Manual

PA-3055

15” POS Terminal

Powered by Intel® Celeron®

J1900 Quad-Core

PA-3055 M1

PA-3055 POS System

COPYRIGHT NOTICE & TRADEMARK

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.

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.

INTRODUCTION

CHAPTER

1

This chapter gives you the information for the PA-3055. 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-3055 Series System. The PA-3055 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The PA-3055 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install

configure the system according to their own needs.

Chapter 1 Introduction

and set up the whole system. It contains four chapters and two appendixes. Users can 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.

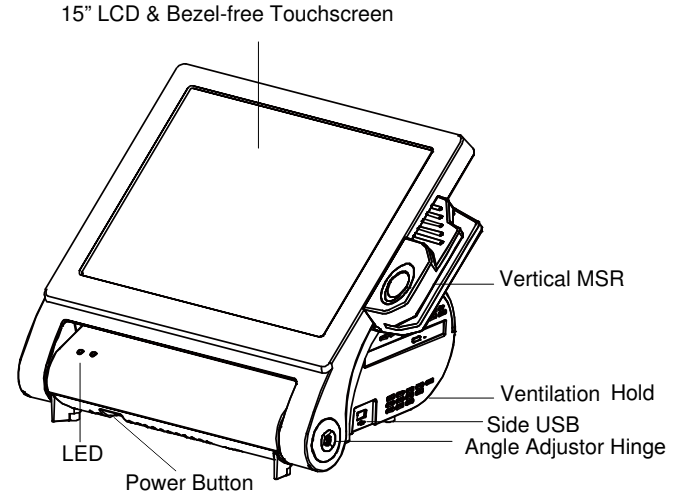
Chapter 3 Software

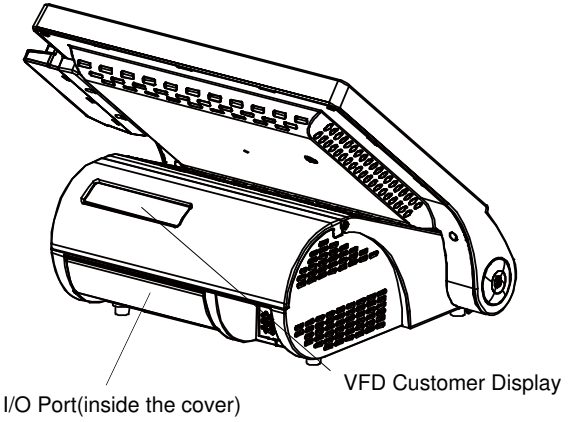
This chapter contains detailed information for driver installations of the Intel® Utility, VG, LAN, Sound, Touch Screen, embedded peripheral devices, BIOS setup & update, Watchdog timer and resource map.

Chapter 4 System Diagrams

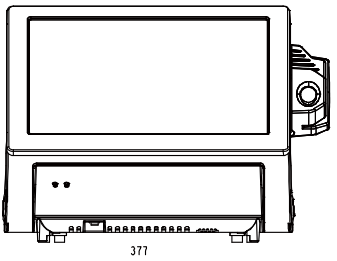
This chapter shows the exploded diagrams and part numbers of PA-3055 components.

Quarter View

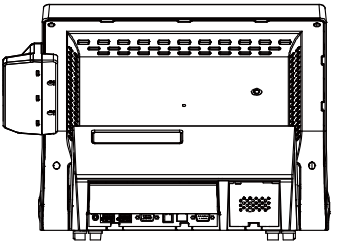




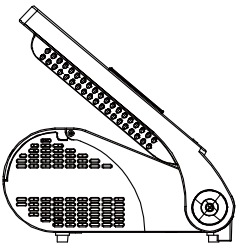
Front View

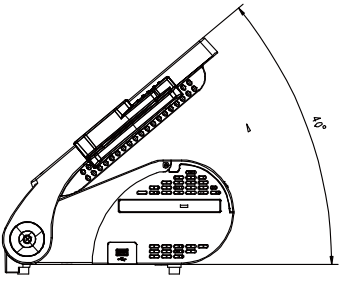


Rear View

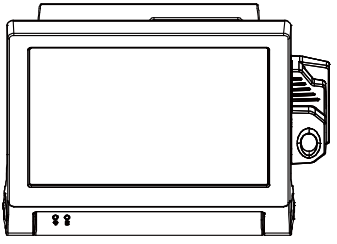


Side View

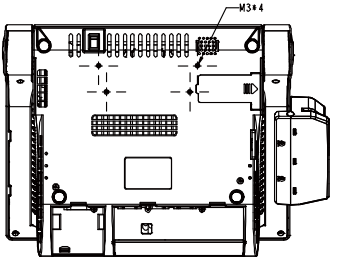




View



Bottom View



1-3. SYSTEM SPECIFICATIONS

System

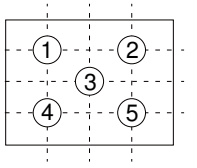
CPU	Intel® Celeron® J1900 Quad-Core 2.0GHz
Memory	1 x DDR3 SO-DIMM 204-pin socket, 2GB
OS Support	Window Embedded POSReady7
LAN	1 x Giga LAN

Audio	2W speaker & Line-out Port
BIOS	AMI SPI BIOS, 8 Mbits with VGA BIOS
RTC Accuracy	3 days ± 3 seconds
System Weight	With power adapter approx. 8.5 kg
Dimension (W x H x D)	390mm x 320mm x 190mm
Viewing Angel	40~80˚

Power Supply 120 Watt Power adaptor
Power Consumption (AC):

System Status	CPU/ HDD/ Memory	VFD	COM & USB Ports to supply power of Rear I/O	Consumption
OFF	Off		without	2W
IDLE	Turns on, but not to execute extra AP	Runs new ticker		19.8W
Working	100% loading of burn-in test			25.6W
Full Loading			USB dummy load 500mA x4	35.4 W

Display

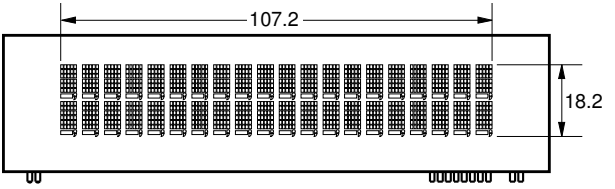
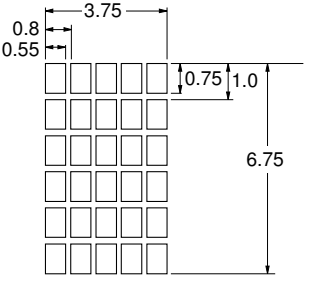
<table>
<tr><td>15” TFT XGA LCD</td><td>Max. Resolution: 1024 x 768
Signal Interface: TTL (24-bit)</td></tr>
<tr><td>Touchscreen</td><td>5-wire resistive type</td></tr>
<tr><td>Brightness</td><td>Resistive Touchscreen:
<table>
<tr><th>Minimum</th><th>Typical</th><th>Maximum</th></tr>
<tr><td>160 cd/m^2</td><td>200 cd/m^2</td><td>-</td></tr>
</table>


</td></tr>
</table>

Environment

Temperature	▪ Operating: 0~35°C ▪ Storage: -5~60°C
Humidity	20~90%

Optional accessories

MSR	ISO I ,II, III; JIS I,II reader
2nd Display	▪ 8” LCD (Resolution: 800 x 600) ▪ 10.4” LCD (Resolution: 1024 x 768
Customer Display	▪ Interface: RS-232C Baud Rate: 9600/19200 bps ▪ Placement: 20 columns and 2 lines, each column is 5 x 7 dots ▪ Brightness: cd/m^2 ▪ Dimensions:   ▪ Standard Code CP-437, CP-850, CP-857, CP-865, Katakana ▪ International Characters USA, FRANCE, GERMANY, UK, DENMARK I, SWDEN, ITALY, SPAIN, JAPAN, NORWAY, DENMARK II, RUSSIA, SLAVONIC

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-3055 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   b. Avoid installing your PA-3055 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-3055 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-3055 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

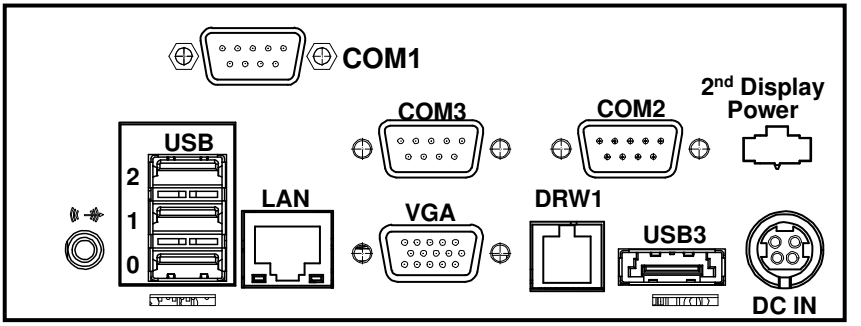
Helpful information that describes the jumper and connector settings, component locations, and pin assignment.

Sections included:

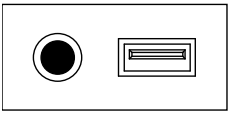
- External I/O Port Pin Assignment
- How to Set Jumpers
- Component Locations & Jumper Settings
  - Mainboard
  - Printer Board (peripheral device)
  - VFD Board (peripheral device)
  - MSR Board (peripheral device)

2-1. SYSTEM EXTERNAL I/O PORT & PIN ASSIGNMENT

Rear I/O



Side I/O



Power button

USB4

Power Button

To turn on the system, press the power button on the side of the system briefly.

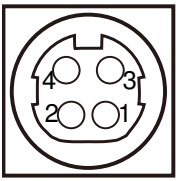
ACTION	ASSIGNMENT
Click	0V
Release	+3.3V

Power Button

DC-IN Port

DC IN: DC Power-In Port (rear IO)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	3	+24V
2	GND	4	+24V

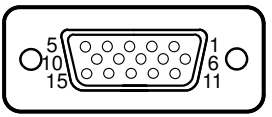


DC IN

VGA Port

VGA: VGA Port, D-Sub 15-pin (rear IO)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	DDCA DATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDCA CLK
8	GND		

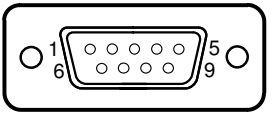


VGA

COM Port

COM1, COM2, COM3: D-Sub9 Serial Ports (rear IO) ▪
COM1: Co-lay with COM1-1
COM2: Co-lay with COM2-1
COM3: Co-lay with COM3-1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI/+5V/+12V selectable (Max. current: 1A)
5	GND		

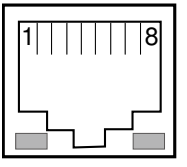


COM1/
COM2/
COM3

LAN Port

LAN: LAN RJ45 Port (rear IO)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	MDIP0	5	MDIP2
2	MDIN0	6	MDIN2
3	MDIP1	7	MDIP3
4	MDIN1	8	MDIN3



LAN

LAN LED Indicator:
Right Side LED

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

Left Side LED

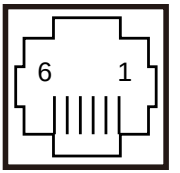
Green Color On	10/100Mbps LAN Speed Indicator
Orange Color on	Giga LAN Speed Indicator
Off	No LAN switch/ hub connected.

Cash Drawer Port

DRW1 is used by default. If you need a second port, adopt the method below.

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	4	+12V/+24V (Max. current: 1A)
2	Drawer Open	5	NC
3	Drawer Sense	6	GND

	DRW1
Open	Write "700"h to I/O port "588"h
Close	Write "00"h to I/O port "588"h



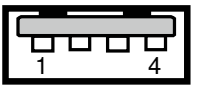
DRW1

USB Port

USB0, USB1, USB2, USB3, USB4: USB Type A Ports

- USB0~3: Rear I/O
- USB4: Side IO

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+5V (Max. current: 0.5A)	3	D+
2	D-	4	GND

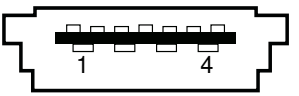


USB0/

USB1/

USB2/

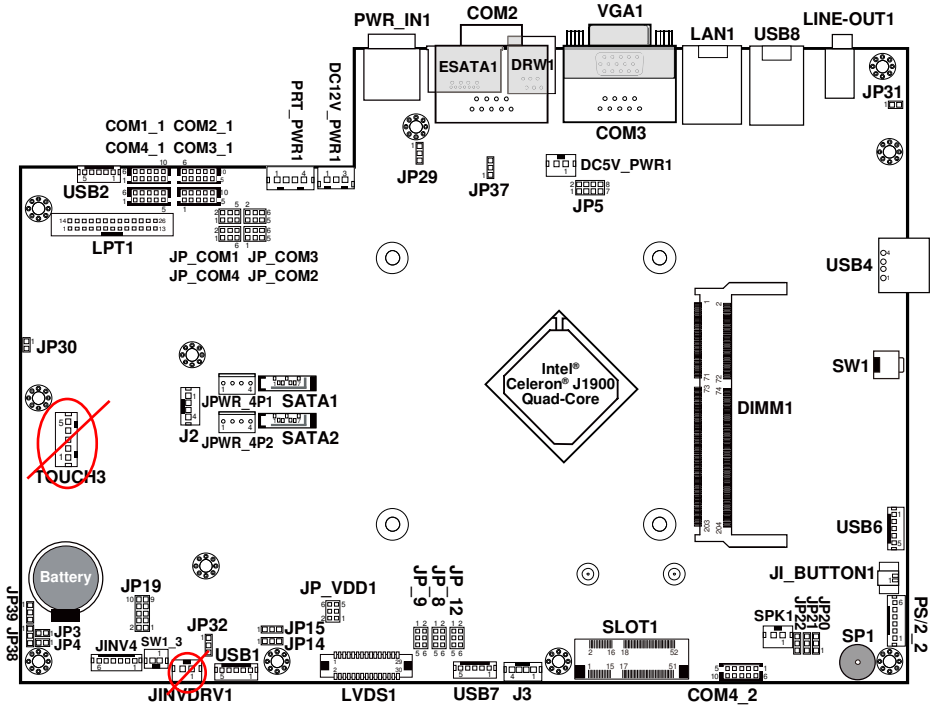
USB4



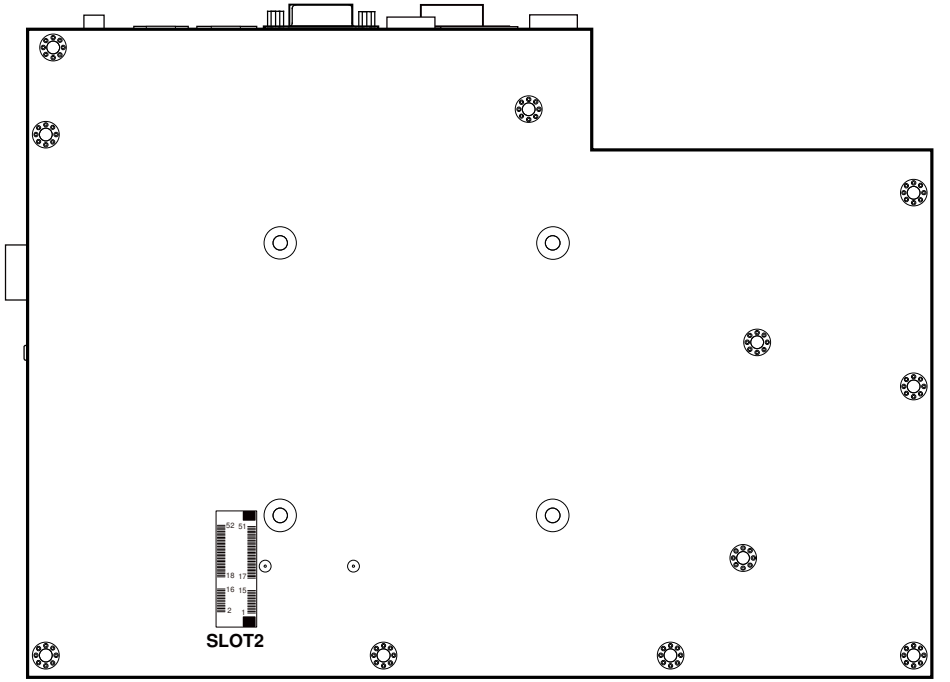
USB3

2-2. MAINBOARD COMPONENT LOCATIONS & JUMPER SETTINGS

M/B: PB-6822



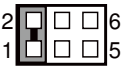
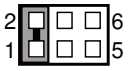
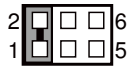
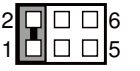
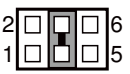
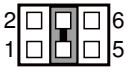
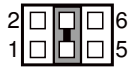
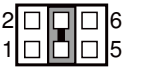
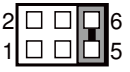
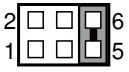
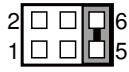
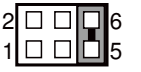
PB-6822 Mainboard Component Locations



PB-6822 Mainboard Component Locations - Rear

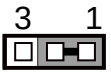
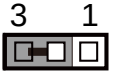
COM Port RI & Voltage Selection

JP_COM1, JP_COM2, JP_COM3, JP_COM4: Pin-headers on board

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION			
RI	1-2	 JP_COM1	 JP_COM2	 JP_COM3	 JP_COM4
+12V	3-4	 JP_COM1	 JP_COM2	 JP_COM3	 JP_ COM4
+5V	5-6	 JP_COM1	 JP_COM2	 JP_COM3	 JP_ COM4

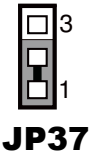
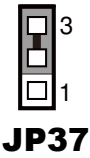
Cash Drawer Power Selection

JP29: DRW1, DRW 1-1, DRW 1-2

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
+24V	1-2	 JP29
+12V	2-3	 JP29

DRW1 Extension

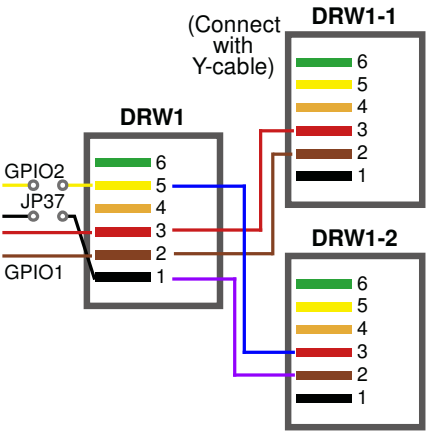
JP37: DRW1-2 control connector

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
DRW 1-1 + DRW 1-2	1-2	
DRW 1-1	2-3	

Step.1

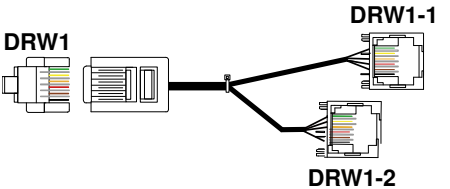
DRW1 includes two groups of GPIO pins. The second group is normally unused but can be enabled by the jumper.

Set the pin-header jumper JP37 as 1-2 connected if necessary.



Step.2

You can split DRW1 into two channels of DRW1-1 & DRW1-2 with the Y-Cable(optional unit).



DRW1, DRW1-1, DRW1-2: Signal from M/B GPIO (rear I/O)

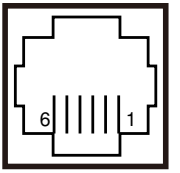
Step.3

DRW1, DRW1-1, DRW1-2 shares the same power source (refer to Cash Drawer Power Selection for adjustment, default at 12V).

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	4	+12V/+24V (Max. current: 1A)
2	Drawer Open	5	NC
3	Drawer Sense	6	GND

DRW1-1	OPEN		CLOSE	
PB-6822RA,RB	Write	To	Write	To
	700h	588h	000h	588h
PB-6822RC	Write	To	Write	To
	02h	SIO LDN 06h's 90h	00h	SIO LDN 06h's 90h

DRW1-2	OPEN		CLOSE	
PB-6822RA,RB	Write	To	Write	To
	N/A	N/A	N/A	N/A
PB-6822RC	Write	To	Write	To
	04h	SIO LDN 06h's 90h	00h	SIO LDN 06h's 90h

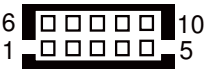


DRW1/ DRW1-1/ DRW1-2

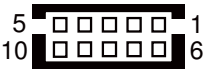
COM Connector

COM1-1, COM2-1, COM3-1, COM4-1, COM4-2: COM Connectors

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI/+5V/+12V selectable (Max. current: 1A)
5	GND	10	NC



COM1-1/
COM2-1/
COM3-1/
COM4-1



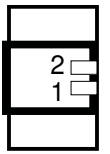
COM4-2

Note: Each COM connector is selectable for RI/+5V/+12V.
For details, refer to *COM Port RI & Voltage Selection*.

I-Button Connector

JI_BUTTON1: i-Button Connector

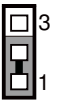
PIN	ASSIGNMENT
1	COM3_DTR_R_I
2	COM3_RXD_R_I



JI_BUTTON1

I-Button Function Selection

JP20, JP21, JP22: i-Button Function Connectors

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
COM 3	1-2	 **JP20/JP21/JP22**
i-Button*	2-3	 **JP20/JP21/JP22**

Note: Manufacturing Default is COM3.

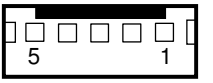
*COM3 & COM3-1 will not function when jumpers JP20, JP21 & JP22 are set as “i-Button.”

USB Connector

USB1, USB2, USB6, USB7: USB connector

PIN	ASSIGNMENT
1	5V (Maximum current: 0.5A)
2	D-
3	D+
4	GND
5	GND

Note: USB1 would be used when jumpers JP14 & JP15 are set as 1-2 (short) connected.

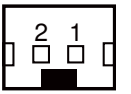


USB1/
USB2/
USB7
USB6

LED Connector

LED1-1: Power indication LED connector

PIN	ASSIGNMENT
1	GND
2	PWR_LED

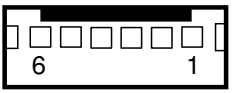


LED1-1

Inverter Connector

JINV4: Inverter connectors

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

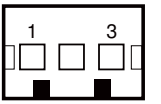


JINV4

Power Connector

DC12V_PWR1: DC 12Voltage Provider Connector

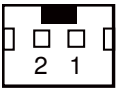
PIN	ASSIGNMENT
1	VCC12
2	GND
3	VCC12



DC12V_PWR1

DC5V_PWR1: DC 5Voltage Provider Connector

PIN	ASSIGNMENT
1	5V
2	GND

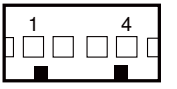


DC5V_PWR1

Power for Thermal Printer Connector

PRT_PWR1: Power for Thermal Printer Connector

PIN	ASSIGNMENT
1	VCC24SB
2	VCC24SB
3	GND
4	GND

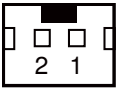


PRT_PWR1

External Speaker Connector

SPK1: External speaker connector

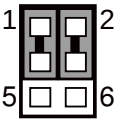
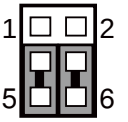
PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT



SPK1

LED Backlight Power Control Selection

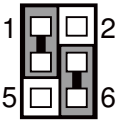
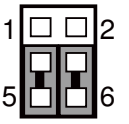
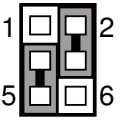
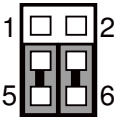
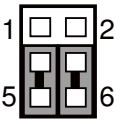
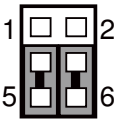
JP12: LED backlight power control connectors
(for LED backlight panel without power driver built-in)

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Control by driver on M/B	1-3, 2-4 It applied to the panel without driver built-in.	 **JP12**
Control by PWM	3-5, 4-6 It applied to the panel built-in driver inside.	 **JP12**

Note: Manufacturing Default is LED.

Panel Resolution Selection

JP8, JP9: Panel resolution control connectors

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
15” 1024 x 768 (24 bit)	JP8: 1-3, 4-6 JP9: 3-5, 4-6	 **JP8**	 **JP9**
10.4” 1024 x 768 (18 bit)	JP8: 3-5, 2-4 JP9:3-5, 4-6	 **JP8**	 **JP9**
10.4” 800 x 600 (18bit)	JP8: 3-5, 4-6 JP9: 3-5, 4-6	 **JP8**	 **JP9**

Note: Manufacturing Default is 15”, 1024 x 768

LVDS Connector

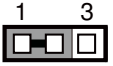
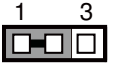
LVDS1: LVDS Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	16	LVDS_CLKA_D+
2	GND	17	VDS_CLKA_D-
3	NC	18	GND
4	NC	19	LVDS_A2_D+
5	GND	20	LVDS_A2_D-
6	LVDS_B2_D-	21	GND
7	LVDS_B2_D+	22	LVDS_A1_D+
8	GND	23	LVDS_A1_D-
9	LVDS_B1_D-	24	GND
10	LVDS_B1_D+	25	LVDS_A0_D+
11	LVDS_B3_D+	26	LVDS_A0_D-
12	LVDS_B3_D-	27	LVDS_A3_D+
13	LVDS_B0_D+	28	LVDS_A3_D-
14	LVDS_B0_D-	29	LVDS_VCC
15	GND	30	LVDS_VCC

LVDS1

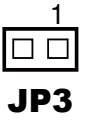
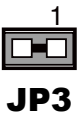
Touch Panel Signal Interface Selection

JP14, JP15, JP38, JP39: Control connectors for touch panel signal interface

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION			
USB1 Connector	JP14: 1-2 JP15: 1-2 JP38: 2-3 JP39: 2-3	 JP14	 JP15	 JP38	 JP39

Clear CMOS Data Selection

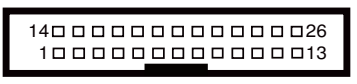
JP3: Clear CMOS data selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	Open	 JP3
Clear CMOS*	1-2	 JP3

Note: Manufacturing Default is Normal.

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

Printer Connector



LPT1

LPT1: Printer connector

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

SATA & SATA Power Connector

SATA1, SATA2: Serial ATA connectors

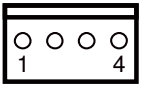
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	G1	5	RX-
2	TX+	6	RX+
3	TX-	7	G3
4	G2		

SATA1/ SATA2

Note: SATA1 only supports the optional RAID function on board.

JPWR_4P1, JPWR_4P2: Serial ATA power connectors

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12



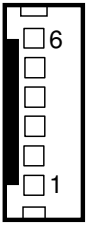
JPWR_4P1/ JPWR_4P2

Note: JPWR_4P1 only supports the optional RAID function on board.

MSR/Card Reader Connector

PS/2_2: MSR/Card reader connectors

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

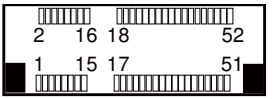


PS/2_2

Mini-PCIe / mSATA Connector

SLOT1: Mini-PCIe connector, not support USB function

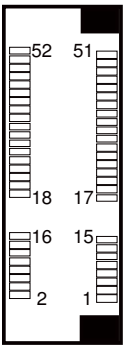
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	WAKE#	27	GND
2	+3.3V	28	+1.5V
3	Reserved	29	GND
4	GND	30	SMB_CLK
5	Reserved	31	PETn2
6	+1.5V	32	SMB_DATA
7	CLKREQ#	33	PETp2
8	Reserved	34	GND
9	GND	35	GND
10	Reserved	36	NC
11	REFCLK1-	37	GND
12	Reserved	38	NC
13	REFCLK1+	39	+3.3V
14	Reserved	40	GND
15	GND	41	+3.3V
16	Reserved	42	Reserved
17	Reserved	43	GND
18	GND	44	Reserved
19	Reserved	45	NC
20	Reserved	46	Reserved
21	GND	47	NC
22	PERST#	48	+1.5V
23	PERn2	49	NC
24	+3.3SB	50	GND
25	PERp2	51	Reserved
26	GND	52	+3.3V



SLOT1

SLOT2: Mini-PCIe or mSATA connector, support USB function

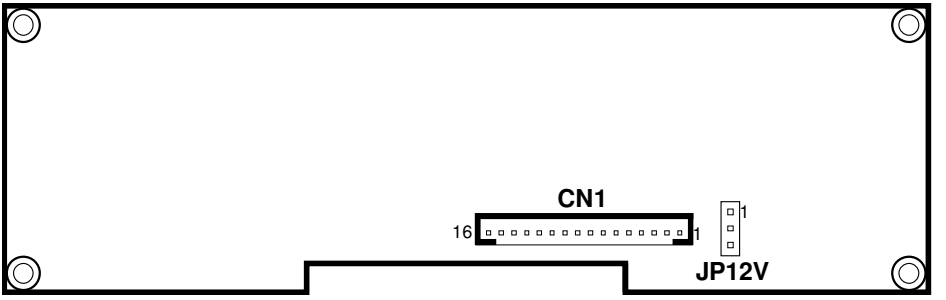
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	WAKE#	27	GND
2	+3.3V	28	+1.5V
3	Reserved	29	GND
4	GND	30	SMB_CLK
5	Reserved	31	PETn0/SATA1_TX-
6	+1.5V	32	SMB_DATA
7	CLKREQ#	33	PETp0/SATA1_TX+
8	Reserved	34	GND
9	GND	35	GND
10	Reserved	36	USB_D-
11	REFCLK0-	37	GND
12	Reserved	38	USB_D+
13	REFCLK0+	39	+3.3V
14	Reserved	40	GND
15	GND	41	+3.3V
16	Reserved	42	Reserved
17	Reserved	43	GND
18	GND	44	Reserved
19	Reserved	45	NC
20	Reserved	46	Reserved
21	GND	47	NC
22	PERST#	48	+1.5V
23	PERn0/SATA1_RX+	49	NC
24	+3.3SB	50	GND
25	PERp0/SATA1_RX-	51	Reserved
26	GND	52	+3.3V



SLOT2

2-4. VFD BOARD COMPONENT LOCATIONS & PIN ASSIGNMENT

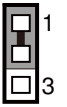
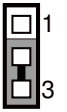
VFD Board: MB-4103, LD720



MB-4103 & LD720 VFD Board Component Locations

Power Switch Selection

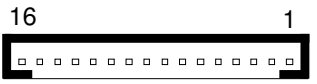
JP12V: Power Switch Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
OFF	1-2	 JP12V
ON	2-3	 JP12V

Note: Manufacturing Default is ON.

RS-232 Serial Interface Connector

CN1: RS-232 serial interface wafer

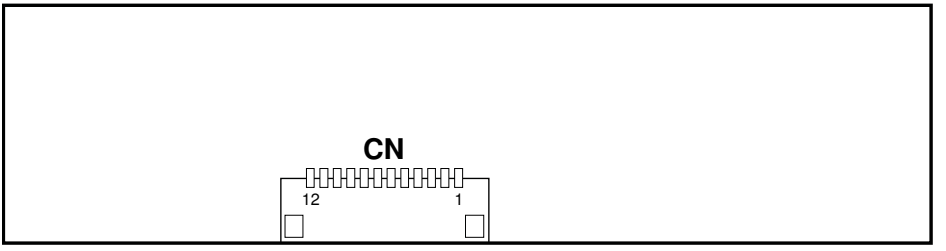


CN1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	9	NC
2	TXD	10	NC
3	RXD	11	NC
4	DTR	12	NC
5	DSR	13	NC
6	RTS	14	NC
7	CTS	15	NC
8	+12V/+5V	16	NC

2-5. MSR BOARD COMPONENT LOCATIONS & PIN ASSIGNMENT

SYSKING

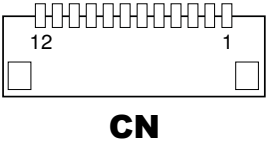


SYSKING MSR Board Component Locations

Main Connector

CN:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+5V Vcc	7	NC
2	K-DATA (Host to MSR)	8	NC
3	K-CLK Host to MSR	9	NC
4	P-DATA (MSR to Keyboard)	10	NC
5	P-CLK (MSR to Keyboard)	11	Signal Ground
6	NC	12	Signal Ground



CHAPTER

3

SOFTWARE

This chapter provides the detailed information of driver utilities and BIOS settings for the system.

Sections included:

- Driver
  - Intel® Chipset Software Installation Utility
  - VGA Driver Utility
  - LAN Driver Utility
  - Sound Driver Utility
  - Touchsreen Driver Utility

- Embedded Peripheral Device
  - VFD

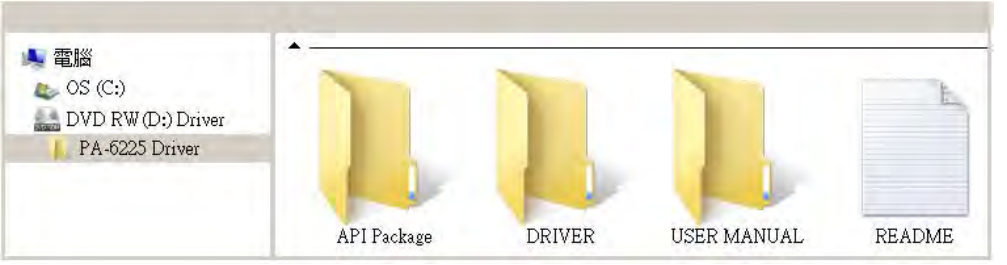
- API

- BIOS Operation
  - Setup
  - Watchdog Timer Configuration
  - Update Procedure
  - System Resource Map

3-1. DRIVER DISC

3-1-1. Introduction

Enclosed with the PA-3055 Series package is our driver utilities, which comes in a CD-ROM format.



3-1-2-1. API Package folder

Refer to the "3-3 API" for the details.
+--->\DEMO PROJECT\
+--->\ProxAPI standard\
+--->\Document\

3-1-2-2. DRIVER folder

1. The sequence of setup is "Main Chip -> VGA -> LAN -> SOUND -> TOUCH[Device folder]"
2. You will be prompted to reboot when installation is complete.

+--->\Flash BIOS\AFUa.bat
+--->\Plaform\
+--->\Device\

3-1-2-3. USER MANUAL folder

\AdbeRdr930_en_US.exe (PDF File reader)

3-1-2-4. README

The DRIVER DISC introduction

3-1-3. Intel® Chipset Software Installation Utility

3-1-3-1. Introduction

The Intel® Chipset Software Installation Utility installs Windows *.INF files to the target system. These files outline to the operating system how to configure the Intel chipset components in order to ensure the following features function properly:

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

3-1-3-2. Installation of Intel® Chipset Driver

The utility pack is to be installed only for POSReady 7 & Embedded 8 Industry series, and it should be installed right after the OS installation. Please follow the steps below:

1. Connect the USB CD-ROM device to PA-3055 and insert the driver disk.
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 PA-3055 for the changes to take effect.

3-1-4. VGA Driver Utility

The VGA interface embedded with PA-3055 can support a wide range of display types. You can have dual displays via CRT & LVDS interfaces work simultaneously.

3-1-4-1. Installation of VGA Driver

To install the Graphics driver, follow the steps below:

1. Connect the USB-CD ROM device to PA-3055 and insert the driver disk.
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 PA-3055 for the changes to take effect.

3-1-5. LAN Driver Utility

PA-3055 is enhanced with LAN function that can support various network adapters. Installation platform for the LAN driver is listed as follows:

3-1-5-1. Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB CD-ROM device to PA-3055 and insert the driver disk.
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 PA-3055 for the changes to take effect.

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

3-1-6. Sound Driver Utility

The sound function enhanced in this system is fully compatible with Windows POSReady 7 & Embedded 8 Industry series. Below, you will find the content of the Sound driver.

3-1-6-1. Installation of Sound Driver

To install the Sound Driver, follow the steps below:

1. Connect the USB CD-ROM device to PA-3055 and insert the driver disk.
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 PA-3055 for the changes to take effect.

3-1-7. Touchscreen Driver Utility

The touchscreen driver utility can only be installed on Windows POSReady 7, and it should be installed right after the OS installation.

3-1-7-1. Installation of Touchscreen Driver

To install the touchscreen driver, follow the steps below:

1. Connect the USB CD-ROM device to PA-3055 and insert the driver disk.
2. Enter the "Device\Touch Screen" 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 PA-3055 for the changes to take effect.

3-2. PERIPHERAL DEVICES

Command lists and driver installation guide for peripheral devices of the system - printer board, VFD and MSR – are explicitly included in this section.

VFD: MB-4103 (RS-232)

Command List

1. VFD Registry Operation

Registry Path: [HKEY_LOCAL_MACHINE\SOFTWARE\OLEforRetail\ServiceOPOS\LineDisplay\Prox-PMP4000]

Registry Name	Default Data	Notes
Default Value	LineDisplay.PMP4000.1	-
BaudRate	9600	-
BitLength	8	-
Parity	0	-
Port	COM1	-
Stop	1	-

2. OPOS VFD Service Object and Method Relations

Method	Status of support	Notes
Open	○	-
Close	○	-
ClaimDevice	○	-
ReleaseDevice	○	-
Enable	○	-
Disable	○	-
DisplayText	○	-
DisplayTextAt	○	-
ClearText	○	-

3-2-2-2. OPOS Driver

The **MB4000_OposSetup.exe** program sets up the registry information and example program of VFD for OPOS program uses.

1. Installation

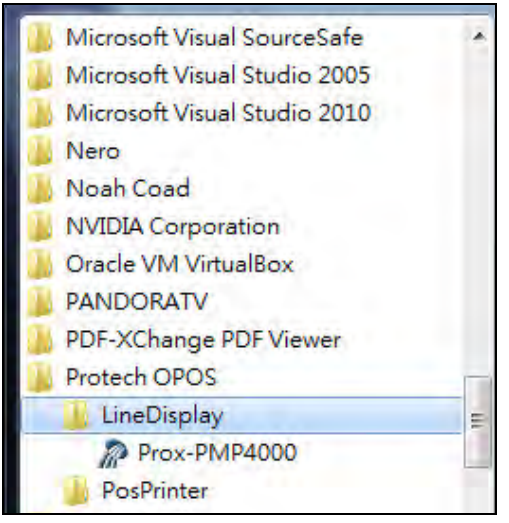
Below steps guide you to install the **MB4000_OposSetup** program.

- Run the **MB4000_OposSetup** setup file
- This setup also installs the **Prox-PMP4000** program.
- Follow the wizard instructions to complete the installation.

2. Launching Program

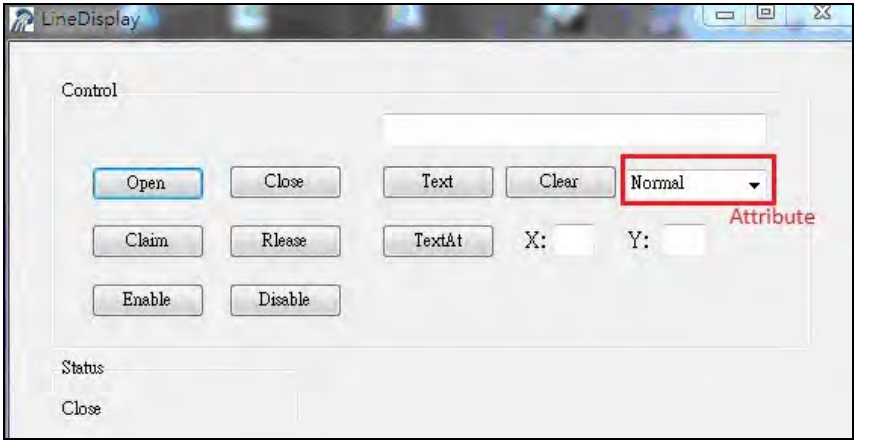
Below steps guide you to load the **Prox-PMP4000** program.

- Click *LineDisplay* folder from the path *Start/Programs/Protech OPOS*.
- Click **Prox-PMP4000** to launch the program.



3. OPOS Control Object of **Prox-PMP4000** program

Main screen buttons:



Button/Item	Description
Text	Display text at the current cursor position.
TextAt	Display the string of characters at the specified “y ” and “x ”.
Clear	Clear the current window by displaying
Attribute	Normal, blink, reverse

4. MB4103 type

Key Name	Type	Default Value	Note
BaudRate	String	9600	UART Baud Rate (default)
BitLength	String	8	UART Data Bit (default)
Parity	String	0	UART Parity Bit (default)
Port	String	COM1	UART Port (default)
Stop	String	1	UART Stop Bit (default)

5. OPOS APIs Support List

	Category Type	Name	Mutability	OPOS APG Version	VFD .SO
Properties	common bool	AutoDisable	R/W	1.2	Not Applicable
Properties	common long	BinaryConversion	R/W	1.2	Not Applicable
Properties	common long	CapPowerReporting	Read only	1.3	Not Applicable
Properties	common string	CheckHealthText	Read only	1.0	Supported
Properties	common bool	Claimed	Read only	1.0	Supported
Properties	common long	DataCount	Read only	1.2	Not Applicable
Properties	common bool	DataEventEnabled	Read only	1.0	Not Applicable
Properties	common bool	DeviceEnabled	R/W	1.0	Not Applicable
Properties	common bool	FreezeEvents	R/W	1.0	Not Applicable
Properties	common long	OpenResult	Read only	1.5	Not Applicable
Properties	common bool	OutputID	Read only	1.0	Not Applicable
Properties	common bool	PowerNotify	R/W	1.3	Not Applicable
Properties	common bool	PowerState	Read only	1.3	Not Applicable
Properties	common long	ResultCode	Read only	1.0	Supported
Properties	common long	ResultCodeExtended	Read only	1.0	Not Applicable
Properties	common long	State	Read only	1.0	Supported
Properties	common string	ControlObject Description	Read only	1.0	Not Applicable
Properties	common long	ControlObject Version	Read only	1.0	Not Applicable
Properties	common string	ServiceObject Description	Read only	1.0	Supported
Properties	common long	ServiceObject Version	Read only	1.0	Supported
Properties	common string	DeviceDescription	Read only	1.0	Supported
Properties	common string	ControlObject Description	Read only	1.0	Not Applicable
Properties	specific long	CapBlink	Read only	1.0	Not Applicable
Properties	specific bool	CapBlinkRate	Read only	1.6	Not Applicable
Properties	specific bool	CapBrightness	Read only	1.0	Not Applicable
Properties	specific long	CapCharacterSet	Read only	1.0	Not Applicable
Properties	specific long	CapCursorType	Read only	1.6	Not Applicable
Properties	specific bool	CapCustomGlyph	Read only	1.6	Not Applicable
Properties	specific bool	CapDescriptors	Read only	1.0	Not Applicable
Properties	specific bool	CapHMarquee	Read only	1.0	Not Applicable

	Category Type	Name	Mutability	OPOS APG Version	VFD .SO
Properties	specific bool	CapICharWait	Read only	1.0	Not Applicable
Properties	specific long	CapReadBack	Read only	1.6	Not Applicable
Properties	specific long	CapReverse	Read only	1.6	Not Applicable
Properties	specific bool	CapVMarquee	Read only	1.0	Not Applicable
Properties	specific long	BlinkRate	R/W	1.6	Not Applicable
Properties	specific long	DeviceWindows	Read only	1.0	Not Applicable
Properties	specific long	DeviceRows	Read only	1.0	Not Applicable
Properties	specific long	DeviceColumns	Read only	1.0	Not Applicable
Properties	specific long	DeviceDescriptors	Read only	1.0	Not Applicable
Properties	specific long	DeviceBrightness	R/W	1.0	Not Applicable
Properties	specific long	CharacterSet	R/W	1.0	Not Applicable
Properties	specific string	CharacterSetList	Read only	1.0	Not Applicable
Properties	specific long	CurrentWindow	R/W	1.0	Not Applicable
Properties	specific long	Rows	Read only	1.0	Not Applicable
Properties	specific long	Columns	Read only	1.0	Not Applicable
Properties	specific long	CursorRow	R/W	1.0	Not Applicable
Properties	specific long	CursorColumn	R/W	1.0	Not Applicable
Properties	specific long	CursorType	R/W	1.6	Not Applicable
Properties	specific bool	CursorUpdate	R/W	1.0	Not Applicable
Properties	specific long	MarqueeType	R/W	1.0	Not Applicable
Properties	specific long	MarqueeFormat	R/W	1.0	Not Applicable
Properties	specific long	MarqueeUnitWait	R/W	1.0	Not Applicable
Properties	specific long	MarqueeRepeatWait	R/W	1.0	Not Applicable
Properties	specific long	InterCharacterWait	R/W	1.0	Not Applicable
Properties	specific string	CustomGlyphList	Read only	1.6	Not Applicable
Properties	specific long	GlyphHeight	Read only	1.6	Not Applicable
Properties	specific long	GlyphWidth	Read only	1.6	Not Applicable
Methods	common	Open	-	1.0	Supported
Methods	common	Close	-	1.0	Supported
Methods	common	Claim	-	1.0	Supported
Methods	common	ClaimDevice	-	1.0	Supported
Methods	common	Release	-	1.0	Supported
Methods	common	ReleaseDevice	-	1.0	Supported
Methods	common	CheckHealth	-	1.0	Not Applicable
Methods	common	ClearInput	-	1.0	Not Applicable
Methods	common	ClearOutput	-	1.0	Not Applicable

	Category Type	Name	Mutability	OPOS APG Version	VFD .SO
Methods	common	DirectIO	-	1.0	Not Applicable
Methods	specific	DisplayText	-	1.0	Supported
Methods	specific	DisplayTextAt	-	1.0	Supported
Methods	specific	ClearText	-	1.0	Supported
Methods	specific	ScrollText	-	1.0	Not Applicable
Methods	specific	SetDescriptor	-	1.0	Not Applicable
Methods	specific	ClearDescriptors	-	1.0	Not Applicable
Methods	specific	CreateWindow	-	1.0	Not Applicable
Methods	specific	DestroyWindow	-	1.0	Not Applicable
Methods	specific	RefreshWindow	-	1.0	Not Applicable)
Methods	specific	ReadCharacterAtCursor	-	1.6	Not Applicable
Methods	specific	DefineGlyph	-	1.6	Not Applicable
Events	common	DataEvent	-	1.0	Not Applicable
Events	common	DirectIOEvent	-	1.0	Not Applicable
Events	common	ErrorEvent	-	1.0	Not Applicable
Events	common	OutputComplete Event	-	1.0	Not Applicable
Events	common	StatusUpdate Event	-	1.3	Not Applicable

3-3. API

3-3-1. API Package Content

You can find API Package files in the enclosed Manual/Driver CD. Depending on machine types, the API Package may include the following files.

Function DLL			
Directory	**Function**	**File Name**	**Description**
ProxAPI standard	**multilangXML.dll**		Driver to open XML file
	Initial.xml		XML file to initiate the API Package
	ProxAP.exe		API program executable file
	XML Files\Model Name*\Initial.xml		XML file for each model
	Version.ini		Version information

Sample Program		
Directory	**Contents / File Name**	**Description**
DEMO PROJECT	DEMO PROJECT\GPIO Sample Code	C# VB6 VB.net Source Code
	DEMO PROJECT\Digital Sample Code	C# VB6 VB.net Source Code

3-3-2. API Procedure

Take **VB2005 .NET** for example.

1. First you must declare a function. You may create a module in your project and fill in the function.

Example: Cash drawer

Declare Function GetCashDrawerStatus Lib CashDrawer.dll (ByVal num_drawer as short) As Boolean

Declare Function CashDrawerOpen Lib CashDrawer.dll (ByVal num_drawer as short) As Boolean

2. Then create a button to call API Function.

a.) Call Cash drawer open event:

```
Private Sub cash_btn1_Click (ByVal Sender As System.Object, ByVal e As
System.EventArgs) Handles cash_btn1.Click
CashDrawerOpen(1), “1” specifies the cash drawer 1 port
CashDrawerOpen(2), “2” specifies the cash drawer 2 port
Timer1.start
```

b.) Detect Cash drawer status:

A timer event can be created.

```
Private Sub Timer1_Tick (ByVal Sender As System.Object,ByVal e As
System.EventArgs) Handles Timer1.Tick
    Dim Receive_Status1 as Boolean
    Dim Receive_Status2 as Boolean
    Receive_Status1 = CashDrawerOpen(&H1)
    If Receive_Status1 = true then
       Text1.text = “cash drawer1 open”    ‘enter text into textbox.
Else
```

```
Text1.text = “cash drawer1 close”‘enter text into textbox.
End if
‘=========================================
    Receive_Status2 = CashDrawerOpen(&H2)
    If Receive_Status2 = true then
       Text2.text = “cash drawer2 open”    ‘enter text into textbox.
Else
Text2.text = “cash drawer2 close”‘enter text into textbox.
End if
‘=========================================
End sub
```

3-3-3. Sample Code

1. VB Declaration Method

Declare Function GetCashDrawerStatus Lib CashDrawer.dll (ByVal num_drawer as short) As Boolean

Declare Function CashDrawerOpen Lib CashDrawer.dll (ByVal num_drawer as short) As Boolean

- Call Function

Open cash drawer:
CashDrawerOpen(1)
Open cash drawer1
CashDrawerOpen(2)
Open cash drawer2

Check cash drawer status:
Dim receive_status as Boolean
Check cash drawer1 status
Receive_Status = CashDrawerOpen(&H1)
Check cash drawer2 status
Receive_Status = CashDrawerOpen(&H2)

2. C# Declaration Method

```
Public class PortAccess
{
[DllImport("CashDrawer.dll",EntryPoint = "Initial_CashDrawer")]
Public static extern void Initial_CashDrawer();
[DllImport("CashDrawer.dll",EntryPoint= "GetCashDrawerStatus")]
Public static extern bool GetCashDrawerStatus()
[DllImport("CashDrawer.dll",EntryPoint = "CashDrawerOpen")]
Public static extern bool CashDrawerOpen(short num_drawer);}
```

- Call Function

Open cash drawer1

```
PortAccess.CashDrawerOpen(0x01);        //check cash drawer1 status
```

Open cash drawer2

```
PortAccess.CashDrawerOpen(0x02);        //check cash drawer2 status
```

```
Bool bstatus;
bstatus = PortAccess.GetCashDrawerStatus(0x01);
bstatus = PortAccess.GetCashDrawerStatus(0x02); //Before get cash drawer status, need to initial cash drawer first
```

3. VB.NET extern function:

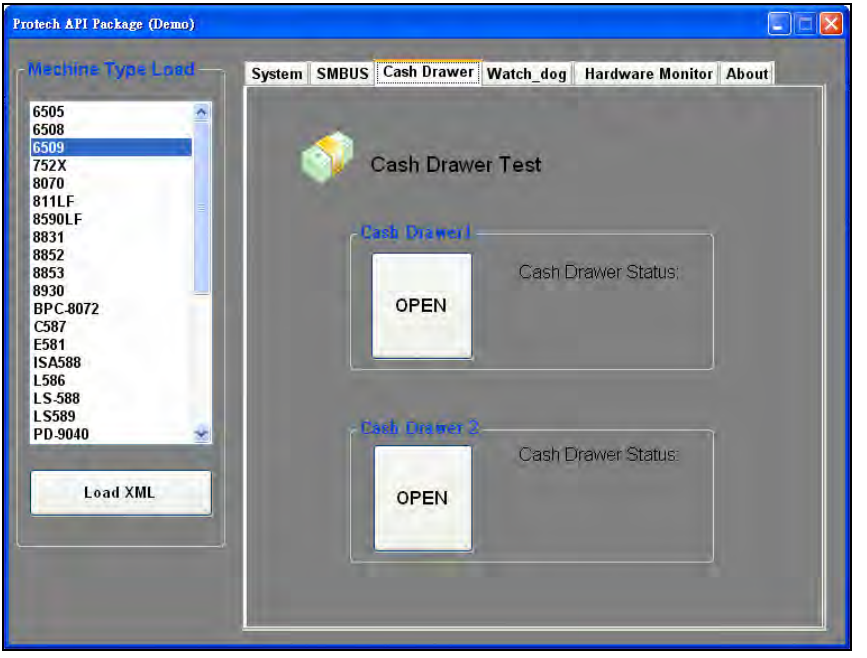
```
Declare Function Digital_Initial Lib “Digital.dll” ( ) As Long
Declare Function Digtial_Set Lib “Digital.dll”(ByVal hex_value As Short) As Long
Declare Function Digtial_Get Lib ”Digital.dll” ( ) As Short

Declare Function GPIO_Initial Lib “GPIO.dll” ( ) As Long
Declare Function GPIO_SetPort Lib “GPIO.dll”(ByVal direct As long)
Declare Function GPIO_Set Lib “GPIO.dll”(ByVal dout_value As long) As Boolean
Declare Function GPIO_Get Lib “GPIO.dll”( ) As Short

Declare Function GetCashDrawerStatus Lib CashDrawer.dll (ByVal num_drawer as
short) As Boolean
Declare Function CashDrawerOpen Lib CashDrawer.dll (ByVal num_drawer as short)
As Boolean
```

4. VB 6 extern function:

```
Declare Function CashDrawerOpen Lib "CashDrawer.dll" (ByVal num_drawer As
Integer) As Boolean
Declare Function GetCashDrawerStatus Lib "CashDrawer.dll" (ByVal num_drawer
As Integer) As Boolean
```

Note: VB.net short = integer VB6

3-3-4. Cash Drawer



Button/Item	Description
OPEN (button)	Tap to open the cash drawer.
Cash Drawer Status	Cash drawer status will be displayed after **OPEN** is tapped. ▪ Drawer is closed as shown: Cash Drawer Status: **Close** ▪ Drawer is open as shown: Cash Drawer Status: **Open**

3-3-7. API Function

The API program-related sample programs, developed in VB.Net and C#, are provided for easy use of the API Package. Refer to the main API functions listed as below.

API Function		DLL	
Cash Drawer	CashDrawerOpen GetCashDrawerStatus	multilangXML.dll	CashDrawer.dll

3-3-8. Cash Drawer Function

CashDrawerOpen

bool CashDrawerOpen (short num_drawer);

Purpose: Open the cash drawer API.
Value: num_drawer = 1 (Open the Cash Drawer1)
num_drawer = 2 (Open the Cash Drawer2)
Return: True (1) on success, False (0) on failure

Example: CashDrawerOpen(0x01); // Open the Cash Drawer1

GetCashDrawerStatus

bool GetCashDrawerStatus (short num_drawer);

Purpose: Get the cash drawer status.
Value: num_drawer = 1 (Get the Cash Drawer1 status)
num_drawer = 2 (Get the Cash Drawer2 status)
Return: True (1) on success, False (0) on failure

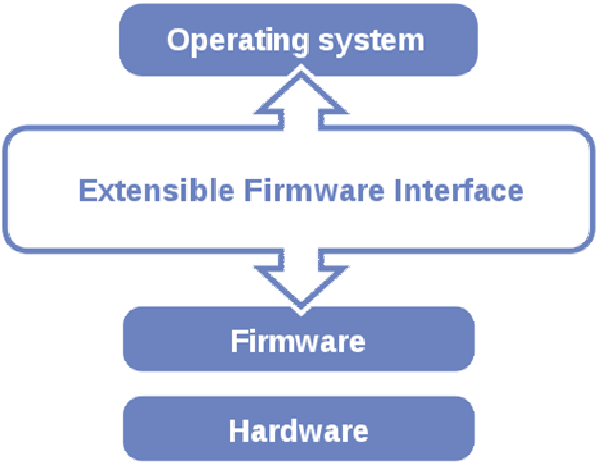
Example:
```
Short data;
data= GetCashDrawerStatus(0x01);  // Get the Cash Drawer1 status
if (data)
MsgBox("open1");     // Cash Drawer1 status "Open"
Else
MsgBox("close1");    // Cash Drawer1 status "Close"
Endif
```

3-4. BIOS Operation

3-4-1. Introduction

The board PA-6225 uses an AMI Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the BIOS Setup program, Power-on Self-Test (POST), the PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

Aptio is AMI's BIOS firmware based on the UEFI (Unified Extensible Firmware Interface) Specifications and the Intel Platform Innovation Framework for EFI. The UEFI specification defines an interface between an operating system and platform firmware. The interface consists of data tables that contain platform-related information, boot service calls, and runtime service calls that are available to the operating system and its loader. These provide standard environment for booting an operating system and running pre-boot applications. Following illustration shows Extensible Firmware Interface's position in the software stack.

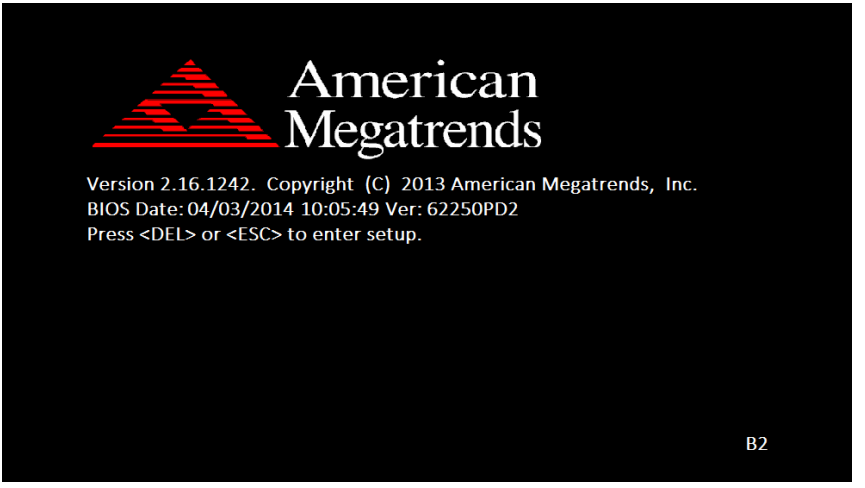


EFI BIOS provides an user interface allow users the ability to modify hardware configuration, e.g. change system date and time, enable or disable a system component, decide bootable device priorities, setup personal password, etc., which is convenient for modifications and customization of the computer system and allows technicians another method for finding solutions if hardware has any problems.

The BIOS Setup program can be used to view and change the BIOS settings for the computer. The BIOS Setup program is accessed by pressing the <Del> or <ESC> key after the POST memory test begins and before the operating system boot begins. The settings are shown below.

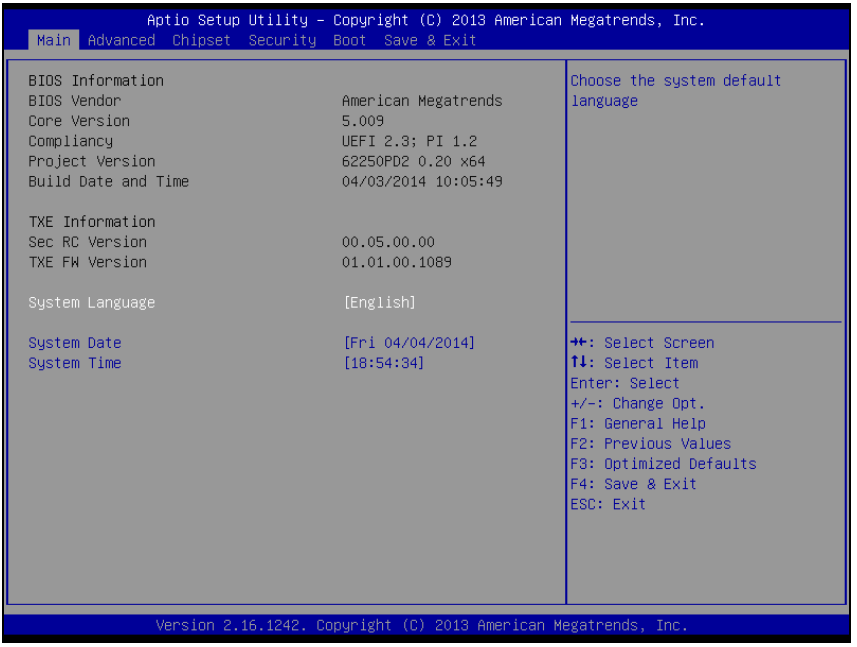
3-4-2. Entering Setup

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



POST screen

As long as this message is present on the screen you may press the <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the Setup program. In a moment, the main menu of the Aptio Setup Utility will appear on the screen:



BIOS setup program initial screen

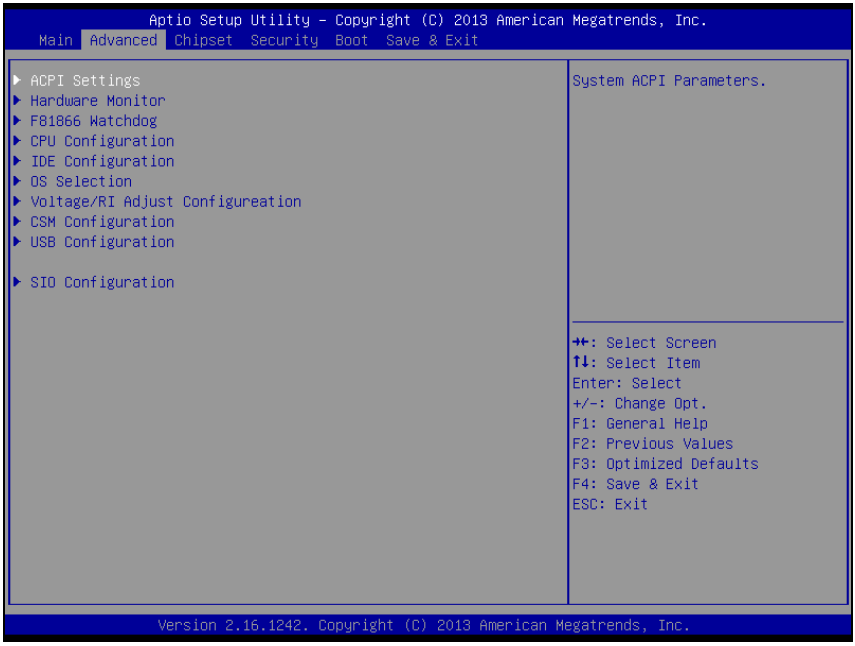
You may move the cursor by up/down keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear at the bottom of the screen.

3-4-3. Main

Main screen

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

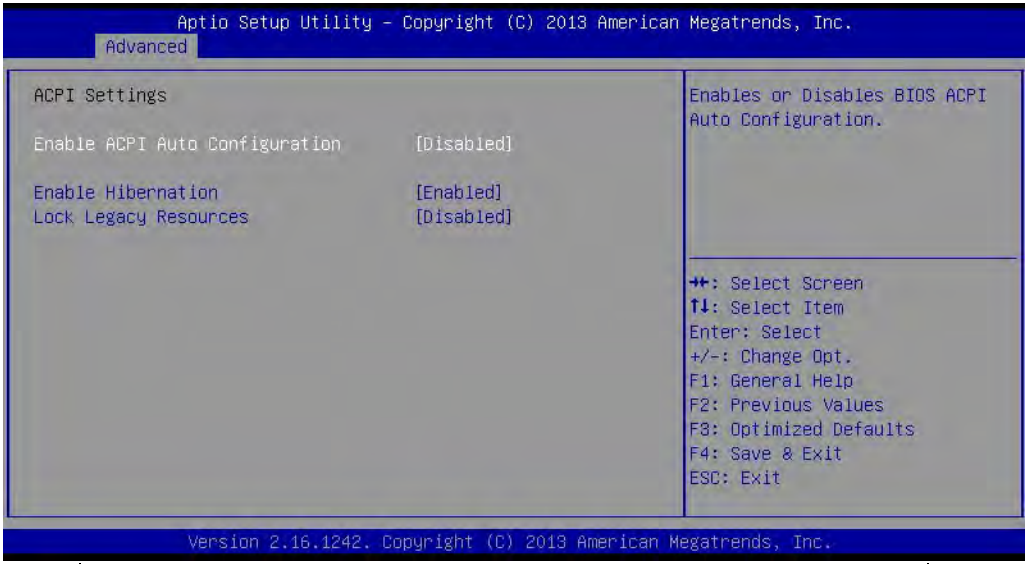
BIOS Setting	Options	Description/Purpose
System Language	English	BIOS Setup language.
System Date	month, day, year	Specifies the current date.
System Time	hour, minute, second	Specifies the current time.



Advanced screen

BIOS Setting	Options	Description/Purpose
ACPI Settings	Sub-Menu	System ACPI Parameters.
Hardware Monitor	Sub-Menu	Monitor hardware status
F81866 Watchdog	Sub-Menu	F81866 Watchdog Parameters.
CPU Configuration	Sub-Menu	CPU Configuration. Parameters.
IDE Configuration	Sub-Menu	SATA Configuration Parameters.
OS Selection	Sub-Menu	OS Selection
Voltage/RI Adjust Configuration	Sub-Menu	Voltage/RI Adjust settings.
CSM Configuration	Sub-Menu	Configure Option ROM execution, boot options filters, etc..
USB Configuration	Sub-Menu	USB Configuration Parameters.
SIO Configuration	Sub-Menu	System Super IO Chip Configuration.

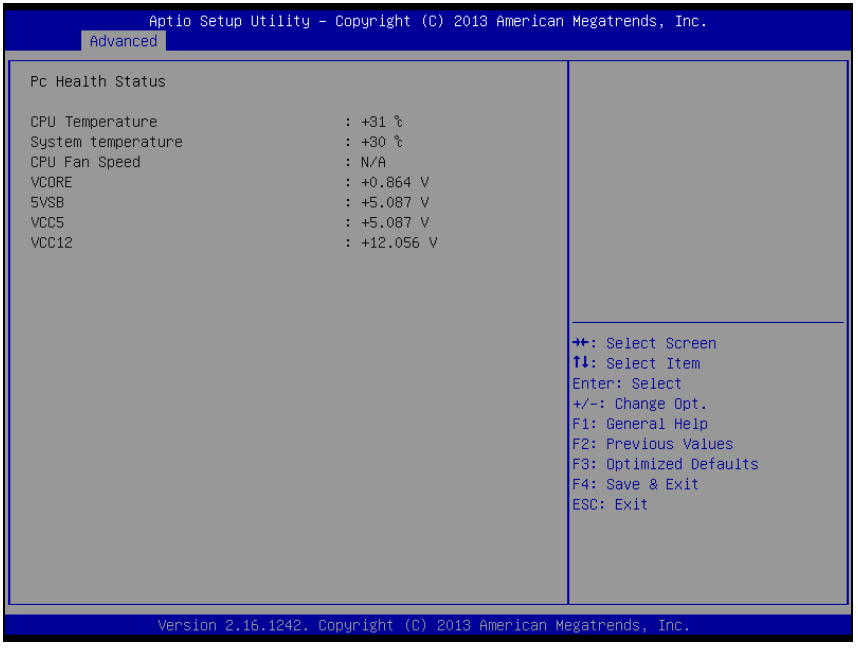
3-4-4-1. ACPI Settings



ACPI Settings screen

BIOS Setting	Options	Description/Purpose
Enable ACPI Auto Configuration	- Disabled - Enabled	Enables or Disables ACPI feature.
Enable Hibernation	- Disabled - Enabled	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
Lock Legacy Resources.	- Disabled - Enabled	Enables or Disables Lock of Legacy Resources.

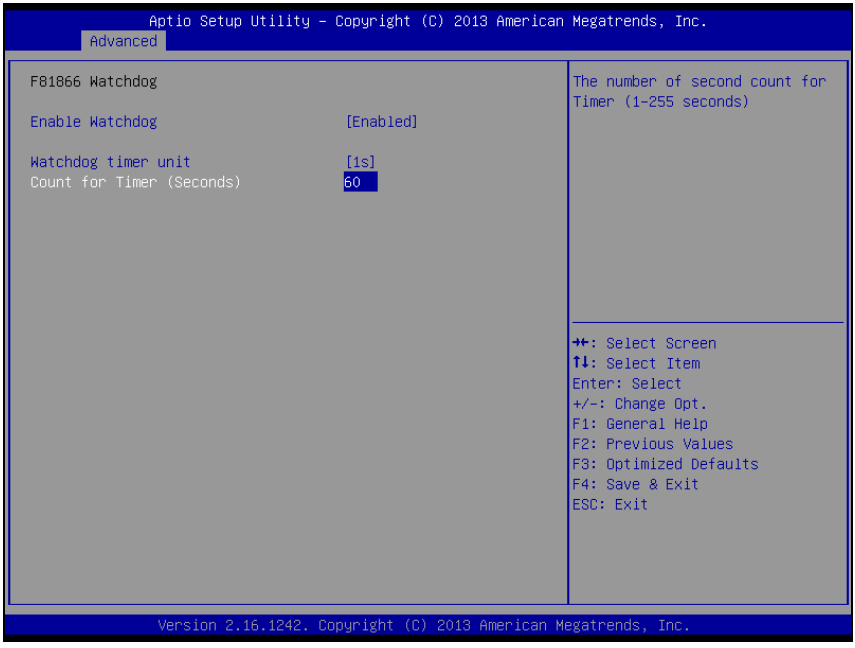
3-4-4-2. Hardware Monitor



Hardware Monitor screen

BIOS Setting	Options	Description/Purpose
CPU Temperature	No changeable options	Displays processor's temperature.
System Temperature	No changeable options	Displays system's temperature
CPU Fan Speed	No changeable options	Displays Fan's speed
VCORE	No changeable options	Displays voltage level of the +VCORE in supply.
5VSB	No changeable options	Displays voltage level of the +VSB5 in supply.
VCC5	No changeable options	Displays voltage level of the + VCC5 in supply.
VCC12	No changeable options	Displays voltage level of the + VCC12 in supply.

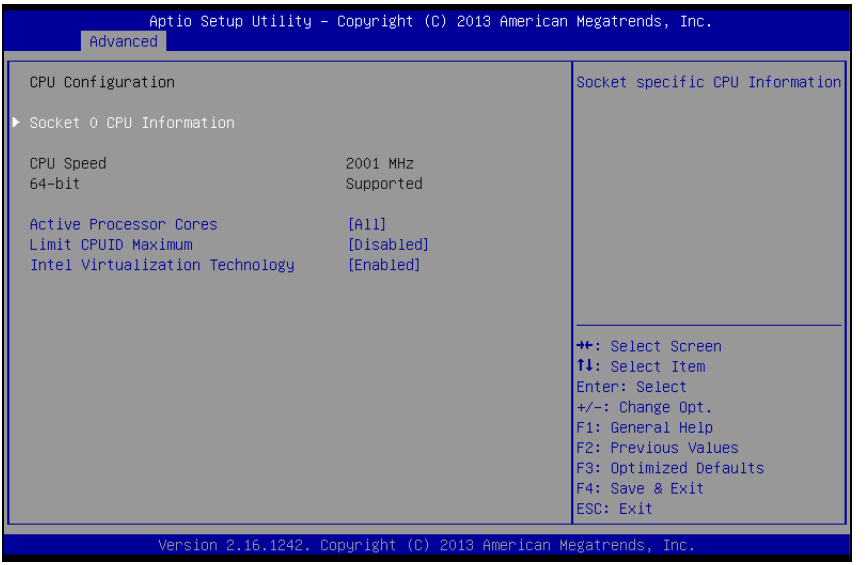
3-4-4-3. F81866 Watchdog



F81866 Watchdog screen

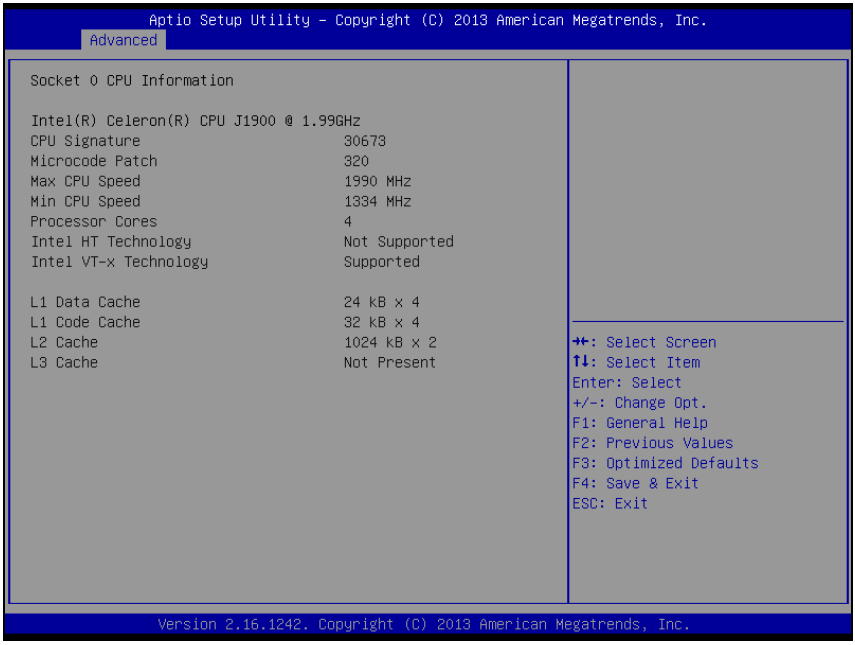
BIOS Setting	Options	Description/Purpose
Enable WatchDog	-Enabled -Disable	Enable/ Disable Watch dog timer.
Watchdog timer unit	-1s -60s	Select seconds or minutes
Count for Timer (Seconds)	Multiple options ranging from 1 to 255	Sets the desired value (seconds) for watchdog timer.

3-4-4-4. CPU Configuration



CPU Configuration screen

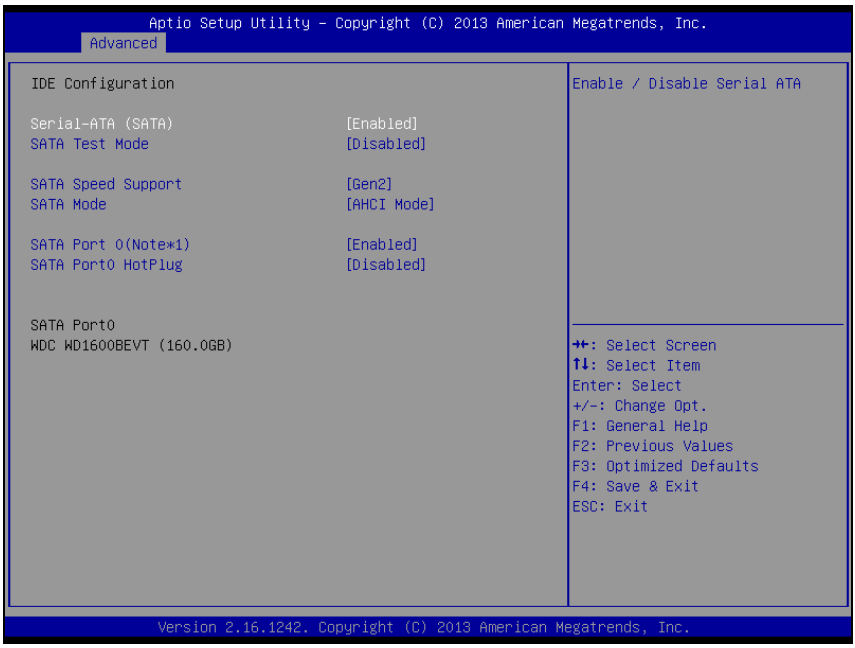
BIOS Setting	Options	Description/Purpose
CPU Signature	No changeable options	Reports the CPU Signature
Socket 0 CPU Information	Sub-Menu	Report CPU Information
CPU Speed	No changeable options	Reports the current CPU Speed
64-bit	No changeable options	Reports if 64-bit is supported by processor.
Active Processor Cores	- All - 1	Choose the number of cores to be enabled in current processor.
Limit CPUID Maximum	- Disabled - Enabled	Enables for legacy operating systems to boot processors with extended CPUID functions. Set disable for WinXP.
Intel Virtualization Technology	- Disabled - Enabled	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology (VT).



Socket 0 CPU Information screen

BIOS Setting	Options	Description/Purpose
CPU Signature	No changeable options	Reports the CPU Signature
Microcode Patch	No changeable options	Reports the CPU Microcode Patch Version.
Max CPU Speed	No changeable options	Reports the maximum CPU Speed.
Min CPU Speed	No changeable options	Reports the minimun CPU Speed
Processor Cores	No changeable options	Displays number of physical cores in processor.
Intel HT Technology	No changeable options	Reports if Intel Hyper-Threading Technology is supported by processor
Intel VT-x Technology	No changeable options	Reports if Intel VT-x Technology is supported by processor.
L1 Data Cache	No changeable options	Displays size of L1 Data Cache
L1 Code Cache	No changeable options	Displays size of L1 Code Cache
L2 Cache	No changeable options	Displays size of L2 Cache.
L3 Cache	No changeable options	Displays size of L3 Cache.

3-4-4-5. IDE Configuration

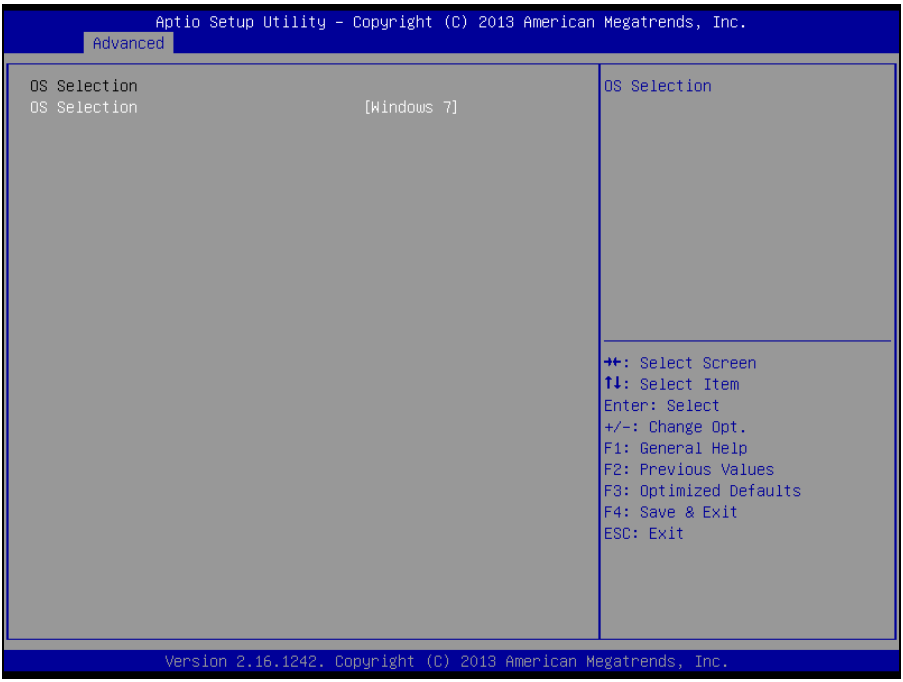


IDE Configuration screen

BIOS Setting	Options	Description/Purpose
Serial-ATA Controller(s)	- Disabled - Enabled	Enable or disable SATA Device.
SATA Test Mode	- Disabled - Enabled	Enable or disable SATA Test Mode.
SATA Speed Support	- GEN1 - GEN2	▪ **Gen1** mode sets the device to 1.5 Gbit/s speed. ▪ **Gen2** mode sets the device to 3 Gbit/s speed (in case it is compatible).
SATA Mode	- IDE mode - AHCI mode	Configures SATA as following: ▪ **IDE:** Set SATA operation mode to IDE mode. ▪ **AHCI:** SATA works as AHCI (Advanced Host Controller Interface) mode for getting better performance.

BIOS Setting	Options	Description/Purpose
SATA Port 0 (Note*1)	- Disabled - Enabled	Enable or disable SATA port 0 Device.
SATA Port 0 HotPlug	- Disabled - Enabled	Enable or disable SATA port 0 Device HotPlug
SATA Port 0	- [drive]	Displays the drive installed on this SATA port 0. Shows [Empty] if no drive is installed. If mother board support RAID that will show ASMT109x- Conf (0.1GB)

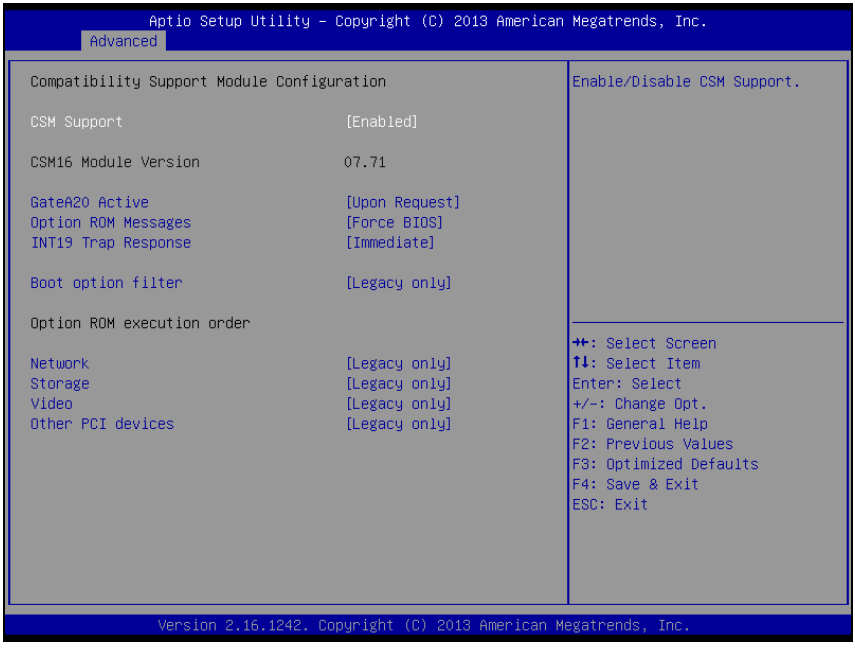
3-4-4-6. OS Selection



OS Selection screen

BIOS Setting	Options	Description/Purpose
OS Selection	- Windows 8.x - Windows7	Operation System Selection

3-4-4-8. CSM Configuration

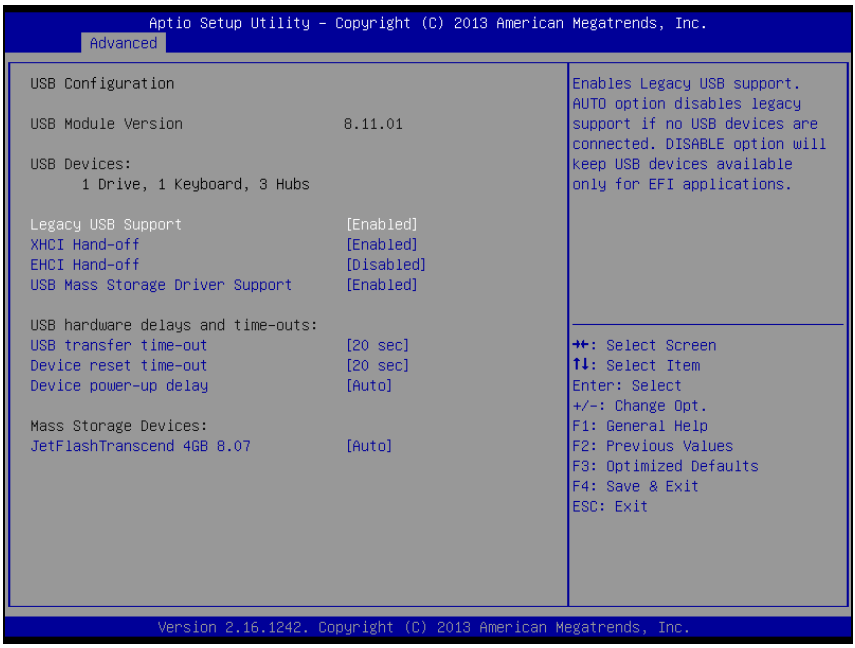


CSM Configuration screen

BIOS Setting	Options	Description/Purpose
CSM Support	- Disabled - Enabled	Disable or Enable CSM support
CSM16 Module Version	No changeable options	Displays the current CSM (Compatibility Support Module) version.
GateA20 Active	- Upon Request - Always	Select Gate A20 operation mode. ▪ **Upon Request:** GA20 can be disabled using BIOS services. ▪ **Always:** do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

BIOS Setting	Options	Description/Purpose
Option ROM Messages	- Force BIOS - Keep Current	Set display mode for Option ROM messages.
INT19 Trap Response	- Immediate - Postponed	BIOS reaction on INT19 trapping by Option ROM. ▪ **Immediate:** Execute the trap right away. ▪ **Postponed:** Execute the trap during legacy boot.
Boot option filter	- UEFI and Legacy - Legacy only - UEFI only	This option controls what kind of devices system can boot.
Network	- Do not launch - UEFI only - Legacy only - Legacy first - UEFI first	Controls the execution of UEFI or Legacy PXE
Storage	- Do not launch - UEFI only - Legacy only - Legacy first - UEFI first	Controls the execution of UEFI or Legacy Storage
Video	- Do not launch - UEFI only - Legacy only - Legacy first - UEFI first	Controls the execution of UEFI and Legacy Video.
Other PCI devices	- UEFI first - Legacy only	Select launch method for other PCI devices, such as NIC, mass storage or video card.

3-4-4-9. USB Configuration

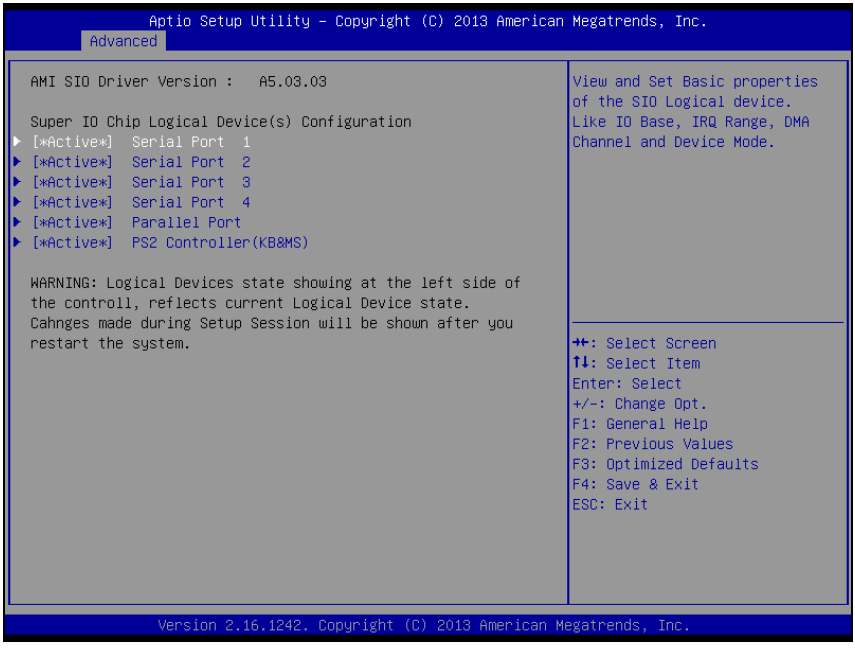


USB Configuration screen

BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays number of available USB devices.
Legacy USB Support	- Disabled - Enabled - Auto	Enables support for legacy USB.
USB3.0 Support	- Disabled - Enabled	Enable/Disable USB3.0 (XHCI) Controller support.
EHCI Hand-of	- Disabled - Enabled	This is a workaround for OSes w/o EHCI hand-off support.
USB Mass Storage Driver Support	- Disabled - Enabled	Enable/Disable USB mass storage driver support.

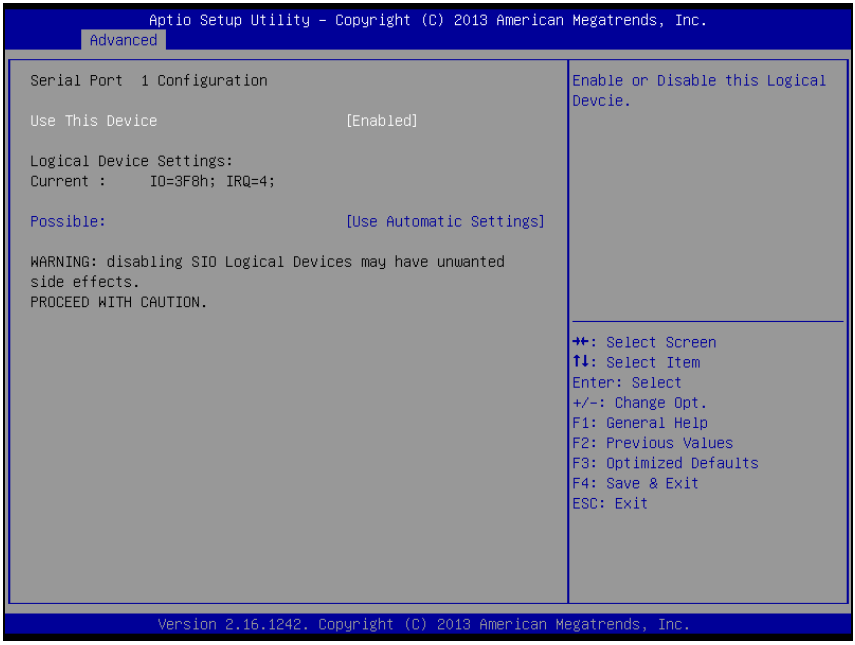
BIOS Setting	Options	Description/Purpose
USB transfer time-out	1 / 5 / 10 /20 sec	The time-out value for Control, Bulk, and Interrupt transfers.
Device reset time-out	10 / 20 / 30 / 40 sec	USB mass storage device Start Unit command time-out.
Device power-up delay	- Auto - Manual	Maximum time the device will take before it properly reports itself to the Host Controller. “Auto” uses default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
Device power-up delay in seconds	Multiple options ranging from 0 to 40	Delay range is 1..40 seconds, in one second increments
Mass Storage Devices:	- Auto - Floppy - Force FDD - Hard Disk - CD-ROM	Display the device name and choose the device emulation type.

3-4-4-10.Super IO Configuration



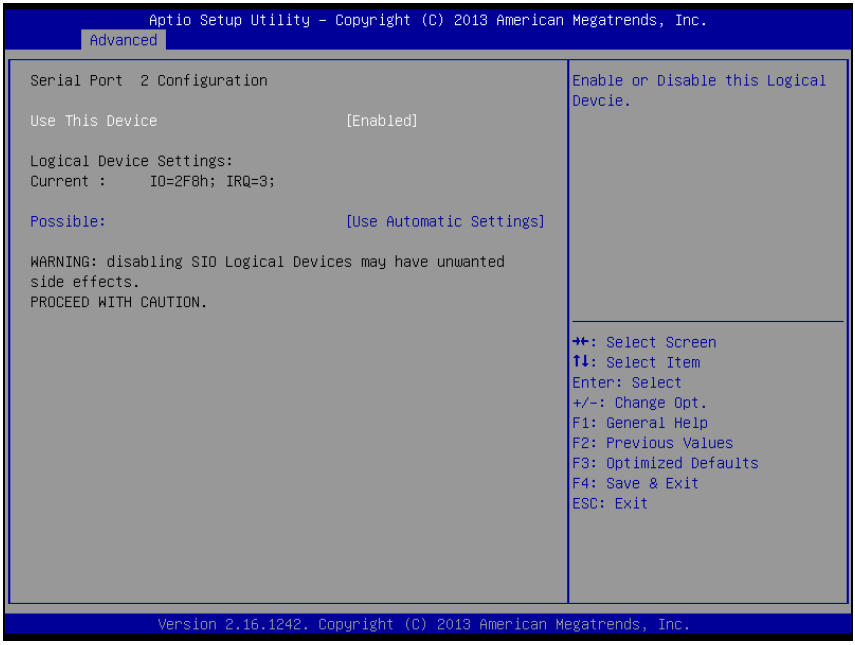
Super IO Configuration screen

BIOS Setting	Options	Description/Purpose
[*Active*] Serial Port 1	Sub-menu	Set Parameters for COM1
[*Active*] Serial Port 2	Sub-menu	Set Parameters for COM2
[*Active*] Serial Port 3	Sub-menu	Set Parameters for COM3
[*Active*] Serial Port 4	Sub-menu	Set Parameters for COM4
[*Active*] Parallel Port	Sub-menu	Set Parameters for LPT port.
[*Active*] PS2 Controller (KB&MS)	Sub-menu	Set Parameters for PS2.



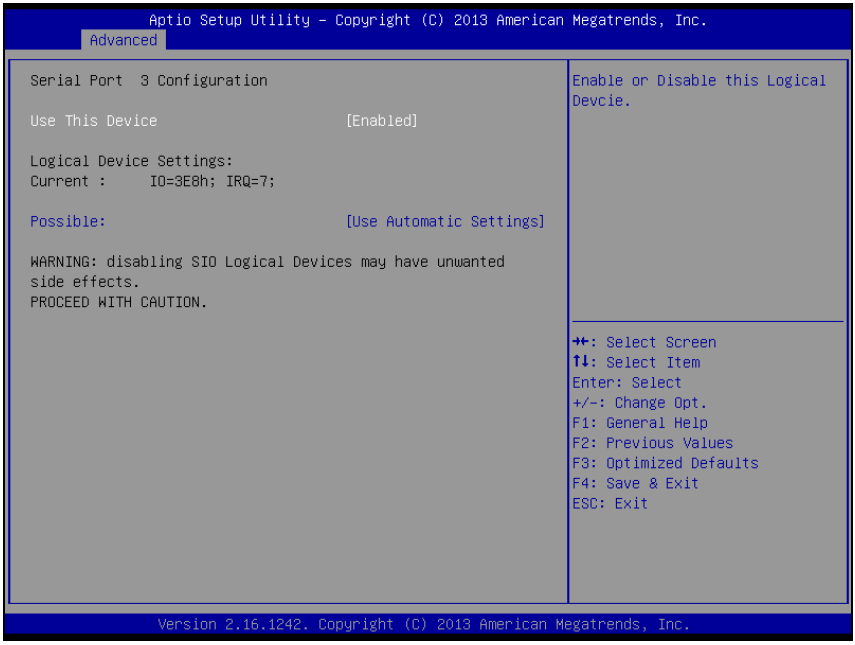
Serial Port 1 Configuration screen

BIOS Setting	Options	Description/ Purpose
Use This Device	- Disabled - Enabled	Enable or disable serial port 1.
Logical device setting	No changeable options	Displays current settings of serial port 2.
Possible:	- Use Automatic Settings - IO=3F8h; IRQ=4 DMA - IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA	Select IRQ and I/O resource for the serial port 1.



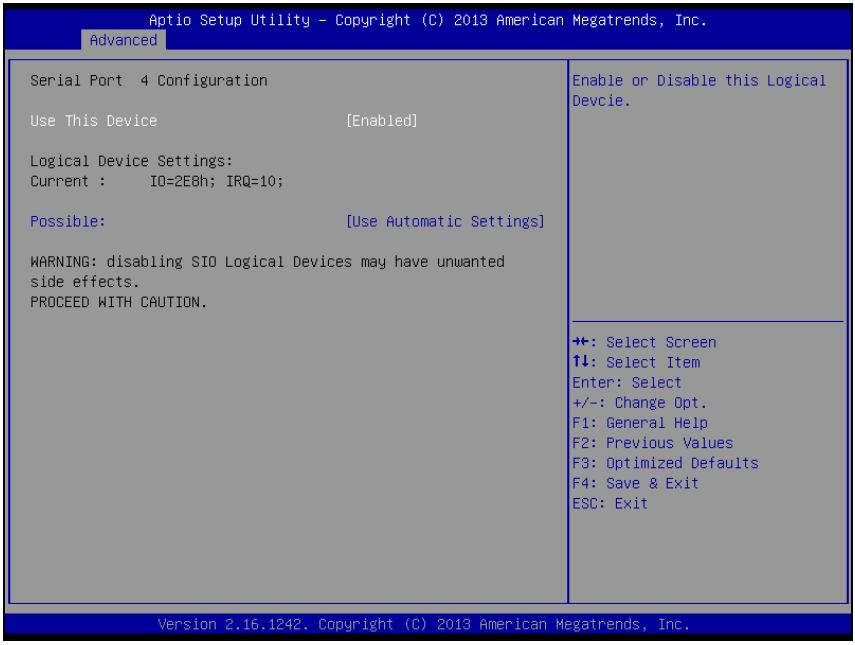
Serial Port 2 Configuration screen

BIOS Setting	Options	Description/ Purpose
Use This Device	-Disabled -Enabled	Enable or disable serial port 2.
Logical device setting	No changeable options	Displays current settings of serial port 2.
Possible:	-Use Automatic Settings -IO=2F8h; IRQ=3 DMA -IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=2E8h; IRQ=3,4,5,6,7,10,11,12 DMA	Select IRQ and I/O resource for the serial port 2



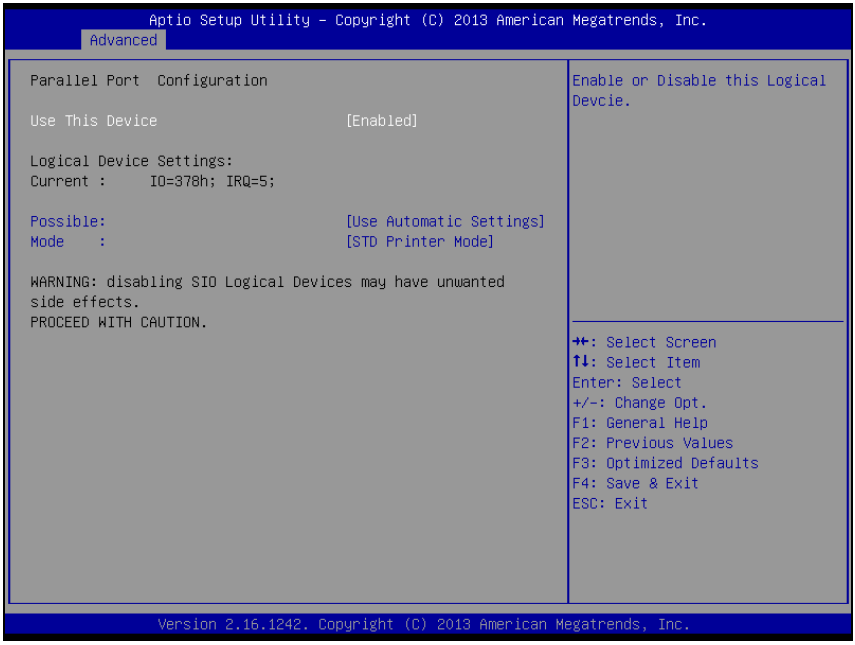
Serial Port 3 Configuration screen

BIOS Setting	Options	Description/ Purpose
Use This Device	- Disabled - Enabled	Enable or disable serial port 3.
Logical device setting Current	No changeable options	Displays current settings of serial port 3.
Possible:	- Use Automatic Settings - IO=3E8h; IRQ=7 DMA - IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12 DMA	Select IRQ and I/O resource for the serial port 3



Serial Port 4 Configuration screen

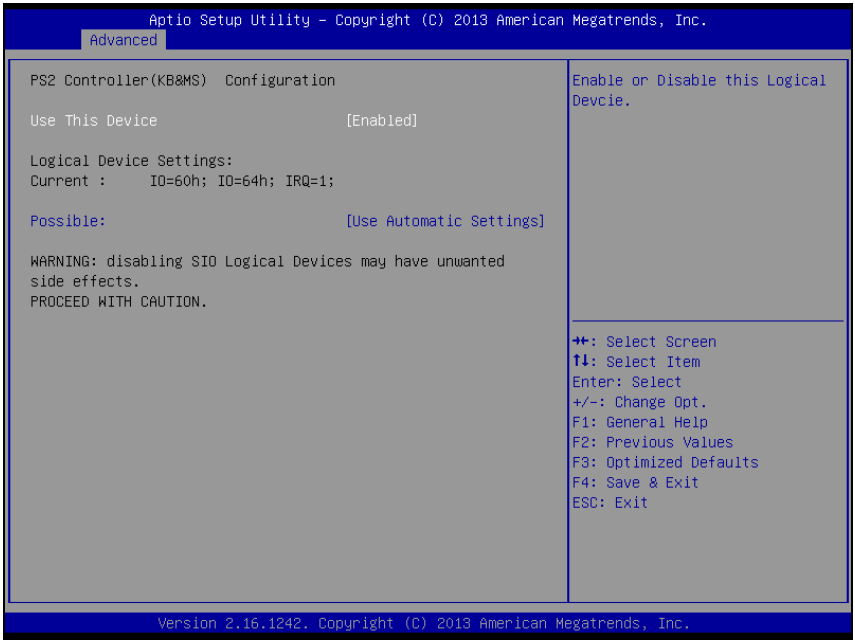
BIOS Setting	Options	Description/ Purpose
Use This Device	-Disabled -Enabled	Enable or disable serial port 4.
Logical device setting Current	No changeable options	Displays current settings of serial port 4.
Possible:	- Use Automatic Settings - IO=2E8h; IRQ=7 DMA - IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12 DMA - IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12 DMA	Select IRQ and I/O resource for the serial port 4



Parallel Port Configuration screen

BIOS Setting	Options	Description/Purpose
User This Device	- Disabled - Enabled	Enable or disable the printer port.
Logical device setting Current	No changeable options	Displays current settings of the printer port.
Possible:	- Use Automatic Settings -IO=378h; IRQ=5 -IO=378h; IRQ=5,6,7,9,10,11,12 -IO=278h; IRQ=5,6,7,9,10,11,12 -IO=3BCh; IRQ=5,6,7,9,10,11,12	Select IRQ and I/O resource for the printer port.

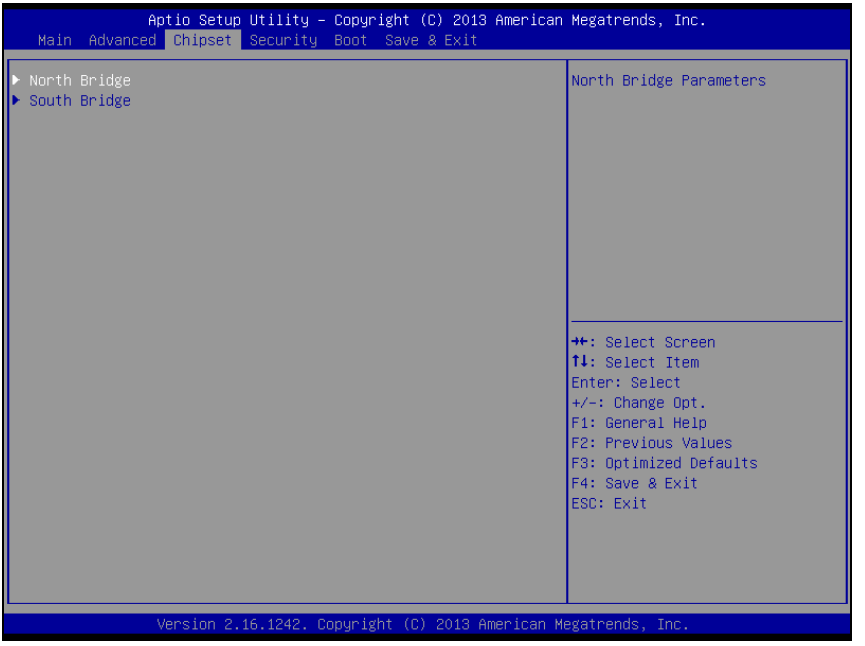
BIOS Setting	Options	Description/Purpose
Mode	- STD Printer Mode - SPP Mode - EPP-1.9 and SPP Mode - EPP-1.7 and SPP Mode - ECP Mode - ECP and EPP 1.9 Mode - ECP and EPP 1.7 Mode	Selects the mode for the parallel port. Not available if the parallel port is disabled. ▪ **SPP** is Standard Parallel Port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



PS2 Controller (KB & MS) Configuration screen

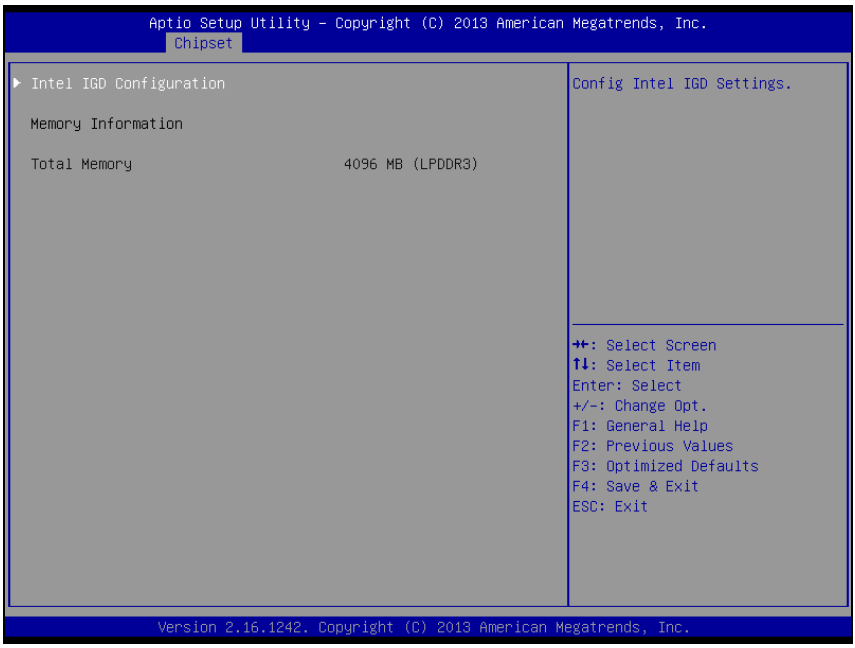
BIOS Setting	Options	Description/Purpose
Use This Device	-Disabled -Enabled	Enable or disable the PS2.
Logical device setting Current	No changeable options	Displays current settings of the printer port.
Possible:	- Use Automatic Settings -IO=60h; IO=60h; IRQ=1	Select IRQ and I/O resource for the printer port.

3-4-5. Chipset



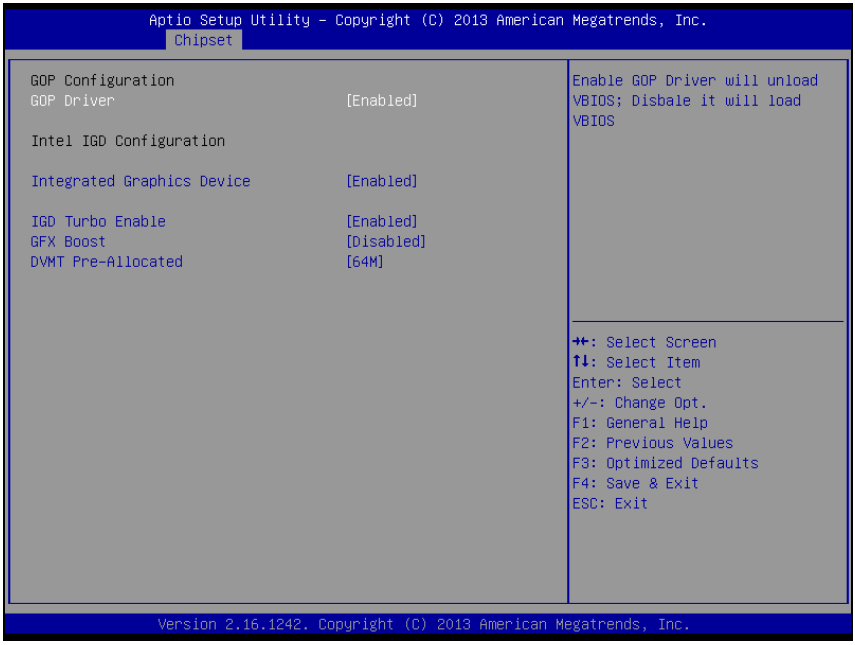
Chipset screen

BIOS Setting	Options	Description/Purpose
North Bridge	Sub-menu	Sets Parameter for (North Bridge) configuration.
South Bridge	Sub-menu	Sets Parameter for (South Bridge) configuration.



North Bridge screen

BIOS Setting	Options	Description/Purpose
Intel IGD Configuration	Sub-menu	Configure Graphic Settings.
Memory Information	No changeable options	Displays the DRAM information on platform.
Total Memory	No changeable options	Displays the DRAM size

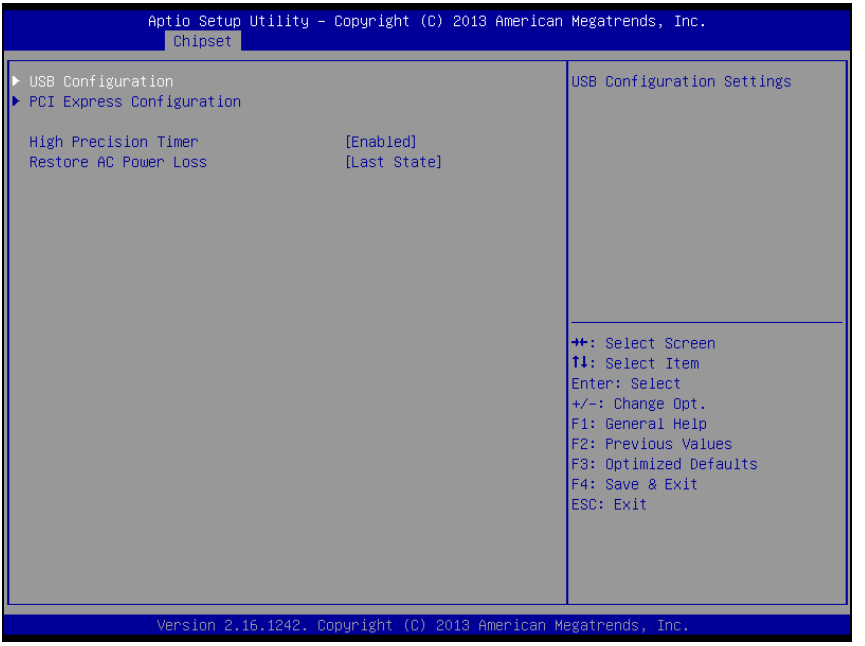


Intel IGD Configuration screen

BIOS Setting	Options	Description/Purpose
GOP Driver	- Disabled - Enabled	Enable or disable GOP Driver for UEFI OS
Intel IGD Configuration	No changeable options	Displays the IGD information on platform.
Integrated Graphics Device	- Disabled - Enabled	▪ **Enabled:** Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. ▪ **Disabled:** Always disable IGD"
IGD Turbo Enable	- Disabled - Enabled	Enable or disable IGD Turbo
GFX Boost	- Disabled - Enabled	Enable or disable GFX Boost accelerated graphics processing

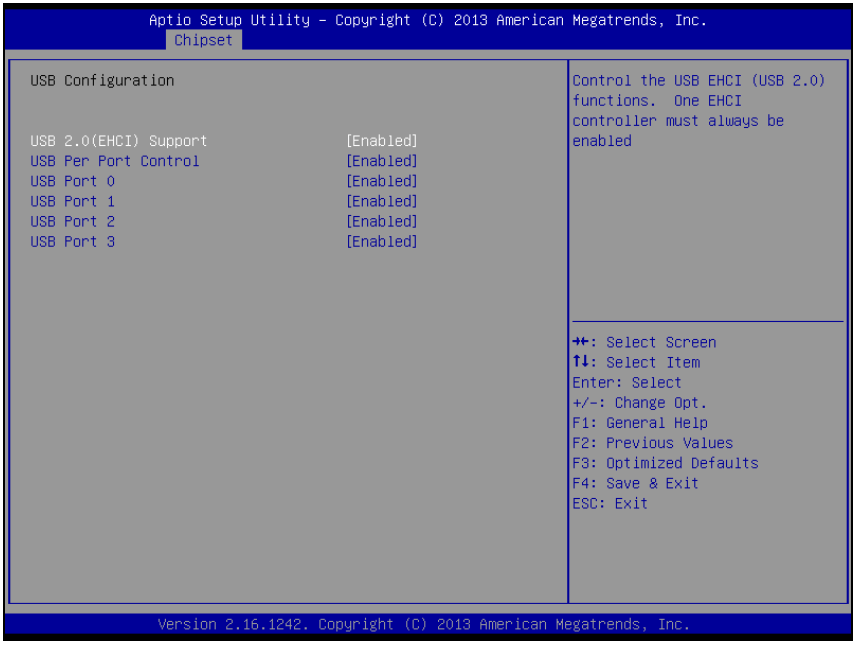
BIOS Setting	Options	Description/Purpose
DVMT Pre-Allocated	- 32M - 64M - 96M - 128M - 256M - 512M	Select DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size used by the Internal Graphics Device.

3-4-5-2. South Bridge



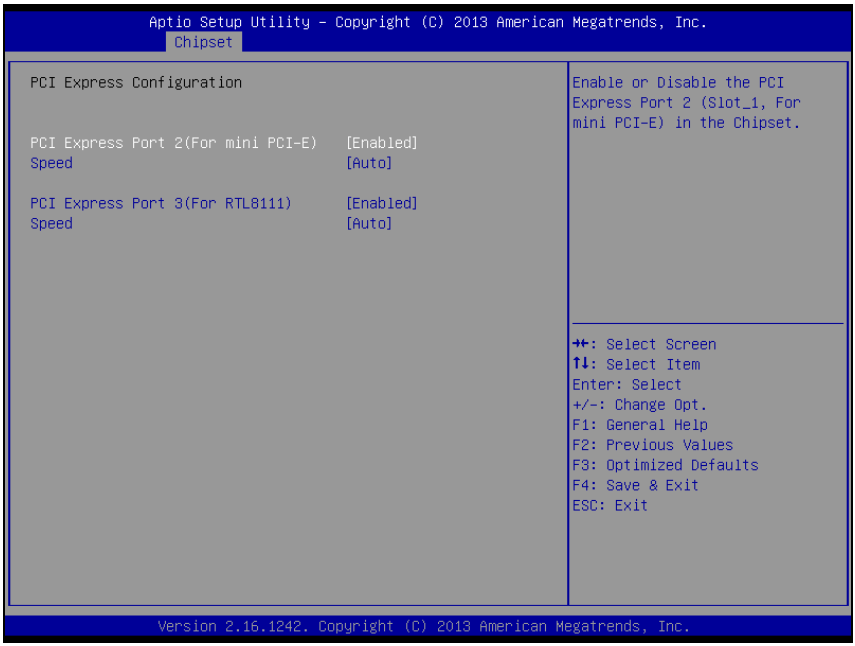
South Bridge screen

BIOS Setting	Options	Description/Purpose
USB Configuration	Sub-menu	Configure USB parameters.
PCI Express Configuration	Sub-menu	Configure PCH PCIE parameters
High Precision Timer	- Disabled - Enabled	Enable or disable the HPET (High Precision Event Timer)
Restore AC Power Loss	- Power Off - Power On - Last State	Select AC power state when power is re-applied after a power failure. ▪ **Power Off** keeps power off till the power button is pressed. ▪ **Power On** makes system power on after system restores AC power to the board. ▪ **Last State** brings system back to the last power state before AC remove.



USB Configuration screen

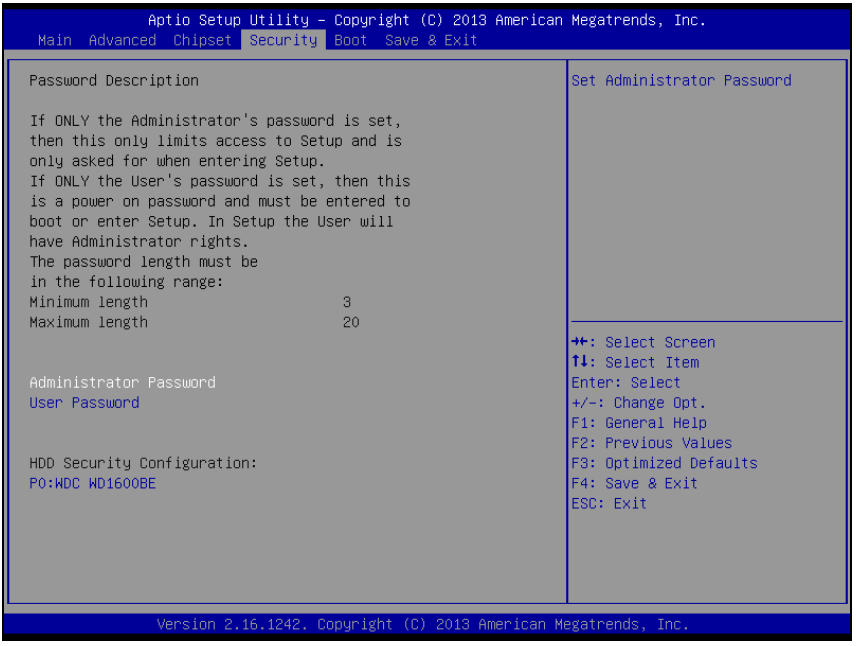
BIOS Setting	Options	Description/Purpose
USB 2.0 (EHCI) Support	- Disabled - Enabled	(XHCI Mode need set disabled.) Enables Enhanced Host Controller Interface 1 for high-speed USB functions (USB 2.0).
USB Per Port Control	- Disabled - Enabled	Enabled or Disabled per USB port
USB Port 0	- Disabled - Enabled	Enabled or Disabled USB port 0
USB Port 1	- Disabled - Enabled	Enabled or Disabled USB port 1
USB Port 2	- Disabled - Enabled	Enabled or Disabled USB port 2
USB Port 3	- Disabled - Enabled	Enabled or Disabled USB port 3



PCI Express Configuration screen

BIOS Setting	Options	Description/Purpose
PCI Express Port 2(For mini PCI-E)	- Disabled - Enabled	Enabled or Disabled PCI Express port 2
speed	- Auto - Gen1 - Gen2	Selection PCI Express port 2 Speed
PCI Express Port 3(For RTL8111)	- Disabled - Enabled	Enabled or Disabled PCI Express port 3
speed	- Auto - Gen1 - Gen2	Selection PCI Express port 3 Speed

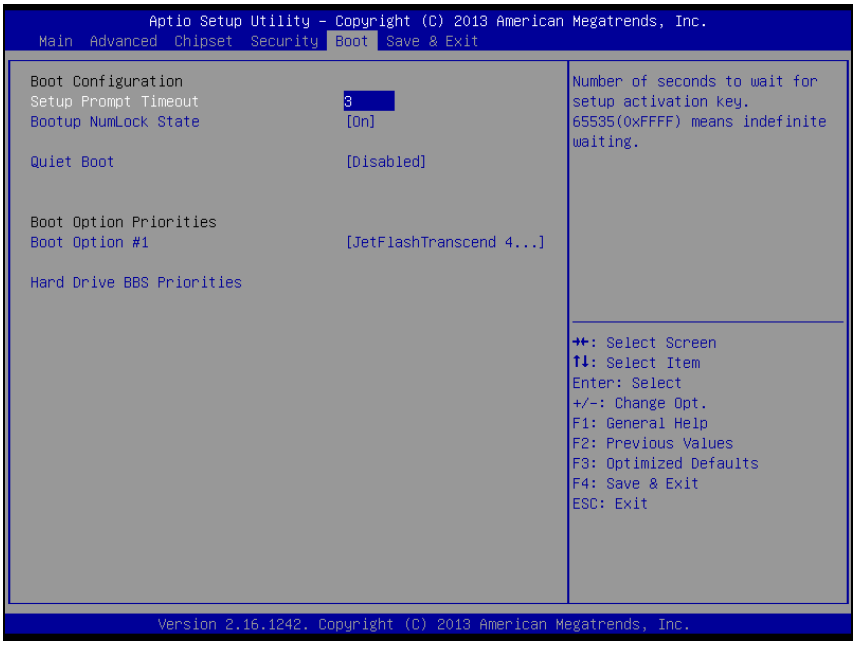
3-4-6. Security



Security screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.
HDD Security Configuration:	Sub-menu	Set HDD password.

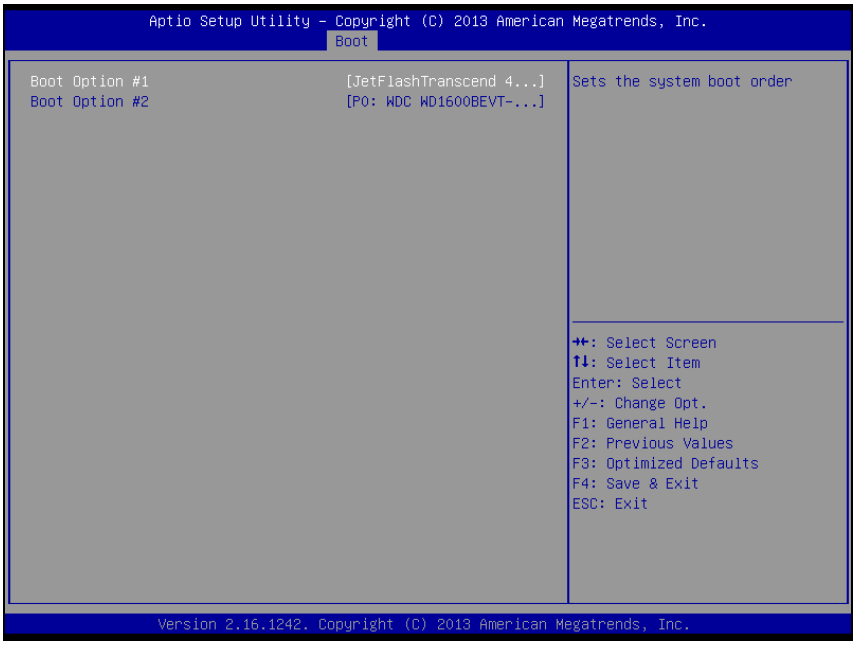
3-4-7. Boot



Boot screen

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

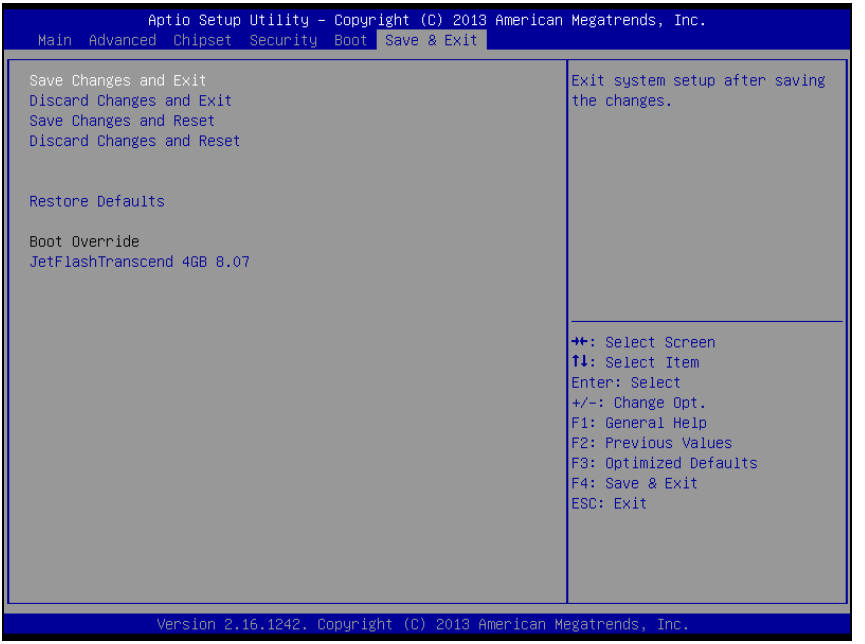
3-4-7-1. Hard Drive BBS Priorities



Hard drive BBS priorities screen

BIOS Setting	Options	Description/Purpose
Boot Option #1 - #n	- [Drive(s)] - Disabled	Change the boot order of available drive(s).

3-4-8. Save & Exit



Save & Exit screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits and saves the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in NVRAM and resets.
Discard Changes and Reset	No changeable options	Resets without saving any changes made in BIOS settings.
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Boot Override	- [Drive(s)]	Forces to boot from selected [drive(s)].

3-5. WATCHDOG TIMER CONFIGURATION

The I/O port address of the watchdog timer is 2E (hex) and 2F (hex). 2E (hex) is the address port. 2F (hex) is the data port. User must first assign the address of register by writing address value into address port 2E (hex), then write/read data to/from the assigned register through data port 2F (hex).

3-5-1. Configuration Sequence

To program F81866 configuration registers, the following configuration sequence must be followed:

1. Enter the extended function mode

To place the chip into the Extended Function Mode, two successive writes of 0x87 must be applied to Extended Function Enable Registers (EFERs, i.e. 2Eh or 4Eh).

2. Configure the configuration registers

The chip selects the Logical Device and activates the desired Logical Devices through Extended Function Index Register (EFIR) and Extended Function Data Register (EFDR). The EFIR is located at the same address as the EFER, and the EFDR is located at address (EFIR+1). First, write the Logical Device Number (i.e. 0x07) to the EFIR and then write the number of the desired Logical Device to the EFDR. If accessing the Chip (Global) Control Registers, this step is not required. Secondly, write the address of the desired configuration register within the Logical Device to the EFIR and then write (or read) the desired configuration register through the EFDR.

3. Exit the extended function mode

To exit the Extended Function Mode, writing 0xAA to the EFER is required. Once the chip exits the Extended Function Mode, it is in the normal running mode and is ready to enter the configuration mode.

3-5-2. Code Example for Watchdog Timer

Enable watchdog timer and set the timeout interval as 30 seconds.

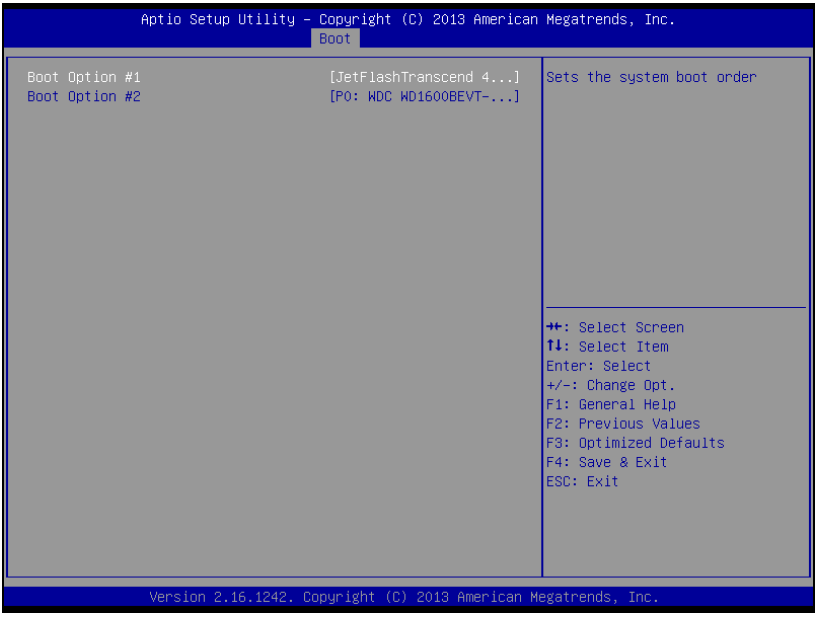
```
;------ Enter to extended function mode ------------------------------------------------------
mov     dx,     2eh
mov     al,     87h
out     dx,     al
out     dx,     al
;------ Select Logical Device 7 of watchdog timer --------------------------------------------
mov     al,     07h
out     dx,     al
inc     dx
mov     al,     07h
out     dx,     al
;------ Enable Watch dog feature -------------------------------------------
mov     al,     030h
out     dx,     al
inc     dx
mov     al,     01h
out     dx,     al
;------ Enable Watch PME----------------------------------------
dec     dx
mov     al,     0FAh
out     dx,     al
inc     dx
in      al,     dx
and     al,     51h
out     dx,     al
;------ Set second as counting unit ----------------------------------------------------------
dec     dx
mov     al,     0f5h
out     dx,     al
inc     dx
```

```
in      al,     dx
and     al,     30h
out     dx,     al
;------ Set timeout interval as 30seconds and start counting ----------------------------------
dec     dx
mov     al,     0f6h
out     dx,     al
inc     dx
mov     al,     1Eh
out     dx,     al
;------ Exit the extended function mode ---------------------------------------------------------
dec     dx
mov     al,     0aah
out     dx,     al
```

3-6. BIOS UPDATE INSTRUCTIONS

3-6-1. Before System BIOS UPDATE

1. Prepare a bootable media (e.g. USB storage device) which can boot system to DOS prompt.
2. Download and save the BIOS file (e.g. 62250PD2.bin) to the bootable device.
3. Copy AMI flash utility – AFUDOS.exe (V3.03) into the bootable device
4. Make sure the target system can first boot to the bootable device.
   a. Connect the bootable USB device.
   b. Turn on the computer and press <Del> or <Esc> key during boot to enter BIOS setup menu.
   c. System will go into the BIOS setup menu.
   d. Select [Boot] menu as the picture shows below.
   e. Select [Hard Drive BBS Priorities], set the USB bootable device as the 1st boot device.
   f. Press <F4> key to save configuration and exit the BIOS setup menu.



3-6-2. AFUDOS Command for System BIOS Update

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

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

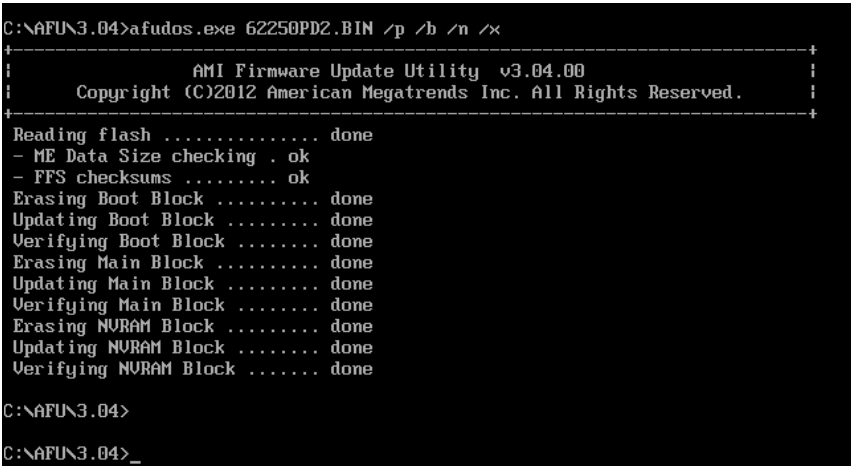
You can type AFUDOS /? to see all the definition of each control options. The recommended options for BIOS ROM update consist of following parameters:

/P: program main BIOS image
/B: program Boot Block
/N: program NVRAM
/X: don't check ROM ID

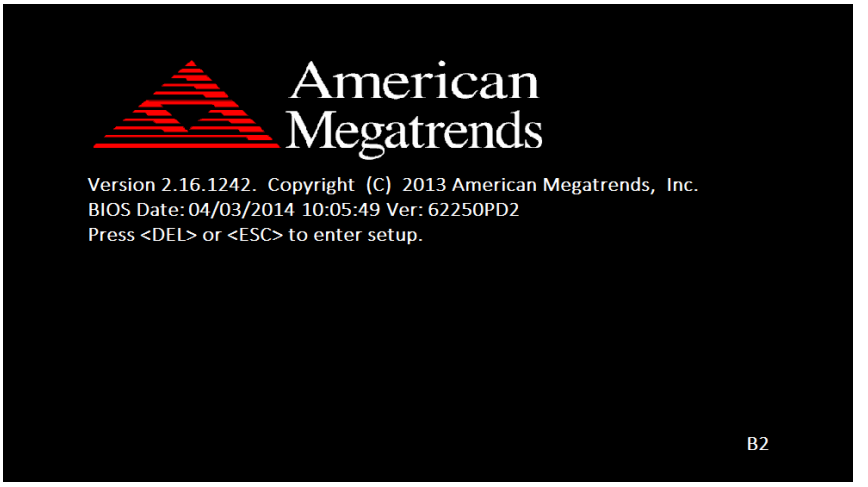
3-6-3. BIOS Update Procedure

1. Use the bootable USB device to boot up system into the MS-DOS command prompt
2. Type in AFUDOS 6225xxxx.bin /p /b /n /x and press enter to start the flash procedure

   Note: xxxx means the BIOS revision part, ex. 0PD2…
3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off or reset your computer before the update is complete, or it may crash the BIOS ROM and make the system unable to boot up next time. The whole update process may take up to 3 minutes.
4. After the BIOS update is complete, the messages from AFUDOS utility should be like the figure shown below.



5. You can restart the system and boot up with new BIOS now
6. Update is complete after restart
7. Verify during the following boot that BIOS version displayed at the initialization screen has changed.


American
Megatrends
Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
BIOS Date: 04/03/2014 10:05:49 Ver: 62250PD2
Press <DEL> or <ESC> to enter setup.
B2

3-7. SYSTEM RESOURCE MAP

PB-6822RC

Interrupt Map

IRQ	ASSIGNMENT
IRQ 1	Standard PS/2 Keyboard
IRQ 19	Standard AHCI 1.0 Serial ATA Controller
IRQ 19	PCI standard PCI-to-PCI bridge
IRQ 0	System timer
IRQ 8	High precision event timer
IRQ 4294967294	Intel(R) Celeron(R) Processor J1900
IRQ 4	Communications Port (COM1)
IRQ 3	Communications Port (COM2)
IRQ 7	Communications Port (COM3)
IRQ 10	Ethernet Controller
IRQ 10	Communications Port (COM4)
IRQ 23	Standard Enhanced PCI to USB Host Controller
IRQ 16	PCI standard PCI-to-PCI bridge
IRQ 22	High Definition Audio Controller
IRQ 17	PCI standard PCI-to-PCI bridge
IRQ 81	Microsoft ACPI-Compliant System
IRQ 82	Microsoft ACPI-Compliant System
IRQ 83	Microsoft ACPI-Compliant System
IRQ 84	Microsoft ACPI-Compliant System
IRQ 85	Microsoft ACPI-Compliant System
IRQ 86	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
IRQ 87	Microsoft ACPI-Compliant System
IRQ 88	Microsoft ACPI-Compliant System
IRQ 89	Microsoft ACPI-Compliant System
IRQ 90	Microsoft ACPI-Compliant System
IRQ 91	Microsoft ACPI-Compliant System
IRQ 92	Microsoft ACPI-Compliant System
IRQ 93	Microsoft ACPI-Compliant System
IRQ 94	Microsoft ACPI-Compliant System
IRQ 95	Microsoft ACPI-Compliant System
IRQ 96	Microsoft ACPI-Compliant System
IRQ 97	Microsoft ACPI-Compliant System
IRQ 98	Microsoft ACPI-Compliant System
IRQ 99	Microsoft ACPI-Compliant System
IRQ 100	Microsoft ACPI-Compliant System
IRQ 101	Microsoft ACPI-Compliant System
IRQ 102	Microsoft ACPI-Compliant System
IRQ 103	Microsoft ACPI-Compliant System
IRQ 104	Microsoft ACPI-Compliant System
IRQ 105	Microsoft ACPI-Compliant System
IRQ 106	Microsoft ACPI-Compliant System
IRQ 107	Microsoft ACPI-Compliant System
IRQ 108	Microsoft ACPI-Compliant System
IRQ 109	Microsoft ACPI-Compliant System
IRQ 110	Microsoft ACPI-Compliant System
IRQ 111	Microsoft ACPI-Compliant System
IRQ 112	Microsoft ACPI-Compliant System
IRQ 113	Microsoft ACPI-Compliant System
IRQ 114	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
IRQ 115	Microsoft ACPI-Compliant System
IRQ 116	Microsoft ACPI-Compliant System
IRQ 117	Microsoft ACPI-Compliant System
IRQ 118	Microsoft ACPI-Compliant System
IRQ 119	Microsoft ACPI-Compliant System
IRQ 120	Microsoft ACPI-Compliant System
IRQ 121	Microsoft ACPI-Compliant System
IRQ 122	Microsoft ACPI-Compliant System
IRQ 123	Microsoft ACPI-Compliant System
IRQ 124	Microsoft ACPI-Compliant System
IRQ 125	Microsoft ACPI-Compliant System
IRQ 126	Microsoft ACPI-Compliant System
IRQ 127	Microsoft ACPI-Compliant System
IRQ 128	Microsoft ACPI-Compliant System
IRQ 129	Microsoft ACPI-Compliant System
IRQ 130	Microsoft ACPI-Compliant System
IRQ 131	Microsoft ACPI-Compliant System
IRQ 132	Microsoft ACPI-Compliant System
IRQ 133	Microsoft ACPI-Compliant System
IRQ 134	Microsoft ACPI-Compliant System
IRQ 135	Microsoft ACPI-Compliant System
IRQ 136	Microsoft ACPI-Compliant System
IRQ 137	Microsoft ACPI-Compliant System
IRQ 138	Microsoft ACPI-Compliant System
IRQ 139	Microsoft ACPI-Compliant System
IRQ 140	Microsoft ACPI-Compliant System
IRQ 141	Microsoft ACPI-Compliant System
IRQ 142	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
IRQ 143	Microsoft ACPI-Compliant System
IRQ 144	Microsoft ACPI-Compliant System
IRQ 145	Microsoft ACPI-Compliant System
IRQ 146	Microsoft ACPI-Compliant System
IRQ 147	Microsoft ACPI-Compliant System
IRQ 148	Microsoft ACPI-Compliant System
IRQ 149	Microsoft ACPI-Compliant System
IRQ 150	Microsoft ACPI-Compliant System
IRQ 151	Microsoft ACPI-Compliant System
IRQ 152	Microsoft ACPI-Compliant System
IRQ 153	Microsoft ACPI-Compliant System
IRQ 154	Microsoft ACPI-Compliant System
IRQ 155	Microsoft ACPI-Compliant System
IRQ 156	Microsoft ACPI-Compliant System
IRQ 157	Microsoft ACPI-Compliant System
IRQ 158	Microsoft ACPI-Compliant System
IRQ 159	Microsoft ACPI-Compliant System
IRQ 160	Microsoft ACPI-Compliant System
IRQ 161	Microsoft ACPI-Compliant System
IRQ 162	Microsoft ACPI-Compliant System
IRQ 163	Microsoft ACPI-Compliant System
IRQ 164	Microsoft ACPI-Compliant System
IRQ 165	Microsoft ACPI-Compliant System
IRQ 166	Microsoft ACPI-Compliant System
IRQ 167	Microsoft ACPI-Compliant System
IRQ 168	Microsoft ACPI-Compliant System
IRQ 169	Microsoft ACPI-Compliant System
IRQ 170	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
IRQ 171	Microsoft ACPI-Compliant System
IRQ 172	Microsoft ACPI-Compliant System
IRQ 173	Microsoft ACPI-Compliant System
IRQ 174	Microsoft ACPI-Compliant System
IRQ 175	Microsoft ACPI-Compliant System
IRQ 176	Microsoft ACPI-Compliant System
IRQ 177	Microsoft ACPI-Compliant System
IRQ 178	Microsoft ACPI-Compliant System
IRQ 179	Microsoft ACPI-Compliant System
IRQ 180	Microsoft ACPI-Compliant System
IRQ 181	Microsoft ACPI-Compliant System
IRQ 182	Microsoft ACPI-Compliant System
IRQ 183	Microsoft ACPI-Compliant System
IRQ 184	Microsoft ACPI-Compliant System
IRQ 185	Microsoft ACPI-Compliant System
IRQ 186	Microsoft ACPI-Compliant System
IRQ 187	Microsoft ACPI-Compliant System
IRQ 188	Microsoft ACPI-Compliant System
IRQ 189	Microsoft ACPI-Compliant System
IRQ 190	Microsoft ACPI-Compliant System
IRQ 11	SM Bus Controller
IRQ 18	PCI standard PCI-to-PCI bridge

DMA Channels Map

Channel 3 Printer Port (LPT1)

I/O Map

I/O MAP	ASSIGNMENT
0x00000060-0x00000060	Standard PS/2 Keyboard
0x00000064-0x00000064	Standard PS/2 Keyboard
0x00000020-0x00000021	Programmable interrupt controller
0x00000024-0x00000025	Programmable interrupt controller
0x00000028-0x00000029	Programmable interrupt controller
0x0000002C-0x0000002D	Programmable interrupt controller
0x00000030-0x00000031	Programmable interrupt controller
0x00000034-0x00000035	Programmable interrupt controller
0x00000038-0x00000039	Programmable interrupt controller
0x0000003C-0x0000003D	Programmable interrupt controller
0x000000A0-0x000000A1	Programmable interrupt controller
0x000000A4-0x000000A5	Programmable interrupt controller
0x000000A8-0x000000A9	Programmable interrupt controller
0x000000AC-0x000000AD	Programmable interrupt controller
0x000000B0-0x000000B1	Programmable interrupt controller
0x000000B4-0x000000B5	Programmable interrupt controller
0x000000B8-0x000000B9	Programmable interrupt controller
0x000000BC-0x000000BD	Programmable interrupt controller
0x000004D0-0x000004D1	Programmable interrupt controller
0x0000F070-0x0000F077	Standard AHCI 1.0 Serial ATA Controller
0x0000F060-0x0000F063	Standard AHCI 1.0 Serial ATA Controller
0x0000F050-0x0000F057	Standard AHCI 1.0 Serial ATA Controller
0x0000F040-0x0000F043	Standard AHCI 1.0 Serial ATA Controller
0x0000F020-0x0000F03F	Standard AHCI 1.0 Serial ATA Controller
0x00000040-0x00000043	System timer
0x00000050-0x00000053	System timer
0x0000F080-0x0000F087	Intel(R) Celeron(R) Processor J1900
0x000003B0-0x000003BB	Intel(R) Celeron(R) Processor J1900
0x000003C0-0x000003DF	Intel(R) Celeron(R) Processor J1900

I/O MAP	ASSIGNMENT
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003F8-0x000003FF	Communications Port (COM1)
0x000002F8-0x000002FF	Communications Port (COM2)
0x000003E8-0x000003EF	Communications Port (COM3)
0x0000E000-0x0000E0FF	Ethernet Controller
0x0000E000-0x0000E0FF	PCI standard PCI-to-PCI bridge
0x000002E8-0x000002EF	Communications Port (COM4)
0x00000000-0x0000006F	PCI bus
0x00000078-0x00000CF7	PCI bus
0x00000D00-0x0000FFFF	PCI bus
0x00000070-0x00000077	System CMOS/real time clock
0x00000070-0x00000077	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A10-0x00000A1F	Motherboard resources
0x00000A20-0x00000A2F	Motherboard resources
0x0000002E-0x0000002F	Motherboard resources
0x0000004E-0x0000004F	Motherboard resources
0x00000061-0x00000061	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000065-0x00000065	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000080-0x0000008F	Motherboard resources
0x00000092-0x00000092	Motherboard resources
0x000000B2-0x000000B3	Motherboard resources
0x00000680-0x0000069F	Motherboard resources
0x00000400-0x0000047F	Motherboard resources
0x00000500-0x000005FE	Motherboard resources
0x00000600-0x0000061F	Motherboard resources
0x0000F000-0x0000F01F	SM Bus Controller

I/O MAP	ASSIGNMENT
0x0000E000-0x0000E0FF	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series PCI Express - Root Port 4 - 0F4E
0x0000F000-0x0000F01F	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series Platform Control Unit - SMBus Port - 0F12
0x0000F020-0x0000F03F	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
0x0000F040-0x0000F043	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
0x0000F050-0x0000F057	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
0x0000F060-0x0000F063	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
0x0000F070-0x0000F077	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
0x0000F080-0x0000F087	Intel® HD Graphics

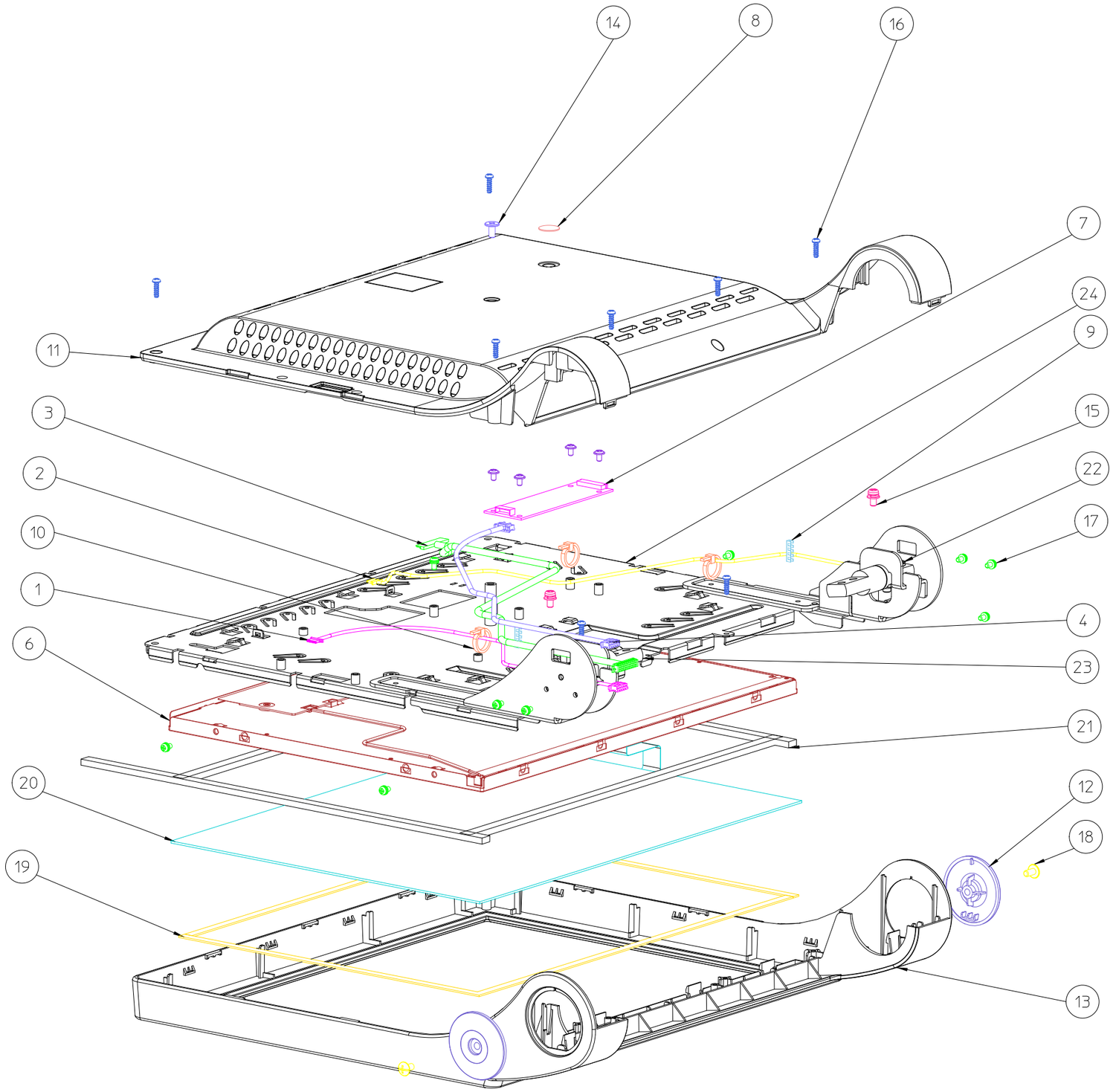
Memory Map

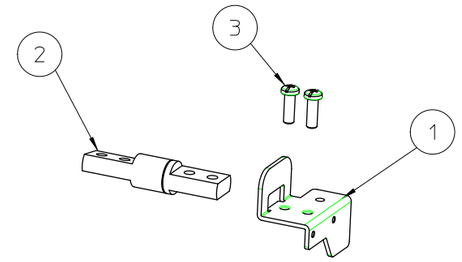
MEMORY MAP	ASSIGNMENT
0xFF000000-0xFFFFFFFF	Intel(R) 82802 Firmware Hub Device
0xD0706000-0xD07067FF	Standard AHCI 1.0 Serial ATA Controller
0xFED00000-0xFED003FF	High precision event timer
0xD0000000-0xD03FFFFF	Intel(R) Celeron(R) Processor J1900
0xC0000000-0xCFFFFFFF	Intel(R) Celeron(R) Processor J1900
0xC0000000-0xCFFFFFFF	PCI bus
0xA0000-0xBFFFF	Intel(R) Celeron(R) Processor J1900
0xA0000-0xBFFFF	PCI bus
0xD0604000-0xD0604FFF	Ethernet Controller
0xD0600000-0xD0603FFF	Ethernet Controller
0xD0600000-0xD0603FFF	PCI standard PCI-to-PCI bridge
0xD0705000-0xD07053FF	Standard Enhanced PCI to USB Host Controller
0xC0000-0xDFFFF	PCI bus
0xE0000-0xFFFFF	PCI bus
0xE0000000-0xEFFFFFFF	Motherboard resources
0xFED01000-0xFED01FFF	Motherboard resources
0xFED03000-0xFED03FFF	Motherboard resources
0xFED04000-0xFED04FFF	Motherboard resources
0xFED0C000-0xFED0FFFF	Motherboard resources
0xFED08000-0xFED08FFF	Motherboard resources
0xFED1C000-0xFED1CFFF	Motherboard resources
0xFEE00000-0xFEEFFFFF	Motherboard resources
0xFEF00000-0xFEFFFFFF	Motherboard resources
0xD0700000-0xD0703FFF	High Definition Audio Controller
0xD0704000-0xD070401F	SM Bus Controller
0xD0500000-0xD05FFFFF	PCI Encryption/Decryption Controller
0xD0400000-0xD04FFFFF	PCI Encryption/Decryption Controller

SYSTEM DIAGRAMS

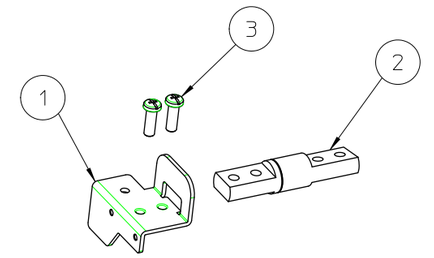
CHAPTER
4

This appendix contains exploded diagrams and part numbers of the PA- 3055 system. Sections included:





NO.	COMPONENT NAME	PART NO.	Q'TY	REMARK
1	HINGE BRACKET L	20-006-03002181	1	
2	HINGE L	20-012-29001314	1	
3	SCREW	22-232-50015011	2	Torque: 11~12 Kgf-cm

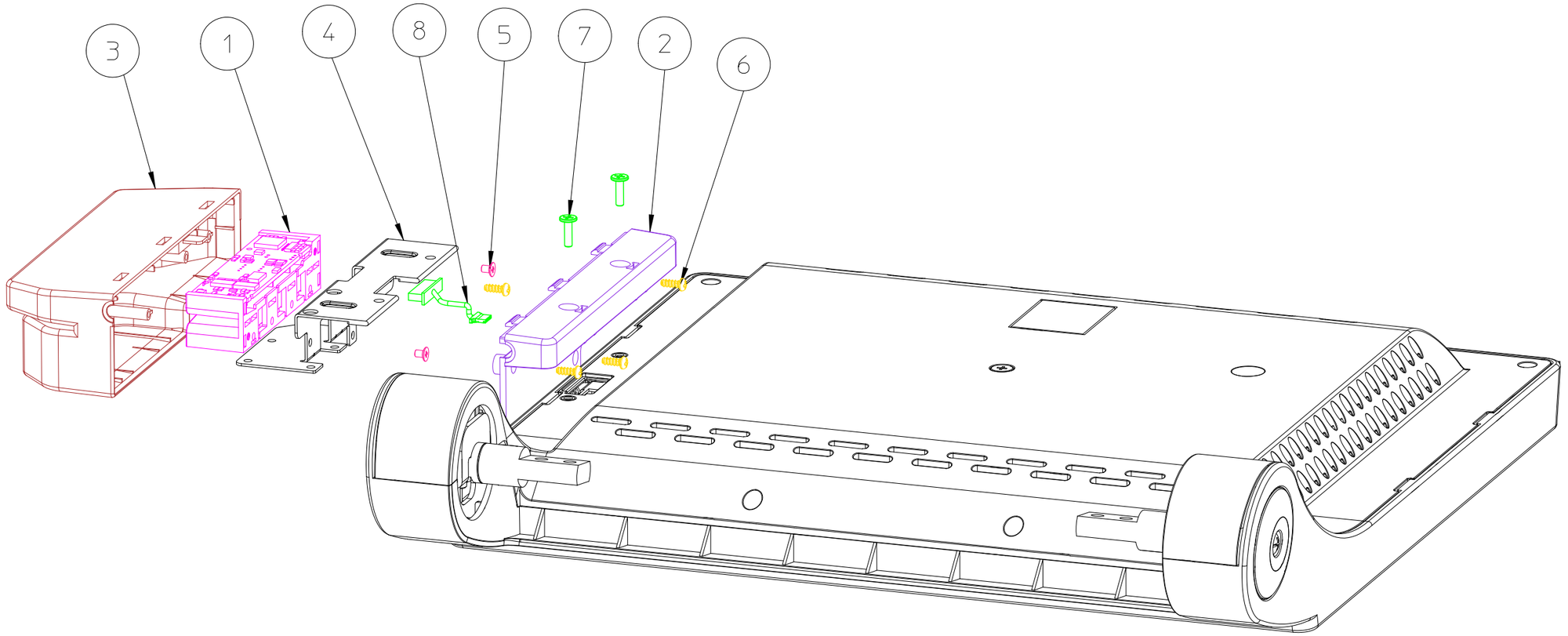


NO.	COMPONENT NAME	PART NO.	Q'TY	REMARK
1	HINGE BRACKET R	20-006-03001181	1	
2	HINGE R	20-012-29002314	1	
3	SCREW	22-232-50015011	2	Torque: 11~12 Kgf-cm

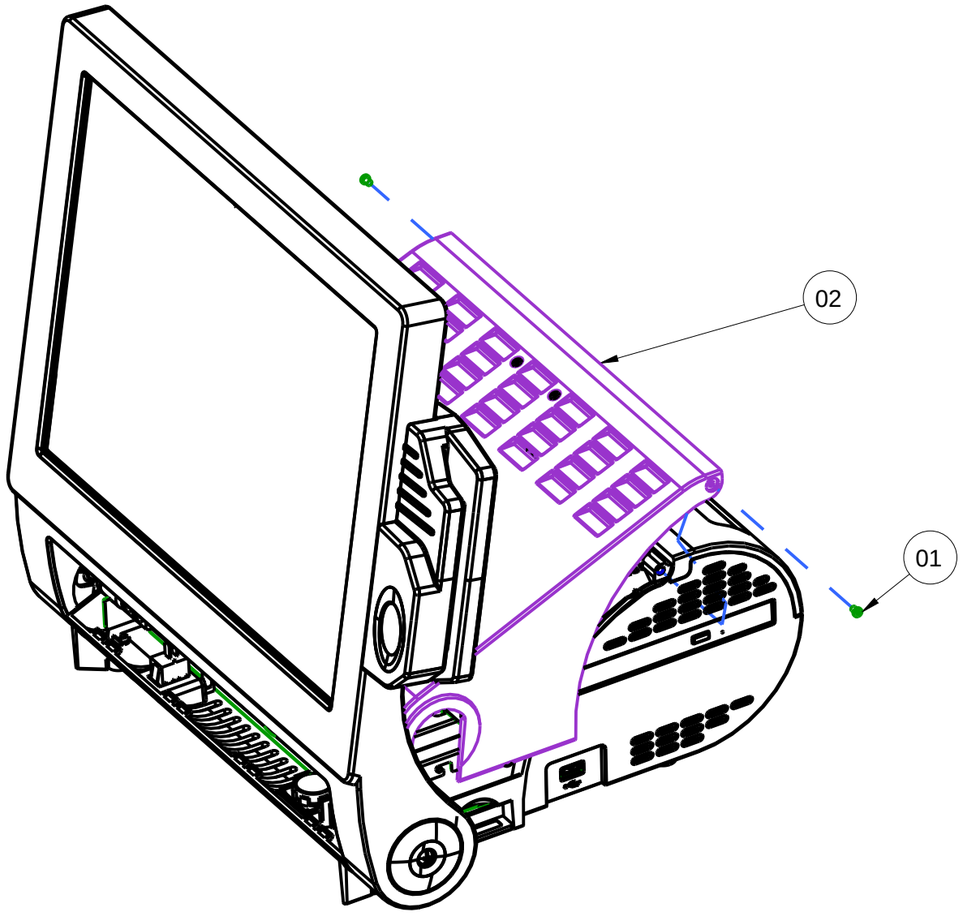
NO.	COMPONENT NAME	PART NO.	Q'TY	REMARK
1	MSR CABLE	27-014-36409111	1	
2	PANEL LED CABLE	27-069-36413111	1	
3	LVDS CABLE	27-020-36413111	1	
4	USB TOUCH CABLE	27-016-36412111	1	
5	SCREW	22-242-30005311	4	Torque: 4.5~5.5 Kgf-cm
6	LCD PANEL	52-351-03150728	1	
7	TOUCH CONTROL BOARD	52-370-01055800	1	
8	MYLAR FOR ADJUSTOR	90-056-43100181	1	
9	MOVEABLE BUSHING	30-018-04100005	2	
10	CABLE TIE	30-015-04100044	3	
11	15 IN BACK PANEL	30-003-12110208	1	
12	HINGE SIDE COVER	30-002-12111181	2	
13	15 IN FRONT PANEL	30-003-12110181	1	
14	SCREW	22-272-40008011	1	Torque: 8.5~9.5 Kgf-cm
15	SCREW	22-232-40008211	2	Torque: 8.5~9.5 Kgf-cm
16	SCREW	22-122-30012061	8	Torque: 3.5~4.5 Kgf-cm
17	SCREW	22-232-30060211	9	Torque: 4.5~5.5 Kgf-cm
18	SCREW	22-272-40008011	2	Torque: 8.5~9.5 Kgf-cm
19	SPONGE	30-013-15100139	2	
20	TOUCH PANEL	52-380-00052103	1	
21	PORON	30-013-24300000	4	
22	HINGE L ASSY		1	
23	HINGE R ASSY		1	
24	PANEL HOLDER ASSY	20-029-03001364	1	

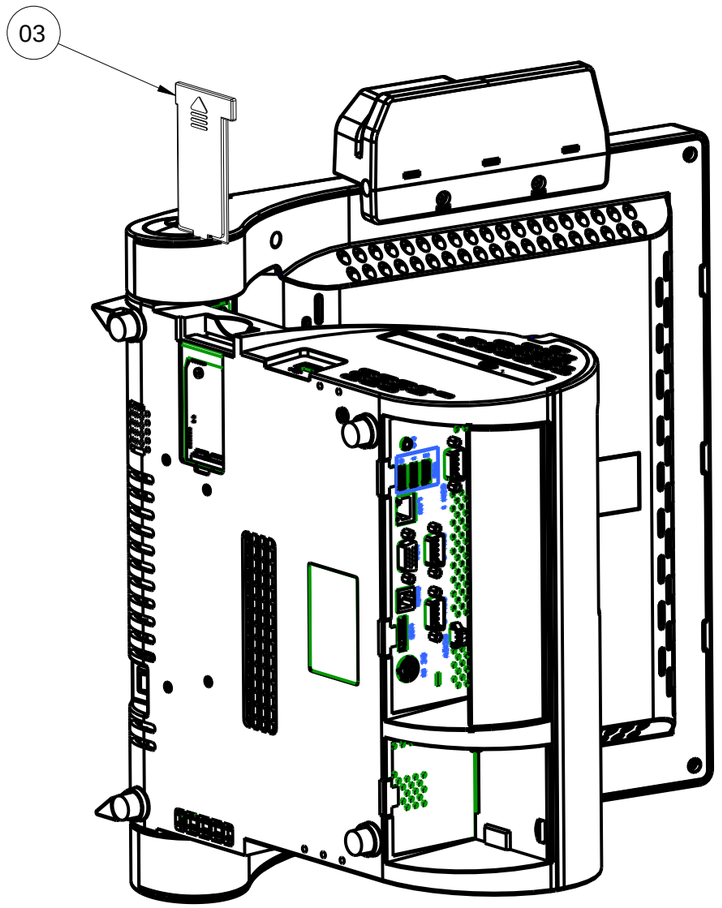
UNLESS OTHERWISE SP

LENGTH	TOLER
0~6	±0.05
7~30	±0.10
31~100	±0.15
101~300	±0.20
301~UP	±0.30



NO.	COMPONENT NAME	PART NO.	Q'TY	REMARK
1	MSR MODULE		1	
2	SIDE COVER	30-002-28200181	1	
3	MAIN HOUSING	30-002-28100181	1	
4	MSR BRACKET	20-006-03003128	1	
5	SCREW	22-222-30004011	2	Torque: 4.5~5.5 Kgf-cm
6	SCREW	22-122-30080011	4	Torque: 3.5~4.5 Kgf-cm
7	SCREW	22-275-30010011	2	Torque: 4.5~5.5 Kgf-cm
8	MSR CABLE	27-014-36409111	1	



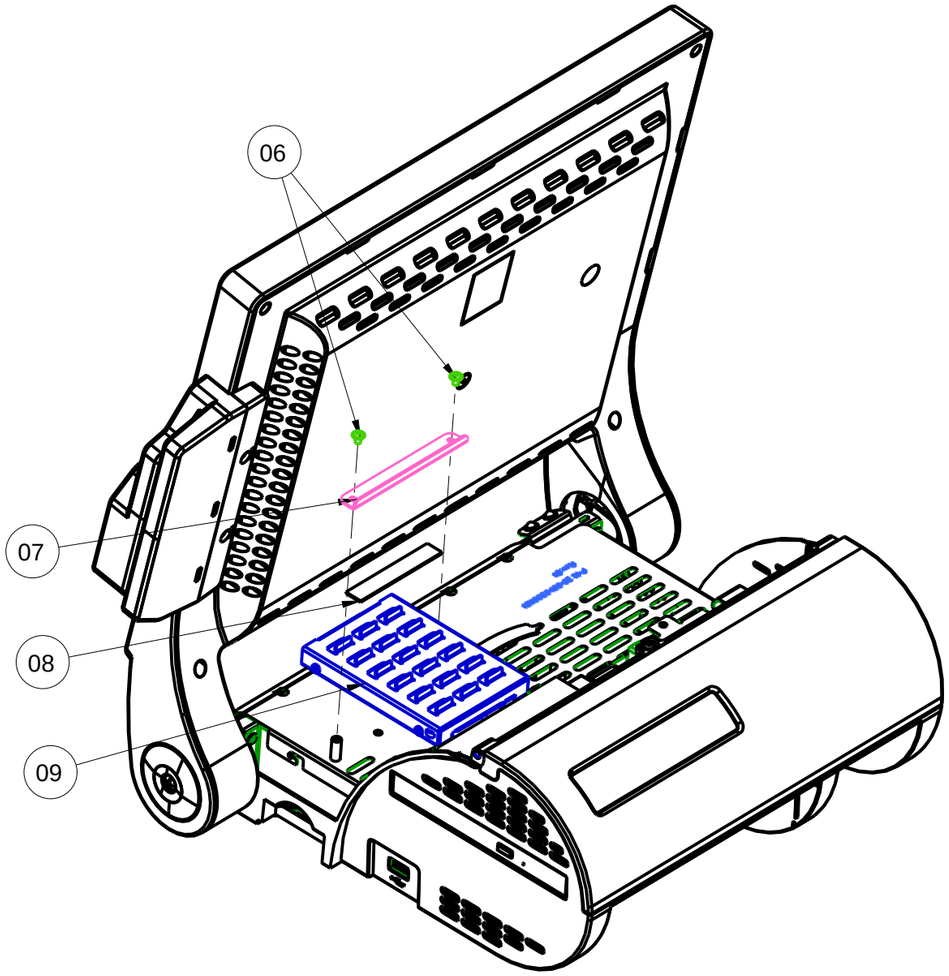


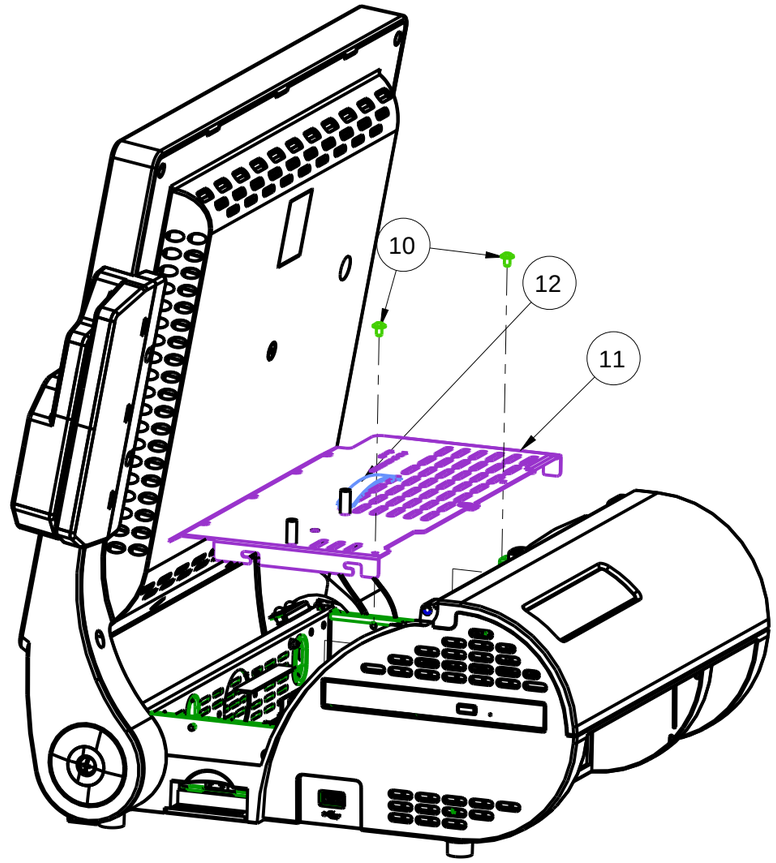
1	M3_L4_I_Ni(White)	82-272-30004018	3~4kgf-cm	2
	M3_L4_I_B(Black)	22-272-30004318		
2	POD3150-TOP Assembly	--	--	1
3	MINI_PCIE_DOOR(White)	30-007-28310165	--	1
	MINI_PCIE_DOOR(Black)	30-007-28110165		

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	1/11	A3





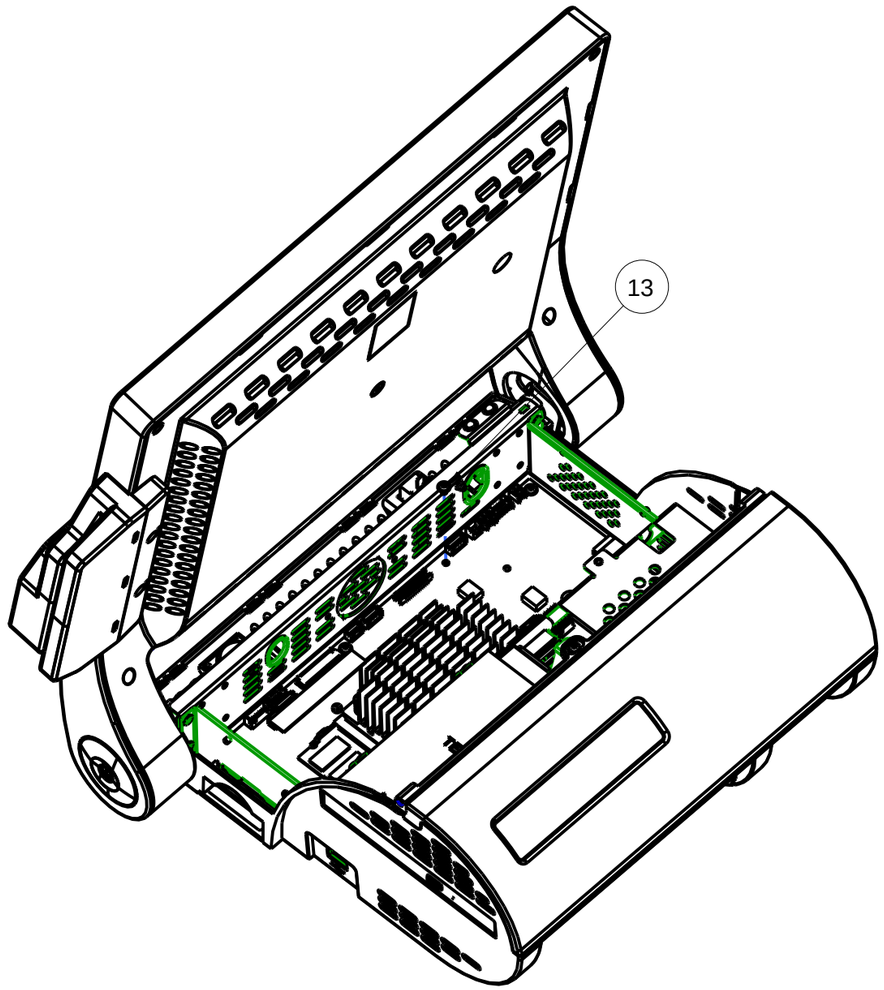
No.	Name	P/N No.	Torsion	Qt'y
6	M3_L5_Washer_Ni	22-242-30005311	--	2
7	POD3150 HDD LOCK	80-025-03001181	--	1
8	POD3150_HDD_LOCK_EVA	90-013-15100181	--	1
9	HDD Assembly	11See Page 10	--	1
10	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	2
11	POD3150_INSIDE_TOP_CASE_V2	20-001-03002181	--	1
12	Puller	30-080-04100000	--	1

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

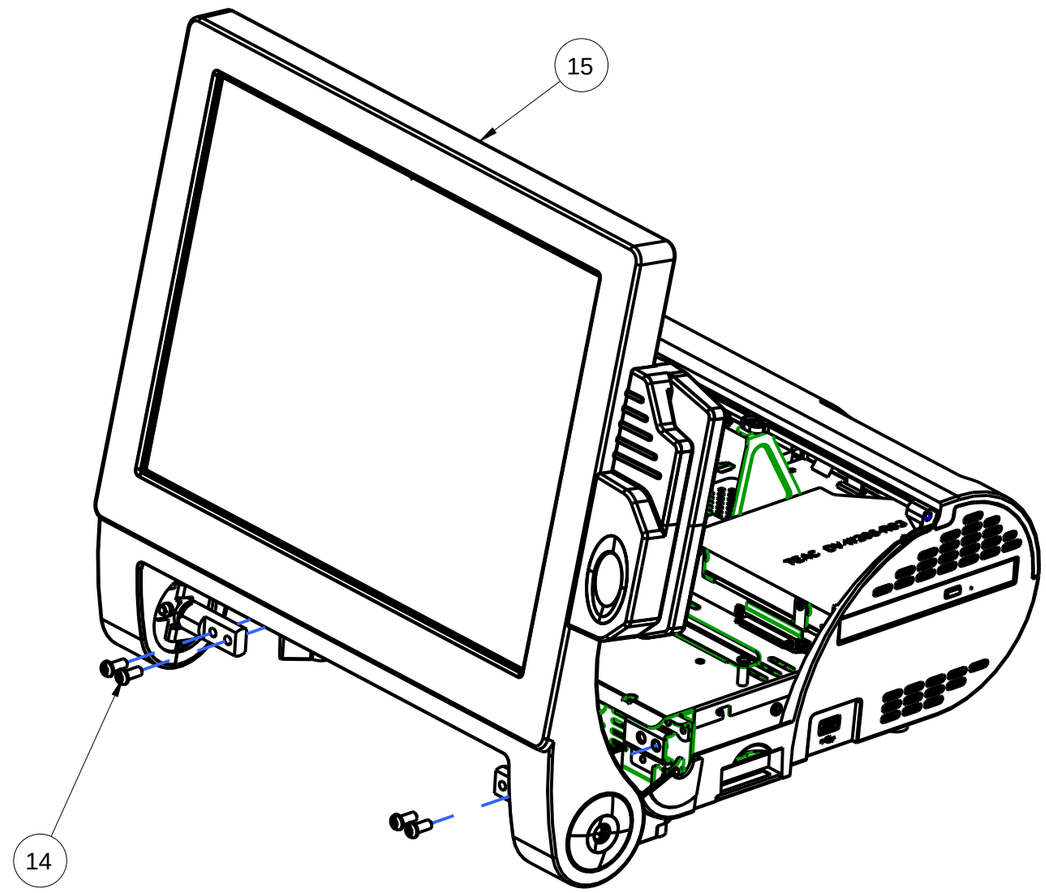
Model: PA-3055

Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	2 /11	A3



SCALE 0.300



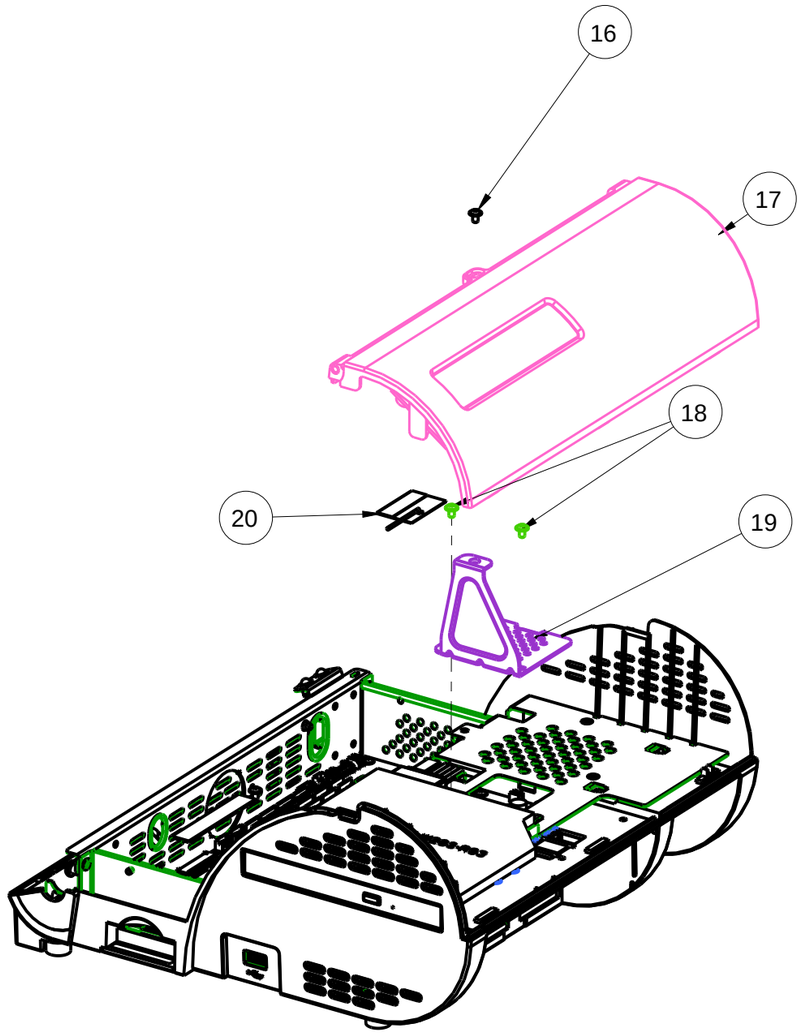
SCALE 0.300

No.	Name	P/N No.	Torsion	Qt'y
13	M3_L5_Washer_Ni	22-242-30005311	4~5kgf-cm	1
14	M5_L15	22-232-50015011	14.5~15kgf-cm	4
15	LCD Assembly	See Page XX	--	1

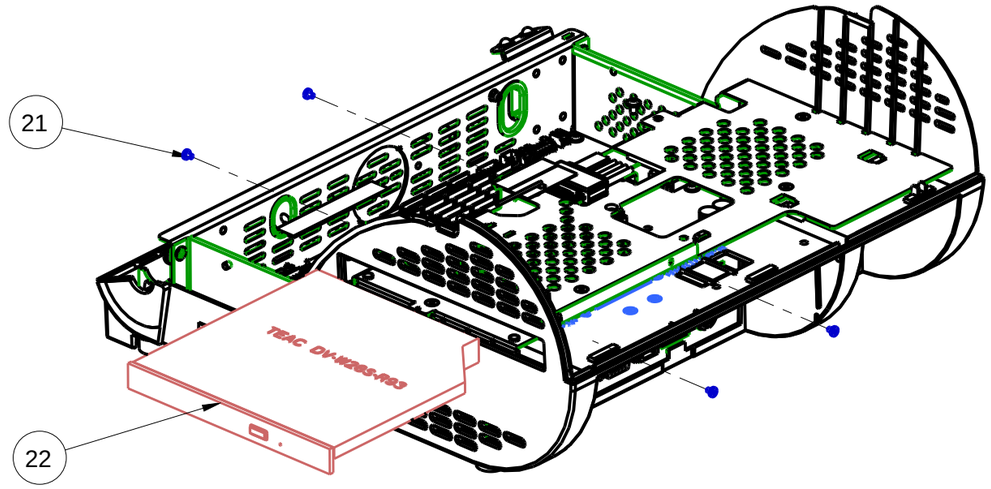
PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

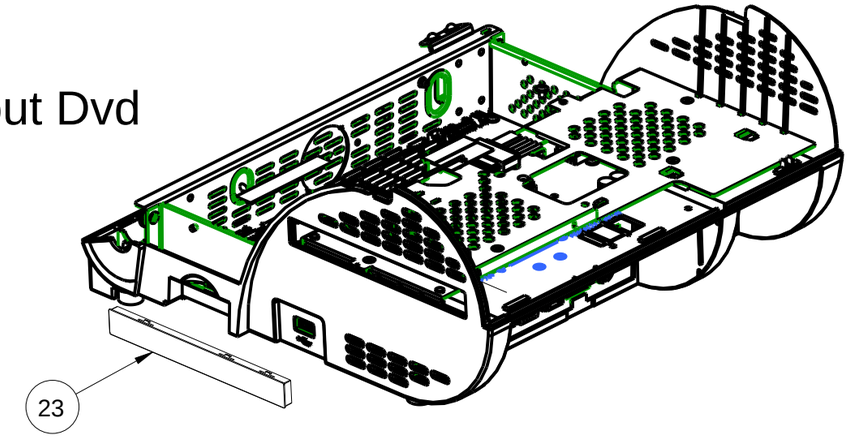
DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	3 / 11	A3



With DVD



Without Dvd

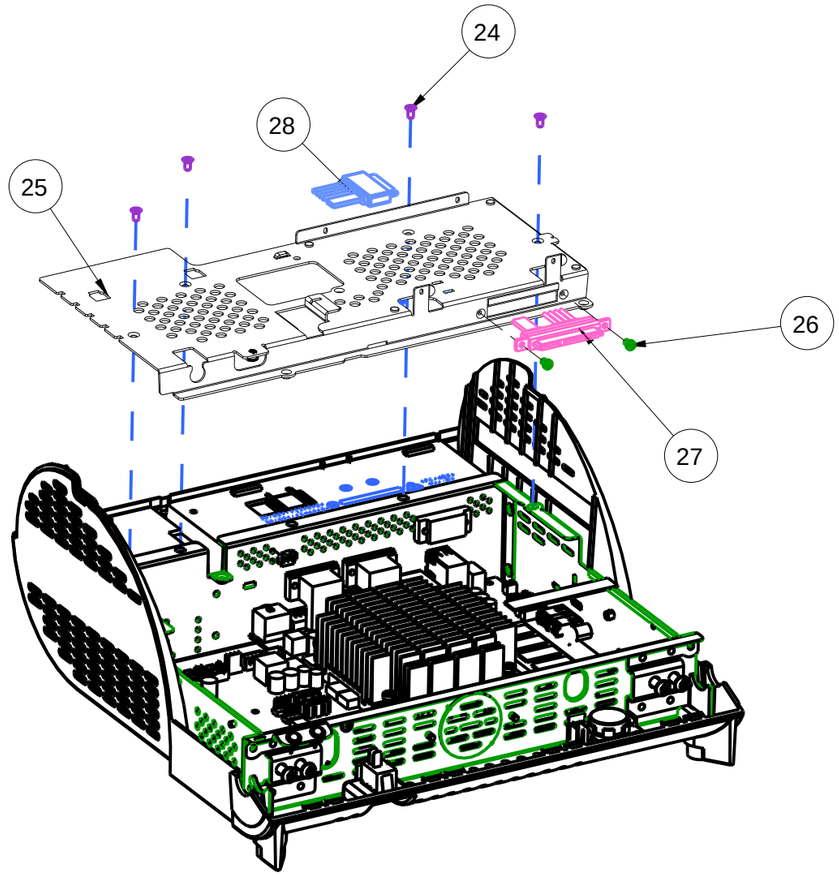


No.	Name	P/N No.	Torsion	Qt'y
16	M3_L5_Washer_Ni	22-242-30005311	3~4kgf-cm	1
17	VFD Assembly	See Page XX	--	1
18	M3_L5_Washer_Ni	22-242-30005311	7~8kgf-cm	2
19	Jump door	80-047-03001181	--	1
20	WIRELESS_ANTENNA	See Order	--	1
21	M2_L2.5I_Ni	22-272-20002011	1~1.8kgf-cm	4
22	DVD ROM	52-480-05224905	--	1
23	DVD Cover(White)	30-002-12610181	--	1
	DVD Cover(Black)	30-002-12710181	--	

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	4 / 11	A3



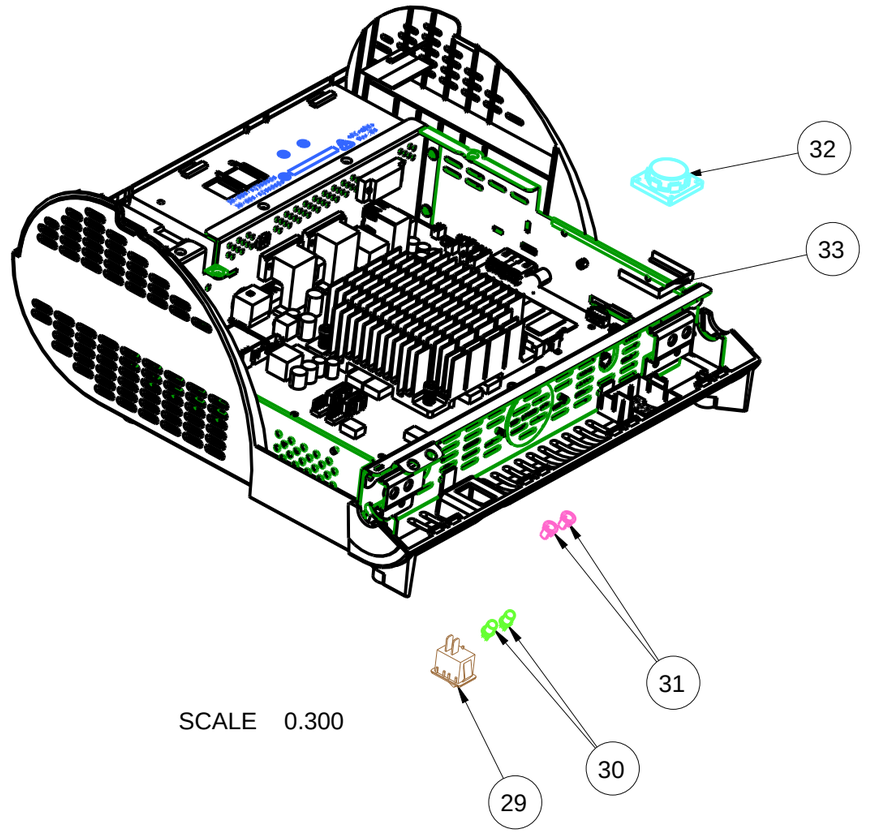
No.	Name	P/N No.	Torsion	Qt'y
24	M3_6_FLAT_B	22-215-30060011	7~8kgf-cm	4
25	PA-3053_INSIDE_TOP_HOLDER	20-029-03001241	--	1
26	M3_L4_I_B(Black)	22-272-30004318	1.5~2kgf-cm	2
27	HDD Cable	27-008-25506081	--	1
28	DVD CablE	See older	--	1

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055

Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No. PA-3055- D1	5 / 11	A3
23-Sep-15	1.000	mm	D1			



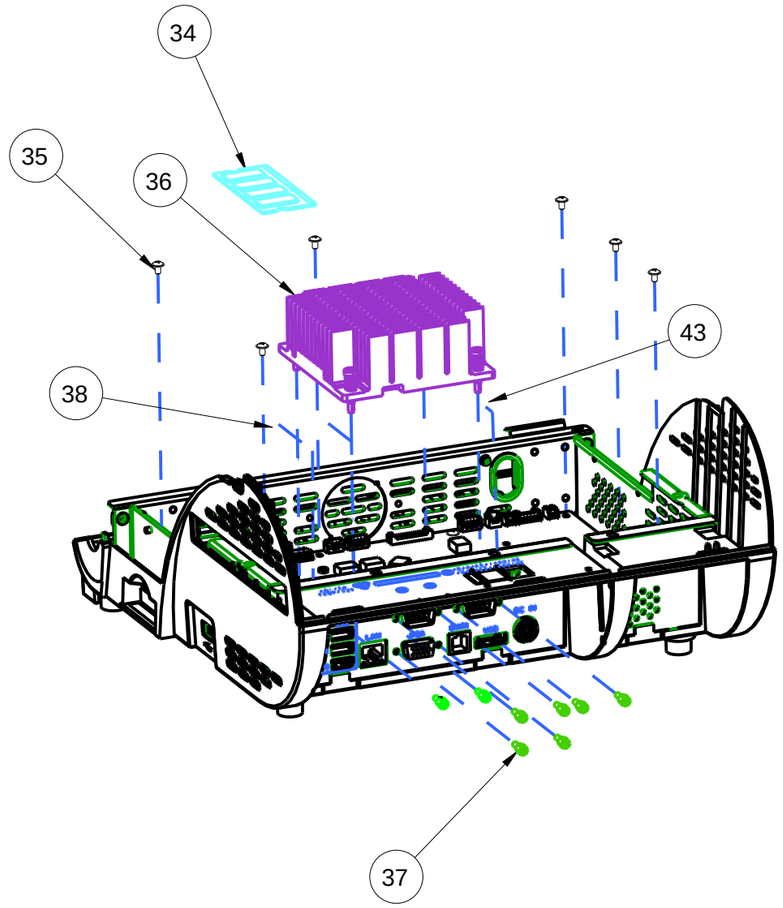
SCALE 0.300

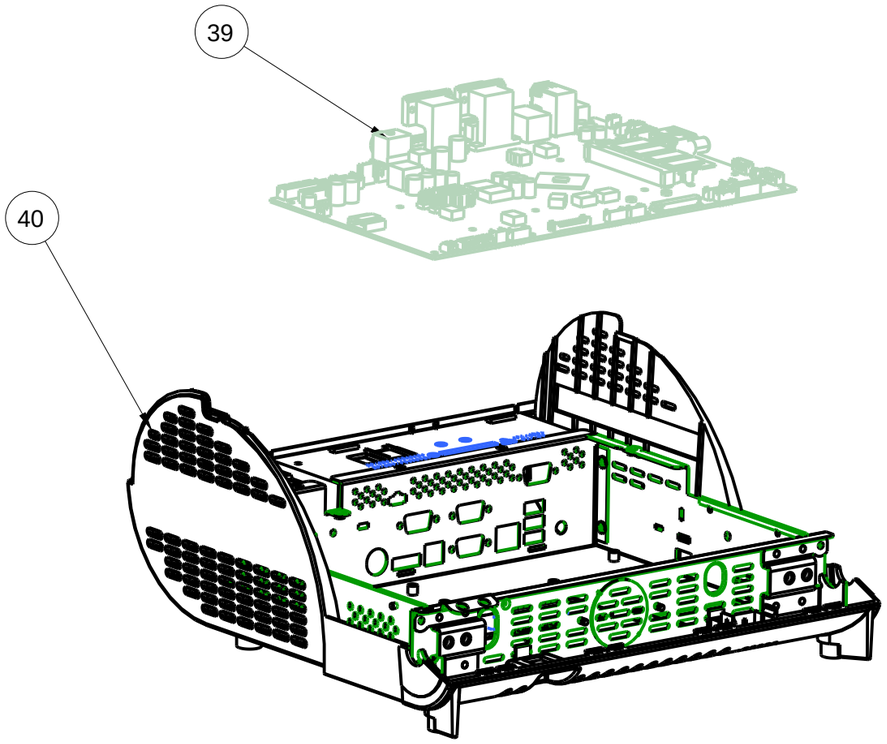
No.	Name	P/N No.	Torsion	Qt'y
29	Switch Cable	27-019-12804071	--	1
30	LED Cable	27-018-36410071	--	1
31	Led support	30-014-04100009	--	2
32	SPEAKER	13-500-08280018	--	1
33	SPEAKER_PRON	90-013-15200181	7~8kgf-cm	1

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	6 / 11	A3



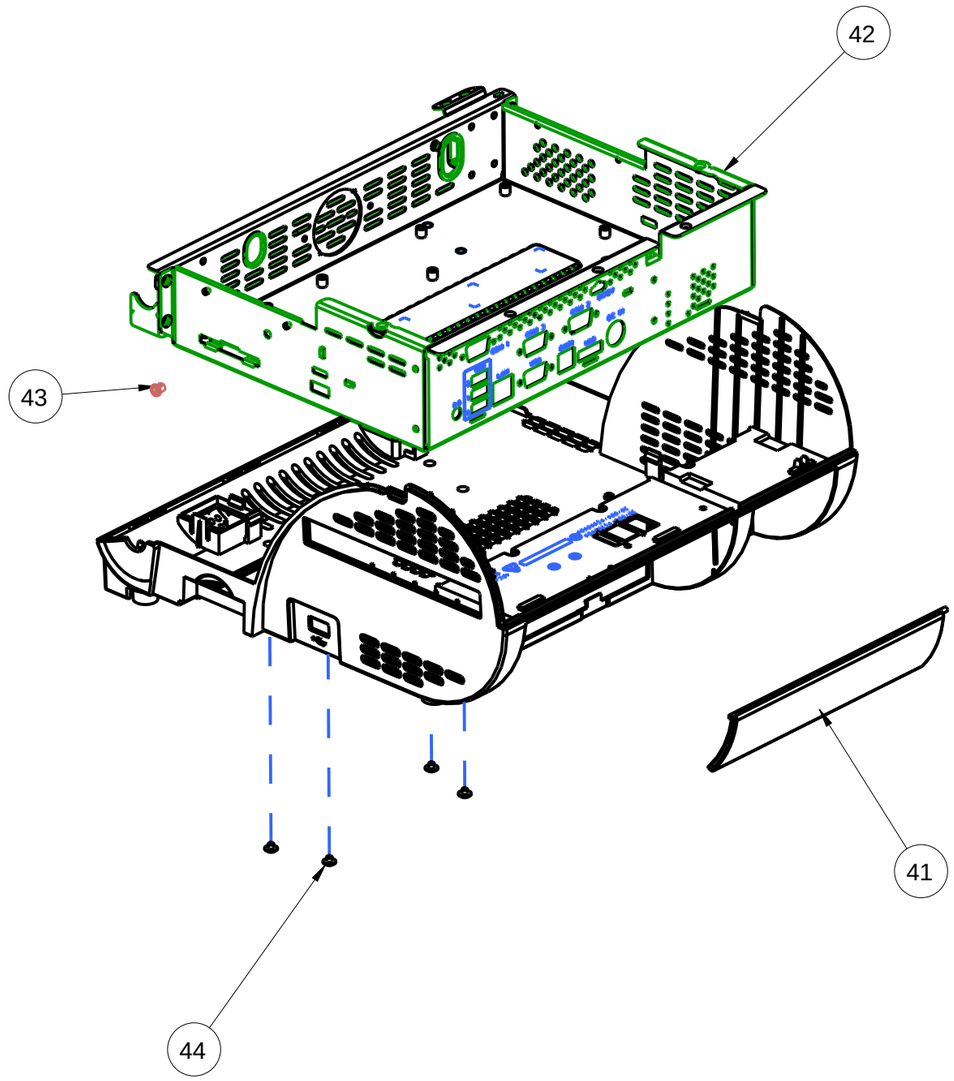


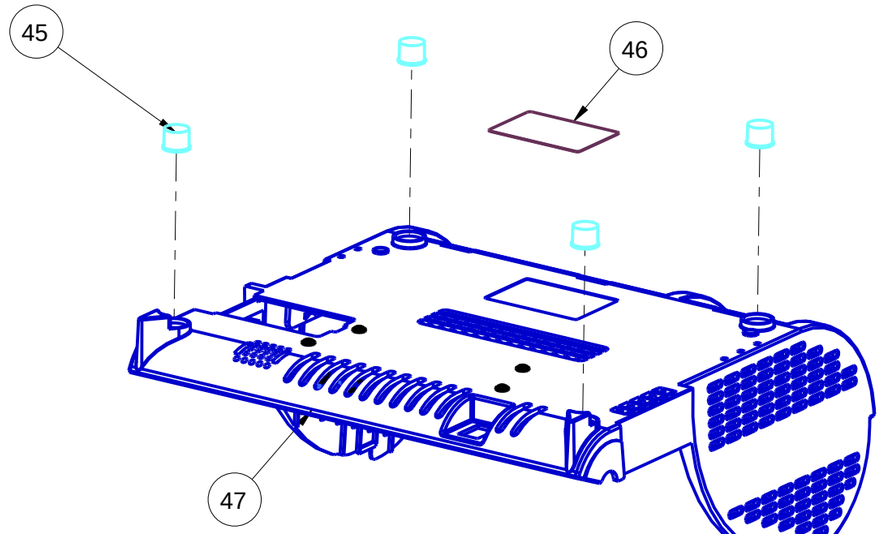
34	RAM	--	--	1
35	M3_L5_Washer_Ni	22-242-30005311	4~5kgf-cm	6
36	Heatsink	21-002-19090005	4~5kgf-cm	1
37	No.4 BOSS	22-692-40048051	4~5kgf-cm	8
38	COM Cable	27-053-29608111	5~6kgf-cm	2
39	PB-6822RC	--	--	1
40	BOT_CASE_UNIT	--	--	1
No.	Name	P/N No.	Torsion	Qt'y

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No. PA-3055- D1	7 /11	A3
23-Sep-15	1.000	mm	D1			





41	POD3150 I/O Cover(White)	30-002-12810181	--	1
	POD3150 I/O Cover(Black)	30-002-12910181	--	
42	PA-3055-INSIDE-BOX	20-040-03001364	--	1
43	OPEN CLOSED BUSHING	30-026-04100008	--	1
44	M3_L3_Washer_Ni	22-232-30003311		4
45	Foot(R1511)	90-004-01100181	--	4
46	Label	XX-XXX-XXXXXXXX	--	1
47	POD-3150 BOTTOM CASE V2(White)	30-001-12114181	--	1
	POD-3150 BOTTOM CASE V2(Black)	30-001-12113181	--	
No.	Name	P/N No.	Torsion	Qt'y

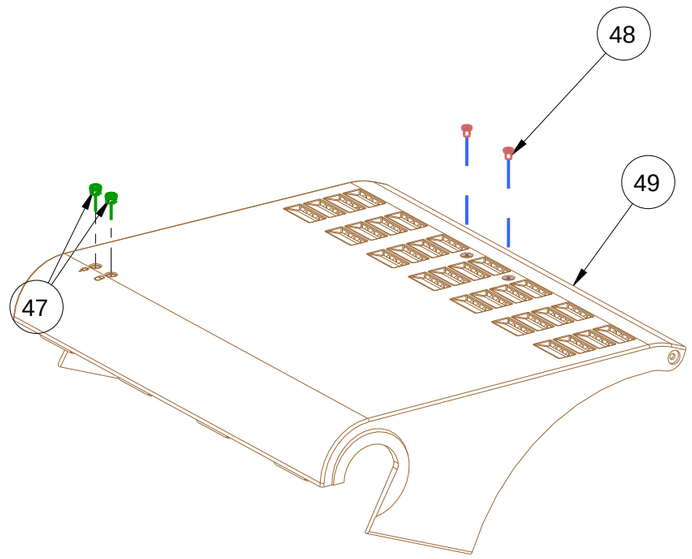
PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY
Jack Dai			

DATE	SCALE	UNIT	VERSION
23-Sep-15	1.000	mm	D1

P/N:
DWG No. PA-3055- D1
SHEET No. 8/11
SIZE A3



SCALE 0.300

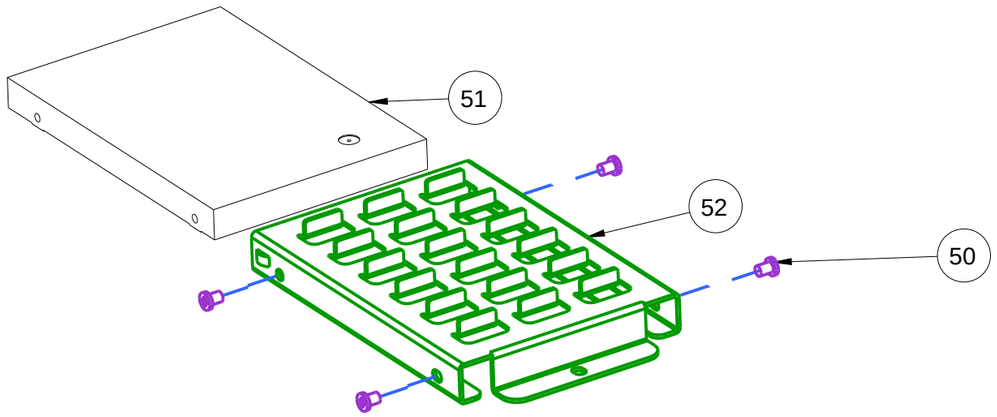
No.	Name	P/N No.	Torsion	Qt'y
47	Led Caps(HHP-4F)	30-012-02100000	--	2
48	M3_L4_I_Ni(White)	82-272-30004018	3~4kgf-cm	2
	M3_L4_I_B(Black)	22-272-30004318		
49	POD3150-TOP-CASE_V2(White)	30-001-12910181	--	1
	POD3150-TOP-CASE_V2(Black)	30-001-12111181		

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055

Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						
DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	9 / 11	A3



SCALE 0.600

No.	Name	P/N No.	Torsion	Qt'y
50	M3_L4_I_B(Black)	22-272-30004318	5~6kgf-cm	4
51	HDD	See Order	--	1
52	PS3100_ALU_HDD_HOLDER	20-029-01001165	--	1

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

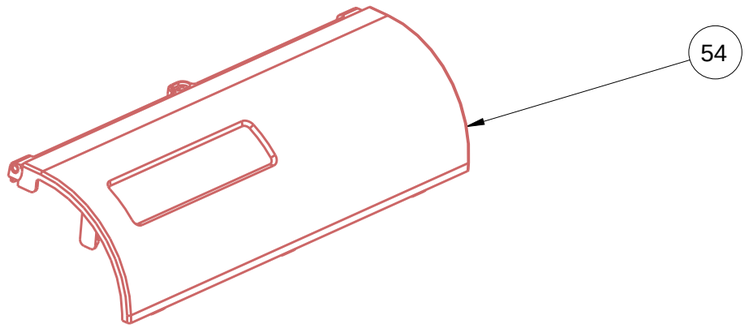
Model: PA-3055

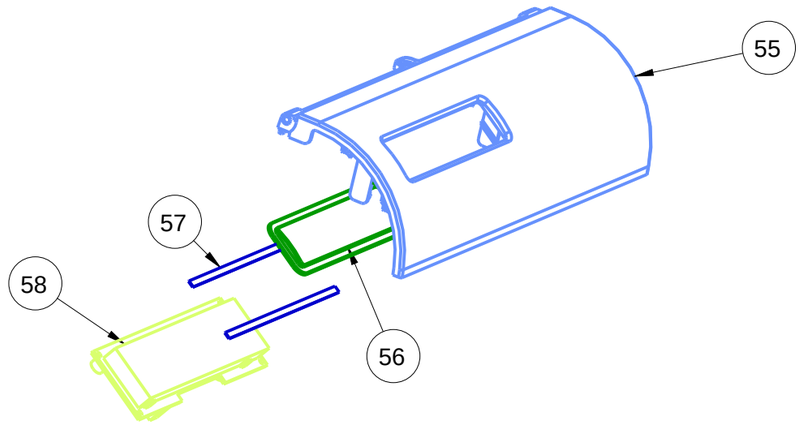
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY	P/N:	SHEET No.	SIZE
Jack Dai						

DATE	SCALE	UNIT	VERSION	DWG No.		
23-Sep-15	1.000	mm	D1	PA-3055- D1	10 / 11	A3

Without VFD/Without LOGO





With VFD/Without LOGO

53			--	1
54	WithoutVFD-COVER(White)	30-002-12210181	--	1
	WithoutVFD-COVER(Black)	30-002-12310181		
55	WithVFD-COVER(White)	30-002-12010181	--	1
	WithVFD-COVER(Black)	30-002-12110181		
56	vfd windows	30-002-02230165	--	1
57	PRON Tape	30-013-24700000	--	2
58	Mini VFD	52-901-17001703	--	1
No.	Name	P/N No.	Torsion	Qt'y

PROTECH SYSTEM CO., LTD.
No. 24,Lane 365,Yang Goang Street,
Nei Hu District,Taipei 114,Taiwan

Model: PA-3055
Name: PA-3055

DRAWN BY	DESIGNED BY	CHECKED BY	APPROVAL BY
Jack Dai			

DATE	SCALE	UNIT	VERSION
23-Sep-15	1.000	mm	D1

P/N:
DWG No. PA-3055- D1
SHEET No. 11 / 11
SIZE A3