



Features

- Intel® formerly Twin Lake platform (Core 3 N355 / N150)
- DDR5 SODIMM maximum support 16G
- 1,000nits sunlight readable or 500nits
- 10.1" flat LCD panel with projected capacitive touchscreen
- IP65 Front Panel Waterproof Design
- Internal Expansion M.2 Slot x 3
- I/O supports COMx2, USB 3.2x2, USB 2.0x2, Audio
- Supports M.2 sockets for Wi-Fi / BT and 4G/5G communication with Nano SIM slot
- Supports TPM2.0 hardware security
- Wide Range Power Input +12V ~ 24V DC-IN
- Extended operating temperature Max. from -20°C to 60°C

Ordering Information

Part Number	CPU	Display
IHPC-W101-N150-M	Intel® ATOM® N150 (Quad-Core)	1280x800 (500nits)
IHPC-W101-N151-M	Intel® ATOM® N150 (Quad-Core)	1920x1200 (1000nits)
IHPC-W101-N355-M	Intel® Core® 3 N355 (Eight-Core)	1280x800 (500nits)
IHPC-W101-N356-M	Intel® Core® 3 N355 (Eight-Core)	1920x1200 (1000nits)

Optional Accessories

Part Number	Description	Qty.
	W/LOCK [FSP FSP120-ABBN3] 19V/120W	
	US AC Power Cord (183CM)	
	UK AC Power Cord (183CM)	
	EU AC Power Cord (183CM)	
	M.2 2242 bracket adapter to M.2 3052	

Remarks: 1. Specifications are subject to change without prior notice
2. ODM/OEM is available. 3. For user manual & datasheet download, visit www.ibt.ca

1-866-590-4288



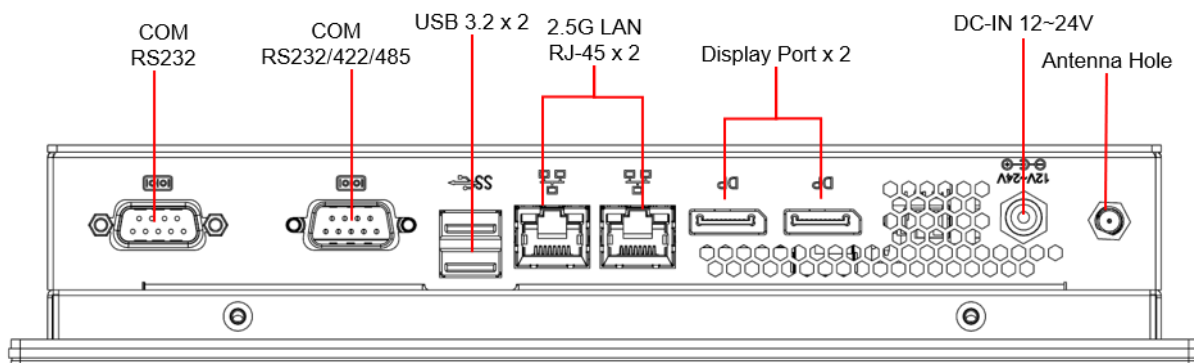
Specifications

IHPC-W101 Specifications	
Display	
Panel Size (inch)	10.1 (16:10) Brightness (cd/m2) 1,000 or 500
View Angle (H°/V°)	178° / 178°
Resolution	1920 x 1200 (1,000nits) 1280 x 800 (500nits)
Contrast Ratio	1000 : 1 (1000nits), 800:1 (500nits)
Panel Interface	LVDS
Touch Screen	
Type	Projected Capacitive Touch
Touch Points	10
Light Transmission (%)	85±2.5%
Glass Thickness	1.8 mm
Surface Hardness	7H
Touch Interface	USB
System	
Processor	Intel® Atom™ N150 Processor (Quad-Core @ 3.6GHz) Intel® Core™ 3 N355 Processor (Eight Core @ 3.9GHz)
Memory	1x DDR5 SO-DIMM, up to 16GB
Thermal Design	Fanless
Built-in Speaker	None
Power Button	Tact Switch
Expansion	
Internal Expansion Slot	• 1x M.2 2280 (M Key SATA only) • 1x M.2 2230 (E-Key) • 1x M.2 3052 (B-Key)
Wireless	Optional Wi-Fi/BT/4G/5G/LTE
Storage	
SSD	1x M.2 2280 (M Key)
S/W RAID	M.2 2280 + M.2 2242 (10mm adapter to M.2 3052)

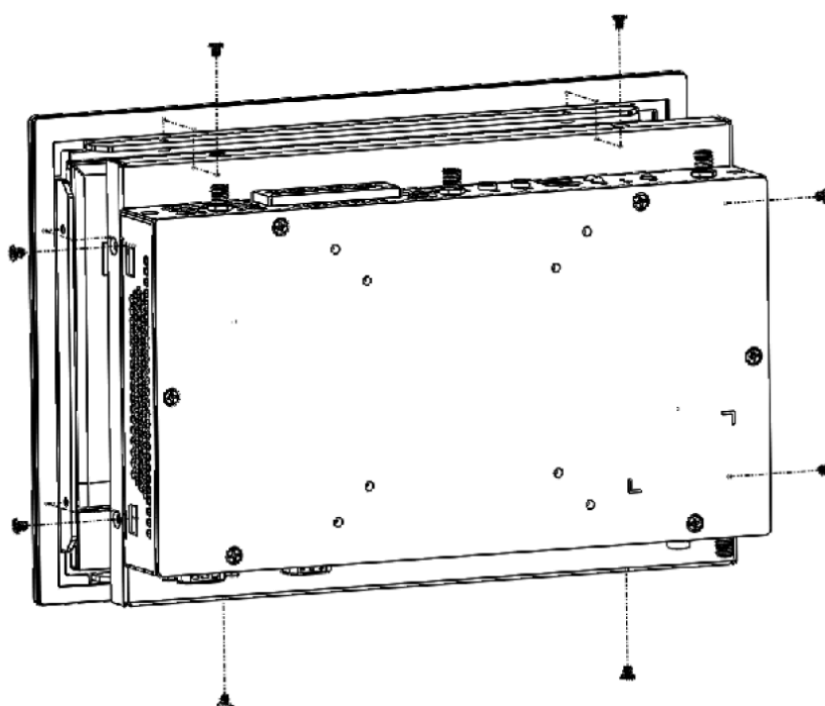
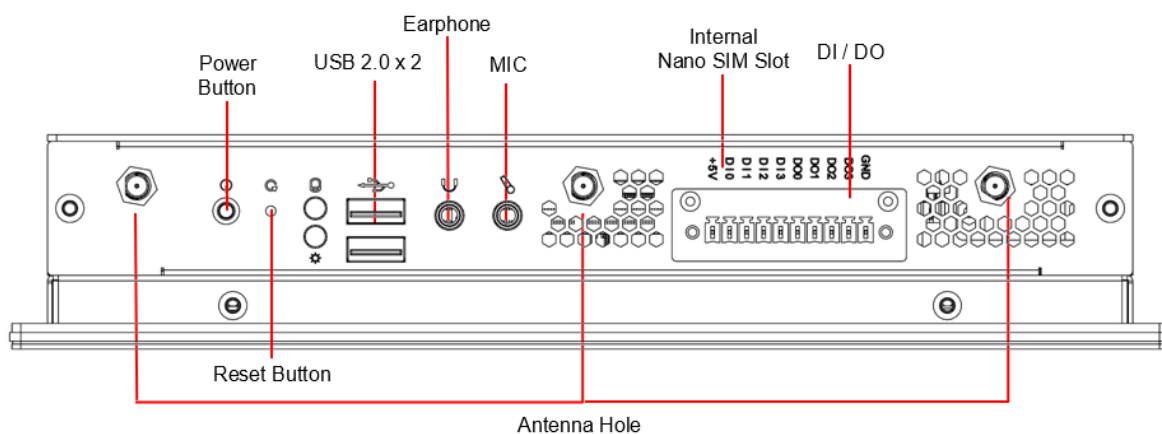
I/O Ports	
USB	2 x USB 3.2 + 2 x USB 2.0
RS-232/422/485	COM 1 Selectable in BIOS
RS-232	COM 2
LAN	2 x 2.5GbE
Display Output	2 x DP
Digital I/O	4 x DI , 4 x DO
Audio	1 x Earphone, 1 x Microphone
Power Connector	DC-Jack with screw lock
Mechanical	
Dimensions (mm)	260 x 179 x 48
Net Weight (kg)	1.75
Mounting	- Panel mount. (Mounting Clamp x4) - Optional VESA 75x75 or 100x100 mm - Screw hole depth: 5 mm
Environmental	
Storage Humidity	5%~90% @ 50°C, (non-condensing)
Construction	
Chassis Material	Aluminum and SGCC
Color (Front/Back)	Raw SGCC
IP Rating	IP65 front-panel waterproof
Software & Certification	
Supported Operating Systems	Microsoft Windows 11, Linux Kernel 4+
Certification	Based on chassis design
Environment	
Operating Temperature	Panel 500nits/N150 : -20°C~60°C (-4°F~140°F) Panel 1000nits/N150 : -10°C~50°C (14°F~122°F) CPU N355 : -10°C~40°C (14°F~104°F) *with airflow
Storage Temperature	- 30°C~80°C
Relative Humidity	5~90% @ 45°C, (non-condensing)
Vibration	- Operating: 0.5Grms / 5~500Hz - Non-operating: 1Grms / 5~500Hz
Shock	- Operating: 30G/11 ms Duration - Non-operating: 40G/11 ms Duration

All specifications are subject to change without prior notice.

Bottom Side



Top Side



[illegible]

Unit: mm

2.1.3 Wi-Fi / 5G / 4G Antenna Installation

Thread the Wi-Fi / 5G / 4G antenna extension cable through an antenna hole of the front I/O cover and fasten the antenna as shown below. Then apply adhesive to the edge of the hex nut behind the front I/O cover to prevent the extension cable from falling if the cable becomes loose.

1. Thread and fasten the hex nut and the washer. Then install the antenna.

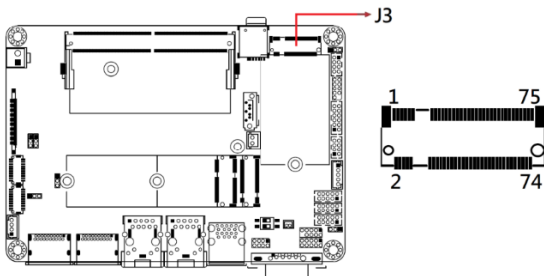
2. Apply adhesive around here.



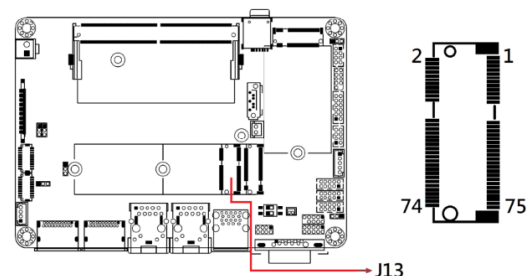
Info: The diameter of the nut is around 6.35 mm (0.25"-36UNC).

M2. Connectors on the System Board

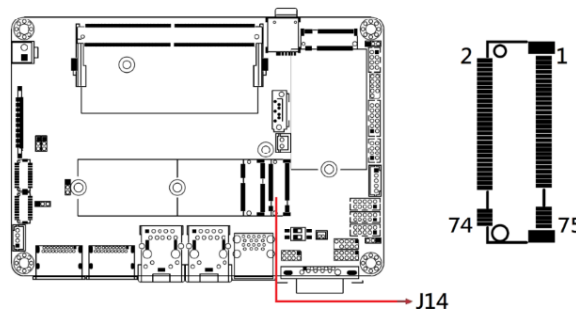
M.2 B-Key 3052 Connector (J3)



M.2 E-Key 2230 Connector (J13)



M.2 M-Key 2280 Connector (J14)



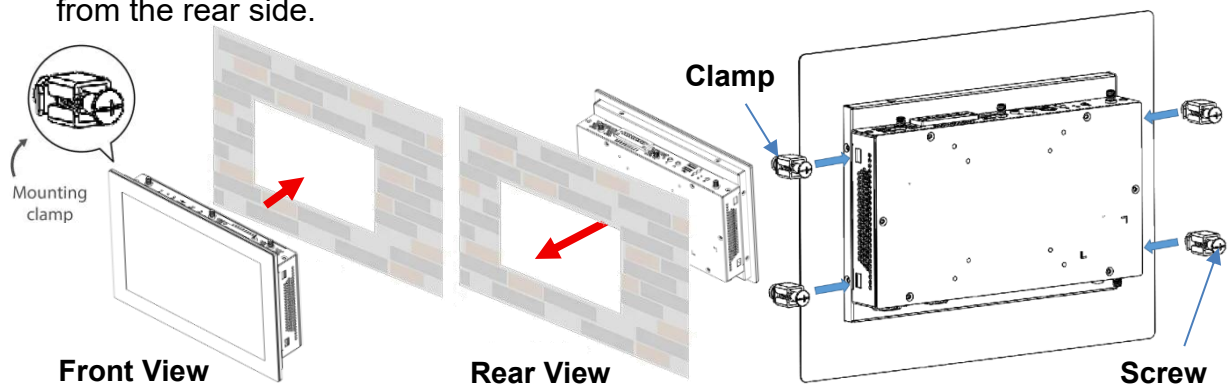
2.1.4 Mounting Installation

Requirements

Before mounting the system, ensure that you have enough room for power and signal cable routing, and have good ventilation for the power adaptor. The method of mounting must be able to support the weight of the device plus the weight of the attached cables to be attached to the system. Use the following methods for mounting your system:

Panel Mounting Installation

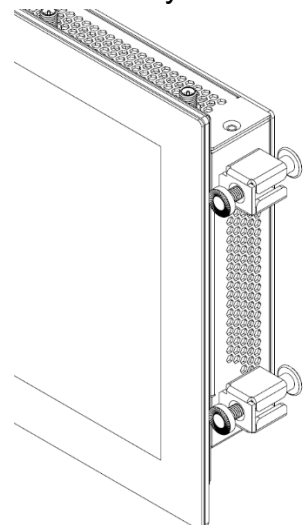
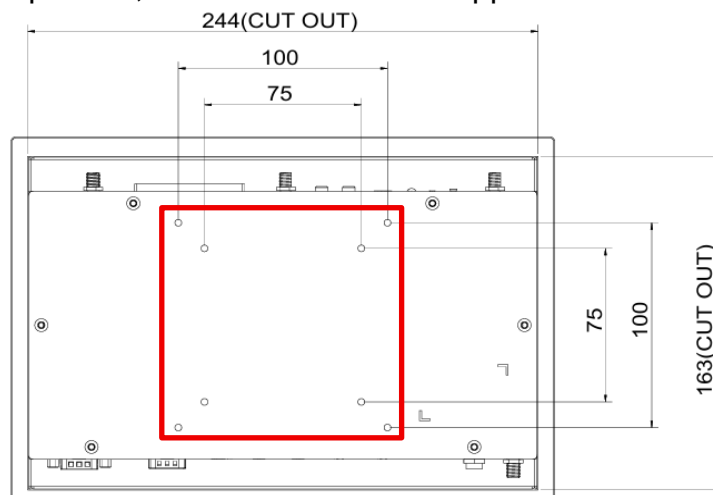
Flush Mount/ Panel Mount is a mounting solution that allows mounting a device into an opening or enclosure. The device is mounted from the front side and secured from the rear side.



1. Make a cutout on the fixture (ex. wall) according to the cutout dimension of the Panel PC. Please refer to the cutout dimensions in the diagram below.
Note: All installation processes are done from the rear side of the fixture.
2. Place the Panel PC on the fixture from the front side. The sides of the bezel should be visible from outside.
3. Use the mounting kit provided to secure the Panel PC to the fixture. First, install the mounting clamp to the Panel PC, and then fasten the screw to fix the clamp to the fixture.

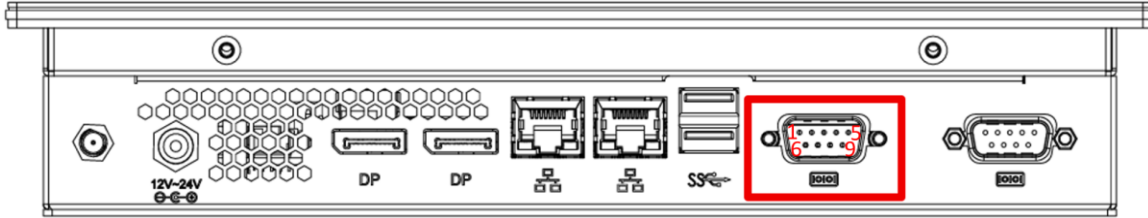
Optional VESA Mounting Installation

1. Attach the 75x75mm or 100x100mm VESA mounting KIT bracket to your product, and secure with the supplied M4x4 screws.

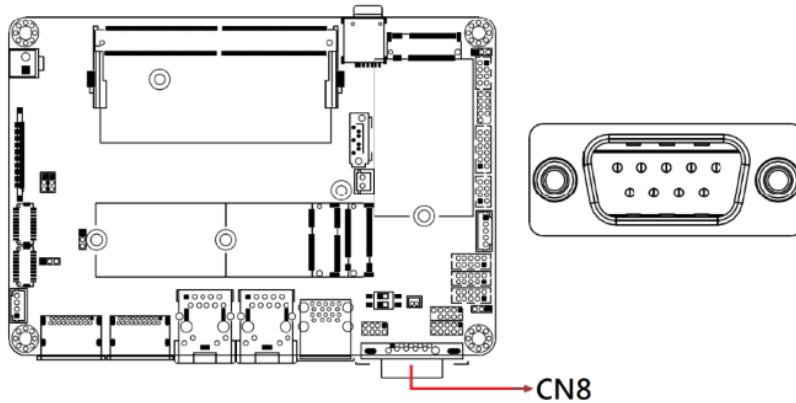


2.1.5 Pinout for COM Ports, DC-In Power & GPIO Connectors

A. COM1 RS232/422/485 Ports and COM2 RS232



System Board COM1 RS-232/422/485 Serial Port (CN8)



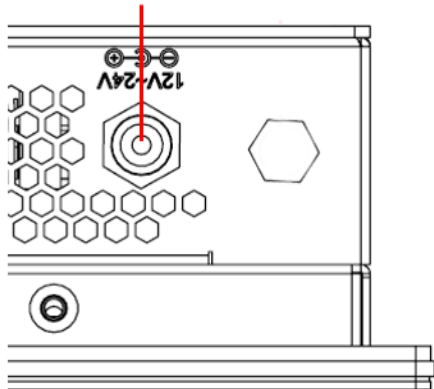
*COM1 port is jumper-less and configurable in BIOS.

Pin	Assignment	Pin	Assignment
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		

Pin	Assignment		
	RS-232 (default)	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

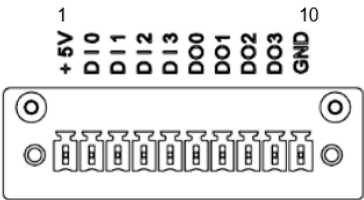
B. DC-In Power Connector (55mm / 25mm DC Connector with Locker)

DC-IN 12~24V

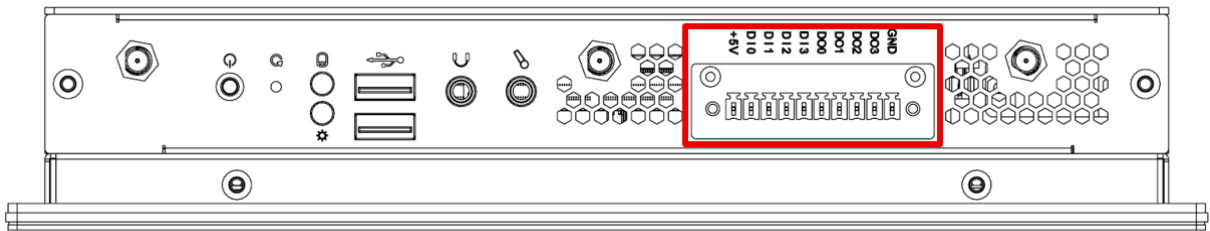


Pin	Assignment
-	Power Ground
+	12V ~ 24V

C. 4-In & 4-Out GPIO Connector (10-pin terminal block)



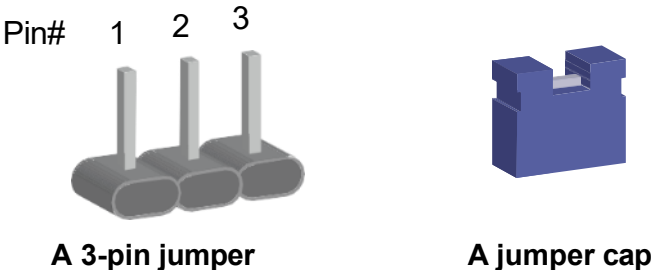
Pin	Assignment	Pin	Assignment
1	+5V	6	OUT0
2	IN0	7	OUT1
3	IN1	8	OUT2
4	IN2	9	OUT3
5	IN3	10	Ground



2.2 Setting the Jumpers

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

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.



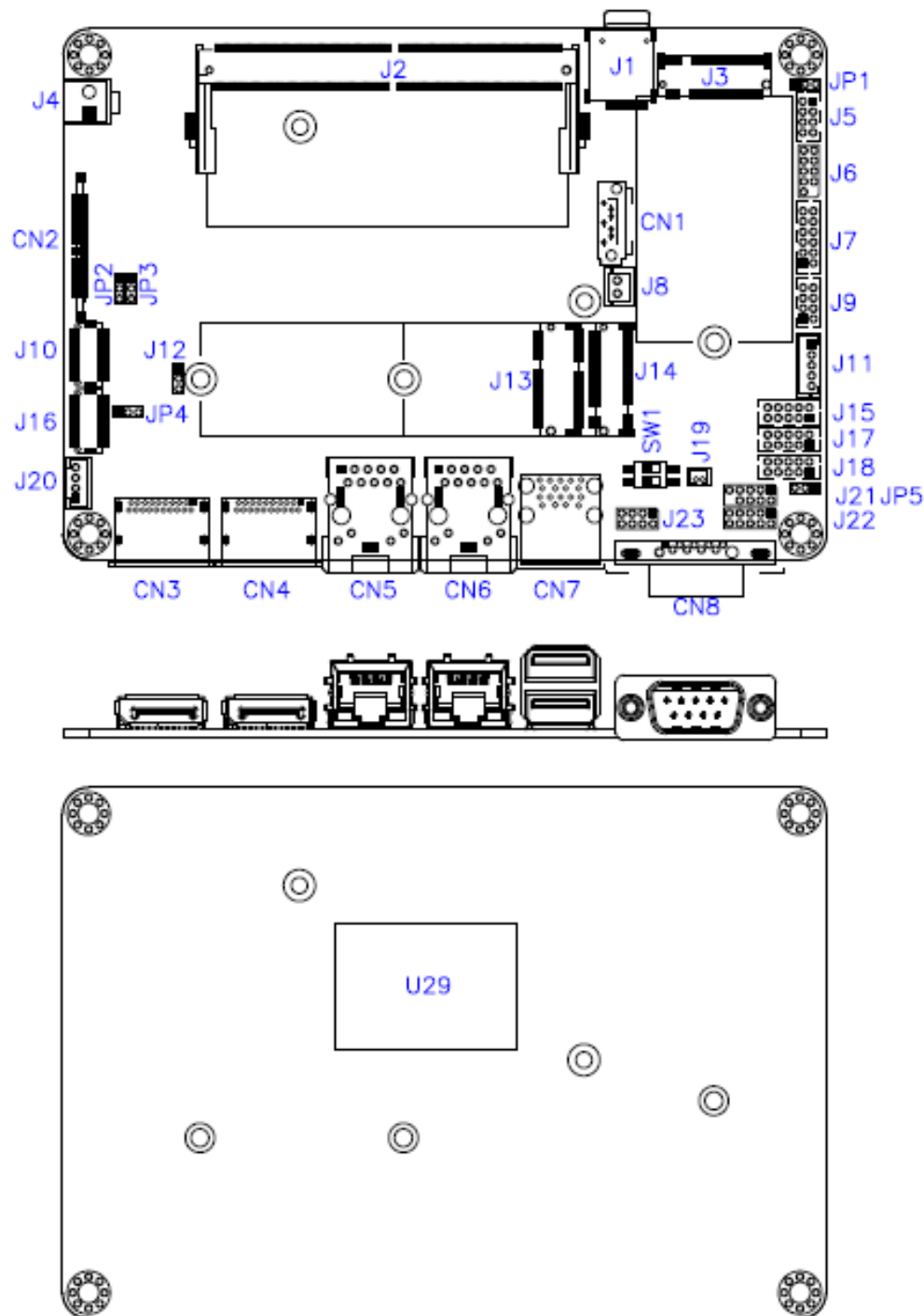
Refer to the illustration below to set jumpers.

Pin closed	Oblique view	Illustration in the manual
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**.

2.3 Board Jumper & Connector Locations

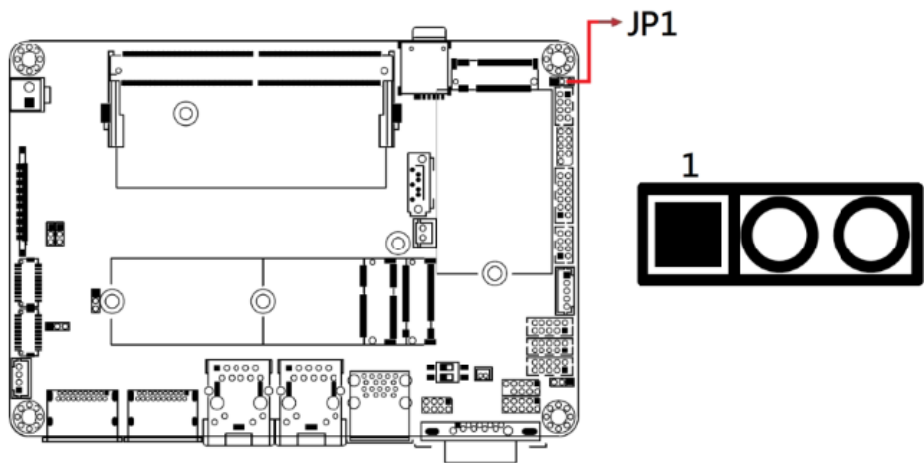
IB839 System Board



2.4 Jumpers Quick Reference

Function	Jumper
Sierra 5G Module Interface Selection	JP1
eDP Panel Power Selection	JP2
LVDS Panel Brightness Selection	JP3
LVDS Panel Power Selection	JP4
AT / ATX Selection	JP5
Clear CMOS Data	SW1
Clear ME Register	SW1

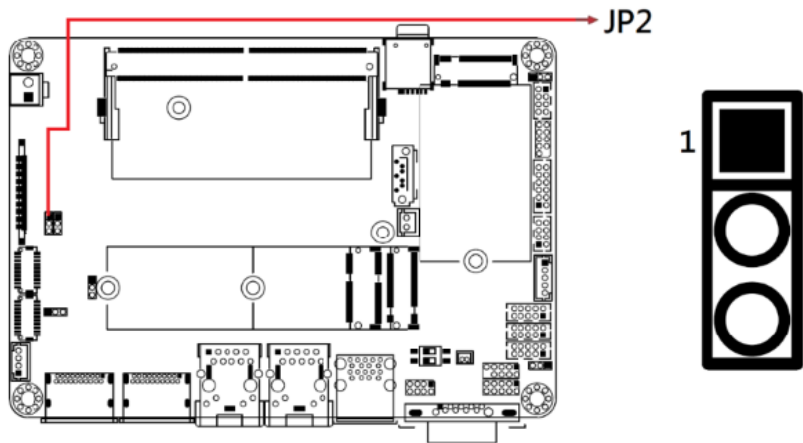
2.4.1 Sierra Module Interface Selection (JP1)



Function	Pin closed	Setting
USB	1-2	1
PCIE (default)	2-3	1

Note: This is via J3.

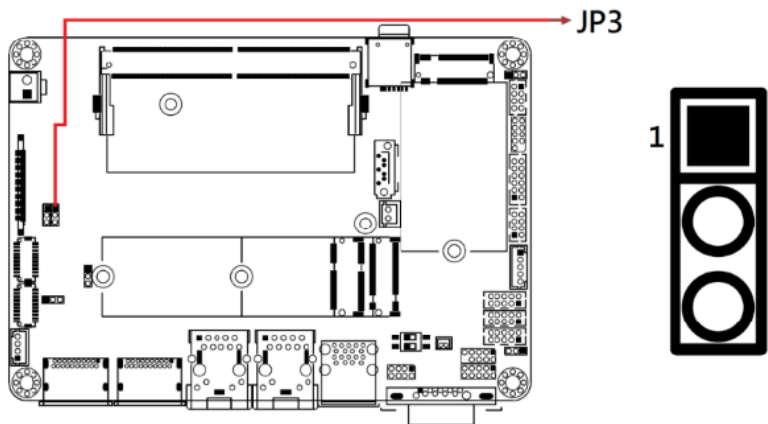
2.4.2 eDP Panel Power Selection (JP2)



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

Note: This is for setting Pin1~Pin5 voltage of CN2.

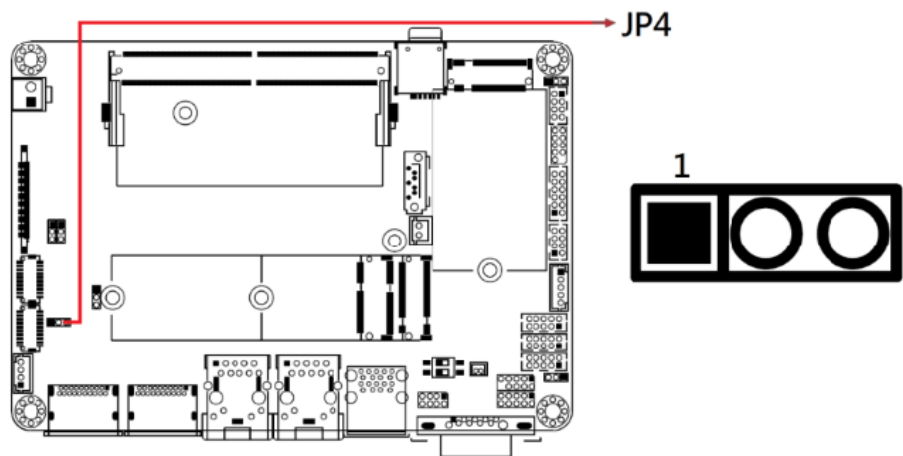
2.4.3 LVDS Panel Brightness Selection (JP3)



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

Note: This is for setting Pin3 voltage of J20.

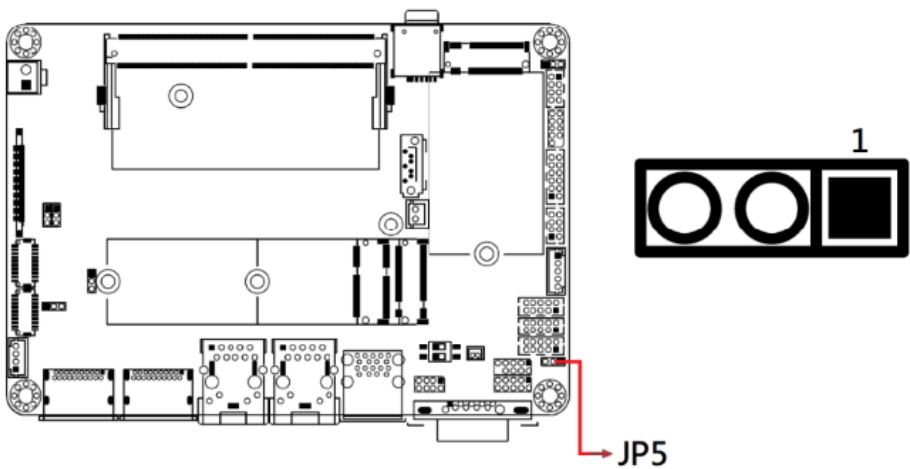
2.4.4 LVDS Panel Power Selection (JP4)



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

Note: This is for setting Pin19~Pin20 voltage of J10, J16.

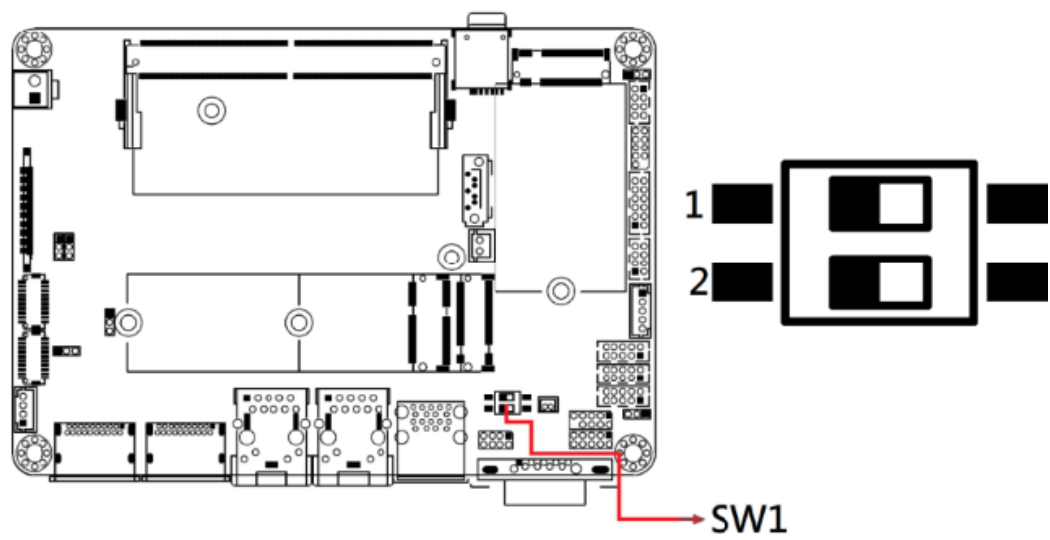
2.4.5 AT / ATX Selection (JP5)



Function	Pin closed	Setting
ATX	1-2	1
AT	2-3	1

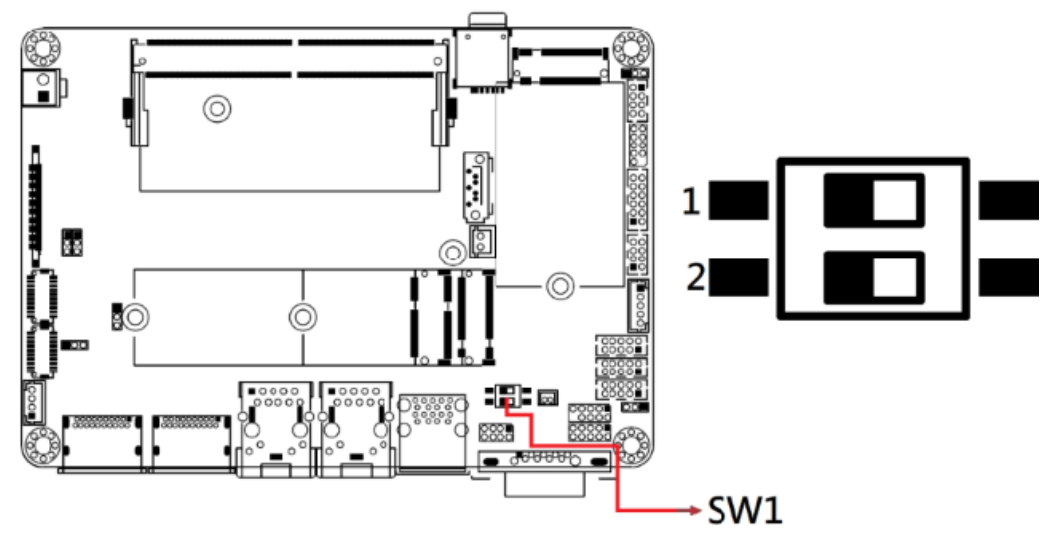
Note: AT: Auto power on; ATX: Manual power on

2.4.6 Clear CMOS Data (SW1)



Function	Setting
Normal (default)	P1-OFF
Clear CMOS	P1-ON

2.4.7 Clear ME Register (SW1)

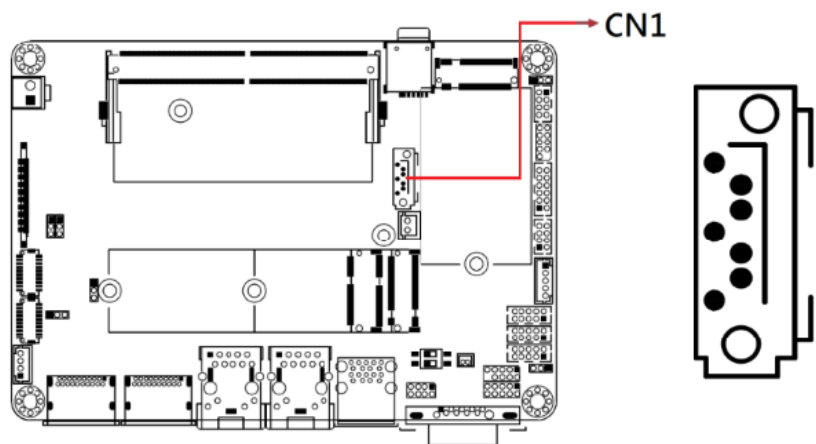


Function	Setting
Normal (default)	P2-OFF
Clear ME Register	P2-ON

2.5 Connectors Quick Reference

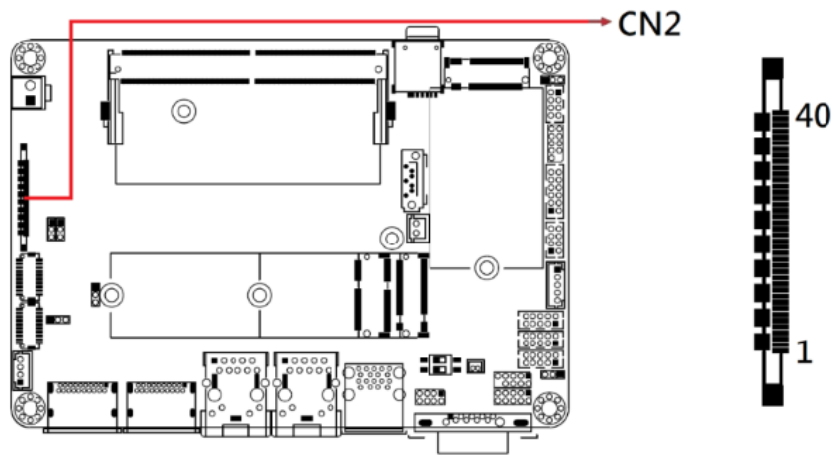
Function	Connector
SATA Connectors	CN1
eDP Connector	CN2
DP Connectors	CN3, CN4
LAN Connectors	CN5, CN6
USB 3.2 Connector	CN7
COM1 RS-232/422/485 Serial Port	CN8
Nano SIM Card Slot	J1
DDR5 SO-DIMM Connector	J2
M.2 B-Key 3052 Connector	J3
DC Power Input Connector	J4
USB 2.0 Connector	J5
SPI Flash Tool Connector	J6
Audio Connector	J7
SATA HDD Power Connector	J8
LVDS Connectors	J10, J16
SMBUS Connector	J11
M.2 E-Key 2230 Connector	J13
M.2 M-Key 2280 Connector	J14
COM2, COM3, COM4 RS- 232 Ports	J18, J17, J15
RTC Battery Connector	J19
LVDS Backlight Connector	J20
80 Port Debug Tool Connector	J21
Digital I/O Connector	J22
Front Panel Connector	J23

2.5.1 SATA Connectors (CN1)



Pin	Assignment	Pin	Assignment
1	Ground	5	RX-
2	TX+	6	RX+
3	TX-	7	Ground
4	Ground		

2.5.2 eDP Connector (CN2)



Remarks: KEL_SSL00-40S

Note: Use JP1 to set Pin1~ Pin5 voltage; Total current: 1A

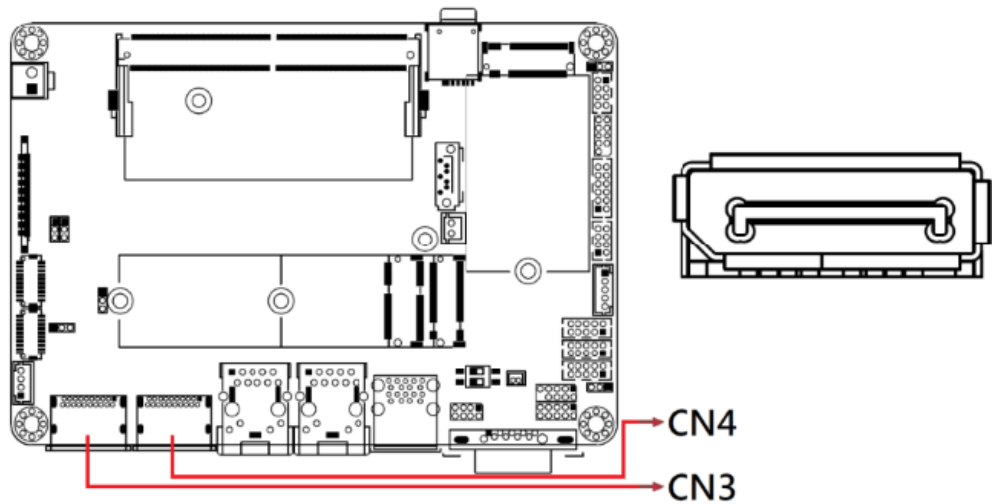
Pin27, Pin36 Total current: 1A

Pin28, Pin35 Total current: 1A

Pin31 Total current: 0.5A

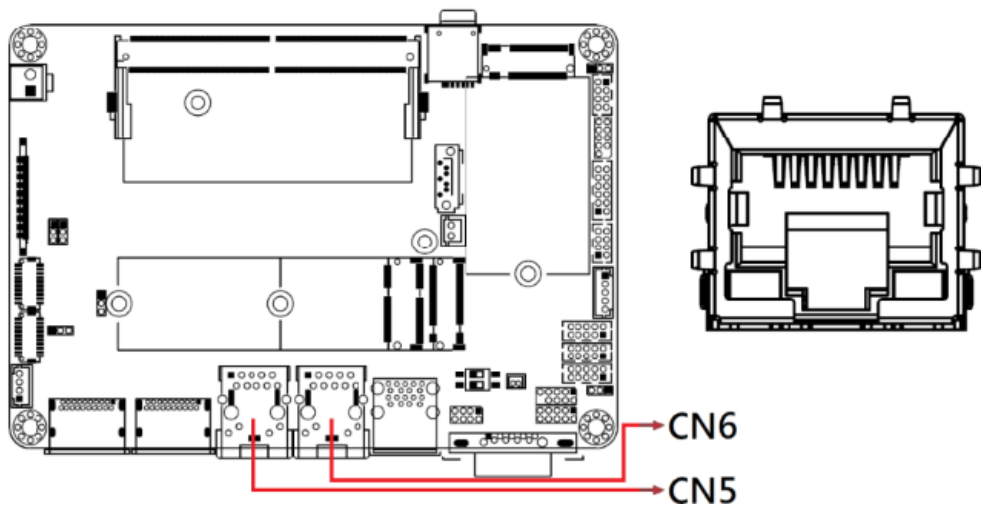
Pin	Assignment	Pin	Assignment
1	eDP Vcc	21	TXN0
2	eDP Vcc	22	TXP1
3	eDP Vcc	23	Ground
4	eDP Vcc	24	AUXP
5	eDP Vcc	25	AUXN
6	Ground	26	NC
7	Ground	27	+3.3V
8	Ground	28	EDP BKLT (+12V)
9	Ground	29	NC
10	Hot Plug detect	30	Ground
11	Ground	31	+5V
12	TXN3	32	NC
13	TXP3	33	Back Light Control
14	Ground	34	Back Light Enable
15	TXN2	35	EDP BKLT (+12V)
16	TXP2	36	+3.3V
17	Ground	37	Ground
18	TXN1	38	NC
19	TXP1	39	NC
20	Ground	40	NC

2.5.3 DP Connectors (CN3, CN4)

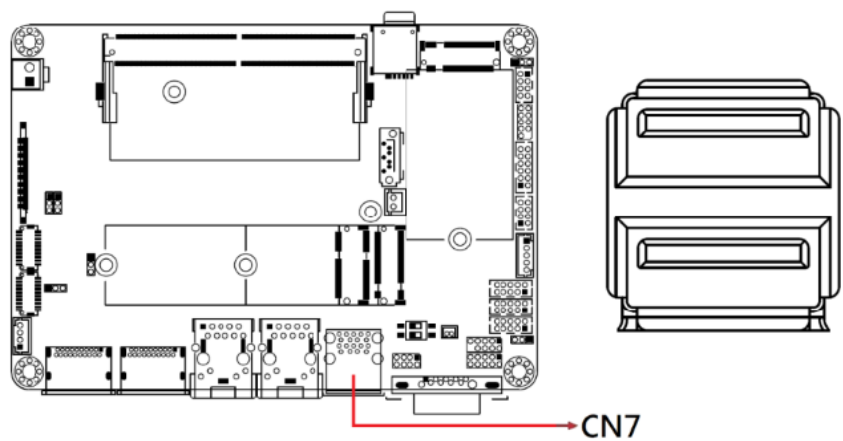


Pin	Assignment	Pin	Assignment
1	LAN0_P	11	GND
2	GND	12	LAN3_N
3	LAN0_N	13	CONFIG
4	LAN1_P	14	GND
5	GND	15	AUXP
6	LAN1_N	16	GND
7	LAN2_P	17	AUXN
8	GND	18	Hot Plug
9	LAN2_N	19	GND
10	LAN3_P	20	+3.3V/0.5A

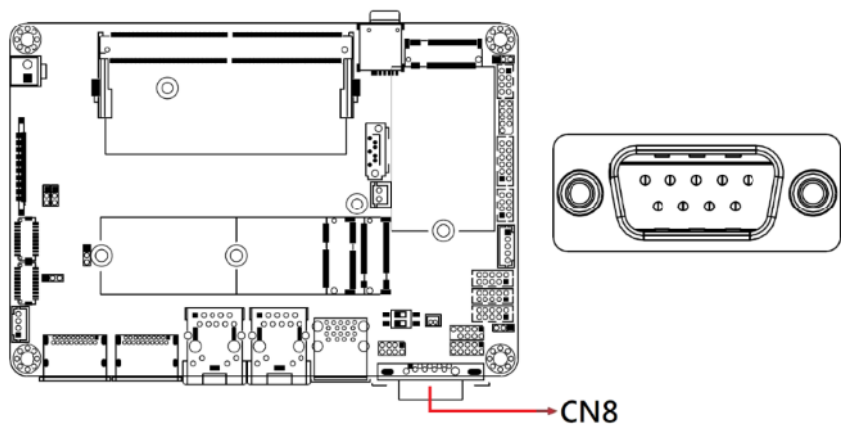
2.5.4 LAN Connectors (CN5, CN6)



2.5.5 USB 3.2 Connector (CN7)



2.5.6 COM1 RS-232/422/485 Serial Port (CN8)

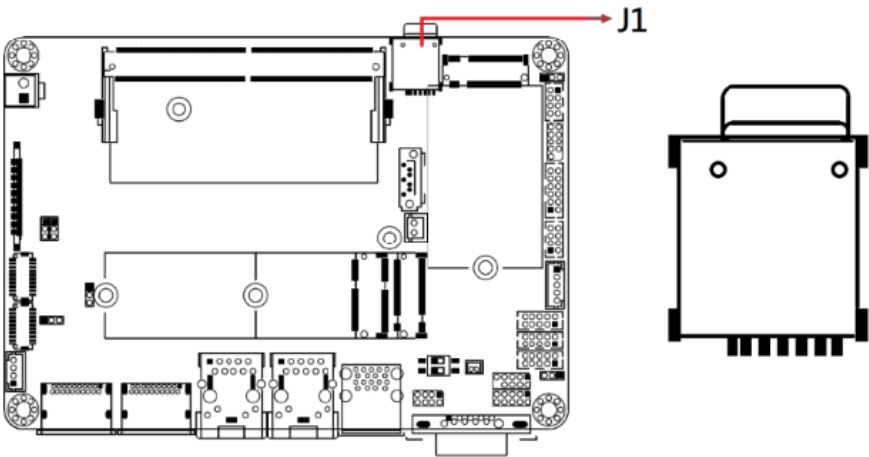


*COM1 port is jumper-less and configurable in BIOS.

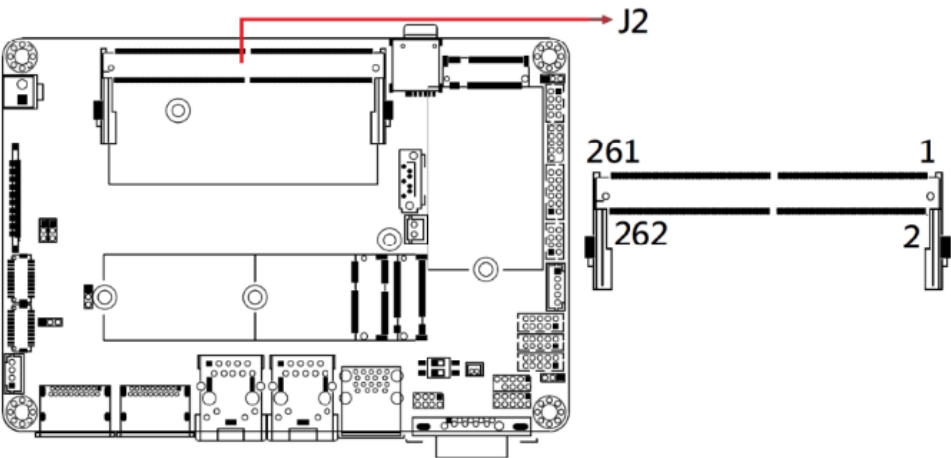
Pin	Assignment	Pin	Assignment
1	DCD,Data carrier detect	6	DSR, Data set ready
2	RXD, Receive data	7	RTS, Request to send
3	TXD, Transmit data	8	CTS, Clear to send
4	DTR, Data terminal ready	9	RI, Ring indicator
5	Ground		

Pin	Assignment		
	RS-232 (default)	RS-422	RS-485
1	DCD	TX-	DATA-
2	RX	TX+	DATA+
3	TX	RX+	NC
4	DTR	RX-	NC
5	Ground	Ground	Ground
6	DSR	NC	NC
7	RTS	NC	NC
8	CTS	NC	NC
9	RI	NC	NC

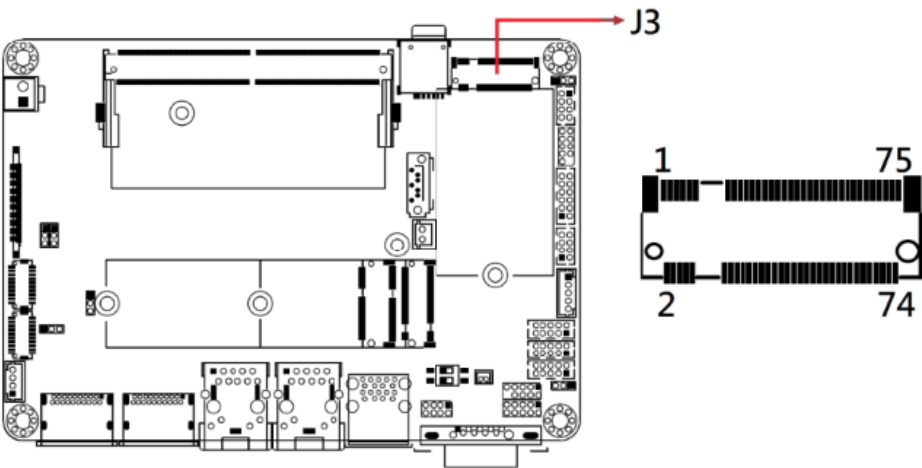
2.5.7 Nano SIM Card Slot (J1)



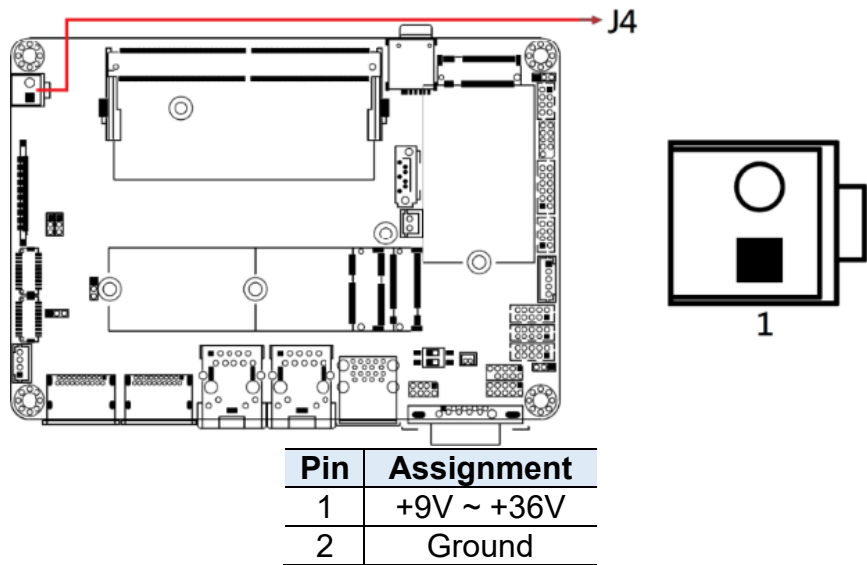
2.5.8 DDR5 SO-DIMM Connector (J2)



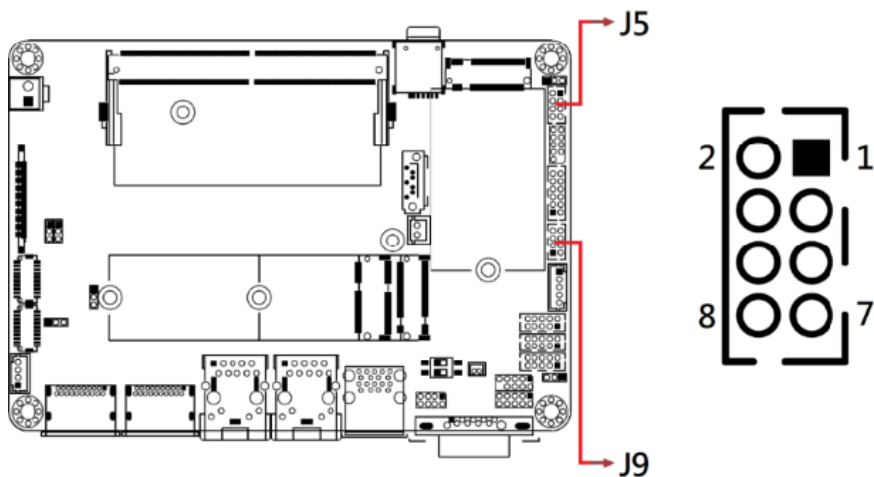
2.5.9 M.2 B-Key 3052 Connector (J3)



2.5.10 DC Power Input Connector (J4)



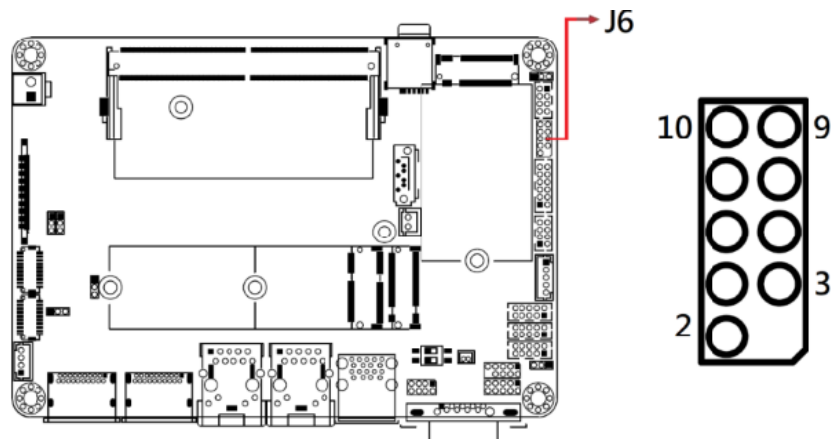
2.5.11 USB 2.0 Connector (J5)



Remarks: HK_DF11-8S-PA66H

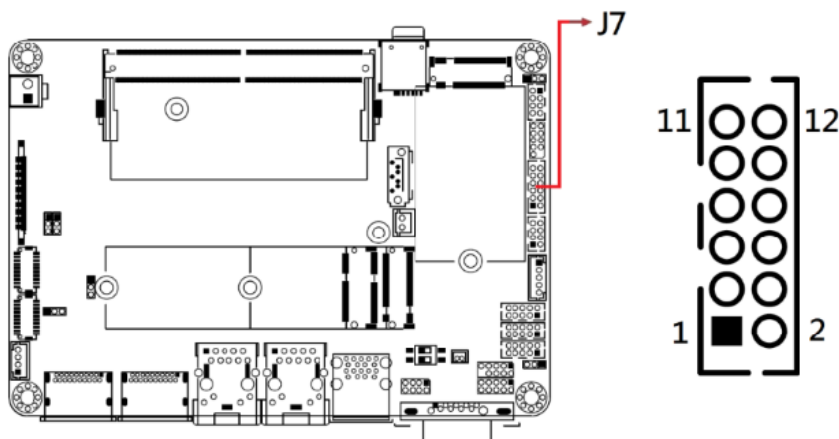
Pin	Assignment	Pin	Assignment
1	+5V/0.5A	2	Ground
3	Data-	4	Data+
5	Data+	6	Data-
7	Ground	8	+5V/0.5A

2.5.12 SPI Flash Tool Connector (J6)



Remarks: Factory use only.

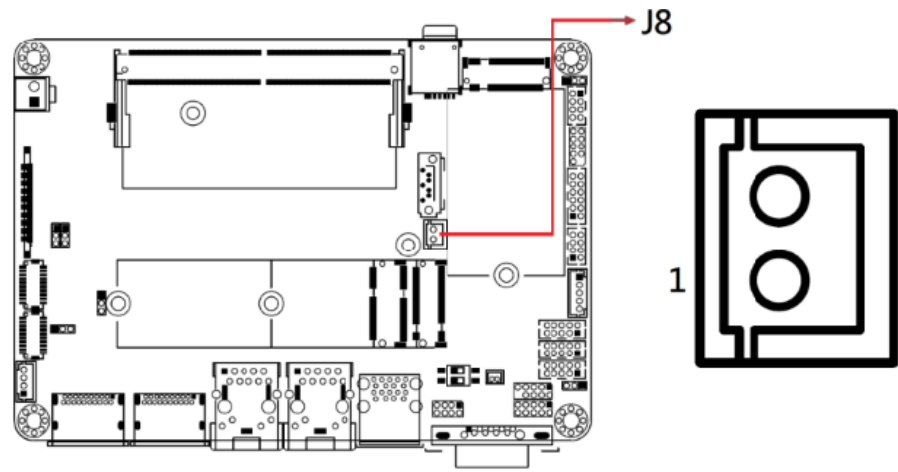
2.5.13 Audio Connector (J7)



Remarks: HK_DF11-12S-PA66H

Pin	Assignment	Pin	Assignment
1	Lineout_L	2	Lineout_R
3	JD_FRONT	4	Ground
5	LINEIN_L	6	Linein_R
7	JD_LINEIN	8	Ground
9	MIC_L	10	MIC-R
11	JD_MIC1	12	Ground

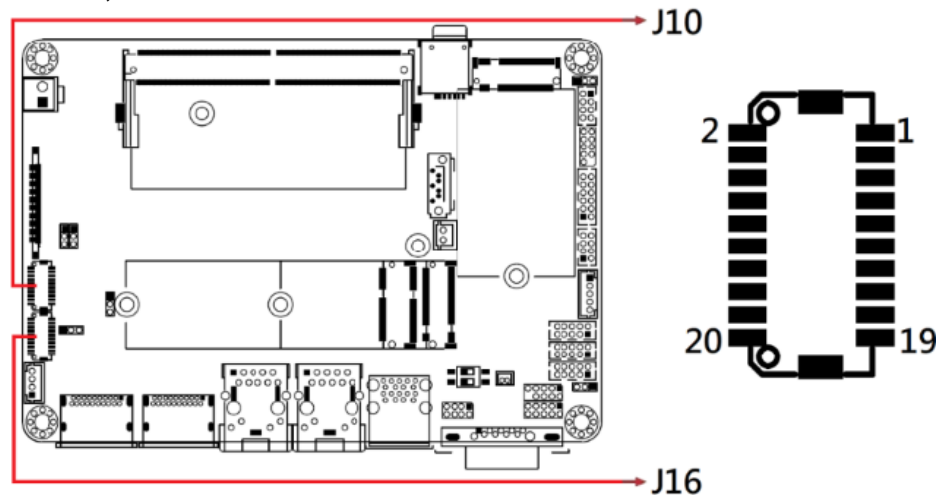
2.5.14 SATA HDD Power Connector (J8)



Pin	Assignment
1	VCC5
2	Ground

2.5.15 LVDS Connectors (J10, J16)

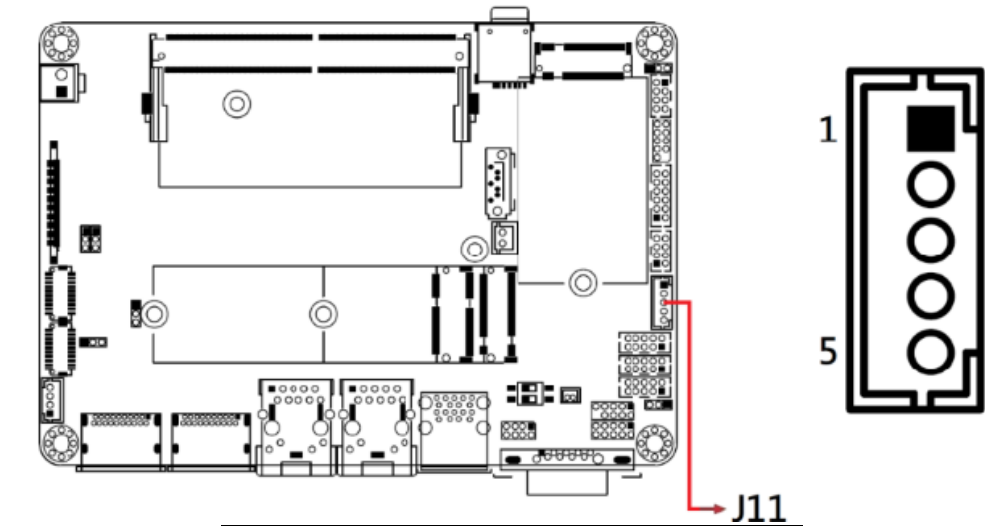
** J10:Channel-A, J16:Channel-B



Remarks: HIROSE_DF20G-20DP-1V(56)
Note: Use JP3 LVDS mode to set Pin19~Pin20 voltage.Total current: 1A

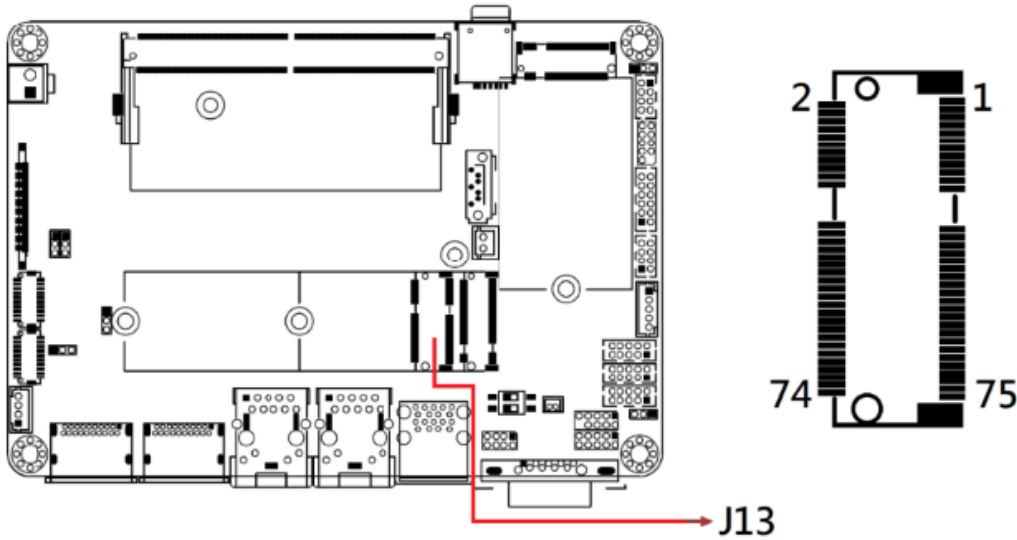
Pin	Assignment	Pin	Assignment
1	TX0P	2	TX0N
3	Ground	4	Ground
5	TX1P	6	TX1N
7	Ground	8	Ground
9	TX2P	10	TX2N
11	Ground	12	Ground
13	CLKP	14	CLKN
15	Ground	16	Ground
17	TX3P	18	TX3N
19	Power	20	Power

2.5.16 SMBUS Connector (J11)



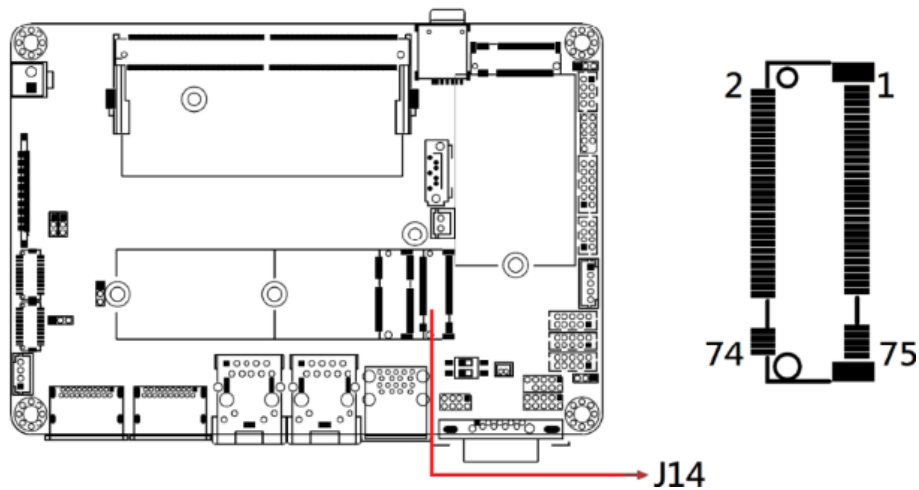
Pin	Assignment	Pin	Assignment
1	PLT_RST#	4	SMB_DATA
2	GPIO	5	SMB_CLK-
3	Ground		

2.5.17 M.2 E-Key 2230 Connector (J13)

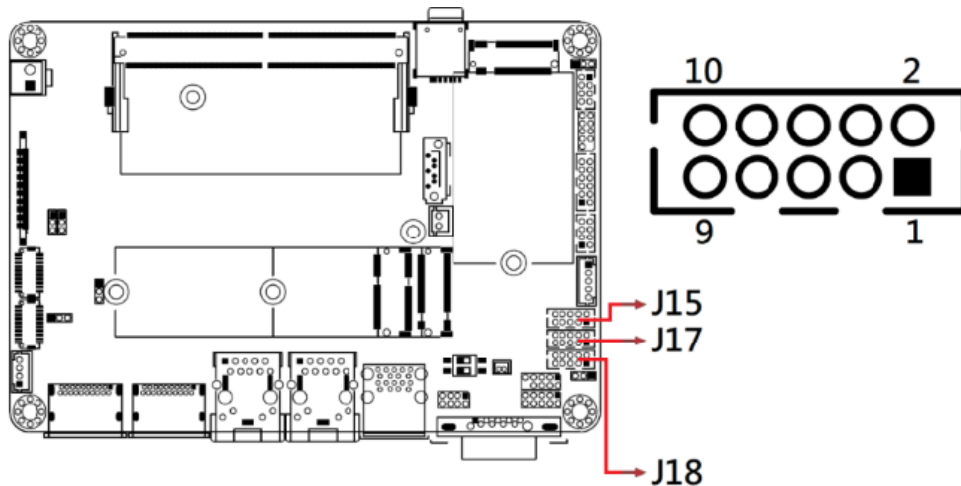


*Supports CNVI Card

2.5.18 M.2 M-Key 2280 Connector (J14)



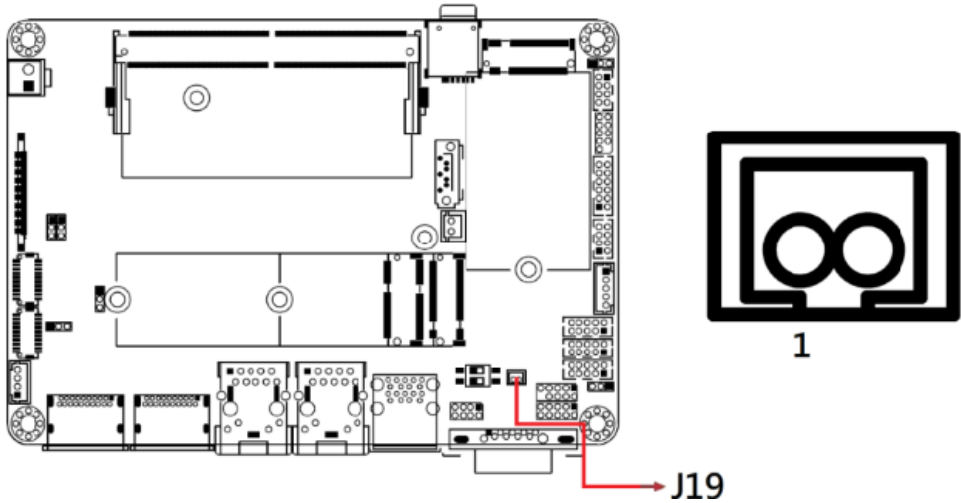
2.5.19 COM2, COM3, COM4 RS-232 Ports (J18, J17, J15)



Remarks: HK_DF11-10S-PA66H

Pin	Assignment	Pin	Assignment
1	DCD, Data carrier detect	2	RXD, Receive data
3	TXD, Transmit data	4	DTR, Data terminal ready
5	Ground	6	DSR, Data set ready
7	RTS, Request to send	8	CTS, Clear to send
9	RI, Ring indicator	10	Not Used

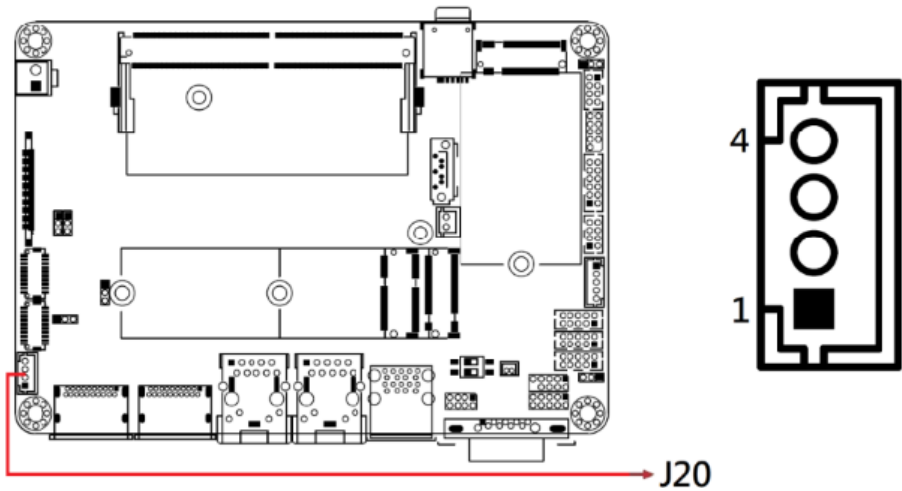
2.5.20 RTC Battery Connector (J19)



Note: Coin battery with cable.

Pin	Assignment
1	+3V
2	Ground

2.5.21 LVDS Backlight Connector (J20)

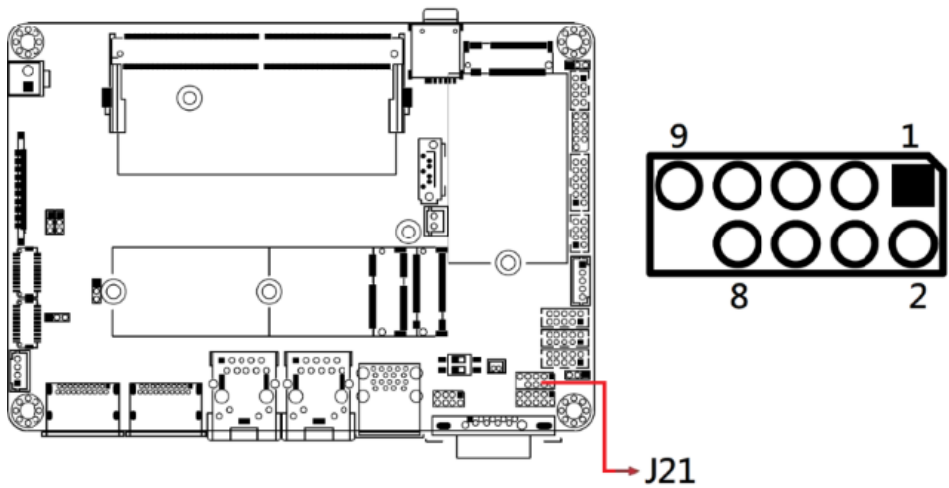


Remarks: E-CALL_0110-161-040

Note: Use JP3 LVDS mode to set Pin3 voltage.

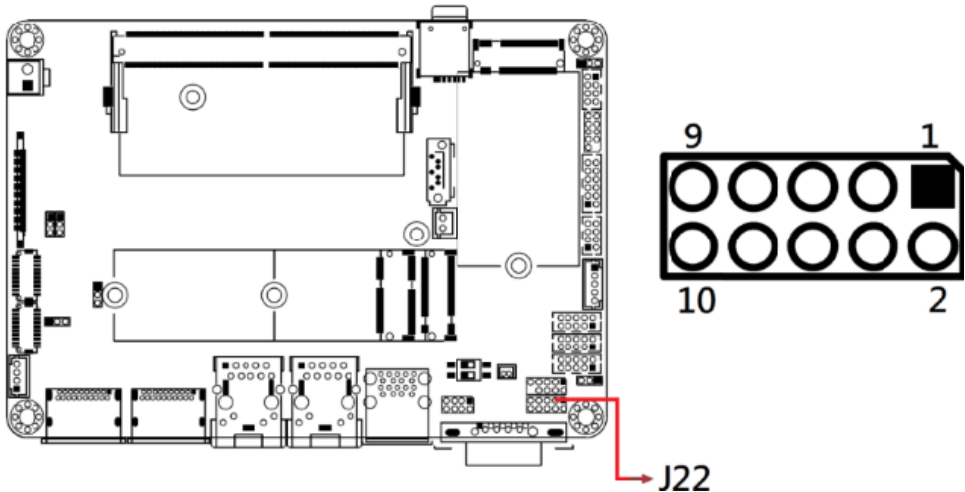
Pin	Assignment	Pin	Assignment
1	+12V/1.5A	3	Brightness Control
2	Backlight Enable	4	Ground

2.5.22 80 Port Debug Tool Connector (J21)



Remarks: Factory use only.

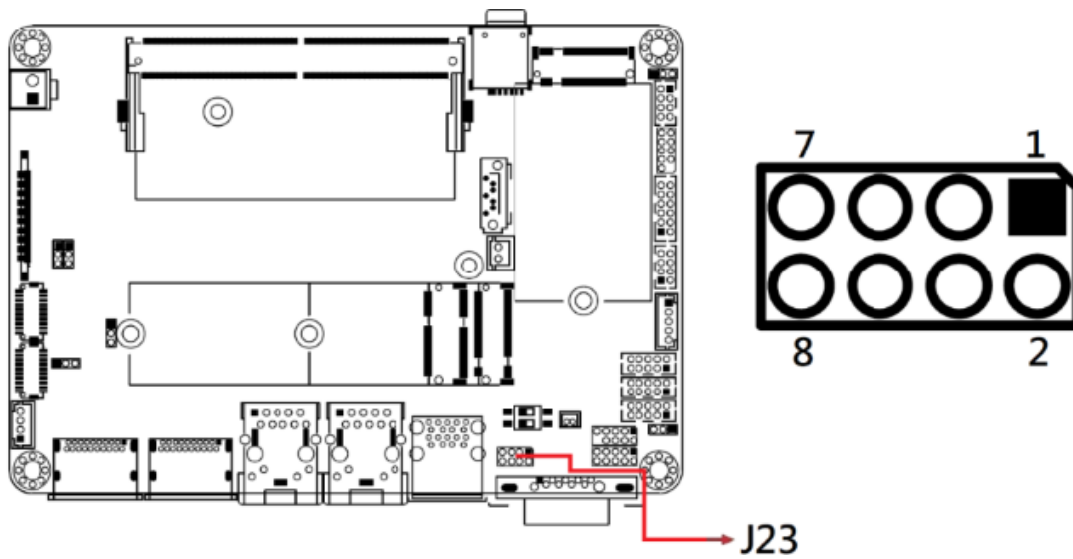
2.5.23 Digital I/O Connector (J22)



Remarks: E-CALL_0196-01-200-100

Pin	Assignment	Pin	Assignment
1	Ground	2	+5V/0.5A
3	OUT3	4	OUT1
5	OUT2	6	OUT0
7	IN3	8	IN1
9	IN2	10	IN0

2.5.24 Front Panel Setting Connector (J23)



Remarks: E-CALL_0126-01-203-080

Pin	Assignment	Pin	Assignment
1	PWR_BTN-	2	PWR_BTN+
3	HDD_LED+, 3.3V	4	HDD Active
5	Ground	6	Reset
7	POWER_LED+, 5V	8	Ground

D. Onboard Connector Reference Types

Function	Connector	Onboard Type	Compatible Mating Type
Audio	J7	Hao Guo Xing Ye DF11-12S-PA66H	Hirose DF11-12DS-2C
SATA HDD Power	J8	E-CALL 0110-071-040	JST XHP-2
Front Panel Setting	J23	E-CALL 2.0 mm-pitch pin header (Female)	Dupont 2.0 mm-pitch (Female)
USB 2.0	J5	Hao Guo Xing Ye DF11-8S-PA66H	Hirose DF11-8DS-2C
COM2 Serial Port	J18	Hao Guo Xing Ye DF11-10S-PA66H	Hirose DF11-10DS-2C
DC Power Input	J4	Hao Guo Xing Ye WAFER396-2S-WV	JST VHR-2N
Digital I/O	J22	Dupont 2.00 mm-pitch pin header (Male)	Dupont 2.00 mm-pitch (Female)
LCD Backlight	J20	E-CALL 0110-161-040	JST PHR-4.
LVDS	J10, J16	Hirose DF20G-20DP-1V	Hirose DF20A-20DS-1C
eDP	CN2	KEL SSL00-40S	KEL SSL20-40S

E. USB Power Control Mapping

Function	Connector	Software Mapping
USB	CN7	bit_2