USER MANUAL

KS-1132

Self-Service
Payment Kiosk

KS-1132 M1

KS-1132 Self-Service Payment Kiosk

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

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

FCC NOTICE

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

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

	**CAUTION:** Danger of explosion may occur when the battery is incorrectly replaced. Replace the battery 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. We strongly recommend that only qualified engineers are allowed to service and disassemble the system. If any damages should occur on the system and are caused by unauthorized servicing, it will not be covered by the product warranty.

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Revision History

The revision history of KS-1132 User Manual is described below:

Version No.	Revision History	Page No.	Date
M1	Initial Release	-	2019/01

1 Introduction

This chapter provides the introduction for KS-1132 as well as the framework of the user manual.

The following topic is included:

- About This Manual

1.1 About This Manual

Thank you for purchasing our KS-1132 system. The KS-1132 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the whole system. It contains 5 chapters and 2 appendixes. Users can configure KS-1132 according to their own needs. This user manual is intended for service personnel with strong hardware background. It is not intended for general users.

The following section outlines the structure of this user manual.

Chapter 1 Introduction
This chapter provides the introduction for KS-1132 as well as the framework of the user manual.

Chapter 2 Getting Started
This chapter describes the package contents and outlines KS-1132 specifications. Read the safety reminders carefully on how to take care of KS-1132 motherboard properly.

Chapter 3 System Configuration
This chapter describes the locations and functions of the system motherboard components. You will learn how to properly configure the connectors and system configuration jumpers on the motherboard and configure the system to meet your own needs.

Chapter 4 Software Utilities
This chapter contains helpful information for proper installations of the driver utilities for both KS-1132 high-end level and entry level systems.

Chapter 5 BIOS Setup
This chapter indicates you how to change the BIOS configurations.

Appendix A System Diagrams
This appendix provides the easy maintenance diagrams, exploded diagrams and part numbers of the KS-1132.

Appendix B Technical Summary
This appendix provides the information about the allocation maps for KS-1132 system block diagram, system resources, Watchdog Timer Configuration and Flash BIOS Update.

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2 Getting Started

This chapter provides the information for KS-1132 system. It describes the package contents and outlines the motherboard specifications.

The following topics are included:

- Package List
- System Specification
- Safety Precautions

Experienced users can go to Chapter 3 System Configuration on page 3-1 for a quick start.

2.1 Packing List

If you discover any of the items listed below are damaged or list, please contact your local distributor immediately.

Item	Q'ty
KS-1132	1
Quick Reference Guide	1
AC Power Adaptor	1
Manual / Driver DVD	1
Door Key	2

2.2 System Specifications

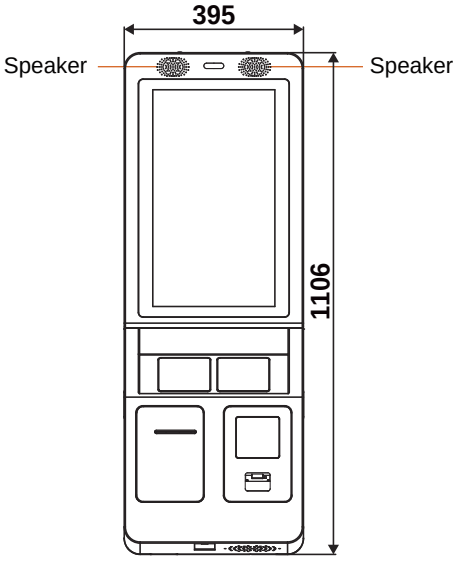
System	
CPU Type	➢ **High-End Level:** • Intel® 7th Gen. Core™ i7-7700T • Intel® 7th Gen. Core™ i5-7500T • Intel® 7th Gen. Core™ i3-7101TE • Intel® Celeron G3930TE ➢ **Entry Level:** Intel® Celeron J1900
Memory Support	➢ **High-End Level:** DDR4 memory (up to 16GB) ➢ **Entry Level:** DDR3L SO-DIMM memory (up to 8GB)
Chipset	➢ **High-End Level System:** Intel® H110 ➢ **Entry Level System:** Built-in CPU
HDD	➢ 1 x 500GB 2.5" SATA HDD
Network	➢ Gigabit 10/100/1000 Base-T Fast Ethernet
Power Supply	➢ 1 x 12V power supply
Expansion Bus	**High-End Level System:** ➢ 1 x PCIe(x16) slot (optional) ➢ 1 x m.2 (2242-D2-M) **Entry Level System:** ➢ None
BIOS	➢ AMI BIOS
O.S. Support	➢ Windows 10 / Windows 7 / POSReady7
Kiosk System Fan	➢ 2 x 6cm Fan
Hardware Monitor	➢ Voltage detection (5V, 12V, Battery, up to 4 sets) ➢ CPU & System temperature detection
Watchdog Timer	➢ 0-255 seconds
Buzzer	➢ Supports system beep
Kiosk System Speaker	➢ Speaker x 2
System Weight	➢ 37kg (without Free Stand) ➢ 72.34kg (with Free Stand)
Dimensions (W x H x D)	➢ 385 x 1105 x 175 mm (without Free Stand) ➢ 580 x 1705 x 600 mm (with Free Stand)
Operating Display	
LCD	➢ 21.5" TFT LCD
Max. Resolution	➢ 1920 x 1080
Brightness	➢ 250 cd/m^2
Touchscreen	➢ Projected capacitive touch
View Angle	➢ Horizontal: (R) 89° / (L) 89° ➢ Vertical: (U) 89° / (L) 89°

Estimated luminance lifetime	➢ 50,000 hours
Optional Accessories	
Thermal Printer (optional)	➢ 2” or 3” Standalone thermal printer for 58mm or 80mm paper roll
Barcode Scanner (optional)	➢ 1D/2D Barcode Scanner
IC Card & MSR Reader (optional)	➢ RS232 interface of the hybrid card reader intended to read ISO / JIS II format magnetic card and read/write ISO7816 / EMV / memory chip smart card
Face Camera (optional)	➢ 16:9 2.1M-Pixels Full HD H.264 PC camera
Credit Card Reader (optional)	➢ Based on customer requirements
e-Payment (optional)	➢ Based on customer requirements
RFID Reader (optional)	➢ Read/write ISO 14443A Mifare
Environment	
EMC & Safety	➢ CE / FCC
Operating Temperature	➢ 0°C ~ 35°C (32°F~ 95°F)
Storage Temperature	➢ -5°C ~ 60°C (23°F~ 140°F)
Humidity	➢ 20% ~ 85% (no condensation)

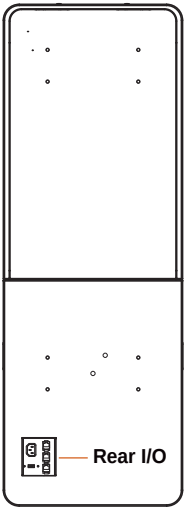
2.3 System Overview

Unit: mm

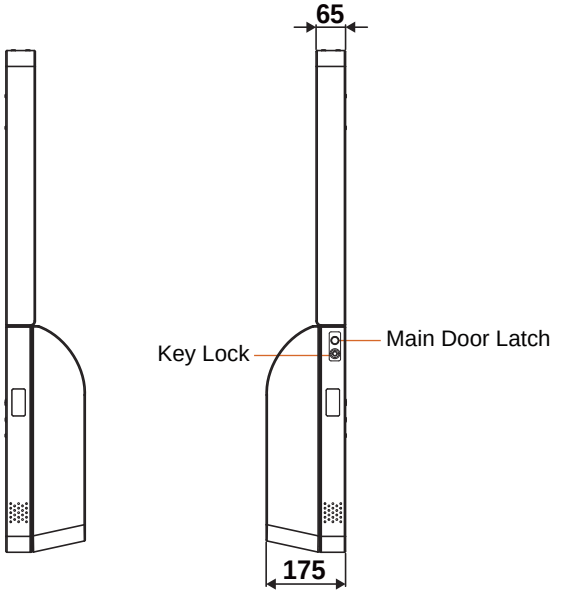
2.3.1 Front View



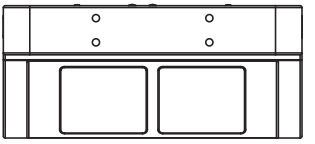
2.3.2 Rear View



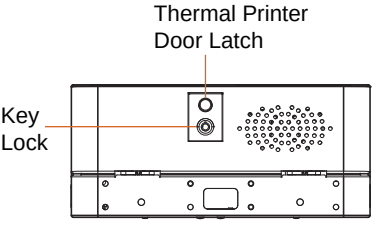
2.3.3 Side View



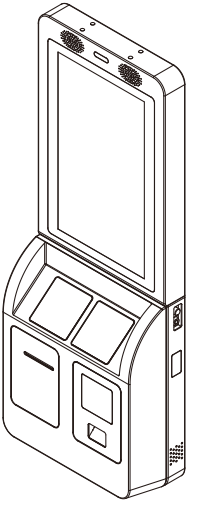
2.3.4 Top View



2.3.5 Bottom View



2.3.6 Quarter View



2.4 Quick Setup

2.4.1 Power On KS-1132 and Connect to the Network

Step 1. Connect the AC power cord to the AC power socket located on the rear side of the system, and plug the other end to an AC power outlet.

Step 2. Connect the Ethernet cables to the LAN ports provided on the rear of the system and the other end to the ports on your hub, switch or router.

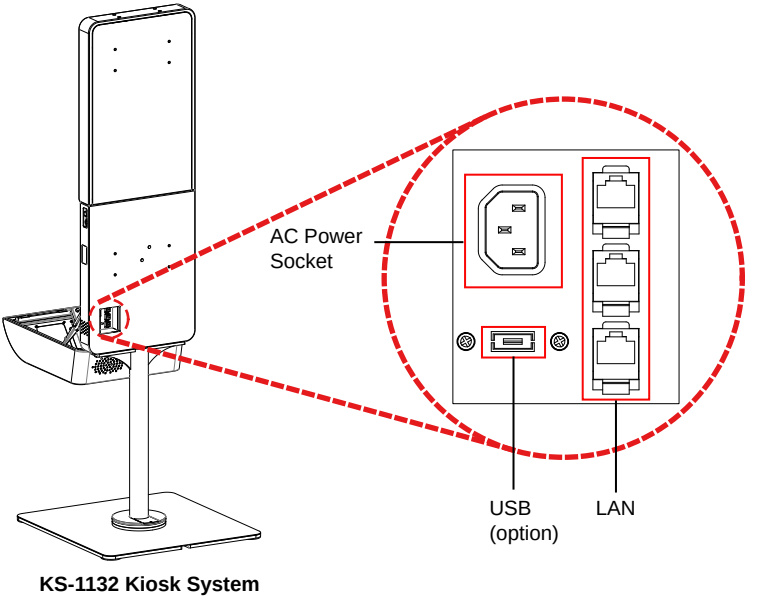


Figure 2-1. Locations of AC Power Socket and LAN Ports

Step 3. Press the Power Switch to turn on the system. Find the power switch on the right side of internal main board box. Please see the picture below:

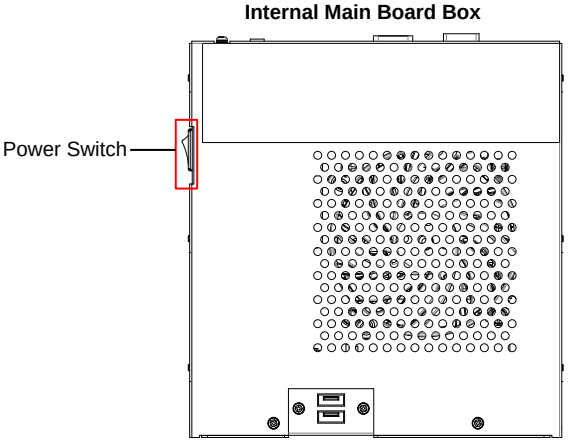


Figure 2-2. Turn On the KS-1132 System Power

2.4.2 Installing Paper Roll

Step 1. Insert the printer door key to unlock from the bottom of the system.

Step 2. Press the thermal printer door button to open.

Step 3. Pull the internal printer door latch located on the upper-left corner of the printer to release. See Figure 2-3.

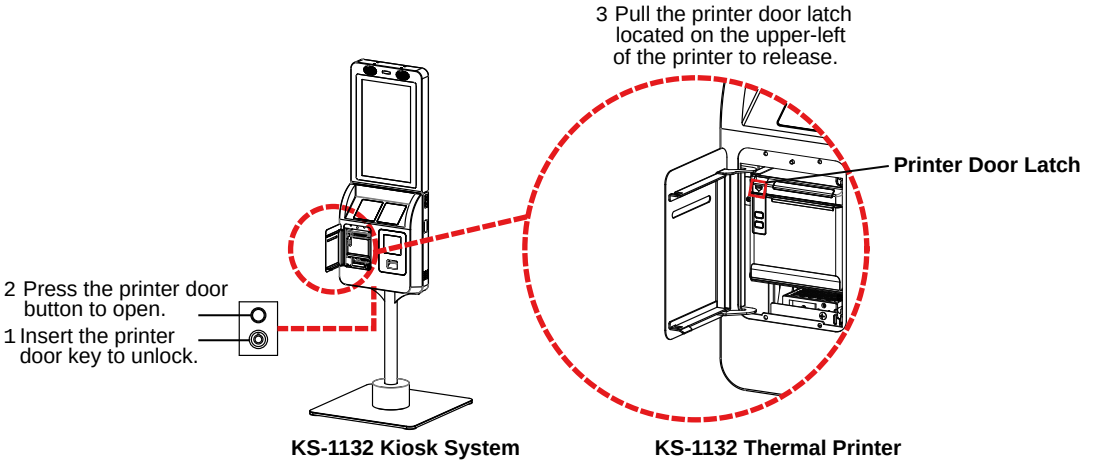


Figure 2-3. Open the KS-1132 Printer Door

Step 4. Pull out a small paper slip from the start of the paper roll and drop the paper roll into the thermal printer to complete. See Figure 2-4.

Note 1: The starting paper slip must be positioned on top of the paper roll before you drop it into the printer.

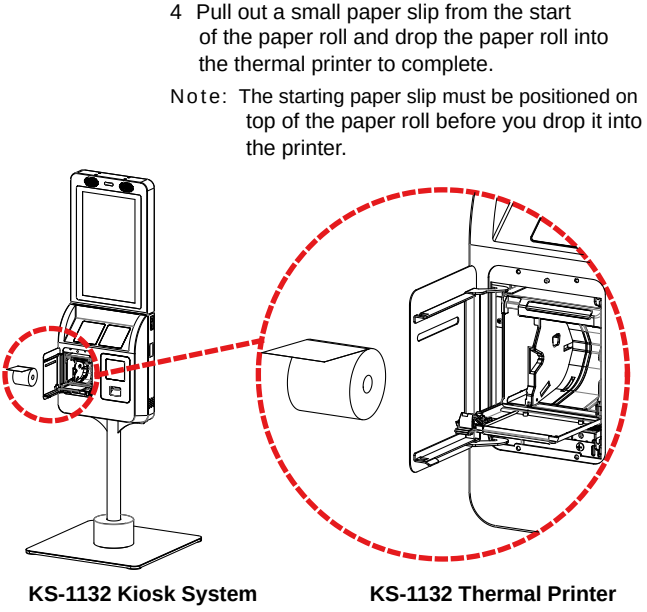


Figure 2-4. Install the KS-1132 Printer Paper Roll

Note 2: Heed that the starting paper slip must stand out of the internal printer door after the paper roll installation is completed.

2.5 Safety Precautions

Before operating this system, read the following information carefully to protect your system from damages, and extend the life cycle of the system.

1. Check the Line Voltage
   - 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
   - Place your KS-1132 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   - Avoid installing your KS-1132 system in extremely hot or cold places.
   - Avoid direct sunlight exposure 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 KS-1132 when it has been left outdoors in a cold winter day.
   - Avoid moving the system rapidly from a hot place to a cold place, and vice versa, because condensation may occur inside the system.
   - Protect your KS-1132 from strong vibrations which may cause hard disk failure.
   - Do not place the system too close to any radio-active device. Radio-active device may cause signal interference.
   - Always shut down the operating system before turning off the power.
3. Handling
   - Avoid placing heavy objects on the top of the system.
   - Do not turn the system upside down. This may cause the hard drive to malfunction.
   - Do not allow any objects to fall into this device.
   - If water or other liquid spills into the device, unplug the power cord immediately.
4. Good Care
   - When the outside case gets stained, remove the stains using neutral washing agent with a dry cloth.
   - Never use strong agents such as benzene and thinner to clean the surface of the case.
   - If heavy stains are present, moisten a cloth with diluted neutral washing agent or alcohol and then wipe thoroughly with a dry cloth.
   - If dust is accumulated on the case surface, remove it by using a special vacuum cleaner for computers.

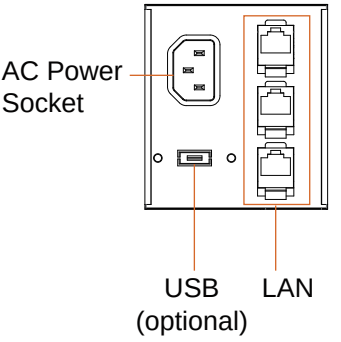
3 System Configuration

This chapter contains helpful information about the rear I/O ports diagram, and jumper & connector settings, and component locations for the main board.

The following topics are included:

- Rear I/O Ports Diagram
- Main Board Jumper Settings and Component Locations
- How to Set Jumpers
- Setting Main Board Connectors and Jumpers

3.1 Rear I/O Ports Diagram



3.2 KS-1132 High-End Level System Main Board

3.2.1 Jumper & Connector Quick Reference Table

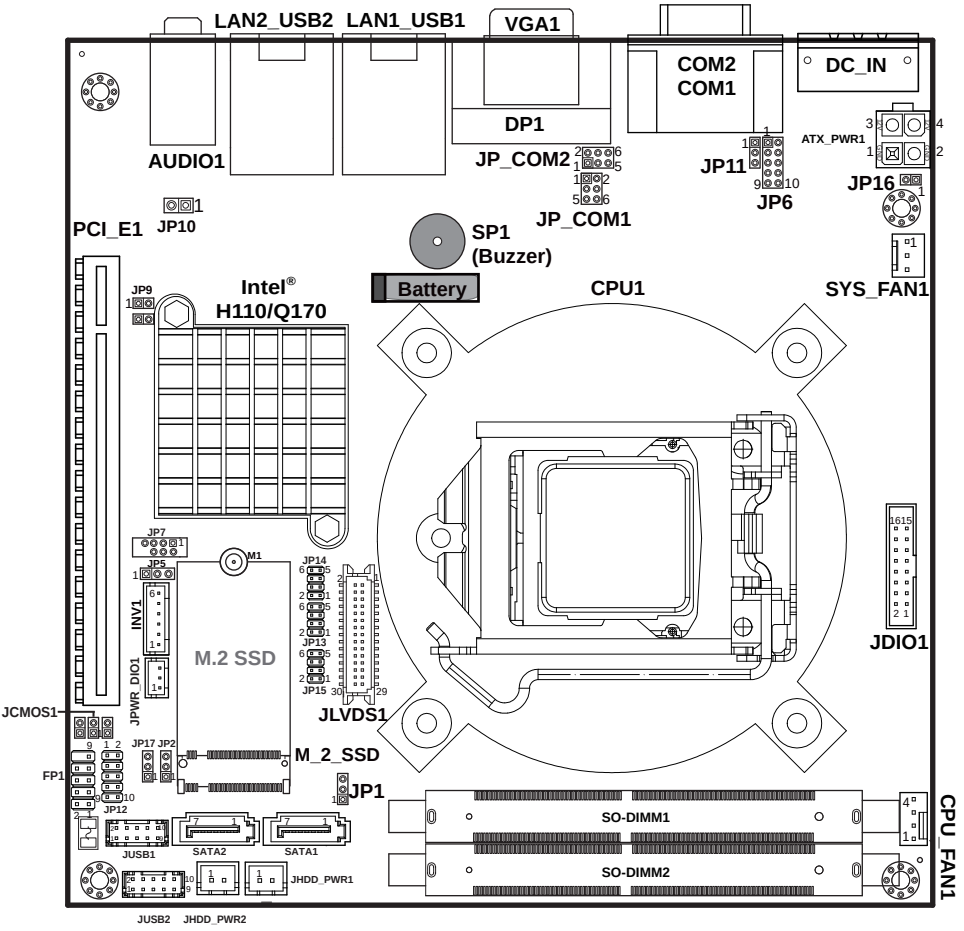
JUMPER Description	NAME
Clear CMOS Data Selection	JCMOS1
COM1 Pin9 RI/5V/12V Selection	JP_COM1
COM2 Pin9 RI/5V/12V Selection	JP_COM2
VCCIO Voltage Selection	JP1
AT / ATX Mode Selection	JP2 & JP16
LVDS Control Selection (For Q1N & H1N SKU)	JP5
COM1 RS-232/422/485 Selection	JP6
SPI Override Protection Selection	JP9
COM1 RS-485 Auto Flow Selection	JP11
LVDS Resolution Selection (For Q1N & H1N SKU)	JP13, JP14
LVDS Voltage Selection (For Q1N & H1N SKU)	JP15
Backlight PWM Level Selection	JP17

CONNECTOR Description	NAME
Dual COM Ports	COM1, COM2
2 x LAN Ports and 4 x USB 3.0 Ports	LAN1_USB1, LAN2_USB2
Internal USB 2.0 Connectors	JUSB1, JUSB2
VGA Port	VGA1
DisplayPort (DP)	DP1
DC IN 3 Pins Terminal Block (12V)	DC_IN
HD Audio Connector	AUDIO1
Digital Input / Output Connector	JDIO1
Front Panel Connector	FP1
System Fan Connector	SYS_FAN1
CPU Fan Connector	CPU_FAN1
M.2 SSD Connector (For Q1N & H1N SKU)	M_2_SSD
PCI Express Slot (PCIe (x16))	PCI_E1
SATA 3.0 Connectors	SATA1, SATA2
LVDS Connector	JLVDS1
Panel Inverter Connector	INV1

CONNECTOR Description	**NAME**
HDD Power Connectors	JHDD_PWR1, JHDD_PWR2
ATX Power Input Connector	ATX_PWR1
Case Open Detection Connector (option)	JP10
Low Pin Count (LPC) Connector	JP12
DIO Port Power Connector	JPWR_DIO1
DDR4 SO-DIMM memory socket 1	SO-DIMM1
DDR4 SO-DIMM memory socket 2	SO-DIMM2

3.2.2 Main Board Component Locations & Jumper Settings

M/B: BM-2503



BM-2503 Connector, Jumper and Component Locations

Note: H9N SKU has no LVDS connector/jumper setting & M.2 slot.

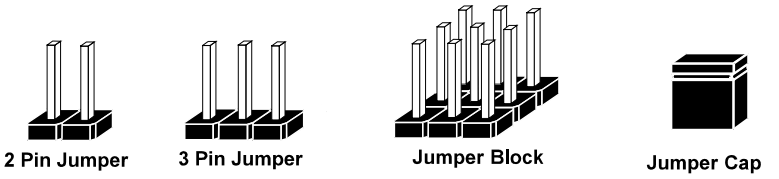
	**WARNING:** Always disconnect the power cord when you are working with connectors and jumpers on the main board. Make sure both the system and peripheral devices are turned OFF as sudden surge of power could damage sensitive components. Make sure BM-2503 is properly grounded.
	**CAUTION:** Observe precautions while handling electrostatic sensitive components. Make sure to ground yourself to prevent static charge while you are working on the connectors and jumpers. Use a grounding wrist strap and place all electronic components in any static-shielded devices.
	**CAUTION:** Always touch the motherboard components by the edges. Never touch components such as a processor by its pins. Take special cares while you are holding electronic circuit boards by the edges only. Do not touch the main board components.

3.2.3 How To Set 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.

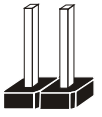
JUMPERS AND CAPS



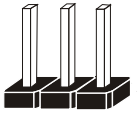
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), you can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

Jumper Diagrams

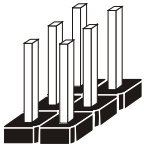
Jumper Cap looks like this



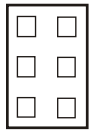
2 pin Jumper looks like this



3 pin Jumper looks like this

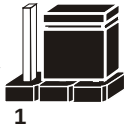


Jumper Block looks like this

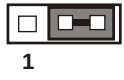


Jumper Settings

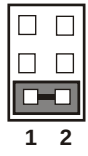
2 pin Jumper close(enabled) Looks like this



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



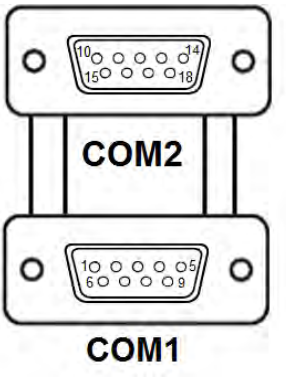
Jumper Block 1-2 pin close(enabled) Looks like this



3.2.4 I/O Ports

3.2.4.1 Dual COM Ports

Port Location: COM1, COM2
Description: COM1, COM2 Ports



JD09M1

COM1(RS-232/422/485) Connector Pin Assignment:

PIN	ASSIGNMENT		
	RS-232	RS-422	RS-485
1	DCD#	TX-	RS-485-
2	RX	TX+	RS-485+
3	TX	RX+	NC
4	DTR#	RX-	NC
5	GND	GND	GND
6	DSR#	NC	NC
7	RTS#	NC	NC
8	CTS#	NC	NC
9	RI#	NC	NC

Notes:

1. COM1 is selectable as RS-232, RS-422, RS-485 by JP6.
2. Default setting is RS-232. Please see "**COM1 RS-232/422/485 Selection"** section for details.
3. COM1 Pin 9 is selectable for RI, +5V or +12V by jumper setting. Default setting is RI. Please see "**COM1, COM2 Port Pin9 Definition Selection Guide**" section for selection details.

COM2(RS-232) co-lay with COM1 port and is stacked over COM1 port
COM2 Connector Pin Assignment:

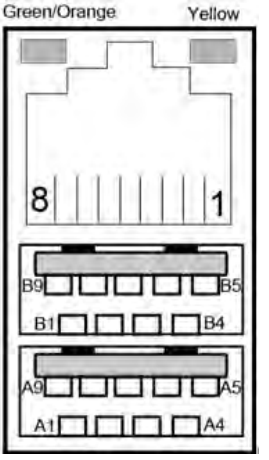
PIN	ASSIGNMENT	PIN	ASSIGNMENT
10	DCD#	15	DSR#
11	RX	16	RTS#
12	TX	17	CTS#
13	DTR#	18	RI#
14	GND	-	-

Note:

1. COM2 Pin 9 is selectable for RI, +5V or +12V by jumper setting. Default setting is RI. Please see "**COM1, COM2 Port Pin9 Definition Selection Guide**" section for selection details.

3.2.4.2 LAN and USB 3.0 Ports

Port Location: LAN1_USB1 (rear I/O)
Description: LAN1 & Dual USB 3.0 Ports



LAN1_USB1

LAN1 signals:

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

LAN LED Indicator:
Left Side LED

Green Color On	10/100Mbps 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

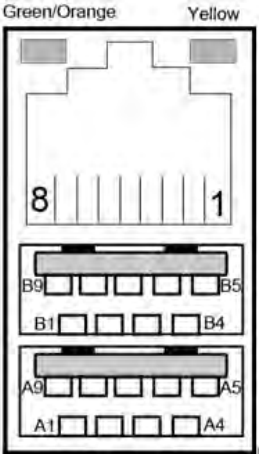
USB 3.0 signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	+5V	B1	+5V
A2	USBP1N	B2	USBP2N
A3	USBP1P	B3	USBP2P
A4	GND	B4	GND
A5	RX1_DN	B5	RX2_DN
A6	RX1_DP	B6	RX2_DP
A7	GND	B7	GND
A8	TX1_DN	B8	TX2_DN
A9	TX1_DP	B9	TX2_DP

Port Location: LAN2_USB2 (rear I/O)
Description: LAN2 Port & Dual USB 3.0 Ports

LAN2 signals:

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



LAN2_USB2

LAN LED Indicator:
Left Side LED

Green Color On	10/100Mbps 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

USB 3.0 signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	+5V	B1	+5V
A2	USBP3N	B2	USBP4N
A3	USBP3P	B3	USBP4P
A4	GND	B4	GND
A5	RX3_DN	B5	RX4_DN
A6	RX3_DP	B6	RX4_DP
A7	GND	B7	GND
A8	TX3_DN	B8	TX4_DN
A9	TX3_DP	B9	TX4_DP

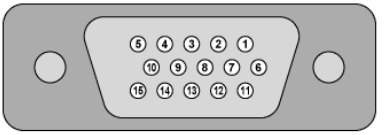
3.2.4.3 VGA Port

Port Location: VGA1 (rear I/O)

Description: VGA (Video Graphics Array) Connector, D-Sub 15-pin (rear I/O)

The pin assignments are as follows:

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



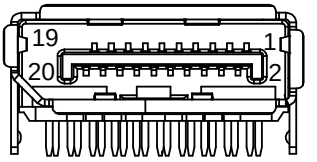
VGA1

3.2.4.4 DisplayPort (DP) Connector

Port Location: DP1 (rear I/O)

Description: DisplayPort Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DP_DATA0+	2	GND
3	DP_DATA0-	4	DP_DATA1+
5	GND	6	DP_DATA1-
7	DP_DATA2+	8	GND
9	DP_DATA2-	10	DP_DATA3+
11	GND	12	DP_DATA3-
13	DP_AUX_ENJ	14	GND
15	DP_AUX+	16	GND
17	DP_AUX-	18	HPD
19	GND	20	DP_VCC3_3



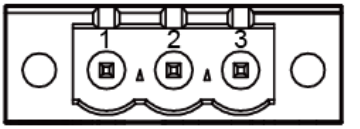
DP1

3.2.4.5 DC IN 3 Pins Terminal Block (12V)

Port Location: DC_IN (rear I/O)

Description: DC IN 3 Pins Terminal Block (12V)

PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND



DC_IN

3.2.4.6 HD Audio Connector

Port Location: AUDIO1 (rear I/O)
Description: HD Audio Connector for Line In/Line Out/Mic In.

Line In:

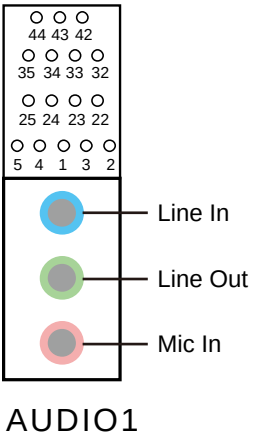
PIN	ASSIGNMENT
42	NC
43	NC
44	NC
32	HD_LINE-IN-L
33	GND
34	GND
35	HD_LINE-IN-R

Line Out:

PIN	ASSIGNMENT
22	LINE-OUT-L
23	GND
24	GND
25	LINE-OUT-R

Mic In:

PIN	ASSIGNMENT
2	HD_MIC1-L_L
3	GND
1	GND
4	GND
5	HD_MIC1-R_L



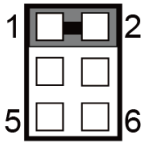
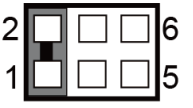
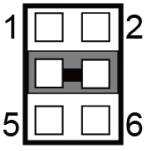
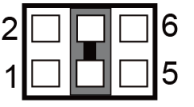
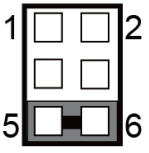
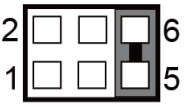
AUDIO1

3.2.5 Setting Connectors and Jumpers

3.2.5.1 COM1, COM2 Port Pin9 Definition Selection Guide

Jumper Location: JP_COM1 & JP_COM2

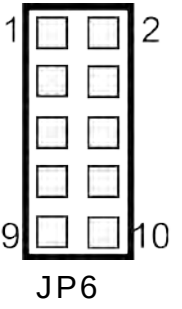
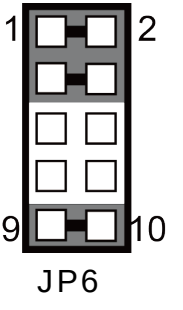
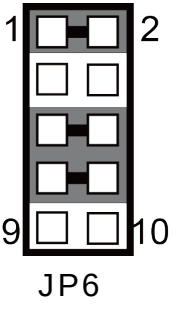
Description: COM1, COM2 Port pin9 RI/+5V/+12V Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
		JP_COM1	JP_COM2
RI	***1-2 (Default Setting)***	 JP_COM1	 JP_COM2
12V	3-4	 JP_COM1	 JP_COM2
5V	5-6	 JP_COM1	 JP_COM2

3.2.5.2 COM1 RS-232/422/485 Selection

Jumper Location: JP6

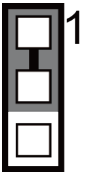
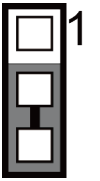
Description: COM1 RS-232/422/485 Selection

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
RS-232	***Open*** ***(Default Setting)***	
RS-422	1-2, 3-4, 9-10	
RS-485	1-2, 5-6, 7-8	

3.2.5.3 COM1 RS-485 Auto Flow Selection

Jumper Location: JP11

Description: COM1 RS-485 Auto Flow Selection

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Disable	1-2	 JP11
Enable	***2-3 (Default Setting)***	 JP11

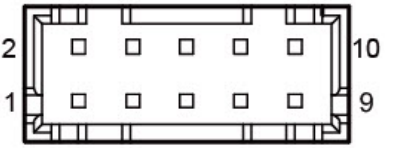
3.2.5.4 Internal USB 2.0 Connectors

Connector Location: JUSB1

Description: Internal USB 2.0 Connector

USB 2.0 connector signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+5V	2	+5V
3	USB2_P5_DN	4	USB2_P6_DN
5	USB2_P5_DP	6	USB2_P6_DP
7	GND	8	GND
9	NC	10	GND



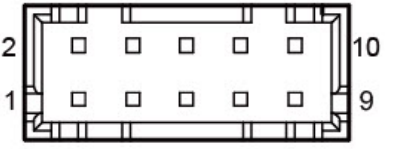
JUSB1

Connector Location: JUSB2

Description: Internal USB 2.0 Connector

USB 2.0 connector signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+5V	2	+5V
3	USB2_P7_DN	4	USB2_P8_DN
5	USB2_P7_DP	6	USB2_P8_DP
7	GND	8	GND
9	NC	10	GND



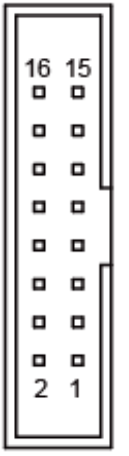
JUSB2

3.2.5.5 Digital Input / Output Connector

Connector Location: JDIO1

Description: Digital Input / Output Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DIN_0	2	DOUT_0
3	DIN_1	4	DOUT_1
5	DIN_2	6	DOUT_2
7	DIN_3	8	DOUT_3
9	DIN_4	10	DOUT_4
11	DIN_5	12	DOUT_5
13	DIN_6	14	DOUT_6
15	DIN_7	16	DOUT_7



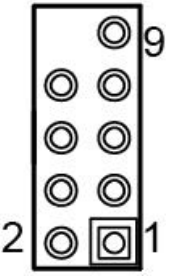
JDIO1

3.2.5.6 Front Panel Connector

Connector Location: FP1

Description: Front Panel Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HDD+	2	PWR+
3	HDD-	4	PWR-
5	GND	6	Power Button
7	Reset Button	8	GND
9	+5V	-	-



FP1

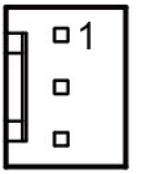
3.2.5.7 System Fan Connector

Connector Location: SYS_FAN1

Description: System Fan Connector

System Fan Connector signals:

PIN	ASSIGNMENT
1	GND
2	+12V
3	NC



SYS_FAN1

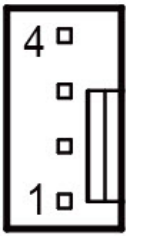
3.2.5.8 CPU Fan Connector

Connector Location: CPU_FAN1

Description: CPU Fan Connector

CPU Fan Connector signals:

PIN	ASSIGNMENT
1	GND
2	+12V
3	TAC
4	CTL



CPU_FAN1

Notes:

1. CPU Fan speed mode can be set by BIOS.
2. Default BIOS setting is “Auto Duty-Cycle Mode”. Please see **Chapter 5** for more details.

3.2.5.9 M.2 SSD Connector (For Q1N & H1N SKU)

Connector Location: M_2_SSD

Description: M.2 SSD Connector

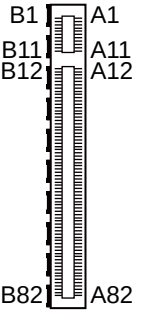
M.2 SSD Connector signals:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	+3.3V
3	GND	4	+3.3V
5	NC	6	NC
7	NC	8	NC
9	NC	10	NC
11	NC	12	NC
13	NC	14	NC
15	NC	16	NC
17	NC	18	NC
19	NC	20	NC
21	GND	22	NC
23	NC	24	NC
25	NC	26	NC
27	GND	28	NC
29	NC	30	NC
31	NC	32	NC
33	GND	34	NC
35	NC	36	NC
37	NC	38	NC
39	GND	40	NC
41	SATA_RX_P	42	NC
43	SATA_RX_N	44	NC
45	GND	46	NC
47	SATA_TX_N	48	NC
49	SATA_TX_P	50	NC
51	GND	52	NC
53	NC	54	NC
55	NC	56	NC
57	GND	58	NC
59	KEY	60	KEY
61	KEY	62	KEY
63	KEY	64	KEY
65	KEY	66	KEY
67	NC	68	NC
69	GND	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND	-	-

M_2_SSD

3.2.5.10 PCI Express Slot

Connector Location: PCI_E1 (PCIE x16)
Description: PCI Express Slot



PCI_E1

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B2	+ 12V	B1	+ 12V	A2	+ 12V	A1	PRSNT#1
B4	GND	B3	+ 12V	A4	GND	A3	+ 12V
B6	SMB_DATA	B5	SMB_CLK	A6	NC	A5	NC
B8	+ 3.3V	B7	GND	A8	NC	A7	NC
B10	+ 3.3V_AUX	B9	NC	A10	+ 3.3V	A9	+ 3.3V
-	-	B11	WAKE#	-	-	A11	PERST#
B12	RSVD	B13	GND	A12	GND	A13	REFCLK+
B14	HSOP0	B15	HSON0	A14	REFCLK-	A15	GND
B16	GND	B17	PRSNT#2	A16	HSIP0	A17	HSIN0
B18	GND	B19	HSOP1	A18	GND	A19	RSVD
B20	HSON1	B21	GND	A20	GND	A21	HSIP1
B22	GND	B23	HSOP2	A22	HSIN1	A23	GND
B24	HSON2	B25	GND	A24	GND	A25	HSIP2
B26	GND	B27	HSOP3	A26	HSIN2	A27	GND
B28	HSON3	B29	GND	A28	GND	A29	HSIP3
B30	RSVD	B31	PRSNT#2	A30	HSIN3	A31	GND
B32	GND	B33	HSOP4	A32	RSVD	A33	RSVD
B34	HSON4	B35	GND	A34	GND	A35	HSIP4
B36	GND	B37	HSOP5	A36	HSIN4	A37	GND
B38	HSON5	B39	GND	A38	GND	A39	HSIP5
B40	GND	B41	HSOP6	A40	HSIN5	A41	GND
B42	HSON6	B43	GND	A42	GND	A43	HSIP6
B44	GND	B45	HSOP7	A44	HSIN6	A45	GND
B46	HSON7	B47	GND	A46	GND	A47	HSIP7
B48	PRSNT#2	B49	GND	A48	HSIN7	A49	GND
B50	HSOP8	B51	HSON8	A50	RSVD	A51	GND
B52	GND	B53	GND	A52	HSIP8	A53	HSIN8
B54	HSOP9	B55	HSON9	A54	GND	A55	GND
B56	GND	B57	GND	A56	HSIP9	A57	HSIN9

PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT	PIN	ASSIGNMENT
B58	HSOP10	B59	HSON10	A58	GND	A59	GND
B60	GND	B61	GND	A60	HSIP10	A61	HSIN10
B62	HSOP11	B63	HSON11	A62	GND	A63	GND
B64	GND	B65	GND	A64	HSIP11	A65	HSIN11
B66	HSOP12	B67	HSON12	A66	GND	A67	GND
B68	GND	B69	GND	A68	HSIP12	A69	HSIN12
B70	HSOP13	B71	HSON13	A70	GND	A71	GND
B72	GND	B73	GND	A72	HSIP13	A73	HSIN13
B74	HSOP14	B75	HSON14	A74	GND	A75	GND
B76	GND	B77	GND	A76	HSIP14	A77	HSIN14
B78	HSOP15	B79	HSON15	A78	GND	A79	GND
B80	GND	B81	PRSNT#2	A80	HSIP15	A81	HSIN15
B82	RSVD	-	-	A82	GND	-	-

3.2.5.11 SATA 3.0 Connectors

Connector Location: SATA1/SATA2

Description: Serial ATA (SATA) 6GB/s Connectors

SATA1 / SATA2

Serial ATA 6GB/s Connector (SATA1/SATA2) signals:

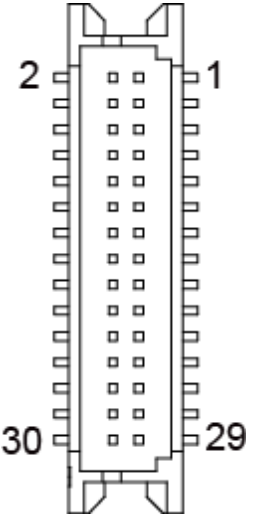
PIN	ASSIGNMENT
1	GND
2	TXPC
3	TXNC
4	GND
5	RXNC
6	RXPC
7	GND

3.2.5.12 LVDS Connector

Connector Location: JLVDS1

Description: LVDS Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+3.3V/+5V	2	GND
3	LVDS_CLKBM	4	LVDS_CLKBP
5	GND	6	LVDS_YBM2
7	LVDS_YBP2	8	GND
9	LVDS_YBM1	10	LVDS_YBP1
11	LVDS_YBP3	12	LVDS_YBM3
13	LVDS_YBP0	14	LVDS_YBM0
15	GND	16	LVDS_CLKAP
17	LVDS_CLKAM	18	GND
19	LVDS_YAP2	20	LVDS_YAM2
21	GND	22	LVDS_YAP1
23	LVDS_YAM1	24	GND
25	LVDS_ YAP0	26	LVDS_YAM0
27	LVDS_YAP3	28	LVDS_YAM3
29	+3.3V/+5V	30	+3.3V/+5V



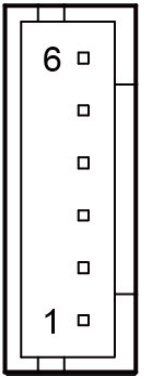
JLVDS1

3.2.5.13 Panel Inverter Connector

Connector Location: INV1

Description: Panel Inverter Connector

PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	Backlight PWM
5	GND
6	Backlight Enable



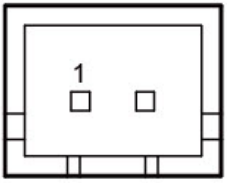
INV1

3.2.5.14 HDD Power Connectors

Connector Location: JHDD_PWR1, JHDD_PWR2

Description: HDD Power Connector 1, HDD Power Connector 2

PIN	ASSIGNMENT
1	+5V
2	GND



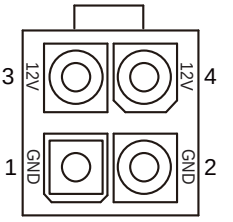
JHDD_PWR1/
JHDD_PWR2

3.2.5.15 ATX Power Input Connector

Connector Location: ATX_PWR1

Description: ATX Power Input Connector

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



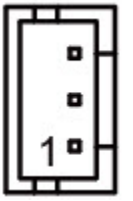
ATX_PWR1

3.2.5.16 DIO Port Power Connector

Connector Location: JPWR_DIO1

Description: DIO Port Power Connector

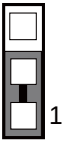
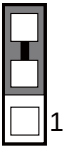
PIN	ASSIGNMENT
1	+5V
2	GND
3	+12V



JPWR_DIO1

3.2.5.17 AT / ATX Mode Selection

Jumper Location: JP2
Description: AT / ATX Mode Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
AT	1-2	 JP2
ATX	***2-3 (Default Setting)***	 JP2

Jumper Location: JP16
Description: AT / ATX Mode Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
AT	Closed	 JP16
ATX	***Open (Default Setting)***	 JP16

3.2.5.18 SPI Override Protection Selection

Jumper Location: JP9

Description: SPI Override Protection Selection

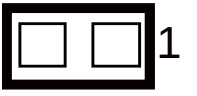
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Enable	***Open (Default Setting)***	 JP9
Disable	Close	 JP9

3.2.5.19 Case Open Detection Connector (option)

Connector Location: JP10

Description: Case Open Detection Connector

PIN	ASSIGNMENT
1	Caseopen+
2	Caseopen-



JP10

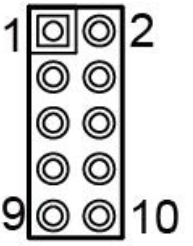
(option)

3.2.5.20 Low Pin Count (LPC) Connector

Connector Location: JP12

Description: Low Pin Count (LPC) Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	CLK	2	GND
3	FRAME#	4	GND
5	PLTRST#	6	LPC_AD0
7	LPC_AD3	8	LPC_AD2
9	+3.3V	10	LPC_AD1

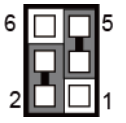
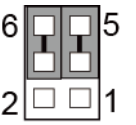
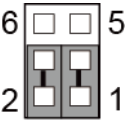
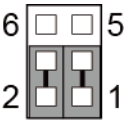
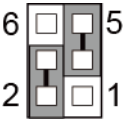
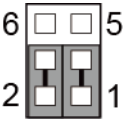
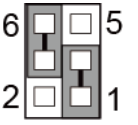
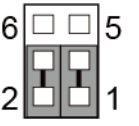
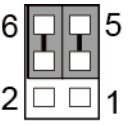
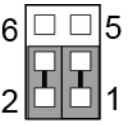
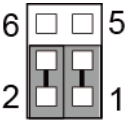
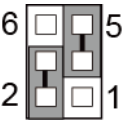


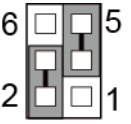
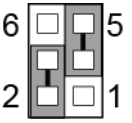
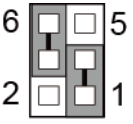
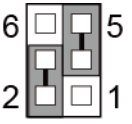
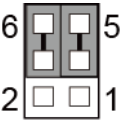
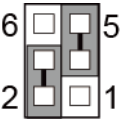
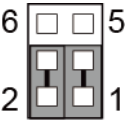
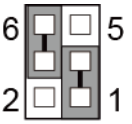
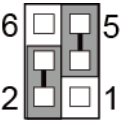
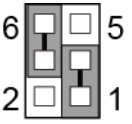
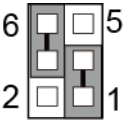
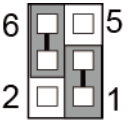
JP12

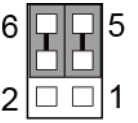
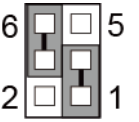
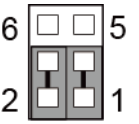
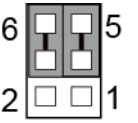
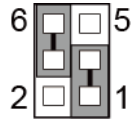
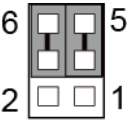
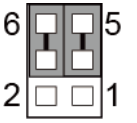
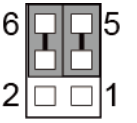
3.2.5.21 LVDS Resolution Selection (For Q1N & H1N SKU)

Jumper Location: JP13, JP14

Description: LVDS Resolution/Channel/Color Bit Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION	
1024x768 Channel S/8bit (Default)	JP13(2-4) JP13(3-5) JP14(3-5) JP14(4-6)	 JP13	 JP14
1920x1200 Channel D/8bit	JP13(1-3) JP13(2-4) JP14(1-3) JP14(2-4)	 JP13	 JP14
1920x1080 Channel D/8bit	JP13(2-4) JP13(3-5) JP14(1-3) JP14(2-4)	 JP13	 JP14
1600x1200 Channel D/8bit	JP13(1-3) JP13(4-6) JP14(1-3) JP14(2-4)	 JP13	 JP14
1680x1050 Channel D/8bit	JP13(3-5) JP13(4-6) JP14(1-3) JP14(2-4)	 JP13	 JP14
1600x900 Channel D/8bit	JP13(1-3) JP13(2-4) JP14(2-4) JP14(3-5)	 JP13	 JP14

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION	
1400x1050 Channel D/8bit	JP13(2-4) JP13(3-5) JP14(2-4) JP14(3-5)	 JP13	 JP14
1440x900 Channel D/8bit	JP13(1-3) JP13(4-6) JP14(2-4) JP14(3-5)	 JP13	 JP14
1366x768 Channel S/8bit	JP13(3-5) JP13(4-6) JP14(2-4) JP14(3-5)	 JP13	 JP14
1366x768 Channel S/6bit	JP13(1-3) JP13(2-4) JP14(1-3) JP14(4-6)	 JP13	 JP14
1280x1024 Channel D/8bit	JP13(2-4) JP13(3-5) JP14(1-3) JP14(4-6)	 JP13	 JP14
1280x960 Channel S/6bit	JP13(1-3) JP13(4-6) JP14(1-3) JP14(4-6)	 JP13	 JP14

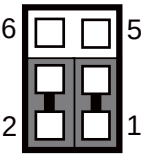
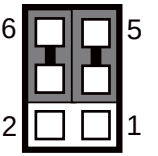
SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION	
1280x800 Channel S/6bit	JP13(3-5) JP13(4-6) JP14(1-3) JP14(4-6)	 JP13	 JP14
1280x768 Channel S/6bit	JP13(1-3) JP13(2-4) JP14(3-5) JP14(4-6)	 JP13	 JP14
1024x768 Channel S/6bit	JP13(1-3) JP13(4-6) JP14(3-5) JP14(4-6)	 JP13	 JP14
800x600 Channel S/6bit	JP13(3-5) JP13(4-6) JP14(3-5) JP14(4-6)	 JP13	 JP14

Note: Manufacturing default is ***Channel S/8 bit 1024x768***.

3.2.5.22 LVDS Voltage Selection (For Q1N & H1N SKU)

Jumper Location: JP15

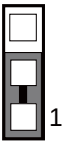
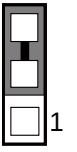
Description: LVDS Voltage Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
3.3V	1-3, 2-4	 JP15
5V	***3-5, 4-6 (Default Setting)***	 JP15

3.2.5.23 Backlight PWM Level Selection

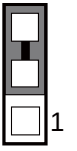
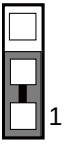
Jumper Location: JP17

Description: Backlight PWM Level Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
3.3V	***1-2 (Default Setting)***	 JP17
5V	2-3	 JP17

3.2.5.24 VCCIO Voltage Selection

Jumper Location: JP1
Description: VCCIO Voltage Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
0.95V	***2-3 (Default Setting)***	 JP1
1.0V	1-2	 JP1

3.2.5.25 LVDS Control Selection (For Q1N & H1N SKU)

Jumper Location: JP5

Description: LVDS Control Selection

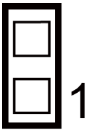
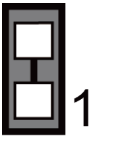
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
LVDS Enable	***1-2 (Default Setting)***	 JP5
Disable	2-3	 JP5

3.2.5.26 Clear CMOS Data Selection

Jumper Location: JCMOS1

Description: Clear CMOS Data Selection

Step 1. Remove the main power of the PC.
Step 2. Close **JCMOS1** (pins 1-2) for 6 seconds by a cap.
Step 3. Remove the cap which is just used on **JCMOS1** (1-2), so that **JCMOS1** returns to "OPEN".
Step 4. Power on the PC and the PC will then auto-reboot for once in order to set SoC's register.
Step 5. Done!

SELECTION	JUMPER SETTINGS	JUMPER ILLUSTRATION
Normal	***Open*** ***(Default Setting)***	 JCMOS1
Clear CMOS Data	Close	 JCMOS1

Note: Please make sure the main power is off before you clear CMOS.

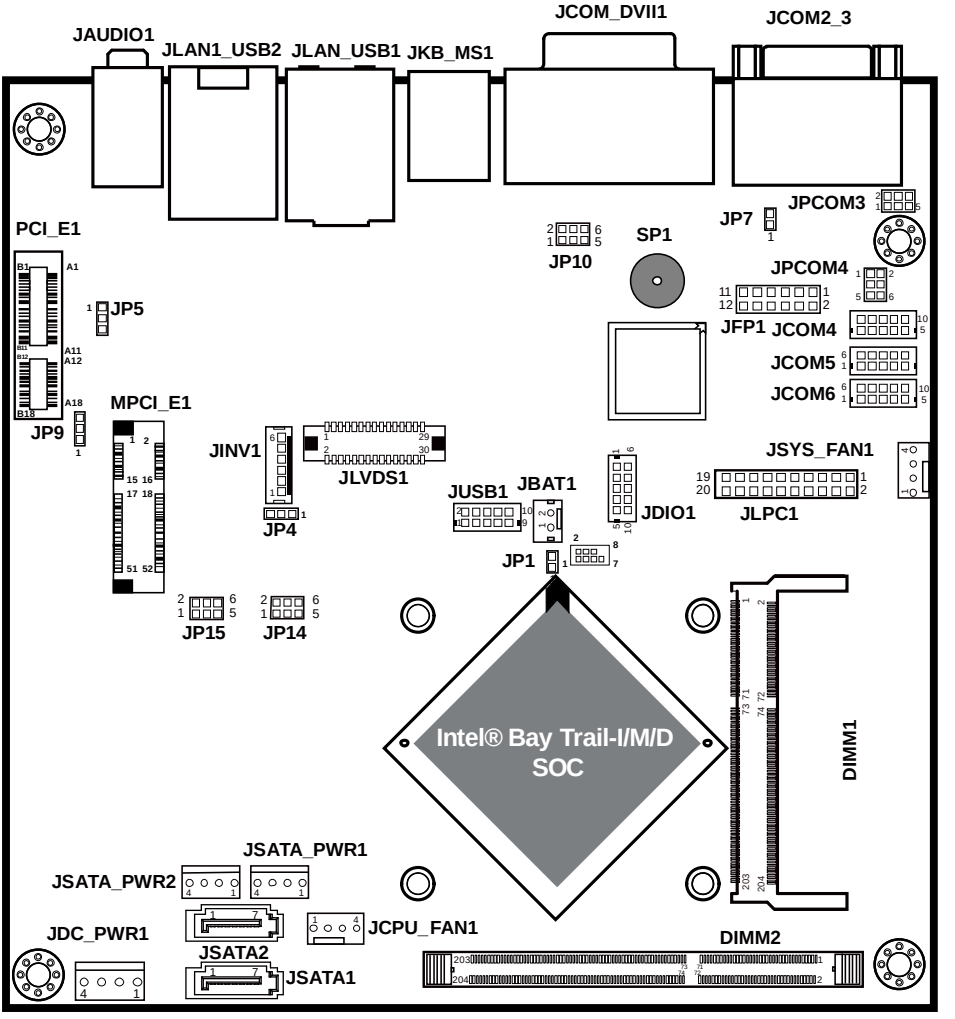
3.3 KS-1132 Entry Level System Main Board

3.3.1 Jumper & Connector Quick Reference Table

JUMPER	NAME
COM3 Voltage Selection	JP_COM3
COM4 Voltage Selection	JP_COM4
Clear CMOS Data Selection	JP1
LVDS Power Selection	JP4
Backlight Power Selection	JP5
AT/ATX Mode Selection	JP7
Backlight Enable Selection	JP9
VGA/DVI Selection	JP10
LVDS Resolution Selection	JP14, JP15

CONNECTOR	NAME
Audio Port	JAUDIO1
Battery Wafer	JBAT1
COM Port	JCOM2_3
COM4 Connector	JCOM4
COM5 Connector	JCOM5
COM6 Connector	JCOM6
DVI-I & COM Port	JCOM_DVII1
FAN Connector	JCPU_FAN1, JSYS_FAN1
DC 12V Connector	JDC_PWR1
DIO Wafer	JDIO1
Front Connector	JFP1
Inverter Wafer	JINV1
KB/MS Port	JKB_MS1
LAN & USB2.0 Port	JLAN_USB1
LAN& USB2.0/3.0 Port	JLAN_USB2
LVDS Connector	JLVDS1
SATA Connector	JSATA1, JSATA2
SATA Power Connector	JSATA_PWR1, JSATA_PWR2
USB Connector	JUSB1
MINI PCIE Connector	M_PCI_E1
PCIE BUS	PCI_E1
LPC Connector	JLPC1

3.3.2 Main Board Component Locations & Jumper Settings M/B: BM-0962



BM-0962 Connector, Jumper and Component Locations

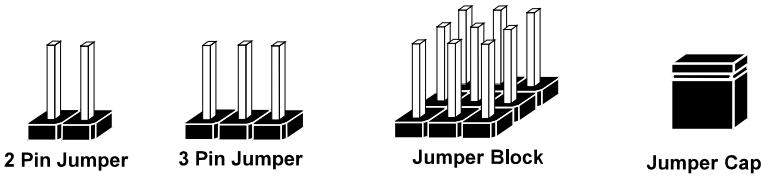
	**WARNING:** Always disconnect the power cord when you are working with connectors and jumpers on the main board. Make sure both the system and peripheral devices are turned OFF as sudden surge of power could damage sensitive components. Make sure BM-0962 is properly grounded.
	**CAUTION:** Observe precautions while handling electrostatic sensitive components. Make sure to ground yourself to prevent static charge while you are working on the connectors and jumpers. Use a grounding wrist strap and place all electronic components in any static-shielded devices.
	**CAUTION:** Always touch the motherboard components by the edges. Never touch components such as a processor by its pins. Take special cares while you are holding electronic circuit boards by the edges only. Do not touch the main board components.

3.3.3 How To Set 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.

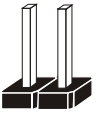
JUMPERS AND CAPS



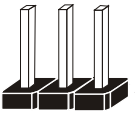
If a jumper has three pins (for examples, labelled PIN1, PIN2, and PIN3), you can connect PIN1 & PIN2 to create one setting by shorting. You can either connect PIN2 & PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams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

Jumper Diagrams

Jumper Cap looks like this

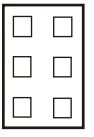


2 pin Jumper looks like this



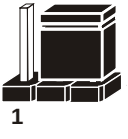
3 pin Jumper looks like this

Jumper Block looks like this

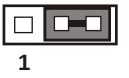


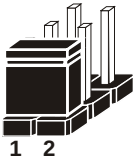
Jumper Settings

2 pin Jumper close(enabled) Looks like this

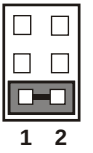


3 pin Jumper 2-3 pin close(enabled) Looks like this





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

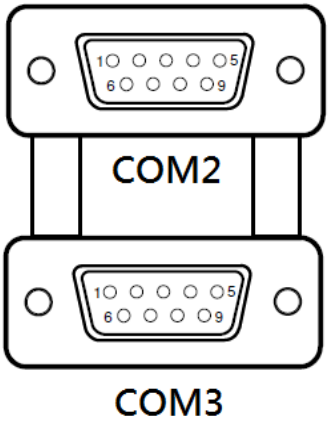


3.3.4 I/O Ports

3.3.4.1 COM Port

Port Location: JCOM2_3
Description: COM Port

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	-	-



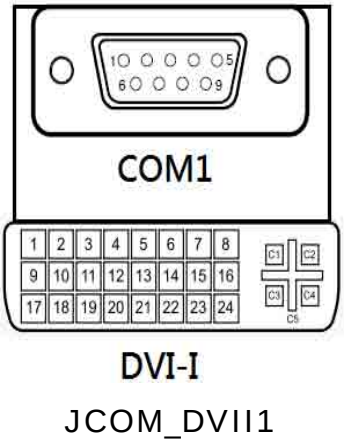
JCOM2_3

3.3.4.2 DVI-I & COM Port

Port Location: JCOM_DVII1

Description: DVI-I & COM Port

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	TMDS_D2-	2	TMDS_D2+
3	GND	4	NC
5	NC	6	DDC_CLK
7	DDC_DATA	8	VSYNC
9	TMDS_D1-	10	TMDS_D1+
11	GND	12	NC
13	NC	14	5V
15	GND	16	HPD
17	TMDS_D0-	18	TMDS_D0+
19	GND	20	NC
21	NC	22	GND
23	TMDS_CLK+	24	TMDS_CLK-
C1	RED	C2	GREEN
C3	BLUE	C4	HSYNC
C5	CND	-	-



DVI-I

JCOM_DVII1

COM1: COM Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	-	-

3.3.4.3 LAN & USB 2.0 Port

Port Location: JLAN1_USB1

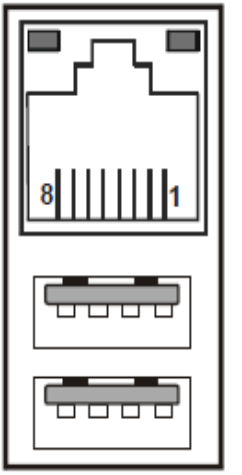
Description: LAN & USB 2.0 Port

LAN:

PIN	ASSIGNMENT
1	TX_D1+
2	TX_D1-
3	RX_D2+
4	BI_D3+
5	BI_D3-
6	RX_D2-
7	BI_D4+
8	BI_D4-

USB 2.0:

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



JLAN1_USB1

3.3.4.4 LAN& USB2.0/3.0 Port

Port Location: JLAN1_USB2

Description: LAN & USB 2.0/3.0 Port

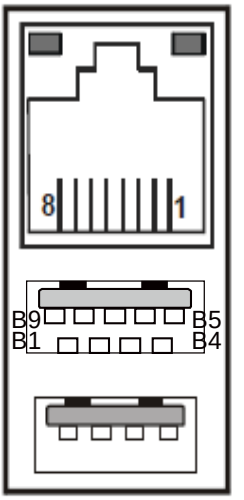
LAN:

PIN	ASSIGNMENT
1	TX_D1+
2	TX_D1-
3	RX_D2+
4	BI_D3+
5	BI_D3-
6	RX_D2-
7	BI_D4+
8	BI_D4-

USB 2.0:

PIN	ASSIGNMENT
B1	VBUS
B2	D-
B3	D+
B4	GND
B5	STDA_SSRX-
B6	STDA_SSRX+
B7	GND
B8	STDA_SSTX-
B9	STDA_SSTX+

Yellow **Orange/ Green**



JLAN1_USB2

3.3.4.5 KB/MS Port

Port Location: JKB_MS1

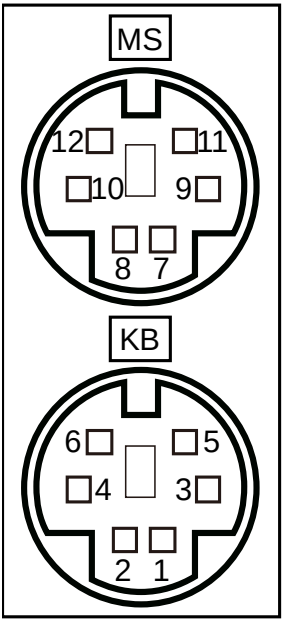
Description: KB/MS Port

Mouse:

PIN	ASSIGNMENT
7	DATA
8	NC
9	GND
10	5V
11	CLK
12	NC

Keyboard:

PIN	ASSIGNMENT
1	DATA
2	NC
3	GND
4	5V
5	CLK
6	NC



JKB_MS1

3.3.4.6 Audio Port

Port Location: JAUDIO1

Description: Line-In, Line-Out & Microphone

The connector can also support only Microphone.

Line-In:

PIN	ASSIGNMENT
32	LINE-IN-L
33	NC
34	NC
35	LINE-IN-R

Line-Out:

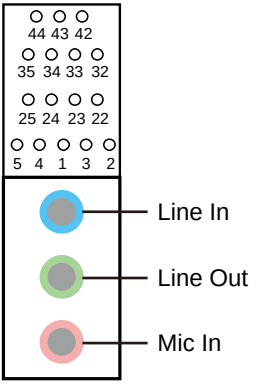
PIN	ASSIGNMENT
22	LINE-OUT-L
23	NC
24	NC
25	LINE-OUT-R

Mic-In:

PIN	ASSIGNMENT
1	GND
2	MIC_L
3	NC
4	NC
5	MIC_R

Others:

PIN	ASSIGNMENT
42	NC
43	NC
44	NC



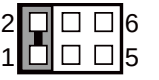
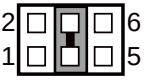
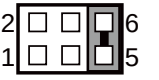
JAUDIO1

3.3.5 Setting Connectors and Jumpers

3.3.5.1 COM3 Voltage Selection

Jumper Location: JP_COM3

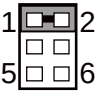
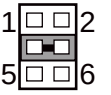
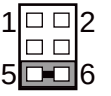
Description: COM3 Voltage Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
RI	**1-2** ***(Default Setting)***	 JP_COM3
12V	3-4	 JP_COM3
5V	5-6	 JP_COM3

3.3.5.2 COM4 Voltage Selection

Jumper Location: JP_COM4

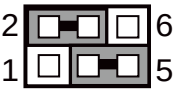
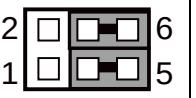
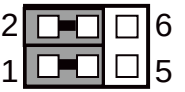
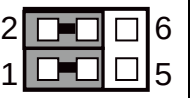
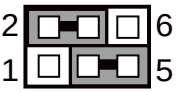
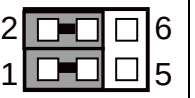
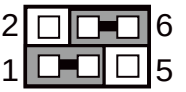
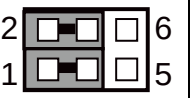
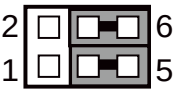
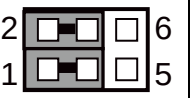
Description: COM4 Voltage Selection

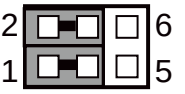
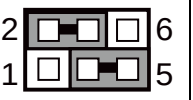
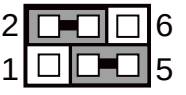
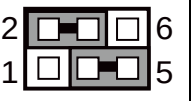
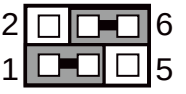
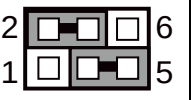
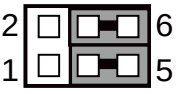
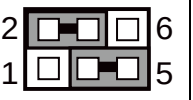
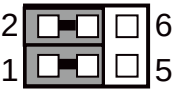
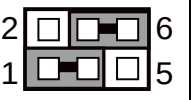
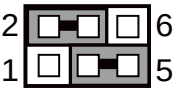
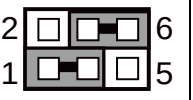
SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
RI	**1-2** ***(Default Setting)***	 JP_COM4
12V	3-4	 JP_COM4
5V	5-6	 JP_COM4

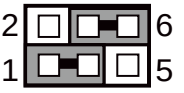
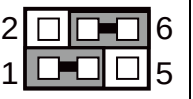
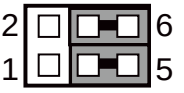
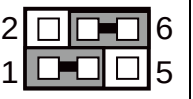
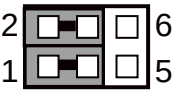
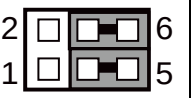
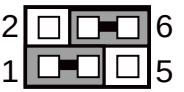
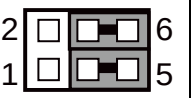
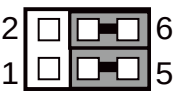
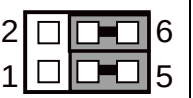
Note: Manufacturing default for BS-H292 (SBOX)) is 5V (5-6).

3.3.5.3 LVDS Resolution Selection

Jumper Location: JP14, JP15
Description: LVDS Resolution Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION	
1024x768 1CH/24bit *(Default)*	**JP15(4-6) JP15(3-5) JP14(2-4) JP14(3-5)**	 JP14	 JP15
1920x1200 2CH/24bit	JP15(2-4) JP15(1-3) JP14(2-4) JP14(1-3)	 JP14	 JP15
1920x1080 2CH/24bit	JP15(2-4) JP15(1-3) JP14(2-4) JP14(3-5)	 JP14	 JP15
1600x1200 2CH/24bit	JP15(2-4) JP15(1-3) JP14(4-6) JP14(1-3)	 JP14	 JP15
1680x1050 2CH/24bit	JP15(2-4) JP15(1-3) JP14(4-6) JP14(3-5)	 JP14	 JP15

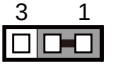
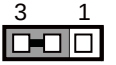
SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION	
1600x900 2CH/24bit	JP15(2-4) JP15(3-5) JP14(2-4) JP14(1-3)	 JP14	 JP15
1400x1050 2CH/24bit	JP15(2-4) JP15(3-5) JP14(2-4) JP14(3-5)	 JP14	 JP15
1440x900 2CH/24bit	JP15(2-4) JP15(3-5) JP14(4-6) JP14(1-3)	 JP14	 JP15
1366x768 1CH/24bit	JP15(2-4) JP15(3-5) JP14(4-6) JP14(3-5)	 JP14	 JP15
1366x768 1CH/18bit	JP15(4-6) JP15(1-3) JP14(2-4) JP14(1-3)	 JP14	 JP15
1280x1024 2CH/24bit	JP15(4-6) JP15(1-3) JP14(2-4) JP14(3-5)	 JP14	 JP15

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION	
1280x960 1CH/24bit	JP15(4-6) JP15(1-3) JP14(4-6) JP14(1-3)	 JP14	 JP15
1280x800 1CH/18bit	JP15(4-6) JP15(1-3) JP14(4-6) JP14(3-5)	 JP14	 JP15
1280x768 1CH/18bit	JP15(4-6) JP15(3-5) JP14(2-4) JP14(1-3)	 JP14	 JP15
1024x768 1CH/18bit	JP15(4-6) JP15(3-5) JP14(4-6) JP14(1-3)	 JP14	 JP15
800x600 1CH/18bit	JP15(4-6) JP15(3-5) JP14(4-6) JP14(3-5)	 JP14	 JP15

3.3.5.4 LVDS Power Selection

Jumper Location: JP4

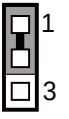
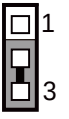
Description: LVDS Power Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
3.3V	**1-2** ***(Default Setting)***	 JP4
5V	2-3	 JP4

3.3.5.5 Backlight Inverter PWM Voltage Selection

Jumper Location: JP5

Description: Backlight Inverter PWM Voltage Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
3.3V	**1-2** ***(Default Setting)***	 JP5
5V	2-3	 JP5
GND	NC	 JP5

3.3.5.6 Power-On Mode Selection

Jumper Location: JP7

Description: Power-On Mode Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
Auto-on	**1-2** ***(Default Setting)***	 JP7
Select by BIOS	NC	 JP7

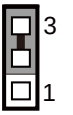
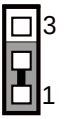
Note 1: Manufacturing default for BS-H292 (SBOX) is "NC".

Note 2: Auto-On means that system will turn on automatically whenever the main power is restored.

3.3.5.7 Backlight Enable Selection

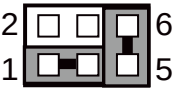
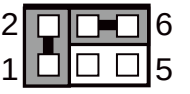
Jumper Location: JP9

Description: Backlight Enable Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
5V	**2-3** *(Default Setting)*	 JP9
3.3V	1-2	 JP9

3.3.5.8 VGA/DVI Selection

Jumper Location: JP10
Description: VGA/DVI Selection

SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
DVI	**(1-3)** **(5-6)** ***(Default Setting)***	 JP10
VGA	(1-2) (4-6)	 JP10

3.3.5.9 Clear CMOS Data Selection

Jumper Location: JP1
Description: Clear CMOS Data Selection

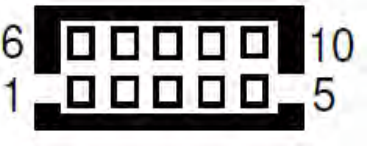
SELECTION	JUMPTER SETTING	JUMPER ILLUSTRATION
NC	**NC** ***(Default Setting)***	 JP1
Clear CMOS	1-2	 JP1

3.3.5.10 COM4 Connector

Connector Location: JCOM4

Description: COM4 Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC



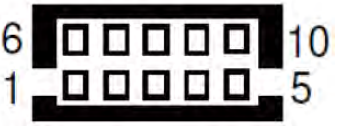
JCOM4

3.3.5.11 COM5 Connector

Connector Location: JCOM5

Description: COM5 Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC



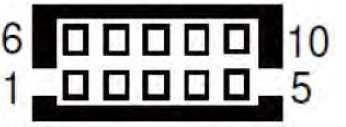
JCOM5

3.3.5.12 COM6 Connector

Connector Location: JCOM6

Description: COM6 Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD	6	DSR
2	RXD	7	RTS
3	TXD	8	CTS
4	DTR	9	RI
5	GND	10	NC



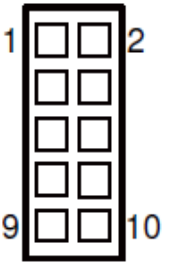
JCOM6

3.3.5.13 USB Connector

Connector Location: JUSB1

Description: USB Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	5V	2	5V
3	D-	4	D-
5	D+	6	D+
7	GND	8	GND
9	GND	10	GND

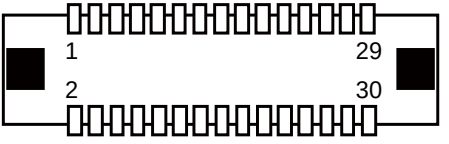


JUSB1

3.3.5.14 LVDS Connector

Connector Location: JLVDS1

Description: LVDS Connector



JLVDS1

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LVDS_VCC	2	GND
3	LVDS1_CLK-	4	LVDS1_CLK+
5	GND	6	LVDS1_D2-
7	LVDS1_D2+	8	GND
9	LVDS1_D1-	10	LVDS1_D1+
11	LVDS1_D3+	12	LVDS1_D3-
13	LVDS1_D0+	14	LVDS1_D0-
15	GND	16	LVDS0_CLK+
17	LVDS0_CLK-	18	GND
19	LVDS0_D2+	20	LVDS0_D2-
21	GND	22	LVDS0_D1+
23	LVDS0_D1-	24	GND
25	LVDS0_D0+	26	LVDS0_D0-
27	LVDS0_D3+	28	LVDS0_D3-
29	LVDS_VCC	30	LVDS_VCC

3.3.5.15 Fan Connector

Connector Location: JCPU_FAN1, JSYS_FAN1

Description: Fan Connector

PIN	ASSIGNMENT
1	GND
2	12V
3	FAN_CONTROL
4	FAN_SIGNAL

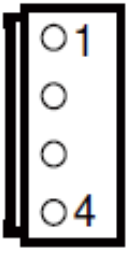
JCPU_FAN1/
JSYS_FAN1

3.3.5.16 DC 12V Connector

Connector Location: JDC_PWR1

Description: DC 12V Connector

PIN	ASSIGNMENT
1	12V
2	12V
3	GND
4	GND



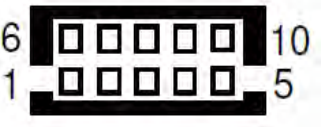
JDC_PWR1

3.3.5.17 DIO Wafer

Connector Location: JDIO1

Description: DIO Wafer

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	5V	6	GND
2	DIN0	7	DOUT0
3	DIN1	8	DOUT1
4	DIN2	9	DOUT2
5	DIN3	10	DOUT3



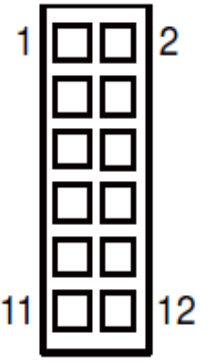
JDIO1

3.3.5.18 Front Panel Connector

Connector Location: JFP1

Description: Front Panel Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HDD_LED+	2	PWR_LED+
3	HDD_LED-	4	PWR_LED-
5	GND	6	SPK_VCC
7	RESET SWITCH	8	SPEAKER SIGNAL
9	POWER BUTTON	10	SPEAKER SIGNAL
11	GND	12	SPEAKER SIGNAL



JFP1

3.3.5.19 Inverter Wafer

Connector Location: JINV1

Description: Inverter Wafer

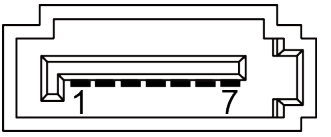
PIN	ASSIGNMENT
1	12V
2	12V
3	GND
4	PWM SIGNAL
5	GND
6	BACKLIGHT EN

JINV1

3.3.5.20 SATA Connector

Connector Location: JSATA1, JSATA2
Description: Two Serial ATA Connectors

PIN	ASSIGNMENT
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND

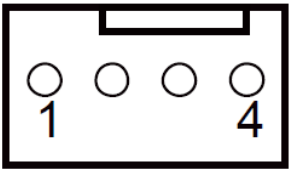


JSATA1/
JSATA2

3.3.5.21 SATA Power Connector

Connector Location: JSATA_PWR1, JSATA_PWR2
Description: SATA Power Connector

PIN	ASSIGNMENT
1	5V
2	GND
3	GND
4	12V

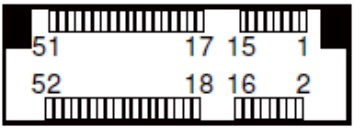


JSATA_PWR1/
JSATA_PWR2

3.3.5.22 Mini PCIe Connector

Connector Location: M_PCI_E1

Description: Mini PCIe Connector



M_PCI_E1

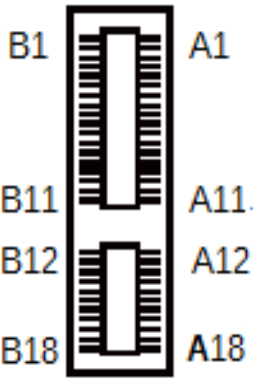
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	WAKE#	2	3.3V
3	NC	4	GND
5	NC	6	1.5V
7	CLKREQ#	8	NC
9	GND	10	NC
11	REFCLK-	12	NC
13	REFCLK+	14	NC
15	GND	16	NC
17	NC	18	GND
19	NC	20	NC
21	GND	22	PERST#
23	PERn0	24	3.3V
25	PERp0	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	PETn0	32	SMB_DATA
33	PETp0	34	GND
35	GND	36	USB_D-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

3.3.5.23 PCIE Bus

Connector Location: PCI_E1

Description: PCIE Bus

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	NC	B1	12V
A2	12V	B2	12V
A3	12V	B3	12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	3.3V
A9	3.3V	B9	NC
A10	3.3V	B10	3.3V_SB
A11	PWRGD	B11	WAKE#
A12	GND	B12	NC
A13	REFCLK+	B13	GND
A14	REFCLK-	B14	HSOP0
A15	GND	B15	HSON0
A16	HSIP0	B16	GND
A17	HSIN0	B17	PRSNT#
A18	GND	B18	GND

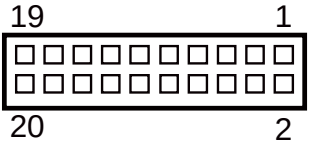


PCI_E1

3.3.5.24 LPC Connector

Connector Location: JLPC1

Description: LPC Connector



JLPC1

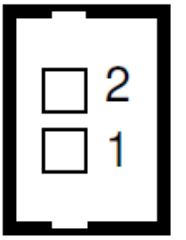
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	CLK	2	GND
3	FRAME	4	NC
5	RESET	6	VCC5
7	LAD3	8	LAD2
9	VCC3	10	LAD1
11	LAD0	12	GND
13	SMBCLK	14	SMBDATA
15	3VSB	16	SERIRQ
17	GND	18	CLK RUN
19	SUS_TAT	20	DREQ0

3.3.5.25 Battery Wafer

Connector Location: JBAT1

Description: Battery Wafer

PIN	ASSIGNMENT
1	RTC_BAT
2	GND



JBAT1

4 Software Utilities

This chapter provides the detailed information that guides users to install driver utilities for High-End Level system and Entry Level systems. The following topics are included:

High-End Level System:

- Installing Intel® Chipset Software Installation Utility
- Installing Graphics Driver Utility
- Installing LAN Driver Utility
- Installing Intel® Management Engine Driver Utility
- Installing KMDF Driver Utility (For Windows 7 only)
- Installing USB 3.0 Driver Utility
- Installing Sound Driver Utility
- Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility

Entry Level System:

- Installing Intel® Chipset Software Installation Utility
- Installing Graphics Driver Utility
- Installing LAN Driver Utility
- Installing Sound Driver Utility
- Installing Intel® Trusted Execution Engine Installation Utility
- Installing USB 3.0 Driver Utility
- Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility

4.1 Introduction

Enclosed with the KS-1132 Series package is our driver utilities contained in a DVD-ROM disk. Refer to the following table for driver locations.

4.1.1 Driver and OS Support For High-End Level System

The driver utilities listed below are to be installed only for Windows 10 (32/64-bit), Windows 7 (32/64-bit) and POSReady7 (32/64-bit) series.

Filename (Assume that DVD-ROM drive is D :)	Purpose	DOS	Win10	Win7	POS Ready7
D:\KS-1132 High-End V1.0\Driver\Flash BIOS	Driver Installation for BIOS update utility (AMI)	✓	X	X	X
D:\KS-1132 High-End V1.0\Driver\Platform\ Main Chip	Intel® Chipset Device Software installer	X	✓	✓	✓
D:\KS-1132 High-End V1.0\Driver\Platform\ Graphics\GFX_win32_15.45.20.4727 (32bit) D:\KS-1132 High-End V1.0\Driver\Platform\ Graphics\GFX_win64_15.45.20.4727 (64bit)	Intel HD Graphics Family For Graphics driver installation	X	✓	✓	✓
D:\KS-1132 High-End V1.0\Driver\Platform\Hotfix\ 32bit D:\KS-1132 High-End V1.0\Driver\Platform\Hotfix\ 64bit	Microsoft Hotfix kb3211320 and kb3213986 for Windows10 critical security update	X	✓	X	X
D:\KS-1132 High-End V1.0\Driver\Platform\KMDF for Win7	Kernel-Mode Driver Framework (Only for Win7)	X	X	✓	✓
D:\KS-1132 High-End V1.0\Driver\Platform\ LAN Chip	Intel I219-LM & Intel I211-AT For LAN Driver installation	X	✓	✓	✓
D:\KS-1132 High-End V1.0\Driver\Platform\ME\ Microsoft .NET Framework4.5	Microsoft .NET Framework4.5 (Only for Win7)	X	X	✓	✓

Filename (Assume that DVD-ROM drive is D :)	Purpose	DOS	Win10	Win7	POS Ready7
D:\KS-1132 High-End V1.0\Driver\Platform\ ME\ME_Consumer_11.8.50.3399(H110) D:\KS-1132 High-End V1.0\Driver\Platform\ ME\ME_Corporate_11.8.50.3399(Q170)	Intel(R) Management Engine Driver Installation	X	✓	✓	✓
D:\KS-1132 High-End V1.0\Driver\Platform\ Sound Codec	Realtek ALC888S-VD2-GR HD Audio codec System Software	X	✓	✓	✓
D:\KS-1132 High-End V1.0\Driver\Platform\ USB 3.0	Intel(R) USB3.0 eXtensible Host Controller Driver (Only for Win7)	X	X	✓	✓
D:\KS-1132 High-End V1.0\Driver\Device	Driver Installation for Barcode Scanner, MSR, Thermal Printer, etc.	X	✓	✓	✓

X : Not support

✓: Support

Note: Install the driver utilities immediately after the OS installation is completed.

4.1.1.1 Installing Intel® Chipset Software Installation Utility

Introduction

The Intel® Chipset Software Installation Utility installs to the target system the Windows* INF files that outline to the operating system how the chipset components will be configured. This is required for the following features to function properly:

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

Installation of Intel® Chipset Driver

The utility pack is to be installed only for Windows 10 (32/64-bit), Windows 7 (32/64-bit), POSReady7 (32/64-bit) series, and it should be installed right after the OS installation. Please follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk inside.
2. Enter the "Main Chip" folder where the Chipset driver is located (depending on your OS platform).
3. Click **SetupChipset.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart the KS-1132 for the changes to take effect.

4.1.1.2 Installing Graphics Driver Utility

The Graphics interface embedded with the KS-1132 series can support a wide range of display types.

Installation of Graphics Driver

To install the Graphics Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk inside.
2. Enter the "Graphics" folder where the Graphics 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 the installation is completed, shut down the system and restart the KS-1132 for the changes to take effect.

4.1.1.3 Installing LAN Driver Utility

The KS-1132 Series is enhanced with LAN function that can support various network adapters. Installation platform for the LAN driver is listed as follows:

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

Installation of LAN Driver

To install the LAN Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk inside.
2. Enter the "LAN" folder where the LAN driver is located (depending on your OS platform).
3. Click **Autorun.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart the KS-1132 for the changes to take effect.

4.1.1.4 Installing Sound Driver Utility

The sound function enhanced in this system is fully compatible with Windows 10 (32/64-bit), Windows 7 (32/64-bit), POSReady7 (32/64-bit) series. Below you will find the content of the Sound driver.

Installation of Sound Driver

To install the Sound Driver, refer to the readme.txt file on the driver disc.

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk inside.
2. Enter the "Sound Codec" folder where the Sound driver is located (depending on your OS platform).
3. Click **Audio_0007-Win7_Win8_Win81_Win10_R281.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart the KS-1132 for the changes to take effect.

4.1.1.5 Installing Intel® Management Engine Driver Utility

For Windows 7 only. Pre-install Microsoft's Kernel-Mode Driver Framework (KMDF) version 1.11 before you install the Intel® Management Engine Components Installer (ME) in order to avoid errors in Device Manager.

Installation Instructions for Kernel-Mode Driver Framework (KMDF)

To install the Kernel-Mode Driver Framework (KMDF), follow the steps below:

1. Insert the driver disk into a DVD-ROM device.
2. Select Windows 7 (32/64-bit) for your OS platform.
3. (For Windows 7 only) Click the **kmdf-1.11-Win-6.1-x86** file for Windows 32-bit driver installation.
4. (For Windows 7 only) Click the **kmdf-1.11-Win-6.1-x64** file for Windows 64-bit driver installation.

Installation Instructions for Intel® Management Engine Components Installer

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Select Windows 10 (32/64-bit) / Windows 7 (32/64-bit) / POSReady7 (32/64-bit) for your OS platform.
3. Enter the **ME** folder where the driver is located.
4. Click **SetupME.exe** file for ME driver installation.
5. Follow the on-screen instructions to complete the installation.
6. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

4.1.1.6 Installing Intel® USB 3.0 eXtensible Host Controller Utility

(For Windows 7 only) Intel® USB 3.0 e Xtensible Host Controller Driver supports the following Intel® Chipsets/Processors:

- Intel® 8 Series/C220 series Chipset Family
- Intel® 4th Generation Core™ Processors
- Intel® C610 series Chipset Family
- Intel® 9 Series Chipset Family
- Intel® Pentium® Processor or Intel® Celeron® Processor N- & J-Series
- Intel® 5th generation Intel® Core™ Processors
- Intel® Core™ M Processor
- Intel® 6th generation Intel® Core™ processors
- Intel® 100 Series Chipset Family

To install the utility, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Select Windows 7 (32/64-bit) for your OS platform.
3. Enter the **USB 3.0** folder where the driver is located.
4. Click **Setup.exe** file for USB 3.0 driver installation
5. Follow the on-screen instructions to complete the installation.
6. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.
7. Run the application with the administrator privilege.

4.1.1.7 Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility

To install the Hotfix driver utility, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Enter the "Hotfix" folder where the driver is located.
3. Select **32bit** or **64bit** folder for your Windows 10 OS platform.
4. Click the **kb3211320** and **kb3213986** files for critical security update.
5. Follow the on-screen instructions to complete the installation.
6. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

4.1.2 Driver and OS Support For Entry Level System

The driver utilities listed below are to be installed only for Windows 10 (32/64-bit), Windows 7 (32/64-bit) and POSReady7 (32/64-bit) series.

Filename (Assume that DVD-ROM drive is D :)	Purpose	DOS	Win10	Win7	POS Ready7
D:\KS-1132 Entry-Level V1.0\Driver\Flash BIOS	Driver Installation for BIOS update utility (AMI)	✓	X	X	X
D:\KS-1132 Entry-Level V1.0\Driver\Platform\ Main Chip	Intel® Chipset Device Software installer	X	✓	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Platform \Graphics	Intel HD Graphics Family For Graphics driver installation	X	✓	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Platform\Hotfix\ 32bit D:\KS-1132 Entry-Level V1.0\Driver\Platform\Hotfix\ 64bit	Microsoft Hotfix kb3211320 and kb3213986 for Windows10 critical security update	X	✓	X	X
D:\KS-1132 Entry-Level V1.0\Driver\Platform\KMDF For Win7	Kernel-Mode Driver Framework (Only for Win7)	X	X	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Platform\ LAN Chip	Intel I210IT & I210AT For LAN Driver installation	X	✓	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Platform\TXE	For Intel Trusted Execution Engine Interface	X	✓	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Platform\ Sound Codec	Realtek ALC888 For Sound driver installation	X	✓	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Platform\ USB 3.0	Intel(R) USB3.0 eXtensible Host Controller Driver (Only for Win7)	X	X	✓	✓
D:\KS-1132 Entry-Level V1.0\Driver\Device	Driver Installation for Barcode Scanner, MSR, Thermal Printer, etc.	X	✓	✓	✓

X : Not support

✓: Support

Note: Install the driver utilities immediately after the OS installation is completed.

4.1.2.1 Installing Intel® Chipset Software Installation Utility

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

The utility pack is to be installed only for Windows 10 (32/64-bit), Windows 7 (32/64-bit), POSReady7 (32/64-bit) series, and it should be installed right after the OS installation. Please follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Enter the "Main Chip" folder where the Chipset driver is located (depending on your OS platform).
3. Click **SetupChipset.exe** file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

4.1.2.2 Installing Graphics Driver Utility

To install the Graphics driver, follow the steps below:

1. Connect the USB-DVD ROM device to KS-1132 and insert the driver disk.
2. Enter the "Graphics" folder where the Graphics 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 the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

4.1.2.3 Installing LAN Driver Utility

KS-1132 is enhanced with LAN function that can support various network adapters. Installation platform for the LAN driver is listed as follows:

To install the LAN Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Enter the "LAN" folder where the LAN driver is located (depending on your OS platform).
3. Click **Autorun.exe** file for LAN driver installation for Windows 7 OS platform.
4. Click **prowinx64.exe** for LAN driver installation on Windows 10 (64-bit) OS platform.
   Click **prowin32.exe** file for LAN driver installation on Windows 10 (32-bit) OS platform.
5. Follow the on-screen instructions to complete the installation.
6. Once installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

Refer to the Readme.txt file found on LAN Driver Utility for more details on the Installation procedure.

4.1.2.4 Installing Intel® Trusted Execution Engine Installation Utility

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Enter the "TXE" folder where the driver is located.
3. Click **SetupTXE.exe** file for TXE driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

4.1.2.5 Installing Sound Driver Utility

The sound function enhanced in this system is fully compatible with Windows 10 (32/64-bit), Windows 7 (32/64-bit), POSReady7 (32/64-bit) series. Below, you will find the content of the Sound driver.

To install the Sound Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 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 the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

4.1.2.6 Installing Intel® USB 3.0 eXtensible Host Controller Utility

(For Windows 7 only) Intel® USB 3.0 e Xtensible Host Controller Driver supports the following Intel® Chipsets/Processors:

- Intel® 8 Series/C220 series Chipset Family
- Intel® 4th Generation Core™ Processors
- Intel® C610 series Chipset Family
- Intel® 9 Series Chipset Family
- Intel® Pentium® Processor or Intel® Celeron® Processor N- & J-Series
- Intel® 5th generation Intel® Core™ Processors
- Intel® Core™ M Processor
- Intel® 6th generation Intel® Core™ processors
- Intel® 100 Series Chipset Family

To install the utility, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Select Windows 7 (32/64-bit) for your OS platform.
3. Enter the **USB 3.0** folder where the driver is located.
4. Click **Setup.exe** file for USB 3.0 driver installation
5. Follow the on-screen instructions to complete the installation.
6. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.
7. Run the application with the Administrator privilege.

4.1.2.7 Installing Microsoft Hotfix kb3211320 and kb3213986 Driver Utility

To install the Hotfix driver utility, follow the steps below:

1. Connect the USB DVD-ROM device to KS-1132 and insert the driver disk.
2. Enter the Hotfix folder where the driver is located.
3. Select **32bit** or **64bit** folder for your Windows 10 OS platform.
4. Click the **kb3211320** and **kb3213986** files for critical security update.
5. Follow the on-screen instructions to complete the installation.
6. Once the installation is completed, shut down the system and restart KS-1132 for the changes to take effect.

5 BIOS SETUP

This chapter guides users how to configure the basic system configurations via the BIOS Setup Utilities. The information of the system configuration is saved in BIOS NVRAM so that the Setup information is retained when the system is powered off. The BIOS Setup Utilities consist of the following menu items:

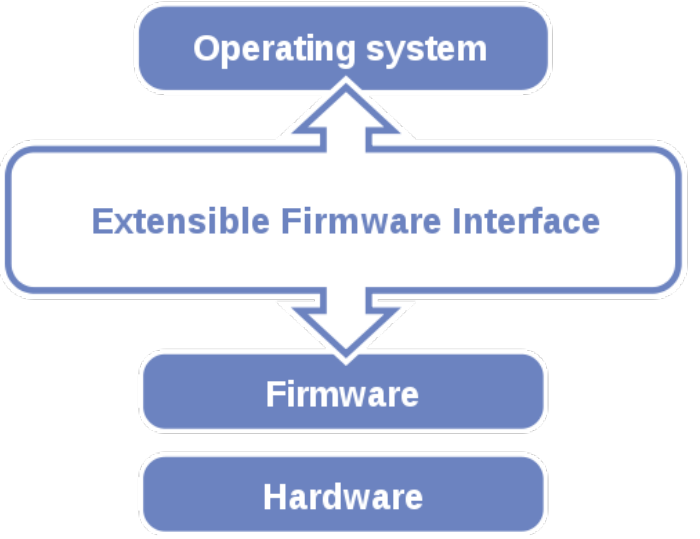
- Main Menu
- Advanced Menu
- Chipset Menu
- Security Menu
- Boot Menu
- Save & Exit Menu

5.1 Introduction

The KS-1132 uses an AMI (American Megatrends Incorporated) Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the built-in BIOS setup program, Power-On Self-Test (POST), 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 the 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 elements have combined to provide a standard environment for booting the operating system and running pre-boot applications.

The diagram below shows the Extensible Firmware Interface's location in the software stack.



Extensible Firmware Interface Diagram

EFI BIOS provides an user interface that allows you to modify hardware configuration, e.g. change the system date and time, enable/disable a system component, determine bootable device priority, set up personal password, etc., which is convenient for engineers to perform modifications and customize the computer system and allows technicians to troubleshoot the occurred errors when the hardware is faulty.

The BIOS setup menu allows users to view and modify the BIOS settings for the computer. After the system is powered on, users can access the BIOS setup menu by pressing <Del> or <Esc> immediately while the POST message is running before the operating system is loading.

5.2 Accessing Setup Utility for High-End Level System

After the system is powered on, BIOS will enter the Power-On Self-Test (POST) routines and the POST message will be displayed:

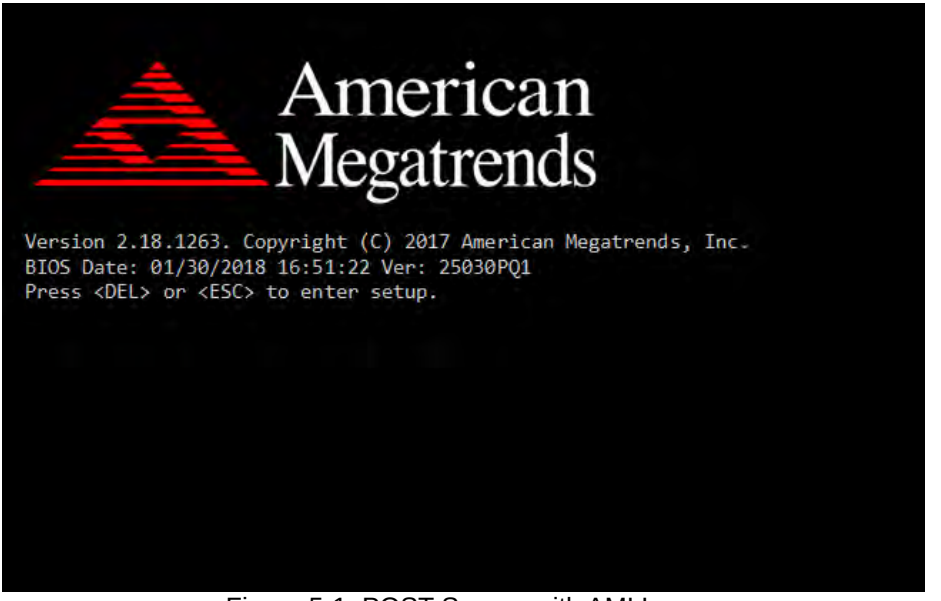
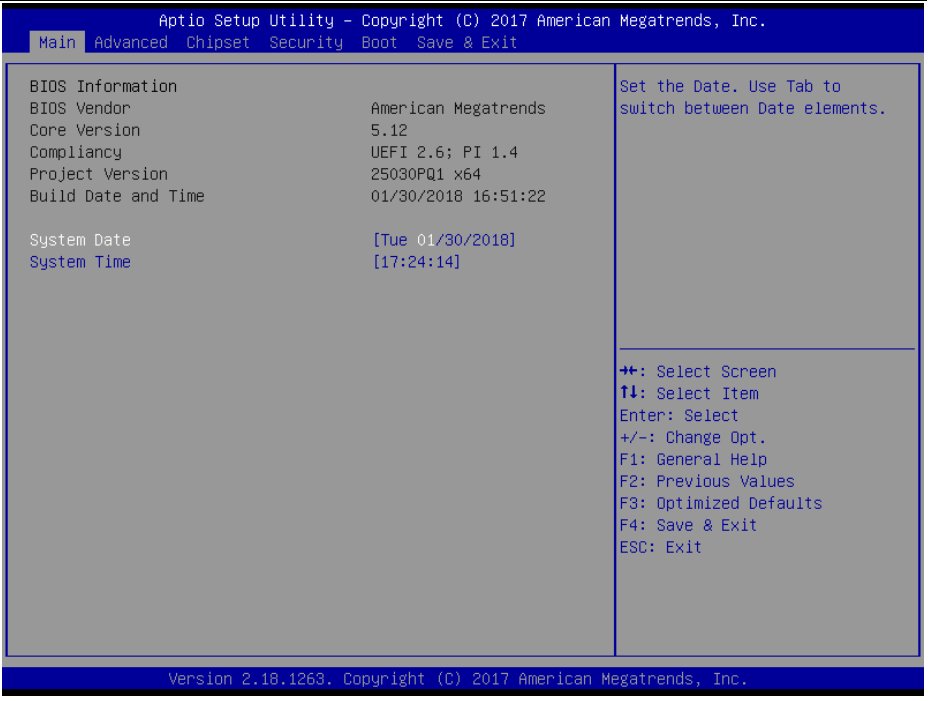


Figure 5-1. POST Screen with AMI Logo

Press **<Del>** or **<Esc>** to access the Setup Utility program and the **Main** menu of the Aptio Setup Utility will appear on the screen as below:



BIOS Setup Menu Initialization Screen

You may move the cursor by <↑> and <↓> keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear on the right side of the screen.

The language of the BIOS setup menu interface and help messages are shown in US English. You may use <↑> or <↓> key to select among the items and press <Enter> to confirm and enter the sub-menu. The following table provides the list of the navigation keys that you can use while operating the BIOS setup menu.

BIOS Setup Navigation Key	Description
<←> and <→>	Select a different menu screen (move the cursor from the selected menu to the left or right).
<↑> and <↓>	Select a different item (move the cursor from the selected item upwards or downwards)
<Enter>	Execute the command or select the sub-menu.
<F2>	Load the previous configuration values.
<F3>	Load the default configuration values.
<F4>	Save the current values and exit the BIOS setup menu.
<Esc>	Close the sub-menu. Trigger the confirmation to exit BIOS setup menu.

5.2.1 Main

Menu Path *Main*

The **Main** menu allows you to view the BIOS Information, change the system date and time, and view the user access privilege level. Use tab to switch between date elements. Use <↑> or <↓> arrow keys to highlight the item and enter the value you want in each item. This screen also displays the BIOS version (project) and BIOS Build Date and Time.

Main Screen

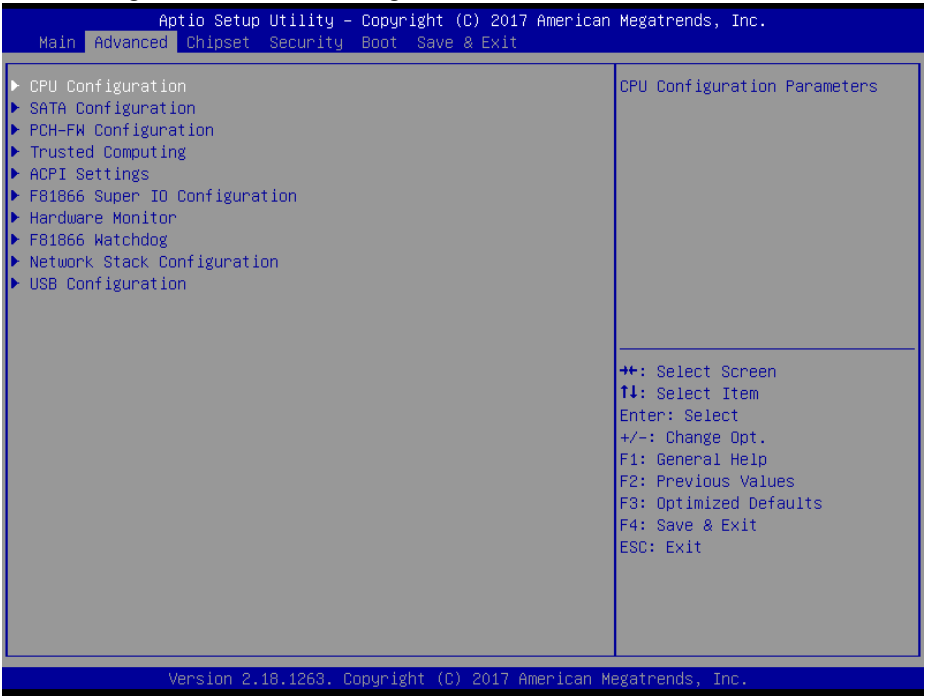
BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the name of the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Compliancy	No changeable options	Displays the current UEFI version.
Project Version	No changeable options	Displays the version of the BIOS currently installed on the platform.
Build Date and Time	No changeable options	Displays the date that the current BIOS version is built.
System Date	Month, day, year	Sets the system date. The format is [Day Month/ Date/ Year]. Users can directly

BIOS Setting	Options	Description/Purpose
		enter values or use <+> or <-> arrow keys to increase/decrease it. The "Day" is automatically changed.
System Time	Hour, minute, second	Sets the system time. The format is [Hour: Minute: Second]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it.

5.2.2 Advanced

Menu Path *Advanced*

This menu provides advanced configurations such as such as CPU Configuration, SATA Configuration, PCH-FW Configuration, Trusted Computing, ACPI Settings, F81866 Super IO Configuration, Hardware Monitor, F81866 Watchdog, Network Stack Configuration and USB Configuration.



Advanced Menu Screen

BIOS Setting	Options	Description/Purpose
CPU Configuration	Sub-Menu	CPU Configuration Parameters.
SATA Configuration	Sub-Menu	SATA Device Options Settings.
PCH-FW Configuration	Sub-Menu	Management Engine Technology Parameters.
Trusted Computing	Sub-Menu	Trusted Computing Settings.
ACPI Settings	Sub-Menu	System ACPI Parameters.
F81866 Super IO Configuration	Sub-Menu	System Super IO Chip Parameters
Hardware Monitor	Sub-Menu	Monitor hardware status
F81866 Watchdog	Sub-Menu	F81866 Watchdog Parameters.
Network Stack Configuration	Sub-Menu	Network Stack Settings.
USB Configuration	Sub-Menu	USB Configuration Parameters.

5.2.2.1 Advanced – CPU Configuration

Menu Path *Advanced > CPU Configuration*

The **CPU Configuration** provides advanced CPU settings and some information about CPU.

CPU Configuration Screen

BIOS Setting	Options	Description/Purpose
Type	No changeable options	Displays CPU type.
ID	No changeable options	Displays CPU ID number.
Speed	No changeable options	Displays the CPU speed.
L1 Data Cache	No changeable options	Displays L1 Data Cache size.
L1 Instruction Cache	No changeable options	Displays L1 Instruction Cache size.
L2 Cache	No changeable options	Displays L2 Cache size.
L3 Cache	No changeable options	Displays L3 Cache size.
L4 Cache	No changeable options	Displays L4 Cache size.
VMX	No changeable options	CPU VMX hardware support for virtual machines.
SMX/TXT	No changeable options	Reports if Intel Secure Mode Extensions Technology (SMX) /Trusted Execution Technology (TXT) is supported by the processor.

BIOS Setting	Options	Description/Purpose
Intel Virtualization Technology	- Disabled - Enabled	When enabled, VMM can utilize the additional hardware capabilities provided by Vanderpool Technology. Previously codenamed "Vanderpool", **VT-x** represents Intel's technology for virtualization on the x86 platform.
Hyper-Threading	- Disabled - Enabled	When disabled, only one thread per enabled core is enabled. Hyper Threading is Intel's term for its simultaneous multithreading implementation in their CPUs. Enable this function will improve parallelization of computation performed on PC microprocessor. For each processor core that is physically present, the operating system addresses two virtual processors, and shares the workload between them when possible.

5.2.2.2 Advanced – SATA Configuration

Menu Path *Advanced > SATA Configuration*

The **SATA Configuration** allows users to enable / disable the SATA controller as well as the operational mode after the SATA controller is enabled. The following screen indicates the functions available when the SATA hard drive is set to work in AHCI mode.

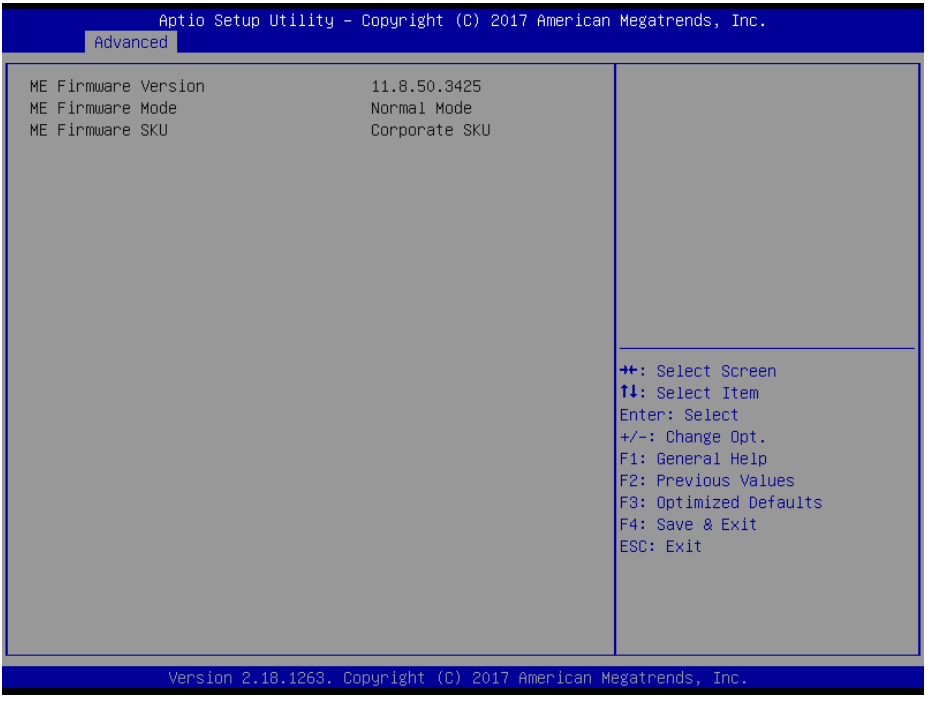
SATA Configuration Screen

BIOS Setting	Options	Description/Purpose
SATA Controller(s)	- Disabled - Enabled	Enables or Disables the on-chip SATA Device. Default: Enabled.
SATA Mode Selection	- AHCI - RAID	Determines how SATA controller(s) operate.
Serial ATA Port 1 – 2, M.2 Slot	No changeable options	Displays the SATA device's name.
Software Preserve	No changeable options	Displays if Software Preserve support.
Port 1 - 2	- Disabled - Enabled	Enables or Disables SATA Port Device.
Hot Plug	- Disabled - Enabled	Enables or Disables SATA Port Device HotPlug function.

5.2.2.3 Advanced – PCH-FW Configuration

Menu Path *Advanced > PCH-FW Configuration*

The **PCH-FW** allows users to view the information about ME (Management Engine) firmware information, such as ME firmware version, firmware mode and firmware SKU.

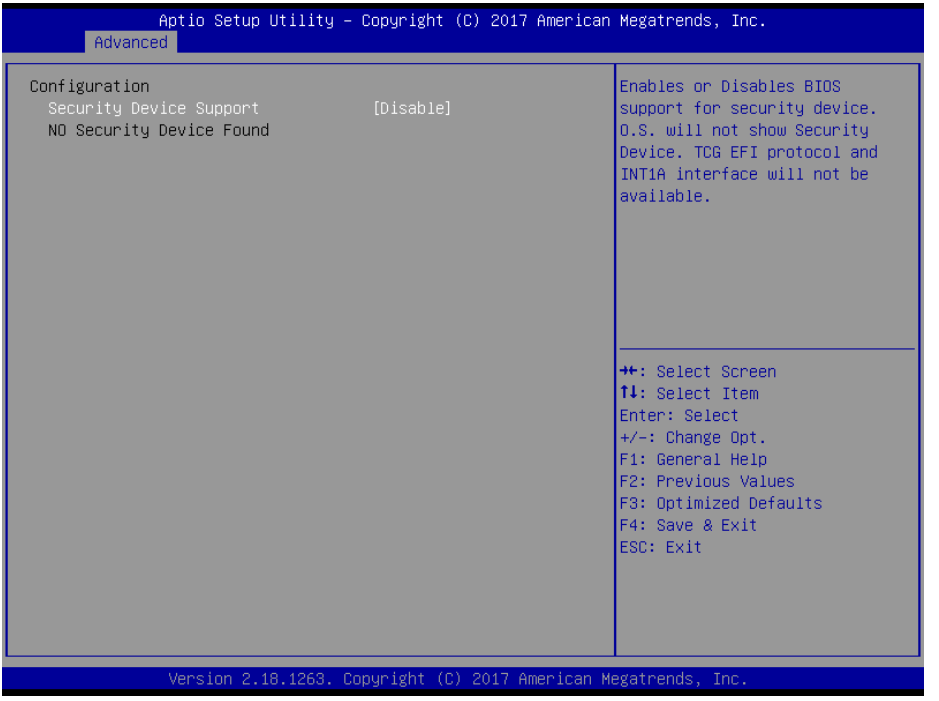


PCH-FW Configuration Screen

BIOS Setting	Options	Description/Purpose
ME Firmware Version	No changeable options	Displays the ME Firmware Version.
ME Firmware Mode	No changeable options	Displays the ME Firmware Mode.
ME Firmware SKU	No changeable options	Displays the ME Firmware SKU.

5.2.2.4 Advanced – Trusted Computing

Menu Path *Advanced > Trusted Computing*



Trusted Computing Screen

BIOS Setting	Options	Description/Purpose
Security Device Support	- Enable - Disable	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.

5.2.2.5 Advanced – ACPI Settings

Menu Path *Advanced > ACPI Settings*

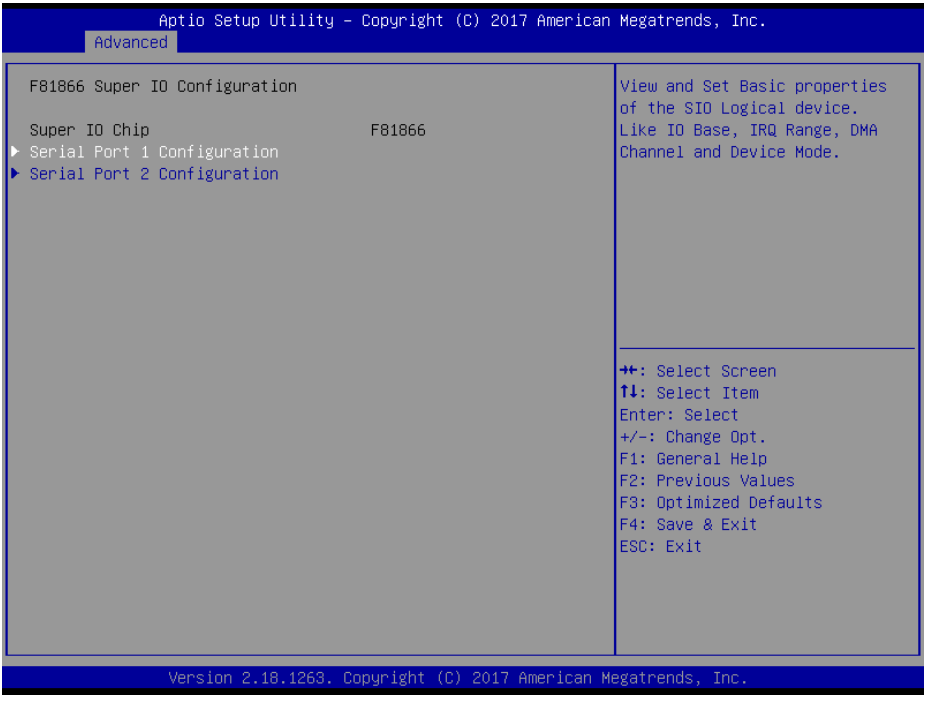
The **ACPI Settings** allows users to configure relevant ACPI (Advanced Configuration and Power Management Interface) settings, such as Enable/Disable Hibernation, ACPI sleep state, lock legacy resources and S3 Video Repost.

ACPI Settings Screen

BIOS Setting	Options	Description/Purpose
Enable Hibernation	- Disabled - Enabled	Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	- Suspend Disabled - S3 (Suspend to RAM)	Selects the highest ACPI sleep state the system will enter when the SUSPEND button is pressed.
Lock Legacy Resources	- Disabled - Enabled	Enables or Disables Lock of Legacy Resources.
S3 Video Repost	- Disabled - Enabled	Enables or Disables S3 Video Repost.

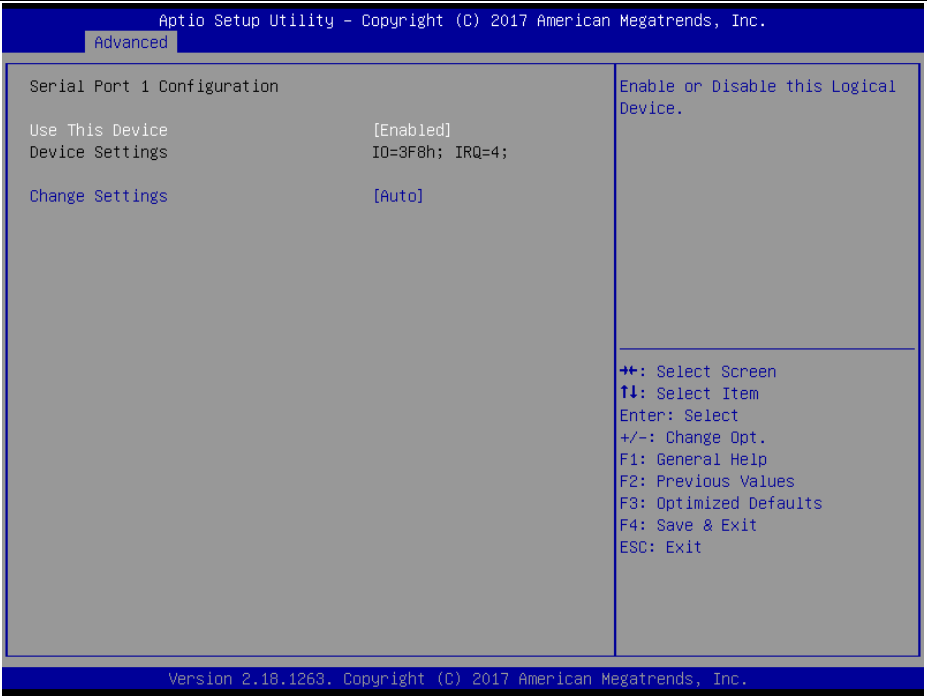
5.2.2.6 Advanced – F81866 Super IO Configuration

Menu Path *Advanced > F81866 Super IO Configuration*



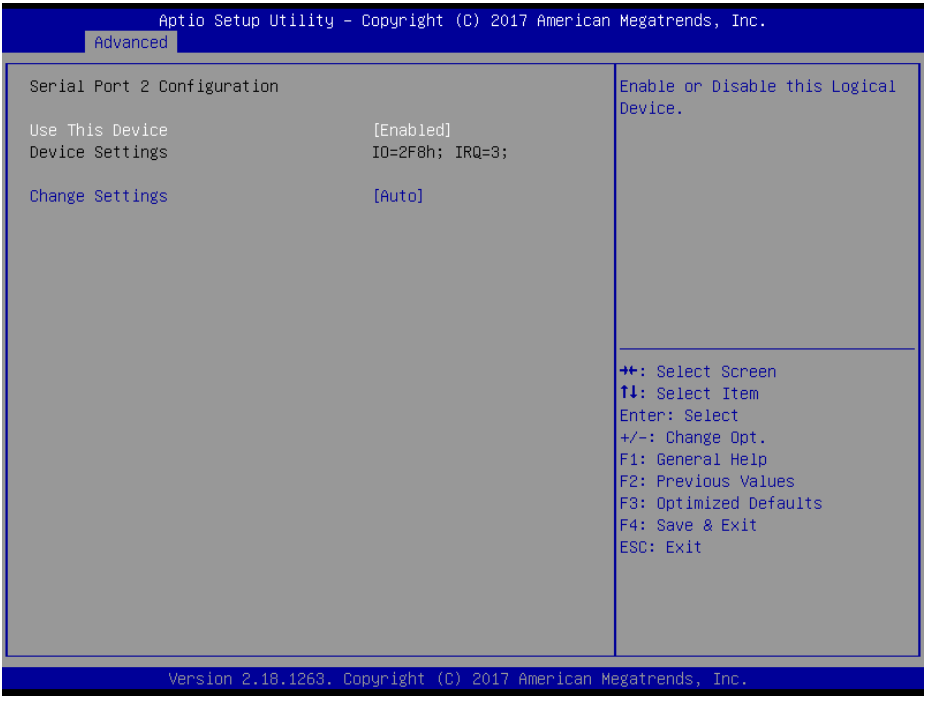
F81866 Super IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port 1 Configuration	Sub-Menu	Sets the parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Sub-Menu	Sets the parameters of Serial Port 2 (COMB).



Serial Port 1 Configuration Screen

BIOS Setting	Options	Description/Purpose
Use This Device	- Disabled - Enabled	Enables or Disables Serial Port 1.
Device Settings	No changeable options	Displays the current settings of Serial Port 1.
Change Settings	- Auto - IO=3F8h; IRQ=4; - IO=3F8h; IRQ=3,4,5,6,7,10,11; - IO=2F8h; IRQ=3,4,5,6,7,10,11; - IO=3E8h; IRQ=3,4,5,6,7,10,11; - IO=2E8h; IRQ=3,4,5,6,7,10,11;	Selects IRQ and I/O resource settings for Serial Port 1.



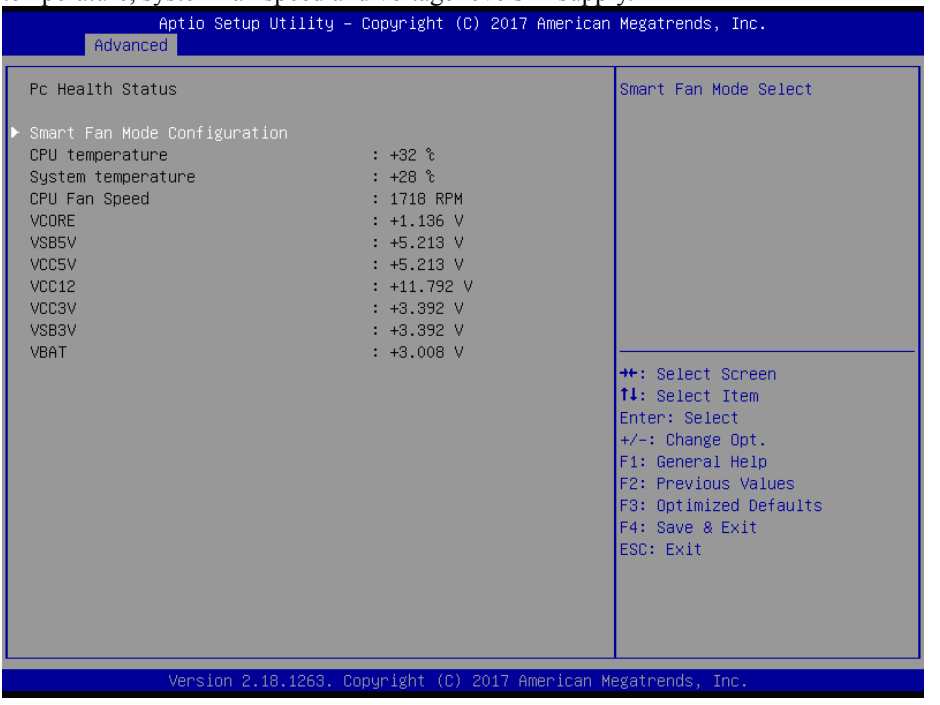
Serial Port 2 Configuration Screen

BIOS Setting	Options	Description/Purpose
Use This Device	- Disabled - Enabled	Enables or Disables Serial Port 2.
Device Settings	No changeable options	Displays the current settings of Serial Port 2.
Change Settings	- Auto - IO=2F8h; IRQ=3; - IO=3F8h; IRQ=3,4,5,6,7,10,11; - IO=2F8h; IRQ=3,4,5,6,7,10,11; - IO=3E8h; IRQ=3,4,5,6,7,10,11; - IO=2E8h; IRQ=3,4,5,6,7,10,11;	Selects IRQ and I/O resource for Serial Port 2.

5.2.2.7 Advanced – Hardware Monitor

Menu Path *Advanced > Hardware Monitor*

The **Hardware Monitor** allows users to configure Smart Fan Mode for CPU fan, monitor the health and status of the system such as CPU temperature, system temperature, system fan speed and voltage levels in supply.



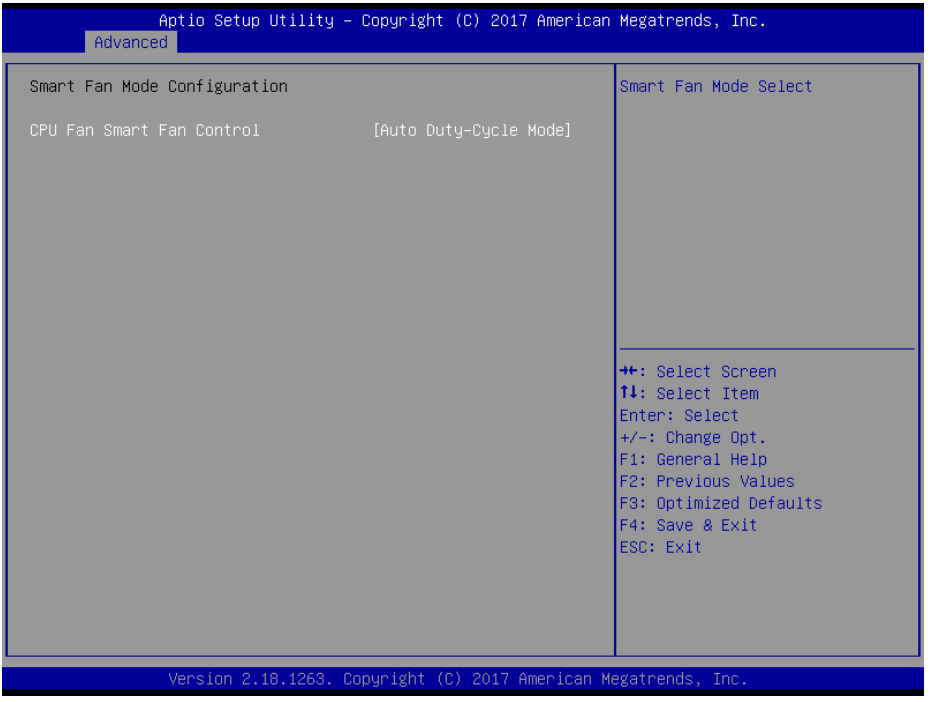
Hardware Monitor Screen

BIOS Setting	Options	Description/Purpose
Smart Fan Mode Configuration	Sub-Menu	Smart Fan Mode Selection.
CPU temperature	No changeable options	Displays the processor's temperature.
System temperature	No changeable options	Displays the system's temperature.
CPU Fan Speed	No changeable options	Displays CPU Fan speed
VCORE	No changeable options	Displays the voltage level of VCORE in supply.
VSB5V	No changeable options	Displays the voltage level of VSB5V in supply.
VCC5V	No changeable options	Displays the voltage level of VCC5V in supply.
VCC12	No changeable options	Displays the voltage level of VCC12

BIOS Setting	Options	Description/Purpose
		in supply.
VCC3V	No changeable options	Displays the voltage level of VCC3V in supply.
VSB3V	No changeable options	Displays the voltage level of VSB3V in supply.
VBAT	No changeable options	Displays the voltage level of VBAT in supply.

Smart Fan Mode Configuration

Menu Path *Advanced > Hardware Monitor > Smart Fan Mode Configuration*



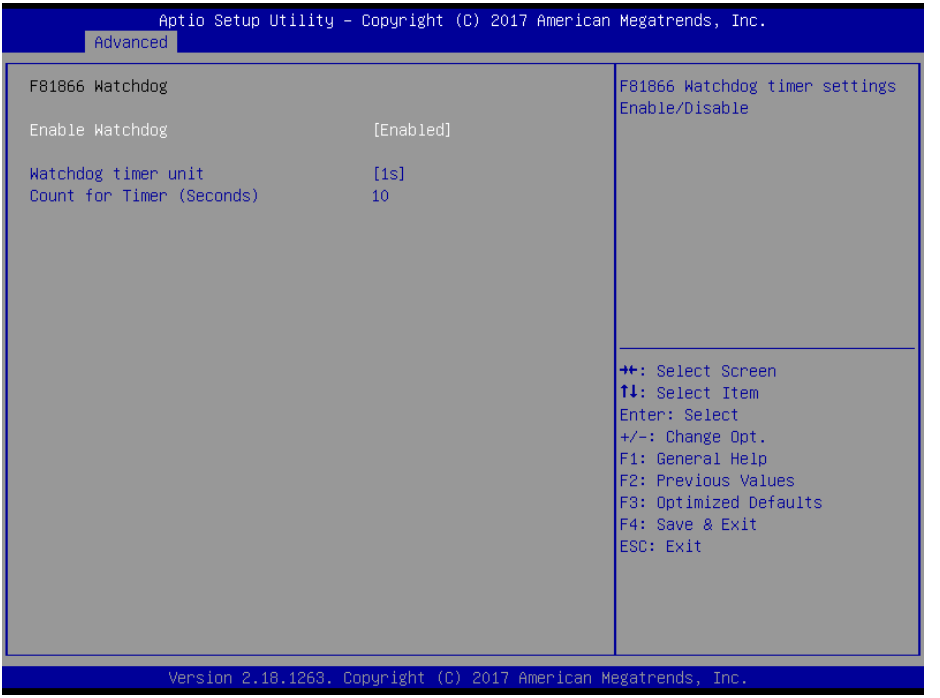
Smart Fan Mode Configuration Screen

BIOS Setting	Options	Description/Purpose
CPU Fan Smart Fan Control	- Manual Duty Mode - Auto Duty-Cycle Mode	Smart Fan Mode selection for CPU Fan.
Manual Duty Mode	Numeric (from 1 to 100)	Manual mode fan control. Users can write expected duty cycle (PWM fan type) from 1 to 100.

5.2.2.8 Advanced – F81866 Watchdog

Menu Path	*Advanced > F81866 Watchdog*

If the system hangs or fails to respond, enable the F81866 watchdog function to trigger a system reset via the 255-level watchdog timer.



F81866 Watchdog Screen

BIOS Setting	Options	Description/Purpose
Enable Watchdog	- Disabled (default) - Enabled	Enables/Disables F81866 Watchdog timer settings.
Watchdog timer unit	- 1s - 60s	Watchdog timer unit.
Count for Timer (Seconds)	Numeric (from 10 to 255)	The number of count for Timer.

5.2.2.9 Advanced – Network Stack Configuration

Menu Path *Advanced > Network Stack Configuration*

The **Network Stack Configuration** allows users to enable/disable UEFI Network Stack, IPv4/IPv6 PXE (Pre-Boot eXecution Environment) support and configure PXE boot wait time and detects the media presence.

PXE allows a workstation to boot from a server on a network prior to booting the operating system on the local hard drive. A PXE-enabled workstation connects its NIC to the LAN via a jumper, which keeps the workstation connected to the network even when the power is turned off.

Network Stack Configuration Screen

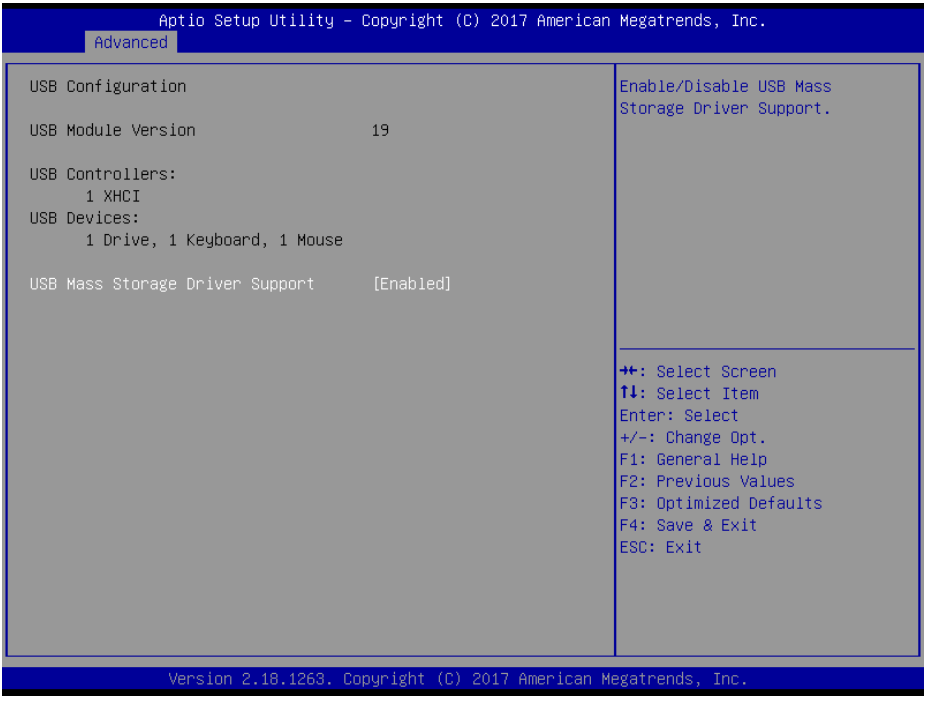
BIOS Setting	Options	Description/Purpose
Network Stack	- Disabled - Enabled	Enables or Disables UEFI Network Stack.
Ipv4 PXE Support	- Disabled - Enabled	Enables Ipv4 PXE Boot Support. If disabled, Ipv4 PXE boot option will not be created.
Ipv6 PXE Support	- Disabled - Enabled	Enables Ipv6 PXE Boot Support. If disabled, Ipv6 PXE boot option will not be created.

BIOS Setting	Options	Description/Purpose
PXE boot wait time	Numeric (from 0 to 5)	Number of seconds to wait for PXE boot to abort after the Esc key is pressed.
Media detect count	Numeric (from 1 to 50)	Number of times that the media presence will be checked.

5.2.2.10 Advanced – USB Configuration

Menu Path *Advanced > USB Configuration*

The **USB Configuration** allows users to enable/disable USB mass storage driver support.



USB Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Mass Storage Driver Support	- Disabled - Enabled	Enables/Disables USB Mass Storage Driver Support.

5.2.3 Chipset

Menu Path *Chipset*

This menu allows users to configure advanced Chipset settings such as such as System Agent (SA) and PCH-IO configuration parameters.

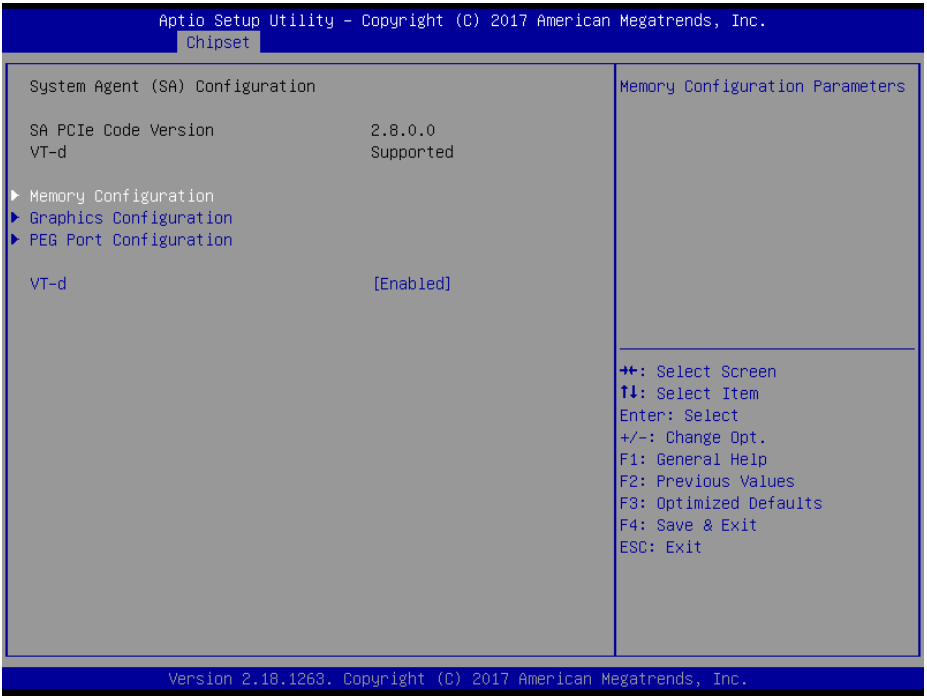
Chipset Screen

BIOS Setting	Options	Description/Purpose
System Agent (SA) Configuration	Sub-Menu	System Agent (SA) Parameters.
PCH-IO Configuration	Sub-Menu	PCH Parameters.

5.2.3.1 Chipset – System Agent (SA) Configuration

Menu Path *Chipset > System Agent (SA) Configuration*

The **System Agent Configuration** allows users to display DRAM information on the platform as well as configure graphics and PEG Port settings, and enable/disable VT-d function.



System Agent (SA) Configuration Screen

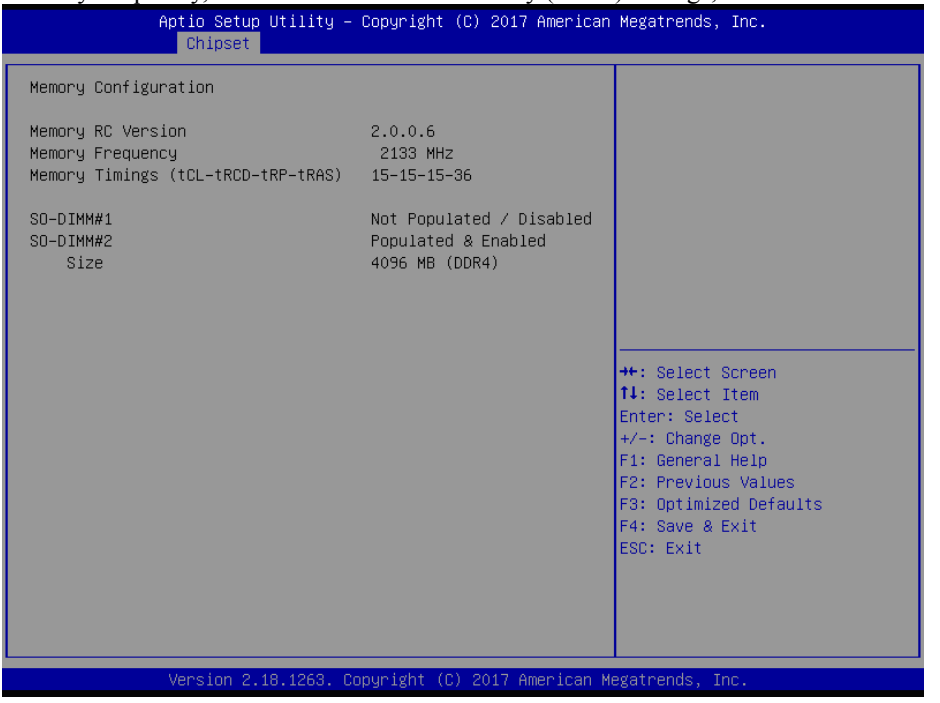
BIOS Setting	Options	Description/Purpose
SA PCIe Code Version	No changeable options	Displays the SA PCIe Code Version.
VT-d	No changeable options	Indicates whether Intel's VT-d (Virtualization Technology for Directed I/O) capability is supported. ***VT-d*** extends Intel's Virtualization Technology (VT) roadmap by providing hardware assists for virtualization solution, and helps end users improve security and reliability of the systems and also improves performance of I/O devices in virtualized environment.
Memory Configuration	Sub-Menu	Displays the DRAM information on the platform.

BIOS Setting	Options	Description/Purpose
Graphics Configuration	Sub-Menu	Configures Graphics Settings.
PEG Port Configuration	Sub-Menu	PEG (PCI Express Graphics) Port Configuration.
VT-d	- Disabled - Enabled	Enables or Disables VT-d function.

Chipset – SA Configuration – Memory Configuration

Menu Path *Chipset > System Agent (SA) Configuration > Memory Configuration*

The **Memory Configuration** allows users to check for the information about the memory frequency, total DRAM size and memory (RAM) timings, etc.



Memory Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory RC Version	No changeable options	Displays the Memory RC Version.
Memory Frequency	No changeable options	Displays the Frequency of Memory.
Memory Timings (tCL-tRCD-tRP-tRAS)	No changeable options	Displays the Memory (RAM) timings and latency. • **CAS Latency (tCL)** - This is the most

BIOS Setting	Options	Description/Purpose
		important memory timing. CAS stands for Column Address Strobe. If a row has already been selected, it tells us how many clock cycles we'll have to wait for a result (after sending a column address to the RAM controller). • **Row Address (RAS) to Column Address (CAS) Delay (tRCD)** - Once we send the memory controller a row address, we'll have to wait this many cycles before accessing one of the row's columns. So, if a row hasn't been selected, this means we'll have to wait tRCD + tCL cycles to get our result from the RAM. • **Row Precharge Time (tRP)** - If we already have a row selected, we'll have to wait this number of cycles before selecting a different row. This means it will take tRP + tRCD + tCL cycles to access the data in a different row. • **Row Active Time (tRAS)** - This is the minimum number of cycles that a row has to be active for to ensure we'll have enough time to access the information that's in it. This usually needs to be greater than or equal to the sum of the previous three latencies (tRAS = tCL + tRCD + tRP).
SO-DIMM#1	No changeable options	Displays if SO-DIMM#1 socket is populated/enabled or not.
SO-DIMM#2	No changeable options	Displays if SO-DIMM#2 socket is populated/enabled or not.
Size	No changeable options	Displays the total memory size.

Chipset – System Agent (SA) Configuration – Graphics Configuration

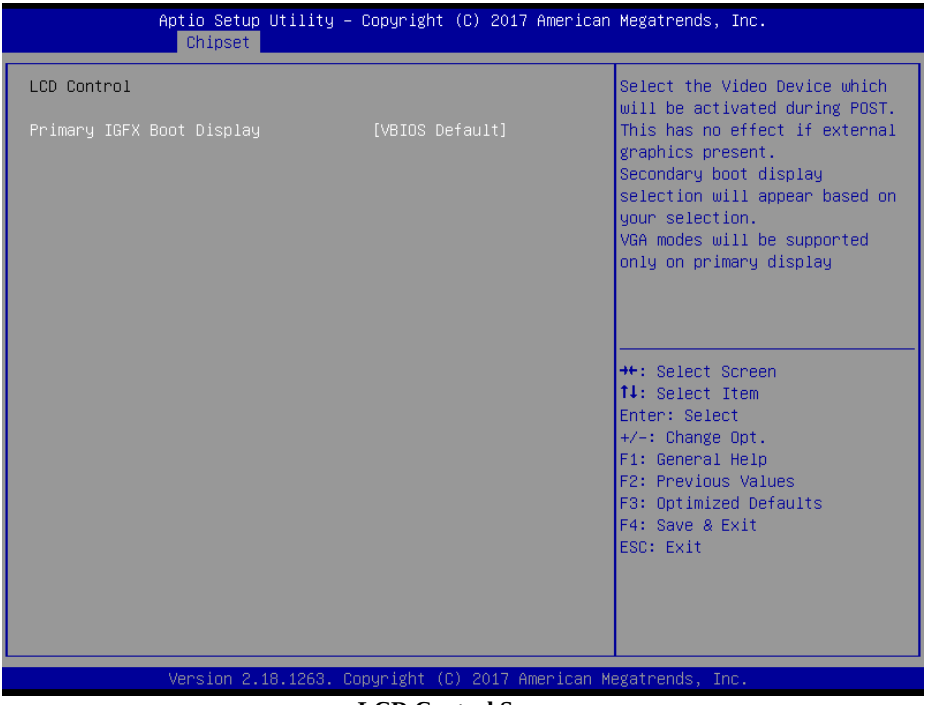
Menu Path *Chipset > System Agent (SA) Configuration > Graphics Configuration*

Graphics Configuration Screen

BIOS Setting	Options	Description/Purpose
Primary Display	- Auto - IGFX	Selects which Graphics device should be Primary Display.
LCD Control	Sub-Menu	LCD Control sub-menu.

Menu Path	*Chipset > System Agent (SA) Configuration > Graphics Configuration > LCD Control*

The **LCD Control** allows users to select the primary display device.



LCD Control Screen

BIOS Setting	Options	Description/Purpose
Primary IGFX Boot Display	- VBIOS Default - VGA - LVDS - DisplayPort	Selects Primary Display Device

Chipset –System Agent (SA) Configuration – PEG Port Configuration

Menu Path *Chipset > System Agent (SA) Configuration > PEG Port Configuration*

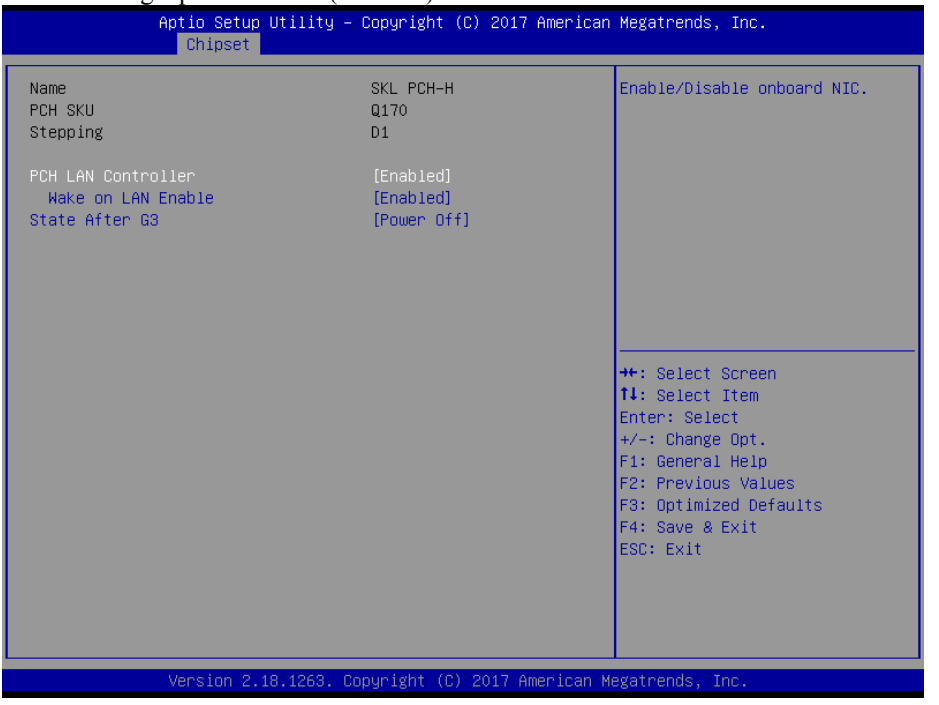
PEG Port Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI-E1	No changeable options	Displays PCI-E1 Link and speed information.
Enable Root Port	- Disabled - Enabled - Auto	Enables or Disables the Root Port.
Max Link Speed	- Auto - Gen1 - Gen2 - Gen3	Configures PCI-E1 maximum speed.

5.2.3.2 Chipset – PCH-IO Configuration

Menu Path *Chipset > PCH-IO Configuration*

The **PCH-IO** Configuration allows users to enable/disable PCH LAN Controller and Wake-On-LAN function and determine the power on/off state that the system will go into following a power failure (G3 state).



PCH-IO Configuration Screen

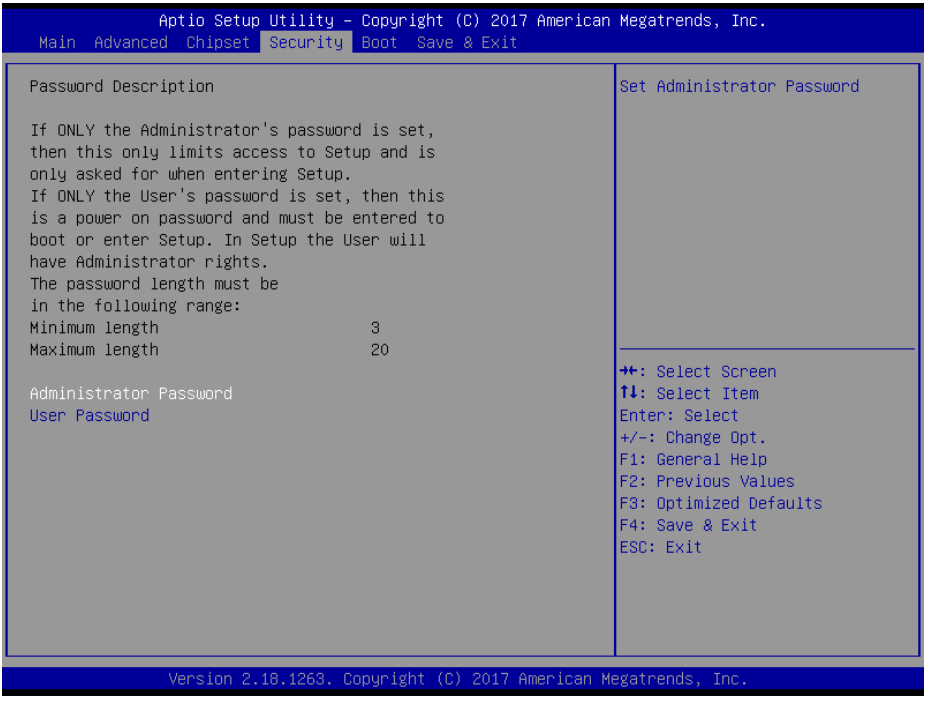
BIOS Setting	Options	Description/Purpose
Name	No changeable options	Displays the Intel PCH Name.
PCH SKU	No changeable options	Displays the Intel PCH SKU.
Stepping	No changeable options	Displays the Intel PCH Stepping.
PCH LAN Controller	- Disabled - Enabled	Enables or Disables onboard NIC.
Wake on LAN Enable	- Disabled - Enabled	Enables or Disables integrated LAN to wake up the system. Default: Enabled.
State After G3	- Power On - Power Off	Specifies the Power On/Off state that the system will go into when the power is re-applied following a power failure (G3 state).

5.2.4 Security

Menu Path *Security*

From the **Security** menu, you are allowed to create, change or clear the administrator password. You will be asked to enter the configured administrator password before you can access the Setup Utility.

By setting an administrator password, you will prevent other users from changing your BIOS settings. You can configure an Administrator password and then configure a user password. An administrator has much more privileges over the settings in the Setup utility than a user. Heed that a user password does not provide access to most of the features in the Setup utility.



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.

Create an Administrator or User Password

1. Select the **Administrator Password** / **User Password** option from the Security menu and press <Enter>, and the password dialog entry box appears.
2. Enter the password you want to create. A password can be 3-20 alphanumeric characters. After you have configured the password, press <Enter> to confirm.
3. Type the new password again and press <Enter>.

Change an Administrator or User Password

1. Select the **Administrator Password** / **User Password** option from the Security menu and press <Enter>, and the password dialog entry box appears.
2. Select the Administrator Password or User Password that you want to change. A password can be 3-20 alphanumeric characters. After you have changed the password, press <Enter> to confirm.
3. Type the changed password again and press <Enter>.

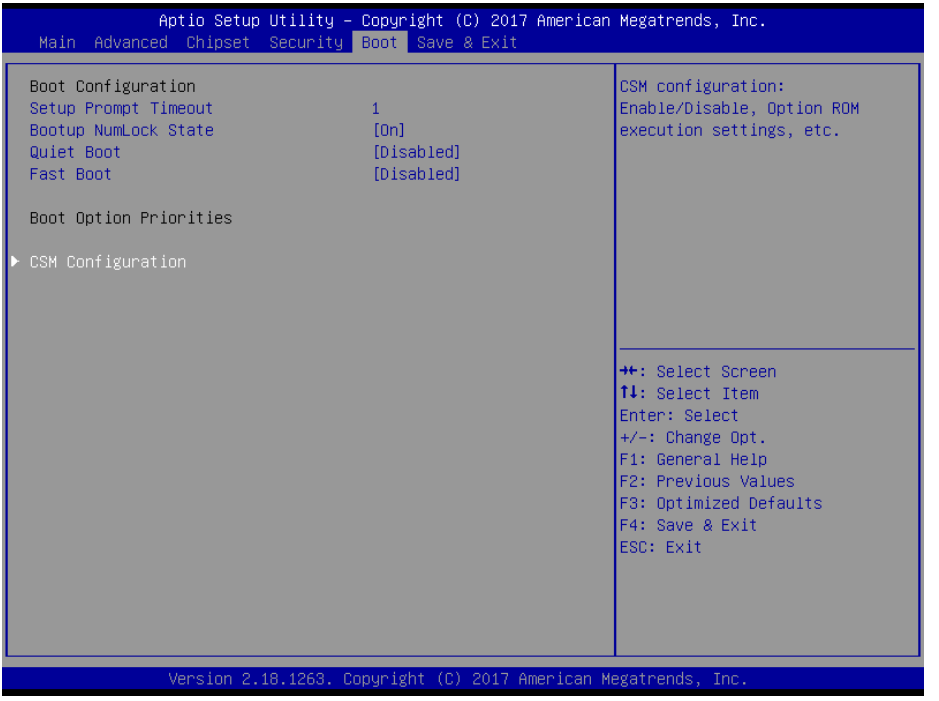
Remove an Administrator or User Password

1. Select the **Administrator Password** / **User Password** option from the Security menu and press <Enter>, and the password dialog entry box appears.
2. Select the configured Administrator Password or User Password that you want to delete. Leave the dialog box blank and press <Enter>.
3. Press <Enter> again when the password confirmation box appears.

5.2.5 Boot

Menu Path *Boot*

This menu provides control items for system boot configuration such as setting setup prompt timeout, specifying the NumLock state after the system is powered on, enabling/disabling quiet boot and fast boot, changing the boot order from the available bootable device(s), and setting CSM (Compatibility Support Module) configuration parameters to support legacy BIOS operation systems, various bootable devices and add-on devices for achieving better compatibility.



Boot Screen

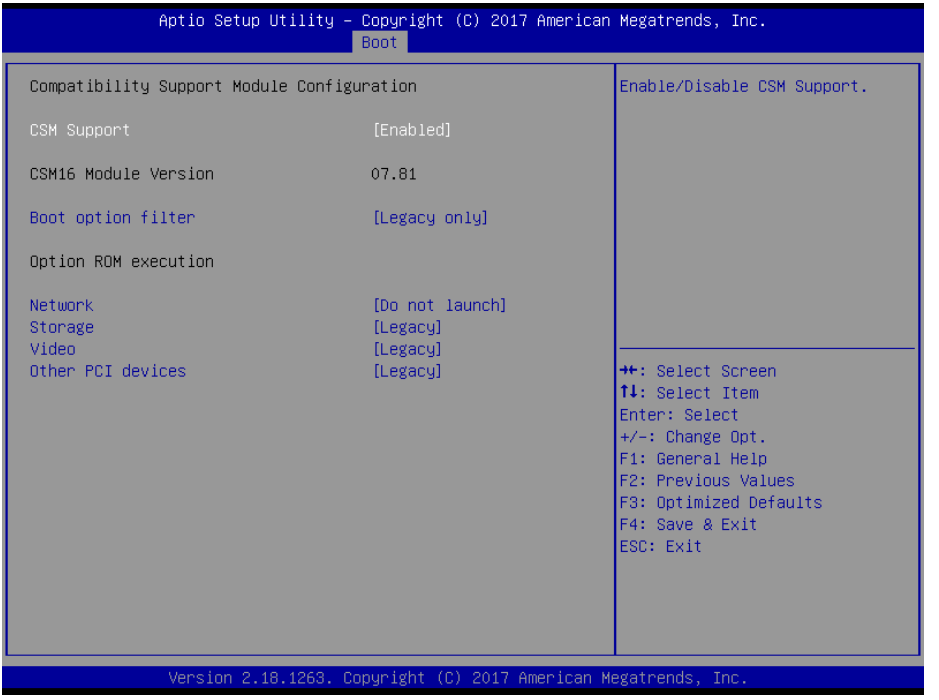
BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Numeric (from 1 to 65535)	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On - Off	Selects the NumLock state after the system is powered on. • **On:** Enables the NumLock function automatically after the system is powered on. • **Off:** Disables the NumLock function after the system is powered on.

BIOS Setting	Options	Description/Purpose
Quiet Boot	- Disabled - Enabled	Enables or Disables Quiet Boot options. When this option is set to "Disabled", BIOS will display normal POST messages.
Fast Boot	- Disabled - Enabled	Enables or Disables Fast Boot options.
Boot Option #1~#n	- [Drive(s)] - Disabled	Allows users to set the system boot order. Note that in the menu displayed, you will only see the device with the highest priority for a specific boot device type.
CSM Configuration	Sub-Menu	CSM configuration: Enable/Disable, Option ROM execution settings, etc.

5.2.5.1 Boot – CSM Configuration

Menu Path *Boot > CSM Configuration*

The **CSM Configuration** provides advanced CSM (Compatibility Support Module) configurations such as Enable/Disable CSM Support, configure Option ROM execution, boot option filter, etc.



CSM Configuration Screen

BIOS Setting	Options	Description/Purpose
CSM Support	- Disabled - Enabled	Enables or Disables CSM Support.
CSM16 Module Version	No changeable options	Displays the CSM 16 Module version.
Boot option filter	- UEFI and Legacy - Legacy only - UEFI only	This option controls Legacy/UEFI ROMs priority.
Network	- Do not launch - UEFI - Legacy	Controls the execution of UEFI and Legacy PXE OpROM.

BIOS Setting	Options	Description/Purpose
Storage	- Do not launch - UEFI - Legacy	Controls the execution of UEFI and Legacy Storage OpROM.
Video	- Do not launch - UEFI - Legacy	Controls the execution of UEFI and Legacy Video OpROM.
Other PCI devices	- Do not launch - UEFI - Legacy	Determines OpROM execution policy for devices other than Network, Storage or Video.

5.2.6 Save & Exit

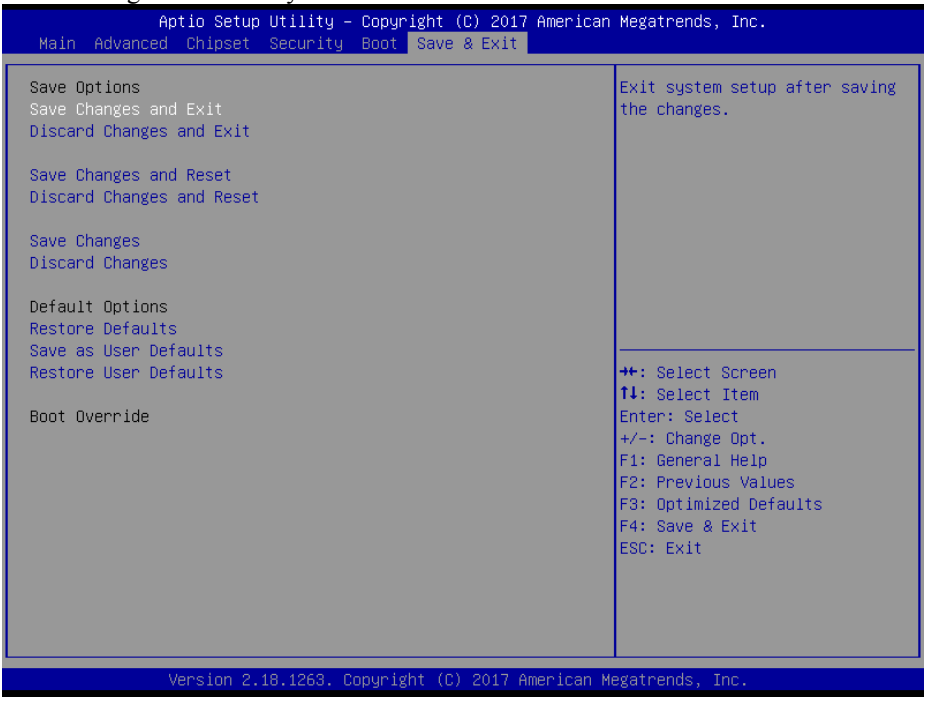
Menu Path *Save & Exit*

The **Save & Exit** allows users to save or discard changed BIOS settings as well as load factory default settings.

Save Changed BIOS Settings
To save and validate the changed BIOS settings, select **Save Changes** from the **Save & Exit** menu, or you can select **Save Changes and Exit** (or press **F4**) to validate the changes and then exit the system. Select **Save Changes and Reset** to validate the changed BIOS settings and then restart the system

Discard Changed BIOS Settings
To cancel the BIOS settings you have previously configured, select **Discard Changes and Exit** from this menu, or simply press **Esc** to exit the BIOS setup. You can also select **Discard Changes and Reset** to discard any changes you have made and restore the factory BIOS defaults.

Load User Defaults
You may simply press **F3** at any time to load the **Optimized Values** which resets all BIOS settings to the factory defaults.

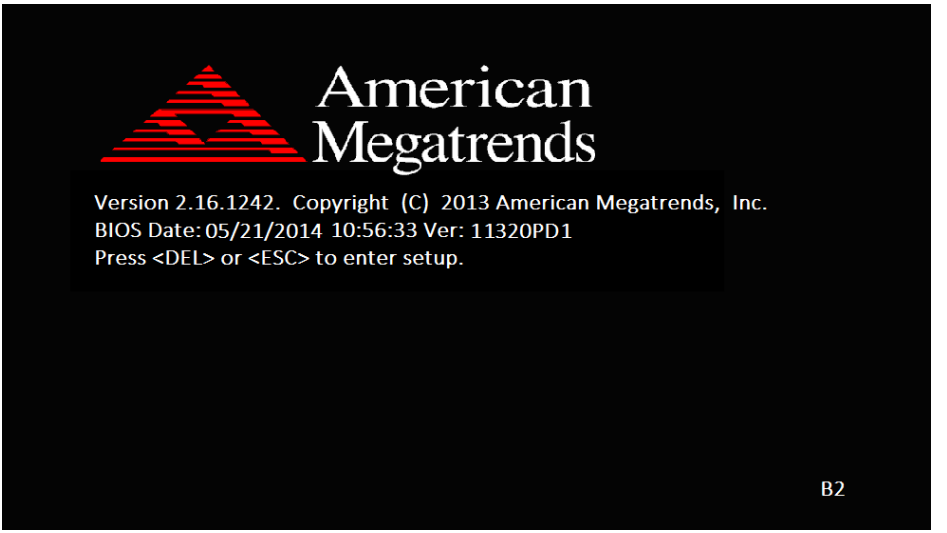


Save & Exit Screen

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits the system and saves the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exits the system without saving any changes configured in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in NVRAM and resets the system.
Discard Changes and Reset	No changeable options	Resets the system without saving any changes configured in BIOS settings.
Save Changes	No changeable options	Saves the changes done so far to any of the setup options.
Discard Changes	No changeable options	Discards the changes done so far to any of the setup options.
Restore Defaults	No changeable options	Loads the optimized defaults for BIOS settings.
Save as User Defaults	No changeable options	Saves the changes done so far as User Defaults.
Restore User Defaults	No changeable options	Restores the User Defaults to all the BIOS settings.
Boot Override	- [Drive(s)]	Forces to boot from selected [drive(s)].

5.3 Accessing Setup Utility for Entry Level System

After the system is powered on, BIOS will enter the Power-On Self-Test (POST) routines and the POST message will be displayed:



POST Screen with AMI Logo

Press **<Del>** or **<Esc>** to access the Setup Utility program and the **Main** menu of the Aptio Setup Utility will appear on the screen as below:

BIOS Setup Menu Initialization Screen

You may move the cursor by <↑> and <↓> keys to highlight the individual menu items. As you highlight each item, a brief description of the highlighted selection will appear on the right side of the screen.

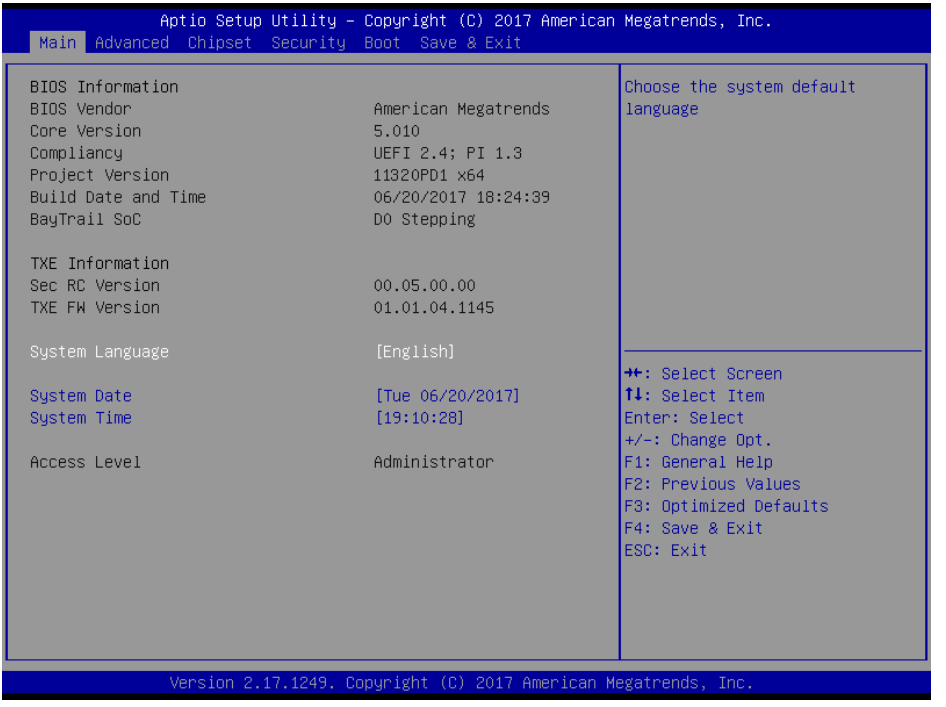
The language of the BIOS setup menu interface and help messages are shown in US English. You may use <↑> or <↓> key to select among the items and press <Enter> to confirm and enter the sub-menu. The following table provides the list of the navigation keys that you can use while operating the BIOS setup menu.

BIOS Setup Navigation Key	Description
<←> and <→>	Select a different menu screen (move the cursor from the selected menu to the left or right).
<↑> and <↓>	Select a different item (move the cursor from the selected item upwards or downwards)
<Enter>	Execute the command or select the sub-menu.
<F2>	Load the previous configuration values.
<F3>	Load the default configuration values.
<F4>	Save the current values and exit the BIOS setup menu.
<Esc>	Close the sub-menu. Trigger the confirmation to exit BIOS setup menu.

5.3.1 Main

Menu Path *Main*

The **Main** menu allows you to view the BIOS Information, change the system date and time, and view the user access privilege level. Use tab to switch between date elements. Use <↑> or <↓> arrow keys to highlight the item and enter the value you want in each item. This screen also displays the BIOS version (project) and BIOS Build Date and Time.



Main Screen

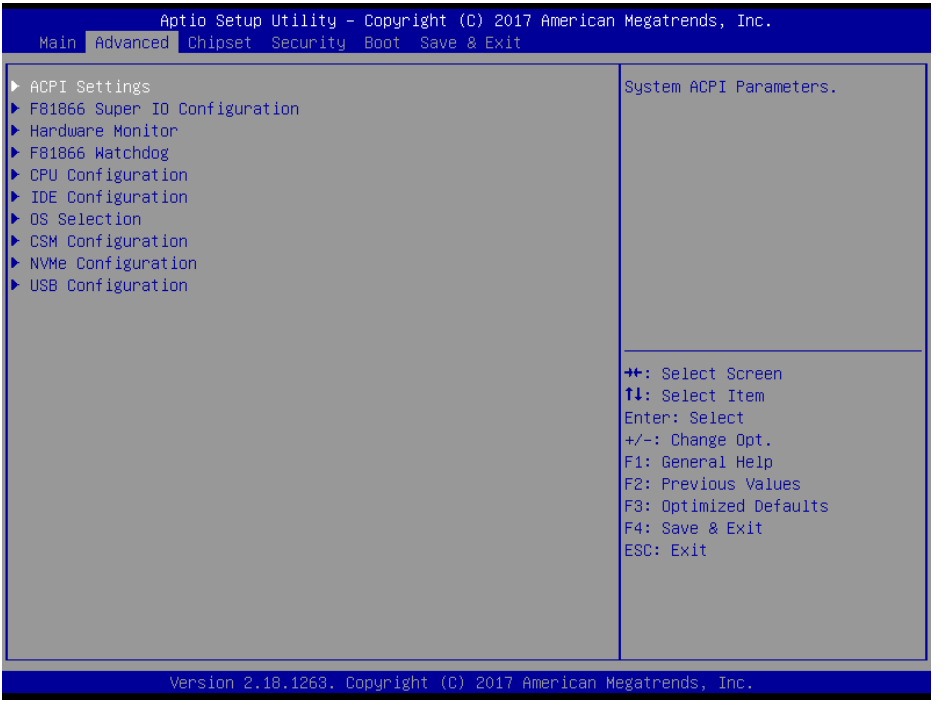
BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Displays the BIOS vendor.
Core Version	No changeable options	Displays the current BIOS core version.
Compliancy	No changeable options	Displays the current UEFI version.
Project Version	No changeable options	Displays the version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

BIOS Setting	Options	Description/Purpose
BayTrail SoC	No changeable options	Displays SoC stepping (BayTrail-I only).
Sec RC Version	No changeable options	Displays the current Sec RC version.
TXE FW Version	No changeable options	Displays the current TXE version.
System Language	English	BIOS Setup language.
System Date	Month, day, year	Specifies the current date.
System Time	Hour, minute, second	Specifies the current time.
Access Level	Administrator	Displays the user access level. (BayTrail-I only)

5.3.2 Advanced

Menu Path *Advanced*

This menu provides advanced configurations such as ACPI Settings, F81866 Super IO Configuration, Hardware Monitor, F81866 Watchdog, CPU Configuration, IDE Configuration, OS Selection, CSM Configuration and USB Configuration.



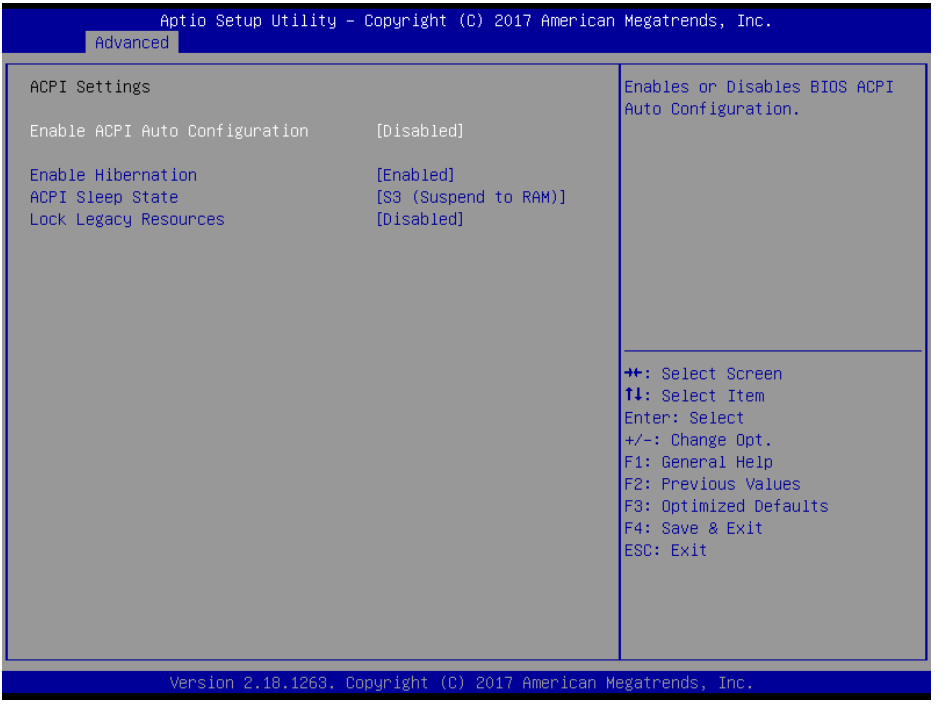
Advanced Screen

BIOS Setting	Options	Description/Purpose
ACPI Settings	Sub-Menu	System ACPI Parameters.
F81866 Super IO Configuration	Sub-Menu	Super I/O Chip Configuration.
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.
CSM Selection	Sub-Menu	Configure Option ROM execution, boot options filters, etc.
USB Configuration	Sub-Menu	USB Configuration Parameters.

5.3.2.1 ACPI Settings

Menu Path *Advanced > ACPI Settings*

The **ACPI Settings** allows users to configure relevant ACPI (Advanced Configuration and Power Management Interface) settings, such as enable/disable Hibernation, ACPI Sleep State and lock legacy resources.



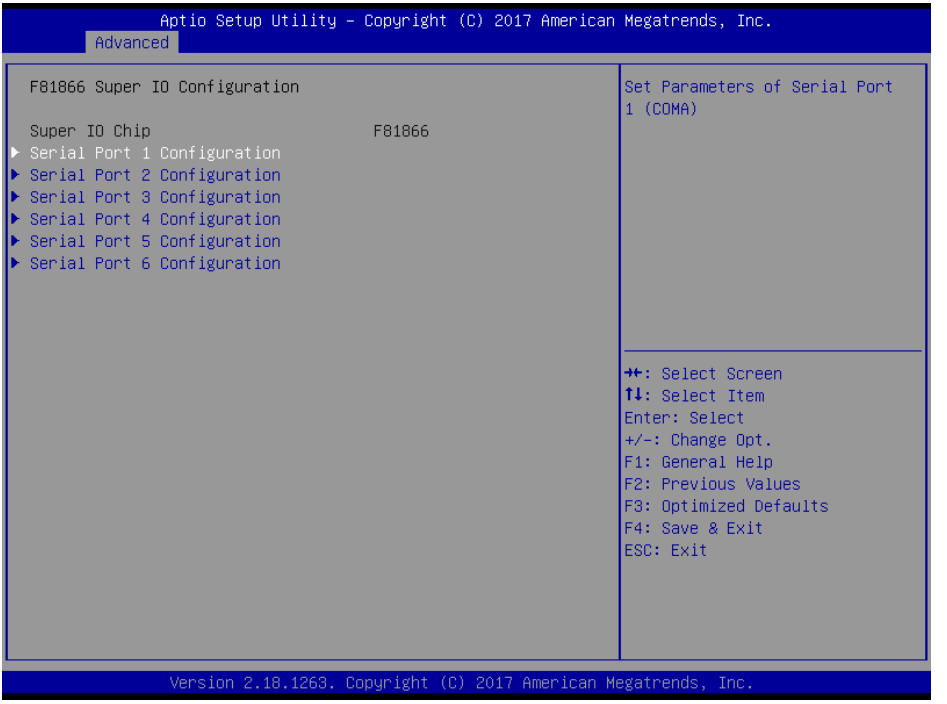
ACPI Settings Screen

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.

BIOS Setting	Options	Description/Purpose
ACPI Sleep State	- Suspend Disabled - S3(Suspend to RAM)	Specifies the ACPI sleep state. • **Suspend Disabled** disables ACPI sleep feature. • **S3** allows the platform to enter Suspend to RAM mode.
Lock Legacy Resources	- Disabled - Enabled	Enables or Disables Lock of Legacy Resources.

5.3.2.2 F81866 Super I/O Configuration

Menu Path *Advanced > F81866 Super IO Configuration*

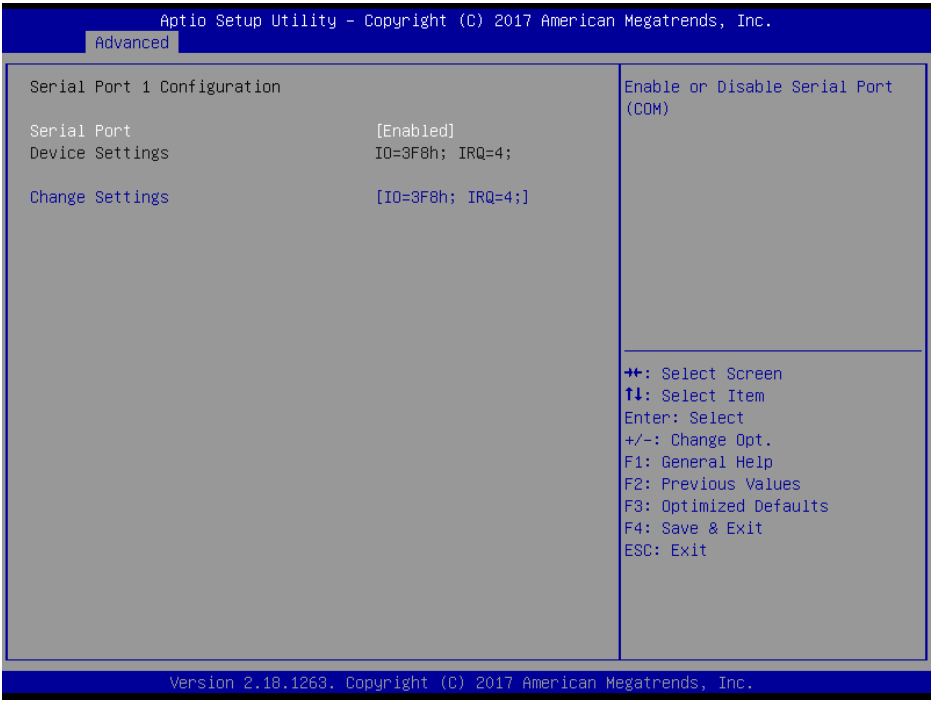


Super I/O Configuration Screen

BIOS Setting	Options	Description/Purpose
Super IO Chip	No changeable options	Displays the super I/O chip model and its manufacturer.
Serial Port 1 Configuration	Sub-Menu	Sets Parameters for COMA.
Serial Port 2 Configuration	Sub-Menu	Sets Parameters for COMB.
Serial Port 3 Configuration	Sub-Menu	Sets Parameters for COMC.
Serial Port 4 Configuration	Sub-Menu	Sets Parameters for COMD.
Serial Port 5 Configuration	Sub-Menu	Sets Parameters for COME.
Serial Port 6 Configuration	Sub-Menu	Sets Parameters for COMF.

Serial Port 1 Configuration

Menu Path *Advanced > F81866 Super IO Configuration > Serial Port 1 Configuration*

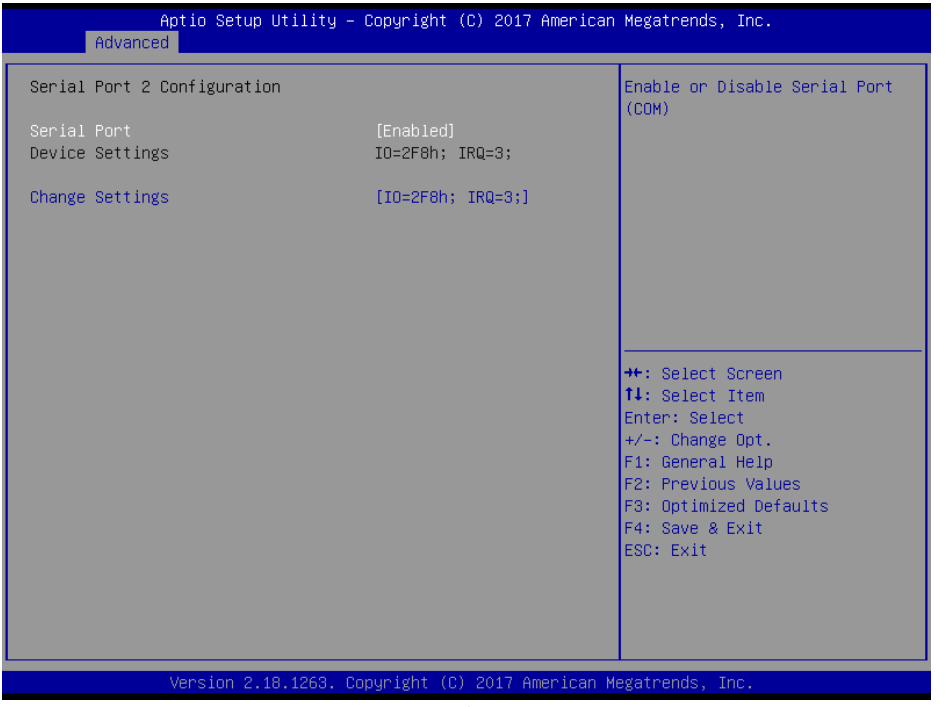


Serial Port 1 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enables or disables serial port 1.
Device Settings	No changeable options	Displays the current settings of serial port 1.
Change Settings	- IO=3F8h; IRQ=4 - IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 - IO=3E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E8h;IRQ=3,4,5,6,7,9,10,11,12	Selects IRQ and I/O resource for the serial port 1.

Serial Port 2 Configuration

Menu Path *Advanced > F81866 Super IO Configuration > Serial Port 2 Configuration*

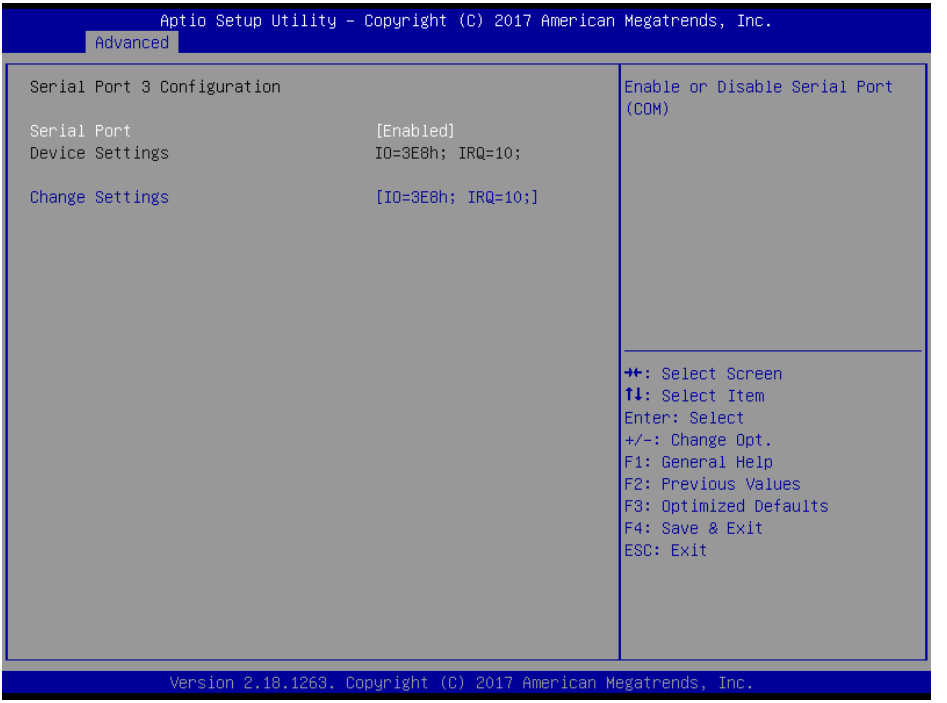


Serial Port 2 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enables or disables serial port 2.
Device Settings	No changeable options	Displays the current settings of serial port 2.
Change Settings	- IO=2F8h; IRQ=3 - IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 - IO=3E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E8h;IRQ=3,4,5,6,7,9,10,11,12	Selects IRQ and I/O resource for the serial port 2.

Serial Port 3 Configuration

Menu Path *Advanced > F81866 Super IO Configuration > Serial Port 3 Configuration*

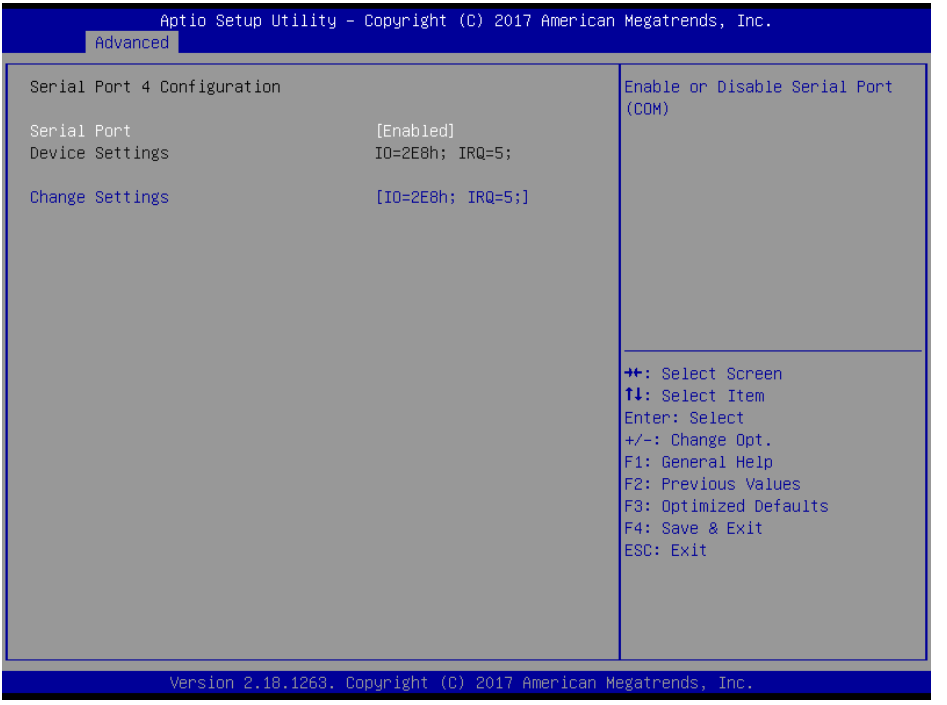


Serial Port 3 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enables or disables serial port 3.
Device Settings	No changeable options	Displays the current settings of serial port 3.
Change Settings	- IO=3E8h; IRQ=10 - IO=3F8h; IRQ=3,4,5,6,7,9,10,11,12 - IO=2F8h; IRQ=3,4,5,6,7,9,10,11,12 - IO=2F0h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E0h;IRQ=3,4,5,6,7,9,10,11,12	Selects IRQ and I/O resource for the serial port 3.

Serial Port 4 Configuration

Menu Path	*Advanced > F81866 Super IO Configuration > Serial Port 4 Configuration*

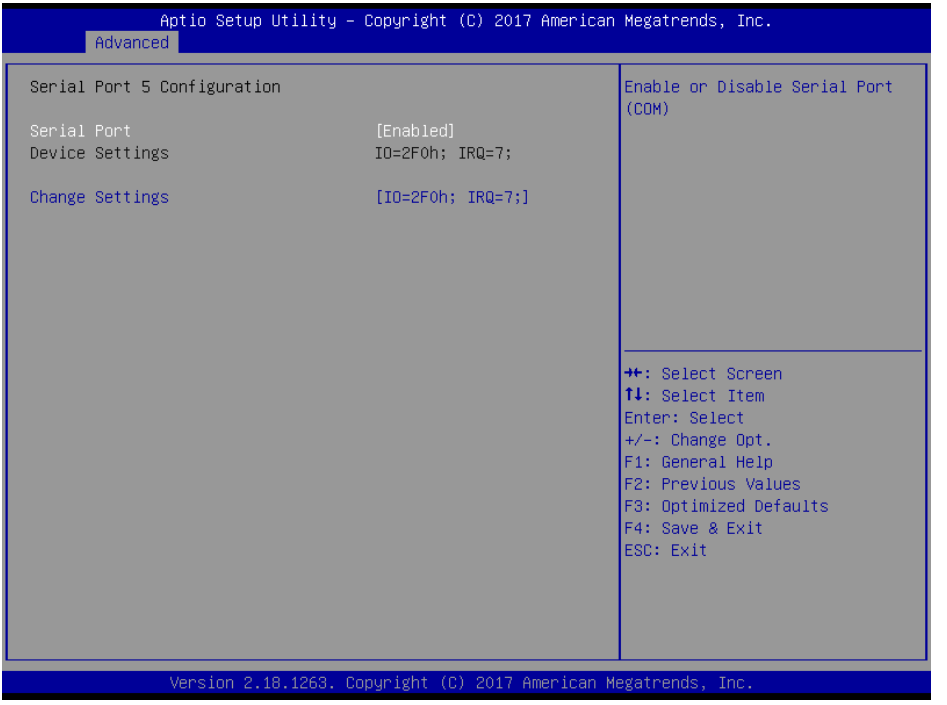


Serial Port 4 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enables or disables serial port 4.
Device Settings	No changeable options	Displays the current settings of serial port 4.
Change Settings	- IO=2E8h; IRQ=5 - IO=3E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2F0h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E0h;IRQ=3,4,5,6,7,9,10,11,12	Selects IRQ and I/O resource for the serial port 4.

Serial Port 5 Configuration

Menu Path *Advanced > F81866 Super IO Configuration > Serial Port 5 Configuration*

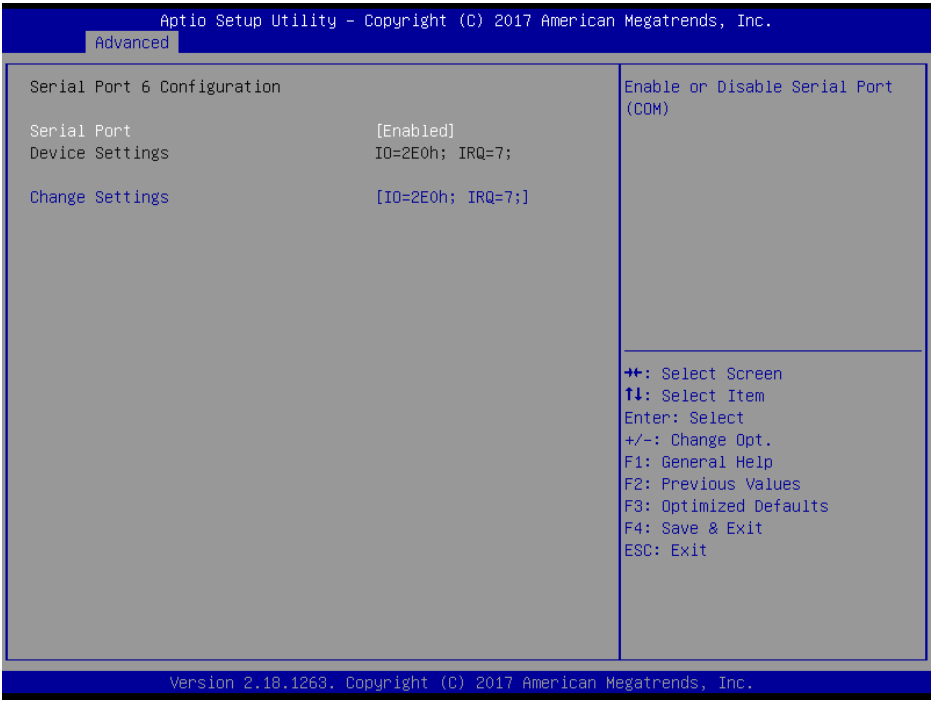


Serial Port 5 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enable or disable serial port 5.
Device Settings	No changeable options	Displays the current settings of serial port 5.
Change Settings	- IO=2F0h; IRQ=7 - IO=3E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2F0h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E0h;IRQ=3,4,5,6,7,9,10,11,12	Selects IRQ and I/O resource for the serial port 5.

Serial Port 6 Configuration

Menu Path	*Advanced > F81866 Super IO Configuration > Serial Port 6 Configuration*



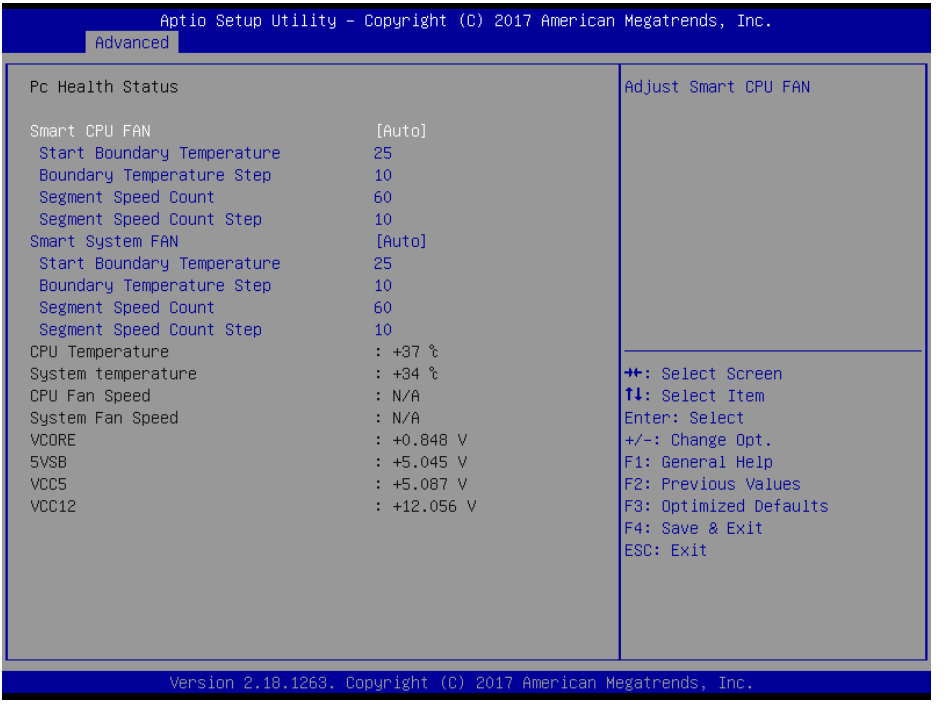
Serial Port 6 Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port	- Disabled - Enabled	Enables or disables serial port 6.
Device Settings	No changeable options	Displays the current settings of serial port 6.
Change Settings	- IO=2E0h; IRQ=7 - IO=3E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E8h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2F0h;IRQ=3,4,5,6,7,9,10,11,12 - IO=2E0h;IRQ=3,4,5,6,7,9,10,11,12	Selects IRQ and I/O resource for the serial port 6.

5.3.2.3 Hardware Monitor

Menu Path *Advanced > Hardware Monitor*

The **Hardware Monitor** allows users to monitor the health and status of the system such as enable/disable Smart CPU Fan, monitor CPU temperature, system temperature, CPU fan speed, system fan speed and voltage levels in supply.



Hardware Monitor Screen

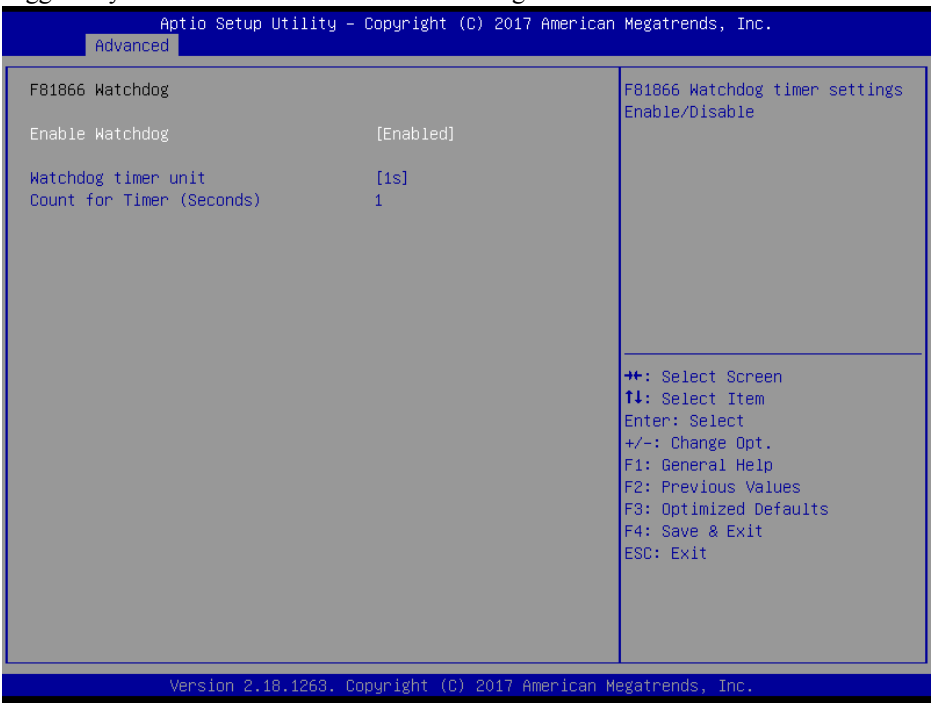
BIOS Setting	Options	Description/Purpose
Smart CPU FAN	- Auto - Disabled - Manual	Adjusts Smart CPU Fan settings.
Start Boundary temperature	- 20 ~ 60	Adjusts Smart Boundary Temperature. If set Boundary=25,Step=10, the boundary will set 25,35,45,55
Boundary Temperature Step	- 5~10	Adjusts boundary Temperature Step.
Segment Speed Count	- 20~60	Adjust sSegment Speed Count.(%) If set Segment Speed Count=60%, Step=10%, the segment speed will set 60% , 70%, 80% , 90% , 100%

BIOS Setting	Options	Description/Purpose
Segment Speed Count Step	- 5~ 10	Adjusts Segment Speed Count Step (%).
Smart System FAN	- Auto - Disabled - Manual	Adjusts Smart System Fan
Start Boundary Temperature	- 20 ~ 60	Adjusts Smart Boundary Temperature. If set Boundary=25,Step=10, the boundary will set 25,35,45,55
Boundary Temperature Step	- 5~10	Adjusts boundary Temperature Step.
Segment Speed Count	- 20~60	Adjusts Segment Speed Count.(%)If set Segment Speed Count=60%, Step=10%, the segment speed will set 60% , 70%, 80% , 90% , 100%
Segment Speed Count Step	- 5~ 10	Adjusts Segment Speed Count Step (%).
CPU Temperature	No changeable options	Displays the processor's temperature.
System Temperature	No changeable options	Displays the system's temperature.
CPU Fan Speed	No changeable options	Displays the fan's speed.
System Fan Speed	No changeable options	Displays the fan’s speed
VCORE	No changeable options	Displays the voltage level of +VCORE in supply.
5VSB	No changeable options	Displays the voltage level of +VSB5 in supply.
VCC5	No changeable options	Displays the voltage level of +VCC5 in supply.
VCC12	No changeable options	Displays the voltage level of +VCC12 in supply.

5.3.2.4 F81866 Watchdog Configuration

Menu Path *Advanced > F81866 Watchdog*

If the system hangs or fails to respond, enable the F81866 watchdog function to trigger a system reset via the 255-level watchdog timer.



F81866 Watchdog Screen

BIOS Setting	Options	Description/Purpose
Enable WatchDog	- Enabled - Disabled	Enables/ Disables Watchdog timer.
Watchdog timer unit	- 1s - 60s	Selects 1s (second) or 60s (minute) as the time unit of Watchdog timer.
Count for Timer (Seconds)	Numeric (from 1 to 255)	Sets the timeout for Watchdog timer. (Max. value: 255 seconds or minutes)

5.3.2.5 CPU Configuration

Menu Path *Advanced > CPU Configuration*

The **CPU Configuration** provides advanced CPU settings and some information about CPU.

CPU Configuration Screen

BIOS Setting	Options	Description/Purpose
Socket 0 CPU Information	Sub-Menu	Reports Socket 0 CPU information
CPU Speed	No changeable options	Reports the current CPU speed.
64-bit	No changeable options	Reports if the processor supports Intel x86-64 (amd64) implementation.
Intel Virtualization Technology	- Disabled - Enabled	When enabled, a VMM can utilize the additional hardware capabilities provided by Vanderpool Technology (VT). (BayTrail-D only)

Socket 0 CPU Information

Menu Path *Advanced > CPU Configuration > Socket 0 CPU Information*

Socket 0 CPU Information Screen (BayTrail-D SoC J1900)

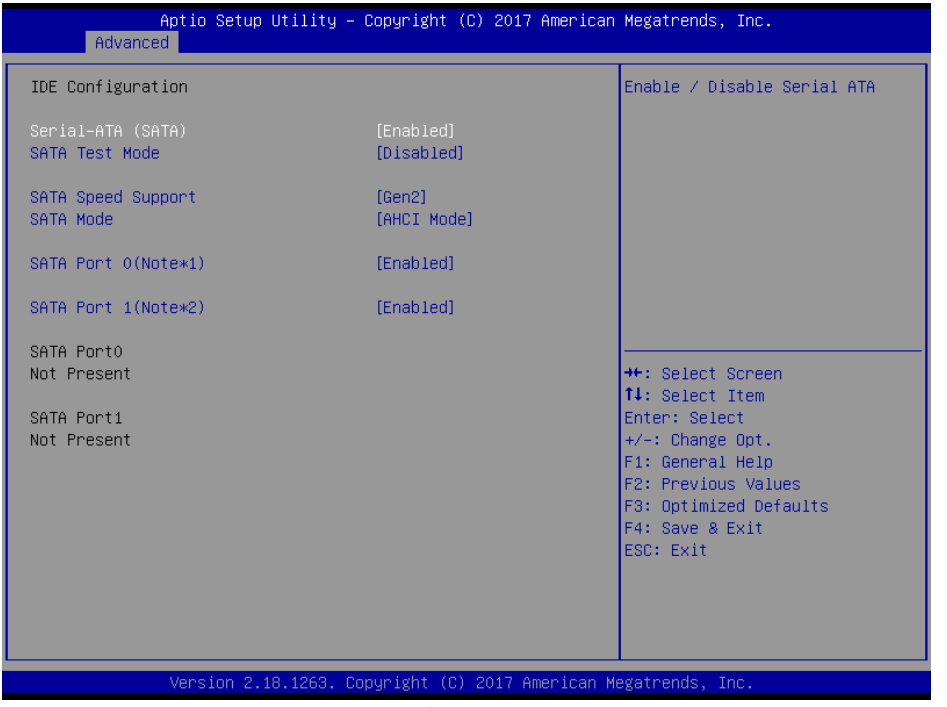
BIOS Setting	Options	Description/Purpose
CPU Signature	No changeable options	Reports the CPU Signature
Microcode Patch	No changeable options	Reports the CPU Microcode Patch Version.
Max CPU Speed	No changeable options	Reports the maximum CPU speed.
Min CPU Speed	No changeable options	Reports the minimum CPU speed
Processor Cores	No changeable options	Displays the number of physical cores in the processor.
Intel HT Technology	No changeable options	Reports if Intel Hyper-Threading Technology is supported by the processor. Hyper Threading is Intel's term for its simultaneous multithreading implementation in their CPUs. Enable this function will improve parallelization of computation

BIOS Setting	Options	Description/Purpose
		performed on PC microprocessor. For each processor core that is physically present, the operating system addresses two virtual processors, and shares the workload between them when possible.
Intel VT-x Technology	No changeable options	Reports if Intel VT-x Technology is supported by the processor. Previously codenamed "Vanderpool", **VT-x** represents Intel's technology for virtualization on the x86 platform. Utilizing Vanderpool Technology (VT), a VMM (Virtual Machine Monitor) can utilize the additional hardware capabilities.
L1 Data Cache	No changeable options	Displays L1 Data Cache size.
L1 Code Cache	No changeable options	Displays L1 Code Cache size.
L2 Cache	No changeable options	Displays L2 Cache size.
L3 Cache	No changeable options	Displays L3 Cache size.

5.3.2.6 IDE Configuration

Menu Path *Advanced > IDE Configuration*

The **IDE Configuration** allows users to enable / disable the SATA controller as well as the operational mode after the SATA controller is enabled. The following screen indicates the functions available when the SATA controller is enabled and the AHCI mode is selected.



IDE Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial-ATA (SATA)	- Disabled - Enabled	Enables or disables SATA Device.
SATA Test Mode	- Disabled - Enabled	Enables or disables SATA Test Mode.
SATA Speed Support	- Gen1 - Gen2	• **Gen1** mode sets device to 1.5 Gbit/s speed. • **Gen2** mode sets the device to 3 Gbit/s speed (in case it is compatible).

BIOS Setting	Options	Description/Purpose
SATA Mode	- IDE Mode - AHCI Mode	Configures SATA as following: • **IDE:** Sets SATA operation mode to IDE. • **AHCI:** SATA works as AHCI (Advanced Host Controller Interface) mode for getting better performance.
SATA Port 0	- Disabled - Enabled	Enables or disables SATA port 0 Device.
SATA Port 1	- Disabled - Enabled	Enables or disables SATA port 1 Device.
SATA Port 0	[drive]	Displays the drive installed on this SATA port 0. Shows [Empty] if no drive is installed. (BayTrail-D only)
SATA Port 1	[drive]	Displays the drive installed on this SATA port 1. Shows [Empty] if no drive is installed. (BayTrail-D only)

5.3.2.7 OS Selection

Menu Path *Advanced > OS Selection*

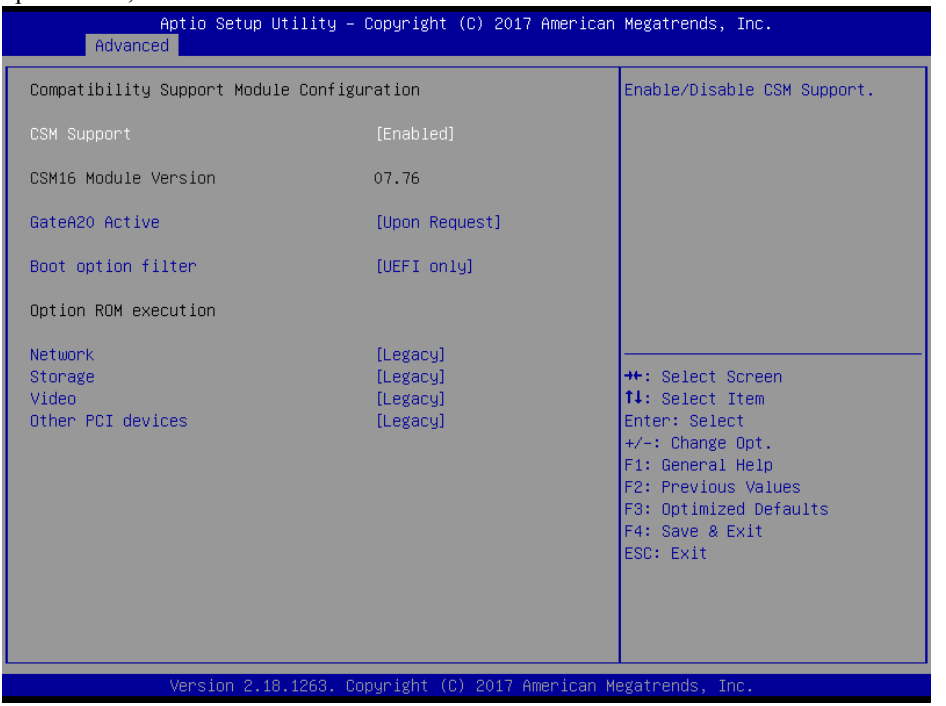
OS Selection Screen

BIOS Setting	Options	Description/Purpose
OS Selection	- Windows 8.x - Windows 7	Operating system selection.

5.3.2.8 CSM Configuration

Menu Path *Advanced > CSM Configuration*

The **CSM Configuration** provides advanced CSM (Compatibility Support Module) configurations such as Enable/Disable CSM Support, configure Gate20 Active, boot option filter, etc.



CSM Configuration Screen

BIOS Setting	Options	Description/Purpose
CSM Support	- Disabled - Enabled	Disables or Enables 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. (BayTrail-D only)

BIOS Setting	Options	Description/Purpose
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	Controls the execution of UEFI or Legacy PXE
Storage	- Do not launch - UEFI only - Legacy only	Controls the execution of UEFI or Legacy Storage
Video	- Do not launch - UEFI only - Legacy only	Controls the execution of UEFI and Legacy Video.
Other PCI devices	- UEFI first - Legacy only	Selects the launch method for other PCI devices, such as NIC, mass storage or video card.

5.3.2.9 USB Configuration

Menu Path *Advanced > USB Configuration*

The **USB Configuration** allows users to configure advanced USB settings such as Legacy USB support.

USB Configuration Screen

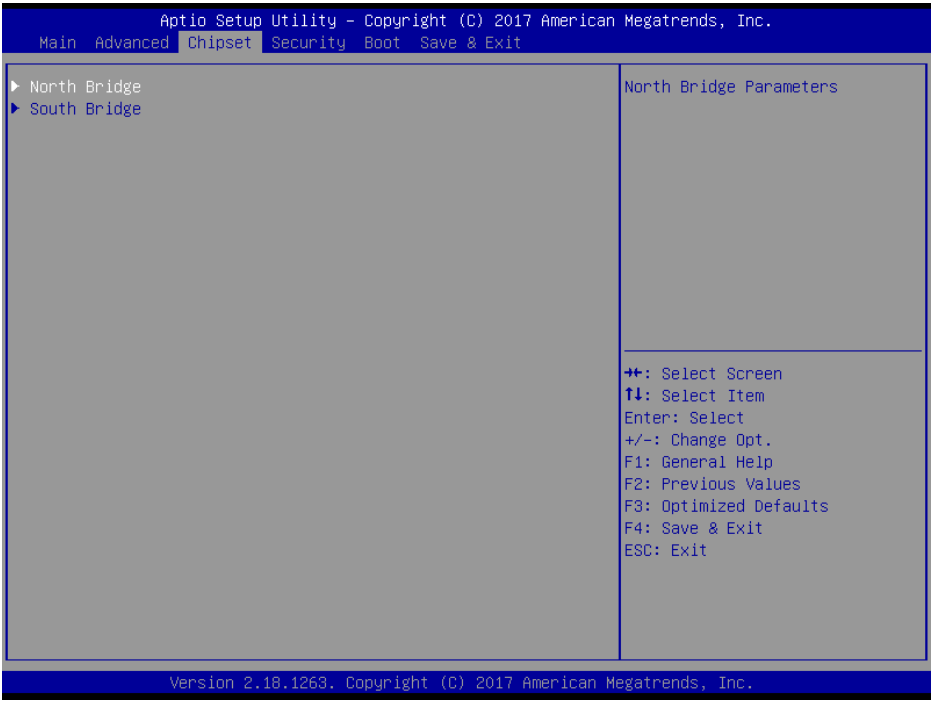
BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Displays the number of available USB devices.
Legacy USB Support	- Disabled - Enabled - Auto	Enables support for legacy USB.
XHCI Hand-off	- Disabled - Enabled	This is a workaround for OSes without XHCI hand-off support. (BayTrail-D only)
EHCI Hand-off	- Disabled - Enabled	This is a workaround for OSes without EHCI hand-off support.

BIOS Setting	Options	Description/Purpose
USB Mass Storage Driver Support.	- Disabled - Enabled	Enables/Disables USB mass storage driver support.
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 the default value: for a Root port it is 100 ms, for a Hub port the delay is taken from Hub descriptor.
Mass Storage Devices:	- Auto - Force FDD - Hard Disk - CD-ROM	Displays the device name and choose the device emulation type.

5.3.3 Chipset

Menu Path *Chipset*

This menu allows users to configure advanced Chipset settings such as North Bridge and South Bridge configuration parameters.



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.

5.3.3.1 North Bridge

Menu Path *Chipset > North Bridge*

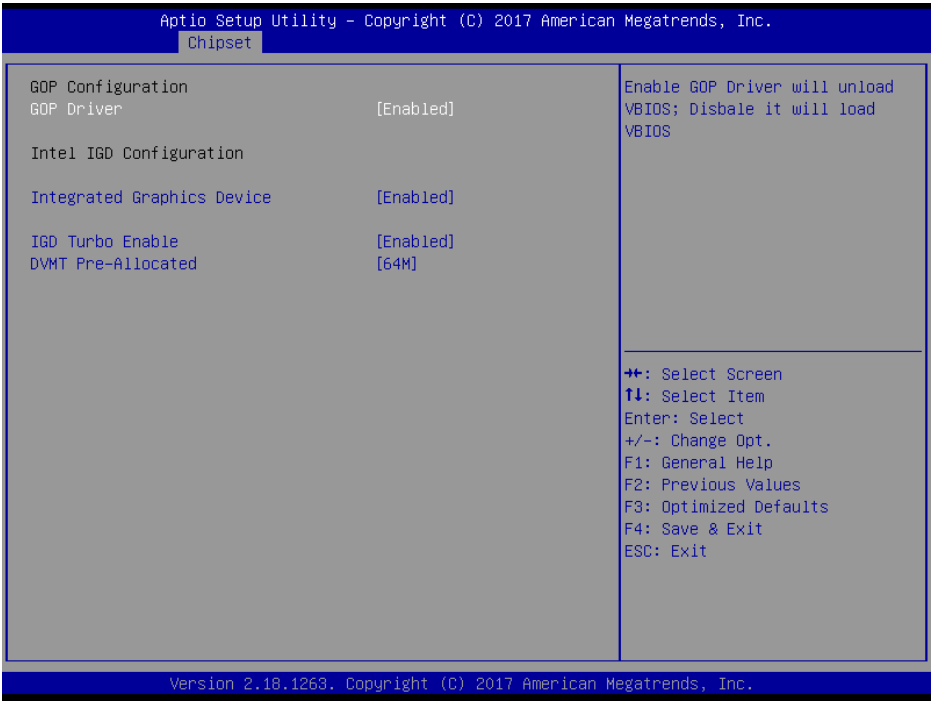
The **North Bridge** allows users to enable/disable GOP configuration, set Intel IGD configuration and view the DRAM information on the platform.

North Bridge Screen

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

North Bridge – Intel IGP Configuration (GOP Configuration)

Menu Path *Chipset > North Bridge > GOP Configuration*



GOP Configuration Screen

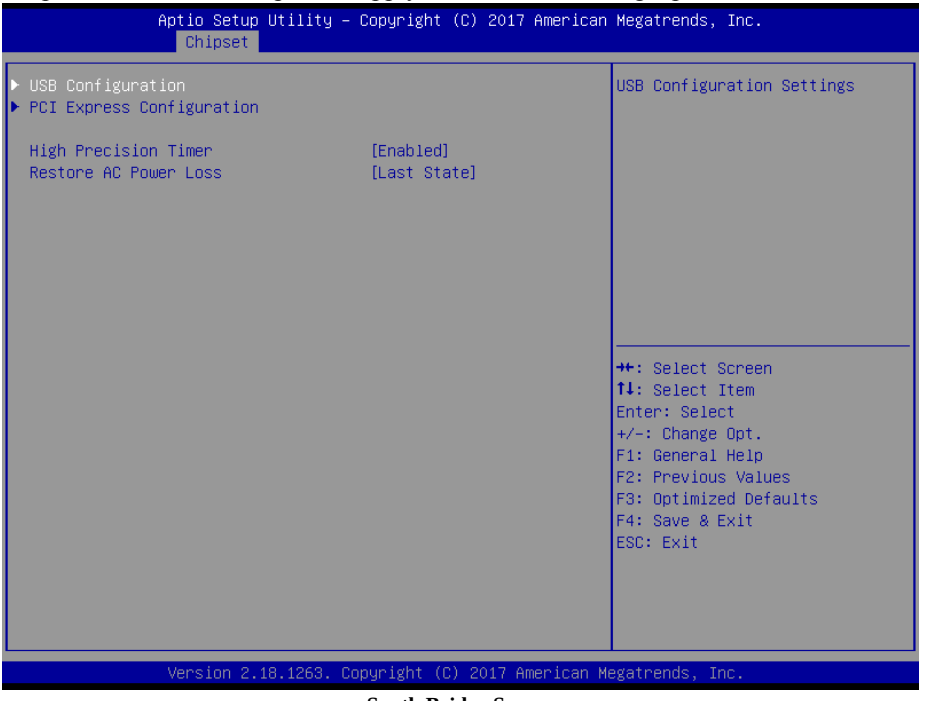
BIOS Setting	Options	Description/Purpose
GOP Driver	- Disabled - Enabled	Enables or disables GOP Driver for UEFI OS
Intel IGD Configuration	No changeable options	Displays the IGD information on platform.
Integrated Graphics Device	- Disabled - Enabled	• **Enabled:** Enables Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. • **Disabled:** Always disable IGD.
IGD Turbo Enable	- Disabled - Enabled	Enables or disables IGD Turbo
DVMT Pre-Allocated	- 32M - 64M	Selects DVMT 5.0 Pre-Allocated (Fixed) Graphics Memory size

BIOS Setting	Options	Description/Purpose
	- 96M - 128M - 256M - 512M	used by the Internal Graphics Device.

5.3.3.2 South Bridge

Menu Path *Chipset > South Bridge*

The **South Bridge** allows users to enable/disable high precision timer and select the AC power state when the power supply is restored following a power failure.



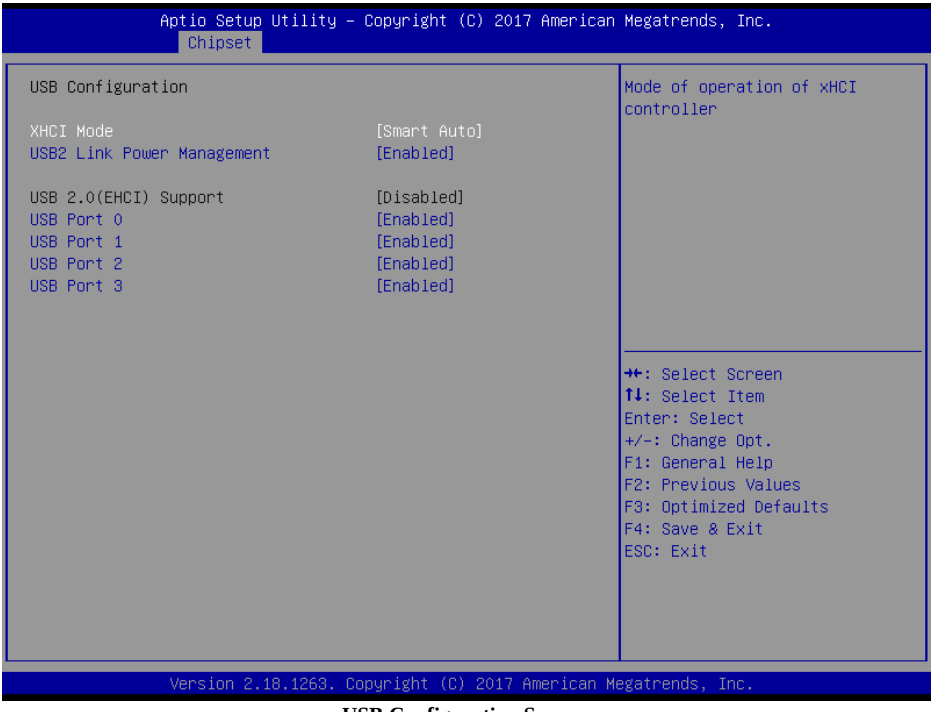
South Bridge Screen

BIOS Setting	Options	Description/Purpose
Azalia HD Audio	Sub-Menu	Azalia HD Audio options. (BayTrail-I only)
USB Configuration	Sub-Menu	Configures USB parameters.
PCI Express Configuration	Sub-Menu	Configures PCH PCIE parameters. (BayTrail-D only)
High Precision Timer	- Disabled - Enabled	Enables or disables the HPET (High Precision Event Timer) (BayTrail-D only)
Restore AC Power Loss	- Power Off - Power On	Selects the AC power state when the power supply is restored following a power failure.

BIOS Setting	Options	Description/Purpose
	- Last State	• **Power Off:** The system power stays turned off unless the power button is pressed. • **Power On:** The system is turned on after the AC power is restored to the board. • **Last State:** It will bring the system back to the power state when AC power was lost.

South Bridge – USB Configuration

Menu Path *Chipset > South Bridge > USB Configuration*



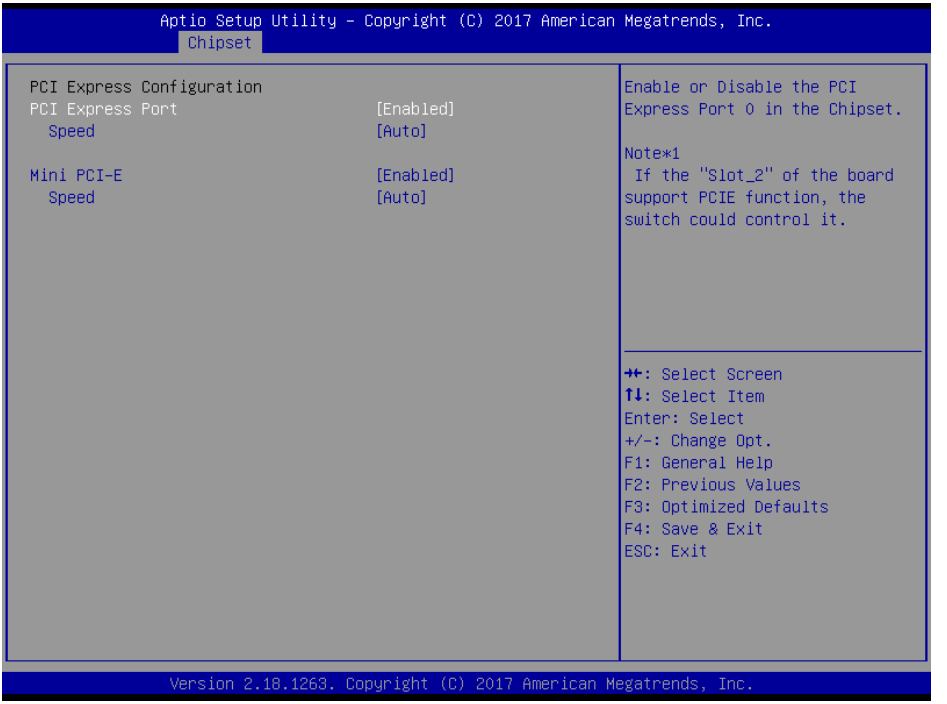
USB Configuration Screen

BIOS Setting	Options	Description/Purpose
XHCI Mode	- Disabled - Enabled	Selects the operation mode of XHCI controller.
USB2 Link Power Management	- Disabled - Enabled	Enables/Disables USB2 Link Power Management.
USB 2.0(EHCI) Support	- Disabled - Enabled	(Needs to set XHCI Mode as “Disabled”.) Enables Enhanced Host Controller Interface

BIOS Setting	Options	Description/Purpose
		1 for high-speed USB functions (USB 2.0).
USB Per Port Control	- Disabled - Enabled	Controls each of the USB ports (0~3). • **Enabled:** Enables USB per port. • **Disabled:** Uses USB port X settings. (BayTrail-I only)
USB Port 0	- Disabled - Enabled	Enables or Disables USB port 0.
USB Port 1	- Disabled - Enabled	Enables or Disables USB port 1. (USB Hub 1~4)
USB Port 2	- Disabled - Enabled	Enables or Disables USB port 2.
USB Port 3	- Disabled - Enabled	Enables or Disables USB port 3.

South Bridge – PCI Express Configuration

Menu Path *Chipset > South Bridge > PCI Express Configuration*



PCI Express Configuration Screen

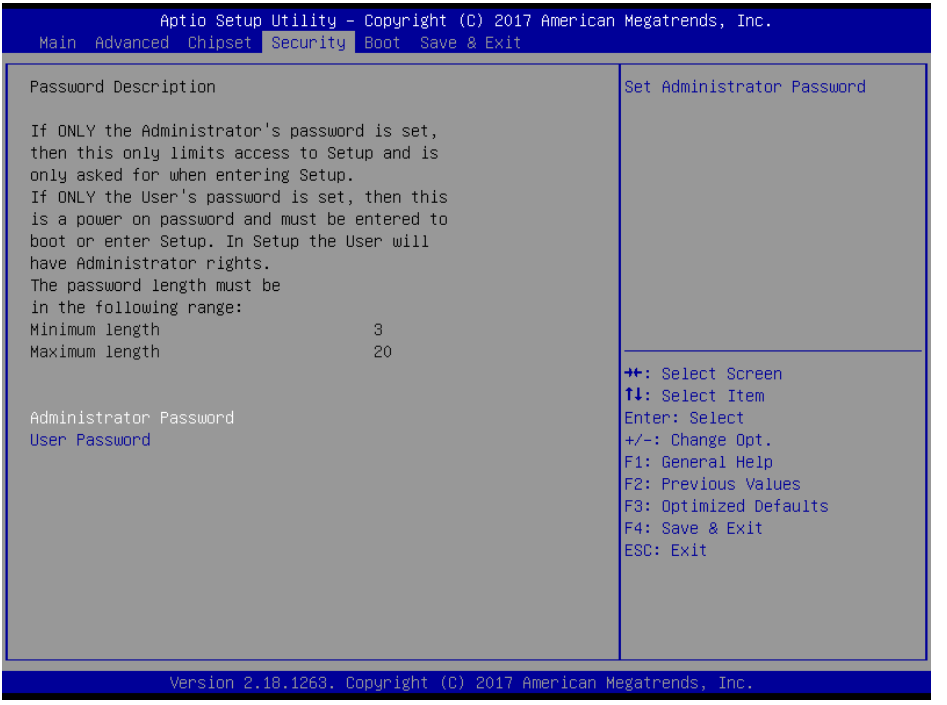
BIOS Setting	Options	Description/Purpose
PCI Express Port	- Disabled - Enabled	Enables or Disables PCI Express port.
speed	- Auto - Gen1 - Gen2	Selects PCI Express port speed.
Mini PCI-E	- Disabled - Enabled	Enables or Disables Mini PCI-E port.
speed	- Auto - Gen1 - Gen2	Selects Mini PCI-E port speed.

5.3.4 Security

Menu Path *Security*

From the **Security** menu, you are allowed to configure or change the administrator password. You will be asked to enter the configured administrator password before you can access the Setup Utility.

By setting an administrator password, you will prevent other users from changing your BIOS settings. You can configure an Administrator password and then configure a user password. Heed that a user password does not provide access to most of the features in the Setup utility.



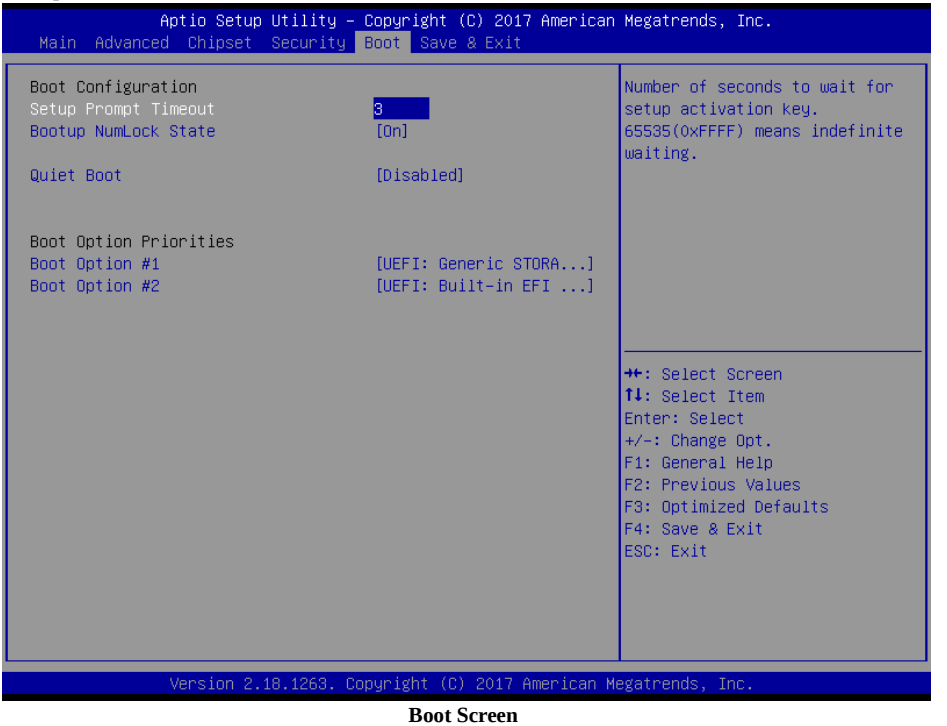
Security Screen

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.

5.3.5 Boot

Menu Path *Boot*

This menu provides control items for system boot configuration such as setting setup prompt timeout, enabling/disabling quiet boot and changing the boot order from the available bootable device(s) and configures hard drive BBS priorities, and network drive BBS priorities.



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	Selects the NumLock state after the system is powered on. • **On:** Enables the NumLock function automatically after the system is powered on. • **Off:** Disables the NumLock function after the system is powered on.
Quiet Boot	- Disabled - Enabled	Enables or Disables Quiet Boot options. When this option is set to "Disabled", BIOS will display normal POST messages.
Boot Option #1~#n	- [Drive(s)] - Disabled	Allows users to change the boot order from the available device(s). Note that in the menu displayed, you will only see the device with the highest priority for a specific boot device type.
Hard Drive BBS Priorities	Sub-Menu	Defines the boot order for all the hard drives connected to the system, e.g. SATA, USB drive.
Network Drive BBS Priorities	Sub-Menu	Allow user to select boot order of available drive(s)

5.3.5.1 Hard Drive BBS Priorities

Menu Path *Boot > Hard Drive BBS Priorities*

Select **Hard Drive BBS Priorities** from the **Boot** menu to configure the boot order and priority of the available drives.

Hard Drive BBS Priorities Screen

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

5.3.5.2 Network Drive BBS Priorities

Menu Path *Boot > Network Drive BBS Priorities*

Select **Network Drive BBS Priorities** from the **Boot** menu to configure the boot order and priority of the available drives.

Network Drive BBS Priorities Screen

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

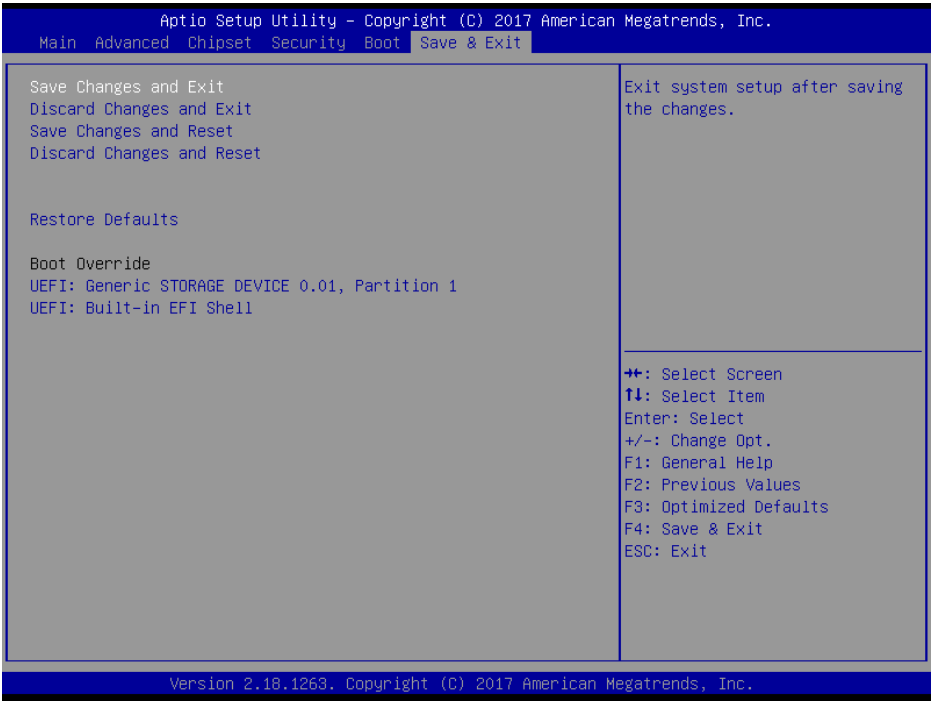
5.3.6 Save & Exit

Menu Path *Save & Exit*

Save Changed BIOS Settings
To save and validate the changed BIOS settings, select **Save Changes** from the **Save & Exit** menu, or you can select **Save Changes and Exit** to validate the changes and then exit the system. You can also simply press **F4** at any time to save the BIOS changes.

Discard Changed BIOS Settings
To cancel the BIOS settings you have previously configured, select **Discard Changes and Exit** from this menu, or simply press **Esc** to exit the BIOS setup. You can also select **Discard Changes and Reset** to cancel the changed settings and restore the factory BIOS defaults.

Load User Defaults
You may simply press **F3** at any time to load the **Optimized Values** which resets all BIOS settings to the factory defaults.



Save & Exit Screen

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

Appendix A System Diagrams

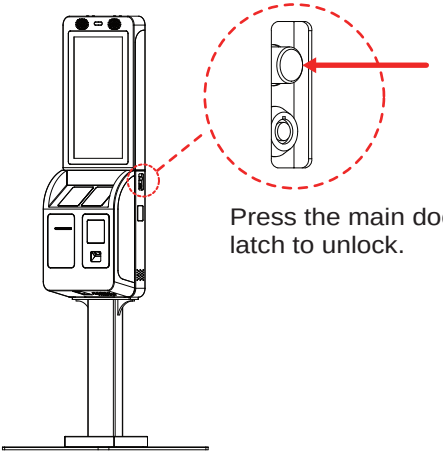
This appendix includes the easy maintenance and exploded diagrams of the system and the parts list as well as the part numbers of the KS-1132 system.

- Easy Maintenance
  - Removing Panel
  - Removing Stand
  - Installing Wall Mount Kit
- KS-1132 Main Body Assembly Exploded Diagram
- KS-1132 Front Panel and Main Body Assembly Exploded Diagram
- KS-1132 LCD Panel Assembly Exploded Diagrams
- KS-1132 Front Door Inside Parts Assembly Exploded Diagrams
- KS-1132 Main Body Parts Assembly Exploded Diagrams

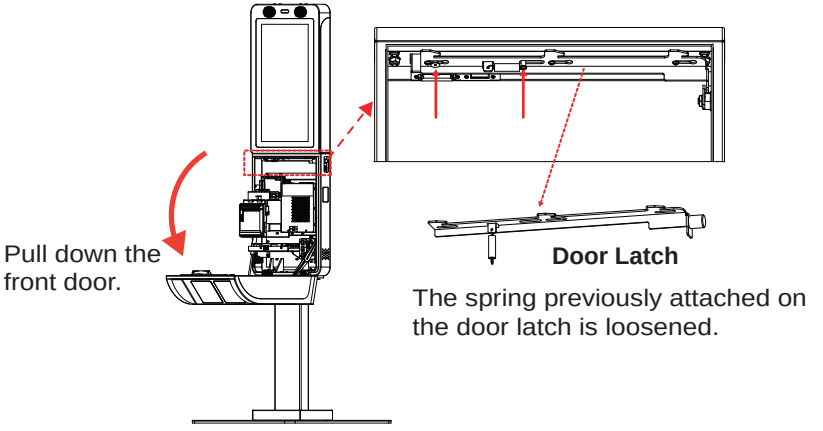
Easy Maintenance

Removing Front Panel

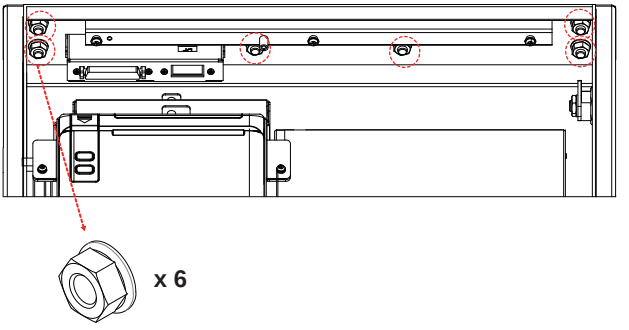
Step 1. Press the main door latch to unlock the system front door.



Step 2. Gently pull down the front door and remove the two screws as shown. The door latch can be then detached.

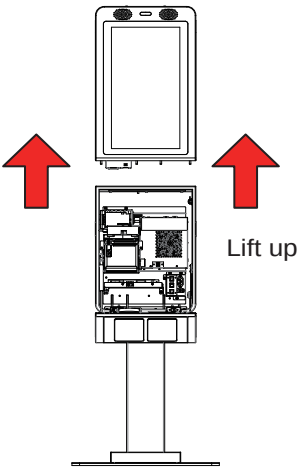


Step 3. From the same location in **Step 2**, remove the 6 screw nuts as shown:



Release the six screw nuts.

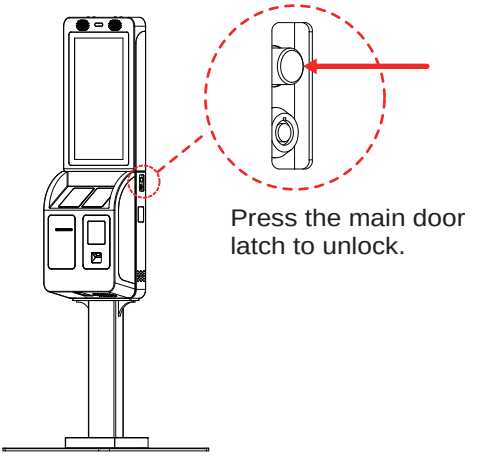
Step 4. Lift up to remove the panel from the system.



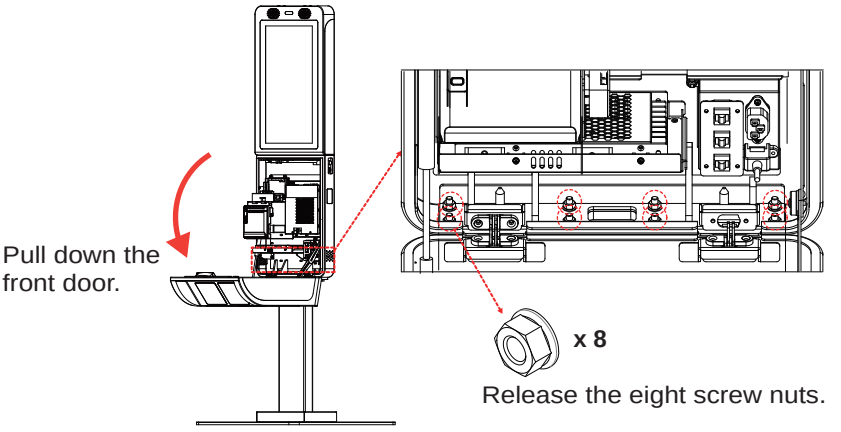
Lift up to remove the panel.

Removing Stand

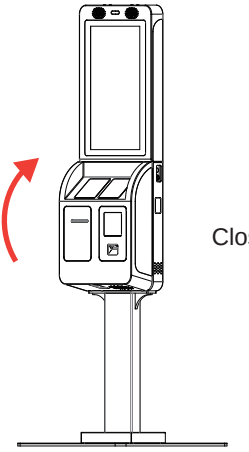
Step 1. Press the main door latch to unlock the system front door.



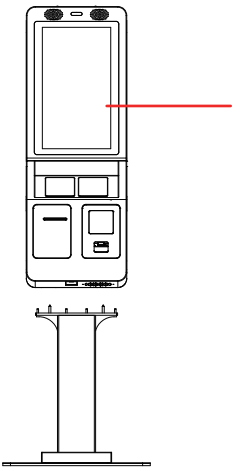
Step 2. Gently pull down the front door and remove the 8 screw nuts as shown:



Step 3. Gently pull down the front door and remove the 8 screw nuts as shown:

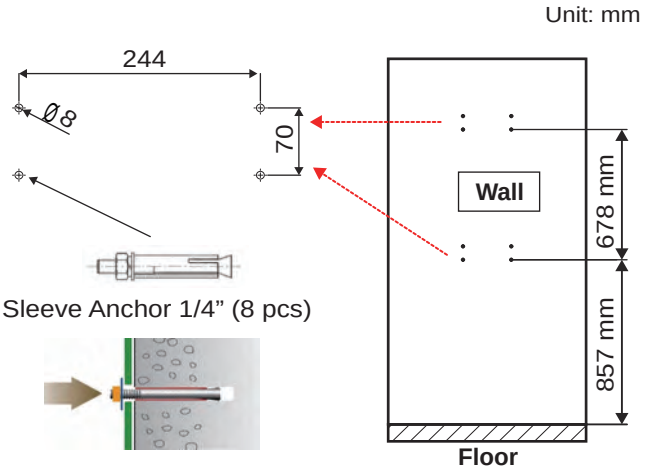


Step 4. Lift up to detach the system from the Stand.

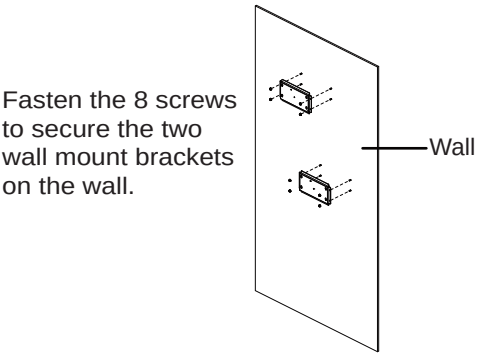


Installing Wall Mount Kit

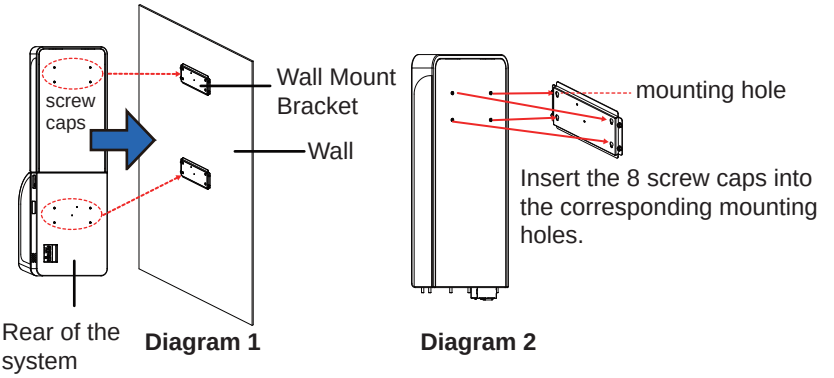
Step 1. Precisely drill 8 screw holes on the wall according to the dimensions and distances as specified for the installation of the provided 8 x sleeve anchors (1/4”) in the next step.



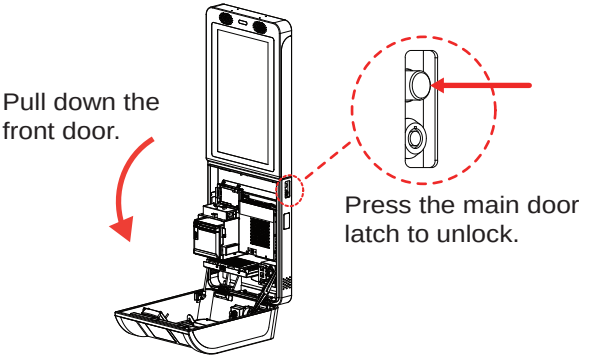
Step 2. Align the screw holes on both sides of the provide wall mount brackets with the drilled holes on the wall, and install the eight sleeve anchors to secure the two wall mount brackets firmly.



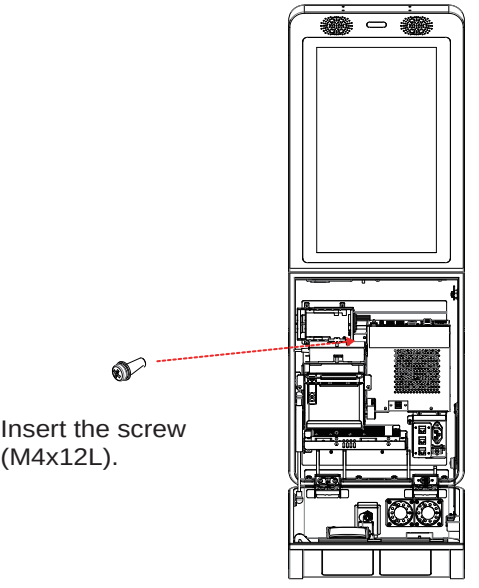
Step 3. Attach the system over the wall (Diagram 1) and precisely align and insert the 8 screw caps located on the rear of the system into the corresponding mounting holes on the installed wall mount brackets (Diagram 2).



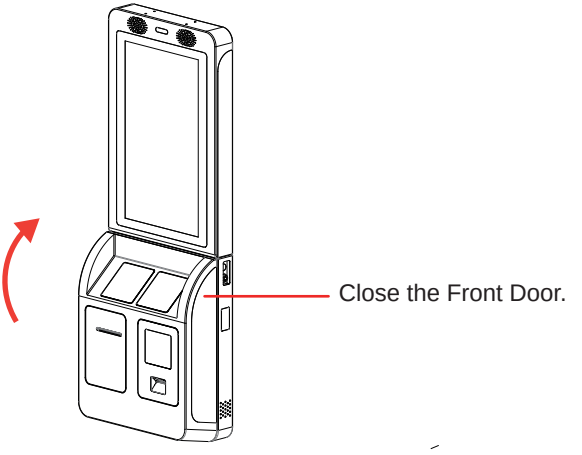
Step 4. Press the main door latch to release the system front door.



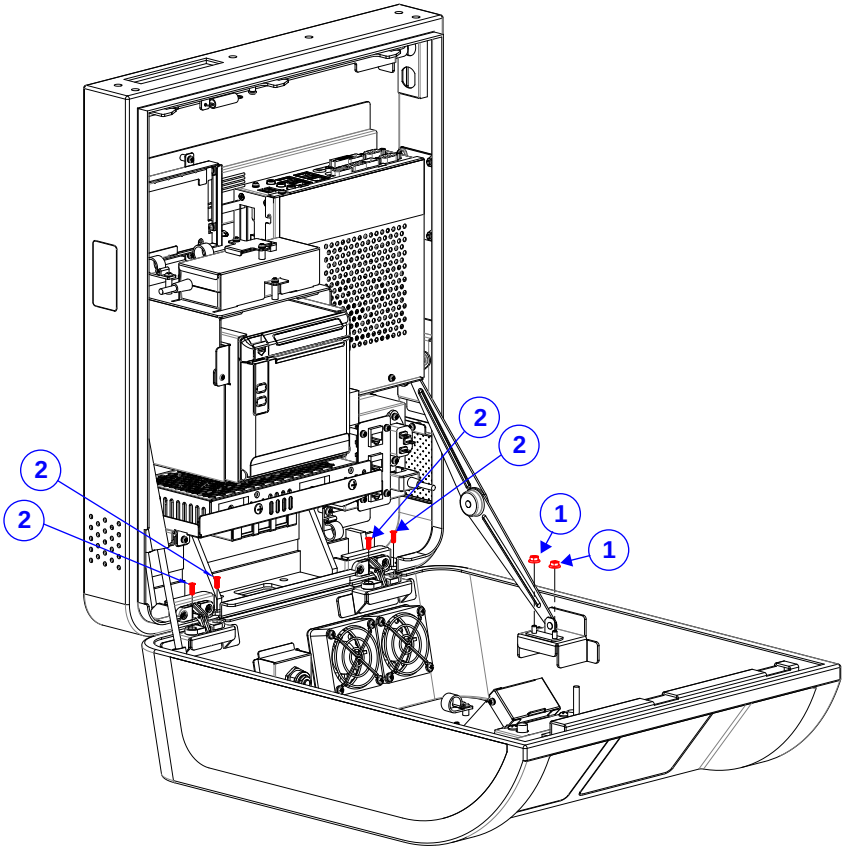
Step 5. Fasten the screw (M4x12L) provided into the location to secure firmly.



Step 6. Close the system front door to complete the installation.

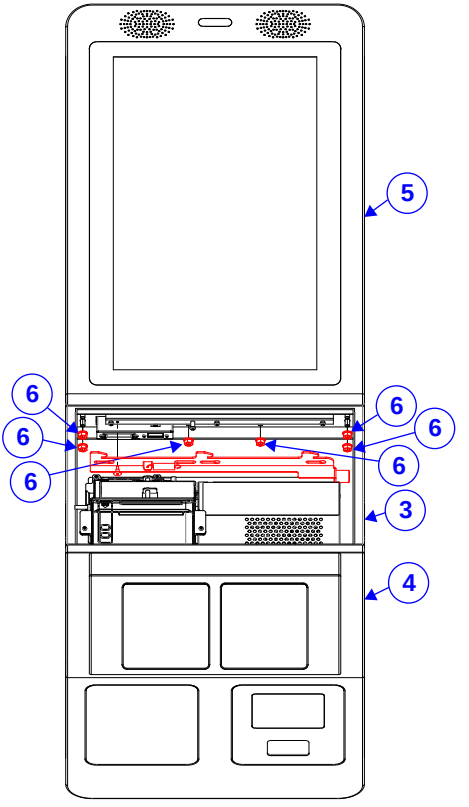


KS-1132 Main Body, Panel Unit and Front Door Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	SLIP NUTS(M4x0.7P,H=4.5mm)	23-142-40450801	2
2	FLAT HEAD SCREW ϕ 5.8 / #2/M4x0.7Px10mm	22-215-40010011	4

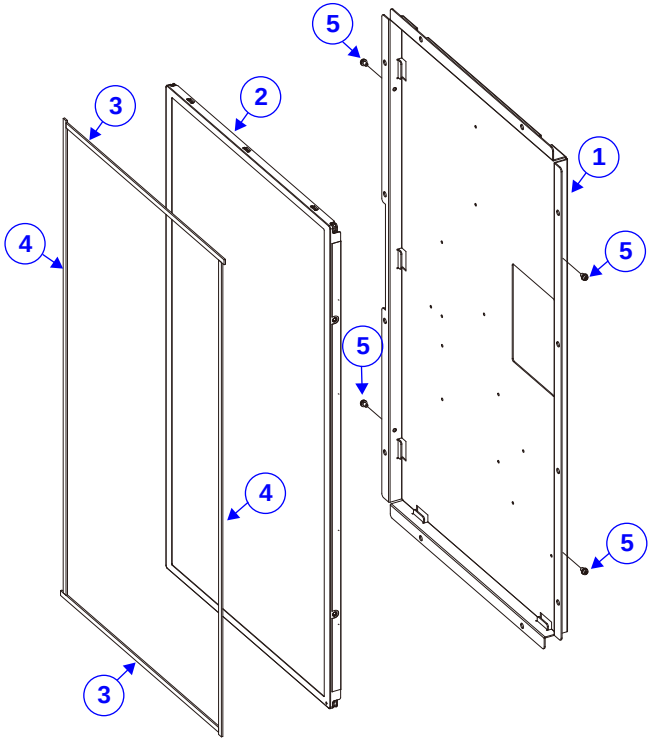
KS-1132 Front Panel, Main Body and Front Door Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
3	KS-1132 Lower Back	N/A	1
4	KS-1132 Lower Front	N/A	1
5	KS-1132 Panel	N/A	1
6	SLIP NUTS(M6x1.0P,H=6mm)	23-142-60601271	6

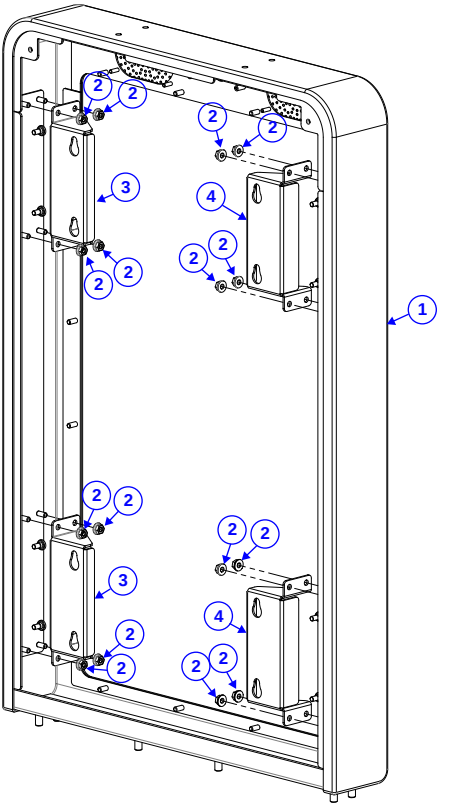
KS-1132 LCD Panel Exploded Diagrams

KS-1132 LCD Panel Module Assembly Exploded Diagram



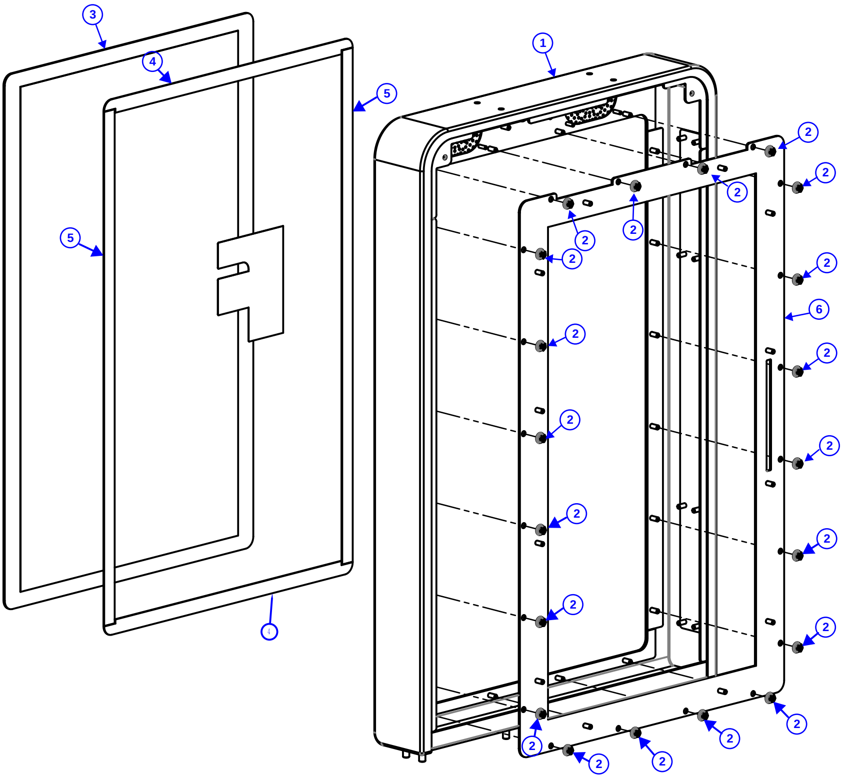
No.	Component Name	P/N No.	Q'ty
1	KS-1132 LCD I215 Holder ELO	80-229-02004450	1
2	21.5" LCD Panel-AUO	N/A	1
3	KS-1132 LCD Panel Poron-S (281x5x1.5mm)	30-013-24100450	2
4	KS-1132 LCD Panel Poron-L (487x5x1.5mm)	30-013-24200450	2
5	Round Head With Spring Washer Screw M3x0.5Px6mm	22-232-30060211	4

KS-1132 LCD Panel Beam Assembly Exploded Diagram



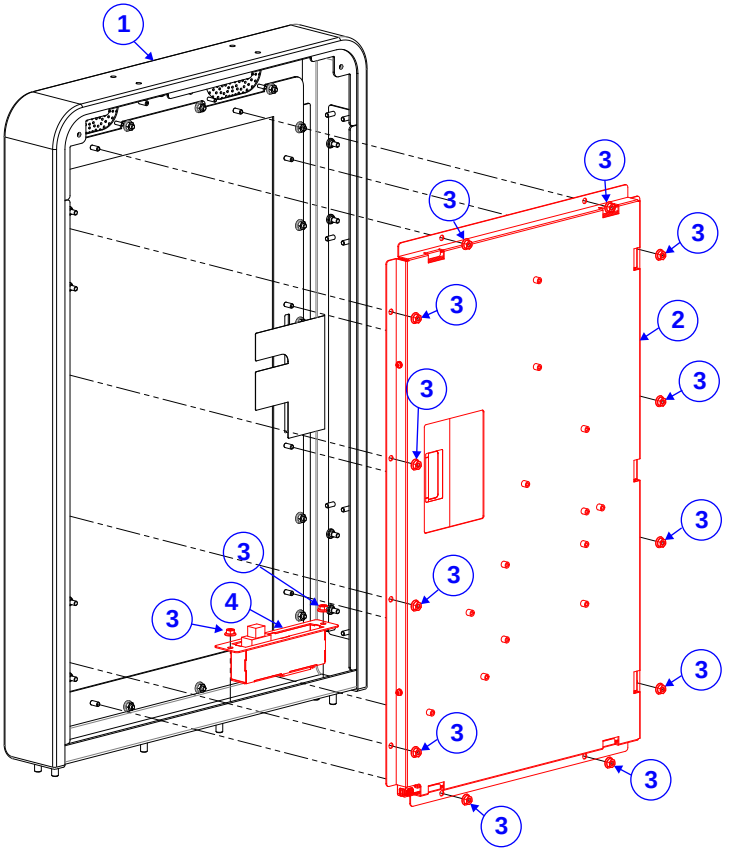
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Panel Frame Weld AY (w/Paint) (White)	80-207-02061450	1
2	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	16
3	KS-1132 Beam Holder-L	80-229-02001450	2
4	KS-1132 Beam Holder-R	80-229-02002450	2
5	Fillister Head Screw #2 / M4x0.7Px6mm	22-272-40006911	8

KS-1132 Touch Panel Assembly Exploded Diagram



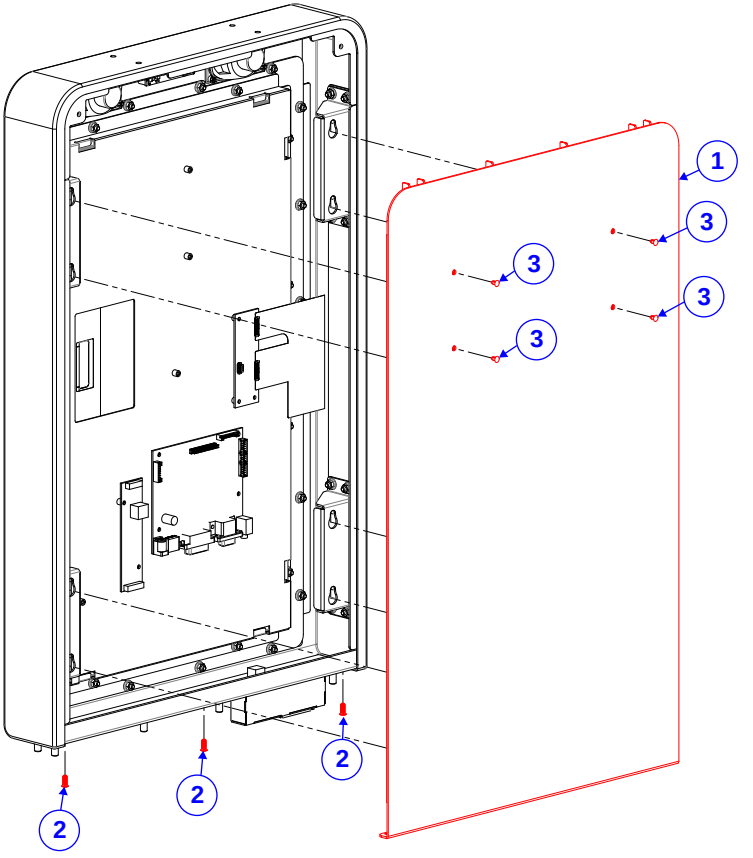
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Panel Frame Weld AY (w/Paint) (White)	80-207-02061450	1
2	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	20
3	21.5" Touch ELO	N/A	1
4	KS-1132 Touch Panel VHB ELO-S (332x14x1mm)	34-026-05002450	2
5	KS-1132 Touch Panel VHB ELO-L (503x14x1mm)	34-026-05001450	2
6	KS-1132 Touch Holder ELO	80-229-02007450	1

KS-1132 LCD Display Assembly Exploded Diagram



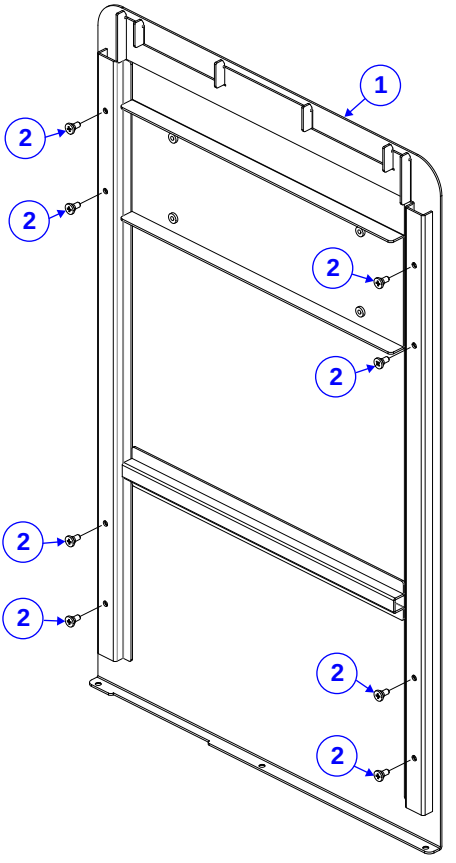
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Panel Frame Weld AY (w/Paint) (White)	80-207-02061450	1
2	KS-1132 LCD Panel AUO Module	N/A	1
3	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	14
4	KS-1132 SCSI Module	N/A	1

KS-1132 Panel Back Cover Assembly Exploded Diagram



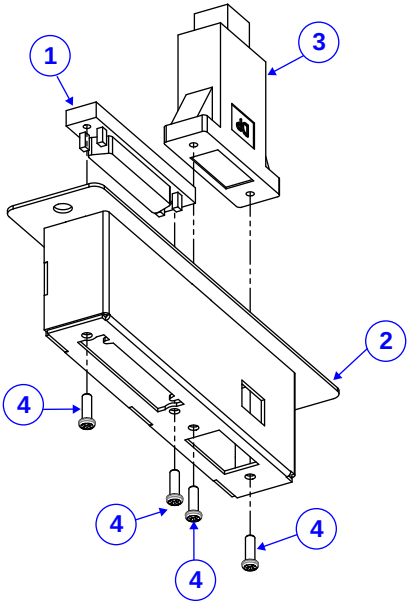
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Upper Cover Weld AY(w/Paint) (White)	80-204-02063450	1
2	Flat Head Screw ϕ 5.8 / #2 / M4x0.7Px10mm(Black)	22-215-40010011	3
3	SP-7755 Canoe Clip (Φ3.5mm)	90-042-04100426	4

KS-1132 Cover Weld Assembly Exploded Diagram



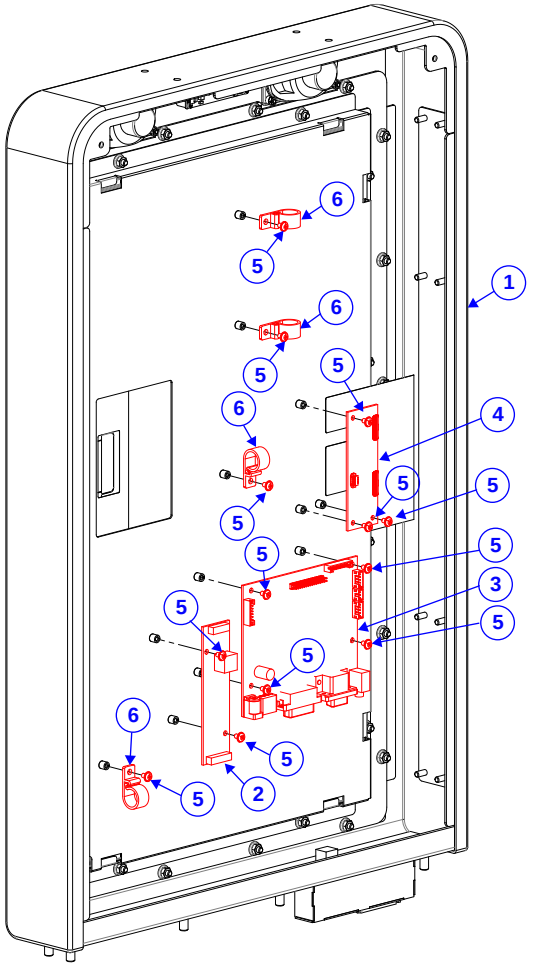
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Upper Cover Weld AY(w/Paint) (White)	80-204-02063450	1
2	Fillister Head Screw #2 / M4x0.7Px6mm	22-272-40006911	8

KS-1132 SCSI Module Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	SCSI Cable Connector	N/A	1
2	KS-1132 SCSI MCD50FL Holder	80-229-02006450	1
3	DP Cable Connector	N/A	1
4	Round Head Screw M2.5x0.45Px8mm	22-232-25008811	4

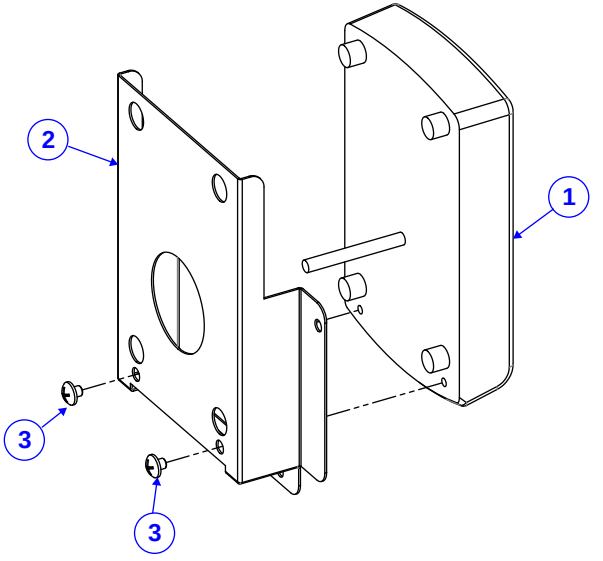
KS-1132 Panel Board Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	KS-1132 Panel Frame Weld AY (w/Paint) (White)	80-207-02061450	1
2	LED Driver Board	N/A	1
3	AD Board	N/A	1
4	Touch Panel Board-ELO	N/A	1
5	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	13
6	PA-6225 WIRE MOUNT (Φ12.7mm)	30-042-04100314	4

KS-1132 Front Door Inside Parts Exploded Diagrams

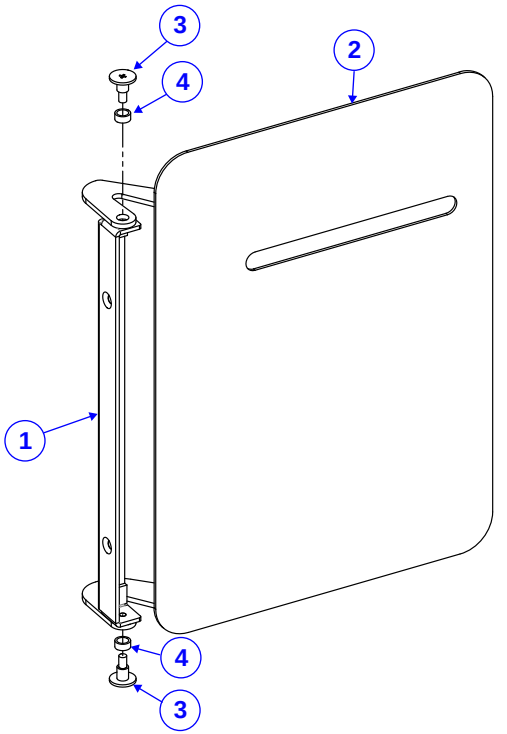
KS-1132 Easy Card Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	Easy Card-QP1000	N/A	1
2	KS-1132 Blank Plate Big(w/Paint)(White)	80-205-02061450	1
3	Truss Head Screw #2 / M4x0.7Px4mm	22-232-40004011	2

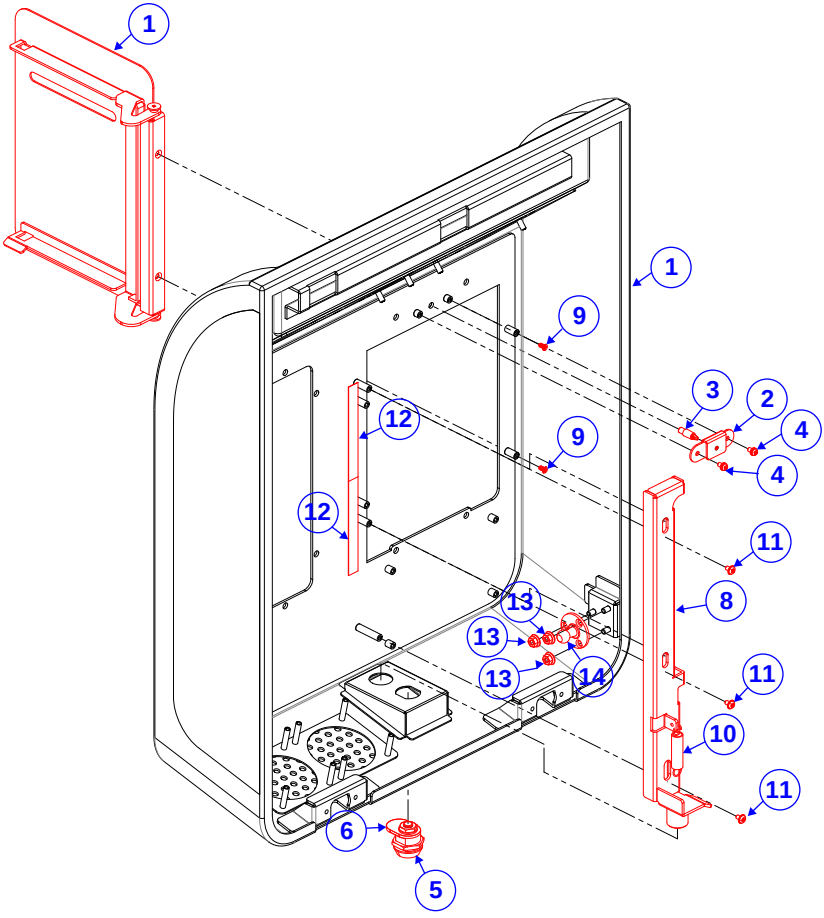
KS-1132 Printer Door Module Assembly Exploded Diagrams

Step 1. Assemble the Printer Door module.



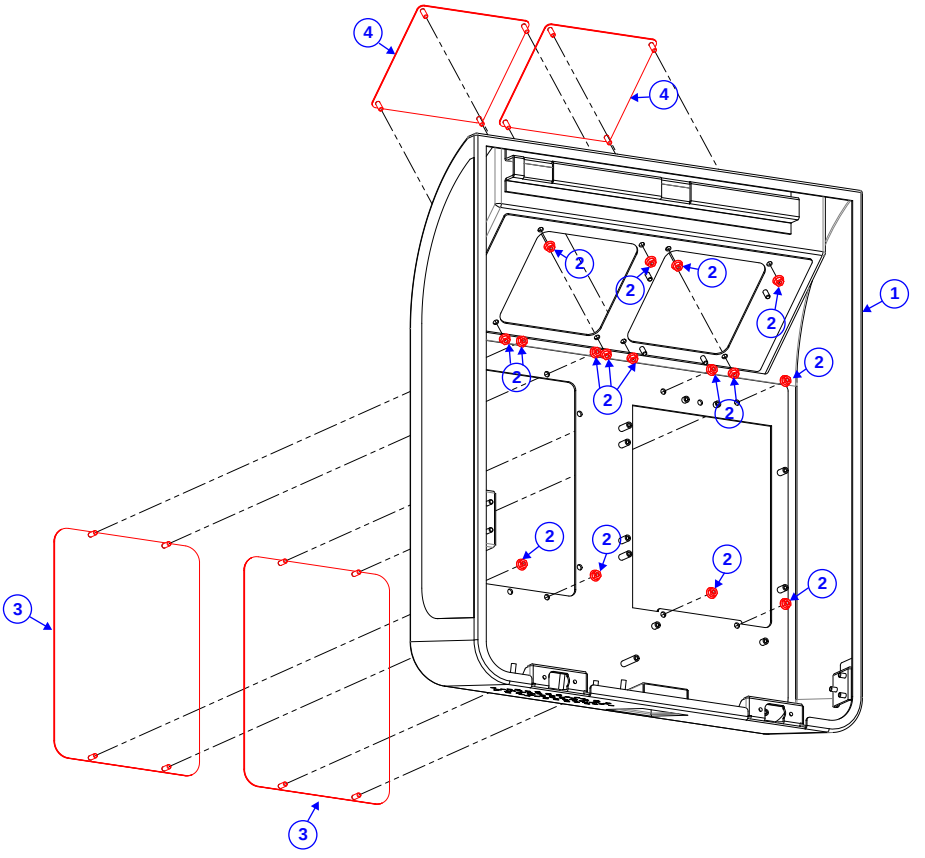
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Printer Door Base	80-247-02001450	1
2	KS-1132 Printer Door (w/Paint)(White)	80-247-02061450	1
3	Fillister Head Screw M3x0.5Px4.8mm	82-272-30005013	2
4	Spacer Support 4.5-2.75	N/A	2

Step 2. Install the Printer Door module onto the system.



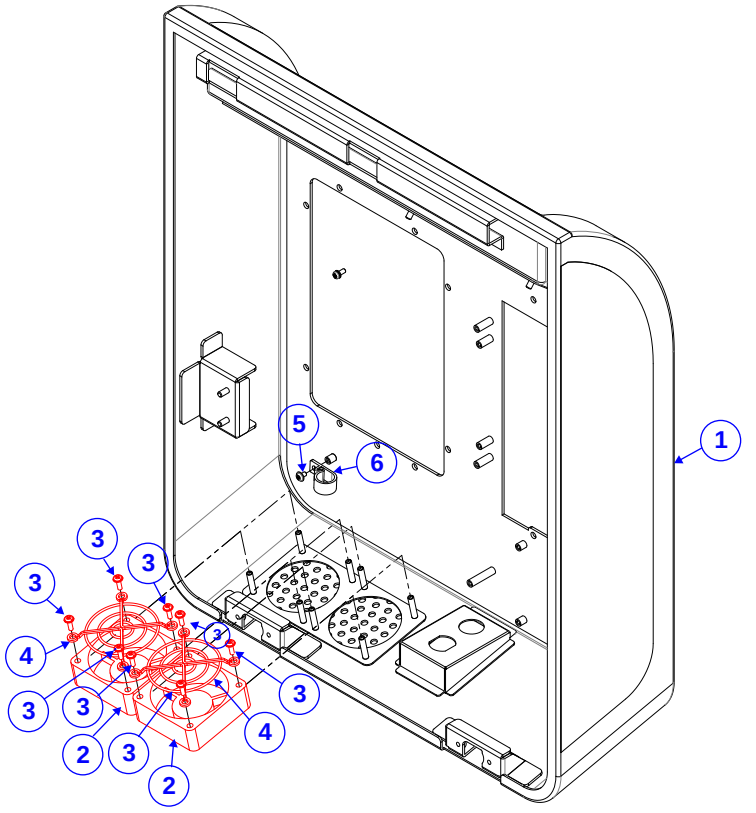
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Front Weld (w/Paint)(White)	80-201-02062450	1
2	KS-1132 Spring Plate	80-205-02002450	1
3	Mounting Button HSR-1	N/A	1
4	Round Head With Spring Washer Screw #2/M3x0.5Px6mm	22-235-30006011	2
5	C510 Cam Lock	20-025-35001000	1
6	KS-1132 C510ZSS-1 Lock Plate	80-205-02001450	1
7	KS-1132 Printer Door Module	N/A	1
8	KS-1132 Printer Door Latch	80-247-02002450	1
9	Flat Head Screw M3x0.5Px6mm(Black)	22-215-30006111	2
10	KF-7330 Door Hock Extension Spring (ϕ 8.6)	23-002-00000092	1
11	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	3
12	PA-3251 Printer Door Mylar (Black) (82.2x10x0.39mm)	30-056-02100220	2
13	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	3
14	TF07 STABILUS	80-006-29001000	1
15	Flat Head Screw #3 / T6.5x16mm	22-112-65016011	2
16	Round Head With Spring Washer Screw (M3x0.5Px10mm)	22-232-30010211	1

KS-1132 Blank Plate Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Front Weld (w/Paint)(White)	80-201-02062450	1
2	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	16
3	KS-1132 Blank Plate Big (w/Paint)(White)	80-205-02061450	2
4	KS-1132 Blank Plate Small (w/Paint)(White)	80-205-02062450	2
5	Flat Head Screw #3 / T6.5x16mm	22-112-65016011	2
6	Round Head With Spring Washer Screw M3x0.5Px10mm	22-232-30010211	1

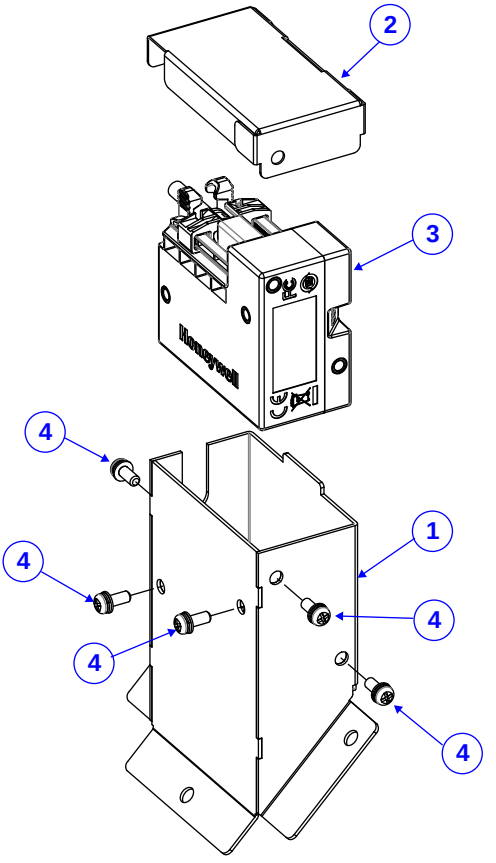
KS-1132 Fan Module Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Front Weld (w/Paint)(White)	80-201-02062450	1
2	System Fan - 60 x 60 x 20mm	N/A	2
3	Round Washer Head Screw M3x0.5Px10mm	22-232-30010311	8
4	Fan Iron Cover 60x60x5mm	20-044-24011090	2
5	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	1
6	PA-6225 WIRE MOUNT (Φ12.7mm)	30-042-04100314	1
7	Flat Head Screw #3 / T6.5x16mm	22-112-65016011	2
8	Round Head With Spring Washer Screw M3x0.5Px10mm	22-232-30010211	1

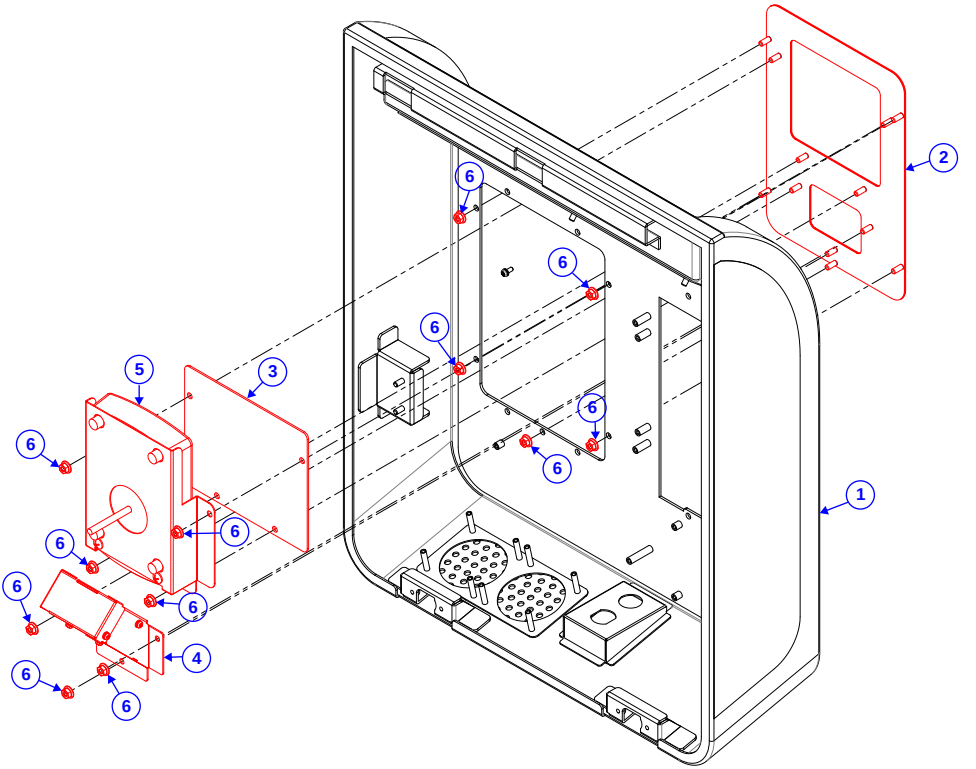
KS-1132 Scanner Module Assembly Exploded Diagrams

Step 1. Assemble the Scanner module.



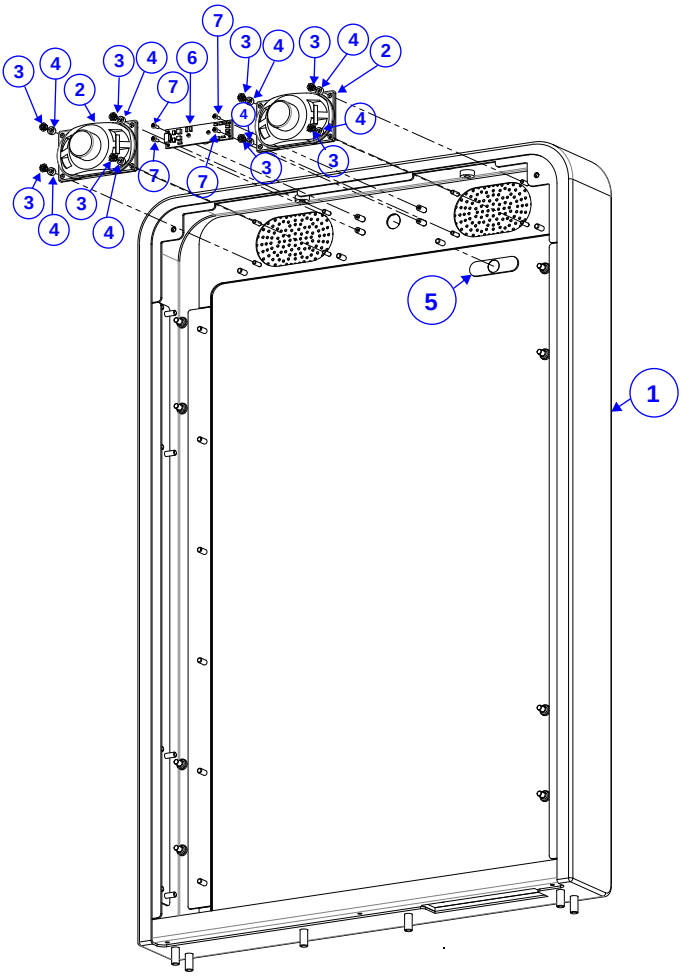
No.	Component Name	P/N No.	Q'ty
1	KS-1130 Scanner Bracket (w/Paint)(White)	20-106-03066410	1
2	KS-1130 Scanner Cable Cover (w/Paint)(White)	20-104-03066410	1
3	Scanner	N/A	1
4	Round Head With Spring Washer Screw M3x0.5Px8mm	22-232-30008211	5

Step 2. Install the assembled Scanner module onto the system.



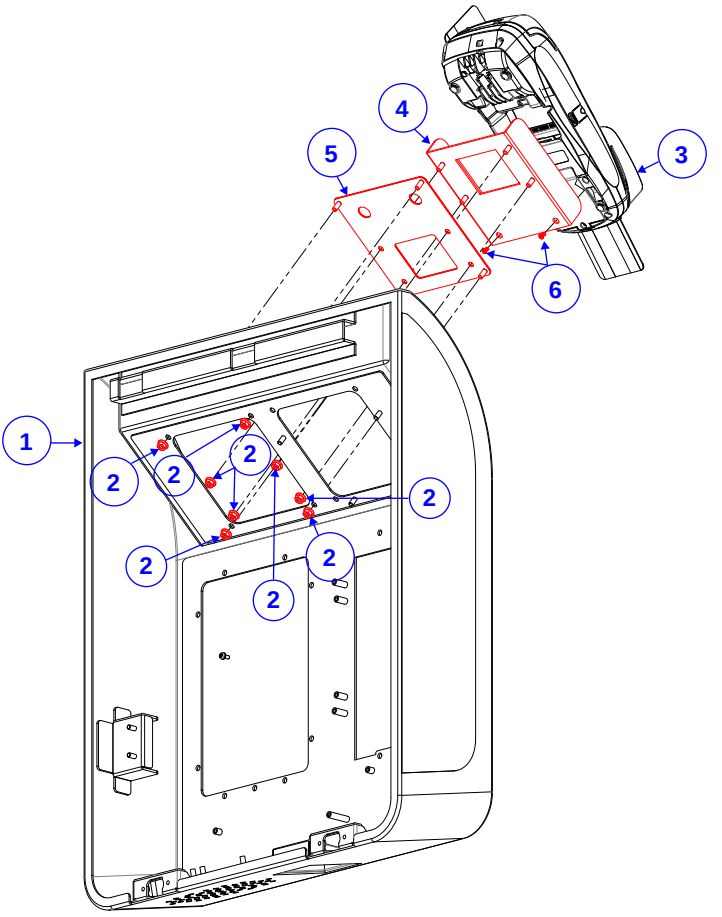
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Front Weld (w/Paint)(White)	80-201-02062450	1
2	KS-1132 Lower F Scan C-Max Bracket (w/Paint)(White)	80-206-02062450	1
3	KS-1130 Easy Card Acrylic (Dark)	90-002-10130410	1
4	KS-1132 Scanner Module	N/A	1
5	KS-1132 Easy Card-QP1000 Module	N/A	1
6	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	12
7	Flat Head Screw #3 / T6.5x16mm	22-112-65016011	2
8	Round Head With Spring Washer Screw M3x0.5Px10mm	22-232-30010211	1

KS-1132 Camera Module Assembly Exploded Diagram



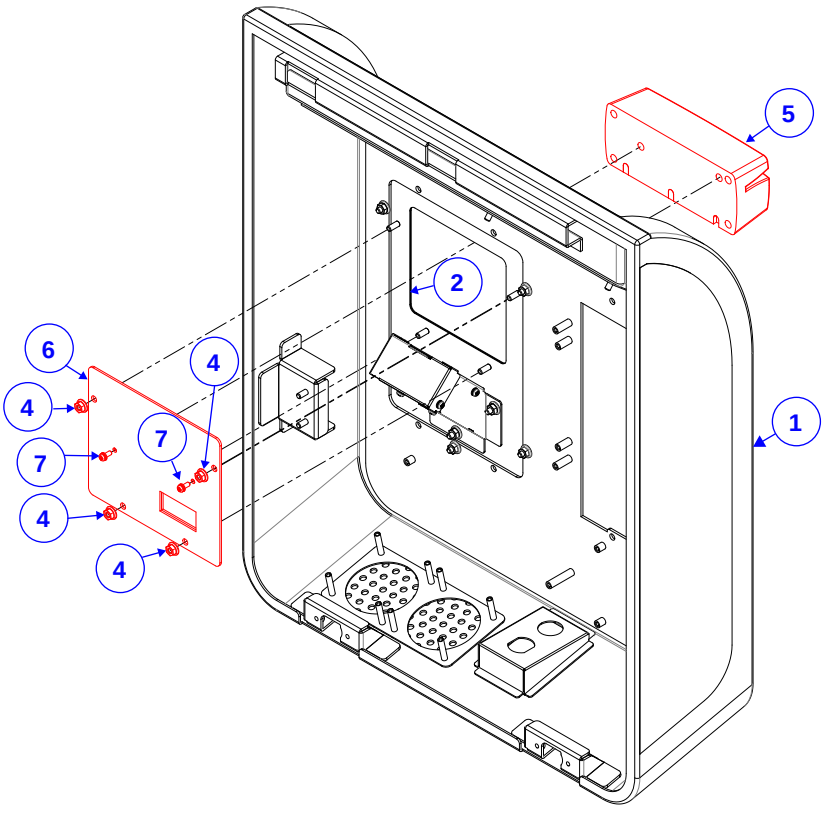
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Panel Frame Weld AY (w/Paint)(White)	80-207-02061450	1
2	Speaker 4W	N/A	2
3	Hex Nuts (M3x0.5P,H=2.5mm)	23-102-30250551	8
4	Spacer Support 3.2-3	N/A	8
5	KS-1132 Face Camera Lens	30-021-10130450	1
6	Face Camera	N/A	1
7	Pan Head Screw M2.0x0.4Px6mm	22-222-20060011	4
8	Fillister Head Screw #2/M4x0.7Px6mm	22-272-40006911	8

KS-1132 Card Reader Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Front Weld (w/Paint)(White)	80-201-02062450	1
2	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	8
3	S80	N/A	1
4	KS-1132 S80 Reader Bracket (w/Paint)(White)	80-206-02065450	1
5	KS-1132 S80 Reader Plate Cover (w/Paint)(White)	80-204-02065450	1
6	Flat Head Screw #3 / T6.5x16mm	22-112-65016011	2
7	Round Head With Spring Washer Screw M3x0.5Px10mm	22-232-30010211	1

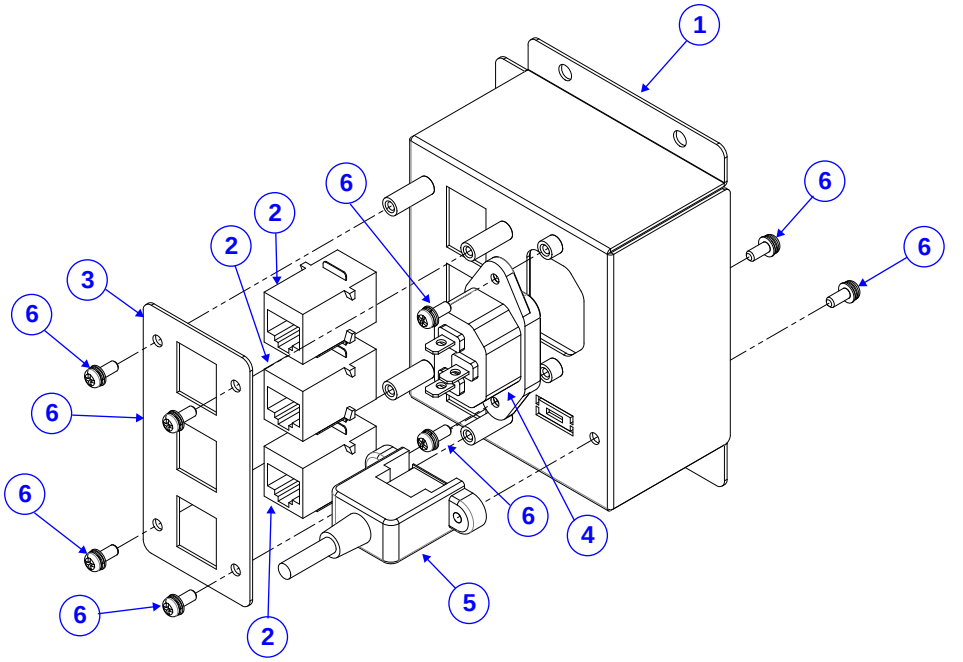
KS-1132 MSR Module Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Front Weld (w/Paint)(White)	80-201-02062450	1
2	KS-1132 Lower Scan C-Max Bracket (w/Paint)(White)	80-206-02062450	1
4	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	4
5	MSR Module	N/A	1
6	KS-1132 MSR Bracket (w/Paint)(White)	80-206-02063450	1
7	Round Head With Spring Washer Screw M3x0.5Px10mm	22-232-30010211	2

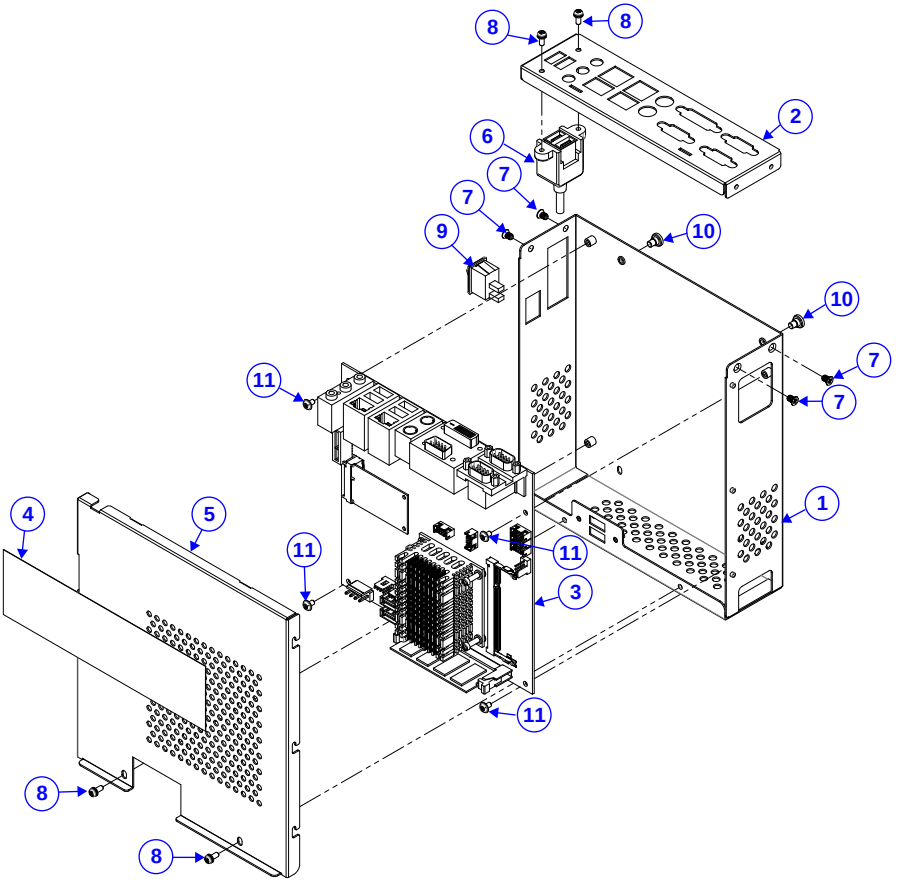
KS-1132 Main Body Parts Exploded Diagrams

KS-1132 AC I/O Assembly Exploded Diagram



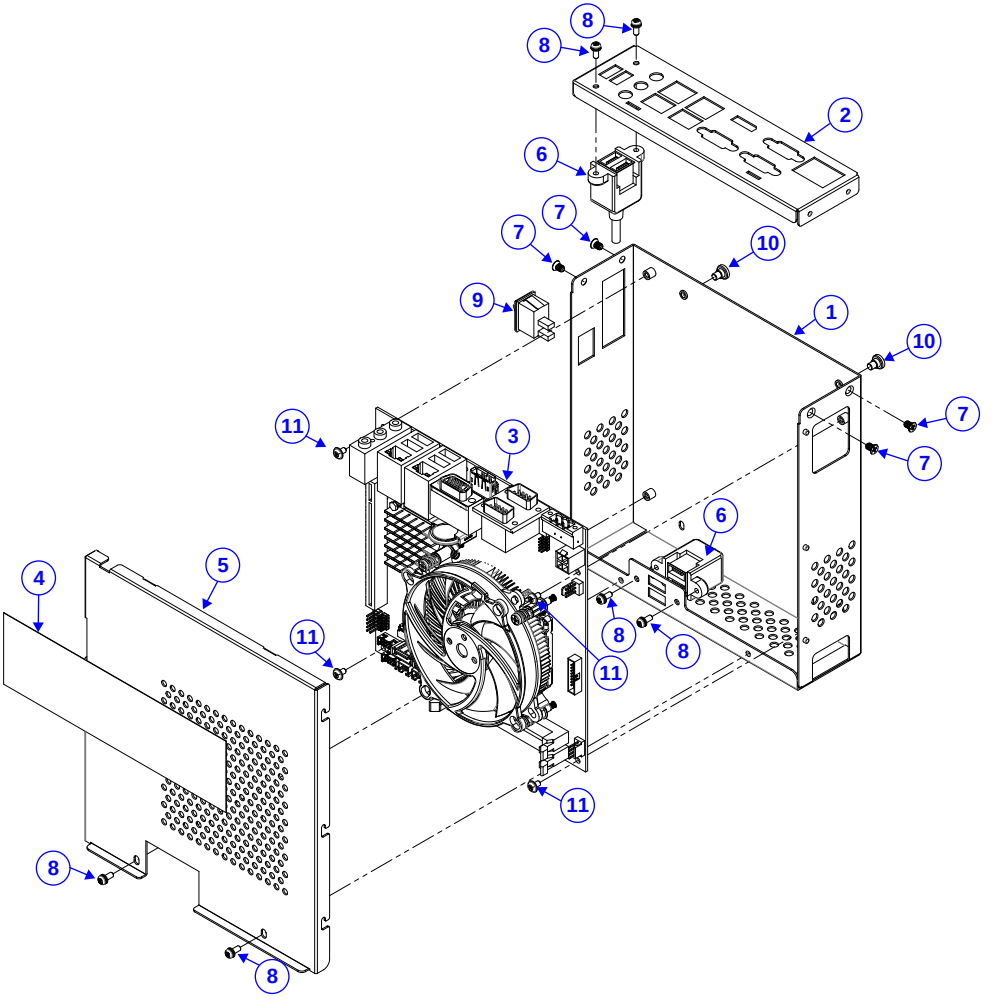
No.	Component Name	P/N No.	Q'ty
1	KS-1132 AC I/O Bracket (w/Paint)(Black)	80-206-02061450	1
2	8P8C Modular Coupler Jack Shielded	10-085-08012135	3
3	KS-1132 LAN FIX	80-230-02001450	1
4	AC In Cable	N/A	1
5	Cable USB Type A Female	N/A	1
6	Round Head with Spring Washer Screw M3x0.5Px8mm	22-232-30008211	8

KS-1132 BM-0962 Main Board Assembly Exploded Diagram (Entry Level System)



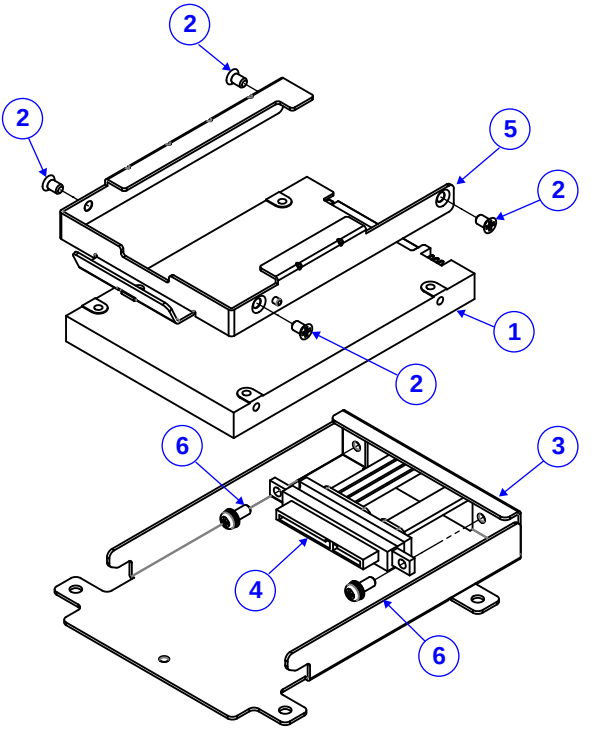
No.	Component Name	P/N No.	Q'ty
1	KS-1132 System Box Chassis	80-215-02001450	1
2	KS-1132 System IO For BM-0962	80-203-02001450	1
3	BM-0962 PCB	N/A	1
4	KS-1132 MB 0962 Box IO Panel Label	94-017-01601450	1
5	KS-1132 System Box Top	80-215-02002450	1
6	Cable USB Type A Female 2 layer	N/A	1
7	Flat Head Screw #2 / M3x0.5Px4mm	22-215-30004311	4
8	Round Head with Spring Washer Screw M3x0.5Px8mm	22-232-30008211	4
9	Power Switch Cable	N/A	1
10	Fillister Head Screw M4x0.7Px4mm	22-272-40004911	2
11	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	4

KS-1132 BM-2503 Main Board Assembly Exploded Diagram (High-End Level System)



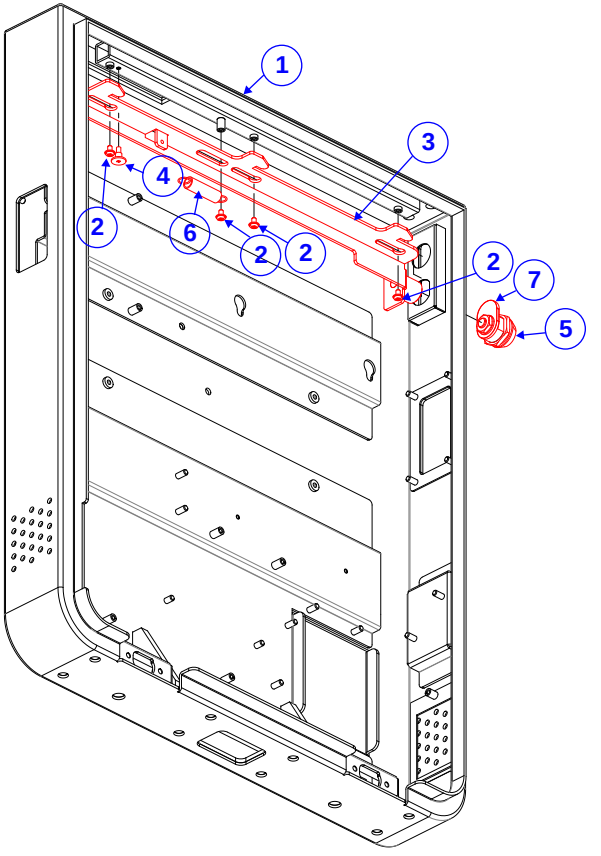
No.	Component Name	P/N No.	Q'ty
1	KS-1132 System Box Chassis	80-215-02001450	1
2	KS-1132 System IO For BM-2503	80-203-02002450	1
3	BM-2503 PCB	N/A	1
4	KS-1132 MB 2503 Box IO Panel Label	94-017-01602450	1
5	KS-1132 System Box Top	80-215-02002450	1
6	Cable USB Type A Female 2 layer	N/A	2
7	Flat Head Screw #2 / M3x0.5Px4mm	22-215-30004311	4
8	Round Head with Spring Washer Screw M3x0.5Px8mm	22-232-30008211	6
9	Power Switch Cable	N/A	1
10	Fillister Head Screw M4x0.7Px4mm	22-272-40004911	2
11	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	4

KS-1132 HDD Module Assembly Exploded Diagram



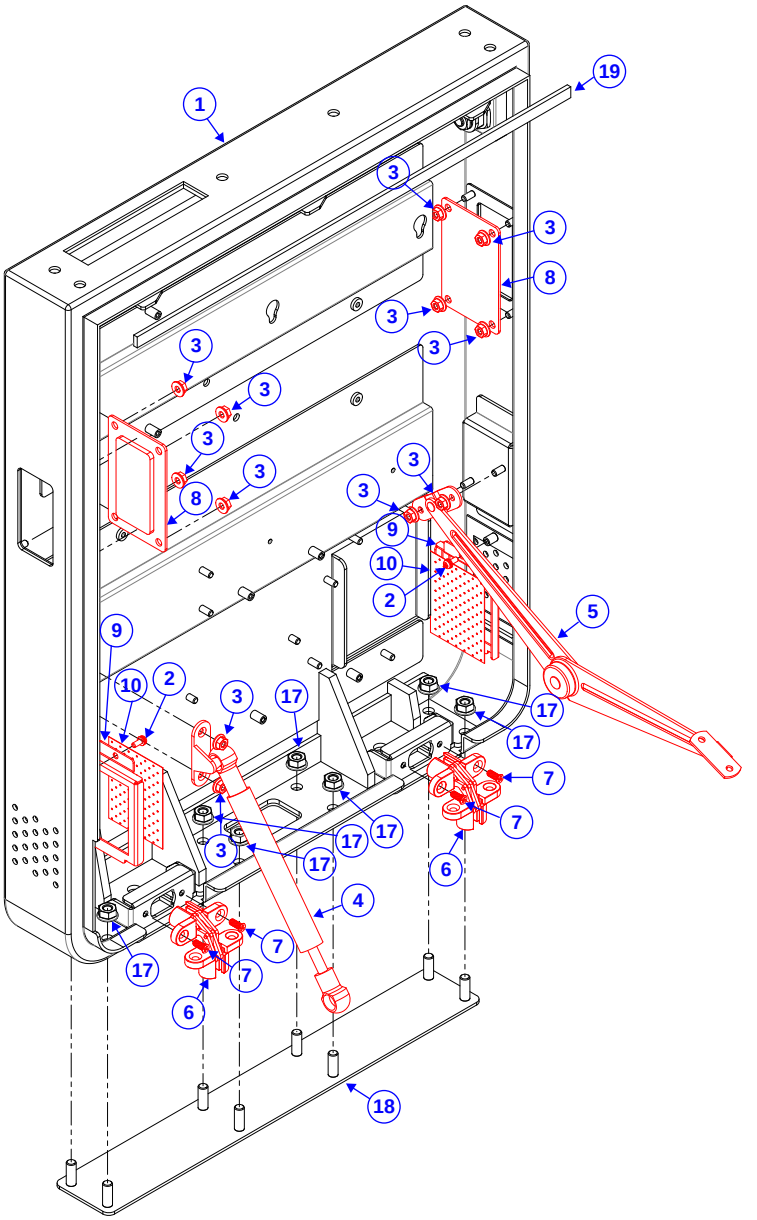
No.	Component Name	P/N No.	Q'ty
1	2-Inch HDD	N/A	1
2	Flat Head Screw #2/M3x0.5Px5mm	22-215-30005011	4
3	KS-1132 HDD Holder	80-229-02003450	1
4	HDD SATA Cable	N/A	1
5	PA-6222 HDD Track	20-039-03001335	1
6	Round Head With Spring Washer Screw(M3x0.5Px8mm	22-232-30008211	2

KS-1132 Door Latch Assembly Exploded Diagram



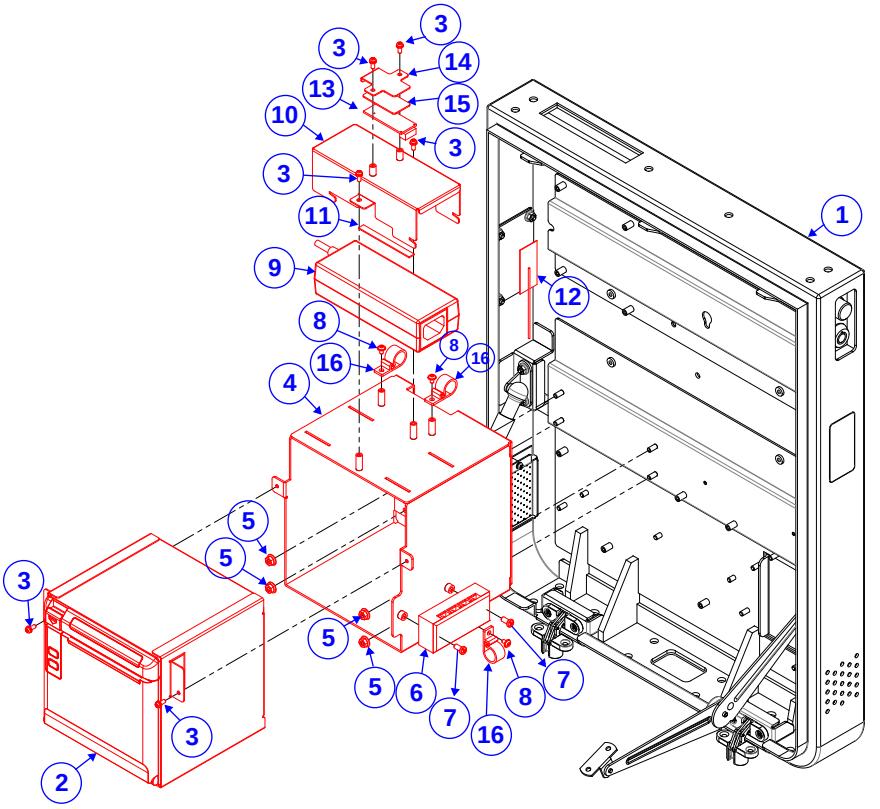
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Back Weld (w/Paint)(Black)	80-201-02061450	1
2	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	4
3	KS-1132 Lower Door Latch	80-227-07001450	1
4	Fillister Head Screw M3x0.5Px4.8mm	82-272-30005013	1
5	C510 CAM Lock	20-025-35001000	1
6	KF-7330 Door Hock Extension Spring (ϕ 8.6)	23-002-00000092	1
7	KS-1132 C510ZSS-1 Lock Plate	80-025-02001450	1
8	SP-7755 Canoe Clip (Φ3.5mm)	90-042-04100426	4

KS-1132 Main Body Parts Assembly Exploded Diagram



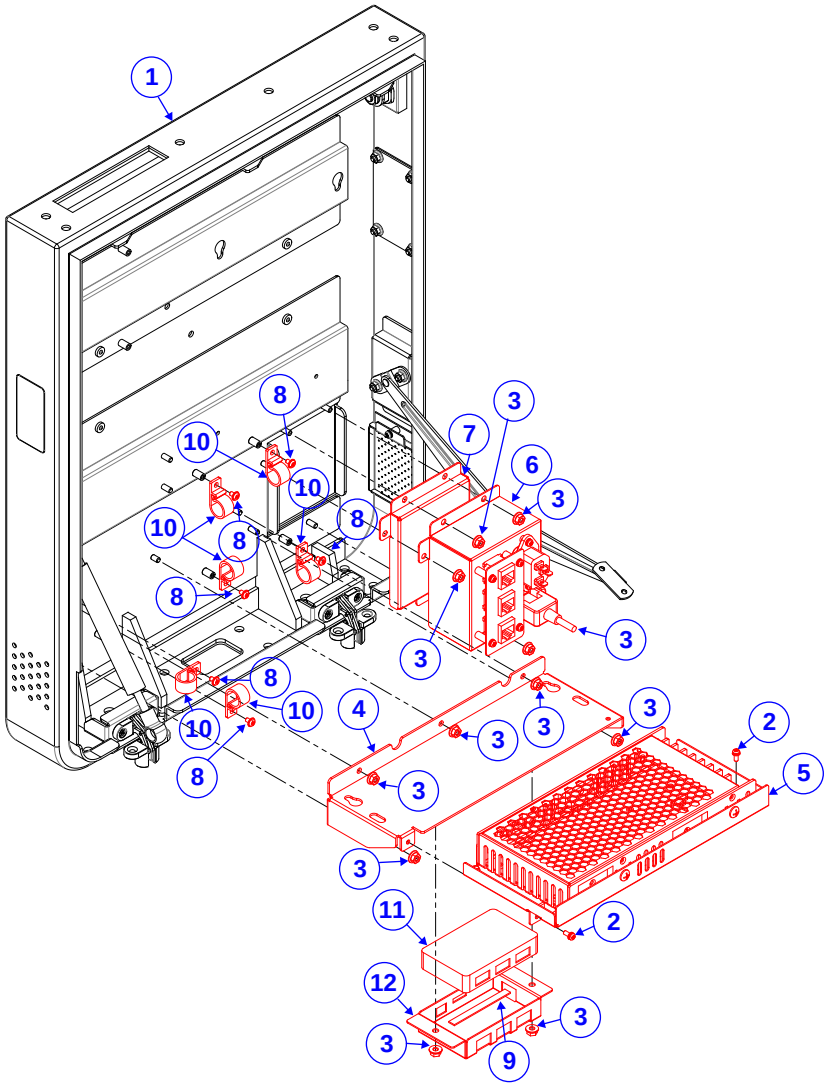
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Back Weld (w/Paint)(Black)	80-201-02061450	1
2	Round Head With Spring Washer Screw M3x0.5Px8mm	22-232-30008211	2
3	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	12
4	TF07 STABILUS	80-006-29001000	1
5	Door Stay KS-90-1R	N/A	1
6	PA-1922 180D Concealed Hinge	20-012-35001383	2
7	Flat Head Screw ϕ5.8 / #2 / M4x0.7Px10mm(Black)	22-215-40010011	4
8	KS-1132 WiFi Ant Acrylic	N/A	2
9	KS-1132 Filter Bracket	80-206-02002450	2
10	KS-1132 Filter PC 60x46	N/A	2
16	SP-7755 CANOE CLIP(Φ3.5mm)	90-042-04100426	4
17	Slip Nuts (M6x1.0P,H=6mm)	23-142-60601271	8
18	KS-1132 Lower Bottom Cover	N/A	1
19	KS-1132 Lower Door Poron	N/A	1

KS-1132 Printer Assembly Exploded Diagram



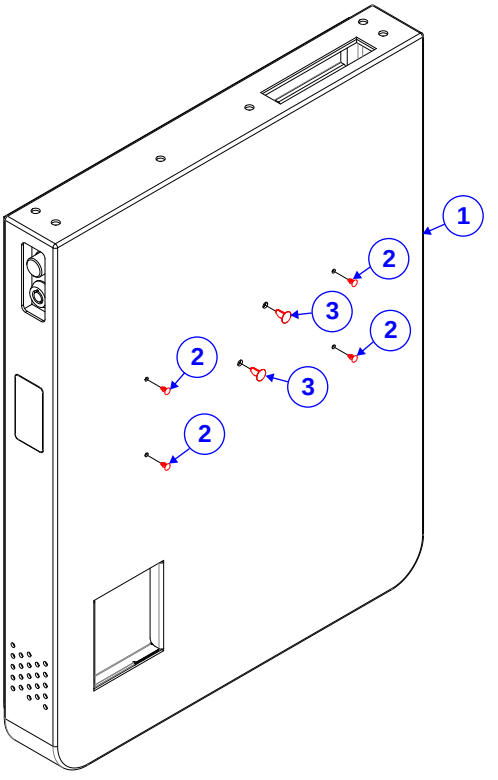
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Back Weld (w/Paint)(Black)	80-201-02061450	1
2	KS-1132 TP808 Printer Module	N/A	1
3	Round Head With Spring Washer Screw M3x0.5Px8mm	22-232-30008211	6
4	KS-1132 Printer Holder	80-229-02005450	1
5	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	4
6	Terminal Blocks 600V,25A,4Poles	10-625-00410048	1
7	Pan Head Screw #2/M4x0.7Px8mm	22-222-40008011	2
8	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	3
9	TP808-Printer Adapter	N/A	1
10	KS-1132 TP808 Adapter Holder	80-229-02008450	1
11	KF-7270 Extension Set EVA (60x6x1mm)	30-013-15100439	1
12	ANT EDB 42037B-132A	N/A	1
13	WiFi Card	N/A	1
14	KS-1132 WiFi Card Bracket	80-206-02005450	1
15	KS-1132 WiFi Card Double Tape	N/A	1
16	PA-6225 Wire Mount	30-042-04100314	3

KS-1132 Power and AC I/O Assembly Exploded Diagram



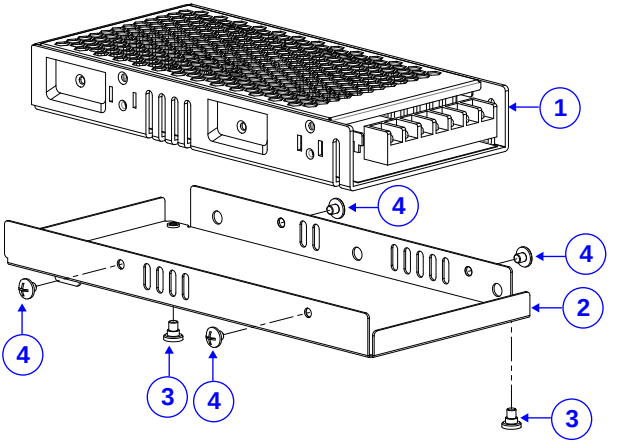
No.	Component Name	P/N No.	Q'ty	Remark
1	KS-1132 Lower Back Weld (w/Paint)(Black)	80-201-02061450	1	
2	Round Head With Spring Washer Screw M3x0.5Px8mm	22-232-30008211	2	
3	Slip Nuts (M4x0.7P,H=4.5mm)	23-142-40450801	11	
4	KS-1132 Power Support	80-202-02001450	1	
5	KS-1132 Power Supply RSP-150	N/A	1	
6	KS-1132 AC I/O	N/A	1	Option
7	KS-1132 AC IO Cover (w/Paint)(Black)	80-204-02061450	1	Option
8	Round Washer Head Screw M3x0.5Px5mm	22-242-30005311	6	
9	KF-7270 Extension Set EVA (60x6x1mm)	30-013-15100439	1	
10	PA-6225 Wire Mount	30-042-04100314	6	
11	Transcend USB Hub	N/A	1	For BM-0962
12	KS-1132 Transcend Hub Holder	N/A	1	For BM-0962

KS-1132 Canoe Clip Assembly Exploded Diagram



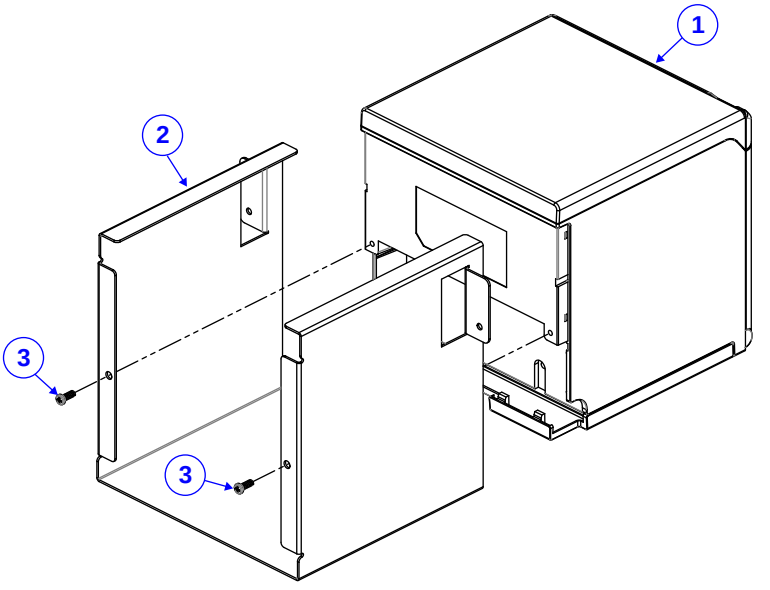
No.	Component Name	P/N No.	Q'ty
1	KS-1132 Lower Back Weld (w/Paint)(Black)	80-201-02061450	1
2	SP-7755 Canoe Clip (Φ3.5mm)	90-042-04100426	4
3	SNAP RIVET	90-016-04300000	2

KS-1132 Power Supply RSP-150 Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	Power Supply RSP-150	N/A	1
2	KS-1132 RSP-150 Bracket	80-206-02004450	1
3	Fillister Head Screw M4x0.7Px4mm	22-272-40004911	2
4	Truss Head Screw #2/M4x0.7Px4mm	22-232-40004011	4

KS-1132 TP808 Printer Module Assembly Exploded Diagram



No.	Component Name	P/N No.	Q'ty
1	TP808_Printer	N/A	1
2	KS-1132 Printer TP808 Bracket	80-206-02003450	1
3	Pan Head Screw T3.0x8mm(Black)	22-122-30080011	2

Appendix B Technical Summary

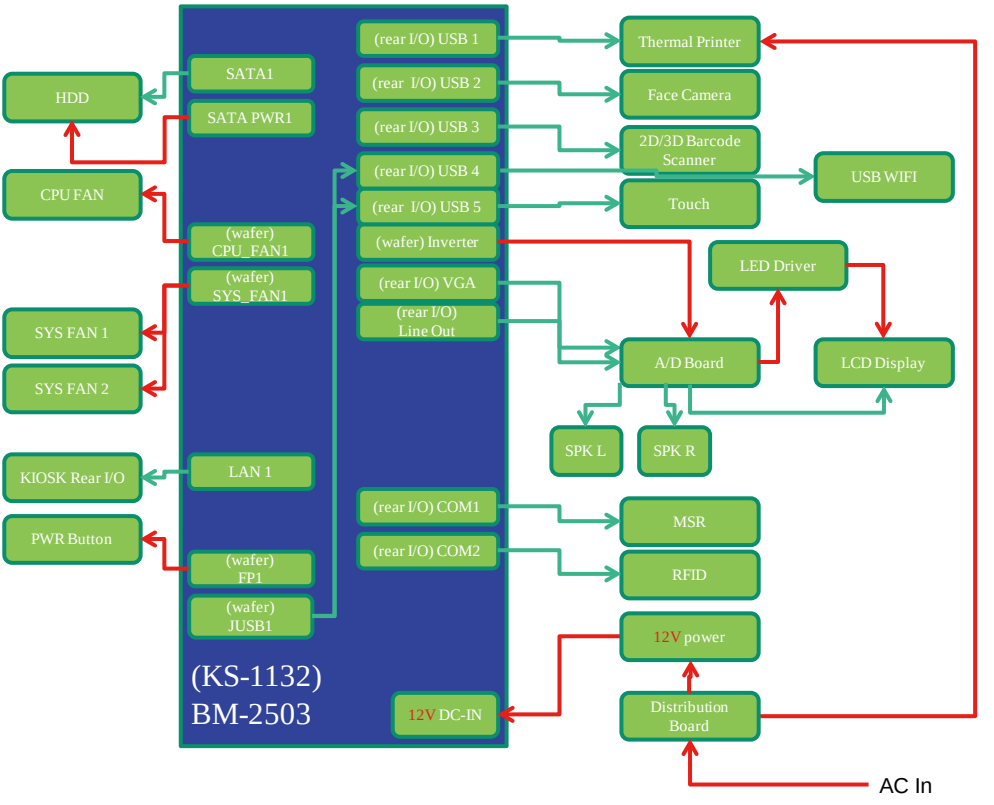
This appendix will give you a brief introduction of the allocation maps for KS-1132 resources.

The following topics are included:

- KS-1132 High-End Level and Entry Level System Block Diagrams
- Interrupt Map
- I/O Map
- Memory Map
- Configuring WatchDog Timer
- Flash BIOS Update

Technical Summary for High-End Level System

KS-1132 System Block Diagram



Interrupt Map

IRQ	ASSIGNMENT
IRQ 0	System timer
IRQ 3	Communications Port (COM2)
IRQ 4	Communications Port (COM1)
IRQ 8	System CMOS/real time clock
IRQ 11	Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
IRQ 11	Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
IRQ 13	Numeric data processor
IRQ 14	Motherboard resources
IRQ 16	High Definition Audio Controller
IRQ 19	Intel(R) Active Management Technology - SOL (COM3)
IRQ 54	Microsoft ACPI-Compliant System
IRQ 55	Microsoft ACPI-Compliant System
IRQ 56	Microsoft ACPI-Compliant System
IRQ 57	Microsoft ACPI-Compliant System
IRQ 58	Microsoft ACPI-Compliant System
IRQ 59	Microsoft ACPI-Compliant System
IRQ 60	Microsoft ACPI-Compliant System
IRQ 61	Microsoft ACPI-Compliant System
IRQ 62	Microsoft ACPI-Compliant System
IRQ 63	Microsoft ACPI-Compliant System
IRQ 64	Microsoft ACPI-Compliant System
IRQ 65	Microsoft ACPI-Compliant System
IRQ 66	Microsoft ACPI-Compliant System
IRQ 67	Microsoft ACPI-Compliant System
IRQ 68	Microsoft ACPI-Compliant System
IRQ 69	Microsoft ACPI-Compliant System
IRQ 70	Microsoft ACPI-Compliant System
IRQ 71	Microsoft ACPI-Compliant System
IRQ 72	Microsoft ACPI-Compliant System
IRQ 73	Microsoft ACPI-Compliant System
IRQ 74	Microsoft ACPI-Compliant System
IRQ 75	Microsoft ACPI-Compliant System
IRQ 76	Microsoft ACPI-Compliant System
IRQ 77	Microsoft ACPI-Compliant System
IRQ 78	Microsoft ACPI-Compliant System
IRQ 79	Microsoft ACPI-Compliant System
IRQ 80	Microsoft ACPI-Compliant System
IRQ 81	Microsoft ACPI-Compliant System
IRQ 82	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
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 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
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ	ASSIGNMENT
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IRQ 511	Microsoft ACPI-Compliant System
IRQ 4294967283	Intel(R) Management Engine Interface
IRQ 4294967290	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
IRQ 4294967291	Intel(R) HD Graphics 630
IRQ 4294967289	Intel(R) I211 Gigabit Network Connection
IRQ 4294967288	Intel(R) I211 Gigabit Network Connection
IRQ 4294967287	Intel(R) I211 Gigabit Network Connection
IRQ 4294967286	Intel(R) I211 Gigabit Network Connection
IRQ 4294967285	Intel(R) I211 Gigabit Network Connection

IRQ	ASSIGNMENT
IRQ 4294967284	Intel(R) I211 Gigabit Network Connection
IRQ 4294967292	Intel(R) Ethernet Connection (2) I219-LM
IRQ 4294967293	Standard SATA AHCI Controller
IRQ 4294967294	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115

Note: These resource information were gathered using Windows 10 (the IRQ could be assigned differently depending on OS).

I/O MAP

I/O	ASSIGNMENT
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
0x00000070-0x00000070	Motherboard resources
0x00000070-0x00000070	System CMOS/real time clock
0x00000080-0x00000080	Motherboard resources
0x00000092-0x00000092	Motherboard resources
0x000000B2-0x000000B3	Motherboard resources
0x00000680-0x0000069F	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources
0x00001800-0x000018FE	Motherboard resources
0x0000164E-0x0000164F	Motherboard resources
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
0x0000F000-0x0000F03F	Intel(R) HD Graphics 630
0x000003B0-0x000003BB	Intel(R) HD Graphics 630
0x000003C0-0x000003DF	Intel(R) HD Graphics 630

I/O	ASSIGNMENT
0x00000800-0x0000087F	Motherboard resources
0x0000E000-0x0000EFFF	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115
0x000000F0-0x000000F0	Numeric data processor
0x0000F090-0x0000F097	Standard SATA AHCI Controller
0x0000F080-0x0000F083	Standard SATA AHCI Controller
0x0000F060-0x0000F07F	Standard SATA AHCI Controller
0x000003F8-0x000003FF	Communications Port (COM1)
0x000002F8-0x000002FF	Communications Port (COM2)
0x00000040-0x00000043	System timer
0x00000050-0x00000053	System timer
0x00001854-0x00001857	Motherboard resources
0x00000000-0x00000CF7	PCI Express Root Complex
0x00000D00-0x0000FFFF	PCI Express Root Complex
0x0000F0A0-0x0000F0A7	Intel(R) Active Management Technology - SOL (COM3)
0x0000FF00-0x0000FFFE	Motherboard resources
0x0000F040-0x0000F05F	Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123

Memory Map

MEMORY MAP	ASSIGNMENT
0xFED10000-0xFED17FFF	Motherboard resources
0xFED18000-0xFED18FFF	Motherboard resources
0xFED19000-0xFED19FFF	Motherboard resources
0xE0000000-0xEFFFFFFF	Motherboard resources
0xFED20000-0xFED3FFFF	Motherboard resources
0xFED90000-0xFED93FFF	Motherboard resources
0xFED45000-0xFED8FFFF	Motherboard resources
0xFF000000-0xFFFFFFFF	Motherboard resources
0xFF000000-0xFFFFFFFF	Legacy device
0xFEE00000-0xFEEFFFFF	Motherboard resources
0xDFFE0000-0xDFFFFFFF	Motherboard resources
0xFDAF0000-0xFDAFFFFF	Motherboard resources
0xFDAE0000-0xFDAEFFFF	Motherboard resources
0xFDAC0000-0xFDACFFFF	Motherboard resources
0xDE000000-0xDEFFFFFF	Intel(R) HD Graphics 630
0xC0000000-0xCFFFFFFF	Intel(R) HD Graphics 630
0xA0000-0xBFFFF	Intel(R) HD Graphics 630
0xA0000-0xBFFFF	PCI Express Root Complex
0xDF000000-0xDF01FFFF	Intel(R) I211 Gigabit Network Connection
0xDF000000-0xDF01FFFF	Intel(R) 100 Series/C230 Series Chipset Family PCI Express Root Port #6 - A115
0xDF020000-0xDF023FFF	Intel(R) I211 Gigabit Network Connection
0xDF100000-0xDF11FFFF	Intel(R) Ethernet Connection (2) I219-LM
0xFED00000-0xFED003FF	High precision event timer
0xDF148000-0xDF149FFF	Standard SATA AHCI Controller
0xDF14C000-0xDF14C0FF	Standard SATA AHCI Controller
0xDF14B000-0xDF14B7FF	Standard SATA AHCI Controller
0xFD000000-0xFDABFFFF	Motherboard resources
0xFD000000-0xFDABFFFF	PCI Express Root Complex
0xFDAD0000-0xFDADFFFF	Motherboard resources
0xFDB00000-0xFDFFFFFF	Motherboard resources
0xFE000000-0xFE01FFFF	Motherboard resources
0xFE036000-0xFE03BFFF	Motherboard resources
0xFE03D000-0xFE3FFFFF	Motherboard resources
0xFE410000-0xFE7FFFFF	Motherboard resources
0xDF144000-0xDF147FFF	Intel(R) 100 Series/C230 Series Chipset Family PMC - A121
0x90000000-0xDFFFFFFF	PCI Express Root Complex
0xDF14D000-0xDF14DFFF	Intel(R) Active Management Technology - SOL (COM3)
0xFED40000-0xFED44FFF	Trusted Platform Module 2.0

MEMORY MAP	ASSIGNMENT
0xFE40F000-0xFE40FFFF	Intel(R) Management Engine Interface
0xDF130000-0xDF13FFFF	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
0xDF14A000-0xDF14A0FF	Intel(R) 100 Series/C230 Series Chipset Family SMBus - A123
0xDF14F000-0xDF14FFFF	Intel(R) 100 Series/C230 Series Chipset Family Thermal subsystem - A131
0xDF140000-0xDF143FFF	High Definition Audio Controller
0xDF120000-0xDF12FFFF	High Definition Audio Controller

Configuring WatchDog Timer

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

Configuration Sequence

To program 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.

Code example for watch dog timer

Enable watchdog timer and set timeout interval to 30 seconds.

```
; ------------------------ Enter to extended function mode -----------------------------
mov     dx,     2eh
mov     al,     87h
out     dx,     al
out     dx,     al
; ---------------------- Select Logical Device 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 timeout interval to 30 ---------------------------------------
dec     dx
mov     al,     0F6h
out     dx,     al
inc     dx
mov     al,     1Eh
out     dx,     al
;-------------------Set second as counting unit and start counting ---------------------
dec     dx
mov     al,     0F5h
out     dx,     al
inc     dx
in      al,     dx
and     al,     30h
out     dx,     al
;--------------------------------Exit the extended function mode ------------------------
dec     dx
mov     al,     0AAh
out     dx,     al
```

Flash BIOS Update

I. Prerequisites

1 Prepare a USB storage device which can save the required files for BIOS update.

2 Download and save the BIOS file (e.g. 25030PQ1.bin) to the storage device.

3 Copy AMI flash utility – AFUEFIx64.exe (v5.09.01) into the storage device.

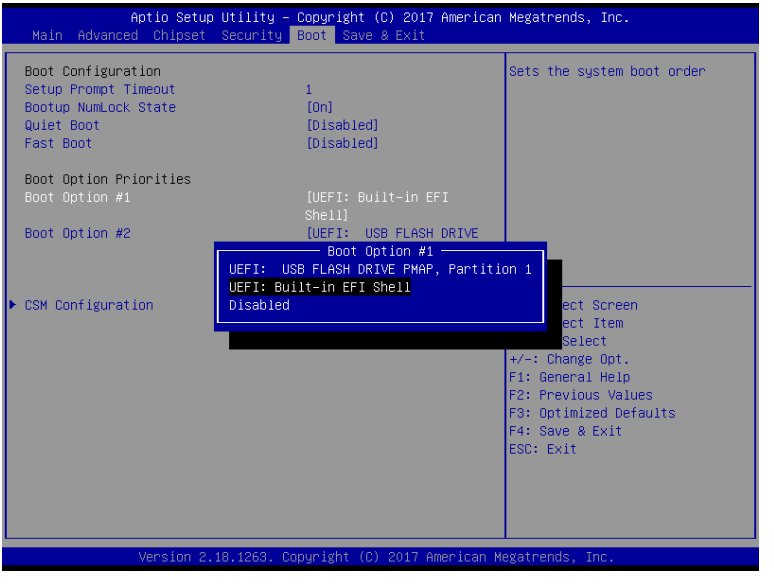
4 Make sure the target system can first boot to the EFI shell environment.

(1) Connect the USB storage device.

(2) Turn on the computer and press **<ESC>** or **<DEL>** during boot to enter BIOS Setup.

(3) Select **[Boot]** menu and set **[UEFI: Built-in EFI Shell]** to be the 1st boot device.

(4) Press **<F4>** key to save the configuration and restart the system to boot into EFI Shell environment.



II. AFUEFIx64 Command for System BIOS Update

AFUEFIx64.efi is the AMI firmware update utility; the command line is shown as below:

AFUEFIx64 <ROM File Name> [option1] [option2]….

Users can type "AFUEFIx64 /?" to view the definition of each control option. The recommended options for BIOS ROM update include the 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 Boot into EFI Shell, change to the path where you put BIOS image and AFUEFIx64.

```
Shell> fs0:
fs0:\> cd afuefix64
```

2 Type "**AFUEFIx64 2503xxxx.bin /p /b /n /x"** and press enter to start the flash procedure. (xxxx means the BIOS revision part, e.g. 0PQ1…)

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

4 After the BIOS update procedure is completed, the following messages will display:

```
fs0:\afuefix64> afuefix64 25030PQ1.bin /p /b /n /x
 +-------------------------------------------------------------------------+
 |                   AMI Firmware Update Utility  v5.09.01.1317             |
 |   Copyright (C) 2016 American Megatrands Inc. All Rights Reserved.      |
 +-------------------------------------------------------------------------+
 Reading flash ..... done
 - ME Data Size Checking . ok
 - FFS checksums ..... ok
 - Check RomLayout ..... Ok.
 Erasing Boot Block ..... done
 Updating Boot Block ..... done
 Verifying Boot Block ..... done
 Erasing Main Block ..... done
 Updating Main Block ..... done
 Verifying Main Block ..... done
 Erasing NVRAM Block ..... done
 Updating NVRAM Block ..... done
 Verifying NVRAM Block ..... done

 fs0:\afuefix64> _
```

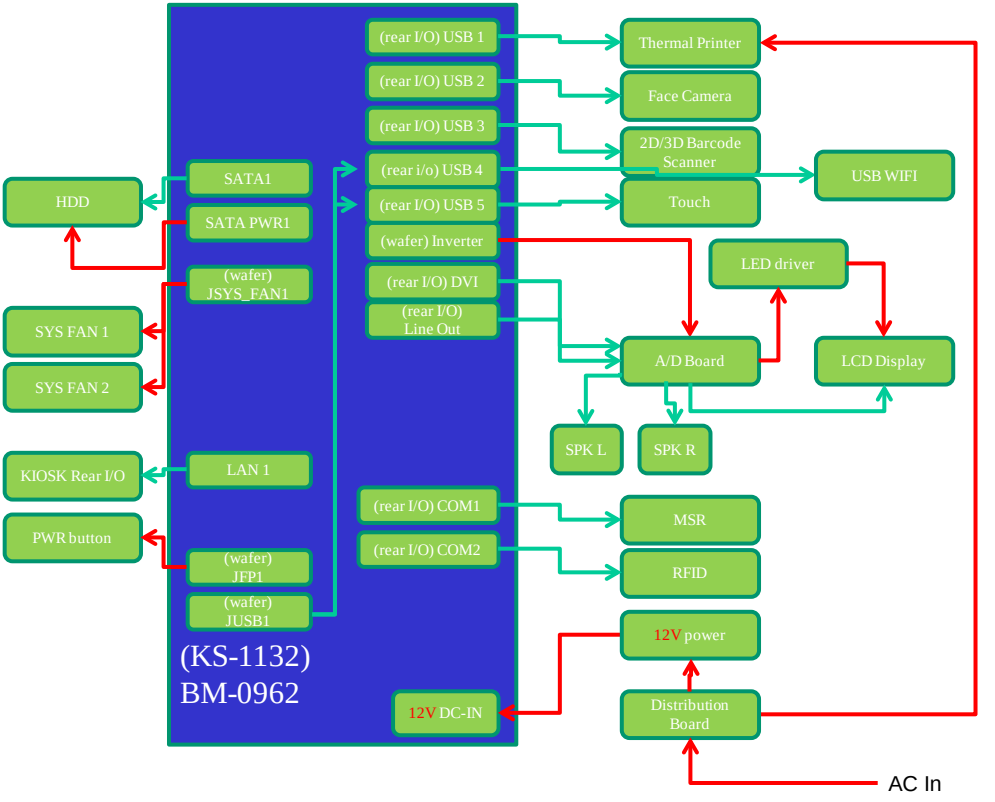
5 Restart the system and boot up with the new BIOS configurations.

6 The BIOS Update is completed after the system is restarted.

7 Reboot the system and verify if the BIOS version shown on the initialization screen has been updated.

Technical Summary for Entry Level System

KS-1132 System Block Diagram



Interrupt Map

IRQ	ASSIGNMENT
0	System timer
3	Communications Port (COM2)
4	Communications Port (COM1)
5	Intel® ATOM®/Celeron®/Pentium® Processor Platform Control Unit - SMBus Port - 0F12
7	Communications Port (COM3)
8	High precision event timer
10	Communications Port (COM4)
16	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 1 - 0F48
17	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 2 - 0F4A
18	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 3 - 0F4C
19	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
19	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 4 - 0F4E
22	High Definition Audio Controller
23	Intel® ATOM®/Celeron®/Pentium® Processor EHCI USB - 0F34
42	Intel Device
43	Intel Device
81	Microsoft ACPI-Compliant System
82	Microsoft ACPI-Compliant System
83	Microsoft ACPI-Compliant System
84	Microsoft ACPI-Compliant System
85	Microsoft ACPI-Compliant System
86	Microsoft ACPI-Compliant System
87	Microsoft ACPI-Compliant System
88	Microsoft ACPI-Compliant System
89	Microsoft ACPI-Compliant System
90	Microsoft ACPI-Compliant System
91	Microsoft ACPI-Compliant System
92	Microsoft ACPI-Compliant System
93	Microsoft ACPI-Compliant System
94	Microsoft ACPI-Compliant System
95	Microsoft ACPI-Compliant System
96	Microsoft ACPI-Compliant System
97	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
98	Microsoft ACPI-Compliant System
99	Microsoft ACPI-Compliant System
100	Microsoft ACPI-Compliant System
101	Microsoft ACPI-Compliant System
102	Microsoft ACPI-Compliant System
103	Microsoft ACPI-Compliant System
104	Microsoft ACPI-Compliant System
105	Microsoft ACPI-Compliant System
106	Microsoft ACPI-Compliant System
107	Microsoft ACPI-Compliant System
108	Microsoft ACPI-Compliant System
109	Microsoft ACPI-Compliant System
110	Microsoft ACPI-Compliant System
111	Microsoft ACPI-Compliant System
112	Microsoft ACPI-Compliant System
113	Microsoft ACPI-Compliant System
114	Microsoft ACPI-Compliant System
115	Microsoft ACPI-Compliant System
116	Microsoft ACPI-Compliant System
117	Microsoft ACPI-Compliant System
118	Microsoft ACPI-Compliant System
119	Microsoft ACPI-Compliant System
120	Microsoft ACPI-Compliant System
121	Microsoft ACPI-Compliant System
122	Microsoft ACPI-Compliant System
123	Microsoft ACPI-Compliant System
124	Microsoft ACPI-Compliant System
125	Microsoft ACPI-Compliant System
126	Microsoft ACPI-Compliant System
127	Microsoft ACPI-Compliant System
128	Microsoft ACPI-Compliant System
129	Microsoft ACPI-Compliant System
130	Microsoft ACPI-Compliant System
131	Microsoft ACPI-Compliant System
132	Microsoft ACPI-Compliant System
133	Microsoft ACPI-Compliant System
134	Microsoft ACPI-Compliant System
135	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
136	Microsoft ACPI-Compliant System
137	Microsoft ACPI-Compliant System
138	Microsoft ACPI-Compliant System
139	Microsoft ACPI-Compliant System
140	Microsoft ACPI-Compliant System
141	Microsoft ACPI-Compliant System
142	Microsoft ACPI-Compliant System
143	Microsoft ACPI-Compliant System
144	Microsoft ACPI-Compliant System
145	Microsoft ACPI-Compliant System
146	Microsoft ACPI-Compliant System
147	Microsoft ACPI-Compliant System
148	Microsoft ACPI-Compliant System
149	Microsoft ACPI-Compliant System
150	Microsoft ACPI-Compliant System
151	Microsoft ACPI-Compliant System
152	Microsoft ACPI-Compliant System
153	Microsoft ACPI-Compliant System
154	Microsoft ACPI-Compliant System
155	Microsoft ACPI-Compliant System
156	Microsoft ACPI-Compliant System
157	Microsoft ACPI-Compliant System
158	Microsoft ACPI-Compliant System
159	Microsoft ACPI-Compliant System
160	Microsoft ACPI-Compliant System
161	Microsoft ACPI-Compliant System
162	Microsoft ACPI-Compliant System
163	Microsoft ACPI-Compliant System
164	Microsoft ACPI-Compliant System
165	Microsoft ACPI-Compliant System
166	Microsoft ACPI-Compliant System
167	Microsoft ACPI-Compliant System
168	Microsoft ACPI-Compliant System
169	Microsoft ACPI-Compliant System
170	Microsoft ACPI-Compliant System
171	Microsoft ACPI-Compliant System
172	Microsoft ACPI-Compliant System
173	Microsoft ACPI-Compliant System

IRQ	ASSIGNMENT
174	Microsoft ACPI-Compliant System
175	Microsoft ACPI-Compliant System
176	Microsoft ACPI-Compliant System
177	Microsoft ACPI-Compliant System
178	Microsoft ACPI-Compliant System
179	Microsoft ACPI-Compliant System
180	Microsoft ACPI-Compliant System
181	Microsoft ACPI-Compliant System
182	Microsoft ACPI-Compliant System
183	Microsoft ACPI-Compliant System
184	Microsoft ACPI-Compliant System
185	Microsoft ACPI-Compliant System
186	Microsoft ACPI-Compliant System
187	Microsoft ACPI-Compliant System
188	Microsoft ACPI-Compliant System
189	Microsoft ACPI-Compliant System
190	Microsoft ACPI-Compliant System
4294967281	Intel® I211 Gigabit Network Connection
4294967282	Intel® I211 Gigabit Network Connection
4294967283	Intel® I211 Gigabit Network Connection
4294967284	Intel® I211 Gigabit Network Connection
4294967285	Intel® I211 Gigabit Network Connection
4294967286	Intel® I211 Gigabit Network Connection
4294967287	Intel® I210 Gigabit Network Connection
4294967288	Intel® I210 Gigabit Network Connection
4294967289	Intel® I210 Gigabit Network Connection
4294967290	Intel® I210 Gigabit Network Connection
4294967291	Intel® I210 Gigabit Network Connection
4294967292	Intel® I210 Gigabit Network Connection
4294967293	Intel® Trusted Execution Engine Interface
4294967294	Intel® ATOM® Processor E3800 Series/Intel® Celeron® Processor N2920/J1900

I/O Map

- **I/O map of Intel® 4th Gen. Celeron® E3000 series:**

I/O MAP	ASSIGNMENT
0x00000000-0x0000006F	PCI bus
0x00000020-0x00000021	Programmable interrupt controller
0x00000024-0x00000025	Programmable interrupt controller
0x00000028-0x00000029	Programmable interrupt controller
0x0000002C-0x0000002D	Programmable interrupt controller
0x0000002E-0x0000002F	Motherboard resources
0x00000030-0x00000031	Programmable interrupt controller
0x00000034-0x00000035	Programmable interrupt controller
0x00000038-0x00000039	Programmable interrupt controller
0x0000003C-0x0000003D	Programmable interrupt controller
0x00000040-0x00000043	System timer
0x0000004E-0x0000004F	Motherboard resources
0x00000050-0x00000053	System timer
0x00000061-0x00000061	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000065-0x00000065	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000070-0x00000077	System CMOS/real time clock
0x00000070-0x00000077	Motherboard resources
0x00000078-0x00000CF7	PCI bus
0x00000080-0x0000008F	Motherboard resources
0x00000092-0x00000092	Motherboard resources
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
0x000000B2-0x000000B3	Motherboard resources
0x000000B4-0x000000B5	Programmable interrupt controller
0x000000B8-0x000000B9	Programmable interrupt controller
0x000000BC-0x000000BD	Programmable interrupt controller
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F8-0x000002FF	Communications Port (COM2)

I/O MAP	ASSIGNMENT
0x000003B0-0x000003BB	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0x000003C0-0x000003DF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x0000047F	Motherboard resources
0x000004D0-0x000004D1	Programmable interrupt controller
0x00000500-0x000005FE	Motherboard resources
0x00000600-0x0000061F	Motherboard resources
0x00000680-0x0000069F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A10-0x00000A1F	Motherboard resources
0x00000A20-0x00000A2F	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x0000C000-0x0000CFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 4 - 0F4E
0x0000D000-0x0000DFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 3 - 0F4C
0x0000E000-0x0000E01F	Intel® ATOM®/Celeron®/Pentium® Processor Platform Control Unit - SMBus Port - 0F12
0x0000E020-0x0000E03F	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000E040-0x0000E043	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000E050-0x0000E057	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000E060-0x0000E063	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000E070-0x0000E077	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000E080-0x0000E087	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900

- **I/O map of Intel® 4th Gen. ATOM® N2000 series:**

I/O MAP	ASSIGNMENT
0x00000000-0x0000006F	PCI bus
0x00000020-0x00000021	Programmable interrupt controller
0x00000024-0x00000025	Programmable interrupt controller
0x00000028-0x00000029	Programmable interrupt controller
0x0000002C-0x0000002D	Programmable interrupt controller
0x0000002E-0x0000002F	Motherboard resources
0x00000030-0x00000031	Programmable interrupt controller
0x00000034-0x00000035	Programmable interrupt controller
0x00000038-0x00000039	Programmable interrupt controller
0x0000003C-0x0000003D	Programmable interrupt controller
0x00000040-0x00000043	System timer
0x0000004E-0x0000004F	Motherboard resources
0x00000050-0x00000053	System timer
0x00000061-0x00000061	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000065-0x00000065	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000070-0x00000077	System CMOS/real time clock
0x00000070-0x00000077	Motherboard resources
0x00000078-0x00000CF7	PCI bus
0x00000080-0x0000008F	Motherboard resources
0x00000092-0x00000092	Motherboard resources
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
0x000000B2-0x000000B3	Motherboard resources
0x000000B4-0x000000B5	Programmable interrupt controller
0x000000B8-0x000000B9	Programmable interrupt controller
0x000000BC-0x000000BD	Programmable interrupt controller
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F8-0x000002FF	Communications Port (COM2)

I/O MAP	ASSIGNMENT
0x000003B0-0x000003BB	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0x000003C0-0x000003DF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F8-0x000003FF	Communications Port (COM1)
0x00000400-0x0000047F	Motherboard resources
0x000004D0-0x000004D1	Programmable interrupt controller
0x00000500-0x000005FE	Motherboard resources
0x00000600-0x0000061F	Motherboard resources
0x00000680-0x0000069F	Motherboard resources
0x00000A00-0x00000A0F	Motherboard resources
0x00000A10-0x00000A1F	Motherboard resources
0x00000A20-0x00000A2F	Motherboard resources
0x00000D00-0x0000FFFF	PCI bus
0x0000D000-0x0000DFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 4 - 0F4E
0x0000E000-0x0000EFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 3 - 0F4C
0x0000F000-0x0000F01F	Intel® ATOM®/Celeron®/Pentium® Processor Platform Control Unit - SMBus Port - 0F12
0x0000F020-0x0000F03F	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000F040-0x0000F043	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000F050-0x0000F057	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000F060-0x0000F063	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000F070-0x0000F077	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0x0000F080-0x0000F087	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900

Memory Map

- **Memory map of Intel® 4th Gen. Celeron® E3000 series:**

MEMORY MAP	ASSIGNMENT
0xFF000000-0xFFFFFFFF	Intel® 82802 Firmware Hub Device
0x90810000-0x908107FF	Intel® ATOM®//Celeron®/Pentium® Processor AHCI - 0F23
0x90700000-0x9077FFFF	Intel® I210 Gigabit Network Connection
0x90700000-0x9077FFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 3 - 0F4C
0x90780000-0x90783FFF	Intel® I210 Gigabit Network Connection
0x9081C000-0x9081FFFF	Intel Device
0x90000000-0x903FFFFF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0x80000000-0x8FFFFFFF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0x80000000-0x8FFFFFFF	PCI bus
0x90814000-0x90817FFF	Intel Device
0x90600000-0x9061FFFF	Intel® I211 Gigabit Network Connection
0x90600000-0x9061FFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 4 - 0F4E
0x90620000-0x90623FFF	Intel® I211 Gigabit Network Connection
0x9080E000-0x9080E3FF	Intel® ATOM®/Celeron®/Pentium® Processor EHCI USB - 0F34
0xFED00000-0xFED003FF	High precision event timer
0x90804000-0x90807FFF	High Definition Audio Controller
0xE0000000-0xEFFFFFFF	Motherboard resources
0xFED01000-0xFED01FFF	Motherboard resources
0xFED03000-0xFED03FFF	Motherboard resources
0xFED04000-0xFED04FFF	Motherboard resources
0xFED08000-0xFED08FFF	Motherboard resources
0xFED1C000-0xFED1CFFF	Motherboard resources
0xFEE00000-0xFEEFFFFF	Motherboard resources
0xFEF00000-0xFEFFFFFF	Motherboard resources
0x9080C000-0x9080C01F	Intel® ATOM®/Celeron®/Pentium® Processor Platform Control Unit - SMBus Port - 0F12
0x90500000-0x905FFFFF	Intel® Trusted Execution Engine Interface
0x90400000-0x904FFFFF	Intel® Trusted Execution Engine Interface

MEMORY MAP	ASSIGNMENT
0xA0000-0xBFFFF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0xA0000-0xBFFFF	PCI bus
0xC0000-0xDFFFF	PCI bus
0xE0000-0xFFFFF	PCI bus

- **Memory map of Intel® 4th Gen. ATOM® N2000 series:**

MEMORY MAP	ASSIGNMENT
0xD0816000-0xD08167FF	Intel® ATOM®/Celeron®/Pentium® Processor AHCI - 0F23
0xD0700000-0xD077FFFF	Intel® I210 Gigabit Network Connection
0xD0700000-0xD077FFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 3 - 0F4C
0xD0780000-0xD0783FFF	Intel® I210 Gigabit Network Connection
0xFF000000-0xFFFFFFFF	Intel® 82802 Firmware Hub Device
0xD0000000-0xD03FFFFF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0xC0000000-0xCFFFFFFF	Intel® ATOM® Processor E3800 Series/ Intel® Celeron® Processor N2920/J1900
0xC0000000-0xCFFFFFFF	PCI bus
0xD0600000-0xD061FFFF	Intel® I211 Gigabit Network Connection
0xD0600000-0xD061FFFF	Intel® ATOM®/Celeron®/Pentium® Processor PCI Express - Root Port 4 - 0F4E
0xD0620000-0xD0623FFF	Intel® I211 Gigabit Network Connection
0xFED00000-0xFED003FF	High precision event timer
0xD0800000-0xD080FFFF	Intel® USB 3.0 eXtensible Host Controller
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
0xD0810000-0xD0813FFF	High Definition Audio Controller
0xD0814000-0xD081401F	Intel® ATOM®/Celeron®/Pentium® Processor

MEMORY MAP	ASSIGNMENT
	Platform Control Unit - SMBus Port - 0F12
0xD0500000-0xD05FFFFF	Intel® Trusted Execution Engine Interface
0xD0400000-0xD04FFFFF	Intel® Trusted Execution Engine Interface
0xA0000-0xBFFFF	Intel® ATOM® Processor E3800 Series/Intel® Celeron® Processor N2920/J1900
0xA0000-0xBFFFF	PCI bus
0xC0000-0xDFFFF	PCI bus
0xE0000-0xFFFFF	PCI bus

Configuring WatchDog Timer

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

Configuration Sequence

To program 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.

Code example for watch dog timer

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

```
;------ 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
```

Flash BIOS Update

I. Prerequisites

1. Prepare a bootable media (e.g. USB storage device) which can boot the system to DOS prompt.
2. Download and save the BIOS file (e.g. M11320PD1.bin) to the bootable device.
3. Copy AMI flash utility – AFUDOS.exe (V5.0x) into the bootable device.
4. Make sure the target system can first boot to the bootable device.
   (1) Connect the bootable USB device.
   (2) Turn on the computer and press <F2> or <Del> key during boot to enter BIOS Setup.
   (3) The system will go into the BIOS setup menu.
   (4) Select [Boot] menu.
   (5) Select [Hard Drive BBS Priorities] and set the USB bootable device as the 1st boot device.
   (6) Press <F4> to save the configuration and exit the BIOS setup menu.

II. AFUDOS Command for System BIOS Update

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

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

You can type AFUDOS /? to view the definition of each control option. The recommended options for BIOS ROM update consist of the 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 the system into the MS-DOS command prompt.

2 Type in AFUDOS 1132xxxx.bin /p/b/n/x and press enter to start the flash procedure.

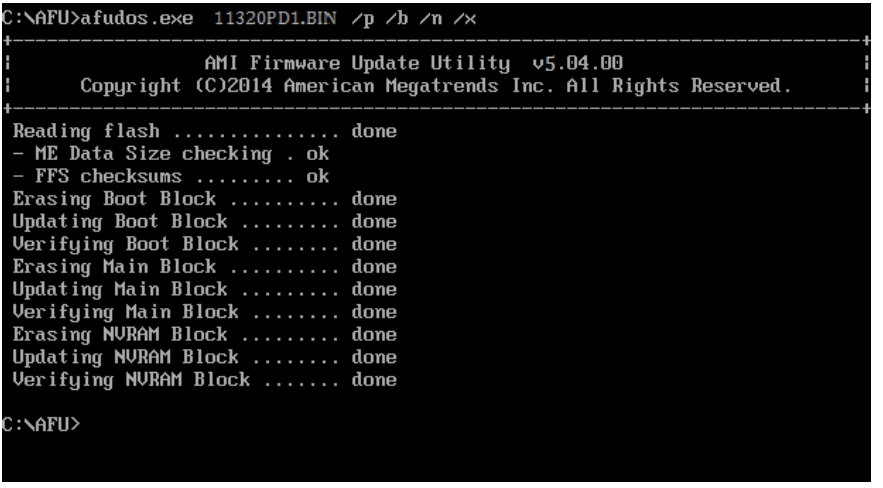
Note: xxxx means the BIOS revision part, e.g. 0PD1.

3 During the BIOS update procedure, you will see the BIOS update process status and its update percentage. Beware! Do not turn off the system power or reset your computer when the entire update procedure are not completed yet; otherwise, the BIOS ROM may be crashed and the system will be unable to boot up next time.

4 After the BIOS update procedure is completed, the following messages will display:

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

6 The BIOS update procedure is complete after the system is restarted.



7 Reboot the system and verify if the BIOS version shown on the initialization screen has been updated.