



Technica House Inc.
User's Manual

TH35-J6412
Ver 1.2

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1.Models and Attentions

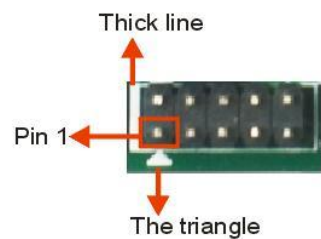
1.1 Models

This manual is applied to following models:

Model	CPU	COM	LAN	USB	HDMI	eDP/ LVDS	MINI- PCIE	M.2 Key-B	M.2 Key-M	SATA 3.0
TH35-J6412	J6412	6	2	10	2	LVDS	WIFI+ 4G/3G	mSATA	PCIe x2	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	TH35-J6412
CPU	Intel® Celeron® J6412, Quad-core, clock speed 2.00 GHz, up to 2.60GHz, TDP 10W
Display	1 * eDP1/LVDS (Header): LVDS max resolution up to 1920x1200 @ 60Hz (default) or eDP max resolution up to 3840x2160 @ 60Hz 30bpp or 4096x2304 @ 60Hz 24bpp 2 * HDMI (TYPE-A): max resolution up to 4096x2160 @ 30 Hz
Memory	Support DDR4-2666/2933/3200MHz, 1 * non-ECC SO-DIMM Slot, Up to 32GB
Storage	1 * SATA3.0 7P Connector (With 1 * SATA Power Header) ^[1] 1 * Mini PCI-E Slot (mSATA) ^[2]
Ethernet	2 * Intel I211/I210 GBE LAN Chip (RJ45, 10/100/1000 Mbps)
Audio	Realtek ALC662 5.1 Channel HDA Codec 1 * Line-Out + MIC 2in1 4.0mm Jack 1 * Amplifier Header, 3W into an 4Ω Loads
Expansion Slots	1 * M.2 (NGFF) Key-M Slot (PCIe x2 NVMe SSD, 2280) ^{[1][3]} 1 * M.2 (NGFF) Key-B Slot ((3042/3052, PCIe/USB3.0+ USB2.0, Support 4G/5G) ^{[2][4]}
COM	3 * RS232 (COM1/2/3, Header, Full Wires) 2 * RS232/TTL (COM4/5, Header, 2 Wires) 1 * RS232/RS485/TTL (COM6, Header, 2 Wires)
USB	3 * USB3.0 (TYPE-A, Rear IO) 3 * USB2.0 (TYPE-A, Rear IO) 4 * USB2.0 (Header, Internal)
Other Ports	8 * GPIO Header 1 * Power LED Header 1 * Power Button Header 1 * System Reset Header 1 * HDD LED Header 1 * CPU FAN Header 1 * MPS Header 2 * GSPI Header 1 * SIM Card Header
System	Windows 10 64-bit, Linux
Temperature	Storage: -20~75°C Operating: 0~60°C
BIOS	AMI UEFI BIOS (Support Watchdog Timer)
Power Supply	DC 12V 1 * DC 12V Power Input Φ2.5mm Jack
Factor	146mm*105mm

Notes:

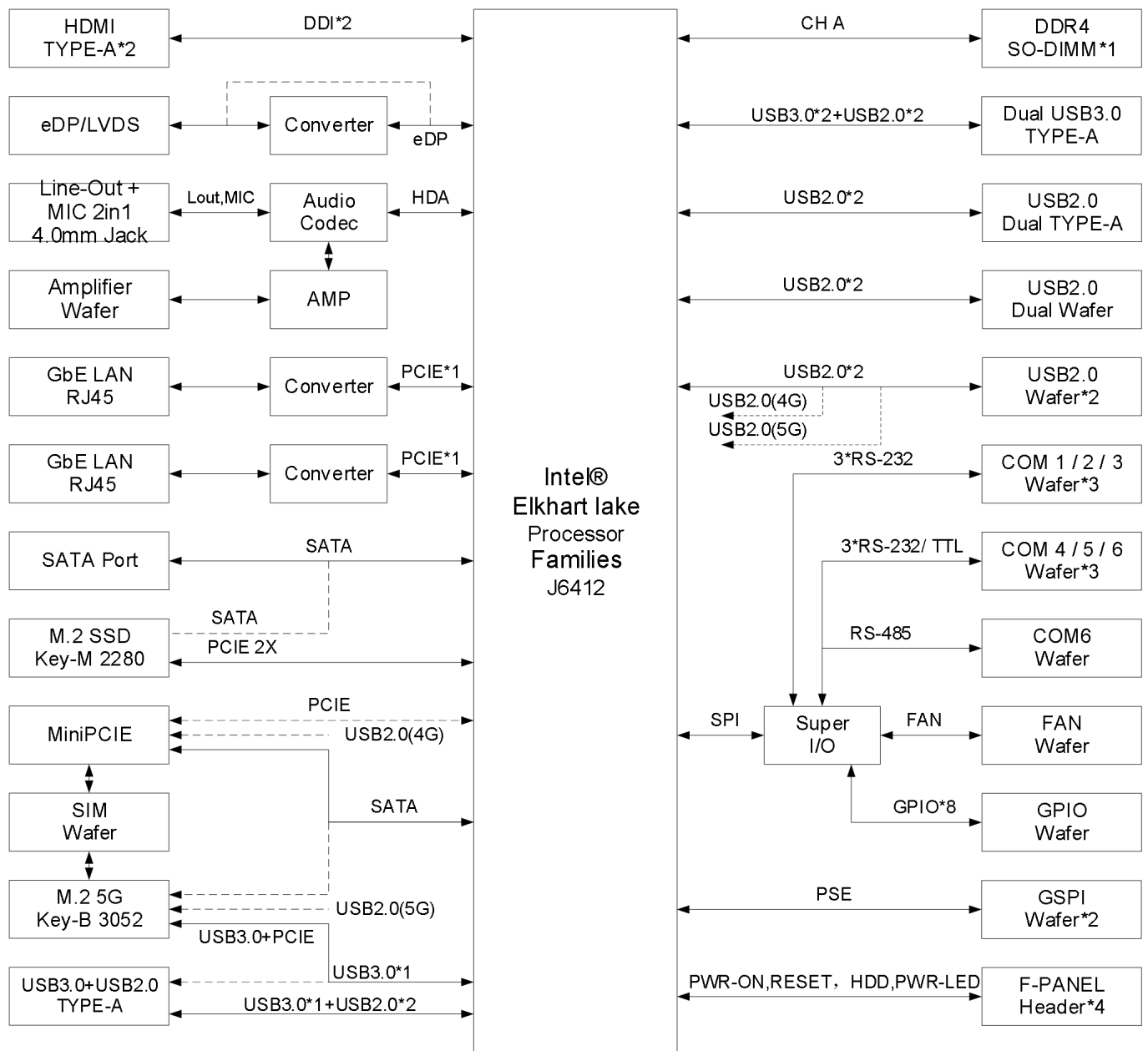
[1]: M.2 key-M slot supports PCIe x2 NVMe /SATA SSD, sel by res. Colay SATA signal with SATA3.0 7P connector.

[2]: Mini PCI-E Slot supports SATA/PCIe+USB2.0, sel by res. Colay SATA signal with M.2 key-B slot. Colay USB2.0 signal with F_USB3 Header.

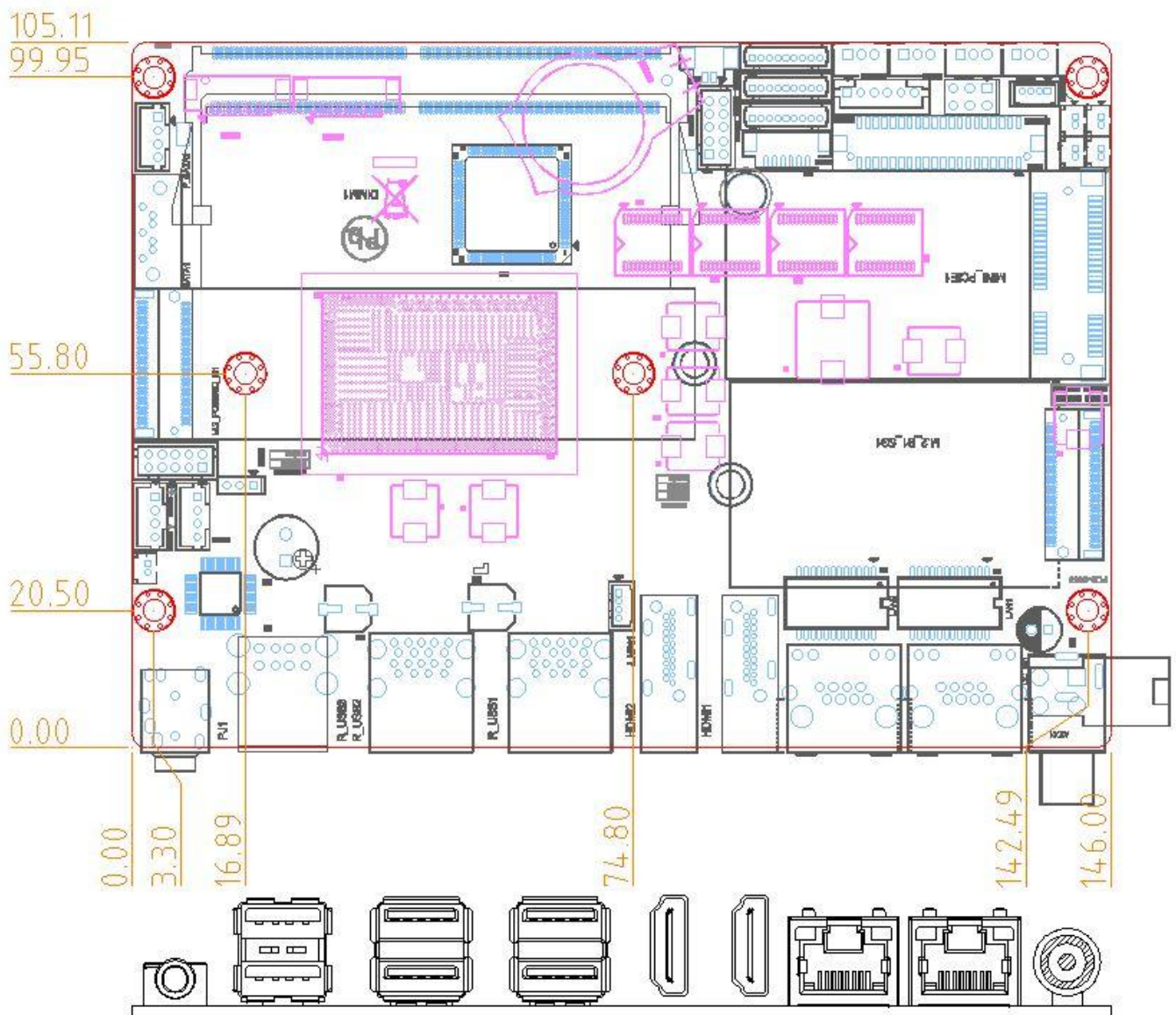
[3]: PCIe x2 Gen3/Gen4 determined by the CPU.

[4]: M.2 key-B slot supports PCIe/USB3.0/mSATA+ USB2.0, sel by res. Colay SATA signal with Mini PCI-E slot. Colay USB2.0 signal with F_USB2 Header. Colay PCIe/USB3.0 signal with R_USB2_UP Connector.

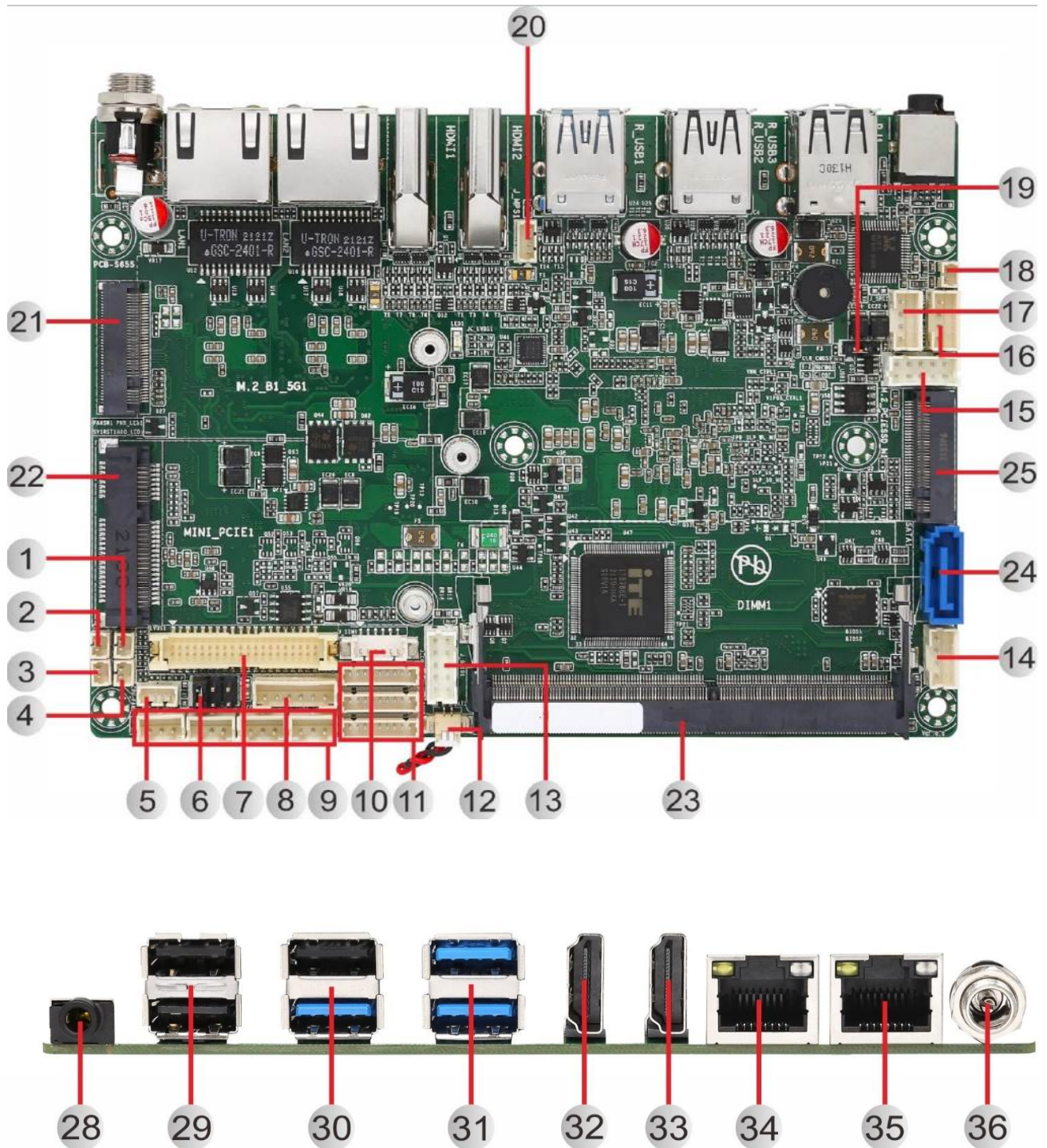
3.Functional Block Diagram

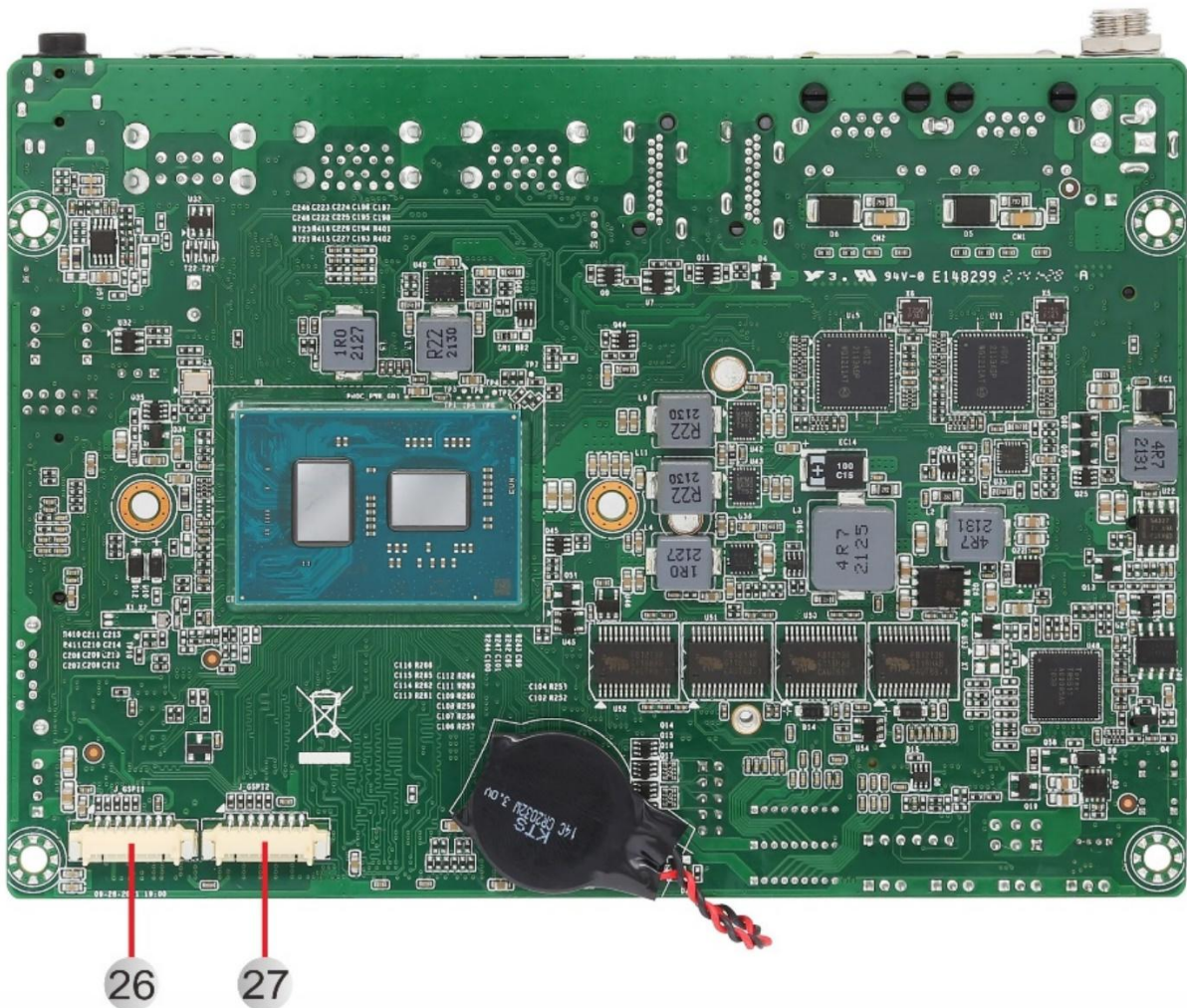


4. Mechanical Drawing



5. Jumpers / Headers and Connectors





Jumpers / Headers and Connectors

1	PWR_LED1	Power LED Header
2	PANSW1	Power Button Header
3	SYSRST1	System Reset Header
4	HDD_LED1	HDD LED Header
5	CPU_FAN1	CPU FAN Header
6	JC_LVDS1	LVDS VDD Select Jumper
7	LVDS1	LVDS Signal Header
8	LVDS_P1	LVDS Backlight Control Header
9	J_COM4/5/6/6_1	COM4/5/6/6_1 Header
10	J_SIM1	SIM Card Header
11	J_COM1/2/3	COM1/2/3 Header
12	BAT1	CMOS Battery Header
13	J_GPIO1	GPIO Header
14	P_SATA1	SATA Power Header

15	F_USB1	Front USB2.0 Header1
16	F_USB2	Front USB2.0 Header2
17	F_USB3	Front USB2.0 Header3
18	J_SPK1	Amplifier Header
19	CLR_CMOS1	CMOS Clear Jumper
20	J_MPS1	MPS Header
21	M.2_B1_5G1	M.2 (NGFF) Key-B Slot (PCIe/USB3.0+USB2.0, 3052/3042, Support 4G/5G)
22	MINI_PCIE1	Mini PCI-E Slot (mSATA)
23	DIMM1	DDR4 SO-DIMM Slot
24	SATA1	SATA3.0 7P Connector
25	M.2_PCIESSD_M1	M.2 (NGFF) Key-M Slot (PCIe x2 NVMe SSD, 2280)
26	J_GSPI1	GSPI Header1
27	J_GSPI2	GSPI Header2
28	PJ1	Line-Out + MIC 2in1 4.0mm Jack
29	R_USB3	Dual USB2.0 TYPE-A Connector
30	R_USB2	Dual USB3.0 TYPE-A Connector
31	R_USB1	Dual USB3.0 TYPE-A Connector
32	HDMI2	HDMI Upright TYPE-A Connector2
33	HDMI1	HDMI Upright TYPE-A Connector1
34	LAN2	GBE LAN RJ45 Connector2
35	LAN1	GBE LAN RJ45 Connector1
36	DC_IN1(ATX1)	DC 12V Power Input Φ 2.5mm Jack

6. Definition of Jumpers /Headers and Connectors

1) PWR_LED1 (Power LED Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	2	GND

2) PANSW1 (Power Button Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	PANSWH#	2	GND

3) SYSRST1 (System Reset Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	SYS_RESET#	2	GND

4) HDD_LED1 (HDD LED Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	2	HD_LED#

5) CPU_FAN1 (CPU FAN Header 4*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection
	2	+ 5V [1]	4	FAN Speed Control

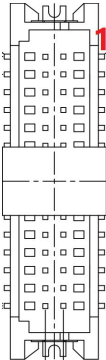
Notes:

[1]: Power of CPU_FAN1 is + 5V by default, can support + 12V if specified. (resistor selectable)

6) JC_LVDS1 (LVDS VDD Select Jumper 3*2 Pin 2.54 mm)

Graphic	Setting	Function
	1-2(Default)	3.3V
	3-4	5V
	5-6	12V

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

Graphic	Pin	Definition	Pin	Definition
	2	VDD_PANEL ^[1]	1	VDD_PANEL ^[1]
	4	GND	3	LVDS_PRSENT#
	6	VDD_PANEL ^[1]	5	VDD_PANEL ^[1]
	8	LVDS_B_DATA0-/ EDP1_TX0- ^[2]	7	LVDS_A_DATA0-
	10	LVDS_B_DATA0+/ EDP1_TX0+ ^[2]	9	LVDS_A_DATA0+
	12	GND	11	GND
	14	LVDS_B_DATA1-/ EDP1_TX1- ^[2]	13	LVDS_A_DATA1-
	16	LVDS_B_DATA1+/ EDP1_TX1+ ^[2]	15	LVDS_A_DATA1+
	18	GND	17	GND
	20	LVDS_B_DATA2-/ EDP1_TX2- ^[2]	19	LVDS_A_DATA2-
	22	LVDS_B_DATA2+/ EDP1_TX2- ^[2]	21	LVDS_A_DATA2+
	24	GND	23	GND
	26	LVDS_B_CLK-/ EDP1_TX3- ^[2]	25	LVDS_A_CLK-
	28	LVDS_B_CLK+/ EDP1_TX1+ ^[2]	27	LVDS_A_CLK+
	30	GND	29	GND
	32	EDP1_HPD_C	31	N/C
	34	GND	33	GND
	36	LVDS_B_DATA3-/ EDP1_AUX- ^[2]	35	LVDS_A_DATA3-
	38	LVDS_B_DATA3+/ EDP1_AUX+ ^[2]	37	LVDS_A_DATA3+

	40	GND	39	N/C
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Notes:

[1]: Panel Power VDD can be 3.3V (default) /5V/12V selectable by “LVDS1 VDD Select Jumper”.
(JC_LVDS1, Location 6).

[2]: It supports LVDS by default, and it also can support eDP if specified. (BOM selectable).

8) LVDS_P1 (LVDS Backlight Control Header 6*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	4	LVDS _BKLT_EN
	2	GND	5	+ 12V
	3	LVDS_BKLT_CTL	6	+ 12V

9) J_COM4/5/6/6_1 (COM4/5/6/6_1 Header 3*1 Pin 2.00mm)

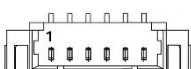
Graphic	Pin	Definition	Pin	Definition
 J_COM4	1	COM4_RXD	3	GND
	2	COM4_TXD		

Graphic	Pin	Definition	Pin	Definition
 J_COM5	1	COM5_RXD	3	GND
	2	COM5_TXD		

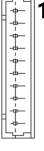
Graphic	Pin	Definition	Pin	Definition
 J_COM6	1	COM6_RXD	3	GND
	2	COM6_TXD		

Graphic	Pin	Definition	Pin	Definition
 J_COM6_1	1	COM6_RS485+	3	GND
	2	COM6_RS485-		

10) J_SIM1 (SIM Card Header 6*1 Pin 1.25mm)

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

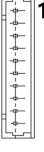
11) J_COM1/2/3 (COM1/2/3 Header 9*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
 J_COM1	1	COM1_PIN1 ^[1]	6	COM1_CTS#
	2	COM1_DSR#	7	COM1_DTR#
	3	COM1_RXD	8	COM1_PIN9 ^[2]
	4	COM1_RTS#	9	GND
	5	COM1_TXD		

Notes:

[1]: PIN1 of J_COM1 is DCD# by default, 5V/12V is selectable. (resistor selectable)

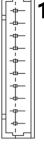
[2]: PIN9 of J_COM1 is RI# by default, 5V is selectable. (resistor selectable)

Graphic	Pin	Definition	Pin	Definition
 J_COM2	1	COM2_PIN ^[1]	6	COM2_CTS#
	2	COM2_DSR#	7	COM2_DTR#
	3	COM2_RXD	8	COM2_PIN9 ^[2]
	4	COM2_RTS#	9	GND
	5	COM2_TXD		

Notes:

[1]: PIN1 of J_COM2 is DCD# by default, 5V/12V is selectable. (resistor selectable)

[2]: PIN9 of J_COM2 is RI# by default, 5V is selectable. (resistor selectable)

Graphic	Pin	Definition	Pin	Definition
 J_COM3	1	COM3_PIN1 ^[1]	6	COM3_CTS#
	2	COM3_DSR#	7	COM3_DTR#
	3	COM3_RXD	8	COM3_PIN9 ^[2]
	4	COM3_RTS#	9	GND
	5	COM3_TXD		

Notes:

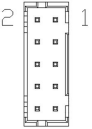
[1]: PIN1 of J_COM3 is DCD# by default, 5V/12V is selectable. (resistor selectable)

[2]: PIN9 of J_COM3 is RI# by default, 5V is selectable. (resistor selectable)

12) BAT1 (CMOS Battery Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 3.3V	2	GND

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

Graphic	Pin	Definition	Pin	Definition
	2	SIO_GPI70 (0xA06 Bit0, H ^[1])	1	SIO_GPI71 (0xA06 Bit1, H ^[1])
	4	SIO_GPI72 (0xA06 Bit2, H ^[1])	3	SIO_GPI73 (0xA06 Bit3, H ^[1])
	6	SIO_GPO74 (0xA06 Bit4, H ^[1])	5	SIO_GPO75 (0xA06 Bit5, H ^[1])
	8	SIO_GPO76 (0xA06 Bit6, H ^[1])	7	SIO_GPO77 (0xA06 Bit7, H ^[1])
	10	+ 3.3V ^[2]	9	GND

Notes:

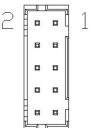
[1]: H" or "L" means the default voltage is High or Low level.

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

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

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

15) F_USB1 (Front USB2.0 Header1 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	2	+ 5V	1	+ 5V
	4	USB2_9-	3	USB2_10-
	6	USB2_9+	5	USB2_10+
	8	GND	7	GND
	10	N/C	9	GND

16) F_USB2 (Front USB2.0 Header2 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2_CN_1+
	2	USB2_CN_1-	4	GND

17) F_USB3 (Front USB2.0 Header3 4*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	3	USB2_CN_2+
	2	USB2_CN_2-	4	GND

18) J_SPK1 (Amplifier Header 2*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	SPK_OUT+	2	SPK_OUT-

19) CLR_CMOS1 (CMOS Clear Jumper 3*1 Pin 2.00mm)

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

20) J_MPS1 (MPS Header 4*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	VCCIN_SDA	3	VCCIN_PE
	2	VCCIN_SCL	4	GND

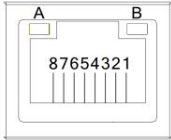
26) J_GSPI1 (GSPI Header1 8*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	PSE_SPI0_CLK	5	PSE_SPI0_CS1
	2	PSE_SPI0_MOSI	6	GND
	3	PSE_SPI0_MISO	7	+ 3.3V
	4	PSE_SPI0_CS0	8	N/C

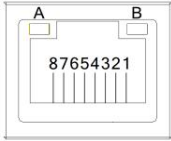
27) J_GSPI2 (GSPI Header2 8*1 Pin 1.25mm)

Graphic	Pin	Definition	Pin	Definition
	1	PSE_SPI3_CLK	5	PSE_SPI3_CS1
	2	PSE_SPI3_MOSI	6	GND
	3	PSE_SPI3_MISO	7	+ 3.3V
	4	PSE_SPI3_CS0	8	N/C

34) LAN2 (GBE LAN RJ45 Connector2 8Pin)

Graphic	Pin	Definition	Pin	Definition
	1	XMDI2_0+	5	XMDI2_2-
	2	XMDI2_0-	6	XMDI2_1-
	3	XMDI2_1+	7	XMDI2_3+
	4	XMDI2_2+	8	XMDI2_3+
	A	Active LED	B	Speed LED
		ACT: Twinkling Yellow		1000M: Turn Yellow
		Only LINK: Lights Off		100M: Turn Green
		Stop: Lights Off		10M: Lights Off

35) LAN1 (GBE LAN RJ45 Connector1 8Pin)

Graphic	Pin	Definition	Pin	Definition
	1	XMDI1_0+	5	XMDI1_2-
	2	XMDI1_0-	6	XMDI1_1-
	3	XMDI1_1+	7	XMDI1_3+
	4	XMDI1_2+	8	XMDI1_3+
	A	Active LED	B	Speed LED
		ACT: Twinkling Yellow		1000M: Turn Yellow
		Only LINK: Lights Off		100M: Turn Green
		Stop: Lights Off		10M: Lights Off

7. BIOS setup

Check with Technica House Inc. for detail BIOS setup.

【End】