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Dichiarazione di conformità sintetica

Ai sensi dell'art. 2 comma 3 del D.M. 275 del 30/10/2002

Si dichiara che questo prodotto è conforme alle normative vigenti e soddisfa i requisiti essenziali richiesti dalle direttive 2004/108/CE, 2006/95/CE e 1999/05/CE quando ad esso applicabili

Short Declaration of conformity

We declare this product is complying with the laws in force and meeting all the essential requirements as specified by the directives 2004/108/CE, 2006/95/CE and 1999/05/CE whenever these laws may be applied

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Chapter 1: Introduction

1.1 Before You Start

Thank you for choosing our product. Before you start installing the motherboard, please make sure you follow the instructions below:

- Prepare a dry and stable working environment with sufficient lighting.
 - Always disconnect the computer from power outlet before operation.
 - Before you take the motherboard out from anti-static bag, ground yourself properly by touching any safely grounded appliance, or use grounded wrist strap to remove the static charge.
 - Avoid touching the components on motherboard or the rear side of the board unless necessary. Hold the board on the edge, do not try to bend or flex the board.
 - Do not leave any unfastened small parts inside the case after installation. Loose parts will cause short circuits which may damage the equipment.
 - Keep the computer from dangerous area, such as heat source, humid air and water.
 - The operating temperatures of the computer should be 0 to 45 degrees Celsius.
 - To avoid injury, be careful of:
 - Sharp pins on headers and connectors
 - Rough edges and sharp corners on the chassis
 - Damage to wires that could cause a short circuit
-

Note

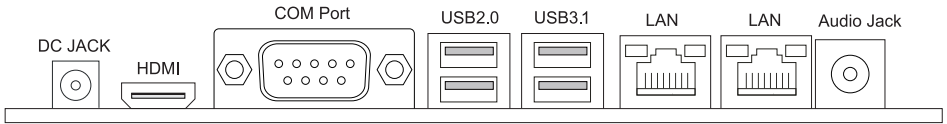
- » *The package contents may be different due to the sales region or models in which it was sold. For more information about the standard package in your region, please contact your dealer or sales representative.*
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1.2 Specifications

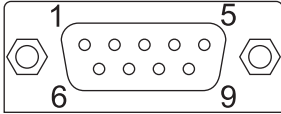
Chipset	Intel® Elkhart Lake J6412 / J6413 (default J6412)
Graphic	Intel® Integrated Graphics HDMI-- DDI_0 to HDMI VGA-- DDI_1 to VGA: RTL2166 eDP + LVDS: 1. Chipset: RTD2136 2. Support LVDS dual channels, co-lay eDP, 3. eDP by BOM SKU1 1x40 pin eDP connector 4. LVDS by BOM SKU2 1 x 2*20 Pin 1.0mm LVDS box header
Main Memory	2 x 260-pin socket support DDR4 3200Mhz SO-DIMM
Storage	1x USB 2.0 + 1 x PCIe1 (3G/4G) (BOM option: PCIe+USB2.0 or mSATA) 1 x M.2 key B type 2242 SATA3. 1 x PCIe4 Slot with PCIe2 Signal
Expansion Slot	1x USB 2.0 + 1 x PCIe1 signal for Mini-PCIe (3G/4G) 1 x M.2 key B type 2242 with SATA3.0 1 x PCIe4 Slot with PCIe2 Signal
LAN	Support 2 x GbE LAN: 2 x RTL8111H-CG GbE LAN Support PXE boot form LAN, wake on LAN
Sound Codec	Audio Codec: ALC897+ ALC105 Co-lay ALC888S (reserved)
Back Panel I/O	1x DC 9~24V Jack 1x HDMI connector 2x Dual-Stack USB3.1 connectors 2x Dual-Stack USB2.0 connector 2x RJ45 connectors, support GbE. 1x DB9 COM connector (Support RS232/422/485) 1 x Line-out Audio Jack
On Board Connectors & Headers	Expansion slots--- 2x 260-pin DDR4 sockets 1 x Minipcie type with SIM Card Slot 1 x PCIe4 Slot 1x Mini-PCIe Slot SATA--- 1x SATA3 7pin connector with 1x 1*4 pin power. (for BOM sku1 only) Display--- 1x 1*40 Pin header for eDP (eDP for BOM SKU1) 1x 2*3 Pin header for LCD voltage select 1x 2*40 pin pitch 1.0 box header for LVDS (LVDS for BOM SKU2) 1x 1*8 pin pitch 1.25 box header for LVDS Inverter (LVDS for BOM SKU2) 1x2*8 pin pitch 2.0 box header for VGA header Audio--- 1 x 2*5-pin box header for MIC-in, LINE-in, SPK-out 1 x Buzzer USB--- 2x 2*4pin header, support 4 x USB2.0 Power--- 1x ATX 4PIN Connector Serial Port--- 4 x 2*5 Header for RS232 1 x 2*5 Header for RS232/422/485 Others--- 1 x 2*5 8-bit DIO pin header 1 x 2*7 front panel pin header

Board Size	170 mm x 170 mm x 1.6mm
Operation Temperature	0°C ~ 60°C
Storage Temperature	-40°C ~ 85°C
Watchdog Timer	Reset; 1 sec.~255 min. and 1 sec. or 1 min. /step
ESD/ EMI	Contact with 4Kv, Air with 8Kv EMI class A
OS Driver Support	Windows 10 IoT Enterprise 64-bit Linux Ubuntu 20.04

1.3 Rear Panel Connectors



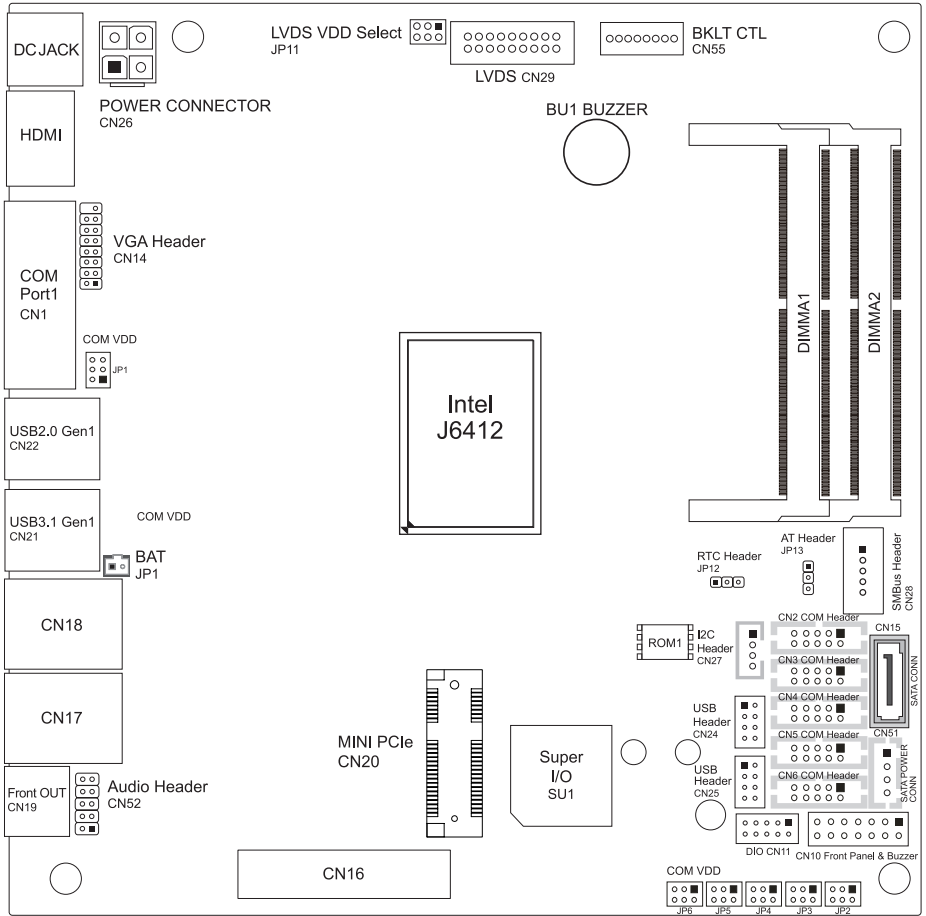
CN1: COM Port1 (D89)



Mode	001	000	010
Pin Define	RS-232 (3T/5R)	RS-422 (1T/1R Full Duplex)	RS-485 (1T/1R TX Enable Low Active)
1	COM1C_DCD	TX(B)	(R(B) / T(B))
2	COM1C_RXD	TX(A)	(R(A) / T(A))
3	COM1C_TXD	RX(A)	NC
4	COM1C_DTR	RX(B)	NC
5	GND	GND	GND
6	COM1C_DSR	NC	NC
7	COM1C_RTS	NC	NC
8	COM1C_CTS	NC	NC
9	COM1C_RI	NC	NC
10	NC	NC	NC

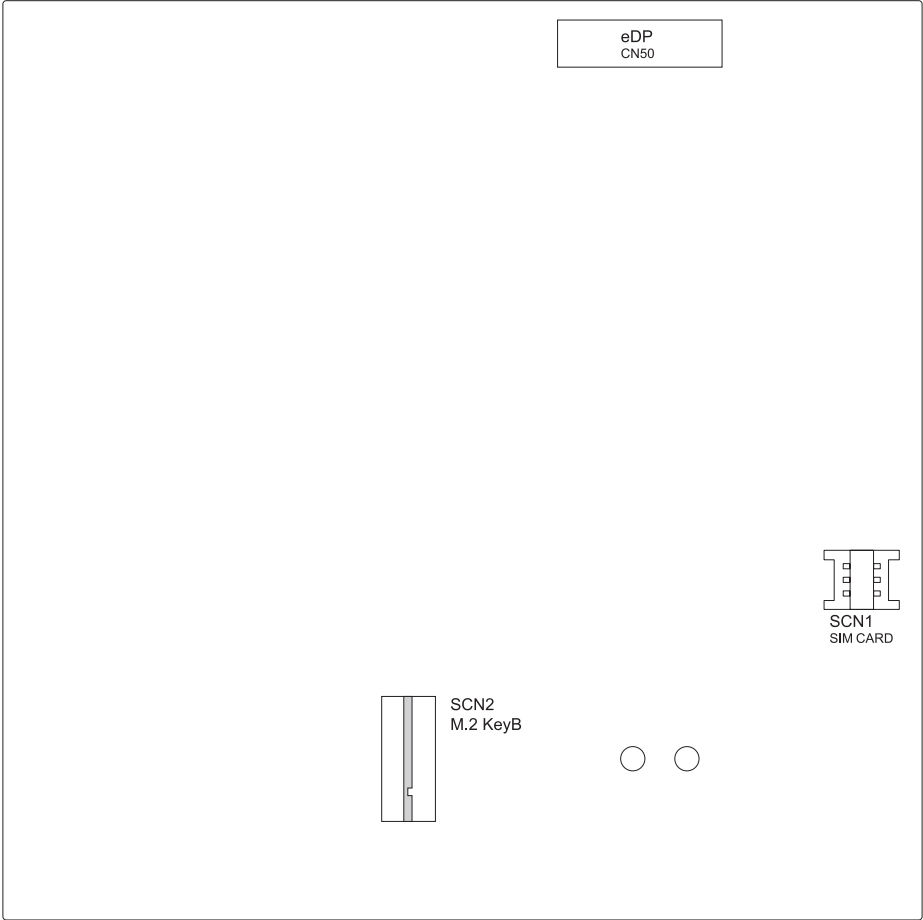
1.4 Motherboard Layout

SYS86399VGGA



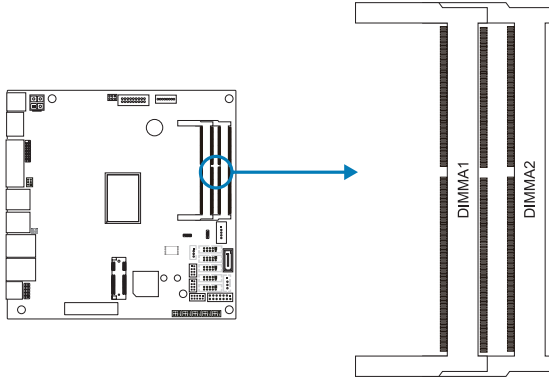
» ■ represents the 1st pin.

Back View



2.1 Installing Memory Module

DIMM1/ DIMM2: DDR4 Memory Module Slot (260pins SO-DIMM)

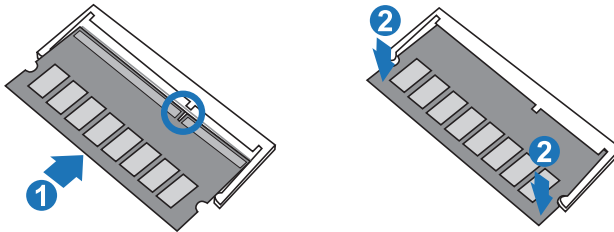


Note

» If the DIMM does not go in smoothly, do not force it. Pull it all the way out and try again.

Insert memory module into SO-DIMM socket at backside of motherboard.

1. Hold the SO-DIMM with its notch aligned with the memory socket of the board and insert it at a 30-degree angle into the socket.
2. Press down on the SO-DIMM so that the tabs of the socket lock on both sides of the module.



» To avoid generating static electricity and damaging the SO-DIMM, ground yourself by touching a grounded metal surface or use a ground strap before you touch the SO-DIMM.

1. Align a DIMM on the slot such that the notch on the DIMM matches the break on the Slot.
2. Insert the DIMM firmly into the slot until the retaining chip snap back in place and the DIMM is properly seated.

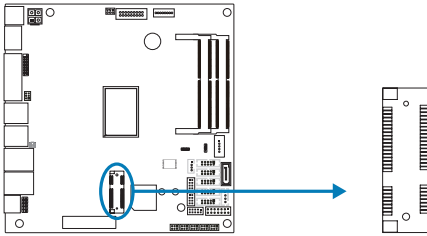
Memory Capacity

DIMM Socket Location	DDR4 Module	Total Memory Size
DIMM1	512MB/1GB/2GB/4GB/8GB	Max is 64GB
DIMM2	512MB/1GB/2GB/4GB/8GB	

2.2 Expansion Slots

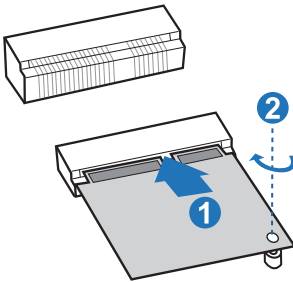
CN20: Mini PCI-Express Connector

- The half-size mPCIe socket supports mini PCIe module.



Installing WiFi Module

1. Insert WiFi module into mini PCIe slot (CN21)
2. Secure screw to the motherboard



» *Wi-Fi module & screw sold separately.*

2.3 Jumper & Switch Setting

Jumper Setting

The illustration shows how to set up jumpers. When the jumper cap is placed on pins, the jumper is “close”, if not, that means the jumper is “open”.

Pin opened



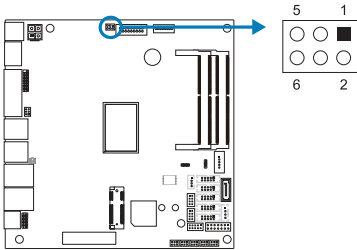
Pin closed



Pin 1-2 closed



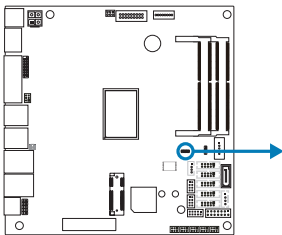
JP11: LVDS VDD Select



Pin	Assignment
1	VCC 3V3
2	VDD OUT
3	NC
4	VCC 5V0
5	VCC 12V0
6	VDD OUT

JP12: RTC Header

Placing the jumper on pin2-3 allows user to restore the BIOS safe setting and the CMOS data. Please carefully follow the procedures to avoid damaging the motherboard.



Pin 1-2 Short: Normal Operation (Default)

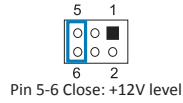
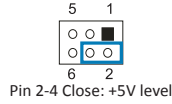
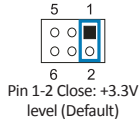
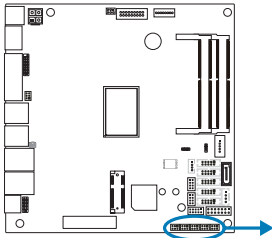


Pin 2-3 Short: Clear CMOS data

Clear CMOS Procedures:

1. Remove AC power line.
2. Set the jumper to “Pin 2-3 short”.
3. Wait for five seconds.
4. Set the jumper to “Pin 1-2 short”.
5. Power on the AC.
6. Reset your desired password or clear the CMOS data.

JP2/ JP3/ JP4/ JP5/ JP6: COM VDD

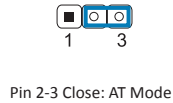
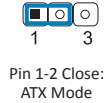
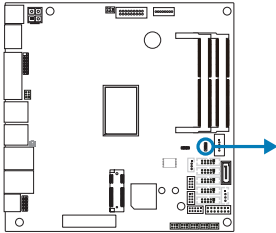


Pin	Assignment
1	VCC 5V0
2	VCC 12V0
3	COM1C_DCD_H
4	COM1C_RI_H
5	COM1C_DCD
6	COM1C_RI

2.4 Headers & Connectors

JP13: AT Header

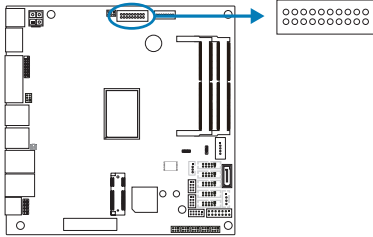
The connector provides +12V to the CPU power circuit.



Pin	Assignment
1	NC
2	AT_ATX
3	GND

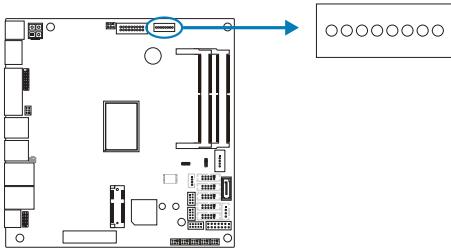
CN29: LVDS

This connector includes Power-on, Reset, HDD LED and Power LED connections. It allows user to connect the PC case's front panel switch functions.



Pin	Assignment	Pin	Assignment
1	VCCM	2	VCCM
3	VCCM	4	VCCM
5	VCCM	6	VCCM
7	LVDS_EDID_SCL	8	LVDS_EDID_SDA
9	GND	10	GND
11	LVDSB_DATA0_N	12	LVDSB_DATA3_N
13	LVDSB_DATA0_P	14	LVDSB_DATA3_P
15	GND	16	GND
17	LVDSB_DATA1_N	18	LVDSB_CLK_N
19	LVDSB_DATA1_P	20	LVDSB_CLK_P
21	GND	22	GND
23	LVDSB_DATA2_N	24	LVDSA_DATA0_N
25	LVDSB_DATA2_P	26	LVDSA_DATA0_P
27	GND	28	GND
29	LVDSA_DATA3_N	30	LVDSA_DATA1_N
31	LVDSA_DATA3_P	32	LVDSA_DATA1_P
33	GND	34	GND
35	LVDSA_CLK_N	36	LVDSA_DATA2_N
37	LVDSA_CLK_P	38	LVDSA_DATA2_P
39	GND	40	GND

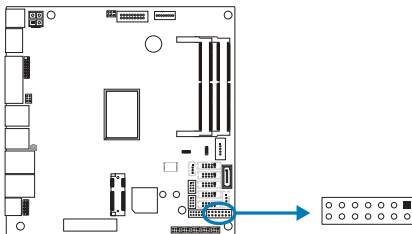
CN55: BKLT CTL (Backlight Control)



Pin	Assignment
1	VCC 12V0
2	VCC 12V0
3	VCC 5V0
4	BKLTEN_LVDS
5	GND
6	GND
7	GND
8	LVDSPWMOUT

CN10: Front Panel & Buzzer

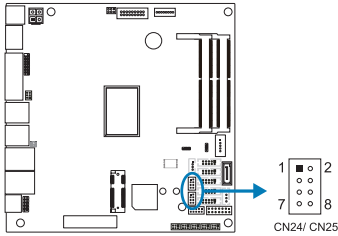
This connector includes Power-on, Reset, HDD LED and Power LED connections. It allows user to connect the PC case's front panel switch functions.



Pin	Assignment	Pin	Assignment
1	PWRLED+	2	EXT SPK-
3	NC	4	Buzzer
5	PWRLED-	6	N.C.
7	N.C.	8	EXT SPK+
9	PWRSW-	10	PWRSW+
11	HW RST-	12	HW RST+
13	HDDLED-	14	HDDLED+

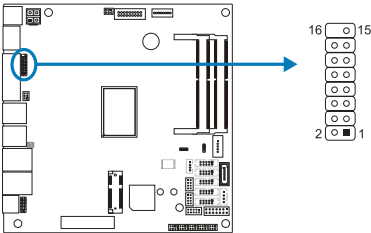
CN24/ CN25: USB Header

These connectors support the thin Serial ATA cable for primary internal storage devices.



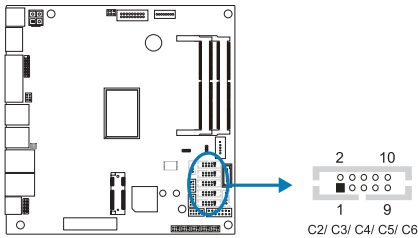
Pin	Assignment
1	VCC
2	GND
3	D-
4	D+
5	D+
6	D-
7	GND
8	VCC

CN14: VGA Header



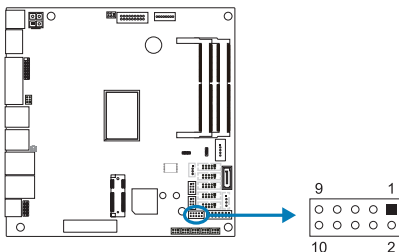
Pin	Assignment	Pin	Assignment
1	VGA_RED	2	5V
3	VGA_GRN	4	GND
5	VGA_BLUE	6	NC
7	NC	8	5VDDA
9	GND	10	HSYNC_C
11	GND	12	VSYNC_C
13	GND	14	5VDDCLK
15	GND	16	NC

CN2/ CN3/ CN4/ CN5/ CN6: COM Header



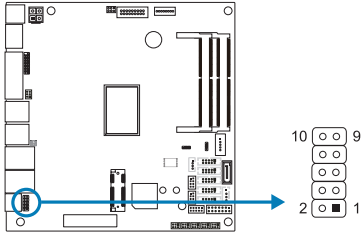
Pin	Assignment
1	DCD
2	DSR
3	RX
4	RTS
5	TX
6	CTS
7	DTR
8	RI
9	GND
10	NC

CN11: Digital I/O Header



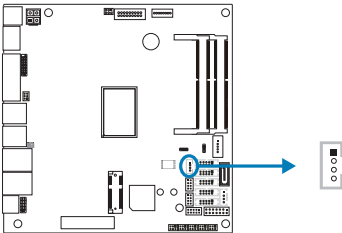
Pin	Assignment
1	+5V
2	DO0
3	DI0
4	DO1
5	DI1
6	DO2
7	DI2
8	DO3
9	DI3
10	GND

CN52: Audio Header



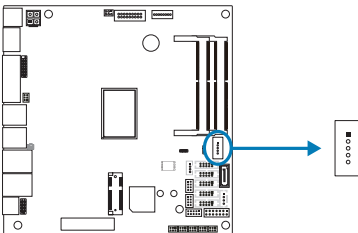
Pin	Assignment
1	MIC IN
2	GND
3	LINE IN L
4	GND
5	LINE IN R
6	GND
7	SPKOUT L
8	GND
9	SPKOUT R
10	GND

CN27: 12C



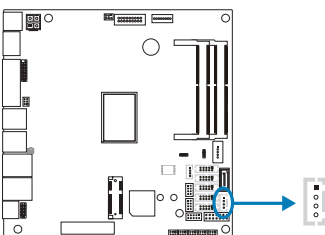
Pin	Assignment
1	3V3
2	SCL
3	GND
4	SDA

CN28: SMBus Header



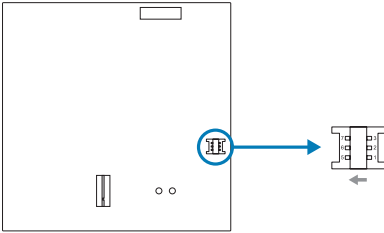
Pin	Assignment
1	SMB_CLK_MAIN
2	SMB_DATA_MAIN
3	SMB_ALERT_N
4	GND
5	3V3

CN51: SATA Power Connector



Pin	Signal
1	VCC 5V0
2	GND
3	GND
4	VCC 12V0

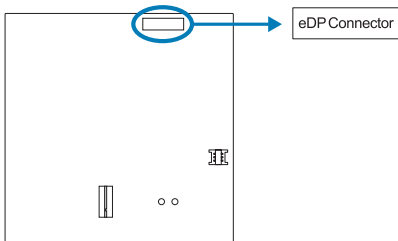
SCN2: SIM Slot



Pin	Assignment
1	UIM_PWR
2	UIM_Reset
3	UIM_CLK
4	N/A
5	GND
6	VPP
7	Data

CN50: eDP Connector

This connector supports 18/24 bit single-channel panels.



Pin	Signal	Pin	Signal
1	VDD	2	VDD
3	VDD	4	VDD
5	N/C	6	GND
7	GND	8	GND
9	GND	10	EMB_HPD
11	GND	12	EDP_TXN3C
13	EDP_TXP3_C	14	GND
15	EDP_TXP2_C	16	EDP_TXP2_C
17	GND	18	EDP_TXN1_C
19	EDP_TXP1_C	20	GND
21	EDP_TXN0_C	22	EDP_TXP0_C
23	GND	24	EMB_AUXP
25	EMB_AUXN	26	GND
27	VSS_EDP_AMOLED	28	VSS_EDP_AMOLED
29	VSS_EDP_AMOLED	30	VSS_EDP_AMOLED
31	N/C	32	EDP_BKLTCTL
33	EDP_BKLTEN	34	N/C
35	N/C	36	VCC_EDP_BKLT
37	VCC_EDP_BKLT	38	VCC_EDP_BKLT
39	VCC_EDP_BKLT	40	N/C