

MX6412J

10th Gen Intel Elkhart Lake Celeron processor J6412 onboard

Mini ITX Motherboard

User's Quick Start Card

Version 0.01

<http://www.bcmcom.com>

• Inspect the Package:

- One **MX6412J Motherboard**
- One **SATA Signal Cable**
- One **SATA Power Cable**
- One **I/O Shield (high profile)**
- One **I/O Shield (low profile)**

• 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)**

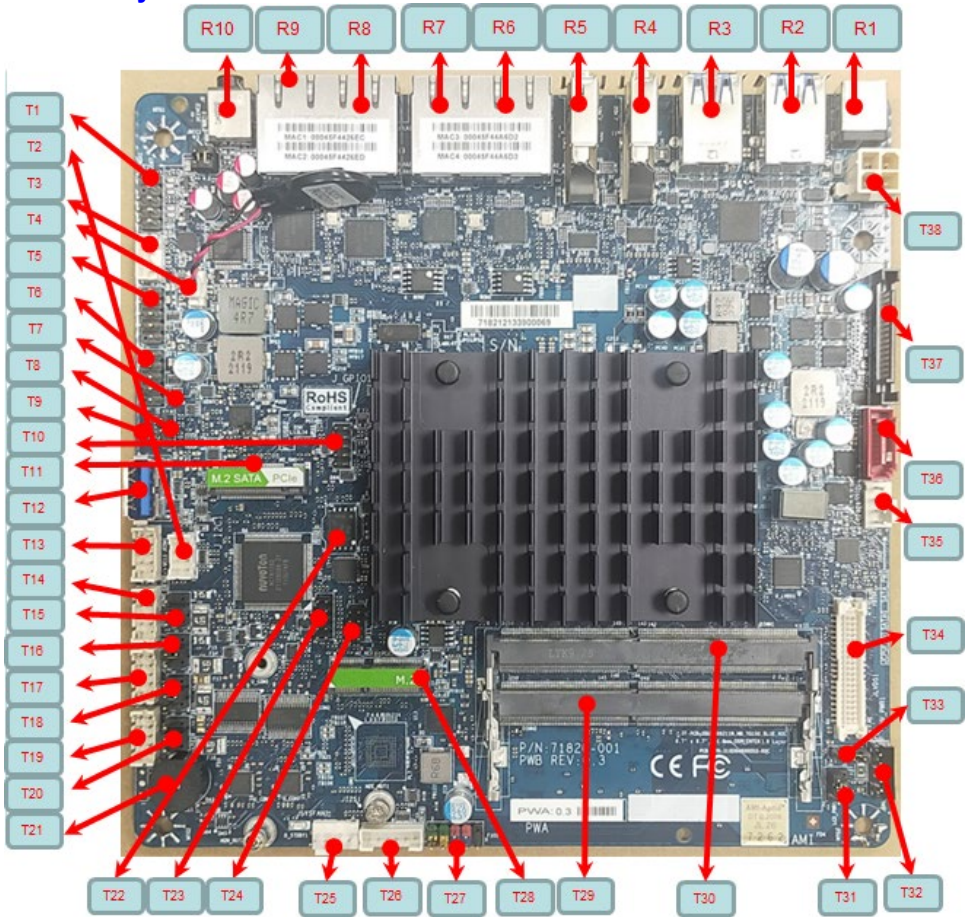
Static electricity can easily damage your motherboard and will void your motherboard warranty. Keep the motherboard and other system components in their anti-static packaging until you are ready to install them. Touch a grounded surface before you remove any system component from its protective anti-static 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!

Motherboard Layout:

• Board Layout:

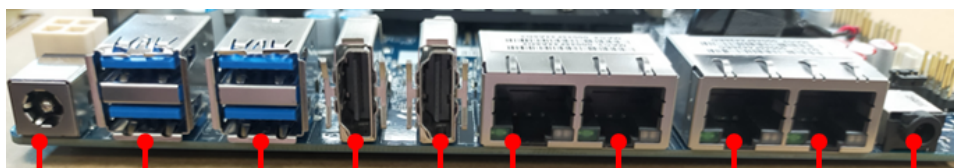


T1	HDR: Front Audio	T20	JUMP: COM4 PWR SET
T2	HDR: I2C	T21	Buzzer
T3	HDR: INT_SPK1	T22	Socket / IC: BIOS
T4	HDR: Battery	T23	HDR: eSPI
T5	HDR: Front USB2x2	T24	HDR: SPI
T6	HDR: Front USB2x2	T25	HDR: SYS FAN
T7	HDR: Clear CMOS	T26	HDR: I2S
T8	HDR: P80 SET	T27	HDR: Front I/O

T9	HDR: Board ID	T28	Socket: M2 Key E
T10	HDR: GPIO	T29	Socket: DIMM2
T11	Socket: M2 Key-M	T30	Socket: DIMM1
T12	CONN: USB3.0	T31	Jumper: LCD_PWR
T13	HDR: COM1	T32	Jumper: PNL PWR
T14	HDR: COM2	T33	HDR: BACK Light PWR
T15	JUMP: COM1 PWR SET	T34	CONN: LVDS
T16	JUMP: COM2 PWR SET	T35	HDR: CPU FAN
T17	HDR: COM3	T36	CONN: SATA0
T18	JUMP: COM3 PWR SET	T37	CONN: SATA 15P PWR
T19	HDR: COM4	T38	CONN: 4P PWR IN

R1	DC PWR JACK
R2	USB3.0 x2
R3	USB3.0 x2
R4	HDMI
R5	HDMI
R6	LAN4 2.5G I225
R7	LAN3 2.5G I225
R8	LAN2 1G I211
R9	LAN1 1G I211
R10	Combo Jack: MIC/HP

• **Back Panel:**



Power Button	USB3	USB3	HDMI	HDMI	LOM4	LOM3	LOM2	LOM1	MIC /HP
	USB3	USB3			I225LM	I225LM	I211	I211	

Jumpers, Connectors, & Headers:

T1: Front Audio

High Definition Audio

	Pin	Pin Assignment	Pin	Pin Assignment
	1	MIC2 L (Microphone 2 Left)	2	AGND (Analog Ground)
	3	MIC2 R (Microphone 2 Right)	4	AVCC (Analog VCC Power)
	5	FRO-R (Front Right)	6	MIC2_JD (Microphone 2 Jack Detect)
	7	F_IO_SEN (Front I/O Sensor)		
	9	FRO-L (Front Left)	10	LINE2_JD (Line 2 Jack Detect)

T2: I2C

Function	Pin	Pin	Function
V_I2C_3P3V	1	2	I2C_RST_N_3P3V
3P3V_I2C2_SCL	3	4	1P8V_I2C5_SCL
3P3V_I2C2_SDA	5	6	1P8V_I2C5_SDA
GND	7	8	I2C_INT_N_3P3V

T3: Internal Speaker

Pin	Signal – DVT/PVT	Signal – R01
1	Audio SPK R-	Audio SPK R-
2	Audio SPK R+	Audio SPK R+
3	Audio SPK L+	Audio SPK L-
4	Audio SPK L1	Audio SPK L+

T5&T6: USB2.0

Pin	Signal	Pin	Signal
1	+5V DC	2	+5V DC
3	Data (negative)	4	Data (negative)
5	Data (positive)	6	Data (positive)
7	Ground	8	Ground
9	Key (no pin)	10	No Connect

T7: CMOS

Pin	Signal Name
1	NC
2	SRTC_RTEST_N
3	GND

1-2: Normal
2-3: Clear CMOS

T10: GPIO

Function	Pin	Pin	Function
VCC	1	2	GND
GPIO01	3	4	GPIO02
GPIO03	5	6	GPIO04
GPIO05	7	8	GPIO06
GPIO07	9	10	GPIO08

T13,T14: COM1, COM2

Pin		Signal	Pin		Signal
1	COM3_P1_40mils	DCD (Data Carrier Detect)	2	NRX3	RXD# (Receive Data)
3	NTX3	TXD# (Transmit Data)	4	NDTR3	DTR (Data Terminal Ready)
5	GND	Ground	6	NDSR3	DSR (Data Set Ready)
7	NRTS3	RTS (Request To Send)	8	NCTS3	CTS (Clear To Send)
9	COM3_P9_40mils	RI (Ring Indicator)	10	Key	Key (no pin)

T17,T19: COM3, COM4

Pin	Signal			Pin	Signal	
	RS232	RS485	RS422		RS232	RS485
1	DCD (Data Carrier Detect)	R(A) / T(A)	TX(B)	2	RXD# (Receive Data)	R(B) / T(B)
3	TXD# (Transmit Data)	NC	RX(A)	4	DTR (Data Terminal Ready)	NC
5	Ground	Ground	Ground	6	DSR (Data Set Ready)	NC
7	RTS (Request To Send)	DE#/RE	NC	8	CTS (Clear To Send)	NC
9	RI (Ring Indicator)	NC	NC	10	Key (no pin)	Key (no pin)

T15,T16,T18,T20: COM Port Power Set Jumper

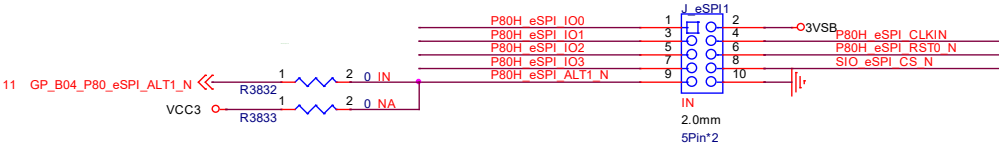
5V

12V



RI

T23: eSPI



T24: SPI

Pin	Function	Function	Pin
1	3VSB_SPI	GND	2
3	SPI_CS0_R_N	SPI0_CLK_FLSH	4
5	SPI0_IO1_MISO	SPI0_IO0_MOSI	6
7	SPI0_IO3_HOLD_N	SPI0_IO2_WP_N	8

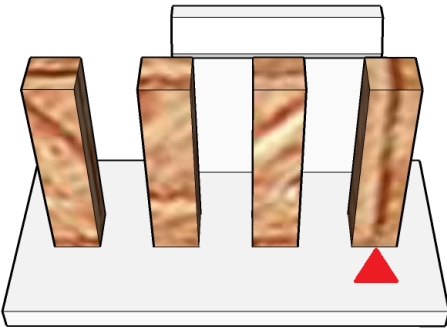
T25: System FAN

Pin1 = GND

Pin2 = 12V

Pin3 = SYS_FAN_TACH

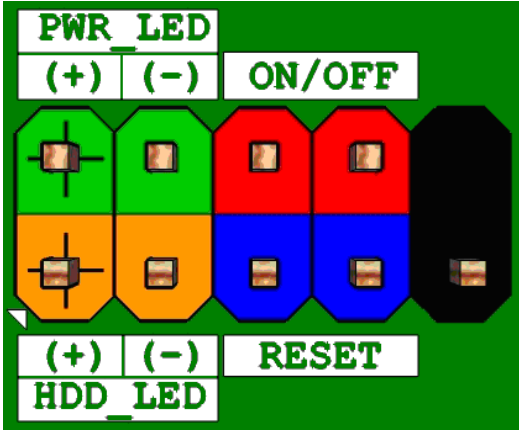
Pin4 = SYS_FAN_CTRL



T26: I2S

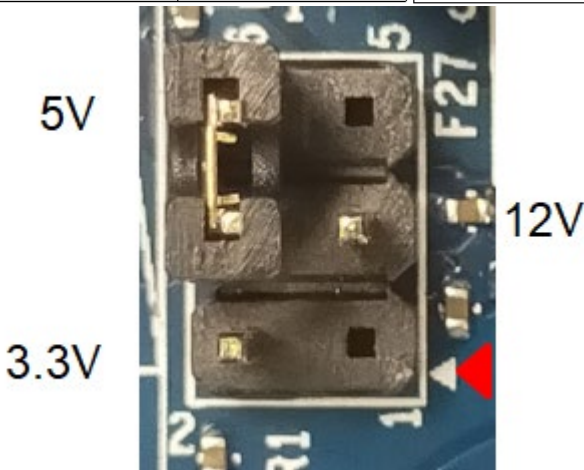
Pin	Function
1	V_I2S_PW
2	HDR_I2S_TXD
3	HDR_I2S_SCLK
4	HDR_I2S_SFRM
5	HDR_I2S_RXD
6	GND

T27: Front Panel



T31: LCD Power Jumper

Default	LVDS Panel	eDP Panel	Silkscreen
LCD_PWR1		LCD_PWR1	Default
12V	(3-4)	3.3V	(2-4)
5V	(4-6)	5V	(4-6)



T32: Backlight Power Jumper

5V

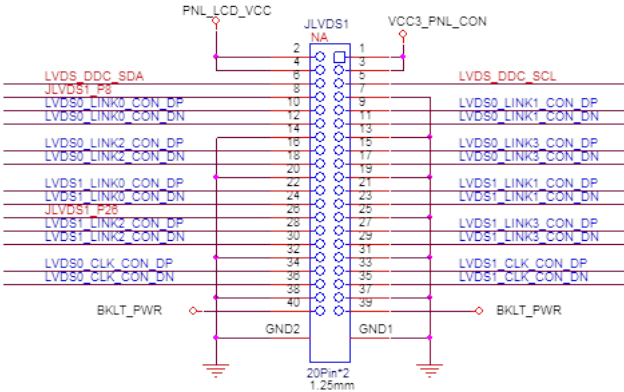
12V



T33: Backlight Connector

Pin	Signal	Description
1	PNL BL 12V	BKLT PWR 12V
2	GND	Ground
3	PNL BKLT PWR_EN	Backlight enable
4	PNL BKLT CTRL PWM	Backlight control
5	BKLT PWR 5V	BKLT PWR 5V

T34: LVDS Connector



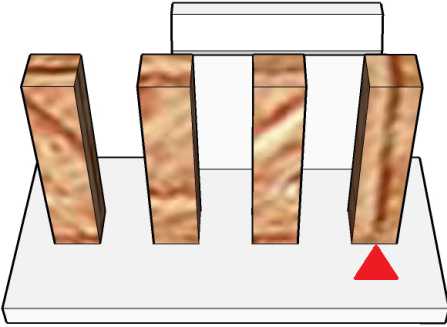
T35: CPU FAN

Pin1 = GND

Pin2 = 12V

Pin3 = CPU_FAN_TACH

Pin4 = CPU_FAN_CTRL



T38: 4P DC Power In

VIN_12V_24V

