

SYS8F400VGGA-7200U Series

User's Manual

Ver 2.2

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1. Models and Attentions

1.1 Models

This manual is applied to following models:

Model	CPU	COM	LAN	HDMI	VGA	USB	Mini-PCIE	LVDS/eDP	SATA3.0
SYS8F400VGGA	7200U	6	2	1	1	8	2	LVDS	1

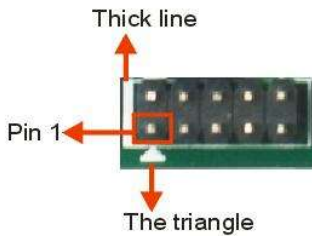
Model	COM	LAN	USB	Mini-PCIE	WIFI+BT
SYS8F400VGGA + SV-M7-C	6	2	8	3	1
SYS8F400VGGA + SV-M7-L	5	4	8	2	1

1.2 Attentions

1) Notes under a table or figure indicate the difference of models, or alternative definition of specific pin of the header (jumper/connector).

2) How to identify the first pin of a header or jumper

- Usually, there is a thick line or a triangle near the header's or jumper's pin 1.



- Square pad, which you can find on the back of the motherboard, is usually used for pin 1.



2. Specification

Model	SYS8F400VGGA-7200U
CPU	Intel® Core® i5-7200U, Dual-core, clock speed 2.5G, TDP 15W
Display ^[1]	1 * VGA(DB15/F) ^[2] : max resolution up to 1920*1080@60Hz 1 * HDMI TYPE-A ^[3] : max resolution up to 4096x2160@30Hz 1 * Dual Channel 24-bit LVDS ^[4] : max resolution up to 1920*1200@60Hz
Memory	Support DDR4 2400/2133 MHz, 1 * SO-DIMM Slot, Up to 16GB
Storage	1 * SATA 3.0 Port 1 * Mini PCI-E2 Slot (mSATA) ^[5]
Ethernet	Intel i211+i219 GBE LAN Chip (10/100/1000 Mbps) ^[6]
Audio	Realtek ALC897 Channel HDA Codec Support Audio Header (Line-out+MIC)
COM	1 * RS232(COM1, Header or DB9/M) ^[3] 3 * RS232(COM2-4, Header) 1 * RS232/TTL(COM5, Header) 1 * RS232/RS485(COM6, Header) ^[7]
USB	8 * USB: 2 * USB3.0 (Rear I/O) 6 * USB2.0 (Header) ^[6]
Other Ports	1 * VGA Pin Header ^[2] 1 * Mini PCI-E1 Slot (WIFI+4G) 1 * IO Connector 8 * GPIO 1 * Smart Fan 1 * SIM Card Pin Header 1 * Keyboard and Mouse Pin Header 1 * DC 9-28V Power Input Connector
System	Windows 7/8/10, Linux
Temperature	Storage: -20~75°C Operating: -10~70°C
BIOS	AMI UEFI BIOS (Support Watchdog Timer)
Power Supply	DC 9-28V
Factor	3.5inch (146mm * 105mm)

Notes:

[1]: Up to three displays can be activated at the same time.

[2]: VGA DB15/F Connector and VGA Pin Header share the same signal; they can't be accessed simultaneously.

[3]: HDMI and COM1 DB9/M Connector on rear I/O share the same position and are mutually exclusive, when HDMI populated, COM1 is available via J_COM1-4 Pin Header.

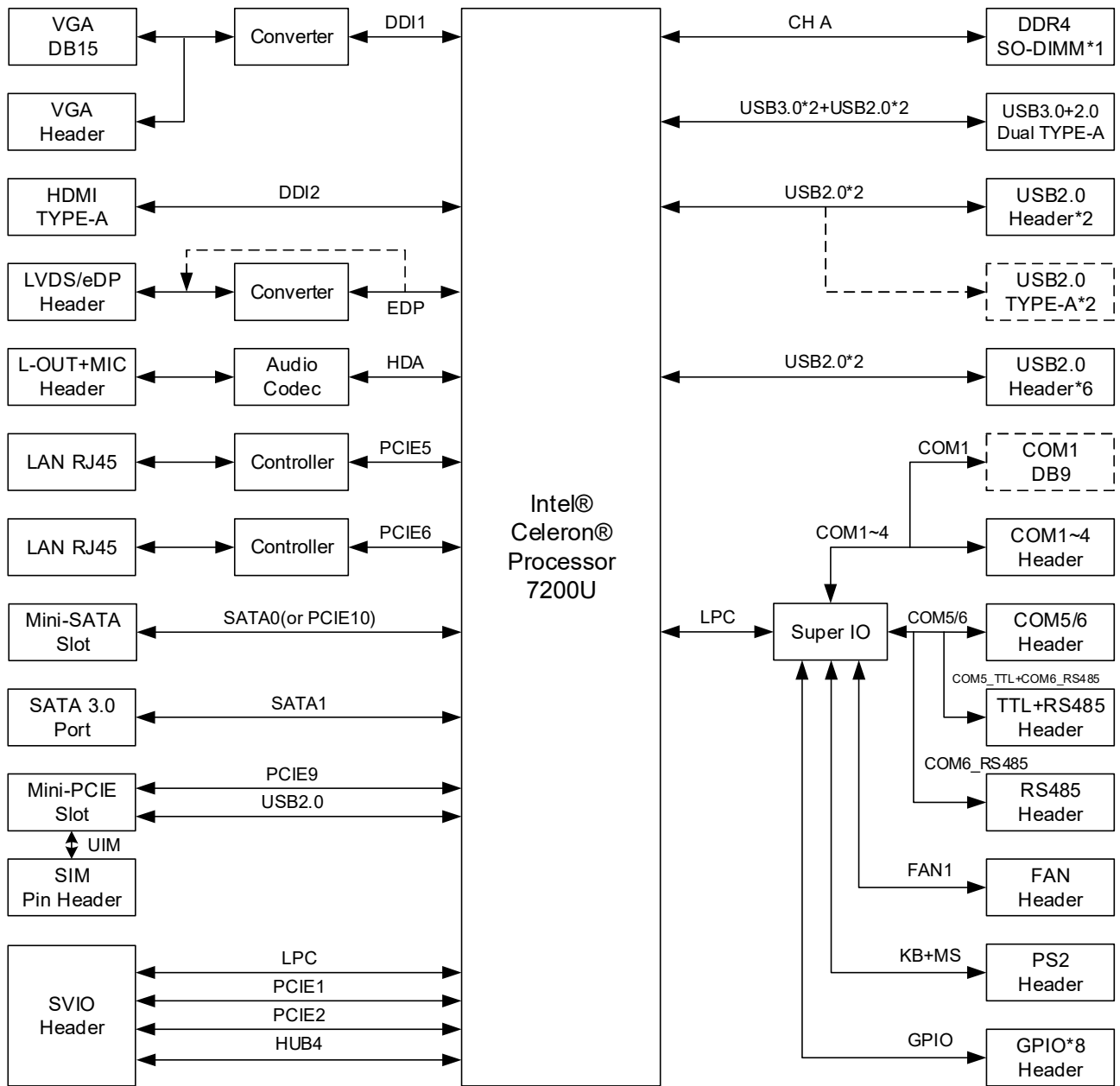
[4]: It supports LVDS by default and can support eDP if specified. And eDP supports max resolution up to 2880x1800@60Hz

[5]: Mini PCI-E2 slot can supports mSATA by default and it can also support WIFI if specified.

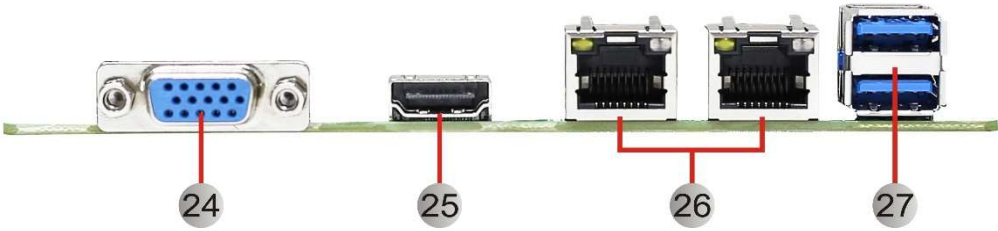
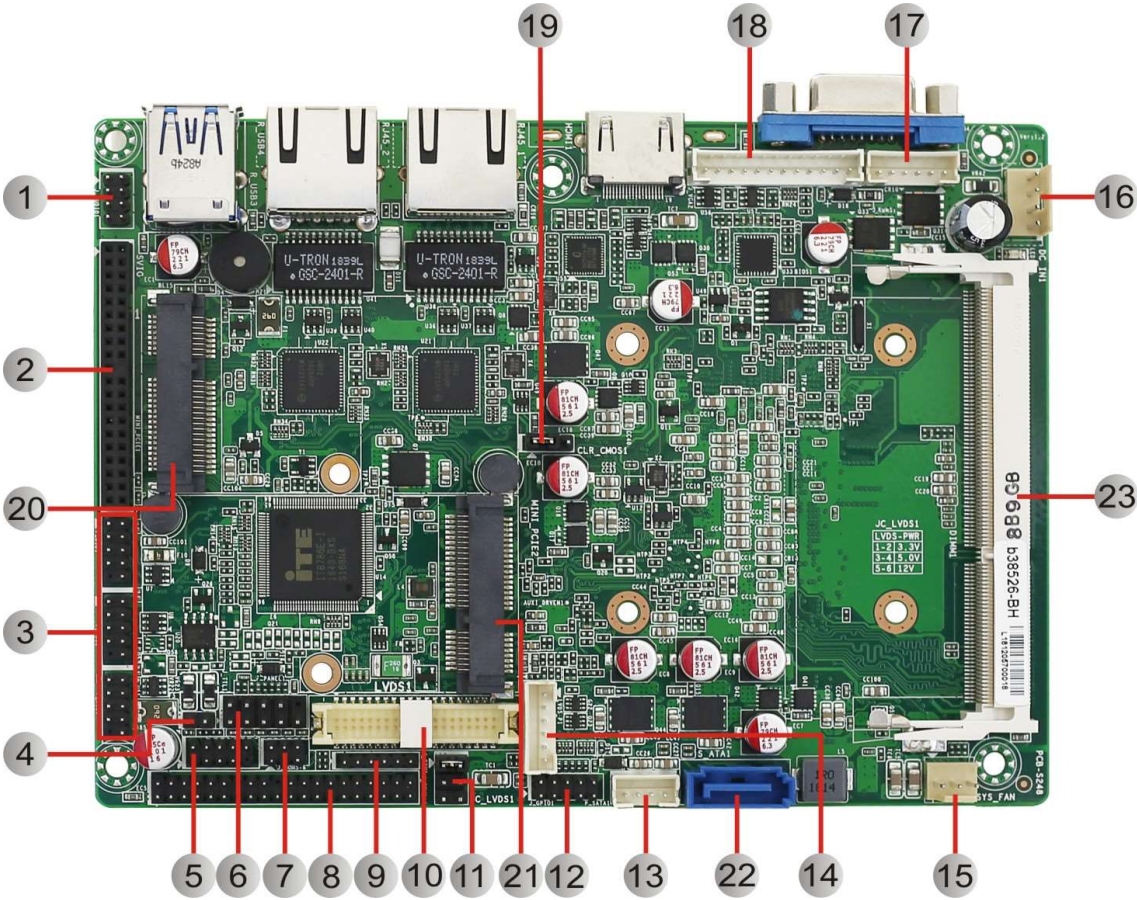
[6]: USB2.0 Dual TYPE-A Connector(R_USB4) and LAN2(RJ45_2) on rear I/O share the same position and are mutually exclusive, when LAN2(RJ45_2) populated, USB2.0 Dual TYPE-A Connector(R_USB4) is available via F_USB3 Pin Header.

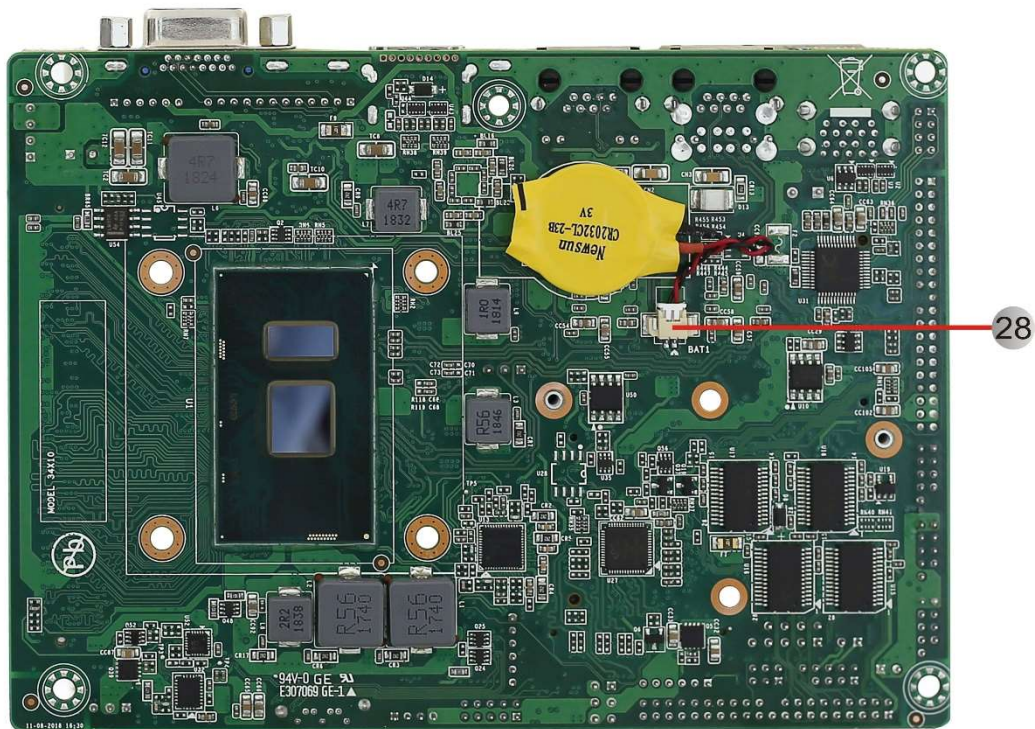
[7]: COM6 support RS232 on J_COM5-6, support RS485 on J_TTL1 and J485_1. Also, J_TTL1 and J485_1 cannot be accessed at the same

3.Data Flow



4. Jumpers / Headers and Connectors



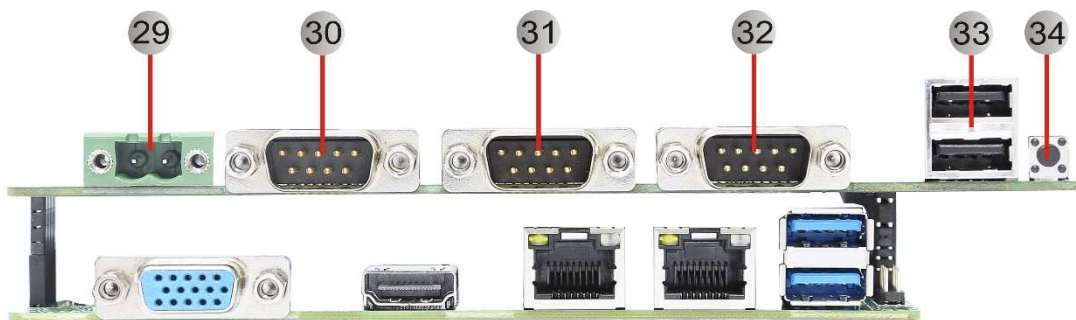


Jumpers / Headers and Connectors

1	J_AUDIO1	Front Audio Pin Header
2	SVIO	IO Connector
3	F_USB1, F_USB2, F_USB3	Front USB Pin Headers
4	J485	RS485 Signal Pin Header
5	J_TTL1	TTL+ RS485 Pin Header
6	F_PANEL1	Front Panel Pin Header
7	J_COM5-6	COM5-6 Pin Header
8	J_COM1-4	COM1-4 Pin Header
9	J_SIM1	SIM Card Pin Header
10	LVDS1	LVDS/eDP Signal Pin Header
11	JC_LVDS1	LVDS/eDP VDD Select Jumper
12	J_GPIO1	GPIO Pin Header
13	P_SATA1	SATA Power Pin Header
14	LVDS_P1	LVDS Backlight Control Pin Header
15	SYS_FAN	System Fan Connector
16	DC_IN1	DC 9V-28V Power Input Pin Header
17	J_KBMS1	Keyboard and Mouse Pin Header
18	J_VGA1	VGA Pin Header
19	CLR_CMOS1	CMOS Clear Jumper
20	MINI_PCIE1	Mini PCI-E1 Slot (WIFI+4G)

21	MINI_PCIE2	Mini PCI-E2 Slot (mSATA)
22	S_ATA1	SATA 3.0 Connector
23	DIMM1	DDR4 SO-DIMM Slot
24	VGA1	VGA DB15/F Connector
25	HDMI1(COM1)	HDMI TAYE-A Connector
26	RJ45_1, RJ45_2(R_USB4)	LAN RJ45 Connectors
27	R_USB3	USB3.0 Dual TYPE-A Connector
28	BAT1	Battery Connector

With Daughter Board SV-M7-C:



Jumpers / Headers and Connectors		
29	DC_IN1	DC 9-28V Power Input Connector
30	COM6	COM6 DB9/M Connector
31	COM5	COM5 DB9/M Connector
32	COM4(RJ45_1, RJ45_2)	COM4 DB9/M Connector
33	R_USB1	USB 2.0 Dual TYPE-A Connector
34	RST_B1	System Reset Button

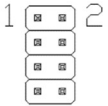
With Daughter Board SV-M7-L:



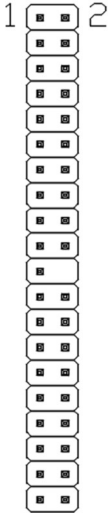
Jumpers / Headers and Connectors		
29	DC_IN1	DC 9-28V Power Input Connector
30	COM6	COM6 DB9/M Connector
31	COM5	COM5 DB9/M Connector
32	RJ45_1, RJ45_2 (COM4)	LAN1-2 RJ45 Ports
33	R_USB1	USB 2.0 Dual TYPE-A Connector
34	RST_B1	System Reset Button

5. Definition of Jumpers /Headers and Connectors

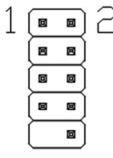
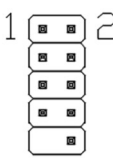
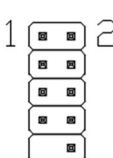
1) J_AUDIO1 (Front Audio Pin Header 4*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	LINE_OUT_R	2	MIC_IN_R
	3	GND	4	GND
	5	GND	6	GND
	7	LINE_OUT_L	8	MIC_IN_L

2) SVIO (IO Connector 20*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	PCIE_TX2-	2	PCIE_TX2+
	3	PCIE_RX2-	4	GND
	5	GND	6	PCIE_RX2+
	7	SVIO_CLK2-	8	SVIO_CLK2+
	9	SIO_SERIRQ	10	GND
	11	USB1-	12	USB1+
	13	GND	14	SVIO_CLK-
	15	SVIO_CLK+	16	GND
	17	PCIE_RX1-	18	PCIE_RX1+
	19	GND		
	21	WAKE#	22	GND
	23	PCIE_TX1-	24	PCIE_TX1+
	25	GND	26	LAD3
	27	LFRAME#	28	LAD2
	29	PANSW#	30	LAD1
	31	SYS_RESET#	32	LAD0
	33	+ 3.3V	34	GND
	35	+ 5V	36	PLTRST#
	37	+ 5V	38	LPC_CLK1
	39	+ 3.3V	40	+ 3.3V


3) F_USB1, F_USB2, F_USB3 (Front USB Pin Headers 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
 F_USB1	1	+ 5V	2	+ 5V
	3	USB2-	4	USB3-
	5	USB2+	6	USB3+
	7	GND	8	GND
			10	GND
 F_USB2	1	+ 5V	2	+ 5V
	3	USB4-	4	USB5-
	5	USB4+	6	USB5+
	7	GND	8	GND
			10	GND
 F_USB3	1	+ 5V	2	+ 5V
	3	USB6- ^[1]	4	USB7- ^[2]
	5	USB6+ ^[1]	6	USB7+ ^[2]
	7	GND	8	GND
			10	GND

Note:

[1]: USB2.0 Dual TYPE-A Connector(R_USB4) and F_USB3 Pin Header share the same USB signal, and they can't be accessed simultaneously.

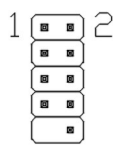
4) J485 (RS485 Signal Pin Header 2*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM6_RS485+ ^[1]	2	COM6_RS485- ^[1]

Note:

[1]: COM6 support RS232 on J_COM5-6, support RS485 on J_TTL1 and J485_1. Also, J_TTL1 and J485_1 cannot be accessed at the same time.

5) J_TTL1 (TTL+ RS485 Pin Header 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	2	+ 3.3V
	3	HD_LED#	4	GND
	5	COM5_TTL_SIN ^[1]	6	COM6_RS485+ ^[2]
	7	COM5_TTL_SOUT ^[1]	8	COM6_RS485- ^[2]

		10	GND
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Notes:

[1]: COM5 support TTL signal by J_TTL1 or support RS232 signal by J_COM5-6 (resistor selectable).

[2]: COM6 support RS232 on J_COM5-6, support RS485 on J_TTL1 and J485_1. Also, J_TTL1 and J485_1 cannot be accessed at the same time.

6) F_PANEL1 (Front Panel Pin Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	HD LED+	2	Power LED+
	3	HD LED-	4	Power LED-
	5	RESET-	6	Power+
	7	RESET+	8	Power-
	9	N/C		

7) J_COM5-6 (COM5-6 Pin Header 3*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM5_RXD ^[1]	2	COM6_RXD ^[2]
	3	COM5_TXD ^[1]	4	COM6_TXD ^[2]
	5	GND	6	GND

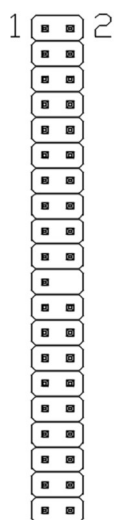
Notes:

[1]: COM5 support TTL signal by J_TTL1 or support RS232 signal by J_COM5-6 (resistor selectable).

[2]: COM6 support RS232 on J_COM5-6, support RS485 on J_TTL1 and J485_1. Also, J_TTL1 and J485_1 cannot be accessed at the same time.

8) J_COM1-4* (COM1-4 Pin Header 20*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM1_PIN1 ^[1]	2	COM1_RXD
	3	COM1_TXD	4	COM1_DTR#
	5	GND	6	COM1_DSR#
	7	COM1_RTS#	8	COM1_CTS#
	9	COM1_RI#	10	GND
	11	COM2_PIN1 ^[1]	12	COM2_RXD
	13	COM2_TXD	14	COM2_DTR#
	15	GND	16	COM2_DSR#
	17	COM2_RTS#	18	COM2_CTS#



19	COM2_PIN9 [2]		
21	COM3_PIN1 [1]	22	COM3_RXD
23	COM3_TXD	24	COM3_DTR#
25	GND	26	COM3_DSR#
27	COM3_RTS#	28	COM3_CTS#
29	COM3_PIN9 [2]	30	GND
31	N/C [3]	32	COM4_RXD
33	COM4_TXD	34	COM4_DTR#
35	GND	36	COM4_DSR#
37	COM4_RTS#	38	COM4_CTS#
39	N/C [3]	40	GND

Note:

*: COM1 DB9/M Connector and COM1-4 Pin Header share the same COM1 signal, and they can't be accessed simultaneously.

[1]: Pin1 of COM1~3 support DCD# signal by default, it also can support 5V / 12V if specified (resistor selectable).

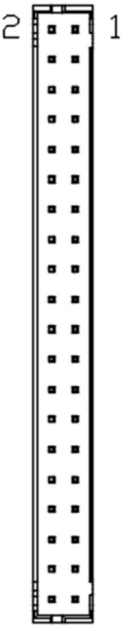
[2]: Pin9 of COM2~3 support RI# signal by default, it also can support 5V / 12V if specified (resistor selectable).

[3]: Pin1&Pin9 of COM4 support N/C by default, it also can support 5V / 12V if specified (resistor selectable).

9) J_SIM1 (SIM Card Pin Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	UIM1_PWR	2	GND
	3	UIM1_DAT	4	UIM1_CLK
	5	UIM1_RST	6	UIM1_VPP

10) LVDS1 (LVDS Signal Pin Header 20*2 Pin 1.25 mm)

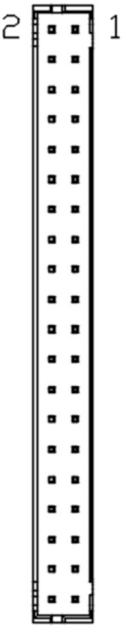
Graphic	Pin	Definition	Pin	Definition
	1	VDD [1]	2	VDD [1]
	3	Detect_GND#	4	GND
	5	VDD [1]	6	VDD [1]
	7	LVDS_A_DATA0-	8	LVDS_B_DATA0-
	9	LVDS_A_DATA0+	10	LVDS_B_DATA0+
	11	GND	12	GND
	13	LVDS_A_DATA1-	14	LVDS_B_DATA1-
	15	LVDS_A_DATA1+	16	LVDS_B_DATA1+
	17	GND	18	GND
	19	LVDS_A_DATA2-	20	LVDS_B_DATA2-
	21	LVDS_A_DATA2+	22	LVDS_B_DATA2+
	23	GND	24	GND
	25	LVDS_A_CLK-	26	LVDS_B_CLK-
	27	LVDS_A_CLK+	28	LVDS_B_CLK+
	29	GND	30	GND
	31	N/C	32	N/C
	33	GND	34	GND
	35	LVDS_A_DATA3-	36	LVDS_B_DATA3-
	37	LVDS_A_DATA3+	38	LVDS_B_DATA3+
	39	N/C	40	GND

Notes:

[1]: Panel Power VDD is 3.3V by default, 5V or 12V is selectable by "LVDS/eDP VDD Select Jumper"(JC_LVDS1, Location 11).

[2]: It supports LVDS by default and can support EDP if specified (resistor selectable).

10) LVDS1 (eDP Signal Pin Header 20*2 Pin 1.25 mm)

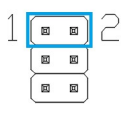
Graphic	Pin	Definition	Pin	Definition
 eDP	1	VDD [1]	2	VDD [1]
	3	N/C	4	GND
	5	VDD [1]	6	VDD [1]
	7	N/C	8	EDP_TX0- [2]
	9	N/C	10	EDP_TX0+ [2]
	11	GND	12	GND
	13	N/C	14	EDP_TX1- [2]
	15	N/C	16	EDP_TX1+ [2]
	17	GND	18	GND
	19	N/C	20	N/C
	21	N/C	22	N/C
	23	GND	24	GND
	25	N/C	26	N/C
	27	N/C	28	N/C
	29	GND	30	GND
	31	N/C	32	EDP_HPDP
	33	GND	34	GND
	35	N/C	36	EDP_AUX- [2]
	37	N/C	38	EDP_AUX+ [2]
	39	N/C	40	GND

Notes:

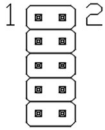
[1]: Panel Power VDD is 3.3V by default, 5V or 12V is selectable by "LVDS/eDP VDD Select Jumper"(JC_LVDS1, Location 11).

[2]: It supports LVDS by default and can support EDP if specified (resistor selectable).

11) JC_LVDS1 (LVDS/eDP VDD Select Jumper 3*2 Pin 2.54mm)

Graphic	Settings	Function
 JC_LVDS1	1-2(Default)	+ 3.3V
	3-4	+ 5V
	5-6	+ 12V

12) J_GPIO1 (GPIO Pin Header 5*2 Pin 2.00mm)


Graphic	Pin	Definition	Pin	Definition
	1	PCH_GPO1 (0xFDAE0548 Bit0,H) [1]	2	PCH_GPO2 (0xFDAE0550 Bit0,H)
	3	PCH_GPO3 (0xFDAE0558 Bit0,H)	4	PCH_GPO4 (0xFDAE0560 Bit0,H)
	5	GND	6	PCH_GPO5 (0xFDAC04F0 Bit0,H)
	7	PCH_GPO6 (0xFDAC04F8 Bit0,H)	8	PCH_GPO7 (0xFDAF0488 Bit0,H)
	9	PCH_GPO8 (0xFDAF0480 Bit0,H)	10	+ 3.3V [2]

Note:


[1]: "H" or "L" means the default voltage is High or Low level.

[2]: * Power on this Pin and GPIO output is 5V signaling by default, 3.3V is available if specified (resistor selectable).


13) P_SATA1 (SATA Power Pin Header 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 12V	2	GND
	3	GND	4	+ 5V

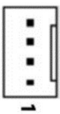
14) LVDS_P1 (LVDS/eDP Backlight Control Pin Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	2	GND
	3	LVDS_BKL_CTL	4	LVDS_BKL_EN
	5	+ 12V	6	+ 12V

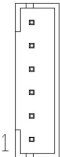
15) SYS_FAN1 (System Fan Connector 3*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	2	+ 12V
	3	FAN Speed Detection		


16) DC_IN1 (DC 9V-28V Power Input Pin Header 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 9V~28V	2	+ 9V~28V
	3	GND	4	GND

17) J_KBMS1 (Keyboard and Mouse Pin Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	KB_CLK	2	KB_DATA
	3	MS_CLK	4	GND
	5	+ 5V	6	MS_DATA


18) J_VGA1 (VGA Pin Header 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	2	VSYNC
	3	HSYNC	4	GND
	5	RED	6	GND
	7	GREEN	8	GND
	9	BLUE	10	GND
	11	DDC Data	12	DDC Clock

Note:

[1]: VGA DB15/F Connector and J_VGA1 share the same signal and they can't be accessed simultaneous

19) CLR_CMOS1 (CMOS Clear Jumper 3*1 Pin 2.54mm)

Graphic	Setting	Function
	1-2 (Default)	Normal
	2-3	Clear CMOS