



***AXIOMTEK***

**CEB94022**

**COM Express™ Type 6 with MXM  
Application Board**

**User's Manual**



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## **CAUTION**

If you replace wrong batteries, it causes the danger of explosion. It is recommended by the manufacturer that you follow the manufacturer's instructions to only replace the same or equivalent type of battery, and dispose of used ones.

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## **ESD Precautions**

Computer boards have integrated circuits sensitive to static electricity. To prevent chipsets from electrostatic discharge damage, please take care of the following jobs with precautions:

- Do not remove boards or integrated circuits from their anti-static packaging until you are ready to install them.
- Before holding the board or integrated circuit, touch an unpainted portion of the system unit chassis for a few seconds. It discharges static electricity from your body.
- Wear a wrist-grounding strap, available from most electronic component stores, when handling boards and components.

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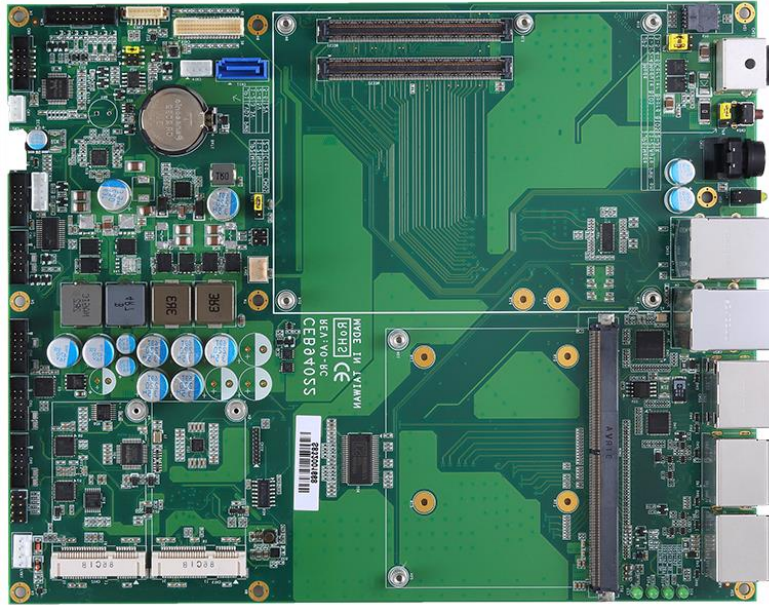
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# Chapter 1

## Introduction



The CEB94022 is a new COM Express™ Type 6 Application Board for embedded COM Express™ Type 6 with MXM slot which fully compliant with the PCI Industrial Computer Manufacturers PICMG COM Express™ standard. In addition to the standard output signals for converting, CEB94022 provides six display interfaces which include one HDMI port (from COM Express™ module), one DP port (from COM Express™ module) and four DP port (from MXM module). Besides of multiple display interface, CEB94022 also provide two full-size PCI-Express Mini Card sockets for expansion purposes.

This board supports various I/O features: display interfaces including one VGA (box header) and LVDS (connector), two Gigabit/Fast Ethernet, HD audio codec, one SATA-600 interface, two USB 3.0, two USB 2.0, eight GPIO and four serial ports (three RS-232/422/485 and one RS-232).

With CEB94022, customers can implement it in their own applications devices and accelerate time-to-market for multiple display or high graphic computing demand applications e.g. Retail or computer vision.

## 1.1 Features

- 1 HDMI and 1 DP ports (default from COM Express™ module)
- 4 DP ports (from MXM module)
- MXM Type A support
- 2 Gigabit LAN ports
- SATA and mSATA
- LVDS/VGA
- 2 USB 3.0 ports (depend on CEM module)
- 4 USB 2.0 ports
- 4 COM ports (RS-232/422/485 x3 / RS-232 x1)
- 8 GPIO
- 2 full-size PCI-Express Mini Cards

## 1.2 Specifications

- **CPU**
  - COM Express™ Type 6 module.
- **System Chipset**
  - On the COM Express™ module.
- **BIOS**
  - On the COM Express™ module.
- **System Memory**
  - On the COM Express™ module.
- **MXM**
  - Standard MXM slot.
  - Support MXM Type A max TDP 50W.
- **Onboard Multi I/O**
  - Three RS-232/422/485 in wafer connector.
  - One RS-232 in wafer connector.
- **Serial ATA**
  - One SATA-600 connector.
  - One mSATA (mini PCI-Express socket).
- **Ethernet**
  - Two RJ-45 interfaces for 1000/100/10Mbps.
- **Audio**
  - HD audio with line-out/line-in/MIC-in.
- **USB Interface**
  - Two USB ports comply with USB Spec. Rev. 3.0 (depend on CEM Module).
  - Four USB ports comply with USB Spec. Rev. 2.0.
- **SMBUS**
  - Supported.
- **I2C**
  - Supported.



- **Digital I/O**
  - Four inputs and four outputs in wafer connector.
- **Display**
  - One 2x20-pin connector for 18/24-bit single/dual channel LVDS and one 8-pin inverter connector. LVDS resolution is up to 1920x1200 in 24-bit dual channels.
  - One 16-pin wafer connector as VGA interface.
  - Five DP connectors (one DP from COM Express™, four DP from MXM).
  - One HDMI connector (from COM Express™)
- **Expansion Interface**
  - Two full-size PCI-Express Mini Card sockets which comply with PCI-Express Mini Card Spec. V1.2.
- **Power Input**
  - DC 19V~24V.
- **Battery**
  - Lithium 3V/220mAH.
- **Size**
  - 245 x 190mm.
- **Board Thickness**
  - 1.6mm.
- **Operation Temperature**
  - -20°C ~ +65°C (-68°F ~ 149°F).
- **Operation Humidity**
  - 10% ~ 95% relative humidity, non-condensing.



Note

- *All specifications and images are subject to change without notice.*
- *Before using the COM Express™ baseboard, check with your supplier if the BIOS on COM Express™ module supports this baseboard.*

## 1.3 Utilities Supported

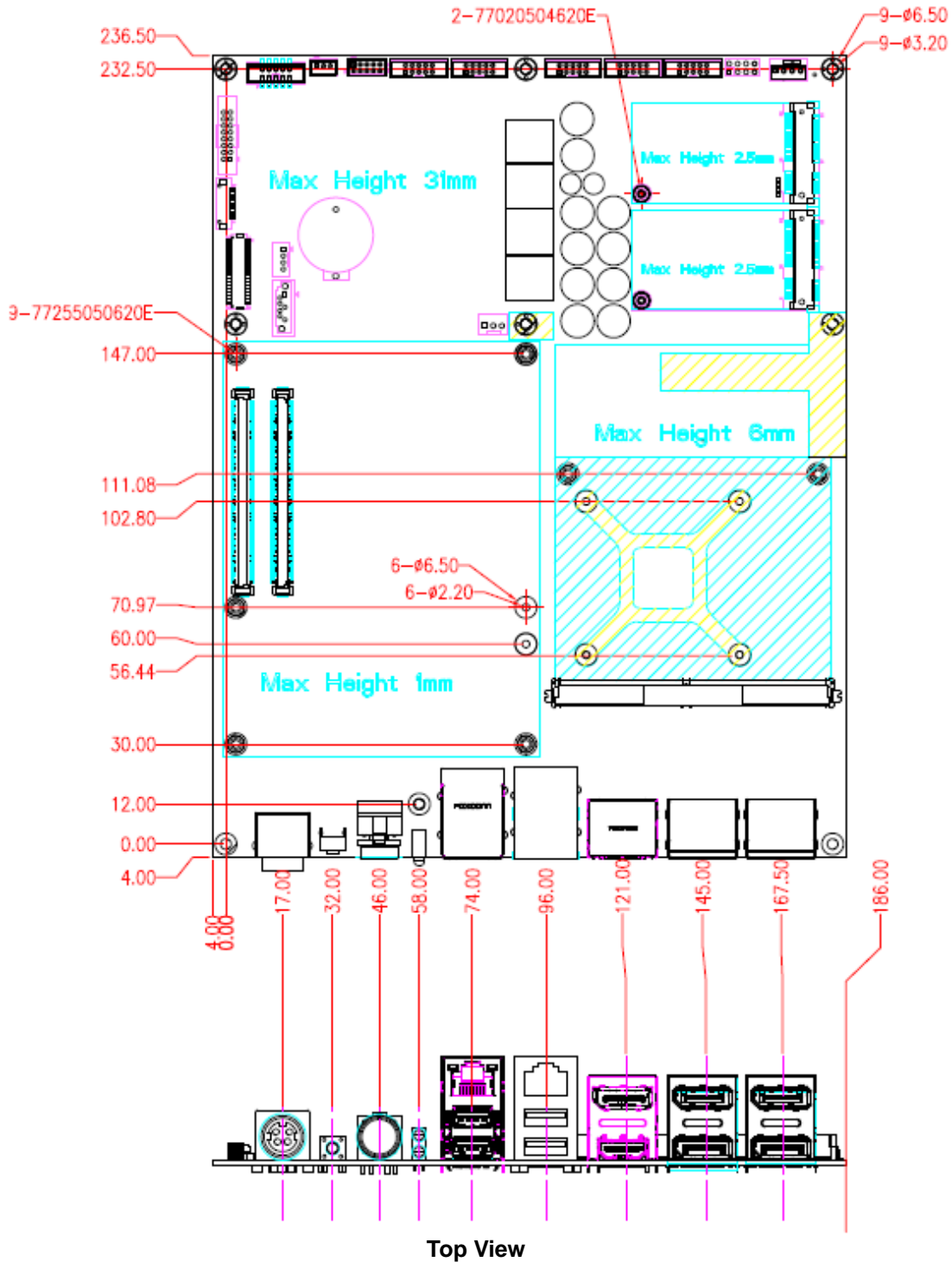
- Audio driver
- Intel® Ethernet driver

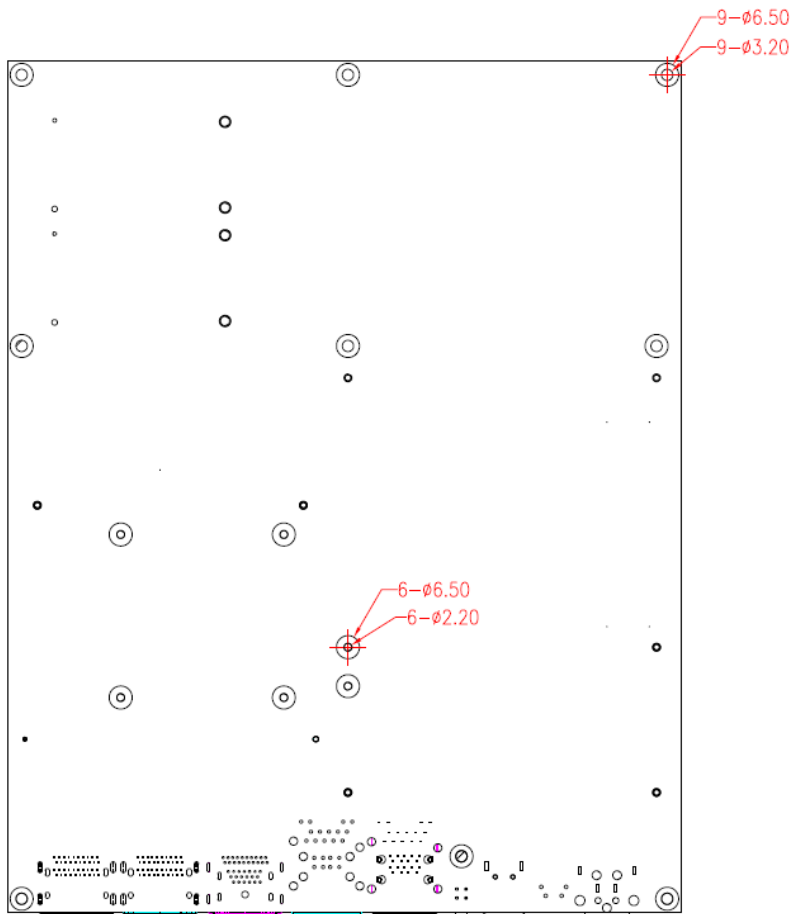
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# Chapter 2

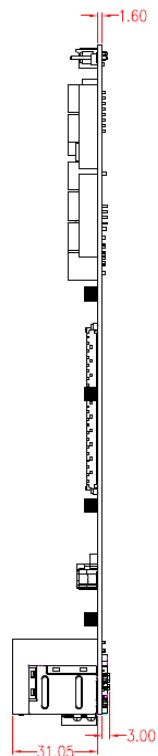
## Board and Pin Assignments

### 2.1 Board Dimensions and Fixing Holes



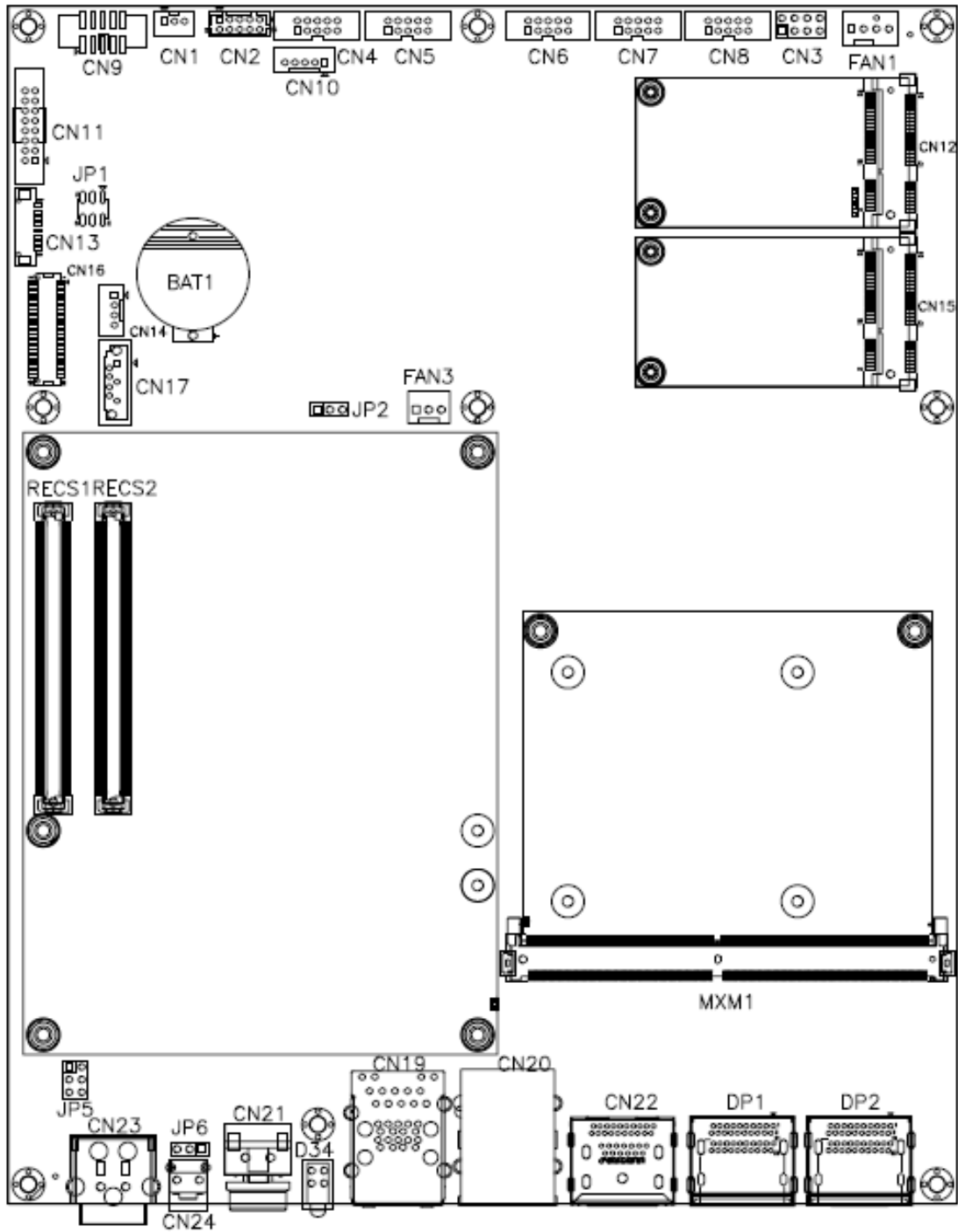


Bottom View



Side View

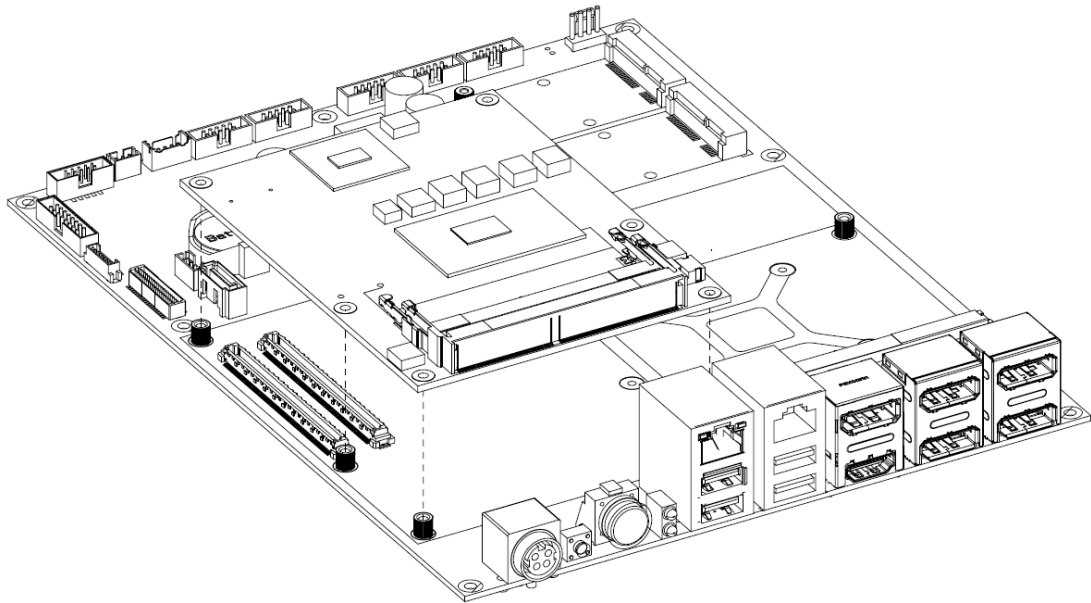
## 2.2 Board Layout



Top View

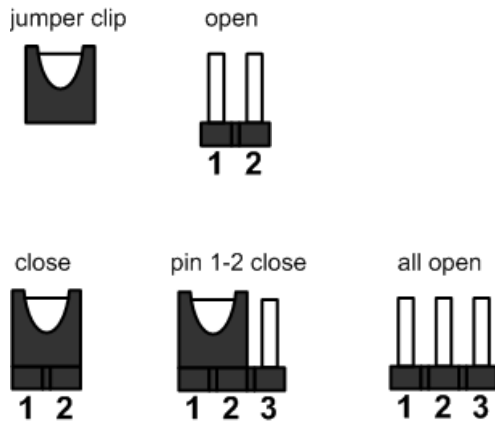
## 2.3 Assembly Drawing

The CEB94022 has some assembly holes for installation. Align and firmly install the basic size CEM Express™ module on CEB94022 as indicated in image below.



## 2.4 Jumper Settings

Jumper is a small component consisting of jumper clip and jumper pins. Install jumper clip on 2 jumper pins to close. And remove jumper clip from 2 jumper pins to open. Below illustration shows how to set up jumper.



Properly configure jumper settings on the CEB94022 to meet your application purpose. Below you can find a summary table of all jumpers and onboard default settings.



Note

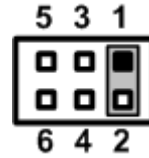
**Once the default jumper setting needs to be changed, please do it under power-off condition.**

Jumper	Description	Setting
JP1	LVDS Voltage Selection Default: +3.3V	1-2 Close
JP2	Restore BIOS Optimal Defaults Default: Normal Operation	1-2 Close
JP5	Boot BIOS Selection Default: Boot from Module BIOS	1-3, 2-4 Close
JP6	Auto Power On Default: Disable	2-3 Close

### 2.4.1 LVDS Voltage Selection (JP1)

The board supports voltage selection for flat panel displays. Use this jumper to set LVDS connector (CN16) pin 1~6 VCCM to +3.3V, +5V or +12V. To prevent hardware damage, before connecting please make sure that the input voltage of flat panel is correct.

Function	Setting
+3.3V level (Default)	1-2 close
+5V level	2-4 close
+12V level	5-6 close



### 2.4.2 Restore BIOS Optimal Defaults (JP2)

Put jumper clip to pin 2-3 for a few seconds then move it back to pin 1-2. Doing this procedure can restore BIOS optimal defaults. Use SPI select to determine which BIOS to restore; BIOS on COM Express™ module or BIOS on baseboard (see section 2.4.3).

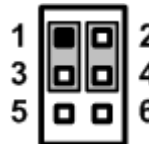
Function	Setting
Normal operation (Default)	1-2 close
Restore BIOS optimal defaults	2-3 close



### 2.4.3 Boot BIOS Selection (JP5)

Use JP5 to select system to boot from module BIOS or baseboard BIOS.

Function	Setting
Module BIOS (Default)	1-3, 2-4 close
Baseboard BIOS	1-3, 4-6 close



### 2.4.4 Auto Power On (JP6)

If JP6 is enabled for power input, the system will be automatically power on without pressing soft power button. If JP6 is disabled for power input, it is necessary to manually press soft power button to power on the system.

Function	Setting
Enable auto power on	1-2 close
Disable auto power on (Default)	2-3 close





## 2.5 Connectors

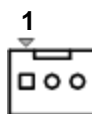
Signals go to other parts of the system through connectors. Loose or improper connection might cause problems, please make sure all connectors are properly and firmly connected. Here is a summary table which shows all connectors on the hardware.

Connector	Description
CN1	I <sup>2</sup> C Connector
CN2	USB 2.0 Wafer Connector
CN3	Front Panel Connector
CN4	Digital I/O Connector
CN5~CN8	COM3~COM6 Connectors
CN9	Audio Connector
CN10	SMBus Connector
CN11	VGA Wafer Connector
CN12, CN15	PCI-Express Mini Card Connectors
CN13	Inverter Connector
CN14	SATA Power Connector
CN16	LVDS Connector
CN17	SATA Connector
CN19	LAN and USB 3.0 Port
CN20	LAN and USB 2.0 Port
CN22	DisplayPort (Upper) and HDMI (Lower) Connector
CN23	DC Jack Power Connector
DP1~DP2	DisplayPort Combo Connectors
FAN1, FAN3	Fan Connectors
MXM1	MXM Type A Connector
RECS1~ RECS2	COM Express™ Connectors

### 2.5.1 I<sup>2</sup>C Connector (CN1)

This is a 3-pin (pitch=2.0mm) connector. The I<sup>2</sup>C interface is a simple bus for the purpose of lightweight communication.

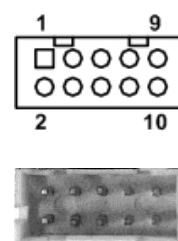
Pin	Signal
1	I2C_CLK
2	I2C_DATA
3	GND



### 2.5.2 USB 2.0 Wafer Connector (CN2)

The CN2 (for USB port 4 and 5) is a 2x5-pin (pitch=2.0mm) connector commonly used for installing USB 2.0 compliant peripherals such as keyboard, mouse, scanner, etc. This connector is designed with +5V level standby power which can provide power when system is in suspend mode.

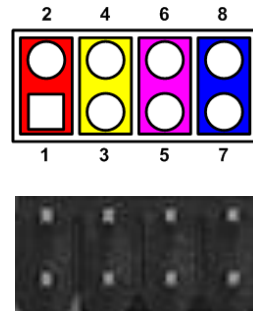
Pin	Signal	Pin	Signal
1	USB VCC (+5V level standby power)	2	USB VCC (+5V level standby power)
3	USB DX-	4	USB DY-
5	USB DX+	6	USB DY+
7	GND	8	GND
9	GND	10	GND



### 2.5.3 Front Panel Connector (CN3)

This is a 2x4-pin (pitch=2.54mm) connector for front panel interface.

Pin	Signal	Pin	Signal
1	PWRSW-	2	PWRSW+-
3	HW RST-	4	HW RST+
5	PWRLED-	6	PWRLED+
7	HDDLED-	8	HDDLED+



#### Power On/Off Button

Pin 1 and 2 connect the power button on front panel to CPU board, which allows users to turn on or off power supply.

#### System Reset Switch

Pin 3 and 4 connect the case-mounted reset switch that reboots your computer without turning off the power switch. It is a better way to reboot your system for a longer life of system power supply.

#### Power LED

Pin 6 connects anode (+) of LED and pin 5 connects cathode(-) of LED. The power LED lights up when the system is powered on.

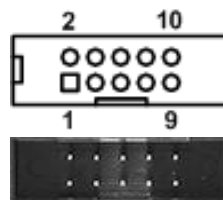
#### HDD Activity LED

This connection is linked to hard drive activity LED on the control panel. LED flashes when HDD is being accessed. Pin 7 and 8 connect the hard disk drive to the front panel HDD LED, pin 9 is assigned as cathode(-) and pin 10 is assigned as anode(+).

### 2.5.4 Digital I/O Connector (CN4)

These are Molex 78046-102, 2x5-pin (pitch=2.0mm) box header. The board is equipped with 8-channel (4 inputs and 4 outputs) digital I/O that meets requirements for a system customary automation control. They are suitable for controlling cash drawers and sense warning signals from an Uninterrupted Power System (UPS), or performing store security control. You can use software programming or BIOS Setup utility to control these digital signals.

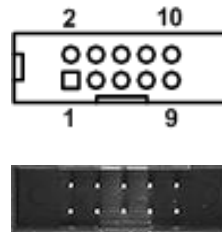
Pin	Signal	Pin	Signal
1	Digital Input 1	2	Digital Output 5
3	Digital Input 2	4	Digital Output 6
5	Digital Input 3	6	Digital Output 7
7	Digital Input 4	8	Digital Output 8
9	+5V level	10	GND



### 2.5.5 COM Connectors (CN5~CN8)

These are Molex 78046-102, 2x5-pin (pitch=2.0mm) box headers for serial port interfaces. The COM3~COM5 support RS-232/422/485 communication mode, while the COM6 supports RS-232 only. The related pin assignments are given in table below. You can change the communication mode in BIOS Setup utility.

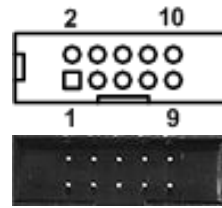
Pin	RS-232	RS-422	RS-485
1	DCD	TX-	Data-
2	DSR	No use	No use
3	RXD	TX+	Data+
4	RTS	No use	No use
5	TXD	RX+	No use
6	CTS	No use	No use
7	DTR	RX-	No use
8	RI	No use	No use
9	GND	No use	No use
10	No use	No use	No use



### 2.5.6 Audio Connector (CN9)

This is a 2x5-pin (pitch=2.0mm) audio connector for convenient connection and control of audio devices.

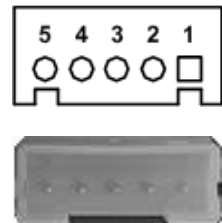
Pin	Signal	Pin	Signal
1	MIC_IN	2	GND
3	LINE_IN_L	4	GND
5	LINE_IN_R	6	GND
7	AUDIO_OUT_L	8	GND
9	AUDIO_OUT_R	10	GND



### 2.5.7 SMBus Connector (CN10)

The CN10 is a 5-pin (pitch=2.0mm) connector for SMBus interface. The SMBus (System Management Bus) is a simple bus for the purpose of lightweight communication.

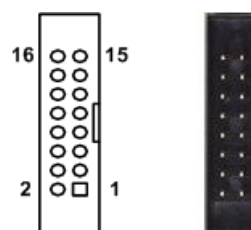
Pin	Signal
1	+3.3V
2	SMB_CLK_S
3	SMB_DATA_S
4	SMB_ALERT
5	GND



## 2.5.8 VGA Wafer Connector (CN11)

This is a 2x8-pin (pitch=2.0mm) connector for VGA interface.

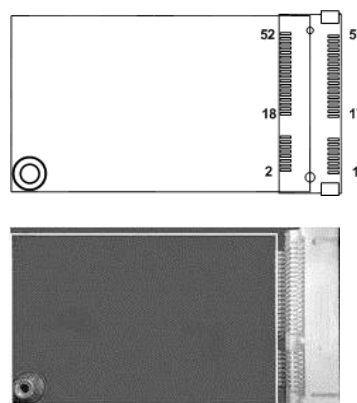
Pin	Signal	Pin	Signal
1	RED	2	GND
3	GREEN	4	N.C.
5	BLUE	6	GND
7	VCC	8	DDC DATA
9	GND	10	GND
11	GND	12	HSYNC
13	GND	14	VSYNC
15	DDC CLK	16	N.C.



## 2.5.9 PCI-Express Mini Card Connectors (CN12 and CN15)

These are full-size PCI-Express Mini Card connectors complying with PCI-Express Mini Card Spec. V1.2. They support either PCI-Express, USB 2.0 or SATA (mSATA; only CN12 supports mSATA). You can choose to enable or disable mSATA support in BIOS Setup utility (please refer to chapter 3).

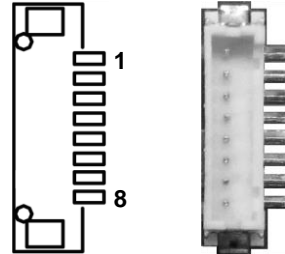
Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND
19	No use	20	W_DISABLE#
21	GND	22	PERST#
23	PE_RXN3/SATA_RXP	24	+3.3VSB
25	PE_RXP3/SATA_RXN	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PE_TXN3/SATA_TXN	32	SMB_DATA
33	PE_TXP3/SATA_TXP	34	GND
35	GND	36	USB_D8-
37	GND	38	USB_D8+
39	+3.3VSB	40	GND
41	+3.3VSB	42	No use
43	GND	44	No use
45	No use	46	No use
47	No use	48	+1.5V
49	No use	50	GND
51	No use	52	+3.3VSB



### 2.5.10 Inverter Connector (CN13)

This is a 8-pin (pitch=1.25mm) connector for inverter. We strongly recommend you to use the matching DF13-8P-1.25C connector to avoid malfunction.

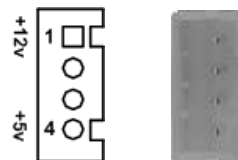
Pin	Signal
1	VBL1 (+12V level)
2	VBL1 (+12V level)
3	VBL2 (+5V level)
4	VBL_ENABLE
5	GND
6	GND
7	GND
8	VBL Brightness Control



### 2.5.11 SATA Power Connector (CN14)

This is a 4-pin (pitch=2.0mm) connector for interfacing to SATA 2.5" HDD power supply.

Pin	Signal
1	+12V level
2	GND
3	GND
4	+5V level

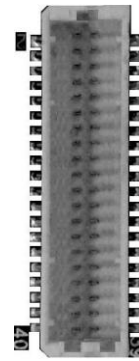
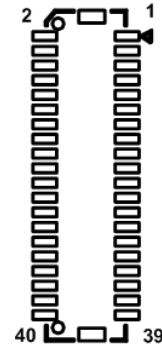


### 2.5.12 LVDS Connector (CN16)

The board has one 2x20-pin (pitch=1mm) connector for LVDS LCD interface. It is strongly recommended to use the matching JST SHDR-40VS-B connector for LVDS interface. Pin 1~6 VCCM can be set to +3.3V, +5V or +12V by setting JP1 (see section 2.4.1).

#### 18-bit single channel

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	EDID DATA	8	EDID CLK
9	GND	10	GND
11	N.C.	12	N.C.
13	N.C.	14	N.C.
15	GND	16	GND
17	N.C.	18	N.C.
19	N.C.	20	N.C.
21	GND	22	GND
23	Channel A D0-	24	N.C.
25	Channel A D0+	26	N.C.
27	GND	28	GND
29	Channel A D1-	30	N.C.
31	Channel A D1+	32	N.C.
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND



**24-bit single channel**

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	EDID DATA	8	EDID CLK
9	GND	10	GND
11	N.C.	12	N.C.
13	N.C.	14	N.C.
15	GND	16	GND
17	N.C.	18	N.C.
19	N.C.	20	N.C.
21	GND	22	GND
23	Channel A D0-	24	N.C.
25	Channel A D0+	26	N.C.
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	Channel A D3+
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND

**18-bit dual channel**

Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	EDID DATA	8	EDID CLK
9	GND	10	GND
11	N.C.	12	Channel B D0-
13	N.C.	14	Channel B D0+
15	GND	16	GND
17	Channel B CLK-	18	Channel B D1-
19	Channel B CLK+	20	Channel B D1+
21	GND	22	GND
23	Channel A D0-	24	Channel B D2-
25	Channel A D0+	26	Channel B D2+
27	GND	28	GND
29	Channel A D1-	30	N.C.
31	Channel A D1+	32	N.C.
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND

**24-bit dual channel**

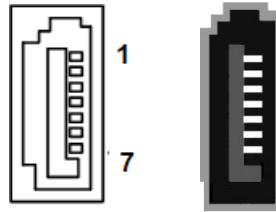
Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	EDID DATA	8	EDID CLK
9	GND	10	GND
11	Channel B D3-	12	Channel B D0-
13	Channel B D3+	14	Channel B D0+
15	GND	16	GND
17	Channel B CLK-	18	Channel B D1-
19	Channel B CLK+	20	Channel B D1+
21	GND	22	GND
23	Channel A D0-	24	Channel B D2-
25	Channel A D0+	26	Channel B D2+
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	Channel A D3+
33	GND	34	GND
35	Channel A D2-	36	Channel A CLK-
37	Channel A D2+	38	Channel A CLK+
39	GND	40	GND



### 2.5.13 SATA Connector (CN17)

The CN17 is a connector for high-speed Serial Advanced Technology Attachment (Serial ATA or SATA) interface. It is a computer bus interface for connecting to devices such as hard disk drive.

Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND

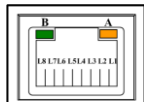


### 2.5.14 LAN and USB 3.0 Port (CN19)

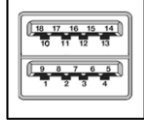
The board comes with high performance plug and play Ethernet interface (RJ-45) which is fully compliant with the IEEE 802.3 standard. Connection can be established by plugging one end of the Ethernet cable into this RJ-45 connector and the other end to a 1000/100/10 Base-T hub.

The lower double-deck Universal Serial Bus (compliant with USB 3.0) port is for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	Pin	LAN Signal	Pin	LAN Signal
LAN Signal		MDI0+	L5	MDI2-
Pin	L2	MDI0-	L6	MDI1-
LAN Signal		MDI1+	L7	MDI3+
	L4	MDI2+	L8	MDI3-
L1	A	Activity link LED		
MDI0+		OFF: No link		
L5	B	Blinking: Link established; data activity detected		
MDI2+		Speed LED		
L2	B	Orange: 1Gbps data rate		
MDI0-		Green: 100Mbps data rate		
L6		OFF: 10Mbps data rate		
MDI2-				



LAN



USB 3.0



L3  
MDI1+  
L7  
MDI3+  
L4  
MDI1-  
L8  
MDI3-



Note

- Speed LED turns orange for 1000Mbps or green for 100Mbps. The light is off for 10Mbps.
- CN19 supports AMT and USB 3.0 when the module board is supported.

Pin	USB Signal	Pin	USB Signal
1	USB3_POWER	2	USB0 -
3	USB0 +	4	GND
A	Activity link LED	5	USB3_SSRX0-
MDI1+		6	USB3_SSRX0+
L7	Blinking Link established; data activity detected	7	GND
MDI3+		8	USB3_SSTX0-
L4	Speed LED	9	USB3_SSTX0+
MDI1-		10	USB3_POWER
L8	B	11	USB1 -
MDI3-		12	USB1 +
A		13	GND
L5	Speed LED	14	USB3_SSRX1-
MDI2+		15	USB3_SSRX1+
L2		16	GND
L6	Speed LED	17	USB3_SSTX1-
MDI2-		18	USB3_SSTX1+

Pin  
LAN Signal  
Pin  
LAN Signal

L1  
MDI0+  
L5  
MDI2+

MDI0-  
L6  
MDI2-

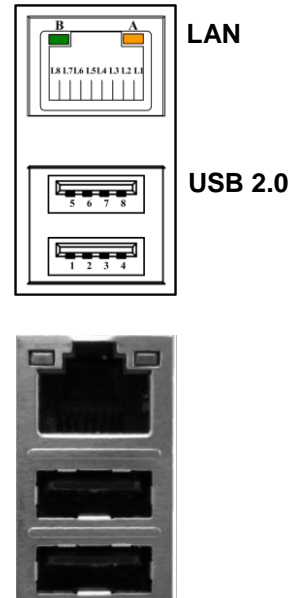
### 2.5.15 LAN and USB 2.0 Port (CN20)

The board comes with high performance plug and play Ethernet interface (RJ-45) which is 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 lower double-deck USB connector is a USB 2.0 compliant (480Mbps) port for installing USB peripherals such as keyboard, mouse, scanner, etc.

Pin	LAN Signal	Pin	LAN Signal
L1	MDI0+	L5	MDI2+
L2	MDI0-	L6	MDI2-
L3	MDI1+	L7	MDI3+
L4	MDI1-	L8	MDI3-
A	Activity link LED OFF: No link Blinking: Link established; data activity detected		
B	Speed LED Orange: 1Gbps data rate Green: 100Mbps data rate OFF: 10Mbps data rate		

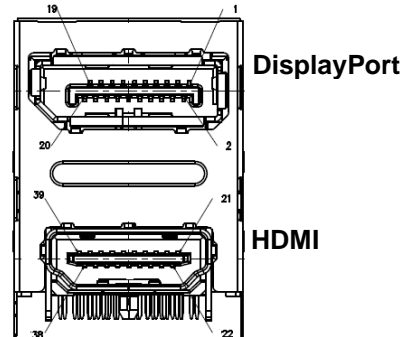
Pin	USB Signal	Pin	USB Signal
1	USB_PWR45 (+5V level)	5	USB_PWR45 (+5V level)
2	USB_DATA2-	6	USB_DATA3-
3	USB_DATA2+	7	USB_DATA3+
4	GND	8	GND



### 2.5.16 DisplayPort and HDMI Connector (CN22)

The CN22 is a double-deck connector comprising an upper connector for DisplayPort interface and a lower connector for HDMI interface.

Pin	Signal	Pin	Signal
1	LANE 0	21	DATA2
2	GND	22	GND
3	LANE 0#	23	DATA2#
4	LANE 1	24	DATA1
5	GND	25	GND
6	LANE 1#	26	DATA1#
7	LANE 2	27	DATA0
8	GND	28	GND
9	LANE 2#	29	DATA1#
10	LANE 3	30	Clock
11	GND	31	GND
12	LANE 3#	32	Clock#
13	Detect Pin	33	NC
14	GND	34	NC
15	AUX CH	35	SCL
16	GND	36	SDA
17	AUX CH#	37	GND
18	Hot Plug Detect	38	+5V POWER
19	GND	39	Hot Plug Detect
20	DP_PWR(3.3V)		



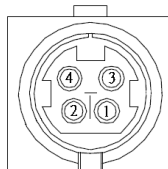
Note

DisplayPort and HDMI signals are provided by COM Express™ module.

### 2.5.17 DC Jack Power Connector (CN23)

The CN23 is a DC jack for +19V~24V power input. The minimum starting current is 19V/2.5A, 24V/2.1A.

Pin	Signal
1	GND
2	GND
3	+Vin
4	+Vin

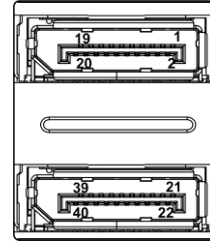


## 2.5.18 DisplayPort Combo Connectors (DP1 and DP2)

The board comes with two DisplayPort combo connectors (DP1 and DP2).

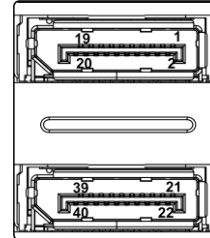
Pin	DP1 Signal	Pin	DP1 Signal
1	LANE1_0	21	LANE2_0
2	GND	22	GND
3	LANE1_0#	23	LANE2_0#
4	LANE1_1	24	LANE2_1
5	GND	25	GND
6	LANE1_1#	26	LANE2_1#
7	LANE1_2	27	LANE2_2
8	GND	28	GND
9	LANE1_2#	29	LANE2_2#
10	LANE1_3	30	LANE2_3
11	GND	31	GND
12	LANE1_3#	32	LANE2_3#
13	Detect1 Pin	33	Detect2 Pin
14	GND	34	GND
15	AUX CH1	35	AUX CH2
16	GND	36	GND
17	AUX CH1#	37	AUX CH2#
18	Hot Plug Detect1	38	Hot Plug Detect2
19	GND	39	GND
20	DP1_PWR(3.3V)	40	DP1_PWR(3.3V)

DP1:



Pin	DP2 Signal	Pin	DP2 Signal
1	LANE3_0	21	LANE4_0
2	GND	22	GND
3	LANE3_0#	23	LANE4_0#
4	LANE3_1	24	LANE4_1
5	GND	25	GND
6	LANE3_1#	26	LANE4_1#
7	LANE3_2	27	LANE4_2
8	GND	28	GND
9	LANE3_2#	29	LANE4_2#
10	LANE3_3	30	LANE4_3
11	GND	31	GND
12	LANE3_3#	32	LANE4_3#
13	Detect3 Pin	33	Detect4 Pin
14	GND	34	GND
15	AUX CH3	35	AUX CH4
16	GND	36	GND
17	AUX CH3#	37	AUX CH4#
18	Hot Plug Detect3	38	Hot Plug Detect4
19	GND	39	GND
20	DP2_PWR(3.3V)	40	DP2_PWR(3.3V)

DP2:



Note

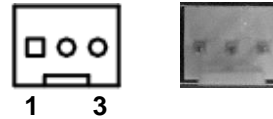
All DisplayPort signals are provided by MXM Type A module.

### 2.5.19 Fan Connectors (FAN1 and FAN3)

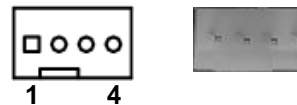
Fans are needed for cooling down temperature. You can find fan speed option(s) within BIOS Setup Utility. For further information, see BIOS Setup Utility: Advanced\Hardware Monitor\PC Health Status.

FAN1 has 3-pin and 4-pin (pitch=2.54mm) fan interface co-layout design. By default, FAN1 comes with 3-pin connector. The 4-pin interface layout of FAN1 is BOM optional.

Pin	Signal
1	GND
2	VIN
3	FAN_TACHIN

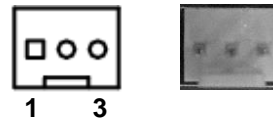


Pin	Signal
1	GND
2	+12V level
3	Rotation detection
4	Speed control



FAN3 is a 3-pin (pitch=2.54mm) connector for fan interface.

Pin	Signal
1	N.C
2	+12V level
3	GND



## 2.5.20 MXM Type A Connector (MXM1)

The MXM1 is a 285-pin connector for connecting MXM module and COM Express™ baseboard. The pin assignments are as follows.

Pin	Signal	Pin	Signal
E1	PWR_SRC	E2	PWR_SRC
E3	GND	E4	GND
1	5V	2	PRSNT_R#
3	5V	4	WAKE#
5	5V	6	PWR_GOOD
7	5V	8	PWR_EN
9	5V	10	NC
11	GND	12	GND
13	GND	14	NC
15	GND	16	NC
17	GND	18	PWR_LEVEL
19	NC	20	TH_OVERT#
21	NC	22	TH_ALERT#
23	NC	24	NC
25	NC	26	NC
27	NC	28	NC
29	NC	30	NC
31	NC	32	SMB_DAT
33	NC	34	SMB_CLK
35	NC	36	GND
37	GND	38	NC
39	NC	40	NC
41	NC	42	NC
43	NC	44	NC
45	NC	46	GND
47	GND	48	PCIE_TX15#
49	PCIE_RX15#	50	PCIE_TX15
51	PCIE_RX15	52	GND
53	GND	54	PCIE_TX14#
55	PCIE_RX14#	56	PCIE_TX14
57	PCIE_RX14	58	GND
59	GND	60	PCIE_TX13#
61	PCIE_RX13#	62	PCIE_TX13
63	PCIE_RX13	64	GND
65	GND	66	PCIE_TX12#
67	PCIE_RX12#	68	PCIE_TX12
69	PCIE_RX12	70	GND

Pin	Signal	Pin	Signal
71	GND	72	PCIE_TX11#
73	PCIE_RX11#	74	PCIE_TX11
75	PCIE_RX11	76	GND
77	GND	78	PCIE_TX10#
79	PCIE_RX10#	80	PCIE_TX10
81	PCIE_RX10	82	GND
83	GND	84	PCIE_TX9#
85	PCIE_RX9#	86	PCIE_TX9
87	PCIE_RX9	88	GND
89	GND	90	PCIE_TX8#
91	PCIE_RX8#	92	PCIE_TX8
93	PCIE_RX8	94	GND
95	GND	96	PCIE_TX7#
97	PCIE_RX7#	98	PCIE_TX7
99	PCIE_RX7	100	GND
101	GND	102	PCIE_TX6#
103	PCIE_RX6#	104	PCIE_TX6
105	PCIE_RX6	106	GND
107	GND	108	PCIE_TX5#
109	PCIE_RX5#	110	PCIE_TX5
111	PCIE_RX5	112	GND
113	GND	114	PCIE_TX4#
115	PCIE_RX4#	116	PCIE_TX4
117	PCIE_RX4	118	GND
119	GND	120	PCIE_TX3#
121	PCIE_RX3#	122	PCIE_TX3
123	PCIE_RX3	124	GND
125	GND	134	GND
133	GND	136	PCIE_TX2#
135	PCIE_RX2#	138	PCIE_TX2
137	PCIE_RX2	140	GND
139	GND	142	PCIE_TX1#
141	PCIE_RX1#	144	PCIE_TX1
143	PCIE_RX1	146	GND
145	GND	148	PCIE_TX0#
147	PCIE_RX0#	150	PCIE_TX0
149	PCIE_RX0	152	GND

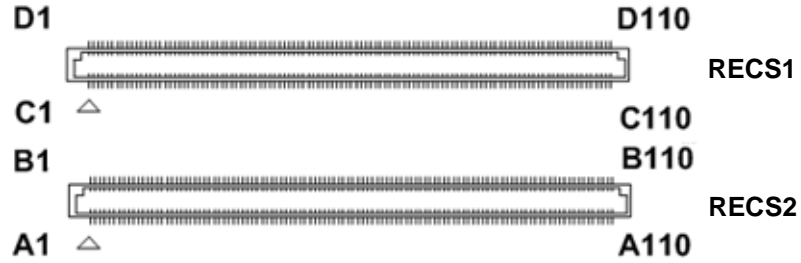
Pin	Signal	Pin	Signal
151	GND	154	CLK_REQ#
153	PCIE_CLK#	156	PCIE_RST#
155	PCIE_CLK	158	NC
157	GND	160	NC
159	NC	162	NC
161	NC	164	NC
163	NC	166	GND
165	NC	168	NC
167	NC	170	NC
169	NC	172	NC
171	NC	174	GND
173	GND	176	NC
175	NC	178	NC
177	NC	180	GND
179	GND	182	NC
181	NC	184	NC
183	NC	186	GND
185	GND	188	NC
187	NC	190	NC
189	NC	192	GND
191	GND	194	NC
193	NC	196	NC
195	NC	198	GND
197	GND	200	NC
199	DP_C_0#	202	NC
201	DP_C_0	204	GND
203	GND	206	DP_D_0#
205	DP_C_1#	208	DP_D_0
207	DP_C_1	210	GND
209	GND	212	DP_D_1#
211	DP_C_2#	214	DP_D_1
213	DP_C_2	216	GND
215	GND	218	DP_D_2#
217	DP_C_3#	220	DP_D_2
219	DP_C_3	222	GND
221	GND	224	DP_D_3#
223	DP_C_AUX#	226	DP_D_3
225	DP_C_AUX	228	GND

Pin	Signal	Pin	Signal
227	RSVD	230	DP_D_AUX#
229	RSVD	232	DP_D_AUX
231	RSVD	234	HPD_C
233	RSVD	236	HPD_D
235	RSVD	238	GND
237	RSVD	240	3V3
239	RSVD	242	3V3
241	RSVD	244	GND
243	RSVD	246	DP_B_0#
245	RSVD	248	DP_B_0
247	RSVD	250	GND
249	RSVD	252	DP_B_1#
251	GND	254	DP_B_1
253	DP_A_0#	256	GND
255	DP_A_0	258	DP_B_2#
257	GND	260	DP_B_2
259	DP_A_1#	262	GND
261	DP_A_1	264	DP_B_3#
263	GND	266	DP_B_3
265	DP_A_2#	268	GND
267	DP_A_2	270	DP_B_AUX#
269	GND	272	DP_B_AUX
271	DP_A_3#	274	HPD_B
273	DP_A_3	276	HPD_A
275	GND	278	3V3
277	DP_A_AUX#	280	3V3
279	DP_A_AUX		
281	PRNT_L#		



### 2.5.21 COM Express™ Connectors (RECS1 and RECS2)

The RECS1 and RECS2 are 220-pin connectors for connecting COM Express™ module and COM Express™ baseboard. The pin assignments are as follows.



Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A1	GND (FIXED)	B1	GND (FIXED)	C1	GND (FIXED)	D1	GND (FIXED)
A2	GBE0_MDI3-	B2	GBE0_ACT#	C2	GND (FIXED)	D2	GND (FIXED)
A3	GBE0_MDI3+	B3	LPC_FRAME#	C3	USB_SSRX0-	D3	USB_SSTX0-
A4	GBE0_LINK100#	B4	LPC_AD0	C4	USB_SSRX0+	D4	USB_SSTX0+
A5	GBE0_LINK1000#	B5	LPC_AD1	C5	GND (FIXED)	D5	GND (FIXED)
A6	GBE0_MDI2-	B6	LPC_AD2	C6	USB_SSRX1-	D6	USB_SSTX1-
A7	GBE0_MDI2+	B7	LPC_AD3	C7	USB_SSRX1+	D7	USB_SSTX1+
A8	N.C	B8	N.C	C8	GND (FIXED)	D8	GND (FIXED)
A9	GBE0_MDI1-	B9	N.C	C9	N.C	D9	N.C
A10	GBE0_MDI1+	B10	LPC_CLK	C10	N.C	D10	N.C
A11	GND (FIXED)	B11	GND (FIXED)	C11	GND (FIXED)	D11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#	C12	N.C	D12	N.C
A13	GBE0_MDI0+	B13	SMB_CK	C13	N.C	D13	N.C
A14	GBE0_CTREF	B14	SMB_DAT	C14	GND (FIXED)	D14	GND (FIXED)
A15	SUS_S3#	B15	SMB_ALERT#	C15	N.C	D15	DDI1_CTRLCLK_AUX+
A16	SATA0_TX+	B16	SATA1_TX+	C16	N.C	D16	DDI1_CTRLDATA_AUX-
A17	SATA0_TX-	B17	SATA1_TX-	C17	N.C	D17	N.C
A18	N.C	B18	N.C	C18	N.C	D18	N.C
A19	SATA0_RX+	B19	SATA1_RX+	C19	N.C	D19	N.C
A20	SATA0_RX-	B20	SATA1_RX-	C20	N.C	D20	N.C
A21	GND (FIXED)	B21	GND (FIXED)	C21	GND (FIXED)	D21	GND (FIXED)
A22	N.C	B22	N.C	C22	N.C	D22	N.C
A23	N.C	B23	N.C	C23	N.C	D23	N.C
A24	N.C	B24	PWR_OK	C24	DDI1_HPD	D24	N.C
A25	N.C	B25	N.C	C25	N.C	D25	N.C
A26	N.C	B26	N.C	C26	N.C	D26	DDI1_PAIR0+
A27	N.C	B27	WDT	C27	N.C	D27	DDI1_PAIR0-
A28	(S)ATA_ACT#	B28	N.C	C28	N.C	D28	N.C
A29	AC/HDA_SYNC	B29	N.C	C29	N.C	D29	DDI1_PAIR1+
A30	AC/HDA_RST#	B30	AC/HDA_SDINO	C30	N.C	D30	DDI1_PAIR1-
A31	GND (FIXED)	B31	GND (FIXED)	C31	GND (FIXED)	D31	GND (FIXED)
A32	AC/HDA_BITCLK	B32	SPKR	C32	DDI2_CTRLCLK_AUX+	D32	DDI1_PAIR2+
A33	AC/HDA_SDOOUT	B33	I2C_CK	C33	DDI2_CTRLDATA_AUX-	D33	DDI1_PAIR2-
A34	BIOS_DIS0#	B34	I2C_DAT	C34	DDI2_DDC_AUX_SEL	D34	DDI1_DDC_AUX_SEL
A35	THRM TRIP#	B35	THRM#	C35	N.C	D35	N.C
A36	USB6-	B36	USB7-	C36	N.C	D36	DDI1_PAIR3+
A37	USB6+	B37	USB7+	C37	N.C	D37	DDI1_PAIR3-
A38	N.C	B38	USB_4_5_OC#	C38	N.C	D38	N.C
A39	USB4-	B39	USB5-	C39	N.C	D39	DDI2_PAIR0+
A40	USB4+	B40	USB5+	C40	N.C	D40	DDI2_PAIR0-
A41	GND (FIXED)	B41	GND (FIXED)	C41	GND (FIXED)	D41	GND (FIXED)
A42	USB2-	B42	USB3-	C42	N.C	D42	DDI2_PAIR1+
A43	USB2+	B43	USB3+	C43	N.C	D43	DDI2_PAIR1-
A44	USB_2_3_OC#	B44	USB_0_1_OC#	C44	N.C	D44	DDI2_HPD
A45	USB0-	B45	USB1-	C45	N.C	D45	N.C
A46	USB0+	B46	USB1+	C46	N.C	D46	DDI2_PAIR2+
A47	VCC_RTC	B47	N.C	C47	N.C	D47	DDI2_PAIR2-
A48	N.C	B48	N.C	C48	N.C	D48	N.C
A49	N.C	B49	SYS_RESET#	C49	N.C	D49	DDI2_PAIR3+
A50	LPC_SERIRQ	B50	CB_RESET#	C50	N.C	D50	DDI2_PAIR3-
A51	GND (FIXED)	B51	GND (FIXED)	C51	GND (FIXED)	D51	GND (FIXED)
A52	N.C	B52	N.C	C52	PEG_RX0+	D52	PEG_TX0+
A53	N.C	B53	N.C	C53	PEG_RX0-	D53	PEG_TX0-
A54	GPI0	B54	GPO1	C54	N.C	D54	N.C
A55	N.C	B55	N.C	C55	PEG_RX1+	D55	PEG_TX1+

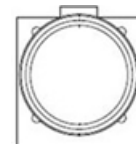
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A56	N.C	B56	N.C	C56	PEG_RX1-	D56	PEG_TX1-
A57	GND	B57	GPO2	C57	N.C	D57	TYPE2#
A58	N.C	B58	N.C	C58	PEG_RX2+	D58	PEG_TX2+
A59	N.C	B59	N.C	C59	PEG_RX2-	D59	PEG_TX2-
A60	GND (FIXED)	B60	GND (FIXED)	C60	GND (FIXED)	D60	GND (FIXED)
A61	PCIE_TX2+	B61	PCIE_RX2+	C61	PEG_RX3+	D61	PEG_TX3+
A62	PCIE_TX2-	B62	PCIE_RX2-	C62	PEG_RX3-	D62	PEG_TX3-
A63	GPI1	B63	GPO3	C63	RSVD	D63	RSVD
A64	PCIE_TX1+	B64	PCIE_RX1+	C64	RSVD	D64	RSVD
A65	PCIE_TX1-	B65	PCIE_RX1-	C65	PEG_RX4+	D65	PEG_TX4+
A66	GND	B66	WAKE0#	C66	PEG_RX4-	D66	PEG_TX4-
A67	GPI2	B67	WAKE1#	C67	RSVD	D67	GND
A68	PCIE_TX0+	B68	PCIE_RX0+	C68	PEG_RX5+	D68	PEG_TX5+
A69	PCIE_TX0-	B69	PCIE_RX0-	C69	PEG_RX5-	D69	PEG_TX5-
A70	GND(FIXED)	B70	GND(FIXED)	C70	GND(FIXED)	D70	GND(FIXED)
A71	LVDS_A0+	B71	LVDS_B0+	C71	PEG_RX6+	D71	PEG_TX6+
A72	LVDS_A0-	B72	LVDS_B0-	C72	PEG_RX6-	D72	PEG_TX6-
A73	LVDS_A1+	B73	LVDS_B1+	C73	GND(FIXED)	D73	GND
A74	LVDS_A1-	B74	LVDS_B1-	C74	PEG_RX7+	D74	PEG_TX7+
A75	LVDS_A2+	B75	LVDS_B2+	C75	PEG_RX7-	D75	PEG_TX7-
A76	LVDS_A2-	B76	LVDS_B2-	C76	GND	D76	GND
A77	LVDS_VDD_EN	B77	LVDS_B3+	C77	RSVD	D77	RSVD
A78	LVDS_A3+	B78	LVDS_B3-	C78	PEG_RX8+	D78	PEG_TX8+
A79	LVDS_A3-	B79	LVDS_BKLT_EN	C79	PEG_RX8-	D79	PEG_TX8-
A80	GND(FIXED)	B80	GND(FIXED)	C80	GND(FIXED)	D80	GND(FIXED)
A81	LVDS_A_CK+	B81	LVDS_B_CK+	C81	PEG_RX9+	D81	PEG_TX9+
A82	LVDS_A_CK-	B82	LVDS_B_CK-	C82	PEG_RX9-	D82	PEG_TX9-
A83	LVDS_I2C_CK	B83	LVDS_BKLT_CTRL	C83	RSVD	D83	RSVD
A84	LVDS_I2C_DAT	B84	VCC_5V_SBY	C84	GND	D84	GND
A85	GPI3	B85	VCC_5V_SBY	C85	PEG_RX10+	D85	PEG_TX10+
A86	N.C.	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	N.C.	B87	VCC_5V_SBY	C87	GND	D87	GND
A88	PCIE0_CK_REF+	B88	BIOS_DIS1#	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE0_CK_REF-	B89	VGA_RED	C89	PEG_RX11-	D89	PEG_TX11-
A90	GND (FIXED)	B90	GND (FIXED)	C90	GND (FIXED)	D90	GND (FIXED)
A91	SPI_POWER	B91	VGA_GRN	C91	PEG_RX12+	D91	PEG_TX12+
A92	SPI_MISO	B92	VGA_BLU	C92	PEG_RX12-	D92	PEG_TX12-
A93	GPO0	B93	VGA_HSYNC	C93	GND	D93	GND
A94	SPI_CLK	B94	VGA_VSYNC	C94	PEG_RX13+	D94	PEG_TX13+
A95	SPI_MOSI	B95	VGA_I2C_CK	C95	PEG_RX13-	D95	PEG_TX13-
A96	TPM_PP	B96	VGA_I2C_DAT	C96	GND	D96	GND
A97	N.C	B97	SPI_CS#	C97	RSVD	D97	RSVD
A98	N.C	B98	N.C.	C98	PEG_RX14+	D98	PEG_TX14+
A99	N.C	B99	N.C.	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND (FIXED)	B100	GND (FIXED)	C100	GND (FIXED)	D100	GND (FIXED)
A101	N.C	B101	FAN_PWMOUT	C101	PEG_RX15+	D101	PEG_TX15+
A102	N.C	B102	FAN_TACHIN	C102	PEG_RX15-	D102	PEG_TX15-
A103	N.C	B103	N.C	C103	GND	D103	GND
A104	VCC_12V	B104	VCC_12V	C104	VCC_12V	D104	VCC_12V
A105	VCC_12V	B105	VCC_12V	C105	VCC_12V	D105	VCC_12V
A106	VCC_12V	B106	VCC_12V	C106	VCC_12V	D106	VCC_12V
A107	VCC_12V	B107	VCC_12V	C107	VCC_12V	D107	VCC_12V
A108	VCC_12V	B108	VCC_12V	C108	VCC_12V	D108	VCC_12V
A109	VCC_12V	B109	VCC_12V	C109	VCC_12V	D109	VCC_12V
A110	GND (FIXED)	B110	GND (FIXED)	C110	GND (FIXED)	D110	GND (FIXED)

## 2.6 Buttons

The board has two buttons, see table below.

Button	Description
CN21	Power button for system power on
CN24	Reset button

CN21



CN24



## 2.7 LED Indicators

The board comes with the following LEDs. See table below for detailed information.

LED	Description
D34	Upper: HDD LED Lower: Power on LED
Power LED	Power state LED indicators for +5V_SBY, +3.3V, +5V and +12V
Module Error LED	LED ON when module error detected
MXM Thermal Alert LED	LED ON means thermal alert signal is high active. The default setting is Disable.

D34



Power LED



Module Error LED



MXM Thermal Alert LED



# Chapter 3

## AMI BIOS

The BIOS functions described in this chapter are available only when CEB94022 is connected to CPU module. For the other detailed description about how to set up basic system configuration through AMI BIOS setup utility, please refer to the CPU module user's manual.

### 3.1 Starting

To enter BIOS setup screens, follow the steps below:

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



**Note**

*If your computer cannot boot after making and saving system changes with BIOS setup, you can restore BIOS optimal defaults by setting JP2 (see section 2.4.2).*

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

## 3.2 Main Menu

When you first 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.



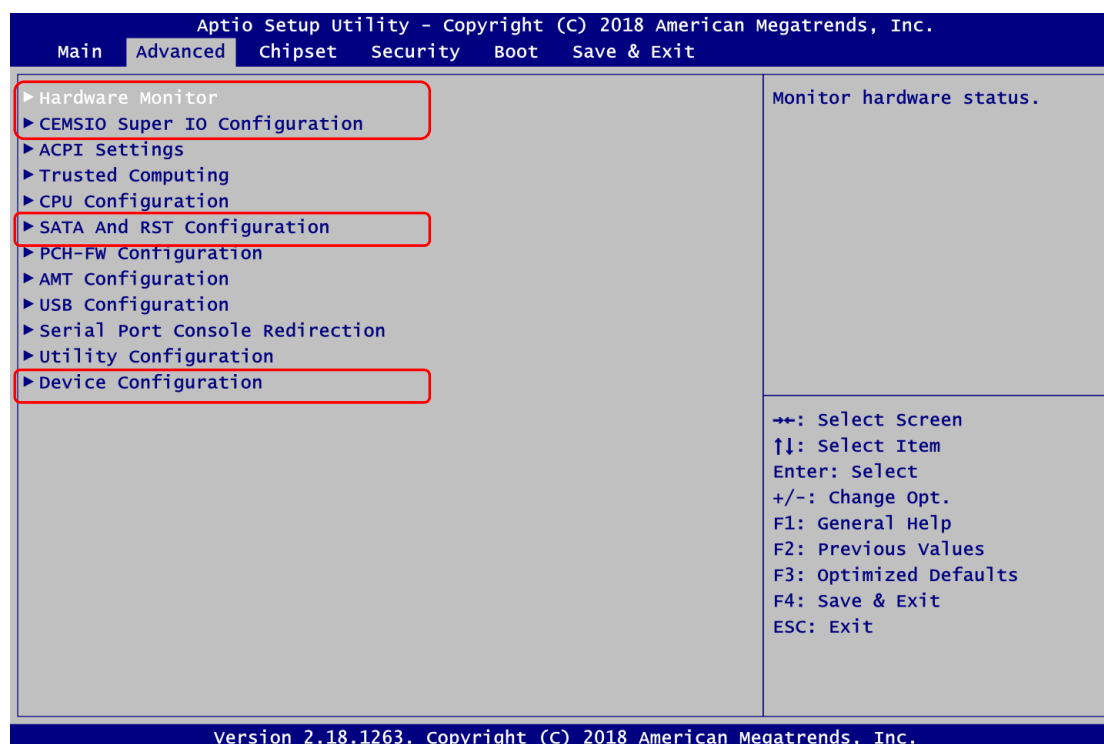
- BIOS and EC Information**  
 Display BIOS and EC firmware information.
- System Date/Time**  
 Use this option to change the system time and date. Highlight System Time or System Date using the <Arrow> keys. Enter new values through the keyboard. Press the <Tab> key or the <Arrow> keys to move between 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.

### 3.3 Advanced Menu

The Advanced menu 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:

- ▶ Hardware Monitor
- ▶ CEMSIO Super IO Configuration
- ▶ ACPI Settings
- ▶ Trusted Computing
- ▶ CPU Configuration
- ▶ SATA And RST Configuration
- ▶ PCH-FW Configuration
- ▶ AMT Configuration
- ▶ USB Configuration
- ▶ Serial Port Console Redirection
- ▶ Utility Configuration
- ▶ Device Configuration

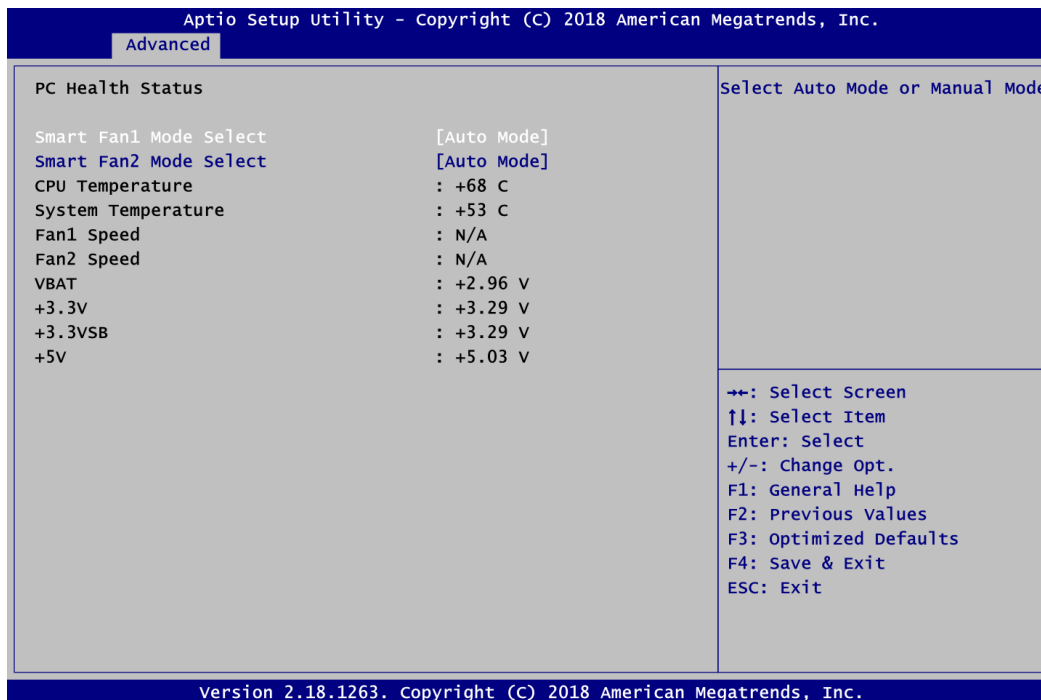
For items marked with “▶”, please press <Enter> for more options.



The sub menus marked with red rectangular contain functions available only if CEB94022 is connected to CPU module. The functions are COM port settings in Super IO Configuration, an extra mSATA/PCIe selection in SATA Configuration and digital I/O settings in DIO Configuration.

- **Hardware Monitor**

This screen monitors hardware health status.



This screen displays the temperature of system and CPU, cooling fans speed in RPM and system voltages (VBAT, +3.3V, +3.3V standby and +5V).



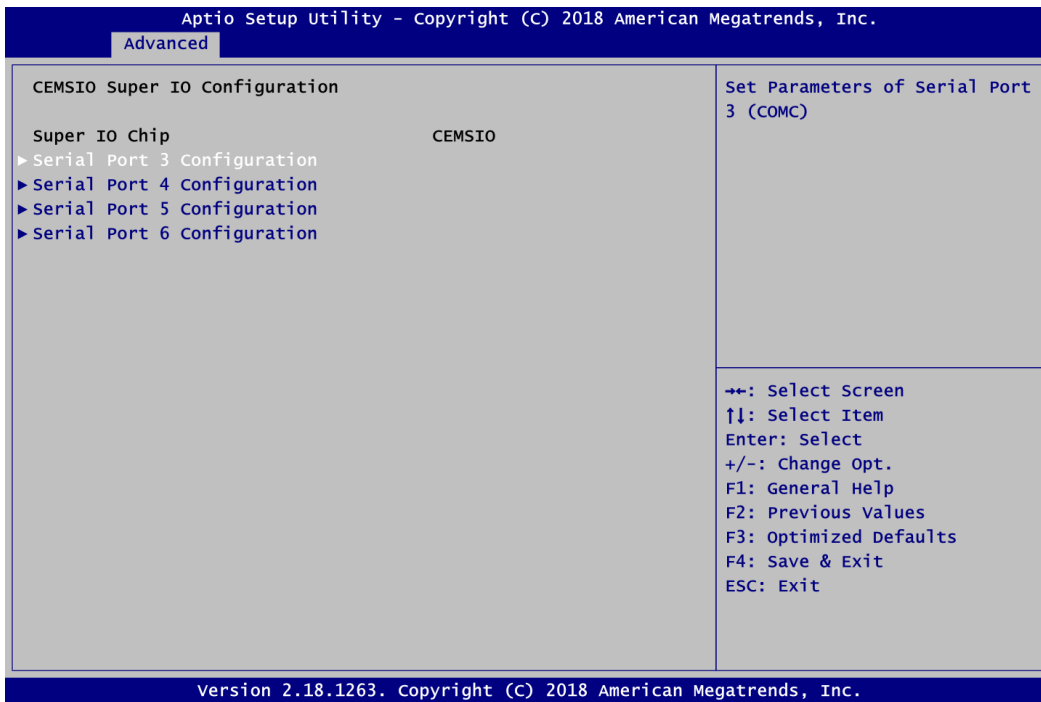
Note

- *FAN1 is on CEB94022.*
- *FAN2 is on CEM Express™ module.*



- **CEMSIO Super IO Configuration**

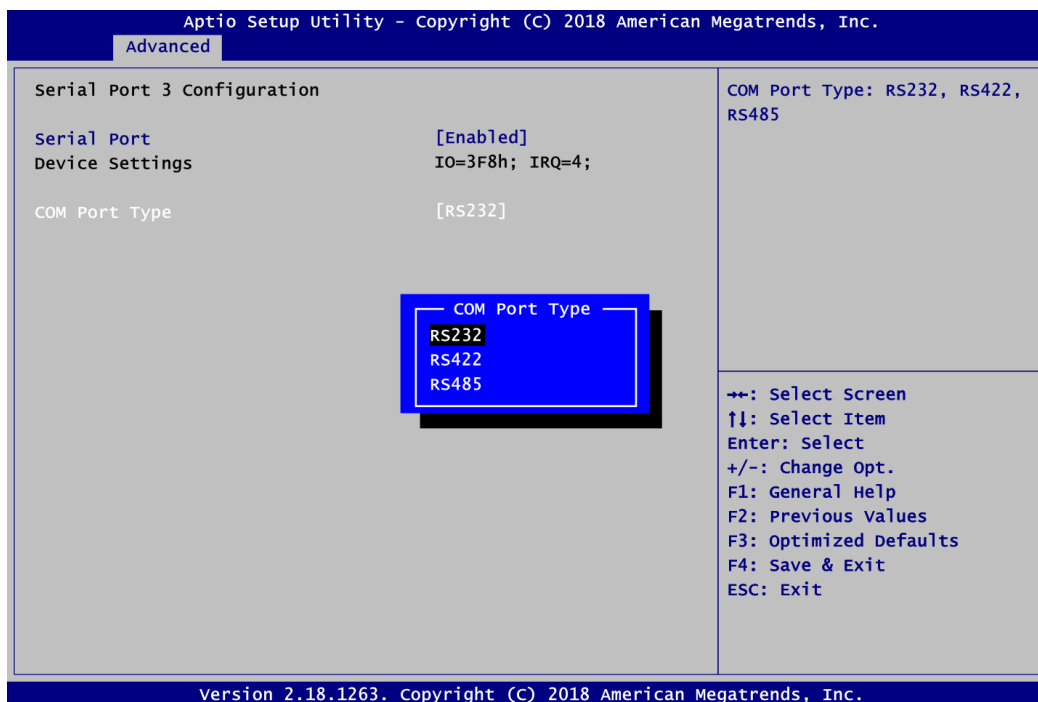
You can use this screen to select options for Serial Port Configuration, and change the value of the selected option. A description of the selected item appears on the right side of the screen. For items marked with "▶", please press <Enter> for more options.



**Serial Port 3~6 Configuration**

Use these items to set parameters related to serial port 3~6.

● **Serial Port 3~6 Configuration**



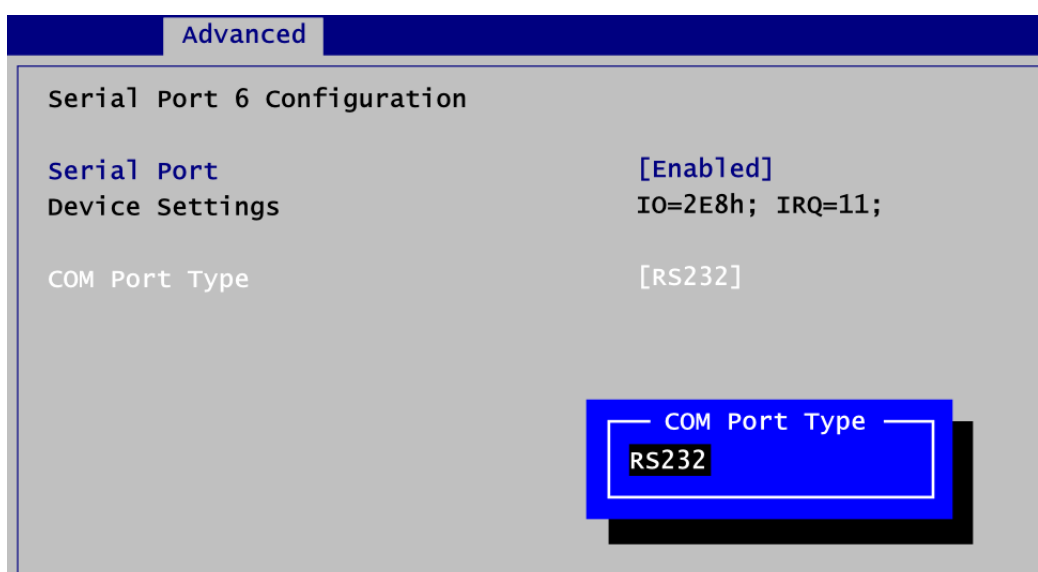
**Serial Port 3~6**

Enable or disable serial port 3~6. The optimal settings for base I/O address and for interrupt request address are:

- Serial port 3: 3F8h, IRQ4
- Serial port 4: 2F8h, IRQ3
- Serial port 5: 3E8h, IRQ10
- Serial port 6: 2E8h, IRQ11

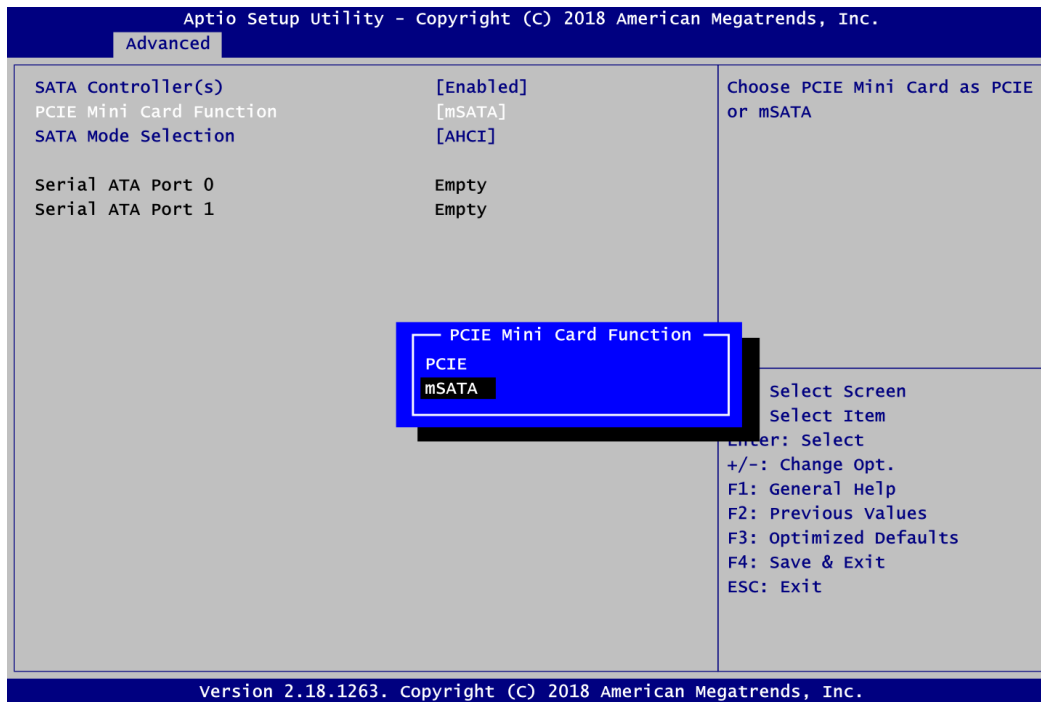
**COM Port Type**

Use this item to set RS-232/422/485 communication mode for serial port 3~5. The serial port 6 supports RS-232 only, see image below.



- **SATA And RST Configuration**

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



**SATA Controller(s)**

Enable or disable SATA device.

**PCIE Mini Card Function**

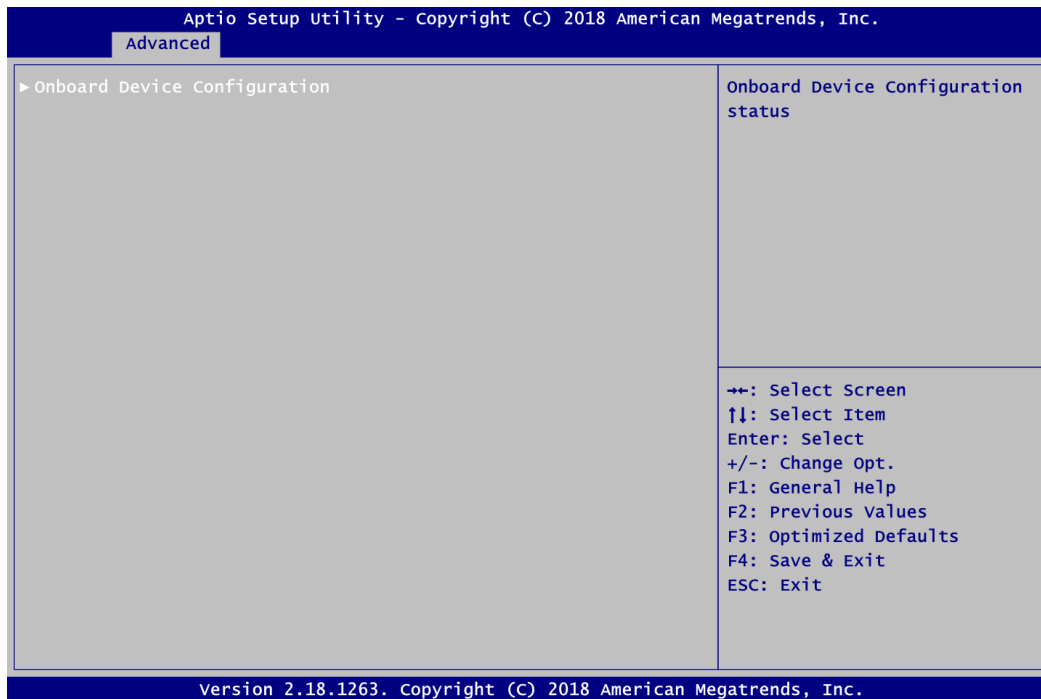
Choose PCIE or mSATA for PCI-Express Mini Card. The default is mSATA. If PCIE is needed to insert to CN12 (see section 2.5.9), please change setting to PCIE.

**SATA Mode Selection**

Determine how SATA controller(s) operate. Operation mode is AHCI (Advanced Host Controller Interface) mode only.

- **Device Configuration**

A description of selected item appears on the right side of the screen. For items marked with “▶”, please press <Enter> for more options.

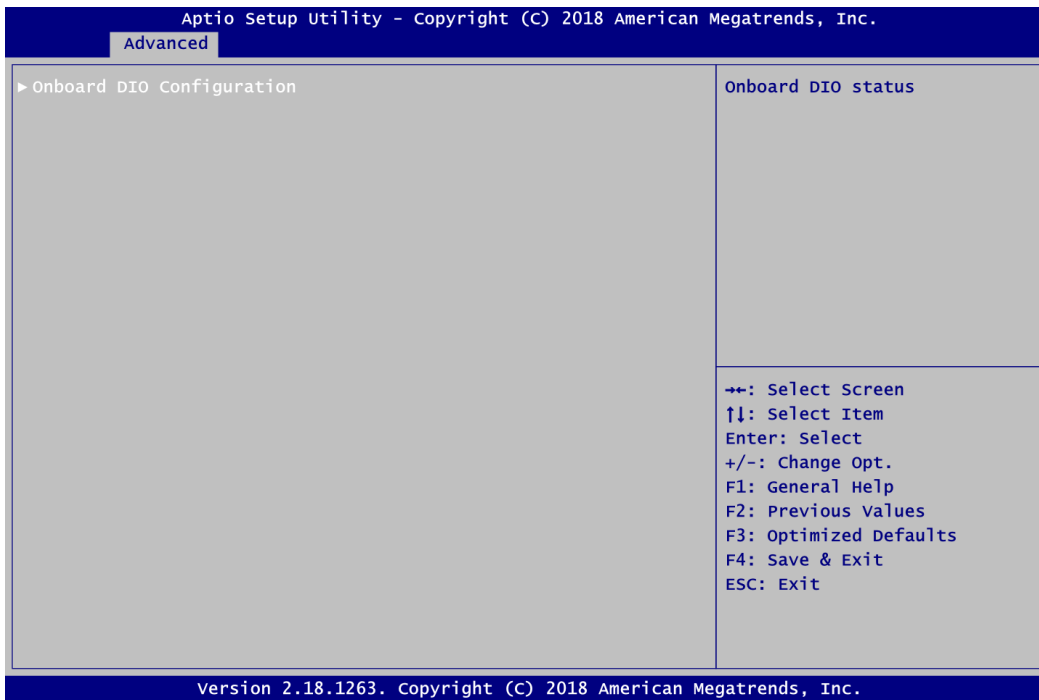


**Onboard Device Configuration**

Use this option to configure onboard device (e.g., DIO setting).

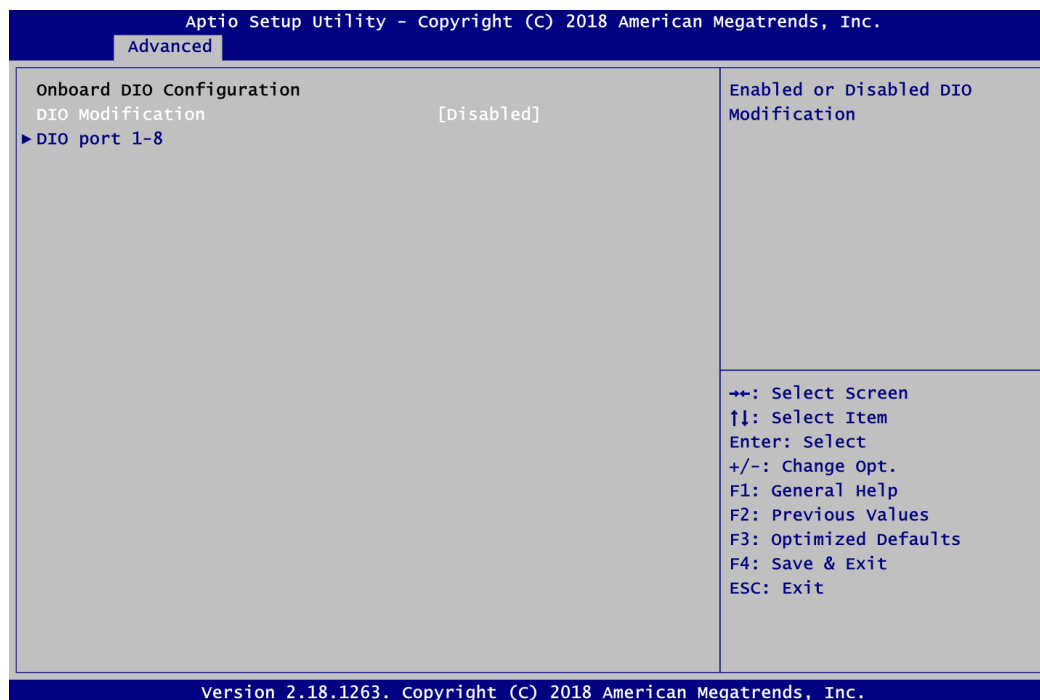
- **Onboard DIO Configuration**

You can use this screen to select options for the 8-bit Digital I/O Configuration. A description of the selected item appears on the right side of the screen. For items marked with “▶”, please press <Enter> for more options.



## Onboard DIO Configuration

Use this screen to set parameters related to digital I/O configuration.



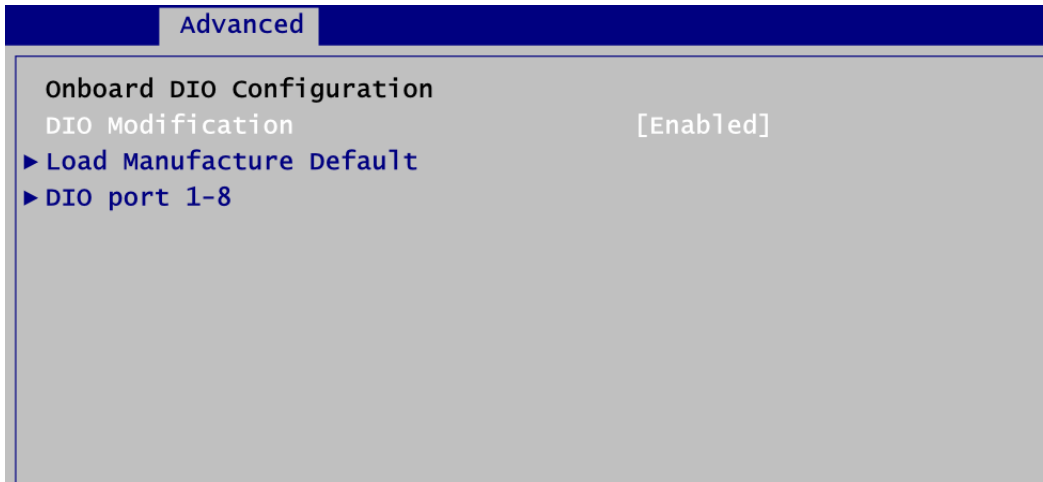
### DIO Modification

Enable or disable digital I/O modification. The default is Disabled.

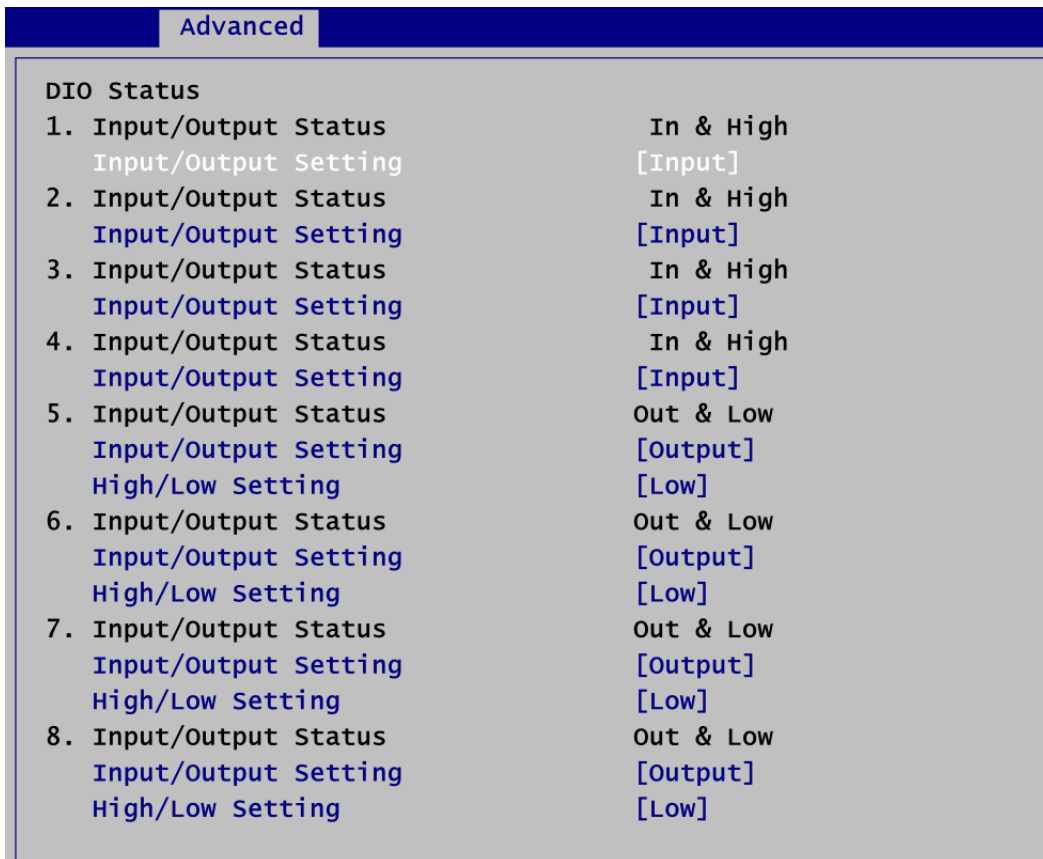
### DIO port 1-8

Select this option to open DIO status sub screen.

If DIO Modification is enabled, you can load manufacture default and access to the DIO status sub screen to change input/output setting, see image below.



The DIO status sub screen is as follows:

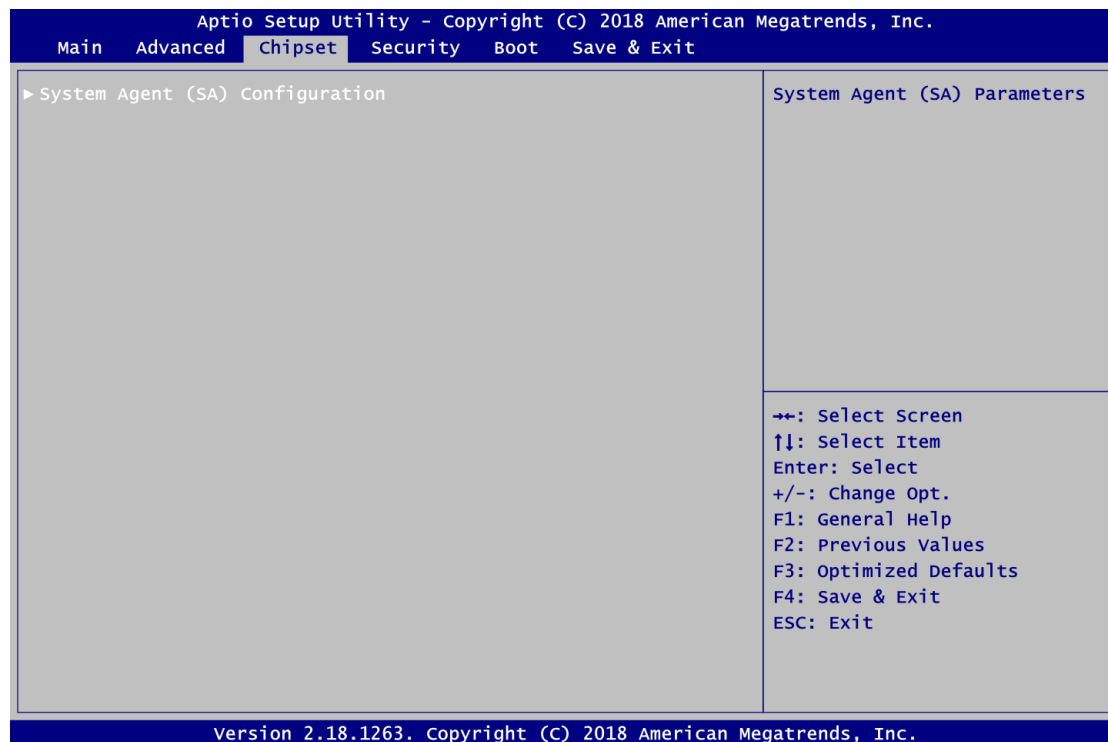


## 3.4 Chipset Menu

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:

- ▶ System Agent (SA) Configuration

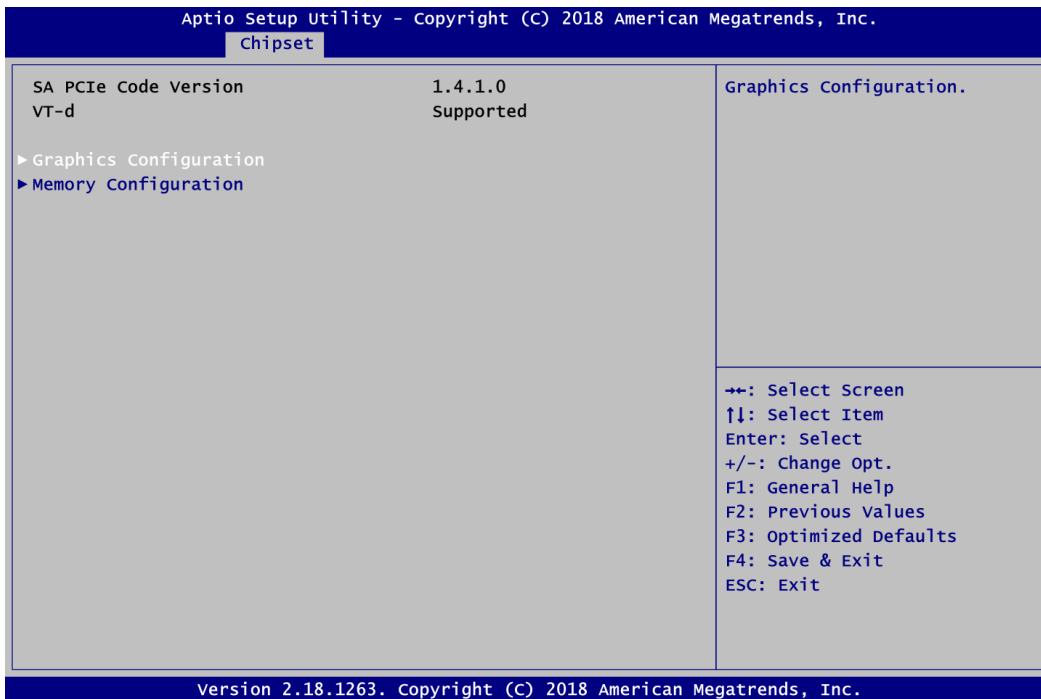
For items marked with “▶”, please press <Enter> for more options.





- **System Agent (SA) Configuration**

This screen allows users to configure System Agent (SA) parameters. For items marked with “▶”, please press <Enter> for more options.



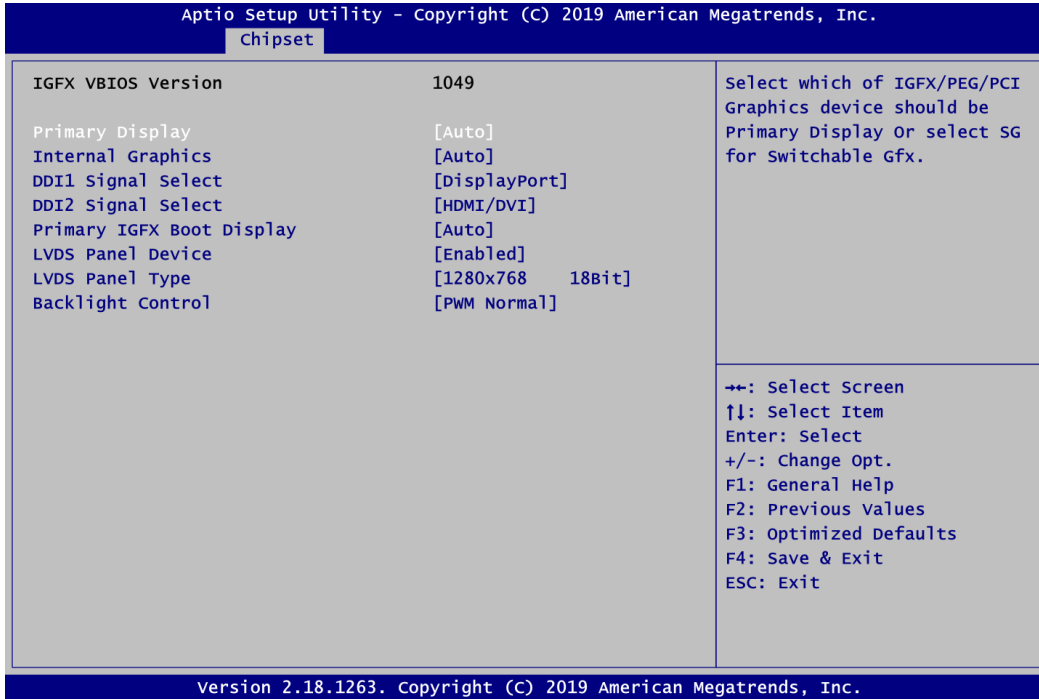
**Graphics Configuration**

Select to open sub menu for parameters related to graphics configuration.

**Memory Configuration**

Select to open sub menu for information related to system memory.

- **Graphics Configuration**



**Primary Display**

Select the primary display device.

**Internal Graphics**

Keep IGFX enabled based on the setup options; Auto, Disabled, Enabled.

**DDI1 Signal Select**

Select the DDI1 signal (display output on CN22 upper side) to DisplayPort. This item must be set to DisplayPort if you want to enable DP port on CEB94022.

**DDI2 Signal Select**

Select the DDI2 signal (display output on CN22 lower side) to HDMI/DVI. This item must be set to HDMI/DVI if you want to enable HDMI port on CEB94022.

**Primary IGFX Boot Display**

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

**LVDS Panel Device**

Enable or disable LVDS panel support.

**LVDS Panel Type**

Select LVDS panel resolution.

**Backlight Control**

Use this item to select backlight control mode.



**Note**

- *DDI3 is VGA output on CEM Express™ module.*