. Installation of VGA Driver:

To install the VGA Driver, simply follow the following steps:

1. Please insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows XP, Windows 7 32bit, Windows 7 64bit, POSReady 2009 system, go to the directory where VGA driver is located.
3. Click **Setup.exe** file for VGA driver installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart it in order to complete the changes.

3-4. LAN DRIVER UTILITY

3-4-1. Introduction

POS-3520 is enhanced with LAN function that can support various network adapters. Installation programs for LAN driver is listed as follows:

```
1. Win XP program
2. POSReady 2009
3. Win 7 32bit program
4. Win 7 64bit program
```
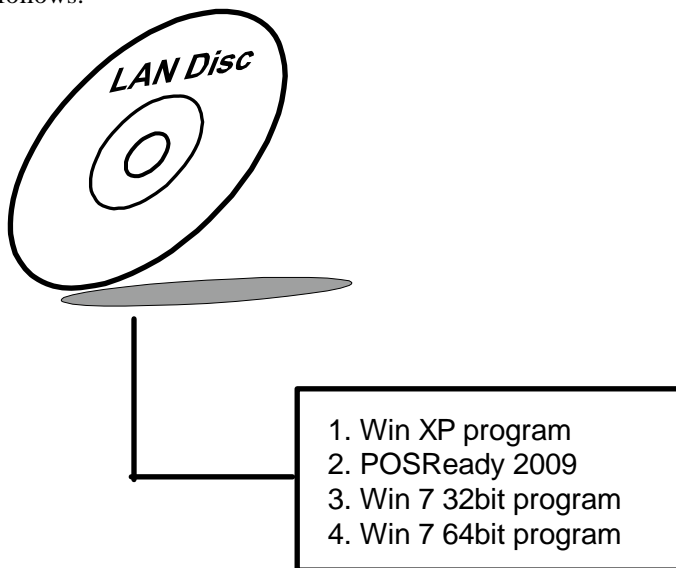
For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-5. SOUND DRIVER UTILITY

3-5-1. Introduction

The sound function enhanced in this system is fully compatible with Windows XP, Windows 7 32bit, Windows 7 64bit and POSReady 2009. Below, you will find the content of the Sound driver :

1. Win XP program
2. POSReady 2009
3. Win 7 32bit program
4. Win 7 64bit program
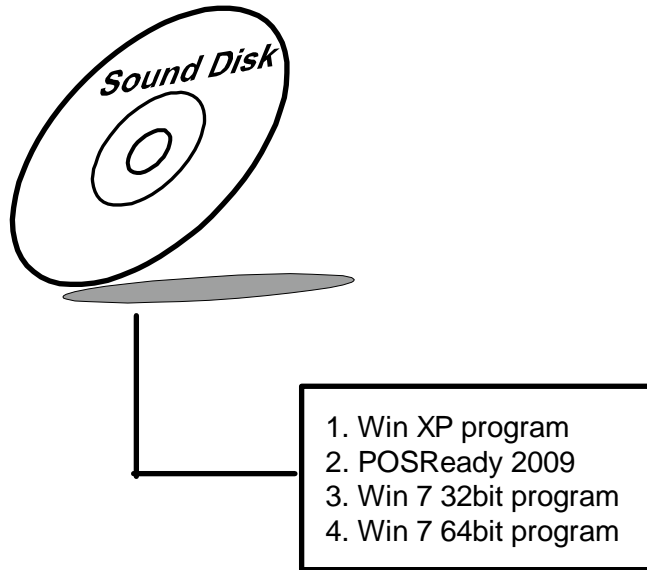
3-5-2. Installation Procedure

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

3-6. TOUCHSCREEN DRIVER UTILITY

The touchscreen driver utility is to be installed only for Windows XP, Windows 7 32bit, Windows 7 64bit, POSReady 2009 program.


```
1. Win XP program
2. POSReady 2009
3. Win 7 32bit program
4. Win 7 64bit program
```

It should be installed right after the OS installation, kindly follow the following steps:

1. Please insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows XP, Windows 7 32bit, Windows 7 64bit, POSReady 2009 system, go to the directory where Utility Disc is located.
3. Click **Setup.exe** file for utility installation.
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart it in order to complete the changes.

3-7 OS SUPPORT TABLE

Operating System	Version	Language	Company
Windows XP Professional	SP3	English	Microsoft
WEPOS	1.0	English	Microsoft
POS Ready 2009	1.0	English	Microsoft
Windows 7 32bit	Ultimate	English	Microsoft
Windows 7 64bit	Ultimate	English	Microsoft
Fedora Core	14	English	Linux
Ubuntu	11.04	English	Linux

AMI BIOS SETUP

This chapter shows how to setup the AMI BIOS.

Section includes:

- Introduction

- Entering Setup

- Main

- Advanced

- Boot

- Security

- Chipset

- Exit

4-1. INTRODUCTION

This chapter will show you the function of the BIOS (Basic Input and Output System) in managing the features of your system. The POS-3520 POS Terminal is equipped with the BIOS from AMI (American Megatrends Inc). The following pages describe how to use the BIOS for configure system hardware by BIOS Setup menu.

When the PC starts up, the first job for the BIOS is to initialize and identify system devices such as the video display card, keyboard and mouse, hard disk, CD/DVD drive and other hardware. The BIOS then locates software held on a peripheral device (designated as a 'boot device'), such as a hard disk or a CD, and loads and executes that software, giving it control of the PC.

BIOS code is stored on a non-volatile, ROM chip built into the system, on the mother board and the BIOS software is specifically designed to work with the particular type of system in question including having a knowledge of the workings of various devices that make up the complementary chipset of the system

BIOS also provide a user interface, this is a menu system accessed by pressing a certain key on the keyboard when the PC starts. In the BIOS UI, a 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 and set various password prompts, most importantly a password for securing access to the BIOS UI functions itself and preventing malicious users from booting the system from unauthorized peripheral devices.

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

```
┌─────────────────────────────────┐
│      Application Program        │
├─────────────────────────────────┤
│       Operation System          │
├─────────────────────────────────┤
│            BIOS                  │
├─────────────────────────────────┤
│       System Hardware           │
└─────────────────────────────────┘
```
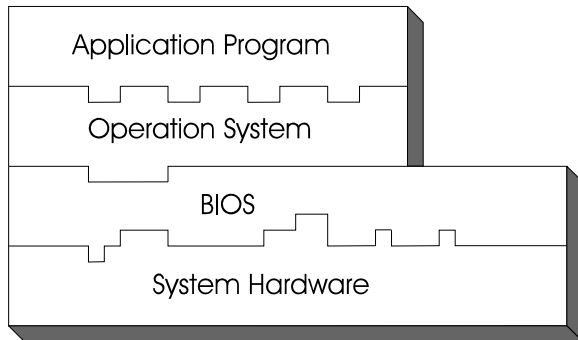
4-2 ENTERING SETUP

When system powered on, BIOS will enter the Power-On Self Test (POST) routines and displays below message on the screen:

American Megatrends
www.ami.com

AMI BIOS (C) 2009 American Megatrends, Inc.
BIOS Date: 04/28/11 12:30:29 Ver: 08.00.16
Board BIOS Version: 35200T04
CPU : Intel (R) Atom(TM) CPU   D525 @ 1.80GHz
  Speed : 1.80 GHz

Press DEL to run Setup
Initializing USB Controllers .. Done.
1014MB OK

(C) American Megatrends, Inc.
64-0100-009999-00101111-042811-Pineview-35200T04-Y2KC   423C

POST Screen

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

```
                     BIOS SETUP UTILITY

  Main   Advanced   Boot   Security  Chipset  Exit
 ┌──────────────────────────────────────┬─────────────────────────┐
 │  System Overview                      │ Use [ENTER], [TAB] or   │
 │ ─────────────────────────────────     │ [SHIFT-TAB] to select a │
 │                                       │ field.                  │
 │  AMIBIOS                              │                         │
 │  Version          :35200T04           │ Use [+] or [-] to       │
 │  Build Date       : 04/28/11          │ configure system Time.  │
 │                                       │                         │
 │  Processor                            │                         │
 │  Intel(R) Atom(TM) CPU    D525  @1.80GHz│                       │
 │  Speed            :1800MHz            │                         │
 │  Count            : 1                 │                         │
 │                                       │ ←→    Select Screen     │
 │  System Memory                        │ ↓↑    Select Item       │
 │  Size             : 1014MB            │ +-    Change Field      │
 │                                       │ Tab   Select Field      │
 │  System Time            [01:57:52]    │ F1    General Help      │
 │  System Date       [Wed 04/29/2011]   │ F10   Save and Exit     │
 │                                       │ ESC: Exit               │
 └──────────────────────────────────────┴─────────────────────────┘
      v02.68   (c)Copyright 1985-2009 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

```
                    BIOS SETUP UTILITY
 Main   Advanced   Boot   Security   Chipset   Exit

  System Overview                              Use [ENTER], [TAB] or
                                               [SHIFT-TAB] to select a
                                               field.
  AMIBIOS
  Version            :35200T04                 Use [+] or [-] to
  Build Date         : 04/28/11                configure system Time.

  Processor
  Intel(R) Atom(TM) CPU    D525   @1.80GHz
  Speed              :1800MHz
  Count              : 1
                                               ←→    Select Screen
                                               ↓↑    Select Item
  System Memory                                +-    Change Field
  Size               : 1014MB                  Tab   Select Field
                                               F1    General Help
  System Time                  [01:57:52]      F10   Save and Exit
  System Date                  [Wed 04/29/2011]  ESC: Exit

       v02.68   (c)Copyright 1985-2009 American Megatrends, Inc.
```

Main Screen

use < ↑ > or < ↓ > arrow keys to highlight the item and key in the value you want in each item. This menu provides basic system configurations, such as time and date.

AMI BIOS, Processor, System Memory
This items show the BIOS version, BIOS build up date, processor and system memory information of your system.

System Time
This setting allows you to set the system time. The format is [Hour: Minute: Second]. User can directly key-in value or use <+> or <-> arrow keys to increase/decrease it.

System Date
This setting allows you to set the system date. The format is [Day   Month/
Date/ Year]. User can directly key-in value or use <+> or <-> arrow keys to
increase/decrease it.

4-4. Advanced

```
                   BIOS SETUP UTILITY
 Main   Advanced   Boot   Security   Chipset   Exit

 Advanced Settings                              Configure CPU.

 WARNING: Setting wrong values in below sections
          May cause system to malfunction.

 ▶ CPU Configuration
 ▶ IDE Configuration
 ▶ SuperIO Configuration
 ▶ Hardware Health Configuration
 ▶ APM Configuration                            ←→    Select Screen
 ▶ USB Configuration                            ↓↑    Select Item
                                                Enter Go to Sub Screen
                                                F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit

      v02.68   (c)Copyright 1985-2009 American Megatrends, Inc.
```

Advanced Screen

This menu provides advanced configurations such as CPU Configuration, IDE
Configuration, SuperIO Configuration…etc.

4-4.1. CPU Configuration

```
                      BIOS SETUP UTILITY
     Advanced

  Configure advanced CPU settings              Enabled for Windows
  Module Version: 3F. 1C                       XP and Linux4 (OS
                                               optimized for Hyper
                                               Threading Technology)
  Manufacturer: Intel                          and disabled for other
  Intel(R) Atom(TM) CPU     D525    @ 1.80GHz  OS (OS not optimized
  Frequency      : 1.80GHz                     for Hyper-Threading
  FSB Speed      : 800MHz                      Technology)
  Cache L1       : 48 KB
  Cache L2       : 1024 KB
  Ratio Actual Value   : 9

  Hyper Threading Technology      [Enabled]



                                               ←→   Select Screen
                                               ↓↑   Select Item
                                               +-    Change Option
                                               F1    General Help
                                               F10  Save and Exit
                                               ESC: Exit

     v02.68    (c)Copyright 1985-2009 American Megatrends, Inc.
```

CPU Configuration Screen

This menu provides some information about CPU.

Hyper Threading Technology

Hyper Threading is Intel's term for its simultaneous multithreading implementation in their CPUs. Enable 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

BIOS SETUP UTILITY	
Advanced	
IDE Configuration	While entering setup, BIOS auto detects the presence of IDE devices. This displays the status of auto detection of IDE devices.
▶ SATA1 : [FUJITSU MHY20]	
▶ CF Card : [Transcend]	
	←→ Select Screen ↓↑ Select Item +- Change Option F1 General Help F10 Save and Exit ESC: Exit
v02.68 (c)Copyright 1985-2009 American Megatrends, Inc.	
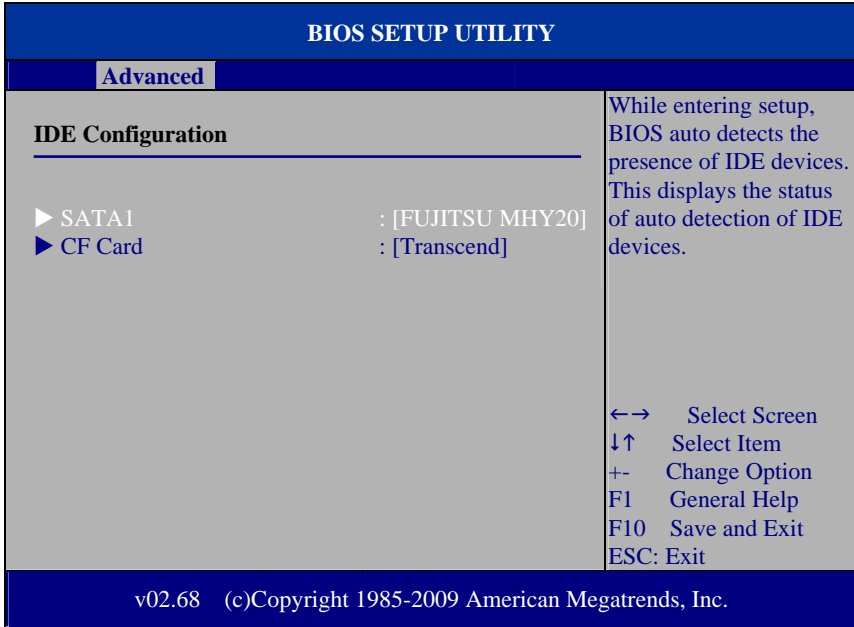
IDE Configuration Screen

This menu provides advanced IDE configuration for hard drive. The control items of SATA 1 / CF Card are all the same and describe in next section.

SATA 1/ CF Card
This setting displays the status of storages.

4-4.2.1 SATA 1 and CF Card

```
┌─────────────────────────────────────────────────────────────────────┐
│                        BIOS SETUP UTILITY                            │
│  ┌──────────┐                                                        │
│  │ Advanced │                                                        │
│                                                    Select the type of device
│   SATA 1                                           connected to the system.
│   ─────────────────────────────────────────────
│   Device      : Hard Disk
│   Vendor       : FUJUTSU MHY2040BH ESW
│   Size         : 40.0GB
│   LBA Mode    : Supported
│   Block Mode   : 16 Sectors
│   PIO Mode    : 4
│   Async DMA    : MultiWord DMA-2
│   Ultra DMA    : Ultra DMA-5
│   S.M.A.R.T.    : Supported
│   ─────────────────────────────────────────────
│
│   Type                            [Auto]
│   LBA/Large Mode                  [Auto]        ←→    Select Screen
│   Block (Multi-Sector Transfer)   [Auto]        ↓↑    Select Item
│   PIO Mode                        [Auto]        +-    Change Option
│   DMA Mode                        [Auto]        F1    General Help
│   S.M.A.R.T.                      [Auto]        F10   Save and Exit
│   32Bit Data Transfer             [Enabled]     ESC: Exit
│
│       v02.68    (c)Copyright 1985-2009 American Megatrends, Inc.
└─────────────────────────────────────────────────────────────────────┘
```
SATA 1 Screen

Type
Select the type of device connected to the system.

LBA/Large Mode
Enabling LBA causes Logical Block Addressing to be used in place of Cylinders, Heads and Sectors.

Block (Multi-Sector Transfer)
Any selection except Disabled determines the number of sectors transferred per block.

PIO Mode
Configure the type of PIO (Programmed Input/Output) mode 0-4 for IDE device. Mode 0 through 4 provides successively increased performance.

DMA Mode
Select the type of Ultra DMA mode on a hard drive.

S.M.A.R.T
This allows you to activate the S.M.A.R.T. (Self-Monitoring Analysis & Reporting Technology) capability for the hard disks. S.M.A.R.T is a utility that monitors your disk status to predict hard disk failure. This gives you an opportunity 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
Enables/Disable 32-bit data transfer.

4-4.3. SuperIO Configuration

```
                    BIOS SETUP UTILITY
  Advanced

  Configure Win627UHG Super IO Chipset          Allows BIOS to Select
                                                WDTO function.

  Watchdog Function         [Disabled]
  Serial Port1 Address      [2F8]
  Serial Port1 IRQ          [IRQ3]
  Serial Port2 Address      [3F8]
  Serial Port2 IRQ          [IRQ4]
  Serial Port3 Address      [3E8]          ←→    Select Screen
  Serial Port3 IRQ          [IRQ11]        ↓↑    Select Item
  Serial Port4 Address      [2E8]          +-     Change Option
  Serial Port4 IRQ          [IRQ10]        F1    General Help
  Parallel Port Address     [378]          F10   Save and Exit
    Parallel Port Mode      [Normal]       ESC: Exit
    Parallel Port IRQ       [IRQ7]

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```

SuperIO Configuration Screen

* WatchDog function
If system hang or not respond for user, enable watchdog function can triggers a system reset by an user given value count down to zero.

Serial Port1~4 Address
Select IO address as serial ports default resource.

Serial Port1~4 IRQ
Select IO IRQ as serial ports default resource.

Parallel Port Address
Select IO address for parallel ports resource allocation.

Parallel Port Mode
Select the operation mode for parallel port.

Parallel Port IRQ
Select IRQ for parallel ports resource allocation.

4-4.4. Hardware Health Configuration

BIOS SETUP UTILITY	
Advanced	
Hardware Health Configuration	Fan configuration mode setting
SYS Temperature : 35℃/95℉	
CPU Temperature :33℃/91℉	
CPUFAN Speed : 6026 RPM	
Vcore : 1.024 V	
12V : 11.776 V	
5V : 5.088 V	
1.05V : 1.0249 V	←→ Select Screen
VSB : 5.140 V	↓↑ Select Item
	+- Change Option
	F1 General Help
	F10 Save and Exit
	ESC Exit
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Hardware Health Configuration

System Temperature / CPU Temperature
Both section show System and CPU current temperature.

CPUFAN Speed
This item shows CPU fan speed.

VCORE / 12V / 5V / 1.05V /VSB
These items provide hardware health information.

4-4.5. APM Configuration

BIOS SETUP UTILITY	
Advanced	
APM Configuration	Go into On/Off, or Delay 4 sec when Power button is pressed.
Power Button Mode [On/Off]	
Restore on AC Power Loss [Last State]	
Resume On RTC Alarm [Disabled]	
	←→ Select Screen
	↓↑ Select Item
	+- Change Option
	F1 General Help
	F10 Save and Exit
	ESC: Exit
v02.68 (c)Copyright 1985-2009 American Megatrends, Inc.	
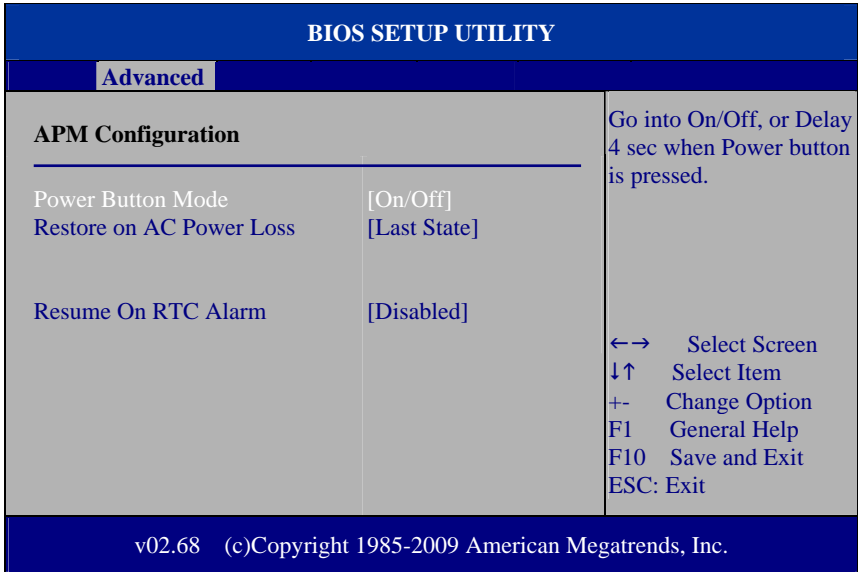
APM Configuration Screen

Power Management/APM
This is the main control item for enable/disable below APM functions.

Power Button Mode
This setting controls shutdown action by pressing power button. The system will be shutdown immediately after pressing power button when set to "On/Off". If set the power button mode to "Delay 4 seconds", system will be shutdown after pressing and hold the power button over 4 seconds.

Restore on AC/Power Loss
Once a power failure situation happens, this item decides the system power state after AC power restore back.

Resume On RTC Alarm
When user set this option to [Enable], it allows system to be wake up at specific date/time.

RTC Alarm Date (Days)
Set a specific date value for RTC alarm function to wakeup system from soft
off state.

System Time
Set a specific time value for RTC alarm function to wakeup system from soft
off state.

4-4.6.USB Configuration

BIOS SETUP UTILITY	
Advanced	

USB Configuration		Enables support for legacy USB. AUTO option disables legacy support if no USB devices are connected.
Module Version – 2.24.5-14.4		
USB Devices Enabled: 1 Drive		
Legacy USB Support	[Enabled]	
USB2.0 Controller Mode	[HiSpeed]	←→ Select Screen
USB Beep Message	[Enabled]	↓↑ Select Item
▶ USB Mass Storage Device Configuration		+- Change Option F1 General Help F10 Save and Exit ESC Exit

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USB Configuration Screen

Legacy USB Support
Set to [Enabled] if you want to use USB device in the legacy operating system,
such as MS-DOS or SCO Unix.

USB 2.0 Controller Mode
Configure the onboard USB 2.0 controller operation mode to high Speed or full
speed mode.

USB Beep Message
System will generate beep sound during USB device enumeration.

4-4.6.1 USB Mass Storage Device Configuration

BIOS SETUP UTILITY	
Advanced	
USB Mass Storage Device Configuration	If Auto, USB devices less than 530MB will be emulated as Floppy and remaining as hard drive. Forced FDD option can be used to force a HDD formatted drive to boot as FDD. (Ex. ZIP drive).
Device #1　　　　　USB2.0 USB Flash Disk Emulation Type　　　　　　[Auto]	
	←→　　Select Screen ↓↑　　Select Item +-　　Change Option F1　　General Help F10　Save and Exit ESC: Exit
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Emulation Type
Select which type of device that USB mass storage emulation. When user select to [Auto], the USB storage size less than 530MB will be emulated as floppy drive and remaining as hard drive.

4-5. Boot

```
                    BIOS SETUP UTILITY
  Main   Advanced   Boot   Security   Chipset   Exit

                                          Configure Settings
   Boot Settings                          during System Boot.

   ▶ Boot Settings Configuration

   ▶ Boot Device Priority
   ▶ Hard Disk Drives

   PXE Support                 [Disabled]

                                          ←→    Select Screen
                                          ↓↑    Select Item
                                          Enter  Go to Sub Screen
                                          F1    General Help
                                          F10   Save and Exit
                                          ESC: Exit

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```
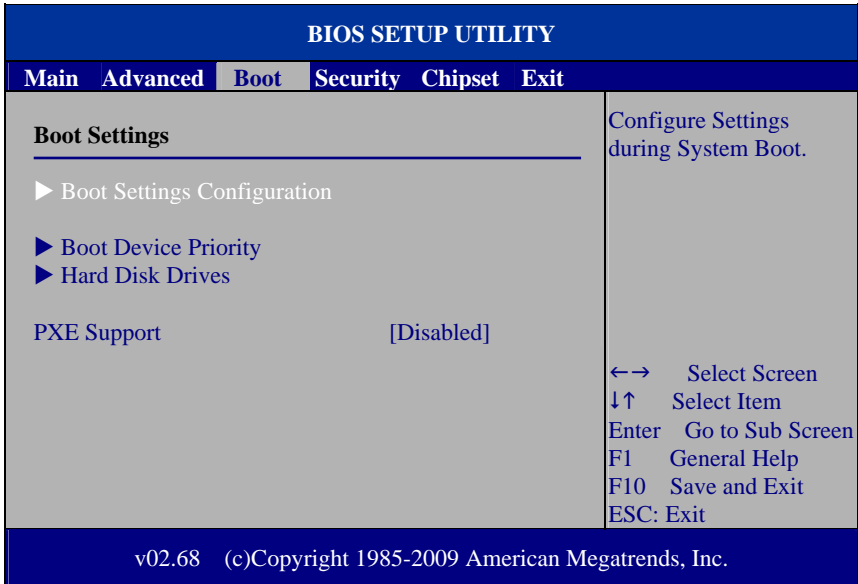
Boot Screen

This menu provides control items for system boot configuration.

PXE Support
This is the main control item for enable/disable PXE (Preboot Execution Environment) support.

4-5.1 Boot Settings Configuration

```
                        BIOS SETUP UTILITY
                           Boot

  Boot Settings Configuration                    Allows BIOS to skip
                                                 certain tests while
  Quick Boot              [Enabled]              booting. This will
  Quiet Boot              [Disabled]             decrease the time needed
  Parity Check            [Disabled]             to boot the system.




                                                 ←→    Select Screen
                                                 ↓↑    Select Item
                                                 +-    Change Option
                                                 F1    General Help
                                                 F10   Save and Exit
                                                 ESC: Exit

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```
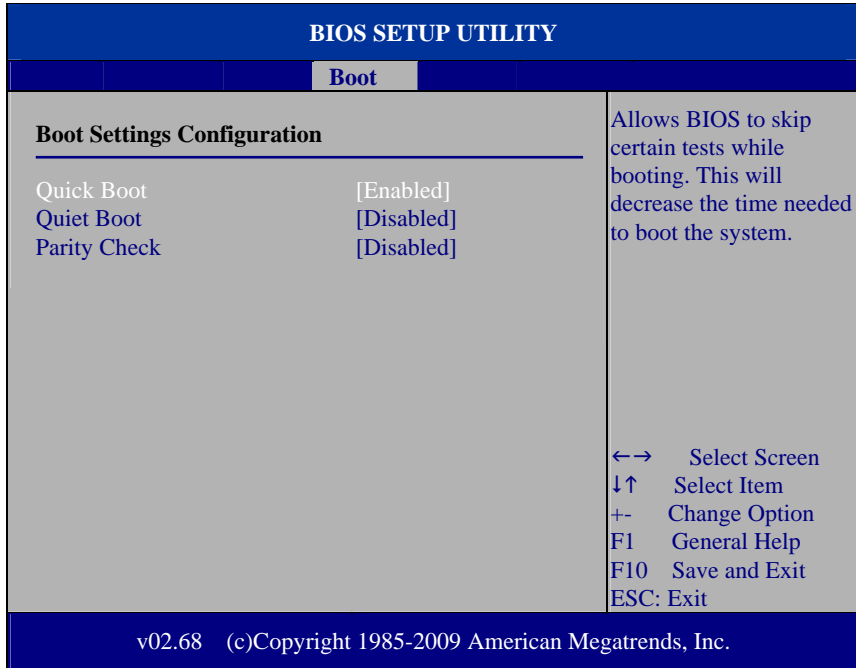
Boot Settings Configuration Screen

Quick Boot
Enable this item allows BIOS POST to skip some tests during boot-up for saving boot time.

Quiet Boot
When set this option to [disabled], BIOS will display normal POST messages.

Parity Check
This setting enables or disables memory or parity error check.

4-5.2 Boot Device Priority

<table>
<tr><td colspan="2" align="center">**BIOS SETUP UTILITY**</td></tr>
<tr><td>**Boot**</td><td></td></tr>
<tr>
<td>

Boot Device Priority

1st Boot Device   [USB: USB2.0 USB Fla]

</td>
<td>

Specify the boot sequence from the available devices.

A device enclosed in parenthesis has been disabled in the corresponding type menu.

←→   Select Screen
↓↑   Select Item
+-   Change Option
F1   General Help
F10 Save and Exit
ESC: Exit

</td>
</tr>
<tr><td colspan="2" align="center">v02.68   (c)Copyright 1985-2009 American Megatrends, Inc.</td></tr>
</table>

Boot Device Priority Screen

1st / 2nd / 3rd …Boot Device
Choose the boot sequence from the available devices..

4-5.3 Boot Device Priority

BIOS SETUP UTILITY		
	Boot	

Hard Disk Drives	Specify the boot sequence from the available devices.
1st Drive [USB:Ut165 USB2Flas]	
2nd Drive [HDD:3M-Transcend]	
3rd Drive [SATA: PM-FUJITSU MH]	
	←→ Select Screen
	↓↑ Select Item
	+- Change Option
	F1 General Help
	F10 Save and Exit
	ESC: Exit

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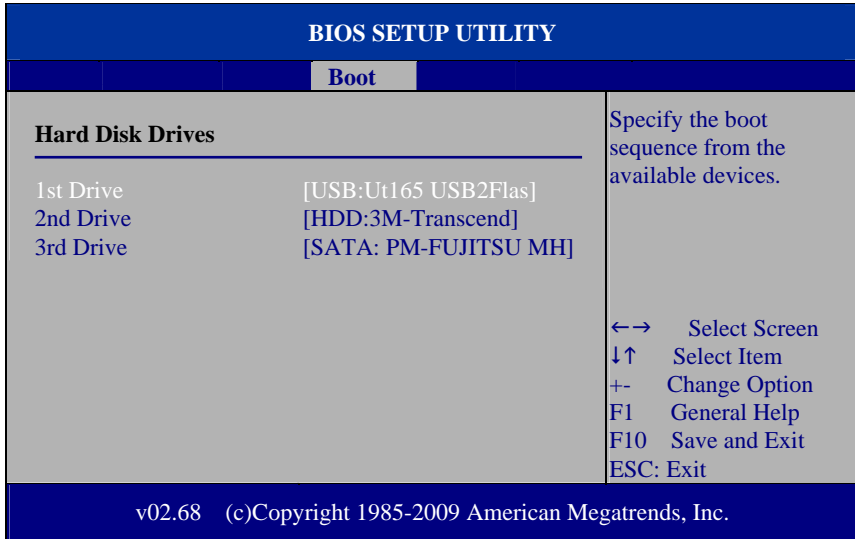
Hard Disk Drives Screen

1st / 2nd …Drive

This setting allows user to set the priority of hard drive or another bootable USB storages. 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 Settings

BIOS SETUP UTILITY					
Main	Advanced	Boot	Security	Chipset	Exit

Security Settings

Supervisor Password : Not Installed
User Password　　　: Not Installed

Change Supervisor Password
Change User Password
Clear User Password

Install or Change the password.

←→　　Select Screen
↓↑　　Select Item
Enter　Change
F1　　General Help
F10　Save and Exit
ESC　Exit

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Security Settings Screen

Change Supervisor Password
Supervisor Password controls the access right to the BIOS Setup utility. These settings allow user to set or change the supervisor password.

Change User Password
User Password controls system access right when power on. These settings allow user to set or change the user password.

4.7 Chipset

BIOS SETUP UTILITY

Main	Advanced	Boot	Security	Chipset	Exit

Advanced Chipset Settings

WARNING: Setting wrong values in below sections may
cause system to malfunction.

▶ North Bridge Configuration
▶ South Bridge Configuration

Configure North Bridge
features.

←→   Select Screen
↓↑   Select Item
Enter   Go to Sub Screen
F1   General Help
F10   Save and Exit
ESC: Exit

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Advanced Chipset Settings Screen

4-7.1 North Bridge Chipset Configuration

BIOS SETUP UTILITY		
	Chipset	

North Bridge Chipset Configuration

▶ Video Function Configuration

←→   Select Screen
↓↑   Select Item
+-   Change Option
F1   General Help
F10 Save and Exit
ESC Exit

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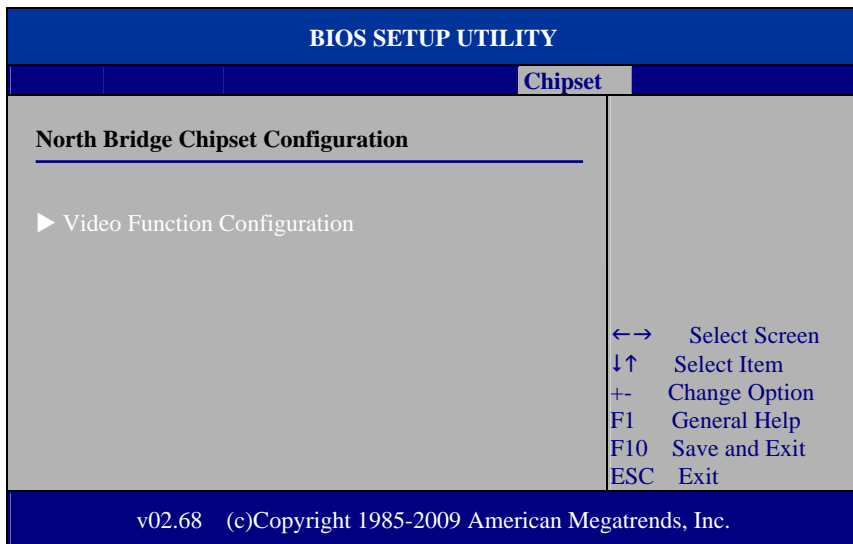
North Bridge Chipset Configuration

4-7.1.1 Video Function Configuration

BIOS SETUP UTILITY		
	Chipset	

Video Function Configuration

		Options
		Fixed Mode
DVMT Mode Select	[DVMT Mode]	DVMT Mode
DVMT/FIXED Memory	[256MB]	
Boot Display Device	[CRT+LVDS]	
Flat Panel Type	[1024x768]	

←→   Select Screen
↓↑   Select Item
+-   Change Options
F1   General Help
F10   Save and Exit
ESC: Exit

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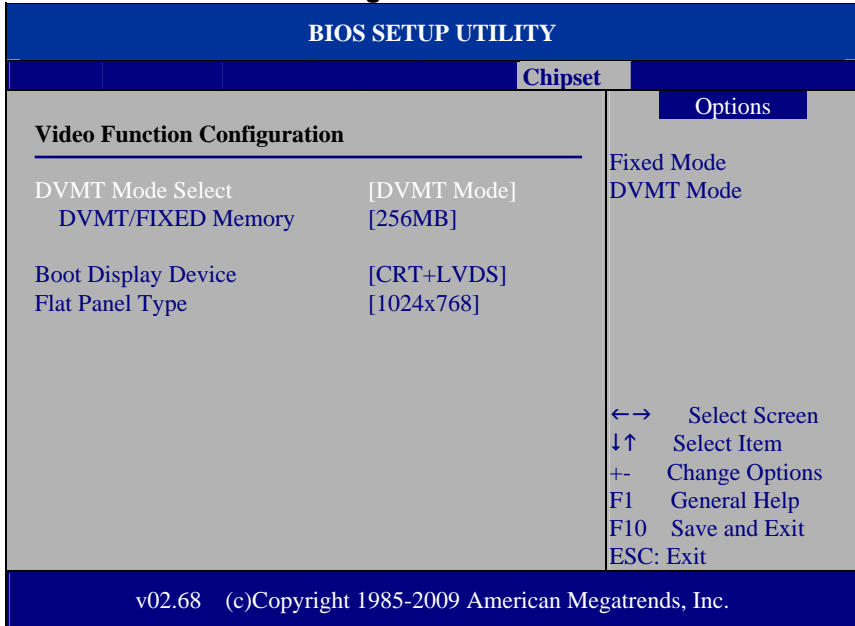
Video Function Configuration Screen

DVMT Mode Select / DVMT/FIXED Memory

Intel's Dynamic Video Memory Technology (DVMT) 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 is to improve the efficiency of the memory allocated to either system or graphics processor. It is recommended that you set this BIOS feature to DVMT Mode for maximum performance. Setting it to DVMT Mode ensures that system memory is dynamically allocated for optimal balance between graphics and system performance.

Boot Display Device

Choose the default boot display device by user requirement such as [CRT], [LVDS] and [CRT+LVDS]

Flat Panel Type

Select the resolution for the connected LVDS panel such as [800x600] and [1024x768].

4-7.2 South Bridge Configuration

BIOS SETUP UTILITY		
	Chipset	

South Bridge Chipset Configuration		Options
		Enabled
USB 2.0 Controller	[Enabled]	Disabled
HDA Controller	[Enabled]	
		←→ Select Screen
		↓↑ Select Item
		+- Change Options
		F1 General Help
		F10 Save and Exit
		ESC: Exit

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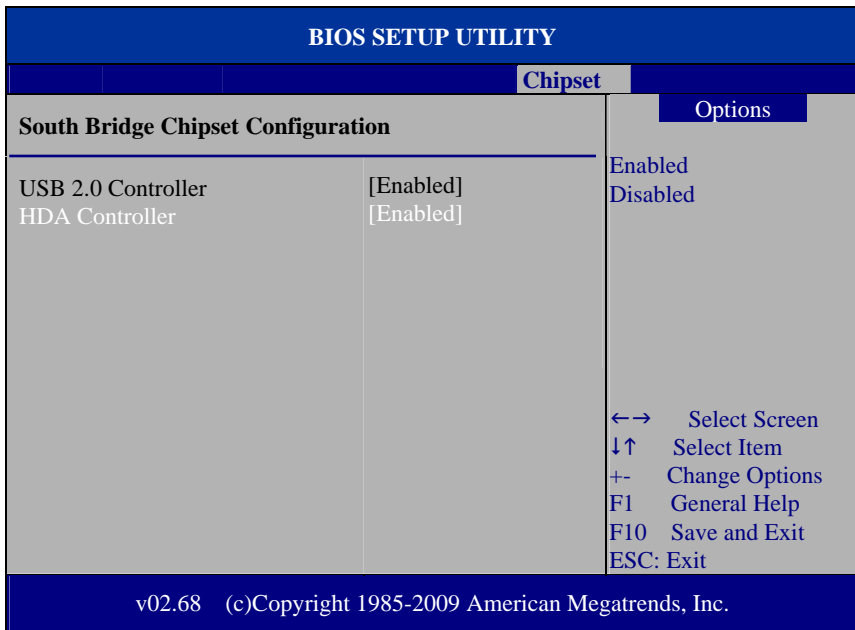
South Bridge Chipset Configuration Screen

USB 2.0 Controller

Enable or disable the USB 2.0 Controller.

HDA Controller

Enable or disable the onboard High-definition Audio controller.

4.8 Exit

```
                    BIOS SETUP UTILITY
  Main   Advanced   Boot   Security   Chipset   Exit

   Exit Options                              Exit system setup after
   ─────────────                             saving the changes.
   Save Changes and Exit                     F10 key can be used for
   Discard Changes and Exit                  this operation.
   Discard Changes

   Load Optimal Defaults
   Load Failsafe Defaults

                                             ←→     Select Screen
                                             ↓↑     Select Item
                                             Enter   Go to Sub Screen
                                             F1     General Help
                                             F10    Save and Exit
                                             ESC: Exit
         v02.68   (c)Copyright 1985-2009 American Megatrends, Inc.
```
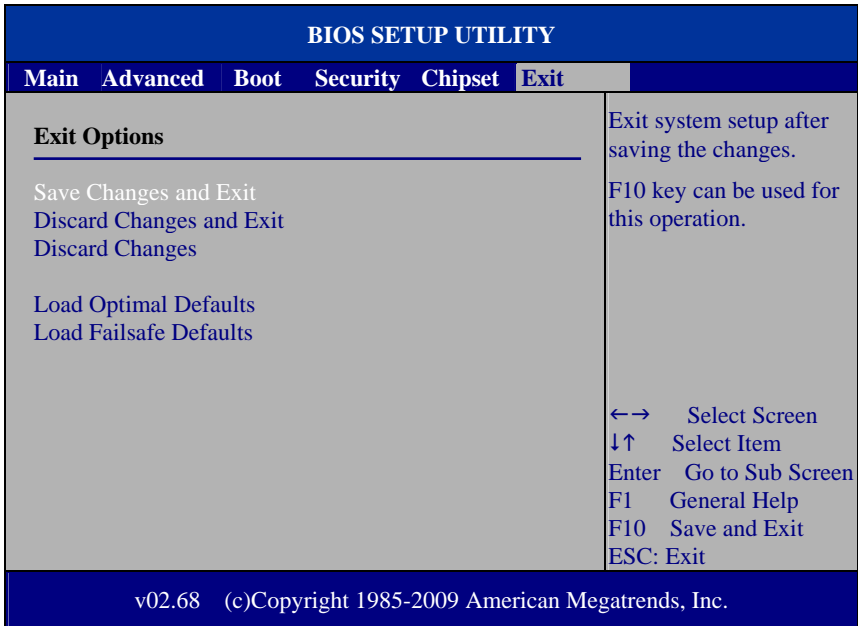
Exit Screen

Save Changes and Exit
Save changes to CMOS and then exit the BIOS setup screen. User can also press the [F10] key for this operation.

Discard Changes and Exit
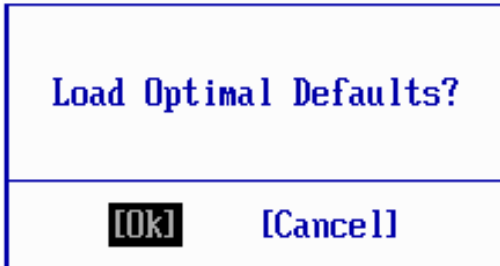Abandon all changes and exit the BIOS setup screen. User can also press the [ESC] key for this operation.

Discard Changes
Discard all changes done so far to the setup items. User can press the [F7] key for this operation.

Load Optimal Defaults

Press <Enter> on this item, it will show a confirmation dialog box with a message like below:

Load Optimal Defaults?

[Ok]   [Cancel]

Pressing "Ok" to loads the factory recommended optimal setting for system operations. User can also press the [F9] key for this operation.
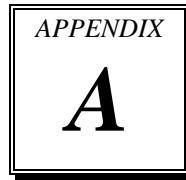
Load Failsafe Defaults

Press <Enter> on this item, it will show a confirmation dialog box with a message like below:

Load Failsafe Defaults?

[Ok]   [Cancel]

To use the BIOS failsafe default values, change the prompt to "Ok" and press the <Enter > key. User can also press the [F8] key for this operation.

SYSTEM ASSEMBLY

This appendix contains exploded diagram of the system.

Section includes:

- Exploded Diagram for 2 Inch Thermal Printer Remove/ Install

- Exploded Diagram for 3 Inch Thermal Printer Remove/ Install

- Exploded Diagram for MSR & Fingerprint Remove/ Install

- Exploded Diagram for Fingerprint Module

- Exploded Diagram for POS-3520 Hard Disk Drive Remove/ Install

- Exploded Diagram for POS-3520 LCD Panel Remove/ Install

- Exploded Diagram for POS-3520 Mini-PCIE Installation

- Exploded Diagram for POS-3520 Motherboard

- Exploded Diagram for POS-3520 MSR Module

- Exploded Diagram for POS-3520 MSR & LCD Assembly

- Exploded Diagram for POS-3520 Printer Assembly

- Exploded Diagram for POS-3520 Top Cover Assembly

- Exploded Diagram for POS-3520 VFD Module Assembly

EXPLODED DIAGRAM FOR 2 INCH THERMAL PRINTER REMOVE/ INSTALL

2" Printer Assembly

SCALE   0.800
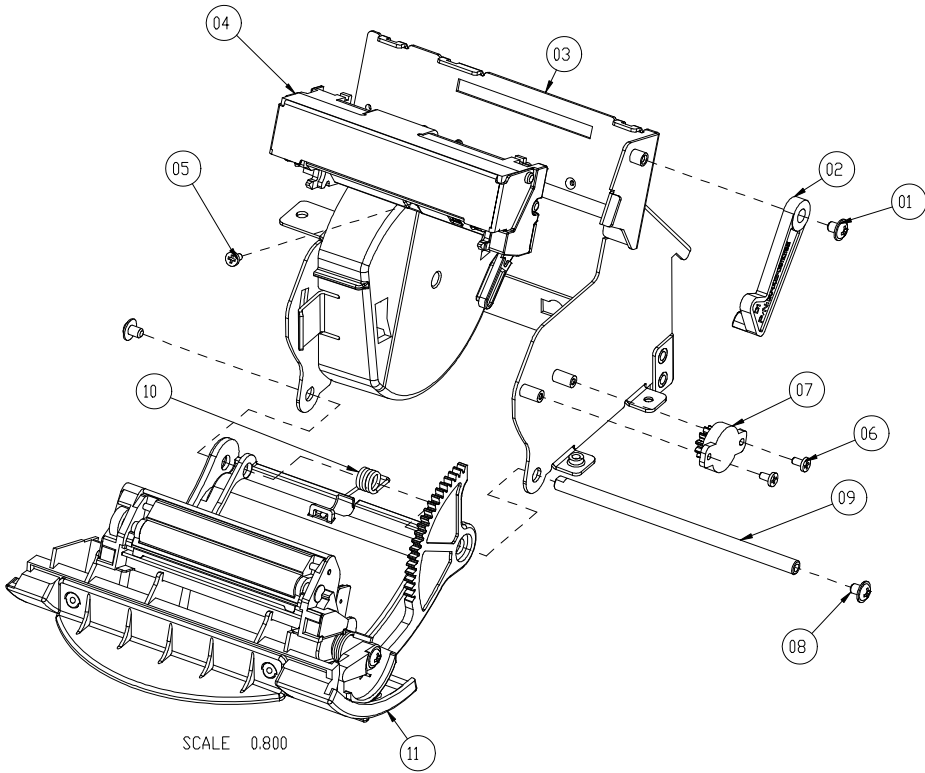
No.	Name	P/N No.	Torsion	Qt'y
12	ADD_PAPER_WALL	30-002-28310165	--	1
11	Paper_cover_Assembly	SEE PAGE 19	--	1
10	PS3100-SPRING-1	23-002-00000701	--	1
9	Paper_cover_pin	20-004-10011165	--	1
8	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	2
7	ROTARY DAMPER	30-022-09110000	--	1
6	M2_L4_I_Ni	22-272-20004011	6~7kgf-cm	2
5	M2_L4_I_Ni	22-272-20004011	6~7kgf-cm	2
4	CAPD24X_A_03 (2")	52-701-00020003	--	1/2
3	PS3100_PRINTER_BOX3	20-040-03003165	--	1
2	Printer_add_arm	30-002-09110165	--	1
1	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	1
No.	Name	P/N No.	Torsion	Qt'y

2" Printer Cover   Assembly
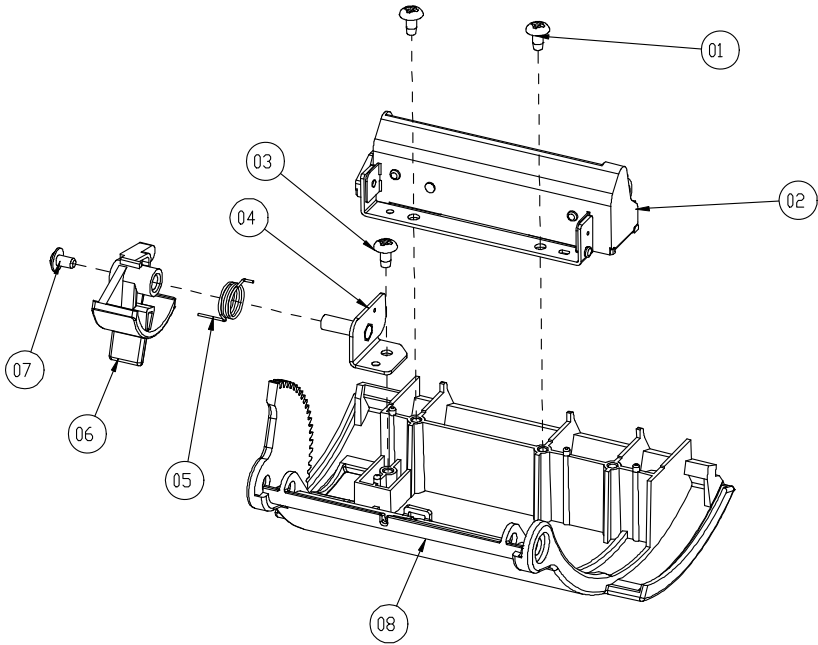
8	PS3100_PAPER_COVER	30-002-02130165	--	1
7	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	1
6	PS3100_PRINTER_COVER_EJECTOR	30-002-09210165	--	1
5	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	--	1
4	PS3100_EJECTOR_HOLDER	20-029-03003165	--	1
3	T3_L8_R_Ni	22-122-30080011	7~8kgf-cm	1
2	CAPD24X_A_03 (2")	52-701-00020003	--	1/2
1	T3_L8_R_Ni	22-122-30080011	7~8kgf-cm	2
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR 3 INCH THERMAL PRINTER REMOVE/ INSTALL

3″ Printer Assembly
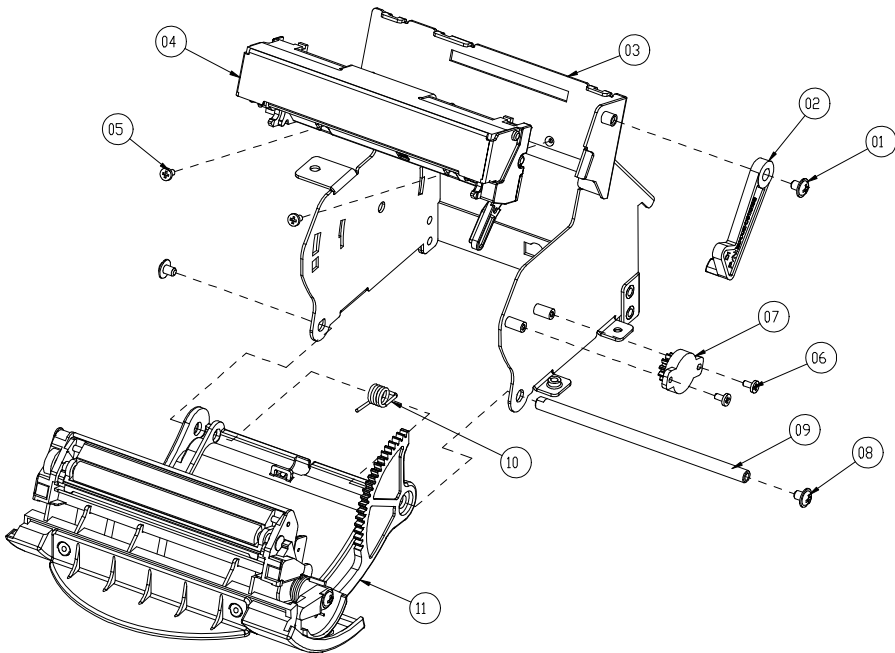
No.	Name	P/N No.	Torsion	Qt'y
11	Paper_cover_Assembly	SEE PAGE 18	--	1
10	PS3100-SPRING-1	23-002-00000701	--	1
9	Paper_cover_pin	20-004-10011165	---	1
8	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	2
7	ROTARY DAMPER	30-022-09110000	--	1
6	M2_L4_I_Ni	22-272-20004011	6~7kgf-cm	2
5	M2_L4_I_Ni	22-272-20004011	6~7kgf-cm	2
4	CAPD34X_A_01 (3")	52-701-00017003	--	1/2
3	PS3100_PRINTER_BOX3	20-040-03003165	--	1
2	Printer_add_arm	30-002-09110165	--	1
1	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	1

3″ Printer Cover   Assembly
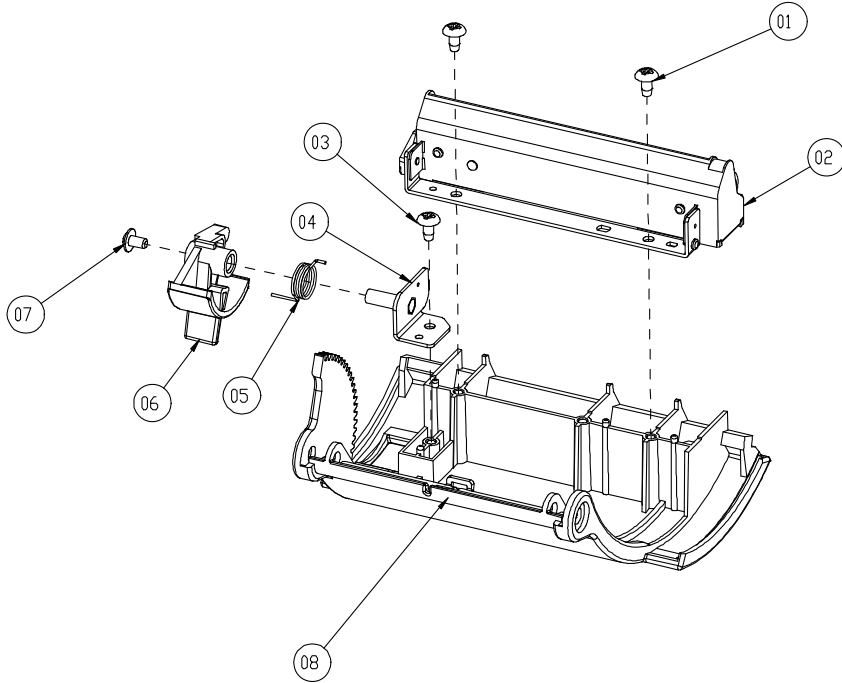
8	PS3100_PAPER_COVER	30-002-02130165	--	1
7	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	1
6	PRINTER_COVER_EJECTOR	30-002-09210165	--	1
5	PS3100-SPRING-FOR_EJECTOR	23-002-00001021	--	1
4	PS3100_EJECTOR_HOLDER	20-029-03003165	--	1
3	T3_L8_R_Ni	22-122-30080011	7~8kgf-cm	1
2	CAPD34X_A_01 (3″)	52-701-00017003	--	1/2
1	T3_L8_R_Ni	22-122-30080011	7~8kgf-cm	2
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR MSR & FINGERPRINT MODULE REMOVE/ INSTALL
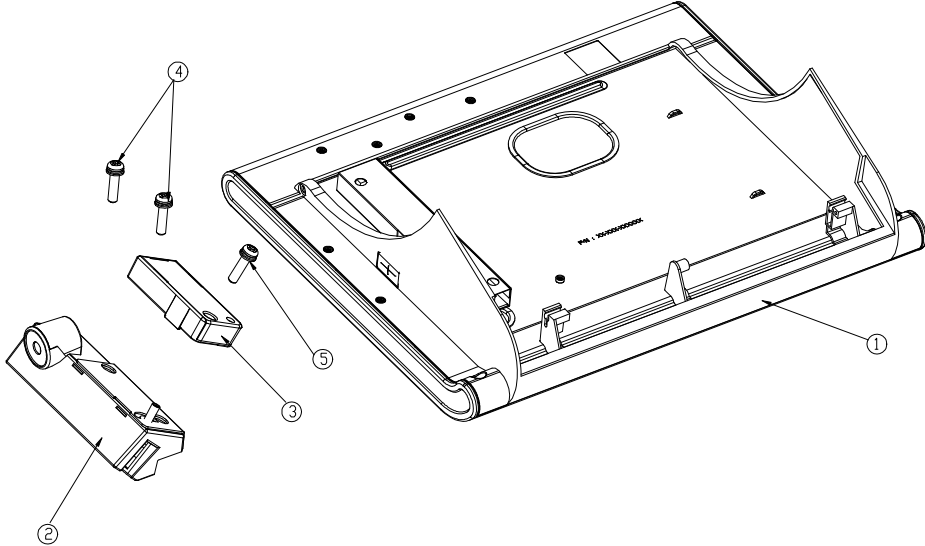
5	FRINGER PRINTER ASS'Y MODULE	22-222-30012811	6~7kgf-cm	1
4	MSR ASS'Y MODULE	22-275-30010011	6~7kgf-cm	1
3	FRINGER PRINTER ASS'Y MODULE		--	1
2	MSR ASS'Y MODULE		--	1
1	LCD ASS'Y MODULE			1
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR FINGERPRINT MODULE
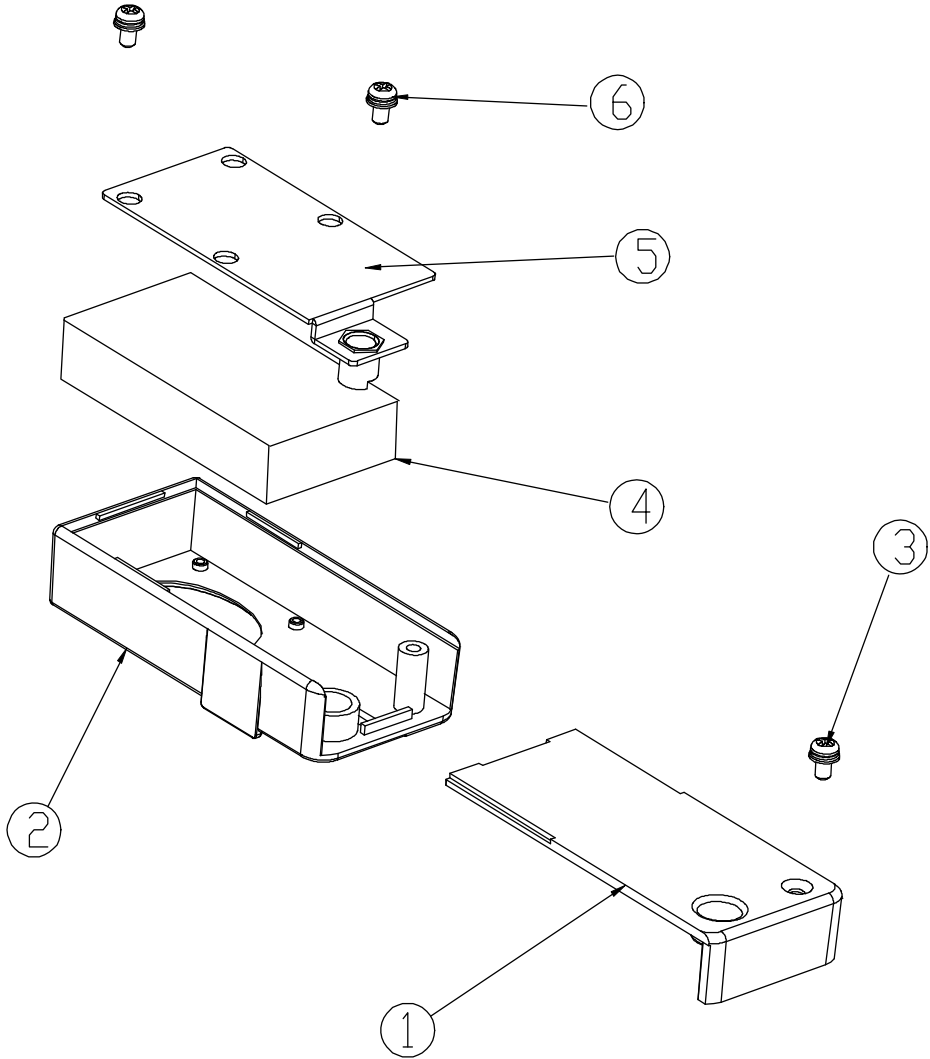
No.	Name	P/N No.	Torsion	Qt'y
6	T3 FLAT HEAD SCREW	22-712-30010011	5~6kgf-cm	2
5	FINGER PRINTER BKT	20-006-03002210	--	1
4	FINGER PRINTER		--	1
3	T3 FLAT HEAD SCREW	22-712-30010011	5~6kgf-cm	1
2	FINGER PRINTER TOP COVER	30-002-12120210	--	1
1	FINGER PRINTER BTM COVER	30-002-12220210		1
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR POS-3520 HARD DISK DRIVE REMOVE/ INSTALL
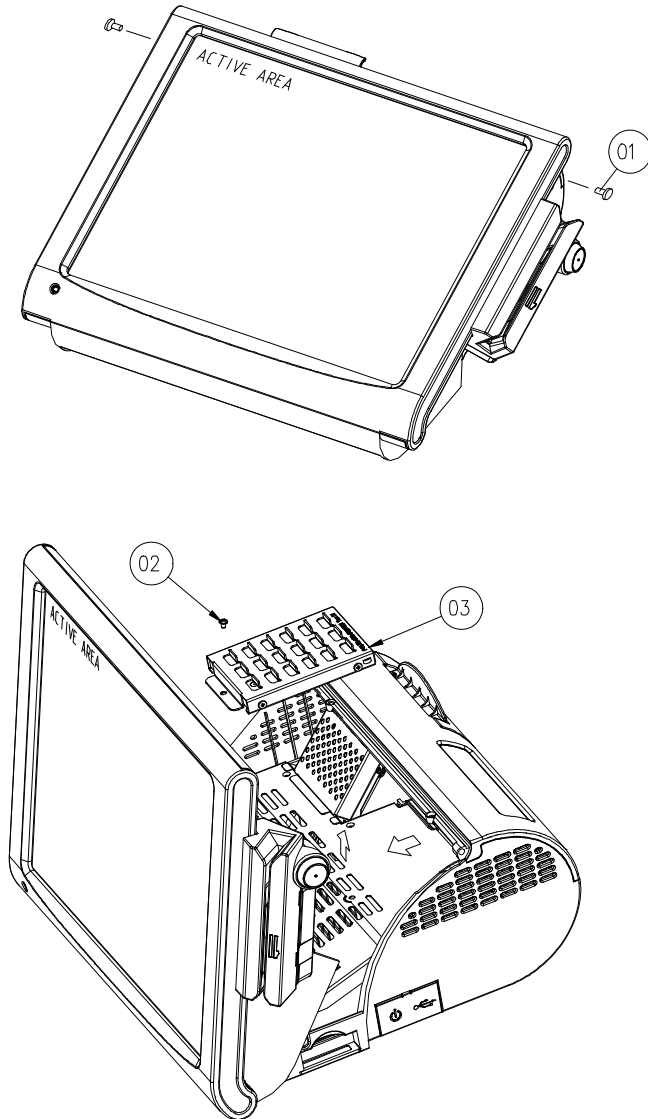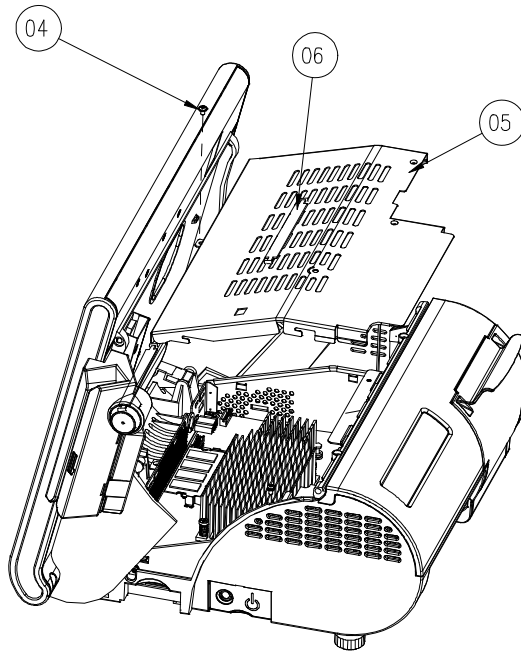
6	Inside_top_Assembly	30-080-04100000	--	1
5	Inside_top	20-040-03001165	--	1
4	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	1
3	HDD Assembly	SEE PAGE 20	--	1
2	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	1
1	M3_L4_I_B	22-272-30004318	6~7kgf-cm	2
No.	Name	P/N No.	Torsion	Qt'y

DO NOT COVER
BREATHER HOLE
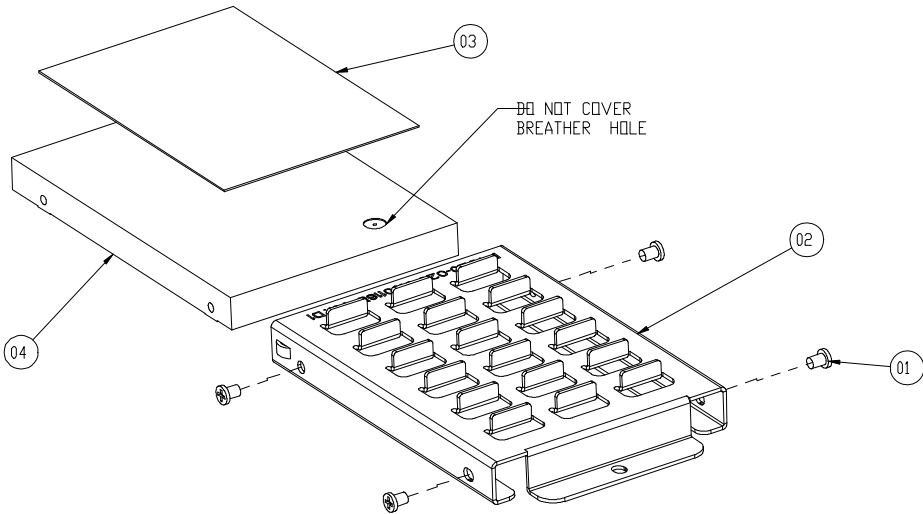
4	HDD	SEE ORDER	--	1
3	Thermal Pad	21-006-88560001	--	1
2	HDD_holder	20-029-01001165	--	1
1	M3_L4_I_B	22-272-30004318	6~7kgf-cm	4
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR POS-3520 LCD PANEL REMOVE/ INSTALL
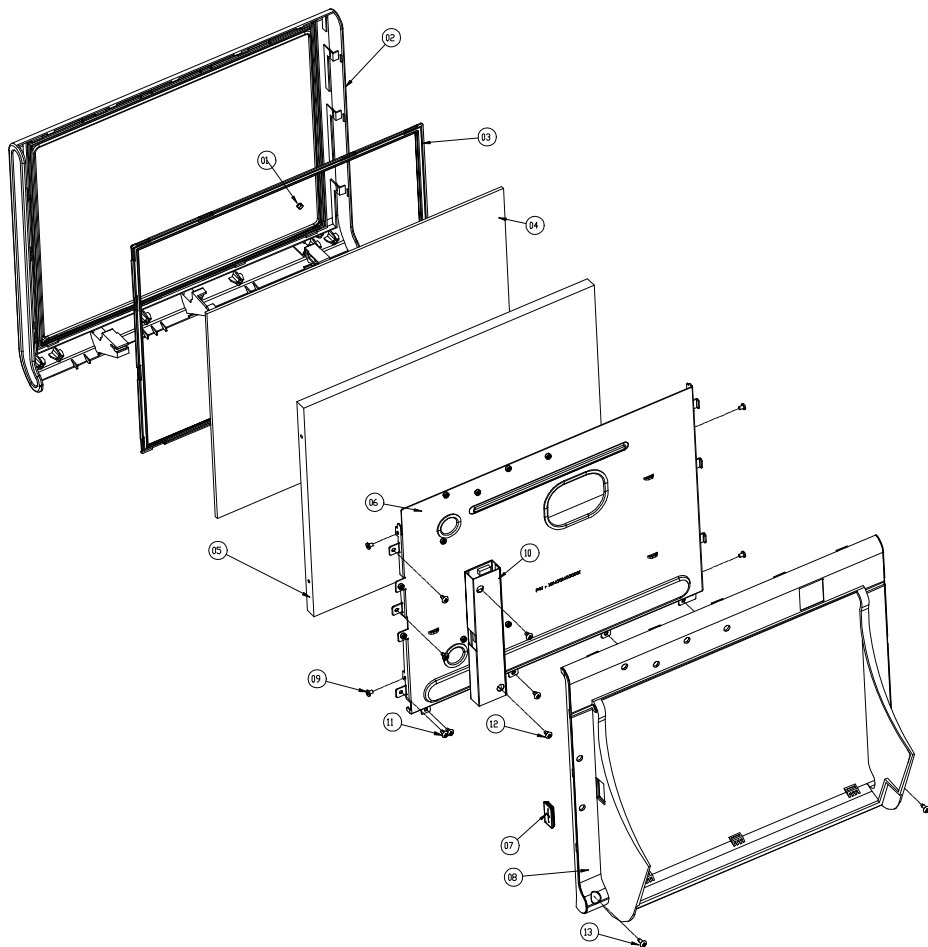
No.	Name	P/N No.	Torsion	Qt'y
13	T3 L=5mm TAPING	22-132-30060011	3~3.5kgf-cm	1
12	M3_L5_Washer_Ni (INVERTER)	22-242-30005311	7~8kgf-cm	2
11	T3 L=5mm TAPING	22-132-30060011	3~3.5kgf-cm	7
10	INVERTER MYLAR		--	1
9	M3_L5_Washer_Ni		7~8kgf-cm	1
8	REAR COVER	30-002-12320210		1
7	RUBBER CAP	30-002-01100210	--	1
6	LCD METAL HOUSING	20-006-03001210	--	1
5	15" PANEL		--	1
4	TOUCH PANEL		--	1
3	TOUCH RUBBER		--	1
2	FRONT COVER	30-002-12620210	--	1
1	LED CAP	30-012-02100000	--	1

EXPLODED DIAGRAM FOR POS-3520 MINI-PCIE INSTALLATION
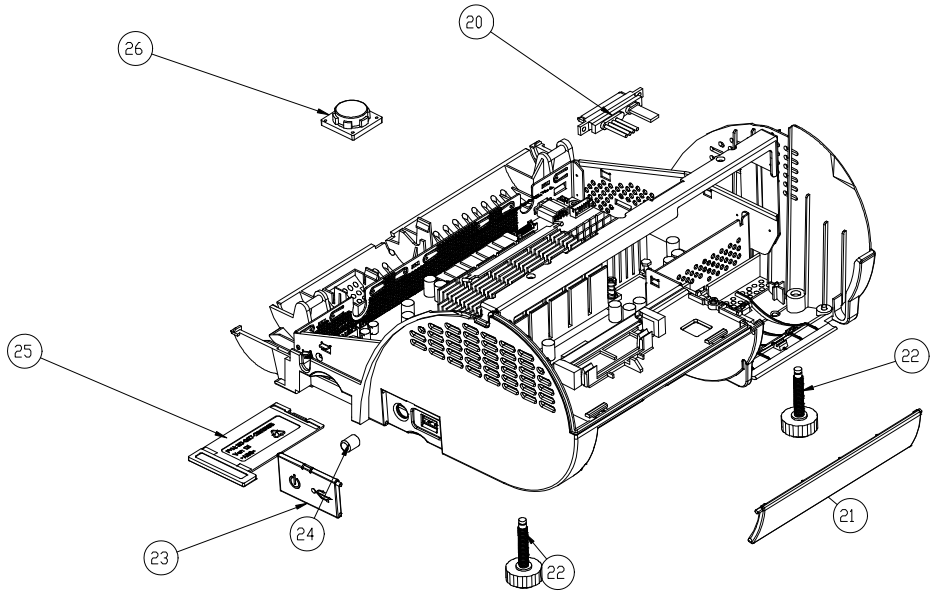
No.	Name	P/N No.	Torsion	Qt'y
26	Speaker	13-400-00050018	--	1
25	MINI_PCIE_D□□R	30-007-28110165	--	1
24	Switch Cap	30-001-28100099	--	1
23	Side Door	30-007-28120165	--	1
22	Foot	22-289-60035007	--	2
21	I□ Cover	30-002-28110165	--	1
20	Sata HDD Cable	27-012-16504081	--	1

EXPLODED DIAGRAM FOR POS-3520 MOTHERBOARD
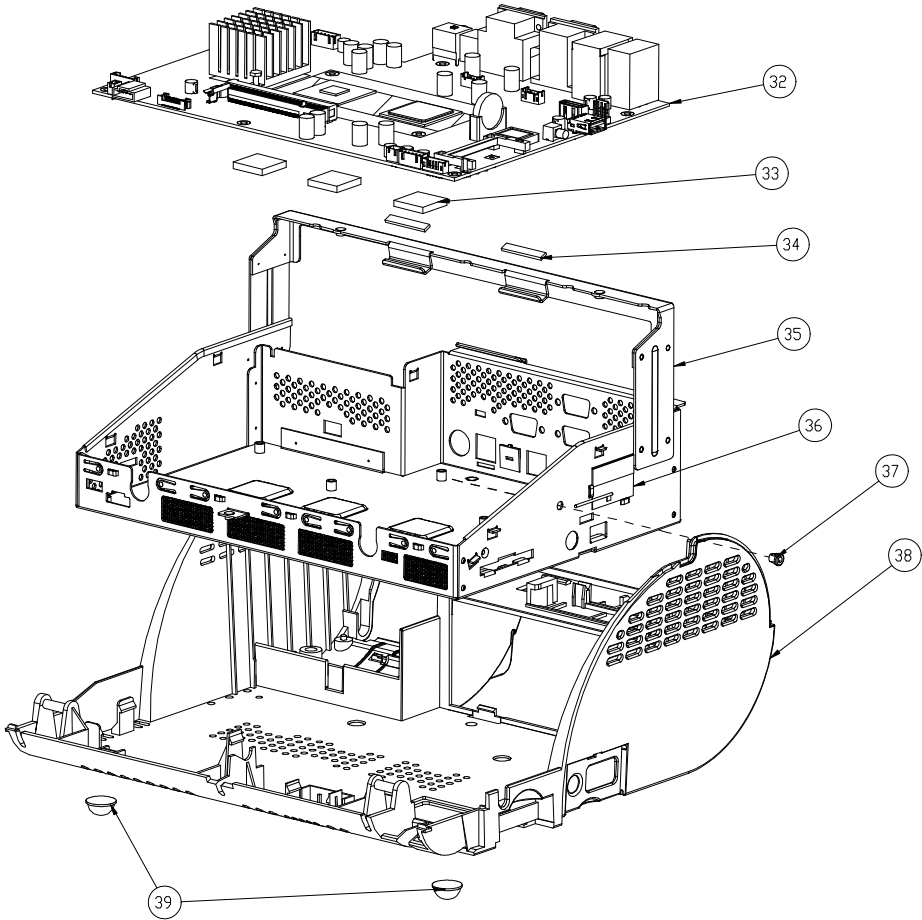
No.	Name	P/N No.	Torsion	Qt'y
39	Rubber Foot	30-004-01500000	--	1
38	PS3100 BOT CASE	30-002-12110165	--	1
37	SB-0305	30-026-04100008	--	1
36	WIRELESS_ANTENNA	27-029-00003072	--	1
35	inside box	20-040-03002165		1
34	EMI SPONGE	5x12x26 mm	--	2
33	Thermal Pad	21-006-82020002	--	3
32	Prox3100	Prox-3100	--	1

EXPLODED DIAGRAM FOR POS-3520 MSR MODULE
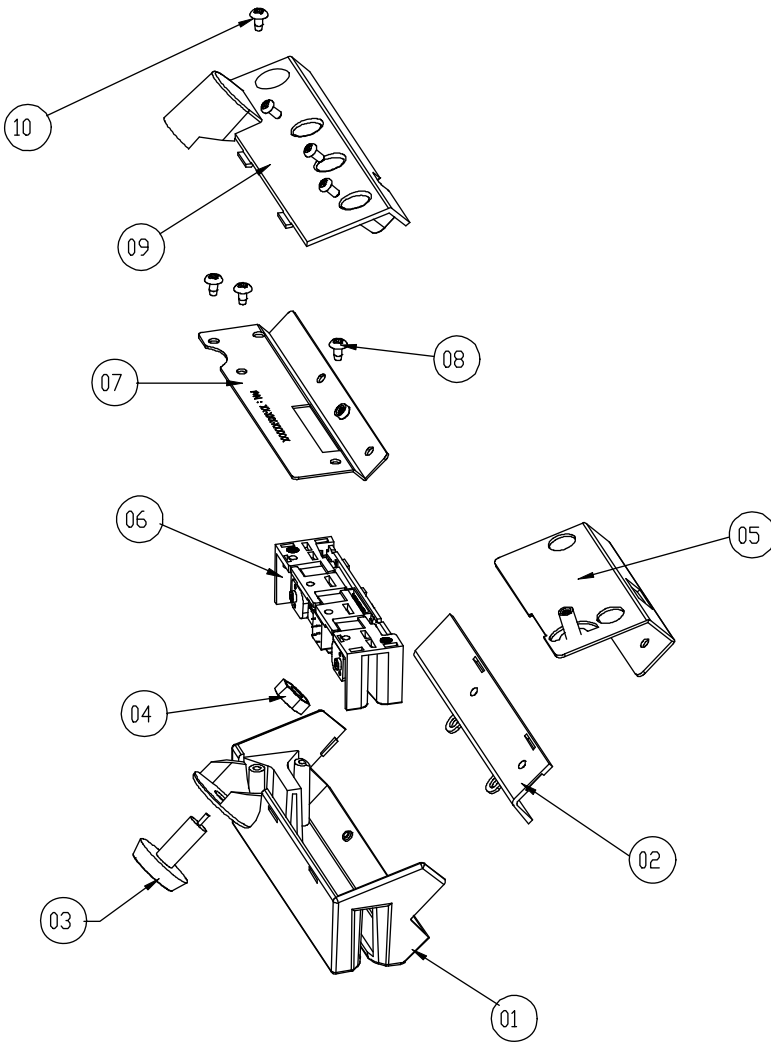
No.	Name	P/N No.	Torsion	Qt'y
10	M3 TAPPING SCREW	20-006-03003210	4~5kgf-cm	2
9	MSR BTM COVER	30-002-12420210		1
8	M6_L6_F_B	22-232-30060211	6~7kgf-cm	2
7	MSR FIX BRACKET	20-006-03003210	--	1
6	MSR MODULE			1
5	MSR BRACKET	20-006-03061210	--	1
4	I BUTTON NUT		--	1
3	I BUTTON		--	1
2	MSR TOP COVER SIDE	30-002-12520210	--	1
1	MSR TOP COVER	30-014-12120210		1

EXPLODED DIAGRAM FOR POS-3520 MSR & LCD ASSEMBLY

3	M3 SCREW	22-275-30010011	6~7kgf-cm	2
2	MSR ASS'Y MODULE	30-002-12520210	--	1
1	LCD ASS'Y MODULE	30-014-12120210		1
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR POS-3520 PRINTER ASSEMBLY
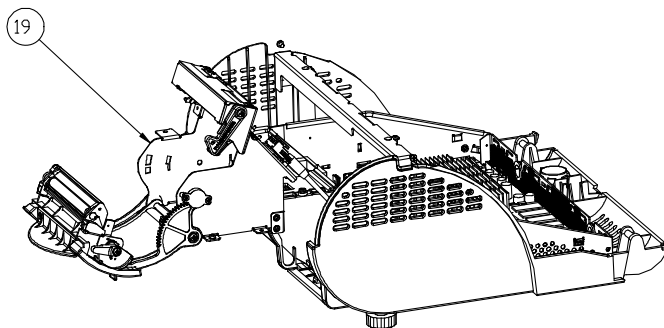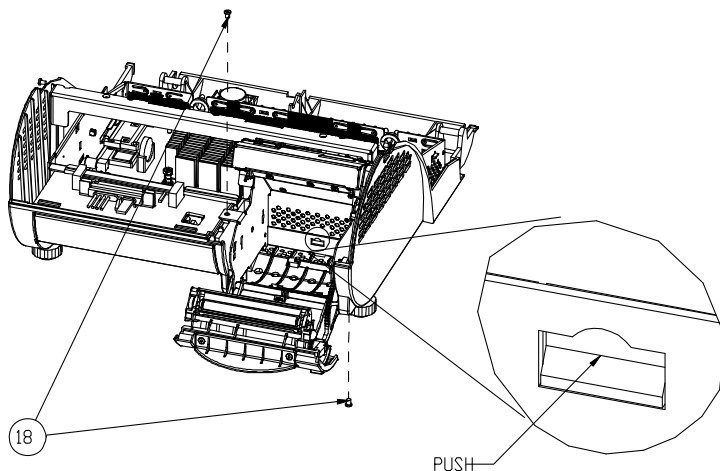
19	Printer Assembly	SEE PAGE 16,17	--	1
18	M3_L4_I_B	22-272-30004318	6~7kgf-cm	2
No.	Name	P/N No.	Torsion	Qt'y
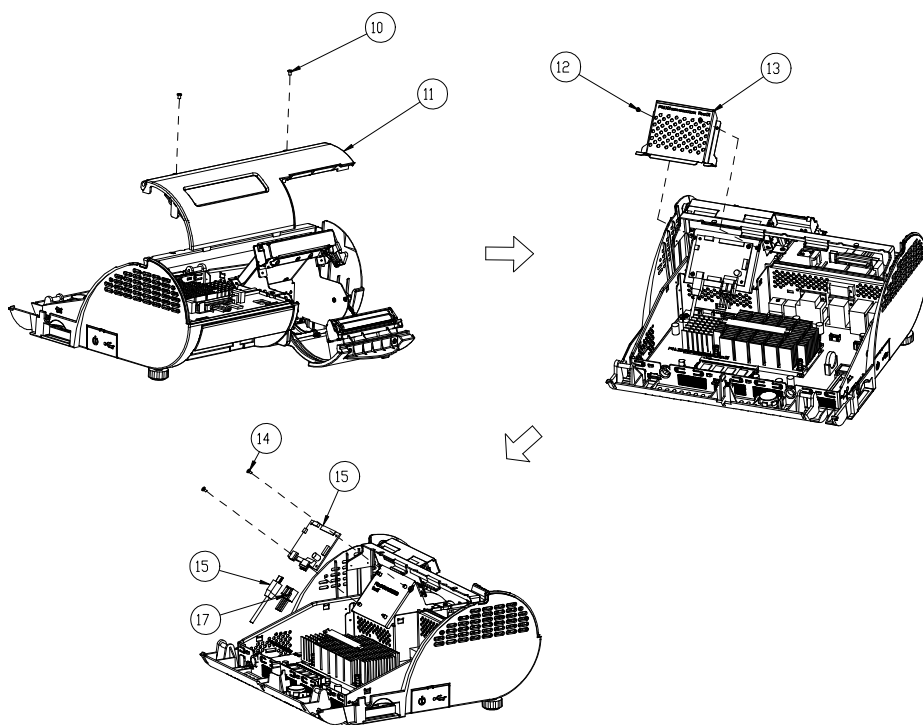
No.	Name	P/N No.	Torsion	Qt'y
17	Printer Power Cable	27-012-16502071	--	1
16	Printer USB cable	27-006-16503111	--	1
15	Printer PCB	52-701-00237003	--	1
14	M2_L4_I_Ni	22-272-20004011	5~6kgf-cm	2
13	PCB_COVER	20-004-03001165	--	1
12	M2_5_L4_R_Ni	22-232-25004011	6~7kgf-cm	2
11	VFD Assembly	SEE PAGE 15	--	1
10	M3_L4_I_B	22-272-30004318	6~7kgf-cm	2

EXPLODED DIAGRAM FOR POS-3520 TOP COVER ASSEMBLY
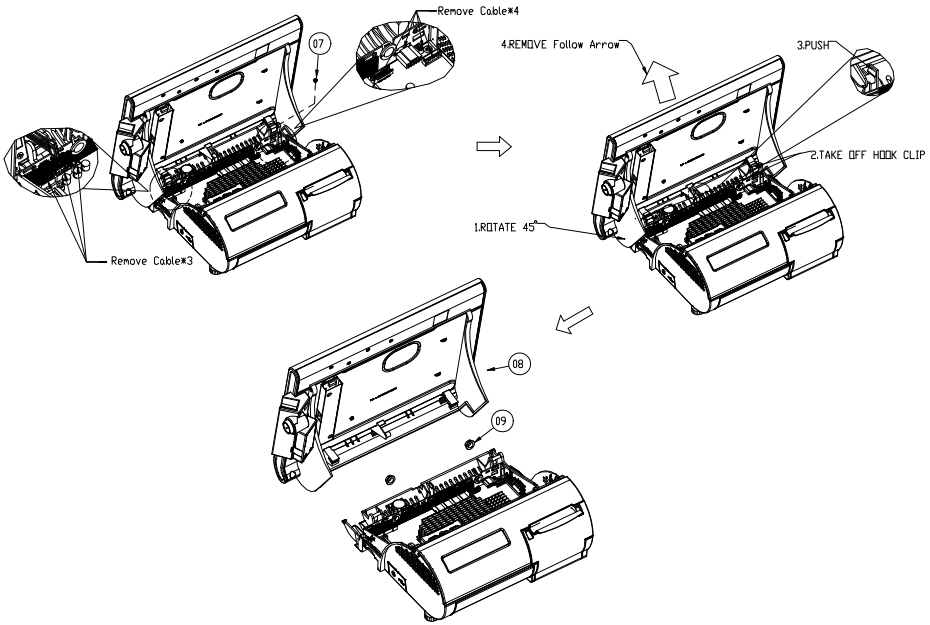
9	Open Closed Bushing	30-026-04300000	--	2
8	TOP Assembly	SEE PAGE 8,9,10	--	1
7	M3_L5_Washer_Ni	22-242-30005311	6~7kgf-cm	1
No.	Name	P/N No.	Torsion	Qt'y

EXPLODED DIAGRAM FOR VFD MODULE ASSEMBLY
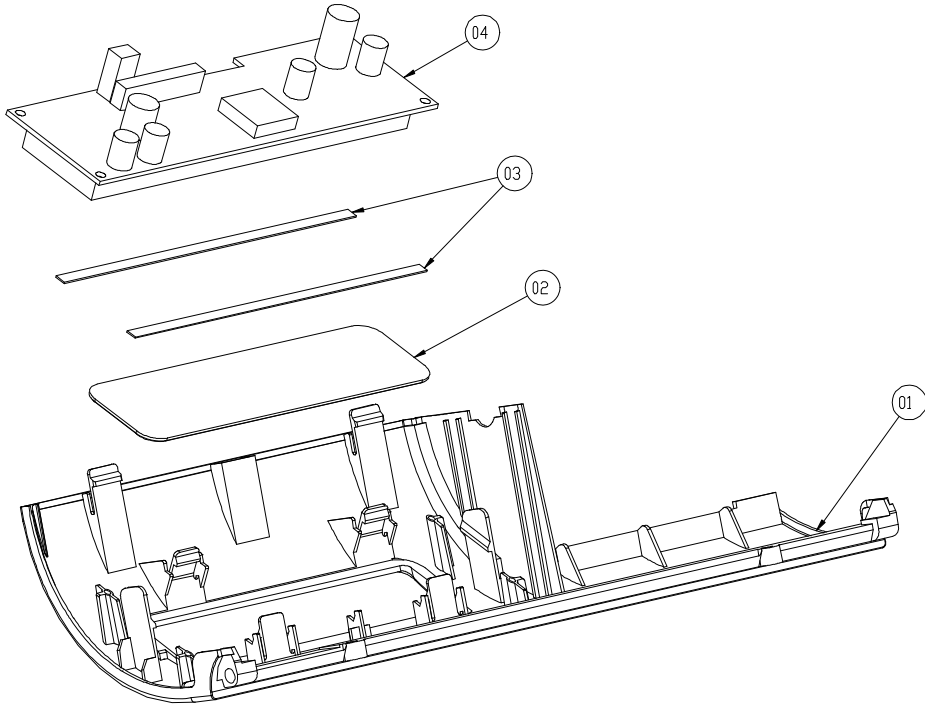
4	VFD_MODULE	52-901-17001703	--	1
3	PORON	30-013-24700000	--	2
2	VFD_WINDOWS	30-002-02230165	--	1
1	VFD_COVER(Blue)	30-002-28410165	--	1
	VFD_COVER(Red)	30-002-28610165	--	1
No.	Name	P/N No.	Torsion	Qt'y

TECHNICAL SUMMARY
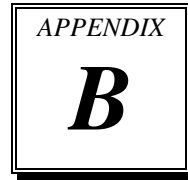
This section will give you a brief introduction of the maps.

Section includes:

● Block Diagram

● Interrupt Map

● DMA Channels Map

● I / O Map

● Watchdog Timer Configuration

● Flash BIOS Update

BLOCK DIAGRAM
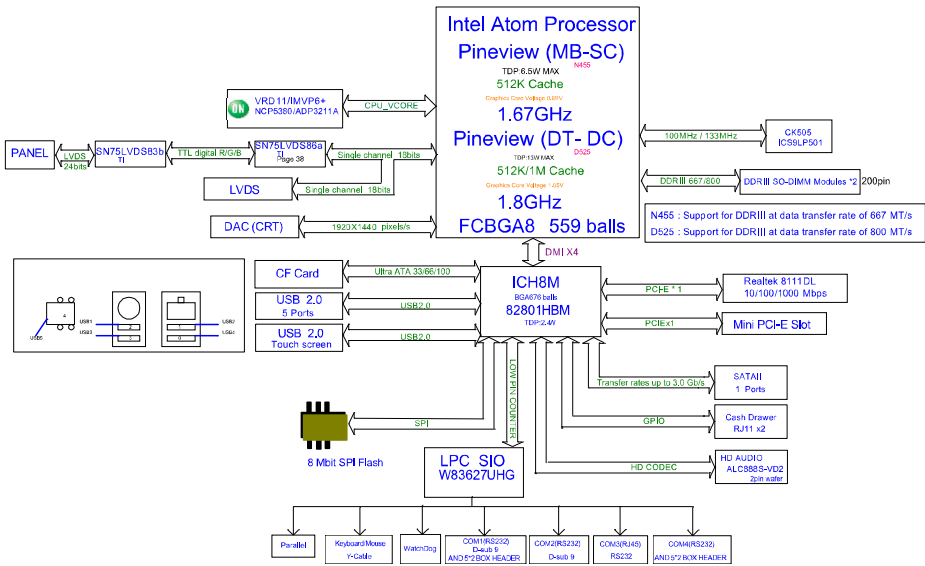
INTERRUPT MAP

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(R) 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(R) Graphics Media Accelerator 3150
16	Intel(R) ICH8 Family USB Universal Host Controller - 2834
17	Realtek PCIe GBE Family Controller
18	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 283A
18	Intel(R) ICH8 Family USB Universal Host Controller - 2832
18	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
19	Intel(R) ICH8 Family USB Universal Host Controller - 2831
21	Intel(R) ICH8 Family USB Universal Host Controller - 2835
21	Microsoft UAA Bus Driver for High Definition Audio
22	Intel(R) ICH8 Family PCI Express Root Port 1 - 283F
23	Intel(R) ICH8 Family PCI Express Root Port 6 - 2849
23	Intel(R) ICH8 Family USB Universal Host Controller - 2830
23	Intel(R) ICH8 Family USB2 Enhanced Host Controller - 2836

DMA CHANNELS MAP

DMA Channel	Assignment
4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
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
0x0000008F-0x0000008F	Direct memory access controlle
0x00000090-0x0000009F	Motherboard resources
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A2-0x000000BF	Motherboard resources
0x000000C0-0x000000DF	Direct memory access controller

I/O MAP	ASSIGNMENT
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(R) Graphics Media Accelerator 3150
0x000003C0-0x000003DF	Intel(R) Graphics Media Accelerator 3150
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F6-0x000003F6	Primary IDE Channel
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x0000041F	Intel(R) ICH8 Family SMBus Controller - 283E
0x000004D0-0x000004D1	Motherboard resources
0x00000500-0x0000053F	Motherboard resources
0x00000800-0x0000087F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x0000C080-0x0000C087	Intel(R) Graphics Media Accelerator 3150
0x0000C400-0x0000C41F	Intel(R) ICH8 Family USB Universal Host Controller - 2835
0x0000C480-0x0000C49F	Intel(R) ICH8 Family USB Universal Host Controller - 2834
0x0000C800-0x0000C81F	Intel(R) ICH8 Family USB Universal Host Controller - 2832
0x0000C880-0x0000C89F	Intel(R) ICH8 Family USB Universal Host Controller - 2831
0x0000CC00-0x0000CC1F	Intel(R) ICH8 Family USB Universal Host Controller - 2830
0x0000D080-0x0000D08F	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D400-0x0000D40F	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D480-0x0000D483	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D800-0x0000D807	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000D880-0x0000D883	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828

I/O MAP	ASSIGNMENT
0x0000DC00-0x0000DC07	Intel(R) ICH8M 3 port Serial ATA Storage Controller - 2828
0x0000E000-0x0000EFFF	Intel(R) ICH8 Family PCI Express Root Port 6 - 2849
0x0000E800-0x0000E8FF	Realtek PCIe GBE Family Controller
0x0000FFA0-0x0000FFAF	Intel(R) 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) Enter the extended function mode.
(2) Configure the configuration registers.
(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

A. 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 ROM (ex. 35200T04.rom) file to the bootable device.
3.   Copy AMI flash utility – AFUDOS.exe (v4.38) into bootable device.

```
C:\AFUDOS>dir

 Volume in drive C is JASON
 Volume Serial Number is 58AA-C5FF
 Directory of C:\AFUDOS

.               <DIR>        04-28-11 10:23a
..              <DIR>        04-28-11 10:23a
AFUDOS   EXE       154,416  01-25-11  4:05p
AFUDOS   TXT        13,066  01-25-11  4:05p
35200T04 ROM    1,048,576   04-29-11  9:39a
         3 file(s)     1,216,058 bytes
         2 dir(s)    305,991,680 bytes free

C:\AFUDOS>_
```

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 goes 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) Pressing <F10> key to save configuration and exit the BIOS setup menu.

```
                    BIOS SETUP UTILITY
                         Boot

  Hard Disk Drives                              Specifies the boot
 ──────────────────────────────                 sequence from the
  1st Drive              [USB:USB2.0 USB Fla]    available devices.
  2nd Drive              [SATA:PM-FUJITSU MH]




                                                ↔     Select Screen
                                                ↑↓    Select Item
                                                +-    Change Option
                                                F1    General Help
                                                F10   Save and Exit
                                                ESC   Exit


      v02.68 (C)Copyright 1985-2009, American Megatrends, Inc.
```

B. AFUDOS command for system BIOS update
AFUDOS.exe is the AMI firmware update utility, the command line is shown as
below:

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

User can type "AFUDOS/?" to see all the definition of each control options. The
recommend option 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.

C. BIOS update procedure
1.   Use the bootable USB storage to boot up system into the DOS command prompt.
2.   Type "**AFUDOS 3520xxxx.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 complete, the messages should be like the figure
      shown below.

```
C:\AFUDOS>afudos 35200t04.rom /P /B /N /C /X

 +------------------------------------------------------------------------+
 |                  AMI Firmware Update Utility   v4.38                    |
 |       Copyright (C)2010 American Megatrends Inc. All Rights Reserved.   |
 +------------------------------------------------------------------------+
- Bootblock checksum .... ok
- Module 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
- CMOS checksum destroyed
- Program ended normally.

C:\AFUDOS>_
```

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