USER MANUAL

KF-P230

21.5" Multi-Functional Kiosk System

KF-P230 M2

KF-P230
21.5” Multi-Functional Kiosk System

DISCLAIMER

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

CE NOTICE

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

FCC NOTICE

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

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

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

	**WARNING:** Some internal parts of the system may have high electrical voltage. We strongly recommend that only qualified engineers are allowed to service and disassemble the system. If any damages should occur on the system and are caused by unauthorized servicing, it will not be covered by the product warranty. Please operate the LCD and Touchscreen with extra care as they can break easily.

Contents

Revision History

The revision history of KF-P230 User Manual is described below:

Version No.	Revision History	Date
M2	• In Section 2.5 Safety Precautions, added the caution message: "**The equipment power supply cord shall be connected to a socket-outlet with earthing connection.**" on Page 2-10.	2021/12/02
M1	Initial Release	2021/04/26

1 Introduction

This chapter provides the introduction for KF-P230 system as well as the framework of the user manual.

The following topic is included:

- About This Manual

1.1 About This Manual

Thank you for purchasing our KF-P230 system. The KF-P230 is an updated system designed to be comparable with the highest performance of IBM AT personal computers. The KF-P230 provides faster processing speed, greater expandability and can handle more tasks than before. This manual is designed to assist you how to install and set up the whole system. It contains 5 chapters and 2 appendixes. Users can configure the system according to their own needs. This user manual is intended for service personnel with strong hardware background. It is not intended for general users.

The following section describes the structure of this user manual.

Chapter 1 Introduction
This chapter introduces the framework of this user manual.

Chapter 2 Getting Started
This chapter describes the package contents and system specifications, and illustrates the physical appearances for KF-P230 system. Read the safety reminders carefully on how to take care of your system properly.

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

Chapter 4 Software Utilities
This chapter introduces how to install Intel Chipset Software Installation Utility, Intel Management Engine Components Installer Driver Utility, Microsoft Hotfix Driver Utility, Graphics Driver Utility, LAN Driver Utility, Sound Driver Utility and Serial IO Driver Utility.

Chapter 5 AMI BIOS Setup
This chapter provides BIOS setup information.

Appendix A System Diagrams
This appendix provides the easy maintenance and exploded diagrams and part numbers of KF-P230.

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

2 Getting Started

This chapter provides the introduction for the KF-P230 system as well as the framework of the user manual.

The following topic is included:

- Package List
- Kiosk System Overview
- System Specifications
- Quick Setup
- Safety Precautions

Experienced users can jump to Chapter 3 on page 3-1 for a quick start.

2.1 Package List

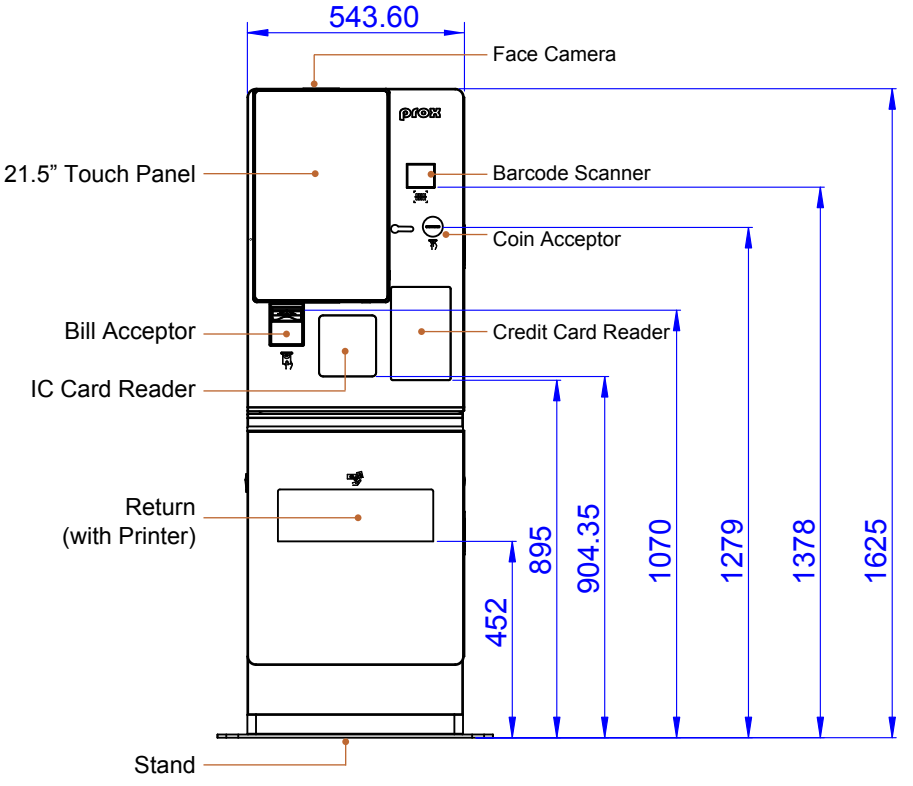
If you discover any of the items listed below are damaged or lost, please contact your local distributor immediately.

Item	Q'ty
KF-P230 Kiosk System	1
Quick Guide	1
Manual/Driver DVD	1
Door Key	2

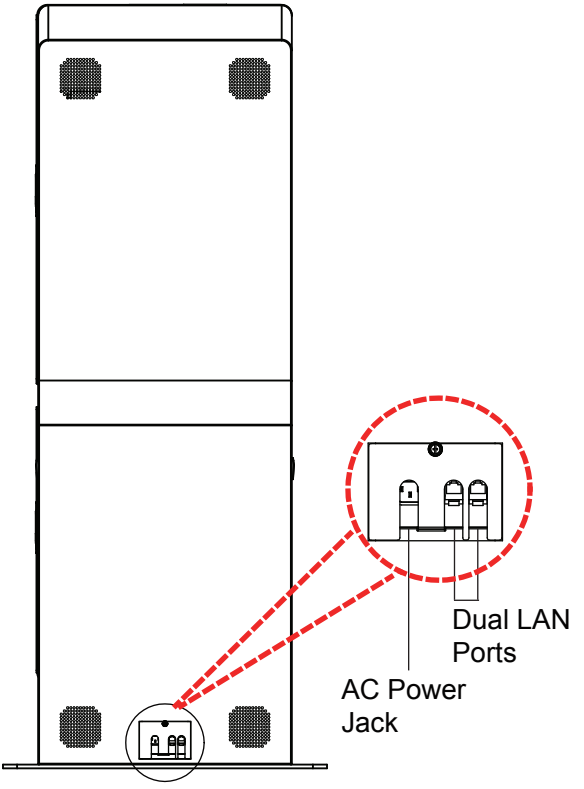
2.2 System Overview

Unit: mm

Front View

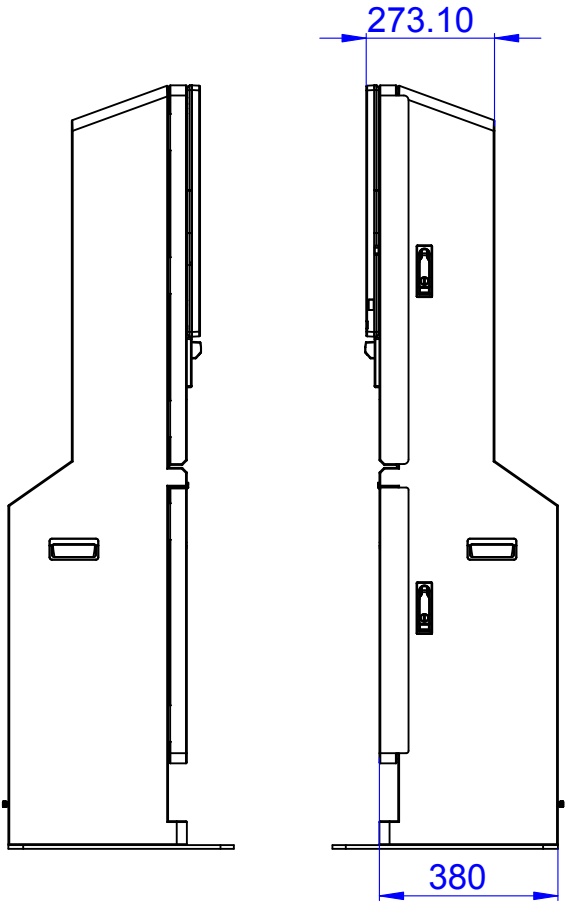


Rear View



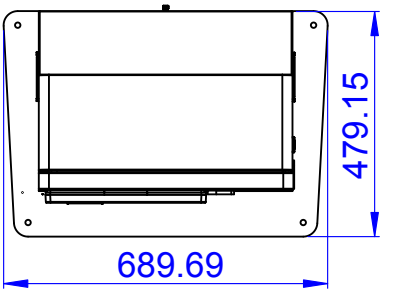
Side View

Unit: mm

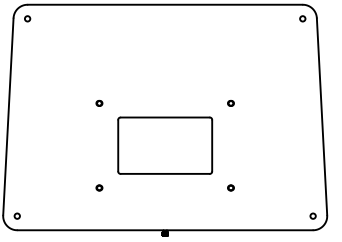


Top View

Unit: mm



Bottom View

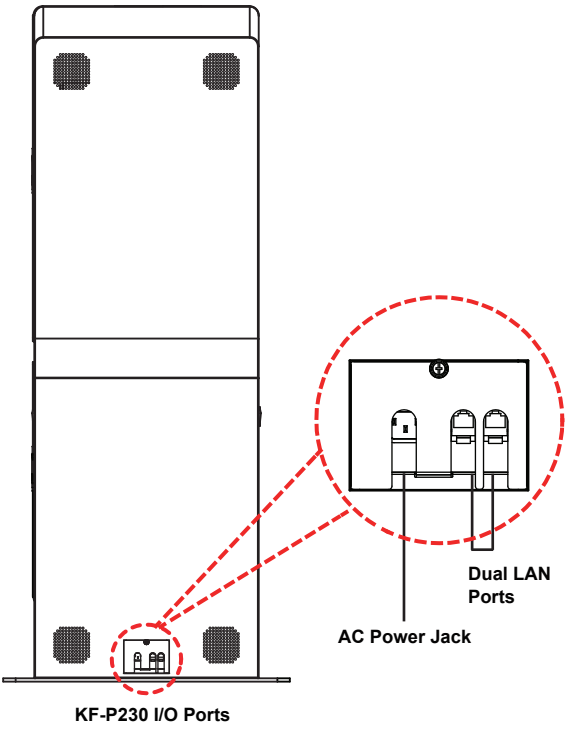


2.3 Quick Setup

2.3.1 Turning On and Connecting KF-P230 to Network

Step 1. From the lower bottom on the rear of the system, connect the AC power cord to the AC power jack and connect the Ethernet cables to the dual LAN ports.

Step 2. After the I/O ports are all connected properly, attach the I/O panel cover bracket onto the I/O ports panel compartment and secure it with the M3 screw.



2.3.2 Installing Printer Paper Roll

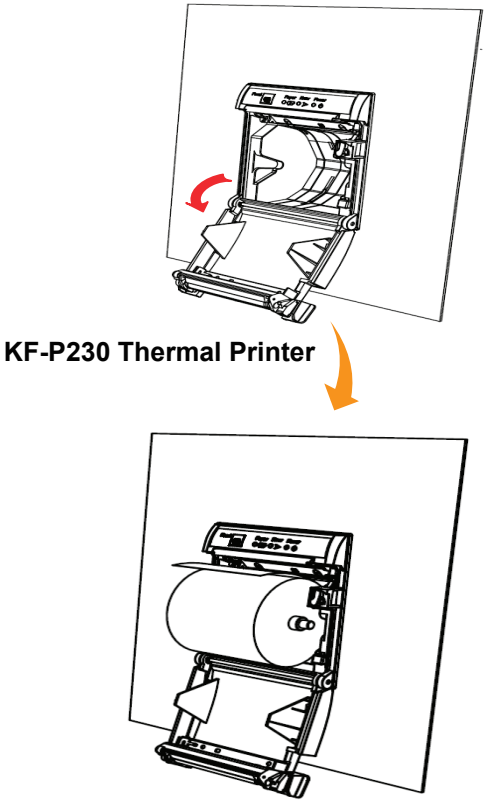
Step 1. Insert the key to unlock the Printer Door.

Step 2. Open up the printer door from the top side.

Step 3. Press the printer door latch located on the upper-right of the Printer to release.

Step 4. Pull out a small paper slip from the start of the paper roll and drop the paper roll into the thermal printer.

Step 5. Close the cover of Thermal Printer and the Kiosk Printer Door and lock it up with the key to complete.



KF-P230 Thermal Printer

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

2.4 System Specifications

System	
CPU	➢ Intel® Core™ i3-7100U
Chipset	➢ Kaby Lake (Intel Platform)
Memory	➢ 1 x DDR4 SO-DIMM (max. up to 16GB)
Storage	➢ 1 x 2.5" SATA HDD (Default: 500GB)
Network	➢ 2 x Gigabit 10/100/1000 Base-T Fast Ethernet (RJ45)
Power Supply	➢ 100-240V available
Speaker	➢ 2W speaker ➢ Mic & Line Out (optional) ➢ Buzzer support system beep
System Weight	➢ 98kg
Dimensions	➢ 54 x 163 x 38cm (W x H x D)
O.S. Support	➢ Windows 10
Kiosk System Fan	➢ System Fan (120x120x25.3mm)
Operating Display	
Touch Panel	➢ 21.5” TFT LCD
Max. Resolution	➢ 1920 x 1080
Brightness	➢ 250 cd/m^2
Touchscreen	➢ Projected Capacitive Touch
Viewing Angle	➢ Horizontal: (R) 89°/ (L) 89° ➢ Vertical: (U) 89°/ (L) 8°
Integrated Devices	
Thermal Printer (optional)	➢ 2" or 3" standalone thermal printer
Barcode Reader (optional)	➢ 1D/2D Barcode Scanner
Environment	
EMC & Safety	➢ CE / FCC
Operating Temp.	➢ 5°C ~ 35°C (41°F ~ 95°F)
Storage Temp.	➢ 0°C ~ 60°C (32°F ~ 140°F)
Humidity	➢ 20% ~ 85% (no condensation)

2.5 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.
   - The equipment power supply cord shall be connected to a socket-outlet with earthing connection.

2. Environmental Conditions
   - Place your KF-P230 on a sturdy, level surface. Be sure to allow enough space around the system to have easy access needs.
   - Avoid installing your KF-P230 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-P230 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-P230 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.

3 System Configuration

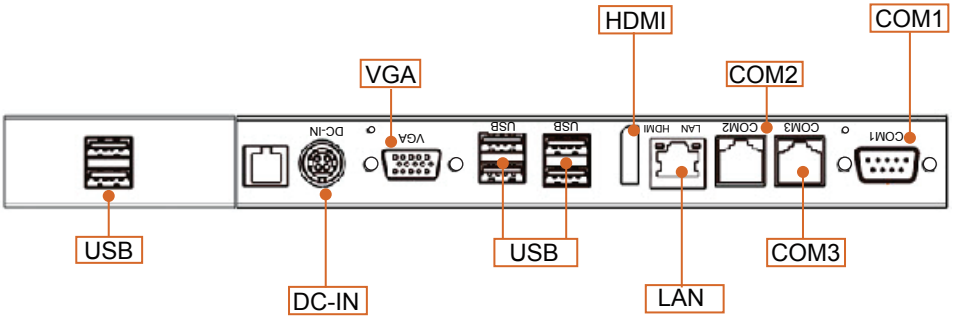
This chapter provides the information for the KF-P230 system. It describes the jumper and connector settings, component locations, and pin assignment.

The following topics are included:

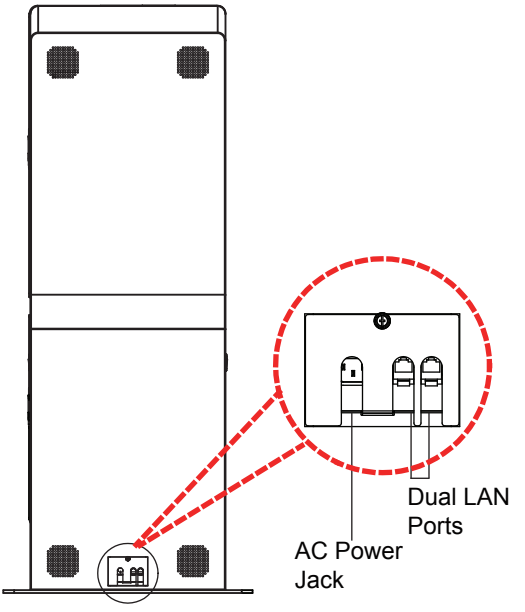
- System I/O Port Diagrams
- Mainboard Component Locations & Jumper Setting
- How to Set Jumpers
- Setting Connectors and Jumpers

3.1 System I/O Ports Diagrams

3.1.1 Panel PC Rear I/O Ports Diagram

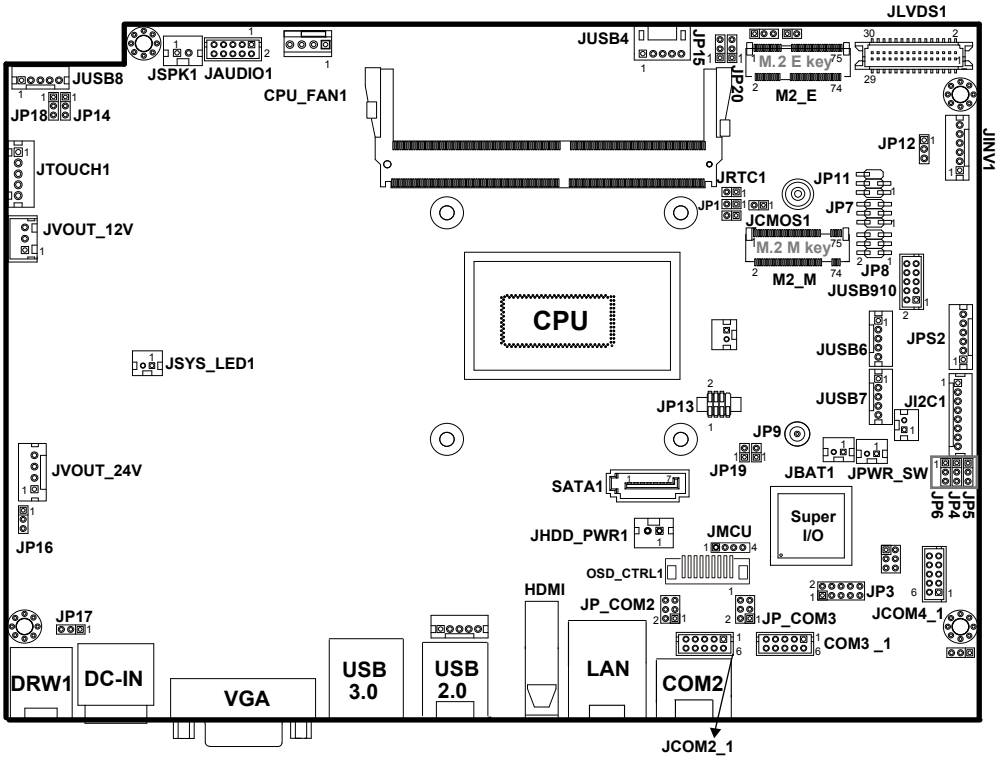


3.1.2 Kiosk System Rear I/O Ports Diagram



3.2 Main Board Component Locations & Jumper Settings

M/B: PB-5685



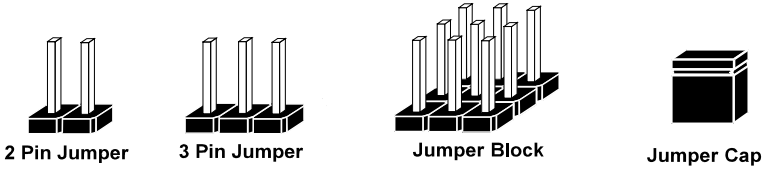
	**WARNING:** Always disconnect the power cord when you are working with the connectors and jumpers on the main board. Make sure both the system and the external devices are turned OFF as sudden surge of power could ruin sensitive components. Make sure the main board is properly grounded.
	**CAUTION:** 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.

3.3 How to Set 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, and by using a small plastic "cap", also known as the jumper cap (with a metal contact inside), you are able to connect the pins. So you can set-up your hardware configuration by "opening" or "closing" pins.

Jumpers can be combined into sets that 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.

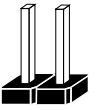
Jumpers & Caps



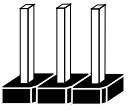
If a jumper has three pins, for example, labeled PIN1, PIN2 and PIN3. You can connect PIN1 and PIN2 to create one setting and shorting. You can also select to connect PIN2 and PIN3 to create another setting. The same jumper diagrams are applied all through this manual. The figure below shows what the manual diagrams look and what they represent.

Jumper diagrams

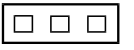
Jumper Cap looks like this

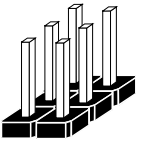


2 pin Jumper looks like this

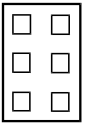


3 pin Jumper looks like this



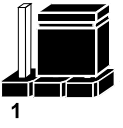


Jumper Block looks like this

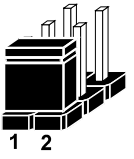


Jumper settings

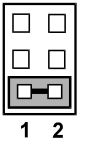
2 pin Jumper closed(enabled)
looks like this



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



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



3.4 Connector & Jumper Quick Reference Table

JUMPER	NAME
Clear CMOS Data Selection	JCMOS1
COM Port RI & Voltage Selection	JP_COM2, JP_COM3
Flash Descriptor Security Override Selection	JP1
COM Port & i-Button Selection	JP4, JP5, JP6
LVDS Resolution Selection	JP7, JP8
LVDS VCC Selection	JP11
LVDS Backlight Control Selection	JP12
USB 2.0 Port / On Board Touch Selection	JP14, JP18
USB4 / M.2_E (Wi-Fi) Selection	JP15, JP20
Clear RTC Data Selection	JRTC1

SYSTEM CONNECTOR	NAME
DC-IN Port	DC IN
Dual USB 2.0 Port	Dual USB 2.0
COM Port Connector	COM1, COM2, COM3
COM Port RS-232 Wafer	JCOM2_1, COM3_1, JCOM4_1
LAN Port Connector	LAN
USB 3.0 Port Type A Connector	USB1
USB 2.0 Port Type A Connector	USB2
USB 2.0 Port Wafer	JUSB4, JUSB6, JUSB7, JUSB8, JUSB910
VGA Connector	VGA
SATA Connector	SATA1
SATA Power Wafer	JHDD_PWR1
RTC Coin Battery Wafer	JBAT1
Panel Inverter Wafer	JINV1
Speaker Wafer	JSPK1

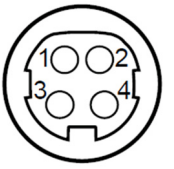
SYSTEM CONNECTOR	NAME
Audio Codec Line Out / Mic Pin Header	JAUDIO1
Flash MCU Firmware Wafer	JMCU
LVDS Wafer	JLVDS1
HDMI Connector	HDMI
Power Button Wafer	JPWR_SW
System Reset Wafer	JP19
System LED Wafer	JSYS_LED1
I2C Wafer	JI2C1
PS2 Wafer	JPS2
CPU FAN Wafer	CPU_FAN1
SPI (BIOS) Flash Wafer	JP13
M.2 M-Key Connector for SSD	M2_M
M.2 E-Key Connector for Wi-Fi	M2_E
On Board Touch Wafer	JTOUCH1

3.5 Panel PC I/O Ports

3.5.1 PWR IN Connector

Port Location: DC IN
Description: Power In Connector (rear I/O)

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



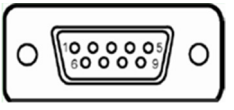
DC IN

3.5.2 COM Ports (COM1, COM2, COM3, JCOM4_1)

There are multiple COM ports enhanced on this board: COM1, COM2, COM3, JCOM4_1.

Port Location: COM1
Description: COM1 Connector
The pin assignments are as follows:

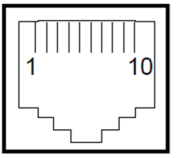
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	COM1_DCDJ_I	6	COM1_DSRJ_I
2	COM1_RX_I	7	COM1_RTSJ_I
3	COM1_TX_I	8	COM1_CTSJ_I
4	COM1_DTRJ_I	9	COM1_RI_SEL
5	GND	-	-



COM1

Port Location: COM2, COM3
Description: COM2, COM3 Connector
The pin assignments are as follows:

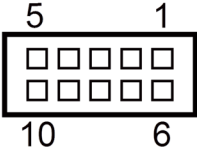
PIN	ASSIGNMENT
1	COM2/3_DCDJ_I
2	COM2/3_RX_I
3	COM2/3_TX_I
4	COM2/3_DTRJ_I
5	GND
6	COM2/3_DSRJ_I
7	COM2/3_RTSJ_I
8	COM2/3_CTSJ_I
9	COM2/3_RI_SEL
10	NC



COM2/ COM3

Port Location: JCOM4_1
Description: JCOM4_1 Connector
The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	COM4_DCDJ_I	6	COM4_DSRJ_I
2	COM4_RX_I	7	COM4_RTSJ_I
3	COM4_TX_I	8	COM4_CTSJ_I
4	COM4_DTRJ_I	9	COM4_RI_SEL
5	GND	10	NC

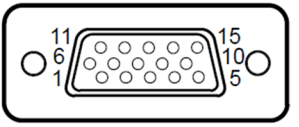


JCOM4_1

3.5.3 VGA Port (VGA)

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

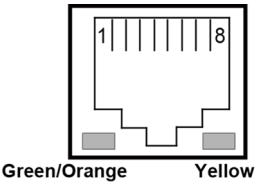
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	RED	9	+5V
2	GREEN	10	GND
3	BLUE	11	NC
4	NC	12	DDCA DATA
5	GND	13	HSYNC
6	GND	14	VSYNC
7	GND	15	DDCA CLK
8	GND	-	-



VGA

3.5.4 LAN Port (LAN)

Port Location: LAN
Description: LAN Port
The pin assignments are as follows:



LAN

LAN: a Giga LAN RJ-45 port (rear I/O)

Pin	Assignment
1	LAN1_MDI0_DP
2	LAN1_MDI0_DN
3	LAN1_MDI1_DP
4	LAN1_MDI1_DN
5	CT
6	CT
7	LAN1_MDI2_DP
8	LAN1_MDI2_DN
9	LAN1_MDI3_DP
10	LAN1_MDI3_DN

Left Side LAN LED Indicator

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

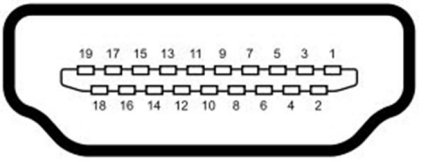
Right Side LAN LED Indicator

Yellow Color Blinking	LAN Message Active
Off	No LAN Message Active

3.5.5 HDMI Port Connector (HDMI)

Port Location: HDMI

Description: HDMI Connector (rear I/O)

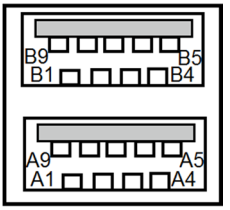


HDMI

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	HDMI_P2	2	GND
3	HDMI_N2	4	HDMI_P1
5	GND	6	HDMI_N1
7	HDMI_P0	8	GND
9	HDMI_N0	10	HDMI_CLKP
11	GND	12	HDMI_CLKN
13	NC	14	NC
15	HDMI_SCL	16	HDMI_SDA
17	GND	18	VCC5_HDMI
19	HDMI_HPD	20	-

3.5.6 USB 3.0 Connector (USB1)

Port Location: USB1
Description: USB 3.0 Connector
The pin assignments are as follows:



USB1

USB 3.0 signals:

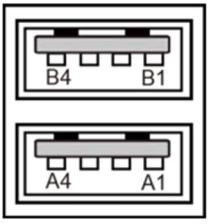
PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	+5VSB	B1	+5VSB
A2	USB2_P1_DN	B2	USB2_P2_DN
A3	USB2_P1_DP	B3	USB2_P2_DP
A4	GND	B4	GND
A5	USB3_P1_BP_RX_DN	B5	USB3_P2_BP_RX_DN
A6	USB3_P1_BP_RX_DP	B6	USB3_P2_BP_RX_DP
A7	GND	B7	GND
A8	USB3_P1_BP_TX_DN	B8	USB3_P2_BP_TX_DN
A9	USB3_P1_BP_TX_DP	B9	USB3_P2_BP_TX_DP
G1	GND	G3	GND
G2	GND	G4	GND

3.5.7 USB 2.0 Connector (USB2)

Port Location: USB2
Description: USB 2.0 Type A Connector

The pin assignments are as follows:

PIN	ASSIGNMENT	PIN	ASSIGNMENT
A1	+5VSB	B1	+5VSB
A2	USB2_P3_DN	B2	USB2_P5_DN
A3	USB2_P3_DP	B3	USB2_P5_DP
A4	GND	B4	GND

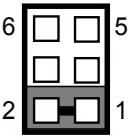
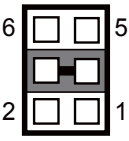
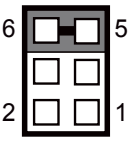


USB2
(USB 2.0)

3.6 Setting Connectors and Jumpers

3.6.1 COM2, COM3 Voltage Selection (JP_COM2, JP_COM3)

Jumper Location: JP_COM2, JP_COM3
Description: COM2 and COM3 voltage are set by jumpers on board.

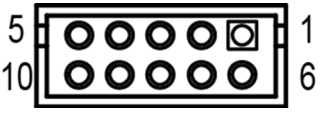
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
RI	**1-2** ***(Default Setting)***	 **JP_COM2** **JP_COM3**
+12V	3-4	 **JP_COM2** **JP_COM3**
+5V	5-6	 **JP_COM2** **JP_COM3**

3.6.2 COM Connectors (JCOM2_1, COM3_1, JCOM4_1)

Connector Location: JCOM2_1, COM3_1, JCOM4_1

Description: COM Connectors

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	DCDJ_I	6	DSRJ_I
2	RX_I	7	RTSJ_I
3	TX_I	8	CTSJ_I
4	DTRJ_I	9	RI_SEL
5	GND	10	NC

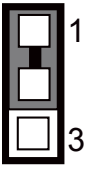
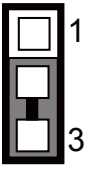


JCOM2_1 / COM3_1 / JCOM4_1

3.6.3 COM4 Port and iButton Selection (JP4, JP5, JP6)

Jumper Location: JP4, JP5, JP6

Description: COM4 Port and iButton Selection

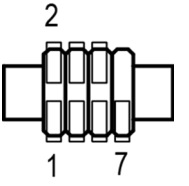
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
COM4 Enable	**1-2** ***(Default Setting)***	 **JP4 / JP5 / JP6**
I-BUTTON	2-3	 **JP4 / JP5 / JP6**

3.6.4 SPI (BIOS) Flash Wafer (JP13)

Connector Location: JP13

Description: SPI (BIOS) Flash Wafer

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+3.3VSB	2	GND
3	SPI_CS0_N	4	SPI_CLK
5	SPI_CS0_N	6	SPI_MOSI
7	SPI_MISO	8	NC



JP13

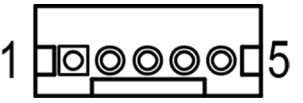
3.6.5 USB Connectors (JUSB4, JUSB6, JUSB7, JUSB8, JUSB910)

Connector Location: JUSB4, JUSB6, JUSB7, JUSB8, JUSB910

Description: JUSB4 signal is shared from "M.2_E" port, and could be functioned when JP15 is set 2-3, JP20 is set 2-3[short].

JUSB8

PIN	ASSIGNMENT
1	+5VSB
2	USB2_P8_DN
3	USB2_P8_DP
4	GND
5	GND



JUSB8

Description: JUSB8 signal is shared from "JTOUCH1" port and could be functioned when JP14 is set 2-3, JP18 is set 1-2[short]."

JUSB6

PIN	ASSIGNMENT
1	+5VSB
2	USB2_P6_DN
3	USB2_P6_DP
4	GND
5	GND

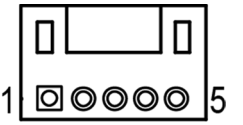
JUSB6 / JUSB7

JUSB7

PIN	ASSIGNMENT
1	+5VSB
2	USB2_P7_DN
3	USB2_P7_DP
4	GND
5	GND

JUSB4

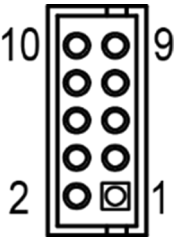
PIN	ASSIGNMENT
1	VCC5
2	4N
3	4P
4	GND
5	GND



JUSB4

JUSB910

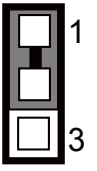
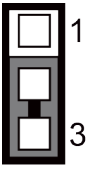
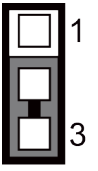
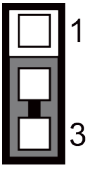
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	+5VSB	2	+5VSB
3	USB2_P9_DN	4	USB2_P10_DN
5	USB2_P9_DP	6	USB2_P10_DP
7	GND	8	GND
9	NC	10	GND



JUSB910

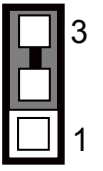
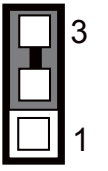
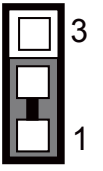
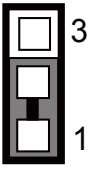
3.6.6 USB 2.0 Port / On Board Touch Selection (JP18, JP14)

Jumper Location: JP18, JP14
Description: USB 2.0 port / On Board Touch selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
JUSB8	***JP18: 1-2*** ***JP14: 2-3*** ***(Default Setting)***	 **JP18**	 **JP14**
JTOUCH1	JP18: 2-3 JP14: 2-3	 **JP18**	 **JP14**

3.6.7 USB4 / M.2_E (Wi-Fi) Selection (JP20, JP15)

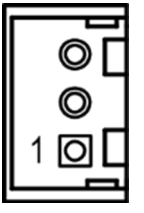
Jumper Location: JP20, JP15
Description: USB4 / M.2_E (Wi-Fi) Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
JUSB4	***2-3 (Default Setting)***	 **JP20**	 **JP15**
M.2_E (Wi-Fi)	1-2	 **JP20**	 **JP15**

3.6.8 Power for 2nd Display Connector (JVOUT_12V)

Connector Location: JVOUT_12V
Description: Power for 2nd Display Connector

PIN	ASSIGNMENT
1	VCC12
2	GND
3	VCC12



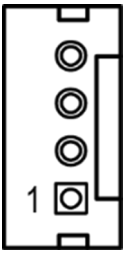
JVOUT_12V

3.6.9 Power for Thermal Printer Connector (JVOUT_24V)

Connector Location: JVOUT_24V

Description: Power for Thermal Printer Connector

PIN	ASSIGNMENT
1	VCC24
2	VCC24
3	GND
4	GND



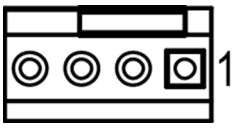
JVOUT_24V

3.6.10 Fan Connector (CPU_FAN1)

Connector Location: CPU_FAN1

Description: Fan Connector

PIN	ASSIGNMENT
1	GND
2	VCC12
3	CPU_FANOUT
4	CPU_FANIN



CPU_FAN1

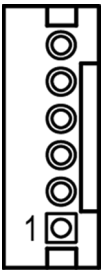
Note: KF-P230 PPC is a fanless system.

3.6.11 PS/2 Keyboard function for MSR Device (JPS2)

Connector Location: JPS2

Description: PS/2 Keyboard function for MSR device

PIN	ASSIGNMENT
1	GND
2	+5VSB
3	Key_Data
4	Key_Data
5	Key_Clk



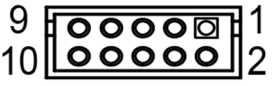
JPS2

3.6.12 Audio Connector (JAUDIO1)

Connector Location: JAUDIO1

Description: Audio Codec Line Out / Mic Pin Header

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	MIC1-L	2	MIC1-R
3	HD_GND	4	SLP_S3_N
5	Jack_Sense	6	DC_VOL_MCU_OUT
7	HD_GND	8	HD_GND
9	LINE-OUT-L	10	LINE-OUT-R

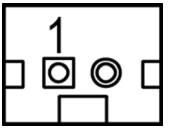


JAUDIO1

3.6.13 Speaker Connector (JSPK1)

Connector Location: JSPK1
Description: Speaker Connector

PIN	ASSIGNMENT
1	HD_FRONT-OUT-R
2	HD_FRONT-OUT-L

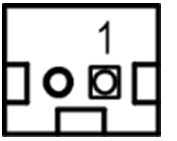


JSPK1

3.6.14 System LED Wafer (JSYS_LED1)

Connector Location: JSYS_LED1
Description: System LED Wafer

PIN	ASSIGNMENT
1	VCC5
2	GND

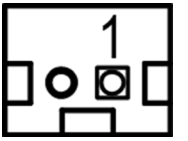


JSYS_LED1

3.6.15 Power Switch Wafer (JPWR_SW)

Connector Location: JPWR_SW
Description: Power Switch Wafer

PIN	ASSIGNMENT
1	LPC_PWRBTNJ
2	GND



JPWR_SW

3.6.16 System Reset Wafer (JP19)

Connector Location: JP19
Description: System Reset Wafer

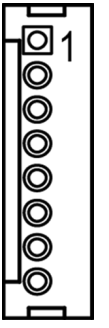
PIN	ASSIGNMENT
1	PM_SYS_RSTJ_FP
2	GND

JP19

3.6.17 I2C Wafer (JI2C1)

Connector Location: JI2C1
Description: I2C Wafer

PIN	ASSIGNMENT
1	VCC3_3
2	GND
3	GND
4	TOUCH_1V8_SCL_C
5	TOUCH_1V8_SDA_C
6	GND
7	TOUCH_1V8_INT_C
8	TOUCH_1V8_RST_C

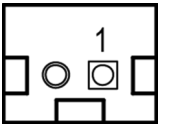


JI2C1

3.6.18 RTC Coin Battery Wafer (JBAT1)

Connector Location: JBAT1
Description: RTC Coin Battery Wafer

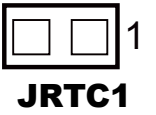
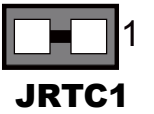
PIN	ASSIGNMENT
1	Coin battery +3V
2	GND



JBAT1

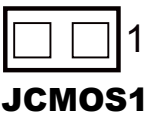
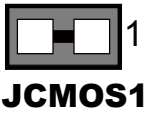
3.6.19 Clear RTC Data Selection (JRTC1)

Jumper Location: JRTC1
Description: Clear RTC Data Selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	**Open** *(Default Setting)*	
Clear RTC Data	1-2	

3.6.20 Clear CMOS Data Selection (JCMOS1)

Jumper Location: JCMOS1
Description: Clear CMOS data selection

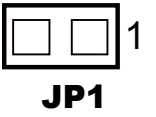
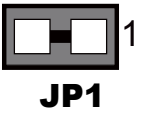
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	**Open** *(Default Setting)*	
Clear CMOS Data	1-2	

Note: To clear CMOS data, you must power off the computer and set the jumper to "Clear CMOS Data" as illustrated above. After 5 to 6 seconds, set the jumper back to "Normal" and power on the computer.

3.6.21 Unlock the Entire SPI Flash (override descriptor setting) (JP1)

Jumper Location: JP1

Description: Unlock the Entire SPI Flash (override descriptor setting)

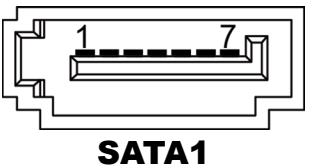
SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
Normal	**Open** *(Default Setting)*	
Override	1-2	

3.6.22 SATA 3.0 Connector (SATA1)

Connector Location: SATA1

Description: Serial ATA 3.0 Connector

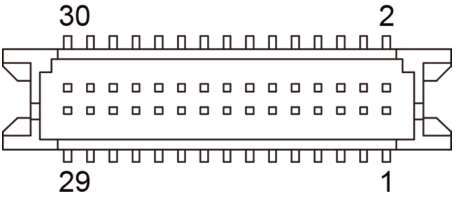
PIN	ASSIGNMENT
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND



3.6.23 LVDS Connector (JLVDS1)

Connector Location: JLVDS1

Description: LVDS Connector



JLVDS1

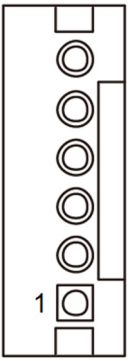
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	VCC3_3	2	GND
3	CLKB_D-	4	CLKB_D+
5	GND	6	B2_D-
7	B2_D+	8	GND
9	B1_D-	10	B1_D+
11	B3_D+	12	B3_D-
13	B0_D+	14	B0_D-
15	GND	16	CLKA_D+
17	CLKA_D-	18	GND
19	A2_D+	20	A2_D-
21	GND	22	A1_D+
23	A1_D-	24	GND
25	A0_D+	26	A0_D-
27	A3_D+	28	A3_D-
29	VCC3_3-	30	VCC3_3

3.6.24 Inverter Connector (JINV1)

Connector Location: JINV1

Description: Inverter Connector

PIN	ASSIGNMENT
1	VCC12V
2	VCC12V
3	GND
4	PWM_DIM
5	GND
6	BL_ENABLE



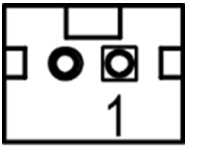
JINV1

3.6.25 HDD Power Port (JHDD_PWR1)

Connector Location: JHDD_PWR1

Description: HDD Power Port

PIN	ASSIGNMENT
1	VCC5
2	GND

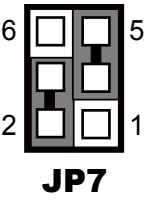
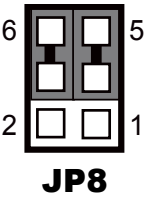
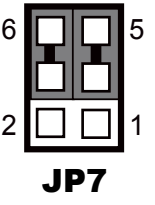
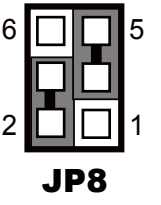
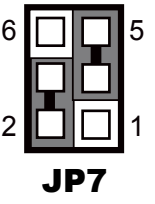
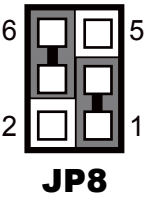


JHDD_PWR1

3.6.26 LVDS Resolution Selection (JP7, JP8)

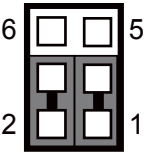
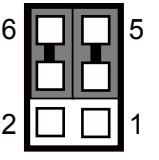
Jumper Location: JP7, JP8

Description: LVDS resolution selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION	
15" 1024x768	**2-4, 3-5 (JP7) 3-5, 4-6 (JP8) *(Default Setting)***	 **JP7**	 **JP8**
15.6" 1366x768	3-5, 4-6 (JP7) 2-4, 3-5 (JP8)	 **JP7**	 **JP8**
17" 1280x1024	2-4, 3-5 (JP7) 4-6, 1-3 (JP8)	 **JP7**	 **JP8**

3.6.27 LVDS VCC Selection (JP11)

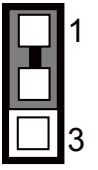
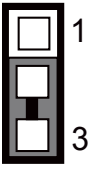
Jumper Location: JP11
Description: LVDS VCC selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
3.3V	**1-3, 2-4** ***(Default Setting)***	 **JP11**
5V	3-5, 4-6	 **JP11**

3.6.28 LVDS Backlight Control Selection (JP12)

Jumper Location: JP12

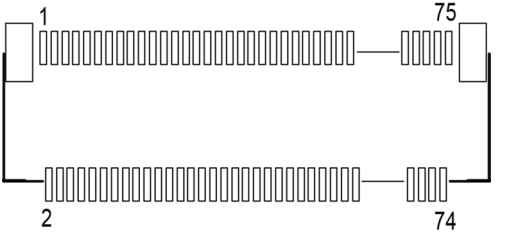
Description: LVDS backlight control selection

SELECTION	JUMPER SETTING	JUMPER ILLUSTRATION
3.3V	**1-2** ***(Default Setting)***	 **JP12**
5V	2-3	 **JP12**

3.6.29 M.2 M-Key Connector for SSD (M2_M)

Connector Location: M2_M

Description: M.2 M-Key Connector for SSD



M2_M

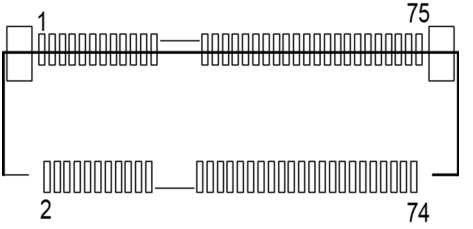
PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	VCC3_3
3	GND	4	VCC3_3
21	GND	27	GND
33	GND	39	GND
41	SATA_RX_P2	43	SATA_RX_N2
45	GND	47	SATA_TX_N2
49	SATA_TX_P2	51	GND
57	GND	69	GND
70	VCC3_3	71	GND
72	VCC3_3	73	GND
74	VCC3_3	75	GND

Note: M.2 M-key slot supports SATAIII only.

3.6.30 M.2 E-Key Connector for Wi-Fi (M2_E)

Connector Location: M2_E

Description: M.2 E-Key Connector for Wi-Fi



M2_E

PIN	ASSIGNMENT	PIN	ASSIGNMENT
1	GND	2	VCC3_3
3	USB_4P	4	VCC3_3
5	USB_4N	6	WIFI M2_E_LED1
7	GND	16	BT M2_E_LED2
18	GND	33	GND
35	PCIE4_8265_TX_DP	37	PCIE4_8265_TX_DN
39	GND	41	PCIE4_8265_RX_DP
43	PCIE4_8265_RX_DN	45	GND
47	CLKOUT_PCIE_P4	49	CLKOUT_PCIE_N4
51	GND	52	PERST0
53	PCIE_CLKRQ4_N	54	BT WISABLE2
55	PCH_WAKE_N	56	WIFI WISABLE1
57	GND	63	GND
69	GND	72	VCC3_3
74	VCC3_3	75	GND

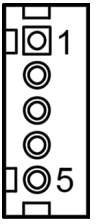
Note: M.2 E key slot supports USB2.0 and PCIe x1 only.

3.6.31 On Board Touch Wafer (JTOUCH1)

Connector Location: JTOUCH1

Description: On Board Touch Wafer

PIN	ASSIGNMENT
1	LR
2	LL
3	PROBE
4	UR
5	UL



JTOUCH1

3.6.32 Flash MCU Firmware Wafer (JMCU)

Connector Location: JMCU

Description: Flash MCU Firmware Wafer

PIN	ASSIGNMENT
1	+5VSB
2	GND
3	MCU_SDA_R
4	MCU_SCL_R

JMCU

4 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 Intel® Management Engine Components Driver Installer
- Installing Graphics Driver Utility
- Installing LAN Driver Utility
- Installing Sound Driver Utility
- Installing Intel® Serial I/O Driver Utility
- Installing Microsoft Hotfix Driver Utility

4.1 Introduction

Enclosed with the KF-P230 Series package is our driver utilities contained in a DVD-ROM disk. Refer to the following table for driver locations:

Windows 10 Enterprise 2016 LTSB_64Bit

Filename (Assume that DVD- ROM drive is D :)	Purpose
D:\Driver\Platform\1_Main Chip\Windows 10 Enterprise 2016 LTSB_64Bit	Intel(R) Chipset Device Software Installation Utility
D:\Driver\Platform\2_Hotfix\Windows 10 Enterprise 2016 LTSB(64Bit)	Microsoft Hotfix kb3211320 and kb3213986
D:\Driver\Platform\3_Graphics\ Windows 10 Enterprise 2016 LTSB(64Bit)	Intel Graphics Driver installation
D:\Driver\Platform\4_ME	Intel(R) Management Engine Firmware
D:\Driver\Platform\5_LAN Chip\Windows 10 Enterprise 2016 LTSB_64Bit	Intel(R) Network Connections Software
D:\Driver\Platform\6_Sound Codec	Realtek High Definition Audio driver installation
D:\Driver\Platform\7_Serial IO\Windows 10 Enterprise 2016 LTSB_64Bit	Intel(R) Serial IO Driver

Windows 10 Enterprise 2019 LTSC_64Bit

Filename (Assume that DVD- ROM drive is D :)	Purpose
D:\Driver\Platform\1_Main Chip\Windows 10 Enterprise 2019 LTSC_64Bit	Intel(R) Chipset Device Software Installation Utility
D:\Driver\Platform\3_Graphics\ Windows 10 Enterprise 2019 LTSC(64Bit)	Intel Graphics Driver installation
D:\Driver\Platform\4_ME	Intel(R) Management Engine Firmware
D:\Driver\Platform\6_Sound Codec	Realtek High Definition Audio driver installation
D:\Driver\Platform\7_Serial IO\Windows 10 Enterprise 2019 LTSC_64Bit	Intel(R) Serial IO Driver

Note: Users must install the driver utilities right after the OS is fully installed.

4.1.1 Installing Intel® Chipset Software Installation Utility

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:

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

Intel® Chipset Software Installation Utility

The utility pack is to be installed only for Windows 10 Enterprise 2016 / 2019 LTSB_64Bit, 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-P230 and insert the driver disk.
2. Enter the "**Main Chip"** folder where the Chipset driver is located.
3. Select your Windows 10 platform.
4. Click "**SetupChipset.exe"** file for driver installation.
5. Follow the on-screen instructions to install the driver.
6. Once the installation is completed, shut down the system and restart KF-P230 for the changes to take effect.

4.1.2 Intel® Management Engine Components Installer Installation

To install the ME Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KF-P230 and insert the driver disk
2. Enter the "**ME**" folder where the driver is located
3. Click "**SetupME.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-P230 for the changes to take effect.

4.1.3 Installing Microsoft Hotfix Driver installation

Introduction

The Microsoft Hotfix kb3211320 and kb3213986 Driver that needs to be installed depends on the system's specific hardware and firmware features. The installer, compatible with Windows 10, detects the system's capabilities and installs the relevant drivers and applications.

Installation Instructions for Windows 10

To install the utility, simply follow the following steps:

1. Insert the driver disk into a DVD-ROM device.
2. Open the "**Hotfix**" folder where the driver is located
3. Click the "**windows10.0-kb3211320-x64 and windows10.0-kb3213986- x64 files**" file for critical security update.
4. Follow the on-screen instructions to complete the installation
5. Once the installation is completed, shut down the system and restart KF-P230 for the changes to take effect.

4.1.4 Installing Graphics Driver Utility

The GRAPHICS interface embedded in KF-P230 can support a wide range of display types. You can have dual displays via LCD and LVDS interfaces and make the system work simultaneously.

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

1. Connect the USB DVD-ROM device to KF-P230 and insert the driver disk.
2. Enter the "**Graphics**" folder where the driver is located
3. Select your Windows 10 platform.
4. Click the "**Setup.exe**" file for Windows 10 Enterprise **2016** LTSB(64Bit) platform for driver installation.
   Click the "**igxpin.exe**" file for Windows 10 Enterprise **2019** LTSB(64Bit) platform for driver installation.
5. Follow the on-screen instructions to complete the installation.
6. Once the installation is completed, shut down the system and restart KF-P230 for the changes to take effect.

4.1.5 Installing LAN Driver Utility

Enhanced with LAN function, KF-P230 supports various network adapters.

To install the LAN Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KF-P230 and insert the driver disk.
2. Enter the "**LAN Chip**" folder where the driver is located
3. Click "**Autorun.exe**" file for driver installation.
4. Follow the on-screen instructions to complete the installation.
5. Once the installation is completed, shut down the system and restart KF-P230 for the changes to take effect.

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

4.1.6 Installing Sound Driver Utility

The sound function enhanced in this system is fully compatible with Windows 10.

To install the Sound Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KF-P230 and insert the driver disk.
2. Open the "**Sound Codec**" folder where the driver is located.
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-P230 for the changes to take effect.

4.1.7 Installing Intel® Serial I/O Driver Utility

To install the Serial I/O Driver, follow the steps below:

1. Connect the USB DVD-ROM device to KF-P230 and insert the driver disk.
2. Open the "**Serial IO**" folder where the driver is located.
3. Click the "**SetupSerialIO.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-P230 for the changes to take effect.

5 BIOS SETUP

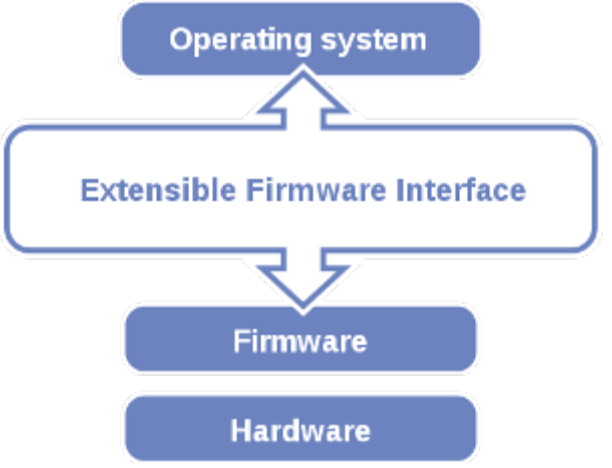
This chapter guides users how to configure the basic system configurations via the BIOS Setup Utilities. The information of the system configuration is saved in BIOS NVRAM so that the Setup information is retained when the system is powered off. The BIOS Setup Utilities consist of the following menu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

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

5.1 Introduction

The **KF-P230** uses an AMI Aptio BIOS that is stored in the Serial Peripheral Interface Flash Memory (SPI Flash) and can be updated. The SPI Flash contains the BIOS Setup program, Power-on Self-Test (POST), the PCI auto-configuration utility, LAN EEPROM information, and Plug and Play support.

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



Extensible Firmware Interface Diagram

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

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

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 JCMOS1 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.

5.1.1.1 Accessing Setup Utility

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

POST Screen with AMI Logo

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

BIOS Setup Menu Initialization Screen

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

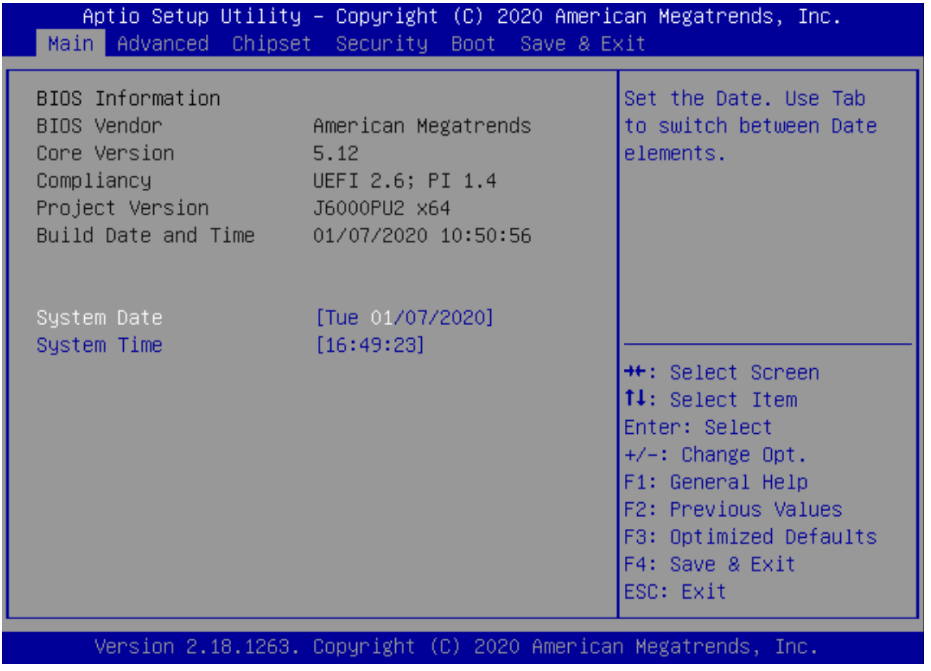
The language of the BIOS setup menu interface and help messages are shown in US English. You may use <↑> or <↓> key to select among the items and press <Enter> to confirm and enter the sub-menu. The following table provides the list of the navigation keys that you can use while operating the BIOS setup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

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

5.1.2 Main

Menu Path *Main*

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



BIOS Main Menu

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

BIOS Setting	Options	Description/Purpose
System Date	month, day, year	Set the current date. The format is [Day Month/Date/ Year]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it. The "Day" is automatically changed.
System Time	hour, minute, second	Set the clock of the system. The format is [Hour: Minute: Second]. Users can directly enter values or use <+> or <-> arrow keys to increase/decrease it.

5.1.3 Advanced

Menu Path *Advanced*

This menu provides advanced sub-menu items such as CPU Configuration, SATA Configuration, Intel(R) Rapid Storage Technology, PCH-FW Configuration, Trusted Computing, ACPI Settings, F81866 Super IO Configuration, Hardware Monitor, F81866 Watchdog, USB Configuration and Network Stack Configuration.

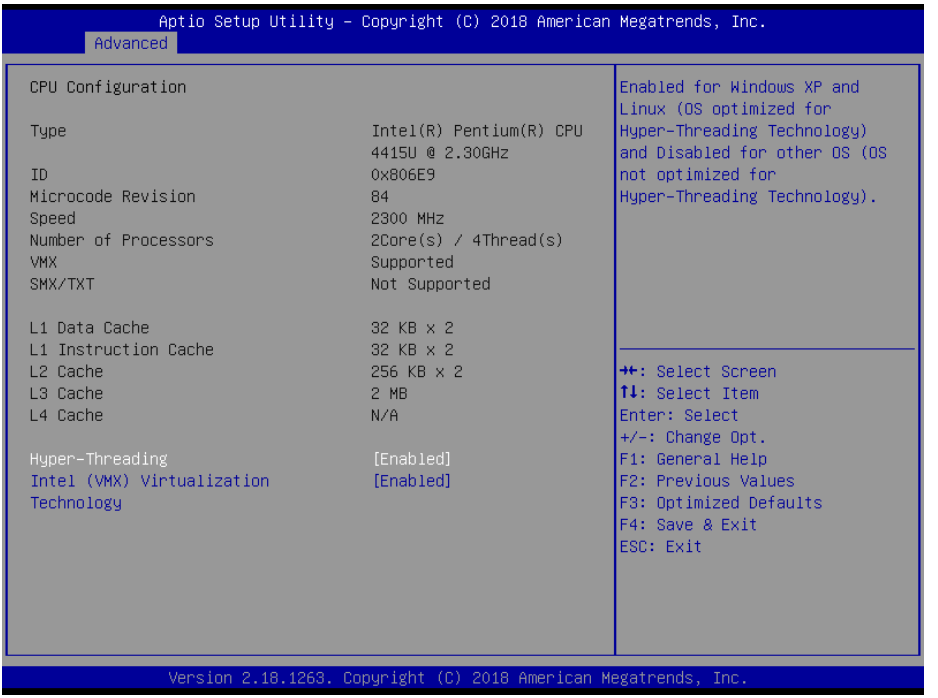
BIOS Advanced Menu

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

5.1.3.1 Advanced - CPU Configuration

Menu Path *Advanced > CPU Configuration*

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



CPU Configuration Screen

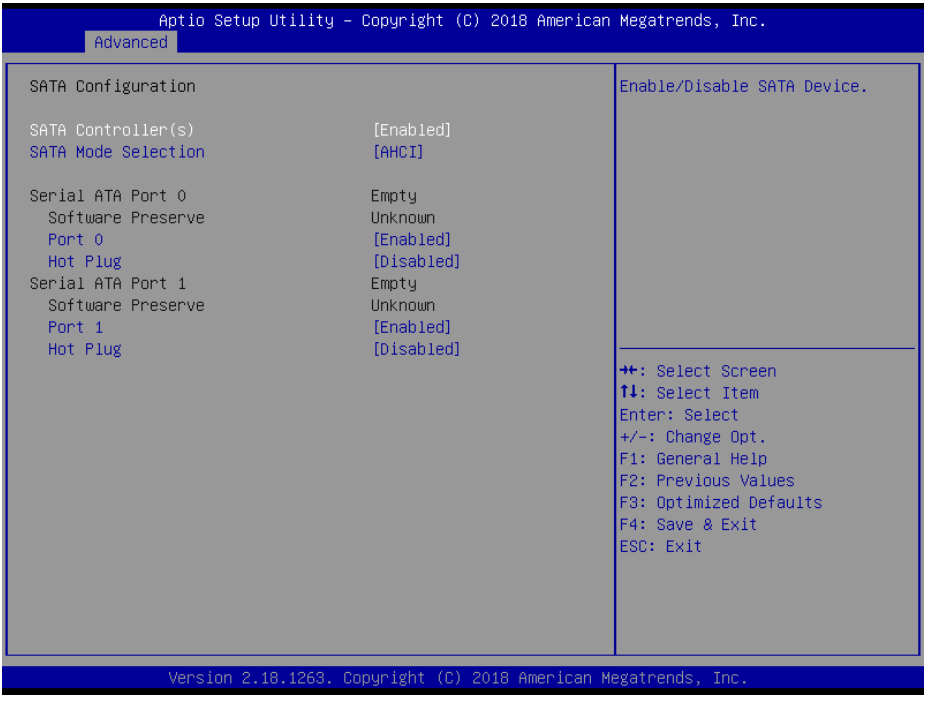
BIOS Setting	Options	Description/Purpose
Type	No changeable options	Displays the CPU Type.
ID	No changeable options	Displays the CPU ID.
Microcode Revision	No changeable options	Displays the CPU Microcode Revision.
Speed	No changeable options	Displays the CPU Speed.
Number of Processors	No changeable options	Displays the CPU Number of Processors.
VMX	No changeable options	CPU VMX hardware support for virtual machines.
SMX (Secure Mode Extensions) / TXT	No changeable options	Secure Mode extensions support.

BIOS Setting	Options	Description/Purpose
L1 Data Cache	No changeable options	Displays the size of L1 Data Cache
L1 Instruction Cache	No changeable options	Displays the size of L1 Instruction Cache
L2 Cache	No changeable options	Displays the size of L2 Cache.
L3 Cache	No changeable options	Displays the size of L3 Cache.
L3 Cache	No changeable options	Displays the size of L4 Cache.
Hyper-Threading	- Disabled - Enabled	When Disabled, only one thread per enabled core is enabled.
Intel (VMX) Virtualization Technology	- Disabled - Enabled	When enabled, VMM can utilize the additional hardware capabilities provided by Vanderpool Technology

5.1.3.2 Advanced - SATA Configuration

Menu Path *Advanced > SATA Configuration*

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



SATA Configuration Screen

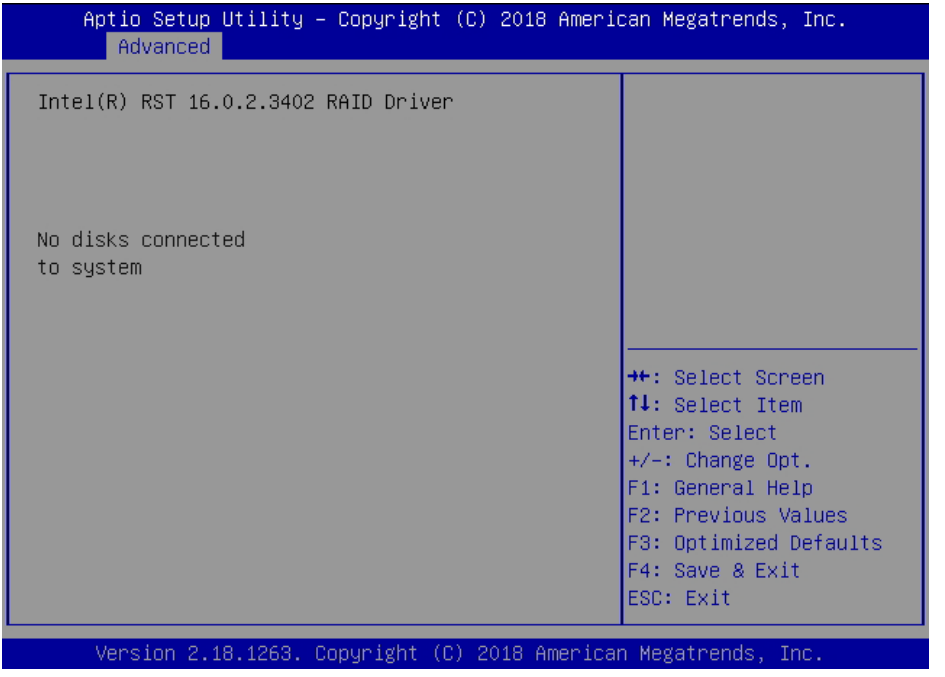
BIOS Setting	Options	Description/Purpose
SATA Controller(s)	- Disabled - Enabled	Enables or Disables SATA Device.
SATA Mode Selection	- AHCI - RAID	Determines how SATA controller(s) operate.
Serial ATA Port 0 – 1	No changeable options	Displays the SATA device's name.
Software Preserve	No changeable options	Indicates whether the connected SATA device supports Software Setting Preservation (SSP).
Port 0 - 1	- Disabled - Enabled	Enables or Disables SATA Port Device.

BIOS Setting	Options	Description/Purpose
HotPlug	- Disabled - Enabled	Enables or Disables Hot Plug function to designate a SATA port device as hot-pluggable.

5.1.3.3 Advanced – Intel(R) Rapid Storage Technology

Menu Path *Advanced > Intel(R) Rapid Storage Technology*

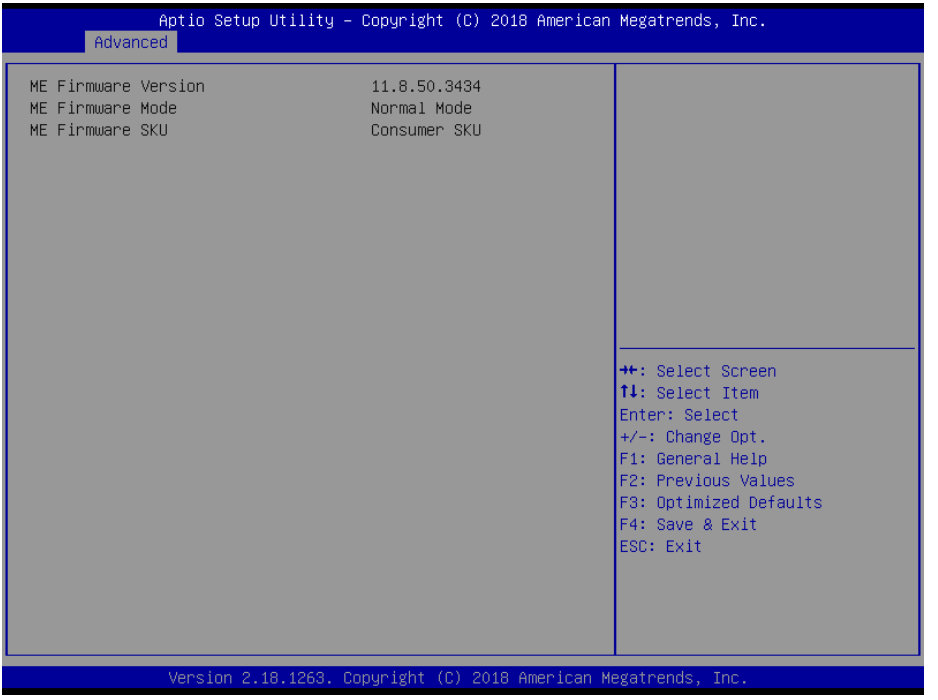
The **Intel(R) Rapid Storage Technology** allows users to manage RAID volumes on the Intel(R) RAID Controller. This menu will only appear when SATA controller is enabled and the RAID mode is selected.



5.1.3.4 Advanced - PCH-FW Configuration

Menu Path *Advanced > PCH-FW Configuration*

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



PCH-FW Configuration Screen

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

5.1.3.5 Advanced - Trusted Computing

Menu Path *Advanced > Trusted Computing*

The **Trusted Computing** allows users to enable / disable BIOS support for security device. The operating system will now show Security Device. The TCG EFI protocol and INT1A interface will not be available.

Trusted Computing Screen

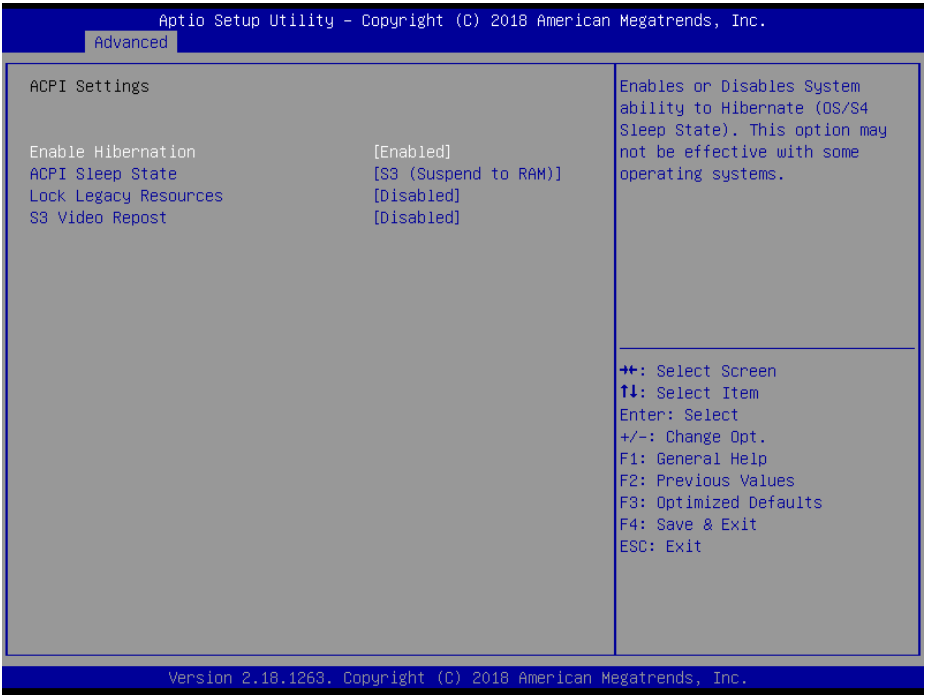
BIOS Setting	Options	Description/Purpose
Security Device Support	- Disabled - Enabled	Enables or Disables BIOS support for security device. O.S. will not show Security Device. TCG EFI protocol and INT1A interface will not be available.
TPM State	- Disabled - Enabled	Enables / Disables Security Device. **NOTE:** Your Computer will reboot during restart in order to change State of the Device.

BIOS Setting	Options	Description/Purpose
Pending operation	- None - TPM Clear	Schedules an Operation for the Security Device. **NOTE:** Your Computer will reboot during restart in order to change State of Security Device.
Device Select	- TPM 1.2 - TPM 2.0 - Auto	TPM 1.2 will restrict support to TPM 1.2 devices, TPM 2.0 will restrict support to TPM 2.0 devices, Auto will support both with the default set to TPM 2.0 devices if not found, TPM 1.2 devices will be enumerated.
TPM Enabled Status	No changeable options	Displays the TPM Enabled Status.
TPM Active Status	No changeable options	Displays the TPM Active Status.
TPM Owner Status	No changeable options	Displays the TPM Owner Status.

5.1.3.6 Advanced - ACPI Settings

Menu Path *Advanced > ACPI Settings*

The **ACPI Settings** allows users to configure relevant ACPI (Advanced Configuration and Power Management Interface) settings, such as enable / disable Hibernation, ACPI Sleep State, lock legacy resources and S3 Video Repost.



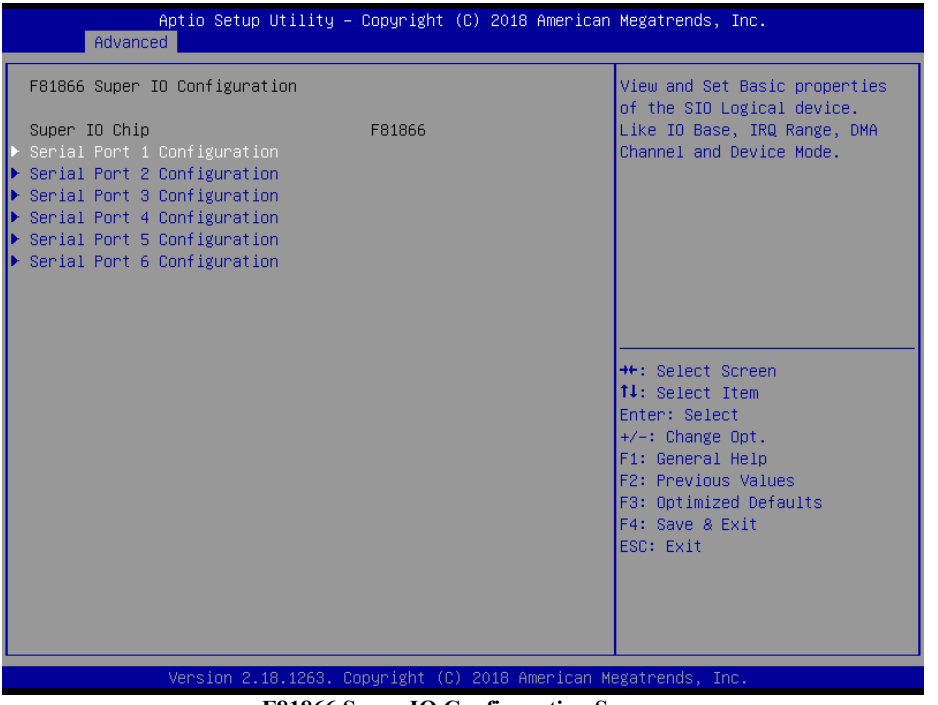
ACPI Settings Screen

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

5.1.3.7 Advanced - F81866 Super IO Configuration

Menu Path *Advanced > F81866 Super IO Configuration*

The **F81866 Super IO Configuration** allows users to configure the serial ports 1-6.

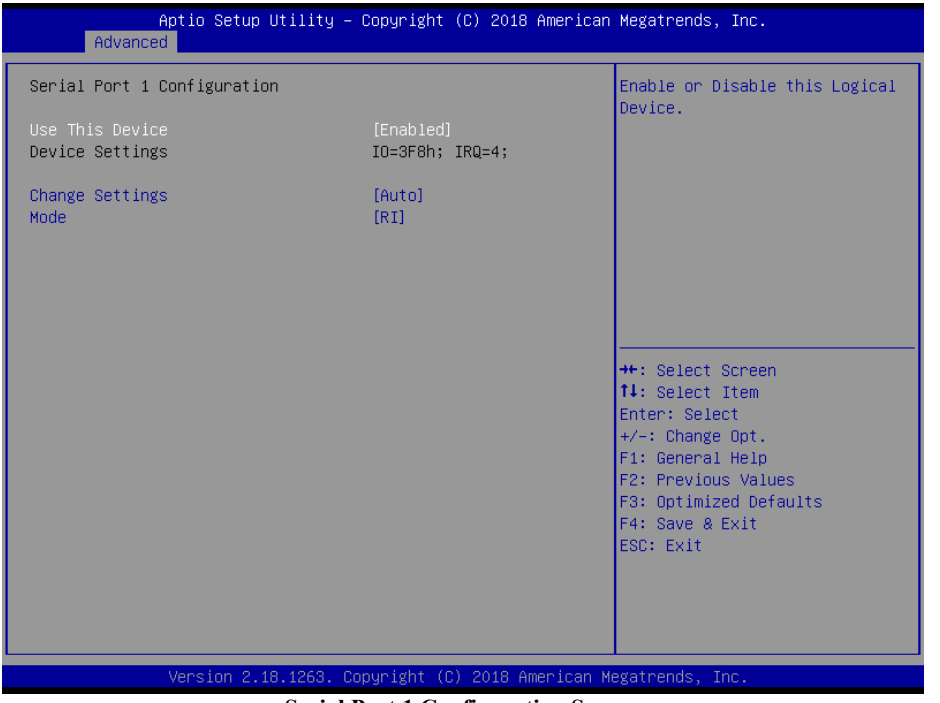


F81866 Super IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Serial Port 1 Configuration	Sub-Menu	Configure the parameters of Serial Port 1 (COMA).
Serial Port 2 Configuration	Sub-Menu	Configure the parameters of Serial Port 2 (COMB).
Serial Port 3 Configuration	Sub-Menu	Configure the parameters of Serial Port 3 (COMC).
Serial Port 4 Configuration	Sub-Menu	Configure the parameters of Serial Port 4 (COMD).
Serial Port 5 Configuration	Sub-Menu	Configure the parameters of Serial Port 5 (COME).
Serial Port 6 Configuration	Sub-Menu	Configure the parameters of Serial Port 6 (COMF).

F81866 Super IO Configuration – Serial Port 1 Configuration

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

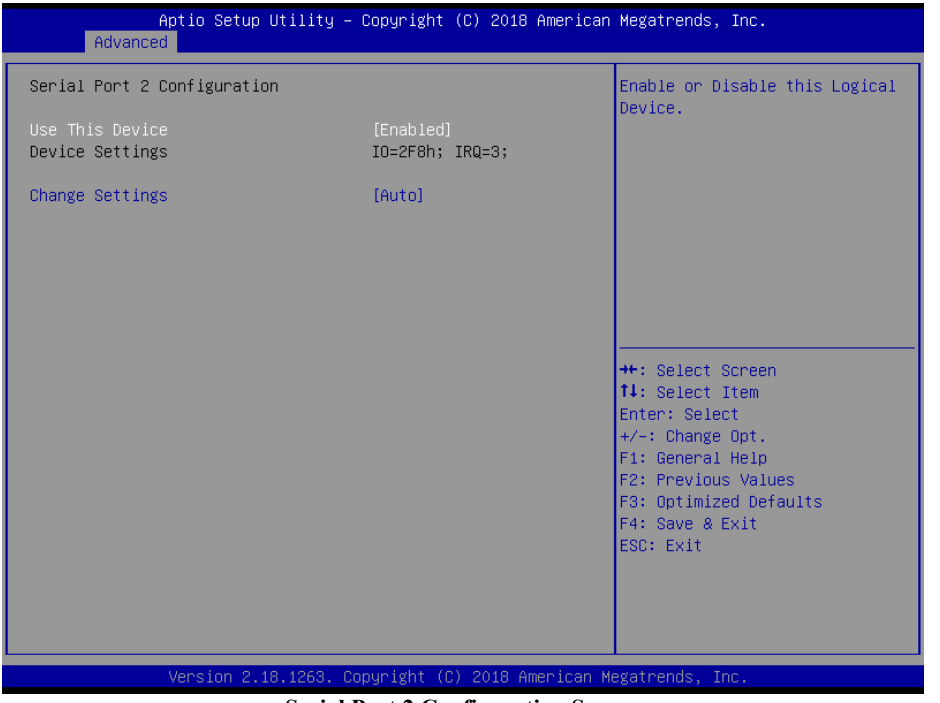


Serial Port 1 Configuration Screen

BIOS Setting	Options	Description/Purpose
Use This Device	- Disabled - Enabled	Enable or disable Serial Port 1.
Device Settings	No changeable options	Display the current settings of Serial Port 1.
Change Settings	- Auto - IO=3F8h; IRQ=4; - IO=3F8h; IRQ=3,4,5,6,7,10,11; - IO=2F8h; IRQ=3,4,5,6,7,10,11; - IO=3E8h; IRQ=3,4,5,6,7,10,11; - IO=2E8h; IRQ=3,4,5,6,7,10,11;	Select IRQ and I/O resource settings for Serial Port 1.
Mode	- RI - 5V - 12V	Disable or select 12V / 5V voltage for COM1.

F81866 Super IO Configuration – Serial Port 2 Configuration

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



Serial Port 2 Configuration Screen

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

F81866 Super IO Configuration – Serial Port 3 Configuration

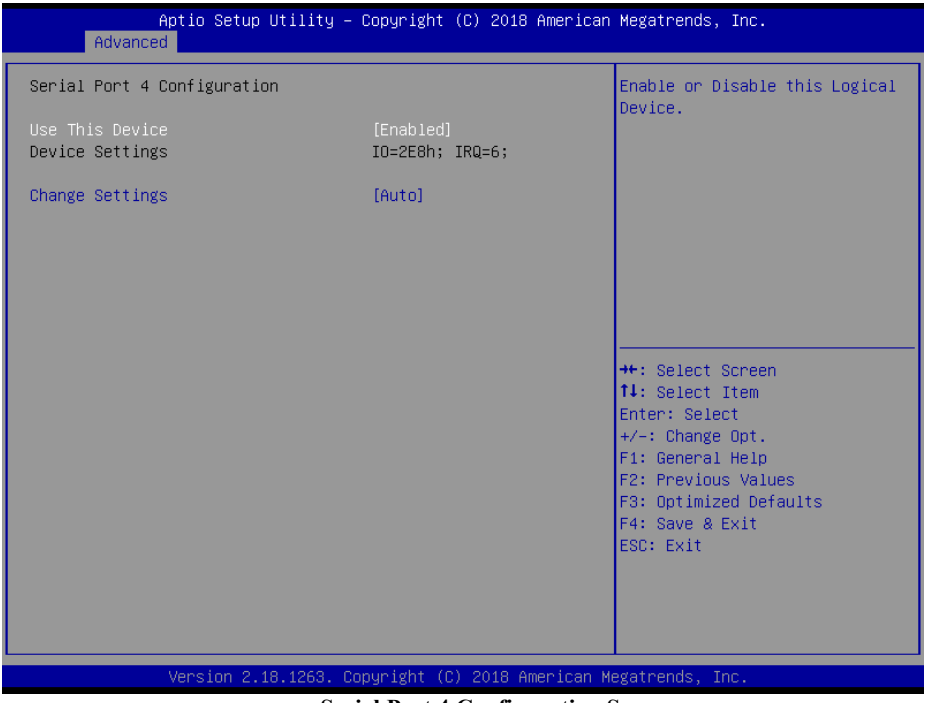
Menu Path *Advanced > F81866 Super IO Configuration > Serial Port 3 Configuration*

Serial Port 3 Configuration Screen

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

F81866 Super IO Configuration – Serial Port 4 Configuration

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

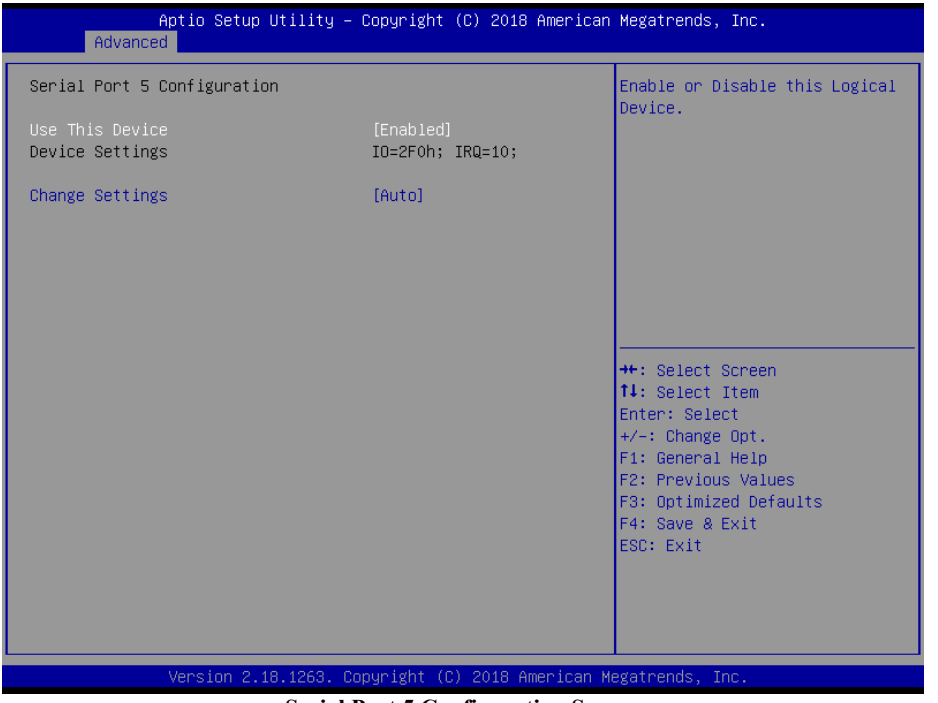


Serial Port 4 Configuration Screen

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

F81866 Super IO Configuration – Serial Port 5 Configuration

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

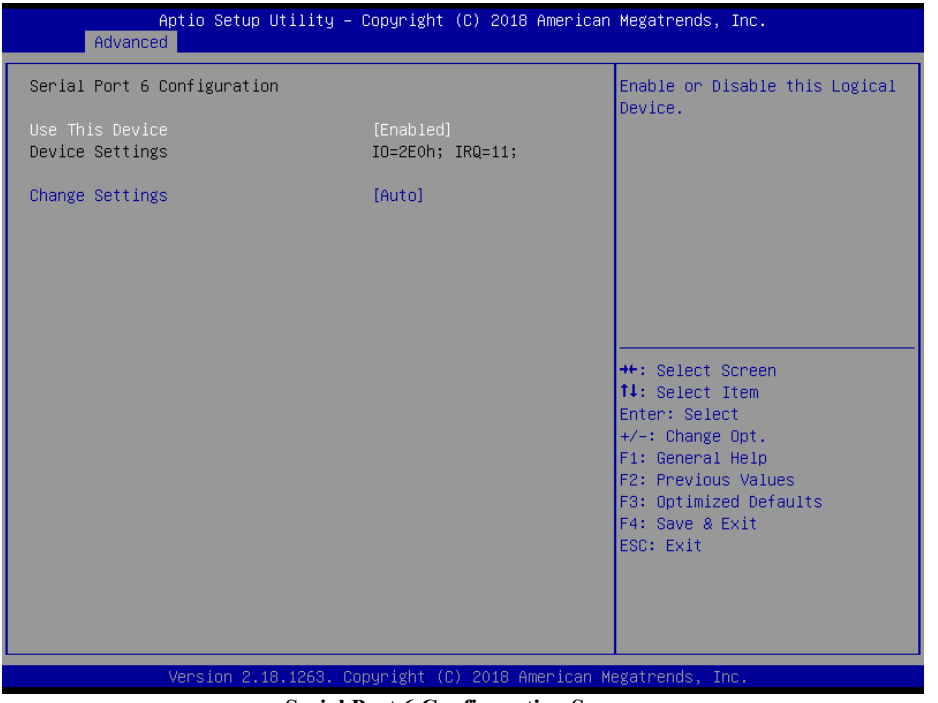


Serial Port 5 Configuration Screen

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

F81866 Super IO Configuration – Serial Port 6 Configuration

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



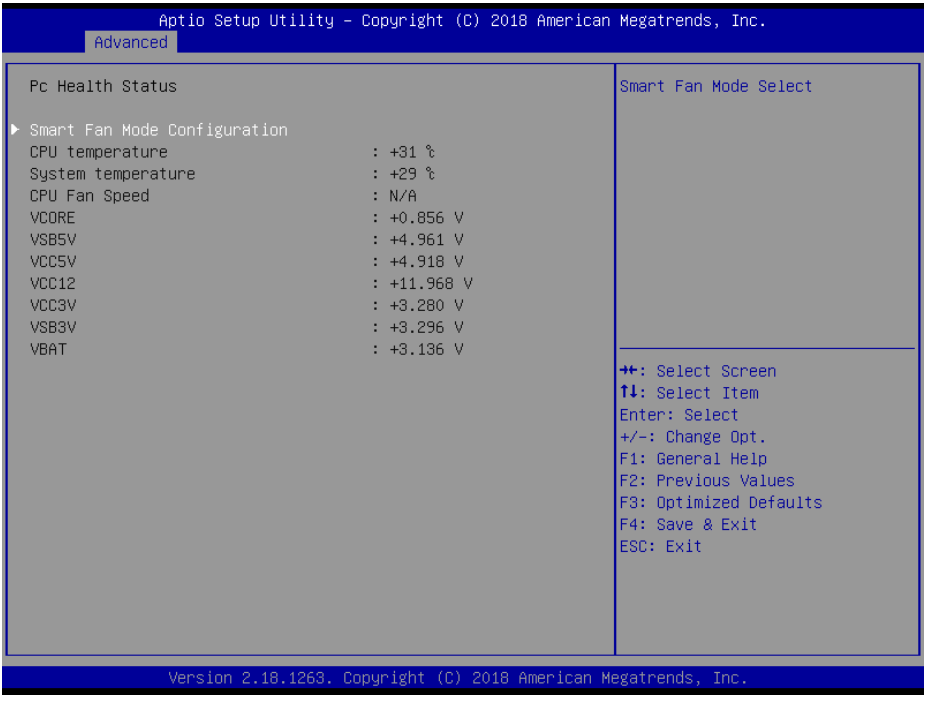
Serial Port 6 Configuration Screen

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

5.1.3.8 Advanced - Hardware Monitor

Menu Path *Advanced > Hardware Monitor*

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



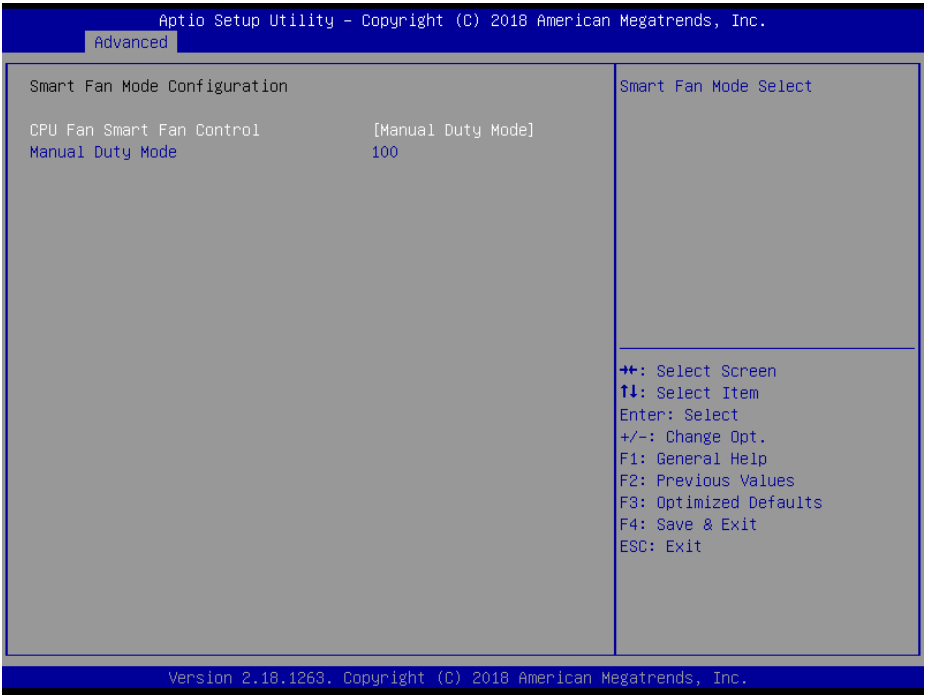
Hardware Monitor Screen

BIOS Setting	Options	Description/Purpose
Smart Fan Mode Configuration	Sub-Menu	Smart Fan Mode Selection. **Note:** No CPU Fan is used on KF-P230.
CPU Temperature	No changeable options	Displays the processor's temperature.
System Temperature	No changeable options	Displays the system's temperature.
CPU Fan Speed	No changeable options	Displays CPU Fan speed. **Note:** Because no CPU Fan is used on KF-P230, so "**N/A**" is shown for this item.
VCORE	No changeable options	Displays the voltage level of VCORE in supply.

BIOS Setting	Options	Description/Purpose
VSB5V	No changeable options	Detects and displays the voltage level of the VSB5V in supply.
VCC5V	No changeable options	Displays the voltage level of VCC5 in supply.
VCC12	No changeable options	Displays the voltage level of VCC12 in supply.
VCC3V	No changeable options	Displays the voltage level of VCC3V in supply.
VSB3V	No changeable options	Displays the voltage level of VSB3V in supply.
VBAT	No changeable options	Displays the voltage level of VBAT in supply.

Smart Fan Mode Configuration (No Fan is used on KF-P230.)

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



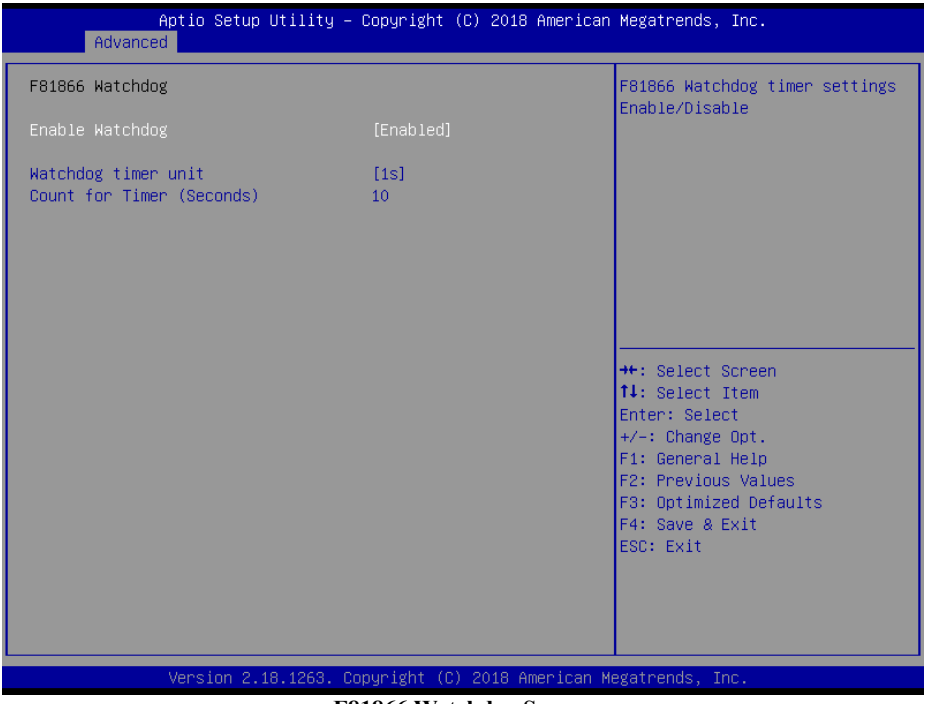
Smart Fan Mode Configuration Screen

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

5.1.3.9 Advanced - F81866 Watchdog

Menu Path *Advanced > F81866 Watchdog*

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



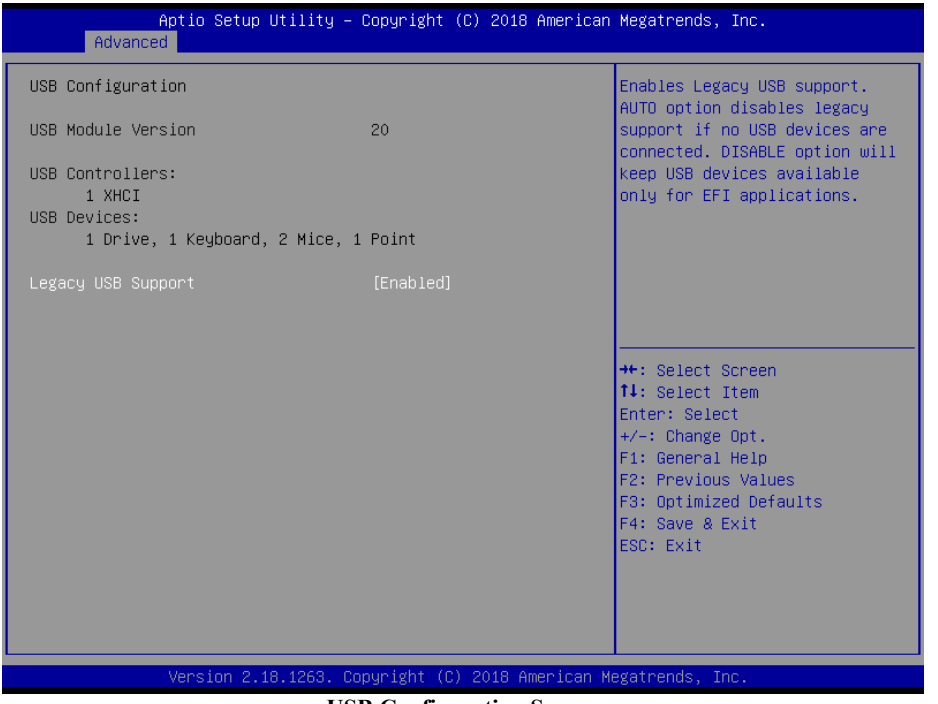
F81866 Watchdog Screen

BIOS Setting	Options	Description/Purpose
Enable WatchDog	- Enabled - Disabled	Enables/ Disables F81866 Watchdog timer.
Watchdog timer unit	- 1s - 60s	Selects seconds or minutes
Count for Timer (Seconds)	multiple options ranging from 1 to 255	Sets the desired value (in seconds) for watchdog timer.

5.1.3.10 Advanced - USB Configuration

Menu Path *Advanced > USB Configuration*

The **USB Configuration** allows users to configure advanced USB settings such as USB mass storage driver support.



USB Configuration Screen

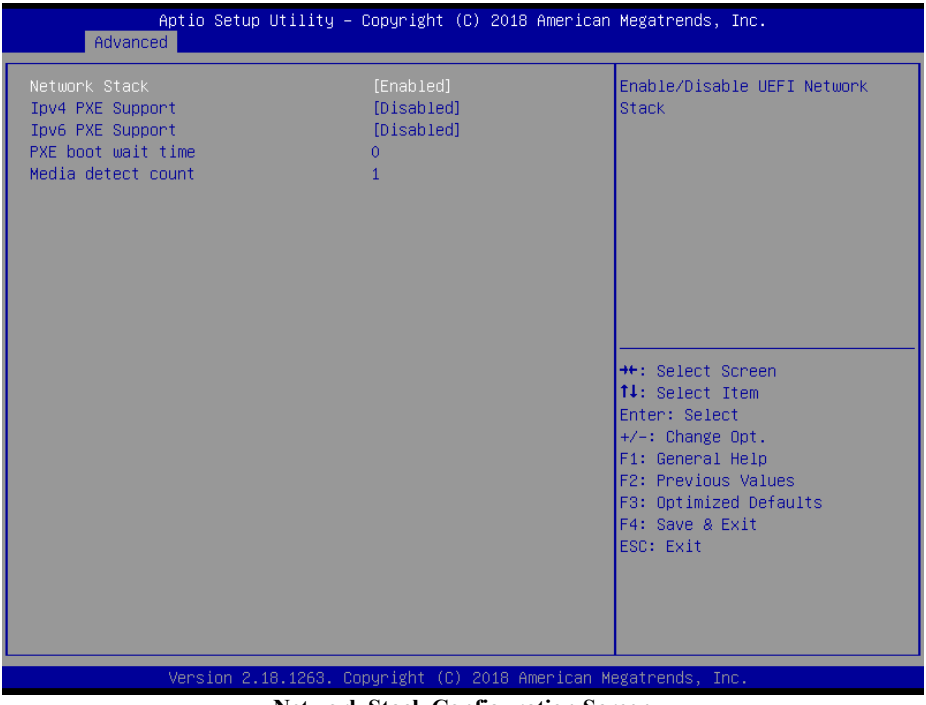
BIOS Setting	Options	Description/Purpose
Legacy USB Support	- Disabled - Enabled	Enables support for legacy USB.

5.1.3.11 Advanced - Network Stack Configuration

Menu Path *Advanced > Network Stack Configuration*

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

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



Network Stack Configuration Screen

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

BIOS Setting	Options	Description/Purpose
Ipv6 PXE Support	- Disabled - Enabled	Enables Ipv6 PXE Boot Support. If disabled, Ipv6 PXE boot option will not be created.
PXE boot wait time	Numeric (from 0 to 5)	Number of seconds to wait for PXE boot to abort after the Esc key is pressed.
Media detect count	Numeric (from 1 to 50)	Number of times that the media presence will be checked.

5.1.4 Chipset

Menu Path *Chipset*

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

Chipset Menu Screen

BIOS Setting	Options	Description/Purpose
System Agent (SA) Parameters	Sub-Menu	Sets the Parameter for System Agent (SA) configuration.
PCH-IO Configuration	Sub-Menu	Sets the Parameter for PCH configuration.

5.1.4.1 System Agent (SA) Configuration

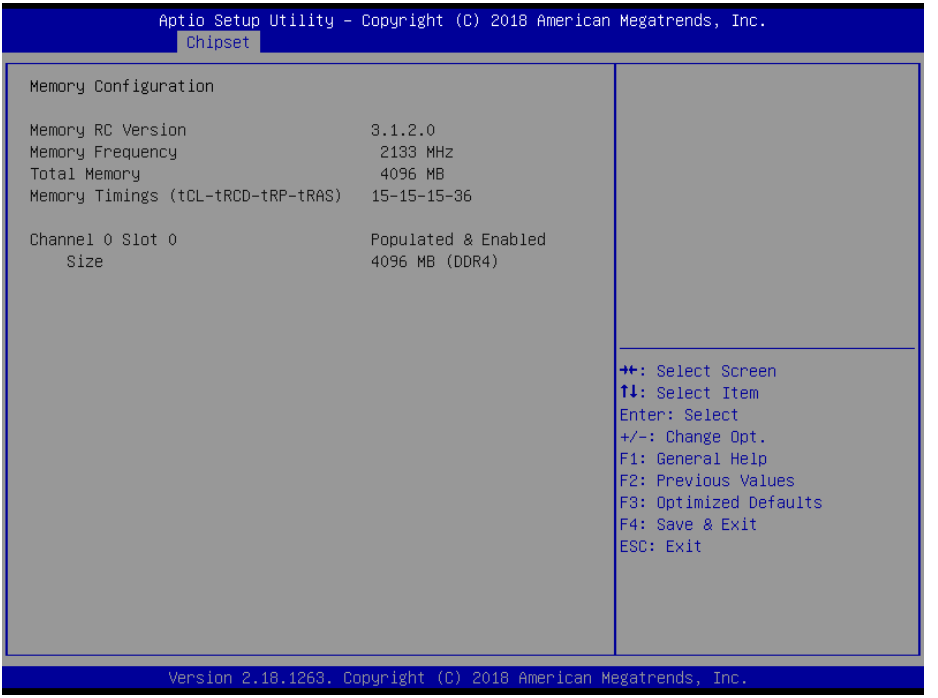
Menu Path *Chipset > System Agent (SA) Configuration*

System Agent (SA) Configuration Screen

BIOS Setting	Options	Description/Purpose
SA PCIe Code Version	No changeable options	Displays the SA PCIe Code Version.
VT-d	No changeable options	Displays VT-d capability support.
Memory Configuration	Sub-Menu	Memory Configuration parameters
VT-d	- Disabled - Enabled	Enables or Disables VT-d function.

System Agent (SA) Configuration – Memory Configuration

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



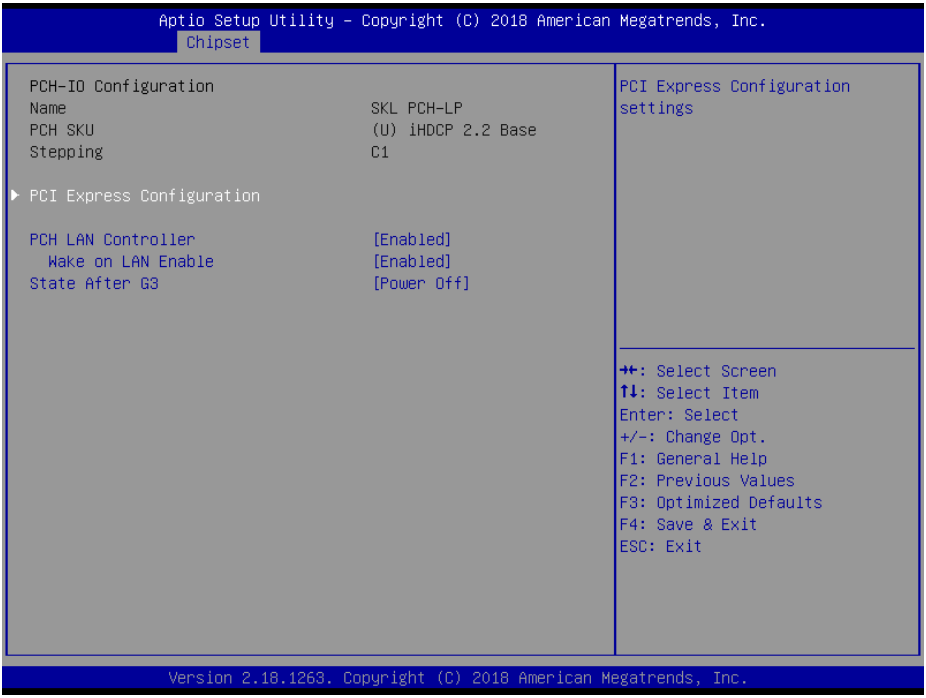
Memory Configuration Screen

BIOS Setting	Options	Description/Purpose
Memory RC Version	No changeable options	Displays the Memory RC Version.
Memory Frequency	No changeable options	Displays the Frequency of Memory.
Total Memory	No changeable options	Displays the Total Memory.
Memory Timings (tCL-tRCD-tRP-tRAS)	No changeable options	Displays the Memory Timings.
Channel 0 Slot 0	No changeable options	Displays the state of Channel 0 Slot 0.
Size	No changeable options	Displays the size of Channel 0 Slot 0.

5.1.4.2 PCH IO Configuration

Menu Path *Chipset > PCH IO Configuration*

The **PCH-IO Configuration** allows users to configure North Bridge chipset, set PCI Express configuration parameters, enable/disable PCH LAN Controller and Wake-On-LAN function and determine the power on/off state that the system will go to following a power failure (G3 state).



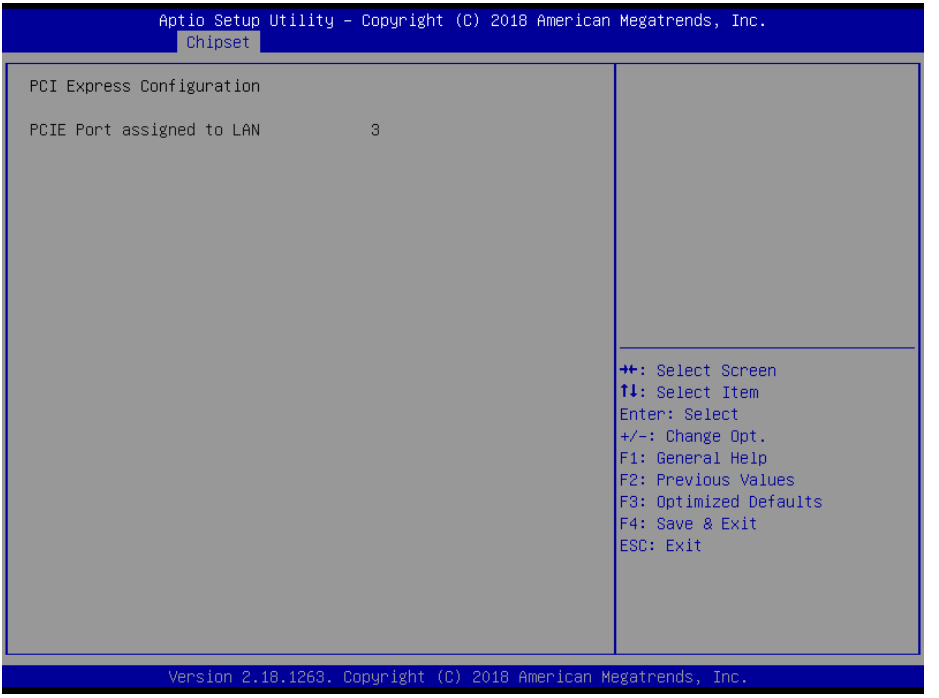
PCH-IO Configuration Screen

BIOS Setting	Options	Description/Purpose
Name	No changeable options	Displays the Intel PCH Name.
PCH SKU	No changeable options	Displays the Intel PCH SKU.
Stepping	No changeable options	Displays the Intel PCH Stepping.
PCI Express Configuration	Sub-Menu	PCI Express Configuration settings.
PCH LAN Controller	- Disabled - Enabled	Enables or Disables onboard NIC.
Wake on LAN Enable	- Disabled - Enabled	Enables or Disables integrated LAN to wake the system.

BIOS Setting	Options	Description/Purpose
State After G3	- Power On - Power Off	Specifies the Power On/Off state that the system will go to when the power is re-applied following a power failure (G3 state).

PCH-IO Configuration – PCI Express Configuration

Menu Path *Chipset > PCH-IO Configuration > PCI Express Configuration*



PCI Express Configuration Screen

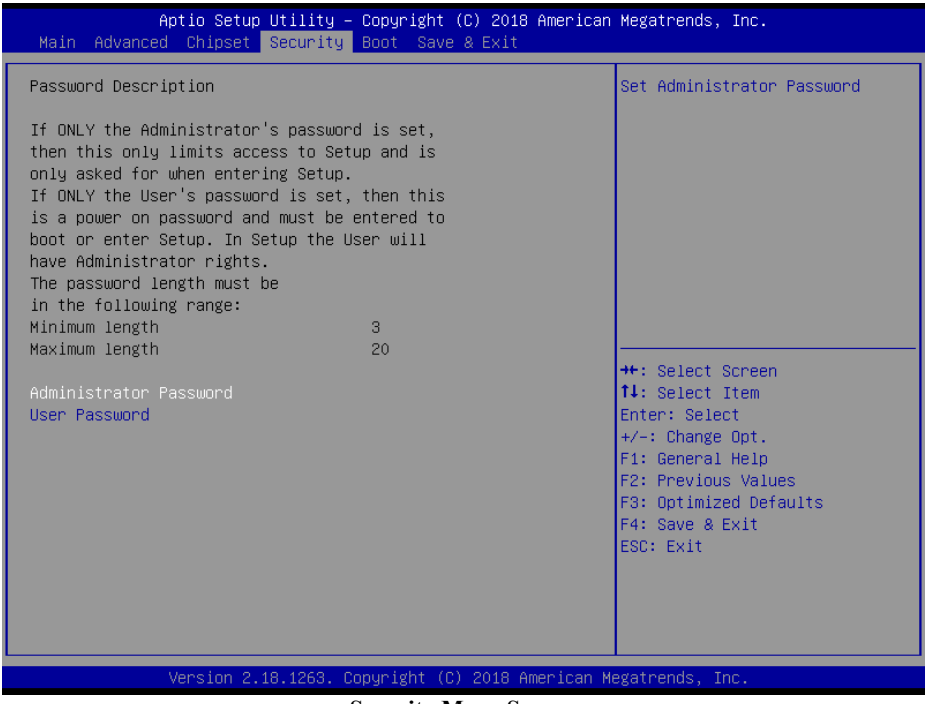
BIOS Setting	Options	Description/Purpose
PCIE Port assigned to LAN	No changeable options	Displays the LAN assigned PCIE Port.

5.1.5 Security

Menu Path *Security*

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

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



Security Menu Screen

BIOS Setting	Options	Description/Purpose
Administrator Password	Password can be 3-20 alphanumeric characters.	Specifies the administrator password.
User Password	Password can be 3-20 alphanumeric characters.	Specifies the user password.

Create an Administrator or User Password

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

Change an Administrator or User Password

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

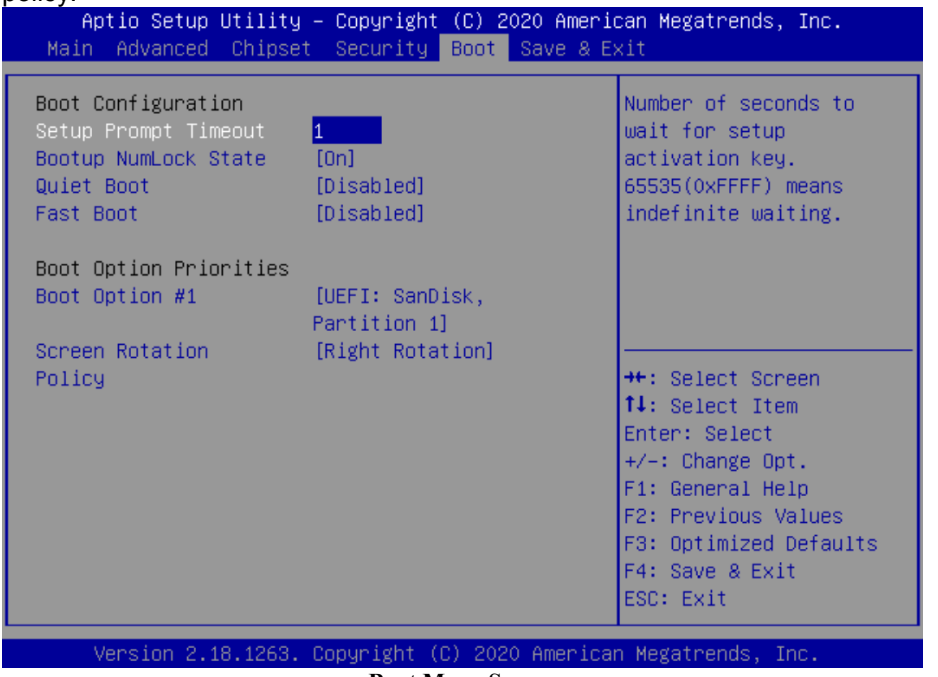
Remove an Administrator or User Password

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

5.1.6 Boot

Menu Path *Boot*

This menu provides control items for system boot configuration such as setting setup prompt timeout, enabling/disabling quiet boot and fast boot, changing the boot order from the available bootable device(s) and Screen Rotation policy.



Boot Menu Screen

BIOS Setting	Options	Description/Purpose
Setup Prompt Timeout	Numeric (from 1 to 65535)	Number of seconds to wait for setup activation key.
Bootup NumLock State	- On - Off	Selects the NumLock 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	Enables/Disables Quiet Boot Options.

BIOS Setting	Options	Description/Purpose
Fast Boot	- Disabled - Enabled	Enables/Disables Fast Boot Options
Boot Option #1~#n	- [Drive(s)] - Disabled	Allows users to choose the priority of the boot devices listed in Hard Drive BBS Priorities.
Screen Rotation Policy	- Normal - Right Rotation (Default) - Left Rotation - Reversion	Controls the direction of screen display.

5.1.7 Save & Exit

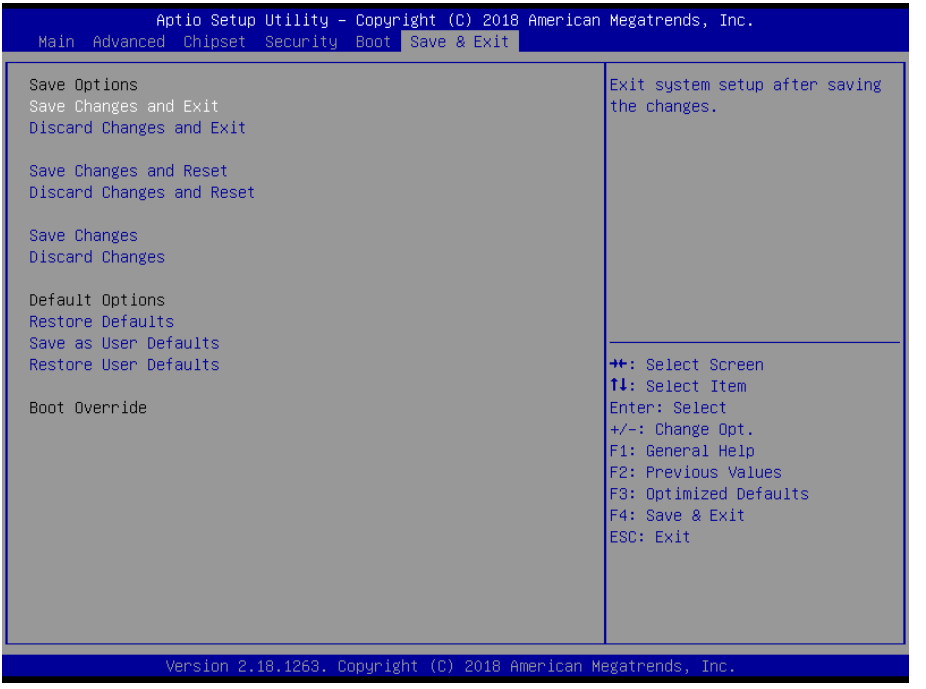
Menu Path *Save & Exit*

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

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

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

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



Save & Exit Menu Screen

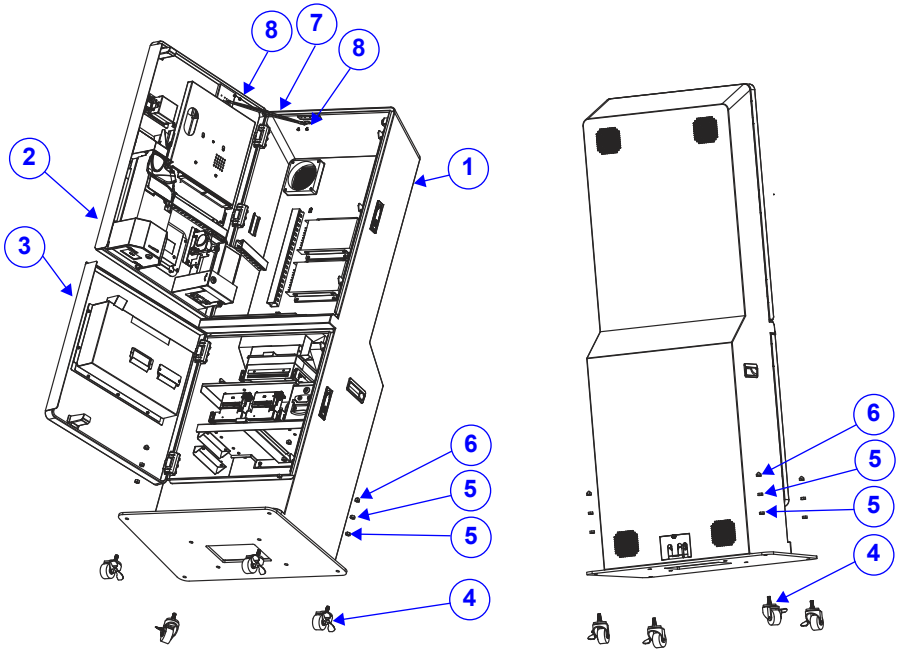
BIOS Setting	Options	Description/Purpose
Save Changes and Exit	No changeable options	Exits and saves the changes in NVRAM.
Discard Changes and Exit	No changeable options	Exits without saving any changes made in BIOS settings.
Save Changes and Reset	No changeable options	Saves the changes in NVRAM and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

Appendix A System Diagrams

This appendix includes the easy maintenance and exploded diagrams of the system and the parts list as well as the part numbers of the KF-P230 system.

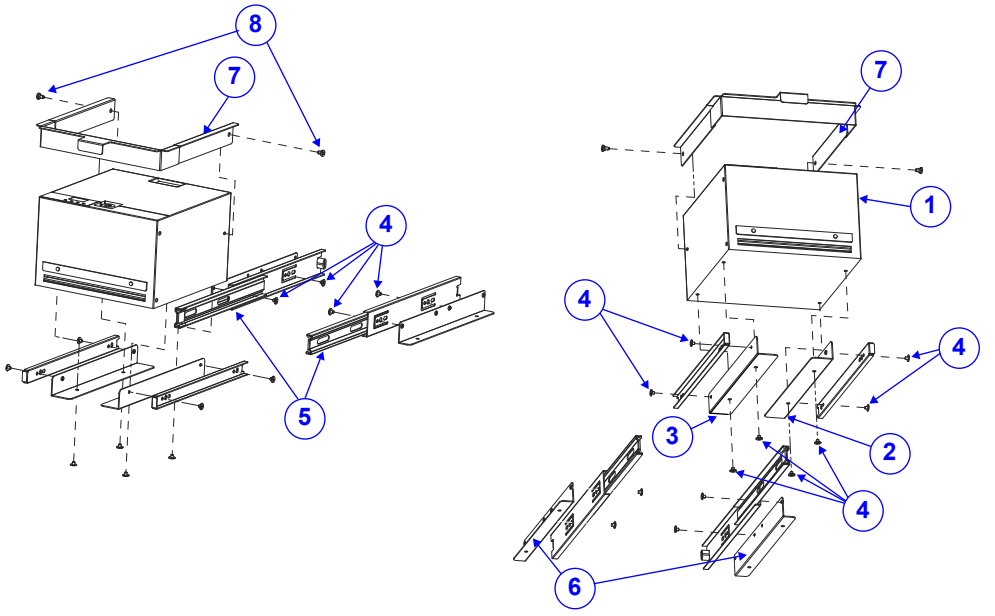
- KF-P230 System Assembly Exploded Diagram
- KF-P230 System Body Assembly Exploded Diagrams
- KF-P230 Upper Door Assembly Exploded Diagrams
- KF-P230 Lower Door Assembly Exploded Diagrams

KF-P230 System Assembly Exploded Diagram



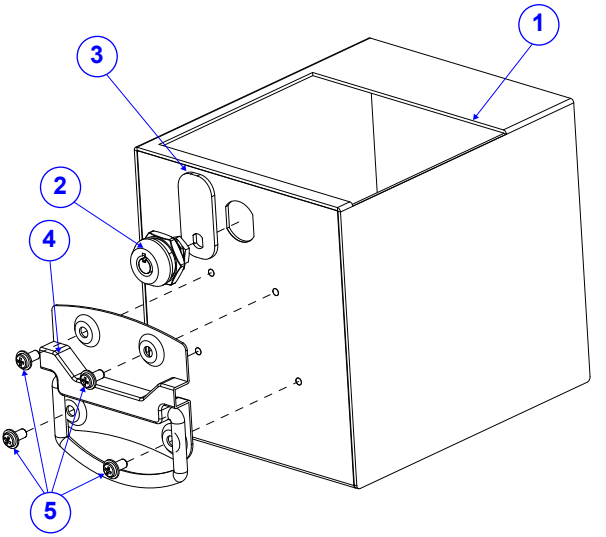
ITEM	Description	Part No.	Q'ty
1	Body Assy	N/A	1
2	Door Upper Assy	N/A	1
3	Door Lower Assy	N/A	1
4	WHEEL CASTER (FP-B5-4)	20-059-35022000	4
5	Hex Nuts (UNC3/8-16T,H=6.6mm)	23-142-38660141	8
6	Hex Nuts (UNC3/8-16T,H=13mm)	23-142-38130141	4
7	Door Stay (KS-90-1L)	20-030-10031000	1
8	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	4

KF-P230 System Body Assembly Exploded Diagram (1)



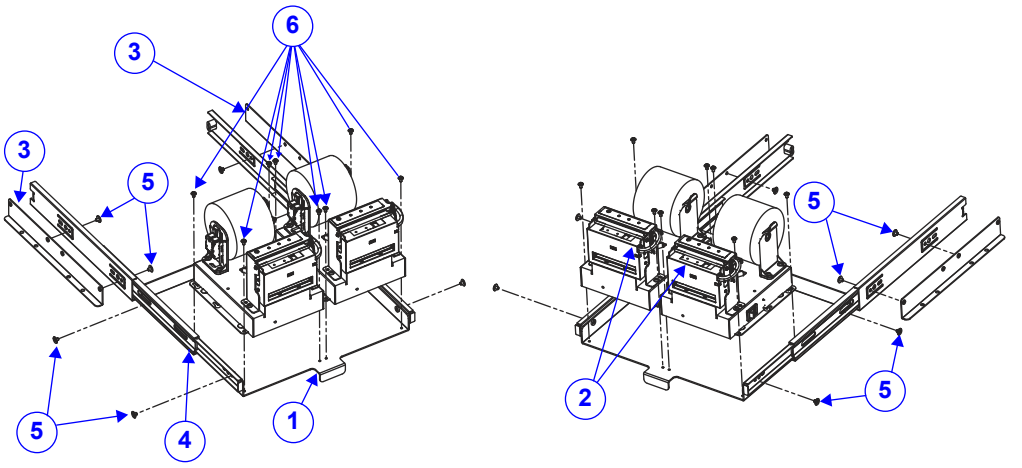
ITEM	Description	Part No.	Q'ty
1	nde-1000-r1	N/A	1
2	KF-P230 NDE-1000 Tray-R(w/Paint)(Zn)	20-254-02022508	1
3	KF-P230 NDE-1000 Tray-L(w/Paint)(Zn)	20-254-02021508	1
4	Fillister Head Screw #2/M4x0.7Px4mm	22-275-40004911	12
5	KF-7232 Full Extension Drawer Slide	20-039-02021444	2
6	KF-P230 NDE-1000 Holder (w/Paint)(Zn)	20-229-02022508	2
7	KF-P230 NDE-1000 Handle (w/Paint)(Zn)	20-235-02021508	1
8	Fillister Head Screw M4x0.7Px4mm	22-272-40004911	2

KF-P230 System Body Assembly Exploded Diagram (2)



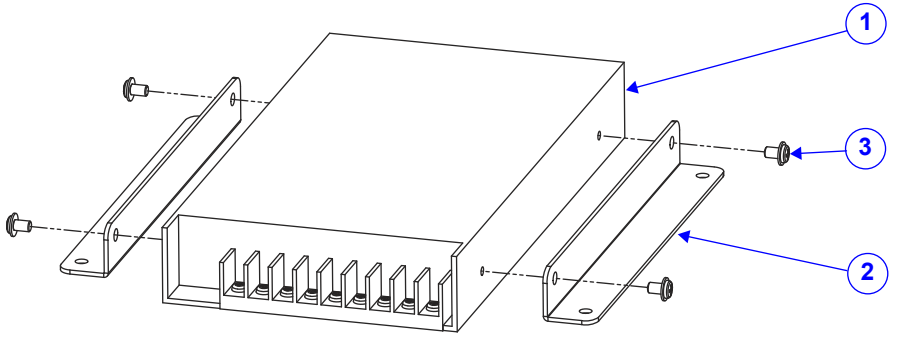
ITEM	Description	Part No.	Q'ty
1	KF-P230 Coin Box	20-240-07002508	1
2	Cam Lock	20-025-35004000	1
3	KS-M220-C Coin Box Sheet	20-240-07002482	1
4	Lifting Handles	20-035-10001000	1
5	Round Washer Head Screw # 2 / M4x0.7Px8mm	22-232-40008011	4

KF-P230 System Body Assembly Exploded Diagram (3)



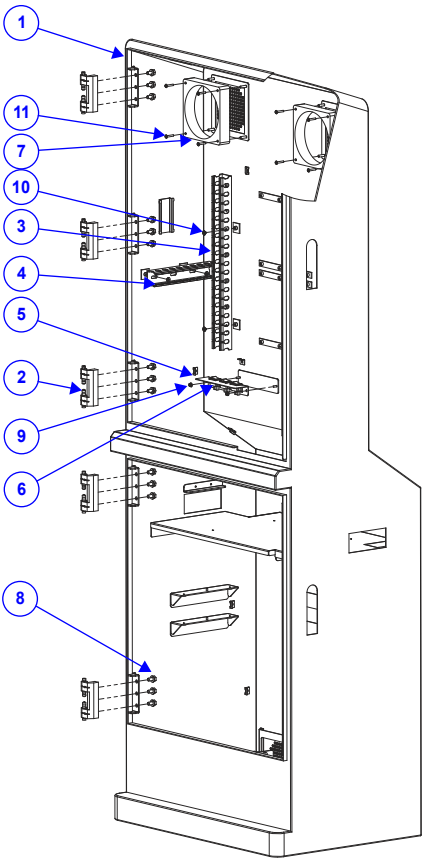
ITEM	Description	Part No.	Q'ty
1	KF-P230 WP-651K Bracket (w/Paint)(Zn)	20-206-02024508	1
2	WP-651K	N/A	2
3	KF-P230 WP-651K Holder (w/Paint)(Zn)	20-229-02024508	2
4	KF-7232 Full Extension Drawer Slide	20-039-02021444	2
5	Fillister Head Screw #2/M4x0.7Px4mm	22-275-40004911	8
6	Round Washer Head Screw M3x0.5Px5mm	22-235-30005011	8

KF-P230 System Body Assembly Exploded Diagram (4)

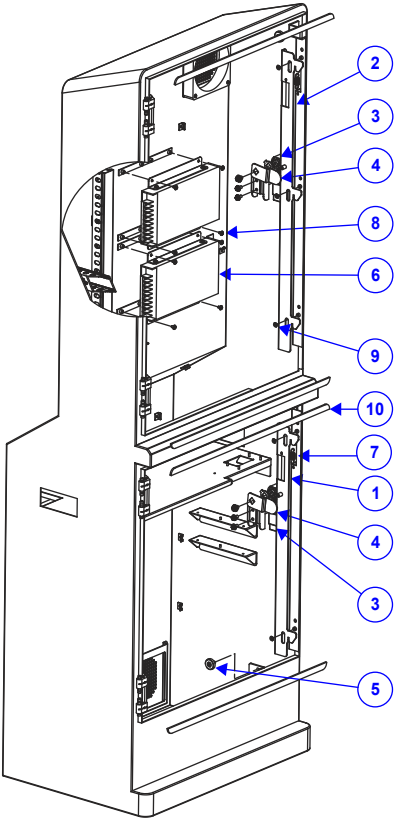


ITEM	Description	Part No.	Q'ty
1	320W 12V Output with PFC Function Power Supply (IEC62368)	52-001-50321209	1
2	KF-P230 Adaptor Bracket (w/Paint)(Zn)	20-206-02023508	2
3	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	4

KF-P230 System Body Assembly Exploded Diagram (5)

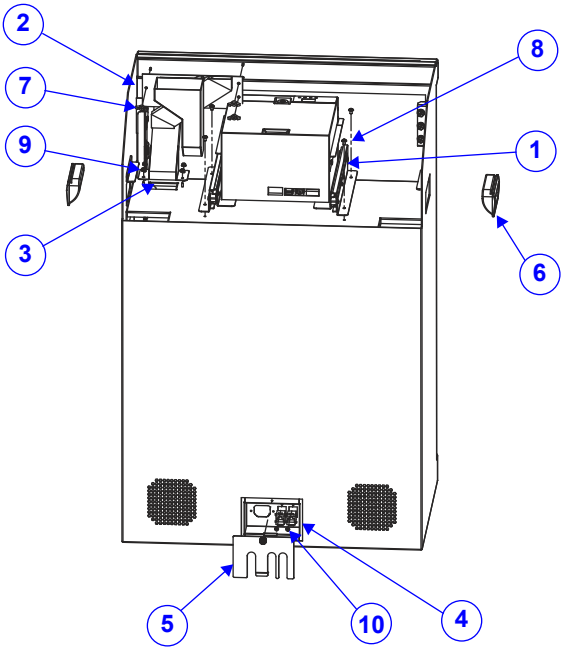


ITEM	Description	Part No.	Q'ty
1	KF-P230 Body Spot Case (w/Paint)(Black)	20-201-02061508	1
2	PK-7090 Concealed Hinge	80-012-30001284	5
3	KSS_30*30_Slot (L=360mm)	30-023-16100375	1
4	KSS_30*30_Slot (L=162mm)	30-023-16100375	1
5	KS-P230 Power Switch Bracket	20-206-02063508	1
6	Power Switch Cable	N/A	3
7	KT-7290 System Fan (120x120x25.3mm) L=80mm	21-004-01212006	2
8	Hex Head With Spring Washer Screw #3 / M6x1.0Px12mm	22-251-60012011	15
9	Slip Nuts (M3x0.5P,H=4mm)	23-142-30400801	2
10	Fillister Head Screw #2/M4x0.7Px4mm	22-275-40004911	4
11	Round Washer Head Screw #2 / M3x0.5Px18mm	22-232-30018011	8



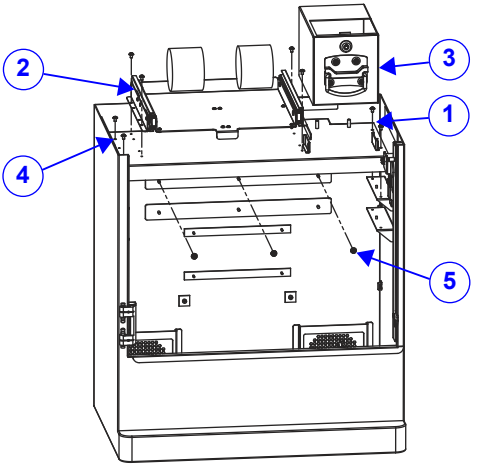
ITEM	Description	Part No.	Q'ty
1	KF-P230 Lock Bar Short	20-225-07001508	1
2	KF-P230 Lock Bar	20-225-07002508	1
3	Life and Turn Latch	20-035-35002000	2
4	KF-P230 Door Sheet (w/Paint)(Zn)	20-247-02022508	2
5	PK-7090 Plastic Wheel M6x1.0Px8mm (White)	22-281-60007001	2
6	Power_Assy	N/A	2
7	KF-7330 Panel Lock Spring (Φ10)	23-002-00001002	2
8	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	8
9	Fillister Head Screw #2/M4x0.7Px4mm	22-275-40004911	5
10	KF-P230 Door Sponge (510x13x3mm)	30-013-15100508	4

KF-P230 System Body Assembly Exploded Diagram (6-1)



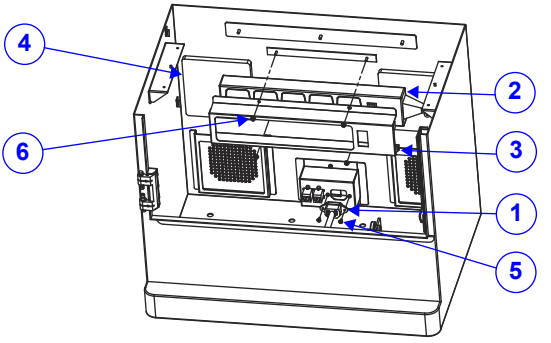
ITEM	Description	Part No.	Q'ty
1	NDE-1000 Assy.	N/A	1
2	KF-P230 Change Rail Asm (w/Paint)(Zn)	20-239-02022508	1
3	KF-P230 Storage Rail Middle (w/Paint)(Zn)	20-239-02021508	1
4	8P8C Modular Coupler Jack Shielded	10-085-08012135	2
5	KF-P230 AC IN Box Cover (w/Paint)(Black)	20-204-02065508	1
6	KS-M220 Flush Pull (Black)	30-080-08100482	2
7	Handle Head Airfoil Nuts (M3x0.5P, H=4mm)	23-142-30400981	3
8	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	4
9	Slip Nuts (M3x0.5P, H=4mm)	23-142-30400801	4
10	Round Washer Head Screw #2 / M3x0.5Px7mm	22-232-30007011	2

KF-P230 System Body Assembly Exploded Diagram (6-2)



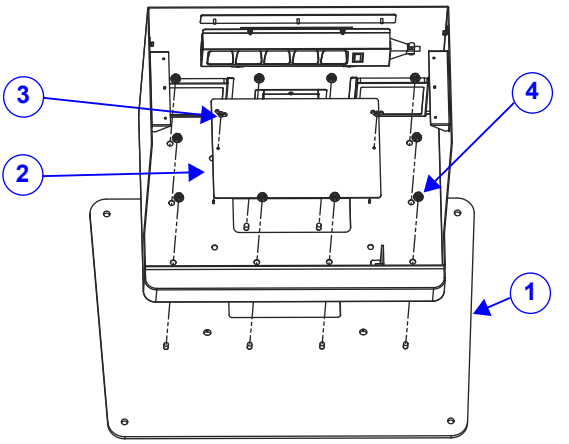
ITEM	Description	Part No.	Q'ty
1	KF-P230 WP-651 Table (w/Paint)(Zn)	20-204-02067508	1
2	SP-651 Assy.	N/A	1
3	Coin Box Assy.	N/A	1
4	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	8
5	Slip Nuts (M4x0.7P, H=4.5mm)	23-142-40450801	3

KF-P230 System Body Assembly Exploded Diagram (6-3)



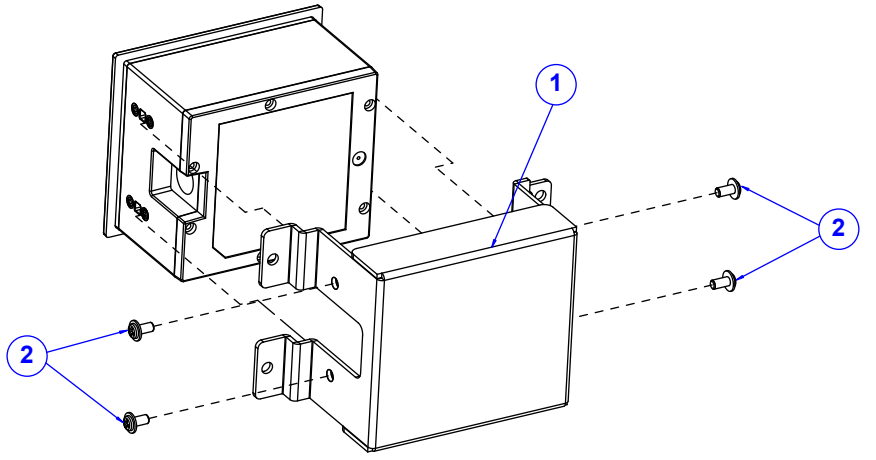
ITEM	Description	Part No.	Q'ty
1	AC-IN_Code_Any	N/A	1
2	AC Socket *5 Sets	52-990-01050040	1
3	KF-P230 Extension Holder (w/Paint) (Zn)	20-229-02023508	1
4	PK-7090 Plastic Filters(12cm)	30-089-28100284	2
5	Round Washer Head Screw #2 / M3x0.5Px7mm	22-232-30007011	2
6	Slip Nuts (M3x0.5P, H=4mm)	23-142-30400801	4

KF-P230 System Body Assembly Exploded Diagram (6-4)



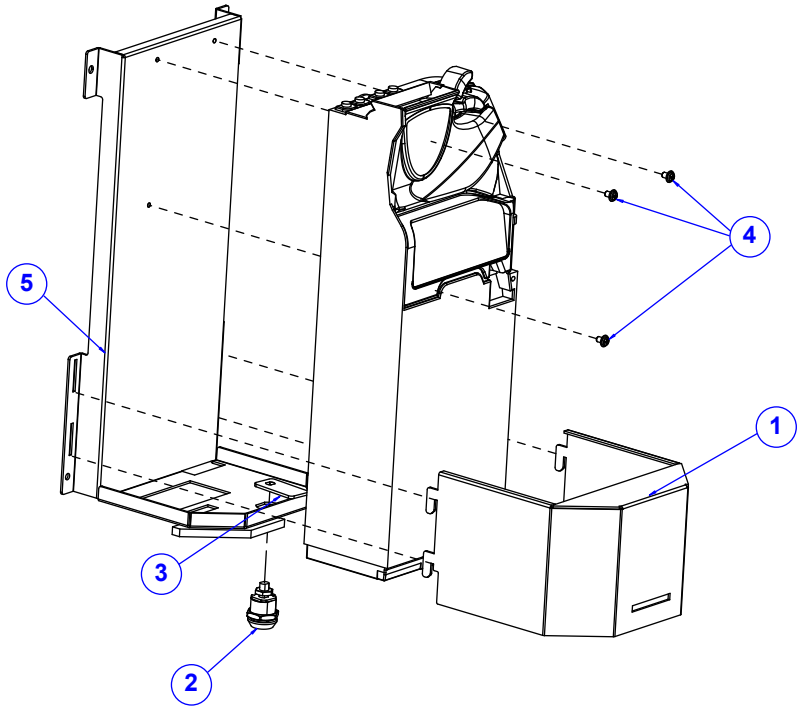
ITEM	Description	Part No.	Q'ty
1	KF-P230 Foot Plate (w/Paint)(Black)	20-205-02061508	1
2	KF-P230 Bottom Cover	20-204-03001508	1
3	Handle Head Airfoil Nuts (M3x0.5P, H=4mm)	23-142-30400981	2
4	Slip Nuts (M8x1.25P, H=7.5mm)	23-142-80801201	10

KF-P230 Upper Door Assembly Exploded Diagram (1)



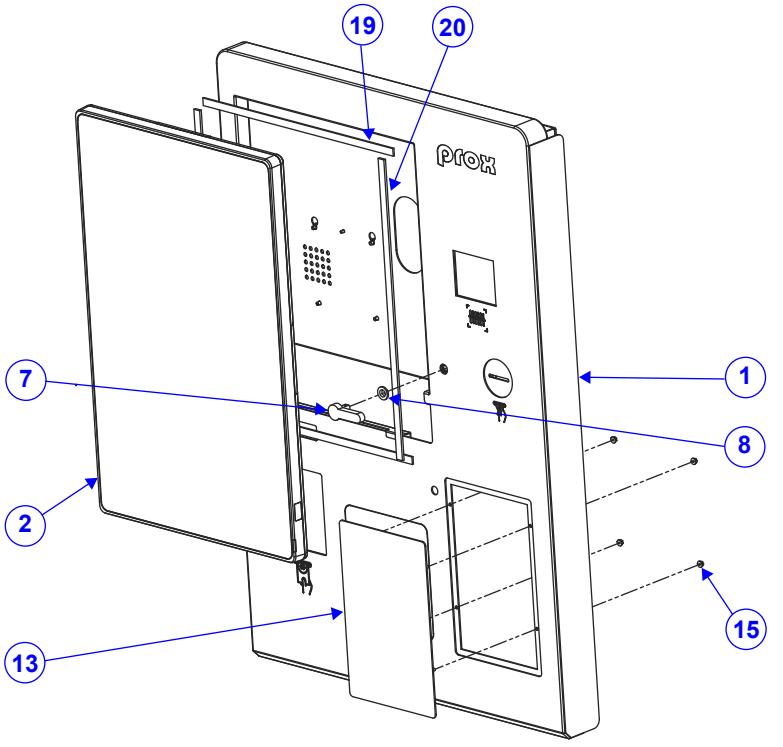
ITEM	Description	Part No.	Q'ty
1	KS-M220 FM3080 Holder (w/Plate)	20-229-02021482	1
2	Round Washer Head Screw M3x0.5Px6mm	22-232-30006311	4

KF-P230 Upper Door Assembly Exploded Diagram (2)



ITEM	Description	Part No.	Q'ty
1	KF-P230 CF7900 Cover (w/Paint)(Zn)	20-204-02021508	1
2	Cam Lock	20-025-35002000	1
3	KS-M220-C CF-7000 Sheet	20-206-01001482	1
4	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	3
5	KF-P230 CF7900 Holder (w/Paint)(Zn)	20-229-02021508	1

KF-P230 Upper Door Assembly Exploded Diagram (3)



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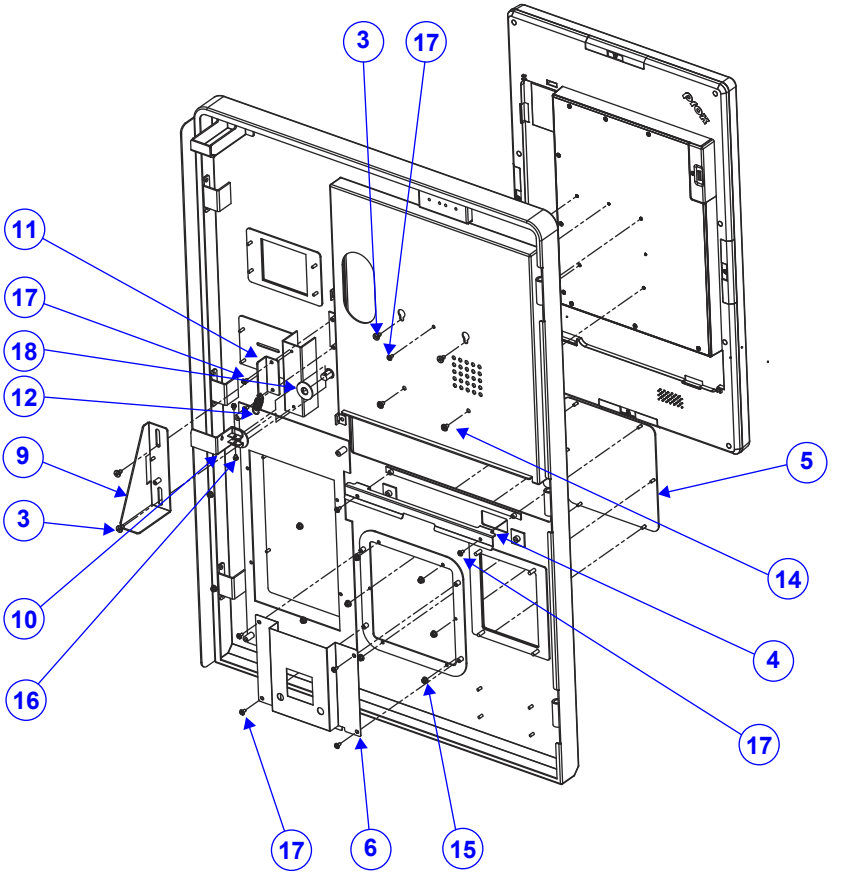
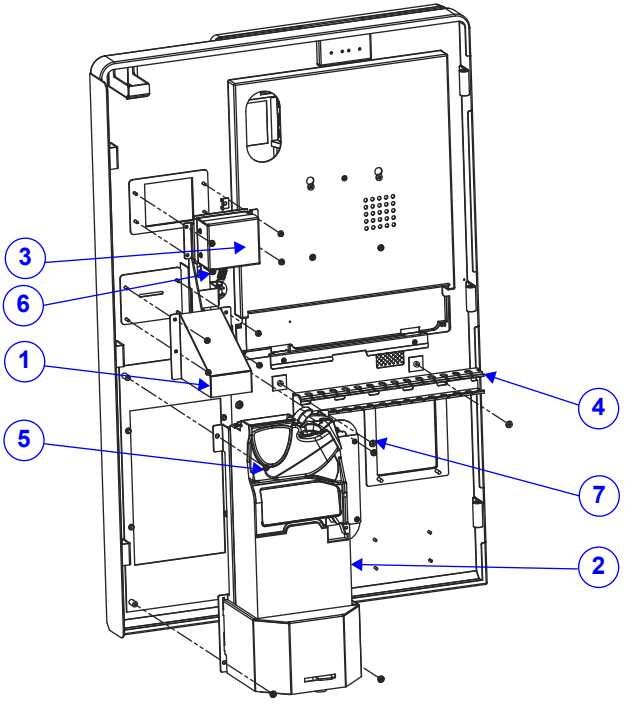


ITEM	Description	Part No.	Q'ty
1	KF-P230 PAJ600 Door Spot Case(w/Paint) (Gray)	20-247-02062508	1
2	PA-J600	N/A	1
3	Fillister Head Screw M4x0.7Px4mm	22-272-40004911	4
4	KF-P230 PA-J600 Hook	20-211-03001508	1
5	KF-P230 QP1000 Cover (w/Paint) (Gray)	20-204-02063508	1
6	KF-P230 QP1000 PP(Black)	30-002-05100508	1
7	KS-M220-C Money Bar (w/Paint)(Black)	20-208-02061482	1
8	Washers (Φ9.5x4mm)	90-041-04108000	1
9	KF-P230 Money Bar Rail (w/Paint)(Zn)	20-208-02021508	1
10	KS-M220-C Money Bar Sheet (w/Plate)(Zn)	20-208-02022482	1
11	KF-P230 Money Spring Bracket	20-206-03001508	1

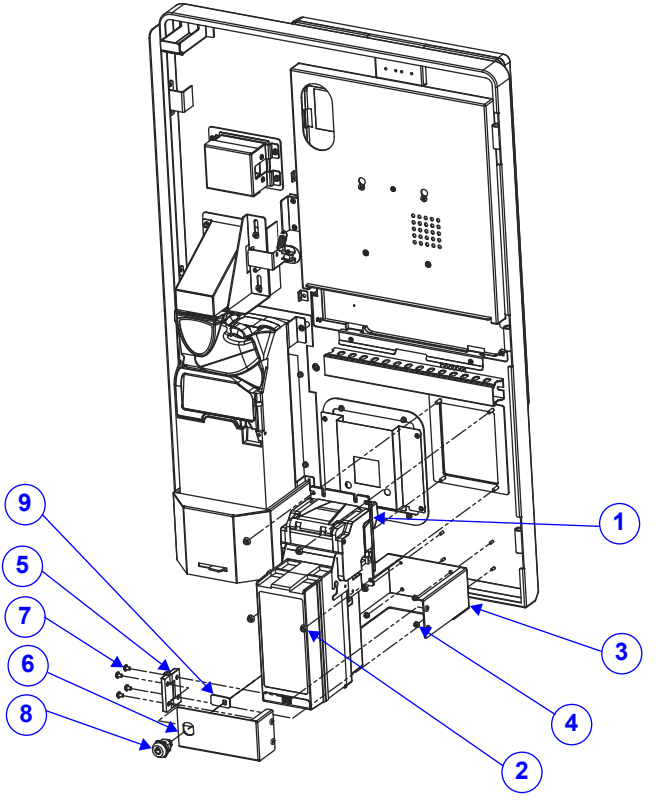
ITEM	Description	Part No.	Q'ty
12	KF-7330 Panel Lock Spring (Φ10)	23-002-00001002	1
13	KF-P230 Credit Card Cover (w/Paint)(Gray)	20-204-02062508	1
14	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	2
15	Slip Nuts (M3x0.5P, H=4mm)	23-142-30400801	10
16	Round Head With Spring Washer Screw M3x0.5Px5mm	22-232-30060011	2
17	Round Washer Head Screw M3x0.5Px6mm	22-232-30006311	9
18	KS-M220-C Money Bar Washer	20-208-07001482	1
19	KF-P230 PA-J600 Poron-Top (330.4x10x2mm)	30-013-24200508	2
20	KF-P230 PA-J600 Poron Side (397.5x10x3mm)	30-013-24100508	2

KF-P230 Upper Door Assembly Exploded Diagram (4-1)



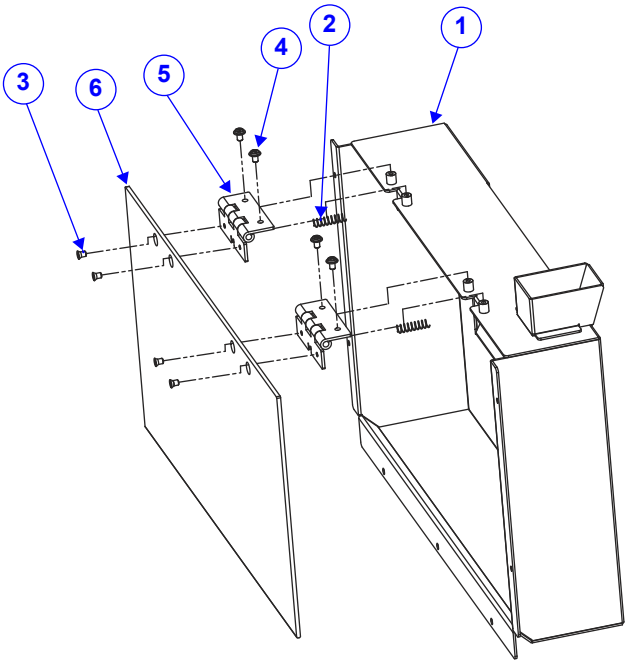
ITEM	Description	Part No.	Q'ty
1	KF-P230 Coin Insert CLX (w/Paint)(Zn)	20-240-02021508	1
2	Cash Flow 7900 Assy.	N/A	1
3	Barcode Assy.	N/A	1
4	KSS_30*30_Slot (30x30x1700mm)	30-023-16100375	1
5	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	4
6	Slip Nuts (M3x0.5P, H=4mm)	23-142-30400801	8
7	Fillister Head Screw #2 / M4x0.7Px4mm	22-275-40004911	2

KF-P230 Upper Door Assembly Exploded Diagram (4-2)



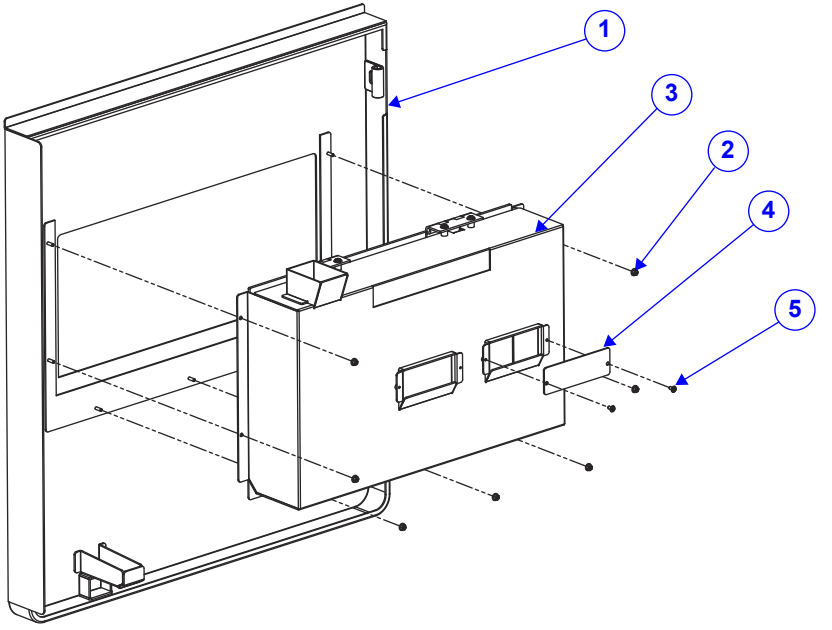
ITEM	Description	Part No.	Q'ty
1	Bill Acceptor	52-990-07050044	1
2	Slip Nuts (M4x0.7P, H=4.5mm)	23-142-40450801	4
3	KF-P230 L70 Base (w/Paint)(Zn)	20-232-02021508	1
4	Slip Nuts (M3x0.5P, H=4mm)	23-142-30400801	4
5	Aluminum Hinge (CL-208-3)	20-012-01001000	1
6	KF-P230 L70 Door (w/Paint)(Zn)	20-247-02021508	1
7	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	4
8	KM-7270 Cam Lock	20-025-35002000	1
9	KS-P230 L70 Door Sheet	20-204-07002508	1

KF-P230 Lower Door Assembly Exploded Diagram (1)



ITEM	Description	Part No.	Q'ty
1	KF-P230 Change Box	20-240-07001508	1
2	MH-5100 Compression Spring (Φ6.1x25)	23-002-01000252	2
3	Flat Head Screw #2/Φ6/ M4x0.7Px6mm	22-212-40006011	4
4	Round Washer Head Screw M4x0.7Px6mm	22-232-40006311	4
5	KF-7330 Coin Door Hinge	20-012-02001375	2
6	KF-P230 Change Door	30-007-10130508	1

KF-P230 Lower Door Assembly Exploded Diagram (2)



ITEM	Description	Part No.	Q'ty
1	KF-P230 Door Spot Case Down (w/Paint) (Gray)	20-247-02061508	1
2	Slip Nuts (M3x0.5P,H=4mm)	23-142-30400801	7
3	KF-P230_change_box_Asm.	N/A	1
4	KF-P230 WP-651 Cover	20-204-07003508	1
5	Round Washer Head Screw M3x0.5Px6mm	22-232-30006311	2

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:

- Interrupt Map
- I/O Map
- DMA Channels Map
- Memory Map
- Configuring WatchDog Timer
- Flash BIOS Update

Interrupt Map

IRQ	Assignment
IRQ 0	System timer
IRQ 1	Standard PS/2 Keyboard
IRQ 3	Communications Port (COM2)
IRQ 4	Communications Port (COM1)
IRQ 6	Communications Port (COM4)
IRQ 7	Communications Port (COM3)
IRQ 8	System CMOS/real time clock
IRQ 10	Communications Port (COM5)
IRQ 11	Communications Port (COM6)
IRQ 11	Mobile Intel(R) Processor Family I/O SMBUS - 9D23
IRQ 11	Mobile Intel(R) Processor Family I/O Thermal subsystem - 9D31
IRQ 14	Motherboard resources
IRQ 16	Intel(R) Serial IO I2C Host Controller - 9D60
IRQ 16	High Definition Audio Controller
IRQ 20	Intel SD Host Controller
IRQ 20	Intel(R) Serial IO UART Host Controller - 9D27
IRQ 22	Intel SD Host Controller
IRQ 54	Microsoft ACPI-Compliant System
IRQ 55	Microsoft ACPI-Compliant System
IRQ 56	Microsoft ACPI-Compliant System
IRQ 57	Microsoft ACPI-Compliant System
IRQ 58	Microsoft ACPI-Compliant System
IRQ 59	Microsoft ACPI-Compliant System
IRQ 60	Microsoft ACPI-Compliant System
IRQ 61	Microsoft ACPI-Compliant System
IRQ 62	Microsoft ACPI-Compliant System

IRQ	Assignment
IRQ 63	Microsoft ACPI-Compliant System
IRQ 64	Microsoft ACPI-Compliant System
IRQ 65	Microsoft ACPI-Compliant System
IRQ 66	Microsoft ACPI-Compliant System
IRQ 67	Microsoft ACPI-Compliant System
IRQ 68	Microsoft ACPI-Compliant System
IRQ 69	Microsoft ACPI-Compliant System
IRQ 70	Microsoft ACPI-Compliant System
IRQ 71	Microsoft ACPI-Compliant System
IRQ 72	Microsoft ACPI-Compliant System
IRQ 73	Microsoft ACPI-Compliant System
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IRQ 89	Microsoft ACPI-Compliant System
IRQ 90	Microsoft ACPI-Compliant System
IRQ 91	Microsoft ACPI-Compliant System

IRQ	Assignment
IRQ 92	Microsoft ACPI-Compliant System
IRQ 93	Microsoft ACPI-Compliant System
IRQ 94	Microsoft ACPI-Compliant System
IRQ 95	Microsoft ACPI-Compliant System
IRQ 96	Microsoft ACPI-Compliant System
IRQ 97	Microsoft ACPI-Compliant System
IRQ 98	Microsoft ACPI-Compliant System
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IRQ 118	Microsoft ACPI-Compliant System
IRQ 119	Microsoft ACPI-Compliant System
IRQ 120	Microsoft ACPI-Compliant System

IRQ	Assignment
IRQ 121	Microsoft ACPI-Compliant System
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IRQ 123	Microsoft ACPI-Compliant System
IRQ 124	Microsoft ACPI-Compliant System
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IRQ 147	Microsoft ACPI-Compliant System
IRQ 148	Microsoft ACPI-Compliant System
IRQ 149	Microsoft ACPI-Compliant System

IRQ	Assignment
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IRQ 176	Microsoft ACPI-Compliant System
IRQ 177	Microsoft ACPI-Compliant System
IRQ 178	Microsoft ACPI-Compliant System

IRQ	Assignment
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IRQ 180	Microsoft ACPI-Compliant System
IRQ 181	Microsoft ACPI-Compliant System
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IRQ 256	Microsoft ACPI-Compliant System
IRQ 257	Microsoft ACPI-Compliant System
IRQ 258	Microsoft ACPI-Compliant System

IRQ	Assignment
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IRQ 260	Microsoft ACPI-Compliant System
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IRQ	Assignment
IRQ 288	Microsoft ACPI-Compliant System
IRQ 289	Microsoft ACPI-Compliant System
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IRQ	Assignment
IRQ 317	Microsoft ACPI-Compliant System
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IRQ	Assignment
IRQ 346	Microsoft ACPI-Compliant System
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IRQ	Assignment
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IRQ	Assignment
IRQ 404	Microsoft ACPI-Compliant System
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IRQ	Assignment
IRQ 433	Microsoft ACPI-Compliant System
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IRQ	Assignment
IRQ 462	Microsoft ACPI-Compliant System
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IRQ	Assignment
IRQ 491	Microsoft ACPI-Compliant System
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IRQ 510	Microsoft ACPI-Compliant System
IRQ 511	Microsoft ACPI-Compliant System
IRQ 4294967290	Intel(R) Management Engine Interface
IRQ 4294967291	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
IRQ 4294967292	Intel(R) HD Graphics 620
IRQ 4294967293	Intel(R) Ethernet Connection I219-V
IRQ 4294967294	Standard SATA AHCI Controller

Note: These resource information were gathered using Windows 10.

I/O MAP

I/O Map	Assignment
0x00000000-0x00000CF7	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
0x00000080-0x00000080	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
0x000002E0-0x000002E7	Communications Port (COM6)
0x000002E8-0x000002EF	Communications Port (COM4)
0x000002F0-0x000002F7	Communications Port (COM5)
0x000002F8-0x000002FF	Communications Port (COM2)
0x000003B0-0x000003BB	Intel(R) HD Graphics 620
0x000003C0-0x000003DF	Intel(R) HD Graphics 620
0x000003E8-0x000003EF	Communications Port (COM3)
0x000003F8-0x000003FF	Communications Port (COM1)
0x000004D0-0x000004D1	Programmable interrupt controller
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
0x00001800-0x000018FE	Motherboard resources
0x00001854-0x00001857	Motherboard resources

I/O Map	Assignment
0x0000F000-0x0000F03F	Intel(R) HD Graphics 620
0x0000F040-0x0000F05F	Mobile Intel(R) Processor Family I/O SMBUS - 9D23
0x0000F060-0x0000F07F	Standard SATA AHCI Controller
0x0000F080-0x0000F083	Standard SATA AHCI Controller
0x0000F090-0x0000F097	Standard SATA AHCI Controller
0x0000FF00-0x0000FFFE	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources
0x0000FFFF-0x0000FFFF	Motherboard resources

Memory Map

Memory Map	Assignment
0xDE000000-0xDEFFFFFF	Intel(R) HD Graphics 620
0xC0000000-0xCFFFFFFF	Intel(R) HD Graphics 620
0xFF000000-0xFFFFFFFF	Legacy device
0xFF000000-0xFFFFFFFF	Motherboard resources
0xFED10000-0xFED17FFF	Motherboard resources
0xFED18000-0xFED18FFF	Motherboard resources
0xFED19000-0xFED19FFF	Motherboard resources
0xE0000000-0xEFFFFFFF	Motherboard resources
0xFED20000-0xFED3FFFF	Motherboard resources
0xFED90000-0xFED93FFF	Motherboard resources
0xFED45000-0xFED8FFFF	Motherboard resources
0xFEE00000-0xFEEFFFFF	Motherboard resources
0xDFFE0000-0xDFFFFFFF	Motherboard resources
0xFE029000-0xFE029FFF	Motherboard resources
0xFE028000-0xFE028FFF	Motherboard resources
0xFDAF0000-0xFDAFFFFF	Motherboard resources
0xFDAE0000-0xFDAEFFFF	Motherboard resources
0xFDAC0000-0xFDACFFFF	Motherboard resources
0xDF04C000-0xDF04CFFF	Intel SD Host Controller
0xFE40F000-0xFE40FFFF	Intel(R) Serial IO UART Host Controller - 9D27
0xDF000000-0xDF01FFFF	Intel(R) Ethernet Connection I219-V
0xFED00000-0xFED003FF	High precision event timer
0xFD000000-0xFDABFFFF	Motherboard resources
0xFD000000-0xFDABFFFF	PCI Express Root Complex
0xFDAD0000-0xFDADFFFF	Motherboard resources
0xFDB00000-0xFDFFFFFF	Motherboard resources
0xFE000000-0xFE01FFFF	Motherboard resources

Memory Map	Assignment
0xFE036000-0xFE03BFFF	Motherboard resources
0xFE03D000-0xFE3FFFFF	Motherboard resources
0xFE410000-0xFE7FFFFF	Motherboard resources
0xDF04B000-0xDF04BFFF	Intel SD Host Controller
0xDF044000-0xDF047FFF	Mobile Intel(R) Processor Family I/O PMC - 9D21
0xFE40E000-0xFE40EFFF	Intel(R) Serial IO I2C Host Controller - 9D60
0xDF040000-0xDF043FFF	High Definition Audio Controller
0xDF020000-0xDF02FFFF	High Definition Audio Controller
0x90000000-0xDFFFFFFF	PCI Express Root Complex
0xFE40D000-0xFE40DFFF	Intel(R) Management Engine Interface
0xDF030000-0xDF03FFFF	Intel(R) USB 3.0 eXtensible Host Controller - 1.0 (Microsoft)
0xDF04A000-0xDF04A0FF	Mobile Intel(R) Processor Family I/O SMBUS - 9D23
0xDF052000-0xDF052FFF	Mobile Intel(R) Processor Family I/O Thermal subsystem - 9D31
0xDF048000-0xDF049FFF	Standard SATA AHCI Controller
0xDF04F000-0xDF04F0FF	Standard SATA AHCI Controller
0xDF04E000-0xDF04E7FF	Standard SATA AHCI Controller
0xA0000-0xBFFFF	Intel(R) HD Graphics 620
0xA0000-0xBFFFF	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
; ------------------------ Set timeout interval as 30 seconds --------------------------
dec     dx
mov     al,     0F6h
out     dx,     al
inc     dx
mov     al,     1Eh
out     dx,     al
;------------------------------ Enable Watch PME-----------------------------------------
dec     dx
mov     al,     0FAh
out     dx,     al
inc     dx
in      al,     dx
or      al,     51h
out     dx,     al
;------------------- Set second as counting unit and start counting --------------------
dec     dx
mov     al,     0F5h
out     dx,     al
inc     dx
in      al,     dx
and     al,     0F7h
or      al,     20h
out     dx,     al
;---------------------------- Exit the extended function mode -----------------------------
dec     dx
mov     al,     0AAh
out     dx,     al
```

Flash BIOS Update

I. Prerequisites

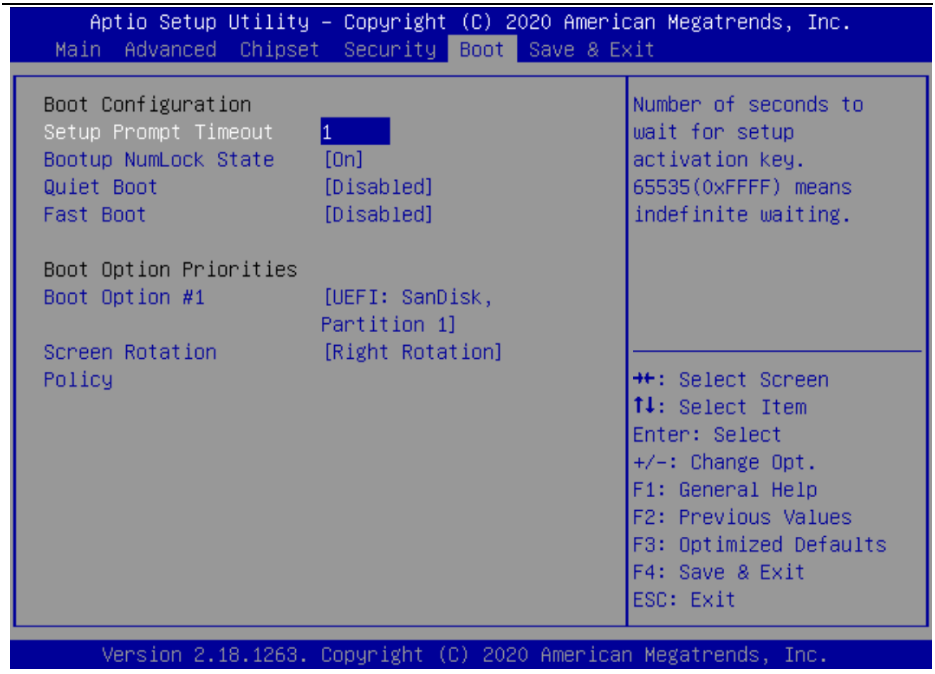
1 Prepare a bootable media (e.g. USB storage device) which can boot system to EFI Shell.

2 Download and save the BIOS file (e.g. J6000PU2.bin) to the storage device.

3 Copy AMI flash utility – AFUEFIx64.exe (v5.09.01) into the storage device. The utility and BIOS file should be saved to the same path.

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

(1) Connect the USB storage device.
(2) Turn on the computer and press **<ESC>** or **<DEL>** key during boot to enter BIOS Setup.
(3) The system will go into the BIOS setup menu.
(4) Select **[Boot]** menu and set the USB storage device as the 1st boot device.
(5) Press **<F4>** key to save the configuration and restart the system to boot into EFI Shell environment.



II. AFUEFIx64 Command for System BIOS Update

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

AFUEFIx64 <ROM File Name> [option1] [option2]….
Users can type "AFUEFIx64 /?" to view the definition of each control option. The recommended options for BIOS ROM update include the following parameters:

/P: Program main BIOS image.
/B: Program Boot Block.
/N: Program NVRAM.
/X: Don't check ROM ID.

III. BIOS Update Procedure

1 Boot into EFI Shell, change to the path where you put BIOS image and AFUEFIx64.

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

2 **"AFUEFIx64 J6000Pxx.bin /p /b /n /x"** and press enter to start the flash procedure. (xx means the BIOS revision part, e.g. U2…)

3 During the update procedure, you will see the BIOS update process status and its execution percentage. Beware! Do not turn off the system power or reset your computer if the whole procedure are not complete yet, or it may crash the BIOS ROM 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:

```
fs0:\afuefix64> AFUEFIx64 J6000PU2.bin /p /b /n /x

+--------------------------------------------------------------------+
|              AMI Firmware Update Utility v5.09.01.1317             |
|    Copyright (C) 1985-2019, American Megatrends International LLC. |
|        All Rights Reserved. Sublect to AMI licensing agreement.    |
+--------------------------------------------------------------------+
   Reading flash .............. done
   - ME Data Size Checking. ok
   - FFS checksums ........ ok
   - Check RomLayout ...... ok
   Erasing Boot Block ......... done
   Updating Boot Block ........ done
   Verifying Boot Block ....... done
   Erasing Main Block ......... done
   Updating Main Block ........ done
   Verifying Main Block ....... done
   Erasing NVRAM Block ........ done
   Updating NVRAM Block ....... done
   Verifying NVRAM Block ...... done

fs0:\afuefix64>
```

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

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

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