IP419

Mini-ITX COM Express Type 6 Carrier Board

User's Manual

Version 1.0
(Feb. 2019)

iBASE

Compliance

CE

In a domestic environment, this product may cause radio interference in which case users may be required to take adequate measures.

FC

This product has been tested and found to comply with the limits for a Class A device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with manufacturer's instructions, may cause harmful interference to radio communications.

WEEE

This product must not be disposed of as normal household waste, in accordance with the EU directive of for waste electrical and electronic equipment (WEEE - 2012/19/EU). Instead, it should be disposed of by returning it to a municipal recycling collection point. Check local regulations for disposal of electronic products.

Green IBASE

This product is compliant with the current RoHS restrictions and prohibits use of the following substances in concentrations exceeding 0.1% by weight (1000 ppm) except for cadmium, limited to 0.01% by weight (100 ppm).

- Lead (Pb)
- Mercury (Hg)
- Cadmium (Cd)
- Hexavalent chromium (Cr6+)
- Polybrominated biphenyls (PBB)
- Polybrominated diphenyl ether (PBDE)

Important Safety Information

Carefully read the precautions before using the board.

Environmental conditions:

- Use this product in environments with ambient temperatures between -20˚C and 70˚C.
- Do not leave this product in an environment where the storage temperature may be below -40° C or above 90° C. Before cleaning the PCB, shut down the system, unplug all cables and remove the battery.
- Vacuum the dust with a computer vacuum cleaner to prevent the fan from being clogged.

WARNING

Attention during use:

- Do not use this product near water.
- Do not spill water or any other liquids on this product.
- Do not place heavy objects on the top of this product.

Anti-static precautions

- Wear an anti-static wrist strap to avoid electrostatic discharge.
- Place the PCB on an anti-static kit or mat.
- Ground yourself by touching grounded bit of metal. When you touch a grounded metal, your body is discharged and all the current flows to ground rather than through sensitive components.

CAUTION

Danger of explosion if the internal lithium-ion battery is replaced by an incorrect type. Replace only with the same or equivalent type recommended by the manufacturer.

Warranty Policy

- **IBASE standard products:**

  24-month (2-year) warranty from the date of shipment. If the date of shipment cannot be ascertained, the product serial numbers can be used to determine the approximate shipping date.

- **3rd-party parts:**

  12-month (1-year) warranty from delivery for the 3rd-party parts that are not manufactured by IBASE, such as CPU, CPU cooler, memory, storage devices, power adapter, panel and touchscreen.

* PRODUCTS, HOWEVER, THAT FAIL DUE TO MISUSE, ACCIDENT, IMPROPER INSTALLATION OR UNAUTHORIZED REPAIR SHALL BE TREATED AS OUT OF WARRANTY AND CUSTOMERS SHALL BE BILLED FOR REPAIR AND SHIPPING CHARGES.

Technical Support & Services

1. Visit the IBASE website at www.ibase.com.tw to find the latest information about the product.
2. If you need any further assistance from your distributor or sales representative, prepare the following information of your product and elaborate upon the problem.
   - Product model name
   - Product serial number
   - Detailed description of the problem
   - The error messages in text or in screenshots if there is any
   - The arrangement of the peripherals
   - Software in use (such as OS and application software, including the version numbers)
3. If repair service is required, you can download the RMA form at http://www.ibase.com.tw/english/Supports/RMAService/. Fill out the form and contact your distributor or sales representative.

Table of Contents

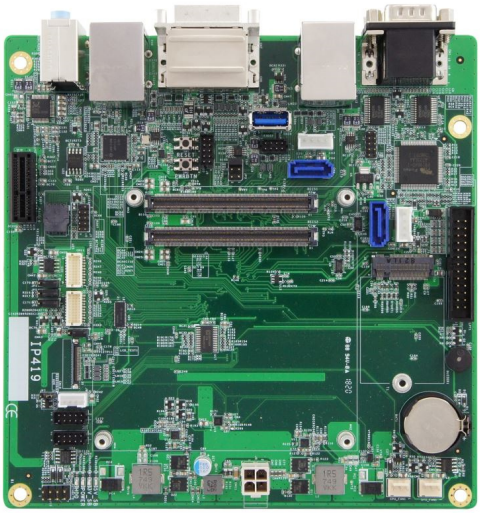
Chapter 1
General Information

The information provided in this chapter includes:

- Features
- Specifications
- Board Overview
- Board Dimensions

1.1 Introduction

IP419 is a carrier board for mini-ITX COM Express Type 6 CPU module. It features PCIe and M.2 B3042 expansion, video interface for DisplayPort, DVI-D video and 18/24-bit dual channel LVDS or 1 x eDP interface and a set of useful I/O including two USB 3.0, four USB 2.0, GbE LAN, audio jacks, and four serial ports. Dimensions are 170mm by 170mm.



IP419

1.2 Features

- Supports 1 x PCIe (x1) and 1 x M.2 B2242 slot
- Supports I/O ports including USB 3.0, USB 2.0, GbE LAN, DisplayPort, DVI-D, audio jacks, serial COM ports
- Onboard headers for serial ports (from COMe module), eDP / LVDS

1.3 Specifications

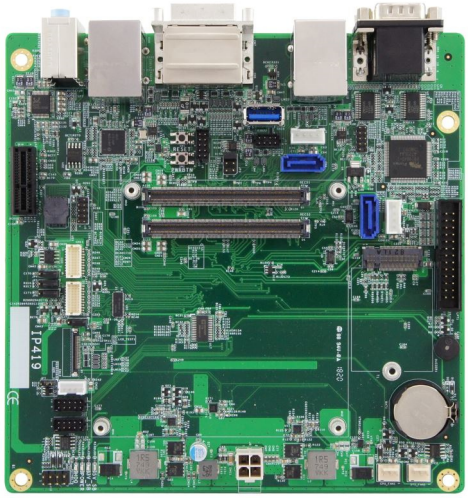
Product Name	IP419
Form Factor	Mini-ITX COM Express Type 6 (R3.0) carrier board
Super I/O	Fintek F81964D-I
Digital I/O	4-In / 4-Out
Watchdog	Watchdog Timer 256 segments, 0, 1, 2…255 sec/min
Dimensions	170 x 170 mm (6.7” x 6.7”)
RoHS	Yes
I/O Ports / Connectors	
Power Supply	DC-In 12V via an onboard 2x2 pins connector
Display	• 2x DDI (1 x DisplayPort, 1 x DVI-D) • 1x 18/24-bit dual channel LVDS or 1 x eDP (Choose either one)
LAN	**2 x RJ45 LAN:** • LAN 1: Derived from COMe module • LAN 2: 1x Intel I210IT
USB	Derived from COMe module. • 4x USB 2.0 (2 are edge I/O connectors, and 2x are on-board box-headers.) • 2x USB 3.0
Serial	**4 x COM ports:** • COM1: RS-232 (full-function) (edge I/O connector) • COM2: RS-232 (full-function) (edge I/O connector) • COM3 & COM4: RS-232 (TX and RX only) (from the COMe module, via an on-board box-header)
Serial ATA	Derived from COMe module. 2x SATA 3.0
Audio Jacks	Onboard Realtek ALC662 with 5.1 channel HD audio: 1 x Line-In, 1 x Line-Out, 1 x Mic-In
Parallel	1x parallel port via an onboard header

Battery for RTC/CMOS	1 x Lithium battery button cell for RTC of COMe module
Expansion Slots	• 1 x PCIe (x1) slot • 1 x M.2 B2242 slot
Environment	
Temperature	• **Operating**: -20 ~ 70°C (-4 ~ -94°F) • **Storage:** -40 ~ 90 °C (-40 ~ 194°F)
Relative Humidity	10 ~ 90 % (non-condensing)

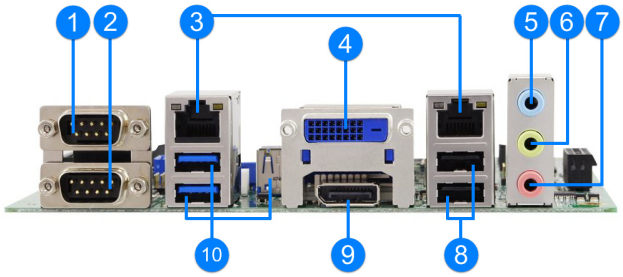
All specifications are subject to change without prior notice.

1.4 Overview

Top View



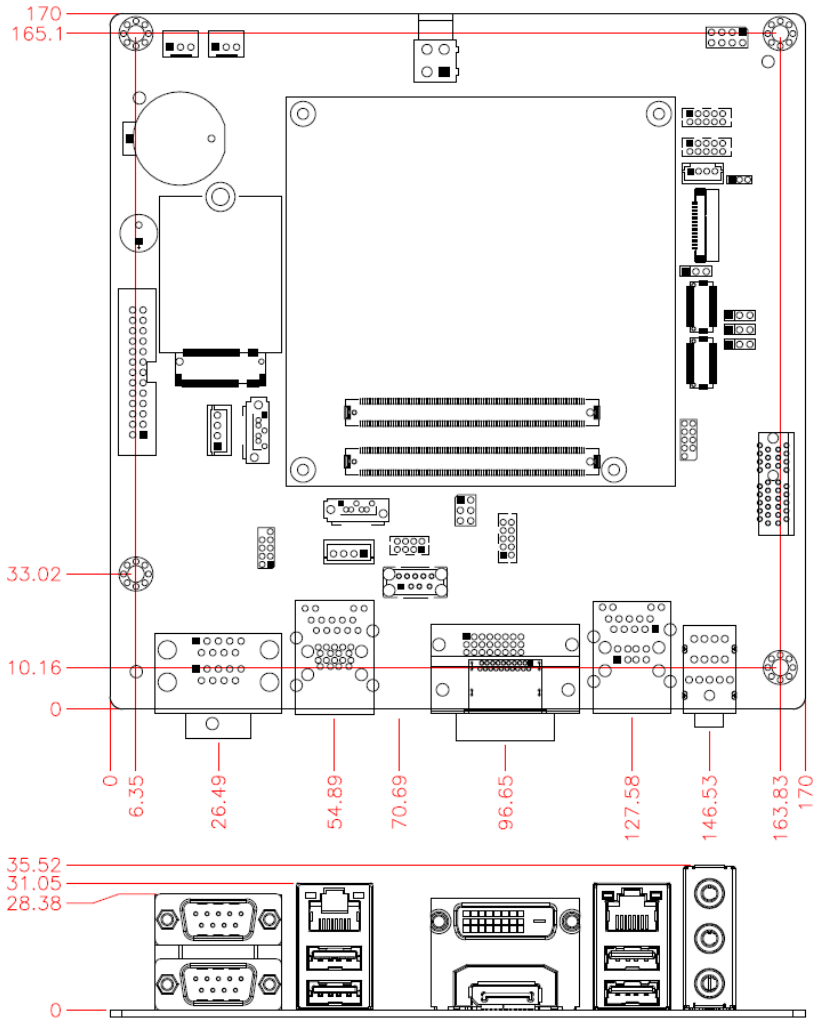
I/O View



No.	Name	No.	Name
1	COM1 RS-232/422/485 Port	6	Audio Line-Out
2	COM2 RS-232 Port	7	Microphone Input
3	GbE LAN Port	8	USB 2.0 Ports
4	DVI-D Port	9	DisplayPort
5	Audio Line-In	10	USB 3.0 Port

* The pictures above are for reference only. Some minor components may differ.

1.5 Dimensions



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Chapter 2
Hardware Configuration

This section provides information on jumper settings and connectors on the IP419 in order to set up a workable system.

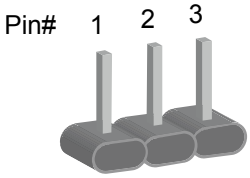
- Jumper and connector locations
- Jumper settings and information of connectors

2.1 Setting the Jumpers

Set up and configure your board by using the jumpers according to your needs and applications. Contact your supplier if you have doubts about the best configuration for your use.

2.2.1 How to Set Jumpers

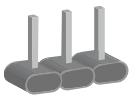
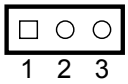
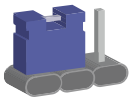
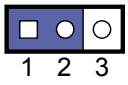
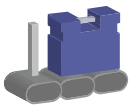
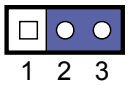
Jumpers are short-length conductors consisting of several metal pins with a non-conductive base mounted on the circuit board. Jumper caps are used to have the functions and features enabled or disabled. If a jumper has 3 pins, you can connect either PIN1 to PIN2 or PIN2 to PIN3 by shorting.



A 3-pin jumper

A jumper cap

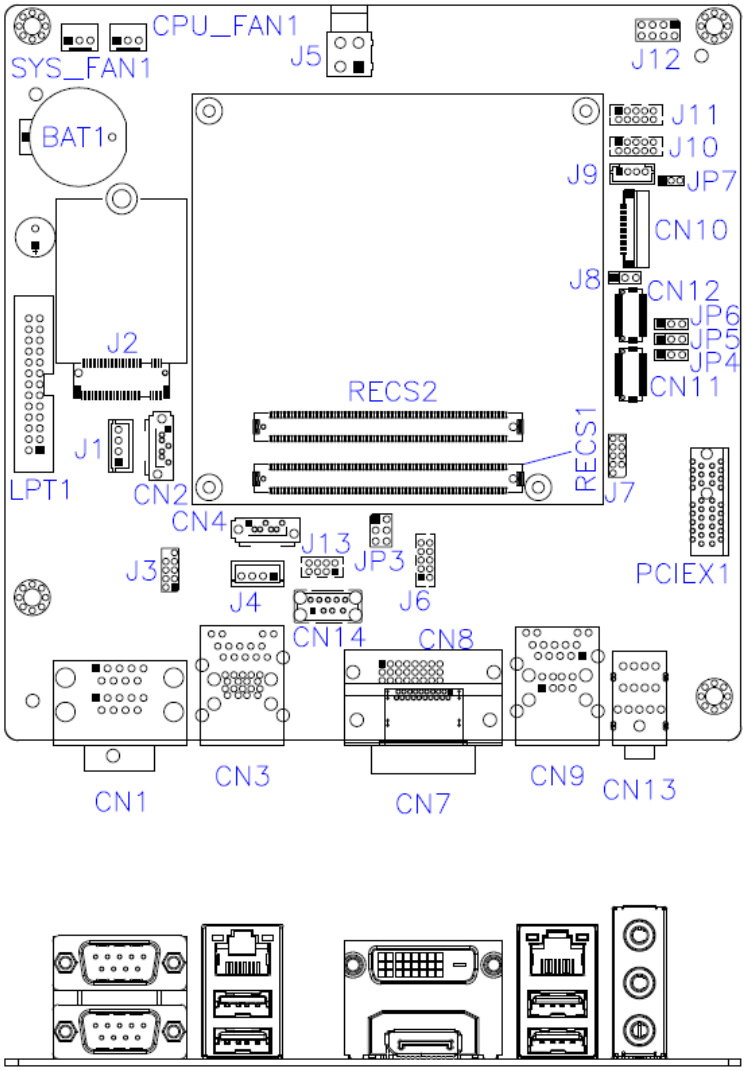
Refer to the illustration below to set jumpers.

Pin closed	Oblique view	Schematic illustration
Open		
1-2		
2-3		

When two pins of a jumper are encased in a jumper cap, this jumper is **closed**, i.e. turned **On**.

When a jumper cap is removed from two jumper pins, this jumper is **open**, i.e. turned **Off**.

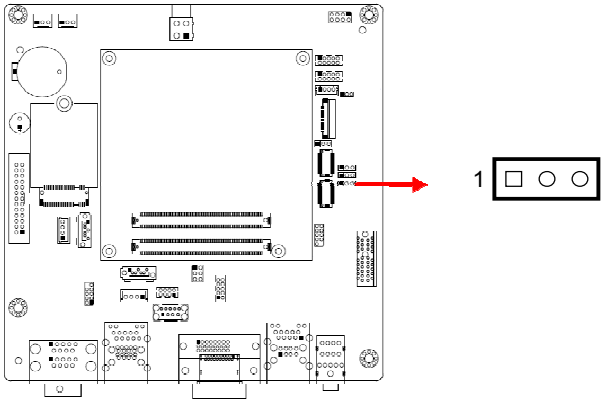
2.2 Connector Locations on IP419



2.3 Jumpers Quick Reference

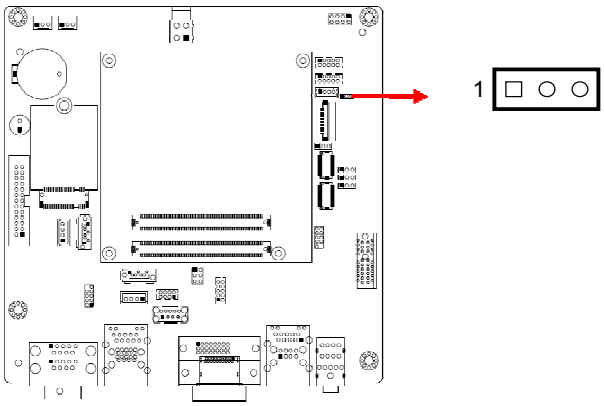
Function	Jumper	Page
LVDS Panel Power	JP4	11
LVDS Backlight Power Selection	JP7	12
eDP / LVDS Selection	JP5	12
eDP Panel Power	JP6	13
eDP Panel Brightness Selection	J8	13
BIOS Setup Selection	JP3	14

2.3.1 LVDS Panel Power (JP4)



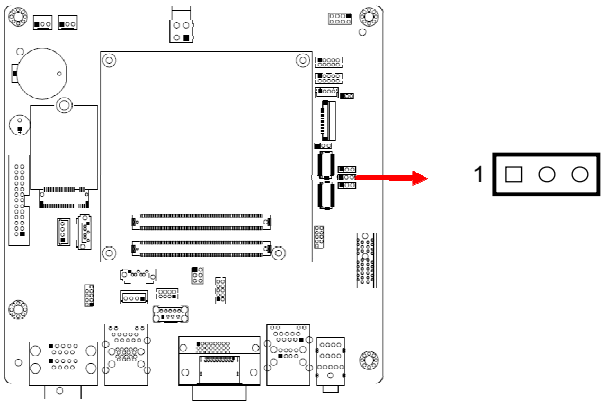
Function	Pin closed	Illustration
3.3V (default)	1-2	1
5V	2-3	1

2.3.2 LVDS Backlight Power Selection (JP7)



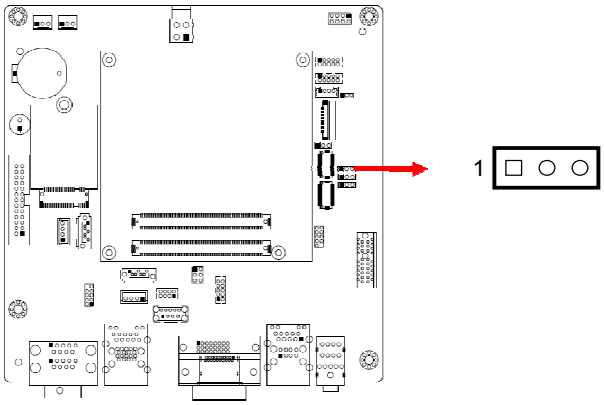
Function	Pin closed	Illustration
3.3V (default)	1-2	1
5V	2-3	1

2.3.3 eDP / LVDS Selection (JP5)



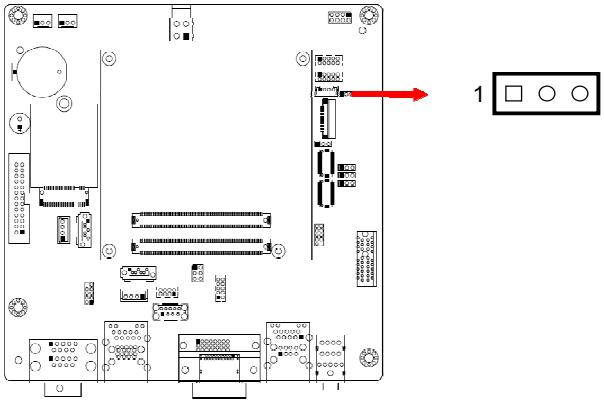
Function	Pin closed	Illustration
eDP (default)	1-2	1
LVDS	2-3	1

2.3.4 eDP Panel Power (JP6)



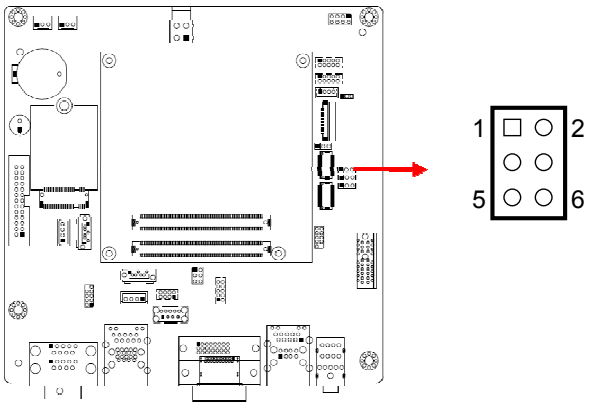
Function	Pin closed	Illustration
3.3V (default)	1-2	1
5V	2-3	1

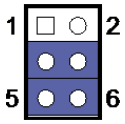
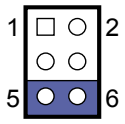
2.3.5 eDP Panel Brightness Selection (J8)



Function	Pin closed	Illustration
5V (default)	1-2	1
12V	2-3	1

2.3.6 BIOS Setup Selection (JP3)

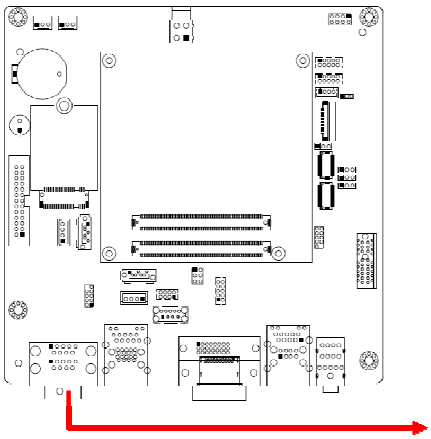


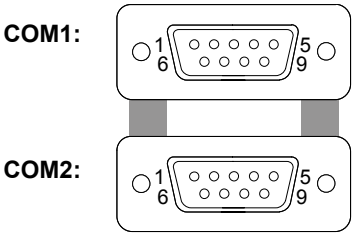
Function	Pin closed	Illustration
From COMe CPU module (default)	3-4, 5-6	
From IP419 carrier board	5-6	

2.4 Connectors Quick Reference

Function	Connector Name	Page
COM1 & COM2 RS-232 Ports	CN1	16
eDP Connector	CN10	17
LVDS Connector	CN12 (Channel 1), CN11 (Channel 2)	18
ATX 12V Power Connector	J5	19
Digital I/O Connector	J6	19
Panel Inverter Power Connector	J9	20
COM3 & COM4 RX/TX Port	J10 (COM3), J11 (COM4)	20
System Function Connector	J12	21
USB 2.0 Connector	J13	22
Fan Power Conector	CPU_FAN1, SYS_FAN1	22
Parallel Port	LPT1	23
COM Express Connector	RECS1, RECS2	24
GbE LAN Port and USB 3.0 Ports	CN3	--
DVI-D & DisplayPort	CN7	--
GbE LAN Port and USB 2.0 Ports	CN9	--
Audio Connector	CN13	--
USB 3.0 Vertical Port	CN14	--
PCIe (x1) Slot	PCIEX1	--

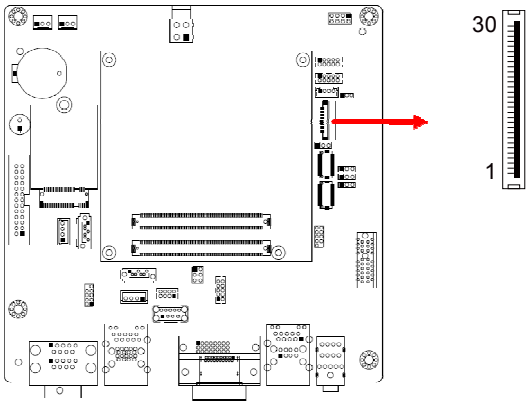
2.4.1 COM1 & COM2 RS-232 Ports (CN1)





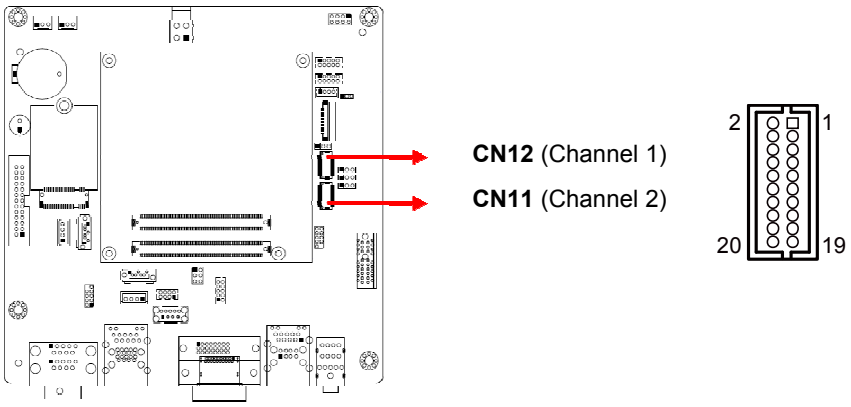
Pin	Signal Name	Pin	Signal Name
1	DCD, Data carrier detect	6	DSR, Data set ready
2	RXD, Receive data	7	RTS, Request to send
3	TXD, Transmit data	8	CTS, Clear to send
4	DTR, Data terminal ready	9	RI, Ring indicator
5	Ground		

2.4.2 eDP Connector (CN10)



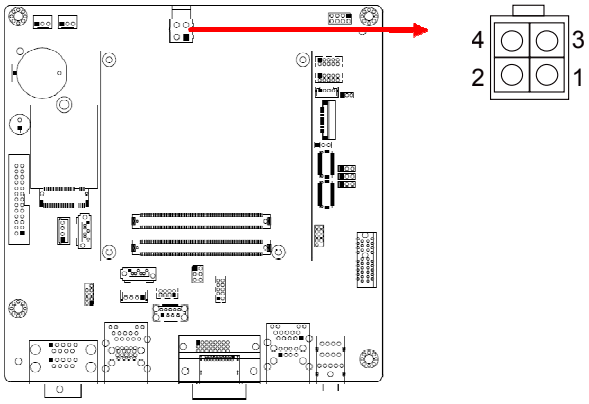
Pin	Signal Name	Pin	Signal Name
1	NC	16	Ground
2	BL_Power	17	NC
3	BL_Power	18	Panel_VDD
4	BL_Power	19	Panel_VDD
5	BL_Power	20	Ground
6	NC	21	AUX_N
7	NC	22	AUX_P
8	Brightness	23	Ground
9	Bklt_en	24	TX0_P
10	Ground	25	TX0_N
11	Ground	26	Ground
12	Ground	27	TX1_P
13	Ground	28	TX1_N
14	HPD	29	Ground
15	Ground	30	NC

2.4.3 LVDS Connector (CN12, CN11)



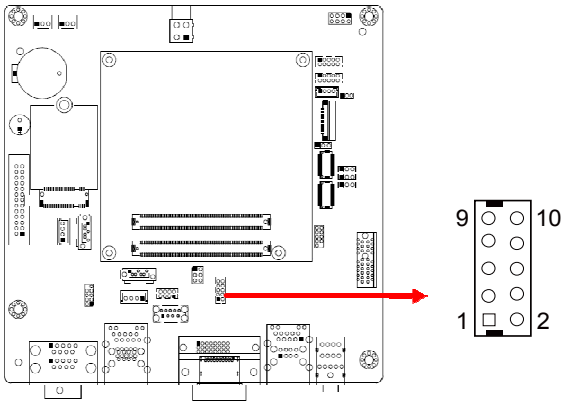
Pin	Signal Name	Pin	Signal Name
1	TX0P	2	TX0N
3	Ground	4	Ground
5	TX1P	6	TX1N
7	Ground	8	Ground
9	TX2P	10	TX2N
11	Ground	12	Ground
13	CLKP	14	CLKN
15	Ground	16	Ground
17	TX3P	18	TX3N
19	Power	20	Power

2.4.4 ATX 12V Power Connector (J5)



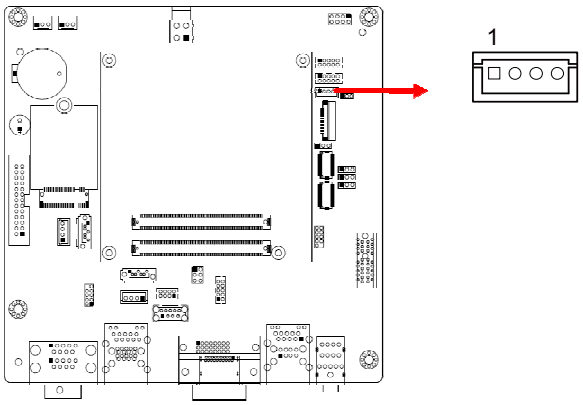
Pin	Signal Name	Pin	Signal Name
1	Ground	2	Ground
3	+12V	4	+12V

2.4.5 Digital I/O Connector (J6)



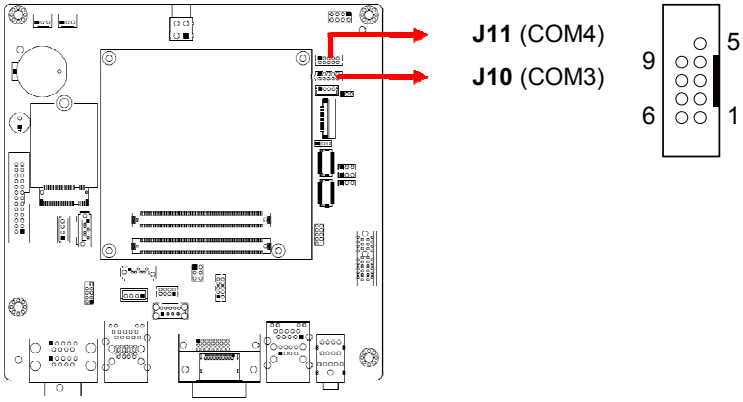
Pin	Signal Name	Pin	Signal Name
1	Ground	2	VCC
3	OUT3	4	OUT1
5	OUT2	6	OUT0
7	IN3	8	IN1
9	IN2	10	IN0

2.4.6 Panel Inverter Power Connector (J9)



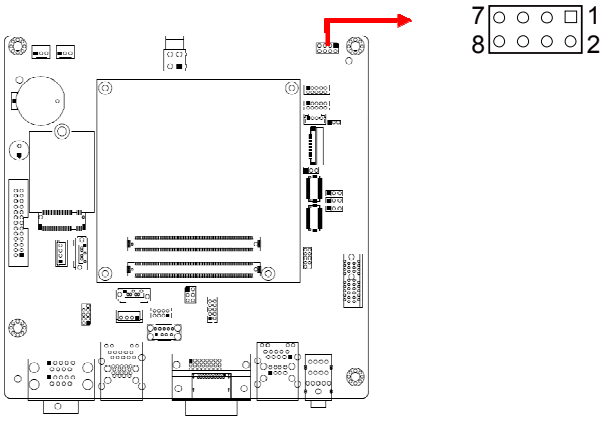
Pin	Signal Name	Pin	Signal Name
1	+12V	3	ADJ
2	Backlight Enable	4	Ground

2.4.7 COM3 & COM4 RX/TX Port (J10, J11)



Pin	Signal Name	Pin	Signal Name
1	NC	2	RXD, Receive data
3	TXD, Transmit data	4	NC
5	Ground	6	NC
7	NC	8	NC
9	Ground	10	NC

2.4.8 System Function Connector (J12)



Pin	Signal Name	Pin	Signal Name
1	Power BTN	2	Power BTN
3	HDD LED+	4	HDD LED-
5	Reset BTN	6	Reset BTN
7	Power LED+	8	Power LED-

J12 is utilized for system indicators to provide light indication of the computer activities and switches to change the computer status. It provides interfaces for the following functions.

- **ATX Power ON Switch (Pins 1 and 2)**

  The 2 pins make an “ATX Power Supply On/Off Switch” for the system that connects to the power switch on the case. When pressed, the power switch will force the system to power on. When pressed again, it will power off the system.

- **Hard Disk Drive LED Connector (Pins 3 and 4)**

  This connector connects to the hard drive activity LED on control panel. This LED will flash when the HDD is being accessed.

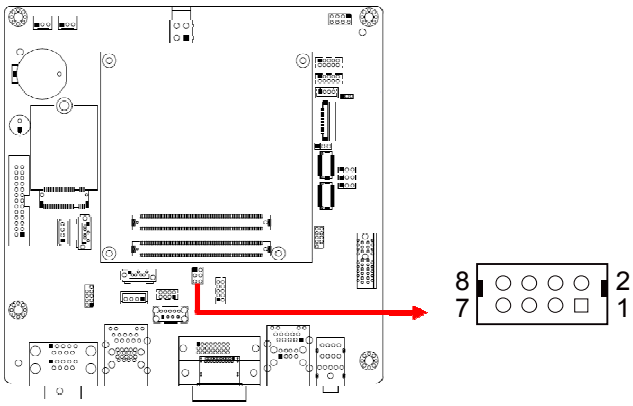
- **Reset Switch (Pins 5 and 6)**

  The reset switch allows you to reset the system without turning the main power switch off and then on again. Orientation is not required when making a connection to this header.

- **Power LED (Pins 7 and 8)**

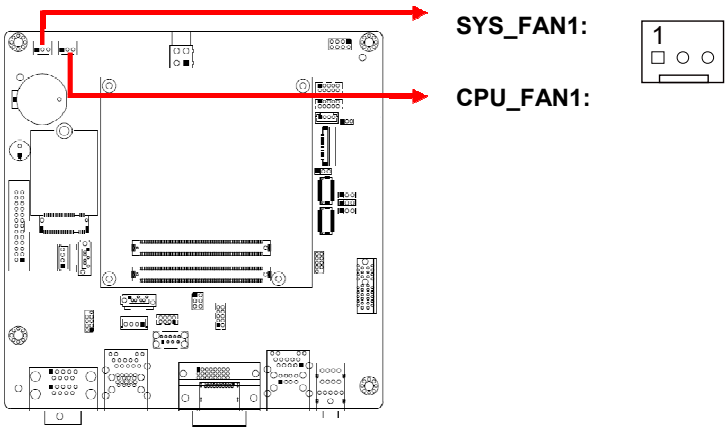
  This connector connects to the system power LED on control panel. This LED will light when the system turns on.

2.4.9 USB 2.0 Connector (J13)



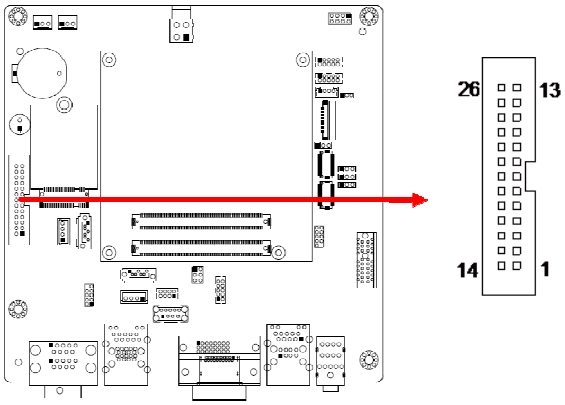
Pin	Signal Name	Pin	Signal Name
1	VCC	2	Ground
3	D0-	4	D1+
5	D0+	6	D1-
7	Ground	8	VCC

2.4.10 Fan Power Connector (CPU_FAN1, SYS_FAN1)



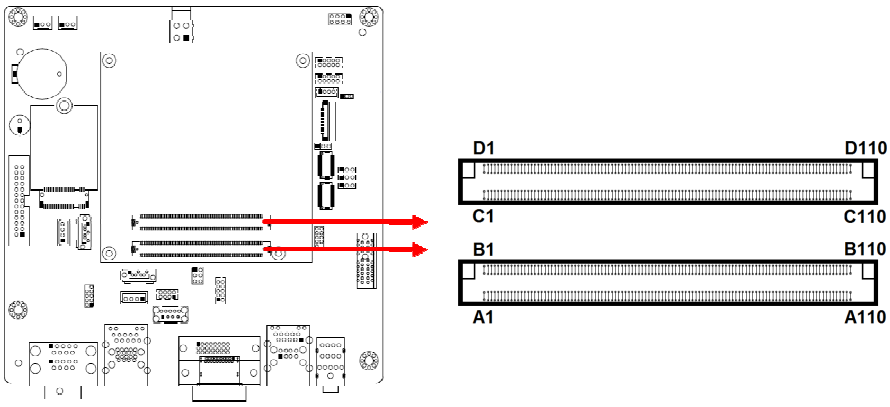
Pin	Signal Name	Pin	Signal Name
1	VCC	3	VCC
2	+12V		

2.4.11 Parallel Port (LPT1)



Pin	Signal Name	Pin	Signal Name
1	Line printer strobe	14	AutoFeed
2	PD0, parallel data 0	15	Error
3	PD1, parallel data 1	16	Initialize
4	PD2, parallel data 2	17	Select
5	PD3, parallel data 3	18	Ground
6	PD4, parallel data 4	19	Ground
7	PD5, parallel data 5	20	Ground
8	PD6, parallel data 6	21	Ground
9	PD7, parallel data 7	22	Ground
10	ACK, acknowledge	23	Ground
11	Busy	24	Ground
12	Paper empty	25	Ground
13	Select	26	NC

2.4.12 COM Express Connector (RECS1, RECS2)



Row A		Row B		Row C		Row D	
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	D2	GND
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	D5	GND
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	GBE0_LINK#	B8	LPC_DRQ0#	C8	GND	D8	GND
A9	GBE0_MDI1-	B9	LPC_DRQ1#	C9	USB_SSRX2-	D9	USB_SSTX2-
A10	GBE0_MDI1+	B10	LPC_CLK	C10	USB_SSRX2+	D10	USB_SSTX2+
A11	GND (FIXED)	B11	GND (FIXED)	C11	GND (FIXED)	D11	GND (FIXED)
A12	GBE0_MDI0-	B12	PWRBTN#	C12	USB_SSRX3-	D12	USB_SSTX3-
A13	GBE0_MDI0+	B13	SMB_CK	C13	USB_SSRX3+	D13	USB_SSTX3+
A14	GBE0_CTREF	B14	SMB_DAT	C14	GND	D14	GND
A15	SUS_S3#	B15	SMB_ALERT#	C15	DDI1_PAIR6+	D15	DDI1_CTRLCLK_AUX+
A16	SATA0_TX+	B16	SATA1_TX+	C16	DDI1_PAIR6-	D16	DDI1_CTRLDATA_AUX-
A17	SATA0_TX-	B17	SATA1_TX-	C17	RSVD	D17	RSVD
A18	SUS_S4#	B18	SUS_STAT#	C18	RSVD	D18	RSVD
A19	SATA0_RX+	B19	SATA1_RX+	C19	PCIE_RX6+	D19	PCIE_TX6+
A20	SATA0_RX-	B20	SATA1_RX-	C20	PCIE_RX6-	D20	PCIE_TX6-
A21	GND (FIXED)	B21	GND (FIXED)	C21	GND (FIXED)	D21	GND (FIXED)
A22	SATA2_TX+	B22	SATA3_TX+	C22	PCIE_RX7+	D22	PCIE_TX7+
A23	SATA2_TX-	B23	SATA3_TX-	C23	PCIE_RX7-	D23	PCIE_TX7-
A24	SUS_S5#	B24	PWR_OK	C24	DDI1_HPD	D24	RSVD
A25	SATA2_RX+	B25	SATA3_RX+	C25	DDI1_PAIR4+	D25	RSVD
A26	SATA2_RX-	B26	SATA3_RX-	C26	DDI1_PAIR4-	D26	DDI1_PAIR0+
A27	BATLOW#	B27	WDT	C27	RSVD	D27	DDI1_PAIR0-
A28	SATA_ACT#	B28	HDA_SDIN2	C28	RSVD	D28	RSVD
A29	HDA_SYNC	B29	HDA_SDIN1	C29	DDI1_PAIR5+	D29	DDI1_PAIR1+
A30	HDA_RST#	B30	HDA_SDIN0	C30	DDI1_PAIR5-	D30	DDI1_PAIR1-

Row A		Row B		Row C		Row D	
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
A31	GND (FIXED)	B31	GND (FIXED)	C31	GND (FIXED)	D31	GND (FIXED)
A32	HDA_BITCLK	B32	SPKR	C32	DDI2_CTRLCLK_AUX+	D32	DDI1_PAIR2+
A33	HDA_SDOUT	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	THRMTRIP#	B35	THRM#	C35	RSVD	D35	RSVD
A36	USB6-	B36	USB7-	C36	DDI3_CTRLCLK_AUX+	D36	DDI1_PAIR3+
A37	USB6+	B37	USB7+	C37	DDI3_CTRLDATA_AUX-	D37	DDI1_PAIR3-
A38	USB_6_7_OC#	B38	USB_4_5_OC#	C38	DDI3_DDC_AUX_SEL	D38	RSVD
A39	USB4-	B39	USB5-	C39	DDI3_PAIR0+	D39	DDI2_PAIR0+
A40	USB4+	B40	USB5+	C40	DDI3_PAIR0-	D40	DDI2_PAIR0-
A41	GND (FIXED)	B41	GND (FIXED)	C41	GND (FIXED)	D41	GND (FIXED)
A42	USB2-	B42	USB3-	C42	DDI3_PAIR1+	D42	DDI2_PAIR1+
A43	USB2+	B43	USB3+	C43	DDI3_PAIR1-	D43	DDI2_PAIR1-
A44	USB_2_3_OC#	B44	USB_0_1_OC#	C44	DDI3_HPD	D44	DDI2_HPD
A45	USB0-	B45	USB1-	C45	RSVD	D45	RSVD
A46	USB0+	B46	USB1+	C46	DDI3_PAIR2+	D46	DDI2_PAIR2+
A47	VCC_RTC	B47	ESPI_EN#	C47	DDI3_PAIR2-	D47	DDI2_PAIR2-
A48	RSVD	B48	USB0_HOST_PRSNT	C48	RSVD	D48	RSVD
A49	GBE0_SDP	B49	SYS_RESET#	C49	DDI3_PAIR3+	D49	DDI2_PAIR3+
A50	LPC_SERIRQ	B50	CB_RESET#	C50	DDI3_PAIR3-	D50	DDI2_PAIR3-
A51	GND (FIXED)	B51	GND (FIXED)	C51	GND (FIXED)	D51	GND (FIXED)
A52	PCIE_TX5+	B52	PCIE_RX5+	C52	PEG_RX0+	D52	PEG_TX0+
A53	PCIE_TX5-	B53	PCIE_RX5-	C53	PEG_RX0-	D53	PEG_TX0-
A54	GPI0	B54	GPO1	C54	TYPE0#	D54	PEG_LANE_RV#
A55	PCIE_TX4+	B55	PCIE_RX4+	C55	PEG_RX1+	D55	PEG_TX1+
A56	PCIE_TX4-	B56	PCIE_RX4-	C56	PEG_RX1-	D56	PEG_TX1-
A57	GND	B57	GPO2	C57	TYPE1#	D57	TYPE2#
A58	PCIE_TX3+	B58	PCIE_RX3+	C58	PEG_RX2+	D58	PEG_TX2+
A59	PCIE_TX3-	B59	PCIE_RX3-	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	RAPID_SHUTDOWN	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	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-

Row A		Row B		Row C		Row D	
Pin	Signal	Pin	Signal	Pin	Signal	Pin	Signal
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	RSVD	B86	VCC_5V_SBY	C86	PEG_RX10-	D86	PEG_TX10-
A87	eDP_HPD	B87	VCC_5V_SBY	C87	GND	D87	GND
A88	PCIE_CLK_REF+	B88	BIOS_DIS1#	C88	PEG_RX11+	D88	PEG_TX11+
A89	PCIE_CLK_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	TYPE10#	B97	SPI_CS#	C97	RSVD	D97	RSVD
A98	SER0_TX	B98	RSVD	C98	PEG_RX14+	D98	PEG_TX14+
A99	SER0_RX	B99	RSVD	C99	PEG_RX14-	D99	PEG_TX14-
A100	GND (FIXED)	B100	GND (FIXED)	C100	GND (FIXED)	D100	GND (FIXED)
A101	SER1_TX	B101	FAN_PWMOUT	C101	PEG_RX15+	D101	PEG_TX15+
A102	SER1_RX	B102	FAN_TACHIN	C102	PEG_RX15-	D102	PEG_TX15-
A103	LID#	B103	SLEEP#	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)

Appendix

This section provides the mapping addresses of peripheral devices, the sample code of watchdog timer configuration, and types of on-board connectors.

A. Onboard Connector Types

Function	Connector Name	Onboard Type	Compatible Mating Type for Reference
COM1 & COM2 RS-232 Ports	CN1	Yimtex C1208121009230700P	D-Sub 9P (Female)
eDP Connector	CN10	I-PEX 20374-030E-31	I-PEX 20373-R30T-06
LVDS Connector	CN12 (Channel 1), CN11 (Channel 2)	HRS DF20F-20DP-1V	HRS DF20A-20DS-1C
ATX 12V Power Connector	J5	Hao Guo Xing Ye ATX4PT-NY46	Molex 39-01-2040
Digital I/O Connector	J6	Hao Guo Xing Ye DF11-10S-PA66H	HRS DF11-10DS-2C
Panel Inverter Power Connector	J9	JST B4B-PH-K-S	JST PHR-4
COM3 & COM4 RX/TX Port	J10 (COM3), J11 (COM4)	Hao Guo Xing Ye DF11-10S-PA66H	HRS DF11-10DS-2C
System Function Connector	J12	E-Call 0126-01-203-080	Dupont 2.54mm-pitch (Female)
USB 2.0 Connector	J13	Hao Guo Xing Ye DF11-8S-PA66H	HRS DF11-8DS-2C
Fan Power Conector	CPU_FAN1, SYS_FAN1	E-Call 0110-02-111-030	Molex 22-01-2031