MX310HD

Intel® H310 PCH

Supports Coffee Lake (8th Gen)/ Coffee Lake Refresh (9th Gen) i7/i5/i3/Pentium processors
(Supports "up to 6 Cores" and "up to TDP 65W" type processors only)
Mini ITX Motherboard

User's Quick Start Card	Version 1.02	**http://www.bcmcom.com**

MX310HD

• Responsibility:

This manual is provided "As-Is" with no warranties of any kind, it will neither expressed or implied, including, but not limited to the implied warranties or conditions of this product's fitness for any particular purpose. In no event shall we be liable for any loss of profits, loss of business, loss of data, interruption of business, or indirect, special, incidental, or consequential damages of any kind, even the possibility of such damages arising from any defect or error in this manual or product. We reserve the right to modify and update the user manual without prior notice.

⚠ **WARNING: CMOS Battery Damage**

Replace your system's CMOS RAM battery only with the identical CR-2032 3V Lithium-Ion coin cell (or equivalent) battery type to avoid risk of personal injury or physical damage to your equipment. Always dispose of used batteries according to the manufacturer's instructions, or as required by the local ordinance (where applicable). The damage due to not following this warning will void your motherboard's manufacturer warranty.

Perchlorate Material- Special Handling May Apply.
See http://www.dtsc.ca.gov/hazardouswaste/perchlorate/

⚠ **ATTENTION: Incorrect BIOS Setup**

If you do not know how to handle BIOS setup or how to set it up properly, it is strongly advisable that you do not modify any of the settings than otherwise instructed in the User's Quick Start Card. Even a seemingly small incorrect adjustment or modification in the BIOS setup can render your system unstable or unusable. The incorrect BIOS setup is not covered by your motherboard's manufacturer warranty.

• Additional Information:

Additional information on setting this board up can be found in the User's Manual in the provided CD-ROM. The Online User's Manual and FAQ/Knowledge Base can be found on our website by visiting our website: **http://www.bcmcom.com**. If your question is not answered in our FAQ/Knowledge Base, visit our forums and post your messages or submit a new FAQ through FAQ Submittal form for us to add your question in our FAQ with our answer.

⚠ WARNING: Electrostatic Sensitive Device (ESD)

Static electricity can easily damage your motherboard and will void your motherboard warranty. Keep the motherboard and other system components in their anti-static packaging until you are ready to install them. Touch a grounded surface before you remove any system component from its protective anti-static packaging. Unpacking and installation should be done on a grounded, anti-static mat. The operator should be wearing an anti-static wristband, grounded at the same points as the anti-static mat. During configuration and installation touch a grounded surface frequently to discharge any static electrical charge that may have built up in your body. Avoid touching the components when handling the motherboard or a peripheral card. Handle the motherboard and peripheral cards either by the edges or by the peripheral card case-mounting bracket.

⚠ WARNING: Misplaced Jumper Damage

Incorrect setting jumpers and connectors may lead to damage to your motherboard and will void your motherboard warranty. Please pay special attention not to connect these headers in wrong directions. DO NOT change ANY jumpers while the motherboard has the power!

Application Notes:

Please read the following application notes before proceed with the system setup and/or OS installation:

1. Windows 10 Drivers Installation

It is recommended to load the MX310HD drivers with the following sequence:

1. Update Win10 to the latest version through Windows Update by connecting Ethernet cable to MX310HD onboard i226V LAN (Located next to the rear I/O USB3.0 ports (blue color USB ports)).
2. Install "Intel LAN Driver" first.
3. Install "Intel INF Driver".
4. Install "Intel Video Driver".
5. Install "Realtek Audio Driver".
6. Install "Intel ME Driver".
7. Install "Intel Serial IO Driver".
8. Install "Intel RST Driver".
9. Make sure there is no exclamation mark shown for any device under Windows "Device Manager".

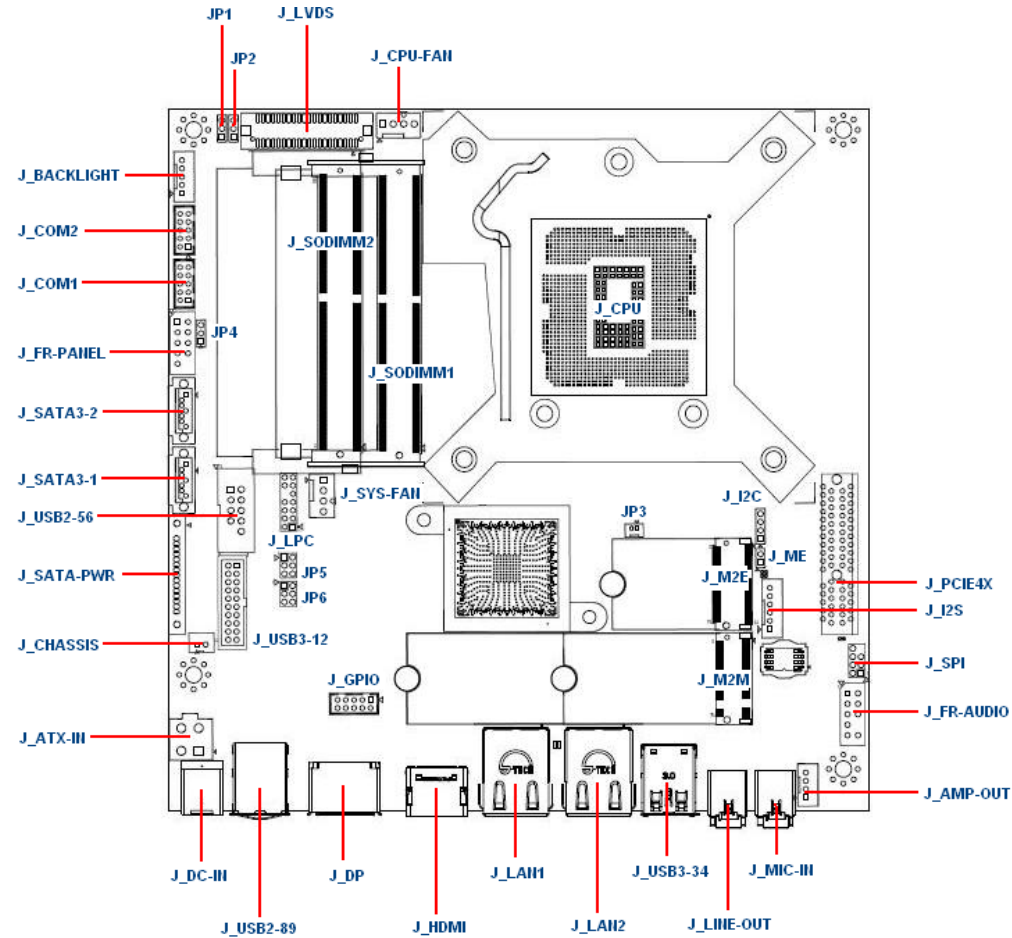### 2. Display through PCIe video card (installed on "J_PCIEX4" slot)

1. Enter BIOS.
2. Enter BIOS option "Chipset"->"Graphics Configuration"; change "Primary Display" to "IGFX".
3. Enter BIOS option "Chipset"->"Graphics Configuration"; change "Internal Graphics" to "Enabled".
4. Save & exit BIOS.
5. Power off system.
6. Keep the HDMI or DP port connected to the monitor A.
7. Install a PCIe video card on PCIe 4x slot (J_PCIE4X), and connect its video output to monitor B.
8. Boot the system into Windows 10 desktop.
9. Check under "Device Manager", and make sure the installed PCIe video card is being detected. (NOTE: If the installed PCIe video card is not being detected under device manager, it means this PCIe card is not compatible with MX310HD board).
10. Install the PCIe video card Win10 driver provided by PCIe video card manufacturer.
11. Reboot the system.
12. After the system rebooted and entered Win10 desktop. There should be no any exclamation mark shown for the installed PCIe video card. And there will be video output shown on monitor B (the one connected to PCIe video card).
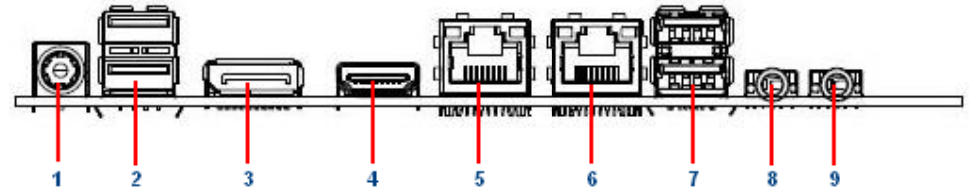
3. PXE Boot

1. Enter BIOS.
2. Enter BIOS option "Advanced"->"Network Stack Configuration"; Enable "Network Stack".
3. Set "Ipv4 PXE Support" to "Enabled".
4. Save and Exit BIOS.
5. Reboot the system.
6. Enter BIOS option "Boot"->"UEFI Network Drive BBS Priorities"; choose the desired boot LAN. (The chosen LAN device will also be displayed under "Fixed Boot Order Priorities" list.
7. Save and Exit BIOS.

Motherboard Layout:

• Board Layout:

• Back Panel (Rear I/O Ports):

Item	Name	Function	Description
1	J_DC-IN	AC adapter Connector	The port is for an AC adapter (12V-24V Wide Range DC-In) For +12V AC adapter, Max. current ~8A. For +19V AC adapter, Max. current ~8A. AC adapter connector dimension: Inner Diameter: 2.5 +/- 0.1mm Outer Diameter: 5.5 +/- 0.1mm
2	J_USB2-89	USB2.0 Ports	The USB2.0 Port Connectors
3	J_DP	Display Port	The Display Port Connector.
4	J_HDMI	HDMI Port	The HDMI Port Connector.
5	J_LAN1	Gigabit LAN (RJ-45) Connectors	This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.
6	J_LAN2	Gigabit LAN (RJ-45) Connectors	This port allows Gigabit connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications.
7	J_USB3-34	USB3.0 Ports	The USB3.0 Port connectors.
8	J_LINE-	Line-out port	This port connects a headphone or a speaker.

Item 5 (J_LAN1) LED table:

ACT/Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10Mbps connection
Orange	Linked	Green	100Mbps connection
Blinking	Data activity	Orange	1Gbps connection

Item 6 (J_LAN2) LED table:

ACT/Link LED		Speed LED	
Status	Description	Status	Description
OFF	No link	OFF	10Mbps connection
Orange	Linked	Green	100Mbps connection
Blinking	Data activity	Orange	1Gbps connection

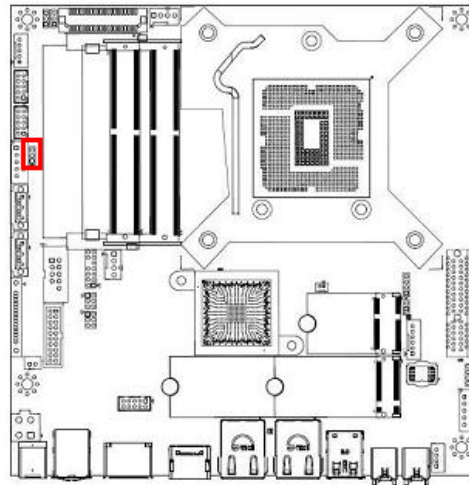|	OUT	(Lime)	
9	J_MIC-IN	Microphone port (Pink)	This port connects a microphone.

Jumpers, Connectors, & Headers:

• 12V-24V Wide Range ATX Power Connector: J_ATX-IN (4-pin)

(Note: This header doesn't need to be connected to an ATX power supply if an AC adapter is connected to "J_DC-IN" connector.)
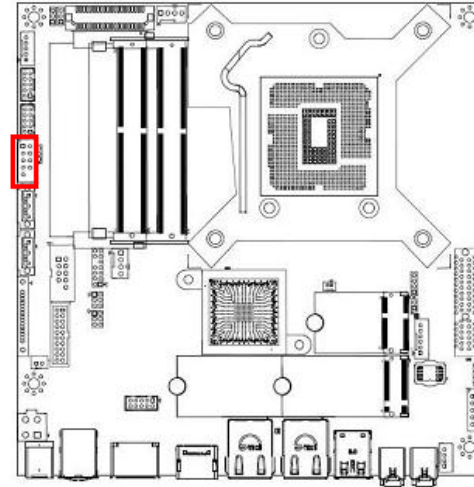
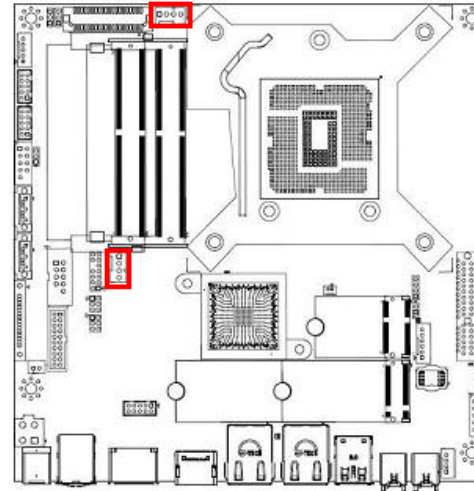Maximum Current Limit: 8A.
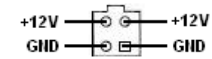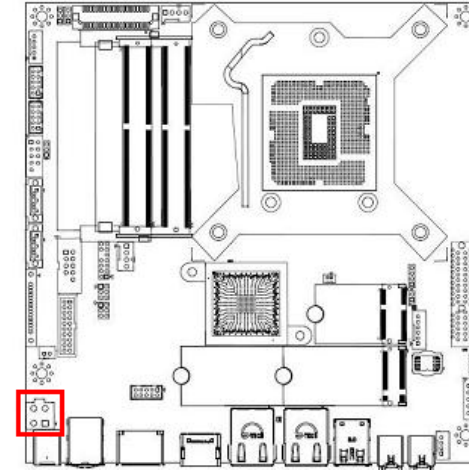
• ATX/AT Mode Select: JP4
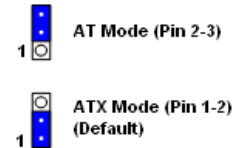
• Front Panel Connector: J_FR-PANEL

HDD LED	1. HDD LED+	2. +5V	Power LED
	3. HDD LED#	4. PWR LED#	
Reset Button	5. GND	6. PANSWIN#	Power Button
	7. RST	8. GND	
	9. N/A		

• Fan Connectors: J_CPU-FAN, J_SYS-FAN

J_CPU-FAN

J_SYS-FAN
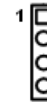
1. GND
2. +12V
3. FAN_Speed
4. FAN_PWM

• Serial Port Connectors: J_COM1, J_COM2


```
2 ┌─┐ 1
  └─┘
```
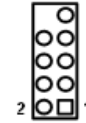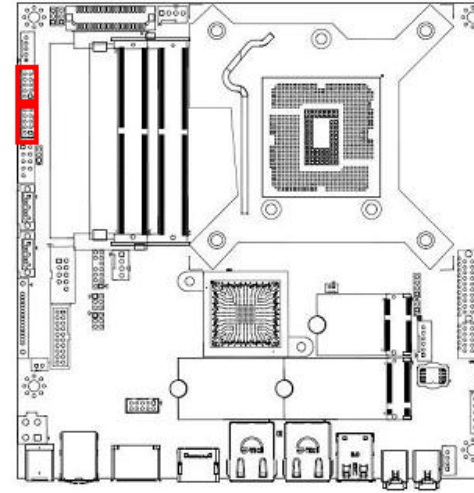
1. DCD#	2. RX
3. TX	4. DTR#
5. GND	6. DSR#
7. RTS#	8. CTS#
9. RI3xPOWERxJMP	

• COM1 Ring-In/ +12V/ +5V Select: JP5
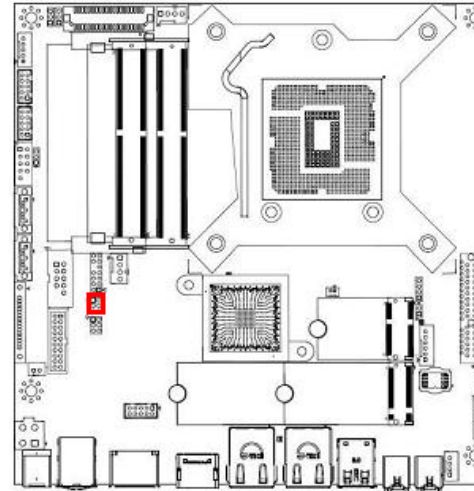
Ring-In (Pin 1-2)
(Default)

+5V (Pin 3-4)

+12V (Pin 5-6)

• COM2 Ring-In/ +12V/ +5V Select: JP6
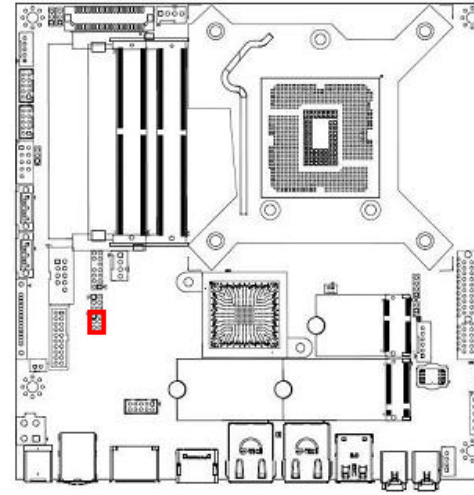
Ring-In (Pin 1-2)
(Default)

+5V (Pin 3-4)

+12V (Pin 5-6)

• SATA 3.0 Ports: J_SATA3-1, J_SATA3-2
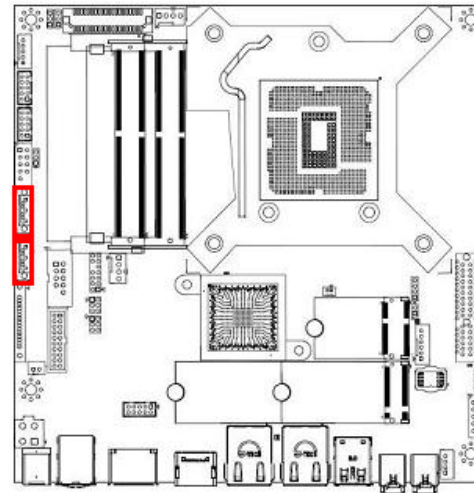
SATA

1. GND
2. TX+
3. TX-
4. GND
5. RX-
6. RX+
7. GND

• SATA Power Header: J_SATA-PWR

J_SATA-PWR

+3.3V
+3.3V
+3.3V
GND
GND
GND
+5V
+5V
+5V
GND
RES
GND
+12V
+12V
+12V
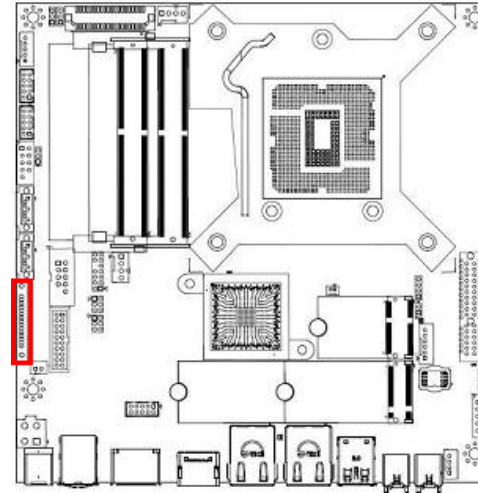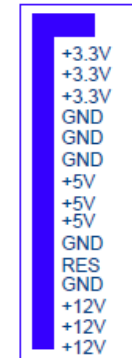
• Front USB2.0 Header: J_USB2-56
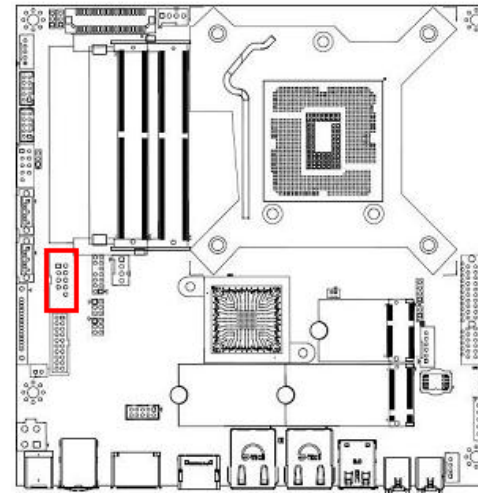
J_USB2-56
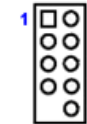
1.USB+5V   2.USB+5V
3.USB -   4.USB -
5.USB +   6.USB +
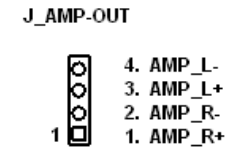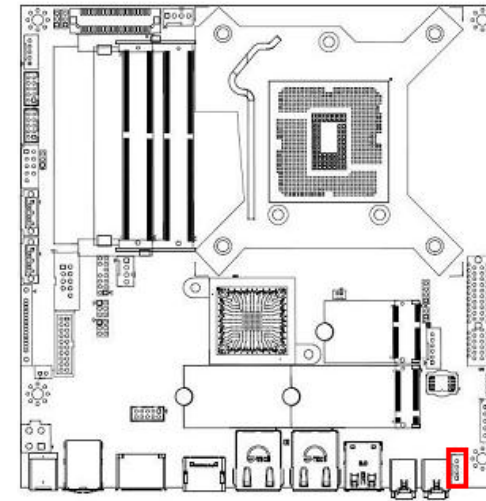7.GND   8.GND
              9.NC

• Front USB3.0 Header: J_USB3-12

J_USB3-12
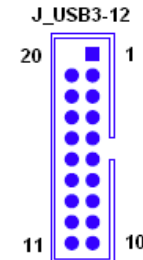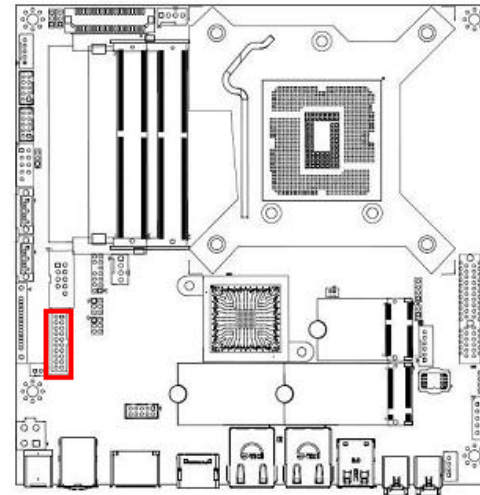
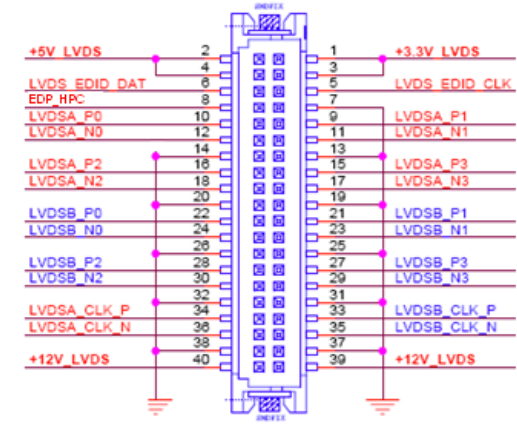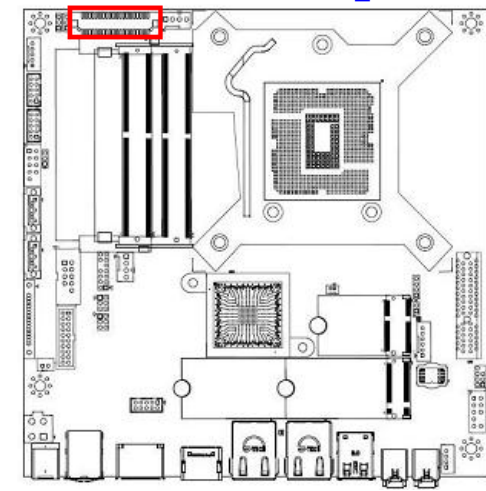|	
20. NC	1. +5V
19. +5V	2. USB3_RXN-1
18. USB3_RXN-2	3. USB3_RXP-1
17. USB3_RXP-2	4. GND
16. GND	5. USB3_TXN-1
15. USB3_TXN-2	6. USB3_TXP-1
14. USB3_TXP-2	7. GND
13. GND	8. USB2_1-
12. USB2_2-	9. USB2_1+
11. USB2_2+	10. USB2_ID

• Front Panel Audio Connector: J_FR-AUDIO
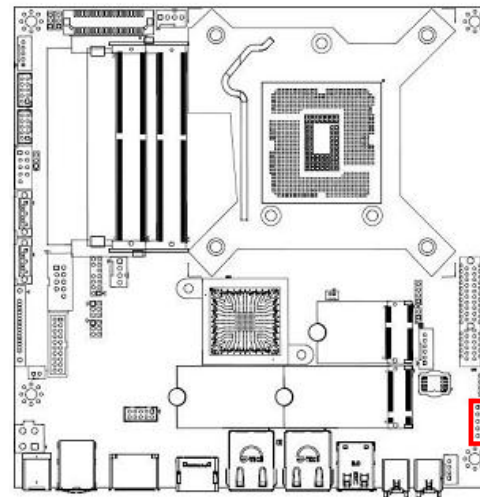
1. MIC2-L	2. GND
3. MIC2-R	4. +3.3V
5. Line2-R	6. MIC2-JD
7. SENSEB	8. NC
9. Line2-L	10. Line2-JD

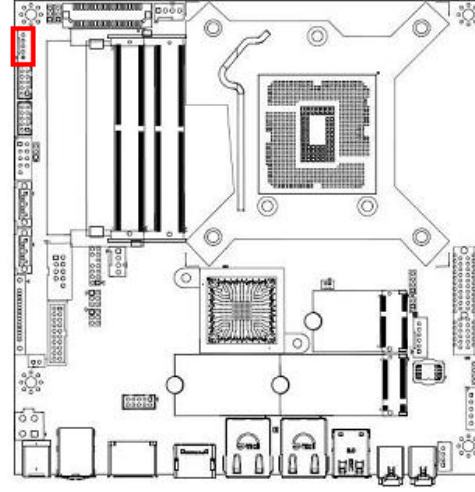**• Amplifier Connector: J_AMP-OUT**

J_AMP-OUT

4. AMP_L-
3. AMP_L+
2. AMP_R-
1. AMP_R+

• LVDS Panel Connector: J_LVDS

+5V_LVDS	2	1	+3.3V_LVDS
	4	3	
LVDS_EDID_DAT	6	5	LVDS_EDID_CLK
EDP_HPC	8	7	
LVDSA_P0	10	9	LVDSA_P1
LVDSA_N0	12	11	LVDSA_N1
	14	13	
LVDSA_P2	16	15	LVDSA_P3
LVDSA_N2	18	17	LVDSA_N3
	20	19	
LVDSB_P0	22	21	LVDSB_P1
LVDSB_N0	24	23	LVDSB_N1
	26	25	
LVDSB_P2	28	27	LVDSB_P3
LVDSB_N2	30	29	LVDSB_N3
	32	31	
LVDSA_CLK_P	34	33	LVDSB_CLK_P
LVDSA_CLK_N	36	35	LVDSB_CLK_N
	38	37	
+12V_LVDS	40	39	+12V_LVDS

• LVDS Panel Backlight Connector: J_BACKLIGHT

J_BACKLIGHT

1. +12V_BL
2. GND
3. BL_EN
4. BRIGHT1
5. +5V_BL

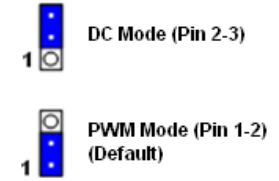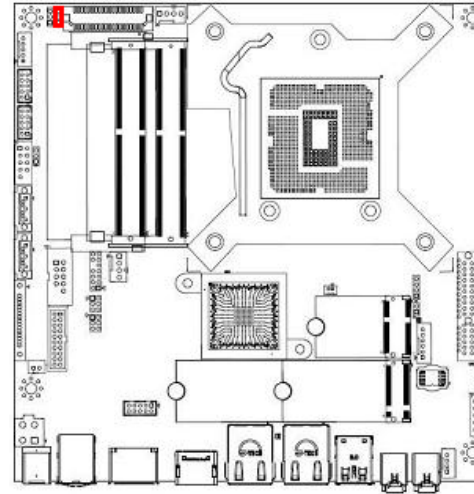## • LVDS PWM Backlight Power Select: JP1
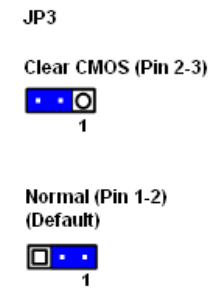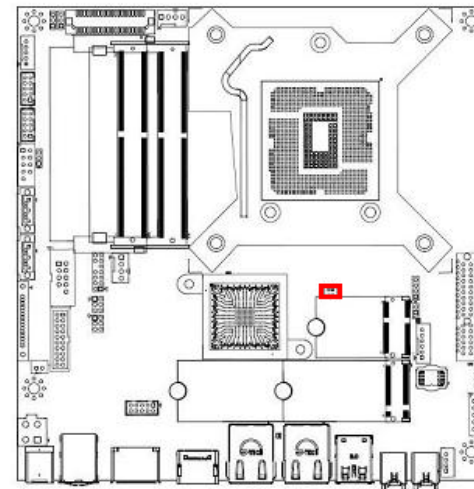

JP1

+5V (Pin 2-3)

1

+3.3V (Pin 1-2)
(Default)
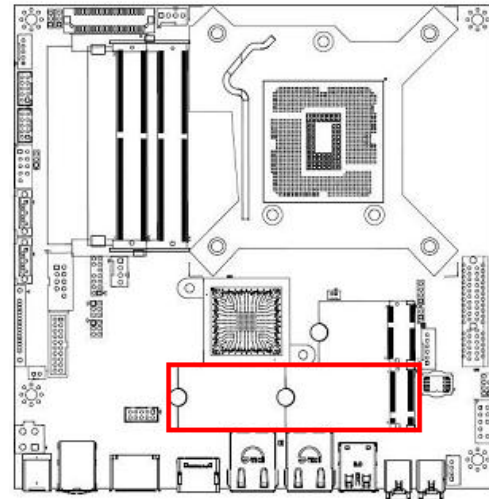
1
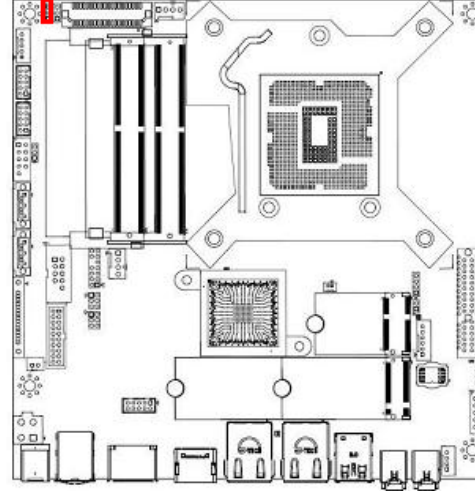
● **LVDS Brightness Mode Select: JP2**

**(It also requires to make the same settings under BIOS option "Chipset"
–>"Graphics Configuration"->"LCD Control"->"LCD Brightness Control"
accordingly).**

DC Mode (Pin 2-3)

PWM Mode (Pin 1-2)
(Default)

● **Clear CMOS Jumper: JP3**
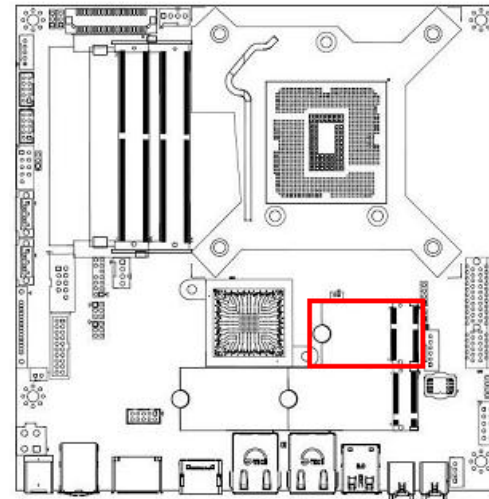

JP3

Clear CMOS (Pin 2-3)

Normal (Pin 1-2)
(Default)

• M.2 Socket (M-Key, Supports SATA Type SSDs in 2242, or 2280): J_M2M
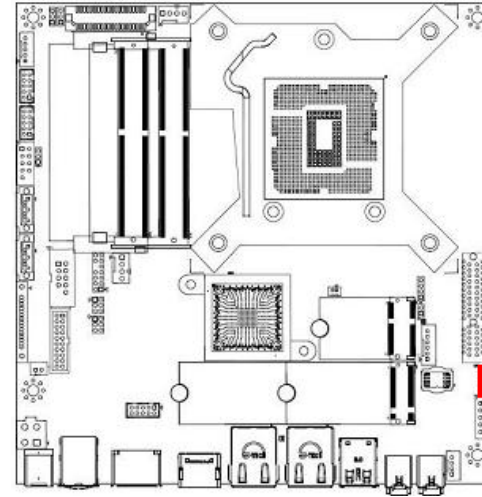

M.2 (M-Key)
(Supports 2242, or 2280)

• M.2 Socket (E-Key, Supports WIFI Cards in 2230 Only): J_M2E
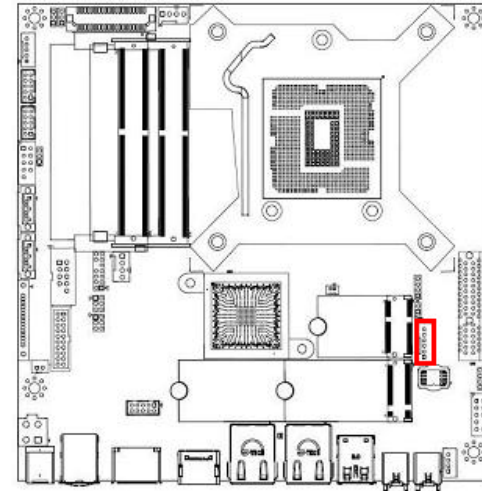

M.2 (E-Key)
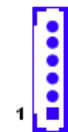(Supports 2230 Only)

• SPI Header: J_SPI

J_SPI

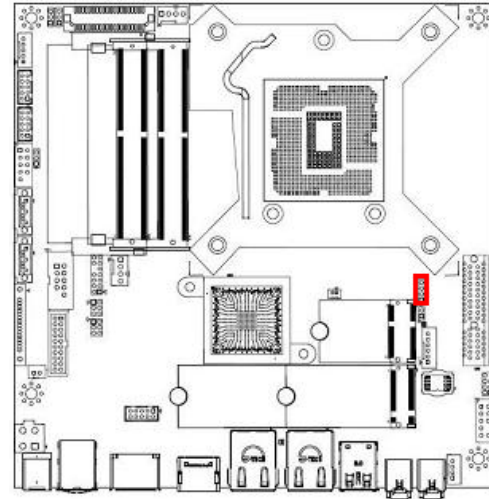| 8. SPI_WP#	7. NC
6. SPI_MOSI	5. SPI_MISO
4. SPI_CLK	3. SPI_CS#
2. GND	1. Vcc

• I2S Header: J_I2S

J_I2S

6. GND
5. RXD
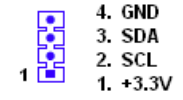4. RESET#
3. SCLK
2. TXD
1. +3.3V

• I2C Header: J_I2C

J_I2C

4. GND
3. SDA
2. SCL
1   1. +3.3V

• GPIO Header: J_GPIO

J_GPIO

GPIO_1	1		2	GPIO_2
GPIO_3	3		4	GPIO_4
GPIO_5	5		6	GPIO_6
GPIO_7	7		8	GPIO_8
+5VSB	9		10	GND
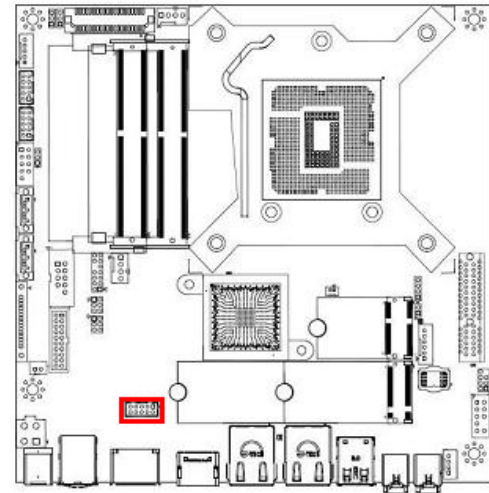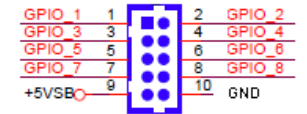
• Chassis Intrusion Header: J_CHASSIS