AXIOMTEK

eBOX638-842-FL Series

Embedded System

User's Manual

Disclaimers

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Safety Precautions

Before getting started, please read the following important safety precautions.

1. The eBOX638-842-FL does not come with an operating system which must be loaded first before installation of any software into the computer.
2. Be sure to ground yourself to prevent static charge when installing any internal components. Use a wrist grounding strap and place all electronic components in any static-shielded devices. Most electronic components are sensitive to static electrical charge.
3. Disconnect the power cord from the eBOX638-842-FL prior to making any installation. Be sure both the system and all external devices are turned OFF. Sudden surge of power could ruin sensitive components. Make sure the eBOX638-842-FL is properly grounded.
4. Make sure the voltage of the power source is correct before connecting it to any power outlet.
5. Turn Off system power before cleaning. Clean the system using a cloth only. Do not spray any liquid cleaner directly onto the screen.
6. Do not leave equipment in an uncontrolled environment where the storage temperature is below -40℃ or above 80℃ as it may damage the equipment.
7. Do not open the system's back cover. If opening the cover for maintenance is a must, only a trained technician is allowed to do so. Integrated circuits on computer boards are sensitive to static electricity. To avoid damaging chips from electrostatic discharge, observe the following precautions:
   - Before handling a board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. This will help discharge any static electricity on human body.
   - When handling boards and components, wear a wrist grounding strap available from most electronic component stores.

Classification

1. Degree of production against electric shock : not classified
2. Degree of protection against the ingress of water : IP40
3. Equipment not suitable for use in the presence of a flammable anesthetic mixture with air or with oxygen or nitrous oxide.
4. Mode of operation : Continuous

General Cleaning Tips

Please keep the following precautions in mind while understanding the details fully before and during any cleaning of the computer and any components within.

A piece of dry cloth is ideal to clean the device.

1. Be cautious of any tiny removable components when using a vacuum cleaner to absorb dirt on the floor.
2. Turn the system off before clean up the computer or any components within.
3. Avoid dropping any components inside the computer or getting circuit board damp or wet.
4. For cleaning, be cautious of all kinds of cleaning solvents or chemicals which may cause allergy to certain individuals.
5. Keep foods, drinks or cigarettes away from the computer.

Cleaning Tools:

Although many companies have created products to help improve the process of cleaning computer and peripherals, users can also use house hold items accordingly for cleaning. Listed below are items available for cleaning computer or computer peripherals.

Pay special attention to components requiring designated products for cleaning as mentioned below.

- Cloth: A piece of cloth is the best tool to use when rubbing up a component. Although paper towels or tissues can be used on most hardware as well, it is recommended to use a piece of cloth.
- Water or rubbing alcohol: A piece of cloth may be somewhat moistened with water or rubbing alcohol before being rubbed on the computer. Unknown solvents may be harmful to plastic parts.
- Absorb dust, dirt, hair, cigarette and other particles outside of a computer can be one of the best methods of cleaning a computer. Over time these items may restrict the airflow in a computer and cause circuitry to corrode.
- Cotton swabs: Cotton swaps moistened with rubbing alcohol or water are applicable to reach areas in keyboard, mouse and other areas.
- Foam swabs: If possible, it is better to use lint free swabs such as foam swabs.

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【Note】: ***It is strongly recommended that customer should shut down the system before start to clean any single components.***

Please follow the steps below:

1. Close all application programs;
2. Close operating software;
3. Turn off power switch;
4. Remove all devices;
5. Pull out power cable.

Scrap Computer Recycling

Please inform the nearest Axiomtek distributor as soon as possible for suitable solutions in case computers require maintenance or repair; or for recycling in case computers are out of order.

Trademarks Acknowledgments

Table of Contents

SECTION 1
INTRODUCTION

This section contains general information and detailed specifications of the eBOX638-842-FL.Section 1 consist of the following sub-sections:

- General Descriptions
- System Specifications
- Dimensions
- I/O Outlets
- Packing List
- Model List

1.1 General Description

The eBOX638-842-FL is an embedded system that supports onboard Intel® Celeron™ J1900 SoC (2M Cache, 2.0 GHz) processor. To fulfill different application needs, the flexible embedded system supports Windows 7, WES7 and Windows® 10, and it can be wall-mounted by optional requests. It features fan less design with full feature I/O, one 204-pin unbuffered SO-DIMM socket for singe channel DDR3L-1333/1066 MHz memory, and enhanced system dependability by built-in Watchdog Timer.

➢ **Features**

- Intel® Celeron® Processor J1900 2.0 GHz
- Fanless operation design with full feature I/O
- HDMI and VGA with dual-view supported
- 6 USB, 2 GbE and 1 Mini PCIe
- Flexible I/O Window supported

- Dual PCI or PCIe expansion slots
- 9~36 VDC wide range power input

➢ **Reliable and Stable Design**
The eBOX638-842-FL adopts the advanced cooling system and supporting the 2.5" HDD/SSD, which makes it especially suitable for vibration environments, best for industrial automation, digital signage and gaming application.

➢ **Embedded O.S. Supported**
The eBOX638-842-FL with quad core platform supports not only Windows 7, Windows 10 but also WES7 and Windows 10 IoT.

1.2 System Specifications

1.2.1 CPU

- **CPU**
  Onboard Intel® Celeron™ J1900 Quad core SoC processor
  (2M Cache, 2.0 GHz)

- **BIOS**
  AMI 64Mb SPI ROM.

- **System Memory**
  Maximum to 8GB DDR3L 1333/1066 MHz memory
  One 204-pin DDR3L SO-DIMM sockets

1.2.2 I/O System

- **1 x VGA (Supports max resolution 2560x1600@60Hz)**
- **1 x HDMI (Supports max resolution 1920x1080@60Hz)**
- **2 x RS-232/422/485 (COM1/COM2)**
- **2 x RS-232 (COM3/COM4)**
- **1 x Flexible I/O Window (default : 2 x DB9 half cut bracket)**
- **1 x Audio (Mic-in/Line-out) with Realtek ALC662**
- **1 x PS/2 Keyboard & 1 x PS/2 Mouse**
- **2 x 10/100/1000Mbps RJ45 Realtek RTL8111F Ethernet**
- **5 x USB 2.0**
- **1 x USB 3.0**
- **2 x SMA opening for antenna**
- **1 x 2.5" HDD/SSD driver bay (max. up to 15 mm height)**
- **1 x 9~36 V DC power input connector**
- **1 x ATX power button**
- **1 x Reset button**

- **2 x 32bit/33MHz PCI slots (Total max 10W for usage) or 2 x PCIe x1 slots (Total max 18W for usage)**

1.2.3 System Specification

- **Watchdog Timer**

  1~255 seconds or minutes; up to 255 levels.

- **Power Supply**

  9~36 VDC

- **Operation Temperature**

  -10℃ ~ 55℃ (14 ºF ~ 131ºF), J1900 with W.T. SSD/DRAM

- **Humidity**

  10% ~ 90% (non-condensation)

- **Vibration Endurance**

  2Grm w/ SSD(5-500Hz, X, Y, Z directions)

- **Weight**

  4.1 kg (9.03 lb) without package

  4.8 kg (10.58 lb) with package

- **Dimensions**

  192mm(7.56") (W) x 230mm(9.05") (D) x 130.8mm(5.14") (H)

1.2.4 Driver CD Content

- **Driver**
  - Audio Driver
  - Chipset Driver
  - Ethernet Driver
  - Graphic Driver
  - USB 3.0 Driver
  - Trusted Execution Engine Driver

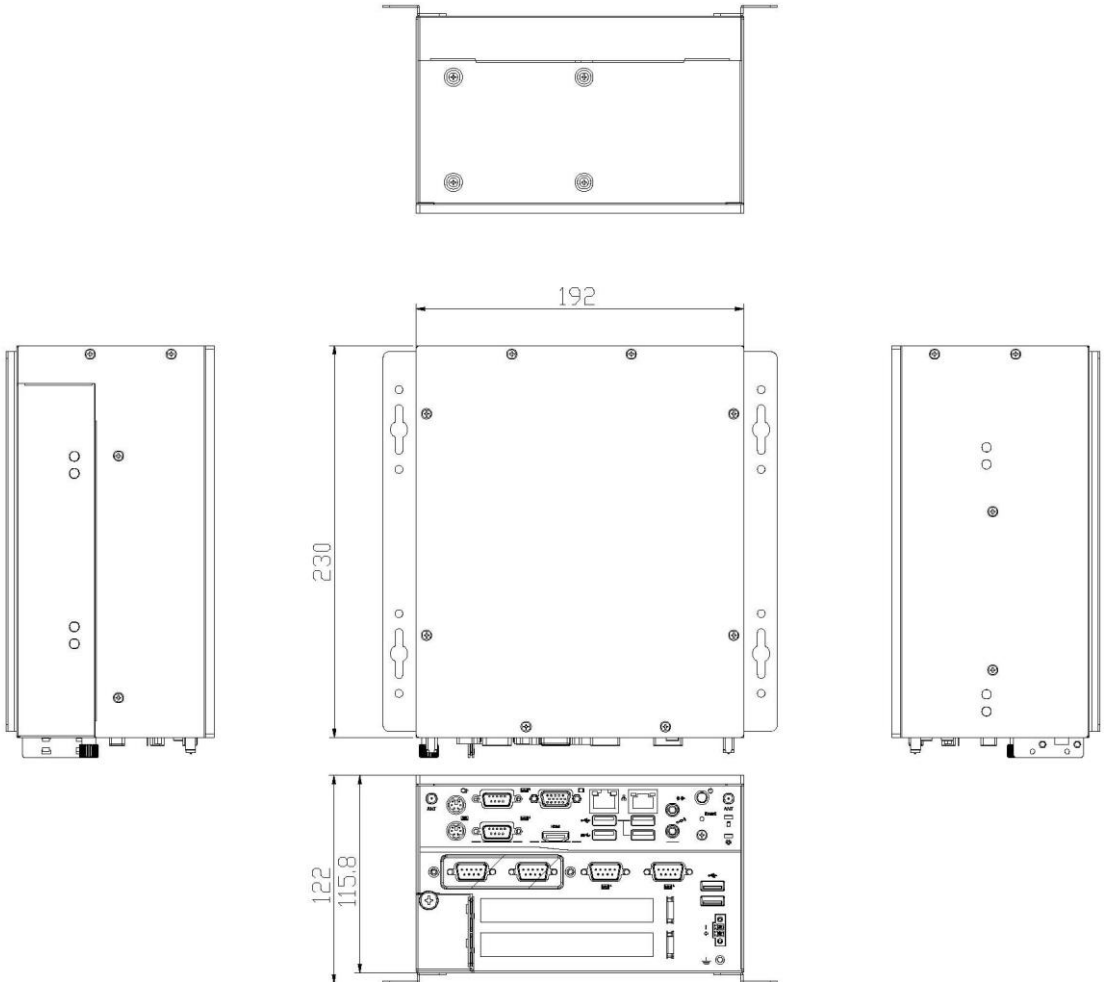
- **Manual**
  - User Manual
  - Quick Manual

Note: ***All specifications and images are subject to change without notice.***

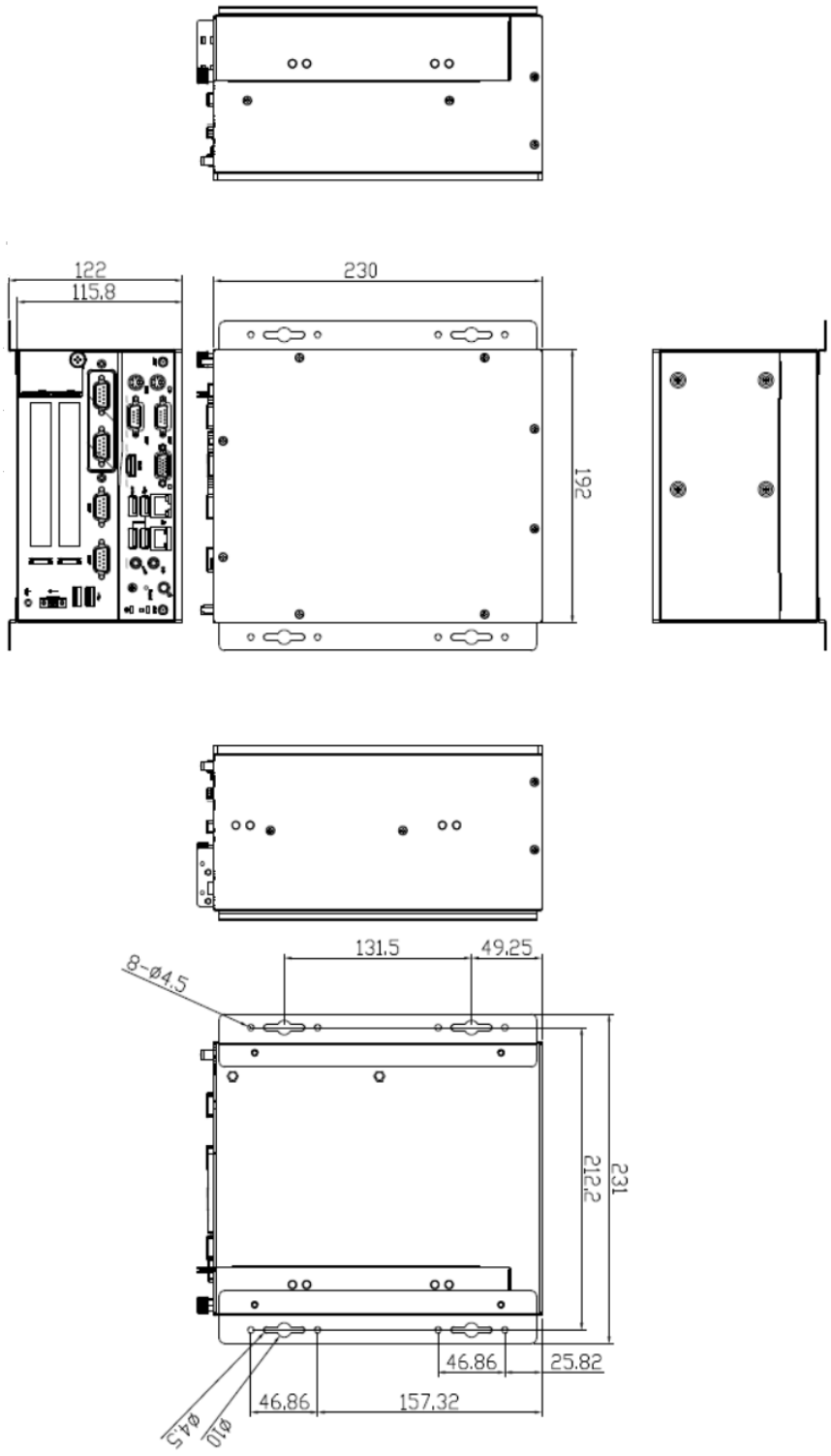
1.3 Dimensions

The following diagrams show you dimensions and outlines of the eBOX638-842-FL.

1.3.1 System Dimension



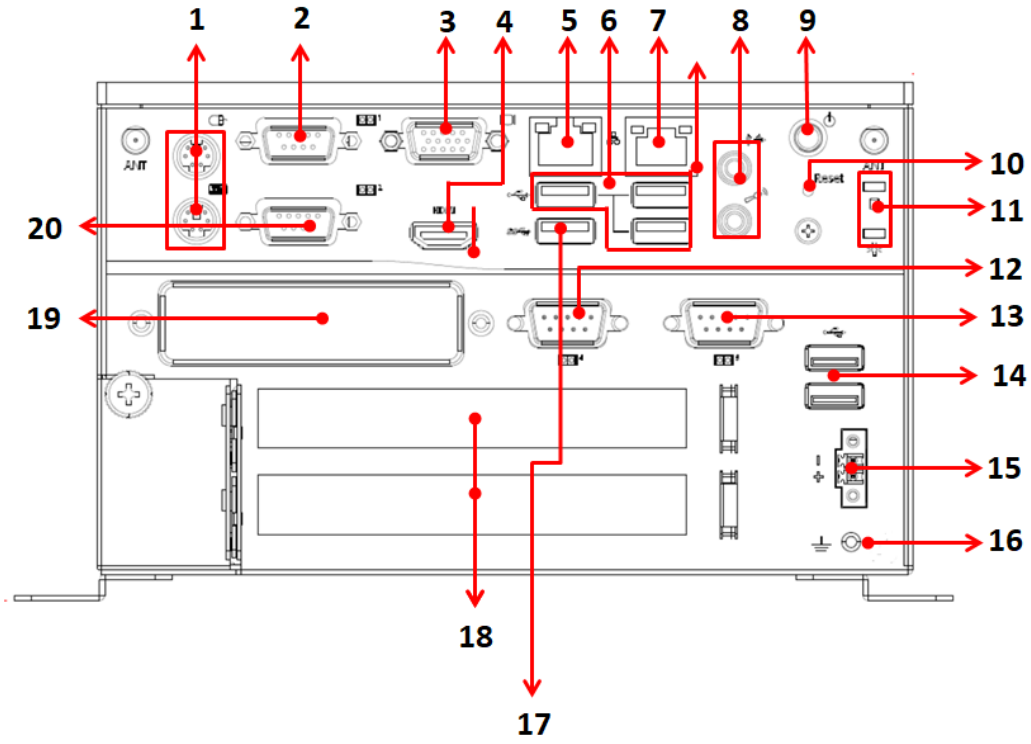
1.3.2 Wall mount Bracket Dimension



1.4 I/O Outlets

The following figures show you I/O outlets on front view of the eBOX638-842-FL.

- **Front View**



1	1 x PS/2 KB/MS	11	LEDs
2	1 x RS-232/422/485 (COM1)	12	1 x RS-232 (COM4)
3	1 x VGA	13	1 x RS-232 (COM3)
4	1 x HDMI	14	2 x USB 2.0
5	1 x LAN1	15	1 x 9~36 VDC power input
6	3 x USB 2.0	16	Grounding
7	1 x LAN2	17	1 x USB 3.0
8	1 x Audio (Mic-in/Lin-out)	18	2 x PCI slots or 2 x PCIe x1 slots
9	1 x ATX power button	19	Flexible IO window
10	1 x Reset button	20	1 x RS-232/422/485 (COM2)

1.5 Packing List

The Ebox638-842-FL-2 PCI-DC comes with the following bundle package:

- **eBOX638-842-FL System Unit x 1**
- **eBOX638-842-FL Quick Manual x 1**
- **DVD x 1 (For Driver and User's Manual)**
- **Screws pack x 1**
- **Foot pad x 4**
- **2-pin terminal block connector x 1**
- **1 x PCI riser card or 1 x PCIe x1 riser**

Note: ***If you cannot find this package or any items are missing, please contact Axiomtek distributors immediately.***

1.6 Model List

eBOX638-842-FL-2 PCI	Fanless Embedded System with Intel® Celeron® Processor J1900 2.0 GHz, VGA/HDMI , 4 COM, 6 USB, 2 PCI slots and 9~36 VDC Input
eBOX638-842-FL-2 PCIe	Fanless Embedded System with Intel® Celeron® Processor J1900 2.0 GHz, VGA/HDMI , 4 COM, 6 USB ,2 PCIe x1 slots and 9~36 VDC Input

Please contact Axiomtek's distributors immediately in case any abovementioned items are missing.

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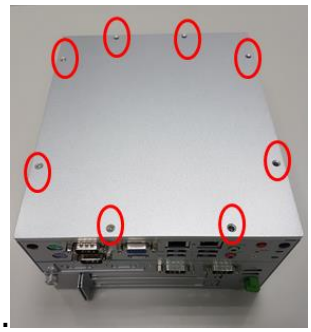
SECTION 2
HARDWARE INSTALLATION

The eBOX638-842-FL is convenient for your various hardware configurations, such as Memory Module, HDD (Hard Disk Drive), SSD (Solid State Drive), PCI Express mini Card and PCI/PCIe x1 slot. Section 2 contains guidelines for hardware installation.

2.1 Installation of the Memory Module

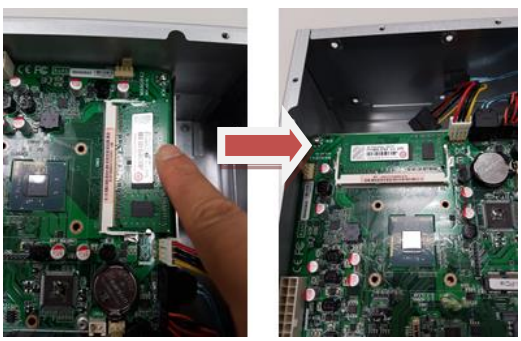
Step 1 Turn off the system, and unplug the power cord.

Step 2 Eight screws on the top heatsink are used to fasten the heatsink to the chassis.



Step 3 Open the top cover and located the dual SO-DIMM sockets on main board.

Step 4 Insert a gold colored contact into the socket and push the module two end latches till locked.



Step 5 Put the top cover and fasten all screws back onto the system.

2.2 Installation of the Express Mini Card

Step 1 Turn off the system, and unplug the power cord.

Step 2 Eight screws on the top heatsink are used to fasten the heatsink to the chassis.

Step 3 Remove the top cover and locate Express Mini card slot within the red line marked.

Step 4 Slide Mini Card into Mini Card slot with caution, and fasten screw of Express Mini Card.

Step 5 Assembly the top cover back and fasten all screws.

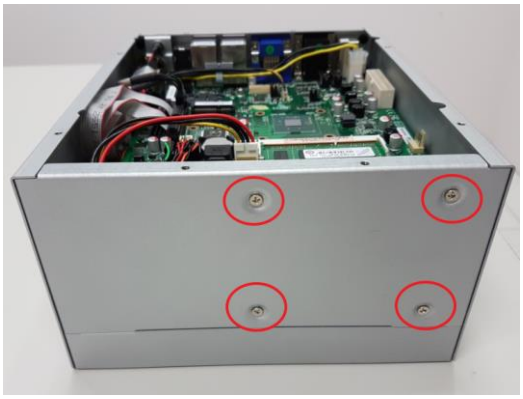
2.3 Installation of the 2.5" SATA Device

Step 1 Turn off the system, and unplug the power cord.

Step 2 Eight screws on the top heatsink are used to fasten the heatsink to the chassis.

Step 3 Locate SSD/HDD within the red block marked at the back side.

Step 4 Connect SATA cable with the SSD/HDD and then fasten four screws at the back side of chassis.



Step 5 Assembly the top cover back and fasten all screws.

2.4 Installation of the PCI/PCIe Card

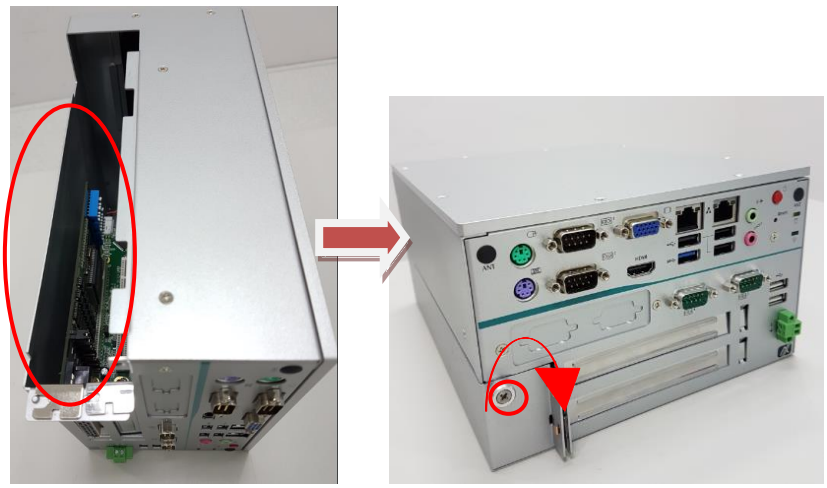
Step 1 Turn off the system.

Step 2 Unplug the power-cord.

Step 3 Turning counterclockwise to loosen the thumb screw as marked and then pull the lower left cover out.

Step 4 Identify the location of the PCI/PCIe slot as below red marked.

Step 5 Inset the PCI/PCIe card and put the side cover back.



2.5 Installation of the Flexible IO modules

The eBOX638-842 provides an optional window for customer add flexible I/O modules, according to different modules , please follow the below Instructions:

-AX92902 LAN Module (RJ45 connector*1)

-AX92904 DIO Module (DB44 connector*1)

-AX92903 CAN Bus/CAN Open Module (DB9 connector*1)

-AX92906 COM Module (DB9 connector*2)

Flexible IO window

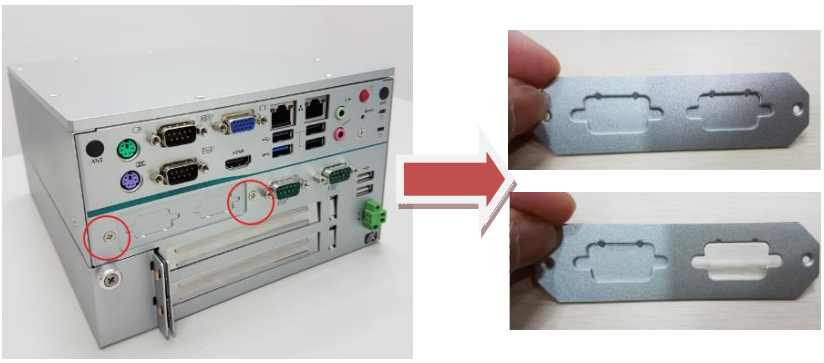
(Default: 2 x DB9 half cut bracket)

Step 1 Turn off the system.

Step 2 Unplug the power-cord.

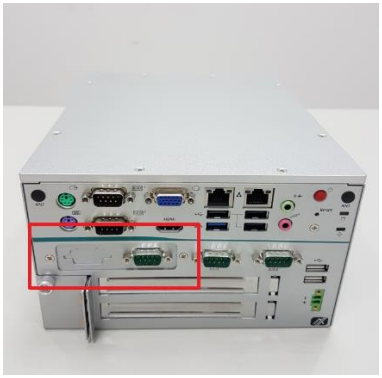
Step 3 Turning leftward to loosen the thumb screw as marked and then pull the lower left cover out.

Step 4 Loosen the two screws of flexible IO door and push the hole which is not punched through.



Step 5 Insert the CAN Bus mini PCIe card (One mini card with one DB 9 connector)

Step 6 Assemble CAN Bus connector with bracket and fasten the CAN Bus connector with bracket onto the chassis, and then connect the CAN Bus cable to the mini PCIe card.

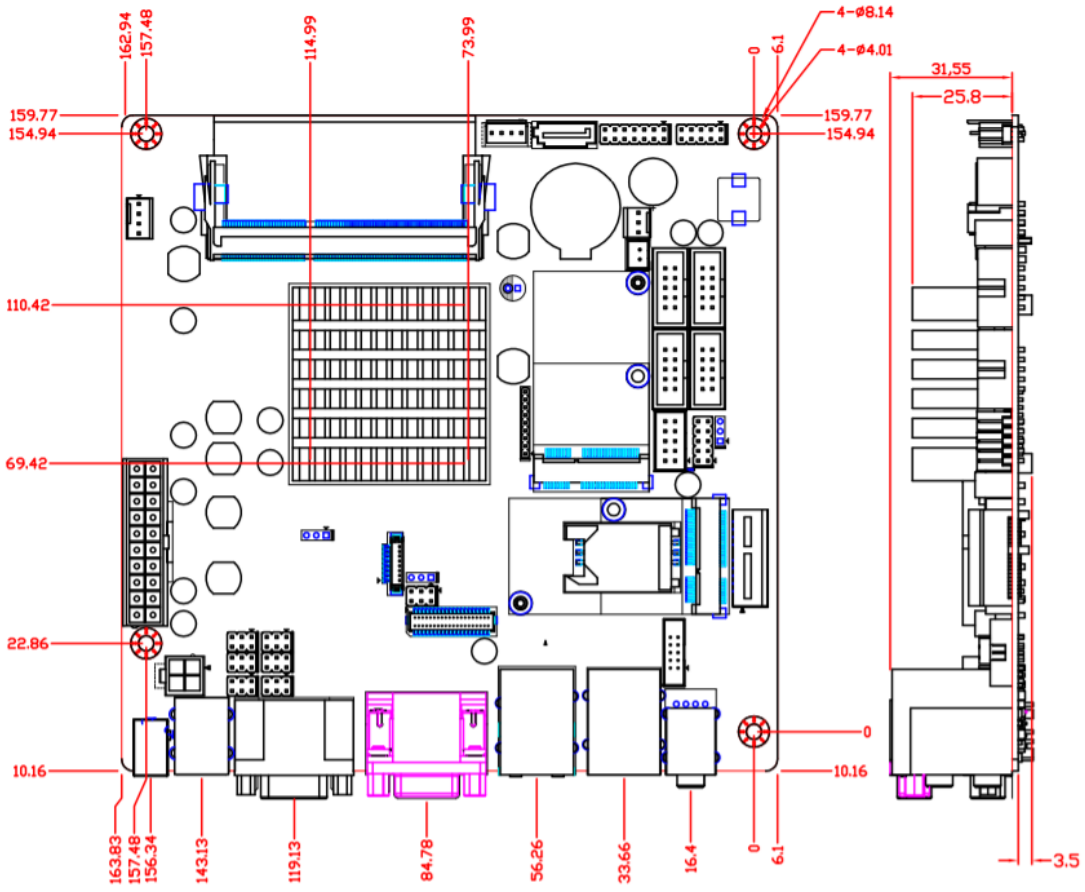


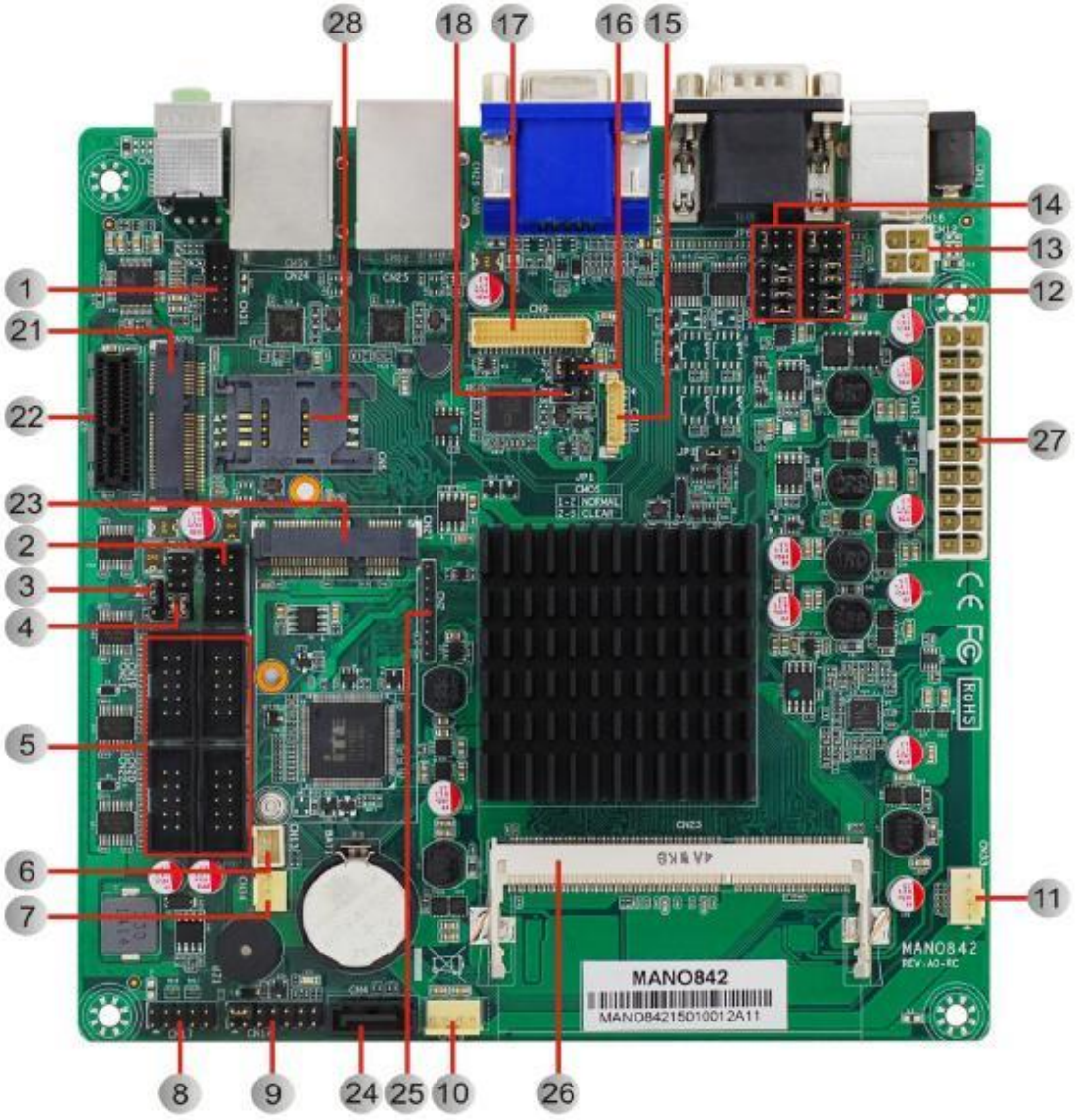
Step 7 Put the side cover back and fasten the thumb screw.

SECTION 3
JUMPER & CONNECTOR SETTINGS

Proper jumper settings configure the eBOX638-842-FL to meet various application needs. Hereby all jumpers settings along with their default settings are listed for devices onboard.

3.1 Board Layout

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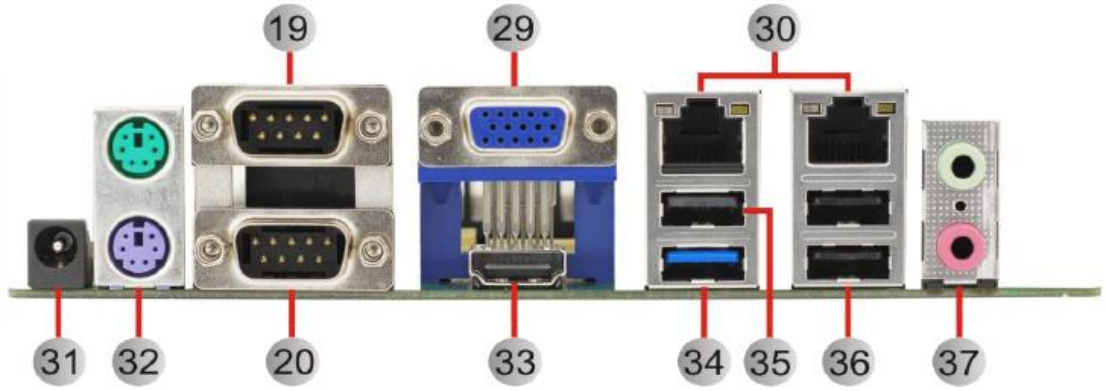


1	Front Audio Header (CN31)	20	COM2 Connector (CN18)
2	Internal USB Header (CN3)	21	mSATA Slot (CN28)
3	AT/ATX Power Mode Select Jumper (JP4)	22	PCI-Express x1 Slot (CN26)
4	COM3 Data/Power Select Jumper (JP11)	23	PCI-Express Mini Card Connector (CN27)
5	COM3~COM6 Headers (CN19~CN22)	24	SATA 2.0 Connector (CN4)
6	Power Status Header (CN13)	25	Debug Header (CN2)
7	Fan2 Connector (CN34)	26	DDR3L SO-DIMM Socket (CN23)
8	GPIO Header (CN17)	27	ATX Power Input Connector (CN32)
9	Front Panel Header (CN14)	28	SIM Card Slot (CN5)
10	DC12V/5V Power Output Connector (CN15)	29	VGA Connector (CN8)
11	Fan1 Connector (CN33)	30	LAN Connectors (CN24~CN25)
12	COM1 RS-232/422/485 Mode Select Jumpers (JP5~JP7)	31	DC12V Power Input Connector 2 (CN11)
13	DC12V Power Input Connector 1 (CN12)	32	PS/2 Keyboard and Mouse Connector (CN16)
14	COM2 RS-232/422/485 Mode Select Jumpers (JP8~JP10)	33	HDMI Connector (CN29)
15	LVDS Backlight Control Header (CN10)	34	USB 3.0 Connector (CN25)
16	LVDS VDD Select Jumper (JP2)	35	USB 2.0 Connector (CN25)
17	LVDS Signal Header (CN9)	36	USB 2.0 Connectors (CN24)
18	LVDS Backlight PWM/CCFL Select Jumper (JP3)	37	Audio Connector (CN30)
19	COM1 Connector (CN18)		

Note: ***It is strongly recommended that any unmentioned jumper settings should not be modified without instructions by Axiomtek FAEs. Any modifications without instructions might cause system failure.***

3.2 Summary of Jumper settings

Proper jumper settings configure the eBOX638-842-FL to meet various application purposes. A table of all jumpers and their default settings is listed below.

Jumpers	Descriptions		Settings
JP1	Clear CMOS		1-2 Close
JP4	AT/ATX Power Mode Select Default: ATX Mode		1-2 Close
JP5	COM1 RS-232/422/485 Mode Select Default: RS-232		1-2 Close
JP6			3-5, 4-6 Close
JP7			3-5, 4-6 Close
JP8	COM2 RS-232/422/485 Mode Select Default: RS-232		1-2 Close
JP9			3-5, 4-6 Close
JP10			3-5, 4-6 Close
JP11	COM3 Data/Power Select Default: RS-232 Data	COM3 Pin 1: DCD#	7-9 Close
		COM3 Pin 8: RI#	8-10 Close

Note: **How to setup Jumpers**

That a cap on a jumper is to "close" the jumper, whereas that offs a jumper is to "open" the jumper.

[Open]

[Closed]

[Pin1-2 Closed]

3.2.1 Clear CMOS (CLR_CMOS)

This jumper allows you to clear the Real Time Clock (RTC) RAM in CMOS. You can clear the CMOS memory of date, time, and system setup parameters by erasing the CMOS RTC RAM data. The onboard button cell battery powers the RAM data in CMOS, which includes system setup information such as system passwords.

To erase the RTC RAM:
1. Turn OFF the computer and unplug the power cord.
2. Remove the onboard battery.
3. Move the jumper clip from pins 1-2 (default) to pins 2-3. Keep the clip on pins 2-3 for about 5~10 seconds and then move the clip back to pins 1-2.
4. Re-install the battery.
5. Plug the power cord and turn ON the computer.
6. Hold down the <Del> key during the boot process and enter BIOS setup to re-enter data.

Caution

Except when clearing the RTC RAM, never remove the clip on this jumper default position. Removing the clip will cause system boot failure!

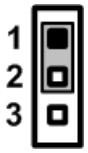
Functions	Settings
Normal operation (Default)	1-2 close
Clear CMOS	2-3 close

Note: ***You do not need to clear the RTC when the system hangs due to overclocking. For system failure due to overclocking, use the C.P.R. (CPU Parameter Recall) feature. Shut down and reboot the system so the BIOS can automatically reset parameter settings to default values.***

3.2.2 AT/ATX Power Mode Select (JP4)

This 3x1-pin p=2.54mm jumper allows you to select AT or ATX power mode.

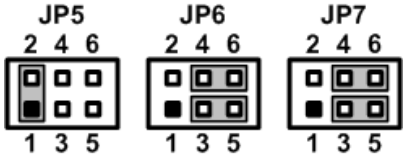
Functions	Settings
ATX mode (Default)	1-2 close
AT mode	2-3 close



3.2.3 COM 1 RS-232/422/485 Mode Select (JP5, JP6, JP7)

Use these jumpers (3x2-pin p=2.54mm) to set COM 1 port to operate as RS-232, RS-422 or RS-485 communication mode.

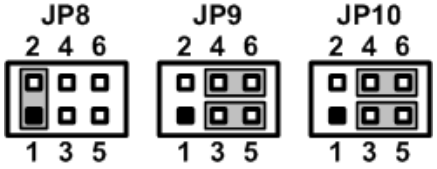
Functions	Settings
RS-232 mode (Default)	JP5 1-2 close JP6 3-5, 4-6 close JP7 3-5, 4-6 close
RS-422 mode	JP5 3-4 close JP6 1-3, 2-4 close JP7 1-3, 2-4 close
RS-485 mode	JP5 5-6 close JP6 1-3, 2-4 close JP7 1-3, 2-4 close



3.2.4 COM 2 RS-232/422/485 Mode Select (JP8, JP9, JP10)

Use these jumpers (3x2-pin p=2.54mm) to set COM 2 port to operate as RS-232, RS-422 or RS-485 communication mode.

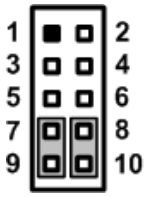
Functions	Settings
RS-232 mode (Default)	JP8 1-2 close JP9 3-5, 4-6 close JP10 3-5, 4-6 close
RS-422 mode	JP8 3-4 close JP9 1-3, 2-4 close JP10 1-3, 2-4 close
RS-485 mode	JP8 5-6 close JP9 1-3, 2-4 close JP10 1-3, 2-4 close



3.2.5 COM 3 Data/Power Select (JP11)

The COM 3 port has +5V/+12V power capability on DCD and +5V/+12V on RI by setting this 5x2-pin p=2.54mm jumper.

Functions	Settings
Power: Set COM3 pin 1 to +12V level	1-3 close
Power: Set COM3 pin 1 to +5V level	3-5 close
Data: Set COM3 pin 1 to DCD# (Default)	7-9 close
Power: Set COM3 pin 8 to +12V level	2-4 close
Power: Set COM3 pin 8 to +5V level	4-6 close
Data: Set COM3 pin 8 to RI# (Default)	8-10 close



3.3 Connectors

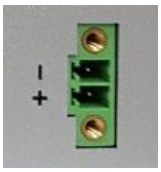
Connectors connect the board with other parts of the system. Loose or improper connection might cause problems. Make sure all connectors are properly and firmly connected. Here is a summary table shows you all connectors and button on the eBOX638-842-FL Series.

External connectors	Sections
DC-in Phoenix Power Connector	3.3.1
ATX Power On/OFF Button	3.3.2
PS/2 Keyboard and Mouse Connector (CN16)	3.3.3
VGA Connector (CN8)	3.3.4
COM Serial Port Connector (CN18)	3.3.5
LAN and USB Connectors (CN24 and CN25)	3.3.6
HDMI Connector (CN29)	3.3.7
Internal USB Header (CN3)	3.3.8
USB 3.0 Internal Connector	3.3.9
Audio Jack (CN30)	3.3.10
SATA Connectors (CN4)	3.3.11
Full-size PCI-Express Mini Card Connector (CN27)	3.3.12
mSATA Slot (CN28)	3.3.13

3.3.1 DC-in Phoenix Power Connector

The system supports a wide range Phoenix DC-in connector for system power input.

Pins	Signals
1	DC+
2	DC-



3.3.2 ATX Power On/OFF Button

The ATX power button is on the I/O side. It can allow users to control eBOX638-842-FL power on/off.

Functions	Descriptions
Power On/Off	Turn on/off system

3.3.3 PS/2 Keyboard and Mouse Connector (CN16)

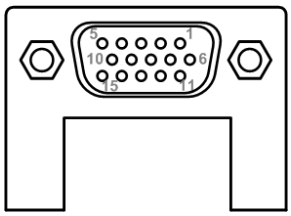
The board has two 6-pin mini-DIN PS/2 connectors; green for mouse and purple for keyboard.

Pins	Signals	Pins	Signals
1	K/B Data	7	M/S Data
2	NC	8	NC
3	GND	9	GND
4	+5V	10	+5V
5	K/B CLK	11	M/S CLK
6	NC	12	NC

3.3.4 VGA Connector (CN8)

The CN8 is a high rise 15-pin D-Sub connector which is commonly used for VGA monitor. This VGA interface configuration can be configured via software utility.

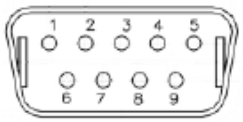
Pins	Signals	Pins	Signals
1	Red	2	Green
3	Blue	4	N.C.
5	GND	6	DETECT
7	GND	8	GND
9	VCC	10	GND
11	N.C.	12	DDC DATA
13	Horizontal Sync	14	Vertical Sync
15	DDC CLK		



3.3.5 COM Serial Port Connector (CN18)

This connector is for COM1 and COM2 serial port interfaces which are selectable for RS-232/422/485 mode. If you need COM1 to support RS-422 or RS-485, please refer to section 3.2.5. If you need COM2 to support RS-422 or RS-485, please refer to section 3.2.6. The pin assignments of RS-232/422/485 are listed in table below.

Pins	RS-232	RS-422	RS-485
1	DCD#	TX-	485-
2	RXD	TX+	485+
3	TXD	RX+	N/C
4	DTR#	RX-	N/C
5	GND	GND	GND
6	DSR#	N/C	N/C
7	RTS#	N/C	N/C
8	CTS#	N/C	N/C
9	RI#	N/C	N/C

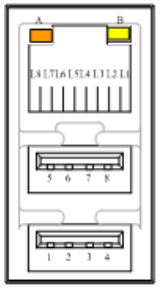


3.3.6 LAN and USB Connectors (CN24 and CN25)

The board comes with two high performance plug and play Ethernet interfaces (RJ-45) which are fully compliant with the IEEE 802.3 standard. Connection can be established by plugging one end of the Ethernet cable into this RJ-45 connector and the other end to a 1000/100/10-Base-T hub.

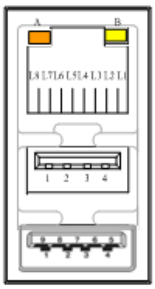
The CN24 has lower double-deck connector for USB 2.0 port 1 and 2.

Pins	LAN2 Signals	Pins	USB Signals
L1	MDI0+	1	+5V standby power
L2	MDI0-	2	USB D1-
L3	MDI1+	3	USB D1+
L4	MDI2+	4	Ground (GND)
L5	MDI2-	5	+5V standby power
L6	MDI1-	6	USB D2-
L7	MDI3+	7	USB D2+
L8	MDI3-	8	Ground (GND)
A	100 LAN LED (Green)/1000 LAN LED (Orange)		
B	Active LED (Yellow)		



The CN25 has lower double-deck connector for USB 3.0 port 1 and USB 2.0 port 3.

Pins	LAN1 Signals	Pins	LAN1 Signals
L1	MDI0+	L5	MDI2+
L2	MDI0-	L6	MDI2-
L3	MDI1+	L7	MDI3+
L4	MDI1-	L8	MDI3-
A	100 LAN LED (Green)/1000 LAN LED (Orange)		
B	Active LED (Yellow)		

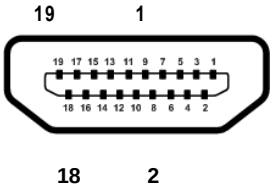


Pins	USB 3.0 Signals	Pins	USB 2.0 Signals
1	USB_VCC (+5V standby power)	1	+5V standby power
2	USB_Data0-	2	USB D1-
3	USB_Data0+	3	USB D1+
4	GND	4	Ground (GND)
5	SSRX1-		
6	SSRX1+		
7	GND		
8	SSTX1-		
9	SSTX1+		

3.3.7 HDMI Connector (CN29)

The HDMI (High-Definition Multimedia Interface) interface is available through this connector.

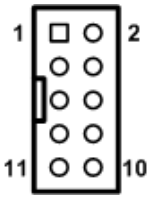
Pins	Signals	Pins	Signals
1	HDMI OUT_DATA2+	2	GND
3	HDMI OUT_DATA2-	4	HDMI OUT_DATA1+
5	GND	6	HDMI OUT_DATA1-
7	HDMI OUT_DATA0+	8	GND
9	HDMI OUT_DATA0-	10	HDMI OUT_Clock+
11	GND	12	HDMI OUT_Clock-
13	N.C.	14	N.C.
15	HDMI OUT_SCL	16	HDMI OUT_SDA
17	GND	18	+5V
19	HDMI_HTPLG		



3.3.8 Internal USB Header (CN3)

This is USB 2.0 header (5x2-pin p=2.54mm).

Pins	Signals	Pins	Signals
1	+5V	2	+5V
3	USB1-	4	USB2-
5	USB1+	6	USB2+
7	GND	8	GND
9	N/C	10	N/C



3.3.9 USB 3.0 Internal Connector

This internal connector provides USB Rev. 3.0 supporting transmission rate up to 5Gbps and fuse protect.

Pins	Signals
1	VCC
2	-DATA1
3	+DATA1
4	GND
5	-SRX1
6	+SRX1
7	GND
8	-STX1
9	+STX1

3.3.10 Audio Jack (CN30)

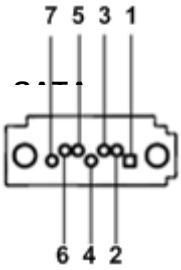
The board provides HD audio jack on the rear I/O. Install audio driver, and then attach audio devices to CN30.

Pin Color	Signal
Green	Line-out
Pink	MIC-in

3.3.11 SATA Connectors (CN4)

This connector supports SATA 2.0.

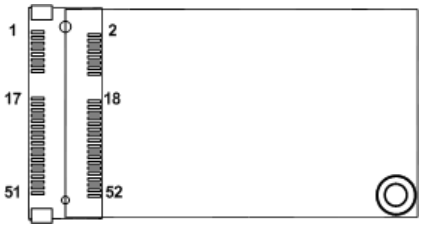
Pin	Signal
1	GND
2	SATA_TXP2
3	SATA_TXN2
4	GND
5	SATA_RXN2
6	SATA_RXP2
7	GND



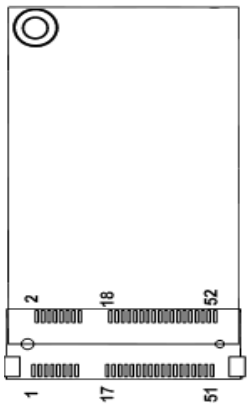
***Note**: Please notice that eBOX638-842 shares SATA signal for SATA 2 connector and mSATA, thus please don't connect your storage to SATA2 if you connect mSATA already. The system always can't detect SATA2 device once mSATA device is connected.*

3.3.12 Full-size PCI-Express Mini Card Connector (CN27)

This is a PCI-Express Mini Card connector applying to PCI-Express or USB 2.0. It complies with PCI-Express Mini Card Spec. V1.2.



3.3.13 mSATA Slot (CN28)



SECTION 4
BIOS SETUP UTILITY

This section provides users with detailed descriptions in terms of how to set up basic system configurations through the BIOS setup utility.

4.1 Starting

To enter the setup screens, follow the steps below:

1. Turn on the computer and press the <Del> key immediately.
2. After press the <Del> key, the main BIOS setup menu displays. Users can access to other setup screens, such as the Advanced and Chipset menus, from the main BIOS setup menu.

It is strongly recommended that users should avoid changing the chipset's defaults. Both AMI and system manufacturer have carefully set up these defaults that provide the best performance and reliability.

4.2 Navigation Keys

The BIOS setup/utility uses a key-based navigation system called hot keys. Most of the BIOS setup utility hot keys can be used at any time during the setup navigation process. These keys include <F1>, <F2>, <Enter>, <ESC>, <Arrow> keys, and so on.

【Note】: ***Some of the navigation keys differ from one screen to another.***

Hot Keys	Descriptions
→← **Left/Right**	The Left and Right <Arrow> keys allow users to select a setup screen.
↑↓ **Up/Down**	The Up and Down <Arrow> keys allow users to select a setup screen or sub-screen.
+– Plus/Minus	The Plus and Minus <Arrow> keys allow users to change the field value of a particular setup item.
Tab	The <Tab> key allows users to select setup fields.
F1	The <F1> key allows users to display the General Help screen.
F2	The <F2> key allows users to Load Previous Values.
F3	The <F3> key allows users to Load Optimized Defaults.
F4	The <F4> key allows users to save any changes they made and exit the Setup. Press the <F4> key to save any changes.
Esc	The <Esc> key allows users to discard any changes they made and exit the Setup. Press the <Esc> key to exit the setup without saving any changes.
Enter	The <Enter> key allows users to display or change the setup option listed for a particular setup item. The <Enter> key can also allow users to display the setup sub- screens.

4.3 Main Menu

The first time you enter the setup utility, you will enter the Main setup screen. You can always return to the Main setup screen by selecting the Main tab. System Time/Date can be set up as described below. The Main BIOS setup screen is shown below.

Project Version
Display the auto-detected BIOS information.

System Date/Time
Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between fields. The date must be entered in MM/DD/YY format. The time is entered in HH:MM:SS format.

Access Level

Display the access level of current user.

4.4 Advanced Menu

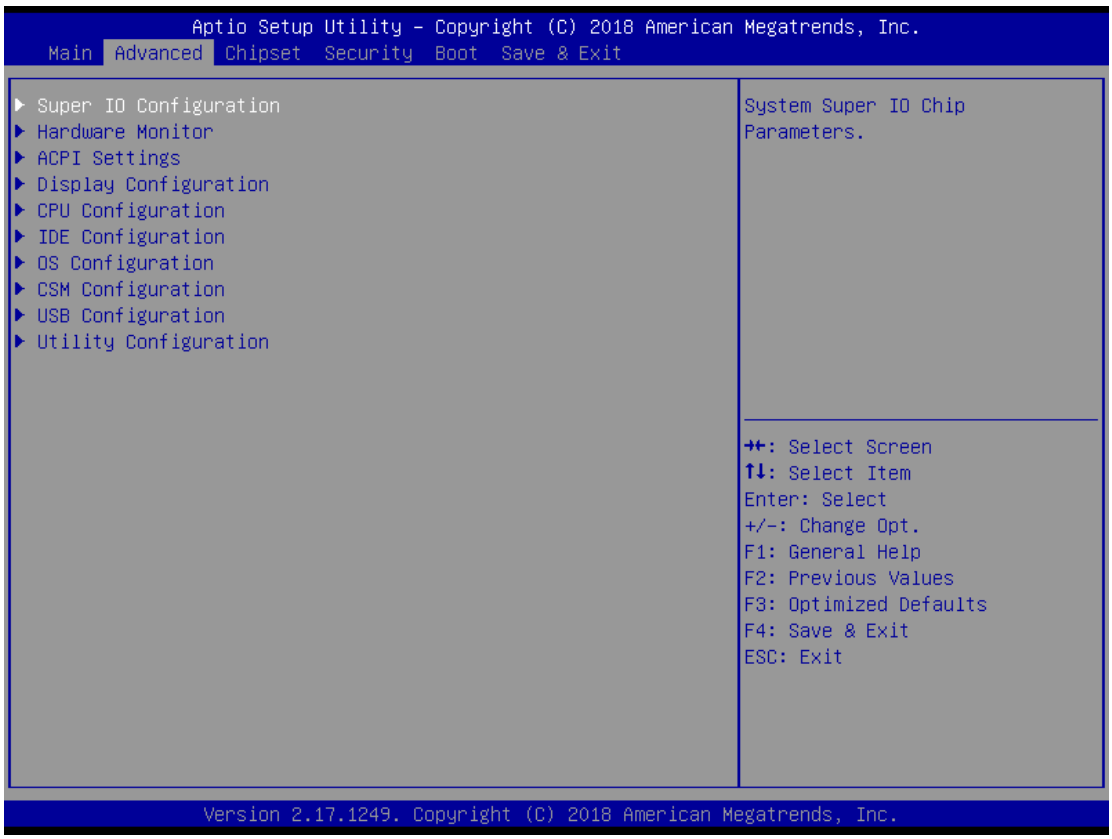
- **Launch PXE OpROM**

Use this item to enable or disable the boot ROM function of the onboard LAN chip when the system boots up.

The Advanced menu also allows users to set configuration of the CPU and other system devices. You can select any of the items in the left frame of the screen to go to the sub menus:

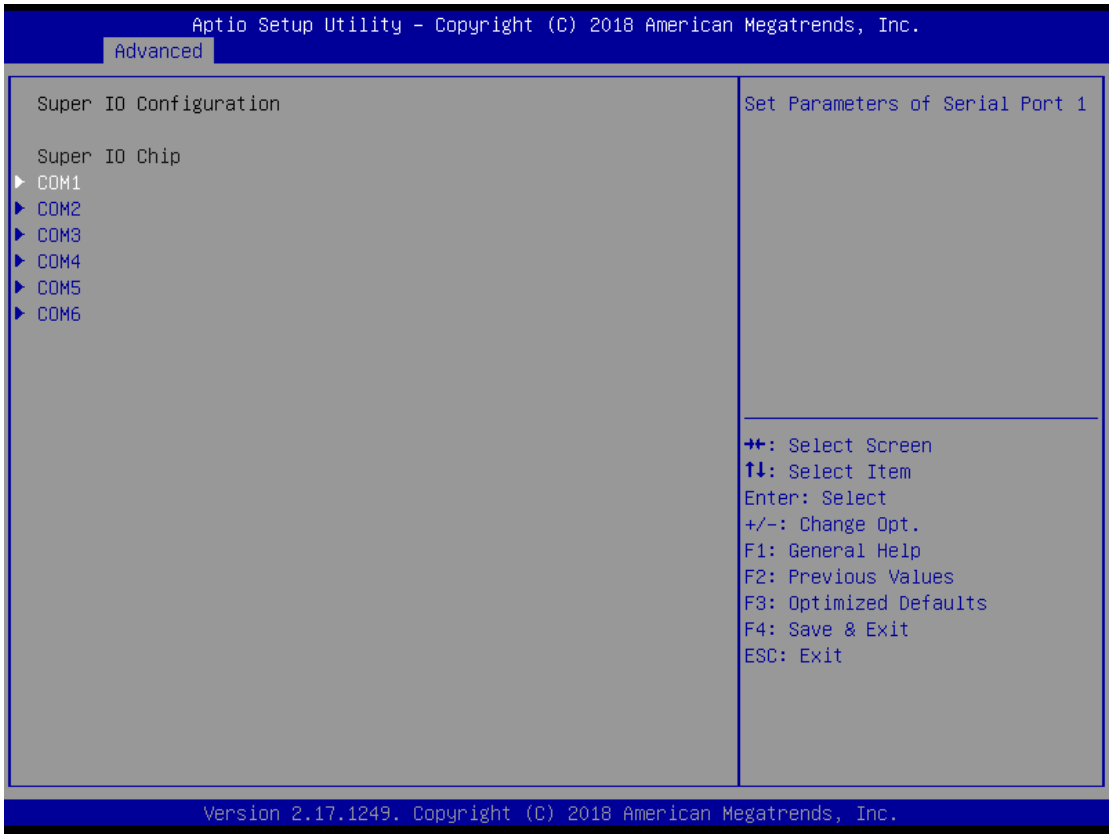
- ► Super IO Configuration
- ► Hardware Monitor
- ► ACPI Settings
- ► Display Configuration
- ► CPU Configuration
- ► IDE Configuration
- ► OS Configuration
- ► CSM Configuration
- ► USB Configuration
- ► Utility Configuration

For items marked with "►", please press <Enter> for more options.



- **Super IO Configuration**

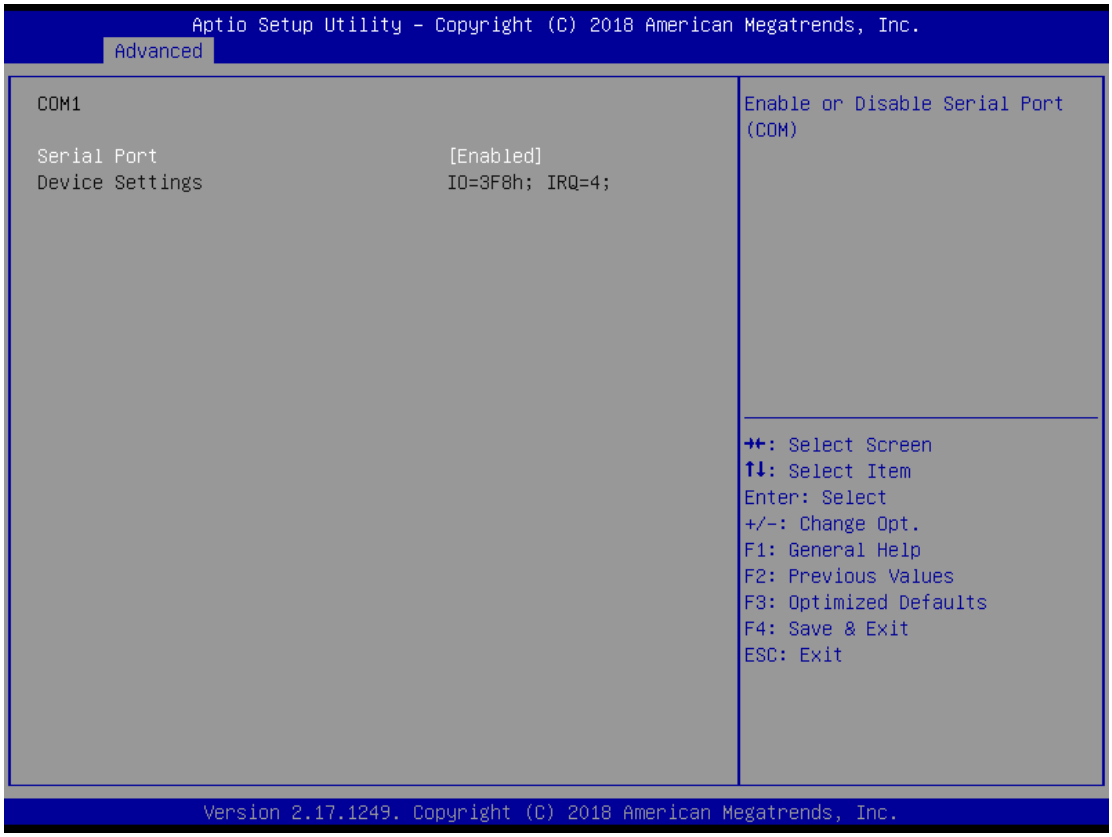
You can use this screen to select options for the Super IO Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "▶", please press <Enter> for more options.



Serial Port 1~6 Configuration

Use these items to set parameters related to serial port 1~6.

- **COM1**



Serial Port

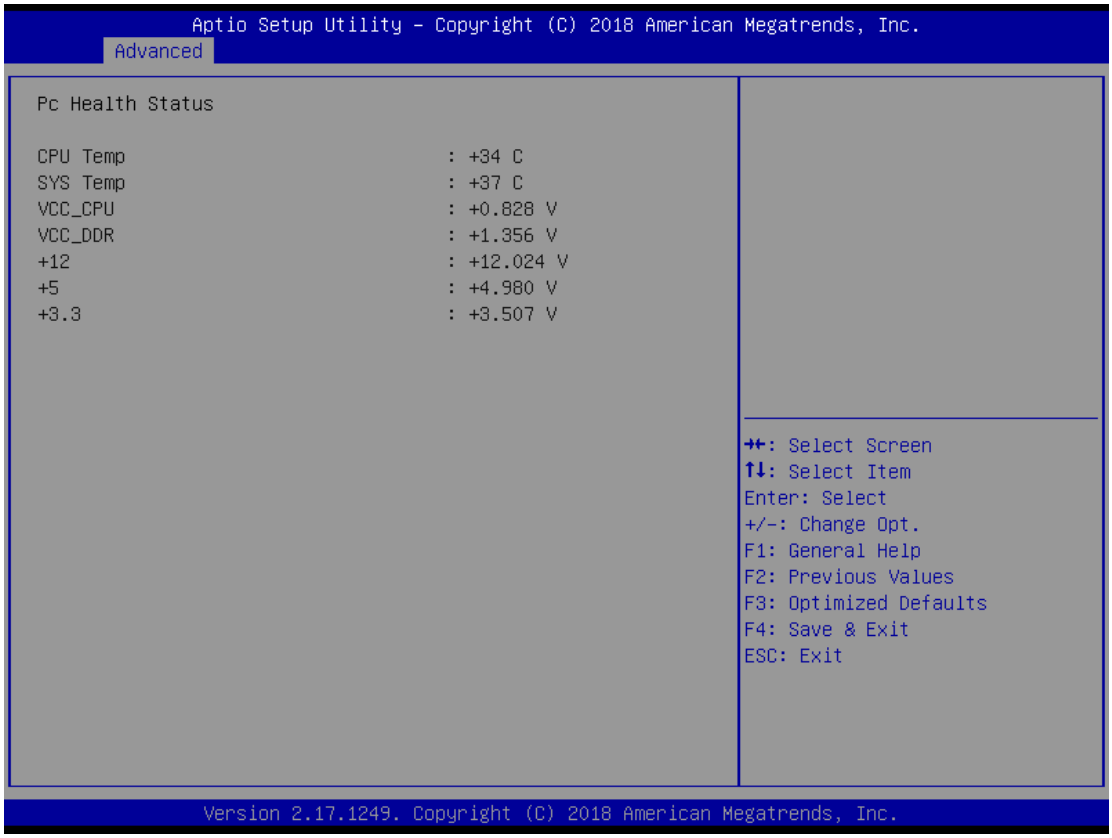
Enable or disable serial port 1. The optimal setting for base I/O address is 3F8h and for interrupt request address is IRQ4.

Change Settings

Select an optimal setting for serial port.

- **H/W Monitor**

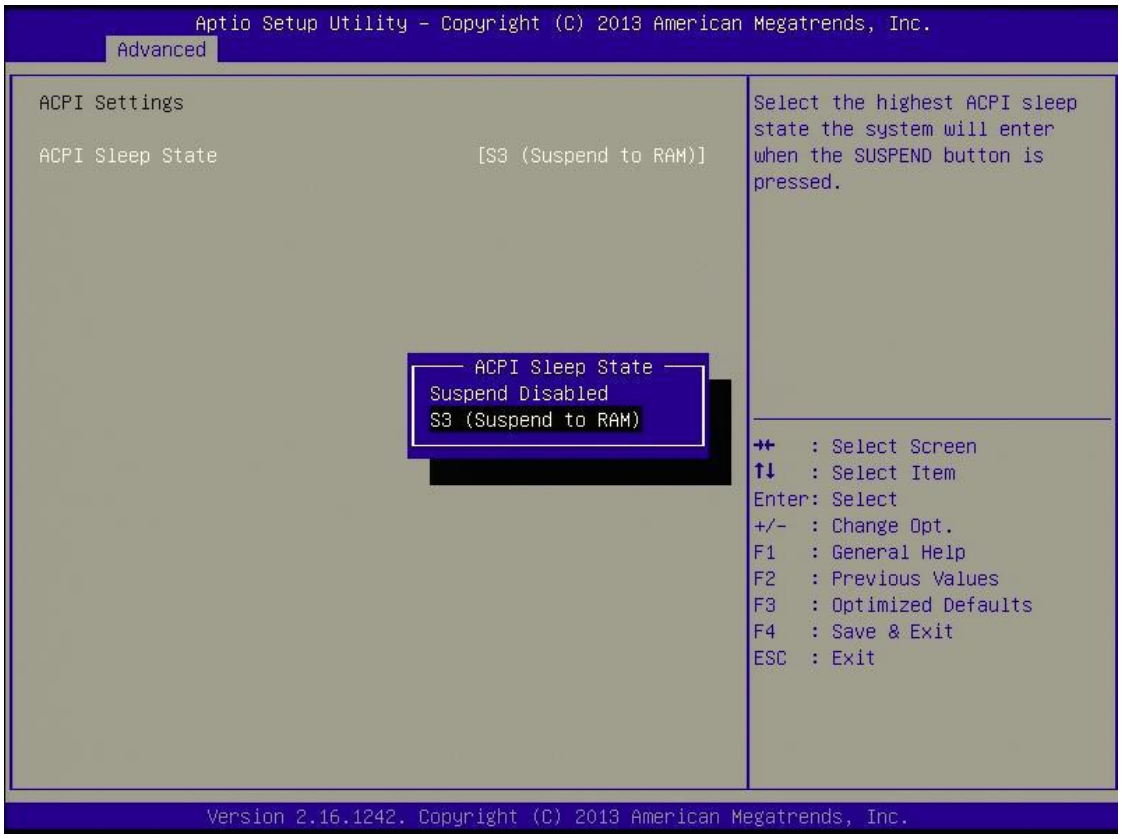
This screen monitors hardware health status.



This screen displays the temperature of system and CPU, stem voltages (VCC_CPU, VCC_DDR, +12V, +5V, +3.3V).

- **ACPI Settings**

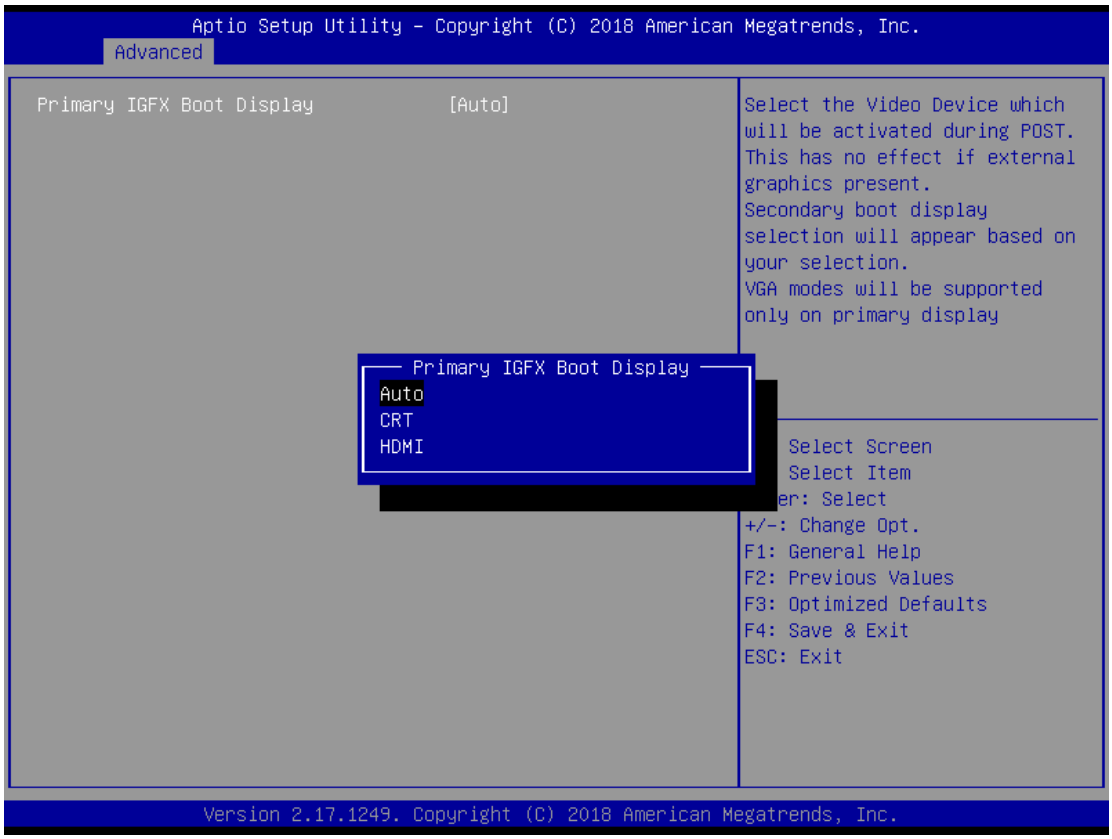
You can use this screen to select options for the ACPI configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.



ACPI Sleep State

Select the highest ACPI sleep state the system will enter when the suspend button is pressed. Configuration options are Suspend Disabled and S3 (Suspend to RAM).

- **Display Configuration**

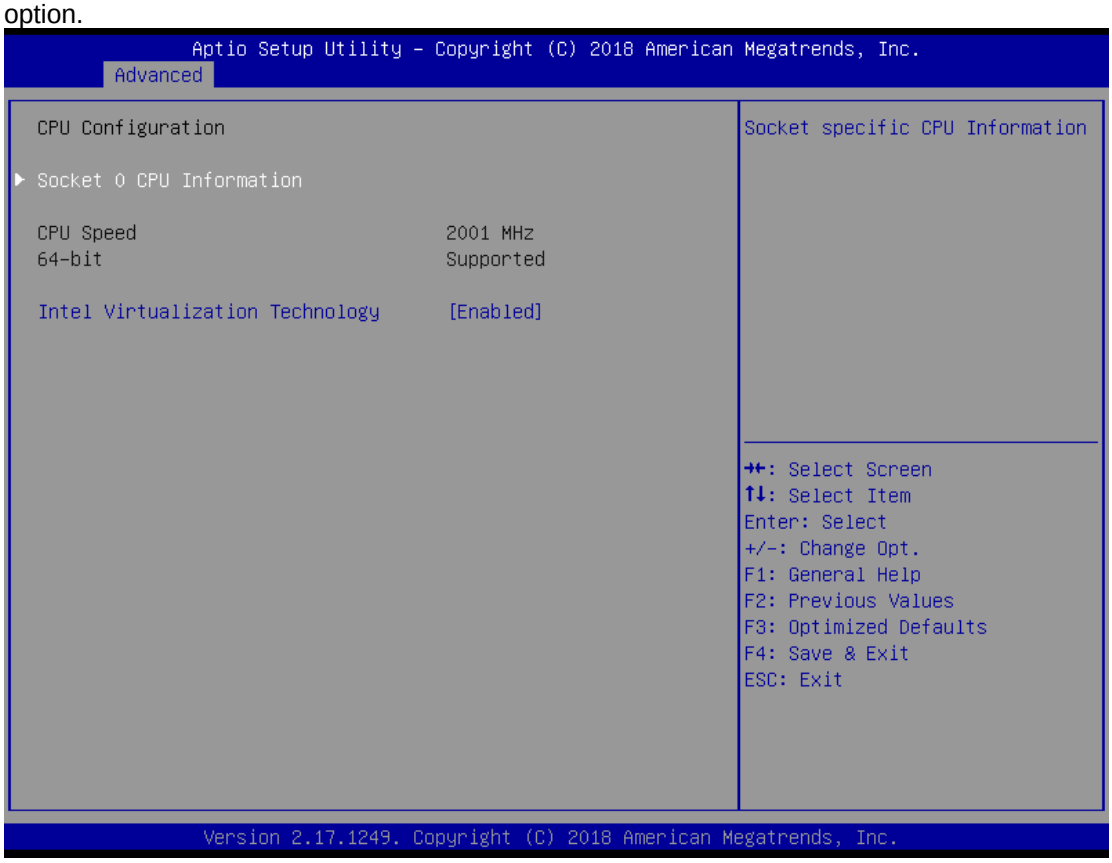


Primary IGFX Boot Display

Select the video device which will be activated during POST (Power-On Self Test). The default is Auto.

- **CPU Configuration**

This screen shows the CPU Configuration, and you can change the value of the selected option.



Socket 0 CPU Information

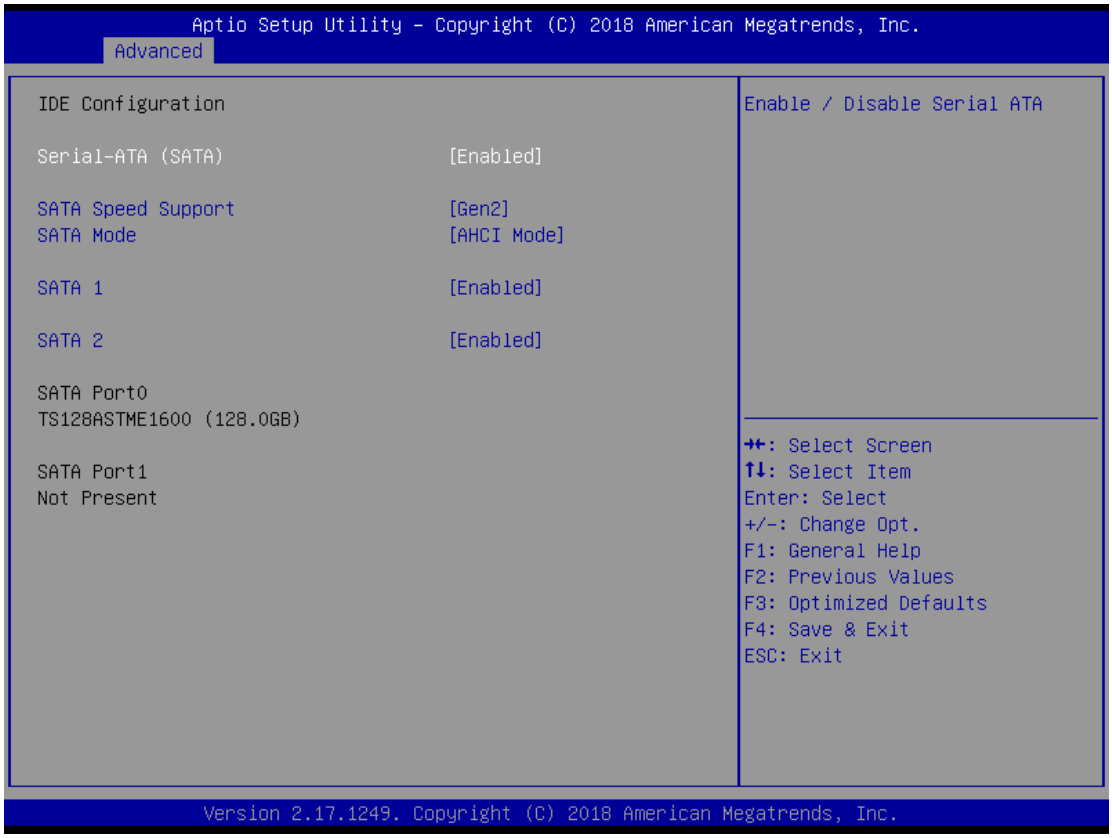
This item is for CPU information.

Intel Virtualization Technology

Enable or disable Intel Virtualization Technology. When enabled, a VMM (Virtual Machine Mode) can utilize the additional hardware capabilities. It allows a platform to run multiple operating systems and applications independently, hence enabling a computer system to work as several virtual systems.

- **IDE Configuration**

In the IDE Configuration menu, you can see the currently installed hardware in the SATA ports. During system boot up, the BIOS automatically detects the presence of SATA devices.



Serial-ATA (SATA)

Enable or disable the SATA controller feature.

SATA Speed Support

Select SATA speed support.

SATA Mode

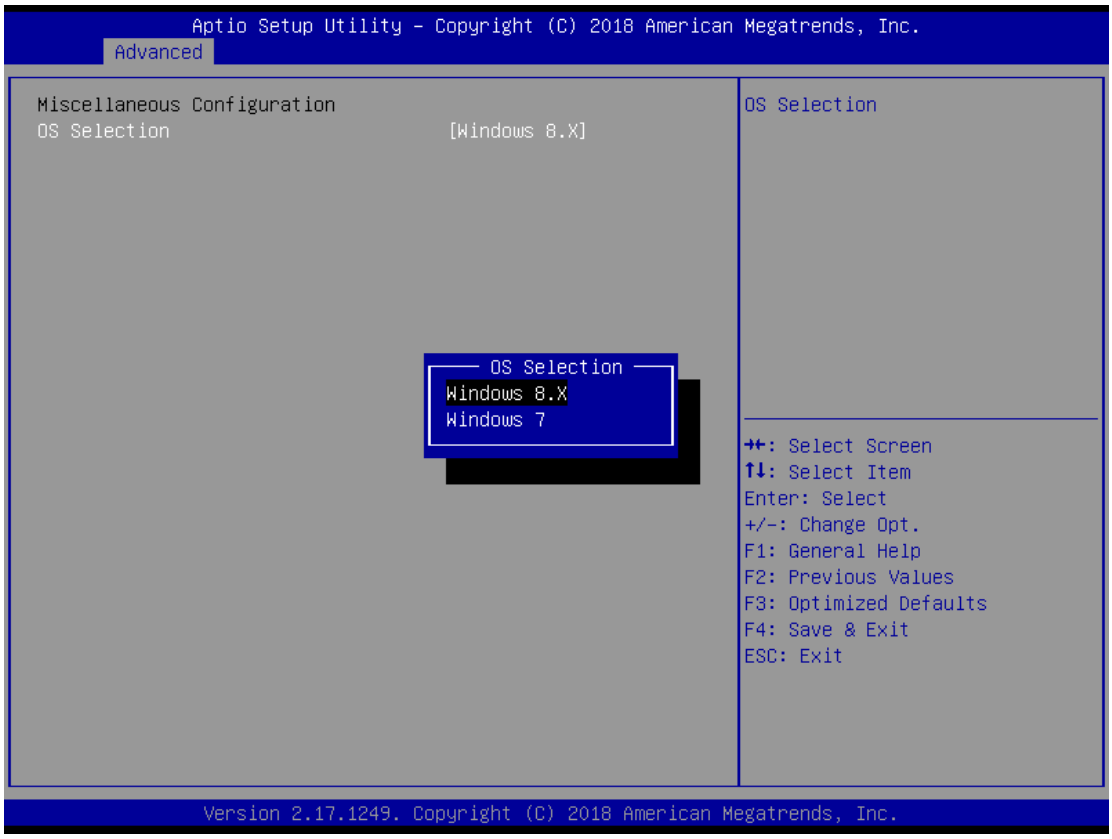
Determine how SATA controller(s) operate. Operation mode options are IDE Mode, AHCI (Advanced Host Controller Interface) Mode. The default is AHCI Mode.

SATA 1~2

Enable or disable the onboard SATA port 1~2.

- **OS Configuration**

You can use this screen to select options for the USB Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen.

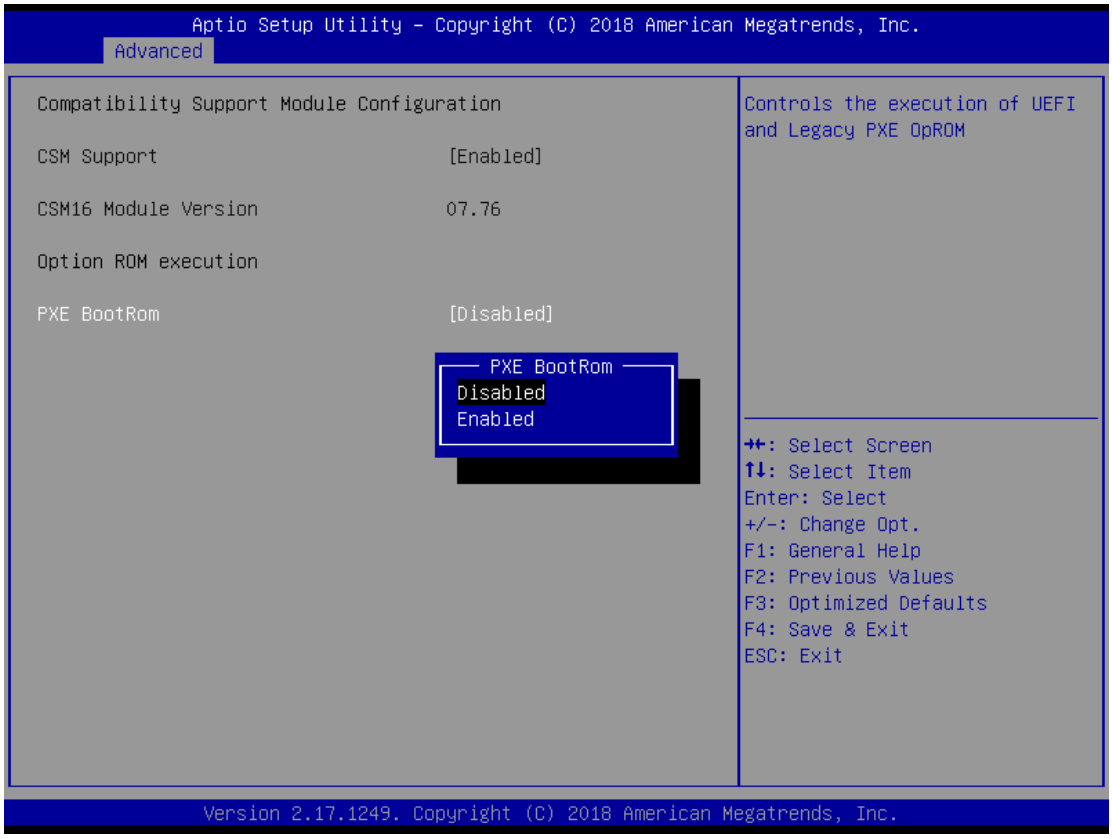


OS Selection

This item allows user to select the proper Operating System.

- **CSM Configuration**

Enable or disable TXE firmware.



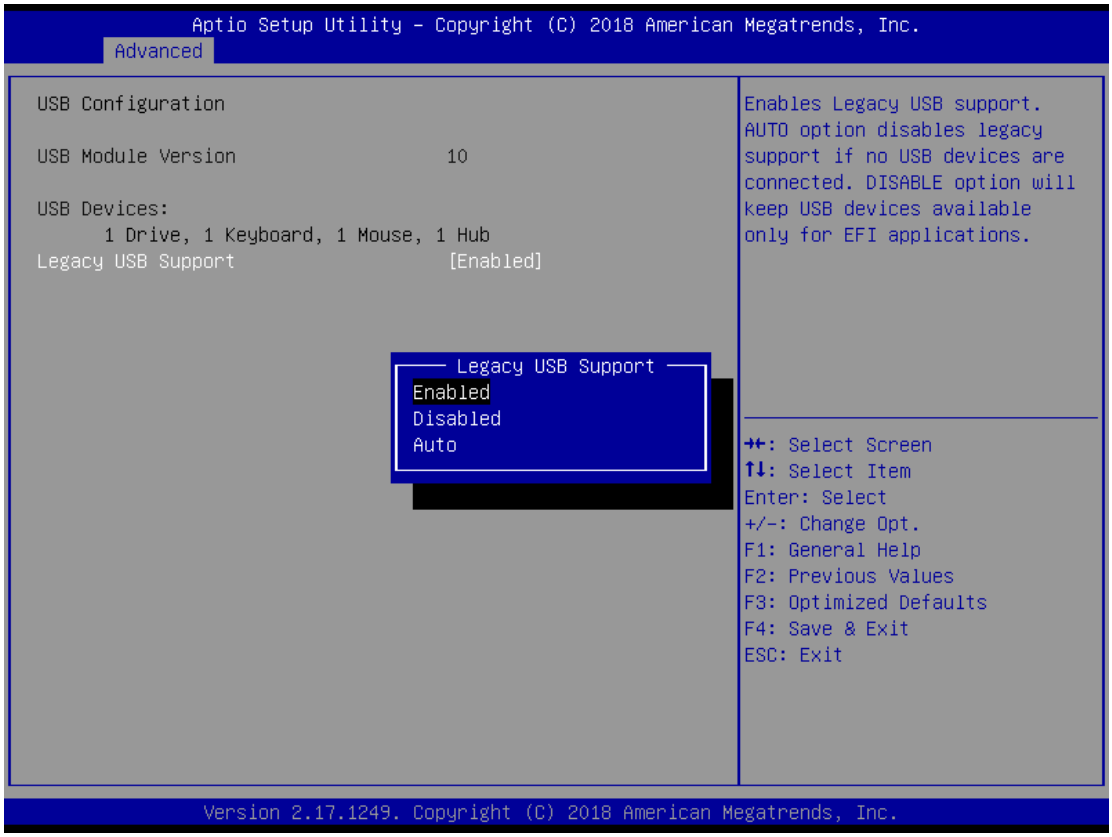
CSM Support

Enable or disable CSM (Compatibility Support Module) support.

PXE BootRom

Enable or disable the Preboot eXecution Environment (PXE) boot ROM function of the onboard LAN chip during system boots up.

- **USB Configuration**



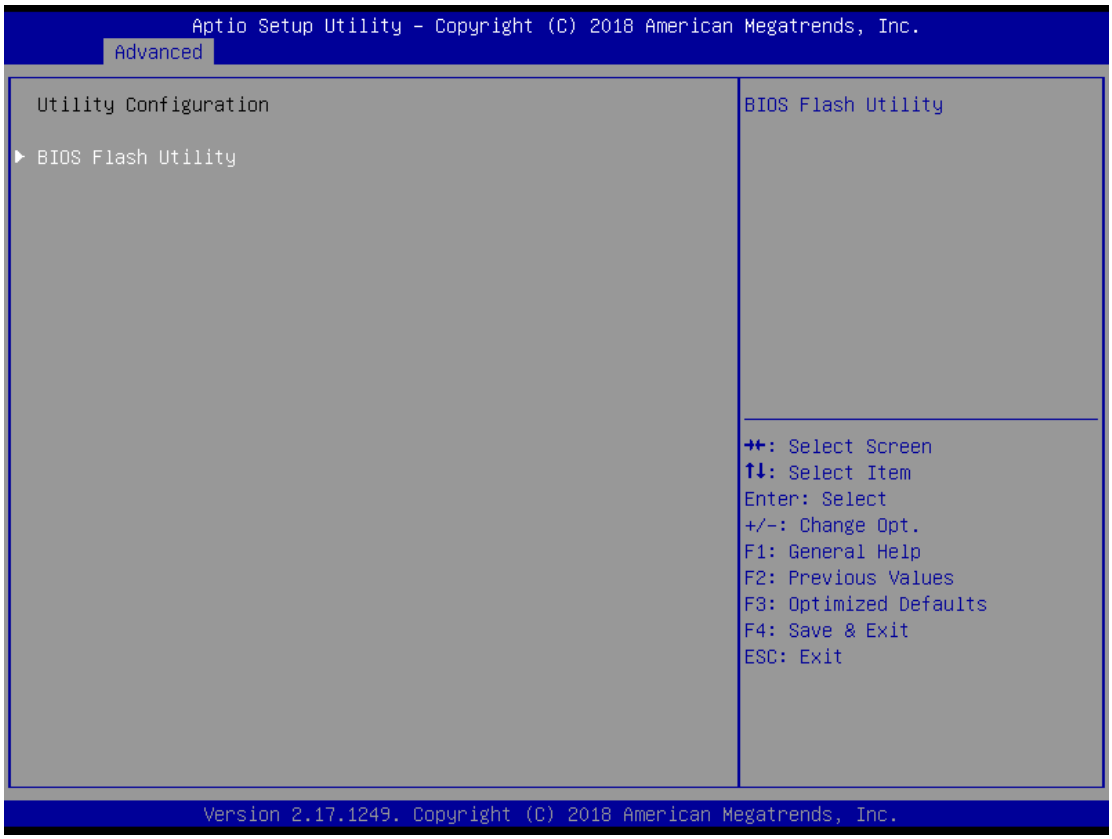
USB Devices

Display all detected USB devices.

Legacy USB Support

Use this item to enable or disable legacy support for USB devices. The default setting is Enabled. Auto option disables legacy support if no USB devices are connected. Disable option will keep USB devices available only for EFI applications.

- **Utility Configuration**



BIOS Flash Utility

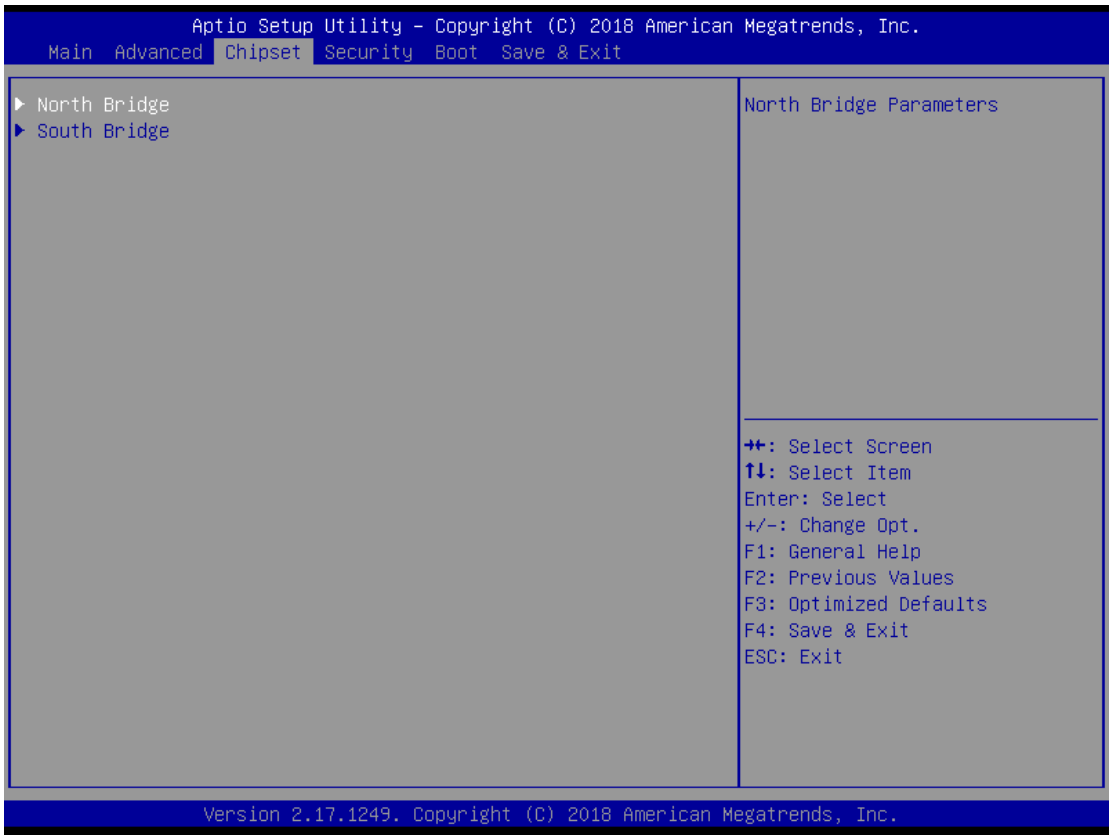
BIOS flash utility configuration. For more detailed information, please refer to Appendix A

4.5 Chipset Menu

The Chipset menu allows users to change the advanced chipset settings. You can select any of the items in the left frame of the screen to go to the sub menus:

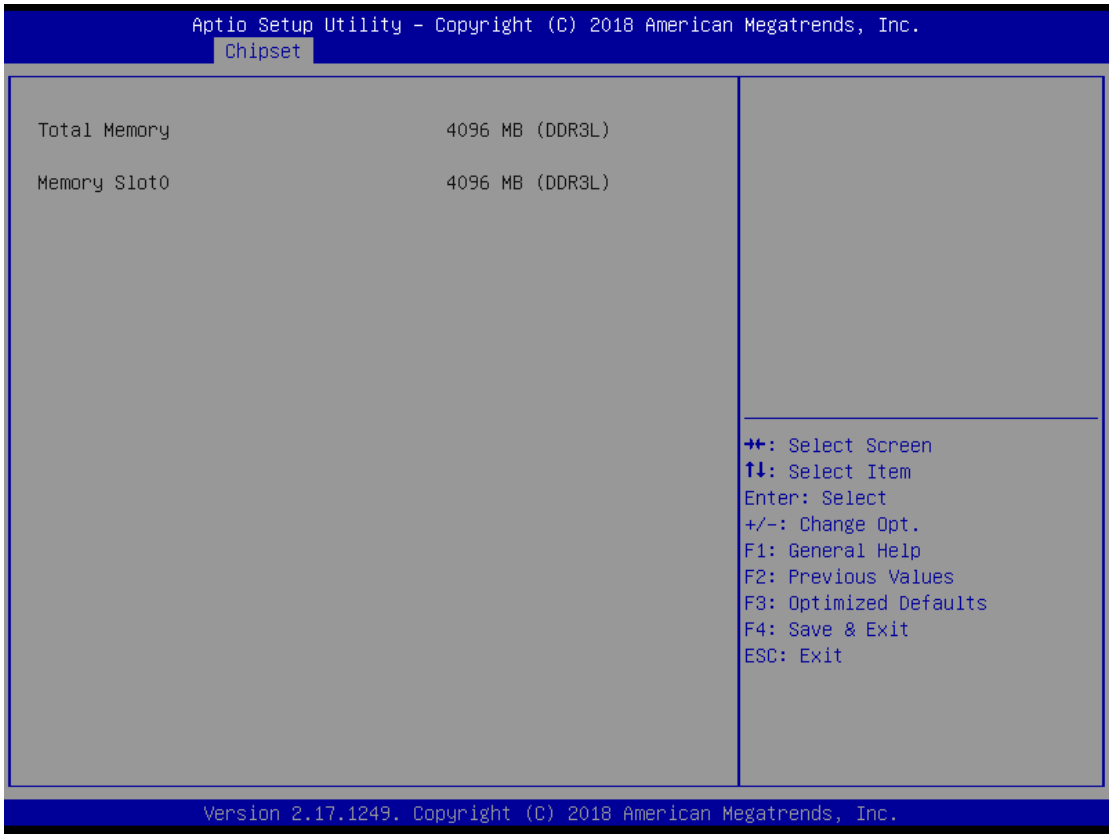
- ► North Bridge
- ► South Bridge

For items marked with "►", please press <Enter> for more options.

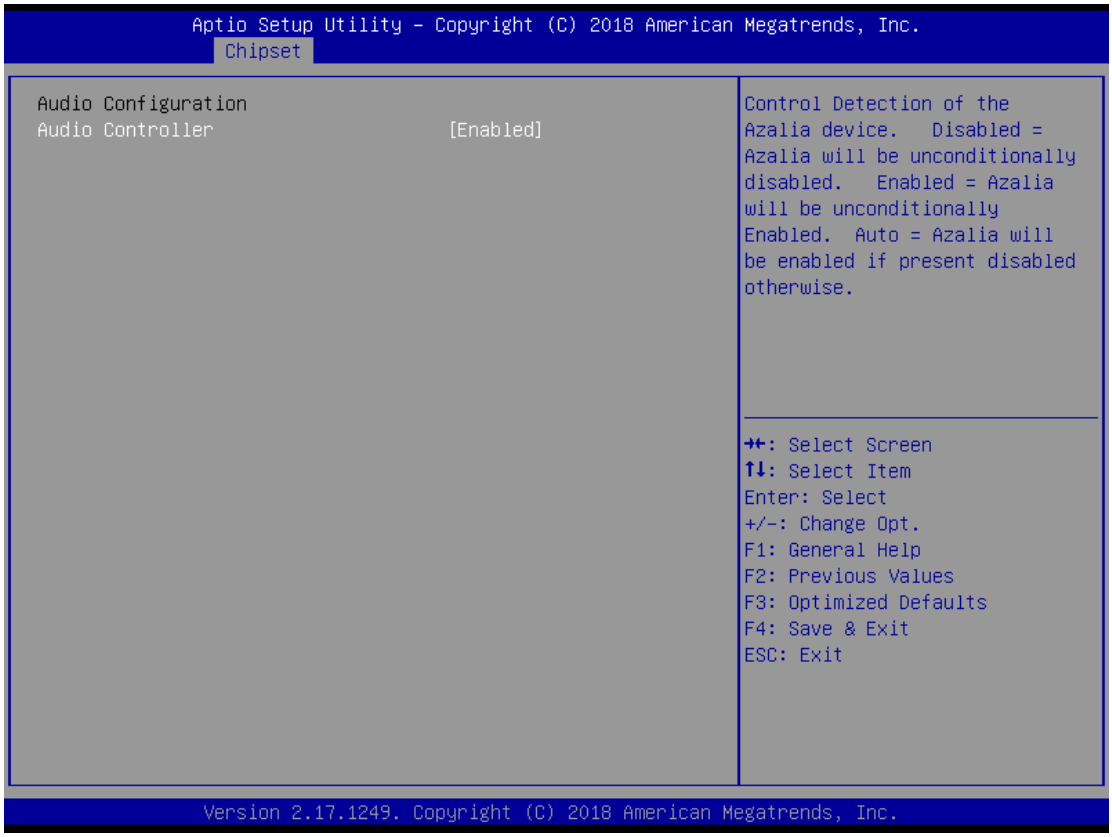


- **North Bridge**

This screen is for North Bridge configuration.



- **South Bridge**



Audio Controller

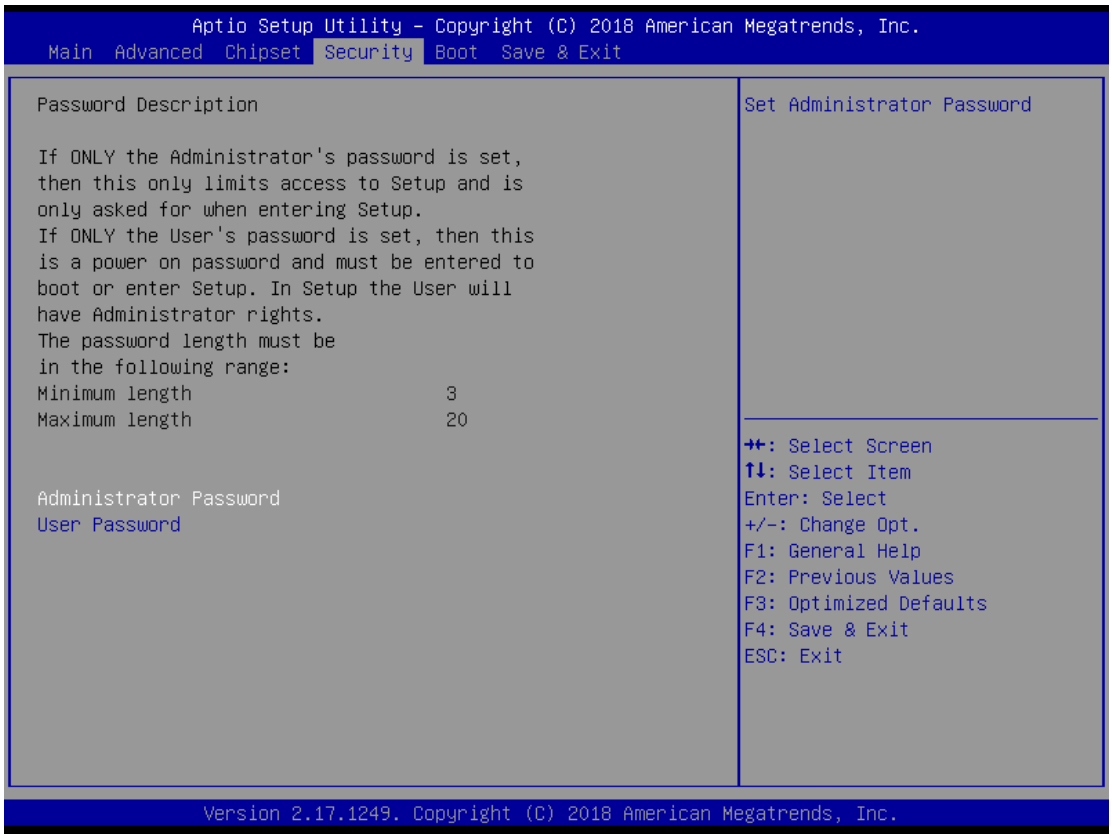
Control detection of the audio device.

- Disabled: Audio device will be unconditionally disabled.

- Enabled: Audio device will be unconditionally enabled.

4.6 Security Menu

The Security menu allows users to change the security settings for the system.

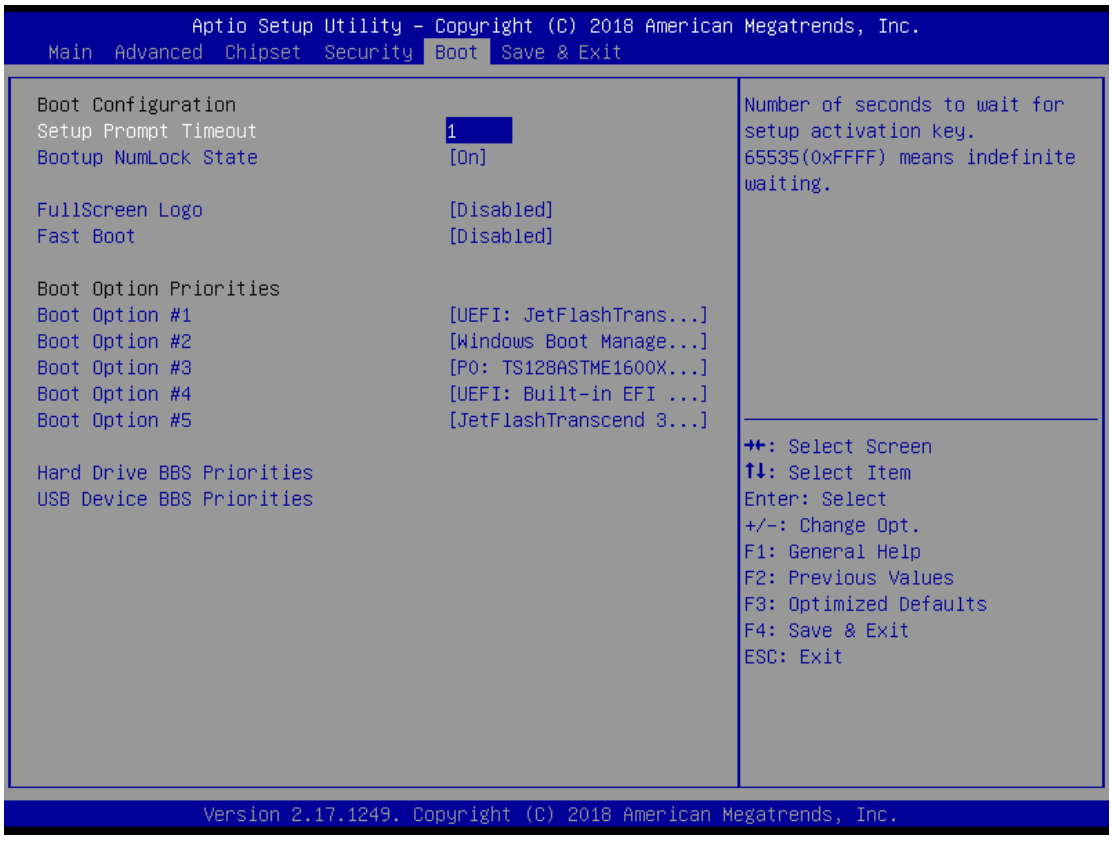


Administrator Password
This item indicates whether an administrator password has been set (installed or uninstalled).

User Password
This item indicates whether an user password has been set (installed or uninstalled).

4.7 Boot Menu

The Boot menu allows users to change boot options of the system.



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

Bootup NumLock State
Use this item to select the power-on state for the keyboard NumLock.

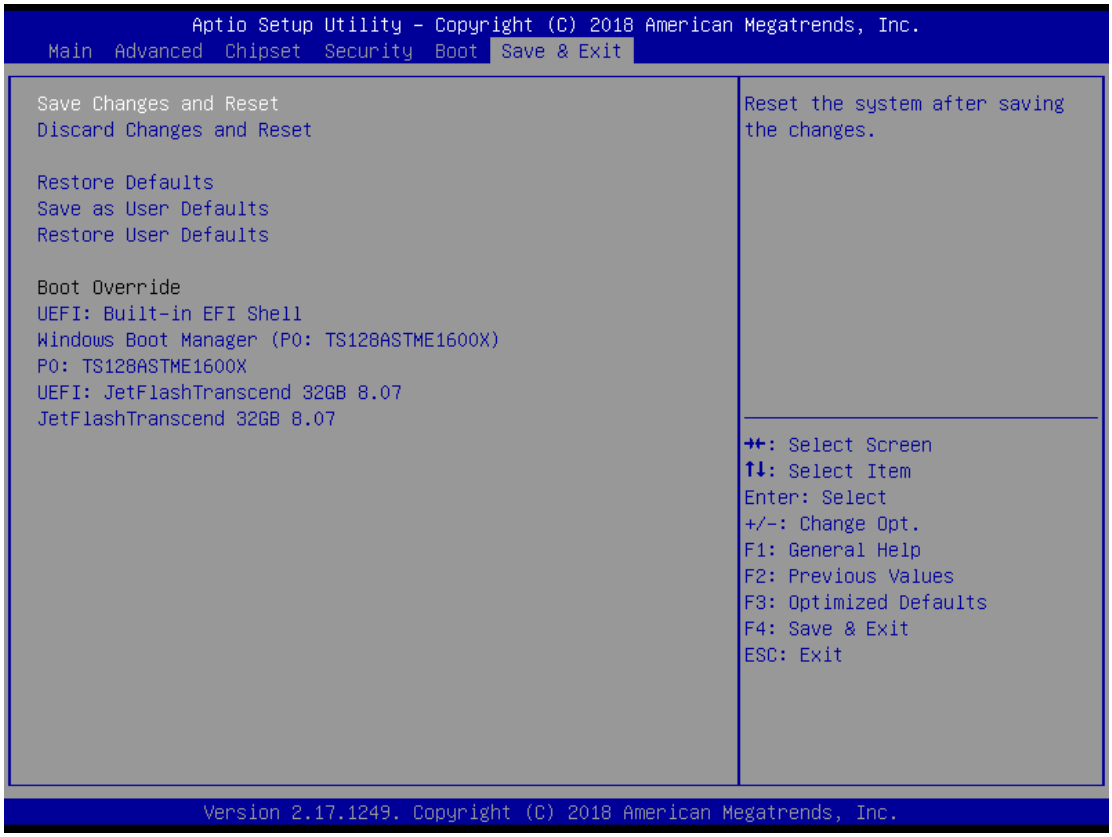
FullScreen Logo
Enable or disable OEM logo display at system startup.

Fast Boot
Enable or disable fast boot function. BIOS skips some certain procedures to decrease system boot up time.

Boot Option Priorities [Boot Option #1, …]
These are settings for boot priority. Specify the boot device priority sequence from the available devices.

4.8 Save & Exit Menu

The Save & Exit menu allows users to load your system configuration with optimal or fail-safe default values.



Save Changes and Reset

When completed the system configuration changes, select this option to leave Setup and reboot the computer so the new system configurations take effect. Select Save Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to save changes and reset.

Discard Changes and Reset

Select this option to quit Setup without making any permanent changes to the system configuration and reboot the computer. Select Discard Changes and Reset from the Save & Exit menu and press <Enter>. Select Yes to discard changes and reset.

Restore Defaults

It automatically sets all Setup options to a complete set of default settings when users select this option. Select Restore Defaults from the Save & Exit menu and press <Enter>.

Save as User Defaults

Select this option to save system configuration changes done so far as User Defaults. Select Save as User Defaults from the Save & Exit menu and press <Enter>.

Restore User Defaults
It automatically sets all Setup options to a complete set of User Defaults when users select this option. Select Restore User Defaults from the Save & Exit menu and press <Enter>.

Boot Override
Select a drive to immediately boot that device regardless of the current boot order.

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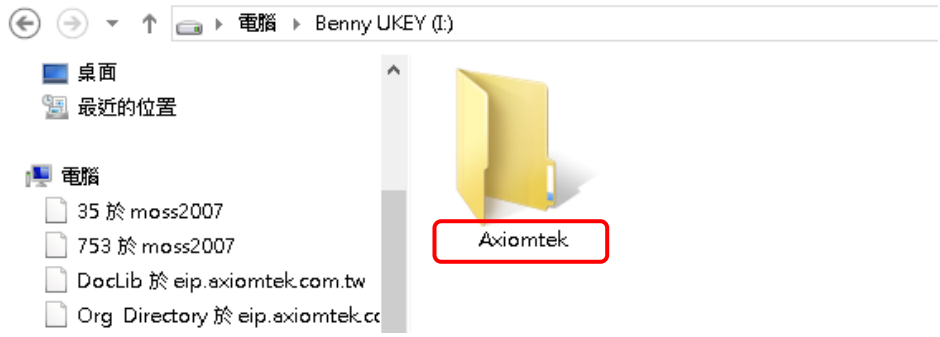
APPENDIX A
BIOS Flash Utility

The BIOS Flash utility is a new helpful function in BIOS setup program. With this function you can easily update system BIOS without having to enter operating system. In this appendix you may learn how to do it in just a few steps. Please read and follow the instructions below carefully.

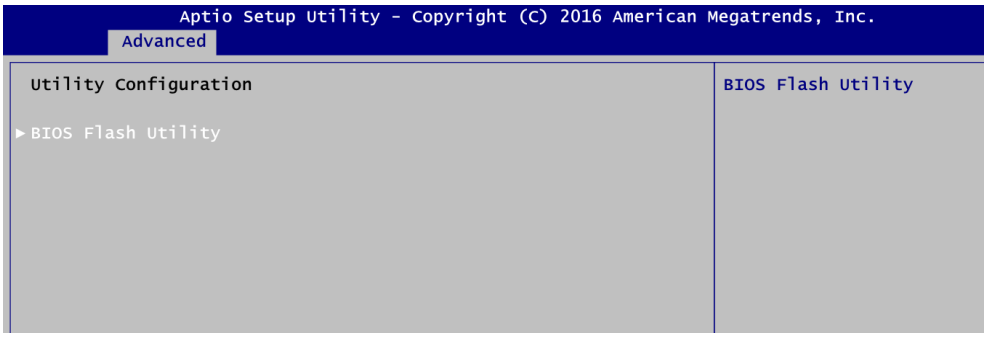
1. In your USB flash drive, create a new folder and name it "Axiomtek", see figure below.



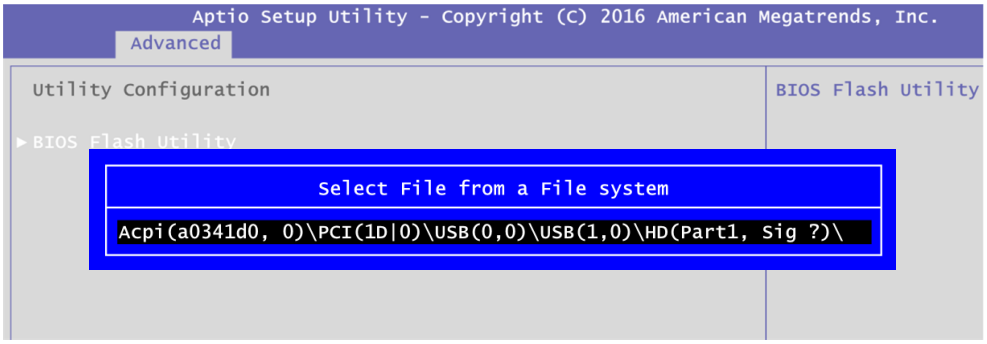
2. Copy BIOS ROM file (e.g. MANO842.V200) to "Axiomtek" folder.

3. Insert the USB flash drive to your system.

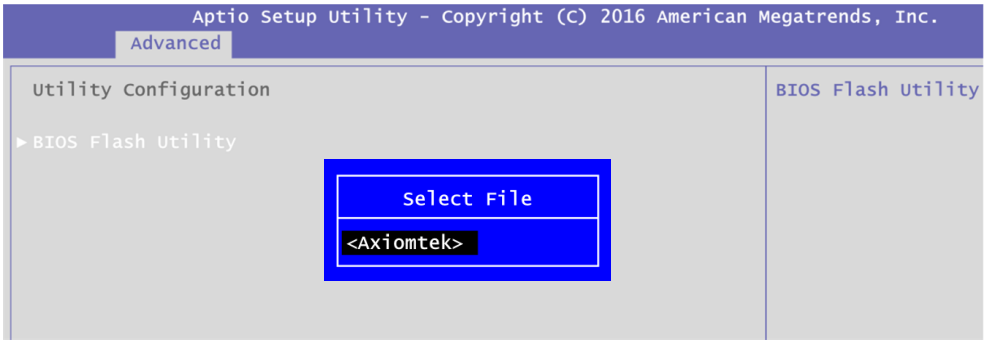
4. Enter BIOS setup menu and go to Advanced\Utility Configuration. Select BIOS Flash Utility and press <Enter>.



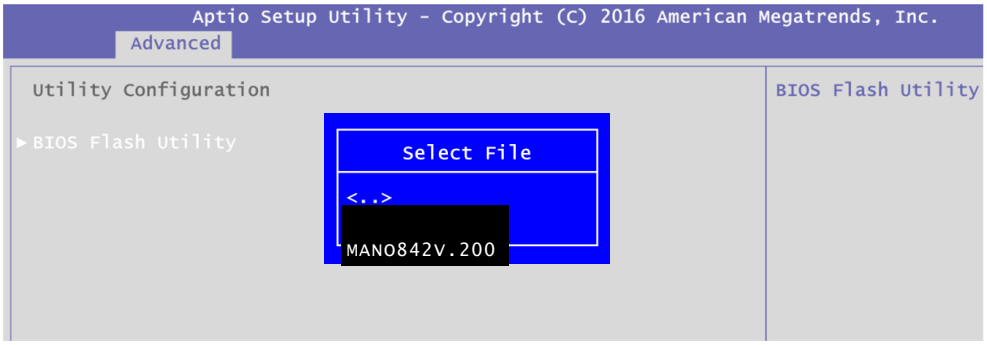
5. BIOS automatically detect all USB drive(s) attached to the system. In this example only one USB drive is attached to the system. That's why, you can see only one device is displayed in figure below.



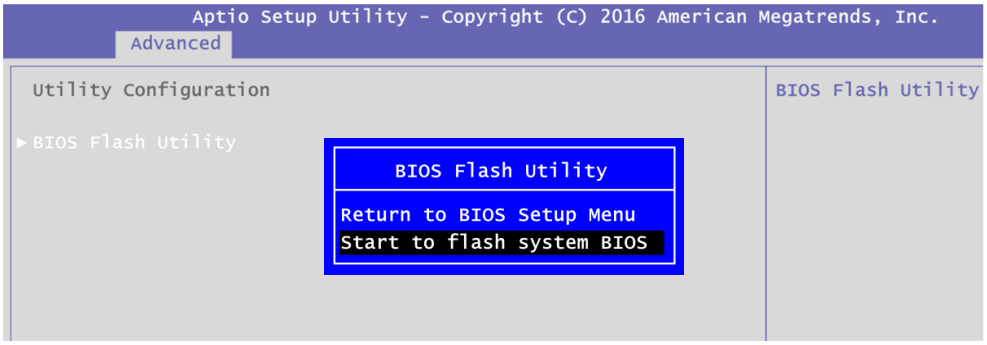
6. Select the USB drive containing BIOS ROM file you want to update using the <↑> or <↓> key. Then press <Enter> to get into "Axiomtek" folder.



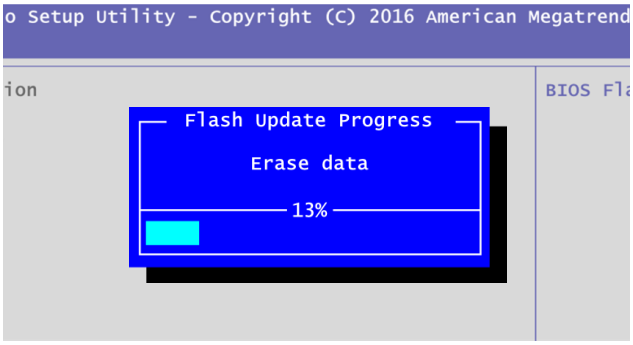
7. Now you can see the BIOS ROM file on the screen, press <Enter> to select.

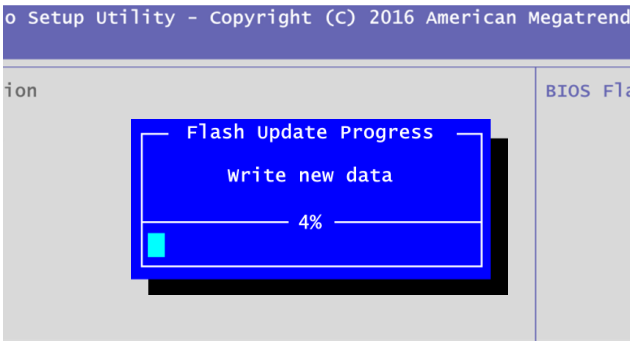


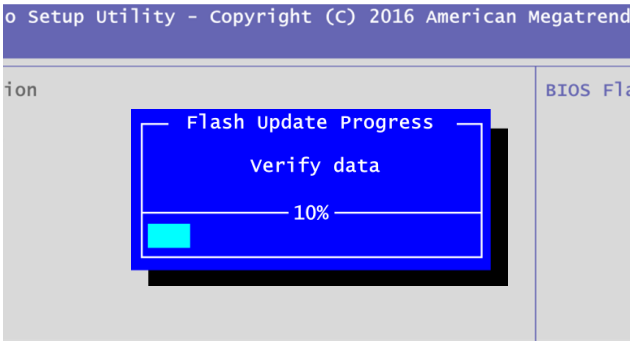
8. Select Start to flash system BIOS option to begin updating procedure.



9. Please wait while BIOS completes the entire flash update process: erase data, write new data and verify data.







10. When you see the following figure, press <Enter> to finish the update process. After that the system will shut down and restart immediately.