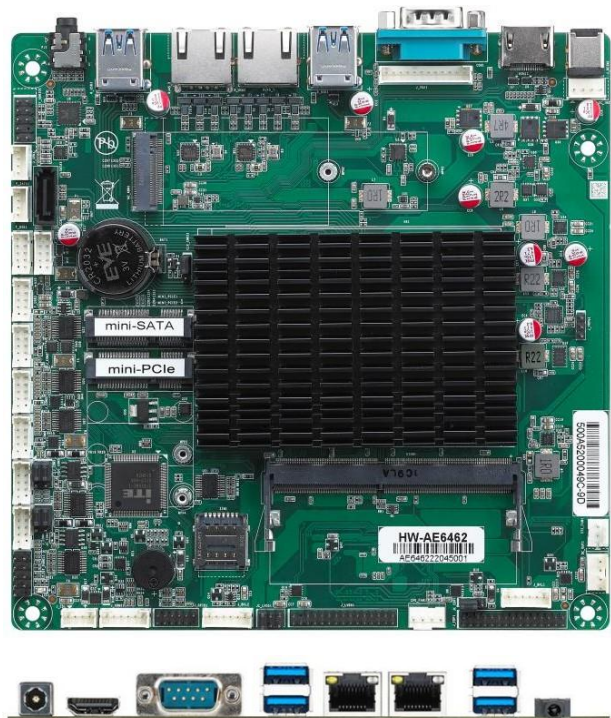


HW-E6462 Series

Ver 0.1

HW-AE6462 Series

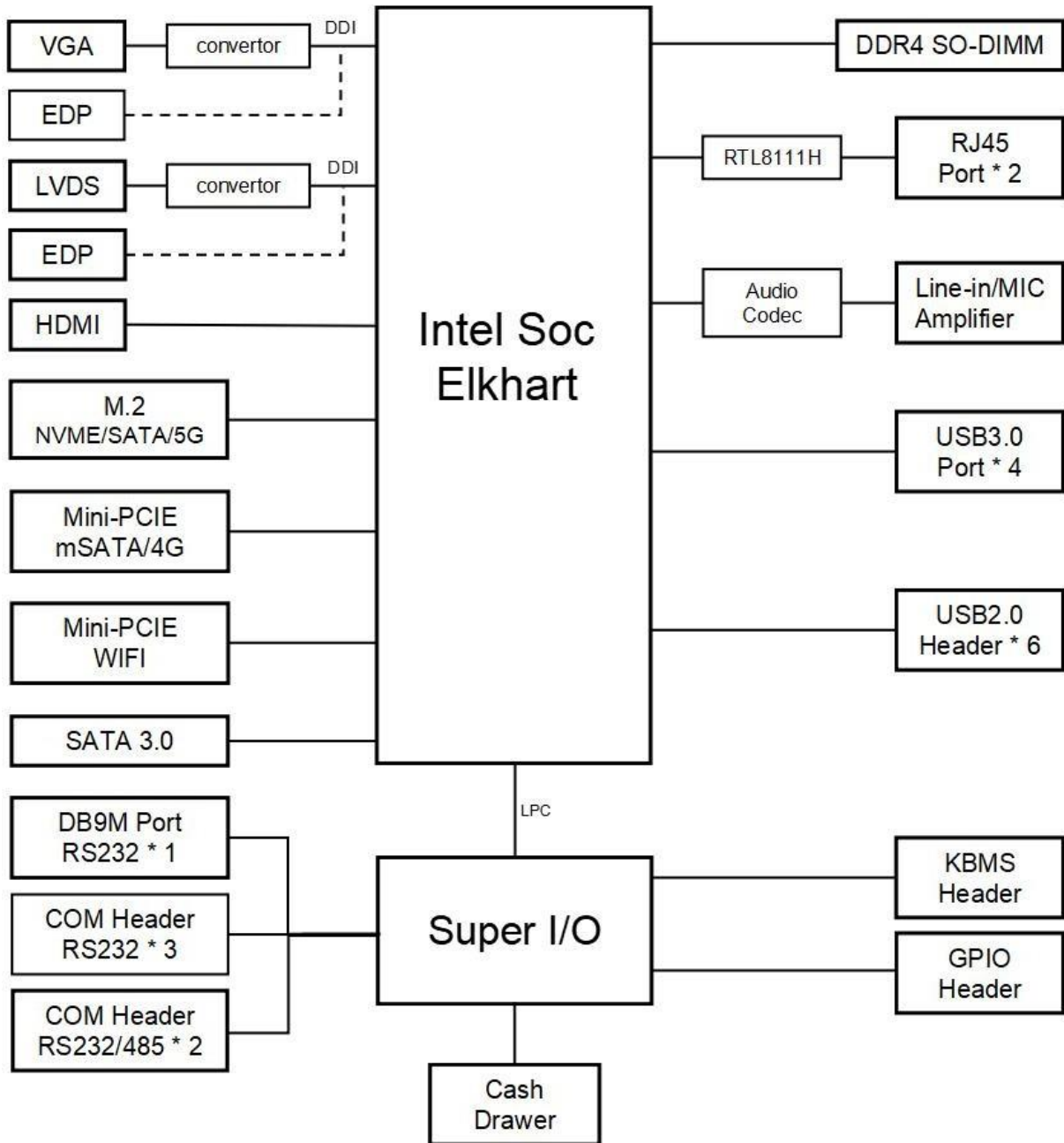
- Intel Elkhart Lake Pentium/Celeron CPU
- 6*COM, 4*USB3.0, 6*USB2.0, 2*Gigabit LAN
- 1*LVDS/eDP, 1*HDMI, 1*VGA/eDP
(Support triple display simultaneously)
- 2*Mini-PCIe, support mSATA and Wifi/4G/BT
1*M.2, support NVMe/SATA/5G
- Mini-ITX, DC 12V Power Input



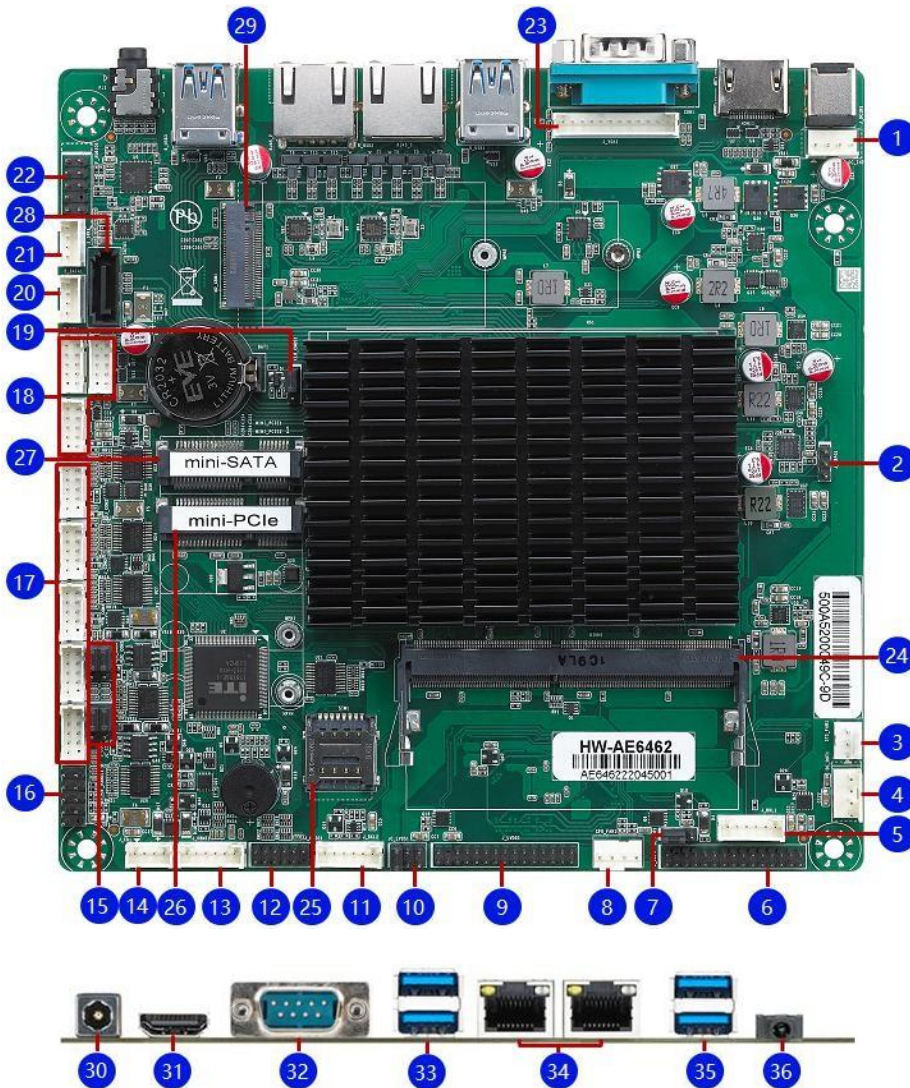
1. Specification

| Model | HW-AE6462 | HW-AE646 |
|----------------------------|--|---|
| CPU | Intel® Celeron® J6412 Base Frequency 2.0G, Quad-core, TDP 10W | |
| Display | Support triple display simultaneously: 1 * VGA/eDP: VGA,max resolution up to 1920*1200@60Hz eDP, resolution up to 4096x2160@60Hz 1 * LVDS/eDP: LVDS, resolution up to 1920x1200@60Hz eDP, resolution up to 4096x2160@60Hz 1 * HDMI: resolution up to 4096x2160@24Hz | |
| Memory | DDR4-3200,1*SO-DIMM, up to 32 GB | |
| Storage | 1 * SATA3.0 7P Connector 1 * mSATA (3.0) | |
| Expansion Interface | 2 * Mini-PCle (1*mSATA, 1*Wifi supported with 3G/4G selectable) 1 * M.2(NVMe with SATA/5G selectable) | |
| Ethernet | 2*Realtek® 1Gbps PCIe Ethernet Controller, RJ45 | 1 * Realtek® 1Gbps PCIe Ethernet Controller, RJ45 |
| Audio | Realtek® HDA Codec, with MIC/Line-out and Amplifier 1 * Front Audio Header (Line-Out + MIC) 1 * Line-Out/MIC 2in1 Phone Jack | |
| COM | 4 * RS232(1*Connector&3*Header) 2 * RS232/RS485(2*Header) | |
| USB | 4 * USB3.0 (Rear I/O, TYPE-A) 6 * USB2.0 (Internal, Header) | 4 * USB3.0 (Rear I/O, TYPE-A) 2 * USB2.0 (Rear I/O, TYPE-A) 4 * USB2.0 (Internal, Header) |
| Other Ports | 1 * Cash Drawer Header 1 * VGA Header 1 * Micro SIM Card Slot 1 * CPU FAN Header 1 * System FAN Header 1 * Front Panel Header 1 * GPIO Header 1 * CMOS Clear Jumper | |
| System | Windows10/11, Linux | |
| Temperature | Storage: -20~75°C Operating: -15°~60°C | |
| BIOS | AMI UEFI BIOS (Support Watchdog Timer) | |
| Power Input | DC 12V 1 * Power Input Connector | |
| Factor | MINI-ITX Standard (170mm * 170mm) | |

2. Data Flow



3. Marking instruction



Connector&Header

| | |
|----|---------------------------------------|
| 1 | DC 12V Power Input Connector |
| 2 | VRM Power PROGRAM I/F |
| 3 | System Fan Connector |
| 4 | DC12V/5V Power Output Connector |
| 5 | EDP Backlight Control Pin Header |
| 6 | EDP Signal Pin Header |
| 7 | EDP VDD Select Jumper |
| 8 | CPU Fan Connector |
| 9 | LVDS Signal Pin Header |
| 10 | LVDS VDD Select Jumper |
| 11 | LVDS Backlight Control Pin Header |
| 12 | GPIO Pin Header |
| 13 | Keyboard&Mouse Pin Header |
| 14 | Cash Drawer Pin Header |
| 15 | COM5/6 RS232/485 Signal Select Jumper |
| 16 | Front Panel Pin Header |
| 17 | COM2/3/4/5/6 Pin Headers |
| 18 | Front USB Pin Headers |
| 19 | CMOS Clear Jumper |
| 20 | SATA Power Pin Header |
| 21 | Amplifier Pin Header |
| 22 | Front Audio Pin Header |
| 23 | VGA Pin Header |
| 24 | DDR4 SO-DIMM Slot |
| 25 | SIM Card Slot |
| 26 | Mini PCI-E2 Slot (WIFI) |
| 27 | Mini PCI-E1 Slot (mSATA) |
| 28 | SATA 3.0 Connector |
| 29 | M.2 Connector |
| 30 | DC 12V Power Input Connector |
| 31 | HDMI Connector |
| 32 | COM Connector |
| 33 | USB3.0 Connectors |
| 34 | LAN Connectors |
| 35 | USB3.0 Connectors |
| 36 | Mic-in/Line-out Connector |

4. Definition

[1] DC12V Power Input Connector(4*1 Pin 2.54mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 1 | DC_IN1 | 1 | + 12V | 2 | + 12V |
| | | 3 | GND | 4 | GND |

[2] VRM Power PROGRAM I/F (3*1 Pin 2.54mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 2 | J_VRPG1 | 1 | VRM_SCL | 2 | GND |
| | | 3 | VRM_SDA | | |

[3] System FAN Connector (3*1 Pin 2.54mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|---------------------|-----|------------|
| 3 | SYS_FAN1 | 1 | GND | 2 | + 12V |
| | | 3 | FAN Speed Detection | | |

[4] DC12V/5V Power Output Connector (4*1 Pin 2.54mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 4 | DC_OUT1 | 1 | + 12V | 2 | GND |
| | | 3 | GND | 4 | + 5V |

[5] EDP Backlight Control Pin Header(6*1 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|-------------|-----|------------|
| 5 | J_BKL1 | 1 | GND | 2 | GND |
| | | 3 | EDP_BKL_CTL | 4 | EDP_BKL_EN |
| | | 5 | + 12V | 6 | + 12V |

[6] EDP Signal Pin Header (15*2 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|-----------------------|-----|--------------------|-----|--------------------|
| 6 | J_EDP1 ^[2] | 1 | VDD ^[1] | 2 | VDD ^[1] |
| | | 3 | VDD ^[1] | | |
| | | 5 | EDP_HPD# | 6 | EDP_HPD# |
| | | 7 | N/C | 8 | N/C |
| | | 9 | N/C | 10 | N/C |
| | | 11 | N/C | 12 | N/C |
| | | 13 | GND | 14 | GND |
| | | 15 | N/C | 16 | N/C |
| | | 17 | N/C | 18 | N/C |
| | | 19 | EDP_TX0- | 20 | EDP_TX0+ |
| | | 21 | EDP_TX1- | 22 | EDP_TX1+ |
| | | 23 | N/C | 24 | N/C |
| | | 25 | GND | 26 | GND |
| | | 27 | N/C | 28 | N/C |
| | | 29 | EDP_AUX- | 30 | EDP_AUX+ |

Notes:

[1] Panel Power VDD is 3.3V by default, 5V is selectable by "EDP VDD Select Jumper" (JC_EDP1, Location 7).

[2] J_EDP1 is unavailable because it share the same signal with VGA(resistor selectable).

[7] EDP VDD Select Jumper (3*2 Pin 2.54mm)

| No. | Location | Setting | Function |
|-----|----------|--------------|----------|
| 7 | JC_EDP1 | 1-2(Default) | + 3.3V |
| | | 2-3 | + 5V |

[8] CPU Fan Connector (4*1 Pin 2.54mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|---------------------|-----|-------------------|
| 8 | CPU_FAN1 | 1 | GND | 2 | + 12V |
| | | 3 | FAN Speed Detection | 4 | FAN Speed Control |

[9] LVDS Signal Pin Header (15*2 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|----------------------------|-----|----------------------------|
| 9 | J_LVDS1 | 1 | VDD [1] | 2 | VDD [1] |
| | | 3 | VDD [1] | | |
| | | 5 | LVDS_Detect#/ EDP_HPD# | 6 | LVDS_Detect#/ EDP_HPD# |
| | | 7 | LVDS_A_DATA0-/ N/C | 8 | LVDS_A_DATA0+/ N/C |
| | | 9 | LVDS_A_DATA1-/ N/C | 10 | LVDS_A_DATA1+/ N/C |
| | | 11 | LVDS_A_DATA2-/ N/C | 12 | LVDS_A_DATA2+/ N/C |
| | | 13 | GND | 14 | GND |
| | | 15 | LVDS_A_CLK-/ N/C | 16 | LVDS_A_CLK+/ N/C |
| | | 17 | LVDS_A_DATA3-/ N/C | 18 | LVDS_A_DATA3+/ N/C |
| | | 19 | LVDS_B_DATA0-/ EDP_TX0- | 20 | LVDS_B_DATA0+/ EDP_TX0+ |
| | | 21 | LVDS_B_DATA1-/ EDP_TX1- | 22 | LVDS_B_DATA1+/ EDP_TX1+ |
| | | 23 | LVDS_B_DATA2-/ N/C | 24 | LVDS_B_DATA2+/ N/C |
| | | 25 | GND | 26 | GND |
| | | 27 | LVDS_B_CLK-/ N/C | 28 | LVDS_B_CLK+/ N/C |
| | | 29 | LVDS_B_DATA3-/ EDP_AUX- | 30 | LVDS_B_DATA3+/ EDP_AUX+ |

Notes:

[1] Panel Power VDD is 3.3V by default, 5V or 12V is selectable by "LVDS VDD Select Jumper" (JC_LVDS1, Location 10).

[2] It also can support EDP if specified(resistor selectable).

[10] LVDS VDD Select Jumper (3*2 Pin 2.54mm)

| No. | Location | Setting | Function |
|-----|----------|--------------|----------|
| 10 | JC_LVDS1 | 1-2(Default) | + 3.3V |
| | | 3-4 | + 5V |
| | | 5-6 | + 12V |

[11] LVDS Backlight Control Pin Header(6*1 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|--------------|-----|-------------|
| 11 | J_BKL2 | 1 | GND | 2 | GND |
| | | 3 | LVDS_BKL_CTL | 4 | LVDS_BKL_EN |
| | | 5 | + 12V | 6 | + 12V |

[12] GPIO Pin Header (6*2 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|---------------------------|-----|---------------------------|
| 12 | J_GPIO1 | 1 | SIO_GPI80 (0xA07 Bit0) | 2 | SIO_GPI81 (0xA07 Bit1) |
| | | 3 | SIO_GPI82 (0xA07 Bit2) | 4 | SIO_GPI83 (0xA07 Bit3) |
| | | 5 | GND | 6 | SIO_GPO84 (0xA07 Bit4) |
| | | 7 | SIO_GPO85 (0xA07 Bit5) | 8 | SIO_GPO86 (0xA07 Bit6) |
| | | 9 | SIO_GPO87 (0xA07 Bit7) | 10 | + 3.3V |
| | | | | 12 | N/C |

[13] Keyboard&Mouse Pin Header (6*1 Pin 2.0mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 13 | J_KBMS1 | 1 | KB_CLK | 2 | KB_DAT |
| | | 3 | MS_CLK | 4 | GND |
| | | 5 | + 5V | 6 | MS_DAT |

[14] Cash Drawer Pin Header (4*1 Pin 2.0mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 14 | J_CD1 | 1 | + 12V | 2 | CD_RTN# |
| | | 3 | CD_DEC# | 4 | GND |

[15] COM5/6 RS232/RS485 Select Jumpers (3*2 Pin 2.54mm)

| No. | Location | Settings | Function |
|-----|-----------|-------------------|----------|
| 15 | JC_COM5/6 | 1-3、 2-4(Default) | RS232 |
| | | 3-5、 4-6 | RS485 |

[16] Front Panel Pin Header (5*2 Pin 2.54 mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 16 | F_PANEL1 | 1 | HD LED+ | 2 | Power LED+ |
| | | 3 | HD LED- | 4 | Power LED- |
| | | 5 | RESET- | 6 | PWR+ |
| | | 7 | RESET+ | 8 | PWR- |
| | | 9 | N/C | | |

[17] COM2/3/4/5/6 Pin Header (5*2 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|--------|----------|-----|--------------------|-----|------------|
| 17 | J_COM2 | 1 | DCD ^[1] | 2 | RXD |
| | | 3 | TXD | 4 | DTR# |
| | | 5 | GND | 6 | DSR# |
| | | 7 | RTS# | 8 | CTS# |
| | | 9 | RI# ^[2] | | |
| | J_COM3 | 1 | DCD ^[3] | 2 | RXD |
| | | 3 | TXD | 4 | DTR# |
| | | 5 | GND | 6 | DSR# |
| | | 7 | RTS# | 8 | CTS# |
| | | 9 | RI# ^[4] | | |
| J_COM4 | 1 | DCD | 2 | RXD | |

| | | | | | |
|--------|--------|------|---------------------|--------------------|--------------------|
| | | 3 | TXD | 4 | DTR# |
| | | 5 | GND | 6 | DSR# |
| | | 7 | RTS# | 8 | CTS# |
| | | 9 | RI#[⁴] | | |
| | J_COM5 | 1 | DCD | 2 | RXD ^[1] |
| | | 3 | TXD | 4 | DTR# |
| | | 5 | GND | 6 | DSR# |
| | | 7 | RTS# | 8 | CTS# |
| | | 9 | RI# | | |
| J_COM6 | 1 | DCD | 2 | RXD ^[5] | |
| | 3 | TXD | 4 | DTR# | |
| | 5 | GND | 6 | DSR# | |
| | 7 | RTS# | 8 | CTS# | |
| | 9 | RI# | | | |

Note:

[1] Pin1 of J_COM2 also can be 5V(resistor selectable).

[2] Pin9 of J_COM2 also can be 5V(BIOS selectable).

[3] Pin1 of J_COM3 also can be 12V(resistor selectable).

[4] Pin9 of J_COM3/4 also can be 12V(BIOS selectable).

[5] J_COM5/6 support RS232 by default, and also can support RS485 selected by JC_COM5/6(Location15).

[18] Front USB Pin Headers (5*2 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|---------------------|-----|---------------------|
| 18 | F_USB1 | 1 | + 5 V | 2 | + 5 V |
| | | 3 | USB- | 4 | USB- |
| | | 5 | USB+ | 6 | USB+ |
| | | 7 | GND | 8 | GND |
| | | | | 10 | GND |
| | F_USB2 | 1 | + 5 V | 2 | + 5 V |
| | | 3 | USB- ^[1] | 4 | USB- ^[2] |
| | | 5 | USB+ ^[1] | 6 | USB+ ^[2] |
| | | 7 | GND | 8 | GND |
| | | | | 10 | GND |

| | | | | |
|--------|---|-------|----|-------|
| F_USB3 | 1 | + 5 V | 2 | + 5 V |
| | 3 | USB- | 4 | USB- |
| | 5 | USB+ | 6 | USB+ |
| | 7 | GND | 8 | GND |
| | | | 10 | GND |

Note:

[1] This pair signal of F_USB2 will be invaluable if MINI-PCIE2 support 3G/4G.

[2] This pair signal of F_USB2 will be invaluable if M.2 support 5G.

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

| No. | Location | Setting | Function |
|-----|----------|--------------|------------|
| 19 | CLR_CMOS | 1-2(Default) | Normal |
| | | 2-3 | Clear CMOS |

[20] SATA Power Pin Header (4*1 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 20 | P_SATA1 | 1 | + 12V | 2 | GND |
| | | 3 | GND | 4 | + 5V |

[21] Amplifier Pin Header (2*1 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 21 | J_SPK1 | 1 | SPK_L- | 2 | SPK_L+ |
| | | 3 | SPK_R- | 4 | SPK_R+ |

[22] Front Audio Pin Header (5*2 Pin 2.54mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|-------------|
| 22 | F_AUDIO1 | 1 | FP_MIC_L | 2 | GND |
| | | 3 | FP_MIC_R | 4 | + 3.3V |
| | | 5 | FP_OUT_R | 6 | MIC_Detect |
| | | 7 | GND | | |
| | | 9 | FP_OUT_L | 10 | LINE_Detect |

[23] VGA Pin Header (12*1 Pin 2.00mm)

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 23 | J_VGA1 | 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) Connector and J_VGA1 share the same signal and can't be accessed simultaneously.

[24] COM1 Connector

| No. | Location | Pin | Definition | Pin | Definition |
|-----|----------|-----|------------|-----|------------|
| 32 | COM1 | 1 | DCD | 2 | RXD |
| | | 3 | TXD | 4 | DTR# |
| | | 5 | GND | 6 | DSR# |
| | | 7 | RTS# | 8 | CTS# |
| | | 9 | RI#[1] | | |

Note:

[1] Pin9 of COM1 also can be 5V(BIOS selectable).

【END】