USER MANUAL

KF-7131

Kiosk System Powered By
Intel® Bay Trail Platform

KF-7131 M1

KF-7131 17" Projected Capacitive Touch Kiosk

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 open and disassemble the system. Please operate the LCD and Touchscreen with extra care as they can be broken easily.

Contents

1 Introduction

This chapter provides the information for the KF-7131 Kiosk. It describes how to set up the system quickly and outlines the system specifications.

The following topics are included:
- About This Manual
- Kiosk System Diagram
- Quick Setup
- System Specification
- Motherboard Specification
- OS Specification
- API Specification
- Safety Precautions

Experienced users can go to Chapter 2 System Configuration on page 2-1 for a quick start.

1.1   About This Manual

Thank you for purchasing our KF-7131 Kiosk System. The KF-7131 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The KF-7131 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 4 chapters and 2 appendixes. Users can configure the system according to their own needs.

Chapter 1 Introduction

This chapter introduces you to the background of this manual. It also includes the physical illustrations, quick setup and specifications for the KF-7131 system. The final section of this chapter indicates some safety reminders on how to take care of your system properly.

Chapter 2 System Configuration

This chapter outlines the locations of the motherboard and daughter board components and their respective functions. You will learn how to set the jumpers and configure the system to meet your own needs.

Chapter 3 Software Utilities

This chapter contains helpful information for proper installations of the Intel Chipset Software Installation Utility, VGA Driver Utility, LAN Driver Utility and Sound Driver Utility.

Chapter 4 AMI BIOS Setup

This chapter indicates you how to change the BIOS configurations.

Appendix A System Assembly Diagrams

This appendix provides the exploded diagrams and part numbers of the KF-7131.

Appendix B Technical Summary

This appendix provides the information about the allocation maps for the system block diagram, system resources, Watchdog Timer Configuration, Flash BIOS Update and ACPI functions list.

1.2   Kiosk System Diagrams

Unit: mm

1.2.1   Front View

650

1565
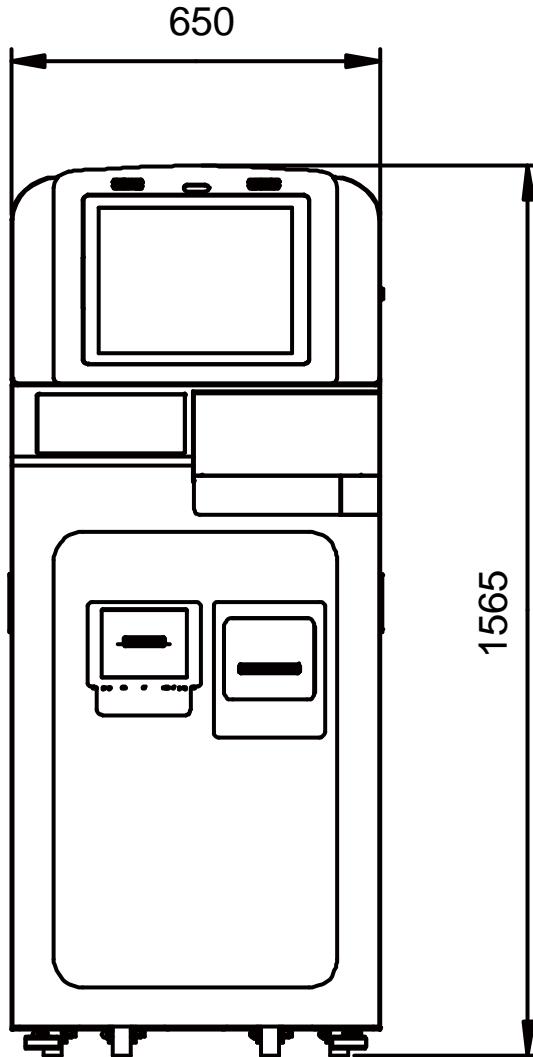
1.2.2   Rear View
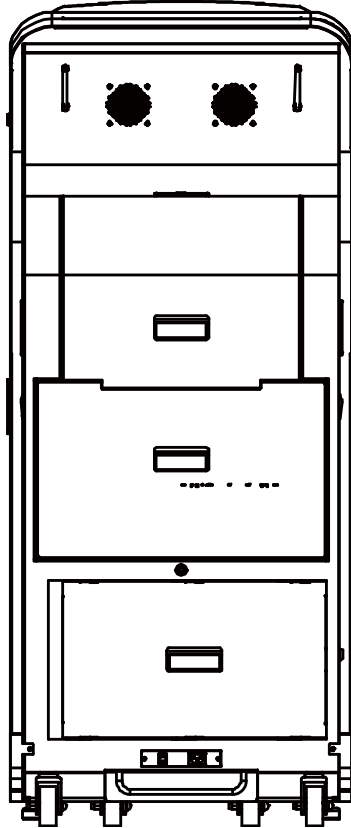
1.2.3   Top View
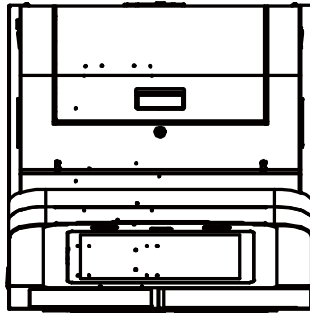
1.2.4   Quarter View
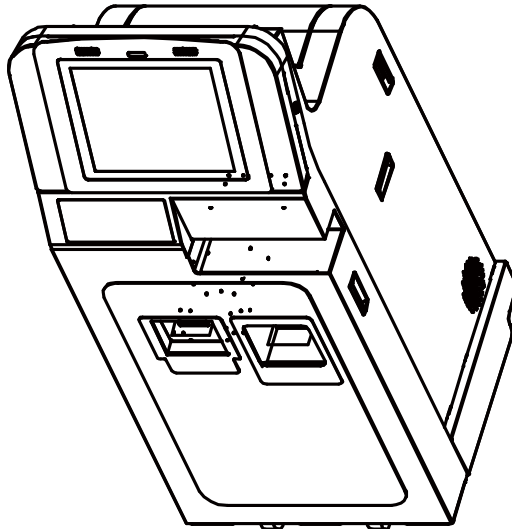
1.2.5   Side View

Unit: mm

654
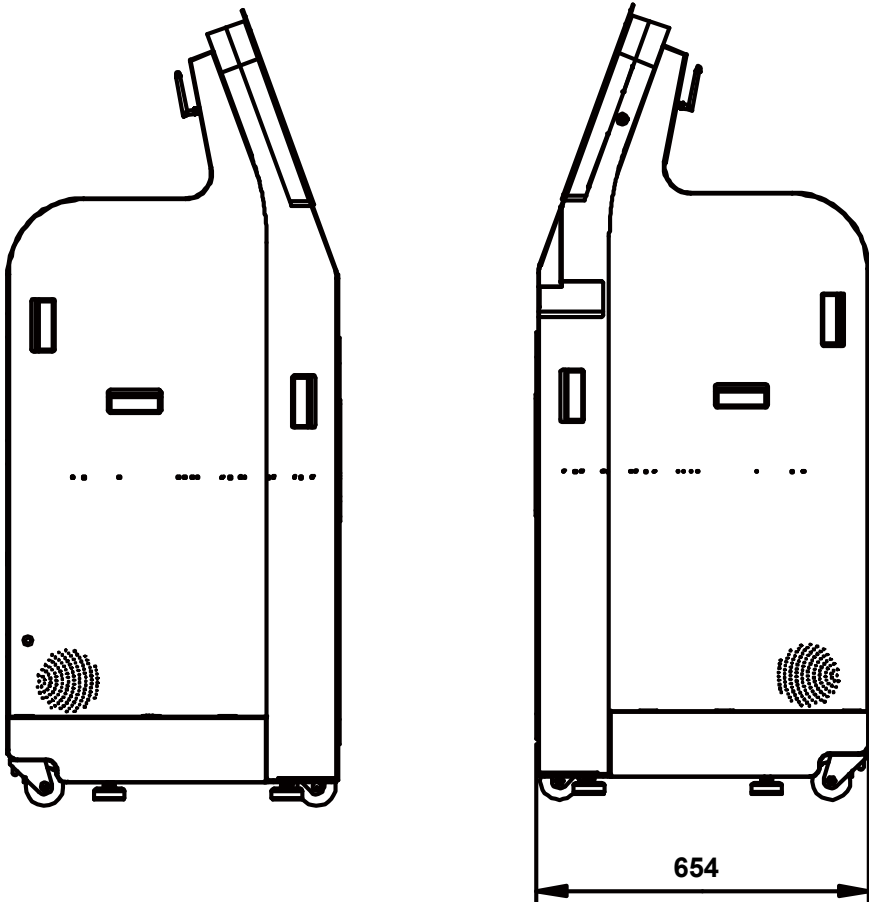
1.3 Quick Setup
1.3.1 Connecting KF-7131 to the Network

Step 1. Connect the AC power cord to the AC power jack located on the rear-bottom side of the kiosk system and plug the other end to an AC power outlet.

Step 2. Connect the Ethernet cable to the LAN port on the back of the system and the other end of the network cable to a port on your hub, switch or router. See the figure shown below:

LAN Port

AC Power Jack
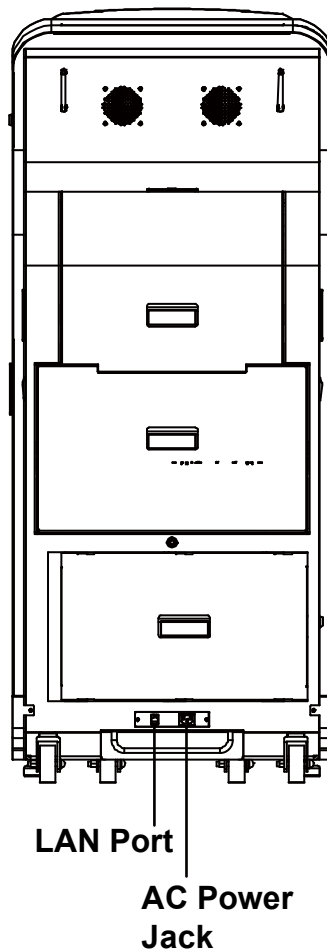
Figure 1-1. Connect KF-7131 to the Network and Power

1.3.2   Turn On KF-7131 Kiosk

1. Unlock the top front door and open it.
2. Press the Power Button located on the back of the top front cover. See the picture below:

Power Button
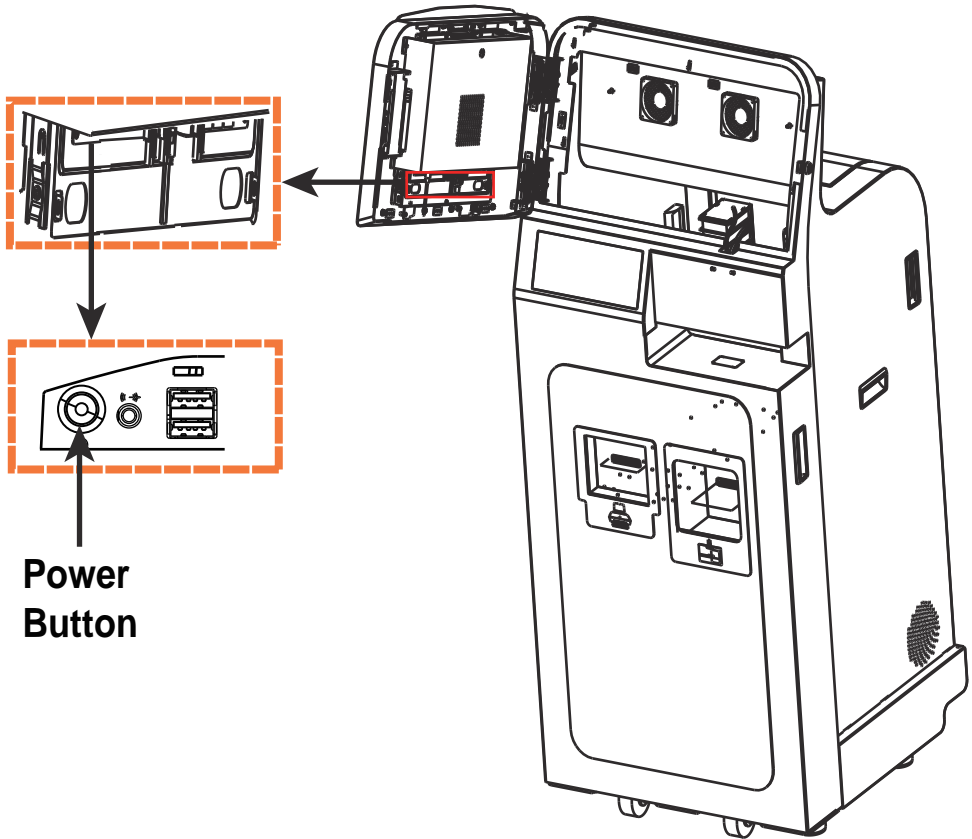
1.4   System Specifications (Intel Bay Trail Platform)

Operator Display (LCD)	Type	17-inch 4:3 LED backlight LCD
	Resolution	18/24bit LVDS 1280x1024 dots SXGA
	Brightness	Typical 350 cd/m^2
	View Angle	Horizontal : (R) 85°/(L) 85° Vertical : (U) 80°/(L) 80°
	Estimated luminance lifetime	50,000h
	Backlight	LED Backlight
Touch	Type	17" Projected Capacitive Touch
	Interface	USB (From M/B internal)
CPU	FCBGA1170 Socket	Intel® Celeron J1900
Chipset	Intel platform	Bay Trail SoC
Memory	1x SO-DDR3L slot	204-pin DDR3L-1600 SO-DIMM socket on board, up to 4GB
Storage (HDD/SSD)	Type	2.5" 512GB MLC SSD
	Interface	SATA
BIOS	AMI BIOS	SPI Flash ROM
Kiosk System Fan	Type	DC FAN(120mmx120mmx38mm)
Hardware Monitor	Type	(1) Voltage detection (5V, 12V) (2) CPU & System Temperature detection
Watch Dog Timer	-	1~255 seconds
Buzzer	-	Supports system beep
Speakers	Type	2 x 2W HD speaker
Power Supply	Type	72W Power Adaptor
Dimension	W x H x D	650mm x 1565mm x 650mm
Weight	Kg	About 120 Kg
Temperature	Operating Temperature	10°C ~ 32°C (50°F~90°F)
	Storage Temperature	0°C ~ 60°C (32°F~140°F)
Humidity	Operating Humidity	20~85RH (no condensation)
	Storage Humidity	20~85RH (no condensation)
External I/O Port		
LAN Port 1	Model	1 x 10/100/1000 Mbps **(PB-6822 LAN)**

Integrated Devices		
Wifi Module & Antenna	Model	FANGTEC AR9462 Combo Mini Card
	Specification	IEEE802.11 a/b/g/n 2T2R+ BT4.0 + BLE2ANT
	Interface	Mini PCI-e (M/B internal)
	Cable & Antenna	RF cable: JC SMA F/M 1.37(B) L300mm IPEX 180(Deg) x 2 Antenna: Dual Band Ant. SMA Plug Female Pin 1.37B Black x 2
Web Cam	Model	FANGTEC AG5120C24-S1-3F0
	Specification	2.0M Camera; Fixed-Focus; 3.3 ~ 5V; USB Interface; Firmware: 6L150818 (MIC Off)
	Angle	Diagonal : 72 degree Horizontal : 60.3 degree Vertical : 46.8 degree
	Interface	USB (From M/B internal)
Barcode Scanner	Model	Riotec FS5022J Barcode Scanner
	1D/2D Specifications	1D (100% UPC-A): 430 mm 2D(15mils PDF417): 380 mm
	Scan Speed	60 frames /sec.
	Best Resolution	1D (4mils): Code 39 2D (6.7mils): PDF417
	Read Angle	Tilt: 360° / Pitch ±60° / Skew ±60°
	Decoding Zone	4 mils Code 39 65 ~ 150 mm 5 mils Code 39 46 ~ 195 mm 10 mils PDF 417 38 ~ 260 mm 15 mils PDF 417 60 ~ 380 mm 10 mils QR code 45 ~ 170 mm 15 mils QR code 48 ~ 155 mm 10 mils Data Matrix 50 ~ 220 mm 15 mils Data Matrix 40 ~ 305 mm

	Supported Barcode Types	**1D**： UPC-A, UPC-E, EAN-8, EAN-13, UCC/EAN-128, Code 39, Code 93, Interleaved 2 of 5, Codabar, MSI, GS1 DataBar **2D**： PDF 417, MicroPDF417, Datamatrix, QR Code, MaxiCode
	Interface	USB interface
RFID (NFC (Near Field Communication)) Module	Model	EWTA–M1252U (NFC Reader)
	Smart Card Interface Support	ISO/IEC18092 (NFC) compliant Supports Mifare, ISO-14443 Type A/B, FeliCa RF (Radio Frequency) Card
	NFC Support	Supports 3 NFC operation modes: Card reader/writer, Peer to Peer and Card emulation
	Mifare® Support	Mifare 7-byte UID, Mifare-Plus , Mifare DESFire
	Detachable Antenna Distance	5 cm approximately
	Communication Interface	USB 2.0 interface
Colorful Card Printer & Dispenser	Model	HiTi CS-220e Transparent Card Printer
	Printing Technology	Color Dye Sublimation YMCKO (direct-to-card)
	Resolution	300 dpi
	Display	LCD (Liquid Crystal Display)
	Memory	64MB
	Print Speed	Full Color printing (YMCKO): Up to180 cards/hour Monochrome Black printing: Up to140 cards/hour
	Card Format	CR-80 ISO7810(53.98mm x 85.60mm) Thickness:0.25mm ~ 1.0mm (10mil ~ 40mil)
	Card Input Capacity	100 cards (thickness: 0.76mm / 30mil)
	Card Output Capacity	50 cards (thickness: 0.76mm / 30mil)

	Software Driver	Windows 2000, Windows XP, Vista, Windows 7, Windows 8, Windows 10
	Communication interface	USB 1.1 / USB2.0 full speed
	Contactless (RFID) Encoding Module	(ISO 14443A & B, ISO 15693)
	Flipper Module	Flipper Module
	High-Capacity Input Hopper	400 cards loader
	Ribbon	YMCKO Ribbon (CS-200e) x 1pcs
Thermal Printer	Model	RING 408PE+
	Print Method	Thermal Transfer
	Print Resolution	203 dpi
	Print width	108 mm
	Print length	12mm to 1727mm
	Print speed	152.4mm/sec. (6 inches/sec.)
	Roll Diameter	254mm (Outlook diameter) x 108mm (Width) x 76.2mm (Internal axis diameter).
	Memory	8MB SDRAM, 4MB Flash
	Interface	USB interface
	Weight	2.7 Kg
	Power Supply	External power supply 100/240VAC, 50/60Hz
	EMC & Safety	CE, FCC Class A, CCC CB, CUL, BSMI
	Barcode	Code 39, Code 93, Code 128 (Sub set A, B, C), UCC128, UCC/EAN-128, UPC A/E(add on 2&5), Interleaved 2 of 5, EAN128, EAN8/13(add on 2&5), Codabar, PostNET, DUN14, MaxiCode, HIBC, Plessey, RPS128, PDF417, Datamatrix, QR code
	Resident Fonts	11 Resident Windows bit mapped font, and scalable font in 4 orientations.

	Printer Language	All commands and supports firmware download
	Software	Windows barcode software and windows driver utilities
	Graphics Handling	PCX, BMP files
	LED Display	2 x LED indicators and 1 x function key
	Interface	USB interface
UPS	Model	APC Back-UPS 550
	Specification	110V/ 500VA / 330W
	Dimension	8.8 x 18 x 30.2 mm

1.5   PB-6822 Mainboard Specification (Bay Trail Platform)

PCB Dimension	W x D	Form factor (219mm x 178.4mm)
PCB Layer	-	6 layers
CPU	FCBGA1170 Socket	Intel® Celeron J1900
Chipset	Intel platform	Bay Trail SoC
Memory	DDR3 SDRAM	DDR3 SO-DIMM slot x 1 (Max. 8GB for each slot)
Display Engine	Built-in Intel CPU	Dual independent pipe for dual independent display. Supports **18/24-bit LVDS (RGB 6 bits + Hi-FRC data)**
BIOS	AMI BIOS	SPI Flash ROM
Hardware Monitor	Built-in I/O Chip.	(1) Voltage detection (5V, 12V, Battery) (2) CPU & System Temperature detection
Ethernet LAN	LAN	1x RJ-45 8-pin connector 1000 BASE-TX1 (supports Wake On LAN)
Watch Dog Timer	-	1~255 seconds
Buzzer	-	Supports system beep
Power Supply	-	Mini-DIN 4-pin connector
External I/O Ports (M/B Bottom I/O)		
VGA	DB-15 female	1x 15-pin connector
Serial Ports		Total 4 x COM ports
	RJ45 female COM1	1x 10 pins (from M/B COM1 wafer by cable)
	RJ45 female COM2	1x 10 pins (from M/B COM2 wafer by cable)
	RJ45 female COM3	1x 10 pins (from M/B COM3 wafer by cable)
	(M/B) wafer COM4	2 x 5-pin wafer
USB Ports	-	Total 7 x USB 2.0 ports
	(M/B) wafer USB 1	1x 5-pin wafer
	(M/B) wafer USB 2	1x 5-pin wafer
	(M/B) wafer USB 6	1x 5-pin wafer
	(M/B) wafer USB 7	1x 5-pin wafer

	USB type-A female dual layer	from (M/B) USB3
	USB type-A female dual layer	from (M/B) USB8
	(M/B)USB /eSATA	eSATA
RJ45	8P8C	1x RJ45 8-pin connector
Audio Port		Miniature jack
DC Power Input	DC-IN	1x 4-pin DC-In Jack (DC24V)
CPU FAN Interface		1x 4-pin wafer
SATA	SATA1 SATA2	2x SATA III Port Interface **(with 4-in power connector)**
LED Indicator	1x connector	1x 2 pin-header (Power)

1.6   KR-7130 Daughter Board Specification

Conform to RoHS Directive		
PCB Dimension	W x D	65mm x 150 mm
PCB Layer		4 layers
Key Function	USB HUB	Total 8 x USB 2.0
	Dual Channel Speaker	2 x 2W speakers
External I/O Port		
USB Port		Total 8 x USB 2.0
	USB_IN1 for USB 2.0 input	Mini USB type B
	USB_IN2 for USB 2.0 input	Mini USB type B
	USB 1-1	1x 5-pin wafer
	USB 1-2	1x 5-pin wafer
	USB 1-3	1x 5-pin wafer
	USB 1-4	1x 5-pin wafer
	USB 2-1	1x 5-pin wafer
	USB 2-2	1x 5-pin wafer
	USB 2-3	1x 5-pin wafer
	USB 2-4	1x 5-pin wafer
COM Port	COM1	2x 5-pin wafer
Speaker	Dual Channel Speaker	Total 2 x wafer
	L-SPK	1x 2-pin wafer
	R-SPK	1x 2-pin wafer

1.7   OS Specification

OS	Description
Windows® 7 Pro FES	Supports 32 bits.

1.8   API Specification
- Watch Dog Timer API
- Digital I/O API
- Hardware Monitor API
- USB Power API
- RS-232 Power API

1.9   Safety Precautions

Before operating this system, read the following information carefully to protect your systems 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 KF-7131 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   - Avoid installing your KF-7131 Kiosk 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 KF-7131 when it has been left outdoors in a cold winter day.
   - Bear in mind that the operating ambient temperature is between 5°C and 35°C (41°F and 95°F).
   - 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 KF-7131 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.

2   System Configuration

This chapter contains helpful information that describes the jumper and connector settings, component locations, and pin assignment.

The following topics are included:
- LAN Port
- Rear I/O Ports Diagram
- Main Board Component Locations
- Setting Jumpers
- Setting Main Board Connectors and Jumpers
- Setting Daughter Board Connectors and Jumpers
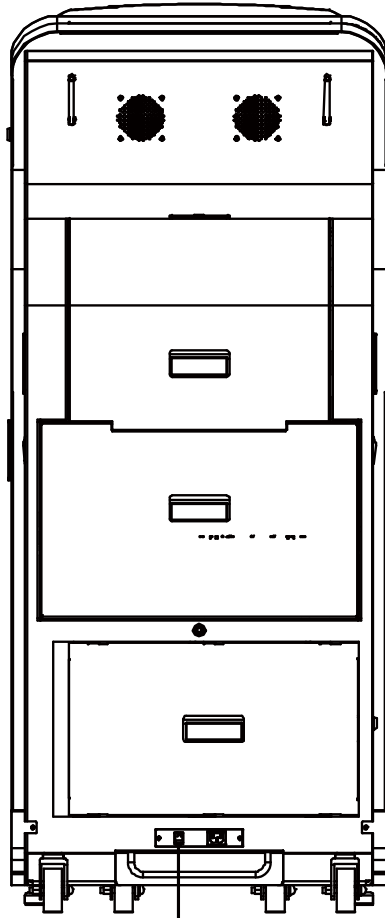
2.1   LAN Port

LAN Port

LAN Port

Yellow Green

LAN: LAN RJ-45 Port (rear I/O)

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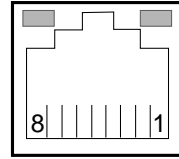
LAN

LAN LED Status

There are one LAN LED indicators on the rear side of the system. By observing their status, you can know the status of the Ethernet connection.

LAN LED Indicator	Color	Status	Description
Left Side LED	Yellow	Blink	LAN Message Active
	-	Off	No LAN Message Active
Right Side LED	Green	On	10/100 LAN connection is enabled.
	Orange	On	Giga LAN connection is enabled.
	-	Off	No LAN switch/hub is connected

2.2 Power Button

Open the top front door and press the Power button located on the back of the cover. Please see
Turn On KF-7131 Kiosk for details.
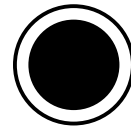
ACTION	ASSIGNMENT
Press	0V
Release	+3.3V

Power

Button

2.3 Rear I/O Ports Diagram

VGA

DC IN   LAN1 Audio

USB   COM2

COM3   COM1

USB Power
Button

Printer
PWR
(Optional)
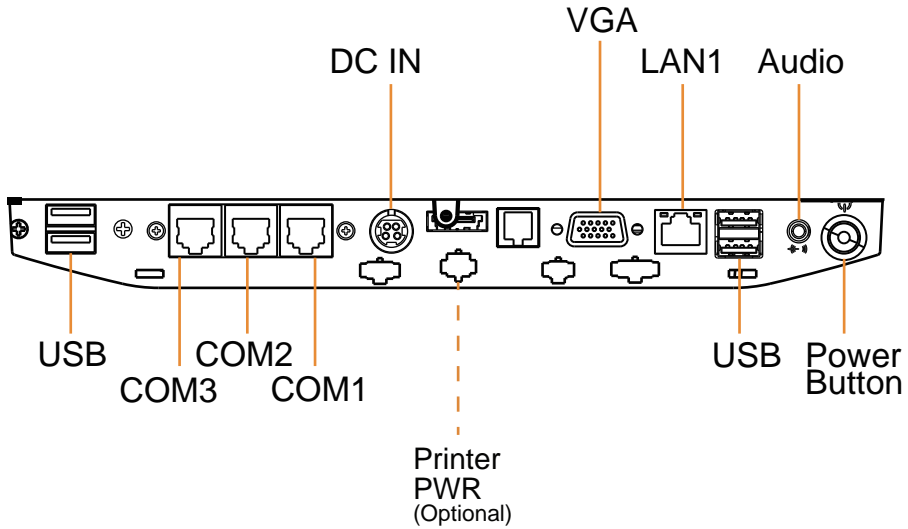
2.4 DC-IN Port

DC-IN: DC Power-In Port (rear I/O)

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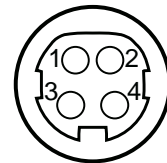
DC IN

2.5 VGA Port

VGA: VGA Port, D-Sub 15-pin (rear I/O)

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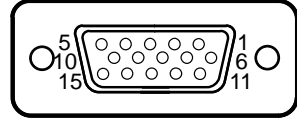
VGA

2.6 COM Port

COM1, COM2, COM3: COM Ports (rear I/O)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCD1/2/3	6	DSR1/2/3
2	RXD1/2/3	7	RTS1/2/3
3	TXD1/2/3	8	CTS1/2/3
4	DTR1/2/3	9	RI/+5V/+12V selectable (Maximum current: 1A)
5	GND	10	NC
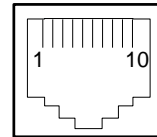
COM1/

COM2/

COM3

2.7 Cash Drawer Port

DRW1: Signal from M/B GPIO (rear I/O)

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	4	+12V/+24V (Max. current: 1A)
2	Drawer Open	5	NC
3	Drawer Sense	6	GND
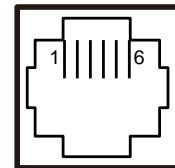
DRW1

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

2.8 USB Ports

USB0, USB1, USB2, USB3, USB4: USB Type A ports.

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

USB0/

USB1/

USB2/

USB4
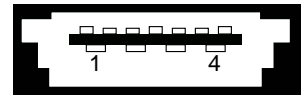
USB3

2.9 RAID Port

RAID: Link to stand-RAID storage device for signals

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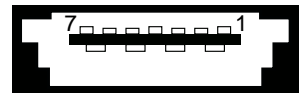
RAID

2.10 RAID Power Port

RAID PWR: Power supply for the stand-RAID storage device

PIN	ASSIGNMENT
1	+24V
2	GNDV
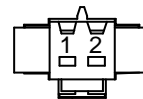
RAID PWR

2.11 Printer Power Port

PRINT PWR: DC24V power supply for the stand-printer

PIN	ASSIGNMENT
1	+24V
2	GNDV
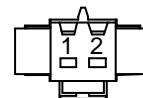
PRINT PWR

2.12 Main Board Component Location & Jumper Settings
M/B: PB-6822
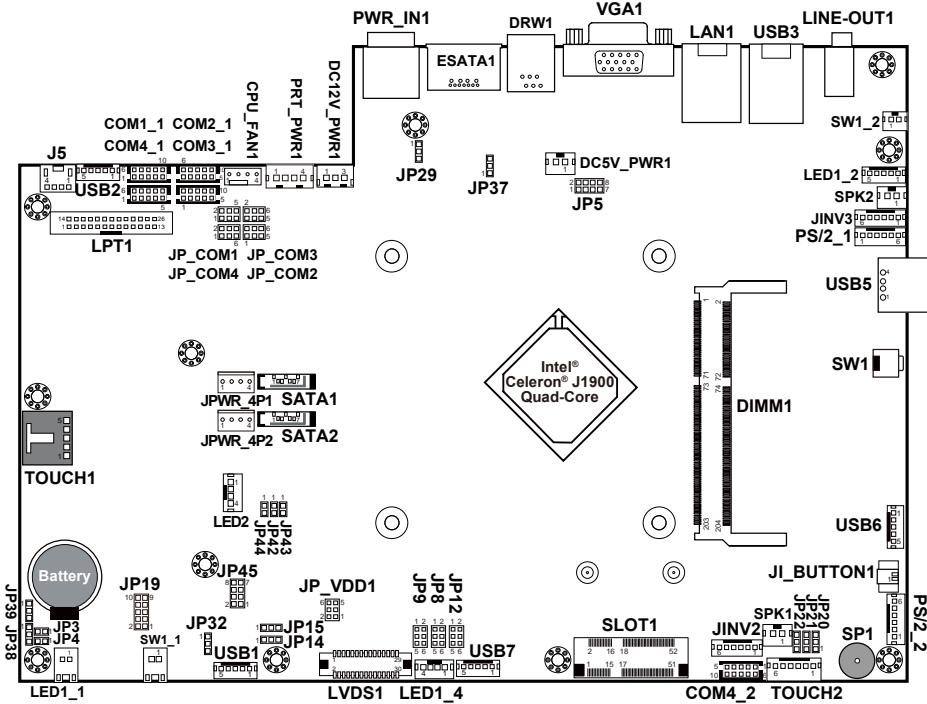
Figure 2-1. PB-6822 Main Board Component Location

⚠	**WARNING:** Always disconnect the power cord when you are working with the connectors and jumpers on the main board. Make sure both the system and the external devices are turned OFF as sudden surge of power could ruin sensitive components. Make sure KF-7131 is properly grounded.
⚡	**CAUTION:** Observe precautions while handling electrostatic sensitive components. Make sure to ground yourself to prevent static charge while configuring the connectors and jumpers. Use a grounding wrist strap and place all electronic components in any static-shielded devices.

2.13 Setting Jumpers

You can configure your board by setting the jumpers. A jumper consists of two or three metal pins with a plastic base mounted on the card. 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 configure your hardware settings by "opening" or "closing" jumpers.

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

Jumpers & Caps

2 Pin Jumper　　**3 Pin Jumper**　　**Jumper Block**　　**Jumper Cap**
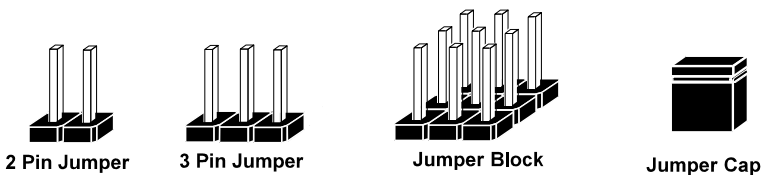
If a jumper has three pins, for example, labeled 1, 2 and 3. You can connect pins 1 and 2 to create one setting and shorting. You can also select to connect pins 2 and 3 to create another setting. The format of the jumper picture will be illustrated throughout this manual. The figure below shows different types of jumpers and jumper settings.

Jumper diagrams

Jumper Cap looks like this
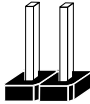
2 pin Jumper looks like this
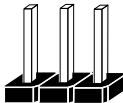
3 pin Jumper looks like this
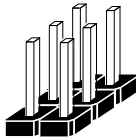
Jumper Block looks like this
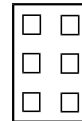
Jumper settings

2 pin Jumper closed(enabled) looks like this

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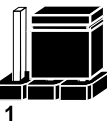
3 pin Jumper
2-3 pin closed(enabled) looks like this

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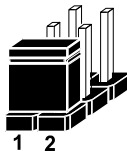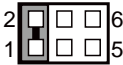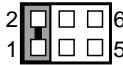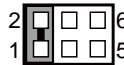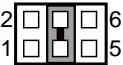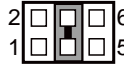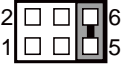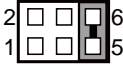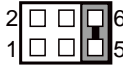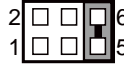
Jumper Block
1-2 pin closed(enabled) looks like this

1   2
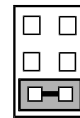
2.14 Setting Main Board Connectors and Jumpers
2.14.1 COM Port RI & Voltage Selection

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

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

Note: Default is RI for JP_COM4, and no pin connection for JP_COM1, JP_COM2 or JP_COM3.

⚡	**CAUTION:** **1.** The voltage levels of the external COM1 ~ 3 ports are adjustable on BIOS or via the corresponding jumpers JP_COM1, JP_COM2 & JP_COM3. You cannot perform both of the actions at the same time in prevention of system error, component damage or serious boot failure. For instance, JP_COM1 can be enabled when COM1 is disabled on BIOS. **2.** There is no pin connection for JP_COM2 or JP_COM3 by default. Refer to the **Voltage/RI Adjustment Configuration** section in chapter 3 for detailed BIOS setting (BIOS default: Disabled) **3.** The voltage level of COM4 is not adjustable on BIOS.

```
          Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
        Advanced

    COM1 select                 [Disabled]          COM4 select RI 12V and 5V
    COM2 select                 [Disabled]
    COM3 select                 [Disabled]
    Cash drawer                 [Cash drawer 12V]
```

2.14.2 COM Connector

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

COM1-1/

COM2-1/

COM3-1/

COM4-1

Note: Each COM connector is selectable for RI/+5V/+12V.
COM Port RI & Voltage Selection section for details.
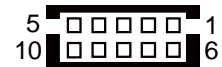
COM4-2

2.14.3 i-Button Connector

JI_BUTTON1: i-Button Connector

PIN	ASSIGNMENT
1	COM3_DTR_R_I
2	COM3_RXD_R_I
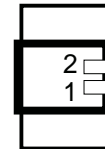
JI_BUTTON1

2.14.4 COM3 / i-Button Function Selection
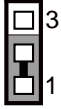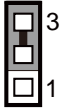
JP20, JP21, JP22: COM3 / i-Button Function Connectors

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

Note: COM3 & COM3-1 will not function when jumpers JP20, JP21 & JP22 are set as "i-Button."
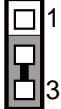
2.14.5 Cash Drawer Control Selection

JP37: Cash Drawer Control Connector

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
DRW1-2 Open	1-2	3 1 **JP37**
GND (Default)	2-3	3 1 **JP37**

2.14.6 Cash Drawer Power Selection

JP29: Cash Drawer Power Selection

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

Note: Default is no pin connection.

	CAUTION:
	1. The voltage level of the external cash drawer port DRW1 is adjustable on BIOS or via the corresponding jumper JP29. You cannot perform both of the methods at the same time in prevention of system error, component damage or serious boot failure. That is, JP29 can be enabled when DRW1 has been disabled on BIOS.
	2. There is no pin connection for JP29 by default. Refer to the **Voltage/RI Adjustment Configuration** section in Chapter 3 for detailed BIOS setting (BIOS default: 12V).

```
          Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
      Advanced

 COM1 select                    [Disabled]              COM4 select RI 12V and 5V
 COM2 select                    [Disabled]
 COM3 select                    [Disabled]
 Cash drawer                    [Cash drawer 12V]
```

2.14.7 USB Connector

USB1, USB2 , USB6 , USB7: USB 2.0 Connectors

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

Note: USB1 would be used when jumpers JP14 & JP15 are set as 1-2 (short) connected.
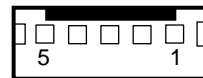
USB1/
USB2/
USB7
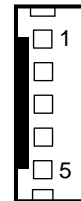
USB6

2.14.8   LED Connector

LED1_1: Power LED Indication Connector

PIN	ASSIGNMENT
1	GND
2	PWR_LED
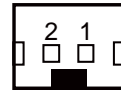
LED1_2: Power & HDD LED Indication Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	PWR_LED	4	HDD_LEDJ
2	PWR_LEDJ	5	GND
3	HDD_LED	-	-
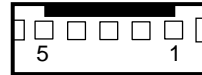
LED1_4: Power & HDD LED Indication Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	PWR_LED	3	HDD_LEDJ
2	PWR_LEDJ	4	HDD_LEDJ

LED1_1

LED1_2
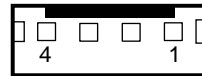
LED1_4

2.14.9 Power Connector

DC12V_PWR1: DC 12Voltage Provider Connector

PIN	ASSIGNMENT
1	VCC12
2	GND
3	VCC12
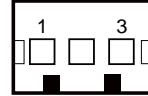
DC12V_PWR1

DC5V_PWR1: DC 5Voltage Provider Connector

PIN	ASSIGNMENT
1	5V
2	GND
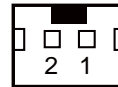
DC5V_PWR1

2.14.10 Power for Thermal Printer Connector

PRT_PWR1: Power for Thermal Printer Connector

PIN	ASSIGNMENT
1	VCC24SB
2	VCC24SB
3	GND
4	GND
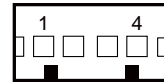
PRT_PWR1

2.14.11 External Speaker Connector

SPK1, SPK2: External Speaker Connector

PIN	ASSIGNMENT
1	SPK_GND
2	SPK_OUT
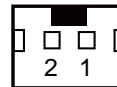
**SPK1/
SPK2**

2.14.12 Inverter Connector

JINV2, JINV3: Inverter Connectors

PIN	ASSIGNMENT
1	+12V
2	+12V
3	GND
4	BRCTR
5	GND
6	LVDS_BKLTEN
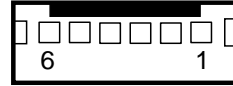
JINV2/ JINV3

2.14.13 LED Backlight Power Control Selection

JP12: LED Backlight Power Control Connector
(for LED backlight panel without the built-in power driver)
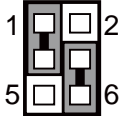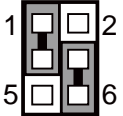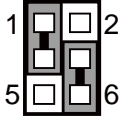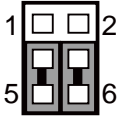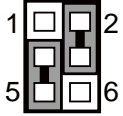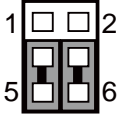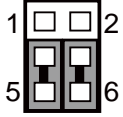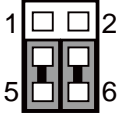
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
On	1-3 2-4	**JP12**
Off	3-5 4-6	**JP12**

Note: Default is LED.

2.14.14 Panel Resolution Selection

JP8, JP9: Panel Resolution Control Connectors

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
17" **1280 x 1024** **(24 bit Dual)** (Default)	JP8: 1-3, 4-6 JP9: 1-3, 4-6	JP8	JP9
15" 1024 x 768 (24 bit)	JP8: 1-3, 4-6 JP9: 3-5, 4-6	JP8	JP9
10.4" 1024 x 768 (18 bit)	JP8: 2-4, 3-5 JP9: 3-5, 4-6	JP8	JP9
10.4" 800 x 600 (18bit)	JP8: 3-5, 4-6 JP9: 3-5, 4-6	JP8	JP9

2.14.15 LVDS Connector

LVDS1: LVDS Connector

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

LVDS1

2.14.16 Touch Panel Connector

TOUCH1: Touch Panel Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LR (Low Right)	4	UR (Up Right)
2	LL (Low Left)	5	UL (Up Left)
3	Probe	-	
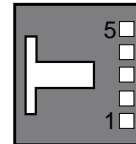
TOUCH1

TOUCH2: Touch Panel Connector
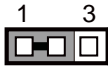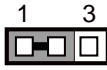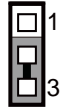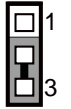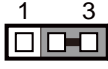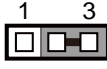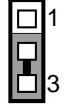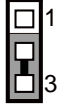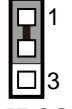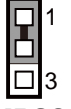
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	LR (Low Right)	4	UR (Up Right)
2	LL (Low Left)	5	UL (Up Left)
3	Probe	-	
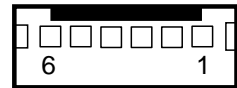
TOUCH2

2.14.17 Touch Panel Signal Interface Selection

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

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION			
USB1 Connector (Default)	JP14: 1-2 JP15: 1-2 JP38: 2-3 JP39: 2-3	JP14	JP15	JP38	JP39
USB Interface	JP14: 2-3 JP15: 2-3 JP38: 2-3 JP39: 2-3	JP14	JP15	JP38	JP39
RS-232 Interface	JP14: 1-2 JP15: 1-2 JP38: 1-2 JP39: 1-2	JP14	JP15	JP38	JP39

Notes:

1. Manufacturing default is USB1 Connector.
2. The COM2 & COM2-1 connector will not function when JP38 & JP39 are set as 1-2 connected.
3. USB1 connector when JP14 & JP15 are set as 1-2 connected.

2.14.18 Clear CMOS Data Selection

JP3: Clear CMOS Data Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal (Default)	Open	1 □□ **JP3**
Clear CMOS*	1-2	1 ■■□ **JP3**

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

2.14.19 MSR/Card Reader Connector

PS/2_1, PS/2_2: MSR/Card Reader Connectors

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

1   6

PS/2_1

6

1
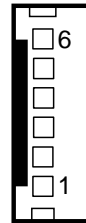
PS/2_2

2.14.20 UPS Connector

J5: UPS Data Connector

PIN	ASSIGNMENT
1	LPC_PSONJ
2	LPC_PWRBTN
3	PCIE_DBG_CLK
4	PCIE_DBG_DATA
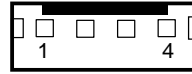
J5

2.14.21 Fan Connector

CPU_FAN1: CPU Fan Connector

PIN	ASSIGNMENT
1	GND
2	VCC5
3	CPU_FANIN
4	CPU_FANOUT
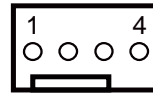
CPU_FAN1

2.14.22 RAID LED Connector (Optional)

LED2: SATA RAID LED Connector

PIN	ASSIGNMENT
1	VCC3_3
2	LED1_E
3	VCC3_3
4	LED2_E
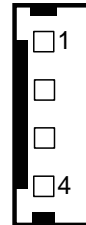
LED2

2.14.23 SATA & SATA Power Connector

SATA1, SATA2: Serial ATA Connector

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

**SATA1/
SATA2**

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

JPWR_4P1, JPWR_4P2: Serial ATA Power Connectors

PIN	ASSIGNMENT
1	VCC
2	GND
3	GND
4	VCC12

**JPWR_4P1/
JPWR_4P2**

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

2.14.24 SATA RAID Function Selection (Optional)
JP42, JP43, JP44: SATA RAID Function Pin-headers

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION		
RAID1 (Default)	JP42: 1-2 JP43: Open JP44: 1-2	JP42	JP43	JP44

2.14.25 Power Button Connector
SW1_1, SW1_2: Power Button Connector

PIN	ASSIGNMENT
1	LPC_PWRBTNJ
2	GND
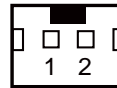
SW1_1/

SW1_2

2.14.26 Printer Connector
LPT1: Printer Connector
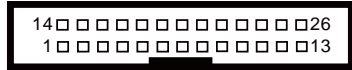
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	STBJ	14	ALFJ
2	PDR0	15	ERRJ
3	PDR1	16	PAR_INITJ
4	PDR2	17	SLCTINJ
5	PDR3	18	GND
6	PDR4	19	GND
7	PDR5	20	GND
8	PDR6	21	GND
9	PDR7	22	GND
10	ACKJ	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCTJ	26	NC

LPT1

2.14.27 Mini-PCIe / mSATA Connector

SLOT1: Mini-PCIe Connector (USB function not supported.)

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

```
2   16 18        52
1   15 17        51
```
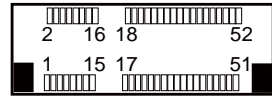
SLOT1

2.15 Daughter Board Component Locations
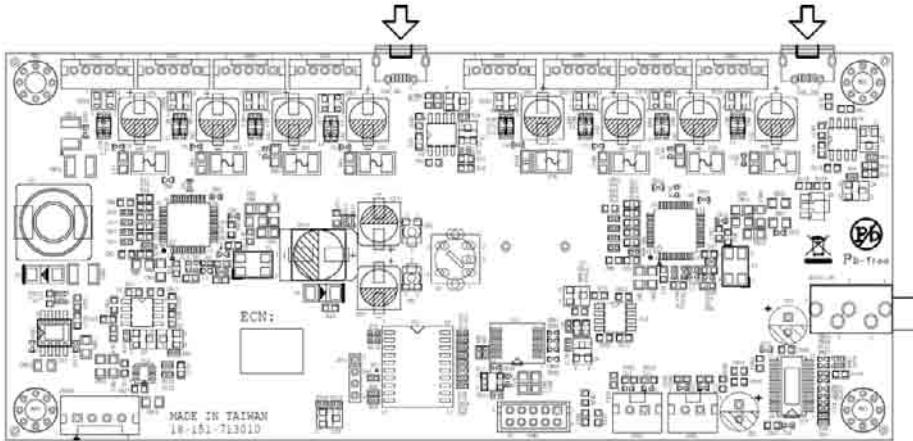
Figure 2-2. Daughter Board Component Location

2.16 Setting Daughter Board Connectors and Jumpers
2.16.1 Power Supply Connector

JVIN1: Power Supply Wafer

PIN	ASSIGNMENT
1	+24V
2	+24V
3	GND
4	GND
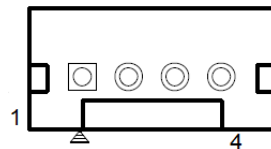
JVIN1

2.16.2   COM Connector

COM1: COM Connector

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	NC	6	NC
2	RXD	7	NC
3	TXD	8	NC
4	NC	9	NC
5	GND	10	NC
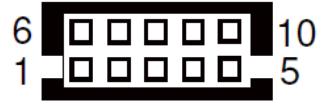
2.16.3   External Speaker Connector

SPK1, SPK2: External Speaker Connector

The pin assignments for SPK1 are as follows:

PIN	ASSIGNMENT
1	OUTPL
2	OUTNL
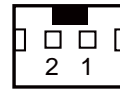
**SPK1/
SPK2**

The pin assignments for SPK2 are as follows:

PIN	ASSIGNMENT
1	OUTNR
2	OURPR

2.16.4   Micro USB Connector

USB_IN1, USB_IN2 : Micro USB IN Connector

PIN	ASSIGNMENT
1	NC
2	D-
3	D+
4	GND
5	GND
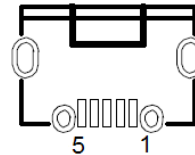
**USB_IN1/
USB_IN2**

2.16.5 USB Connector

USB1, USB2 , USB3 , USB4 , USB5 , USB6 , USB7 , USB8: USB 2.0 Wafers

PIN	ASSIGNMENT
1	5V
2	D-
3	D+
4	GND
5	GND
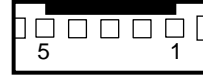
USB1/

USB2/

USB3/

USB4/

USB5

USB6/

USB7/

USB8

2.16.6 Audio Connector

AUDIO_IN1 : LINE_OUT Connector

PIN	ASSIGNMENT
1	AUDIO_GND
2	L_IN
3	GND
4	R_IN
5	GND
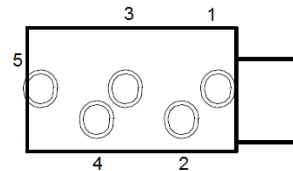
AUDIO_IN1

3 Software Utilities

This chapter provides the detailed information that guides users to install driver utilities for the system. The following topics are included:

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

3.1   Introduction

Enclosed with the KF-7131 Series package is our driver utilities contained in a DVD-ROM disk. Refer to the following table for driver locations:

Filename (Assume that DVD-ROM drive is D:)	Purpose	OS
		WIN7 32bit
D:\Driver\Platform\ WIN7 POSReady 7 (32bit) \UTILITY	Main Chip /INTEL /BayTrail J1900	V
D:\Driver\ Platform\ WIN7 POSReady 7 (32bit) \VGA	Graphic /INTEL /BayTrail J1900	V
D:\Driver\ Platform\ WIN7 POSReady 7 (32bit) \LAN	LAN Chip /REALTEK /RTL8119-CG	V
D:\Driver\ Platform\ WIN7 POSReady 7 (32bit) \Sound	Sound Codec /REALTEK /ALC888S-VD2-GR	V
D:\Driver\ Platform \ WIN7 POSReady 7 (32bit) \Intel TXE Firmware	Intel TXE Firmware	V
D:\Driver\ Platform \ WIN7 POSReady 7 (32bit) \Windows 7 update KMDF	Windows 7 update KMDF	V
D:\ Device \ Ring 408PE+Thermal Printer\ ring_7.4.exe	Thermal Printer	V
D:\ Device \ Wifi\ WLAN_Win10_10.0.0.329\setup.exe	WiFi Module	V
D:\ Device \EWTA_M1252U NFC Module\ Setup.exe	NFC Module	V
D:\ Device \ Hiti CS-220e Card Printer & Dispenser\ CS-220e_Driver_v2.5.0.16+FW_v1.06.0.M.exe	Card Printer & Dispenser\	V
D:\ Device \ UPS\PCPEInstaller.exe	UPS	V

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

3.2 Installing Intel® Chipset Software Installation Utility

3.2.1 Introduction

The Intel® Chipset Software Installation Utility installs the 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 that the following functions work properly:

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

3.2.2 Intel® Chipset Software Installation Utility

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

1 Connect the USB DVD-ROM device to KF-7131 and insert the driver disk.

2 Enter the **Main Chip** folder where the Chipset driver is located (depending on your OS platform).

3 Click **Setup.exe** file for driver installation.

4 Follow the on-screen instructions to install the driver.

5 Once the installation is completed, shut down the system and restart KF-7131 for the changes to take effects.

3.3   Installing VGA Driver Utility

The VGA interface embedded in KF-7131 can support a wide range of display types. You can have dual displays via LVDS interfaces and make the system work simultaneously.

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

1   Connect the USB DVD-ROM device to KF-7131 and insert the driver disk.

2   Enter the **VGA** folder where the driver is located (depending on your OS platform).

3   Click the **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 KF-7131 for the changes to take effects.

3.4   Installing LAN Driver Utility

Enhanced with LAN function, KF-7131 supports various network adapters. To install the LAN Driver, follow the steps below:

1   Connect the USB DVD-ROM device to KF-7131 and insert the driver disk.

2   Enter the **LAN** folder where the 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 KF-7131 for the changes to take effects.

For more details on the installation procedure, refer to the Readme.txt file that you can find on LAN Driver Utility.

3.5 Installing Sound Driver Utility

The sound function enhanced in this system is fully compatible with POSReady 7 & Windows® 7 series.

To install the Sound Driver, follow the steps below:

1 Connect the USB DVD-ROM device to KF-7131 and insert the driver disk.

2 Open the **Sound** folder where the driver is located (depending on your OS platform).

3 Click the **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 KF-7131 for the changes to take effects.

4 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 battery-backed CMOS RAM and BIOS NVRAM so that the Setup information is retained when the system power is off. The BIOS Setup Utilities consist of the following menu items:

- Accessing Setup Utilities
- Main Menu
- Advanced Menu
- Chipset Menu
- Boot Menu
- Security Menu
- Save & Exit Menu

4.1   Introduction

The KF-7131 Kiosk System 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.
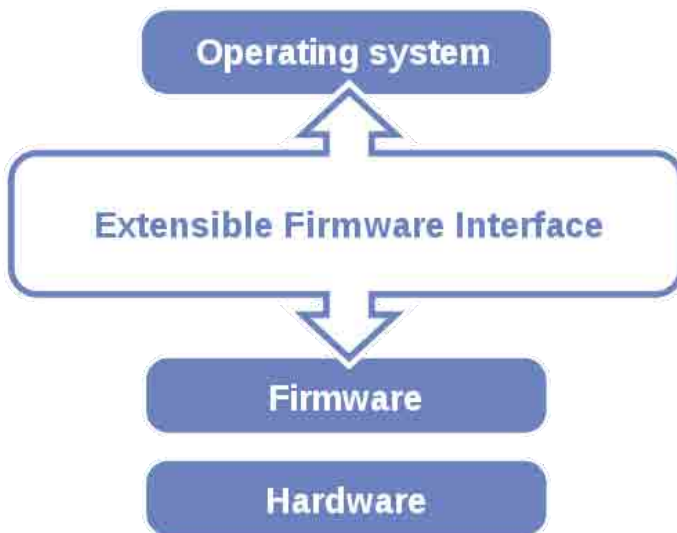
Figure 4-1. Extensible Firmware Interface Diagram

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.

Users will need to set up the system configuration from the BIOS Setup Utility when any of the following conditions occurs:
1. You are starting your system for the first time.
2. You have changed the hardware in your system or the hardware becomes faulty.
3. The system configuration is reset after the user configures to clear CMOS data via the JP3 jumper.
4. The power of the CMOS RAM became lost and the system configuration has been erased.

All the menu settings are described in details in this chapter.

4.2   Accessing Setup Utility

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

Figure 4-2. POST Screen with AMI Logo

Press the <Del> key to access the Setup Utility program.

```
              Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
  Main  Advanced  Chipset  Security  Boot  Save & Exit

  BIOS Information                                            Choose the system default
  BIOS Vendor                    American Megatrends          language
  Core Version                   5.010
  Compliancy                     UEFI 2.4; PI 1.3
  Project Version                71310PD1 x64
  Build Date and Time            12/08/2016 17:40:35

  TXE Information
  Sec RC Version                 00.05.00.00
  TXE FW Version                 01.01.04.1145

  System Language                [English]

  System Date                    [Thu 12/08/2016]            →←: Select Screen
  System Time                    [17:05:17]                  ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit




              Version 2.17.1249. Copyright (C) 2016 American Megatrends, Inc.
```

Figure 4-3. BIOS Setup Menu Initialization Screen

If you enter incorrect passwords for 3 consecutive times, the screen will be locked and you will not be able to enter any data unless the system is restarted.

The language of the BIOS setup menu interface and help messages are shown in US English. You may use the up <↑> /down <↓> arrow key to select among the items and press <Enter> to confirm and enter the sub-menu. A brief help message of the selected item will also appear at the bottom of the screen for your information. The following table provides the list of the keys that you can use while operating the BIOS setup menu.

BIOS Setup Menu Key	Description
<←> and <→>	Select a different menu screen (move the cursor from the selected menu to the left or right).

BIOS Setup Menu Key	Description
<↑> 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.

BIOS Messages

This section describes the alert messages generated by the board's BIOS. These messages would be shown on the monitor when certain recoverable errors/events occur during the POST stage. The table bellow gives an explanation of the BIOS alert messages:

BIOS Message	Explanation
A first boot or NVRAM reset condition has been detected.	BIOS has been updated or the battery was replaced.
The CMOS defaults were loaded.	Default values have been loaded after the BIOS was updated or the battery was replaced.
The CMOS battery is bad or has been recently replaced.	The battery may be losing power and users should replace the battery immediately. Also, this message is displayed once the new battery is replaced.

4.3 Main Menu

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.

```
         Aptio Setup Utility – Copyright (C) 2016 American Megatrends, Inc.
   Main   Advanced  Chipset  Security  Boot  Save & Exit

   BIOS Information                                        Choose the system default
   BIOS Vendor                     American Megatrends     language
   Core Version                    5.010
   Compliancy                      UEFI 2.4; PI 1.3
   Project Version                 71310PD1 x64
   Build Date and Time             12/08/2016 17:40:35

   TXE Information
   Sec RC Version                  00.05.00.00
   TXE FW Version                  01.01.04.1145

   System Language                 [English]

   System Date                     [Thu 12/08/2016]        →←: Select Screen
   System Time                     [17:05:17]              ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit



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```

Figure 4-4. BIOS Main Menu

BIOS Setting	Options	Description/Purpose
BIOS Vendor	No changeable options	Display the BIOS vendor.
Core Version	No changeable options	Display the current BIOS core version.
Compliancy	No changeable options	Display the current UEFI version.
Project Version	No changeable options	Display the version of the BIOS currently installed on the platform.
Build Date and Time	No changeable options	Display the date of current BIOS version.
Sec RC Version	No changeable options	Display the current Sec RC version.
TXE FW Version	No changeable options	Display the current TXE Version
System Language	English	BIOS Setup language.
System Date	month, day, year	Specify the current date.
System Time	hour, minute, second	Specify the current time.

4.4   Advanced Menu

From the **Advanced** menu, you are allowed to configure the following items:

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Main  Advanced  Chipset  Security  Boot  Save & Exit

 ▶ ACPI Settings                                         System ACPI Parameters.
 ▶ Hardware Monitor
 ▶ F81866 Watchdog
 ▶ CPU Configuration
 ▶ IDE Configuration
 ▶ OS Selection
 ▶ Voltage/RI Adjust Configureation
 ▶ CSM Configuration
 ▶ USB Configuration

 ▶ SIO Configuration

                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



          Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-5. BIOS Advanced Menu

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

4.4.1 ACPI Settings

Select **ACPI Configuration** from the **Advanced** menu and press **Enter** to configure relevant ACPI configuration parameters.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Advanced

    ACPI Settings                                              Enables or Disables BIOS A
                                                               Auto Configuration.
    Enable ACPI Auto Configuration       [Disabled]

    Enable Hibernation                   [Enabled]
    ACPI Sleep State                     [S3 (Suspend to RAM)]
    Lock Legacy Resources                [Disabled]




                                                               →←: Select Screen
                                                               ↑↓: Select Item
                                                               Enter: Select
                                                               +/-: Change Opt.
                                                               F1: General Help
                                                               F2: Previous Values
                                                               F3: Optimized Defaults
                                                               F4: Save & Exit
                                                               ESC: Exit


                Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-6. ACPI Settings Screen

BIOS Setting	Options	Description/Purpose
Enable ACPI Auto Configuration	- Disabled - Enabled	Enable or disable ACPI feature.
Enable Hibernation	- Disabled - Enabled	Enable or disable the system ability to hibernate (OS/S4 Sleep State). This option may be not effective with some OS.
ACPI Sleep State	- Suspend Disabled - S3 Only (Suspend to RAM)	Specifies the ACPI sleep state. **Suspend Disabled** disables ACPI sleep feature. **S3** allows the platform to enter the Suspend to RAM mode.
Lock Legacy Resources.	- Disabled - Enabled	Enable or disable the lock of Legacy Resources.

4.4.2   Hardware Monitor

Select **Hardware Monitor** from the **Advanced** menu and press **Enter** to monitor the status of the system hardware, including system temperature, CPU temperature, CPU fan speed and the voltage levels of VCORE, 5VSB, VCC5 and VCC12 in supply.

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
         Advanced

      Pc Health Status

      CPU Temperature                    : +27 ℃
      System temperature                 : +27 ℃
      CPU Fan Speed                      : N/A
      VCORE                              : +0.864 V
      5VSB                               : +5.087 V
      VCC5                               : +5.087 V
      VCC12                              : +12.056 V

                                                        →←: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit

                Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-7. Hardware Monitor Screen

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

4.4.3   F81866 Watchdog

Select **F81866 Watchdog** from the **Advanced** menu and press **Enter** to enable/disable Watchdog timer.
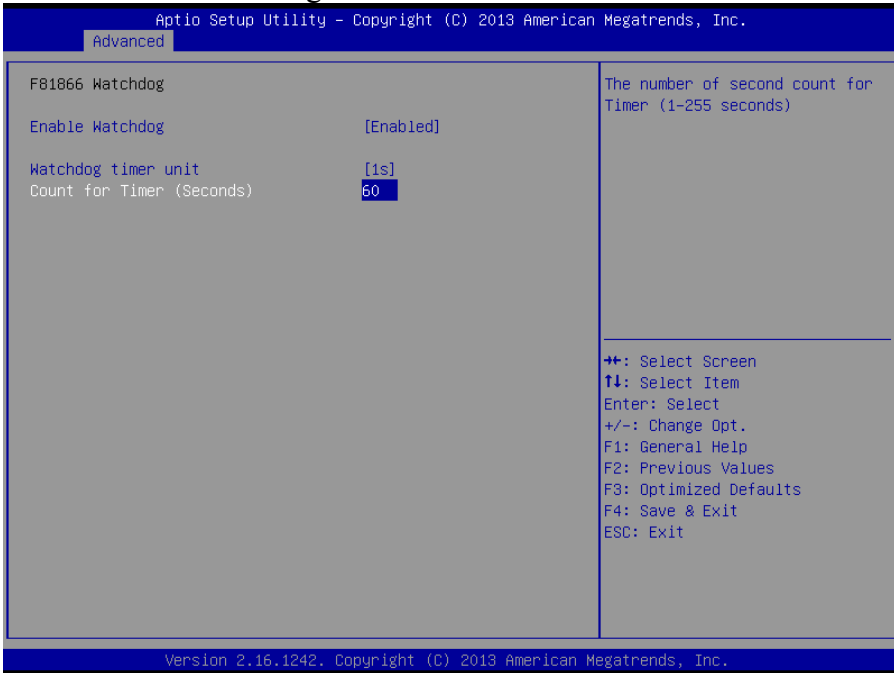
Figure 4-8. F81866 Watchdog Screen

BIOS Setting	Options	Description/Purpose
Enable WatchDog	-Enabled -Disable	Enable/ disable the watchdog timer.
Watchdog timer unit	-1s -60s	Select the time interval in seconds or minutes
Count for Timer (Seconds)	multiple options ranging from 1 to 255	Set the desired value (seconds) for the watchdog timer.

4.4.4   CPU Configuration

Select **CPU Configuration** from the **Advanced** menu and press **Enter** to view CPU signature, configure Socket 0 CPU information, view CPU speed, 64-bit support, enable/disable the legacy operating systems to boot processors with extended CPUID functions, etc.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Advanced

    CPU Configuration                                      Socket specific CPU Information

  ▶ Socket 0 CPU Information

    CPU Speed                       2001 MHz
    64-bit                          Supported

    Active Processor Cores          [All]
    Limit CPUID Maximum             [Disabled]
    Intel Virtualization Technology [Enabled]



                                                        ↔: Select Screen
                                                        ↑↓: Select Item
                                                        Enter: Select
                                                        +/-: Change Opt.
                                                        F1: General Help
                                                        F2: Previous Values
                                                        F3: Optimized Defaults
                                                        F4: Save & Exit
                                                        ESC: Exit




              Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-9. Advanced Menu > CPU Configuration Screen

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

4.4.4.1 Socket 0 CPU Information

Select **CPU Configuration > Socket 0 CPU Information** from the **Advanced** menu and press **Enter** to view the relevant settings.

```
                 Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Advanced

    Socket 0 CPU Information

    Intel(R) Celeron(R) CPU J1900 @ 1.99GHz
    CPU Signature                30673
    Microcode Patch              320
    Max CPU Speed                1990 MHz
    Min CPU Speed                1334 MHz
    Processor Cores              4
    Intel HT Technology          Not Supported
    Intel VT-x Technology        Supported

    L1 Data Cache                24 kB x 4
    L1 Code Cache                32 kB x 4                →←: Select Screen
    L2 Cache                     1024 kB x 2             ↑↓: Select Item
    L3 Cache                     Not Present             Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit




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```

Figure 4-10. Socket 0 CPU Information Screen

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

4.4.5 IDE Configuration

Select **CPU Configuration > IDE Configuration** from the **Advanced** menu and press **Enter** to configure relevant SATA settings.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
     Advanced

      IDE Configuration                                       Enable / Disable Serial ATA

      Serial-ATA (SATA)                [Enabled]
      SATA Test Mode                   [Disabled]

      SATA Speed Support               [Gen2]
      SATA Mode                        [AHCI Mode]

      SATA Port 0(Note*1)              [Enabled]
      SATA Port0 HotPlug               [Disabled]

      SATA Port 1(Note*2)              [Enabled]
      SATA Port1 HotPlug               [Disabled]

      SATA Port0                                              →←: Select Screen
      WDC WD1600BEVT (160.0GB)                                ↑↓: Select Item
                                                              Enter: Select
      SATA Port1                                              +/-: Change Opt.
      Not Present                                             F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit

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```

Figure 4-11. IDE Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial-ATA Controller(s)	- Disabled - Enabled	Enable or disable SATA Device.
SATA Test Mode	- Disabled - Enabled	Enable or disable SATA Test Mode.
SATA Speed Support	- GEN1 - GEN2	Gen1 mode sets the device to 1.5 Gbit/s speed. Gen2 mode sets the device to 3 Gbit/s speed (in case it is compatible).
SATA Mode	- IDE mode - AHCI mode	Configure SATA as following: • **IDE:** Set SATA operation mode to IDE mode. • **AHCI:** SATA works as AHCI (Advanced Host Controller Interface) mode for getting better performance.
SATA Port 0(Note*1)	- Disabled - Enabled	Enable or disable SATA port 0 device.
SATA Port 0 HotPlug	- Disabled - Enabled	Enable or disable SATA port 0 device Hot Plug

BIOS Setting	Options	Description/Purpose
SATA Port 1(Note*2)	- Disabled - Enabled	Enable or disable SATA port 1 device.
SATA Port 1 HotPlug	- Disabled - Enabled	Enable or disable SATA port 1 Device Hot Plug
SATA Port 0	[drive]	Display the drive installed on this SATA port 0. Shows [Empty] if no drive is installed. If the mother board supports RAID, it will show ASMT109x- Conf (0.1GB)
SATA Port 1	[drive]	Display the drive installed on this SATA port 1. Shows [Empty] if no drive is installed.

4.4.6   OS Selection

Select **CPU Configuration > OS Selection** from the **Advanced** menu and press **Enter** to select the Windows operating system.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Advanced

    OS Selection                                           OS Selection
    OS Selection                       [Windows 7]




                                                           →←: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit




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```
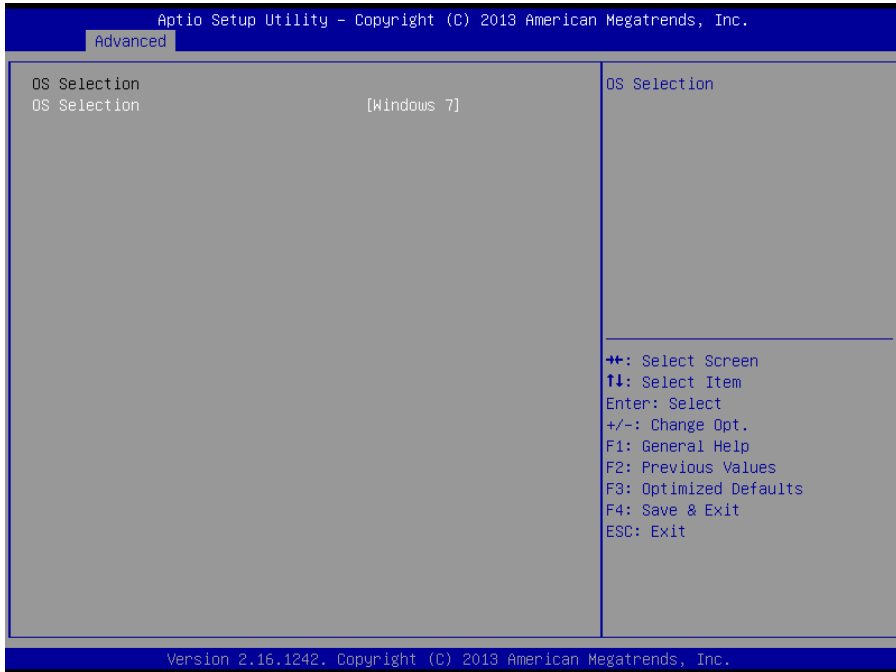
Figure 4-12. OS Selection Screen

BIOS Setting	Options	Description/Purpose
OS Selection	- Windows 8 - Android - Windows 7	Operating System Selection

4.4.7 Voltage/RI Adjustment Configuration

Select **CPU Configuration > Voltage/RI Adjust Configuration** from the **Advanced** menu and press **Enter** to configure the voltage levels of COM1-COM4 and cash drawer.
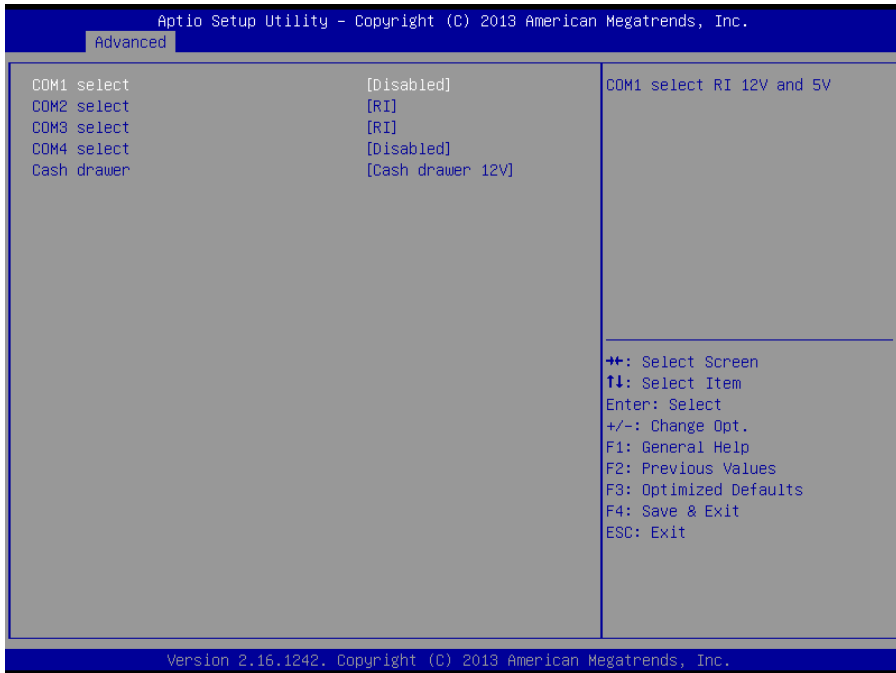
Figure 4-13. Voltage/RI Adjustment Screen

BIOS Setting	Options	Description/Purpose
COM1 Select	- Disabled - RI -12V -5V	Select the voltage level of COM1 port.
COM2 Select	- Disabled - RI -12V -5V	Select the voltage level of COM2 port.
COM3 Select	- Disabled - RI -12V -5V	Select the voltage level of COM3 port.
COM4 Select	- Disabled - RI -12V	Select the voltage level of COM4 port.

BIOS Setting	Options	Description/Purpose
	-5V	
Cash drawer	- Cash drawer 12V - Cash drawer 24V	Select the voltage level of the cash drawer.

4.4.8   CSM Configuration

Select **CPU Configuration > CSM Configuration** from the **Advanced** menu and press **Enter** to configure the relevant CSM settings.
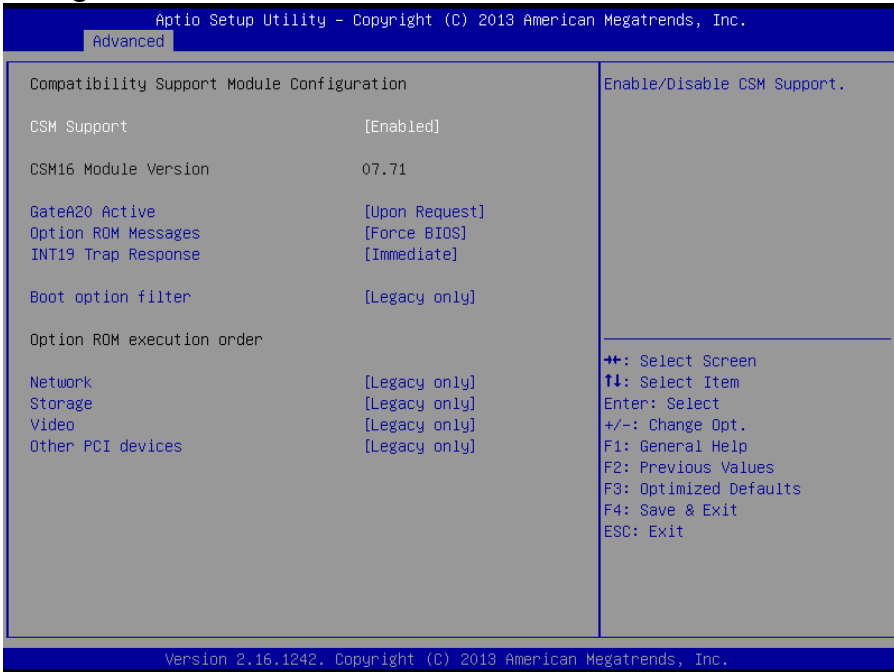
Figure 4-14. CSM Configuration Screen

BIOS Setting	Options	Description/Purpose
CSM Support	- Disabled - Enabled	Disable or enable CSM support
CSM16 Module Version	No changeable options	Display 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.
Option ROM Messages	- Force BIOS - Keep Current	Set the display mode for Option ROM messages.

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

4.4.9 USB Configuration

Select **CPU Configuration > USB Configuration** from the **Advanced** menu and press **Enter** to configure the relevant USB settings.

```
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     Advanced

  USB Configuration                                       Enables Legacy USB support.
                                                          AUTO option disables legacy
  USB Module Version              8.11.01                 support if no USB devices are
                                                          connected. DISABLE option will
  USB Devices:                                            keep USB devices available
       1 Drive, 1 Keyboard, 3 Hubs                        only for EFI applications.

  Legacy USB Support              [Enabled]
  XHCI Hand-off                   [Enabled]
  EHCI Hand-off                   [Disabled]
  USB Mass Storage Driver Support [Enabled]

  USB hardware delays and time-outs:
  USB transfer time-out           [20 sec]                ↔: Select Screen
  Device reset time-out           [20 sec]                ↑↓: Select Item
  Device power-up delay           [Auto]                  Enter: Select
                                                          +/-: Change Opt.
  Mass Storage Devices:                                   F1: General Help
  JetFlashTranscend 4GB 8.07      [Auto]                  F2: Previous Values
                                                          F3: Optimized Defaults
                                                          F4: Save & Exit
                                                          ESC: Exit



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```

Figure 4-15. USB Configuration Screen

BIOS Setting	Options	Description/Purpose
USB Devices	No changeable options	Display the number of available USB devices.
Legacy USB Support	- Disabled - Enabled - Auto	Enable the support for legacy USB.
USB3.0 Support	- Disabled - Enabled	Enable/disable USB3.0 (XHCI) Controller support.
EHCI Hand-of	- Disabled - Enabled	This is a workaround for OSes without EHCI hand-off support.
USB Mass Storage Driver Support	- Disabled - Enabled	Enable/disable 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	The maximum time that the device will take before it properly reports itself to the Host Controller. **Auto** uses the default value: for a Root

BIOS Setting	Options	Description/Purpose
		port, it is 100 ms; for a Hub port, the delay is taken from Hub descriptor.
Device power-up delay in seconds	multiple options ranging from 0 to 40	The delay range is from 1 to 40 seconds in one second increment.
Mass Storage Devices:	- Auto - Floppy - Force FDD - Hard Disk - CD-ROM	Display the device name and choose the device emulation type.

4.4.10 Super IO Configuration

Select **Super IO Configuration** from the **Advanced** menu and press **Enter** to configure the serial ports 1-4, parallel port and PS2 Controller.
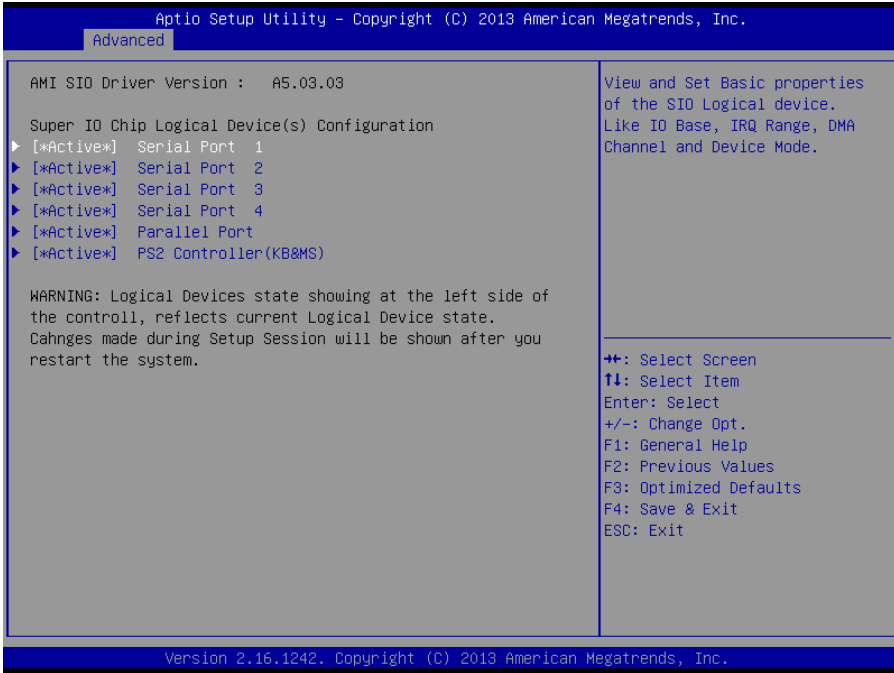
Figure 4-16. Super IO Configuration Screen

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

4.4.10.1   Serial Port 1 Configuration

Select **Super IO Configuration** from the **Advanced** menu and select **Serial Port 1 Configuration**, and press **Enter** to configure relevant settings.

```
              Aptio Setup Utility – Copyright (C) 2013 American Megatrends, Inc.
       Advanced

    Serial Port  1 Configuration                              Enable or Disable this Logical
                                                              Devcie.
    Use This Device                       [Enabled]

    Logical Device Settings:
    Current :    IO=3F8h; IRQ=4;

    Possible:                           [Use Automatic Settings]

    WARNING: disabling SIO Logical Devices may have unwanted
    side effects.
    PROCEED WITH CAUTION.

                                                              →←: Select Screen
                                                              ↑↓: Select Item
                                                              Enter: Select
                                                              +/-: Change Opt.
                                                              F1: General Help
                                                              F2: Previous Values
                                                              F3: Optimized Defaults
                                                              F4: Save & Exit
                                                              ESC: Exit

              Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-17. Serial Port 1 Configuration Screen

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

4.4.10.2 Serial Port 2 Configuration

Select **Super IO Configuration** from the **Advanced** menu and select **Serial Port 2 Configuration**, and press **Enter** to configure relevant settings.

```
                    Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
          Advanced

         Serial Port  2 Configuration                            Enable or Disable this Logical
                                                                 Devcie.
         Use This Device                      [Enabled]

         Logical Device Settings:
         Current  :    IO=2F8h; IRQ=3;

         Possible:                            [Use Automatic Settings]

         WARNING: disabling SIO Logical Devices may have unwanted
         side effects.
         PROCEED WITH CAUTION.

                                                                 ++: Select Screen
                                                                 ↑↓: Select Item
                                                                 Enter: Select
                                                                 +/-: Change Opt.
                                                                 F1: General Help
                                                                 F2: Previous Values
                                                                 F3: Optimized Defaults
                                                                 F4: Save & Exit
                                                                 ESC: Exit



                    Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-18. Serial Port 2 Configuration Screen

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

4.4.10.3 Serial Port 3 Configuration

Select **Super IO Configuration** from the **Advanced** menu and select **Serial Port 3 Configuration**, and press **Enter** to configure relevant settings.

```
             Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
         Advanced

    Serial Port  3 Configuration                         Enable or Disable this Logical
                                                         Devcie.
    Use This Device                    [Enabled]

    Logical Device Settings:
    Current :     IO=3E8h; IRQ=7;

    Possible:                          [Use Automatic Settings]

    WARNING: disabling SIO Logical Devices may have unwanted
    side effects.
    PROCEED WITH CAUTION.

                                                         →←: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit



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```

Figure 4-19. Serial Port 3 Configuration Screen

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

BIOS Setting	Options	Description/Purpose
	IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12 DMA	

4.4.10.4 Serial Port 4 Configuration

Select **Super IO Configuration** from the **Advanced** menu and select **Serial Port 4 Configuration**, and press **Enter** to configure relevant settings.

```
          Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Advanced

     Serial Port  4 Configuration                        Enable or Disable this Logical
                                                         Devcie.
     Use This Device                    [Enabled]

     Logical Device Settings:
     Current :    IO=2E8h; IRQ=10;

     Possible:                          [Use Automatic Settings]

     WARNING: disabling SIO Logical Devices may have unwanted
     side effects.
     PROCEED WITH CAUTION.

                                                         ↔: Select Screen
                                                         ↑↓: Select Item
                                                         Enter: Select
                                                         +/-: Change Opt.
                                                         F1: General Help
                                                         F2: Previous Values
                                                         F3: Optimized Defaults
                                                         F4: Save & Exit
                                                         ESC: Exit

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```

Figure 4-20. Serial Port 4 Configuration Screen

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

BIOS Setting	Options	Description/Purpose
	-IO=3E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=2E8h; IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=2F0h; IRQ=3,4,5,6,7,9,10,11,12 DMA -IO=2E0h; IRQ=3,4,5,6,7,9,10,11,12 DMA	

4.4.10.5   Parallel Port Configuration

Select **Super IO Configuration** from the **Advanced** menu and select **Parallel Port Configuration**, and press **Enter** to configure relevant settings.
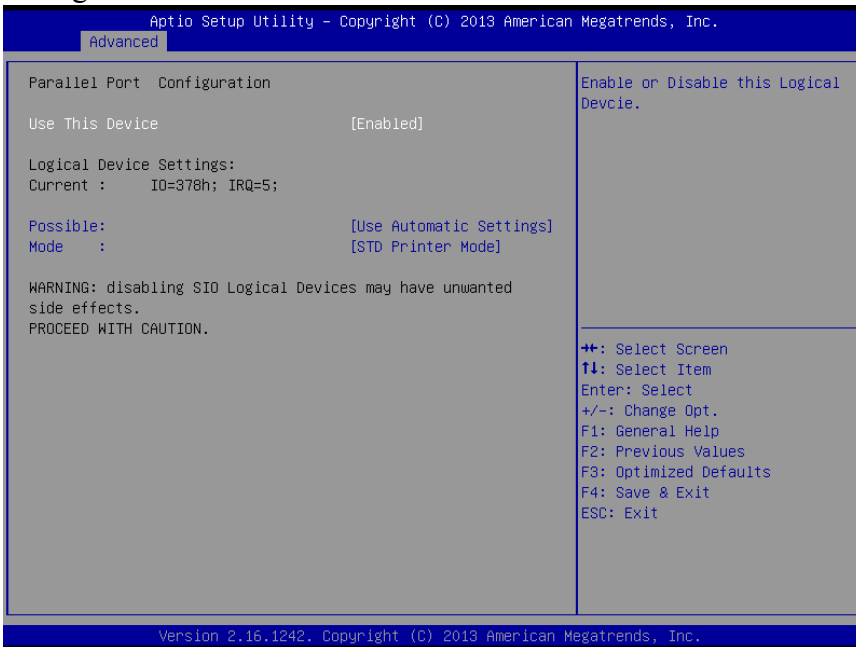
Figure 4-21. Parallel Port Configuration Screen

BIOS Setting	Options	Description/Purpose
Use This Device	-Disabled -Enabled	Enable or disable the printer port.
Logical device setting	No changeable options	Display the current settings of the printer port.
Possible:	- Use Automatic Settings -IO=378h; IRQ=5	Select the IRQ and I/O resource setting for the printer port.

BIOS Setting	Options	Description/Purpose
	-IO=378h; IRQ=5,6,7,9,10,11,12 -IO=278h; IRQ=5,6,7,9,10,11,12 -IO=3BCh; IRQ=5,6,7,9,10,11,12	
Mode	-STD Printer Mode -SPP Mode -EPP-1.9 and SPP Mode -EPP-1.7 and SPP Mode -ECP Mode -ECP and EPP 1.9 Mode -ECP and EPP 1.7 Mode	Select the mode for the parallel port. Not available if the parallel port is disabled. **SPP** is the Standard Parallel Port mode, a bi-directional mode for printers. **EPP** is the Enhanced Parallel Port mode, a high-speed bi-directional mode for non-printer peripherals. **ECP** is the Enhanced Capability Port mode, a high-speed bi-directional mode for printers and scanners.

4.4.10.6   PS2 Controller Configuration

Select **Super IO Configuration** from the **Advanced** menu and select **PS2 Controller Configuration**, and press **Enter** to configure relevant settings.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
      Advanced

   PS2 Controller(KB&MS)  Configuration              Enable or Disable this Logical
                                                     Devcie.
   Use This Device                  [Enabled]

   Logical Device Settings:
   Current :     IO=60h; IO=64h; IRQ=1;

   Possible:                        [Use Automatic Settings]

   WARNING: disabling SIO Logical Devices may have unwanted
   side effects.
   PROCEED WITH CAUTION.

                                                     ++: Select Screen
                                                     ↑↓: Select Item
                                                     Enter: Select
                                                     +/-: Change Opt.
                                                     F1: General Help
                                                     F2: Previous Values
                                                     F3: Optimized Defaults
                                                     F4: Save & Exit
                                                     ESC: Exit

            Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-22. PS2 Controller (KB & MS) Configuration Screen

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

4.5   Chipset Menu

Select the **Chipset** menu and press **Enter** to configure the North Bridge and South Bridge.
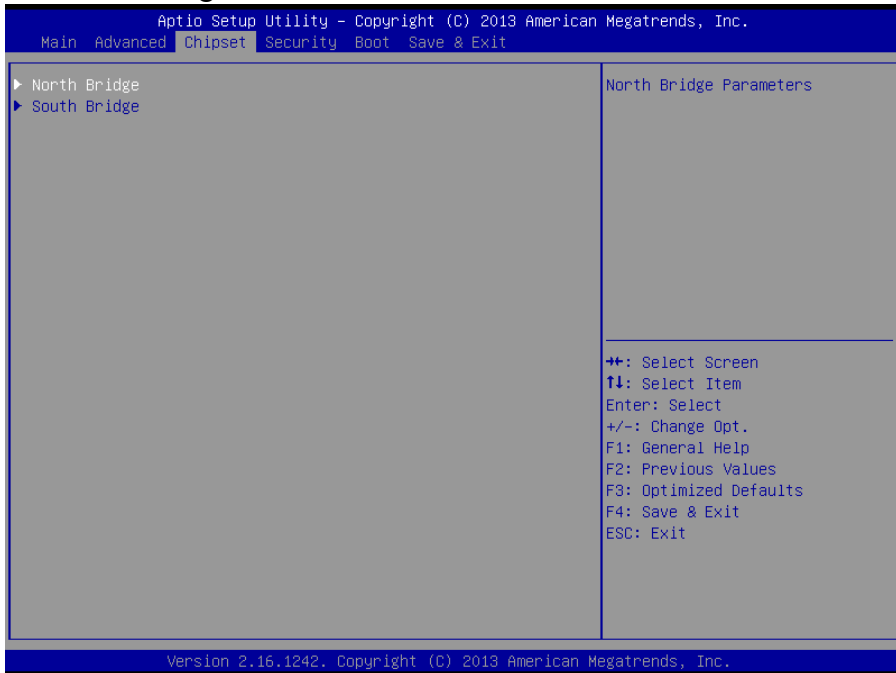
Figure 4-23. Chipset Menu Screen

BIOS Setting	Options	Description/Purpose
North Bridge	Sub-menu	Set the parameter for North Bridge configuration.
South Bridge	Sub-menu	Set the parameter for South Bridge configuration.

4.5.1   Configuring North Bridge

Select the **North Bridge** option from the **Chipset** menu, and press **Enter** to configure relevant parameters.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                   Chipset

▶ Intel IGD Configuration                              Config Intel IGD Settings.

  Memory Information

  Total Memory                      4096 MB (LPDDR3)




                                                       →←: Select Screen
                                                       ↑↓: Select Item
                                                       Enter: Select
                                                       +/-: Change Opt.
                                                       F1: General Help
                                                       F2: Previous Values
                                                       F3: Optimized Defaults
                                                       F4: Save & Exit
                                                       ESC: Exit



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```
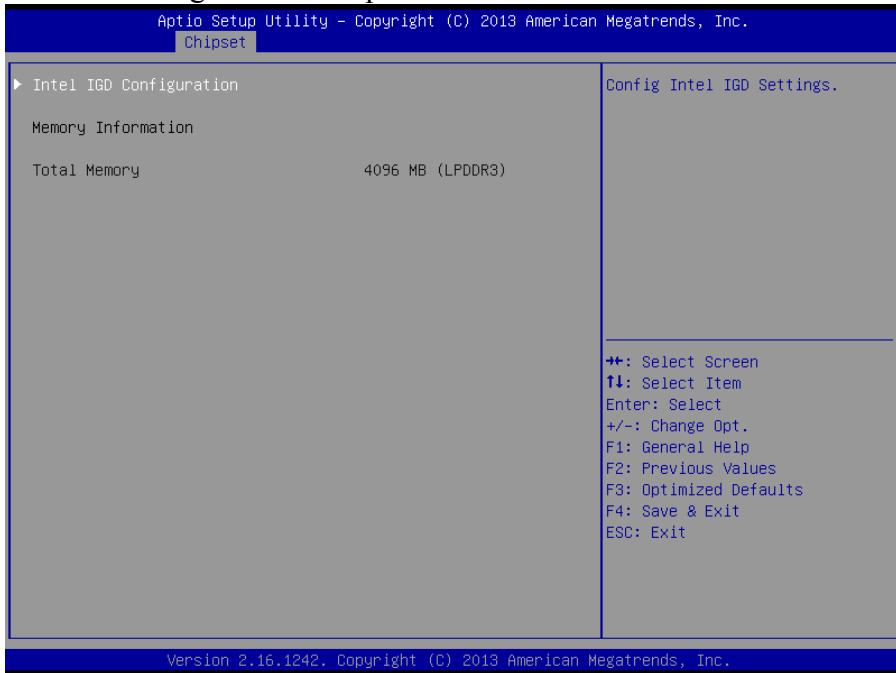
Figure 4-24. North Bridge Configuration Screen

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

4.5.1.1 GOP Configuration

Select **GOP Configuration** from **Chipset** menu **> North Bridge** > **Intel IGD Configuration** and press **Enter** to configure relevant parameters.

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                 Chipset

    GOP Configuration                                      Enable GOP Driver will unload
    GOP Driver                      [Enabled]              VBIOS; Disbale it will load
                                                           VBIOS
    Intel IGD Configuration

    Integrated Graphics Device      [Enabled]

    IGD Turbo Enable                [Enabled]
    GFX Boost                       [Disabled]
    DVMT Pre-Allocated              [64M]


                                                           ++: Select Screen
                                                           ↑↓: Select Item
                                                           Enter: Select
                                                           +/-: Change Opt.
                                                           F1: General Help
                                                           F2: Previous Values
                                                           F3: Optimized Defaults
                                                           F4: Save & Exit
                                                           ESC: Exit



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```

Figure 4-25. Intel IGD Configuration Screen

BIOS Setting	Options	Description/Purpose
GOP Driver	- Disabled - Enabled	Enable or disable GOP Driver for UEFI OS
Intel IGD Configuration	No changeable options	Display the IGD information on platform.
Integrated Graphics Device	- Disabled - Enabled	• **Enabled:** Enable Integrated Graphics Device (IGD) when selected as the Primary Video Adaptor. • **Disabled:** Always disable IGD.
IGD Turbo Enable	- Disabled - Enabled	Enable or disable IGD Turbo
GFX Boost	- Disabled - Enabled	Enable or disable GFX Boost accelerated graphics processing
DVMT Pre-Allocated	- 32M	Select DVMT 5.0 Pre-Allocated (Fixed)

BIOS Setting	Options	Description/Purpose
	- 64M - 96M - 128M - 256M - 512M	Graphics Memory size used by the Internal Graphics Device.

4.5.2   South Bridge

Select **South Bridge** from the **Chipset** menu, and press **Enter** to configure relevant parameters.
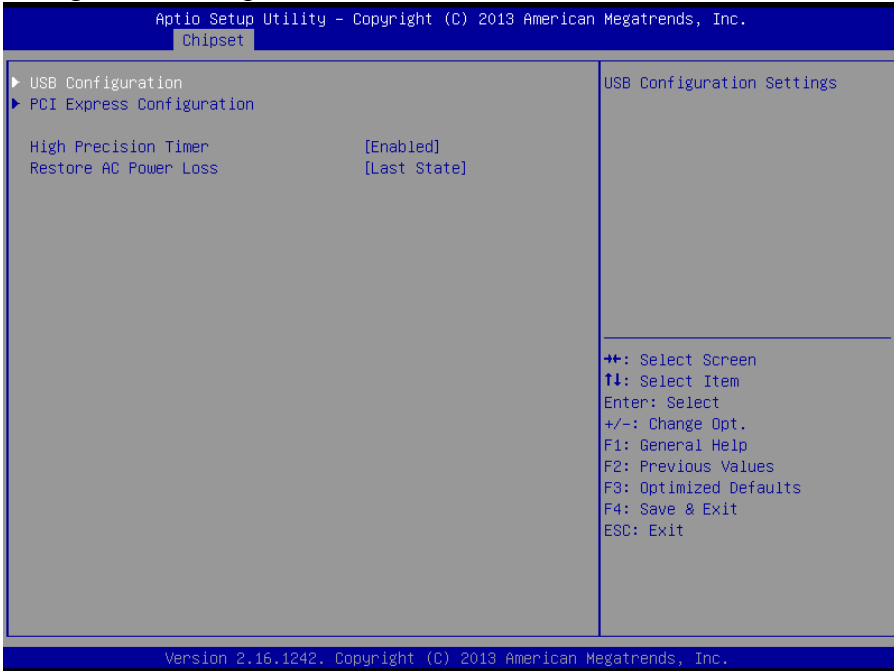
Figure 4-26. South Bridge Screen

BIOS Setting	Options	Description/Purpose
USB Configuration	Sub-menu	Configure USB parameters.
PCI Express Configuration	Sub-menu	Configure PCH PCIE parameters
High Precision Timer	- Disabled - Enabled	Enable or disable the HPET (High Precision Event Timer)
Restore AC Power Loss	- Power Off - Power On - Last State	Select the AC power state when the power supply is restored following a power failure. • **Power Off** keeps the power off unless the power button is pressed. • **Power On** keeps the system power on

BIOS Setting	Options	Description/Purpose
		after the AC power is restored to the board.
		• **Last State** brings the system back to the last power state before the AC power is lost.

4.5.3   USB Configuration

Select the **South Bridge** option from the **Chipset** menu, and select **USB Configuration** and press **Enter** to configure relevant parameters.

```
              Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                   Chipset

        USB Configuration                                    Control the USB EHCI (USB 2.0)
                                                             functions.  One EHCI
                                                             controller must always be
        USB 2.0(EHCI) Support            [Enabled]           enabled
        USB Per Port Control             [Enabled]
        USB Port 0                       [Enabled]
        USB Port 1                       [Enabled]
        USB Port 2                       [Enabled]
        USB Port 3                       [Enabled]



                                                             →←: Select Screen
                                                             ↑↓: Select Item
                                                             Enter: Select
                                                             +/-: Change Opt.
                                                             F1: General Help
                                                             F2: Previous Values
                                                             F3: Optimized Defaults
                                                             F4: Save & Exit
                                                             ESC: Exit



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```

Figure 4-27. Chipset Menu > USB Configuration Screen

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

BIOS Setting	Options	Description/Purpose
	- Enabled	
USB Port 3	- Disabled - Enabled	Enable or disable USB Port 3.

4.5.4   PCI Express Configuration

Select the **South Bridge** option from the **Chipset** menu, and select **PCI Express Configuration** and press **Enter** to enable/disable the PCI Express Ports 0-3, and their speeds.

```
Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
        Chipset

 PCI Express Configuration                          Enable or Disable the PCI
 PCI Express Port 0 (Note*1)        [Enabled]       Express Port 0 in the Chipset.
 Speed                              [Auto]
                                                    Note*1
                                                     If the "Slot_2" of the board
 PCI Express Port 2(For mini PCI-E) [Enabled]       support PCIE function, the
 Speed                              [Auto]          switch could control it.

 PCI Express Port 3(For RTL8111)    [Enabled]
 Speed                              [Auto]

                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit

        Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-28. PCI Express Configuration Screen

BIOS Setting	Options	Description/Purpose
PCI Express Port 0 (Note*1)	- Disabled - Enabled	Enable or disable PCI Express Port 0.
speed	- Auto - Gen1 - Gen2	Select the speed of PCI Express Port 0.
PCI Express Port 2(For mini PCI-E)	- Disabled - Enabled	Enable or disable PCI Express Port 2.
speed	- Auto - Gen1 - Gen2	Select the speed of PCI Express Port 2.
PCI Express Port 3	- Disabled	Enable or disable PCI Express Port 3.

BIOS Setting	Options	Description/Purpose
(For RTL8111)	- Enabled	
speed	- Auto - Gen1 - Gen2	Select the speed of PCI Express Port 3.

4.6   Security Menu

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 are allowed to 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 many of the features in the Setup utility.

```
        Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
    Main  Advanced  Chipset  Security  Boot  Save & Exit

  Password Description                             Set Administrator Password

  If ONLY the Administrator's password is set,
  then this only limits access to Setup and is
  only asked for when entering Setup.
  If ONLY the User's password is set, then this
  is a power on password and must be entered to
  boot or enter Setup. In Setup the User will
  have Administrator rights.
  The password length must be
  in the following range:                         →←: Select Screen
  Minimum length                 3                 ↑↓: Select Item
  Maximum length                 20                Enter: Select
                                                   +/-: Change Opt.
                                                   F1: General Help
                                                   F2: Previous Values
  Administrator Password                           F3: Optimized Defaults
  User Password                                    F4: Save & Exit
                                                   ESC: Exit

  HDD Security Configuration:
  P0:WDC WD10EADS

        Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-29. BIOS Password Configuration Screen

Configure the Administrator Password according to the password policy specified below:

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

Follow the instructions below to configure the administrator password:
1. Select the **Administrator Password** item and press **Enter**.
2. Type in the new administrator password and press **Enter** when you are finished.
3. Another dialog box prompts you to retype the password for confirmation. Retype the password correctly and press **Enter**.
4. Navigate back to the main menu and select **SAVE & EXIT** menu. Your system will then reboot and you'll be prompted for the password.

To remove the password protection, highlight the **Administrator Password** item and type in the current password. Press **Enter** to disable the password protection from the dialog box that opens.

4.7 Boot Menu

Select the **Boot** menu to configure the boot sequence and priority of the boot devices.
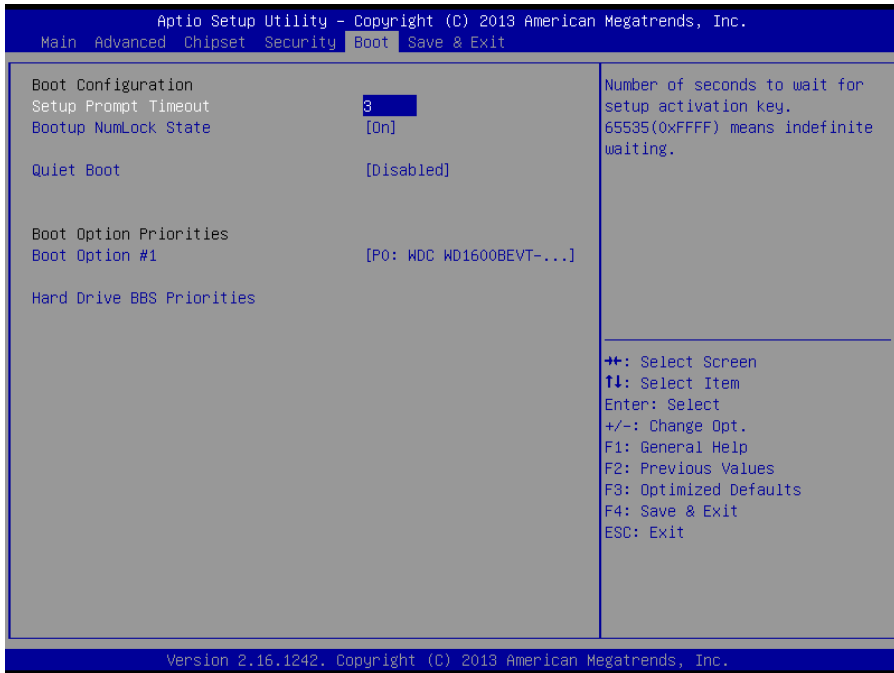
Figure 4-30. Boot Configuration Screen

BIOS Setting	Option	Description/Purpose
Setup Prompt Timeout	Numeric	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On - Off	Select the NumLock sate after the system is powered on. • **On:** Enable the NumLock function automatically after the system is powered on. • **Off:** Disable the NumLock function after the system is powered on.
Quiet Boot	- Disabled - Enabled	Enable/Disable Quiet Boot Options.
Boot Option #1~#n	- [Drive(s)] - Disabled	Allow users to set the boot option listed in Hard Drive BBS Priorities.
Hard Drive BBS Priorities	Sub-Menu	Allow users to select the boot order of the available drive(s).

4.7.1   Configuring Hard Drive BBS Priorities

Select **Hard Drive BBS Priorities** from the **Boot** menu to configure the boot sequence and priority of the available drives.
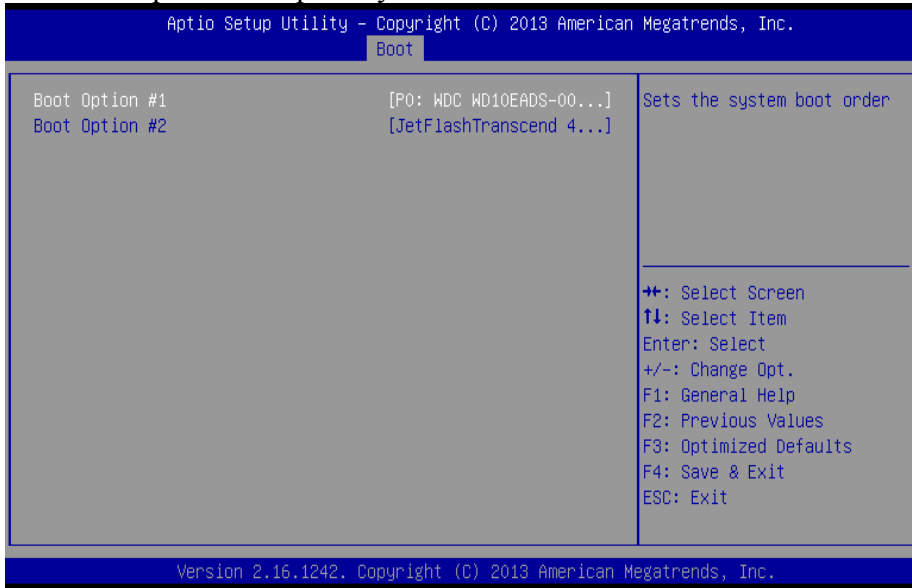
Figure 4-31. Hard Drive BBS Priorities Screen

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

4.8   Save & Exit Menu

To save and validate the changed BIOS settings, select the **Save & Exit** menu and the following page will display:

```
            Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
   Main  Advanced  Chipset  Security  Boot  Save & Exit

   Save Changes and Exit                            Exit system setup after saving
   Discard Changes and Exit                         the changes.
   Save Changes and Reset
   Discard Changes and Reset


   Restore Defaults

   Boot Override
   P0: WDC WD1600BEVT-00A23T0



                                                    →←: Select Screen
                                                    ↑↓: Select Item
                                                    Enter: Select
                                                    +/-: Change Opt.
                                                    F1: General Help
                                                    F2: Previous Values
                                                    F3: Optimized Defaults
                                                    F4: Save & Exit
                                                    ESC: Exit



            Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

Figure 4-32. Save & Exit Menu Screen

Configure the following fields according to your needs:

BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable option	Exit and save the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exit the system without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Save the changes in NVRAM and reset the system.
Discard Changes and Reset	No changeable options	Reset the system without saving any changes made in BIOS settings.
Restore Defaults	No changeable options	Load the optimized defaults for BIOS settings.
Boot Override	- [Drive(s)]	Force to boot from the selected [drive(s)].

Appendix A   System Diagrams

This appendix contains exploded diagrams and part numbers of the KF-7131 system.

The following topics are included:

- Front Base Bracket Assembly

- Barcode Scanner Bracket Assembly

- Front Decoration Bracket Assembly

- Ticket Holder and Card Bracket Assembly

- Front Panel Cover Parts Assembly-1

- Front Panel Cover Parts Assembly-2

- Front Panel with Main Body Assembly

- Main Body Assembly

- NFC Cover and Bracket Assembly

- Main Body Internal Parts Assembly

- Drawer Parts Assembly

- SSD Bracket Assembly

- Packing Assembly

Front Base Bracket Assembly
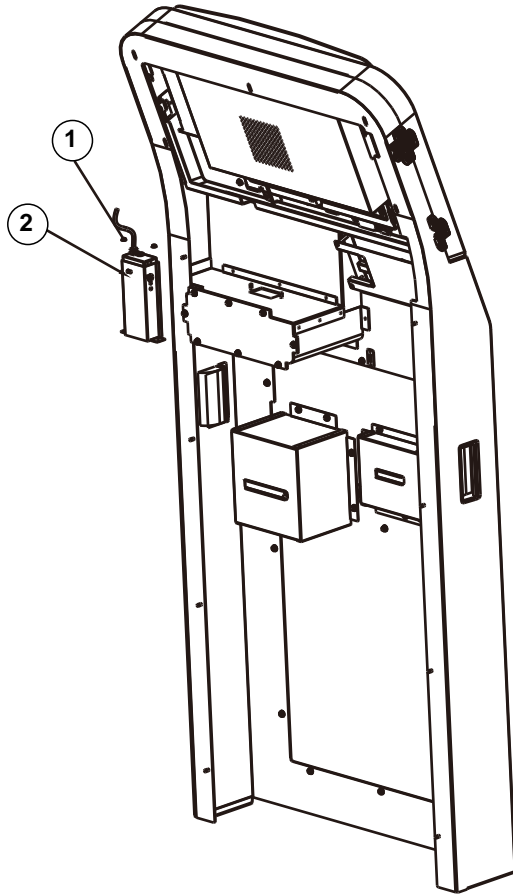
No.	Component Name	Part No.	Q'ty
1	SLIP NUTS (M4x0.7P, H=4.5mm)	23-142-40450801	2
2	BARCODE_SCANNER_ASSM		1

Barcode Scanner Bracket Assembly
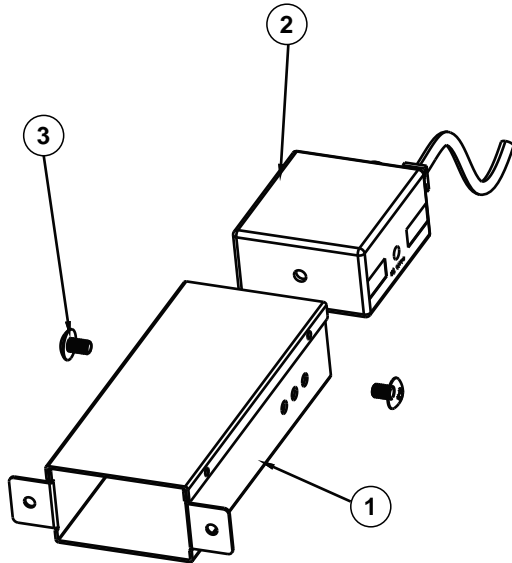
No.	Component Name	Part No.	Q'ty
1	BARCODE_SCANNER_HOLDER	80-029-03061391	1
2	RIOTEC_FS5020J		1
3	TRUSS HEAD SCREW M5x0.8Px8mm	22-242-50008011	2

Front Decoration Bracket Assembly
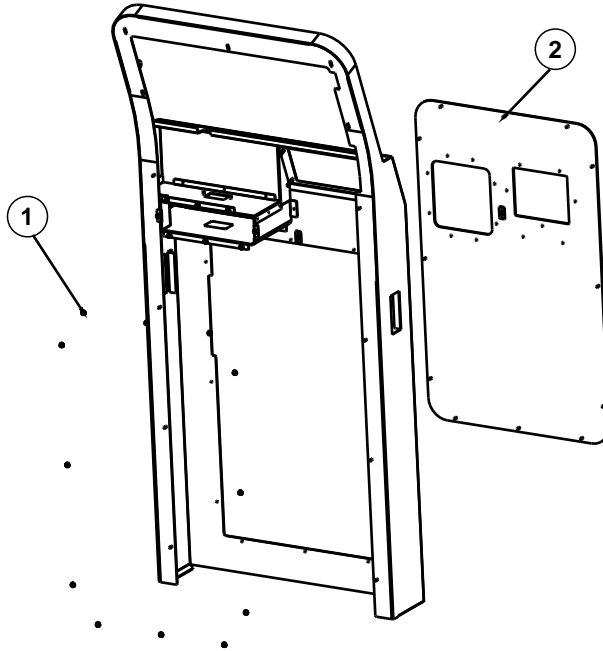
No.	Component Name	Part No.	Q'ty
1	SLIP NUTS (M4x0.7P, H=4.5mm)	23-142-40450801	12
2	FRONT_DECORATION_BRACKET	80-006-02064391	1

Ticket Holder and Card Bracket Assembly
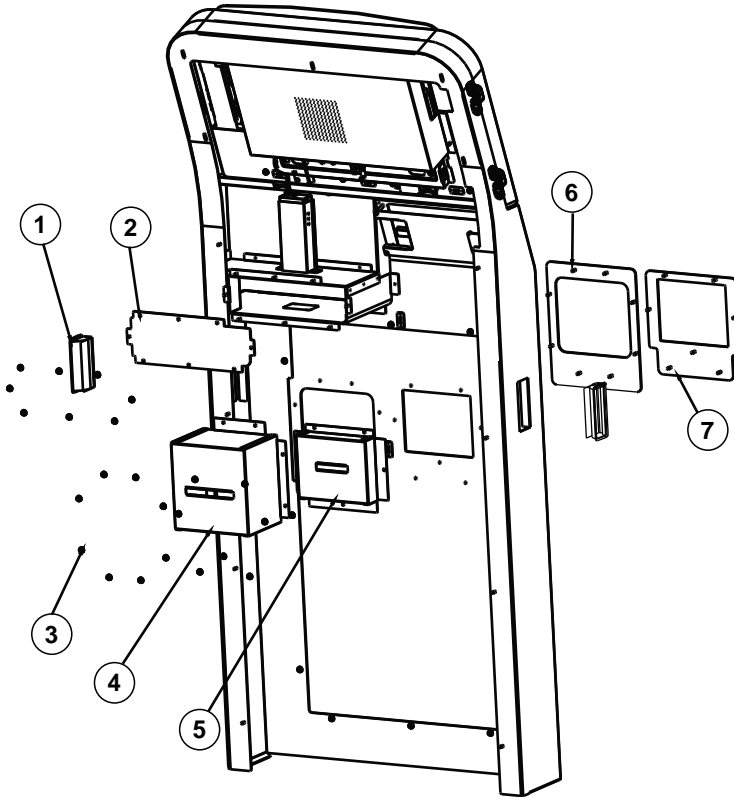
No.	Component Name	Part No.	Q'ty
1	PK-7090 PULL	30-080-08110284	2
2	BARCODE_SCANNER_BOT_BRACKET	80-006-02061391	1
3	SLIP NUTS (M4x0.7P, H=4.5mm)	23-142-40450801	23
4	TICKET_HOLDER	80-029-03063391	1
5	CARD_HOLDER	80-029-03062391	1
6	TICKET_BRACKET	80-006-02069391	1
7	CARD_BRACKET	80-006-02062391	1

Front Panel Cover Parts Assembly-1
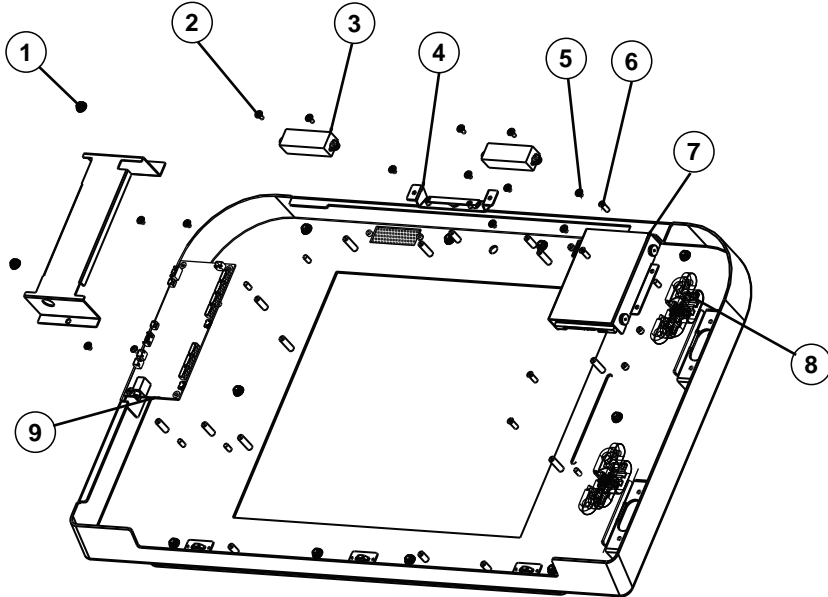
No.	Component Name	Part No.	Q'ty
1	SLIP NUTS (M4x0.7P, H=4.5mm)	23-142-40450801	2
2	ROUND WASHER HEAD SCREW M3x0.5Px7mm	22-232-30007011	4
3	SPEAKER		2
4	CAMERA_ASSM		1
5	ROUND WASHER HEAD SCREW M3x0.5Px5mm	22-242-30005311	10
6	FLAT HEAD SCREW M4x0.7Px10mm	22-215-40010011	4
7	SSD_ASSM		1
8	180D CONCEALED HINGE	20-012-35001375	2
9	KF-7130_PCB_ASSM		1

Front Panel Cover Parts Assembly-2
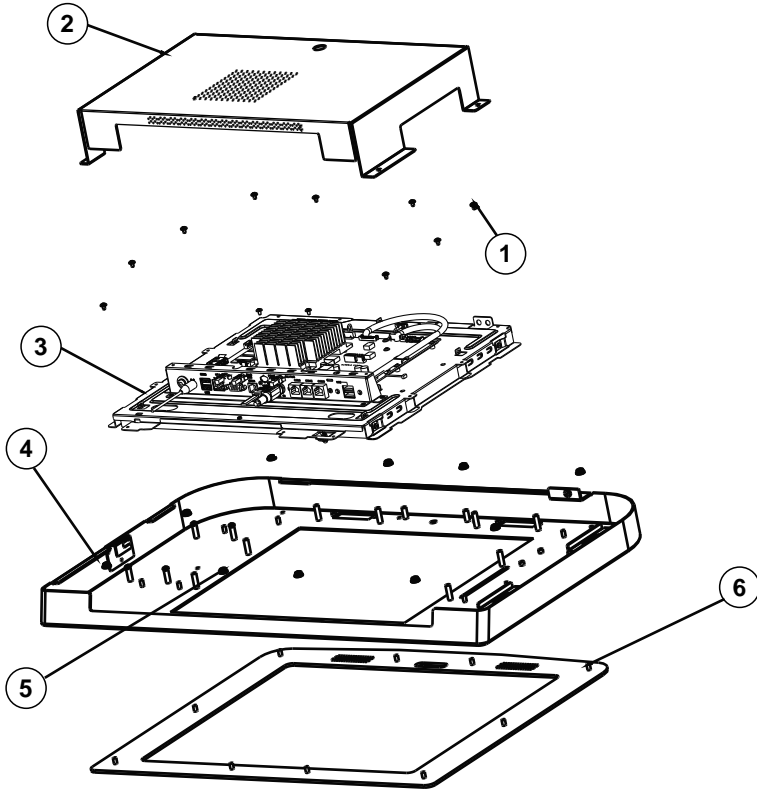
No.	Component Name	Part No.	Q'ty
1	ROUND WASHER HEAD SCREW M3x0.5Px5mm	22-242-30005311	14
2	TOUCH_PANEL_BACK_BRACKET	80-006-03117391	1
3	LCD_ASSY		1
4	FRONT_PANEL_COVER_BRACKET	80-006-03061391	1
5	SLIP NUTS (M4x0.7P, H=4.5mm)	23-142-40450801	10
6	TOUCH_PANEL_BRACKET	80-006-02110391	1

Front Panel with Main Body Assembly
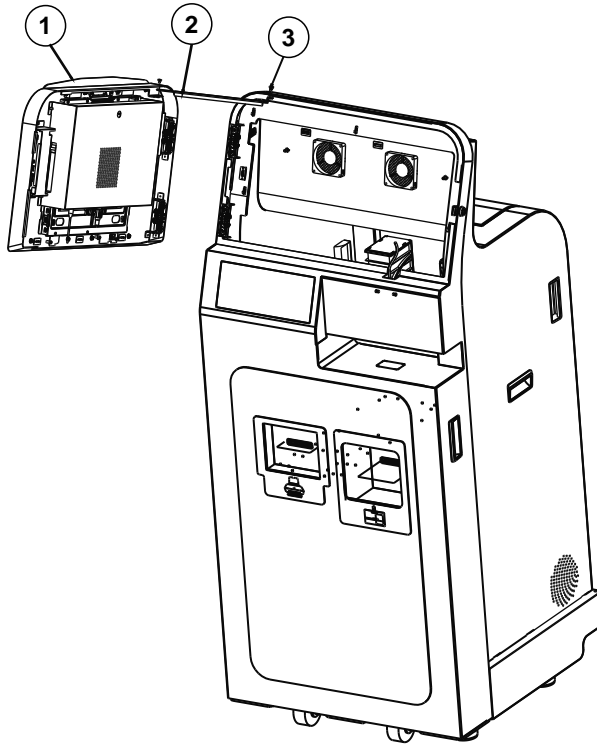
No.	Component Name	Part No.	Q'ty
1	FRONT_BASE_ASSM		1
2	PANEL_LINK_BRACKET	80-006-03008391	1
3	FILLISTR HEAD SCREW M4x0.7Px4mm	22-272-40004311	2

Main Body Assembly
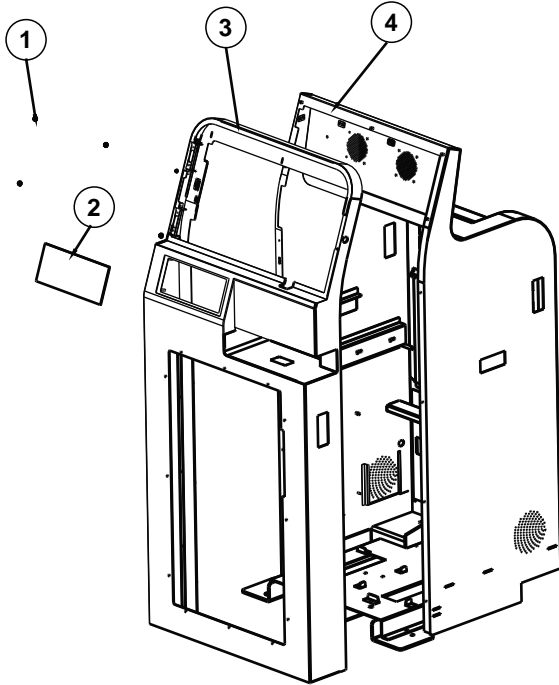
No.	Component Name	Part No.	Q'ty
1	SLIP NUTS (M4x0.7P, H=4.5mm)	23-142-40450801	13
2	NFC_COVER	30-002-10130391	1
3	FRONT_BASE_BRACKET	80-006-02063391	1
4	REAR_BASE_BRACKET	80-006-02065391	1

NFC Cover and Bracket Assembly
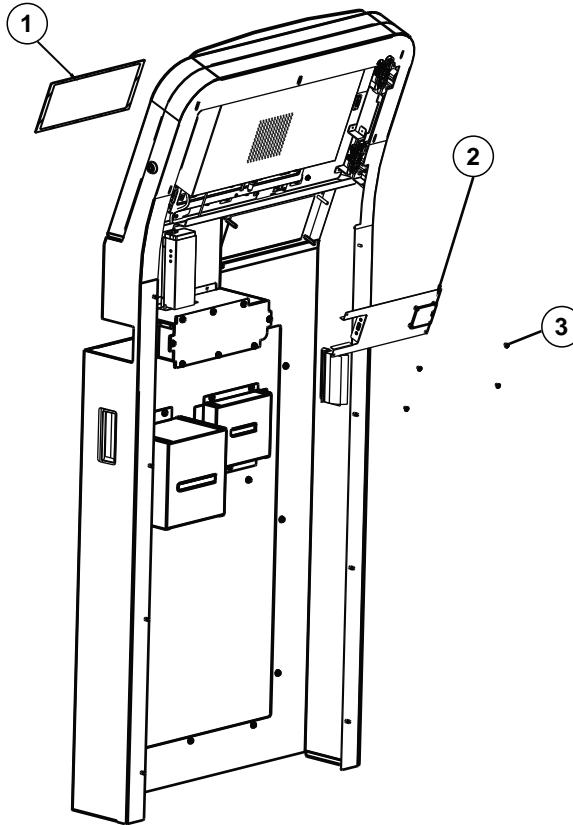
No.	Component Name	Part No.	Q'ty
1	NFC_COVER	30-002-10130391	1
2	NFC_ASSM		1
3	ROUND WASHER HEAD SCREW M3x0.5Px5mm	22-242-30005311	4

Main Body Internal Parts Assembly
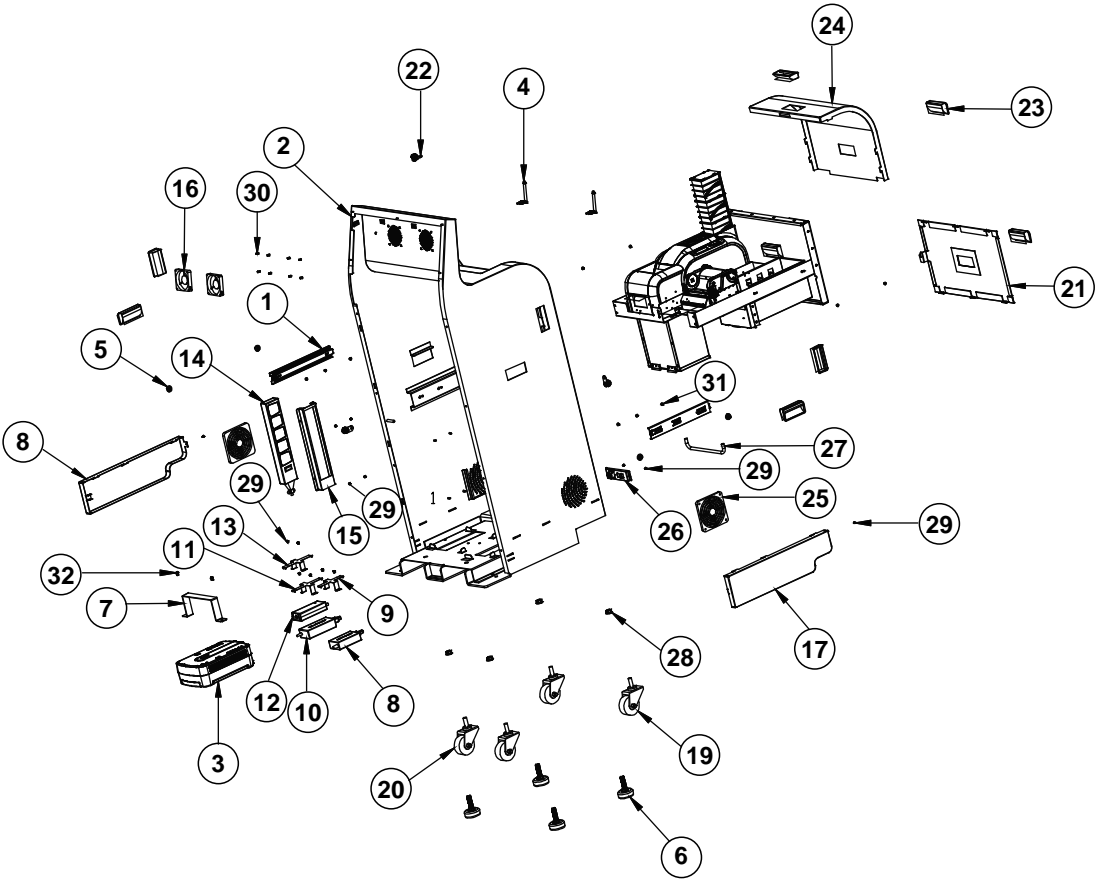
Metal

No.	Component Name	Part No.	Q'ty
1	SLIDE 4601	20-058-31001360	2
2	REAR_BASE_BRACKET	80-006-02065391	1
3	UPS		1
4	Antenna		2
5	PLASTIC WHEEL	22-281-60007001	4
6	LEVELING FEET	20-057-07001284	1
7	UPS BRACKET	80-006-03118391	1
8	CARD PRINTER ADAPTOR		1
9	CARD_ADAPTOR_BRACKET	80-006-03002391	1
10	THERMAL_PRINTER_ADAPTOR		1
11	THERMAL_ADAPTOR_BRACKET	80-006-03114391	1
12	DC_IN_ADAPTOR		1
13	DC_IN_ADAPTOR_BRACKET	80-006-03004391	1
14	EXTENSION SET		1
15	EXTENSION_SET_BRACKET	80-006-03005391	1
16	FAN		2
17	RIGHT_BTM_BRACKET	80-006-03163391	1
18	LEFT_BTM_BRACKET	80-006-03062391	1
19	WHEEL (LOCKER)	EC-7131-WHEEL-LOCK	2
20	WHEEL	EC-7131-WHEEL	2
21	REAR_DOOR_BRACKET	80-006-02066391	1
22	LOCKER	20-025-30001284	3
23	PULL_HANDLE	30-080-08110284	7
24	REAR_TOP_DOOR_BRACKET	80-006-02068391	1
25	FILTER	30-089-28100284	2
26	LAN AC HOLDER	80-029-03001391	1
27	U_HANDLE	80-035-07031391	1

Screws Details List

No.	Component Name	Part No.	Q'ty
28	SLIP NUTS (UNC1/2-12T, H=11.5mm)	23-140-12122601	4
29	ROUND WASHER HEAD SCREW M3x0.5Px5mm	22-242-30005311	14
30	FLAT HEAD SCREW T4.7x11mm	22-112-47011011	8
31	FILLISTR HEAD SCREW M4x0.7Px4mm (Black)	22-275-40004911	10
32	ROUND HEAD SPRING WASHER SCREW M6x12mm	22-232-60012031	2

Drawer Parts Assembly
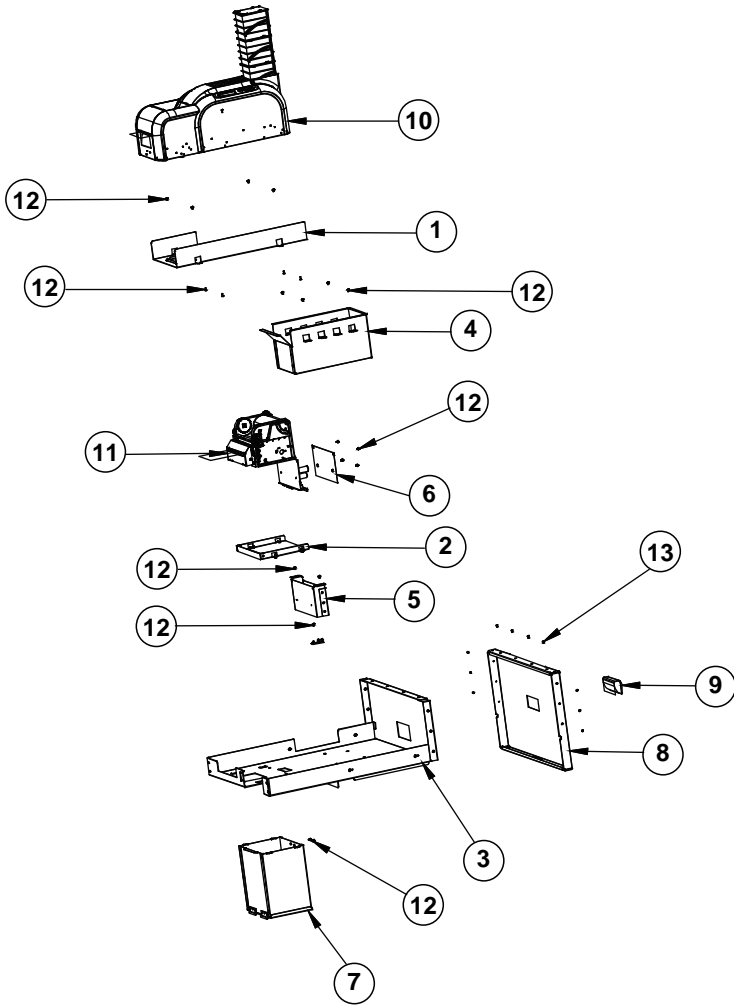
Metal

No.	Component Name	Part No.	Q'ty
1	CARD_PRINTER_BRACKET	80-006-03003391	1
2	THERMAL_PRINTER_BRACKET	80-006-03119391	1
3	REAR_SLIDER_BRACKET	80-006-03110391	1
4	THERMAL CARD BOX BRACKET	80-006-03115391	1
5	THERMAL PRINTER PCB BOX BRACKET	80-006-03116391	1
6	THERMAL_PRINTER_MYLAR	90-056-25100391	1
7	RECYCLE_CARD_BOX_BRACKET	80-006-03111391	1
8	REAR SLIDER DOOR BRACKET	80-006-02067391	1
9	HANDLE	30-080-08110284	1
10	CARD_PRINTER		1
11	THERMAL_PRINTER		1

Screws Details List

No.	Component Name	Part No.	Q'ty
12	ROUND WASHER HEAD SCREW M3x0.5Px5mm	22-242-30005311	29
13	FLAT HEAD SCREW M3x0.5Px6mm (Black)	22-215-30060011	10

SSD Bracket Assembly
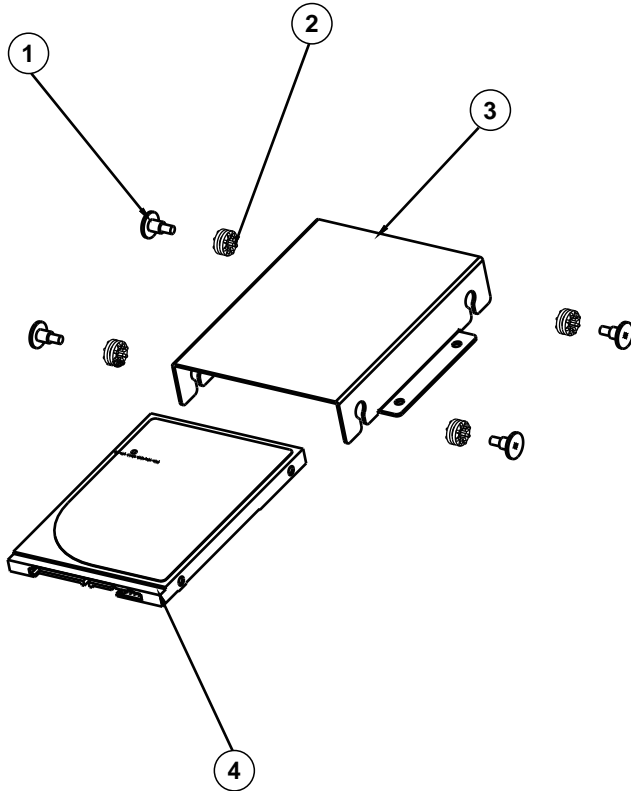
No.	Component Name	Part No.	Q'ty
1	FILLISTR HEAD SCREW M3x0.5Px4.8mm	82-272-30005013	4
2	RUBBER WASHER (BLUE)	23-680-39580963	4
3	SSD_BRACKET	80-006-03113391	1
4	SSD		1

Packing Assembly

No.	Component Name	Part No.	Q'ty
1	EPE BOTTOM LEFT (761x447x141mm) (EPE-7121BL D1)	94-016-00302391	1
2	EPE BOTTOM RIGHT (761x447x141mm) (EPE-7121BR D1)	94-016-00301391	1
3	EPE TOP LEFT (761x610x181mm) (EPE-7121TL D1)	94-016-00304391	1
4	EPE TOP RIGHT (761x610x181mm) (EPE-7121TR D1)	94-016-00303391	1
5	CARDBOARD (TOP) (788x788x150mm)	94-004-01401391	1
6	CARDBOARD (BOTTOM) (788x788x150mm)	94-004-01402391	1
7	CARTON (773x773x1580mm)	94-004-01403391	1
8	PALLET (800x800x90mm)	94-004-05401391	1
9	KF-7131		1

Appendix B   Technical Summary

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

The following topics are included:
- System Block Diagram
- Interrupt Map
- DMA Channels Map
- I/O Map
- Memory Map
- Configuring WatchDog Timer
- Flash BIOS Update

System Block Diagram
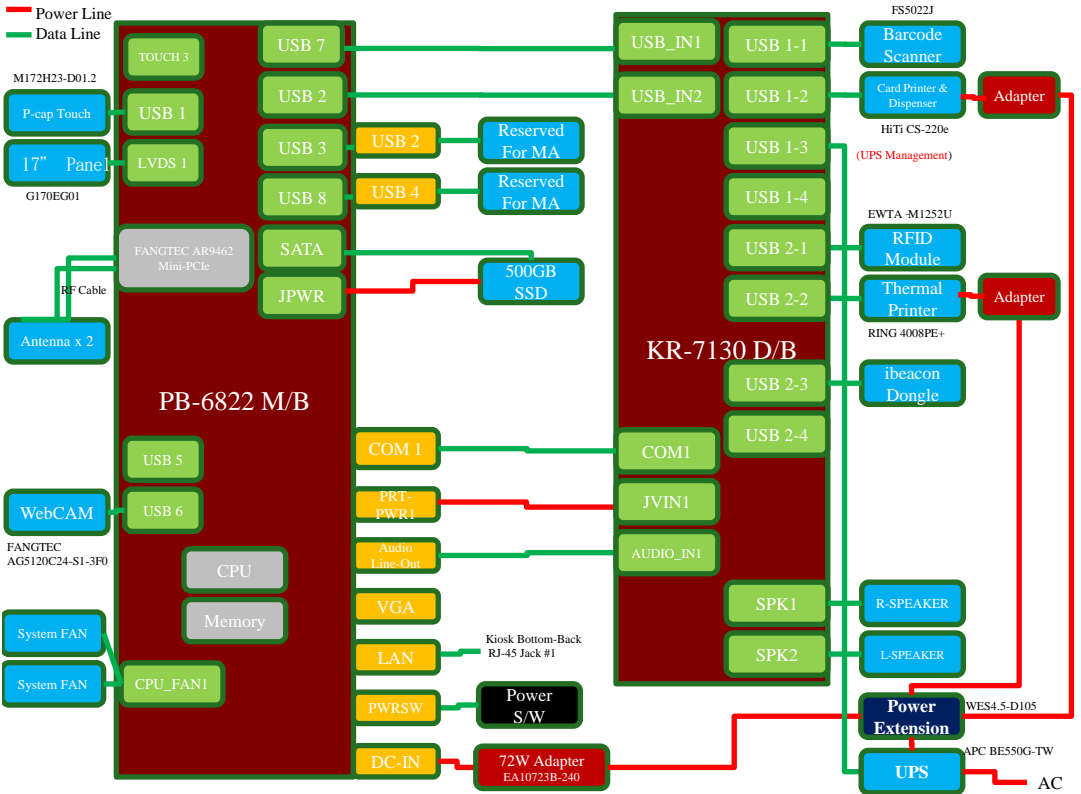
Interrupt Map

IRQ	Assignment
0	System timer
1	Standard PS/2 Keyboard
3	Communications Port (COM2)
4	Communications Port (COM1)
5	Printer Port (LPT1)
7	Communications Port (COM3)
8	High precision event timer
10	Communications Port (COM4)
16	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series PCI Express - Root Port 1 - 0F48
17	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series PCI Express - Root Port 2 - 0F4A
18	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series PCI Express - Root Port 3 - 0F4C
19	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series PCI Express - Root Port 4 - 0F4E
19	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
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

IRQ	Assignment
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
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

IRQ	Assignment
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
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

IRQ	Assignment
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

IRQ	Assignment
170	Microsoft ACPI-Compliant System
171	Microsoft ACPI-Compliant System
172	Microsoft ACPI-Compliant System
173	Microsoft ACPI-Compliant System
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
191	Microsoft ACPI-Compliant System
256	Microsoft ACPI-Compliant System
257	Microsoft ACPI-Compliant System
258	Microsoft ACPI-Compliant System
259	Microsoft ACPI-Compliant System
260	Microsoft ACPI-Compliant System

IRQ	Assignment
261	Microsoft ACPI-Compliant System
262	Microsoft ACPI-Compliant System
263	Microsoft ACPI-Compliant System
264	Microsoft ACPI-Compliant System
265	Microsoft ACPI-Compliant System
266	Microsoft ACPI-Compliant System
267	Microsoft ACPI-Compliant System
268	Microsoft ACPI-Compliant System
269	Microsoft ACPI-Compliant System
270	Microsoft ACPI-Compliant System
271	Microsoft ACPI-Compliant System
272	Microsoft ACPI-Compliant System
273	Microsoft ACPI-Compliant System
274	Microsoft ACPI-Compliant System
275	Microsoft ACPI-Compliant System
276	Microsoft ACPI-Compliant System
277	Microsoft ACPI-Compliant System
278	Microsoft ACPI-Compliant System
279	Microsoft ACPI-Compliant System
280	Microsoft ACPI-Compliant System
281	Microsoft ACPI-Compliant System
282	Microsoft ACPI-Compliant System
283	Microsoft ACPI-Compliant System
284	Microsoft ACPI-Compliant System
285	Microsoft ACPI-Compliant System
286	Microsoft ACPI-Compliant System
287	Microsoft ACPI-Compliant System

IRQ	Assignment
288	Microsoft ACPI-Compliant System
289	Microsoft ACPI-Compliant System
290	Microsoft ACPI-Compliant System
291	Microsoft ACPI-Compliant System
292	Microsoft ACPI-Compliant System
293	Microsoft ACPI-Compliant System
294	Microsoft ACPI-Compliant System
295	Microsoft ACPI-Compliant System
296	Microsoft ACPI-Compliant System
297	Microsoft ACPI-Compliant System
298	Microsoft ACPI-Compliant System
299	Microsoft ACPI-Compliant System
300	Microsoft ACPI-Compliant System
301	Microsoft ACPI-Compliant System
302	Microsoft ACPI-Compliant System
303	Microsoft ACPI-Compliant System
304	Microsoft ACPI-Compliant System
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IRQ	Assignment
315	Microsoft ACPI-Compliant System
316	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	Assignment
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IRQ	Assignment
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505	Microsoft ACPI-Compliant System
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510	Microsoft ACPI-Compliant System
511	Microsoft ACPI-Compliant System
4294967291	Intel® HD Graphics
4294967292	Intel® USB 3.0 eXtensible Host Controller - 0100 (Microsoft)
4294967293	Intel® Trusted Execution Engine Interface
4294967294	Realtek® PCIe GBE Family Controller

I/O MAP

I/O Map	Assignment
0x00000000-0x0000006F	PCI Express Root Complex
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
0x00000060-0x00000060	Standard PS/2 Keyboard
0x00000061-0x00000061	Motherboard resources
0x00000063-0x00000063	Motherboard resources
0x00000064-0x00000064	Standard PS/2 Keyboard
0x00000065-0x00000065	Motherboard resources
0x00000067-0x00000067	Motherboard resources
0x00000070-0x00000070	Motherboard resources
0x00000070-0x00000070	System CMOS/real time clock
0x00000078-0x00000CF7	PCI Express Root Complex
0x00000080-0x0000008F	Motherboard resources
0x00000092-0x00000092	Motherboard resources
0x000000A0-0x000000A1	Programmable interrupt controller

I/O Map	Assignment
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)
0x00000378-0x0000037F	Printer Port (LPT1)
0x000003B0-0x000003BB	Intel® HD Graphics
0x000003C0-0x000003DF	Intel® HD Graphics
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 Express Root Complex
0x0000164E-0x0000164F	Motherboard resources
0x0000E000-0x0000E0FF	Realtek® PCIe GBE Family Controller
0x0000E000-0x0000E0FF	Intel® Pentium® processor N- and J-series /

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

Memory Map

Memory Map	Assignment
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
0xD0604000-0xD0604FFF	Realtek® PCIe GBE Family Controller
0xD0600000-0xD0603FFF	Realtek® PCIe GBE Family Controller
0xD0600000-0xD0603FFF	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series PCI Express - Root Port 4 - 0F4E
0xFED00000-0xFED003FF	High precision event timer
0xC0000000-0xD0711FFE	PCI Express Root Complex
0xC0000000-0xD0711FFE	Intel® HD Graphics
0xD0000000-0xD03FFFFF	Intel® HD Graphics
0xD0700000-0xD070FFFF	Intel®USB 3.0 eXtensible Host Controller - 0100 (Microsoft)
0xD0710000-0xD071001F	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series Platform Control Unit - SMBus Port - 0F12
0xD0500000-0xD05FFFFF	Intel® Trusted Execution Engine Interface
0xD0400000-0xD04FFFFF	Intel® Trusted Execution Engine Interface

Memory Map	Assignment
0xD0711000-0xD07117FF	Intel® Pentium® processor N- and J-series / Intel® Celeron® processor N- and J-series AHCI - 0F23
0xE00000D0-0xE00000DB	Intel® Sideband Fabric Device
0xFF000000-0xFFFFFFFF	Intel® 82802 Firmware Hub Device
0xA0000-0xBFFFF	PCI Express Root Complex
0xA0000-0xBFFFF	Intel® HD Graphics
0xC0000-0xDFFFF	PCI Express Root Complex
0xE0000-0xFFFFF	PCI Express Root Complex

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 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 system to DOS prompt.

2 Download and save the BIOS file (e.g. 71310PD2.bin) to the bootable device.

3 Copy AMI flash utility – AFUDOS.exe (v3.03) into bootable device.

4 Make sure the target system can first boot to the bootable device.

    (1) Connect the bootable USB device.

    (2) Turn on the computer and press **<ESC>** or **<DEL>** 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.

```
            Aptio Setup Utility - Copyright (C) 2011 American Megatrends, Inc.
                                    Boot

     Boot Option #1                   [JetFlashTS256MJF2B...]    Sets the system boot order
     Boot Option #2                   [SATA  PM: WDC WD16...]




                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit


            Version 2.14.1219. Copyright (C) 2011 American Megatrends, Inc.
```

II. AFUDOS Command for System BIOS Update

```
                Aptio Setup Utility - Copyright (C) 2013 American Megatrends, Inc.
                                    Boot

     Boot Option #1                   [JetFlashTranscend 4...]   Sets the system boot order
     Boot Option #2                   [P0: WDC WD1600BEVT-...]




                                                                →←: Select Screen
                                                                ↑↓: Select Item
                                                                Enter: Select
                                                                +/-: Change Opt.
                                                                F1: General Help
                                                                F2: Previous Values
                                                                F3: Optimized Defaults
                                                                F4: Save & Exit
                                                                ESC: Exit


            Version 2.16.1242. Copyright (C) 2013 American Megatrends, Inc.
```

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]….

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

　/P: Program main BIOS image.

　/B: Program Boot Block.

　/N: Program NVRAM.

　/X: Don't check ROM ID.

III. BIOS Update Procedure

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

2 Type "**AFUDOS 7131xxxx.bin /p /b /n /x"** and press **Enter** to start the flash procedure.

　(Note that 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 percentage. Beware! Do not turn off the system power or reset your computer when the entire update procedure are not complete; 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 be shown:

```
C:\AMI\A5>afudos 71310PD1.bin /b /n /p /x
+ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - +
|            AMI Firmware Update Utility    v5.07.01                |
|      Copyright   (C) 2014 AMI Megatrends Inc. All Right Reserved   |
+ - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - - +
 Reading flash . . . . . . . . . . . . . . . . . . . . .done
 - ME Data Size Checking . . . . ok
 - FFS Checksums . . . . . . . . . . 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


C:\AMI\A5>
```

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

6. The BIO 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.

Version 2.17.1249.   Copyright (C) 2016 American Megatrends, Inc.
BIOS Date: 10/14/2016 09:14:21 Ver: 71310PD1
Press <Del> or <Esc> to Enter Setup.

ACPI Functions List

#	ACPI Function
1	RS232_Initial
2	USB_CH1_ON
3	USB_CH1_OFF
4	USB_CH2_ON
5	USB_CH2_OFF
6	USB_CH3_ON
7	USB_CH3_OFF
8	USB_CH4_ON
9	USB_CH4_OFF
10	USB_CH5_ON
11	USB_CH5_OFF
12	USB_CH6_ON
13	USB_CH6_OFF
14	USB_CH7_ON
15	USB_CH7_OFF
16	USB_CH8_ON
17	USB_CH8_OFF

1. RS232_Initial()

   C Prototype

   RS232_Initial();

   Description

   This function is used to initial COM1 with following protocol:

   115200 Baud, no parity, 8 data bits, 1 stop bit.

   Return Value

   None

2. USB_CH1_ON
   C Prototype
      USB_CH1_ON();
   Description
      This function is used to enable USB1 port.
   Return Value
      None

3. USB_CH1_OFF
   C Prototype
      USB_CH1_OFF();
   Description
      This function is used to disable USB1 port.
   Return Value
      None

4. USB_CH2_ON
   C Prototype
      USB_CH2_ON();
   Description
      This function is used to enable USB2 port.
   Return Value
      None

5. USB_CH2_OFF
   C Prototype
      USB_CH2_OFF();
   Description
      This function is used to disable USB2 port.
   Return Value
      None

6. USB_CH3_ON

   C Prototype

   　　USB_CH3_ON();

   Description

   　　This function is used to enable USB3 port.

   Return Value

   　　None

7. USB_CH3_OFF

   C Prototype

   　　USB_CH3_OFF();

   Description

   　　This function is used to disable USB3 port.

   Return Value

   　　None

8. USB_CH4_ON

   C Prototype

   　　USB_CH4_ON();

   Description

   　　This function is used to enable USB4 port.

   Return Value

   　　None

9. USB_CH4_OFF

   C Prototype

   　　USB_CH4_OFF();

   Description

   　　This function is used to disable USB4port.

   Return Value

   　　None

10. USB_CH5_ON
    C Prototype
        USB_CH5_ON();
    Description
        This function is used to enable USB5 port.
    Return Value
        None

11. USB_CH5_OFF
    C Prototype
        USB_CH5_OFF();
    Description
        This function is used to disable USB5 port.
    Return Value
        None

12. USB_CH6_ON
    C Prototype
        USB_CH6_ON();
    Description
        This function is used to enable USB6 port.
    Return Value
        None

13. USB_CH6_OFF
    C Prototype
        USB_CH6_OFF();
    Description
        This function is used to disable USB6 port.
    Return Value
        None

14. USB_CH7_ON

C Prototype

USB_CH7_ON();

Description

This function is used to enable USB7 port.

Return Value

None

15. USB_CH7_OFF

C Prototype

USB_CH7_OFF();

Description

This function is used to disable USB7 port.

Return Value

None

16. USB_CH8_ON

C Prototype

USB_CH8_ON();

Description

This function is used to enable USB8 port.

Return Value

None

17. USB_CH8_OFF

C Prototype

USB_CH8_OFF();

Description

This function is used to disable USB8 port.

Return Value

None