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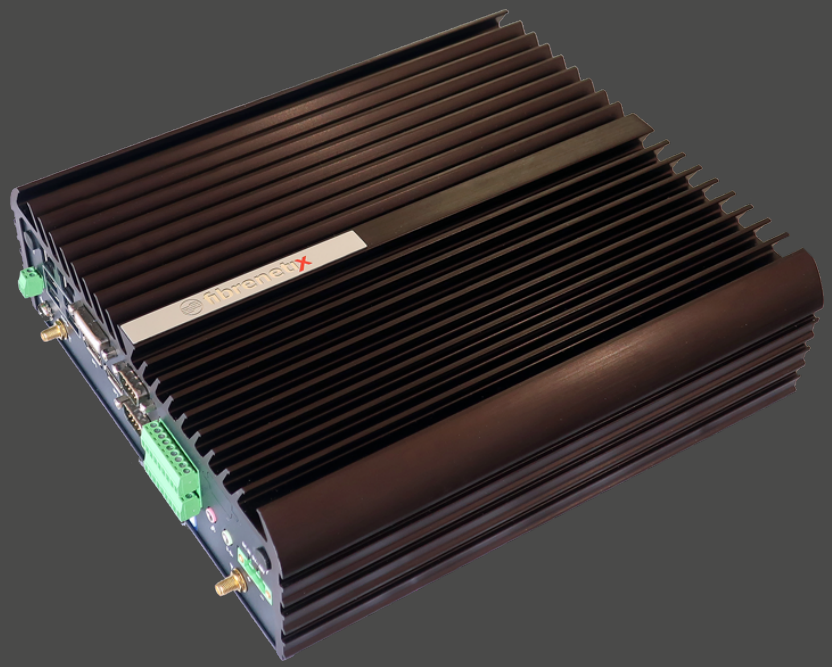
Quick User Guide

Mobix-II Series

Superior Fan less Embedded System



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Mobix-II Series

Superior Fan less Embedded System

Mobix-II Series

MB-502-5-5000-A2-CT

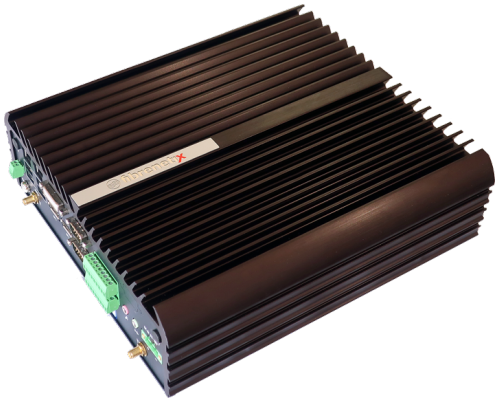
MB-506-5-7600-A2-CT

MB-510-5-7600-A2-CT

MB-506-5-7600-A12-CT

MB-510-5-7600-A12-CT

User Guide



MB-502-5-5000-A2-CT

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Disclaimer

Published January 2020

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Copyright and Trademarks

DO NOT dispose this electronic device into the trash while discarding.
Please recycle to minimize pollution and ensure environment protection.

Safety Precautions

Before installing and using the equipment, please read the following precautions:

1. Place the equipment on a reliable surface during installation. Dropping it or letting it fall could cause damage.
2. The power outlet shall be installed near the equipment and shall be easily accessible.
3. Turn off the system power and disconnect the power cord from its source before making any installation.
   Be sure both the system and the external devices are turned OFF. Sudden surge of power could ruin sensitive components.
   Make sure the equipment is properly grounded.
4. When the power is connected, never open the equipment. The equipment should be opened only by qualified service personnel.
5. Make sure the voltage of the power source is correct before connecting the equipment to the power outlet.
6. Disconnect this equipment from the power before cleaning. Use a damp cloth. Do not use liquid or spray detergents for cleaning.
7. Avoid the dusty, humidity and temperature extremes.
8. Do not place heavy objects on the equipment.
9. If the equipment is not used for long time, disconnect it from the power to avoid being damaged by transient over-voltage.
10. The storage temperature shall be above -30°C and below 85°C.
11. The computer is provided with a battery-powered real-time clock circuit. There is a danger of explosion if incorrectly replaced. Replace only with the same or equivalent type recommended by the manufacturer.
12. If one of the following situations arises, get the equipment checked be service personnel:
    - The power cord or plug is damaged.
    - Liquid has penetrated the equipment.
    - The equipment has been exposed to moisture.
    - The equipment does not work well, or it cannot work according the user's manual.
    - The equipment has been dropped and damaged.
    - The equipment has obvious signs of breakage.

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User Guide

Introduction

Mobix-II series – Superior Fan less Embedded System

Mobix - II series are rugged reliability fan less embedded systems with an outstanding system performance, versatile I/O connections. It offers dramatically enhanced CPU and graphics performance, wide power and feature scalability, and advanced features, modularize expansion I/O, rich connectivity interfaces, wide range (9~48V) DC power input, and high reliability even operating in temperature extremes (-25°C~+70°C).

Featuring with completely cable-less designed, high functional, one-piece housing design, and anti- vibration, Mobix-II series are ruggedized systems that can operate in harsh environments and easy to install and maintain. A build in over voltage protection (OVP), over current protection (OCP), reverse protection, and wide range DC power input makes Mobix-II series are safety system for all industrial applications.

Key Features:

- LGA 1151 socket for 6th/7th Gen. Intel® Core™ i7/i5/i3 or Pentium® / Celeron® Desktop Processor
- Intel® Q170 Chipset
- 2x 260-pin DDR4 SODIMM. Max up to 32GB
- Triple independent display supported by 1x DVI-I and 2x DisplayPort
- 2x Intel® GbE supporting Wake-on-LAN and PXE
- 2x Removable 2.5" SATA HDD Bay, 2x Internal 2.5" SATA SSD/HDD Bay supporting RAID 0, 1, 5, 10
- 4x Full-size Mini-PCIe Socket with 4x SIM Card Socket for communication or expansion modules
- 2x mSATA (Shared by 2x Mini-PCIe Socket)
- 2x External RS-232/422/485, 2x Internal RS-232/422/485
- 6x USB 3.0, 2x USB 2.0, TPM 1.2
- 8x Isolated DI, 8x Isolated DO
- 1x Mic-in, 1x Speak-out
- 9 to 48VDC wide range power input supporting AT/ATX mode
- 1x PCIe x16 Expansion (RCO-6011E Series Only)
- 1x PCI Expansion (RCO-6011P Series Only)
- 2x PCIe x8 Expansion (RCO-6022EE Series Only)
- 2x PCI Expansion (RCO-6022PP Series Only)
- 1x PCIe x16 and 1x PCI Expansion (RCO-6022PE Series Only)
- Remote Power On/Off Switch

Hardware Specification 1:2

System	MOBIX-II Series - MB-5XX-X-XXX-AXX-CT
Processor	Intel® Core®i7/i5/i3 or Pentium® Processor
Core Logic	Intel® Q170 Express Chipset
Memory	2x 260-Pin DDR4 1866/2133MHz SODIMM Max. up to 32GB
OS Storage (internal 2.5")	2x Internal 2.5" SATA HDD Bay 2x Removable 2.5" SATA HDD Bay
Hardware RAID Levels	RAID 0, 1, 5, 10
Network (Model MB-502-X-XXX-A2-CT)	GbE1: Intel® I210-AT (Support Wake-on-LAN and PXE) – RJ45 GbE2: Intel® I219-LM (Support Wake-on-LAN and PXE) – RJ45
Network (Model MB-506-X-XXX-A2-CT) and (Model MB-506-X-XXX-A12-CT)	GbE1: Intel® I210-AT (Support Wake-on-LAN and PXE) – RJ45 GbE2: Intel® I219-LM (Support Wake-on-LAN and PXE) – RJ45 GbE3 to GbE6: Intel® I350-AM4 PoE for GbE3 to GbE6: 4x IEEE 802.3at (25.5W) – RJ45
Multiple Display	1x DVI-I 2x DisplayPort VGA through optional split cable
Audio Codec	Realtek ALC888S
SIM Socket	4x SIM Socket (MB-502) 3x SIM Socket (MB-506)
Multi-Constellation GNSS	GPS/GLONASS/BeiDou/Galileo/QZSS (Optional)
LTE Category 4 Module Data Transfer	LTE FDD: Max 150Mbps (DL) / Max 50Mbps (UL) LTE TDD : Max 130Mbps (DL) / Max 30Mbps (UL) DC-HSDPA : Max 42Mbps (DL) HSUPA : Max 5.76Mbps (UL) WCDMA : Max 384Kbps (DL) / Max 384Kbps (UL) EDGE : Max 296Kbps (DL) / Max 236.8Kbps (UL) GPRS: Max 107Kbps (DL) / Max 85.6Kbps (UL)
LTE Module Protocols	TCP/UDP/PPP/FTP/FTPS/HTTP/HTTPS/NTP/PING/QMI/NITZ/MMS/SMTP/SSL/MQTT/FILE
I/O Ports	2x RS-232/422/485 2x RS-232/422/485 (internal) 6x USB 3.0, 2x USB 2.0 2x GbE RJ45 (all models) 4x IEEE 802.3at (25.5W) – RJ45 (MB-506-X-XXXX-A2-CT) / M12 (MB-506-X-XXXX-A12-CT) 1x Mic-in, 1x Speaker-out 8x IN/OUT Digital IO (isolated) 2x Universal I/O Bracket (For mini PCIe application) 6x Wi-Fi Antenna Holes 1x Power Switch, 1x AT/ATX Switch 1x Remote Power On/Off
Operating System	Windows 10 or Linux Kernel 4.X
Power Ignition Management	Yes (except for MB-502)
Power Adaptor	Optional AC/DC 24V/5A, 120W
Voltage	9 to 48 VDC
Dimensions – mm (D x W x H)	261 x 240 x 79
Environment	Operation temperature: -25°C ~ 70°C Non-operation temperature: -30°C ~ 85°C
Relative Humidity (%)	Non-operation humidity: 10%~ 95% (Non-condensing)

Hardware Specification 2:2

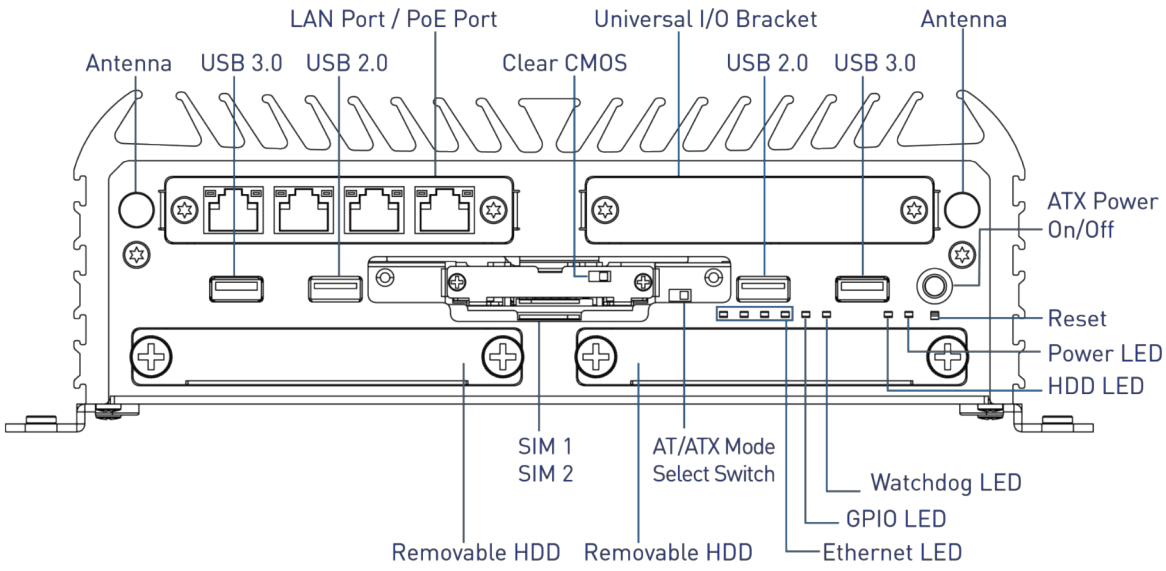
Vibration	With SSD: 5 Grms, 5-500Hz, 0.5 hr/axis With HDD: 1 Grms, 5-500Hz, 0.5 hr/axis
Shock	With SSD: 50G, half sine, 11ms
Certification	CE, FCC Class A
Warranty Period	3 Years
BTU/hr (with optional Power Adaptor)	410.31

**Specifications are subject to change, without prior notice.*

Hardware Details

Mobix-II (RJ45)

Front Panel



ATX power on/off switch
Press to power-on or power-off the system

Reset switch
Press to reset the system

USB 3.0 port
Used to connect USB 3.0/2.0/1.1 device

USB 2.0 port
Used to connect USB 2.0/1.1 device

AT/ATX mode select switch
Used to select AT or ATX power mode

Clear CMOS
Used to clear CMOS

SIM card
Used to insert SIM card

COM port
COM1 ~ COM2 support RS232/422/485 serial device

LAN Port
Used to connect the system to a local area network (MobixII-4L Only)

POE Port
Used to connect the system to a local area network with power over Ethernet (MobixII-4P Only)

Universal I/O Bracket
Used to customized I/O output

HDD port
Removable 2.5" SATA HDD Area

Power LED
Indicates the power status of the system

HDD LED
Indicates the status of the hard drive

Watchdog LED
Indicates the status of the watchdog active

GPIO LED
Indicates the status of the customer define

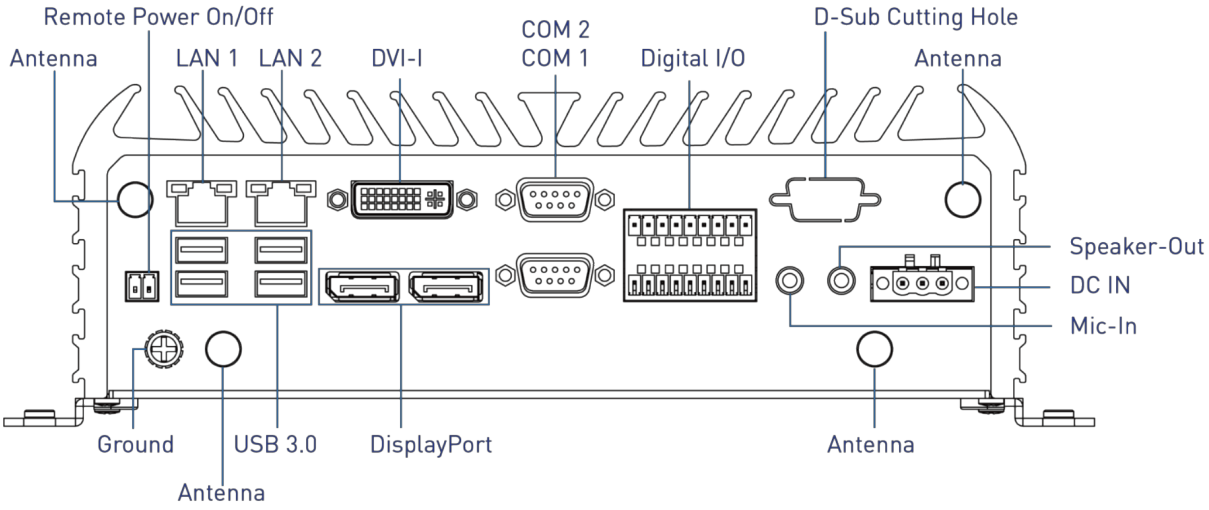
Ethernet LEDs
Indicates the status of the LAN active

Antenna hole
Used to connect an antenna for optional Mini-PCIe WiFi module

Hardware Details

Mobix-II (RJ45)

Rear Panel



DC IN
Used to plug a DC power input with terminal block

Speaker-out
Used to connect a speaker

Mic-in
Used to connect a microphone

Digital I/O Terminal Block
The Digital I/O terminal block supports 8 digital input and 8 digital output

COM port
COM1 ~ COM2 support RS232/422/485 serial device

DVI-I port
Used to connect a DVI monitor or connect optional split cable for dual display mode

Display Port
Used to connect a DisplayPort monitor

USB 3.0 port
Used to connect USB 3.0/2.0/1.1 device

LAN port
Used to connect the system to a local area network

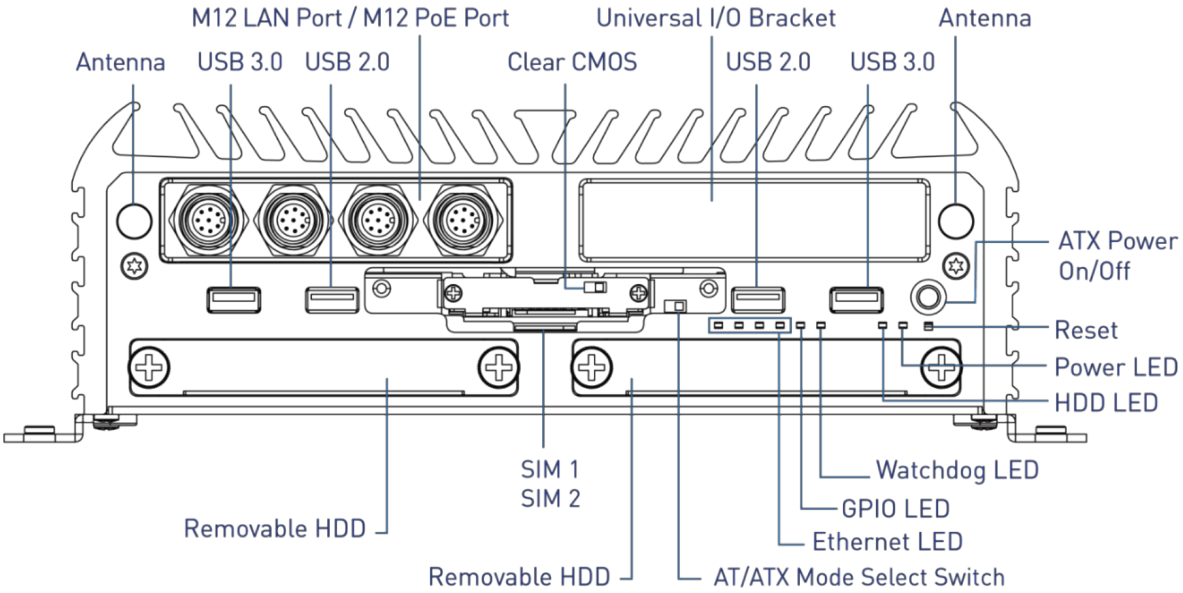
Remote Power on/off Terminal Block
Used to plug a remote power on/off terminal block

Antenna hole
Used to connect an antenna for optional Mini-PCIe WiFi module

Hardware Details

Mobix-II (M12)

Front Panel



ATX power on/off switch
Press to power-on or power-off the system

Reset switch
Press to reset the system

USB 3.0 port
Used to connect USB 3.0/2.0/1.1 device

USB 2.0 port
Used to connect USB 2.0/1.1 device

AT/ATX mode select switch
Used to select AT or ATX power mode

Clear CMOS
Used to clear CMOS

SIM card
Used to insert SIM card

COM port
COM1 ~ COM2 support RS232/422/485 serial device

LAN Port
Used to connect the system to a local area network (MobixII-4L-M12 Only)

M12 PoE Port
Used to connect the system to a local area network with power over Ethernet (MobixII-4P-M12 Only)

Universal I/O Bracket
Used to customized I/O output

HDD port
Removable 2.5" SATA HDD Area

Power LED
Indicates the power status of the system

HDD LED
Indicates the status of the hard drive

Watchdog LED
Indicates the status of the watchdog active

GPIO LED
Indicates the status of the customer define

Ethernet LEDs
Indicates the status of the LAN active

Antenna hole
Used to connect an antenna for optional Mini-PCIe WiFi module

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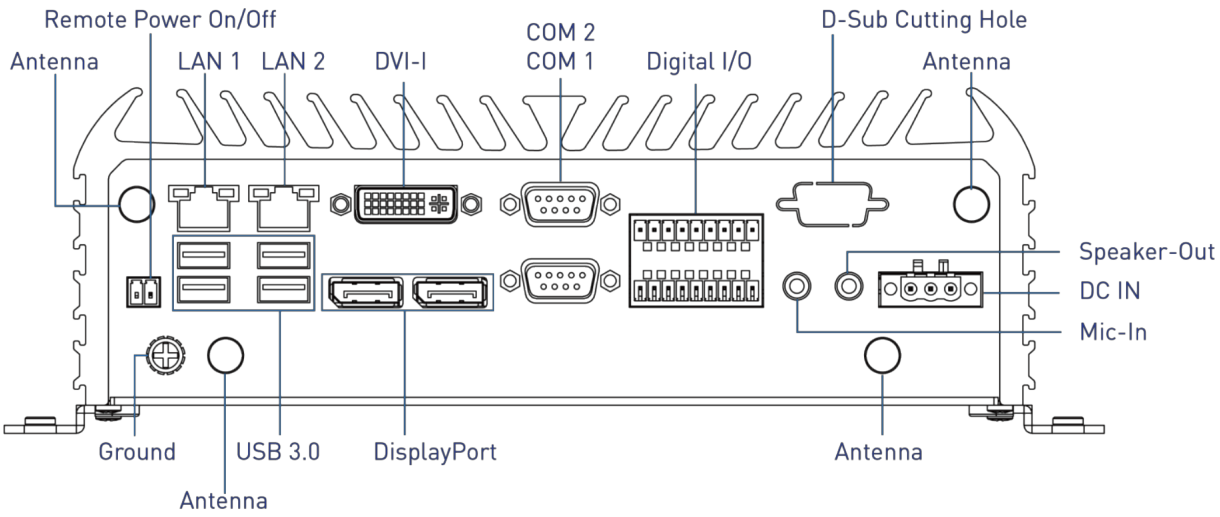
Hardware Details

Mobix-II (M12)

Rear Panel



DC IN
Used to plug a DC power input with terminal block

Speaker-out
Used to connect a speaker

Mic-in
Used to connect a microphone

Digital I/O Terminal Block
The Digital I/O terminal block supports 8 digital input and 8 digital output

COM port
COM1 ~ COM2 support RS232/422/485 serial device

DVI-I port
Used to connect a DVI monitor or connect optional split cable for dual display mode

Display Port
Used to connect a DisplayPort monitor

USB 3.0 port
Used to connect USB 3.0/2.0/1.1 device

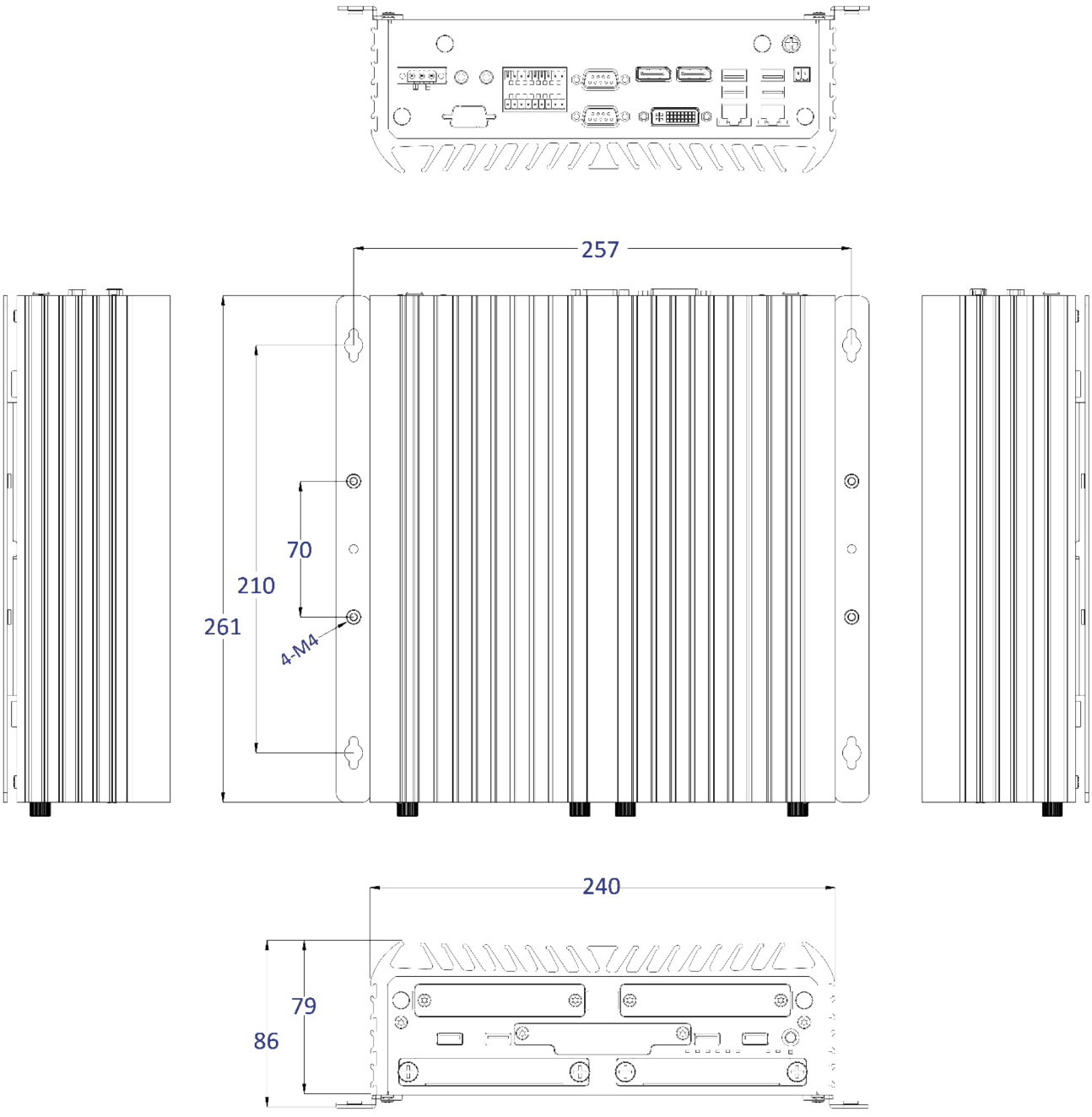
LAN port
Used to connect the system to a local area network

Remote Power on/off Terminal Block
Used to plug a remote power on/off terminal block

Antenna hole
Used to connect an antenna for optional Mini-PCIe WiFi module

Mechanical Dimensions

Mobix-II (RJ45) / Mobix-II (M12)

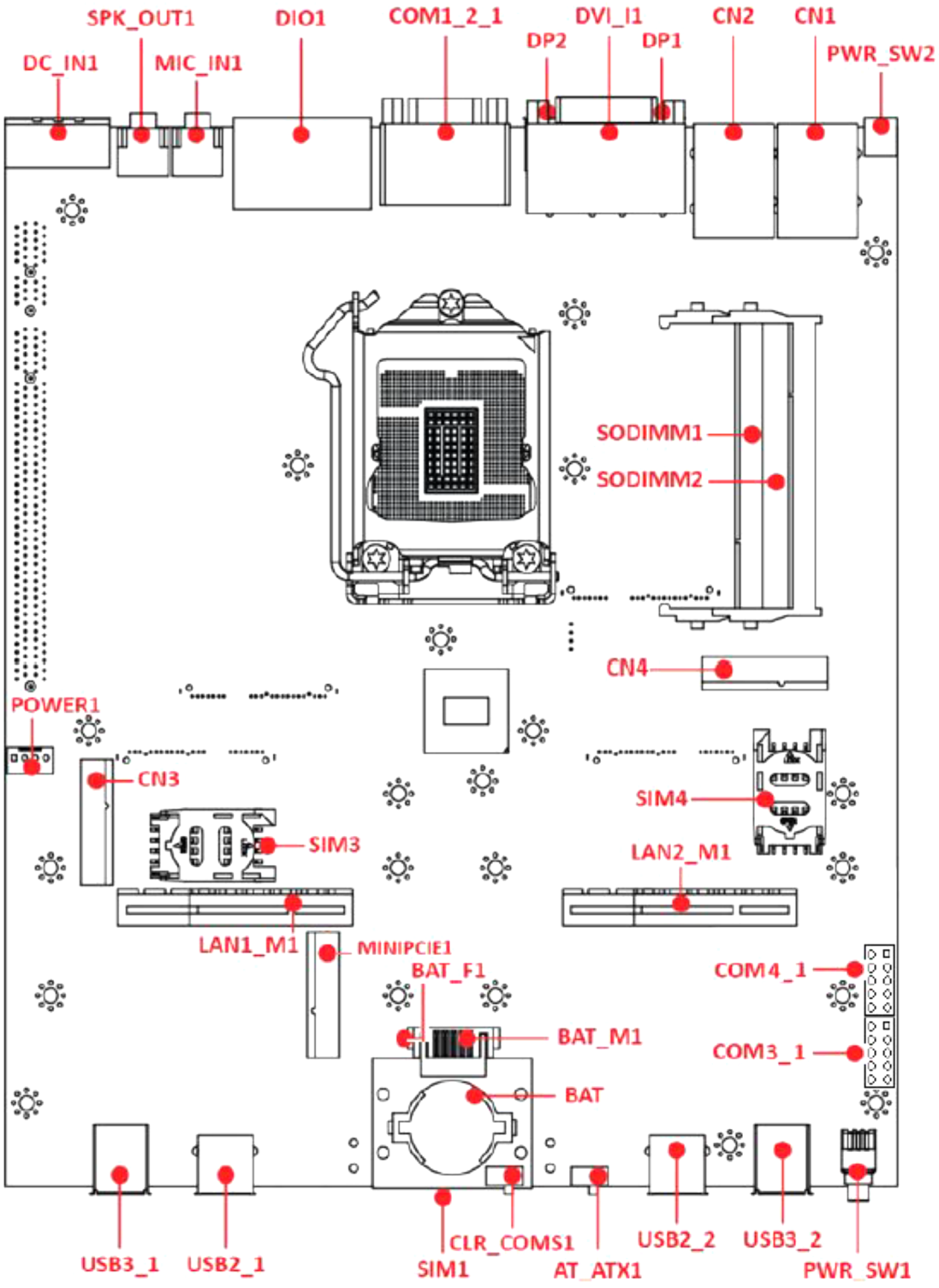


Switches and Connectors

Switch and Connector Locations

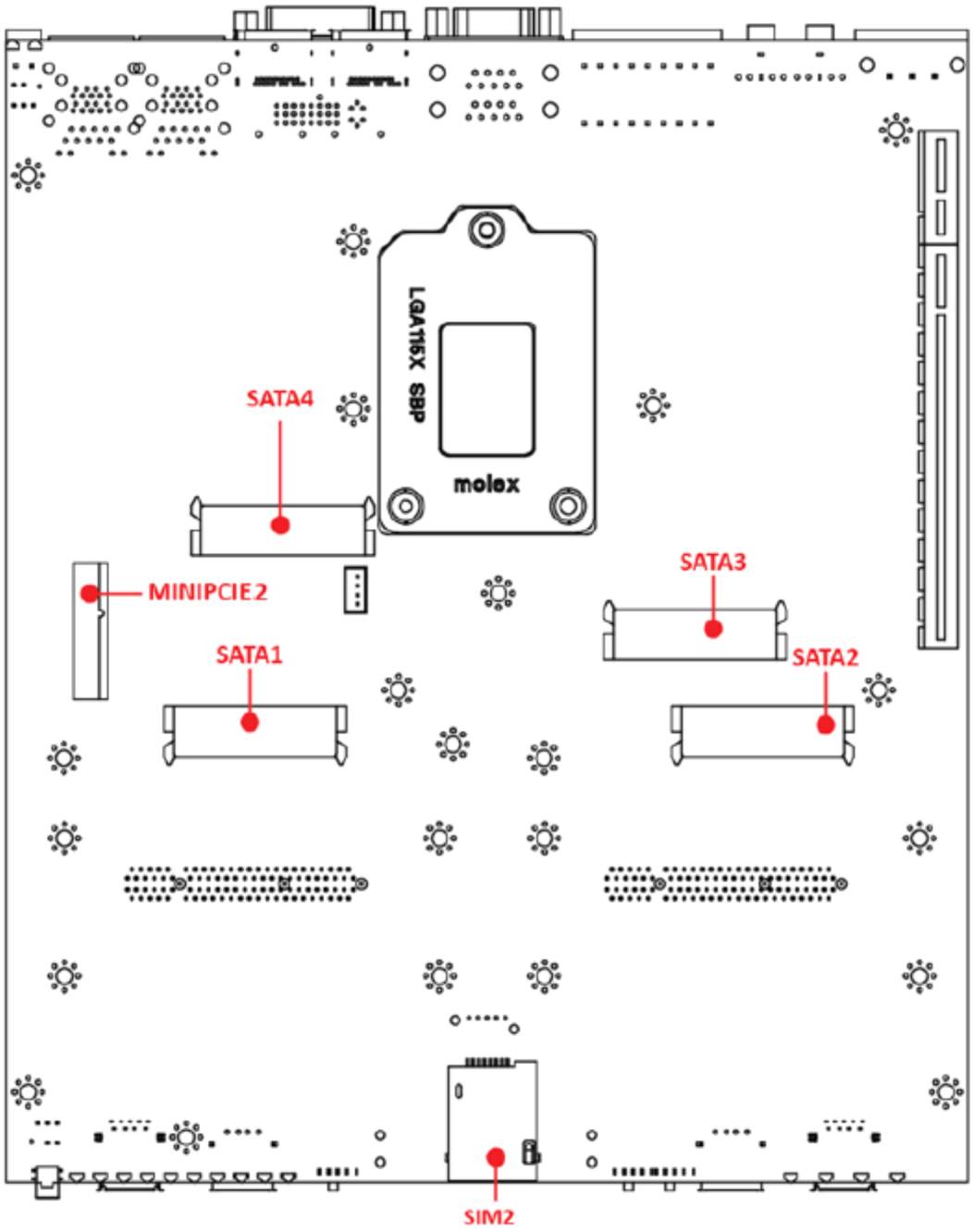
Top View

Explanation for Top View in the table page 16



Bottom View

Explanation for Bottom View is written in **bold** in the table page 16



List of Connectors / Switches

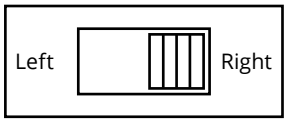
Explanation for Top View **page 14 and** Bottom View **page 15**

Connector Location	Definition
AT_ATX1	AT / ATX Power Mode Swithch
CLR_CMOS1	Clear BIOS Switch
PWR_SW1	Power Switch
RESET1	Reset Switch
USB3_1, USB3_2	USB 3.0 Port
USB2_1, USB2_2	USB 2.0 Port
USB2_CN1	USB 2.0 Port
SIM1, **SIM2**, SIM3, SIM4	SIM Card Socket
COM1_2_1	RS232 / RS422 / RS485 Connector
COM3_1, COM4_1	RS232 / RS422 / RS485 Connector
DC_IN1	3-pin DC 9-48V Power Input Connector
DVI_I1	DVI-I Connector
DP1, DP2	DisplayPort Connector
SPK_OUT1	Speaker-out Jack
MIC_IN1	Mic-in Jack
DIO1	8DI / 8DO Connector
PWR_SW2	Remote Power Switch
CN1	LAN1 and USB3.0 Port
CN2	LAN2 and USB3.0 Port
LAN3, LAN4, LAN5, LAN6, LAN7, LAN8, LAN9, LAN10	LAN Port / M12 LAN Port
MINIPCIE1, **MINIPCIE2**	Mini PCI-Express Socket
CN3, CN4	Mini PCI-Express / mSATA Socket
SATA1, SATA2, SATA3, SATA4	SATA with Power Connector
POWER1, POWER2, POWER3, POWER4	Power Connector
PCIE1	PCI-Express X1 Slot
PCIE2	PCI-Express X16 Slot
PWR_LED1	Power LED Status
HDD_LED1	HDD Access LED Status
WDT_LED1	Watchdog LED Status
GPIO_LED1	GPIO LED Status
LAN1_LINK1, LAN2_LINK1	LAN Link LED
LAN1_ACT1, LAN2_ACT1	LAN Active LED

Switches Definitions

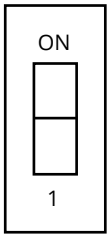
AT_ATX1: AT / ATX Power Mode Switch

Switch	Definition
1–2 (Left)	AT Power Mode
2–3 (Right)	ATX Power Mode (Default)



CLR_CMOS1: Clear BIOS Switch

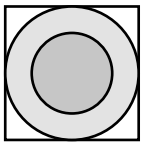
Switch	Definition
Off	Normal Status (Default)
ON	Clear BIOS



Connectors Definitions

PWR_SW1: Power Button

Pin	Definition	Pin	Definition
1	NC	4	GND
2	Power Button	5	NC
3	NC	6	GND

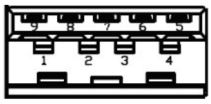


RESET1 : Reset Button

Pin	Definition
1	RESET
2	GND

USB3_1: USB3.0 Connector, Type A

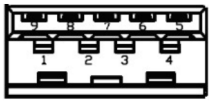
Pin	Definition	Pin	Definition
1	+5V	6	USB3_RX5+
2	USB2_D5–	7	GND
3	USB2_D5+	8	USB3_TX5–
4	GND	9	USB3_TX5+
5	USB3_RX5–		



Connectors Definitions

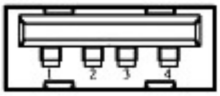
USB3_2: USB3.0 Connector, Type A

Pin	Definition	Pin	Definition
1	+5V	6	USB3_RX6+
2	USB2_D6–	7	GND
3	USB2_D6+	8	USB3_TX6–
4	GND	9	USB3_TX6+
5	USB3_RX6–		



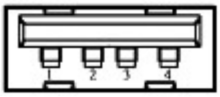
USB2_1: USB3.0 Connector, Type A

Pin	Definition
1	+5V
2	USB2_D7–
3	USB2_D7+
4	GND



USB2_2: USB3.0 Connector, Type A

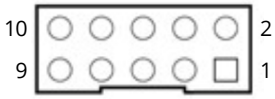
Pin	Definition
1	+5V
2	USB2_D8–
3	USB2_D8+
4	GND



USB2_CN1: USB2.0 Ports

Connector Type: 2X5 10-pin box header, 2.0mm pitch

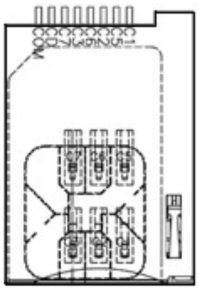
Pin	Definition	Pin	Definition
1	+5V	2	+5V
3	USB2_D9+	4	USB2_D10+
5	USB2_D9–	6	USB2_D10+
7	GND	8	GND
9	Cable Shield	10	Cable Shield



Connectors Definitions

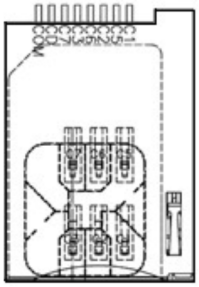
SIM1: SIM Card Socket

Pin	Definition	Pin	Definition
C1	UIM1_PWR	C6	UIM1_VPP
C2	UIM1_RESET	C7	UIM1_DATA
C3	UIM1_CLK	CD	NC
C5	GND	COM	GND



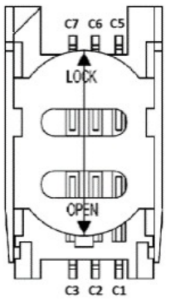
SIM2: SIM Card Socket

Pin	Definition	Pin	Definition
C1	UIM2_PWR	C6	UIM2_VPP
C2	UIM2_RESET	C7	UIM2_DATA
C3	UIM2_CLK	CD	NC
C5	GND	COM	GND



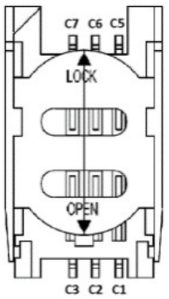
SIM3: SIM Card Socket

Pin	Definition	Pin	Definition
C1	UIM3_PWR	C5	GND
C2	UIM3_RESET	C6	UIM3_VPP
C3	UIM3_CLK	C7	UIM3_DATA



SIM4: SIM Card Socket

Pin	Definition	Pin	Definition
C1	UIM4_PWR	C5	GND
C2	UIM4_RESET	C6	UIM4_VPP
C3	UIM4_CLK	C7	UIM4_DATA



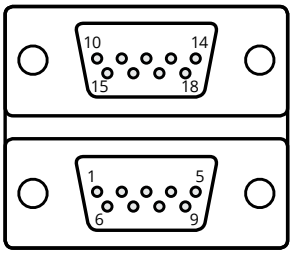
Connectors Definitions

COM1_2_1: RS232 / RS422 / RS485 Connector

Connector Type: 9-pin D-Sub

COM1			
Pin	**RS232 Definition**	**RS422 / 485 Full Duplex Definition**	**RS485 Half Duplex Definition**
1	DCD1	TX1–	DATA1–
2	RxD1	TX1+	DATA1+
3	TxD1	RX1+	
4	DTR1	RX1–	
5	GND		
6	DSR1		
7	RTS1		
8	CTS1		
9	RI1		

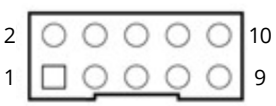
COM2			
Pin	**RS232 Definition**	**RS422 / 485 Full Duplex Definition**	**RS485 Half Duplex Definition**
10	DCD2	TX2–	DATA2–
11	RxD2	TX2+	DATA2+
12	TxD2	RX2+	
13	DTR2	RX2–	
14	GND		
15	DSR2		
16	RTS2		
17	CTS2		
18	RI2		



COM3_1: RS232 / RS422 / RS485 Connector

Connector Type: 2X5 10-pin box header, 2.54mm pitch

COM3_1			
Pin	**RS232 Definition**	**RS422 / 485 Ful Duplex Definition**	**RS485 Half Duplex Definition**
1	DCD3	TX3–	DATA3–
2	RxD3	TX3+	DATA3+
3	TxD3	RX3+	
4	DTR3	RX3–	
5	GND		
6	DSR3		
7	RTS3		
8	CTS3		
9	RI3		

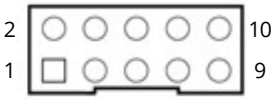


Connectors Definitions

COM4_1: RS232 / RS422 / RS485 Connector

Connector Type: 2X5 10-pin box header, 2.54mm pitch

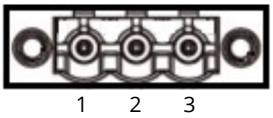
COM4_1			
Pin	**RS232 Definition**	**RS422 / 485 Ful Duplex Definition**	**RS485 Half Duplex Definition**
1	DCD4	TX4–	DATA4–
2	RxD4	TX4+	DATA4+
3	TxD4	RX4+	
4	DTR4	RX4–	
5	GND		
6	DSR4		
7	RTS4		
8	CTS4		
9	RI4		



DC_IN1: DC Power Input Connector (+9~48V)

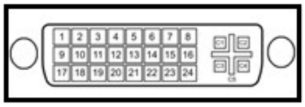
Connector Type: Terminal Block 1X3 3-pin, 5.0mm pitch

Pin	Definition
1	+9~48VIN
2	GND



DVI_I1: DVI-I Connector

Pin	Definition	Pin	Definition
1	DVI_TX2–	16	DVI Hot Plug Detect
2	DVI_TX2+	17	DVI_TX0–
3	GND	18	DVI_TX0+
4	NC	19	GND
5	NC	20	VGA_DDC_CLOCK
6	DVI_DDC_CLOCK	21	VGA_DDC_DATA
7	DVI_DDC_DATA	22	GND
8	VGA VSYNC	23	DVI_TXCLK+
9	DVI_TX1–	24	DVI_TXCLK–
10	DVI_TX1+	C1	VGA_RED
11	GND	C2	VGA_GREEN
12	NC	C3	VGA_BLUE
13	NC	C4	VGA_HSYNC
14	+5V	C5	GND
15	GND		



Connectors Definitions

DP1: DisplayPort Connector

Pin	Definition	Pin	Definition
1	DP1_LANE0_P	11	GND
2	GND	12	DP1_LANE3_N
3	DP1_LANE0_N	13	GND
4	DP1_LANE1_P	14	GND
5	GND	15	DP1_AUX_P
6	DP1_LANE1_N	16	GND
7	DP1_LANE2_P	17	DP1_AUX_N
8	GND	18	DP1_HPD
9	DP1_LANE2_N	19	GND
10	DP1_LANE3_P	20	DP1_PWR

DP2: DisplayPort Connector

Pin	Definition	Pin	Definition
1	DP2_LANE0_P	11	GND
2	GND	12	DP2_LANE3_N
3	DP2_LANE0_N	13	GND
4	DP2_LANE1_P	14	GND
5	GND	15	DP2_AUX_P
6	DP2_LANE1_N	16	GND
7	DP2_LANE2_P	17	DP2_AUX_N
8	GND	18	DP2_HPD
9	DP2_LANE2_N	19	GND
10	DP2_LANE3_P	20	DP2_PWR

SPK_OUT1 : Speaker-out Jack (Green)

Connector Type: 5-pin Phone Jack

Pin	Definition
1	GND
2	OUT_R
3	NC
4	GND
5	OUT_L

MIC_IN1: Microphone Jack (Pink)

Connector Type: 5-pin Phone Jack

Pin	Definition
1	GND
2	MIC_R
3	NC
4	GND
5	MIC_L

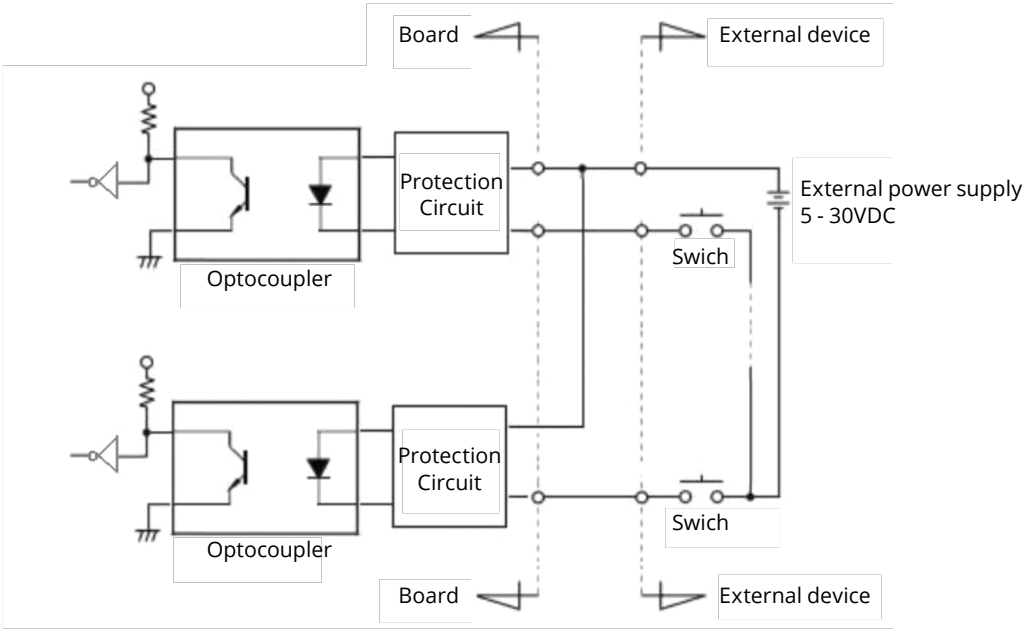
Connectors Definitions

DIO1: Digital Input / Output Connector

Connector Type: Terminal Block 2X9 18-pin, 3.5mm pitch

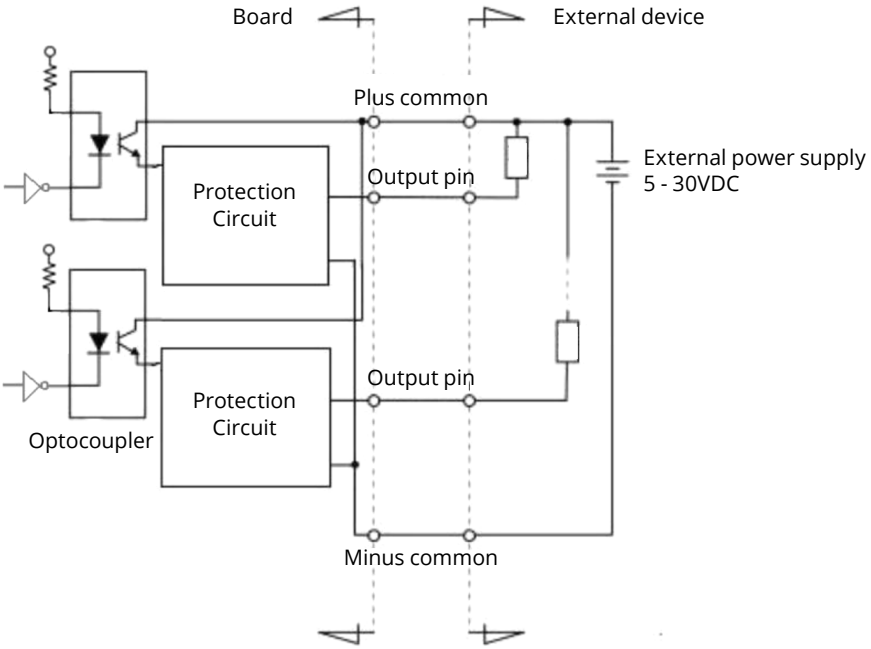
Pin	Definition	Pin	Definition
1	DI1	2	DO1
3	DI2	4	DO2
5	DI3	6	DO3
7	DI4	8	DO4
9	DI5	10	DO5
11	DI6	12	DO6
13	DI7	14	DO7
15	DI8	16	DO8
17	DC INPUT	18	GND

Reference Input Circuit

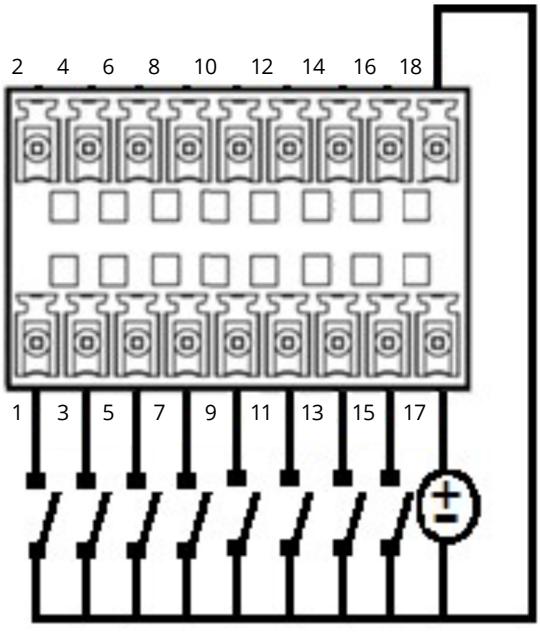


Connectors Definitions

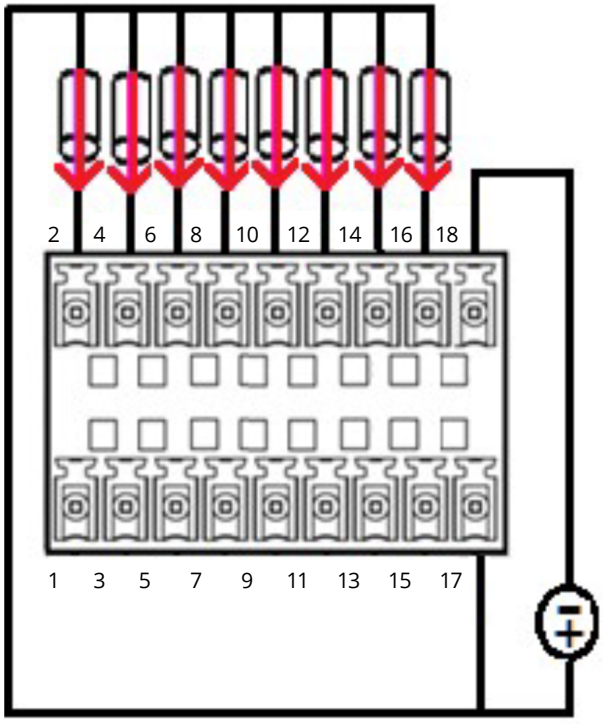
External Output Circuit



Digital Input Wiring



Digital Output Wiring



Connectors Definitions

PWR_SW2 : Remote Power Switch

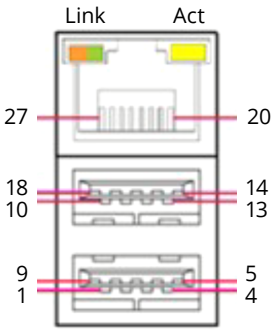
Connector Type: Terminal Block 1X2 2-pin, 3.5mm pitch

Pin	Definition
1	Power Button
2	GND

CN1: LAN1 and USB3.0 Ports

Connector Type: RJ45 port with LEDs and dual USB3.0 ports

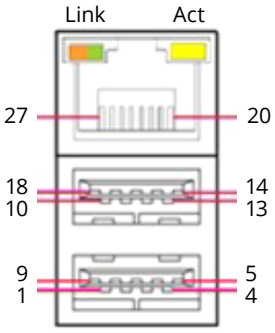
Pin	Definition	Pin	Definition	Pin	Definition
1	+5V	10	+5V	20	LAN1_MDI0P
2	USB2_D1–	11	USB2_D2–	21	LAN1_MDI0N
3	USB2_D1+	12	USB2_D2+	22	LAN1_MDI1P
4	GND	13	GND	23	LAN1_MDI2P
5	USB3_RX1–	14	USB3_RX2–	24	LAN1_MDI2N
6	USB3_RX1+	15	USB3_RX2+	25	LAN1_MDI1N
7	GND	16	GND	26	LAN1_MDI3P
8	USB3_TX1–	17	USB3_TX2–	27	LAN1_MDI3N
9	USB3_TX1+	18	USB3_TX2+		



CN2: LAN2 and USB3.0 Ports

Connector Type: RJ45 port with LEDs and dual USB3.0 ports

Pin	Definition	Pin	Definition	Pin	Definition
1	+5V	10	+5V	20	LAN2_MDI0P
2	USB2_D3–	11	USB2_D4–	21	LAN2_MDI0N
3	USB2_D3+	12	USB2_D4+	22	LAN2_MDI1P
4	GND	13	GND	23	LAN2_MDI2P
5	USB3_RX3–	14	USB3_RX4–	24	LAN2_MDI2N
6	USB3_RX3+	15	USB3_RX4+	25	LAN2_MDI1N
7	GND	16	GND	26	LAN2_MDI3P
8	USB3_TX3–	17	USB3_TX4–	27	LAN2_MDI3N
9	USB3_TX3+	18	USB3_TX4+		



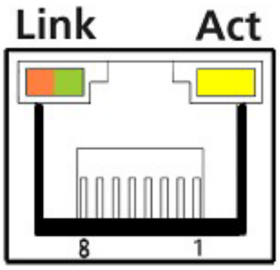
Connectors Definitions

AN3, LAN4, LAN5, LAN6, LAN7, LAN8, LAN9, LAN10 : RJ45 with LEDs Port

Connector Type: RJ45 Connector

Pin	LAN3~LAN10 Definition	Pin	LAN3~LAN10 Definition
1	LAN_MDI0P	5	LAN_MDI2N
2	LAN_MDI0N	6	LAN_MDI1N
3	LAN_MDI1P	7	LAN_MDI3P
4	LAN_MDI2P	8	LAN_MDI3N

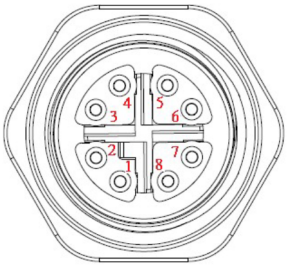
Link LED Status	LAN3~LAN10 Definition	Act LED Status	LAN3~LAN10 Definition
Steady Orange	1Gbps Network Link	Blinking Yellow	Data Activity
Steady Green	100Mbps Network Link	Off	No Activity
Off	10Mbps Network Link		



LAN3, LAN4, LAN5, LAN6, LAN7, LAN8, LAN9, LAN10 : M12 Lan Port

Connector Type: M12 X-code Female Connector

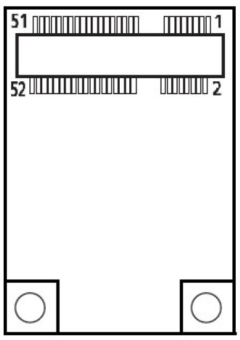
Pin	LAN3~LAN10 Definition	Pin	LAN3~LAN10 Definition
1	LAN_MDI0P	5	LAN_MDI3N
2	LAN_MDI0N	6	LAN_MDI3N
3	LAN_MDI1P	7	LAN_MDI2P
4	LAN_MDI1N	8	LAN_MDI2N



Connectors Definitions

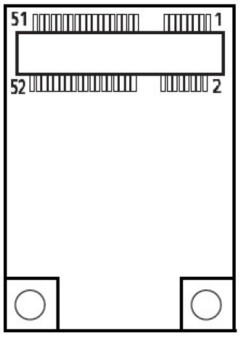
MINIPCIE1: Mini PCI-Express Socket

Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	NC	37	GND
2	+3.3V	20	+3.3V	38	USB2_D11+
3	NC	21	GND	39	+3.3V
4	GND	22	MINIPCIE RST#	40	GND
5	NC	23	MINIPCIE_RXN11	41	+3.3V
6	+1.5V	24	+3.3V	42	NC
7	CLKREQ0#	25	MINIPCIE_RXP11	43	GND
8	USIM1_VCC	26	GND	44	NC
9	GND	27	GND	45	NC
10	USIM1_DATA	28	+1.5V	46	NC
11	MINIPCIE_CLKN0	29	GND	47	NC
12	USIM1_CLK	30	SMB_CLK	48	+1.5V
13	MINIPCIE_CLKP0	31	MINIPCIE_TXN11	49	NC
14	USIM1_RST	32	SMB_DATA	50	GND
15	GND	33	MINIPCIE_TXP11	51	NC
16	USIM1_VPP	34	GND	52	+3.3V
17	NC	35	GND		
18	GND	36	USB2_D11–		



MINIPCIE2: Mini PCI-Express Socket

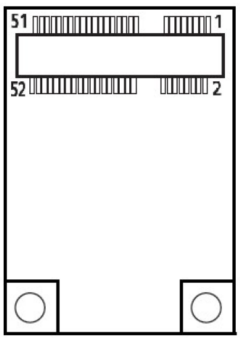
Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	NC	37	GND
2	+3.3V	20	+3.3V	38	USB2_D12+
3	NC	21	GND	39	+3.3V
4	GND	22	MINIPCIE RST#	40	GND
5	NC	23	MINIPCIE_RXN2	41	+3.3V
6	+1.5V	24	+3.3V	42	NC
7	CLKREQ2#	25	MINIPCIE_RXP2	43	GND
8	USIM2_VCC	26	GND	44	NC
9	GND	27	GND	45	NC
10	USIM2_DATA	28	+1.5V	46	NC
11	MINIPCIE_CLKN2	29	GND	47	NC
12	USIM2_CLK	30	SMB_CLK	48	+1.5V
13	MINIPCIE_CLKP2	31	MINIPCIE_TXN2	49	NC
14	USIM2_RST	32	SMB_DATA	50	GND
15	GND	33	MINIPCIE_TXP2	51	NC
16	USIM2_VPP	34	GND	52	+3.3V
17	NC	35	GND		
18	GND	36	USB2_D12–		



Connectors Definitions

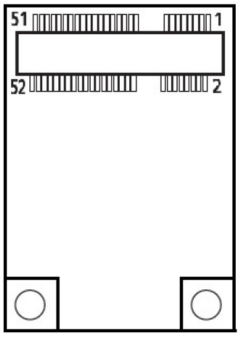
CN3: Mini PCI-Express / mSATA Socket

Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	NC	37	GND
2	+3.3V	20	+3.3V	38	USB2_D13+
3	NC	21	GND	39	+3.3V
4	GND	22	MINIPCIE RST#	40	GND
5	NC	23	MINIPCIE_RXN (SATA_RXN4)	41	+3.3V
6	+1.5V	24	+3.3V	42	NC
7	CLKREQ1#	25	MINIPCIE_RXP4 (SATA_RXP4)	43	GND
8	USIM3_VCC	26	GND	44	NC
9	GND	27	GND	45	NC
10	USIM3_DATA	28	+1.5V	46	NC
11	MINIPCIE_CLKN4	29	GND	47	NC
12	USIM3_CLK	30	SMB_CLK	48	+1.5V
13	MINIPCIE_CLKP4	31	MINIPCIE_TXN4 (SATA_TXN4)	49	NC
14	USIM3_RST	32	SMB_DATA	50	GND
15	GND	33	MINIPCIE_TXP4 (SATA_TXP4)	51	NC
16	USIM3_VPP	34	GND	52	+3.3V
17	NC	35	GND		
18	GND	36	USB_D13–		



CN4: Mini PCI-Express / mSATA Socket

Pin	Definition	Pin	Definition	Pin	Definition
1	WAKE#	19	NC	37	GND
2	+3.3V	20	+3.3V	38	USB_D14+
3	NC	21	GND	39	+3.3V
4	GND	22	MINIPCIE RST#	40	GND
5	NC	23	MINIPCIE_RXN12	41	+3.3V
6	+1.5V	24	+3.3V	42	NC
7	CLKREQ3#	25	MINIPCIE_RXP12	43	GND
8	USIM4_VCC	26	GND	44	NC
9	GND	27	GND	45	NC
10	USIM4_DATA	28	+1.5V	46	NC
11	MINIPCIE_CLKN3	29	GND	47	NC
12	USIM4_CLK	30	SMB_CLK	48	+1.5V
13	MINIPCIE_CLKP3	31	MINIPCIE_TXN12	49	NC
14	USIM4_RST	32	SMB_DATA	50	GND
15	GND	33	MINIPCIE_TXP12	51	NC
16	USIM4_VPP	34	GND	52	+3.3V
17	NC	35	GND		
18	GND	36	USB_D14–		

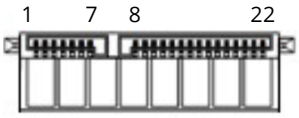


Connectors Definitions

SATA1, SATA2: SATA with Power Connector

Pin	SATA1 Definition	Pin	SATA1 Definition
1	GND	12	GND
2	SATA_TXP0	13	GND
3	SATA_TXN0	14	+5V
4	GND	15	+5V
5	SATA_RXN0	16	+5V
6	SATA_RXP0	17	GND
7	GND	18	GND
8	+3.3V	19	GND
9	+3.3V	20	+12V
10	+3.3V	21	+12V
11	GND	22	+12V

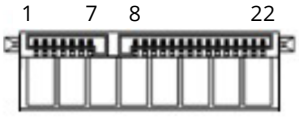
Pin	SATA2 Definition	Pin	SATA2 Definition
1	GND	12	GND
2	SATA_TXP1	13	GND
3	SATA_TXN1	14	+5V
4	GND	15	+5V
5	SATA_RXN1	16	+5V
6	SATA_RXP1	17	GND
7	GND	18	GND
8	+3.3V	19	GND
9	+3.3V	20	+12V
10	+3.3V	21	+12V
11	GND	22	+12V



SATA3, SATA4: SATA with Power Connector

Pin	SATA3 Definition	Pin	SATA3 Definition
1	GND	12	GND
2	SATA_TXP2	13	GND
3	SATA_TXN2	14	+5V
4	GND	15	+5V
5	SATA_RXN2	16	+5V
6	SATA_RXP2	17	GND
7	GND	18	GND
8	+3.3V	19	GND
9	+3.3V	20	+12V
10	+3.3V	21	+12V
11	GND	22	+12V

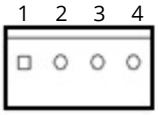
Pin	SATA4 Definition	Pin	SATA4 Definition
1	GND	12	GND
2	SATA_TXP3	13	GND
3	SATA_TXN3	14	+5V
4	GND	15	+5V
5	SATA_RXN3	16	+5V
6	SATA_RXP3	17	GND
7	GND	18	GND
8	+3.3V	19	GND
9	+3.3V	20	+12V
10	+3.3V	21	+12V
11	GND	22	+12V



POWER1, POWER2, POWER3, POWER4: Power Connector

Connector Type: 1X4-pin Wafer, 2.0mm pitch

Pin	Definition
1	+5V
2	GND
3	GND
4	+12V

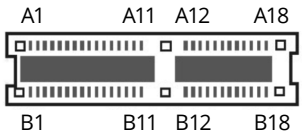


Connectors Definitions

PCIE1: PCI-Express X1 Socket

Connector Type: PCI-Express X1 Slot

Pin	A Definition	Pin	B Definition
A1	NC	B1	+12V
A2	+12V	B2	+12V
A3	+12V	B3	+12V
A4	GND	B4	GND
A5	NC	B5	SMB_CLK
A6	NC	B6	SMB_DATA
A7	NC	B7	GND
A8	NC	B8	+3.3V
A9	+3.3V	B9	NC
A10	+3.3V	B10	+3.3VSB
A11	PCIE_RESET#	B11	PCIE_WAKE#
A12	GND	B12	+12V
A13	PCIE_CLKP1	B13	GND
A14	PCIE_CLKN1	B14	PCIE_TXP11
A15	GND	B15	PCIE_TXN11
A16	PCIE_RXP11	B16	GND
A17	PCIE_RXN11	B17	NC
A18	GND	B18	GND



Connectors Definitions

PCIE1: PCI-Express X16 Socket

Connector Type: PCI-Express X16 Slot

Pin	A Definition	Pin	A Definition
A1	PCIE_PRSNT1	A42	GND
A2	+12V	A43	PEG_RXP6
A3	+12V	A44	PEG_RXN6
A4	GND	A45	GND
A5	NC	A46	GND
A6	NC	A47	PEG_RXP7
A7	NC	A48	PEG_RPN7
A8	NC	A49	GND
A9	+3.3V	A50	NC
A10	+3.3V	A51	GND
A11	PCIE_RESET#	A52	PEG_RXP8
A12	GND	A53	PEG_RXN8
A13	PEG_CLK_P	A54	GND
A14	PEG_CLK_N	A55	GND
A15	GND	A56	PEG_RXP9
A16	PEG_RXP0	A57	PEG_RXN9
A17	PEG_RXN0	A58	GND
A18	GND	A59	GND
A19	NC	A60	PEG_RXP10
A20	GND	A61	PEG_RXN10
A21	PEG_RXP1	A62	GND
A22	PEG_RXN1	A63	GND
A23	GND	A64	PEG_RXP11
A24	GND	A65	PEG_RXN11
A25	PEG_RXP2	A66	GND
A26	PEG_RXN2	A67	GND
A27	GND	A68	PEG_RXP12
A28	GND	A69	PEG_RXN12
A29	PEG_RXP3	A70	GND
A30	PEG_RXN3	A71	GND
A31	GND	A72	PEG_RXP13
A32	NC	A73	PEG_RXN13
A33	NC	A74	GND
A34	GND	A75	GND
A35	PEG_RXP4	A76	PEG_RXP14
A36	PEG_RXN4	A77	PEG_RXN14
A37	GND	A78	GND
A38	GND	A79	GND
A39	PEG_RXP5	A80	PEG_RXP15
A40	PEG_RXN5	A81	PEG_RXN15
A41	GND	A82	GND

Pin	B Definition	Pin	B Definition
B1	+12V	B42	PEG_TXN6
B2	+12V	B43	GND
B3	+12V	B44	GND
B4	GND	B45	PEG_TXP7
B5	SMB_CLK	B46	PEG_TXN7
B6	SMB_DATA	B47	GND
B7	GND	B48	PRSNT2_3
B8	+3.3V	B49	GND
B9	NC	B50	PEG_TXP8
B10	+3.3VSB	B51	PEG_TXN8
B11	PCIE_WAKE#	B52	GND
B12	NC	B53	GND
B13	GND	B54	PEG_TXP9
B14	PEG_TXP0	B55	PEG_TXN9
B15	PEG_TXN0	B56	GND
B16	GND	B57	GND
B17	PRSNT2_1	B58	PEG_TXP10
B18	GND	B59	PEG_TXN10
B19	PEG_TXP1	B60	GND
B20	PEG_TXN1	B61	GND
B21	GND	B62	PEG_TXP11
B22	GND	B63	PEG_TXN11
B23	PEG_TXP2	B64	GND
B24	PEG_TXN2	B65	GND
B25	GND	B66	PEG_TXP12
B26	GND	B67	PEG_TXN12
B27	PEG_TXP3	B68	GND
B28	PEG_TXN3	B69	GND
B29	GND	B70	PEG_TXP13
B30	NC	B71	PEG_TXN13
B31	PRSNT2_2	B72	GND
B32	GND	B73	GND
B33	PEG_TXP4	B74	PEG_TXP14
B34	PEG_TXN4	B75	PEG_TXN14
B35	GND	B76	GND
B36	GND	B77	GND
B37	PEG_TXP5	B78	PEG_TXP15
B38	PEG_TXN5	B79	PEG_TXN15
B39	GND	B80	GND
B40	GND	B81	PRSNT2_4
B41	PEG_TXP6	B82	NC

Connectors Definitions

PWR_LED1: Power LED Status

Pin	Definition
1	POWER LED+
2	POWER LED–

HDD_LED1: HDD Access LED Status

Pin	Definition
1	HDD LED+
2	HDD LED–

WDT_LED1: Watchdog LED Status

Pin	Definition
1	WATCHDOG LED+
2	WATCHDOG LED–

GPIO_LED1: GPIO LED Status

Pin	Definition
1	GPIO LED+
2	GPIO LED–

LAN1_LINK1, LAN2_LINK1 : LAN Link LED Status

Pin	Definition
1	LINK LED+
2	LINK LED-100Mbps-
3	LINK LED 100Mbps-

LAN1_ACT1, LAN2_ACT1 : LAN Active LED Status

Pin	Definition
1	ACTIVE LED+
2	ACTIVE LED–

System Setup

Installing HDD on removable SATA HDD bay

Two removable SATA HDD bays are available for Mobix-II Series

1. Unscrew the two sun screws circled below to take out the removable SATA HDD bay.

2. Lock the 2.5″ HDD with HDD bracket using four screws (M3x4L).

3. Slide the HDD bracket back and then fasten the sun screws.

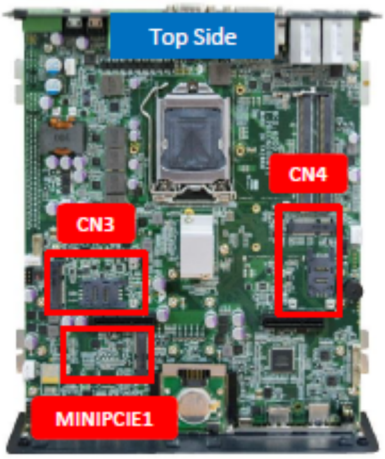
Installing SIM card

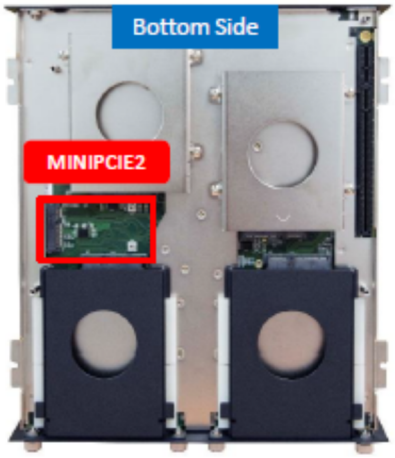
1. For Mobix-II Series, SIM card slot is located inside the control area.
   Unscrew the two screws below to remove the cover bracket.

2. Now you can insert SIM card into the socket.

3. Please note that the installation of SIM cards has to match the installation of mini PCIe slots.

SIM Card Socket Number	Matching Mini PCIe Slot
SIM 1	MINIPCIE1
SIM 2	MINIPCIE2
SIM 3	CN3
SIM 4	CN4





4. To uninstall SIM card, simply press the installed SIM card and then the card will be pushed out.

Installing wall mount Kit

1. Wall mount kit is available for Mobix-II series included in the standard package.

2. Place the system upside down so you can see the bottom cover.
   The highlighted eight screwholes below will be used.

3. Lock the wall mount kit with eight screws (M3x5L, Nylok).

BIOS Introduction

The system BIOS software is stored on EEPROM. The BIOS provides an interface to modify the configuration. When the battery is removed, all the parameters will be reset.

Power on the embedded system and by pressing <Del> or <F2> immediately allows you to enter the setup screens. If the message disappears before you respond and you still wish to enter the Setup, restart the system by turning it OFF and ON or pressing the RESET button.

You may also restart the system by simultaneously pressing <Ctrl>, <Alt>, and <Delete> keys.

<←> <→>	Select Screen
<↑> <↓>	Select Item
<Enter>	Select
<Page Up/+>	Increases the numeric value or makes changes
<Page Down/->	Decreases the numeric value or makes changes
<F1>	General Help
<F2>	Previous Value
<F3>	Load Optimized Defaults
<F4>	Save Configuration and Exit
<Tab>	Select Setup Fields
<Esc>	Exit BIOS Setup

Main Menu

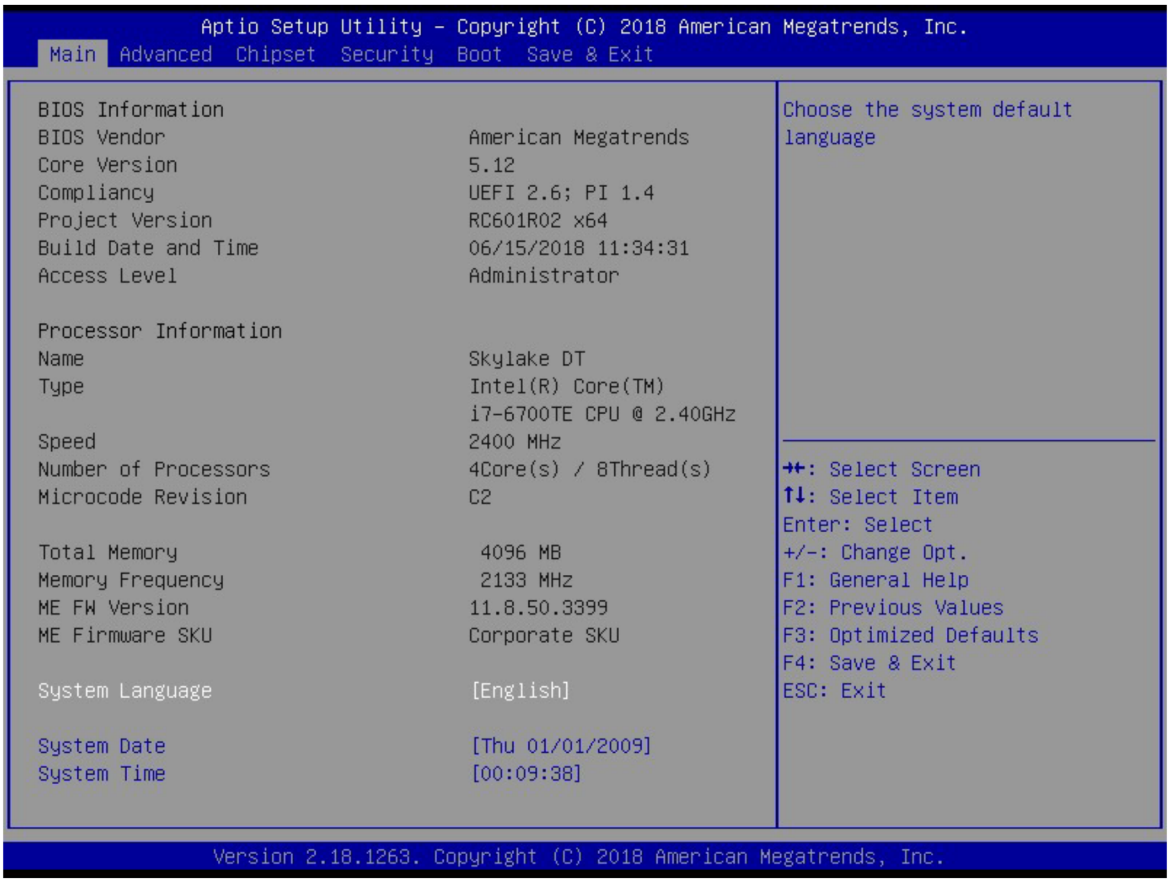
The main menu lists the setup functions you can make changes to. You can use the arrow keys (↑↓) to select the item. The on-line description of the highlighted setup function is displayed at the bottom of the screen.

General Help <F1>

The BIOS setup program provides a General Help screen. You can call up this screen from any menu by simply pressing <F1>. The Help screen lists the appropriate keys to use and the possible selections for the highlighted item. Press <Esc> to exit the Help screen.

Main Setup

Press <Del> to enter BIOS CMOS Setup Utility, the Main Menu (as shown below) will appears on the screen. Use arrow keys to move among the items and press <Enter> to accept or enter a sub-menu.



System Language

Language setup allows the user to configure the language. Please use <Tab> to switch between language elements.

System Date

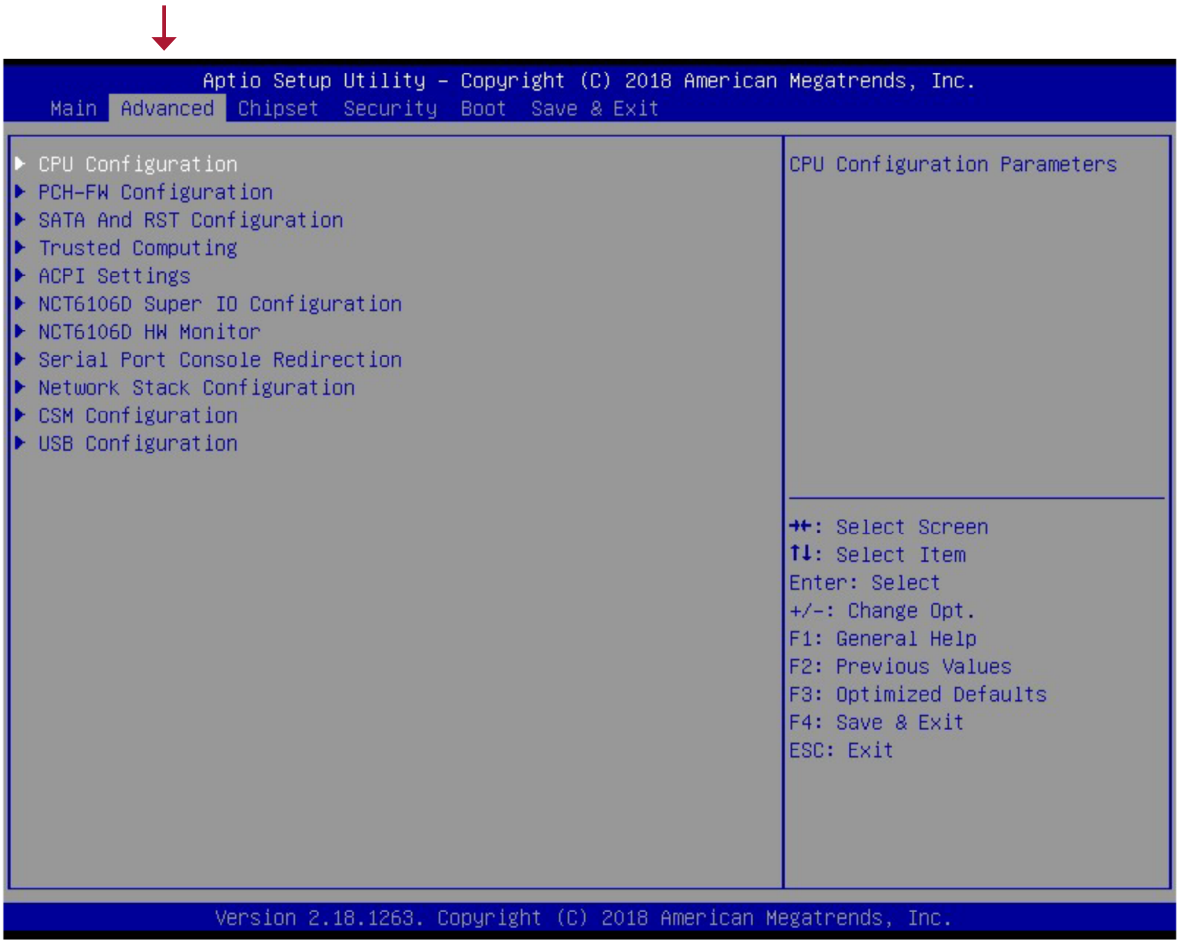
Set the date. Please use <Tab> to switch between date elements.

System Time

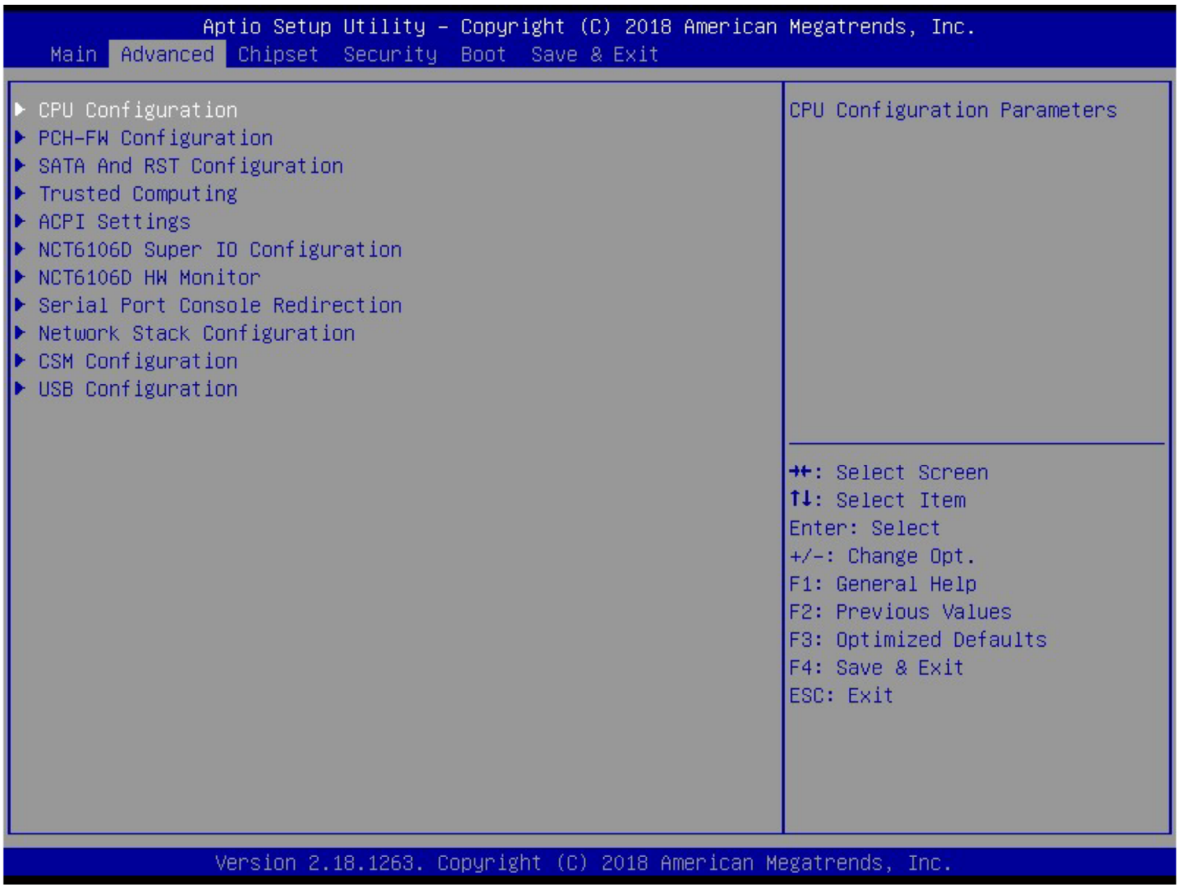
Set the time. Please use <Tab> to switch between time elements.

Advanced Setup

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



CPU Configuration



- **SW Guard Extensions (SGX)**
  This item allows you to set the SW Guard Extensions.

- **Select Owner EPOCH input type**
  This item allows you to select the owner EPOCH input type.

- **PRMRR Size**
  This item allows you to set the PRMRR Size.

- **Intel (VMX) Virtualization Technology**
  When enabled, a VMM can utilize the integrated hardware virtualization support.

- **Active Processor Cores**
  Set number of cores to be enabled.
  Select <All> or <1> mode.

- **Hyper-Threading**
  This item allows you to enable or disable the Intel Hyper-Threading Technology.

- **Intel Trusted Execution Technology**
  This item allows you to enable or disable the Intel Trusted Execution Technology.

- **Intel(R) Speed Shift Technology**
  This item allows you to enable or disable the Intel Speed Shift Technology

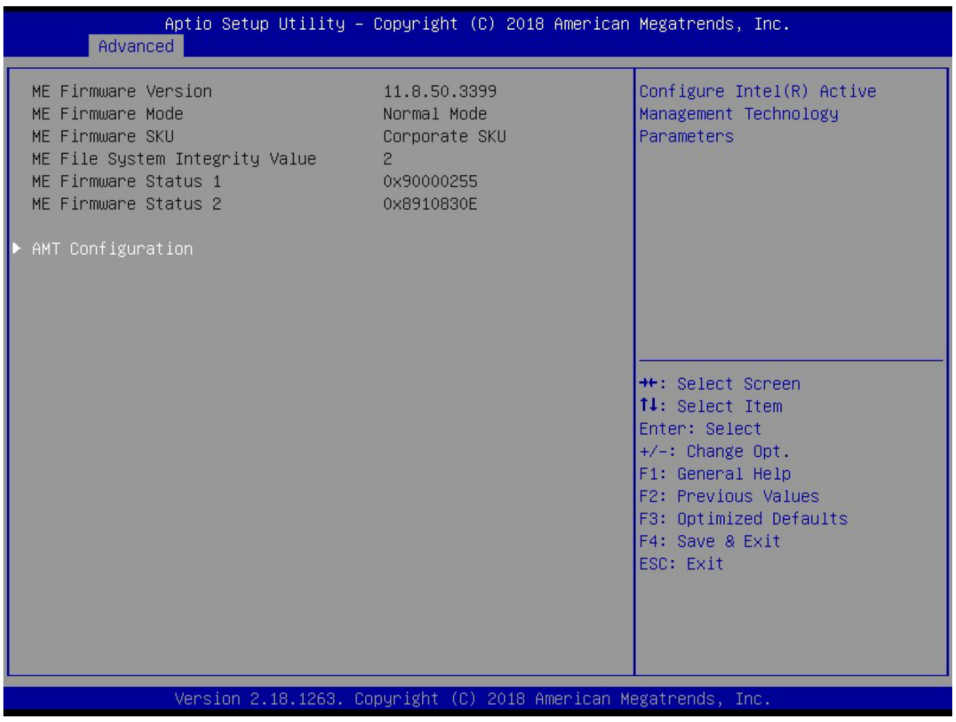
- **CPU C states**
  This item allows you to set the power saving of the CPU states.

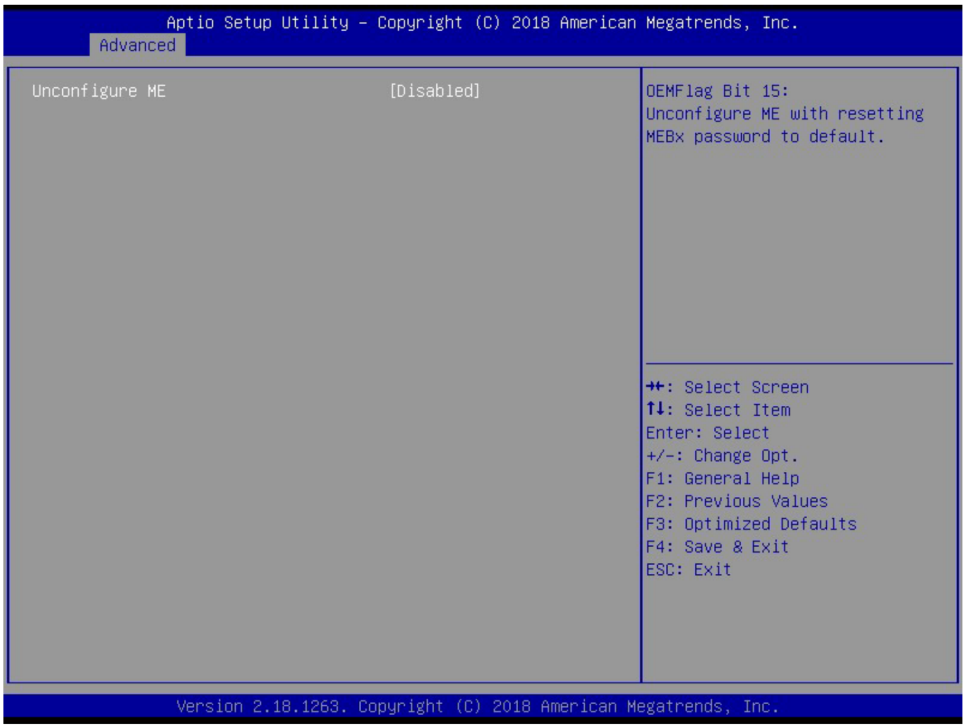
  - **Enhanced C State**
    This item allows your CPU reduce power consumption

- **Package C State limit**
  Select Auto for the AMI BIOS to automatically set the limit on the C-State package register.

  The options are C0/ C1, C2, C3, C6, C7, C7s, C8 and No Limit.

PCH-FW Configuration

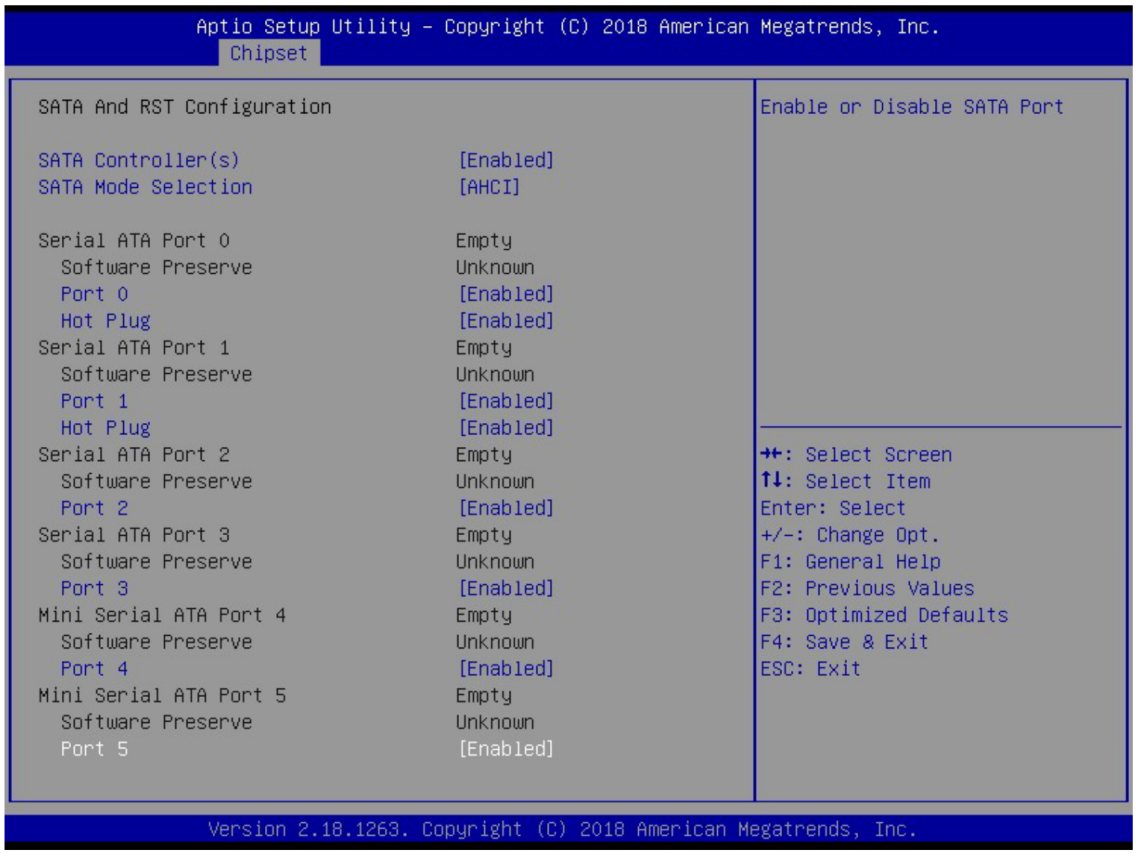




- **AMT Configuration**
  Intel Active Management Technology (AMT) is hardware-based technology for remotely managing and securing PCs out-of-band.

- **Un-Configure ME**
  Use this function to enable or disable Un-Configure ME without password function.

SATA and RST Configuration

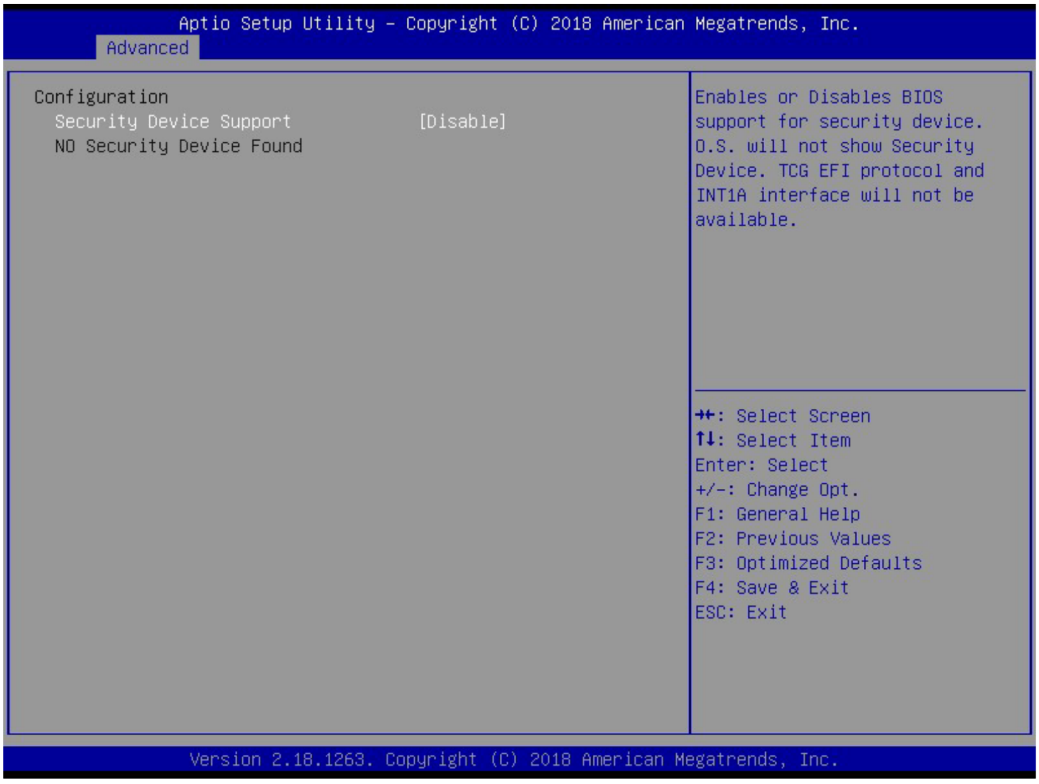


- **SATA Controller(s)**
  Enable or disable Serial ATA controller.

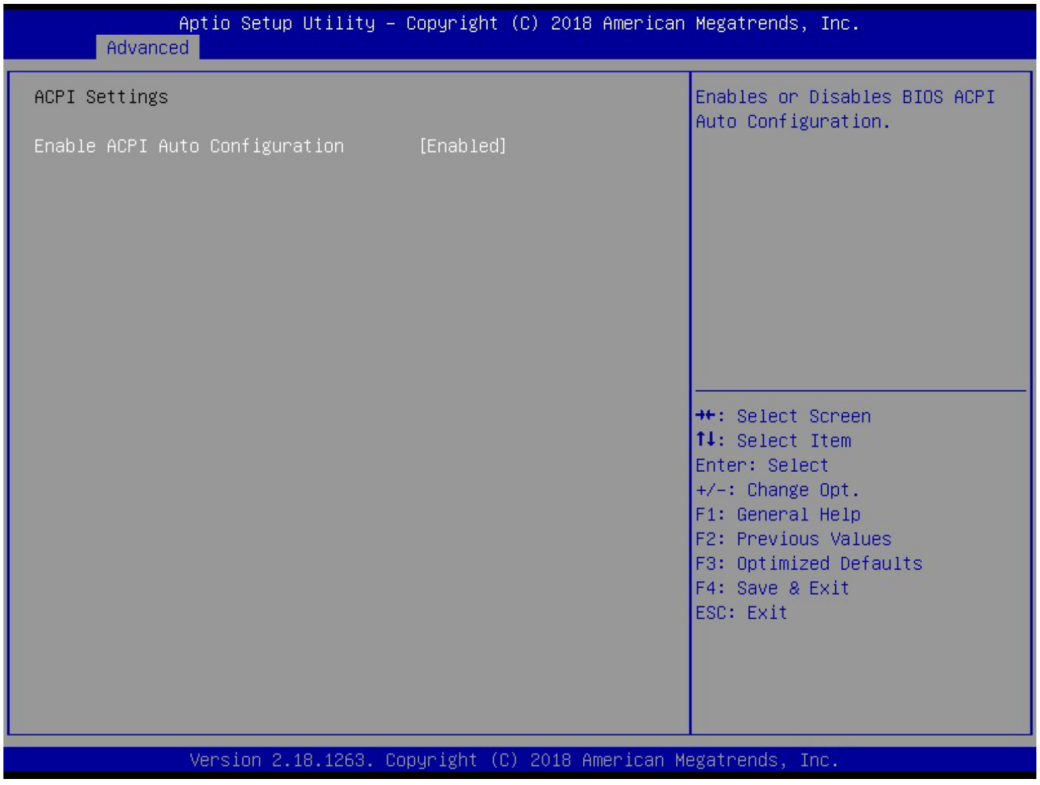
- **SATA Mode Selection**
  This item allows users to select mode of SATA controller.

- **Serial ATA Port 0 / 1 / 2 / 3 / 4 / 5**
  This item allows users to enable or disable Serial ATA Port 0 / 1 / 2 / 3 / 4 / 5.

Trusted Computing

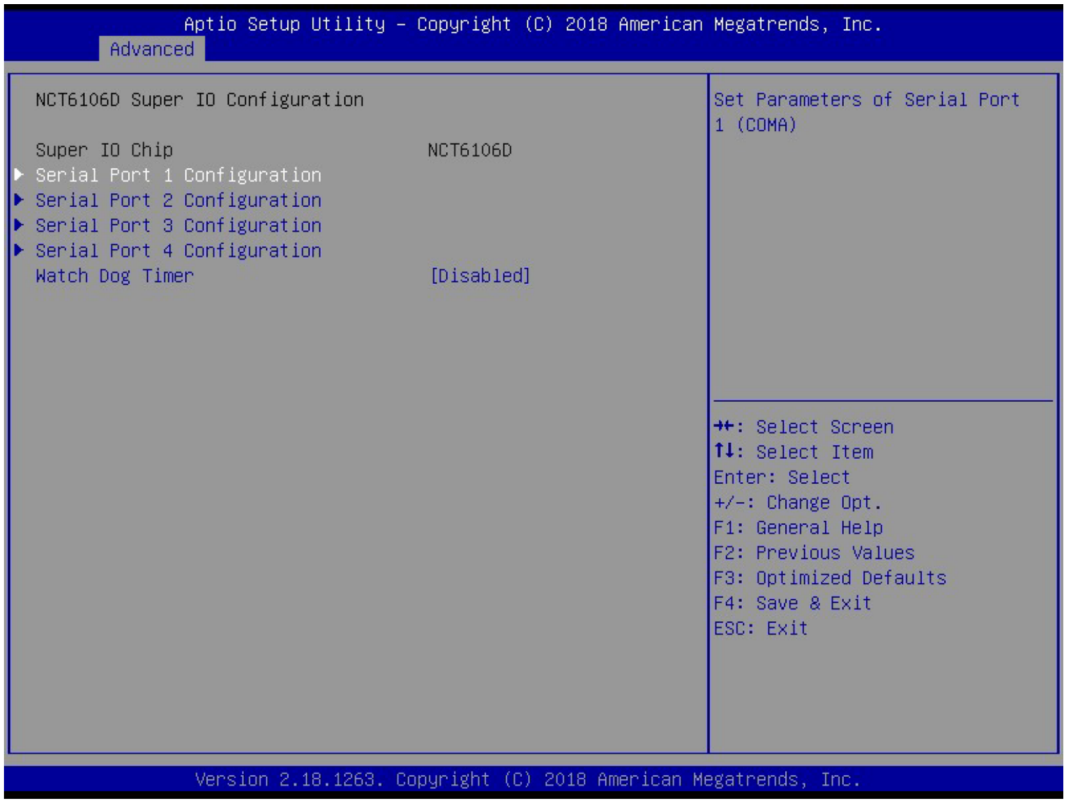


ACPI Settings

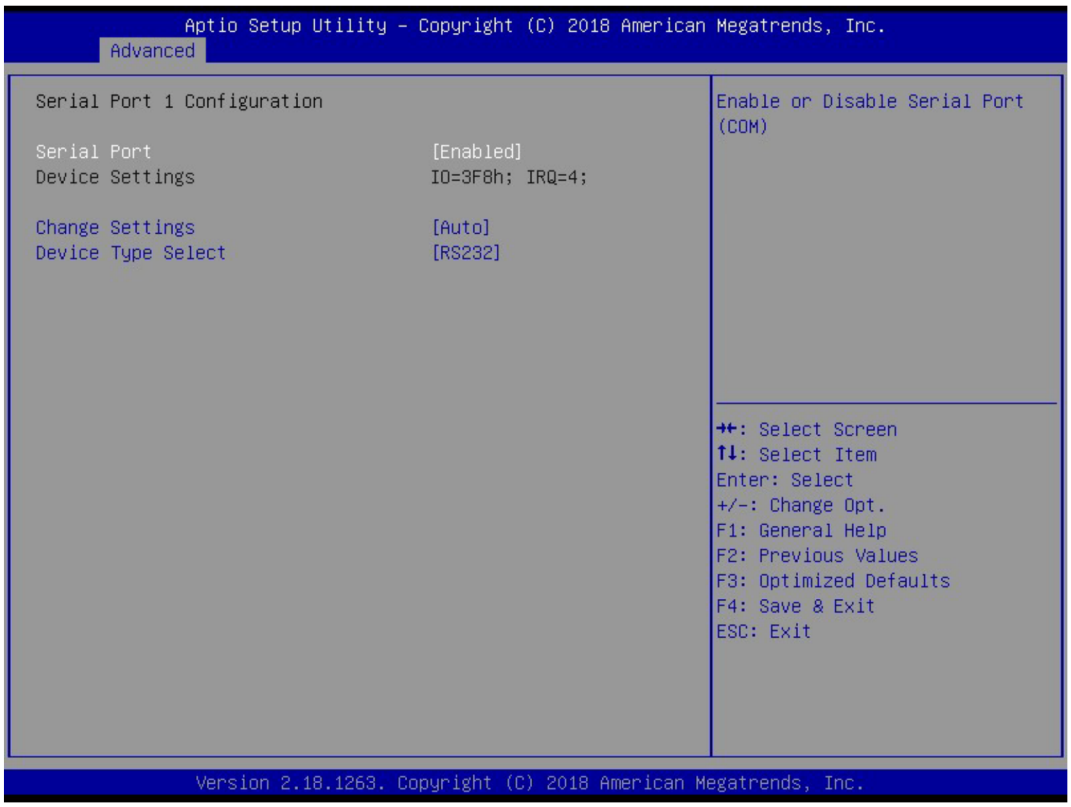


- **Enable ACPI Auto Configuration**
  Enable or disable BIOS ACPI auto configuration.

NCT6106D Super IO Configuration



Serial Port 1 Configuration

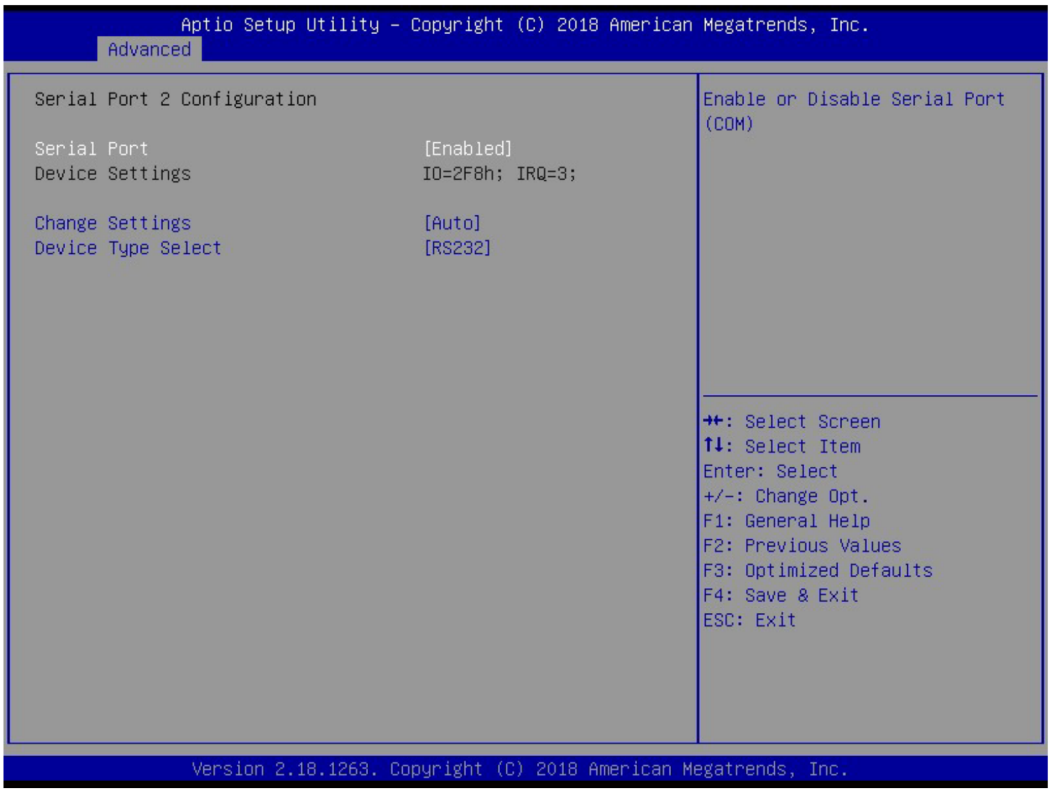


- **Serial Port**
  This item will allow users to enable or disable serial port.

- **Change Settings**
  This setting is used to change the address & IRQ settings of the specified serial port.

- **Device Type Select**
  Change the Serial interface. Select <RS232> ,<RS422> or <RS485> interface.

Serial Port 2 Configuration

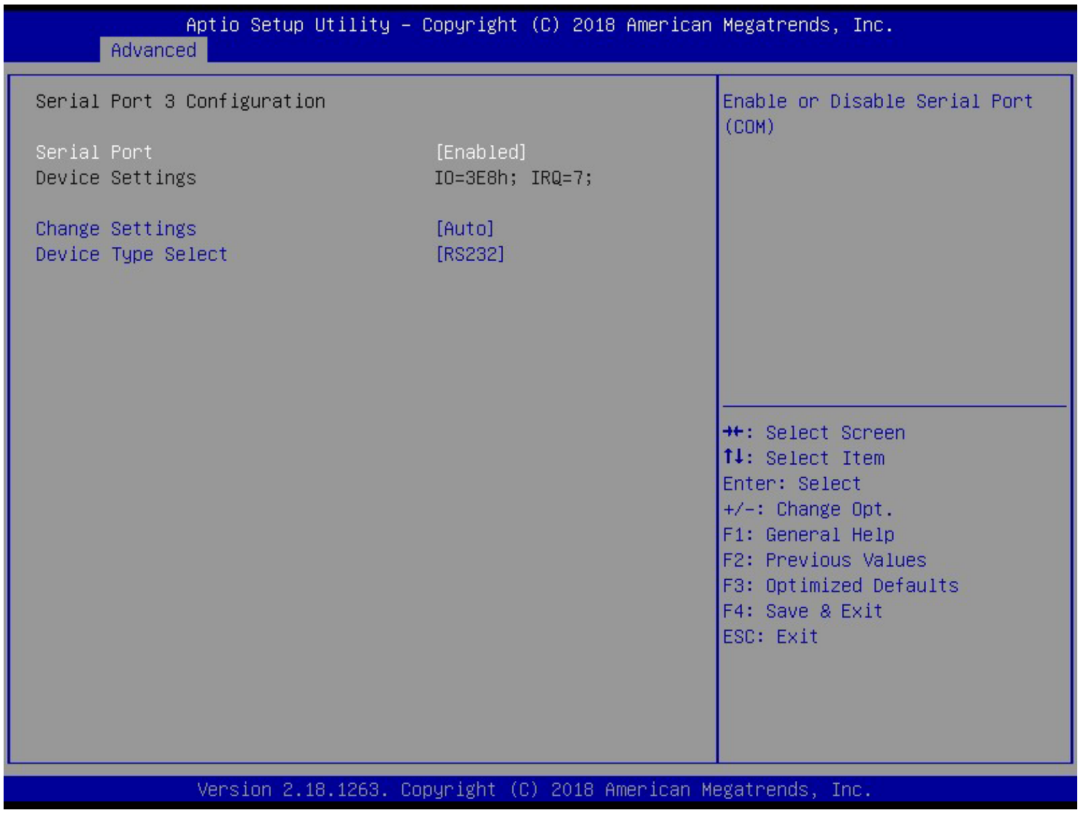


- **Serial Port**
  This item will allow users to enable or disable serial port.

- **Change Settings**
  This setting is used to change the address & IRQ settings of the specified serial port.

- **Device Type Select**
  Change the Serial interface. Select <RS232>, <RS422> or <RS485> interface.

Serial Port 3 Configuration

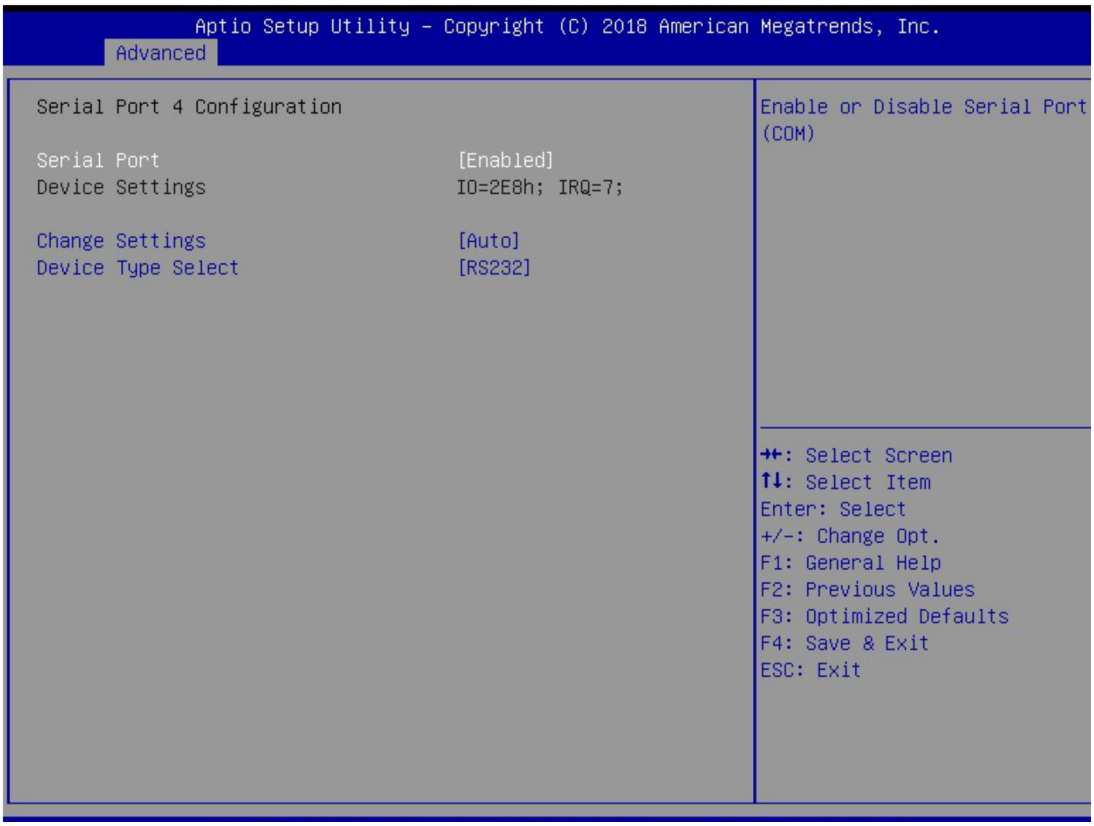


- **Serial Port**
  This item will allow users to enable or disable serial port.

- **Change Settings**
  This setting is used to change the address & IRQ settings of the specified serial port.

- **Device Type Select**
  Change the Serial interface. Select <RS232>, <RS422> or <RS485> interface.

Serial Port 4 Configuration



- **Serial Port**
  This item will allow users to enable or disable serial port.

- **Change Settings**
  This setting is used to change the address & IRQ settings of the specified serial port.

- **Device Type Select**
  Change the Serial interface. Select <RS232>, <RS422> or <RS485> interface.

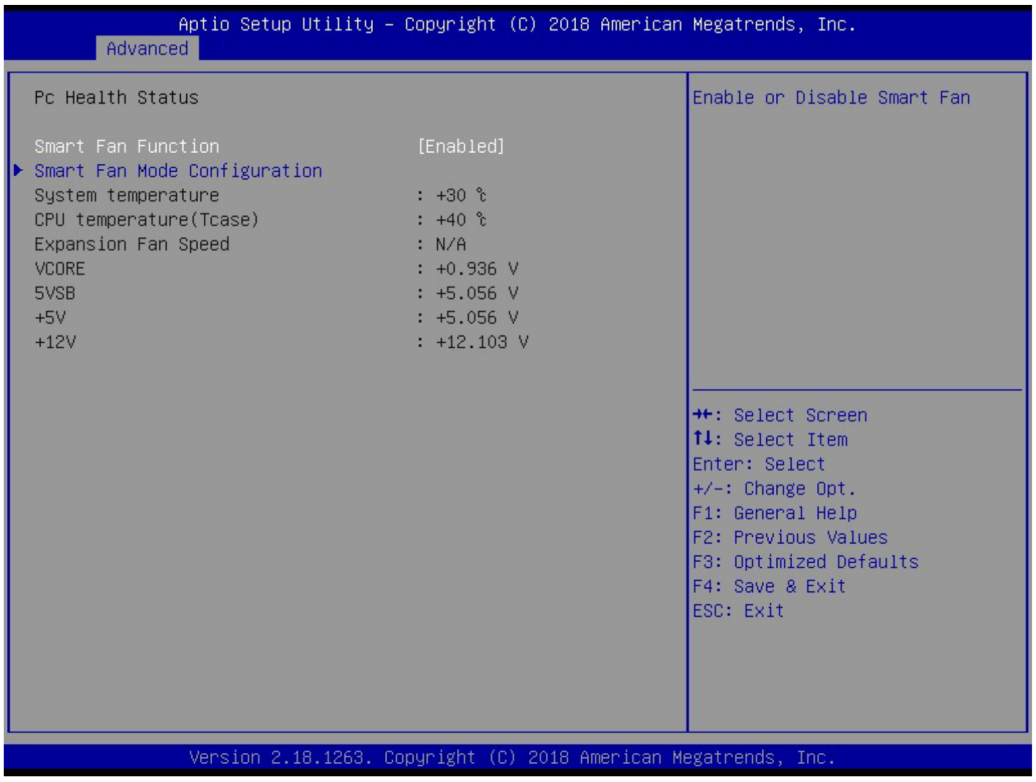
Watch Dog Timer

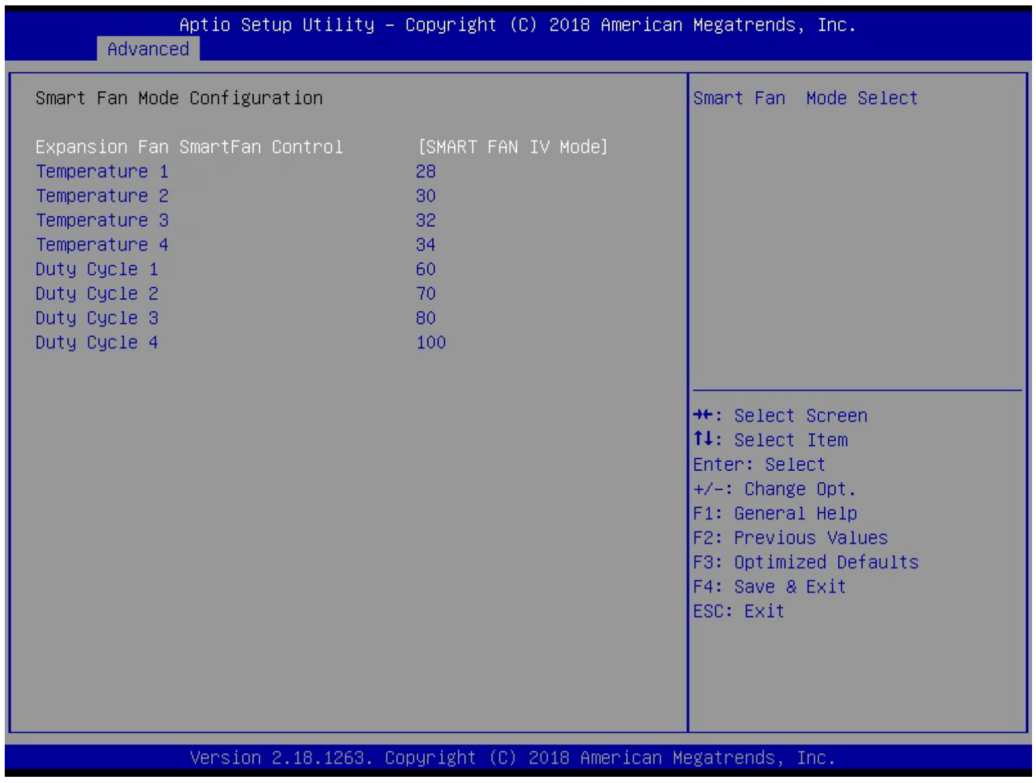
- **Watch Dog Timer Count Mode**
  Change the Watch dog mode. Select <Second Mode> or <Minute Mode> mode.

- **Watch Dog Timer Time Out Value**
  User can set a value in the range of 0 to 255.

NCT6106D HW Monitor

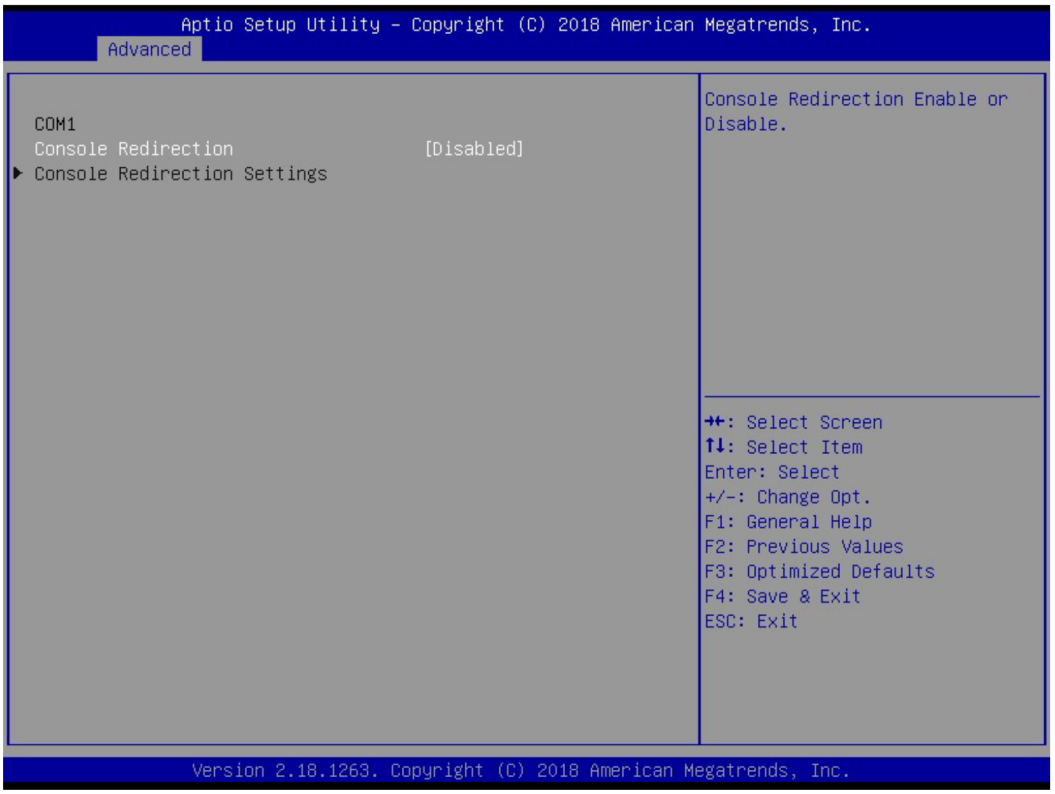
These items display the current status of all monitored hardware devices/components such as voltages, temperatures and all fans' speeds.



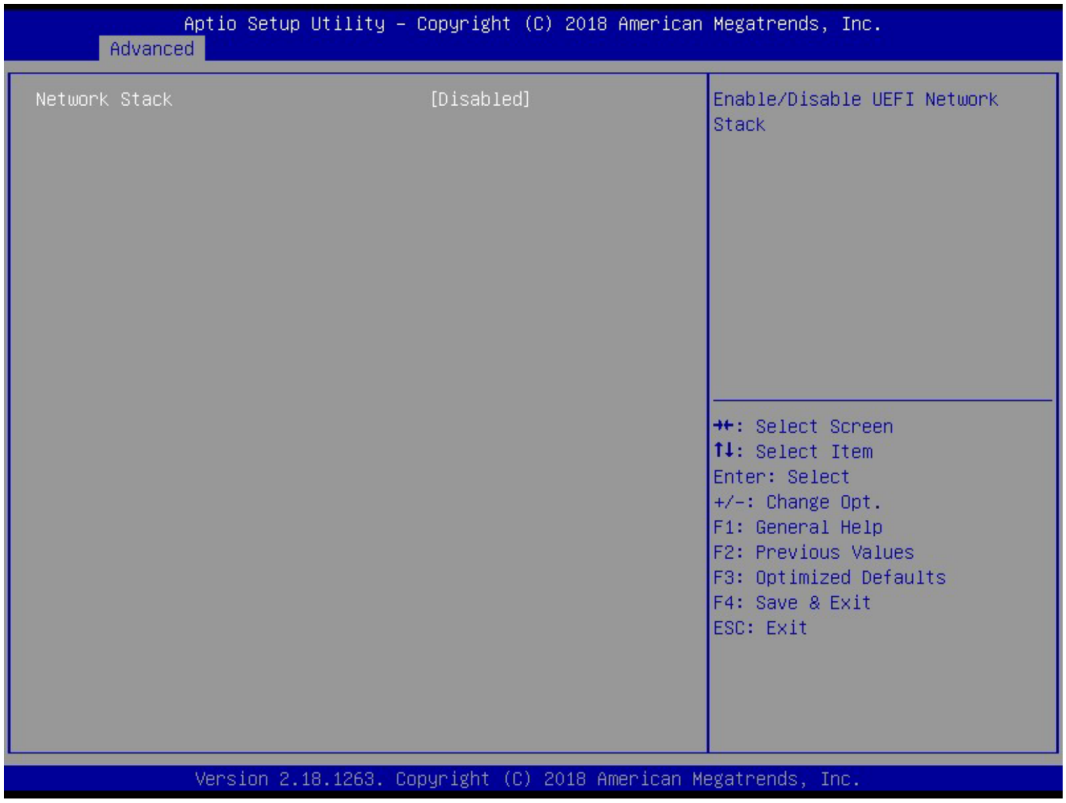


Serial Port Console Redirection

- **Console Redirection**
  - This item allows users to enable or disable console redirection.

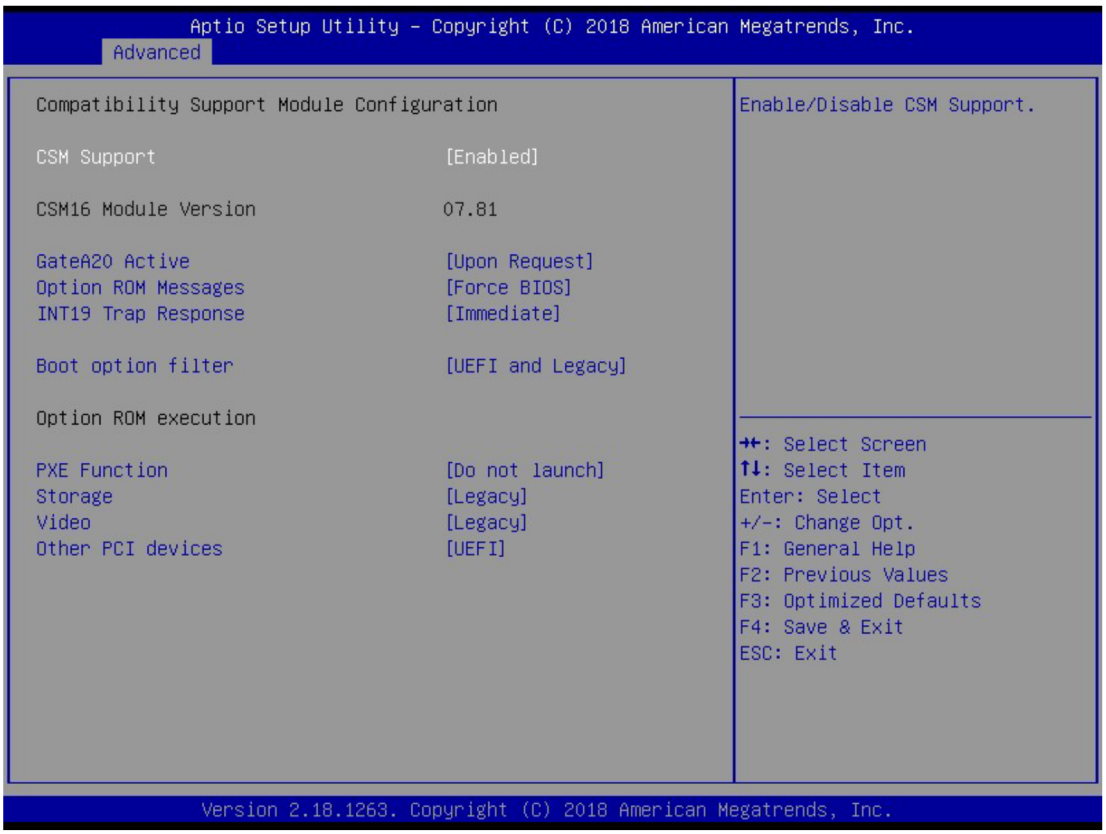


Network Stack Configuration



- **Network Stack**
  - Use this item to enable or disable UEFI Network Stack

CSM Configuration



- **CSM Support**
  This item allows you to enable or disable CSM support.

- **GateA20 Active**
  This item allows you to select <Upon Request> or <Always>.
  Upon Request: GA20 can be disabled using BIOS services.
  Always: Do not allow GA20 disabling. This option is useful when any RT code is executed above 1MB.

- **Option ROM Messages**
  This item allows you to select <Force BIOS> or <Keep Current>.
  Force BIOS : The third-party ROM messages will be forced to display during the boot sequence.
  Keep Current : The third-party ROM messages will be displayed only if the third-party manufactured had set the add-on device to do so.

- **INT19 Trap Response**
  BIOS reaction on INT19 trapping by Option ROM: Immediate - execute the trap right away;
  Postponed - execute the trap during legacy boot

- **Boot option filter**
  This item allows you to select which type of operating system to boot.
  UEFI and Legacy: Allows booting from operating systems that support legacy option ROM or UEFI option ROM.
  Legacy only: Allows booting from operating systems that only support legacy option ROM.
  UEFI only: Allows booting from operating systems that only support UEFI option ROM.

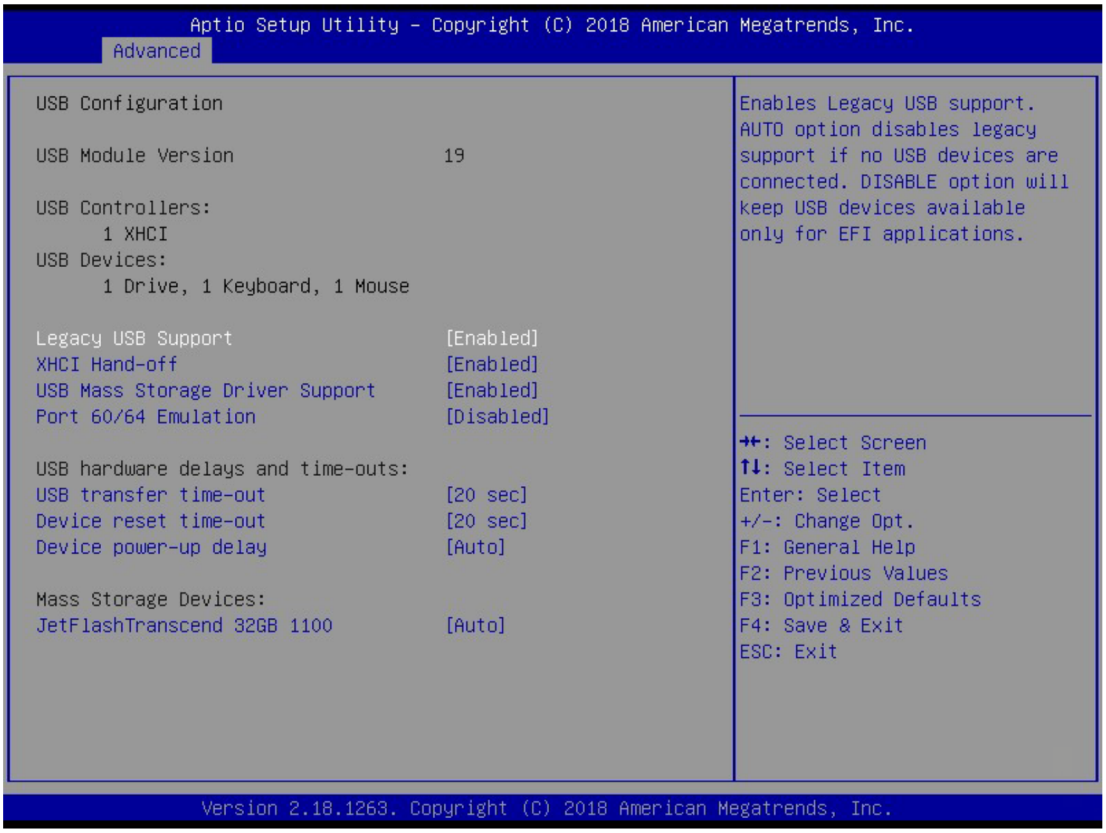
- **PXE Function**
  This item controls the execution of UEFI and PXE option ROM. Select <Do not launch>, <UEFI> or <Legacy>.

- **Storage**
  This setting allows you to select whether to enable the UEFI or legacy option ROM for the storage device controller.
  Select <Do not launch>, <UEFI> or <Legacy>.

- **Video**
  This setting allows you to select whether to enable the UEFI or legacy video option ROM for the video device controller.
  Select <Do not launch>, <UEFI> or <Legacy>.

- **Other PCI devices**
  This item determines option ROM execution policy for devices other than Network, storage or video.
  Select <Do not launch>, <UEFI> or <Legacy>.

USB Configuration



- **Legacy USB Support**
  This item allows you to select <Enabled>, <Disabled> or <Auto>.
  Enabled: To enable legacy USB support.
  Disabled: To keep USB devices available only for EFI specification,
  Auto: To disable legacy support if no USB devices are connected.

- **XHCI Hand-off**
  This is a workaround for OSes without XHCI hand-off support. The XHCI ownership change should be claimed by XHCI driver. Select <Enabled> or <Disabled>.

- **USB Mass Storage Driver Support**
  Enables or disables support for USB storage devices

- **Port 60/64 Emulation**
  This feature enables or disables I/O port 60h/64h emulation support. This should be enabled for complete USB keyboard legacy support for non-USB-aware Operating Systems.

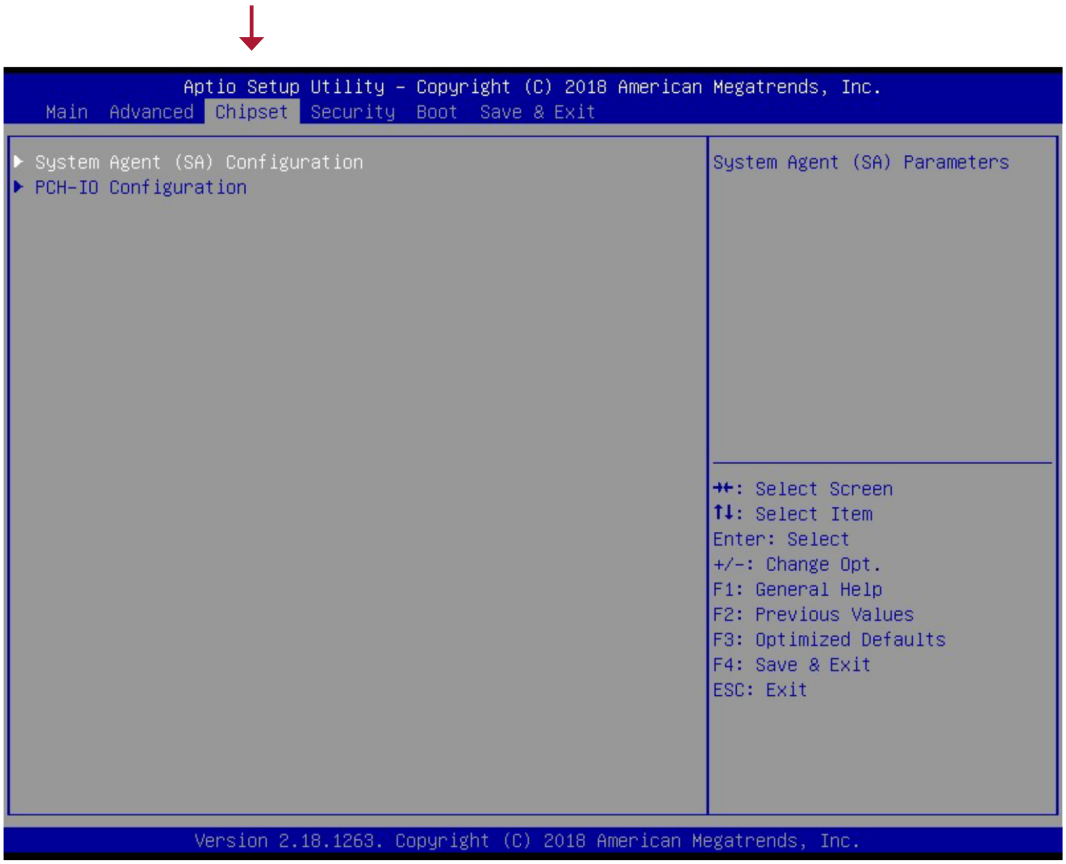
- **USB Transfer time-out**
  Use this item to set the time-out value for control, bulk, and interrupt transfers. Select <1 sec>, <5 sec>, <10 sec> or <20 sec>.

- **Device reset time-out**
  Use this item to set USB mass storage device start unit command time-out. Select <10 sec>, <20 sec>, <30 sec> or <40 sec>.

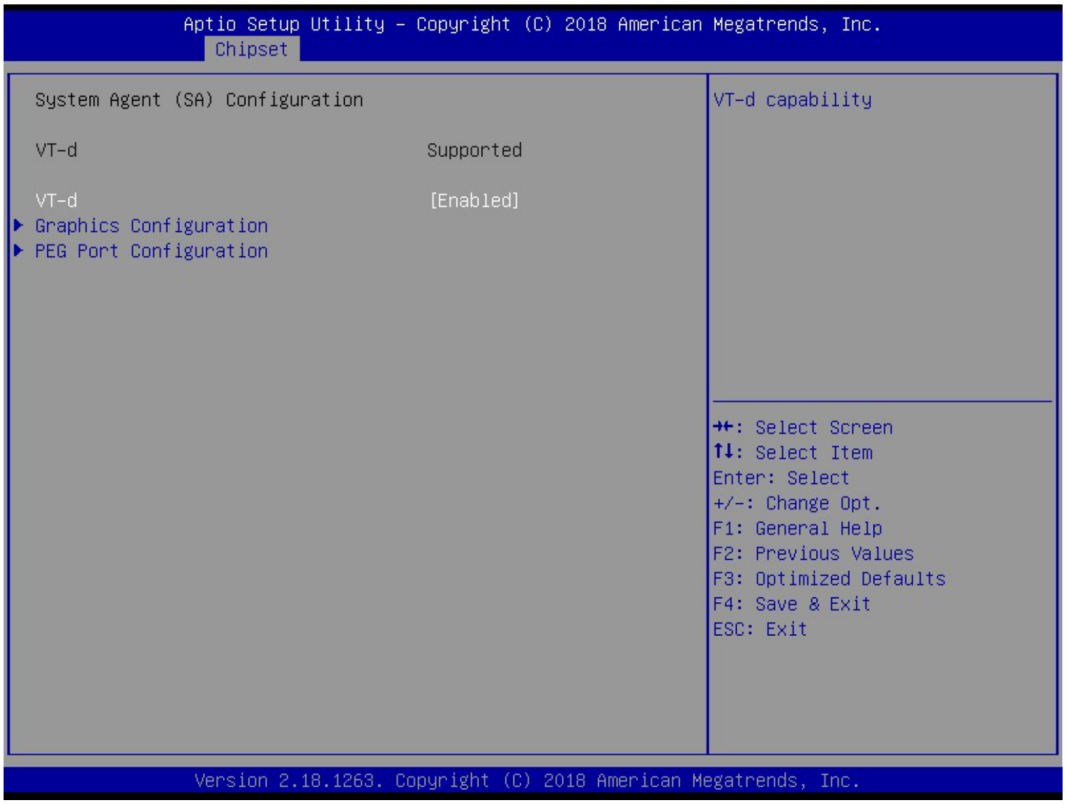
- **Device power-up delay**
  Maximum time the device will take before it properly reports itself to the Host Controller.
  “Auto” uses default value: for a Root port it is 100ms, for a Hub port the delay is taken from Hub descriptor.

Chipset

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

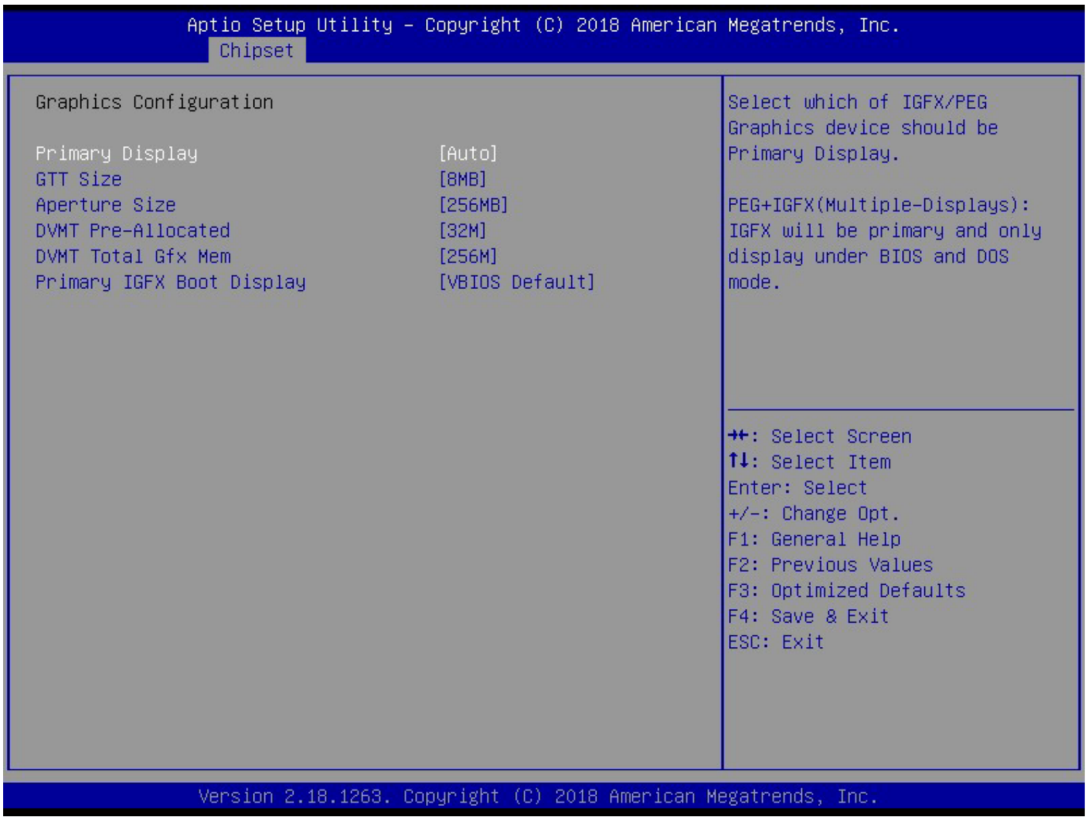


System Agent (SA) Configuration



- **VT-d**
  This item allows users to enable or disable VT-d.

Graphic Configuration



- **Primary Display**
  Change the Primary Display. Select <Auto> or <PEG+IGFX>
  PEG+IGFX (Multiple-Displays): IGFX will be primary and only display under BIOS an DOS Mode.

- **GTT Size**
  This item allows you to change the GTT size.

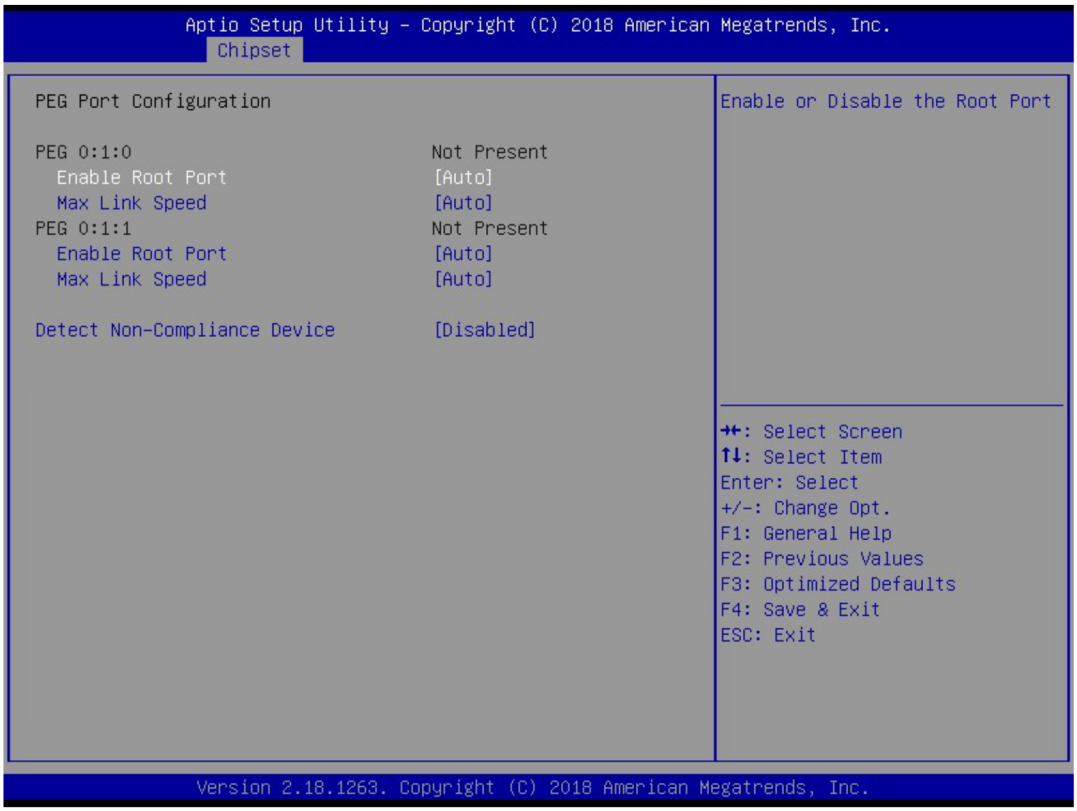
- **Aperture Size**
  Aperture size optimal between 128MB, 256MB, 512MB, 1024MB, 2048MB or 4096MB.

- **DVMT Pre-Allocated**
  DVMT pre-allocated (fixed) Graphics memory size optimal from 32M to 2048M.

- **DVMT Total Gfx Mem**
  DVMT Total Gfx Mem optimal Between 128M, 256M or MAX.

- **Primary IGFX Boot Display**
  Use the field to select the type of device you want to use as the display(s) of the system.

PEG Port Configuration



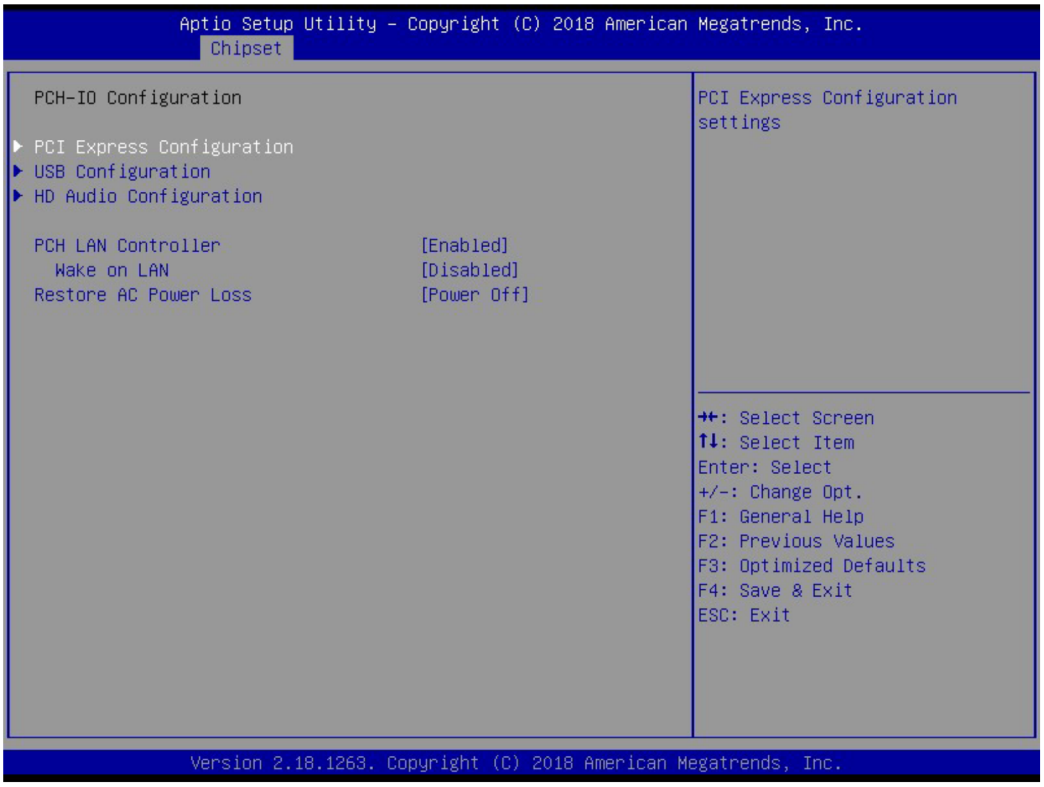
- **PEG 0:1:0**
  - **Enable Root Port**
    This item allows you to enable or disable the Root Port.
  - **Max Link Speed**
    This item allows you to configure PEG 0:1:0 Max Sped.

- **PEG 0:1:1**
  - **Enable Root Port**
    This item allows you to enable or disable the Root Port.
  - **Max Link Speed**
    This item allows you to configure PEG 0:1:1 Max Sped.

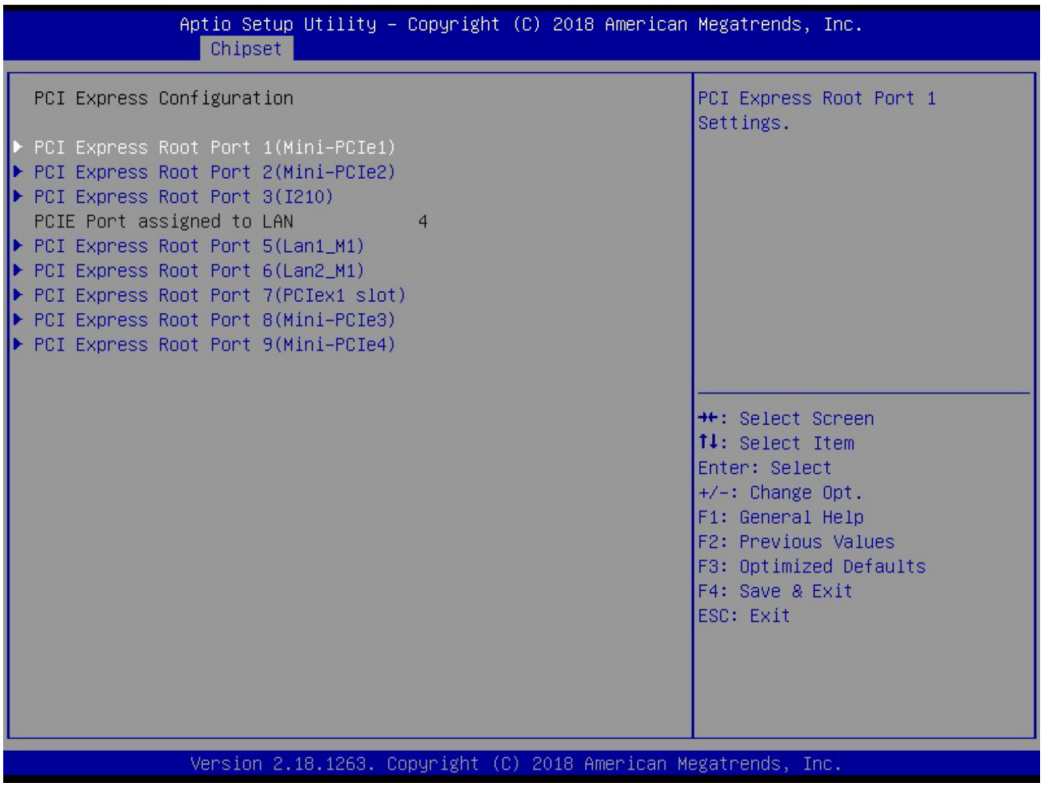
- **Detect Non-Compliance Device**
  Detect Non-Compliance PCI Express Device. If enable, it will take more time at POST time.

PCH-IO Configuration

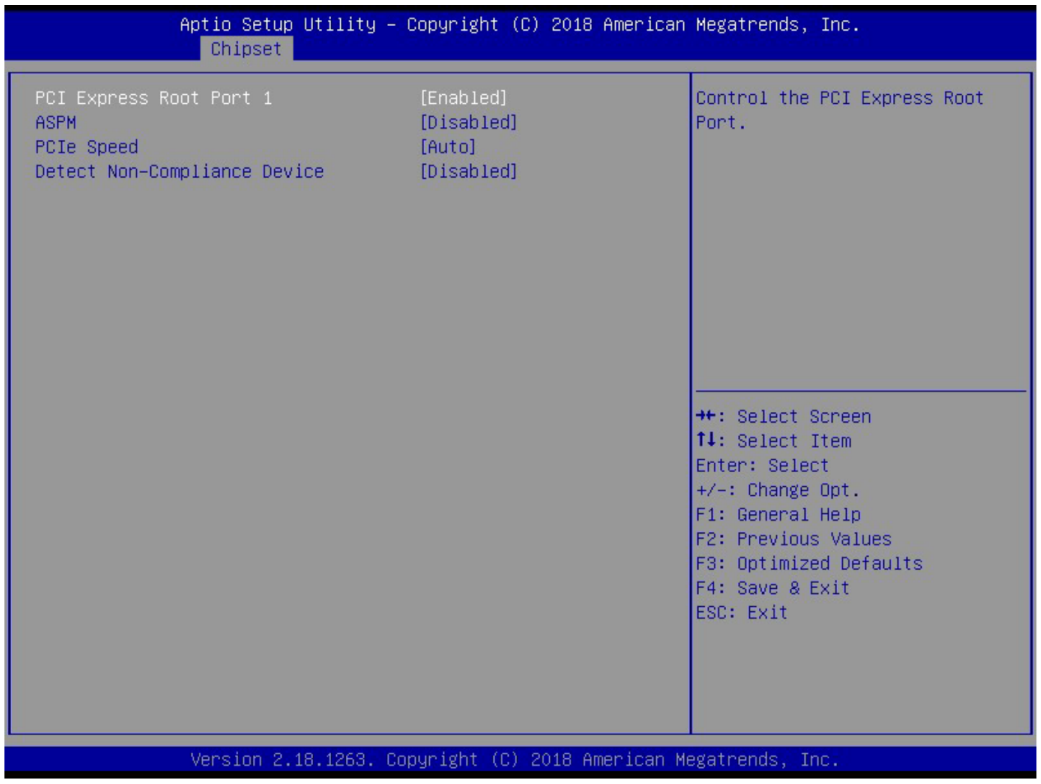
This section allows you to configure the chipset.



PCI Express Configuration



- **PCI Express Root Port 1 / 3 / 4 / 5 / 6 / 7 / 8 / 9**



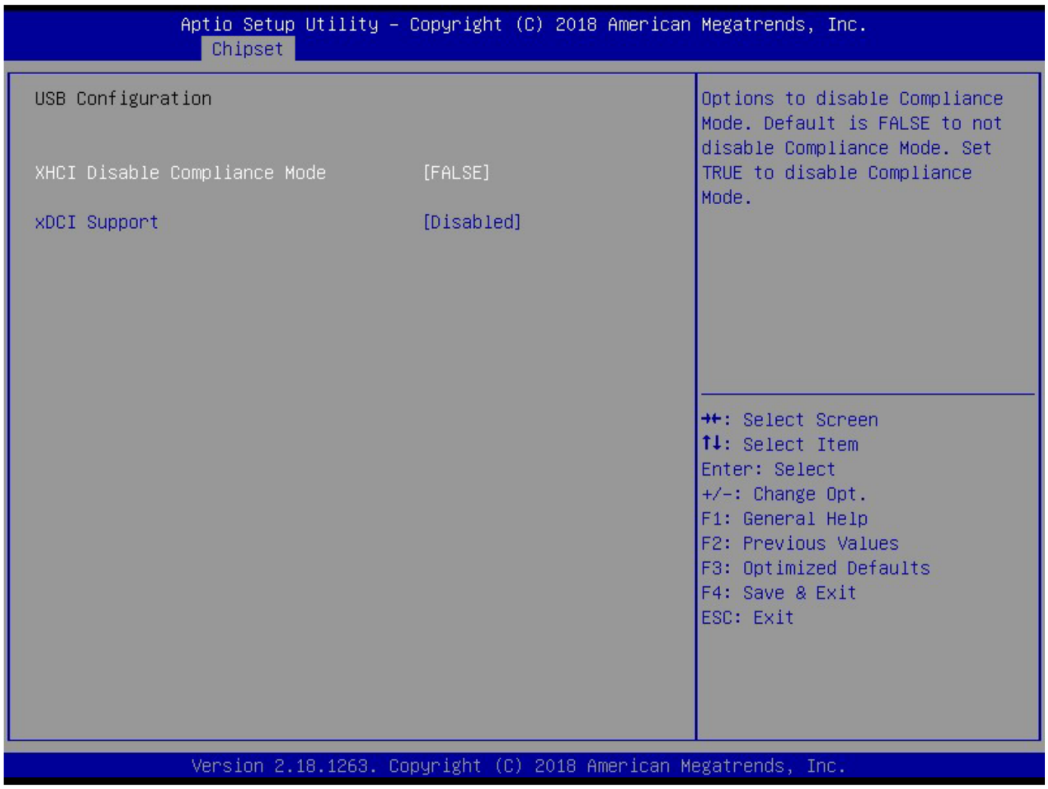
- **PCI Express Port 1 / 3 / 4 / 5 / 6 / 7 / 8 / 9**
  This item allows you to enable or disable PCI Express Port 1 / 3 / 4 / 5 / 6 / 7 /8 / 9 in the chipset.

- **ASPM**
  This item allows you to select the ASPM state for energy-saving. Select <Disabled>, <L0s>, <L1>, <L0sL1> or <Auto>

- **PCIe Speed**
  AChange the PCIe Port Speed. Select <AUTO>, <Gen 1> or <Gen 2>

- **Detect Non-Compliance Device**
  Detect Non-Compliance PCI Express Device. If enable, it will take more time at POST time.

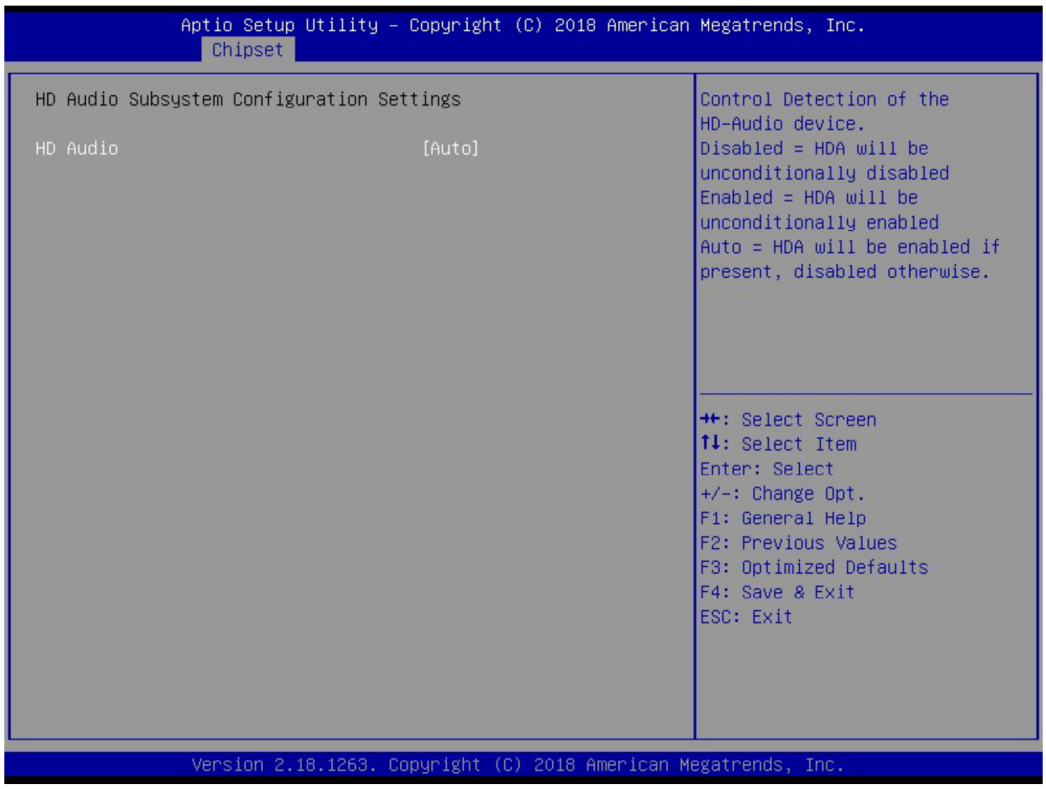
USB Configuration



- **XHCI Disable Compliance mode**
  Options to disable compliance mode. Default is FALSE enable compliance mode. Set TRUE to disable compliance mode.

- **xDCI Support**
  This item will allow users to enable or disable xDCI Support.

HD Audio Configuration



HD Audio

Control detection of the HD-Audio device. This item allows you to select <Enabled>, <Disabled> or <Auto>.

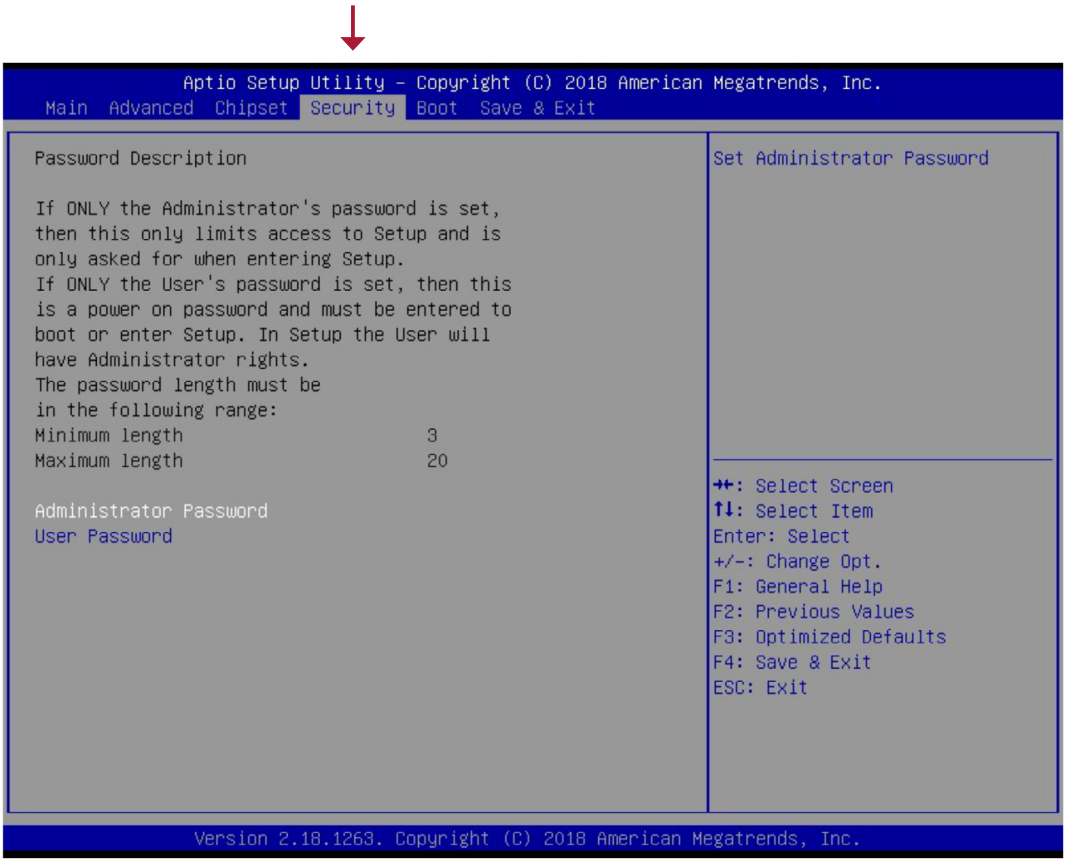
Disabled: Azalia will be unconditionally be disabled.

Enabled: Azalia will be unconditionally be enabled.

Auto: Azalia will be enabled if present, disabled otherwise.

Security

Security menu allow users to change administrator password and user password settings.



Administrator Password

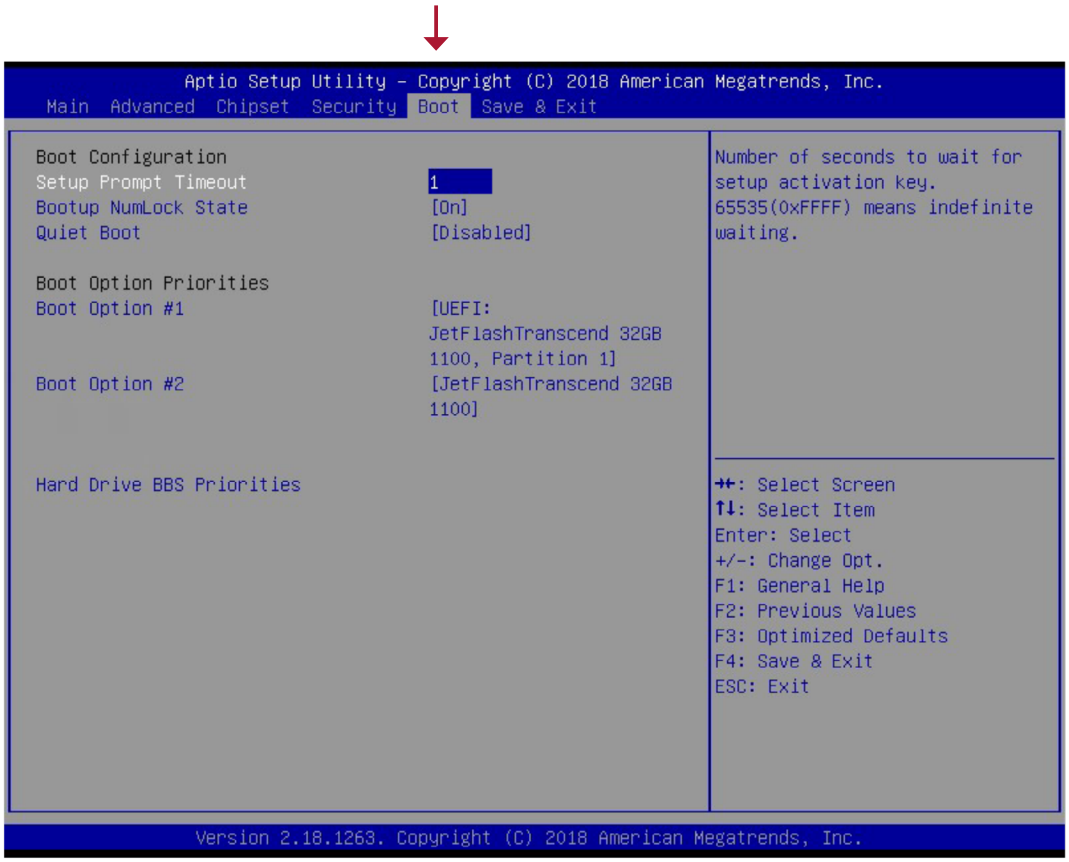
This item allows you to set Administrator Password.

User Password

This item allows you to set User Password.

Boot

This menu allows you to setup the system boot options.



Setup Prompt Timeout

This item sets number of seconds to wait for setup activation key.

Bootup NumLock State

This item selects the keyboard NumLock state. Select <On> or <Off>.

Full Screen Logo Show

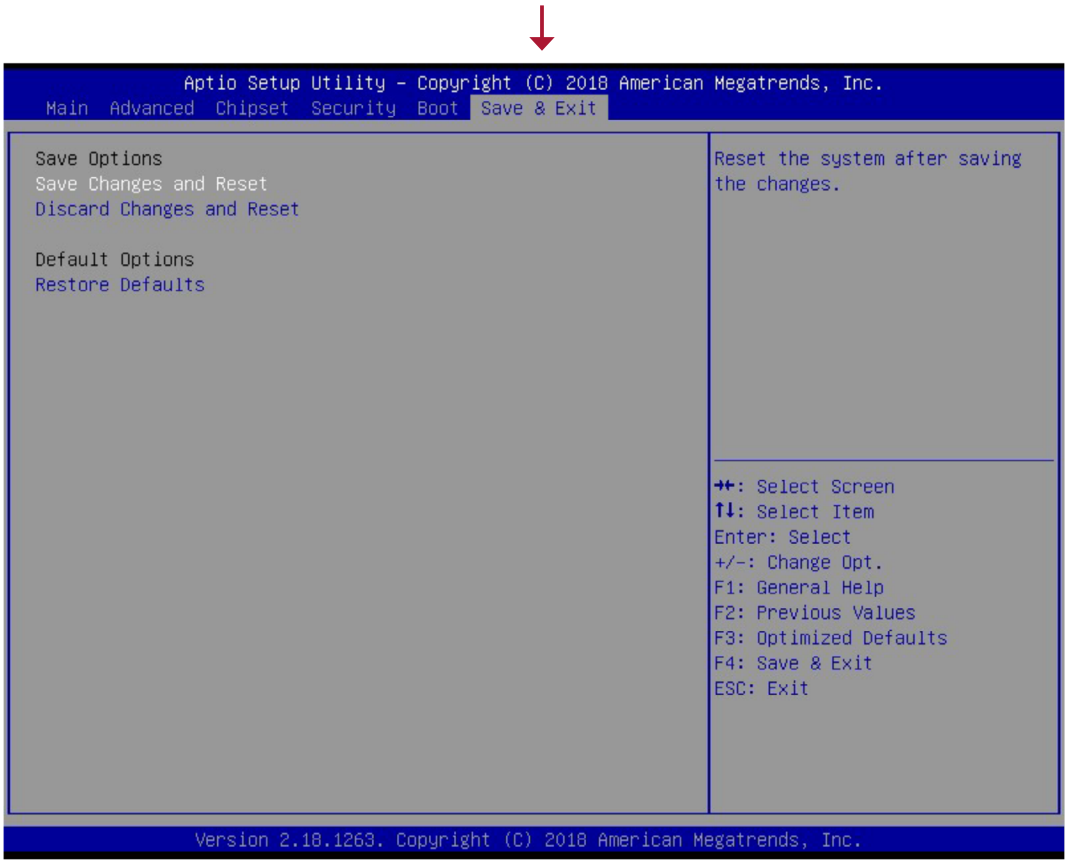
This item allows you to enable or disable Full Screen Logo Show function.

Hard Driver BBS Priorities

The items specify the boot device priority sequence from the available devices. The number of device items that appears on the screen depends on the number of devices installed in the system.

Save & Exit

This setting allows users to configure the boot settings.



Save Changes and Reset

This item allows user to reset the system after saving the changes. This item allows user to reset the system after saving the changes.

Discard Changes and Reset

This item allows user to reset the system without saving any changes.

Restore Defaults

Use this item to restore /load default values for all the setup options.

Watch Dog Timer (WDT) & General-Purpose Input / Output (GPIO)

The sample codes of WDT (Watch Dog Timer) and GPIO (General Purpose Input/Output).

WDT Sample Code

WDT Setting

Psuedo Code

```
#define AddrPort                0x2e
#define DataPort                0x2f
#define SIO_UnLock_Value        0x87
#define SIO_Lock_Value          0xaa
#define WATCHDOG_LDN            0x07
#define GPIO_Port               0xF1

//Enter_Config
WriteByte (AddrPort, SIO_UnLock_Value);
WriteByte (AddrPort, SIO_UnLock_Value);

//Enter WATCHDOG LDN WriteByte (AddrPort, 0x07);
WriteByte (DataPort, WATCHDOG_LDN);

//Set count mode
WriteByte (AddrPort, 0xf0);
buf2 = ReadByte (DataPort) & 0xf4;  //clear "Select Watchdog Timer I count mode
buf2 |= 0x02;   //Enable the Watchdog Timer I output low pulse to the KBRST# pin
// buf2 |= 0x08;              //Bit3 = (1:Minute Mode/0:Second Mode)
WriteByte (DataPort, buf2);       //Write back

//Set watch dog time value
WriteByte (AddrPort, 0xf1)
WriteByte (DataPort, Time)     //Set watch dog time value

// close config mode
WriteByte (AddrPort, 0xaa);
```

GPIO Sample Code

GPIO Setting

Pin#	GPIO#	Default Configuration
18	XCOM–	
17	XCOM+	
16	OUT8	DIO Output8
15	IN8	DIO Input8
14	OUT7	DIO Output7
13	IN7	DIO Input7
12	OUT6	DIO Output6
11	IN6	DIO Input6
10	OUT5	DIO Output5
9	IN5	DIO Input5
8	OUT4	DIO Output4
7	IN4	DIO Input4
6	OUT3	DIO Output3
5	IN3	DIO Input3
4	OUT2	DIO Output2
3	IN2	DIO Input2
2	OUT1	DIO Output1
1	IN1	DIO Input1

The GPIO function is provided by Nuvoton NCT6106D, and it can be accessed through its GPIO index/data port. To access the GPIO register, write index to the index port, and then read/write from/to data port. The configuration on the MobixII is described as below.

Psuedo Code

```
#define AddrPort                0x2e
#define DataPort                0x2f
#define SIO_UnLock_Value        0x87
#define SIO_Lock_Value          0xaa
#define SIO_LDN_GPIO            0x07
#define GPIO_Port               0xF1
//Enter_Config
WriteByte (AddrPort, SIO_UnLock_Value);
WriteByte (AddrPort, SIO_UnLock_Value);

WriteByte (AddrPort, 0x07);
WriteByte (DataPort, SIO_LDN_GPIO);

//Set OUT1~OUT8Value
WriteByte (AddrPort, GPIO_Port);
WriteByte (DataPort, 0x00); //set OUT1~OUT8 value, OUT1=Bit0, OUT2=Bit1
```

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
OUT8	OUT7	OUT6	OUT5	OUT4	OUT3	OUT2	OUT1

// Read In1~In8 value

WriteByte (AddrPort, 0xED);

Data= ReadByte (DataPort); //Read In1~In8 value

Bit 7	Bit 6	Bit 5	Bit 4	Bit 3	Bit 2	Bit 1	Bit 0
IN8	IN7	IN6	IN5	IN4	IN3	IN2	IN1

// close config mode

WriteByte (AddrPort, SIO_Lock_Value);

Point of Contact

For further assistance, contact Technical support

Please be prepared to provide the following information: Serial number(S/N), Product Name, Model Number, and a brief description of the issue.

Technical Support: Support@fibrenetix.com