INOSP Series

User Manual

Revision	Release Date
V0.1	2014/02/12
V0.2	2014/03/20
V0.3	2014/05/21

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Safety Information

Your INOSP series is designed and tested to meet the latest standards of safety for information technology equipment. However, to ensure your safety, it is important that you read the following safety instructions

Setting up your system

- Read and follow all instructions in the documentation before you operate your system.
- Do not use this product near water.
- Set up the system on a stable surface. Do not secure the system on any unstable plane.
- Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious damage to the product.
- Slots and openings on the chassis are for ventilation. Do not block or cover these openings. Make sure you leave plenty of space around the system for ventilation. **Never insert objects of any kind into the ventilation openings**.
- This system should be operated from the type of power indicated on the marking label. If you are not sure of the type of power available, consult your dealer or local power company.
- Use this product in environments with ambient temperatures between 0˚C and 50˚C.
- If you use an extension cord, make sure that the total ampere rating of the devices plugged into the extension cord does not exceed its ampere rating.
- DO NOT LEAVE THIS EQUIPMENT IN AN ENVIRONMENT WHERE THESTORAGE TEMPERATURE MAY GO BELOW -20° C OR ABOVE 60° C. THIS COULD DAMAGE THE EQUIPMENT. THE EQUIPMENT SHOULD BE IN A CONTROLLED ENVIRONMENT.

Care during use

- Do not walk on the power cord or allow anything to rest on it.
- Do not spill water or any other liquids on your system.
- When the system is turned off, a small amount of electrical current still flows. Always unplug all power, and network cables from the power outlets before cleaning the system.
- If you encounter the following technical problems with the product, unplug the power cord and contact a qualified service technician or your retailer.
  - The power cord or plug is damaged.
  - Liquid has been spilled into the system.
  - The system does not function properly even if you follow the operating instructions.
  - The system was dropped or the cabinet is damaged.

Lithium-Ion Battery Warning

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

NO DISASSEMBLY

The warranty does not apply to the products that have been disassembled by users.

WARNING
HAZARDOUS MOVING PARTS
KEEP FINGERS AND OTHER BODY PARTS AWAY

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CHAPTER 1 INTRODUCTION

1.1 General Description

INOSP series, a stainless steel panel PC, utilizes the dual-core 1.86GHz Intel® Atom™ Processor D2550 and Intel® NM10 chipset providing high computing performance and low power consumption. It includes 15 and 19 inch size.

The fanless INOSP series operates silently and reliably in harsh environments. It comes with two SO-DIMM slots to accommodate up to 4GB of DDR3 1033/1066MHz system memory and one 2.5" SATA HDD and external CFast slot for data storage. It has two Gigabit Ethernet, an isolated RS-232/422/485 port, as well as an overload protected 2-in/2-out GPIO feature. The unit is equipped with 5-side IP65 protection. The optional IP65 compliant I/O cover has special M12 waterproof connectors and cables and is available in backward or downward orientation depending on the need of the customer.

The INOSP series supports a wide range 12V~36V DC power input with optional 24V DC IP65 stainless steel power adaptor, which makes it ideal for food, livestock, chemical, mining, petro and factory automation or any other industrial applications.

INOSP series overview

1.2 System Specification

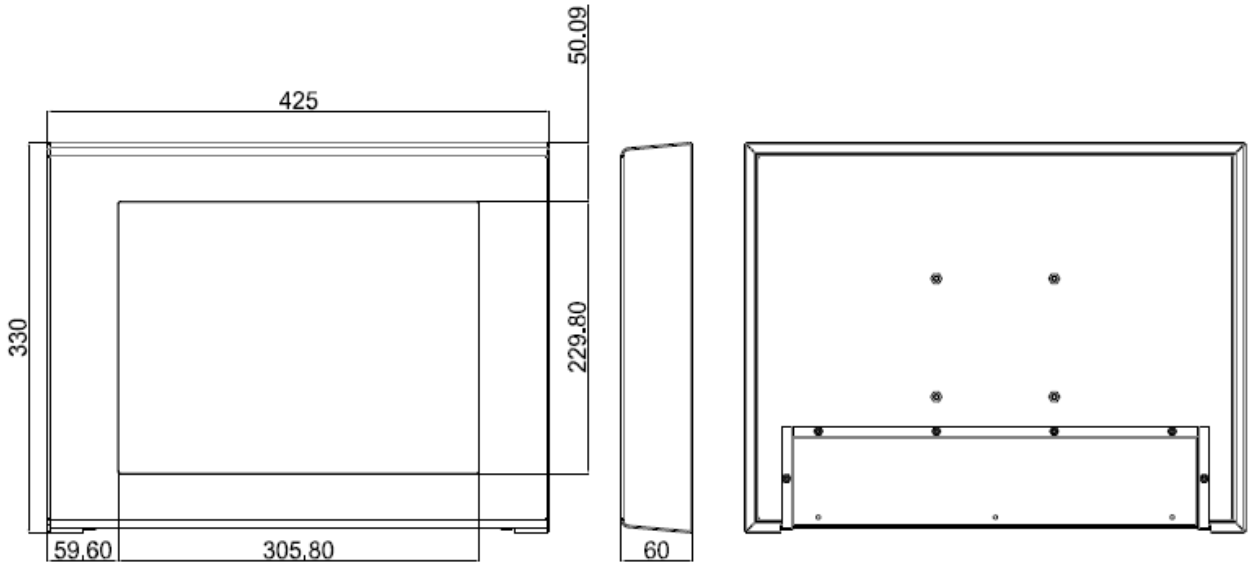
1.2.1 Hardware Specifications

Model Name	INOSP-151-RE	INOSP-191-RE
System Mainboard	IB809	
CPU	Intel® Atom™ Processor D2550 (1M Cache, 1.86 GHz)	
Chipset	Intel® NM10 PCH	
Memory	2 x DDR3-1033 /1066 SO-DIMM, up to 4GB	
I/O Interface	2 x USB 2.0 (USB Host. A-Type) 1 x isolated RS-232/422/485, COM1 1 x RS-232, COM3 1 x speaker-out microjack 1 x Mic-in microjack 2 x Gigabit LAN (RJ45) 1 x 6 pins terminal block GPIO 2in/2out/5VCC/Ground 1 x 3pin DC power connector 1 x Power on/off rock switch 1 x power on LED	
Storage	1 x 2.5” SATA2 1 x external CFast	
Expansion Slots	None	
Power Supply	12~36V Wide Range DC input	
LCD Size	15” TFT LCD	19” TFT LCD
LCD Color	16.2M	16.7M
LCD Resolution	1024 x 768	1280 x 1024
LCD Brightness	500	350
LCD View Angle (H°/V°)	160/160	170/160
Backlight MTBF	50,000 hrs	
Touch Screen	Resistive Touch Screen	
Construction	304 stainless steel/ 316 stainless steel as option	
Mounting	VESA mount, 100mm x 100mm	
Dimensions (W)x(D)x(H) mm	425 x 330 x 60	470 x 388 x 60
Operating Temperature	0°C~ 50°C(With SSD/CFast)/ 0°C~ 40°C(with HDD)	
Storage Temperature	-20°C ~ 60°C	
Relative Humidity	10%~90% (non-condensing)	
Protection Class	IP65 (except I/O side; Waterproof I/O cover with M12 connector is optional)	

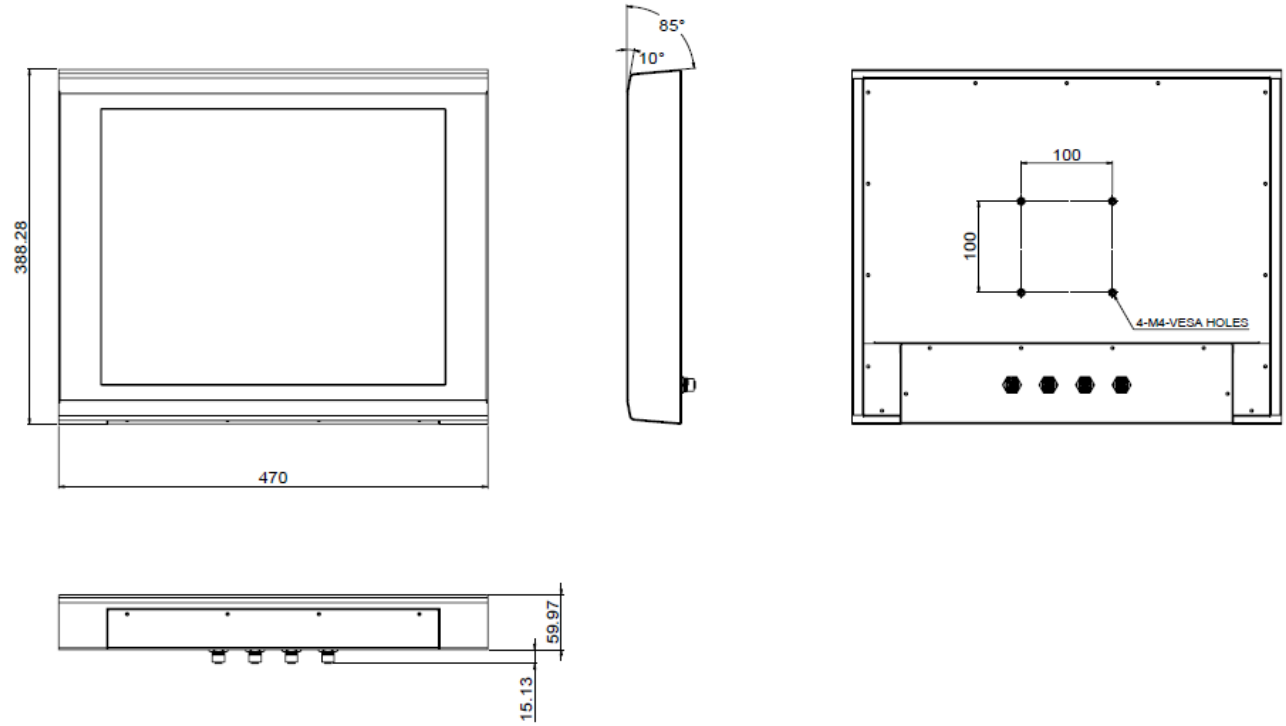
˚ ***This specification is subject to change without prior notice.***

1.2.2 Dimensions

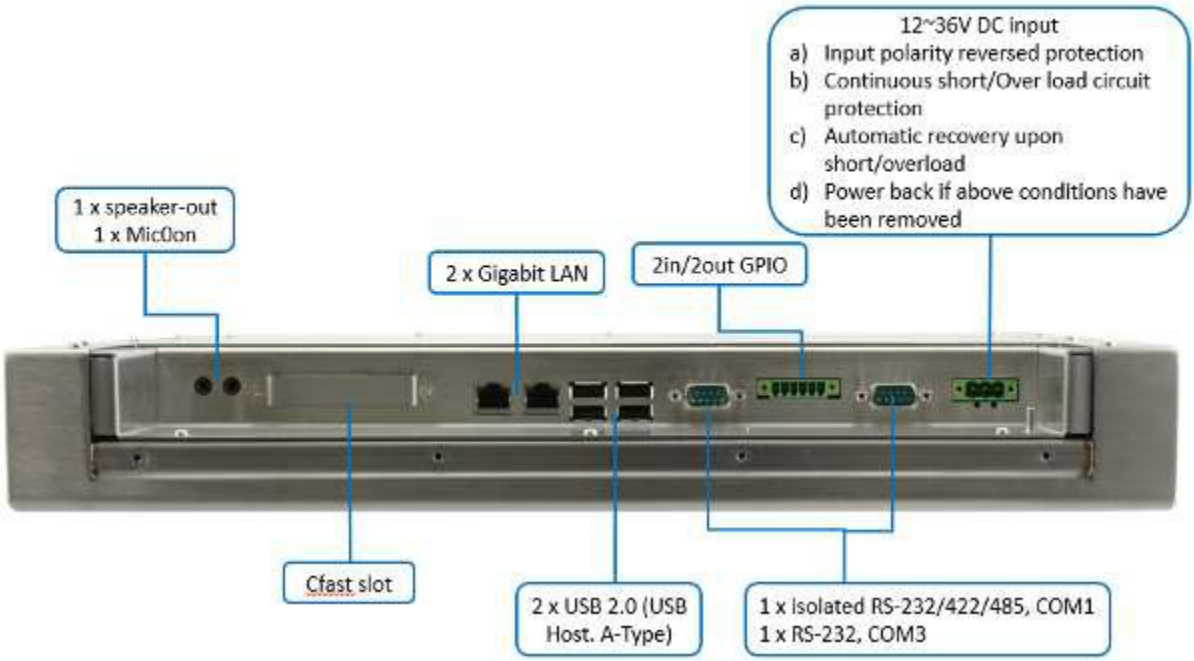
INOSP-151-RE

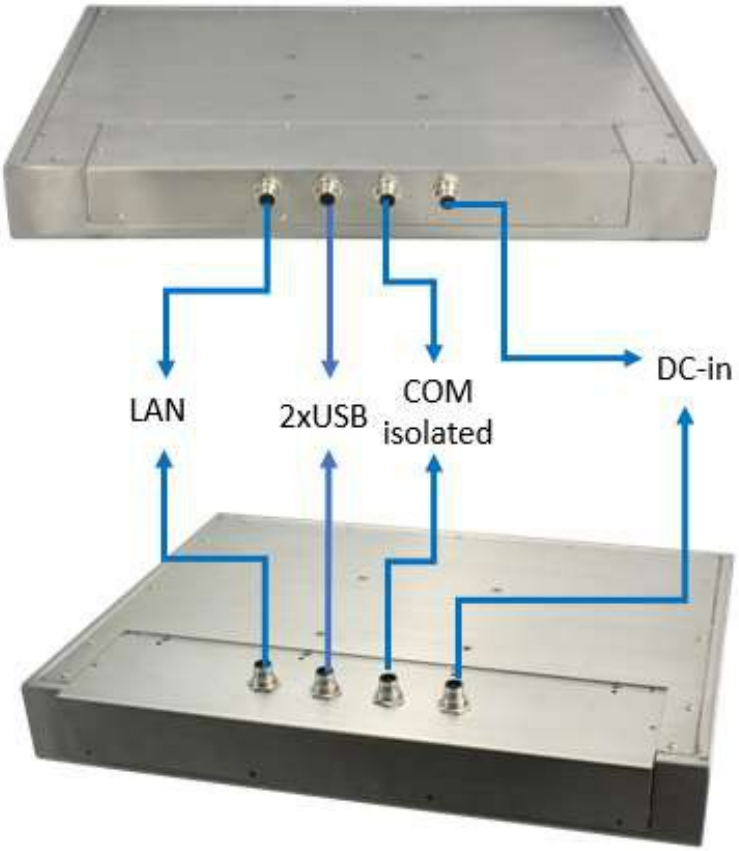


INOSP-191-RE



1.2.3 I/O View


12~36V DC input
a) Input polarity reversed protection
b) Continuous short/Over load circuit protection
c) Automatic recovery upon short/overload
d) Power back if above conditions have been removed
1 x speaker-out
1 x Mic0in
2 x Gigabit LAN
2in/2out GPIO
Cfast slot
2 x USB 2.0 (USB Host. A-Type)
1 x isolated RS-232/422/485, COM1
1 x RS-232, COM3


LAN
2xUSB
COM isolated
DC-in

1.3 Packing List

1.3.1 Standard accessory

Part No.	Description	Quantity
1	Terminal Block	1 pc

1.3.2 Optional set 1 (with general power adaptor)

Part No.	Description	Quantity
1	Terminal Block	1 pc
2	84W Adaptor for option (P/N: A005PS084W0050000P)	1 pc
3	Power Cord for option	1 pc

1.3.3 Optional set 2 (with IP65 I/O cover)

Part No.	Description	Quantity
1	Downward direction cover (P/N: A028COVER191D0000P) or Backward direction cover (P/N: A028COVER191B0000P)	1 pc
2	External USB cable (P/N: A012CB01190101000P)	1 pc
3	External LAN cable (P/N: A012CB01200101000P)	1 pc
4	External COM cable (P/N: A012CB01210101000P)	1 pc
5	External Power cable (P/N: C501PW35203A21000P)	1 pc

1.3.4 Optional set 3 (with IP65 power adaptor)

Part No.	Description	Quantity
1	Downward direction cover (P/N: A028COVER191D0000P) or Backward direction cover (P/N: A028COVER191B0000P)	1 pc
2	External USB cable (P/N: A012CB01190101000P)	1 pc
3	External LAN cable (P/N: A012CB01200101000P)	1 pc
4	External COM cable (P/N: A012CB01210101000P)	1 pc
5	SSPA-24 stainless steel adaptor w/ external cables	1 pc

191D Downward Direction I/O Cover

191B Backward Direction I/O Cover

SSPA-24 24VDC IP65 Stainless Steel Power Adaptor

1.4 Installation

1.4.1 Installing CFast

1. Loosen two screws and then replace the CFAST module.

1.4.2 Installing optional I/O cover

1. Connect these I/O port cables.	
2. Arrange the cables and push in with the I/O cover as shown. 	
3. Tighten the 10 screws as in the picture.	

CHAPTER 2 MOTHERBOARD INTRODUCTION

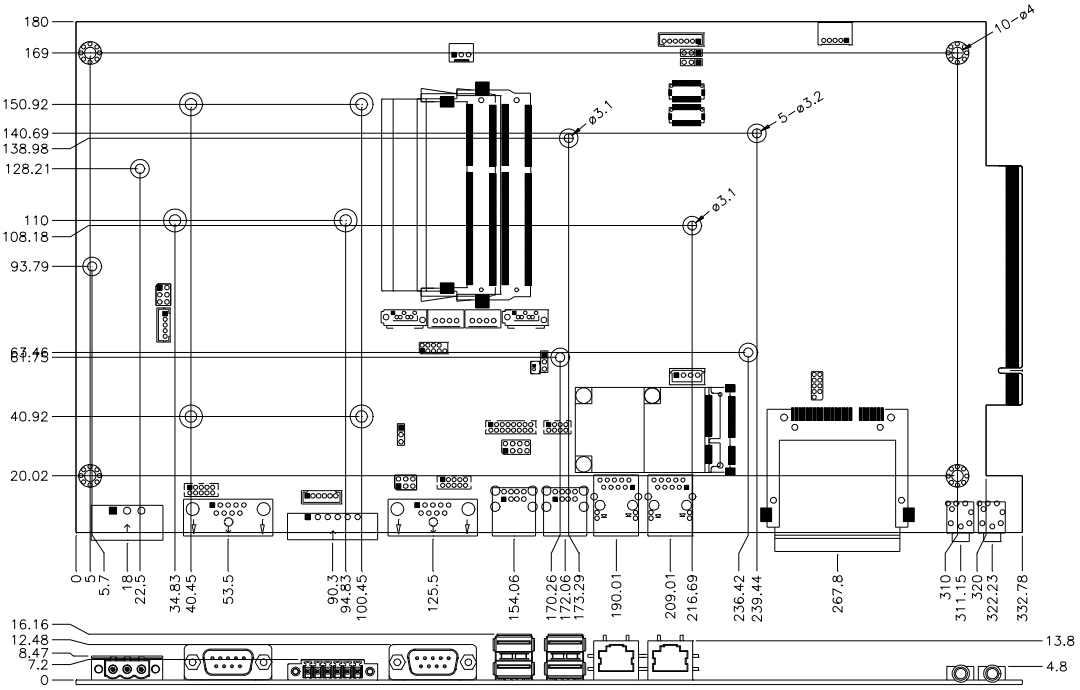
2.1 Introduction

The IB809 motherboard is based on the Intel® Atom Cedar Trail chipset. The Cedar Trail is a platform that uses the Intel Cedar Trail-D and Intel NM10 Express Chipset family in the desktop platforms. Below are the detailed specifications.

Specifications – Mainboard	
Product Name	**IB809**
Form Factor	Customized
CPU Type	Intel® Cedar View Processor, Atom D2550 2 core 10w TDP Package = FCBGA Type[22 mm x 22 mm]
CPU Speed	1.86GHz
Cache	1MB L2
CPU Socket	Package = FCBGA Type[22 mm x 22 mm]
Chipset	Intel® "Tiger Point" NM10 PCH, CG82NM10 [TDP = 2.1W, 130nm] Package = BGA360, 17mm x 17 mm
BIOS	AMI BIOS, support ACPI Function
Memory	Intel® Atom ™ on-die memory controller supporting up to 4GB/2GB each slot Two DDR3-1066 SO-DIMM socket [Horizontal type], Non-ECC, Unbuffered, 1.5V
LVDS	2 x DF13 20p 24-bit Single/Dual channels LVDS interface via NXP PTN3460 from eDP
Graph	VGA x 1
LAN	2x Realtek 8111G as 1st LAN and 2nd LAN
USB 1. 2. 3. 4.	Intel® NM10 PCH integrated USB 2.0 host controller: 4 USB 2.0 type A ports in the rear side 1 port for onboard MiniPCIe 2 port onboard pin header 1 port for Touch
Serial ATA Ports	Intel® NM10 PCH built-in SATA controller, Supports 2 x SATAII
Audio	Intel® NM10 PCH built-in HD Audio controller + Realtek ALC269Q-VC2-GR Codec w/class-D speaker amplifier (2W per channel @ 5V power supply) support 2-channel audio out + amp
LPC I/O - - - - - -	F81866AD-I (128-pin LQFP [14mm x 14 mm]) COM #1 (RS232/422/485) RS-485 with AFC COM #2 (RS232/422/485) RS-485 with AFC COM #3 (RS232 only, supports ring-in with power @500 mA, z jumper selectable for 5V or 12V) COM #4 (RS232 only) pin header COM #5 (RS-232 for touch) [Hardware Monitor] 2 x Thermal inputs 2 x Voltage monitoring 1 x Smart fan DC mode

Digital IO	4 GPIO (2in/2out), 1 x 5V Vcc and 1 Ground [thru edge connector @ 1x6 pins Terminal block type], not TTL with circuit protection 5V Vcc has count-current protection 4 GPIO(2in/2out) and Ground (header), not TTL with circuit protection
Expansion Slots	1 x Mini PCI-e socket x 1, Full/Half-sized type 1 x CFast
Edge Connector	GPIO (2in/2out)/VCC/Ground 1x6 pins terminal block RJ45 x 2 for GbE LAN, 2 connector for 2 port DB9 x 1 for COM1 (isolated) DB9 x 1 for COM3 USB 2.0 connector x 4 for USB1~4, 2 connectors for 4 ports 3 pins terminal block (+/G/-) for power input Line out microjack x 1 Mic-in microjack x 1 CFast socket x 1 Power LED SMD type, power on is green else no light
On Board Headers/ Connectors	2 ports x SATA II, SATA #2 shared CFast via NXP CBTL02043ABQ switch 4 pins power connector x 2 for SATA HDD 1 x DF-11 10 pin header for COM2 1 x DF-11 10 pin heard for COM4 1 x DF-11 10 pin header for VGA 1x8 pins DF-11 header x 1 for 2 ports USB 2.0 2x DF20G-20DP connector for 24-bit Single/Dual channel LVDS 2x5 pins headers x 1 for LPC (Debug purpose only) Mini PCI-e(1x) connector x 1 [Full/Half-sized] 1 x 5 2.0mm pins box header connector for 5 wire touch 1 x 4 2.5mm pins connector for L&R speaker out 1 x 7 pins box header for LCD backlight control 12V(1.5A)/12V(1.5A)/PWM/Backlight0~5V(500mA)/3.3V(500mA)/GN/GN) 1 x 5 pins box header for smart battery (RST/EXTSMI/Ground/DATA/CLK) 1 x 5 pins box header for GPIO, 2in/2out/Ground, not TTL 1 x 2 pins connector for RTC battery 1 x 3 pins connector for system smart fan DC type 1 x 8 pins header for Power on-off/reset/Power LED/HDD LED
Watchdog Timer	Yes (256 segments, 0, 1, 2…255 sec/min)
Power Connector	+12V(-10%)~+36V(+5%) DC-input
RoHS	Yes
Board Size	Customized
Golden Finger	PCIe x 16 golden finger for PCI (124P) and PCIe x1 (36P) signal Please follow IB806 define, but remove USB and COM signal
Touch controller	Onboard Penmount 6000 USB/RS-232 selectable by jumper, default RS-232
Others	1. CPU & NM10 PCH are located at back side 2. No chemical capacitor on board 3. -20~60°C Operating temperature

Board Dimensions

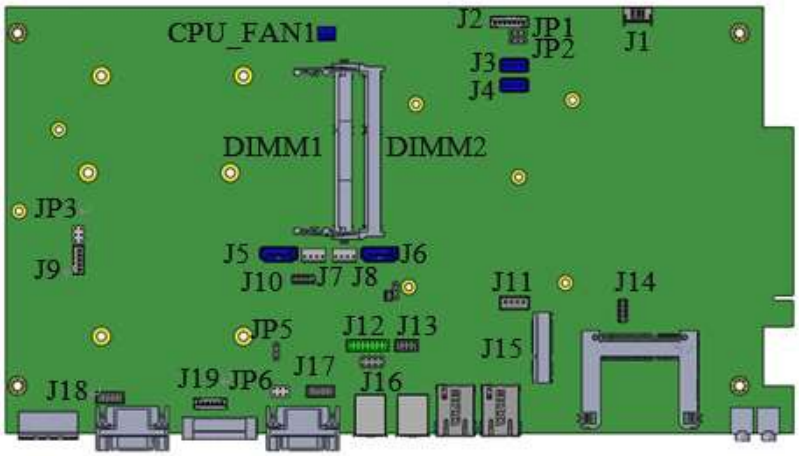


2.2 Setting Jumpers

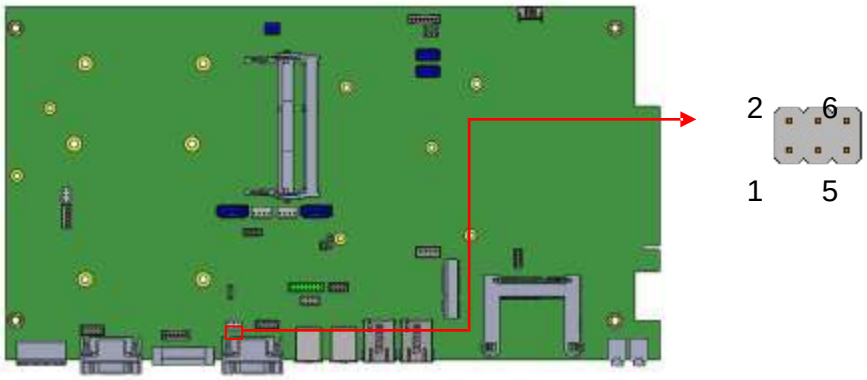
Warning: INOSP series is a waterproof product. It is not advisable to reconfigure the jumpers inside. Otherwise, please specify the required settings upon ordering.

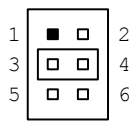
Jumpers are used on IB809 to select various settings and features according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your needs. The following lists the jumpers and connectors on IB809.

Jumper Locations on IB809



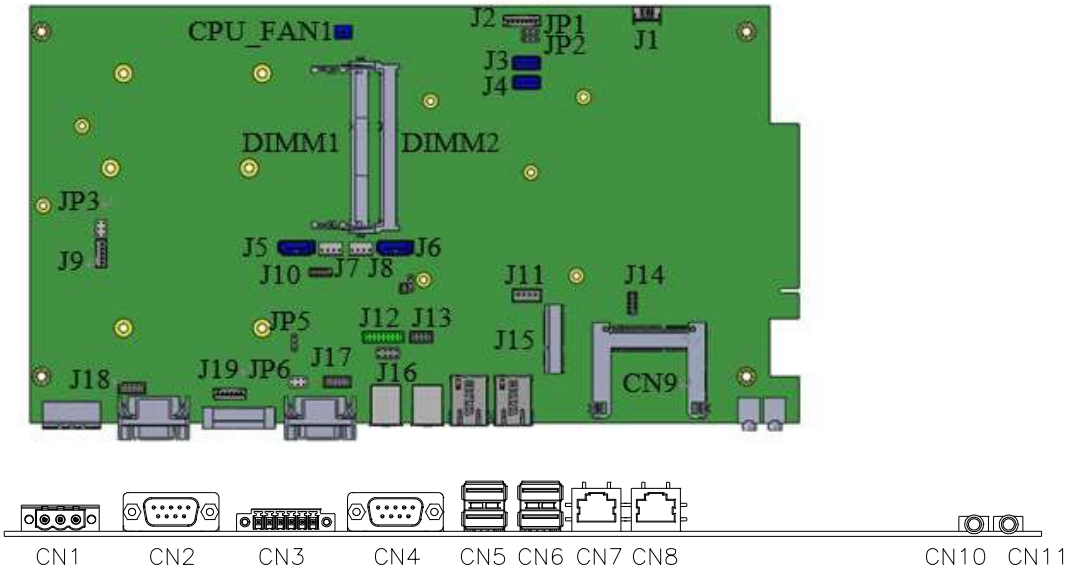
JP6: COM3 RS232 RI/+5V/+12V Setting



JP6	Setting	Function
	Pin 1-3 - Short/Closed	+12V
	Pin 3-4 - Short/Closed	RI*
	Pin 3-5 - Short/Closed	+5V

Note: The suggested setting is RI, with Max. current lower than 0.5A.

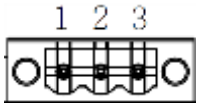
Connector Locations on IB809



CN1: DC-IN +12~36V Connector

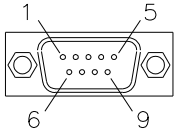
1X3_5.0mm_Male_Terminal (DINKLE 5EHDRM-03P)

Mating: DINKLE 5ESDVM-03P



Pin #	Signal Name
1	+
2	G
3	-

CN2: Isolate COM1/RS232/422/485



Pin #	Signal Name		
	RS-232	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

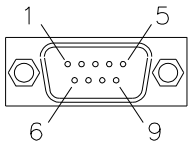
CN3: Digital I/O

1X6_3.5mm_Male_Terminal (DINKLE ECH350RM-06P)

Mating: DINKLE EC350VM-06P

Pin #	Signal Name
1	OUT0
2	OUT1
3	IN0
4	IN1
5	+5V/0.5A
6	GND

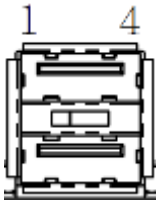
CN4: COM3 RS232 Serial Port



Pin #	Signal Name
1	DCD
2	RX
3	TX
4	DTR
5	Ground
6	DSR
7	RTS
8	CTS
9	RI*/+5V/+12V

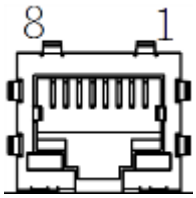
Note: Pin 9 supports RI/+5V/+12V function set by JP6.

CN5, CN6: USB2.0 Connectors



Pin #	Signal Name
1	VCC
2	DATA-
3	DATA+
4	Ground

CN7, CN8: Gigabit LAN Connectors (Realtek RTL8111G-CG)



Pin #	Signal Name
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI1-
5	MDI2+
6	MDI2-
7	MDI3+
8	MDI3-

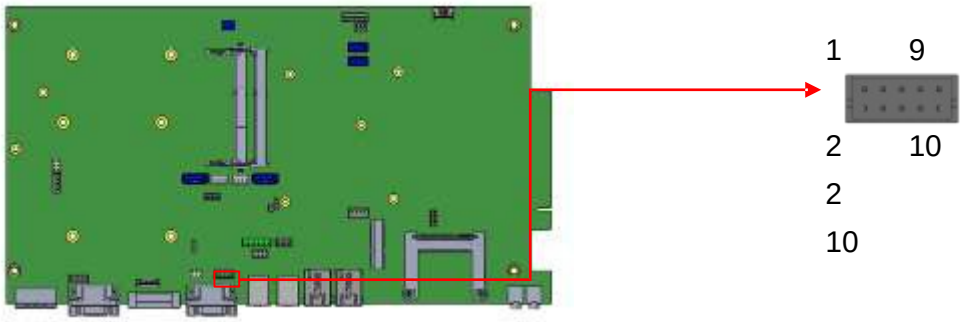
CN9: CFAST Connector

Remarks: Signal is shared with SATA connector (J6)

CN10: HD Audio Line-out Connector

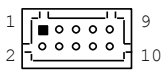
CN11: HD Audio Microphone Connector

J17: COM4 RS232 Serial Port



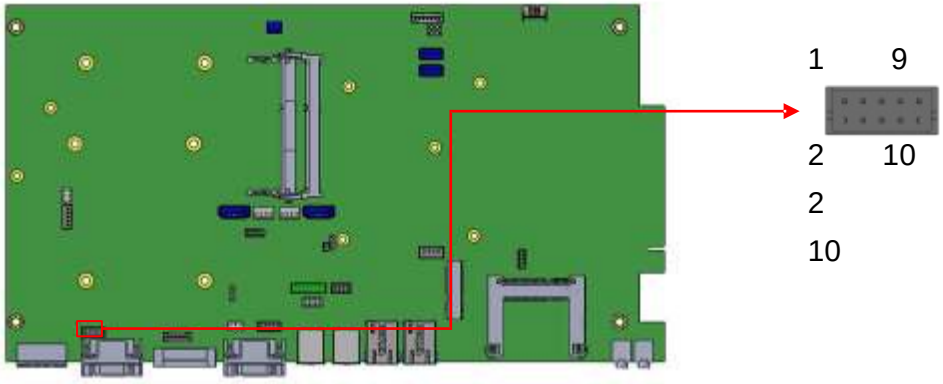
2X5_2.0mm_Straight_Male_DF11 (Haoguo DF11-10S-PA66H compatible Hirose DF11-10DP-2DSA (08))

Mating connector: Hirose DF11-10DS-2C



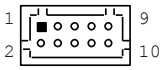
Signal Name	Pin #	Pin #	Signal Name
DCD	1	2	RXD
TXD	3	4	DTR
Ground	5	6	DSR
RTS	7	8	CTS
RI	9	10	N.C.

J18: Isolate COM2 RS232/422/485



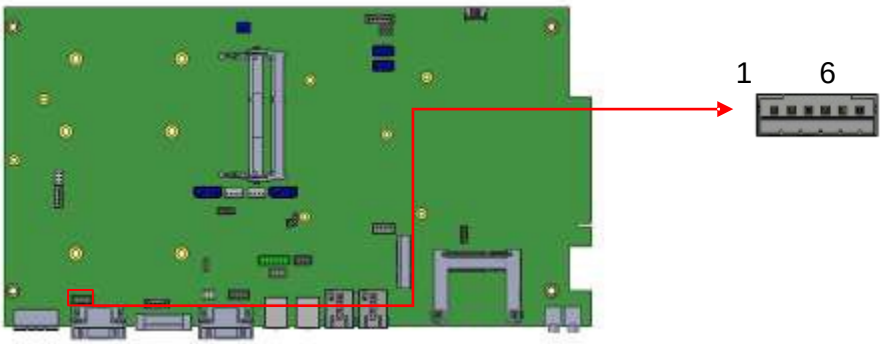
2X5_2.0mm_Straight_Male_DF11 (Haoguo DF11-10S-PA66H compatible Hirose DF11-10DP-2DSA (08))

Mating connector: Hirose DF11-10DS-2C



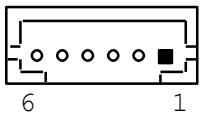
Pin #	Signal Name		
	RS-232	**RS-422**	**RS-485**
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC
10	NC	NC	NC

J19: Digital I/O



1X5_2.0mm_Straight_Male (E-CALL_0110-161-060 compatible JST B6B-PH-K-S)

Mating connector: JST PHR-6



Pin #	Signal Name
1	OUT2
2	OUT3
3	IN2
4	IN3
5	+5V/0.5A
6	GND

LED2: POWER LED (Green)

CHAPTER 3 BIOS SETUP

3.1 BIOS Introduction

The BIOS (Basic Input/Output System) installed in your computer system's ROM supports Intel processors. The BIOS provides critical low-level support for a standard device such as disk drives, serial ports and parallel ports. It also password protection as well as special support for detailed fine-tuning of the chipset controlling the entire system.

3.2 BIOS Setup

The BIOS provides a Setup utility program for specifying the system configurations and settings. The BIOS ROM of the system stores the Setup utility. When you turn on the computer, the BIOS is immediately activated. Pressing the <Del> key immediately allows you to enter the Setup utility. If you are a little bit late pressing the <Del> key, POST (Power On Self Test) will continue with its test routines, thus preventing you from invoking the Setup. If you still wish to enter Setup, restart the system by pressing the "Reset" button or simultaneously pressing the <Ctrl>, <Alt> and <Delete> keys. You can also restart by turning the system Off and back On again. The following message will appear on the screen:

```
Press <DEL> to Enter Setup
```

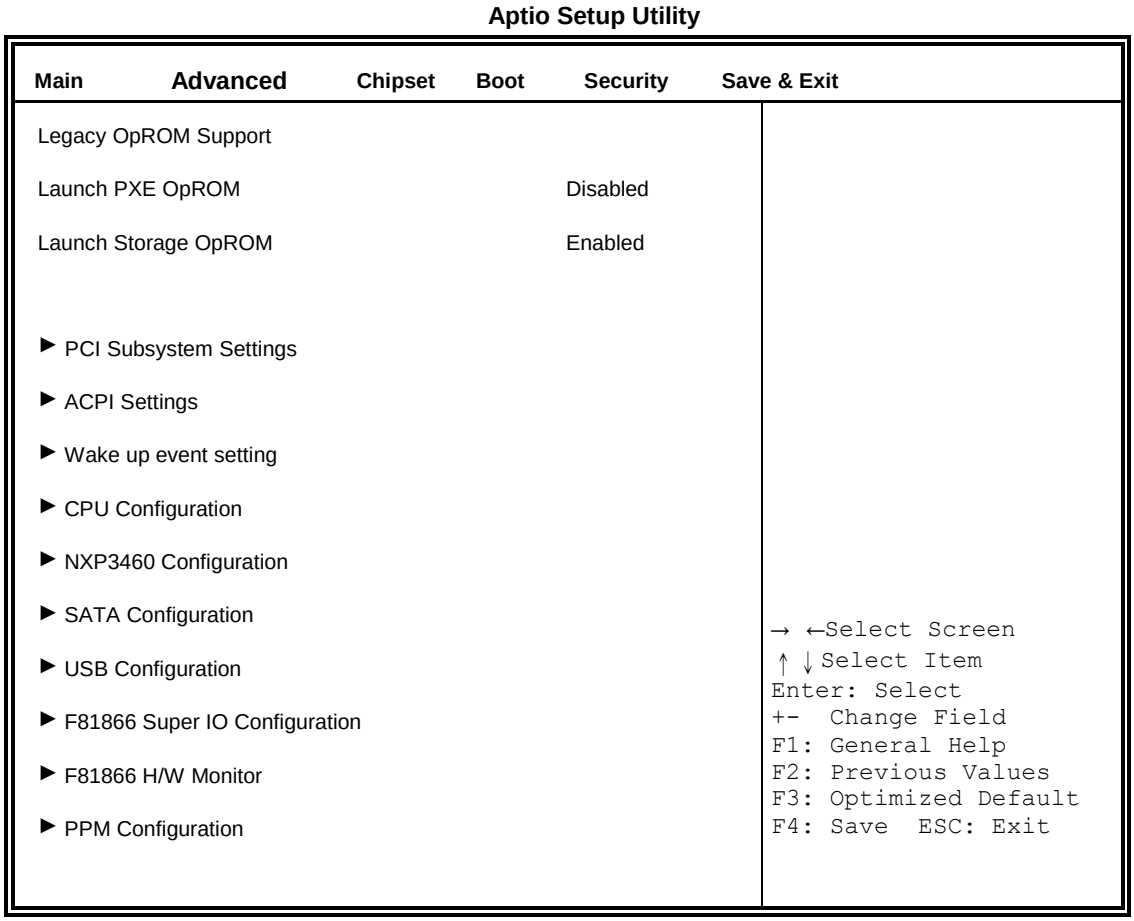
In general, you press the arrow keys to highlight items, <Enter> to select, the <PgUp> and <PgDn> keys to change entries, <F1> for help and <Esc> to quit.

When you enter the Setup utility, the Main Menu screen will appear on the screen. The Main Menu allows you to select from various setup functions and exit choices.

Warning: It is strongly recommended that you avoid making any changes to the chipset defaults. These defaults have been carefully chosen by both AMI and your system manufacturer to provide the absolute maximum performance and reliability. Changing the defaults could cause the system to become unstable and crash in some cases.

3.3 Advanced Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



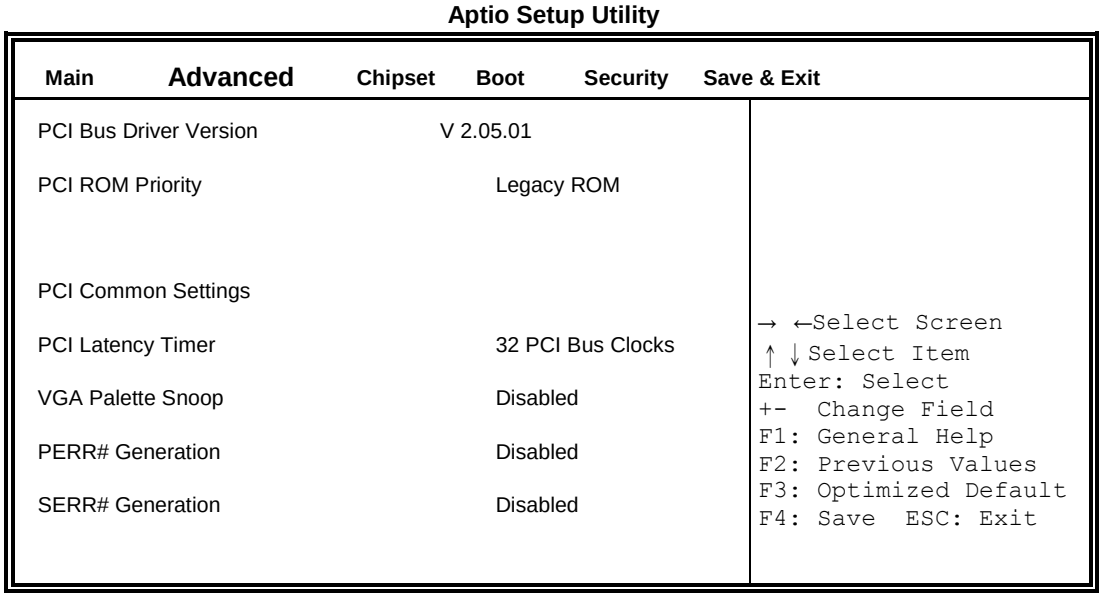
Launch PXE OpROM

Enable or Disable Boot Option for Legacy Network Devices.

Launch Storage OpROM

Enable or Disable Boot Option for Legacy Mass Storage Devices with Option ROM.

PCI Subsystem Settings



PCI ROM Priority

In case of multiple Option ROMs (Legacy and EFI Compatible), specifies what PCI Option ROM to launch.

PCI Latency Timer

Value to be programmed into PCI Latency Timer Register.

VGA Palette Snoop

Enables or Disables VGA Palette Registers Snooping.

PERR# Generation

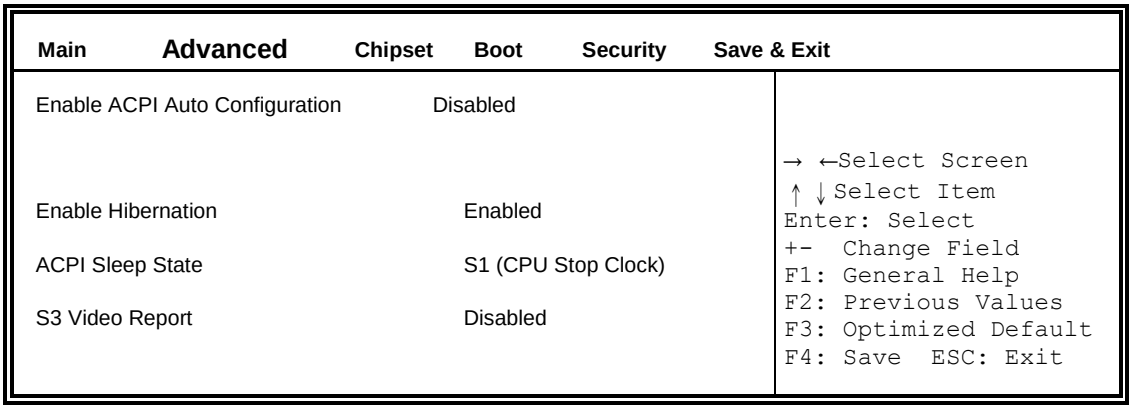
Enables or Disables PCI Device to Generate PERR#.

SERR# Generation

Enables or Disables PCI Device to Generate SERR#.

ACPI Settings

Aptio Setup Utility



Enabled ACPI Auto Configuration

Enables or Disables BIOS ACPI Auto Configuration.

Enable Hibernation

Enables or Disables System ability to Hibernate (OS/S4 Sleep State). This option may be not effective with some OS.

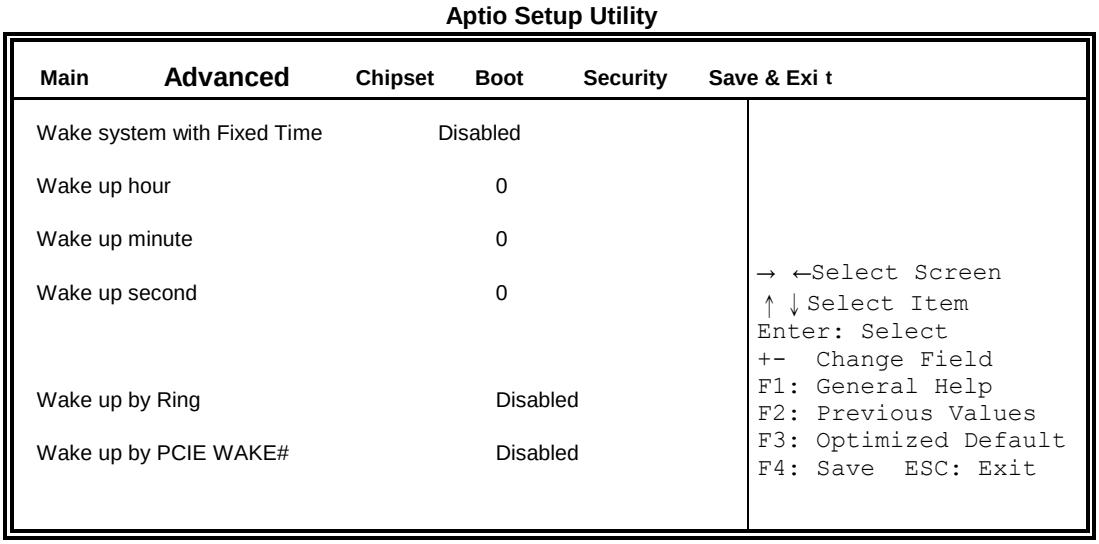
ACPI Sleep State

Select the highest ACPI sleep state the system will enter, when the SUSPEND button is pressed.

S3 Video Report

The default setting is Disabled.

Wake up event settings



Wake system with Fixed Time

Enables or Disables System wake on alarm event. When enabled, System will wake on the hr::min:: sec specified.

Wake on Ring

The options are Disabled and Enabled.

Wake on PCIE PME

The options are Disabled and Enabled.

Remarks: If Wake on LAN is to be supported, this option should be enabled.

CPU Configuration

This section shows the CPU configuration parameters.

Aptio Setup Utility

Main	**Advanced**	Chipset	Boot	Security	Save & Exit
CPU Configuration					
Processor Type			Intel(R) Atom(TM) CPU		
EMT64			Supported		
Processor Speed			1865 MHz		
System Bus Speed			533 MHz		
Ratio Status			14		
Actual Ratio			14		
System Bus Speed			533 MHz		
Processor Stepping			30661		
Microcode Revision			269		
L1 Cache RAM			2x56 k		
L2 Cache RAM			2x512 k		
Processor Core			Dual		
Hyper-Threading			Supported		
Hyper-Threading			Enabled		
Execute Disable Bit			Enabled		

→ ←Select Screen
↑ ↓Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

Hyper-threading

Enabled for Windows XP and Linux (OS optimized for Hyper-Threading Technology) and Disabled for other OS (OS not optimized for Hyper-Threading Technology). When Disabled, only one thread per enabled core is enabled.

Execute Disable Bit

XD can prevent certain classes of malicious buffer overflow attacks when combined with a supporting OS (Windows Server 2003 SP1, Windows XP SP2, SuSE Linux 9.2, Re33dHat Enterprise 3 Update 3.)

NXP3460 Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

NXP3460 Configuration		
LCD Protocol	24bit(VESA), Single…	→ ←Select Screen ↑ ↓Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
Panel Type	1024 x 768	

SATA Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

SATA Port0	Not Present	
SATA Port1	Not Present	
SATA Controller(s)	Enabled	→ ←Select Screen ↑ ↓Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
Configure SATA as	IDE	

SATA Controller(s)

Enable / Disable Serial ATA Controller.

Configure SATA as

(1) IDE Mode.

(2) AHCI Mode.

USB Configuration

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit	
USB Configuration						
USB Devices:						
None						
Legacy USB Support			Enabled			
EHCI Hand-off			Enabled			
USB hardware delays and time-outs:						→ ←Select Screen ↑ ↓Select Item Enter: Select
USB Transfer time-out			20 sec			+- Change Field F1: General Help
Device reset tine-out			20 sec			F2: Previous Values F3: Optimized Default
Device power-up delay			AUTO			F4: Save ESC: Exit

Legacy USB Support

Enables Legacy USB support.

AUTO option disables legacy support if no USB devices are connected.

DISABLE option will keep USB devices available only for EFI applications.

EHCI Hand-off

Enabled/Disabled. This is a workaround for OSes without EHCI hand-off support. The EHCI ownership change should be claimed by EHCI driver.

USB Transfer time-out

The time-out value for Control, Bulk, and Interrupt transfers.

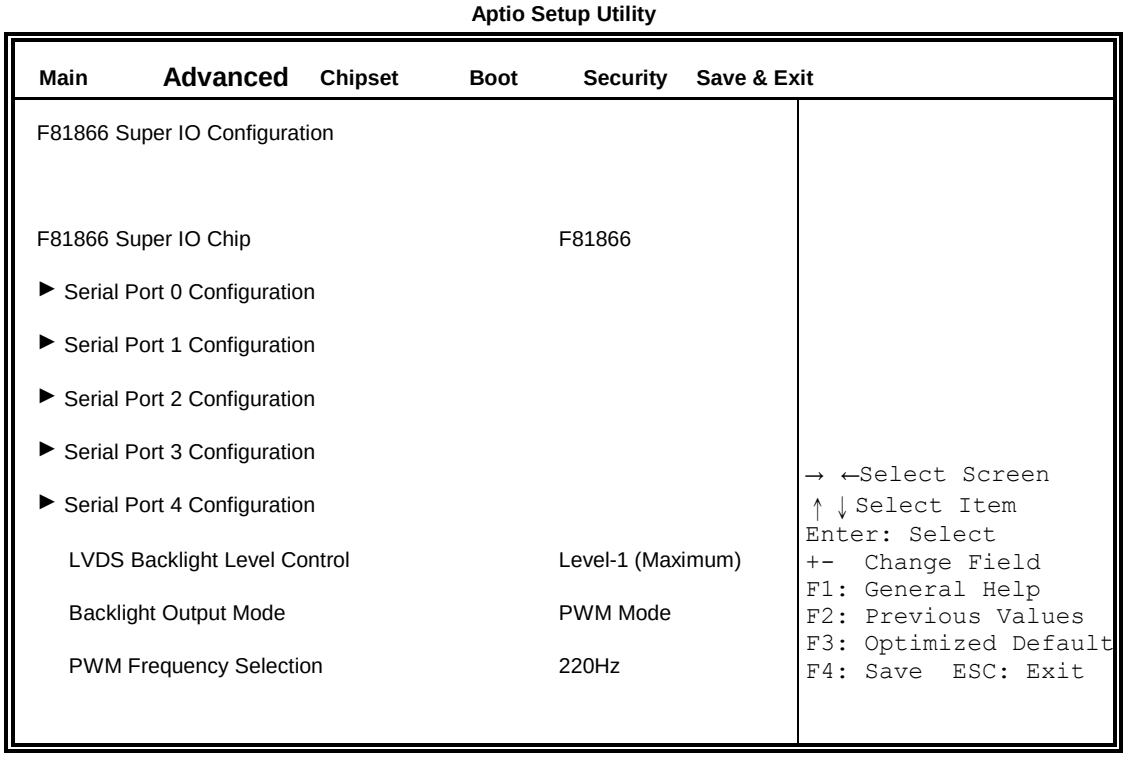
Device reset tine-out

USB mass Storage device start Unit command time-out.

Device power-up delay

Maximum time the device will take before it properly reports itself to the Host Controller. 'Auto' uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

F81866 Super IO Configuration



F81866 Serial Port Configuration

Set Parameters of Serial Ports. User can Enable/Disable the serial port and Select an optimal settings for the Super IO Device.

LVDS Backlight Level Control

The options are : Level-1 (Maximum) , Level-2 , Level-3 , Level-4 , Level-5 , Level-6 , Level-7 , Level-8 (~0V).

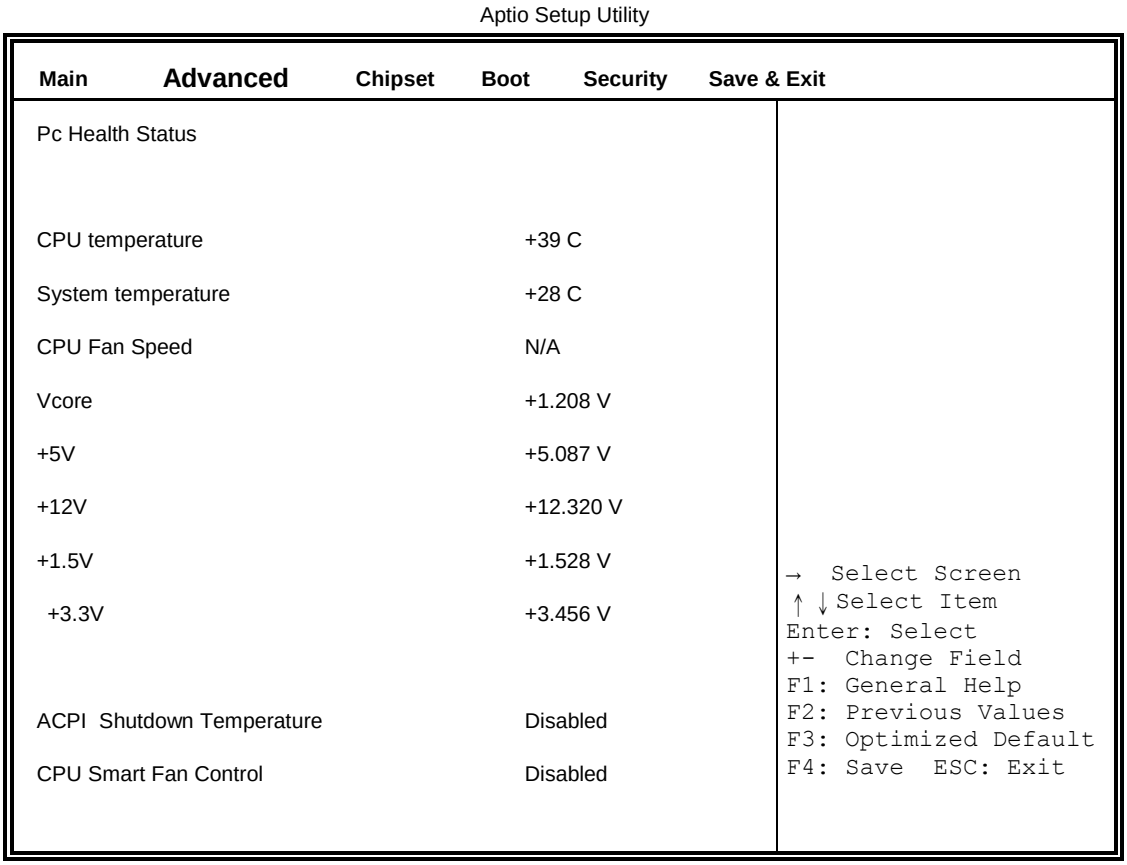
Backlight Output Mode

This provides PWM duty-cycle output or DAC voltage output.

PWM Frequency Selection

This provides 4 frequency Selection.

F81866 H/W Monitor



ACPI Shutdown Temperature

The default setting is Disabled.

CPU Smart Fan Control

Disabled (default)

50 C

60 C

70 C

80 C

Temperatures/Voltages

These fields are the parameters of the hardware monitoring function feature of the motherboard. The values are read-only values as monitored by the system and show the PC health status.

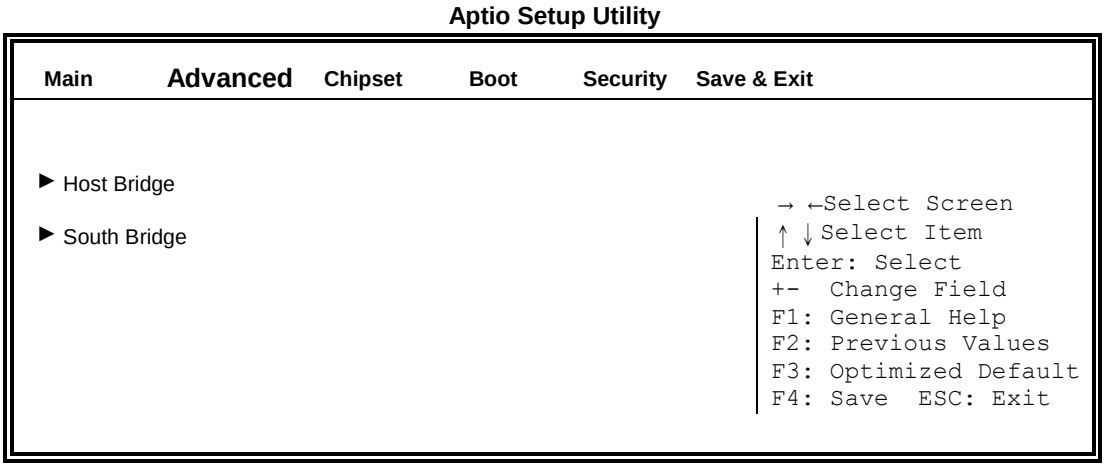
PPM Configuration

Aptio Setup Utility

Main	**Advanced**	Chipset	Boot	Security	Save & Exit	
PPM Configuration						
EIST				Enabled		→ ←Select Screen ↑ ↓Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit

3.4 Chipset Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



Host Bridge

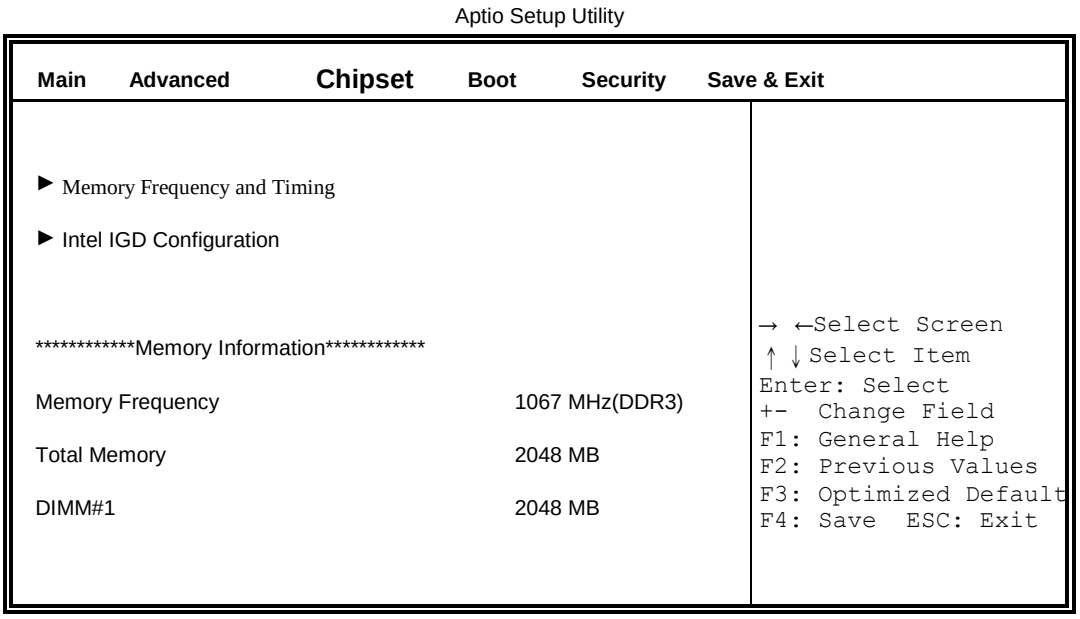
This item shows the Host Bridge Parameters.

South Bridge

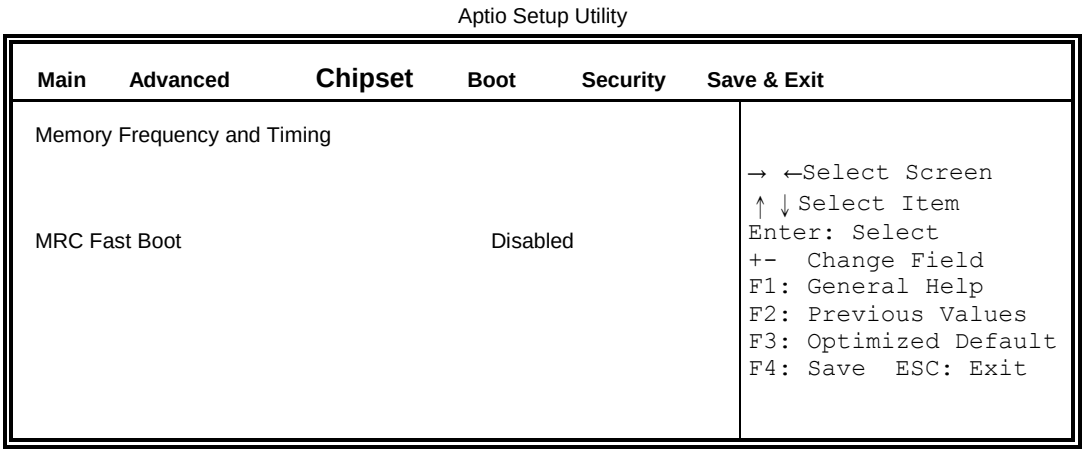
This item shows the South Bridge Parameters.

Host Bridge

This section allows you to configure the Host Bridge Chipset.



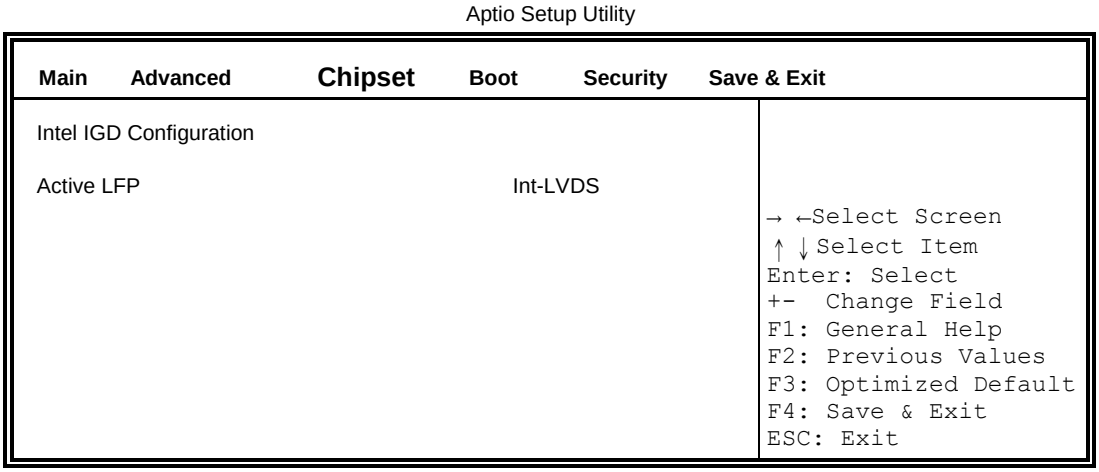
Memory Frequency and Timing



MRC Fast Boot

The options are Disabled and Enabled.

Intel IGD Configuration



Active LFP

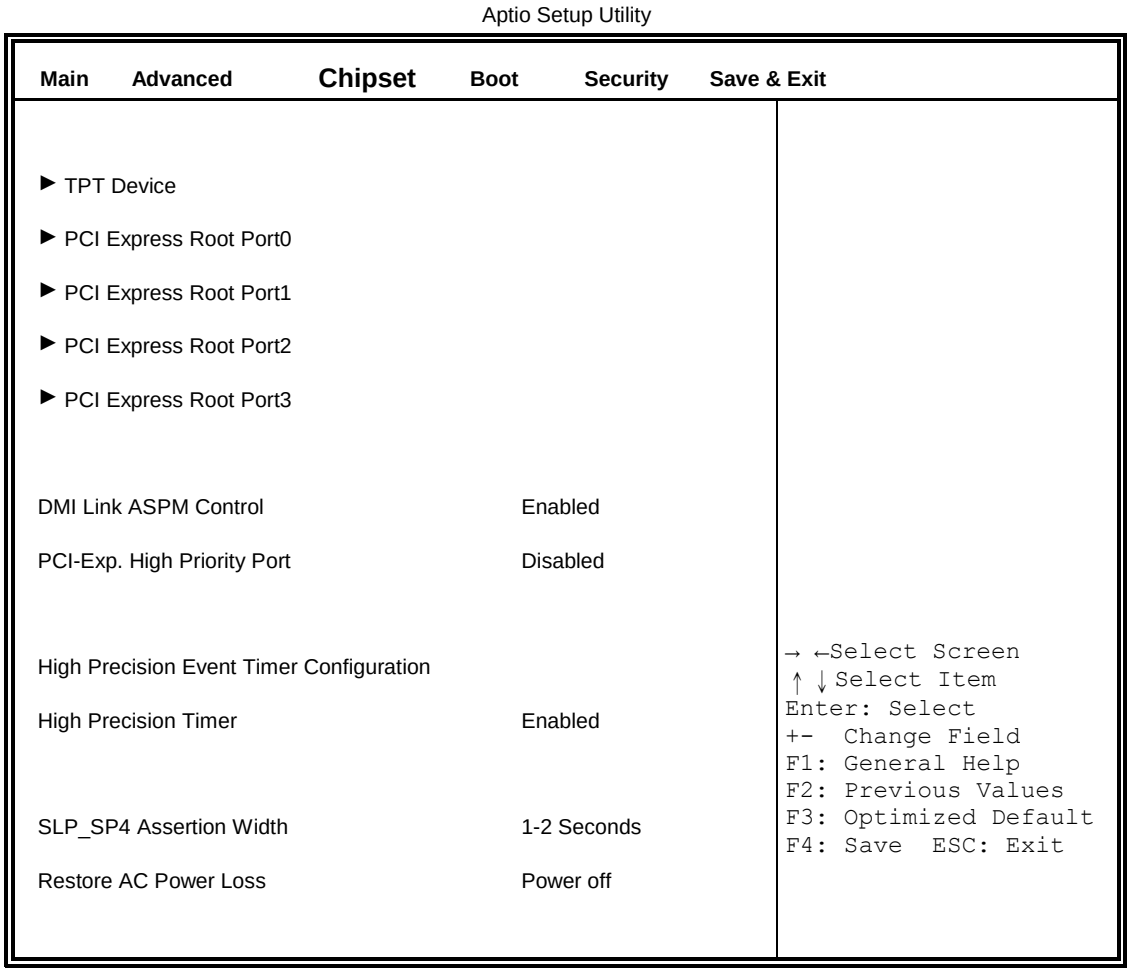
Select the Active LFP Configuration.

No LVDS: VBIOS does not enable LVDS.

Int-LVDS: VBIOS enables LVDS driver by Integrated encoder.

South Bridge

This section allows you to configure the South Bridge Chipset.



DMI Clink ASPM Control

The control of Active State Power Management on both NB side and SB side of the DMI Link.

PCI-Exp. High Priority Port

The options are Disabled, Port1, Port2, Port3, and Port4.

High Precision Event Timer Configuration

Enable/or Disable the High Precision Event Timer.

SLP_S4 Assertion Stretch Enable

Select a minimum assertion width of the SLP_S4# signal.

TPT Device

Aptio Setup Utility

Main	Adva	Chipset	Boot	Security	Save & Exit

Azalia Controller	HD Audio	→ ←Select Screen ↑ ↓ Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
UHCI #1 (port 0 and 1)	Enabled	
UHCI #2 (port 2 and 3)	Enabled	
UHCI #3 (port 4 and 5)	Enabled	
UHCI #4 (port 6 and 7)	Enabled	
USB 2.0(UHCI) Support	Enabled	

PCI Express Root Port0

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

PCI Express Port 0	Enabled	→ ←Select Screen ↑ ↓ Select Item Enter: Select +- Change Field F1: General Help F2: Previous Values F3: Optimized Default F4: Save ESC: Exit
Port 0 IOxAPIC	Disabled	
Automatic ASPM	Manual	
ASPM L0s	Root Port Only	
ASPM L1	Enabled	

PCI Express Root Port1

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
PCI Express Port 1			Auto		
Port 0 IOxAPIC			Disabled		
Automatic ASPM			Manual		
ASPM L0s			Root Port Only		
ASPM L1			Enabled		

→ ←Select Screen
↑ ↓Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

PCI Express Root Port2

Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit
PCI Express Port 2			Auto		
Port 0 IOxAPIC			Disabled		
Automatic ASPM			Manual		
ASPM L0s			Disabled		
ASPM L1			Disabled		

→ ←Select Screen
↑ ↓
Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

PCI Express Root Port3

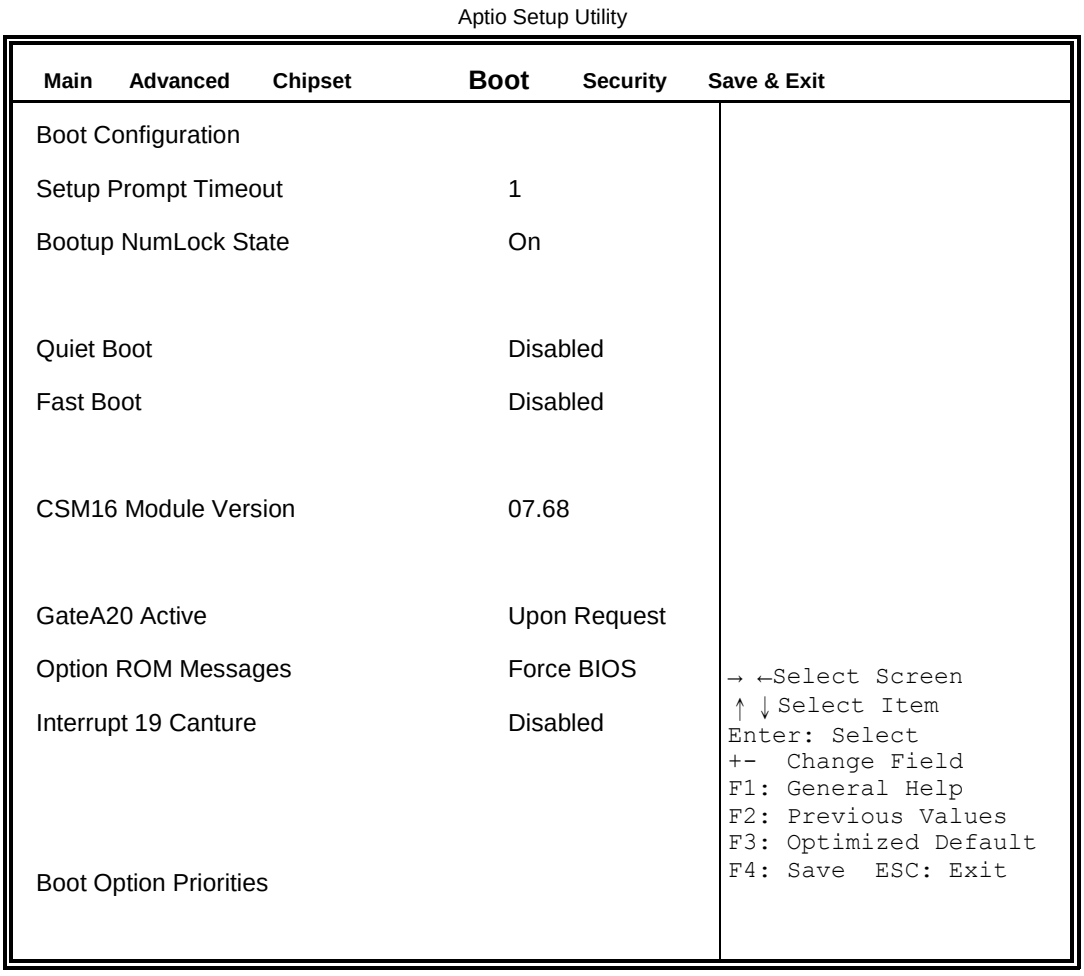
Aptio Setup Utility

Main	Advanced	Chipset	Boot	Security	Save & Exit

PCI Express Port 3	Auto
Port 0 IOxAPIC	Disabled
Automatic ASPM	Manual
ASPM L0s	Disabled
ASPM L1	Disabled

→ ←Select Screen
↑ ↓Select Item
Enter: Select
+- Change Field
F1: General Help
F2: Previous Values
F3: Optimized Default
F4: Save ESC: Exit

Boot Settings



Setup Prompt Timeout

Number of seconds to wait for setup activation key.
65535(0xFFFF) means indefinite waiting.

Bootup NumLock State

Select the keyboard NumLock state.

Quiet Boot

Enables/Disables Quiet Boot option.

Fast Boot

Enables/Disables boot with initialization of a minimal set of devices required to launch active boot option. Has no effect for BBS boot options.

GateA20 Active

UPON REQUEST– GA20 can be disabled using BIOS services.

ALWAYS– do not allow disabling GA20; this option is useful when any RT code is executed above 1MB.

Option ROM Messages

Set display mode for Option ROM. Options: Force BIOS and Keep Current.

Interrupt 19 Capture

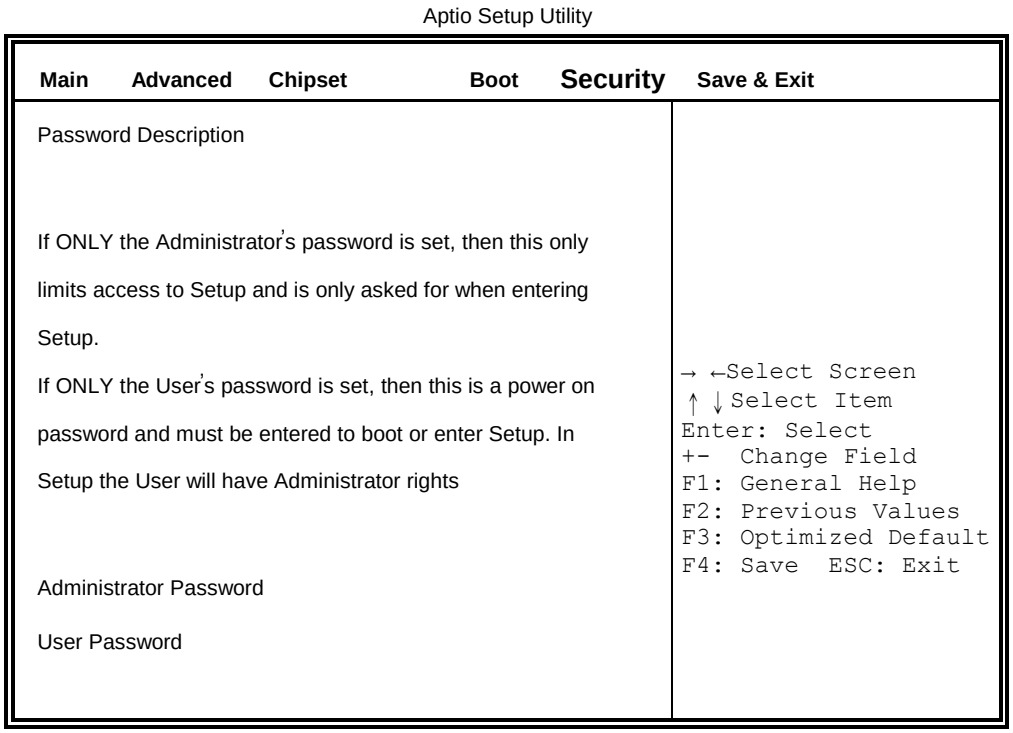
Enable: Allows Option ROMs to trap Int 19.

Boot Option Priorities

Sets the system boot order

Security Settings

This section allows you to configure and improve your system and allows you to set up some system features according to your preference.



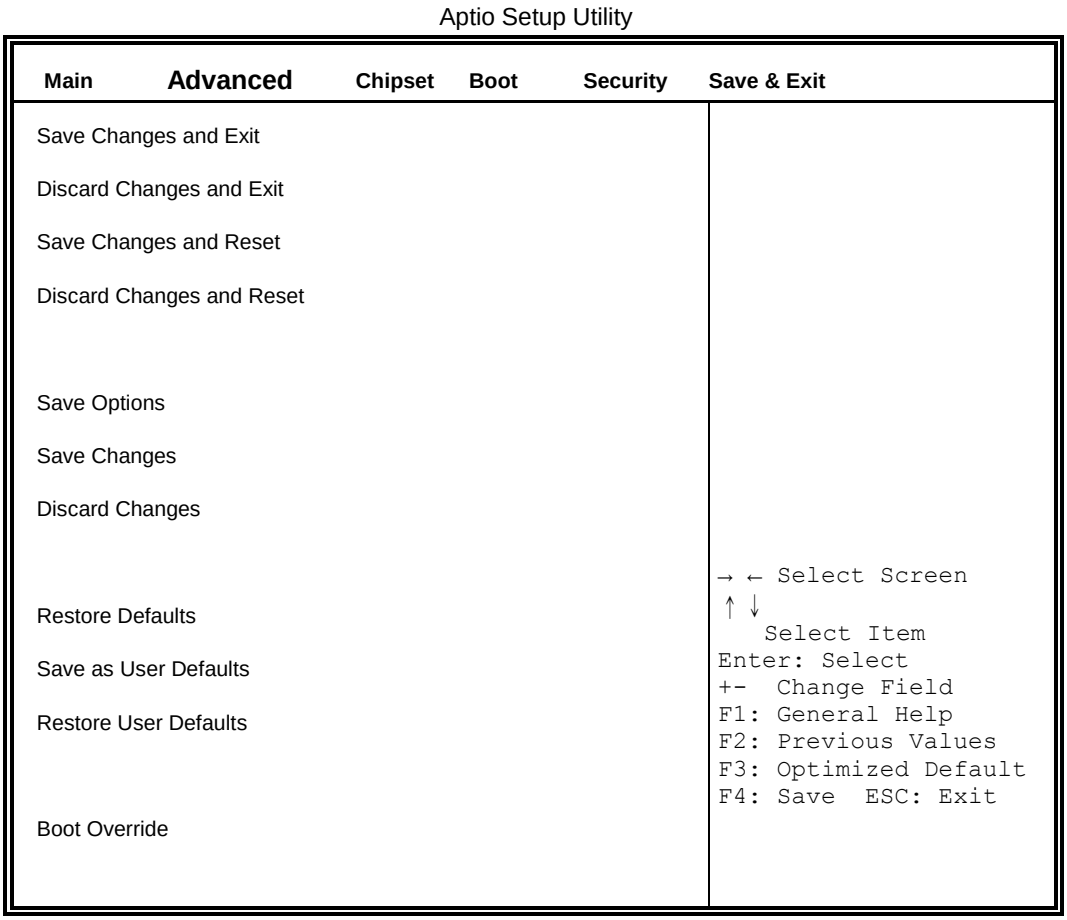
Administrator Password

Set Setup Administrator Password.

User Password

Set User Password.

Save & Exit Settings



Save Changes and Exit

Exit system setup after saving the changes.

Discard Changes and Exit

Exit system setup without saving any changes.

Save Changes and Reset

Reset the system after saving the changes.

Discard Changes and Reset

Reset system setup without saving any changes.

Save Changes

Save Changes done so far to any of the setup options.

Discard Changes

Discard Changes done so far to any of the setup options.

Restore Defaults

Restore/Load Defaults values for all the setup options.

Save as User Defaults

Save the changes done so far as User Defaults.

Restore User Defaults

Restore the User Defaults to all the setup options.

Boot Override

Pressing ENTER causes the system to enter the OS.

Launch EFI Shell from filesystem device

Attempts to Launch EFI Shell application (Shellx64.efi) from one of the available filesystem devices.

CHAPTER 4 DRIVERS INSTALLATION

This section describes the installation procedures for software and drivers. The software and drivers are included with the motherboard

IMPORTANT NOTE:

After installing your Windows operating system, you must install first the Intel Chipset Software Installation Utility before proceeding with the drivers installation.

4.1 Intel Chipset Software Installation Utility

The Intel Chipset Drivers should be installed first before the software drivers to enable Plug & Play INF support for Intel chipset components. Follow the instructions below to complete the installation.

1. Insert the disc that comes with the board. Click **Intel** and then **Intel(R) Cedar Trail Chipset Drivers.**

2. Click **Intel(R) Chipset Software Installation Utility.**

3. When the Welcome screen to the Intel® Chipset Device Software appears, click **Next** to continue.

4. Click **Yes** to accept the software license agreement and proceed with the installation process.

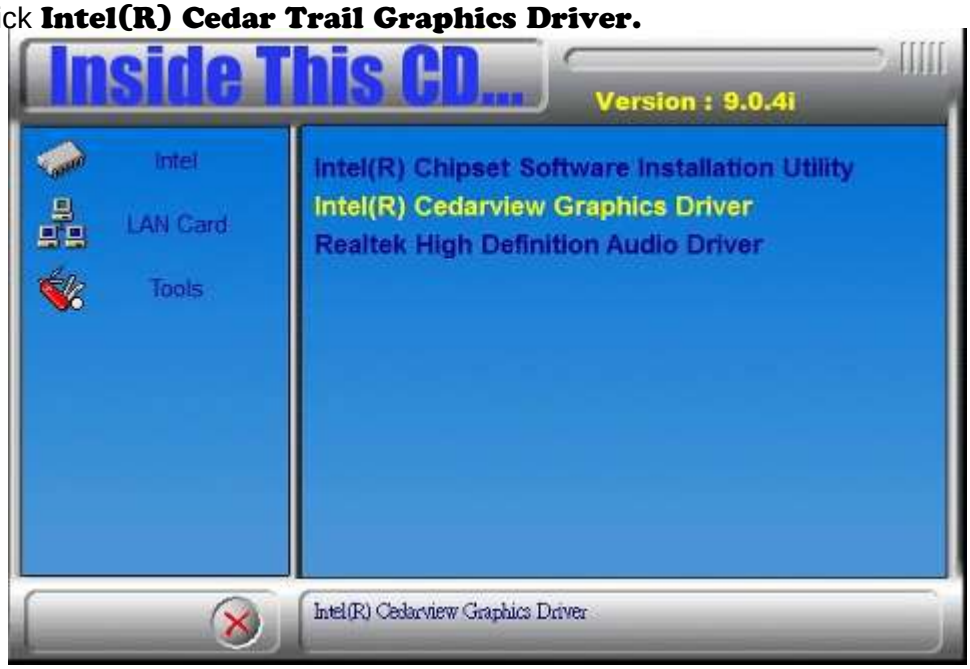
5. On the Readme File Information screen, click **Next** to continue the installation.

6. The Setup process is now complete. Click **Finish** to restart the computer and for changes to take effect.

4.2 VGA Drivers Installation

1. Insert the disc that comes with the board. Click **Intel** and then **Intel(R) Cedar Trail Chipset Drivers**.

2. Click **Intel(R) Cedar Trail Graphics Driver.**



3. When the Welcome screen appears, click **Next** to continue.

4. Click **Yes** to to agree with the license agreement and continue the installation.

5. On the Readme File Information screen, click **Next** to continue the installation of the Intel® Graphics Media Accelerator Driver.

6. On Setup Progress screen, click **Next** to continue.

7. Setup complete. Click **Finish** to restart the computer and for changes to take effect.

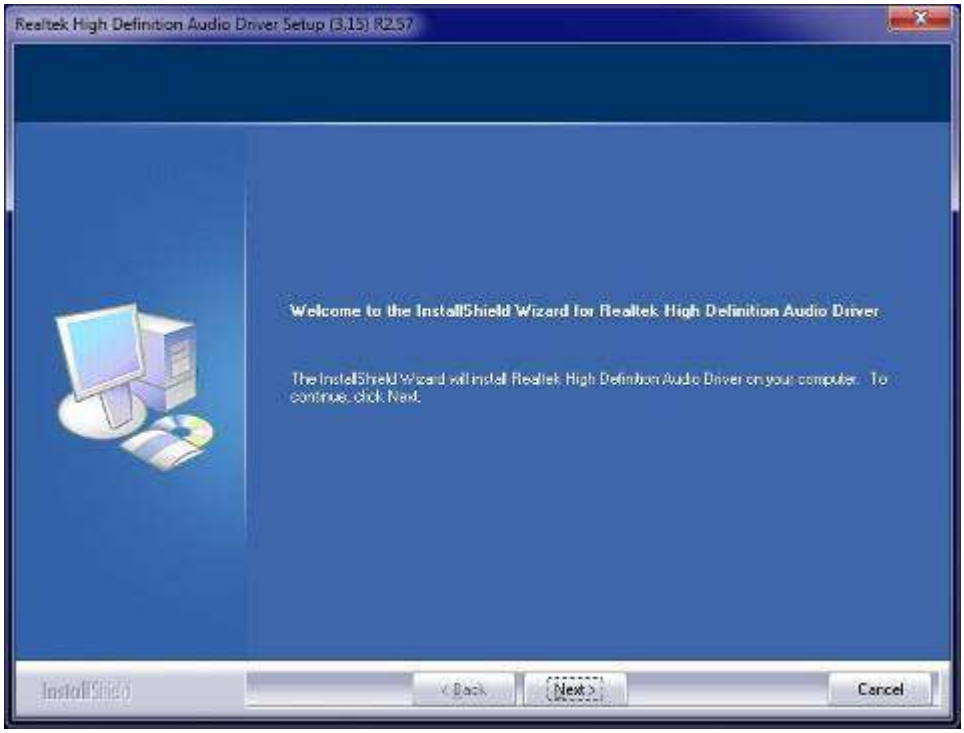
4.3 Realtek HD Audio Driver Installation

Follow the steps below to install the Realtek HD Audio Drivers.

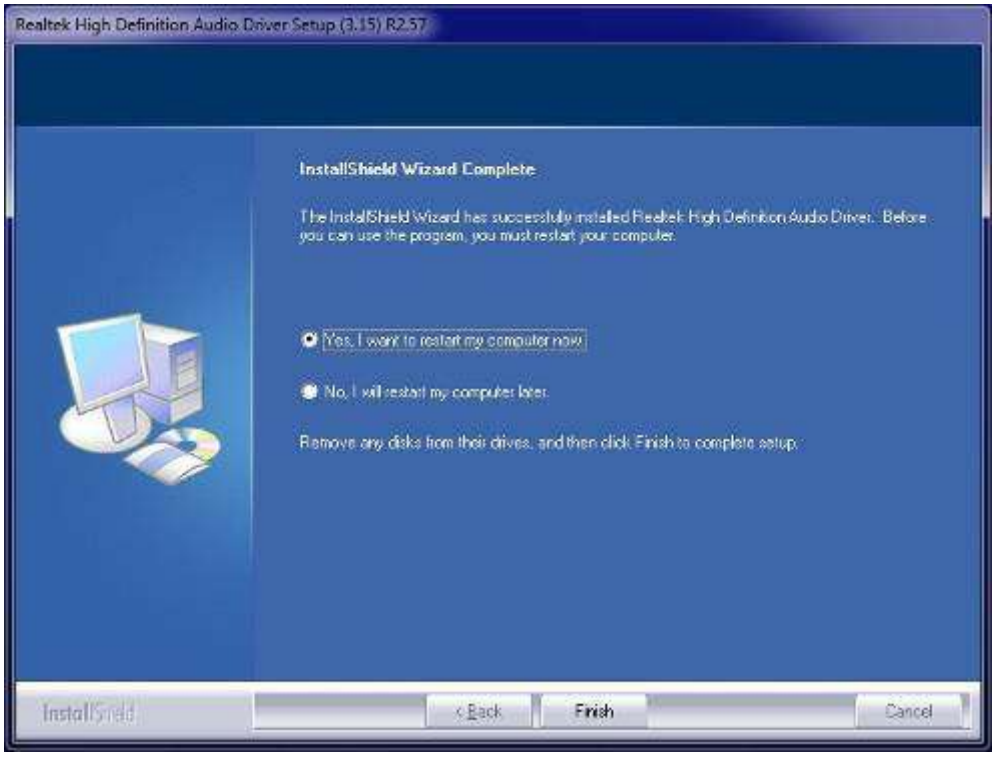
1. Insert the disc that comes with the board. Click **Intel** and then **Intel(R) Cedar Trail Chipset Drivers**.

2. Click **Realtek High Definition Audio Driver.**

3. On the Welcome to the InstallShield Wizard screen, click **Next** to proceed with and complete the installation process.



4. Restart the computer when prompted.



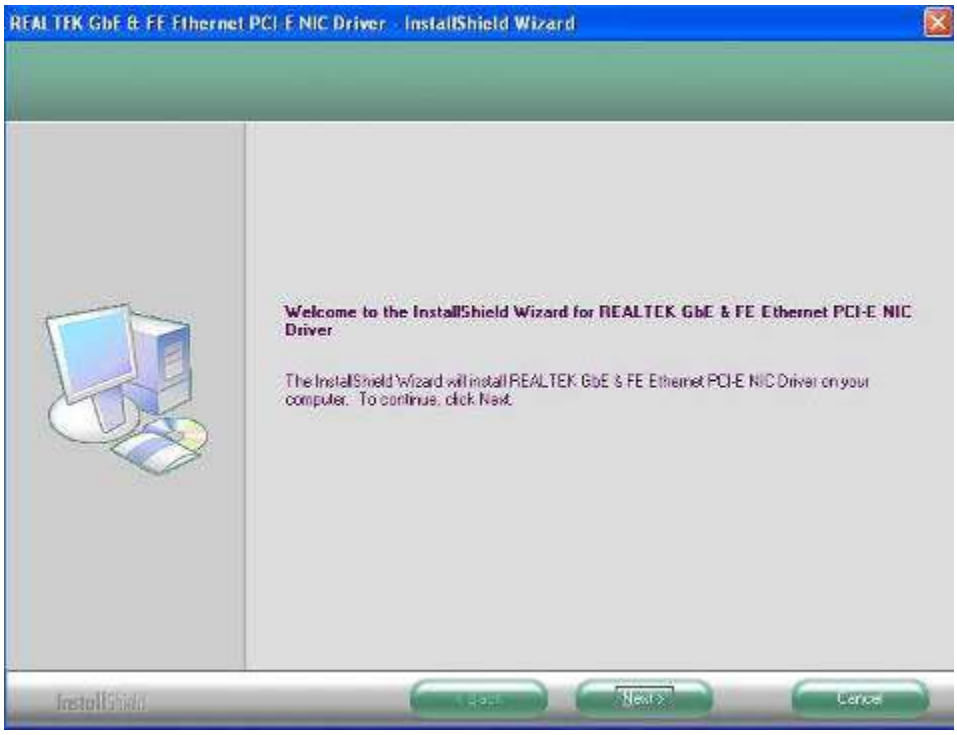
4.4 Realtek LAN Controller Drivers Installation

Follow the steps below to install the Realtek LAN Drivers.

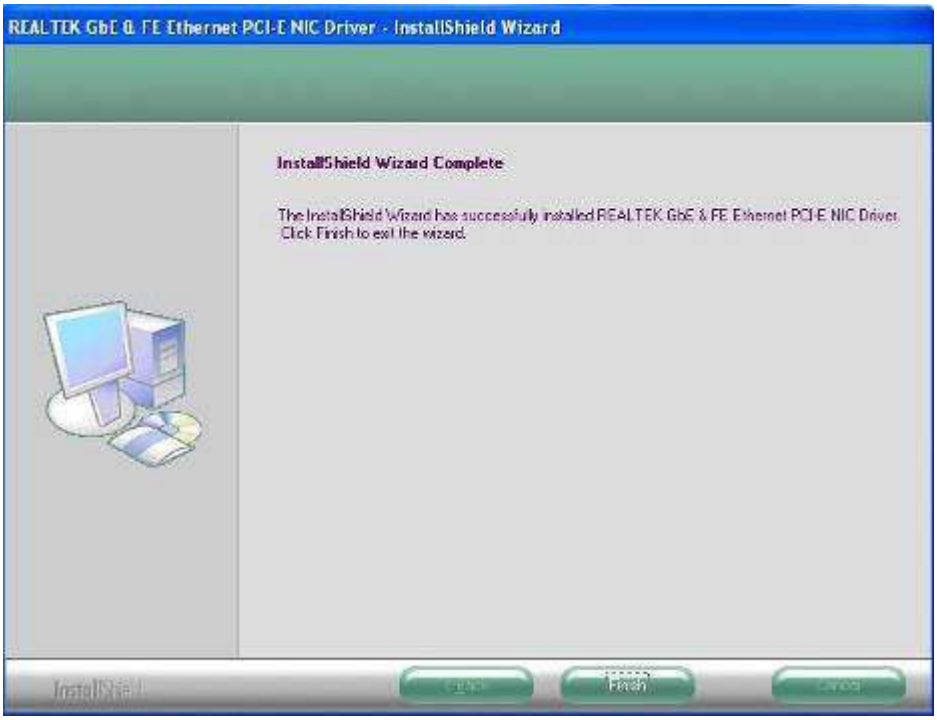
1. Insert the CD that comes with the board. Click **LAN Card**, and then **Realtek Lan Controller Drivers.**

2. Click **Realtek RTL8111G LAN Drivers**.

3. When the welcome screen to InstallShield Wizard appears, click **Next** to start the installation**.**



4. When the InstallShieldWizard has finished installing the Realtek LAN drivers, click **Finish**.



Appendix

A. SSPA-24 IP65 stainless steel power adaptor

Optional 90~240V AC input, 24V DC output IP65 stainless steel power adaptor.

Specification –SSPA-24	
Edge I/O	
	- M23 connector AC input - 4 pin M12 connector DC output (4 pin definition: +/-/G/earth ground)
Power	
Power Module	- AC/DC open frame
Power Supply	- 24V DC input
Construction	
Chassis	- 304 stainless steel / 316 stainless steel for option
Mounting	- Wall mount
Protection Class	- Total IP65
Environmental	
Temperature	- Operating: 0°C~ 50°C (Max 80W at 50°C) - Storage: -40°C~85°C
Humidity	- 10%~90% (non-condensing)
Regulation	- RoHS
Certification	- CE/FCC class A
Accessary	
	- Wall Mount Kits
	- 1 x power cable M23/3P L=5m
	- 1 x power cable M12 4P L=2m
	- Power connector for U.S. regulation (option)
	- Power connector for EU regulation (option)
	- Power connector for Australian regulatory (option)