USER'S MANUAL

SP-6110/6112/6118

Intel® Atom™ E640T/E680T
10.4"/12.1"/8.4" Fanless Panel PC
With VGA/Audio/2LAN

SP-6110/6112/6118 M1

SP-6110/6112/6118
Intel® Atom™ E640T/E680T
10.4”/12.1”/8.4” Fanless Panel PC
With VGA/Audio/2LAN

DISCLAIMER

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

CE NOTICE

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

FCC NOTICE

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

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

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

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

TABLE OF CONTENTS

CHAPTER 1 INTRODUCTION

CHAPTER 2 SYSTEM CONFIGURATION

CHAPTER 3 SOFTWARE UTILITIES

CHAPTER 4 AMI BIOS SETUP

APPENDIX A SYSTEM ASSEMBLY

APPENDIX B TECHNICAL SUMMARY

CHAPTER

1

INTRODUCTION

This chapter gives you the information for SP-6110/6112/6118. It also outlines the System specification.

Section includes:

- About This Manual
- System Specifications
- Safety Precautions

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

1-1. ABOUT THIS MANUAL

Thank you for purchasing our SP-6110/6112/6118 Intel® Atom™ E640T/E680T Fanless Panel PC with VGA/Audio/2LAN. SP-6110/6112/6118 provides faster processing speed, greater expandability and can handle more task than before. This manual is designed to assist you how to install and set up the system. It contains four chapters. The user can apply this manual for configuration according to the following chapters:

Chapter 1 Introduction

This chapter introduces you to the background of this manual, and the specifications for this system. The final page of this chapter will indicate how to avoid damaging this board.

Chapter 2 Hardware Configuration

This chapter outlines the component locations and their functions. In the end of this chapter, you will learn how to set jumper and how to configure this card to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the VGA utility, LAN utility, and Sound utility.

Chapter 4 AMI BIOS Setup

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

Appendix A System Assembly

This appendix gives you the exploded diagrams and part numbers of the SP-6110/6112/6118.

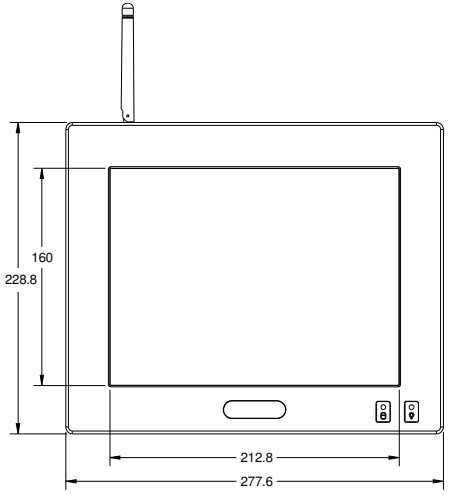
Appendix B Technical Summary

This appendix gives you the information about the Technical maps, Watchdog-timer configuration, and Flash BIOS Update.

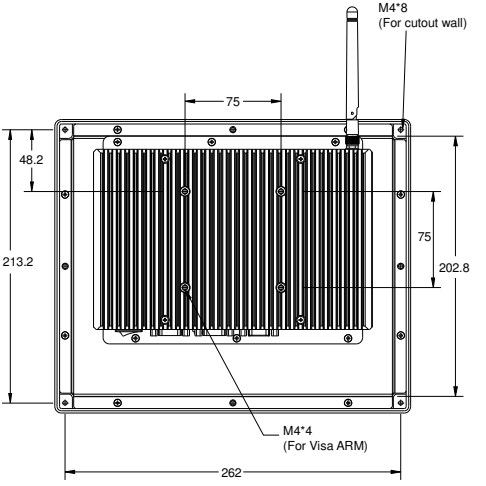
1-2. SYSTEM ILLUSTRATION

SP-6110 & SP-6110 CPT

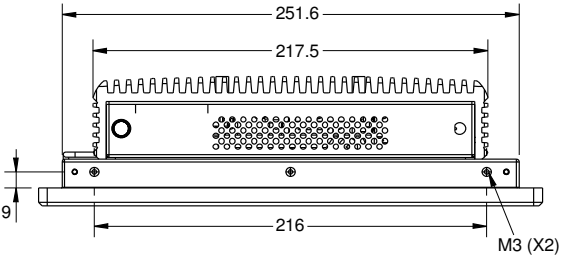
Front View



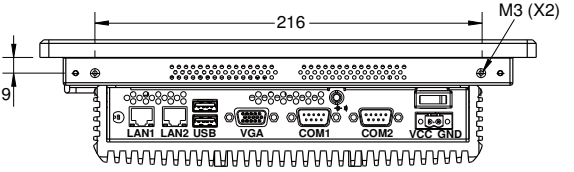
Rear View



Top View

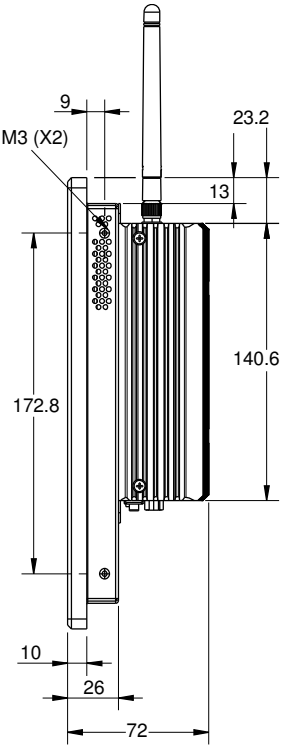


I/O View

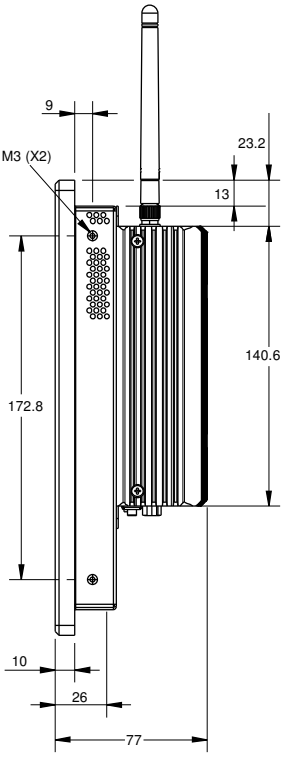


Unit: mm

Side View - SP-6110



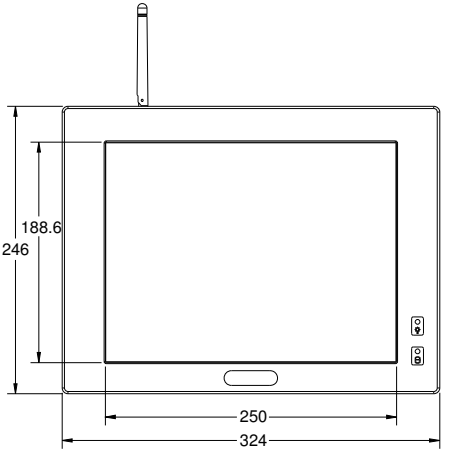
Side View - SP-6110 CPT



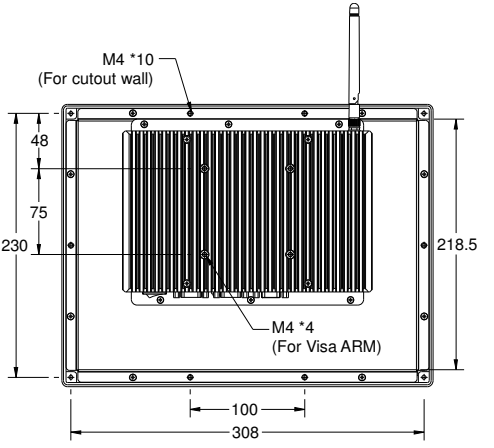
Unit: mm

SP-6112

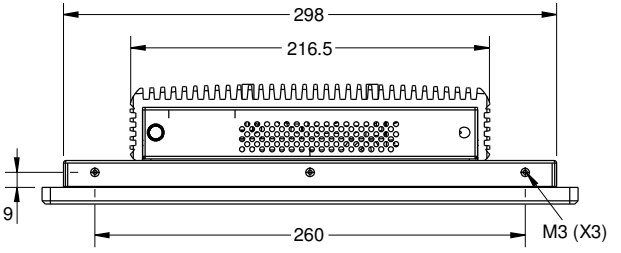
Front View



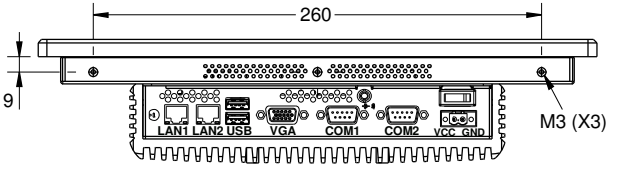
Rear View



Top View

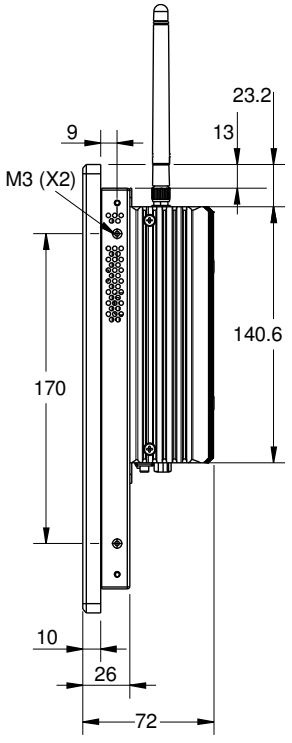


I/O View



Unit: mm

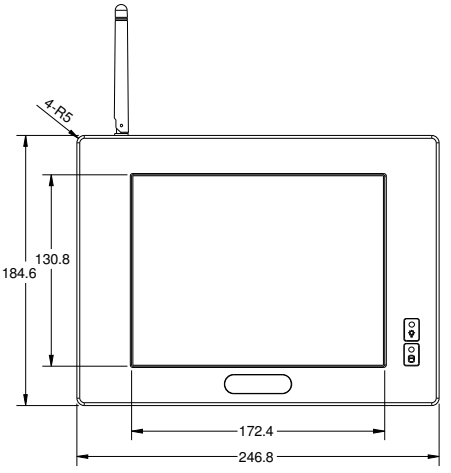
Side View



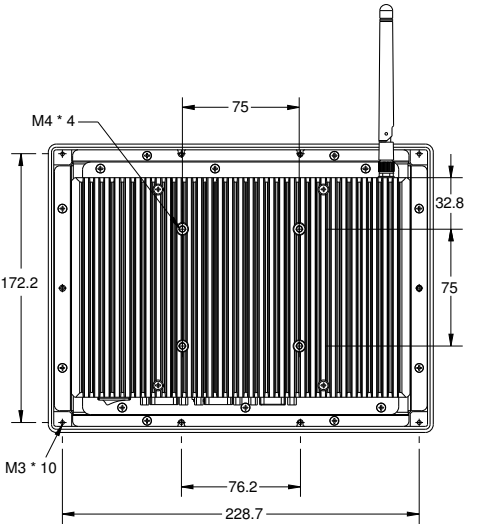
Unit: mm

SP-6118

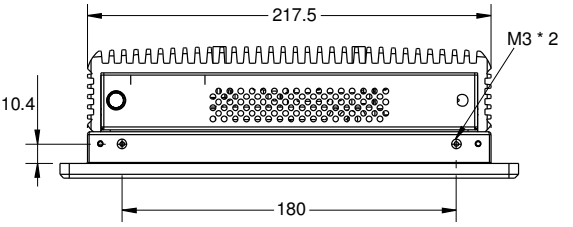
Front View



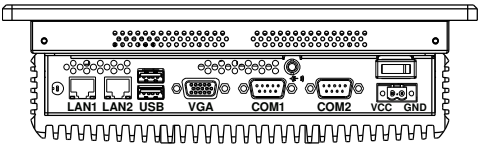
Rear View



Top View

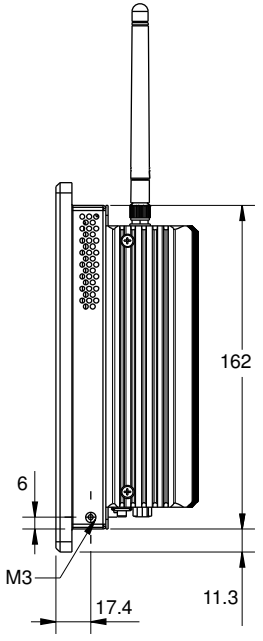


I/O View



Unit: mm

Side View



Unit: mm

1-3. SYSTEM SPECIFICATION

System

CPU Support	Intel® Atom™ E640T/E680T processor on board
Chipset	Intel® EG20T
Memory Support	DDR2 1GB on board
Drive Bay	1 x 2.5" SATA HDD
Power Requirement	DC-in 9~36V
Wall Mount Type	VESA 75
Net Weight	▪ **SP-6110:** 3.5 kg ▪ **SP-6112**: 4.1 kg ▪ **SP-6118:** 2.9 kg
Dimension (W x H x D)	▪ **SP-6110:** 277.6 x 228.8 x 71 mm ▪ **SP-6112**: 324 x 246 x 71 mm ▪ **SP-6118:** 246.8 x 184.6 x 70 mm
Certificate	FCC/CE

I/O Ports

Serial Port	2 ports: COM1 for RS232, 5V/12V/RI selectable COM2 is RS232/422/485 selectable
USB	2 x USB 2.0
VGA	1 x VGA
LAN	2 x RJ-45 (10/100/1000 Mbps)
Audio	1 x Line-out
Expansion slot	▪ 1 x Mini-PCIe slot ▪ 1 x CFast card slot

Display

LCD Panel Size	▪ **SP-6110:** 10.4" ▪ **SP-6112**: 12.1" ▪ **SP-6118:** 8.4"
Resolution (Brighness)	▪ **SP-6110:** 800x600 (230nits) / 1024x768 (300nits) ▪ **SP-6112**: 1024x768(500nits) ▪ **SP-6118:** 800x600(450nits)
Touch Panel Type	5 Wire Resistive

Environment

Operation Temp.	HDD: 0 ~ 45°C (32 ~ 113°F) CFast card: -20 ~ 60°C (-4 ~ 140°F)
Storage Temp.	-20 ~ 60°C (-4 ~ 140°F)
Humidity	20 ~ 90%

1-4. SAFETY PRECAUTIONS

Follow the messages below to avoid your systems from damage:

1. Keep your system away from static electricity on all occasions.

2. Prevent electric shock. Don't touch any components of this card when the card is power-on. Always disconnect power when the system is not in use.

3. Disconnect power when you change any hardware devices. For instance, when you connect a jumper or install any cards, a surge of power may damage the electronic components or the whole system.

CHAPTER

2

HARDWARE CONFIGURATION

*** QUICK START ***

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

Section includes:

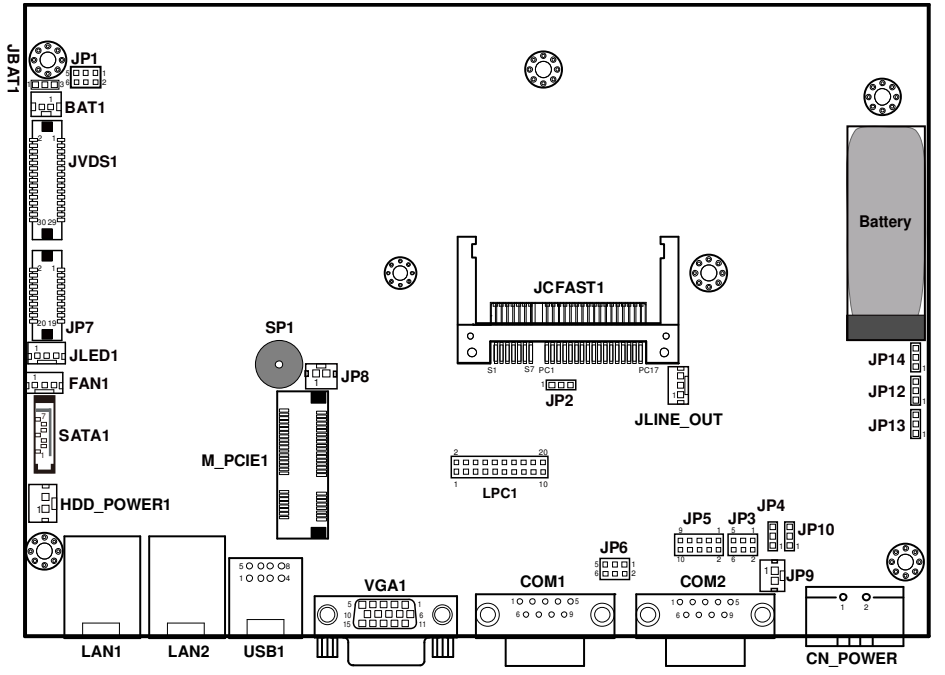
- Jumper & Connector Quick Reference Table
- Component Locations
- Configuration and Jumper settings
- Connector's Pin Assignments

2-1. JUMPER & CONNECTOR QUICK REFERENCE TABLE

JUMPER / CONNECTOR	NAME
COM Port Connector	COM1,COM2
COM RI/Voltage Selection	JP6, JP3,
RS232/422/485 (COM2) Selection	JP5
COM2 RS485 DIR Control Selection	JP4
Clear CMOS Data Selection	JP14
Battery Function Selection	JBAT1
External Battery Connector	BAT1 (Optional)
External Board Connector	JP7
System Reset Connector	JP8
Power on Switch Connector	JP9
LVDS Connector	LVDS1
LVDS Panel Voltage Selection	JP1
VGA Connector	VGA1
Serial ATA Connector	SATA1
Serial ATA Power Connector	HDD_POWER1
Universal Serial Bus Connector	USB1
LAN Connector	LAN1, LAN2
Audio Connector	JLINE_OUT
CFast Connector	JCFAST1
CFast Voltage Selection	JP2
Wide Range Power Mode Setting	JP12, JP13
AT/ATX Power Selection	JP10
Battery Function Selection	JBAT1

2-2. COMPONENT LOCATIONS

M/B: SB-8120



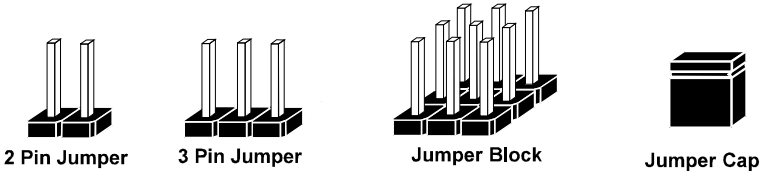
SB-8120 Connectors, Jumpers and Components Locations

2-3. HOW TO SET THE JUMPERS

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

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

JUMPERS AND CAPS

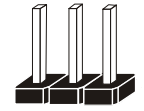


If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), You can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

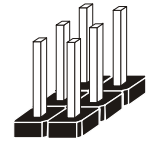
JUMPER DIAGRAMS

Jumper Cap looks like this

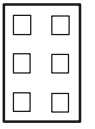
2 pin Jumper looks like this



3 pin Jumper looks like this

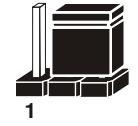


Jumper Block looks like this

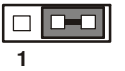


JUMPER SETTINGS

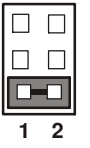
2 pin Jumper close(enabled) Looks like this



3 pin Jumper 2-3 pin close(enabled) Looks like this



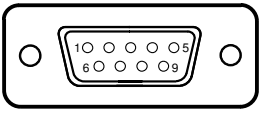
Jumper Block 1-2 pin close(enabled) Looks like this



2-4. COM PORT CONNECTOR

COM1: COM1 Connectors, fixed as RS-232.
The pin assignments are as follows:

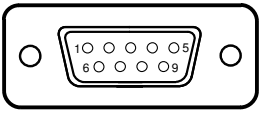
PIN	ASSIGNMENT
1	COM_DCD
2	COM_RXD
3	COM_TXD
4	COM_DTR
5	GND
6	COM_DSR
7	COM_RTS
8	COM_CST
9	COM_RI



COM1

COM2: COM2 Connector, selectable as RS-232/422/485.
The pin assignments are as follows:

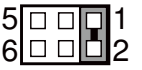
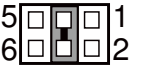
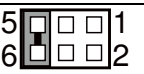
PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	COM2_DCD#	TX-	485-
2	COM2_RX	TX+	485+
3	COM2_TX	RX+	X
4	COM2_DTR#	RX-	X
5	GND	GND	GND
6	COM2_DSR#	X	X
7	COM2_RTS#	X	X
8	COM2_CTS#	X	X
9	COM2_RI#	X	X



COM2

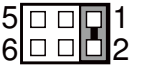
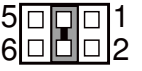
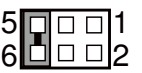
2-5. COM RI & VOLTAGE SELECTION

JP6: COM1 RI & Voltage Selection
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RI	1-2	 JP6
12V	3-4	 JP6
5V	5-6	 JP6

Note: Manufacturing Default is RI.

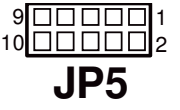
JP3: COM2 RI & Voltage Selection
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RI	1-2	 JP3
12V	3-4	 JP3
5V	5-6	 JP3

Note: Manufacturing Default is RI.

2-6. RS232/422/485 (COM2) SELECTION

JP5 : RS232/422/485 (COM2) Selection
This connector is used to set the COM2 function.
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RS232	All Open	 JP5
RS422	1-2, 3-4, 9-10	 JP5
RS485	1-2, 5-6, 7-8	 JP5

Note: Manufacturing default is RS-232.

2-7. COM2 RS485 DIR CONTROL SELECTION

JP4 : COM2 RS485 DIR Control Selection, used to set the COM2 function.
The jumper settings are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Auto RS485	1-2	 JP4
Manual	2-3	 JP4

Note: Manufacturing default is Auto RS485.

2-8. CLEAR CMOS DATA SELECTION

JP14: Clear CMOS Data Selection
The selections are as follows:

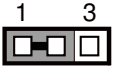
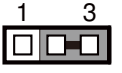
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Clear CMOS*	1-2	 **JP14**
Normal	2-3	 **JP14**

Note: Manufacturing Default – Normal

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

2-9. BATTERY FUNCTION SELECTION

JBAT1: Battery Function Selection.
The selections are as follows:

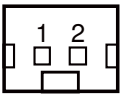
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Battery unused	1-2	 JBAT1
Battery used	2-3	 JBAT1

Note: Manufacturing Default – 3.3V

2-10. EXTERNAL BATTERY CONNECTOR

BAT1: Battery Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VBAT+
2	VBAT

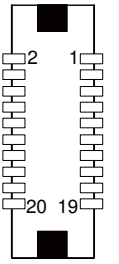


BAT1

2-11. EXTERNAL BOARD CONNECTOR

JP7: External Board Connector (Optional)
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC5	11	USB3-
2	VCC5	12	VCC12
3	USB2-	13	USB3+
4	USB4-	14	HDD_LED
5	USB2+	15	GND
6	USB4+	16	POWER_ LED+
7	GND	17	GND
8	GND	18	USB_OC1J
9	LVDS_ BKLTEN	19	VCC3.3
10	VCC12	20	USB_OC2J

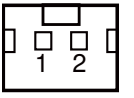


JP7

2-12. SYSTEM RESET CONNECTOR

JP8: System Reset Connector.
The pin assignments are as follows:

PIN	ASSIGNMENT
1	SYS_RSTJ
2	GND

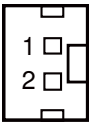


JP8

2-13. POWER ON SWITCH CONNECTOR

JP9: Power On Switch Connector.
The pin assignments are as follows:

PIN	ASSIGNMENT
1	Power+
2	GND

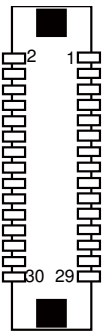


JP9

2-14. LVDS CONNECTOR

LVDS1: LVDS Connector
The pin assignments are as follows:

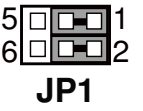
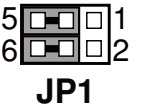
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	16	LVDS0_CLK+ (Odd)
2	GND	17	LVDS0_CLK-(Odd)
3	NC	18	GND
4	NC	19	LVDS0_D2+ (Odd)
5	GND	20	LVDS0_D2-(Odd)
6	NC	21	GND
7	NC	22	LVDS0_D1+ (Odd)
8	GND	23	LVDS0_D1-(Odd)
9	NC	24	GND
10	NC	25	LVDS0_D0+ (Odd)
11	NC	26	LVDS0_D0-(Odd)
12	NC	27	LVDS0_D3+ (Odd)
13	NC	28	LVDS0_D3-(Odd)
14	NC	29	LVDS_VCC
15	GND	30	LVDS_VCC



LVDS1

2-15. LVDS PANEL VOLTAGE CONNECTOR

JP1: LVDS Panel Voltage Selection.
The selections are as follows:

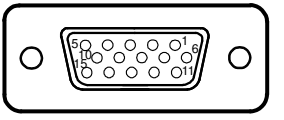
SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
LVDS_VCC3	1-3, 2-4	 JP1
LVDS_VCC5	3-5, 4-6	 JP1

Note: Manufacturing Default – LVDS_VCC3

2-16. VGA CONNECTOR

VGA1: VGA Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	VCC5
2	GREEN1	10	GND
3	BLUE	11	NC
4	NC	12	DDC_DATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDC_CLK
8	GND		



VGA1

2-17. SERIAL ATA CONNECTOR

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

SATA1:

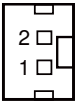
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	5	SATA_RXNC0
2	SATA_TXPC0	6	SATA_RXPC0
3	SATA_TXNC0	7	GND
4	GND		

SATA1

2-18. SERIAL ATA POWER CONNECTOR

HDD_POWER1: Serial ATA Power Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	VCC5
2	GND



HDD_POWER1

2-19. UNIVERSAL SERIAL BUS CONNECTOR

USB1: Universal Serial Bus Connector
The pin assignments are as follows:

PIN	ASSIGNMENT
1	USB_VCC5
2	USBN
3	USBP
4	GND

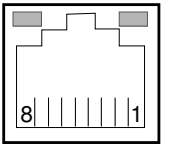
USB1

2-20. LAN CONNECTOR

LAN1, LAN2: LAN Connectors
The pin assignments are as follows:

LAN Signal:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	MDI_0P	5	MDI_2P
2	MDI_0N	6	MDI_2N
3	MDI_1P	7	MDI_3P
4	MDI_1N	8	MDI_3N



LAN1

LAN LED Indicator:
Left Side LED

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

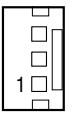
Right Side LED

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

2-21. AUDIO CONNECTOR

JLINE_OUT: Audio Line Out Connector
The pin assignments are as follows:

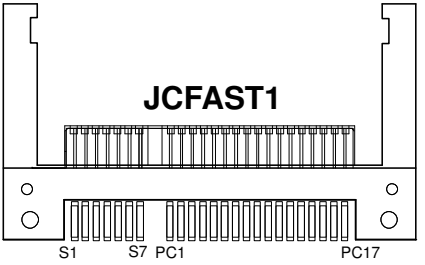
PIN	ASSIGNMENT
1	LINE_LEFT
2	GND
3	LINE_RIGHT



JLINE_OUT

2-22. CFAST CONNECTOR

JCFAST1: CFast Connector
The pin assignments are as follows:



PIN	ASSIGNMENT	PIN	ASSIGNMENT
S1	GND	PC6	NC
S2	SATA_TXP0	PC7	GND
S3	SATA_TXN0	PC8	NC
S4	GND	PC9	NC
S5	SATA_RXN0	PC10	NC
S6	SATA_RXP0	PC11	NC
S7	GND	PC12	NC
PC1	NC	PC13	3.3V/5V
PC2	GND	PC14	3.3V/5V
PC3	NC	PC15	GND
PC4	NC	PC16	GND
PC5	NC	PC17	NC

2-23. CFAST VOLTAGE SELECTION

JP2: CFast Voltage Selection.
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
3.3V	1-2	 JP2
5V	2-3	 JP2

Note: Manufacturing Default – 3.3V

2-24. WIDE RANGE POWER MODE SETTING

JP12: Power Mode Setting.
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Default	1-2	 JP12

JP13: Power Mode Setting.
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Default	2-3	 JP13

2-25. AT/ATX POWER SELECTION

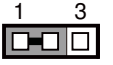
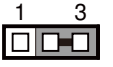
JP10: AT/ATX Power Button
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
AT	1-2	 **JP10**
ATX	2-3	 **JP10**

Note: Manufacturing Default – ATX

2-26. BATTERY FUNCTION SELECTION

JBAT1: Battery Function Selection
The selections are as follows:

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Battery unused	1-2	 **JBAT1**
Battery	2-3	 **JBAT1**

Note: Manufacturing Default – Battery

SOFTWARE UTILITIES

CHAPTER

3

This chapter comprises the detailed information of VGA driver, LAN driver, and Sound driver.

Section includes:

- Introduction
- Intel® IOH Driver Utility
- Intel® Chipset Software Installation Utility
- Graphics Driver Utility
- LAN Driver Utility
- SOUND Driver Utility
- Touch Driver Utility

3-1. INTRODUCTION

Enclosed with our SP-6110/6112/6118 package, you will find a CD ROM disk containing all types of drivers we have. As a SP-6110/6112/6118 user, you will only need some of files contained in the CD ROM disk, please take note of the following chart:

FILE NAME (Assume that CD ROM drive is D:)	**PURPOSE**
D:\Driver\Platform\WinXP\IOH	Intel® IOH Driver Files provided load driver when you install Windows System.
D:\Driver\Platform\(OS)\Utility	Intel® Chipset Device Software Installation Utility
D:\Driver\Platform\(OS)\Graphics	Intel® Atom™ E6xx Embedded Media Graphics driver installation
D:\Driver\Platform\(OS)\LAN	Intel® 82574(L) for LAN driver installation
D:\Driver\Platform\(OS)\SOUND	Realtek ALC888 for Sound driver installation
D:\Driver\Platform\(OS)\Touch Screen	eGalaxTouch Utility for Windows installation
D:\Driver\BIOS\Flash_BIOS	AMI BIOS Update Utility

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

3-2. INTEL® IOH DRIVER UTILITY

If you want to install Windows XP/7, the IOH drivers is a prior to instal. (for F6 Install of Windows XP.)

3-2-1. Installation for Window XP/7

To install the touchscreen driver, follow the steps below:

1. Open the IOH folder and copy the contents of this archive onto a floppy disk.
2. At the beginning of the Windows XP installation, press F6 to install a IOH drivers.
3. When prompted to insert the media (floppy disk), press Enter to load to your system.

3-3. INTEL® CHIPSET SOFTWARE INSTALLATION UTILITY

3-3-1. Introduction

The Intel® Chipset Device Software installs Windows *.INF files to the target system, and this package contains the drivers for all the interfaces such as USB, SATA, I2C, SPI of the Intel® Platform Controller Hub EG20T with information about a piece of hardware on the system. These files outline to the operating system how to configure the Intel® chipset components in order to ensure that the following features function properly:

- DMA Support
- GPIO Support
- I^2C Support
- Packet HUB Support
- Serial Peripheral Interface (SPI) Support
- PCIe Support
- IDE/ATA33/ATA66/ATA100 Storage Support
- SATA Storage Support
- USB Support

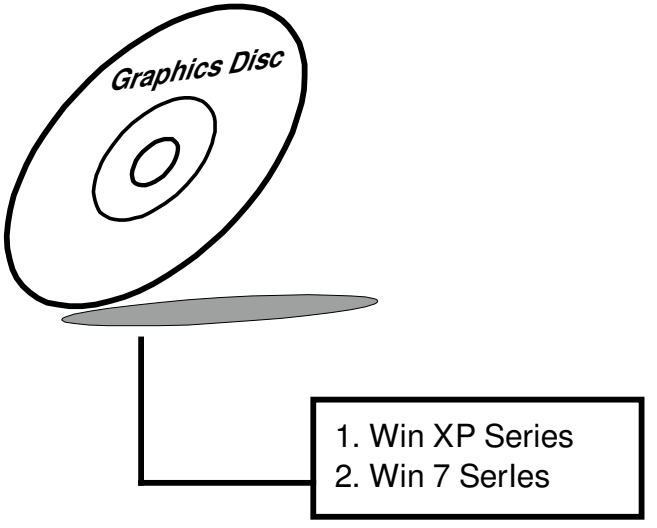
3-3-2. Installation of Utility for Windows XP/7

The Utility Pack is made only for Windows XP/7. It should be installed right after the OS installation; kindly follow the following steps:

1. Place insert the Utility Disk into Floppy Disk Drive A/B or CD ROM drive.
2. Under Windows system, go to the directory where Utility Disc is located. e.g.: D:\Driver\Platform\(OS)\Utility\EG20T_Win7_Wes7_setup_120.exe
3. Execute the application with administrative privileges.(or unzip the file to perform the installation.)
4. Follow the instructions on the screen to complete the installation.
5. Once installation is completed, shut down the system and restart in order for the changes to take effect.

3-4. Graphics DRIVER UTILITY

The Intel® Embedded Media and Graphics driver works with our SP-6110/6112/6118 system to support CRT and LCD Panel display. The following illustration briefly shows you the content of Graphics driver in
D:\Driver\Platform\(OS)\Graphics.



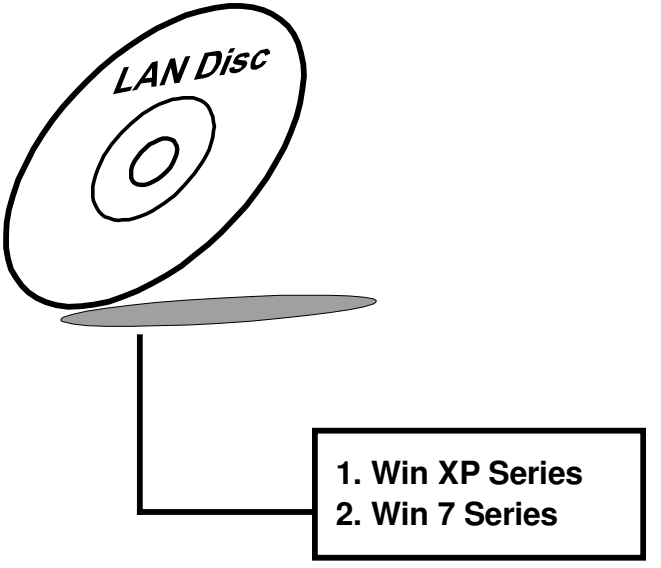
3-4-1. Installation of Graphics Driver

1. Start the computer (Windows XP/7).
2. Insert the Utility Disk into the CD ROM drive or drive A/B.
3. Open the Graphics folder for your system to choose an appropriate folder, and execute the application with administrative privileges (or unzip the file to perform the installation).
   (If D is not your CD-ROM drive, substitute D with the correct drive letter.)
4. Follow the Wizard's on-screen instructions to complete the installation.

3-5. LAN DRIVER UTILITY

3-5-1. Introduction

The SP-6110/6112/6118 is enhanced with LAN function that can support various network adapters. The content of the LAN driver is found as follows:

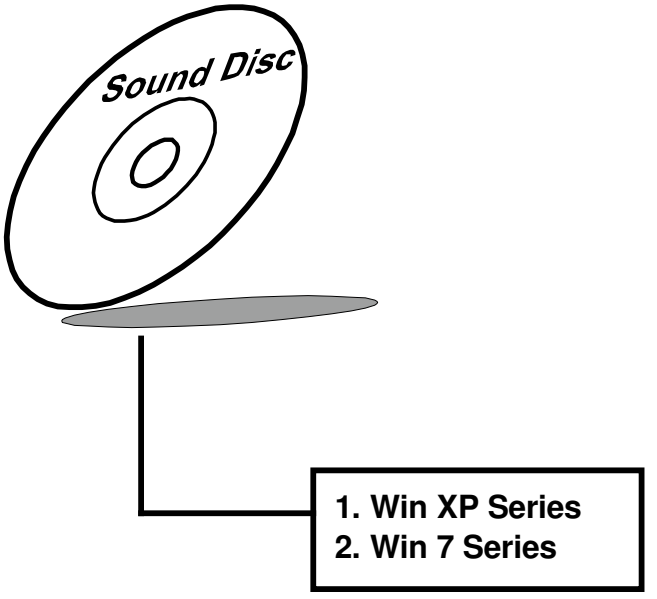


For more details on Installation procedure, please refer to Readme.txt file found on LAN DRIVER UTILITY.

3-6. SOUND DRIVER UTILITY

3-6-1. Introduction

The Audio chip enhanced in this system is fully compatible with Windows XP/7. Below, you will find the content of the Sound driver:

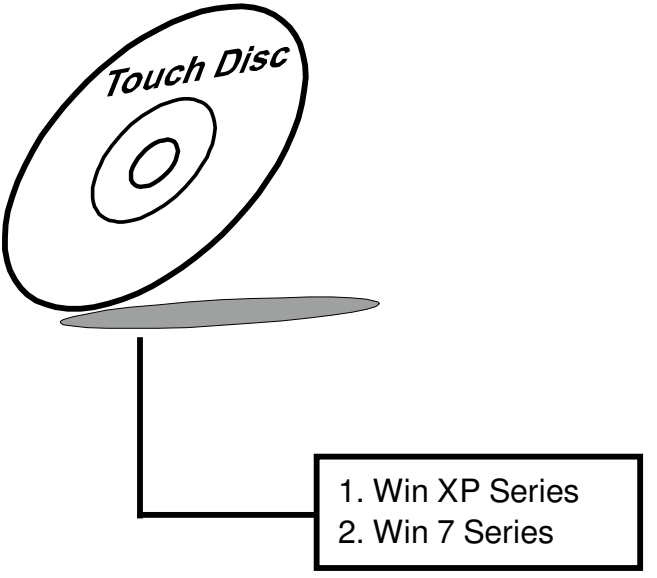


3-6-2. Installation Procedure for Windows XP/7

1. Open the SOUND folder for your system to choose an appropriate folder, and execute the application with administrative privileges (or unzip the file to perform the installation).
   e.g.: D:\Driver\Platform\(OS)\SOUND\[***.exe]
   (If D is not your CD-ROM drive, substitute D with the correct drive letter.)
2. Click on [Next] to continue the procedure. If the Windows popup "Windows can't verify the publisher of this driver software" message, press "Install this driver software anyway" to continue the installation.
3. Finally, select to restart the system and press [Finish] to complete the installation.

3-7. TOUCHSCREEN DRIVER UTILITY

The touch screen driver utility can only be installed on Windows XP/7, and it should be installed right after the OS installation.



3-7-1. Installation of Touchscreen Driver

To install the touchscreen driver, follow the steps below:

1. Insert the driver disk into a CD ROM device.
2. Under Windows system, go to the directory where the touchscreen driver is located.
3. Execute the application with administrative privileges (or unzip the file to perform the installation.)
4. Follow the on-screen instructions to complete the installation.
5. Once installation is completed, shut down the system and restart for the changes to take effect.

CHAPTER

4

AMI BIOS SETUP

This chapter shows how to set up the AMI BIOS.

Section includes:

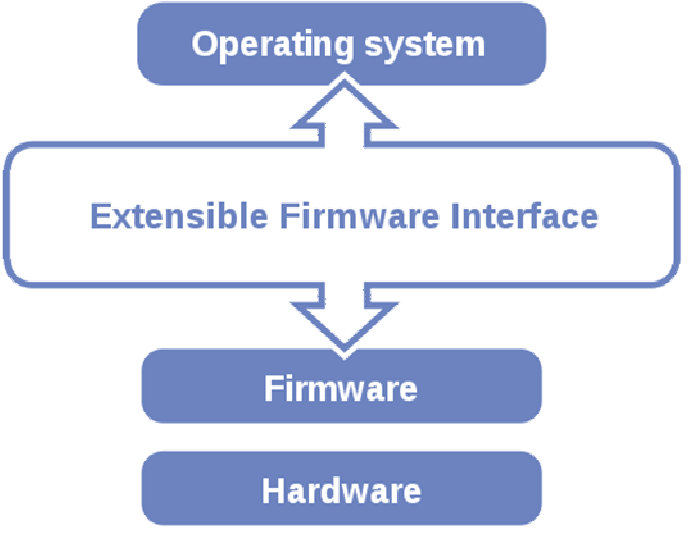
- Introduction
- Entering Setup
- Main
- Advanced
- Chipset
- Boot
- Security
- Save & Exit

4-1. INTRODUCTION

The system SP-6110/6112/6118 uses an AMI (American Megatrends Incorporated) Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (2MB SPI Flash) and can be updated. The SPI Flash contains the BIOS (Basic Input Output System) setup menu, 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 menu can be used to view and change the BIOS settings for the computer. The BIOS setup menu is accessible by pressing the <Del> or <F2> key on keyboard during the POST stage, right before the operating system is loading. All the settings are described in chapter to be followed.

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:

first POST screen with AMI logo

For as long as this message is present on the screen before the operating system boot begins, you may press the <F2> or <Del> key (the one that shares the decimal point at the bottom of the number keypad) to access the setup menu. In a moment, the main menu of the Aptio Setup Utility will appear on the screen:

BIOS setup menu initial screen

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

4-3. Main

Main Screen

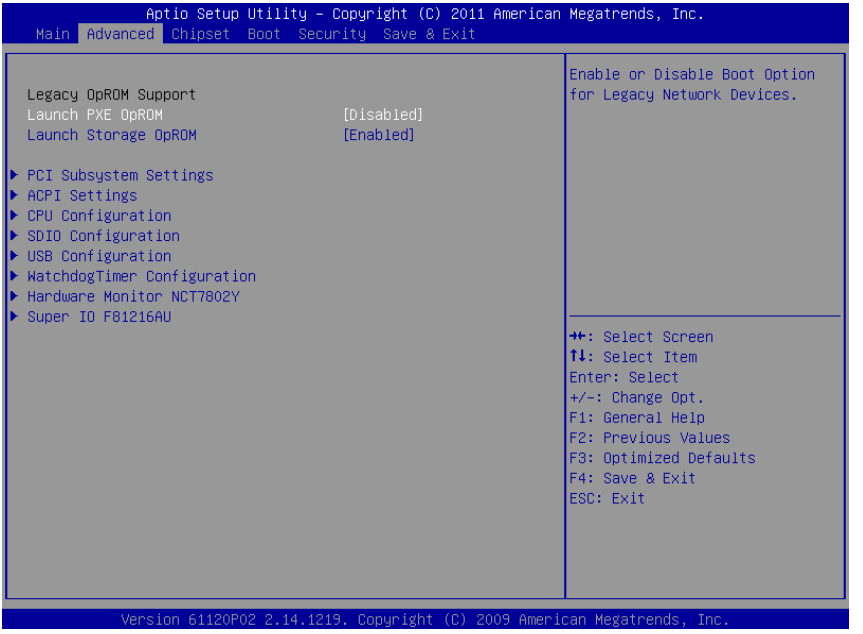
BIOS Setting	Options	Description/Purpose
BIOS Vendor	no changeable options	Displays the BIOS vendor.
Core Version	no changeable options	Displays the current BIOS core version.
Project Version	no changeable options	Displays the version of the BIOS and its architecture compatibility currently installed on the platform.
Build Date	no changeable options	Displays the date of current BIOS version.
MRC Version	no changeable options	Displays current version of MRC (Memory Reference Code), e.g. “1.00”.
Total Memory	no changeable options	Displays amount of installed DDR2 memory.
System Date	month, day, year	Specifies the current date.
System Time	hour, minute, second	Specifies the current time.
Access Level	no changeable options	Displays security level currently in use.

4-3-1. Main – Platform Information

Platform Information Screen

BIOS Setting	Options	Description/Purpose
Processor Version	no changeable options	Displays the E6xx processor stepping.
PUNIT Build Date	no changeable options	Displays PMIC (Power Management IC) date of build.
PUNIT Build Time	no changeable options	Displays PMIC (Power Management IC) time of build.

4-4. Advanced

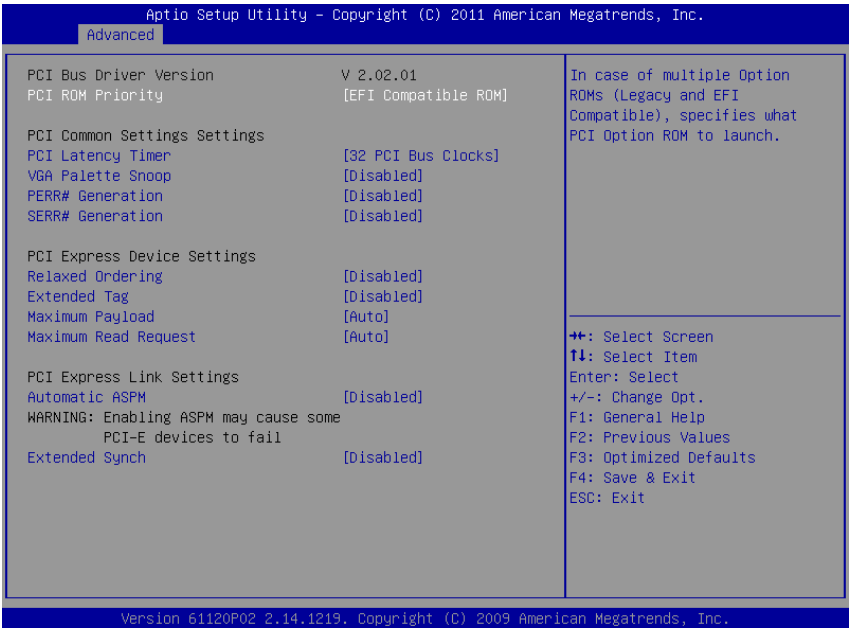


Advanced Screen

BIOS Setting	Options	Description/Purpose
Launch PXE OpROM	-disabled -enabled	Enables or disables the boot option for legacy network devices.
Launch Storage OpROM	-disabled -enabled	Enables or disables the boot option for legacy mass storage devices with Option ROM.
PCI Subsystem Settings	sub-menu	Section to configure PCIe bus settings for mini-PCIe slot, if device inserted.
ACPI Settings	sub-menu	Enters menu to set ACPI option.
CPU Configuration	sub-menu	All processor related options menu.
SDIO Configuration	sub-menu	SDIO device configuration section.
USB Configuration	sub-menu	Enters menu to configure USB options.

BIOS Setting	Options	Description/Purpose
Watchdog Timer Configuration	sub-menu	Section to configure Watchdog Timer.
Hardware Monitor NCT7802Y	sub-menu	Options for NCT7802Y HW monitor chip.
Super IO F81216AU	sub-menu	Serial ports configuration section.

4-4-1. Advanced – PCI Subsystems Settings



PCI Subsystems Settings Screen

BIOS Setting	Options	Description/Purpose
PCI Bus Driver Version	no changeable options	Displays the current PCI bus driver version.
PCI ROM Priority	-Legacy ROM -EFI Compatible ROM	Specifies which PCI ROM is used if there are multiple ROM available.
PCI Common Settings	no changeable options	
PCI Latency Timer	-32 PCI Bus Clocks -64 PCI Bus Clocks -96 PCI Bus Clocks -128 PCI Bus Clocks -160 PCI Bus Clocks -192 PCI Bus Clocks -224 PCI Bus Clocks -248 PCI Bus Clocks	Sets PCI latency time.

BIOS Setting	Options	Description/Purpose
VGA Palette Snoop	-disabled -enabled	Enabling this feature turns on this palette "snoop". Some special VGA cards need to be able to look at the video card's VGA palette to determine what colors are currently in use.
PERR# Generation	-disabled -enabled	Enables or disables generation of PERR# signals (data parity errors) used to signal the detection of a parity error related to a data phase.
SERR# Generation	-disabled -enabled	Enables or disables generation of SERR# signals (unrecoverable errors) which are reported to the system and handled by system software.
PCI Express Device Settings	no changeable options	
Relaxed Ordering	-disabled -enabled	Enables or disables relaxed ordering feature which allows transactions that do not have any order of completion requirements to complete more efficiently.
Extended Tag	-disabled -enabled	Enables or disables extended tag support for maximum value of outstanding requests possible per components from 32 to 2048.
Maximum Payload	-auto -128 Bytes -256 Bytes -512 Bytes -1024 Bytes -2048 Bytes -4096 Bytes	Maximum payload size supported specifies the size that the function supports for TLPs (Transaction Layer Packets).
Maximum Read Request	-auto -128 Bytes -256 Bytes -512 Bytes -1024 Bytes -2048 Bytes -4096 Bytes	Maximum read request size specifies the size for the device when acting as the requestor. The device must not generate read requests with a size larger this value.

BIOS Setting	Options	Description/Purpose
PCI Express Link Settings	no changeable options	
Automatic ASPM	-disabled -auto -force L0	Specifies mode for Active State Power Management (ASPM), hardware-based link power conservation mechanism. Force L0 standby mode applies to a single direction on the link.
Extended Synch	-disabled -enabled	Enabling extended synch feature forces the transmission of additional ordered sets when exiting the L0 state and when in the recovery state. This mode provides external devices monitoring the link time to achieve bit symbol lock before the link enters L0 state and resumes communication.

4-4-2. Advanced - ACPI Settings

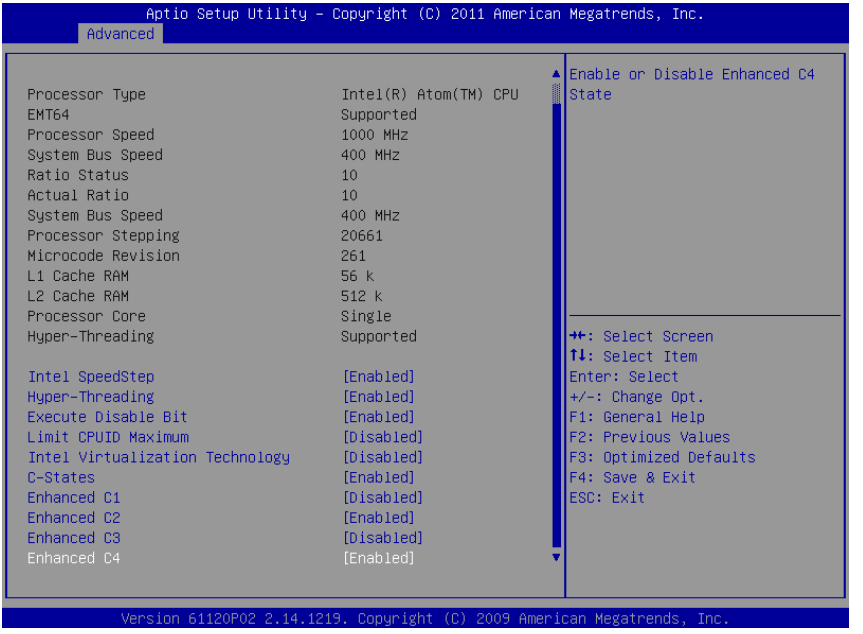
ACPI Settings Screen

BIOS Setting	Options	Description/Purpose
ACPI Sleep State	-Suspend Disabled -S3 (Suspend to RAM)	Specifies the ACPI sleep state. ▪ **Disabled** option disables ACPI sleep feature. ▪ **S3 (Suspend to RAM)** specifies the Advanced Configuration and Power Interface (ACPI) sleep state.

Note: It is necessary to modify system registry in order enable wake up from S3 system power state via USB devices in Windows XP. Simply add DWORD entry named "USBBIOSx" with value 0 to location:
HKEY_LOCAL_MACHINE\SYSTEM\CurrentControlSet\Services\usb\

Fore more details refer to Microsoft Support article KB 841858 at
http://support.microsoft.com/kb/841858

4-4-3. Advanced - CPU Configuration

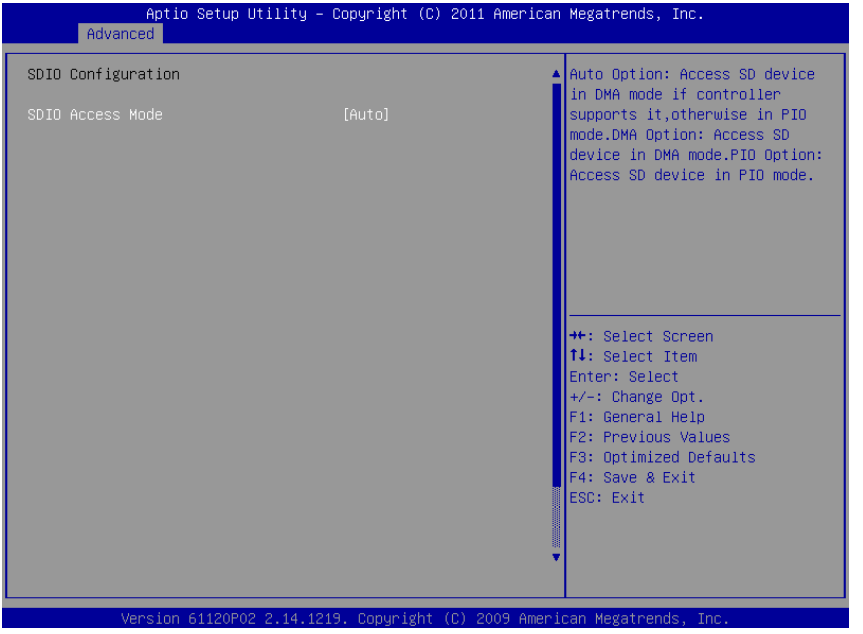


CPU Configuration Screen

BIOS Setting	Options	Description/Purpose
Processor Type	no changeable options	Displays the current processor model number.
EMT64	no changeable options	Reports if processor supports Intel x86-64 (amd64) implementation.
Processor Speed	no changeable options	Displays the current processor frequency.
System Bus Speed	no changeable options	Displays the bus frequency.
Processor Stepping	no changeable options	Displays processor's ID stepping.
Microcode Revision	no changeable options	Displays processor's microcode update revision.
L1 Cache RAM	no changeable options	Displays amount of Level 1 cache.
L2 Cache RAM	no changeable options	Displays amount of Level 2 cache.
Processor Cores	no changeable options	Displays information about number of physical cores in processor.

BIOS Setting	Options	Description/Purpose
Hyper-Threading	no changeable options	Reports if Intel Hyper-Threading Technology is supported by processor.
Intel SpeedStep	-disabled -enabled	Enables Intel SpeedStep feature for dynamic scaling processor frequency (this doesn't apply to processors Atom E620 and E620T).
Hyper-threading	-disabled -enabled	When disabled, only one thread per active core will operate.
Execute Disable Bit	-disabled -enabled	Enables the NX bit (No eXecute) security feature.
Limit CPUID Maximum	-disabled -enabled	Enables for legacy operating systems to boot processors with extended CPUID functions.
Intel Virtualization Technology	-disabled -enabled	Enables or disables Intel Virtualization Technology (VT-x). Takes affect only after power cycling.
C-States	-disabled -enabled	Enables or disables C states (C2 and above) in processor.
Enhanced C1	-disabled -enabled	Allows processor to enter its C1 idle state.
Enhanced C2	-disabled -enabled	Allows processor to enter its C2 idle state.
Enhanced C3	-disabled -enabled	Allows processor to enter its C3 idle state.
Enhanced C4	-disabled -enabled	Allows processor to enter its C4 idle state.

4-4-4. Advanced – SDIO Configuration



SDIO Information Screen

BIOS Setting	Options	Description/Purpose
SDIO Access Mode	-auto -DMA -PIO	Configures SDIO (Secure Digital Input Output) interface as following: **Auto** Mode selects mode in automatic fashion. **DMA** Mode allows use Direct Memory Access method. **PIO** Mode enables Programmed input/output method.

4-4-5. USB Configuration

USB Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Devices	no changeable options	Reports number and type of connected USB devices if any.
Legacy USB Support	-enabled -disabled -auto	Enables support for USB in legacy operating systems (e.g. MS-DOS, Windows NT).
EHCI Hand-off	-disabled -enabled	When enabled it allows BIOS support control of the EHCI controller and the OS hand-off synchronization capability.
USB transfer time-out	-1 sec -5 sec -10 sec -20 sec	Specifies time-out value for Control, Bulk and Interrupt transfers.
Device reset time-	-10 sec	Specifies the value for device reset

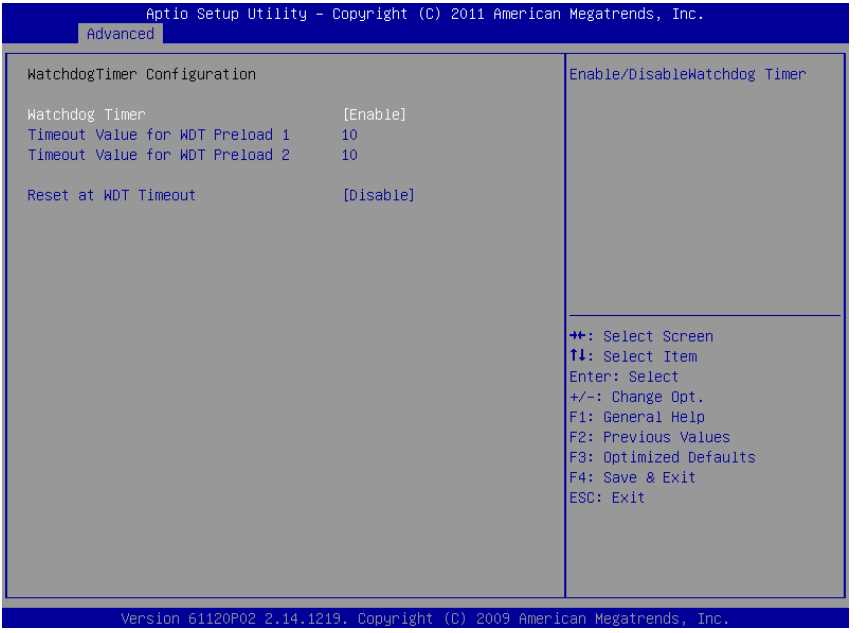
BIOS Setting	Options	Description/Purpose
out	-20 sec -30 sec -40 sec	timeout.
Device power-up delay	-auto -manual	Specifies maximum time it would take for USB device to report itself to the controller. If set to auto, it would use default values (100 ms for root port) and value read from hub descriptor in case of hub port.
Mass Storage Devices: [drive(s)]	-Auto -Floppy -Forced FDD -Hard Disk -CD-ROM	Appears only when USB flash drive is plugged in. Allows selecting which emulation to use on available drive(s). Please note that the sector size of your USB drive should be emulated device native sector size.

4-4-6. Advanced – Watchdog Timer Configuration [disabled]

Watchdog Timer Configuration Screen

BIOS Setting	Options	Description/Purpose
Watchdog Timer	-disabled -enabled	Enables watchdog timer feature.

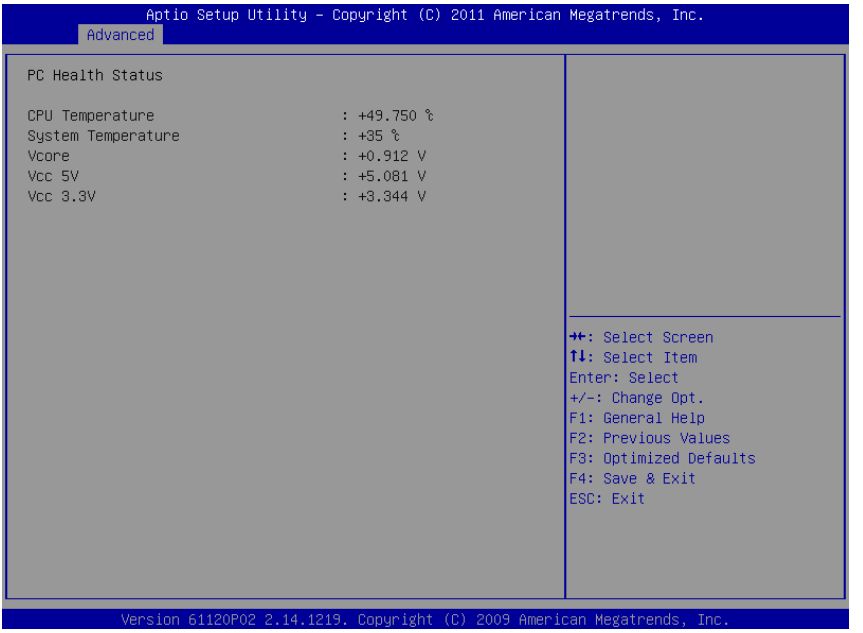
Advanced – Watchdog Timer Configuration [enabled]



Watchdog Timer Configuration Screen

BIOS Setting	Options	Description/Purpose
Watchdog Timer	-disabled -enabled	Enables watchdog timer feature.
Timeout Value for WDT Preload 1	multiple options ranging from 1 to 255	Sets the desired value (in seconds) for watchdog timer register 1.
Timeout Value for WDT Preload 1	multiple options ranging from 1 to 255	Sets the desired value (in seconds) for watchdog timer register 2.
Reset at WDT Timeout	-disabled -enabled	Enables the board restart on watchdog timer timeout.

4-4-7. Advanced – H/W Monitor NCT7802Y



Hardware Monitor Screen

BIOS Setting	Options	Description/Purpose
CPU Temperature	no changeable options	Shows processor temperature in degree Celsius.
System Temperature	no changeable options	Monitors system temperature in degree Celsius.
Vcore	no changeable options	Shows actual voltage of processor core in volt.
Vcc 5V	no changeable options	Monitors 5V section (in volt).
Vcc 3.3V	no changeable options	Monitors 3.3 V section (in volt).

4-4-8. Advanced – Super IO F81216AU

Super IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Super IO Chip	no changeable options	Shows Super IO manufacturer and model.
F81216 Serial Port 1 Configuration	sub-menu	Enters menu to configure serial port 1.
F81216 Serial Port 2 Configuration	sub-menu	Enters menu to configure serial port 2.

4-4-8-1. Advanced –Super IO F81216AU – Serial Port 1 Configuration

Serial Port 1 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	-disabled -enabled	Configures the serial port 1.
Device Settings	no changeable options	Shows current settings applied to serial port.
Change Settings	-Auto -IO=3F8h; IRQ=4 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h;	Specifies the base I/O address and interrupt request for the serial port 1 if enabled.

BIOS Setting	Options	Description/Purpose
	IRQ=3,4,5,6,7,10,11,12	

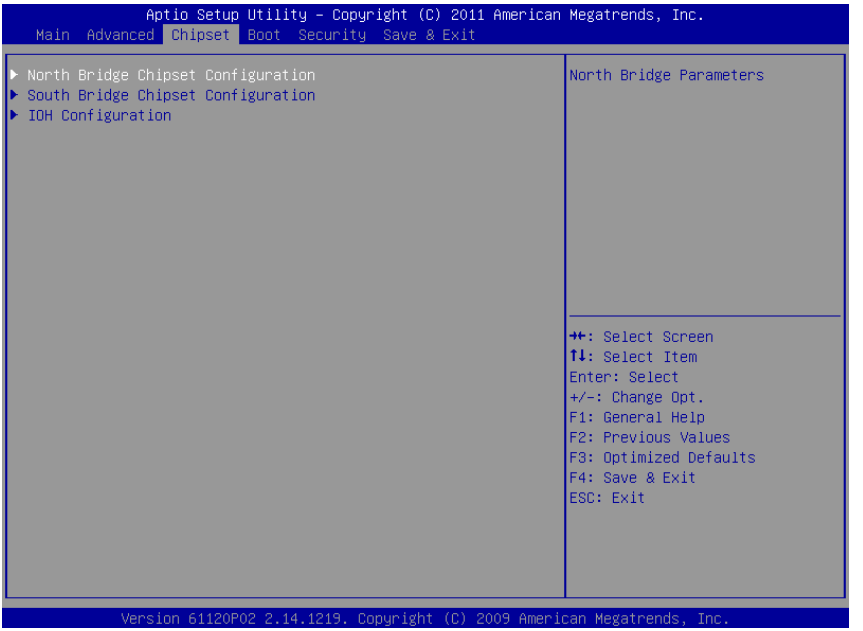
4-4-8-2. Advanced –Super IO F81216AU – Serial Port 2 Configuration

Serial Port 2 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	-disabled -enabled	Configures the serial port 2.
Device Settings	no changeable options	Shows current settings applied to serial port.
Change Settings	-Auto -IO=3F8h; IRQ=4 -IO=3F8h; IRQ=3,4,5,6,7,10,11,12 -IO=2F8h; IRQ=3,4,5,6,7,10,11,12 -IO=3E8h; IRQ=3,4,5,6,7,10,11,12 -IO=2E8h;	Specifies the base I/O address and interrupt request for the serial port 2 if enabled.

BIOS Setting	Options	Description/Purpose
	IRQ=3,4,5,6,7,10,11,12	

4-5. Chipset



Chipset Screen

BIOS Setting	Options	Description/Purpose
North Bridge Chipset Configuration	sub-menu	Enters menu to configure integrated graphics related items.
South Bridge Chipset Configuration	sub-menu	Enters menu to configure audio, high precision timer and PCIe ports items.
IOH Configuration	sub-menu	Enters menu to configure GPIO and SATA items.

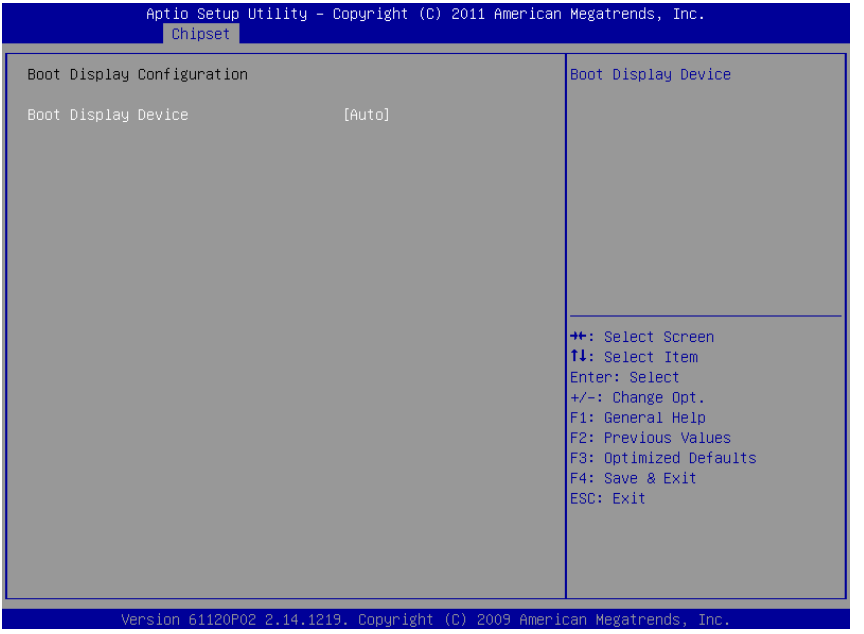
4-5-1. Chipset – North Bridge Chipset Configuration

North Bridge Chipset Configuration Screen

BIOS Setting	Options	Description/Purpose
MRC Version	no changeable options	Displays current version of MRC (Memory Reference Code), e.g. “1.00”.
Total Memory	no changeable options	Displays the total amount of RAM.
vBIOS Version	no changeable options	Displays current version of video BIOS, e.g. “2209”.
EMGD Driver Version	no changeable options	Displays current version of Intel EMGD (Embedded Media and Graphics Driver), e.g. “1.10”.
IGD Mode Select	-enabled, 4MB -enabled, 8MB -enabled, 16MB -enabled, 32MB -enabled, 48MB -enabled, 64MB	Specifies the amount of main memory assigned to Integrated Graphics Device.

BIOS Setting	Options	Description/Purpose
MSAC Mode Select	-enabled, 512MB -enabled, 256MB -enabled, 128MB	Specifies the size of the graphics memory aperture in function (please note that option 512 MB isn't applicable for Microsoft Windows).
Boot Display Configuration	sub-menu	Enters menu to select active screen on boot.

4-5-1-1. Chipset - North Bridge – Boot Display Configuration



Boot Display Device Screen

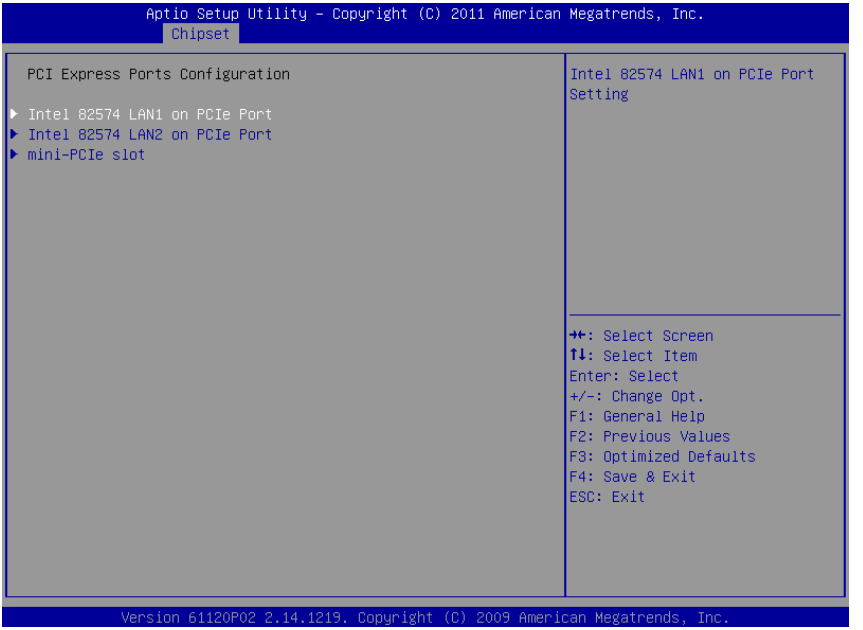
BIOS Setting	Options	Description/Purpose
Boot Display Device	-Auto -VGA	Selects which screen is going to be active on power on. In **Auto** mode, if VGA monitor is connected, clone mode (both VGA display and LVDS panel show same content) is enabled. **VGA** option selects output to VGA monitor only.

4-5-2. Chipset – South Bridge Chipset Configuration

South Bridge Chipset Configuration Screen

BIOS Setting	Options	Description/Purpose
Audio Controller	-disabled -enabled	Enables Intel HD audio controller.
High Precision Timer	-disabled -enabled	Enables or disables High Precision Even Timer support.
PCI Express Ports Configuration	sub-menu	Enters menu to configure devices attached on PCI Express interface.
PPM Config	sub-menu	Section to configure additional option for Intel C-States feature.

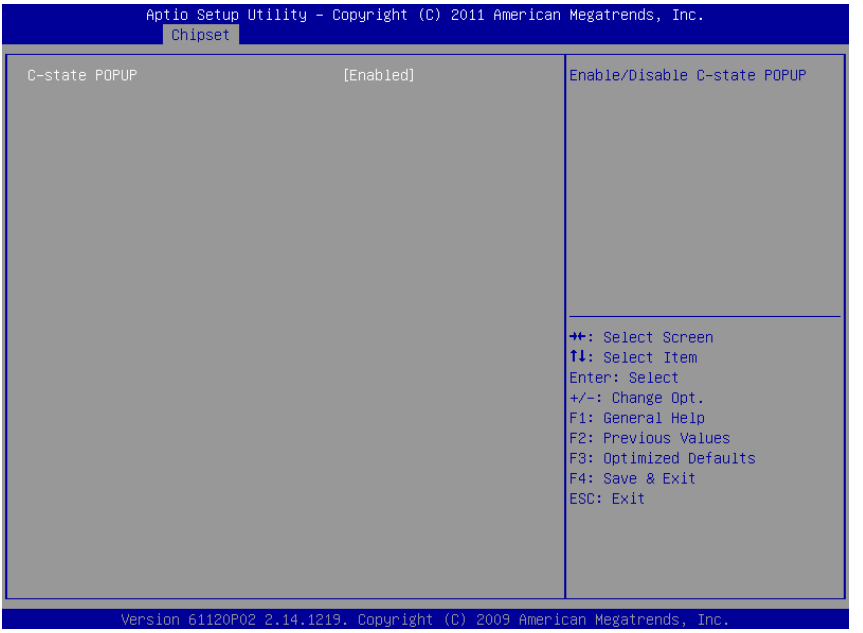
4-5-2-1. Chipset – South Bridge Chipset Configuration – PCI Express Ports Configuration



PCI Express Ports Configuration Screen

BIOS Setting	Options	Description/Purpose
Intel 82574 LAN1 on PCIe Port 1	-disabled -enabled	Controls PCIe root port 1 (LAN1 device).
Intel 82574 LAN1 on PCIe Port 2	-disabled -enabled	Controls PCIe root port 2 (LAN2 device).
mini-PCIe slot	-disabled -enabled	Controls device on mini-PCIe (on PCIe root port 3), if inserted.

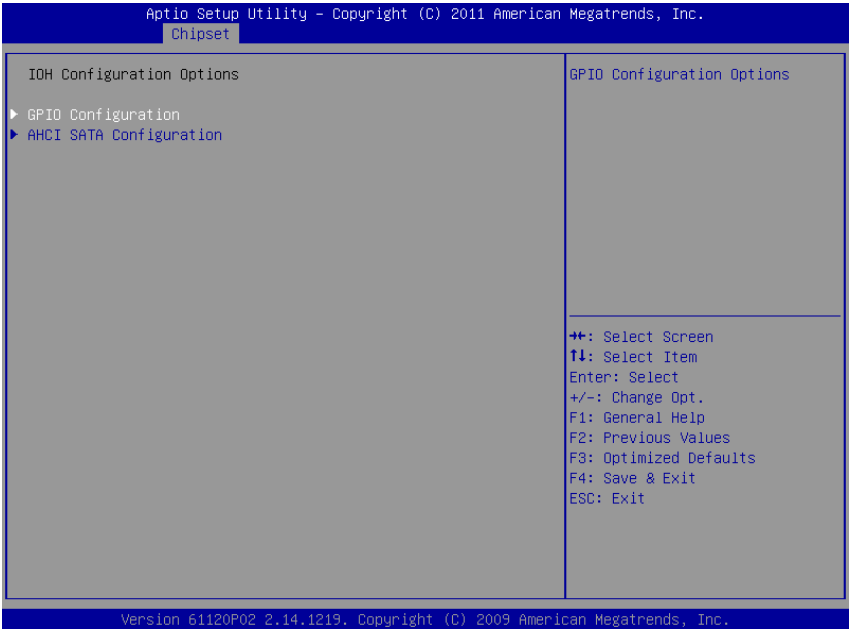
4-5-2-2. Chipset – South Bridge Chip Configuration – PPM Config



PPM Configuration Screen

BIOS Setting	Options	Description/Purpose
C-state POPUP	-disabled -enabled	Enables popup mode in which CPU goes from C3 or C4 state into C2 (when disabled it changes straight to C0); this is part of PPM (Processor Power Management).

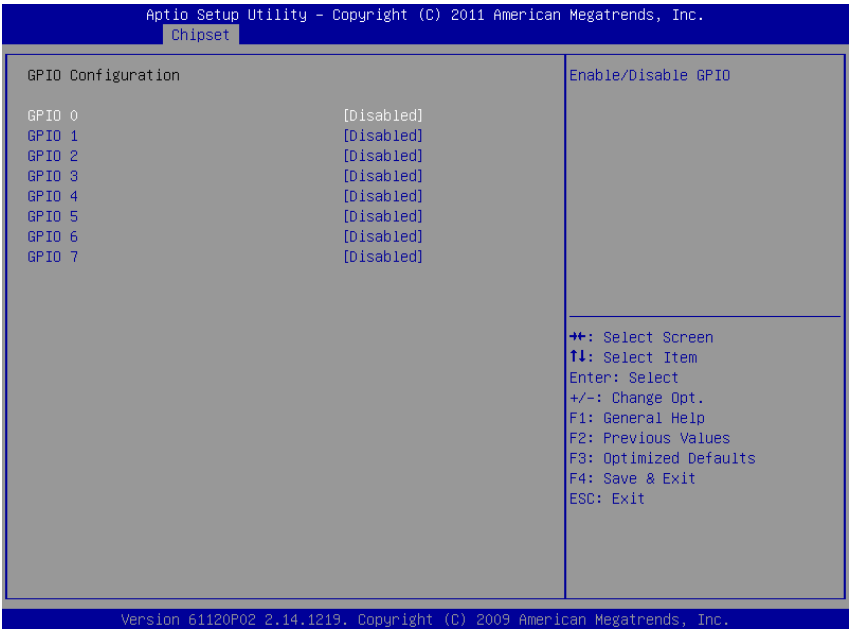
4-5-3. Chipset – IOH Configuration



IOH Configuration Screen

BIOS Setting	Options	Description/Purpose
GPIO Configuration	sub-menu	Enters menu to configure General Purpose Input/Output.
AHCI SATA Configuration	sub-menu	Section to configure SATA and CFast ports.

4-5-3-1. Chipset – IOH Configuration – GPIO Configuration

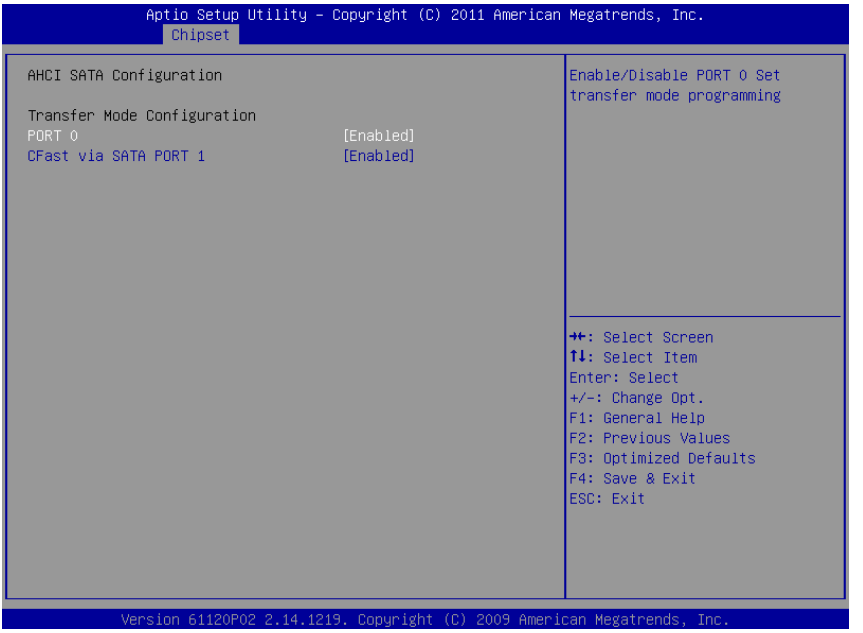


GPIO Configuration Screen

BIOS Setting	Options	Description/Purpose
GPIO 0	-disabled -enabled	Enables or disables GPIO 0.
GPIO 1	-disabled -enabled	Enables or disables GPIO 1.
GPIO 2	-disabled -enabled	Enables or disables GPIO 2.
GPIO 3	-disabled -enabled	Enables or disables GPIO 3.
GPIO 4	-disabled -enabled	Enables or disables GPIO 4.
GPIO 5	-disabled -enabled	Enables or disables GPIO 5.
GPIO 6	-disabled	Enables or disables GPIO 6.

BIOS Setting	Options	Description/Purpose
	-enabled	
GPIO 7	-disabled, -enabled	Enables or disables GPIO 7.

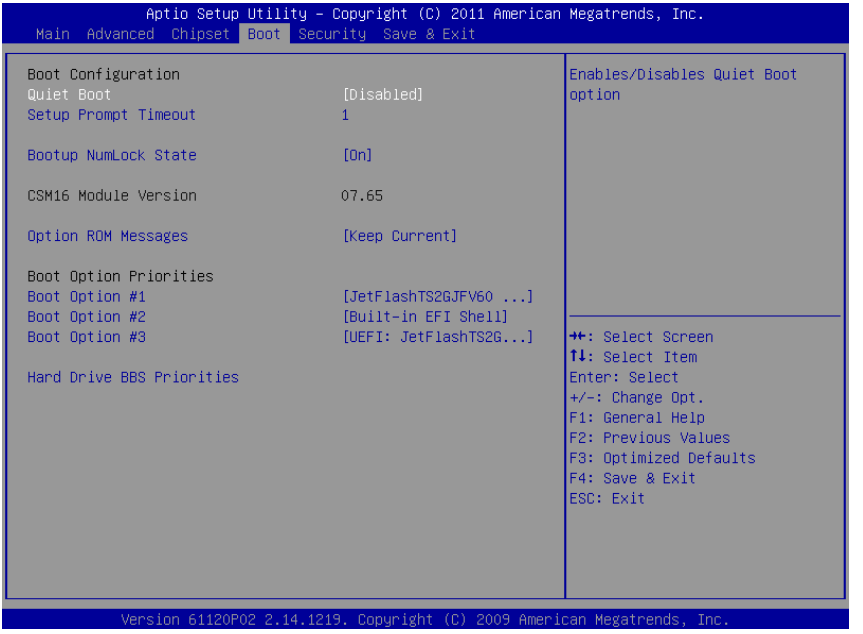
4-5-3-2. Chipset – IOH Configuration – AHCI SATA Configuration



AHCI SATA Configuration Screen

BIOS Setting	Options	Description/Purpose
Port 0	-disabled -enabled	Configures SATA interface controller, when **disabled** it selects PIO mode. **Enabled** chooses DMA transfer mode.
CFast via SATA Port 1	-disabled -enabled	If inserted, configures CFast storage device. When **disabled** it selects PIO mode. Option **Enabled** chooses DMA transfer mode.

4-6. Boot

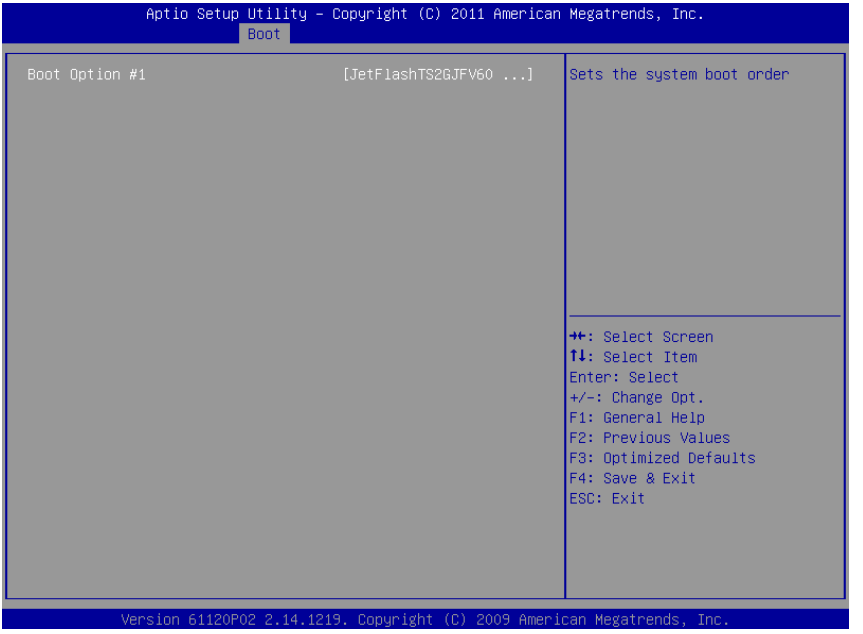


Boot Screen

BIOS Setting	Options	Description/Purpose
Quiet Boot	-disabled -enabled	When quiet boot is enabled, it displays AMI or OEM logo instead of POST messages during the boot.
Setup Prompt Timeout	multiple options ranging from 1 to 65535	Specifies number of seconds to wait for setup activation key (value 65535 results in indefinite waiting).
Bootup NumLock Status	-on -off	Specifies the power-on state of the numlock feature on the numeric keypad of keyboard.
CSM16 Module Version	no changeable options	Displays the current Compatibility Support Module version, e.g. “7.65”.
Option ROM Messages	-Force BIOS -Keep Current	When set to **Force BIOS** it allows the POST screen to display Option ROM messages.

BIOS Setting	Options	Description/Purpose
Boot Option #1	-[USB/DVD/ hard drive(s)] -built-in EFI shell -disabled	Allows setting up boot option(s) from menu listed.

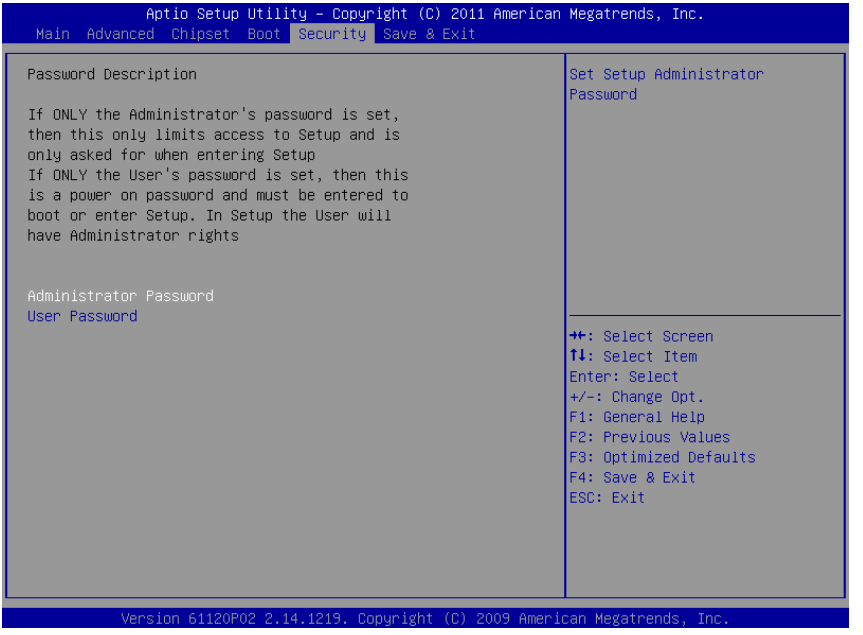
4-6-1. Boot – Hard Drive BBS Priorities



Hard Drive BBS Priorities Screen

BIOS Setting	Options	Description/Purpose
Boot Option #1	-[drive(s)] -disabled	Allows setting the boot order of available drive(s).

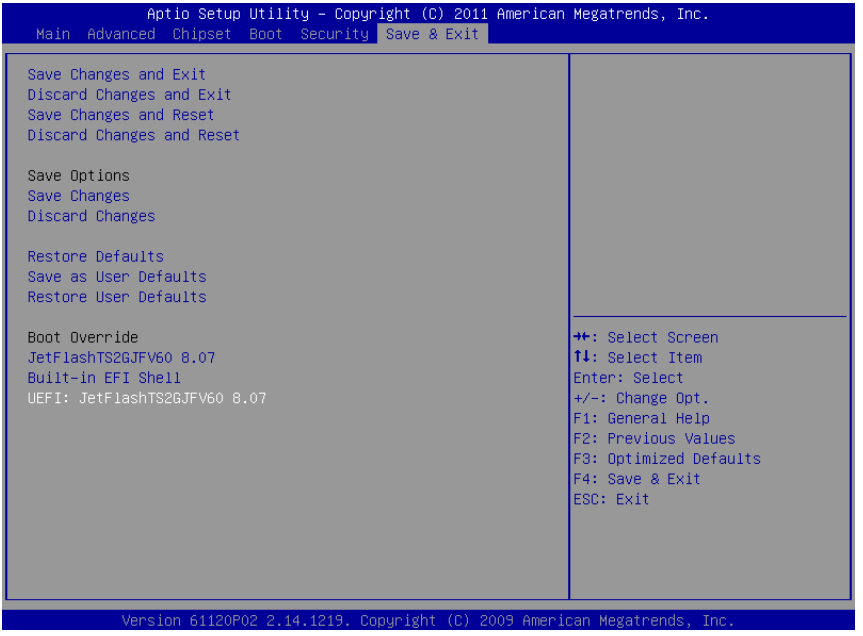
4-7. Security



Security Screen

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

4-8. Save & Exit



Save & Exit Screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	no changeable options	Exits and saves the changes in CMOS memory.
Discard Changes and Exit	no changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	no changeable options	Saves the changes in CMOS memory and resets.
Discard Changes and Reset	no changeable options	Resets without saving any changes made in BIOS settings.
Save Changes	no changeable options	Saves the changes done in BIOS settings so far.
Discard Changes	no changeable options	Discards the changes done in BIOS settings so far.
Restore Defaults	no changeable options	Loads the optimized defaults for BIOS

BIOS Setting	Options	Description/Purpose
		settings.
Save as User Defaults	no changeable options	Saves the current values as user defaults.
Restore User Defaults	no changeable options	Loads the user defaults for BIOS settings.
Boot Override	-[drive(s)]	Forces to boot from selected [drive(s)].

APPENDIX

A

SYSTEM ASSEMBLY

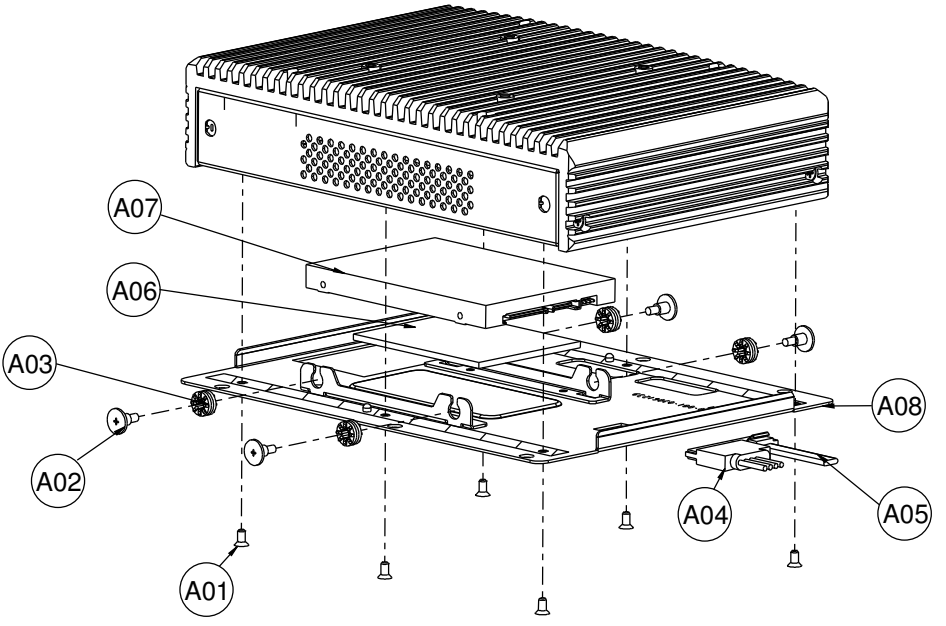
This appendix contains the exploded diagram of the system.

Section includes:

- Exploded Diagram for SP-6110 (CPT)/6112/6118 System
- Exploded Diagram for SP-6110 System
- Exploded Diagram for SP-6110 CPT System
- Exploded Diagram for SP-6112 System
- Exploded Diagram for SP-6118 System

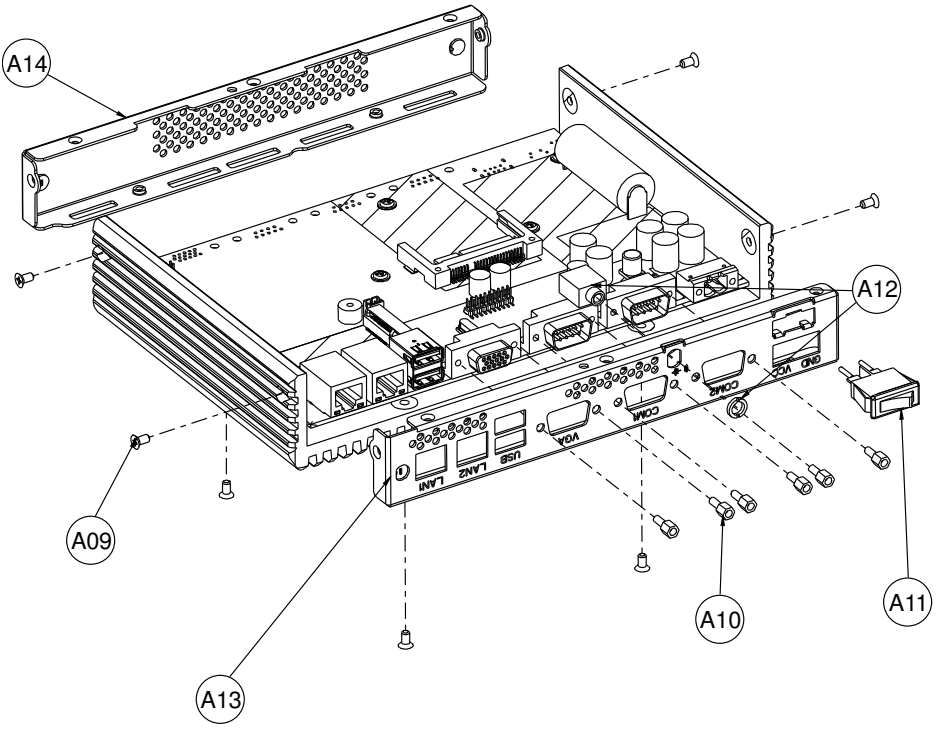
EXPLODED DIAGRAM FOR SP-6110 (CPT)/6112/6118 SYSTEM

SATA HDD



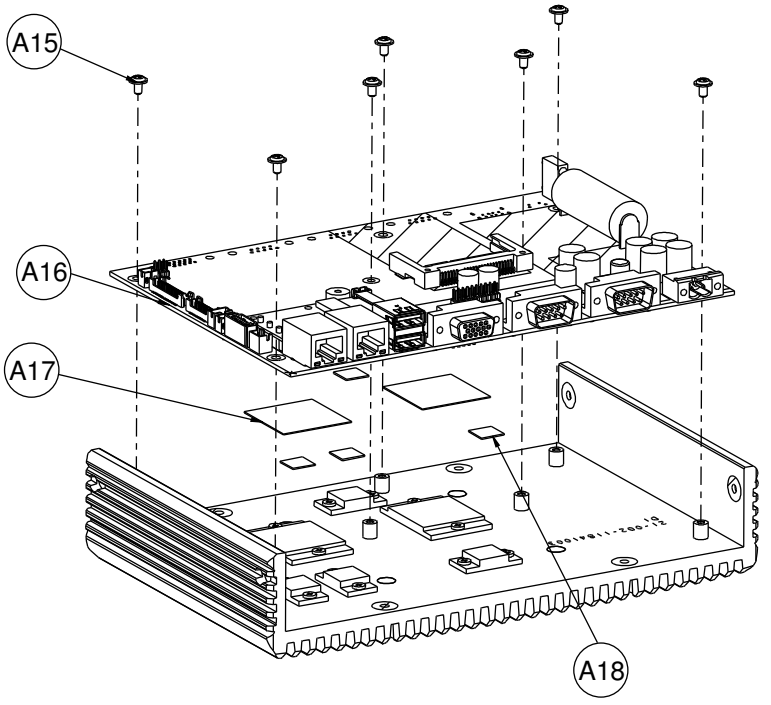
No.	Name	P/N No.	Qt'y
A01	M3_L6_F_B	22-215-30060011	6
A02	HDD Screw	82-272-30005013	4
A03	HDD Rubber	23-680-39580963	4
A04	sata power cable	27-008-23905071	1
A05	sata data cable	27-008-20305031	1
A06	Thermal Pad	21-006-07055001	1
A07	sata hdd	By order	1
A08	611x_bot_case	20-001-03061239	1

Rear case



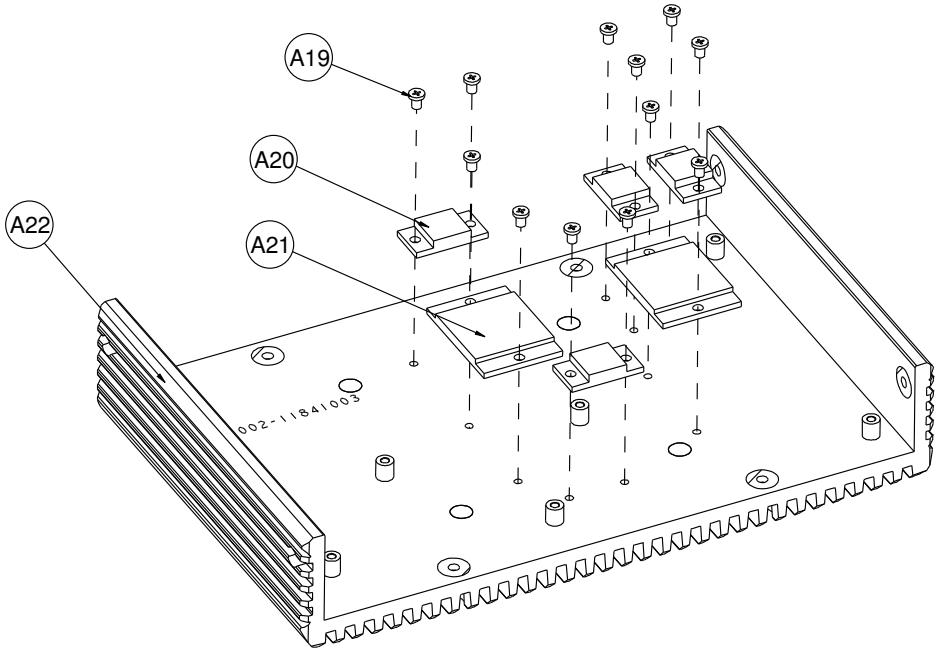
No.	Name	P/N No.	Qt'y
A09	M3_L6_F_B	22-215-30060011	8
A10	No.4 BOSS	22-692-40048051	6
A11	switch cable	27-019-26301071	1
A12	LINE OUT CABLE	27-028-24802111	1
A13	SP-610X_BACK_CASE	20-001-03063239	1
A14	SP-610X_FRONT_CASE	20-001-03062239	1

Main board



No.	Name	P/N No.	Qt'y
A15	M3_L5_Washer_Ni	22-242-30005311	7
A16	SB-8120	--	1
A17	Thermal Pad Big	81-006-03030001	2
A18	Thermal Pad small	81-006-01010001	4

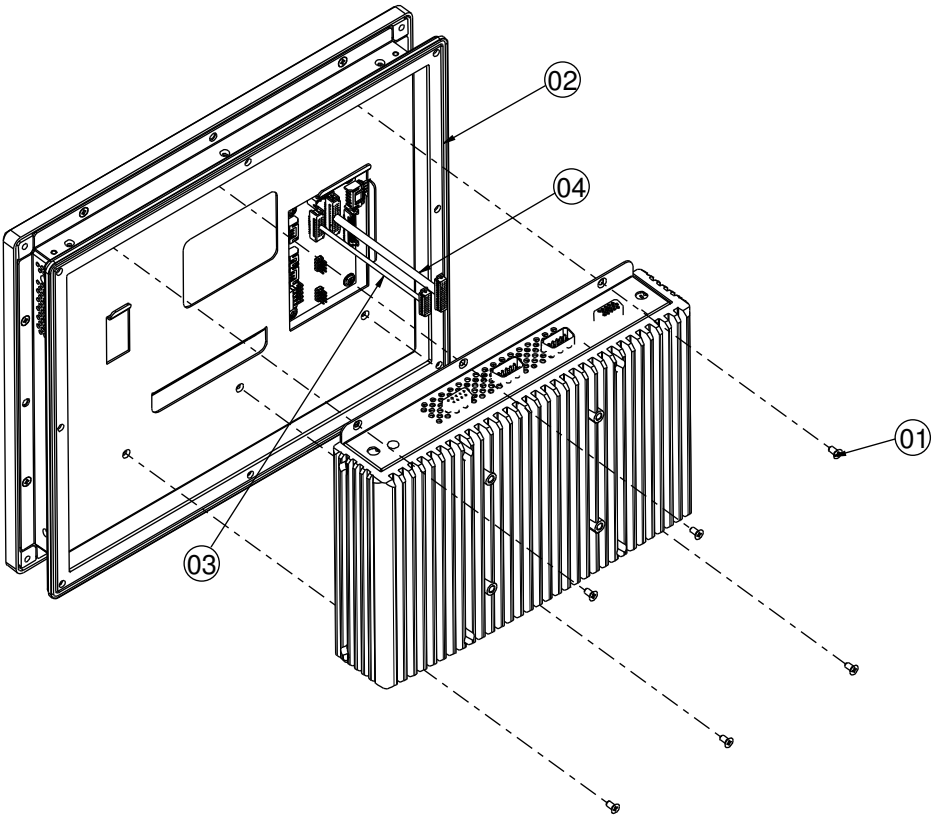
Heat sink



No.	Name	P/N No.	Qt'y
A19	M3_L5_1	22-272-30049015	12
A20	Heatsink Block small	21-002-12513001	4
A21	Heatsink Block Big	21-002-13927001	2
A22	611X Heatsink	21-002-11841003	1

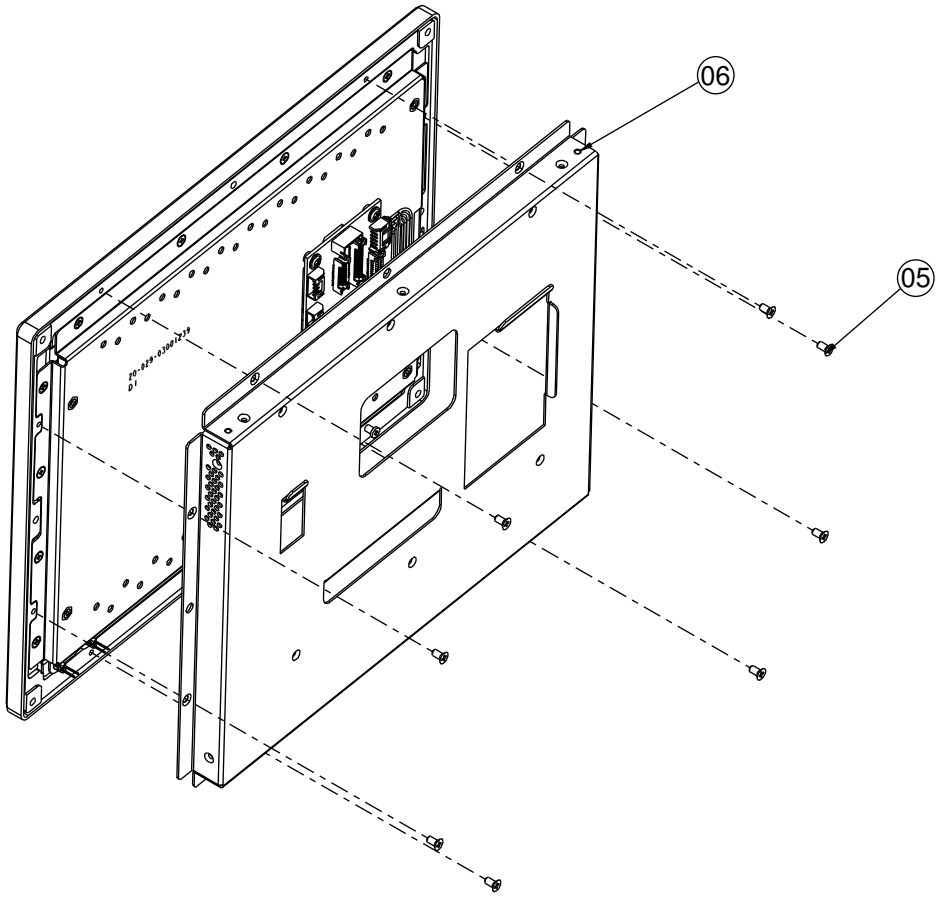
EXPLODED DIAGRAM FOR SP-6110 SYSTEM

Open & close



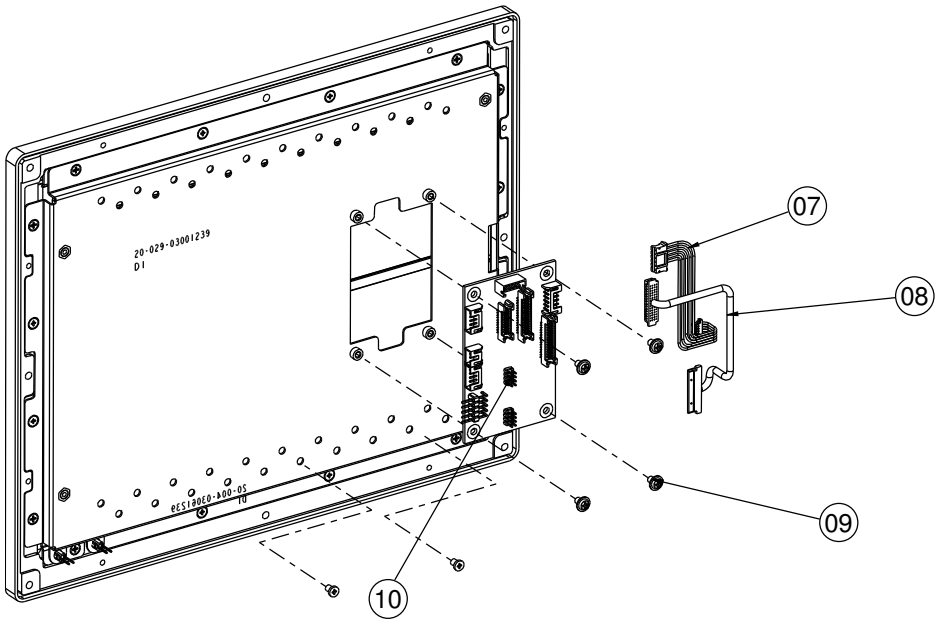
No.	Name	P/N No.	Qt'y
1	M3_L6_F_B	22-215-30060011	6
2	outside rubber	30-013-01100239	1
3	Link_cable data	27-055-23903111	1
4	LInk cable lvds	27-020-26304111	1

LCD cover



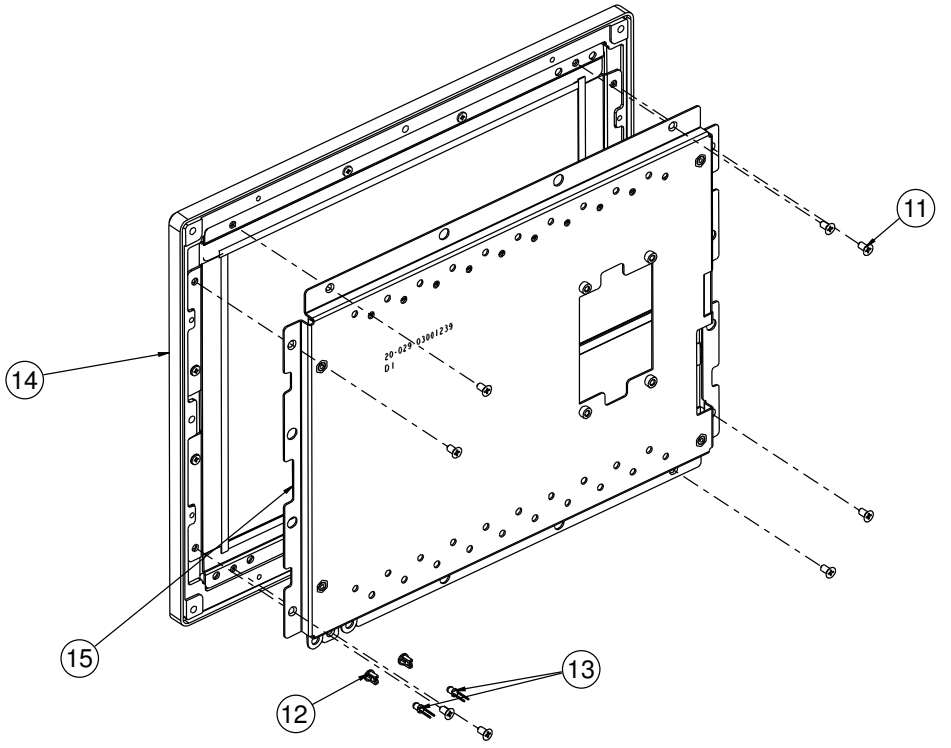
No.	Name	P/N No.	Qt'y
5	M3_L6_F_B	22-215-30060011	8
6	LCD cover	20-004-03061239	1

Daughter board



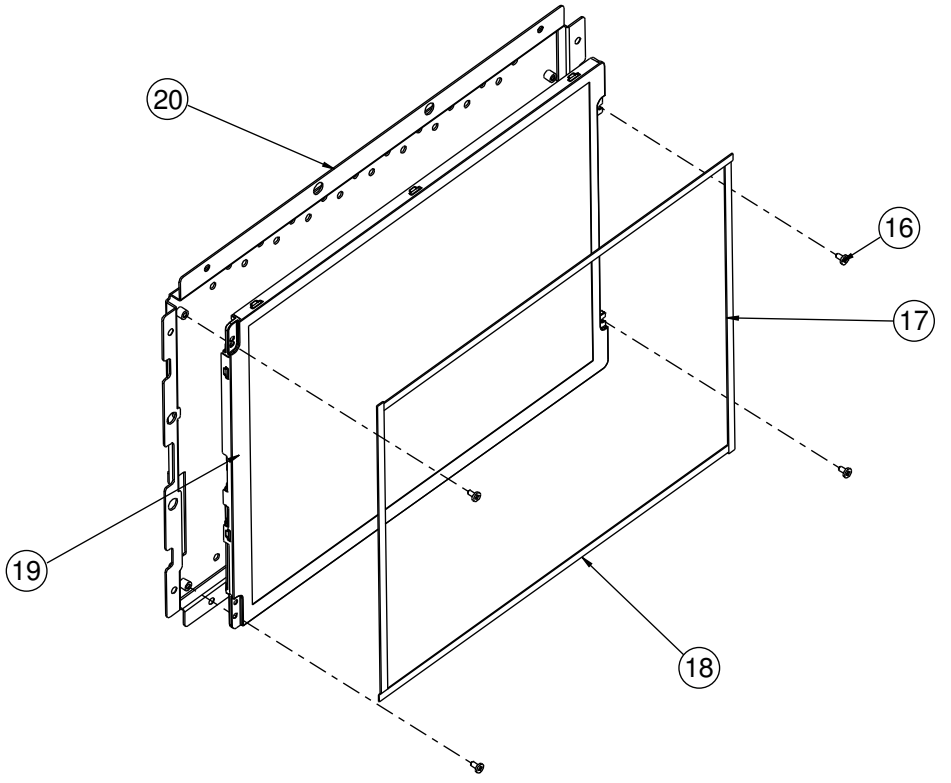
No.	Name	P/N No.	Qt'y
7	LCD_LED cable	27-055-25002071	1
8	LVDS Cable	27-020-25003111	1
9	M3_L5_Washer_Ni	22-242-30005311	4
10	SR-6100RB-D4N	--	1

LCD holder



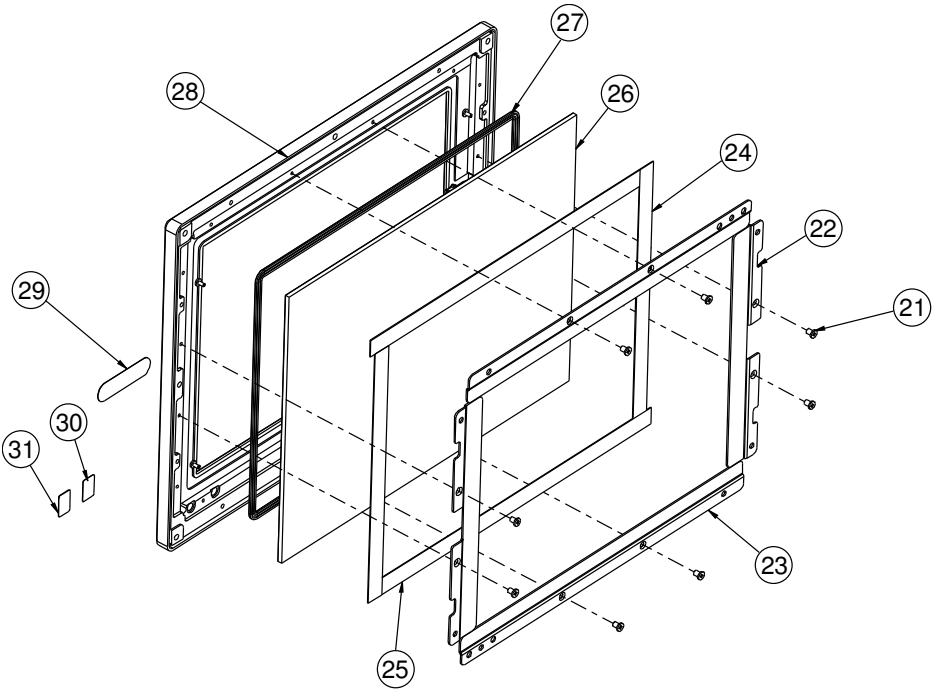
No.	Name	P/N No.	Qt'y
11	M3_L5_F_B	22-215-30005011	8
12	D3mm LED HOUSING	30-014-04100165	2
13	power+hdd led cable	27-018-25005111	1
14	Panel_Assembly	--	1
15	LCD Holder Assembly	--	1

LCD Panel



No.	Name	P/N No.	Qt'y
16	M2_L4_I_Ni	22-272-20004011	4
17	PORON(167X4X0.5T)	30-013-24700000	2
18	PORON(220X4X0.5T)	30-013-24600000	2
19	Panel	52-351-01104302	1
20	LCD_holder	20-029-03001239	1

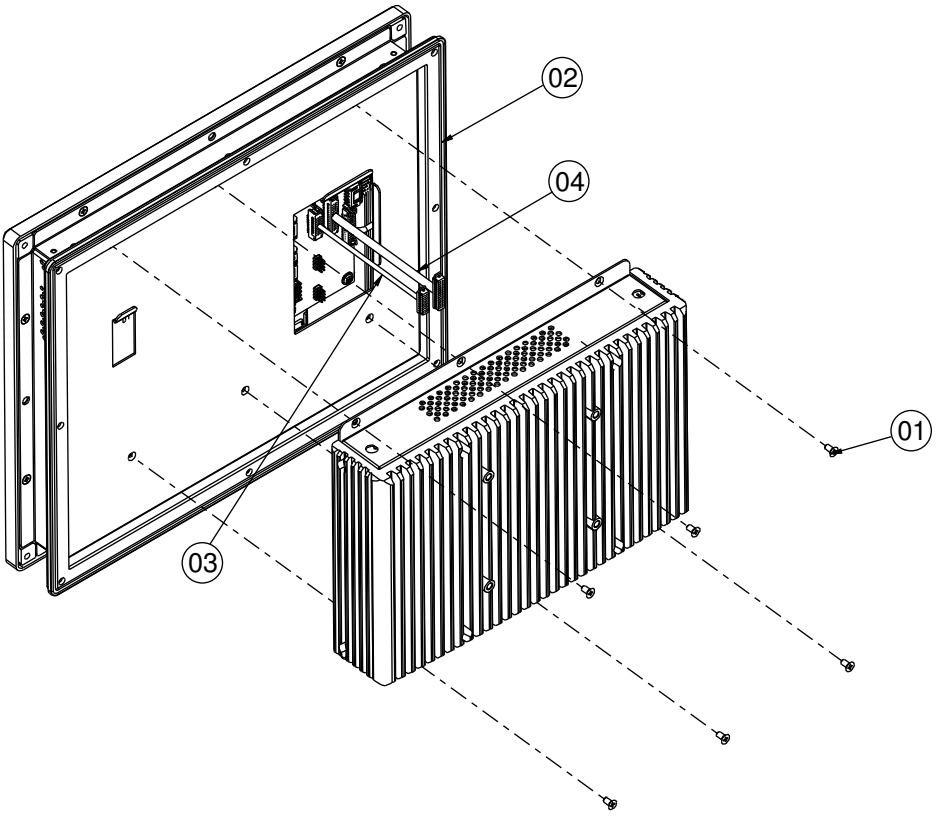
Touch panel & front panel



No.	Name	P/N No.	Qt'y
21	M3_L4_I_Ni	82-272-30004018	8
22	6110-TOUCH-SUPPORT_LR	20-006-03001239	2
23	6110-TOUCH-SUPPORT_TB	20-006-03002239	2
24	PORON_175xII.6x0.5T	90-013-24100000	2
25	PORON_233XII.6X0.5T	90-013-24200000	2
26	ELO Touch	52-380-01510401	I
27	LCD_RUBBER	30-013-01100045	I
28	6110 Front PANEL	20-003-01091239	I
29	Protech Label	34-017-02104009	I
30	HDD Label	34-017-02101009	I
31	Power Label	34-017-02103009	I

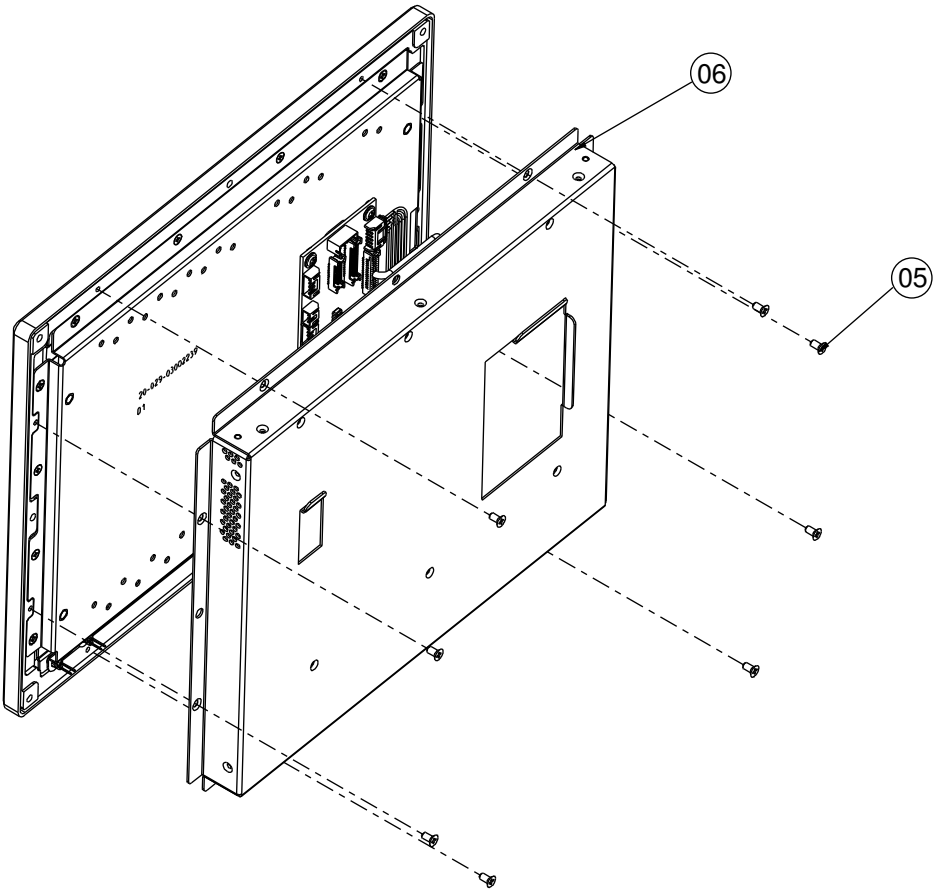
EXPLODED DIAGRAM FOR SP-6110 CPT SYSTEM

Open & close



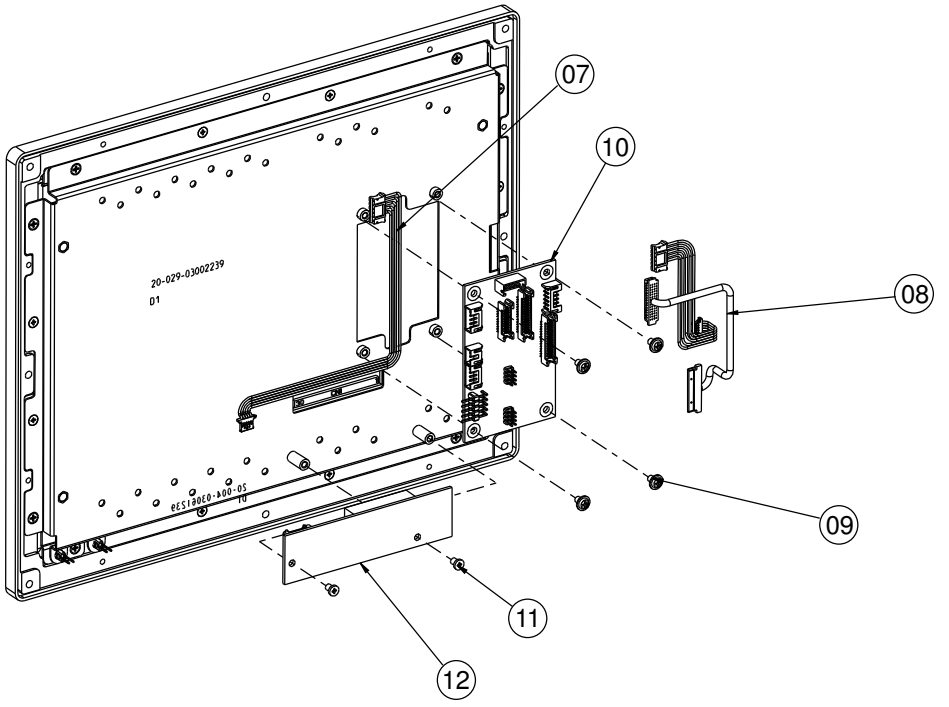
No.	Name	P/N No.	Qt'y
1	M3_L6_F_B	22-215-30060011	6
2	outside rubber	30-013-01100239	1
3	Link_cable data	27-055-23903111	1
4	Link cable lvds	27-020-26304111	1

LCD cover



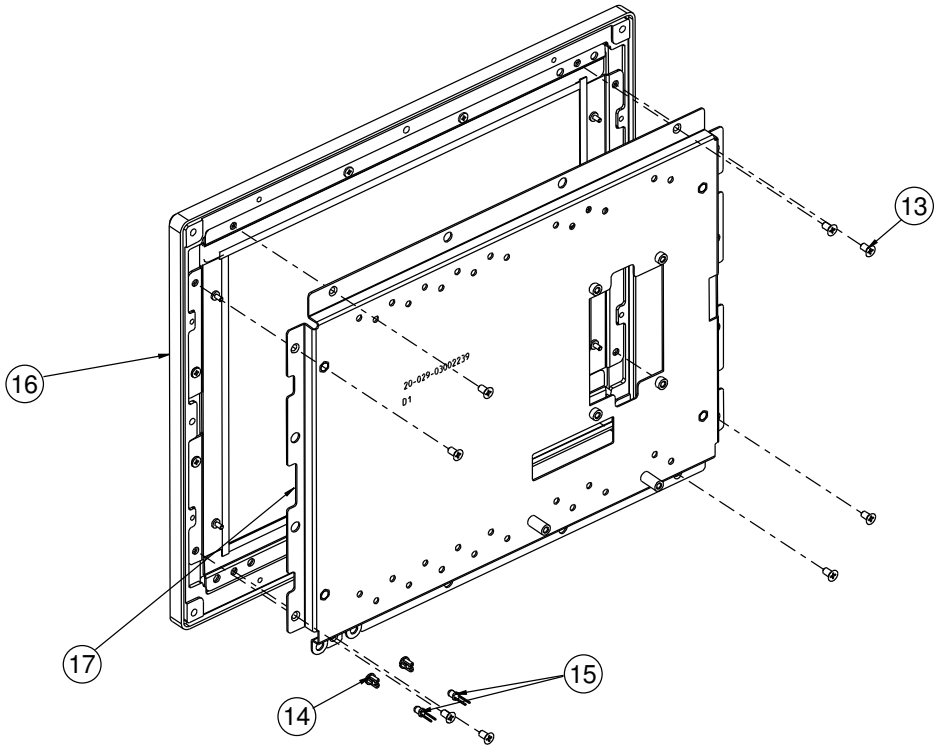
No.	Name	P/N No.	Qt'y
5	M3_L6_F_B	22-215-30060011	8
6	SP-6110 CPT LCD COVER	20-004-03062239	1

Daughter board



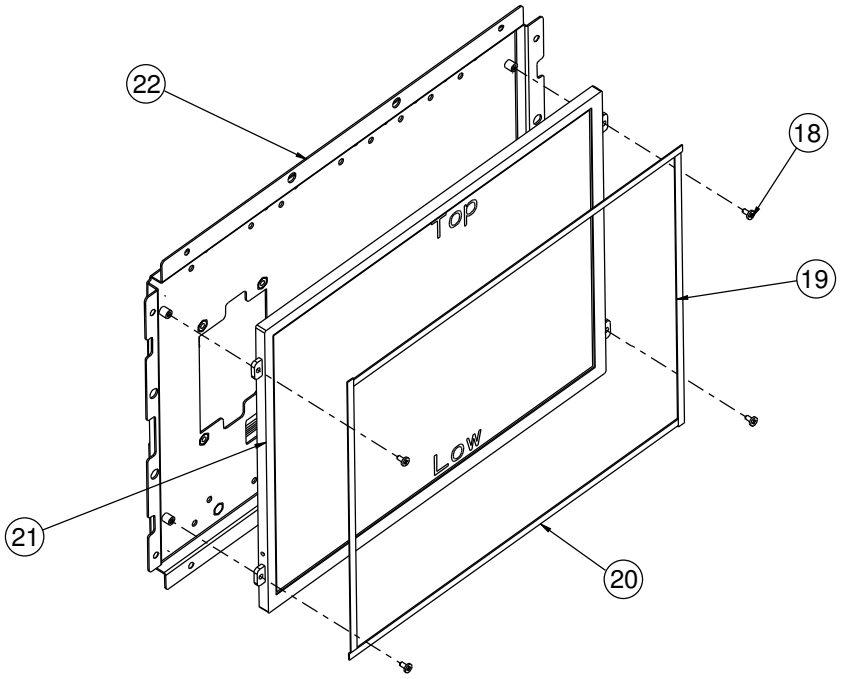
No.	Name	P/N No.	Qt'y
7	INVERTER CABLE	27-055-23904111	1
8	LVDS Cable	27-020-23903111	1
9	M3_L5_Washer_Ni	22-242-30005311	4
10	SR-6100RB-D4N	--	1
11	M3_L4_1_Ni	82-272-30004018	2
12	INVERTER	52-101-08010203	1

LCD holder



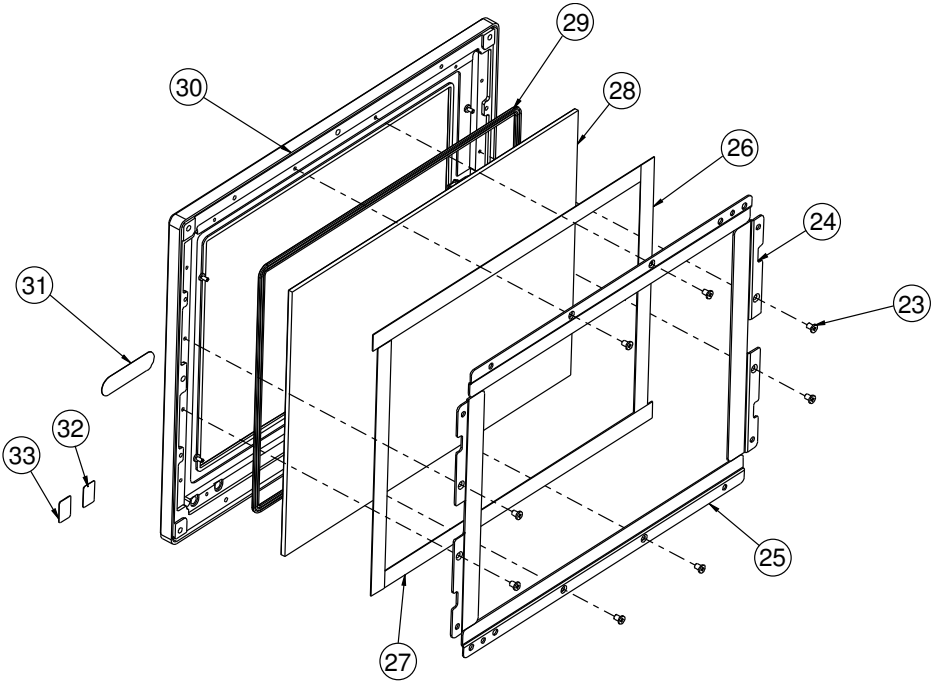
No.	Name	P/N No.	Qt'y
13	M3_L5_F_B	22-215-30005011	8
14	D3mm LED HOUSING	30-014-04100165	2
15	power+hdd led cable	27-018-25005111	1
16	Panel_Assembly	--	1
17	LCD Holder Assembly	--	1

LCD panel



No.	Name	P/N No.	Qt'y
18	M2_L4_I_Ni	22-272-20004011	4
19	PORON(167X4X0.5T)	30-013-24700000	2
20	PORON(220X4X0.5T)	30-013-24600000	2
21	Panel	52-351-01104019	1
22	CPT LCD_holder	20-029-03002239	1

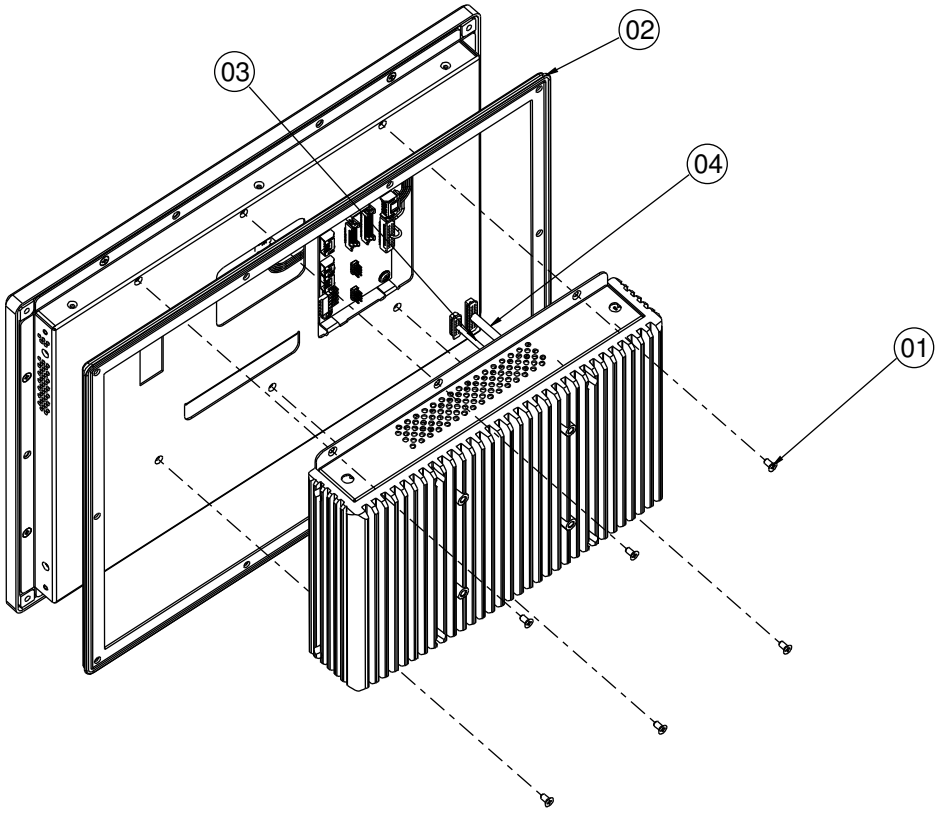
Touch panel & front panel



No.	Name	P/N No.	Qt'y
23	M3_L4_I_Ni	82-272-30004018	8
24	6110-TOUCH-SUPPORT_LR	20-006-03001239	2
25	6110-TOUCH-SUPPORT_TB	20-006-03002239	2
26	PORON_175xII.6x0.5T	90-013-24100000	2
27	PORON_233XII.6X0.5T	90-013-24200000	2
28	ELO Touch	52-380-01510401	I
29	LCD_RUBBER	30-013-01100045	I
30	6110 Front PANEL	20-003-01091239	I
31	Protech Label	34-017-02104009	I
32	HDD Label	34-017-02101009	I
33	Power Label	34-017-02103009	I

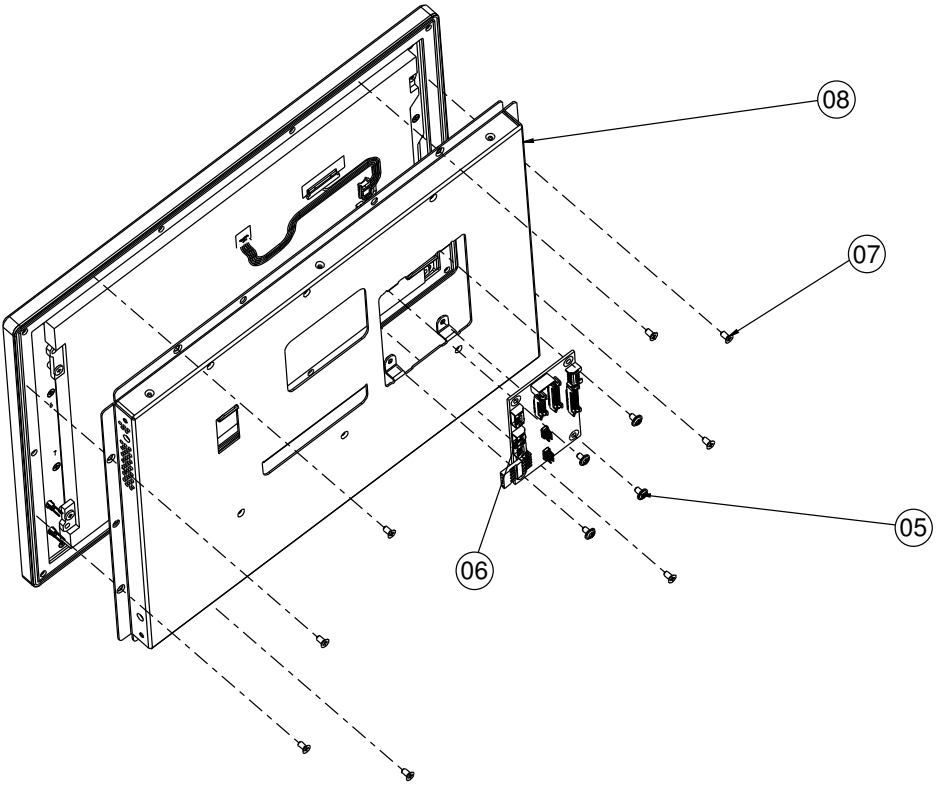
EXPLODED DIAGRAM FOR SP-6112 SYSTEM

Open & close



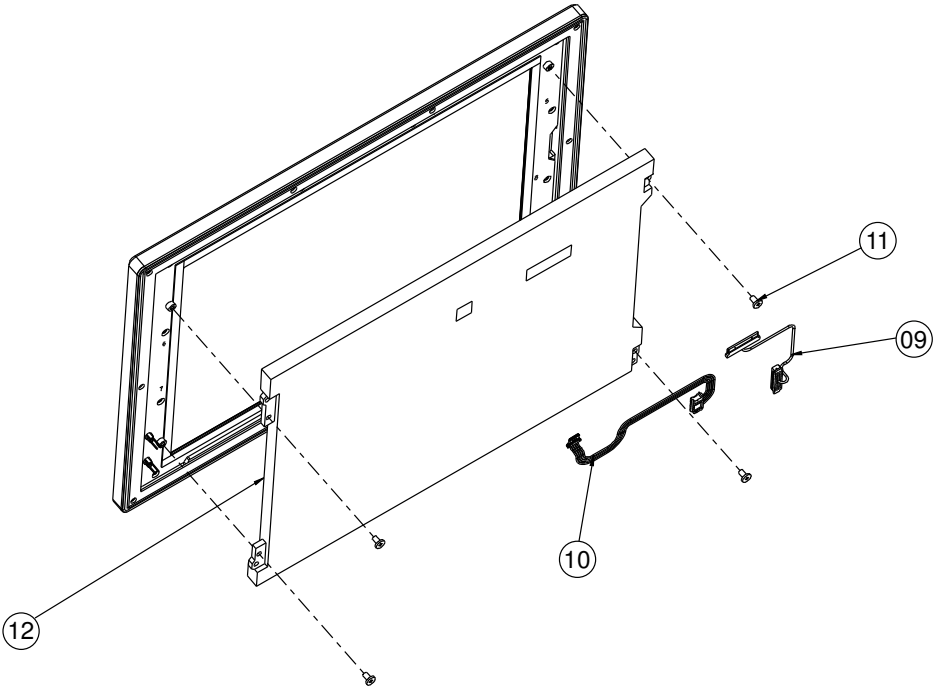
No.	Name	P/N No.	Qt'y
1	M3_L6_F_B	22-215-30060011	6
2	6112_outside rubber	30-013-01200240	1
3	Link_cable data	27-055-23903111	1
4	Link cable lvds	27-020-26304111	1

LCD cover & daughter board



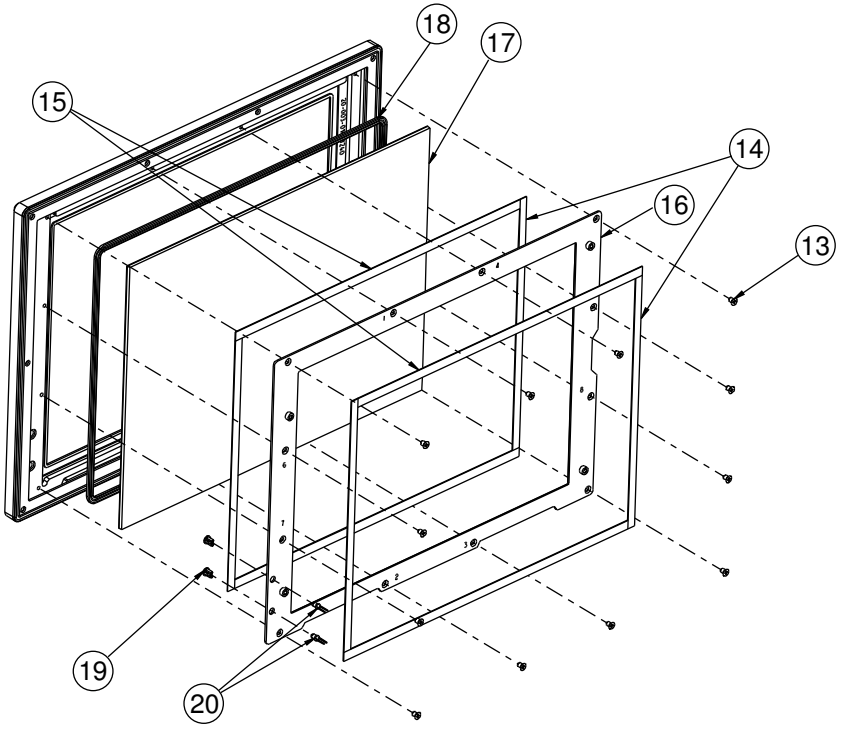
No.	Name	P/N No.	Qt'y
5	M3_L5_Washer_Ni	22-242-30005311	4
6	SR-6100RB-D4N	--	1
7	M3_L6_F_B	22-215-30060011	8
8	6112 LCD cover	20-004-03061240	1

LCD panel



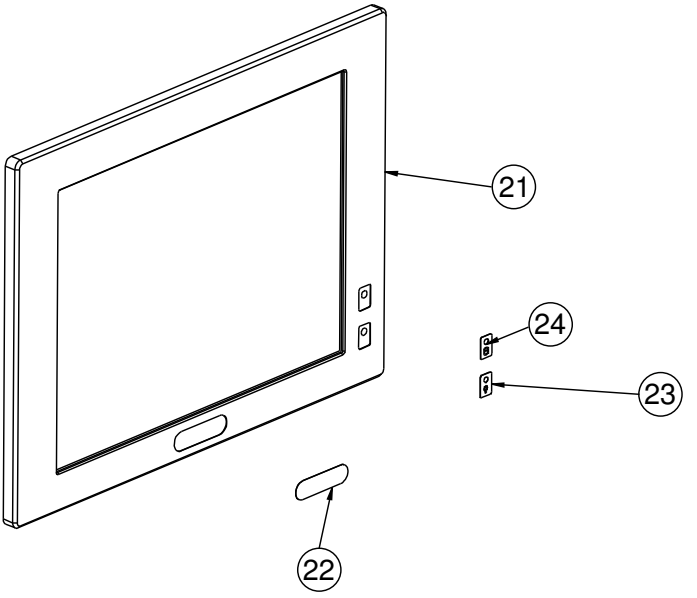
No.	Name	P/N No.	Qt'y
09	LCD_LED cable	27-055-26203071	1
10	LVDS Cable	27-020-26203111	1
11	M3_L5_1_Ni	22-272-30049015	4
12	12" panel	52-351-02121002	1

Touch panel



No.	Name	P/N No.	Qt'y
13	M3_L4_F_Ni	22-215-30005011	12
14	197X6X0.5T_PORON	90-013-24300264	4
15	257X7X0.5T_PORON	90-013-24400264	4
16	12" touch holser	20-029-03002240	1
17	12" Touch	52-351-00011814	1
18	12" Rubber	30-013-01100240	1
19	D3mm LED HOUSING	30-014-04100165	2
20	power+hdd led cable	27-018-26206111	1

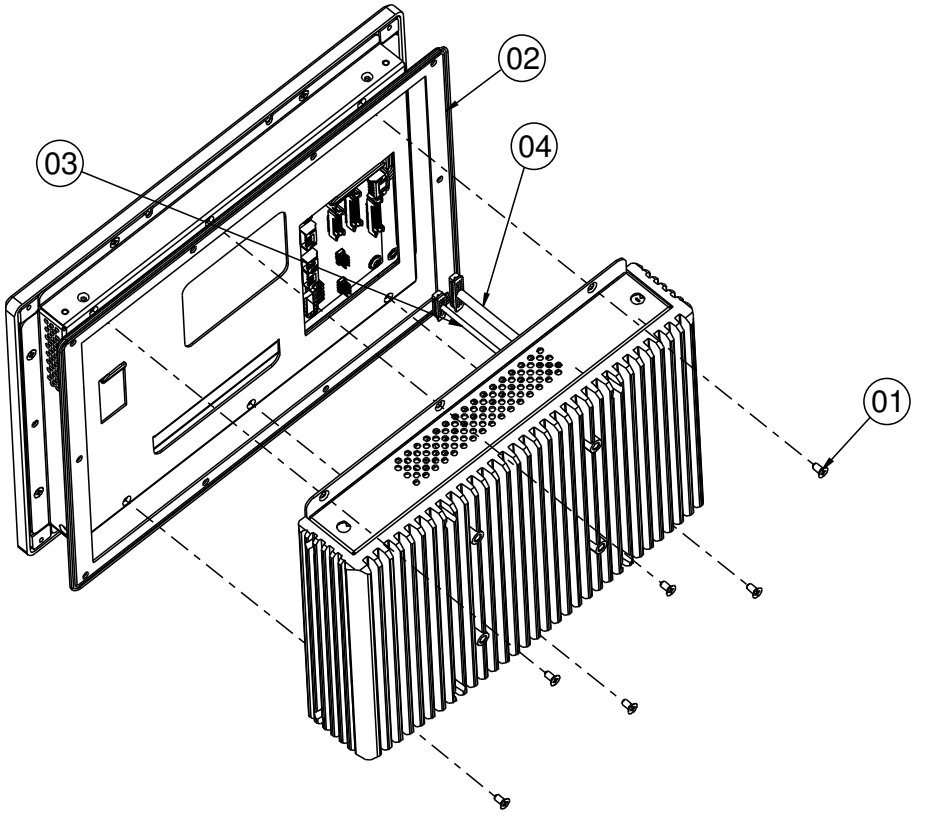
Front panel



No.	Name	P/N No.	Qt'y
21	6112 Front PANEL	20-003-01091240	1
22	Protech Label	34-017-02104009	1
23	HDD Label	34-017-02101009	1
24	Power Label	34-017-02103009	1

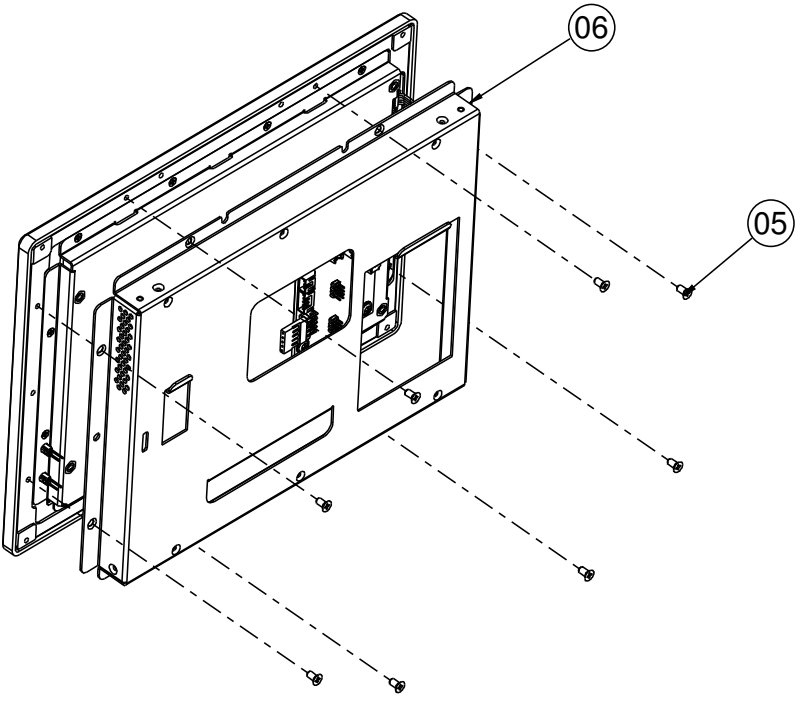
EXPLODED DIAGRAM FOR SP-6118 SYSTEM

Open & close



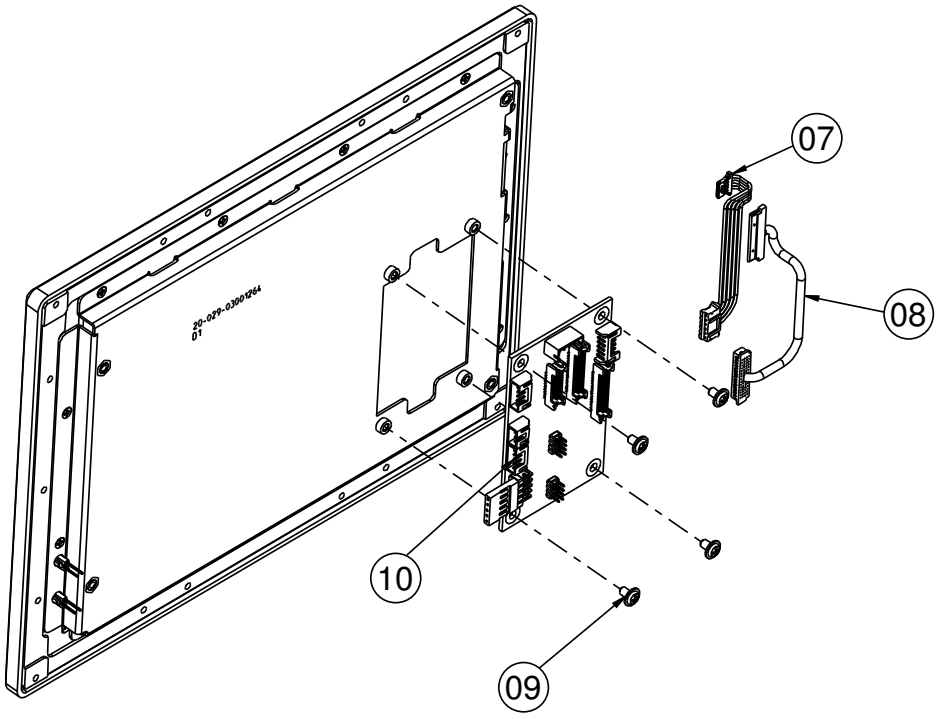
No.	Name	P/N No.	Qt'y
1	M3_L6_F_B	22-215-30060011	6
2	6118_outside rubber	30-013-01200031	1
3	Link_cable data	27-055-23903111	1
4	Link cable lvds	27-020-26304111	1

LCD cover



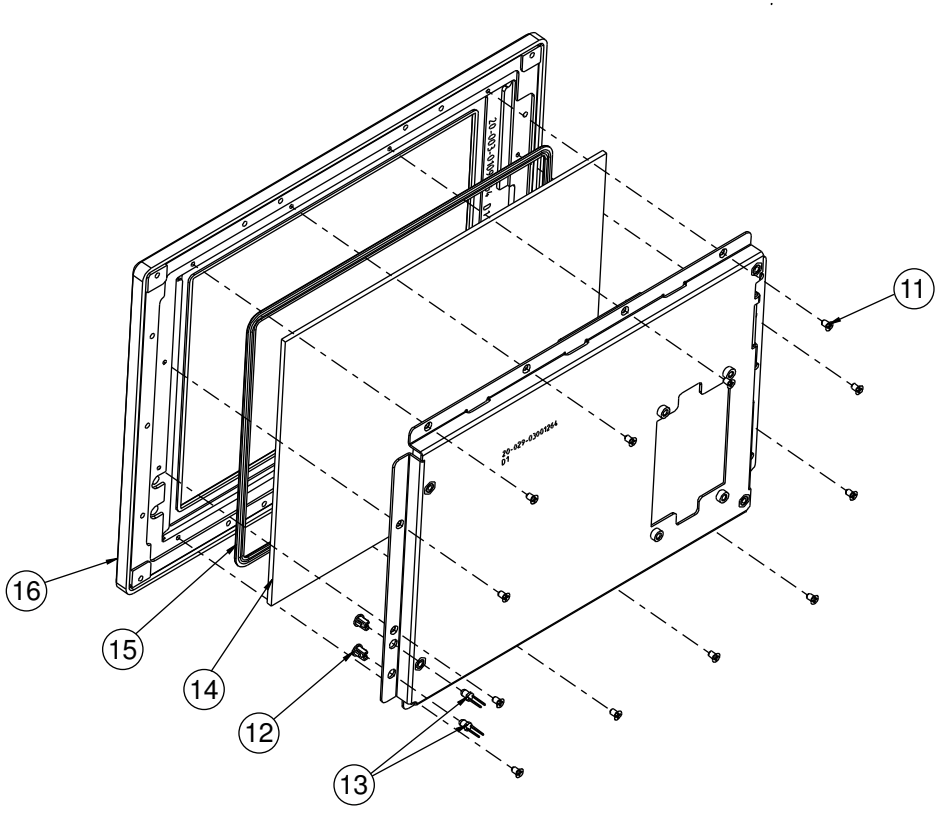
No.	Name	P/N No.	Qt'y
5	M3_L6_F_B	22-215-30060011	8
6	6118_LCD cover	20-004-03061264	1

Daughter board



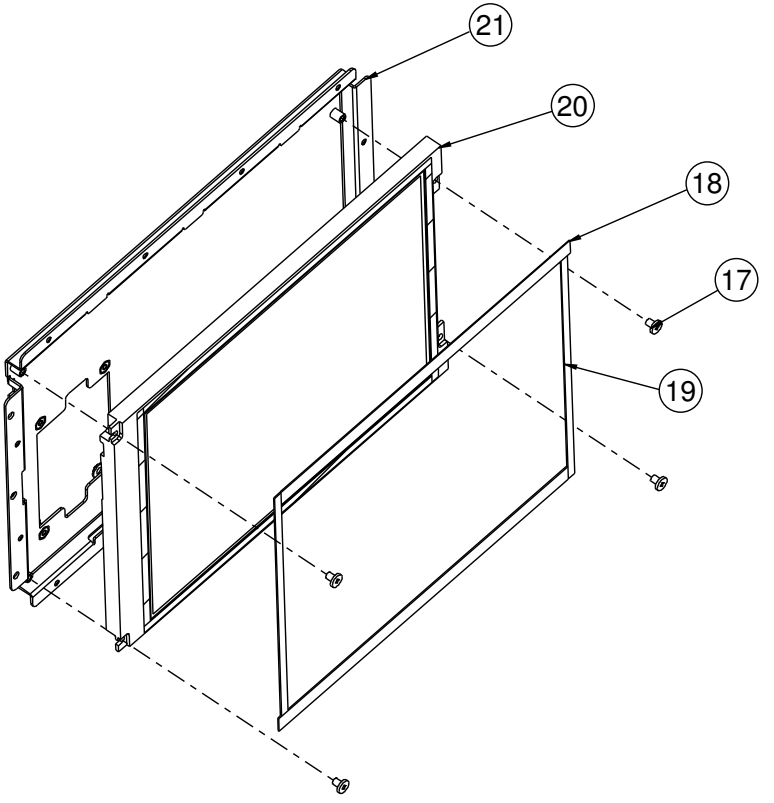
No.	Name	P/N No.	Qt'y
7	LCD_LED cable	27-069-26302071	1
8	LVDS Cable	27-020-26303111	1
9	M3_L5_Washer_Ni	22-242-30005311	4
10	SR-6100RB-D4N	--	1

LCD panel



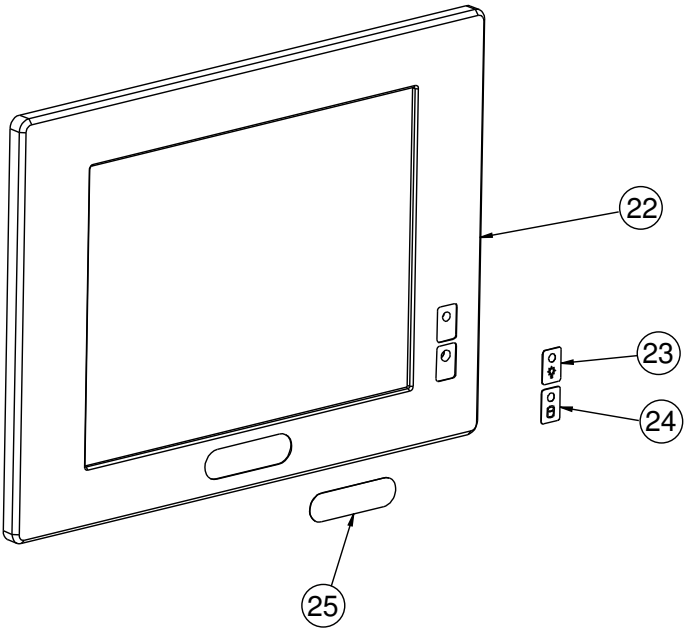
No.	Name	P/N No.	Qt'y
11	M2.5_L4_F_Ni	22-212-25004011	12
12	D3mm LED HOUSING	30-014-04100165	2
13	power+hdd led cable	27-018-26304111	1
14	8" ELO Touch	52-351-00494714	1
15	8: Lcd Rubber	30-013-01300031	1
16	Front Assembly	--	1

Touch panel



No.	Name	P/N No.	Qt'y
17	M3_L4_I_Ni	22-272-30049015	4
18	180X8X0.5T_PORON	90-013-24200264	2
19	139X4X0.5T_PORON	90-013-24100264	2
20	8" LCD	52-351-00084902	1
21	6118_LCD_Holder	20-029-03001264	1

Front panel



No.	Name	P/N No.	Qt'y
22	6118 Front PANEL	20-003-01091264	1
23	Protech Label	34-017-02104009	1
24	HDD Label	34-017-02101009	1
25	Power Label	34-017-02103009	1

TECHNICAL SUMMARY

APPENDIX

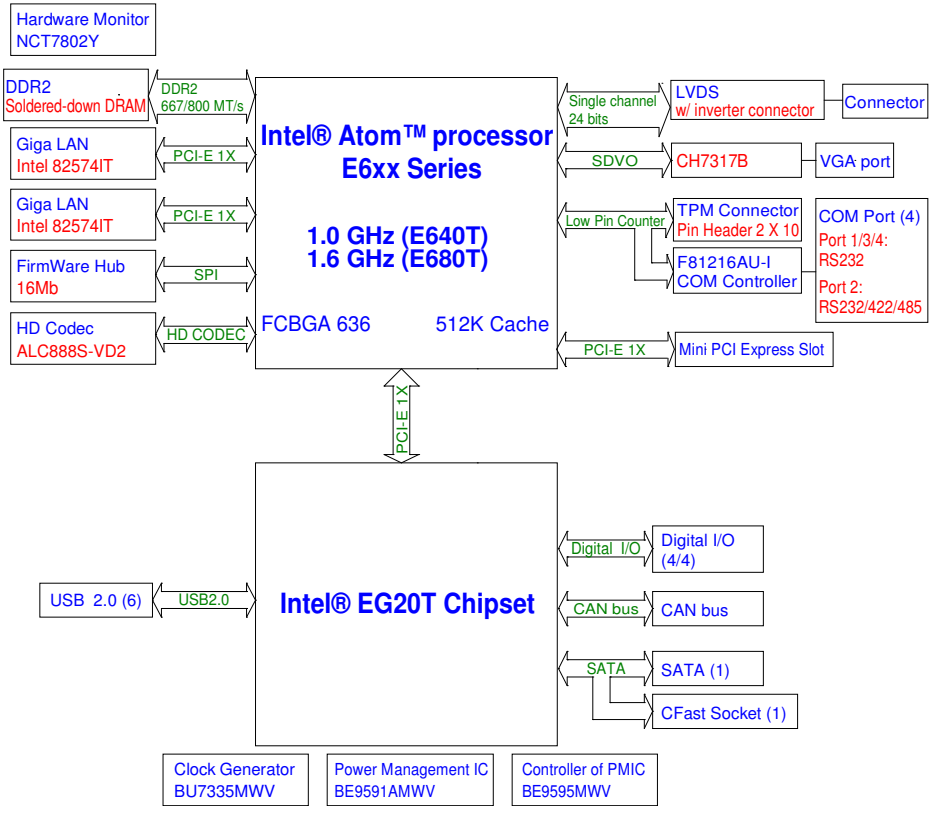
B

This section introduces you the maps concisely.

Section includes:

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

BLOCK DIAGRAM



INTERRUPT MAP

IRQ	ASSIGNMENT
9	Microsoft ACPI-Compliant System
16	Intel Corporation Atom™ E6xx Intel® EMGD Function 0
16	PCI standard PCI-to-PCI bridge
16	PCI standard PCI-to-PCI bridge
16	Intel(R) Platform Controller Hub EG20T General Purpose IO Controller - 8803
16	Standard OpenHCD USB Host Controller
16	Standard OpenHCD USB Host Controller
16	Standard OpenHCD USB Host Controller
16	Standard Enhanced PCI to USB Host Controller
16	PCI standard PCI-to-PCI bridge
16	PCI standard PCI-to-PCI bridge
16	PCI standard PCI-to-PCI bridge
16	Microsoft UAA Bus Driver for High Definition Audio
11	Intel Corporation Atom™ E6xx Intel® EMGD Extension
19	Standard OpenHCD USB Host Controller
19	Standard OpenHCD USB Host Controller
19	Standard OpenHCD USB Host Controller
19	Standard Enhanced PCI to USB Host Controller
19	Intel(R) Platform Controller Hub EG20T USB Client Controller - 8808
19	Intel(R) Platform Controller Hub EG20T DMA Controller #1 - 8810
19	Intel(R) Platform Controller Hub EG20T UART Controller - 8811 (COM8)
19	Intel(R) Platform Controller Hub EG20T UART Controller - 8812 (COM9)
19	Intel(R) Platform Controller Hub EG20T UART Controller - 8813 (COM10)

IRQ	ASSIGNMENT
19	Intel(R) Platform Controller Hub EG20T UART Controller - 8814 (COM13)
18	SDA Standard Compliant SD Host Controller
18	SDA Standard Compliant SD Host Controller
18	Intel(R) Platform Controller Hub EG20T Serial Peripheral Interface Bus - 8816
18	Intel(R) Platform Controller Hub EG20T I2C Controller - 8817
18	Intel(R) Platform Controller Hub EG20T Controller Area Network (CAN) Controller - 8818
18	Intel(R) Platform Controller Hub EG20T IEEE 1588 Hardware Assist - 8819
17	Intel(R) Platform Controller Hub EG20T SATA AHCI Controller - 880B
5	Intel(R) Platform Controller Hub EG20T DMA Controller #2 - 8815
5	Ethernet Controller
3	Ethernet Controller
0	System timer
8	System CMOS/real time clock
13	Numeric data processor

DMA CHANNELS MAP

TIMER CHANNEL	ASSIGNMENT
Channel 4	Direct memory access controller

I/O MAP

I/O MAP	ASSIGNMENT
0x00000000-0x00000CF7	PCI bus
0x00000000-0x00000CF7	Direct memory access controller
0x00000D00-0x0000FFFF	PCI bus
0x0000F010-0x0000F017	Intel Corporation Atom™ E6xx Intel® EMGD Function 0
0x000003B0-0x000003BB	Intel Corporation Atom™ E6xx Intel® EMGD Function 0
0x000003C0-0x000003DF	Intel Corporation Atom™ E6xx Intel® EMGD Function 0
0x0000F000-0x0000F007	Intel Corporation Atom™ E6xx Intel® EMGD Extension
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge
0x0000E000-0x0000EFFF	PCI standard PCI-to-PCI bridge
0x0000E000-0x0000EFFF	Intel(R) Platform Controller Hub EG20T SATA AHCI Controller - 880B
0x0000E070-0x0000E077	Intel(R) Platform Controller Hub EG20T UART Controller - 8811 (COM8)
0x0000E060-0x0000E067	Intel(R) Platform Controller Hub EG20T UART Controller - 8812 (COM9)
0x0000E050-0x0000E057	Intel(R) Platform Controller Hub EG20T UART Controller - 8813 (COM10)
0x0000E040-0x0000E047	Intel(R) Platform Controller Hub EG20T UART Controller - 8814 (COM13)
0x0000D000-0x0000DFFF	PCI standard PCI-to-PCI bridge
0x0000D000-0x0000DFFF	Ethernet Controller
0x0000C000-0x0000CFFF	PCI standard PCI-to-PCI bridge
0x0000C000-0x0000CFFF	Ethernet Controller
0x00000A79-0x00000A79	ISAPNP Read Data Port
0x00000279-0x00000279	ISAPNP Read Data Port

I/O MAP	ASSIGNMENT
0x00000274-0x00000277	ISAPNP Read Data Port
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
0x000004D0-0x000004D1	Motherboard resources
0x00000081-0x00000083	Direct memory access controller
0x00000087-0x00000087	Direct memory access controller
0x00000089-0x0000008B	Direct memory access controller
0x0000008F-0x0000008F	Direct memory access controller
0x000000C0-0x000000DF	Direct memory access controller
0x00000040-0x00000043	System timer
0x00000050-0x00000053	System timer

I/O MAP	ASSIGNMENT
0x00000070-0x00000077	System CMOS/real time clock
0x00000061-0x00000061	System speaker
0x00000010-0x0000001F	Motherboard resources
0x00000022-0x0000003F	Motherboard resources
0x00000044-0x0000005F	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000065-0x00000065	Motherboard resources
0x00000067-0x0000006F	Motherboard resources
0x00000072-0x0000007F	Motherboard resources
0x00000080-0x00000080	Motherboard resources
0x00000084-0x00000086	Motherboard resources
0x00000088-0x00000088	Motherboard resources
0x0000008C-0x0000008E	Motherboard resources
0x00000090-0x0000009F	Motherboard resources
0x000000A2-0x000000BF	Motherboard resources
0x000000E0-0x000000EF	Motherboard resources
0x000000F0-0x000000FF	Numeric data processor
0x00000900-0x0000097F	System board
0x000009C0-0x000009FF	System board
0x00000400-0x0000043F	System board
0x00000480-0x000004BF	System board

WATCHDOG TIMER CONFIGURATION

Watchdog timer feature in E6xx processor provides a resolution that ranges from 1 μs to 10 minutes. The timer uses a 35-bit down-counter.

After the interrupt is generated the WDT loads the value from the Preload register into the WDT's 35-bit Down-Counter and starts counting down. If the host fails to reload the WDT before the timeout, the WDT drives the GPIO[4] pin high and sets the timeout bit (WDT_TIMEOUT). This bit indicates that the System has become unstable. The GPIO[4] pin is held high until the system is Reset or the WDT times out again (depends on TOUT_CNF). The process of reloading the WDT involves the following sequence of writes:

1. write "80" to offset Bar1 + 0Ch
2. write "86" to offset Bar1 + 0Ch
3. write '1' to WDT_RELOAD in Reload Register

The same process is used for setting the values in the preload registers. The only difference exists in step 3. Instead of writing a '1' to the WDT_RELOAD, you write the desired preload value into the corresponding Preload register. This value is not loaded into the 35-bit down counter until the next time the WDT reenters the stage. For example, if Preload Value 2 is changed, it is not loaded into the 35-bit down counter until the next time the WDT enters the second stage. GPIO[4] is used for WDT output (WDT_TOUT) when it is not enabled for GPIO (CGEN[4] = 0).

Features
Selectable Prescaler – approximately 1 MHz (1 μs to 1 s) and approximately 1 KHz (1 ms to 10 min).

- 33 MHz Clock (30 ns Clock Ticks)
- WDT Mode:
  Drives GPIO[4] high or inverts the previous value.
  Used only after first timeout occurs.
  Status bit preserved in RTC well for possible error detection and correction.
  Drives GPIO[4] if OUTPUT is enabled.
- Timer can be disabled (default state) or Locked (Hard Reset required to disable WDT).

WDT Automatic Reload of Preload value when WDT Reload Sequence is performed. In WDT mode, users need to program the preload value 1 register to all 0's.

Example Steps

Enable and start watchdog timer, where Bar1 equals to 280h:

------ Step 1 ----------
Set CGEN[4]=0

------ Step 2 PCI enable Watchdog ----------
D31:F00
84H~87H set 80020080

------ Step 3 set WDTCR - WDT Configuration Register (offset 10h) ----------
bit4 WDT Reset Enable set "1"
bit2 WDT Prescaler Select set "1"

------ Step 4 set PV1R0 -Preload Value 1 Register 0&1 ----------
write "80" to offset Bar1 +0Ch
write "86" to offset Bar1 +0Ch
write "1" to WDT_RELOAD in Reload Register

------ Step 5 start to count ----------
set WDTLR - WDT Lock Register (offset 18h)
bit 1 to "1"

FLASH BIOS UPDATE

I. Before System BIOS update

1. Prepare a bootable media (e.g. USB storage device) which can boot system to DOS prompt
2. Copy AMI flash utility for MS-DOS afudos (latest version 2.36) onto bootable device
3. Download and save the BIOS file (e.g. 81200T03.rom) to the same folder as afudos utility

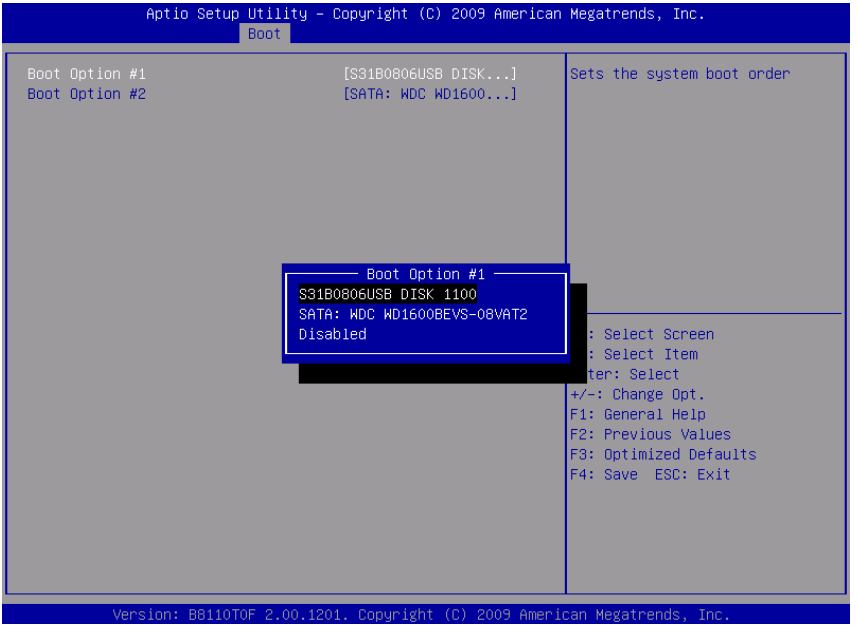
```
C:\S8120>dir

 Volume in drive C is EFI_DUET
 Volume Serial Number is 3CCE-A150
 Directory of C:\S8120

.              <DIR>          10-26-11 11:01a
..             <DIR>          10-26-11 11:01a
AFUDOS   EXE       187,216  01-17-11  4:07p
81200T03 ROM     2,097,152  09-23-11  3:48p
README   TXT         2,948  02-17-11 11:23a
AFUDOS   TXT         6,716  02-17-11 11:27a
         4 file(s)      2,294,032 bytes
         2 dir(s)     476,364,800 bytes free

C:\S8120>
```

4. Make sure the target system can first boot to the bootable device.
   a. connect the bootable USB device
   b. turn on the computer and press <F2> or <Del> key during boot to enter BIOS setup menu
   c. system will go into the BIOS setup menu
   d. select [Boot] menu as shown on picture bellow
   e. select [Hard Drive BBS Priorities], set the USB bootable device to be the 1st boot device
   f. press <F4> key to save configuration and exit the BIOS setup menu



II. AFUDOS command for system BIOS update

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

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

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

III. BIOS update procedure

1. Use the bootable USB device to boot up system into the MS-DOS command prompt
2. Type in AFUDOS 8120xxxx.rom /p /b /n /x and press enter to start the flash procedure
   (note that xxxx means the BIOS revision part, i.e. 0T03)
3. During the update procedure, you will see the BIOS update process status and its percentage. Beware! Do not turn off system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM and make system unable to boot up next time.
4. After BIOS update procedures is complete, the messages from afudos utility should be like the figure shown right below:

5. User can restart the system and boot up with new BIOS now
6. Update is complete after restart
7. Verify during following boot that the BIOS version -- displayed at first initialization screen with AMI logo -- has indeed changed to intended version.


American
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