



AXIOMTEK

CEB94017

**COM Express™ Type 10
Development Baseboard**

User's Manual



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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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Table of Contents

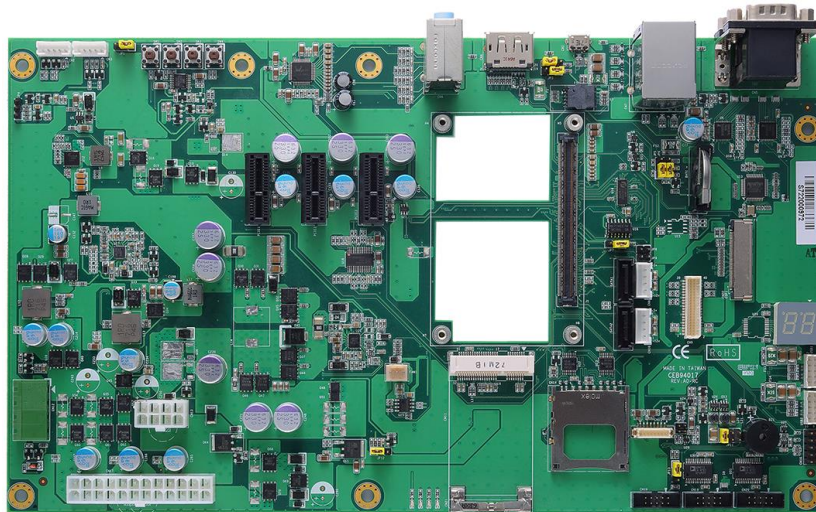
Disclaimers.....	ii
ESD Precautions.....	iii
Chapter 1 Introduction.....	1
1.1 Features	1
1.2 Specifications	2
1.3 Utilities Supported	3
Chapter 2 Board and Pin Assignments.....	5
2.1 Board Dimensions and Fixing Holes.....	5
2.2 Board Layout	7
2.3 Jumper Settings	8
2.3.1 Auto Power On (JP1)	9
2.3.2 TPM Status Setting (JP2).....	9
2.3.3 Boot BIOS Selection (JP3 and JP7).....	9
2.3.4 LVDS/eDP Selection (JP5).....	9
2.3.5 Restore BIOS Optimal Defaults (JP6).....	10
2.3.6 LVDS Brightness Control Mode Setting (JP10)	10
2.3.7 LVDS Voltage Selection (JP11)	10
2.3.8 Module Power Setting (JP12)	10
2.3.9 DIO/SD Card Selection (JP13).....	10
2.4 Connectors	11
2.4.1 Micro USB Connector (CN1).....	12
2.4.2 I2C Connector (CN2)	12
2.4.3 SMBus Connector (CN3)	12
2.4.4 DisplayPort Connector (CN4).....	13
2.4.5 COM D-Sub Connectors (CN5).....	13
2.4.6 Audio Jack (CN6)	13
2.4.7 Ethernet and USB 3.0 Port (CN7)	14
2.4.8 SATA Power Connector (CN8 and CN10).....	14
2.4.9 LVDS Connector (CN9)	15
2.4.10 PCI-Express Mini Card Connector (CN11).....	16
2.4.11 DC IN Connector (CN12)	16
2.4.12 ATX Power Connectors (CN13 and CN17)	17
2.4.13 SD Card Slot (CN14).....	17
2.4.14 Inverter Connector (CN15).....	18
2.4.15 Front Panel Connector (CN16)	18
2.4.16 Digital I/O Connectors (CN18)	19
2.4.17 COM Connectors (CN19 and CN20).....	19

2.4.18	eDP Connector (EDP1)	20
2.4.19	Fan Connector (Fan1)	20
2.4.20	PCI-Express x1 Slots (PCIE1, PCIE2 and PCIE3)	21
2.4.21	SATA Connectors (SATA1 and SATA2)	21
2.4.22	USB 2.0 Connectors (USB1 and USB2)	22
2.4.23	COM Express™ Type 10 Connector (J1)	22
2.5	Switch Buttons	24
2.6	LED Indicators	24

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Chapter 1

Introduction



The CEB94017 is a new COM Express™ Type 10 development baseboard equipped with an embedded COM Express™ CPU mini type module and fully compliant with PICMG COM.0 Rev 2.1 COM Express™ standard. The COM Express™ is an open industry standard for Computer-on-Modules, designed to be future proof and to provide a smooth transition path from legacy parallel interfaces to contemporary high bandwidth serial interfaces. In addition to the standard output signals for converting, CEB94017 provides three PCI Express x1 slots and one PCI-Express Mini Card socket for expansion purposes.

This board supports various I/O features: display interfaces (LVDS, DP and eDP connector), Gigabit/Fast Ethernet, HD audio codec, two SATA ports, seven USB ports (2 USB 3.0, 4 USB 2.0 and 1 micro USB 2.0), digital I/O, and 4 serial ports.

With CEB94017, customers can develop their own applications and upgrade the system configuration in advance to meet faster time-to-market.

1.1 Features

- COM Express™ Type 10 baseboard for evaluation purpose
- USB 3.0 / USB 2.0 supported
- Port 80 display for debugging
- Switch button for RESET, POWER, SLEEP, LID

1.2 Specifications

- **CPU**
 - COM Express™ Type 10 module.
- **System Chipset**
 - On the COM Express™ module.
- **BIOS**
 - On the COM Express™ module.
- **System Memory**
 - On the COM Express™ module.
- **Onboard Multi I/O**
 - Two RS-232/422/485 ports.
 - Two UARTs (TX/RX).
- **Serial ATA**
 - Two SATA connectors.
 - One SD card socket.
- **Ethernet**
 - One RJ-45 interface for 1000/100/10Mbps.
- **Audio**
 - HD audio with line-in/line-out and MIC-in audio jack.
- **USB Interface**
 - Five USB comply with USB Spec. Rev. 2.0. (USB 2.0 wafer connector x4 , micro USB x1).
 - Two USB comply with USB Spec. Rev. 3.0.
- **SPI**
 - Supported.
- **SMBus**
 - Supported.
- **Digital I/O**
 - Four input channels and four output channels.
- **Port 80 Display**
 - Dual 7 segments Port 80 display for convenient debugging purpose through LPC interface.

- **Display**
 - One 2x20-pin connector for 24-bit single channel LVDS and one eDP connector.
 - One DisplayPort connector.
- **Expansion Interface**
 - Three PCIe x1 slots.
 - One PCI-Express Mini Card socket which complies with PCI-Express Mini Card Spec. V1.2.
- **Size**
 - 293.4 x 171.5mm.
- **Board Thickness**
 - 1.6mm.
- **Operation Temperature**
 - -40°C ~ 85°C (-40°F ~ 185°F).
- **Operation Humidity**
 - 10% ~ 95% relative humidity, non-condensing.



Note

All specifications and images are subject to change without notice.

1.3 Utilities Supported

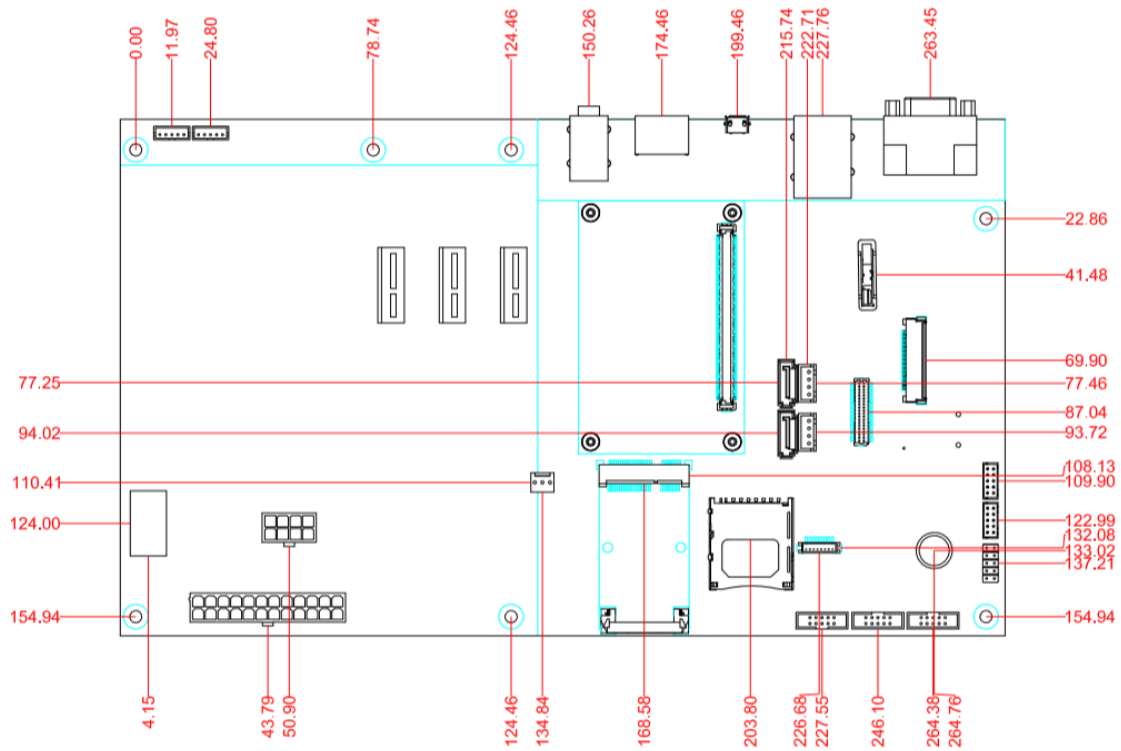
- Audio driver

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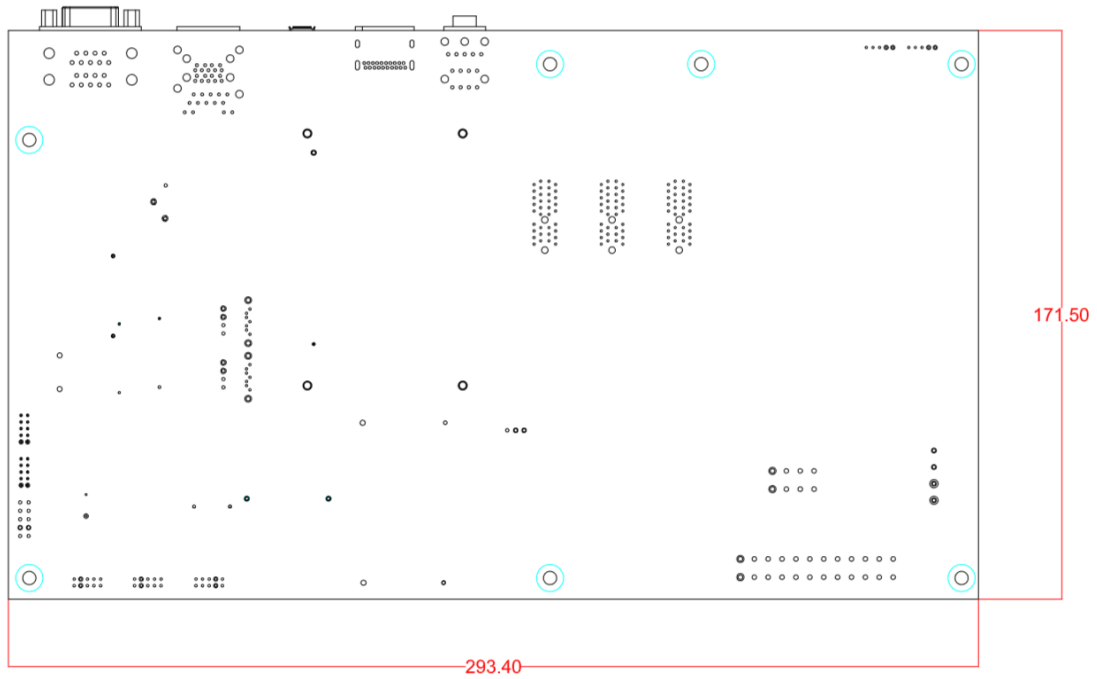
Chapter 2

Board and Pin Assignments

2.1 Board Dimensions and Fixing Holes

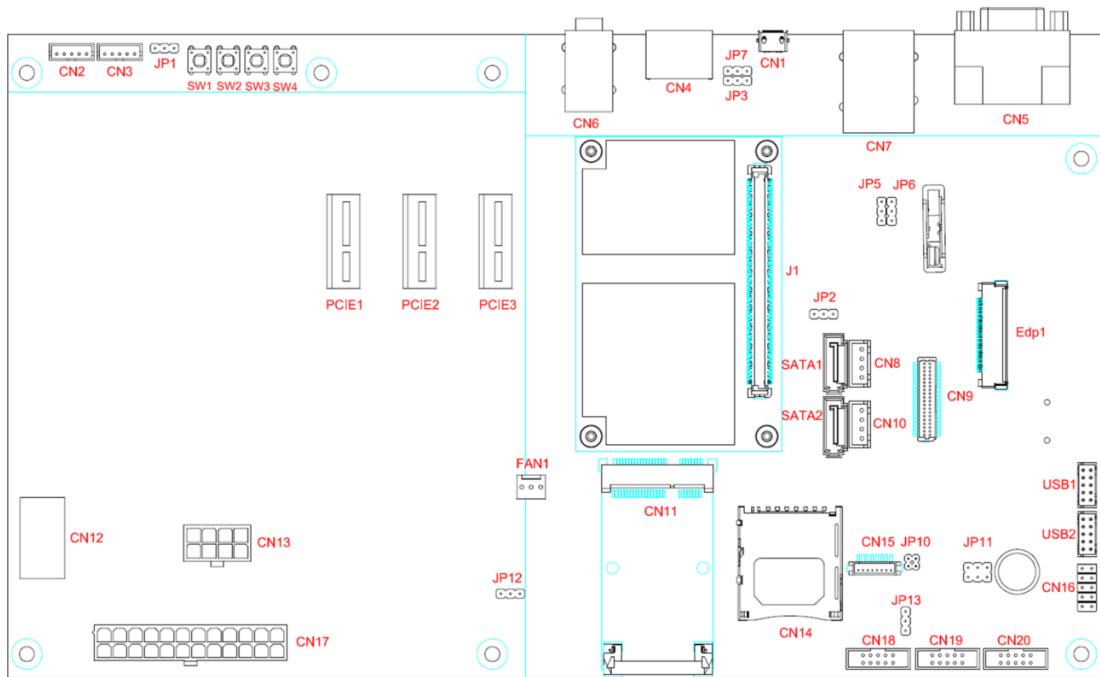


Top View



Bottom View

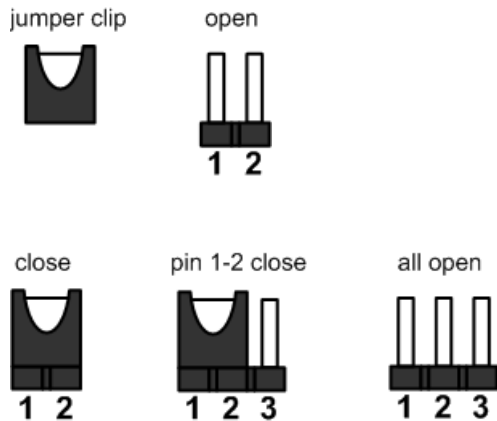
2.2 Board Layout



Top View

2.3 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 CEB94017 to meet your application purpose. Below you can find a summary table of all jumpers and onboard default settings.



Note

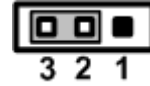
Once the default jumper setting needs to be changed, please do it under power-off condition.

Jumper	Description	Setting
JP1	Auto Power On Default: Disable	2-3 Close
JP2	TPM Status Selection Default: Inactive	2-3 Close
JP3	Boot BIOS Selection	1-2 Close
JP7	Default: Boot from Module BIOS	1-2 Close
JP5	LVDS/eDP Selection Default: LVDS	1-2 Close
JP6	Restore BIOS Optimal Defaults Default: Normal Operation	1-2 Close
JP10	LVDS Brightness Control Mode Setting Default: PWM mode	1-2 Close
JP11	LVDS Voltage Selection Default: +3.3V	1-2 Close
JP12	Module Power Setting Default: Turn on	1-2 Close
JP13	DIO/SD Card Selection Default: DIO	1-2 Close

2.3.1 Auto Power On (JP1)

If JP1 is enabled for power input, the system will be automatically power on without pressing soft power button. If JP1 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



2.3.2 TPM Status Setting (JP2)

Use this jumper to set TPM (Trusted Platform Module) physical presence pin to active or inactive.

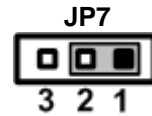
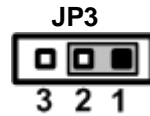
Function	Setting
Active	1-2 close
Inactive (Default)	2-3 close



2.3.3 Boot BIOS Selection (JP3 and JP7)

The JP3 and JP7 are for selecting system boot from COM Express™ baseboard (CEB94017) BIOS or COM Express™ module BIOS.

Function	Setting
Boot from module BIOS (Default)	JP3: 1-2 close JP7: 1-2 close
Boot from baseboard BIOS	JP3: 2-3 close JP7: 1-2 close



2.3.4 LVDS/eDP Selection (JP5)

Use this jumper to select LVDS or eDP function.

Function	Setting
LVDS (Default)	1-2 close
eDP	2-3 close



2.3.5 Restore BIOS Optimal Defaults (JP6)

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.

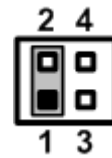
Function	Setting
Normal operation (Default)	1-2 close
Restore BIOS optimal defaults	2-3 close



2.3.6 LVDS Brightness Control Mode Setting (JP10)

The JP10 enables you to select PWM or voltage control mode for inverter connector (CN15). These two control modes are for adjusting the brightness of LVDS panel.

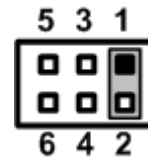
Function	Setting
PWM mode (Default)	1-2 close
Voltage mode	3-4 close



2.3.7 LVDS Voltage Selection (JP11)

The board supports voltage selection for panel displays. Use this jumper to set LVDS connector (CN9) pin 1~6 to +3.3V, +5V or +12V voltage level. 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	1-3 close
+12V level	5-6 close



2.3.8 Module Power Setting (JP12)

Use this jumper to turn on or turn off power of module to COM Express™ Type 10 connector (J1).

Function	Setting
Turn on (Default)	1-2 close
Turn off	2-3 close



2.3.9 DIO/SD Card Selection (JP13)

The DIO and SDIO are co-layout pin from module, you can switch from one to another with JP13.

Function	Setting
DIO (Default)	1-2 close
SD card	2-3 close



2.4 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	Micro USB Connector
CN2	I2C Connector
CN3	SMBus Connector
CN4	DisplayPort Connector
CN5	COM D-Sub Connector
CN6	Audio Jack
CN7	Ethernet and USB 3.0 Port
CN8, CN10	SATA Power Connector
CN9	LVDS Connector
CN11	PCI-Express Mini Card Connector
CN12	DC IN Connector
CN13	8-pin ATX Power Connector
CN14	SD Card Slot
CN15	Inverter Connector
CN16	Front Panel Connector
CN17	24-pin ATX Power Connector
CN18	Digital I/O Connector
CN19, CN20	COM Connectors
EDP1	eDP Connector
Fan1	Fan Connector
PCIE1~PCIE3	PCI-Express x1 Slots
SATA1, SATA2	SATA Connector
USB1, USB2	USB 2.0 Connectors
J1	COM Express™ Type 10 Connector

2.4.1 Micro USB Connector (CN1)

The micro USB interface is available through CN1.

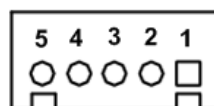
Pin	Signal
1	USB_PWR
2	USB_D-
3	USB_D+
4	NC
5	GND



2.4.2 I2C Connector (CN2)

The CN2 is a 5-pin I2C connector, providing power, clock and data signals.

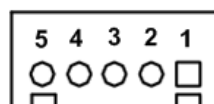
Pin	Signal
1	+3.3V
2	I2C_CLK
3	I2C_DATA
4	NC
5	GND



2.4.3 SMBus Connector (CN3)

The SMBus (System Management Bus) is a simple bus for the purpose of lightweight communication. The CN3 is a 5-pin SMBus connector, providing power, clock, data and alert signals.

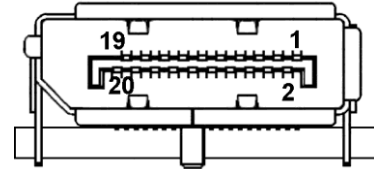
Pin	Signal
1	+3.3V
2	SMBUS_CLK
3	SMBUS_DATA
4	SMBUS_ALERT
5	GND



2.4.4 DisplayPort Connector (CN4)

This is a standard DisplayPort connector which is commonly used for DisplayPort interface.

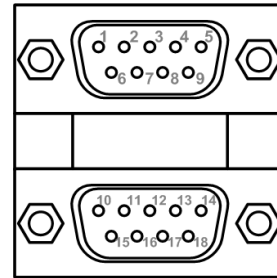
Pin	Signal	Pin	Signal
1	DP_LANE0+	2	GND
3	DP_LANE0-	4	DP_LANE1+
5	GND	6	DP_LANE1-
7	DP_LANE2+	8	GND
9	DP_LANE2-	10	DP_LANE3+
11	GND	12	DP_LANE3-
13	DP3_AUX_SEL	14	GND
15	DP_AUX+	16	GND
17	DP_AUX-	18	DP_HPD#
19	GND	20	+3.3V



2.4.5 COM D-Sub Connectors (CN5)

The CN5 is a double-deck 9-pin D-Sub connector with RS-232/422/485 communication mode from LPC S/I/O of COM Express™ baseboard (CEB94017).

Pin	Pin	RS-232	RS-422	RS-485
1	10	DCD	TX-	Data-
2	11	RXD	TX+	Data+
3	12	TXD	RX+	N.C.
4	13	DTR	RX-	N.C.
5	14	GND	GND	GND
6	15	DSR	N.C.	N.C.
7	16	RTS	N.C.	N.C.
8	17	CTS	N.C.	N.C.
9	18	RI	N.C.	N.C.



2.4.6 Audio Jack (CN6)

Install audio driver, then attach audio devices to CN6.

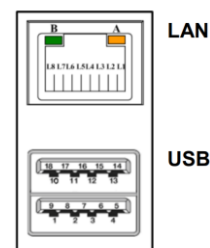
Pin Color	Signal
Blue	Line-in
Green	Line-out
Pink	MIC-in



2.4.7 Ethernet and USB 3.0 Port (CN7)

The board is equipped with high performance plug and play Ethernet interface fully compliant with the IEEE 802.3 standard. The Ethernet port uses RJ-45 connector. 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 USB 3.0 and USB 2.0 compliant for connecting to any USB peripheral, such as keyboard, mouse or scanner.

Pin	LAN Signal	Pin	LAN Signal
L1	GBE_MDI0+	L5	GBE_MDI2-
L2	GBE_MDI0-	L6	GBE_MDI1-
L3	GBE_MDI1+	L7	GBE_MDI3+
L4	GBE_MDI2+	L8	GBE_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	+5V	10	+5V
2	USB_D0-	11	USB_D1-
3	USB_D0+	12	USB_D1+
4	GND	13	GND
5	USB_SSRX0-	14	USB_SSRX1-
6	USB_SSRX0+	15	USB_SSRX1+
7	GND	16	GND
8	USB_SSTX0-	17	USB_SSTX1-
9	USB_SSTX0+	18	USB_SSTX1+

2.4.8 SATA Power Connector (CN8 and CN10)

This is a 4-pin connector for interfacing to SATA 2.5" and SATA 3.5" HDD power supply which also could supply dual HDD.

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

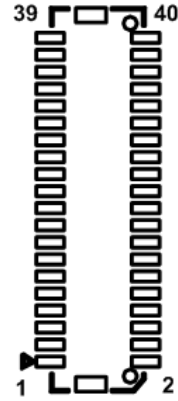


2.4.9 LVDS Connector (CN9)

The board has one 2x20-pin 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 JP11 (see section 2.3.7).

24-bit single channel

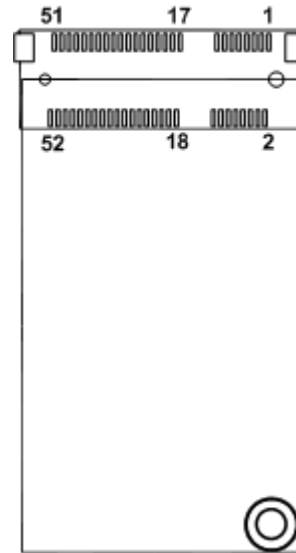
Pin	Signal	Pin	Signal
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	N.C.	8	N.C.
9	GND	10	GND
11	N.C.	12	N.C.
13	N.C.	14	N.C.
15	GND	16	GND
17	N.C.	18	N.C.
19	N.C.	20	N.C.
21	GND	22	GND
23	Channel A D0-	24	N.C.
25	Channel A D0+	26	N.C.
27	GND	28	GND
29	Channel A D1-	30	Channel A D3-
31	Channel A D1+	32	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



2.4.10 PCI-Express Mini Card Connector (CN11)

The CN11 is a PCI-Express Mini Card connector supporting PCI-Express x1 link and USB 2.0 link. The PCI-Express Mini Card can be applied to either PCI-Express or USB 2.0.

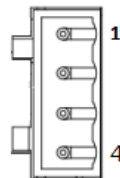
Pin	Signal	Pin	Signal
1	WAKE#	2	+3.3VSB
3	No use	4	GND
5	No use	6	+1.5V
7	CLKREQ#	8	No use
9	GND	10	No use
11	REFCLK-	12	No use
13	REFCLK+	14	No use
15	GND	16	No use
17	No use	18	GND
19	No use	20	No use
21	GND	22	PERST#
23	PCIE_RX2-	24	+3.3VSB
25	PCIE_RX2+	26	GND
27	GND	28	+1.5V
29	GND	30	SMB_CLK
31	PCIE_TX2-	32	SMB_DATA
33	PCIE_TX2+	34	GND
35	GND	36	USB_P6-
37	GND	38	USB_P6+
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



2.4.11 DC IN Connector (CN12)

The CN12 is a 4-pin DC power connector in terminal block. Its pin assignments are given in table below.

Pin	Signal
1	+4.75V~20V
2	+4.75V~20V
3	GND
4	GND



Note

You may choose either ATX or DC connector as your system power input interface.

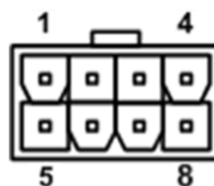
2.4.12 ATX Power Connectors (CN13 and CN17)

Steady and sufficient power can be supplied to all components on the board by connecting the power connector. Please make sure all components and devices are properly installed before connecting the power connector.

External power supply plug fits into this connector in only one orientation. Properly press down power supply plug until it completely and firmly fits into this connector. Loose connection may cause system instability.

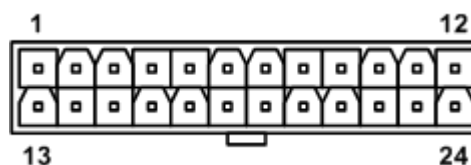
CN13:

Pin	Signal	Pin	Signal
1	GND	5	+12V
2	GND	6	+12V
3	GND	7	+12V
4	GND	8	+12V



CN17:

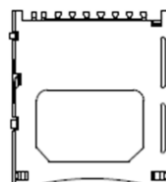
Pin	Signal	Pin	Signal
1	+3.3V	13	+3.3V
2	+3.3V	14	No use
3	GND	15	GND
4	+5V	16	PS_ON#
5	GND	17	GND
6	+5V	18	GND
7	GND	19	GND
8	No use	20	N.C.
9	+5VSB	21	+5V
10	+12V	22	+5V
11	+12V	23	+5V
12	+3.3V	24	GND



2.4.13 SD Card Slot (CN14)

The Secure Digital (SD) is a flash memory card format used in portable device including notebook and digital camera.

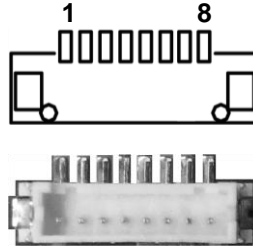
Pin	Signal
1	SDIO_DAT3
2	SDIO_CMD
3	GND
4	+3.3V
5	SDIO_CLK#
6	GND
7	SDIO_DAT0
8	SDIO_DAT1
9	SDIO_DAT2
10	SD0_WP
11	SD0_CD-
12	GND



2.4.14 Inverter Connector (CN15)

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

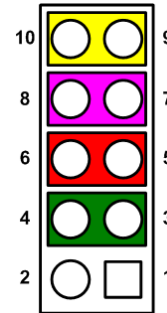
Pin	Signal
1	VBL1 (+12V level)
2	VBL1 (+12V level)
3	VBL2 (+5V level)
4	VBL_ENABLE
5	GND
6	GND
7	GND
8	VBL Brightness Control



2.4.15 Front Panel Connector (CN16)

The CN16 is a 2x5-pin connector for front panel interface.

Pin	Signal	Pin	Signal
1	GND	2	ATX_PSON#
3	PWRLED-	4	PWRLED+
5	PWRSW-	6	PWRSW+
7	HW RST-	8	HW RST+
9	HDDLED-	10	HDDLED+



ATX Power Supply ON

Short pin 1 and pin 2, ATX power supply is forcing to turn on state. Otherwise, system will control ATX power supply state.

Power LED

Pin 4 connects anode(+) of LED and pin 3 connects cathode(-) of LED. The power LED lights up when the system is powered on.

Power On/Off Button

Pin 5 and 6 connect the power button on front panel to the CPU board, which allows users to turn on or off power supply.

System Reset Switch

Pin 7 and 8 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.

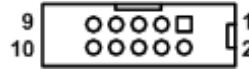
HDD Activity LED

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

2.4.16 Digital I/O Connectors (CN18)

The board is equipped with a 2x5-pin digital I/O connector (CN18) that meets requirements for a system customary automation control. The digital I/O can be configured to control cash drawers and sense warning signals from an Uninterrupted Power System (UPS), or perform store security control. The digital I/O is controlled via software programming.

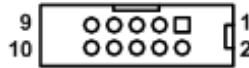
Pin	Signal	Pin	Signal
1	GPI0	2	GPI00
3	GPI1	4	GPI01
5	GPI2	6	GPI02
7	GPI3	8	GPI03
9	+5V	10	GND



2.4.17 COM Connectors (CN19 and CN20)

The CN19 and CN20 are 2x5-pin connectors for RS-232 (only TX and RX) interface from module.

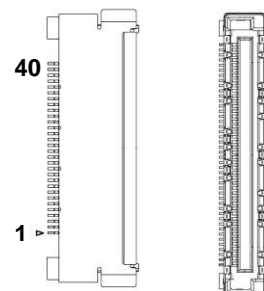
Pin	Signal
1	NC
2	NC
3	Receive Data (RXD)
4	NC
5	Transmit Data (TXD)
6	NC
7	NC
8	NC
9	Ground (GND)
10	NC



2.4.18 eDP Connector (EDP1)

The eDP (embedded DisplayPort) interface is available through 40-pin connector (EDP1). The eDP is a design to replace internal digital LVDS links in computer monitor panels and TV panels. You can select LVDS or eDP function with jumper JP5, see section 2.3.4. Also pin 1~4 VCCM can be set to +3.3V, +5V or +12V with jumper JP11, see section 2.3.7.

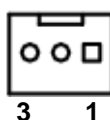
Pin	Signal	Pin	Signal
1	VCCM	21	eDP0_TX0-
2	VCCM	22	eDP0_TX0+
3	VCCM	23	High Speed_GND
4	VCCM	24	eDP0_AUX+
5	NC	25	eDP0_AUX-
6	LCD_GND	26	High Speed_GND
7	LCD_GND	27	BKLT_GND
8	LCD_GND	28	BKLT_GND
9	LCD_GND	29	BKLT_GND
10	eDP0_HPD#	30	BKLT_GND
11	High Speed_GND	31	NC
12	eDP0_TX3-	32	LVDS_BLT_CTRL
13	eDP0_TX3+	33	LVDS_BLEN
14	High Speed_GND	34	NC
15	eDP0_TX2-	35	NC
16	eDP0_TX2+	36	BKLT_VCC_12V
17	High Speed_GND	37	BKLT_VCC_12V
18	eDP0_TX1-	38	BKLT_VCC_12V
19	eDP0_TX1+	39	BKLT_VCC_12V
20	High Speed_GND	40	NC



2.4.19 Fan Connector (Fan1)

Fan is needed for cooling down CPU or system temperature. The board has one fan connector, see table below.

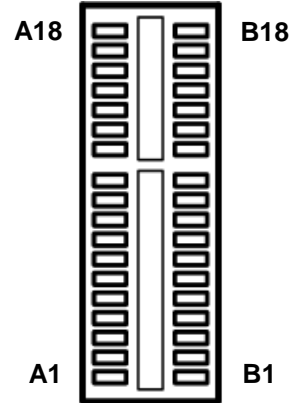
Pin	Signal
1	GND
2	FANOUT
3	FANIN



2.4.20 PCI-Express x1 Slots (PCIE1, PCIE2 and PCIE3)

The board supports up to four PCI-Express x1: PCIe 0~3. The PCIe 2 is routed to CN11, and the PCIe 0, 1, 3 are routed to PCIE1~PCIE3.

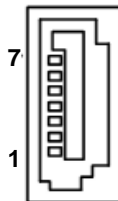
Pin	Signal	Pin	Signal
B1	+12V	A1	NC
B2	+12V	A2	+12V
B3	+12V	A3	+12V
B4	GND	A4	GND
B5	SMCLK	A5	NC
B6	SMDAT	A6	NC
B7	GND	A7	NC
B8	+3.3V	A8	NC
B9	NC	A9	+3.3V
B10	3.3Vaux	A10	+3.3V
B11	WAKE#	A11	PWRGD
	KEY		KEY
B12	RSVD	A12	GND
B13	GND	A13	REFCLK+
B14	PCIE_TX+	A14	REFCLK-
B15	PCIE_TX-	A15	GND
B16	GND	A16	PCIE_RX+
B17	NC	A17	PCIE_RX-
B18	GND	A18	GND



2.4.21 SATA Connectors (SATA1 and SATA2)

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

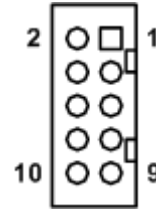
Pin	Signal
1	GND
2	SATA_TX+
3	SATA_TX-
4	GND
5	SATA_RX-
6	SATA_RX+
7	GND



2.4.22 USB 2.0 Connectors (USB1 and USB2)

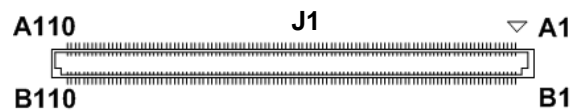
These are 2x5-pin connectors commonly used for installing USB 2.0 compliant peripherals such as keyboard, mouse, scanner, etc.

Pin	Signal	Pin	Signal
1	USB_PWR	10	USB_PWR
2	USB_D-	11	USB_D-
3	USB_D+	12	USB_D+
4	GND	13	GND
9	GND	18	GND



2.4.23 COM Express™ Type 10 Connector (J1)

The following table shows pin assignments for the 220-pin COM Express™ Type 10 connector.



CEB94017 COM Express™ Type 10 Development Baseboard

Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A1	GND (FIXED)	B1	GND (FIXED)	A56	N.C.	B56	N.C.
A2	GBE0_MDI3-	B2	GBE0_ACT#	A57	GND	B57	GPO2/SD_WP
A3	GBE0_MDI3+	B3	LPC_FRAME#	A58	PCIE_TX3+	B58	PCIE_RX3+
A4	GBE0_LINK100#	B4	LPC_AD0	A59	PCIE_TX3-	B59	PCIE_RX3-
A5	GBE0_LINK1000#	B5	LPC_AD1	A60	GND (FIXED)	B60	GND (FIXED)
A6	GBE0_MDI2-	B6	LPC_AD2	A61	PCIE_TX2+	B61	PCIE_RX2+
A7	GBE0_MDI2+	B7	LPC_AD3	A62	PCIE_TX2-	B62	PCIE_RX2-
A8	N.C.	B8	LPC_DRQ0#	A63	GPIO1/SD_DATA1	B63	GPO3/SD_CD#
A9	GBE0_MDI1-	B9	LPC_DRQ1#	A64	PCIE_TX1+	B64	PCIE_RX1+
A10	GBE0_MDI1+	B10	LPC_CLK	A65	PCIE_TX1-	B65	PCIE_RX1-
A11	GND (FIXED)	B11	GND (FIXED)	A66	GND	B66	WAKE0#
A12	GBE0_MDI0-	B12	PWRBTN#	A67	GPIO2/SD_DATA2	B67	WAKE1#
A13	GBE0_MDI0+	B13	SMB_CK	A68	PCIE_TX0+	B68	PCIE_RX0+
A14	GBE0_CTREF	B14	SMB_DAT	A69	PCIE_TX0-	B69	PCIE_RX0-
A15	SUS_S3#	B15	SMB_ALERT_N	A70	GND(FIXED)	B70	GND(FIXED)
A16	SATA0_TX+	B16	SATA1_TX+	A71	LVDS_A0+/eDP_TX2+	B71	DDIO_PAIR0+
A17	SATA0_TX-	B17	SATA1_TX-	A72	LVDS_A0-/eDP_TX2-	B72	DDIO_PAIR0-
A18	N.C.	B18	N.C.	A73	LVDS_A1+/eDP_TX1+	B73	DDIO_PAIR1+
A19	SATA0_RX+	B19	SATA1_RX+	A74	LVDS_A1-/eDP_TX1-	B74	DDIO_PAIR1-
A20	SATA0_RX-	B20	SATA1_RX-	A75	LVDS_A2+/eDP_TX0+	B75	DDIO_PAIR2+
A21	GND (FIXED)	B21	GND (FIXED)	A76	LVDS_A2-/eDP_TX0-	B76	DDIO_PAIR2-
A22	USB_SSRX0-	B22	USB_SSTX0-	A77	LVDS_VDD_EN/eDP_VDD_EN	B77	N.C.
A23	USB_SSRX0+	B23	USB_SSTX0+	A78	LVDS_A3+	B78	N.C.
A24	N.C	B24	PWR_OK	A79	LVDS_A3-	B79	LVDS_BKLT_EN/ eDP_BKLT_EN
A25	USB_SSRX1-	B25	USB_SSTX1-	A80	GND(FIXED)	B80	GND(FIXED)
A26	USB_SSRX1+	B26	USB_SSTX1+	A81	LVDS_A_CK+/eDP_TX3+	B81	DDIO_PAIR3+
A27	BATLOW#	B27	WDT	A82	LVDS_A_CK-/eDP_TX3-	B82	DDIO_PAIR3-
A28	(S)ATA_ACT#	B28	N.C.	A83	LVDS_I2C_CK/eDP_AUX+	B83	LVDS_BKLT_CTRL/ eDP_BKLT_CTRL
A29	HDA_SYNC	B29	N.C.	A84	LVDS_I2C_DAT/eDP_AUX-	B84	VCC_5V_SBY
A30	HDA_RST#	B30	HDA_SDIN0	A85	GPIO3/SD_DATA3	B85	VCC_5V_SBY
A31	GND (FIXED)	B31	GND (FIXED)	A86	N.C.	B86	VCC_5V_SBY
A32	HDA_BITCLK	B32	SPKR	A87	eDP_HPD	B87	VCC_5V_SBY
A33	HDA_SDOUT	B33	I2C_CK	A88	PCIE_CK_REF+	B88	BIOS_DIS1#
A34	BIOS_DIS0#	B34	I2C_DAT	A89	PCIE_CK_REF-	B89	DDIO_HPD
A35	N.C.	B35	THRM#	A90	GND (FIXED)	B90	GND (FIXED)
A36	USB6-	B36	USB7-	A91	SPI_POWER	B91	N.C.
A37	USB6+	B37	USB7+	A92	SPI_MISO	B92	N.C.
A38	UBS_6_7_OC#	B38	USB_4_5_OC#	A93	GPO0/SD_CLK	B93	N.C.
A39	USB4-	B39	USB5-	A94	SPI_CLK	B94	N.C.
A40	USB4+	B40	USB5+	A95	SPI_MOSI	B95	DDIO_DDC_AUX_SEL
A41	GND (FIXED)	B41	GND (FIXED)	A96	TPM_PP	B96	USB7_HOST_PRSENT
A42	USB2-	B42	USB3-	A97	N.C	B97	SPI_CS#
A43	USB2+	B43	USB3+	A98	SER0_TX	B98	DDIO_CTRLCLK_AUX+
A44	USB_2_3_OC#	B44	USB_0_1_OC#	A99	SER0_RX	B99	DDIO_CTRLDATA_AUX-
A45	USB0-	B45	USB1-	A100	GND (FIXED)	B100	GND (FIXED)
A46	USB0+	B46	USB1+	A101	SER1_TX	B101	FAN_PWMOUT
A47	VCC_RTC	B47	N.C.	A102	SER1_RX	B102	FAN_TACHIN
A48	N.C.	B48	N.C.	A103	LID#	B103	SLEEP#
A49	N.C.	B49	SYS_RESET#	A104	VCC_4.75-20V	B104	VCC_4.75-20V
A50	LPC_SERIRQ	B50	CB_RESET#	A105	VCC_4.75-20V	B105	VCC_4.75-20V
A51	GND (FIXED)	B51	GND (FIXED)	A106	VCC_4.75-20V	B106	VCC_4.75-20V
A52	N.C.	B52	N.C.	A107	VCC_4.75-20V	B107	VCC_4.75-20V
A53	N.C.	B53	N.C.	A108	VCC_4.75-20V	B108	VCC_4.75-20V
A54	GPIO/SD_DATA0	B54	GPO1/SD_CMD	A109	VCC_4.75-20V	B109	VCC_4.75-20V
A55	N.C.	B55	N.C.	A110	GND (FIXED)	B110	GND (FIXED)

2.5 Switch Buttons

The board has four switch buttons, see table below.

Switch Button	Description
SW1	Reset switch button
SW2	Power switch button
SW3	SLEEP switch button
SW4	LID switch button

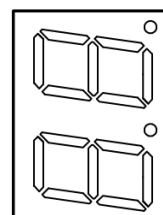
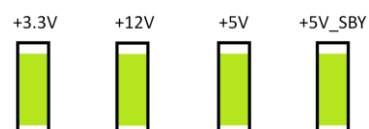


2.6 LED Indicators

The board has power LED and dual 7-segment LED display. See table below for detailed information.

LED	Description
Power LED	Power state LED indicators for +3.3V, +12V, +5V and +5V_SBY
7-segment LED	Dual 7-segment LED. Displays BIOS codes pushed out to LPC Port 80 during boot up process; which is very handy for debugging.

Power LED



7-segment LED