MX-MTLPS

Intel® Meteor Lake-PS LGA 1851
Meteor Lake-UL (Series 1 ONLY) base power 15W
Meteor Lake-HL (Series 1 ONLY) base power 45W
DDR5-5600 SODIMM (non-ECC), 32GB max/slot

Mini-ITX Motherboard

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



• Inspect the Package:

MX-MTLPS Motherboard x1

SATA Power Cable x1

IO Shield x1

• 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 damage 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 to 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 power!

• Application Notes:

1. PXE Boot:

A

ethernet cable with desired LAN1 or LAN2 port at rear I/O of MX-MTLPS board.

NOTE:

Where “LAN1” is located right next to the rear I/O “JDCIN1” port. “LAN2” is located next to the rear I/O “USB2” port.

b. Enter BIOS menu.

c. Under “Advanced”->”Network Stack Configuration”; enable option “Network Stack”, and then enable the desired “IPv4 PXE Support” or “IPv6 PXE Support” (choose only one).

d. Save and Exit BIOS.

e. After system rebooted, enter BIOS again.

f. Under “Boot”; change “Boot Option #1” to “Network:UEFI: PXE IPv…..”.

g. Under “Save & Exit”, click on “Save Changes and Exit”.

h. During the system reboot, the screen shall prompted with message “Checking Meia Presence….”, “Media Present….”, “Start PXE over IPv# (# is either 4 or 6, depending on what you had chosen at step C) on MAC (showing the MAC address of chosen LAN port that connected with ethernet cable).

2. When a different model of CPU is installed:

a. If a different model of processor is installed with MX-MTLPS board, it is recommended to clear the CMOS in order to be sure the previous processor’s information stored at NVRAM is cleared.

b. Due to the SoC architecture, it will require to setup the date and time under BIOS menu when a new processor is installed.

3. The optional Realtek Audio Console Installation:

The optional “Realtek Audio Console” will be installed after the Win10 is being updated to Version “22H2” (through “Windows Update”).

4. TPM Selection (Infineon TPM (IFX), or Intel PTT (INTC)):

a. Enter BIOS menu.

b. Under “Security”->”PCH-FW Configuration”->”TPM Device Selection”; choose “dTPM” for Infineon TPM (IFX)” (default), or “PTT” for Intel PTT (INTC).

c. Under “Security”->”Trusted Computing”; make sure option “Security Device Support” is “Enabled”.

d. Under “Save & Exit” option, choose “Save Changes and Exit”.

e. Let the system reboot into Windows environment, under “Search”, type “Device Manager”. And make sure the Device Manager displays the option “Security devices”->”Trusted Platform Module 2.0” and there is no exclamation mark or question mark associated with it.

f. Under “Search”, type “Manage Bitlocker”; the menu “BitLocker Drive Encryption” shall be prompted. Click on “TPM Administration” at lower left-hand corner of its screen.

g. The next screen shall prompt with the status of TPM;

i. Make sure “Status” section indicates “The TPM is ready to use”.

ii. Under “TPM Manufacturer Information” section, the “Manufacturer Name” is shown as

“IFX” if you chose “dTPM” under step “2b” above.

Or

“INTC” if you selected “PTT” under step “2b” above.

h. If the information at “2b”, “2c”, “2e” & “2g” were verified to be corrected, you may click on “Turn on BitLocker” option under “BitLocker Drive Encryption” screen to start BitLocker execution process.

5. When a new CPU is installed, or system power on at first time:

The first time boot (system post) when installing a new processor will be longer (about several minutes), and the system could reboot several times, which is normal. The subsequent boot time (system post) will be shorter.

6. Multiple Displays (through Intel Video Graphic):

a. During the system post, before entering the OS environment, there will be maximum of 2 video outputs from connected DP, and/or LVDS, and/or eDP ports.

b. Due to the limitations of Intel video driver, 4 display outputs are the maximum of multiple video outputs available with MX-MTLPS board (under OS environment).

c. It is recommended that if users prefer to have multiple display outputs, the physical display devices (DP monitors, or LVDS or eDP (optional) panel) can be connected to the desired video port before power on the system. (maximum 4 display output connections).

d. If the connected video monitors are in different resolutions, all connected monitor's resolution will be limited to the one with the lowest resolution initially.

After all MX-MTLPS drivers are installed, and there is no exclamation mark shown under device manager, you may fine-tune the resolution of each connected monitor through Window's "Display Settings" (right click on the Windows desktop), and through "Intel Graphics Command Center" (through Windows Start Menu, or downloaded through MS store).

7. The "JAMP1" audio header:

When the rear I/O audio port is connected with speakers, there is no audio output on "JAMP1" Header, unless the speaker connection on the rear I/O connection is disconnected.

8. The Intel "MEBx" (iAMT):

a. Enter BIOS menu.

b. Enter "MEBx" option (on far right of BIOS menu).

c. Click on "Intel ME Password. For the 1st time enter, type "admin" first, then Intel MEBx will ask for a new password setup.

NOTE:

Intel® ME passwords must be between 8 and 32 characters long, have at least one upper case character, one lower case character, one number, and a special character (for example: !, @, #, $, %, ^, &, *).

d. The MEBx menu will be prompted.

9. Win10/11 Drivers Installation Recommendations:

A. Win11 Installation without network connection:

1. When Win11 prompted with message "Let's connect you to a network", press "Shift" and "F10" keys to open command prompt.
2. Under command prompt, type "**oobe\bypassnro**", then press ENTER.
3. The system will restart and begin the setup process again.
4. Make the proper selection again for Region and Keyboards. When the Win11 installation process reach the screen with "Let's connect you to a network", there is another option "I don't have internet", click on it to continue with Win11 installation process.

B. Install Win11 with network connection:

1. When Win11 prompted with message that requires to "Install Driver", click "Install Driver" button.
2. Insert the USB thumb drive that contains all MX_MTLPS Win11 drivers (posted on BCM website), Browse to the folder "3. Intel LAN_29.4 (Win11)->"Release_29.4", then click the

button “Select Folder” to proceed.

3. After the LAN driver is installed, the system will prompt with button “Reboot Now”.

Install the RJ45 ethernet cable to one of two LAN ports at rear IO of MX-MTLPS board,

Then click on button “Reboot Now” to continue with the Win11 installation process.

C. For Win10 Driver Installation:

1. There is a designated number on the front of each driver. Please install the driver by

Following the number in sequence.

2. Some of the drivers contain README txt file, which contains instructions for how to

Install the corresponding driver. Please read it first.

D. For Win11 Driver Installation:

1. There is a designated number on the front of each driver. Please install the driver by

following the number in sequence.

2. The Intel audio driver “4. Intel Smart Sound Technology (ISST)_20.40.11032.0 (Win11)”

must be installed BEFORE Realtek audio driver “5. Realtek Audio_6.0.9667.1 (Win11)”.

3. Some of the drivers contain README txt file, which contains instructions for how to

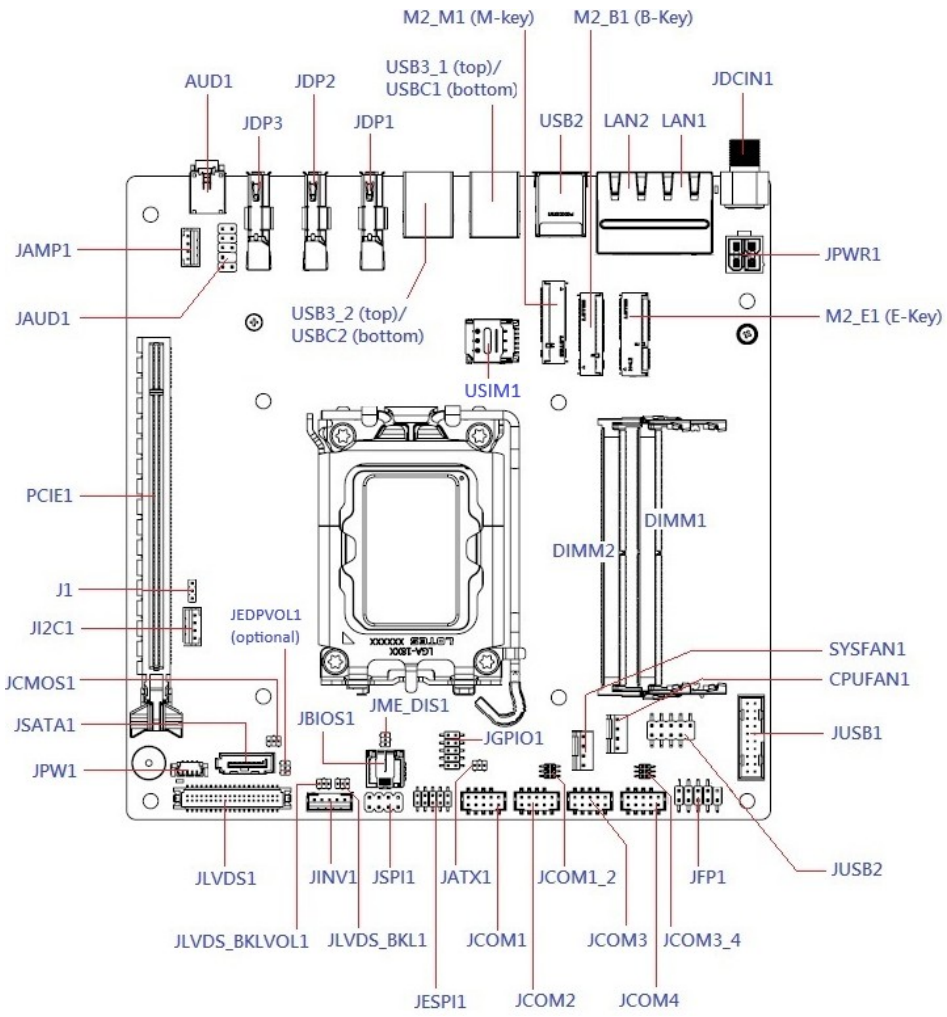
install the corresponding driver. Please read it first.

.

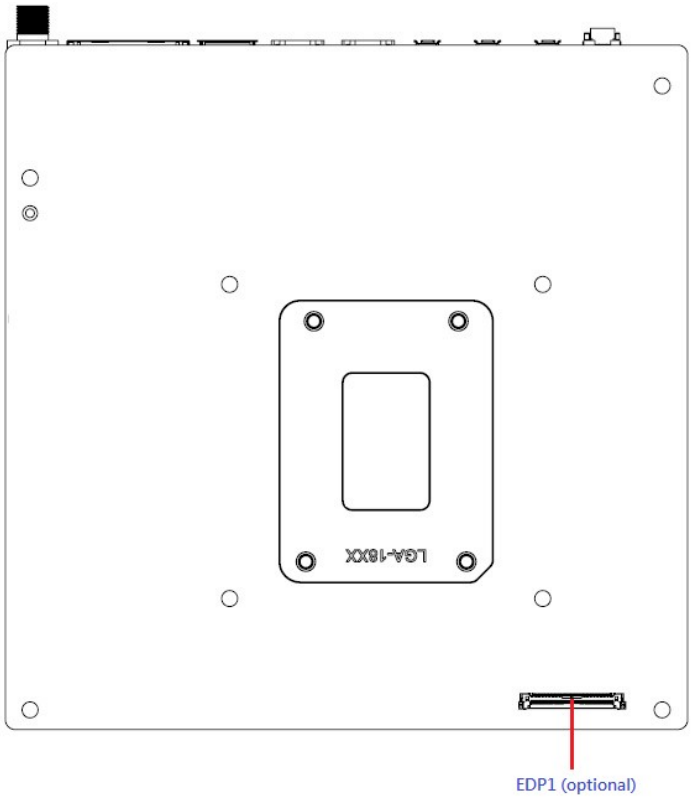
Motherboard Layout:

• Board Layout:

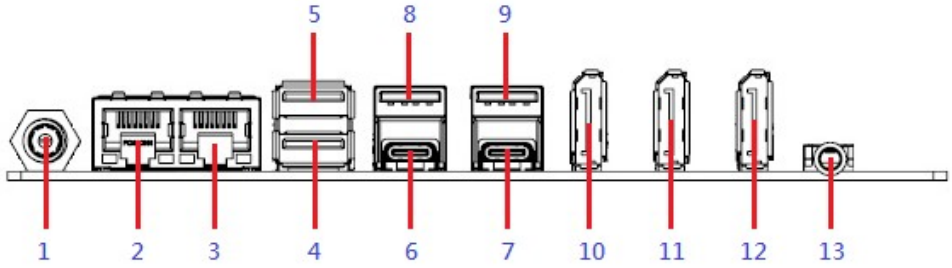
(Top View)

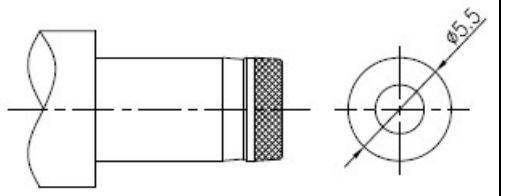
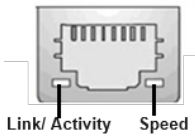


(Bottom View)



• Back Panel (Rear I/O):

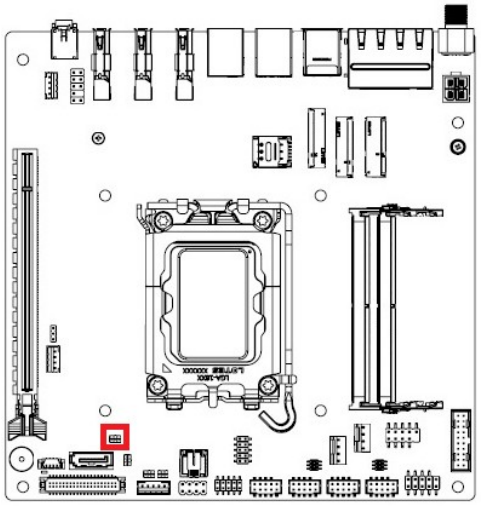


Item	Name	Function	Description
1	JDCIN1	DC-in Connector	DC-in Jack 12~24V. (**minimum 200W AC Adapter Recommended**). **DC Mate Plug:** **DIA. ~5.5mm (Outer) x ~2.5mm (Inner).** 
2	LAN1	2.5G LAN (RJ-45) Connectors 	This port allows 2.5G connection to a Local Area Network (LAN) through a network hub. Refer to the table below for the LAN port LED indications. ACT/Link LED: Status: OFF — Description: No link; Orange — Linked; Blinking — Data activity Speed LED: Status: OFF — Description: 10/100Mbps connection; Orange — 1Gbps connection; Green — 2.5Gbps connection
3	LAN2		
4	USB2.(Bottom)	USB 2.0 Connectors (Type A)	These Universal Serial Bus (USB) 2.0 ports are available for connecting USB type A devices.
5	USB2.(Top)		
6	USBC1	USB C Connectors (Type C)	These Universal Serial Bus (USB) ports are available for connecting USB type C devices.
7	USBC2		

8	USB3_1	USB 3.2 Connectors (Type A)	These two Universal Serial Bus (USB) 3.2 ports are available for connecting USB devices.
9	USB3_2		
10	JDP1	Display Ports	The display port Connectors.
11	JDP2		
12	JDP3		
13	AUD1	Audio Combo Jack	This port connects headphone or speaker.

Jumpers:

• Clear CMOS Jumper: JCMOS1





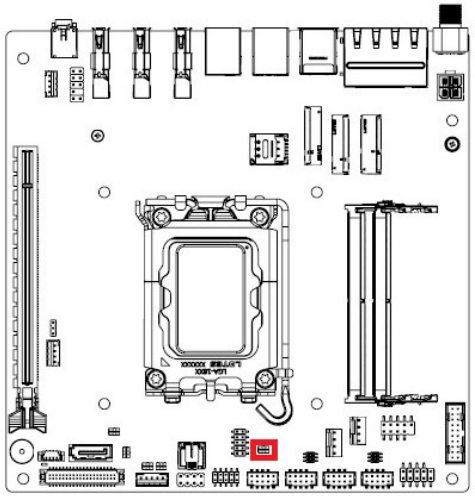
PIN 1-2: Normal (default)



PIN 2-3: Clear CMOS

NOTE: For clear CMOS operation:
1. Disconnect all power connection to motherboard.
2. Relocate pin connector from pin 1-2 to 2-3 for at least 30 seconds.
3. After 30 seconds, place pin connector back to pin 1-2.

• ATX/AT Mode Selection: JATX1



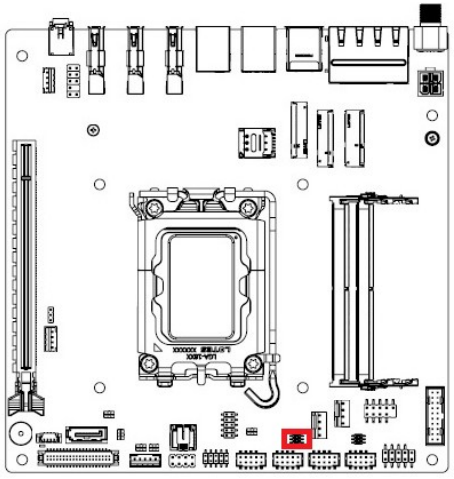


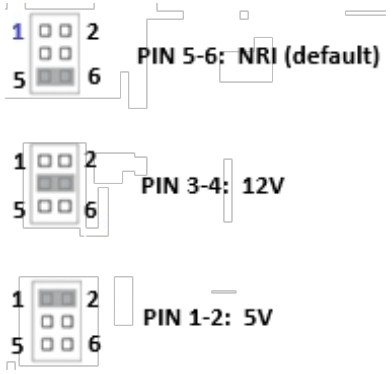
PIN 1-2: ATX Mode (default)



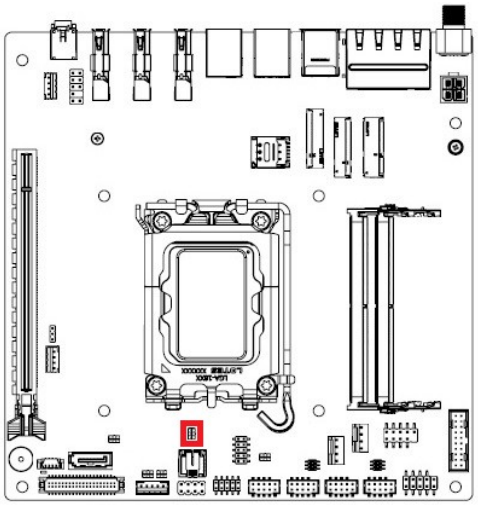
PIN 2-3: AT Mode

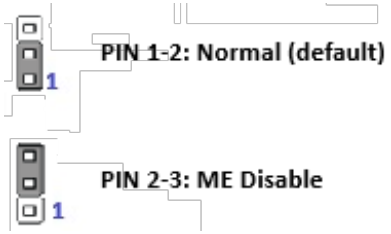
• COM Power Setting: JCOM1_2 (For COM1/2)



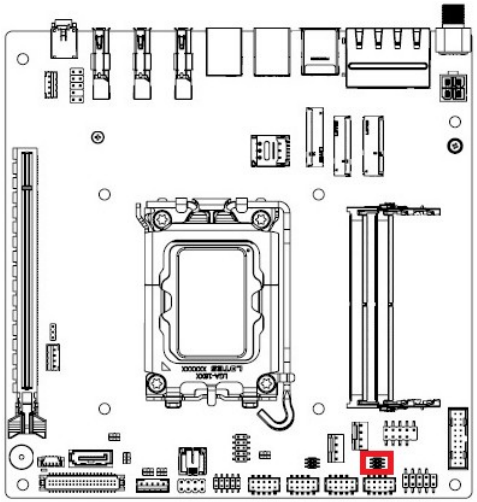


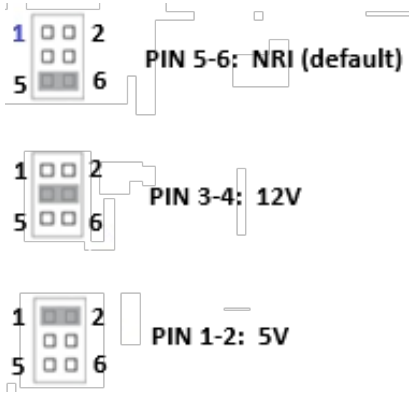
• ME FW Jumper: JME_DIS1



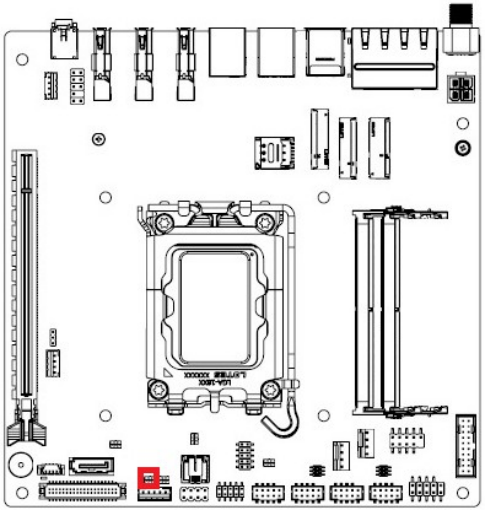


• COM Power Setting: JCOM3_4 (For COM3/4)



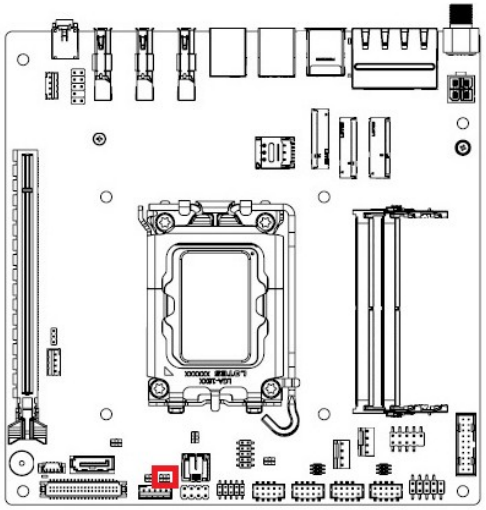


• LVDS Backlight Voltage Select: JLVDS_BKLVOL1





• LVDS Backlight Control: JLVDS_BKL1





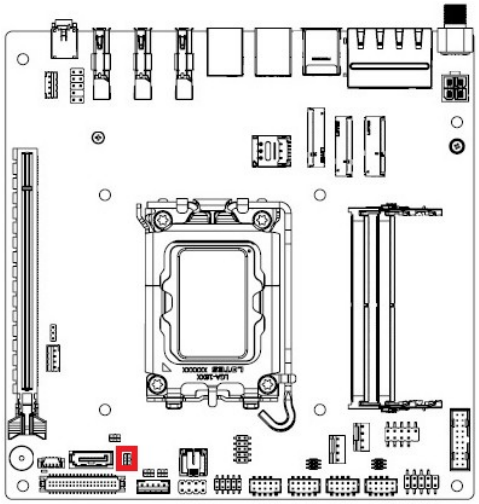
PIN 2-3: SMB



PIN 1-2: SIO PWM (default)

• eDP Panel Voltage Select: JEDPVOL1 (Optional)

(Only Available with MX-MTLPS eDP Version)



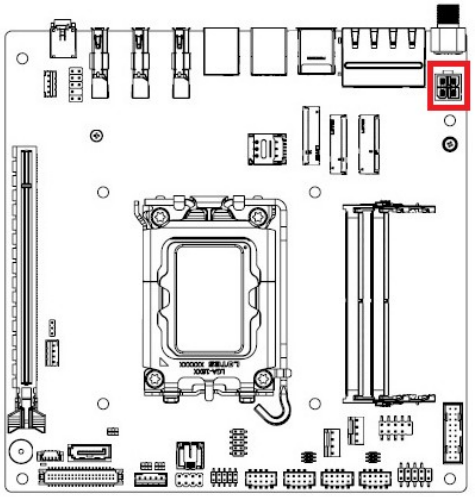


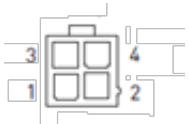
PIN 1-2: 5V
PIN 2-3: 3.3V (default)

Connectors & Headers:

• Internal 4-Pin DC-in Connector: JPWR1 (12V~24V)

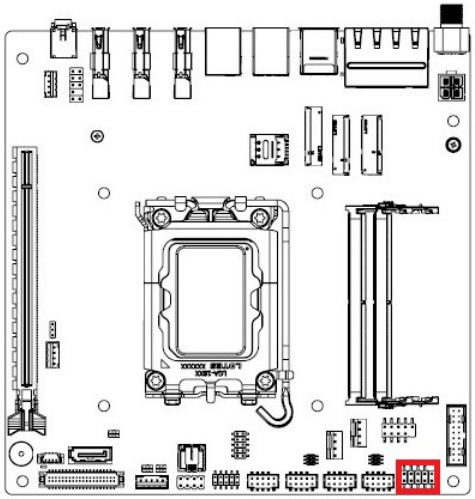
(minimum 200W AC adapter Recommended)





1/2: GND
3/4: DC-IN

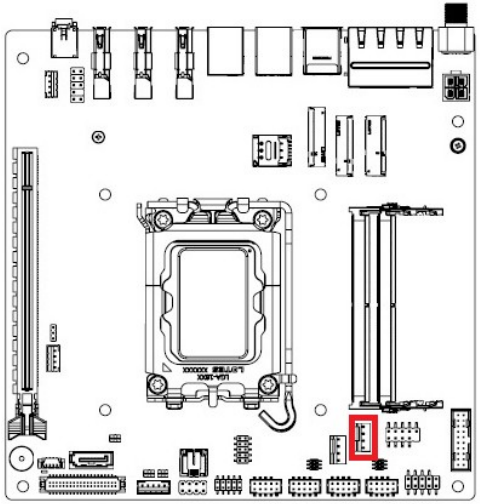
• Front Panel Connector: JFP1





1. HDD LED+	2. Power LED+
3. HDD LED-	4. Power LED-
5. GND	6. Power Button#
7. Reset#	8. GND
9. NC	

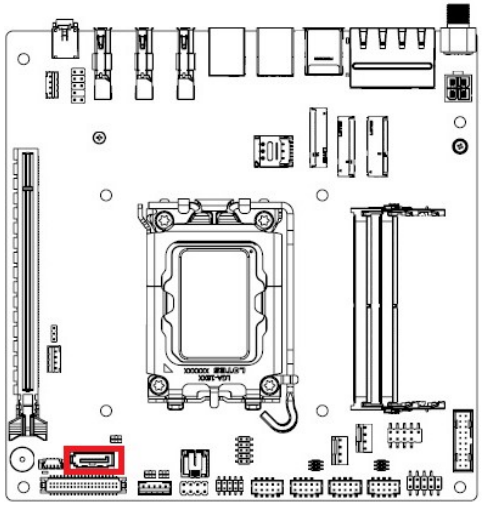
• CPU Fan Connector: CPUFAN1





GND
+12V
Fan Speed Sense
Fan Speed Control

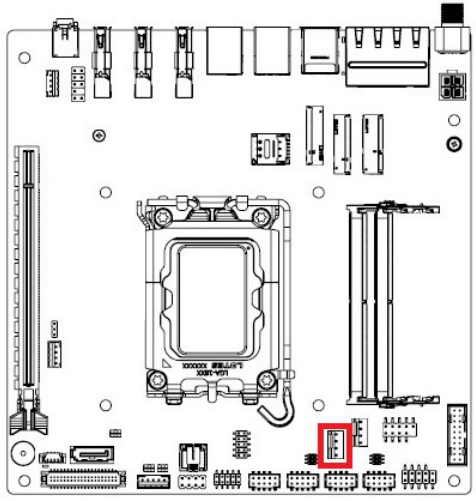
• SATA 3.0 Port: JSATA1





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

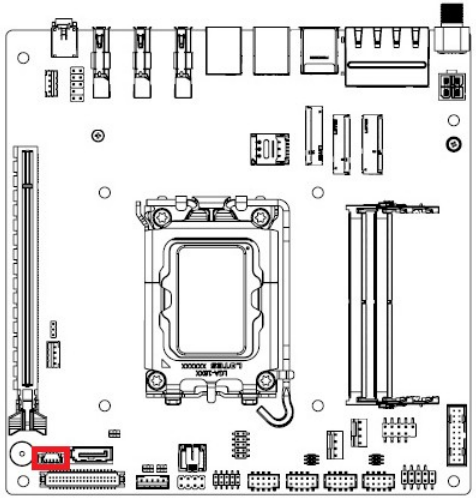
• System Fan Connector: SYSFAN1

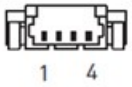




GND
+12V
Fan Speed Sense
Fan Speed Control

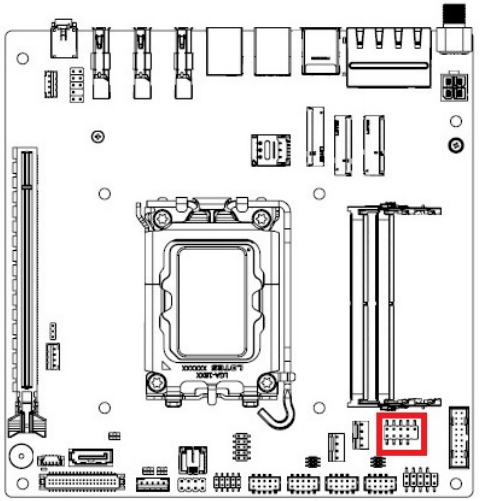
• SATA Power: JPW1

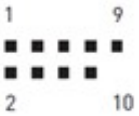




1: +5V
2: GND
3: GND
4: +12V

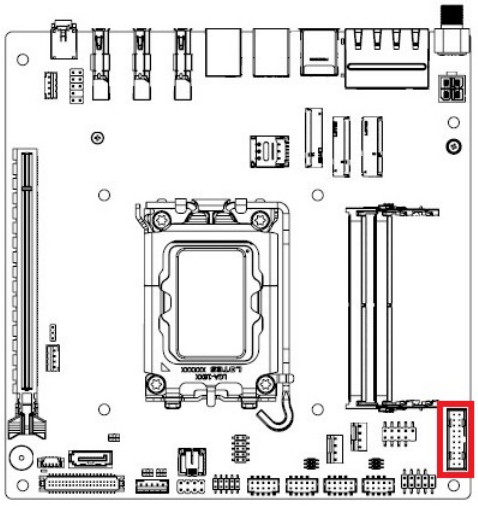
• Front USB 2.0 Header: JUSB2

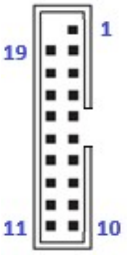




1. USB 5V	2. USB 5V
3. USB-	4. USB-
5. USB+	6. USB+
7. GND	8. GND
9. NC	10. NC

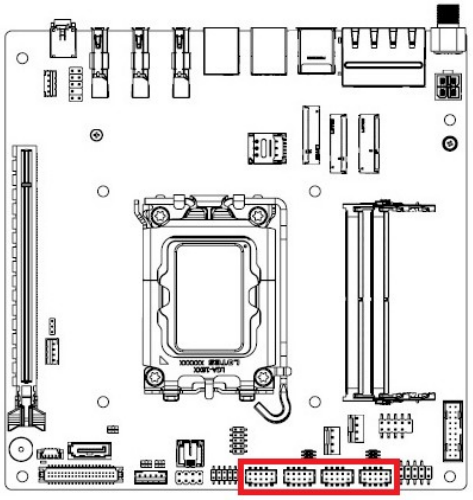
• Front USB 3.2 Header: JUSB1

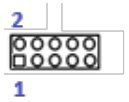




	1: +5V
19: +5V	2: USB3.0_RX-
18: USB3.0_RX-	3: USB3.0_RX+
17: USB3.0_RX+	4: GND
16: GND	5: USB3.0_TX-
15: USB3.0_TX-	6: USB3.0_TX+
14: USB3.0_TX+	7: GND
13: GND	8: USB_D-
12: USB_D-	9: USB_D+
11: USB_D+	10: NC

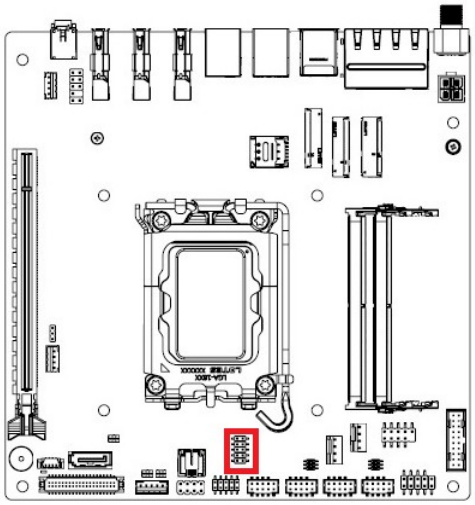
• Serial Port Connectors: JCOM1, JCOM2, JCOM3, JCOM4

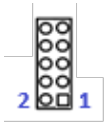




1: NDCD: Data Carrier Detect
2: NSIN: Signal In
3: NSOUT: Signal Out
4: NDTR: Data Terminal Ready
5: GND: Signal Ground
6: NDSR: Data Set Ready
7: NRTS: Request to Send
8: NCTS: Clear to Send
9: VCC: 5V or 12V Selected by Jumper
10: NC: No Connection

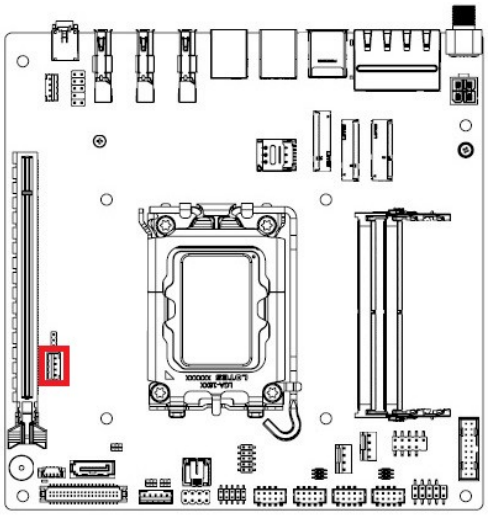
• Digital I/O Header: JGPIO1

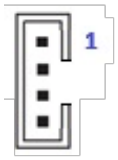




10: N_GPO3	9: N_GPI3
8: N_GPO2	7: N_GPI2
6: N_GPO1	5: N_GPI1
4: N_GPO0	3: N_GPI0
2: VCC5	1: GND

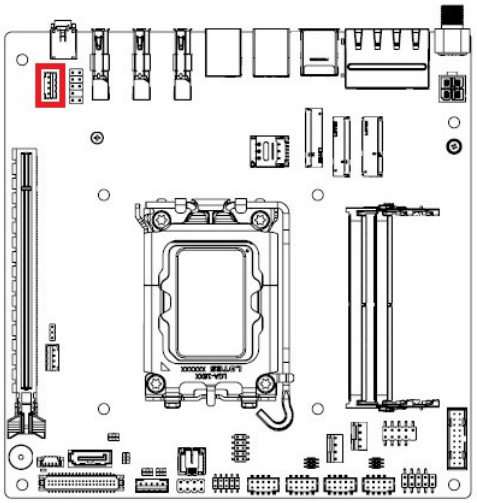
• I2C Connector: JI2C1

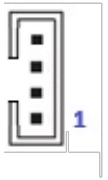




1: VCC
2: CLK
3: DATA
4: GND

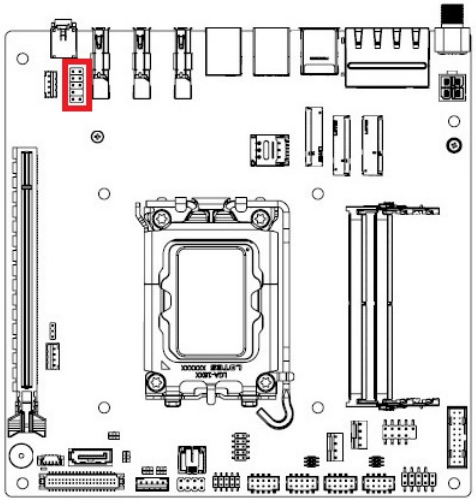
• Amplifier Connector: JAMP1

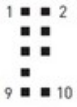




4: AMP_L+
3: AMP_L-
2: AMP_R+
1: AMP_R-

• Front Audio Connector: JAUD1

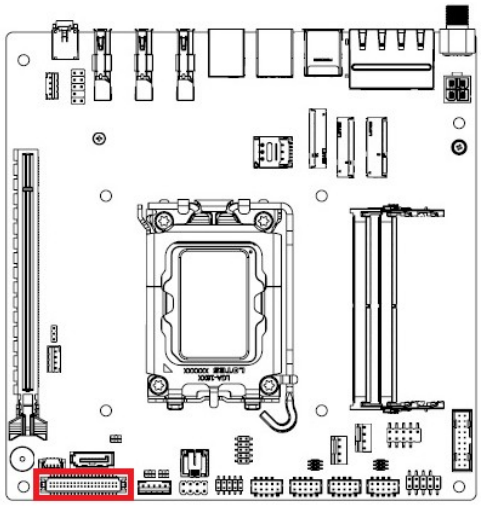


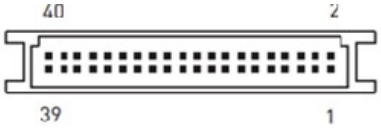


1: MIC_L
3: MIC_R
5: HEAD_PHONE_R
7: SENSE_SEND
9: HEAD_PHONE_L

2: GND
4: FRONT PANEL AUDIO DETECTION
6: MIC DETECTION
8: NC
10: HEAD PHONE DETECTION

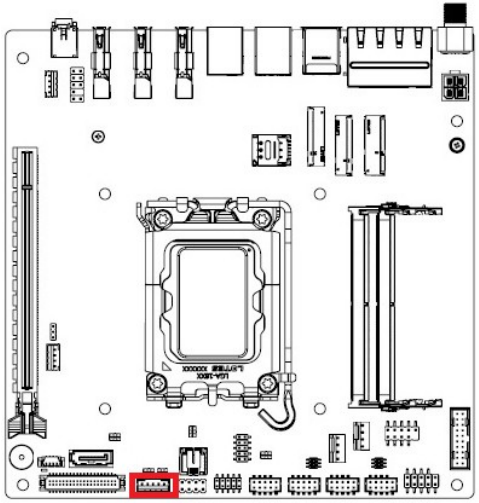
• LVDS Panel Connector: JLVDS1





39. VDD_+12V	40. VDD_+12V
37. GND	38. GND
35. LVDS_B_CLK-	36. LVDS_A_CLK-
33. LVDS_B_CLK+	34. LVDS_A_CLK+
31. GND	32. GND
29. LVDS_B3-	30. LVDS_B2-
27. LVDS_B3+	28. LVDS_B2+
25. GND	26. GND
23. LVDS_B1-	24. LVDS_B0-
21. LVDS_B1+	22. LVDS_B0+
19. GND	20. GND
17. LVDS_A3-	18. LVDS_A2-
15. LVDS_A3+	16. LVDS_A2+
13. GND	14. GND
11. LVDS_A1-	12. LVDS_A0-
9. LVDS_A1+	10. LVDS_A0+
7. GND	8. GND
5. DDC_CLK	6. DDC_DATA
3. VDD_+3.3V	4. VDD_+5V
1. VDD_+3.3V	2. VDD_+5V

• LVDS Panel Backlight Connector: JINV1

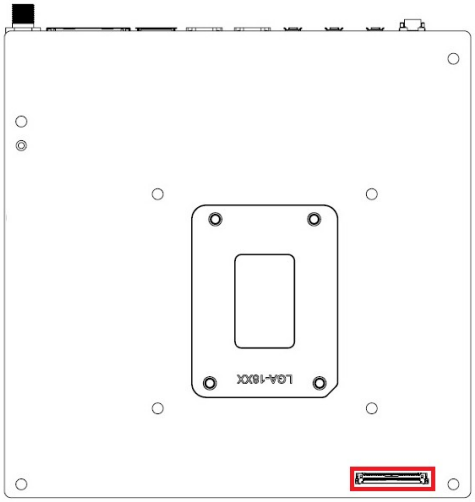


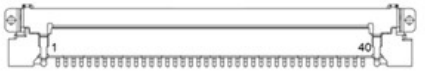


1: +12V_BL
2: GND
3: BL_EN
4: BRIGHT1
5: +5V_BL

• eDP Connector: EDP1 (Optional)

(Only available with MX-MTLPS eDP version)

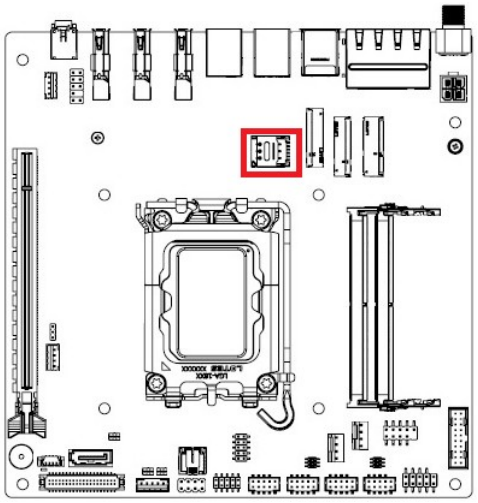




1:	NC	21:	3.3V/5V (eDP Power)
2:	GND	22:	NC
3:	EDP_DATA#3_C	23:	GND
4:	EDP_DATA3_C	24:	GND
5:	GND	25:	GND
6:	EDP_DATA2#_C	26:	GND
7:	EDP_DATA2_C	27:	EDP_HPD
8:	GND	28:	GND
9:	EDP_DATA#1_C	29:	GND
10:	EDP_DATA1_C	30:	GND
11:	GND	31:	GND
12:	EDP_DATA#0_C	32:	EDP_BKLTEN
13:	EDP_DATA0_C	33:	EDP_BKLCTL
14:	GND	34:	NC
15:	EDP_AUX_P	35:	NC
16:	EDP_AUX_N	36:	12V
17:	GND	37:	12V
18:	3.3V/5V (eDP Power)	38:	12V
19:	3.3V/5V (eDP Power)	39:	12V
20:	3.3V/5V (eDP Power)	40:	NC

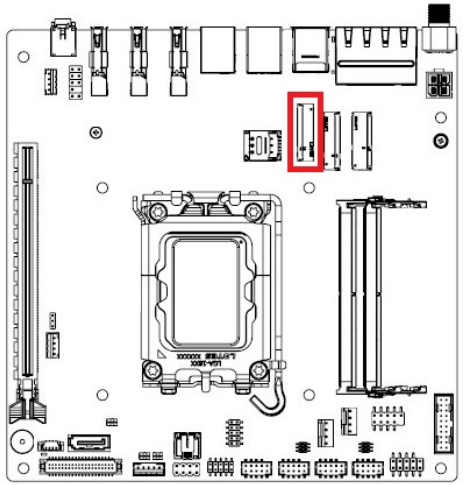
• Nano SIM Slot: USIM1

Provides connection to Nano SIM card.

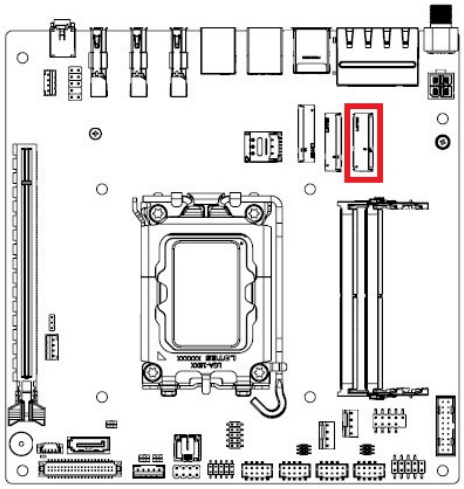


• M.2 Slot (M-Key, 2280): M2_M1

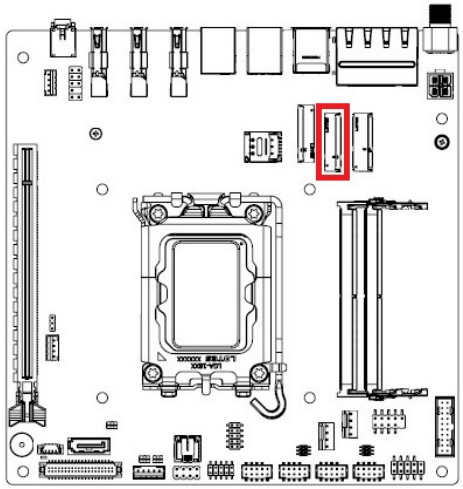
Provides PCIe Gen4 x4 signal and supports nVME SSDs.



- **M.2 Slot (E-Key, 2230): M2_E1**
  Provides PCIe Gen3 x1 & USB2.0 signal and supports CNVI Wi-Fi module.



- **M.2 Slot (B-Key, 2242): M2_B1**
  Provides PCIe Gen2 x1, SATA 3.0, USB3.2 Gen1 signals, and supports LTE/5G module, or M.2 SATA (2242) module.



- **Save the Processor Socket Cover**
  After removing the processor cover during processor installation, please save the processor socket cover.

  In the event that the desktop board needs to be returned for service or any time the processor is removed, the cover should be placed on the processor socket.



- **Do not Touch CPU Socket Contact**

