

# User Manual

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## TL-10 Mini ITX Motherboard

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# TL-10 Mini ITX Motherboard

## User Manual

(Version 1.0)



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## Chapter 1 Product Introduction

### 1.1 Brief Introduction

The TL10 is a mITX motherboard based on the Intel Tiger Lake-U Platform.

### 1.2 Parameters

**CPU:**

- i7-1165G7—Quad Core Eight Threads, Maximum Turbo Frequency 4.7GHz, TDP-up 28W
- i5-1145G7-- Quad Core Eight Threads, Maximum Turbo Frequency 4.4GHz, TDP-up 28W
- i3-1115G4—Dual Core Four Threads, Maximum Turbo Frequency 4.1GHz, TDP-up 28W
- Celeron 6305-- Dual Core Dual Threads,1.8GHz, TDP-up 15W

**Memory:** Dual Channel SO-DIMM DDR4-3200, Up to 64GB

**GPU:** Integrated Graphics based on CPU, Display via 4xHDMI2.0

**Storage:**1 x M.2 Key M for 2280 SSD NVMe, 1x Standard SATA3.0

**USB:** 2xUSB3.0,2xUSB2.0(Rear I/O); 4xUSB2.0(header)

**Ethernet:**2xGigabyte network card (intel i211) on board.

**Audio:** High-definition audio chip, supporting speaker-out, Mic-in (rear port), Line-out, Mic-in (front on-board pin), and power amplifier (onboard pin, connecting passive horn)

**COM:**1xCOM header (default RS232, RS485/RS422 Optional)

**Expansion:**1xM.2 Key B for 4G/5G Module,1xM.2 Key E (Type 2230, for Wi-Fi card and Bluetooth)

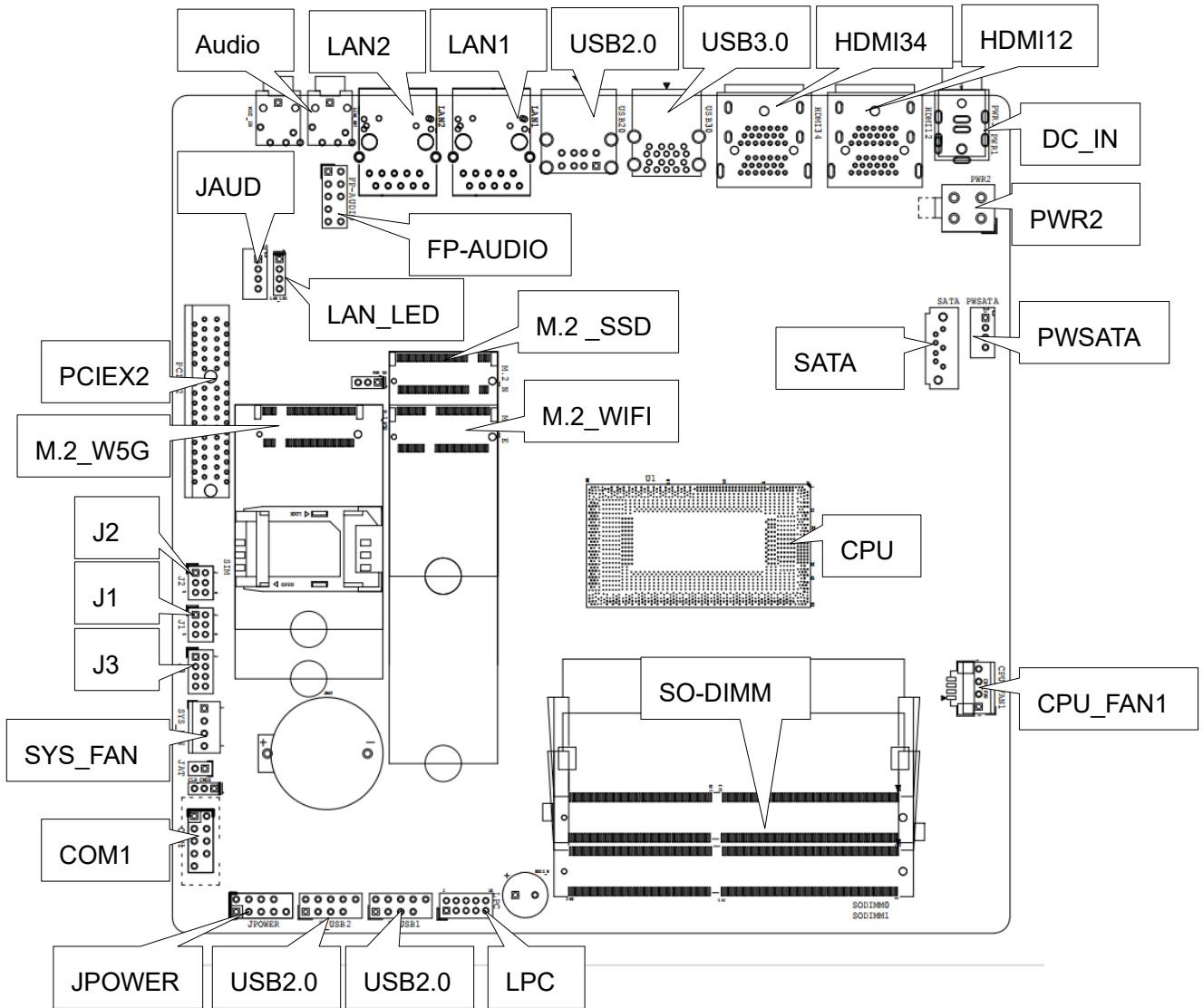
**Other I/O:** 1x PCIE2X Slot

**Dimension:**170mm x 170mm

**Power:**12V DC-in

**Working Temperature:**-20°C~60°C

### 1.3 Connector Diagram



## Chapter 2 Hardware

### 2.1 Jumper Setting

Please configure the jumpers according to your requirements before installing the hardware.

How to identify the first header of jumpers and pins: Observe the mark beside the jumper or pins and find the header marked by "1" or bold line or triangular symbol. Or observe the rear panel and the header with square solder pad is the first header.

### 2.2 Memory Slots

On-board 2 x SO-DIMM DDR4-3200 slots, supporting dual channels, maximum capacity 64 GB.

### 2.3 Display Interface

The board equipped with 4x HDMI2.0 ports, supporting multiple 4k displays.

### 2.4 Storage Interface (Screen Printing: SATA, M.2\_N, PWSATA)

The board is equipped 1x M.2 Key M for 2280 SSD NVMe, 1x SATA.

**PWSATA:**(screen printing: PWSATA)

Pin	Signal
1	5V
2	GND
3	GND
4	VSY (The output voltage is consistent with the DC power supply)

### 2.5 Expansion Slots (Screen Printing: M.2\_W5G, M.2\_E, PCIEX2, PWR\_5G)

**Screen printing M.2\_E:** M.2 Key E, Supporting NGFF WIFI Card and Bluetooth.

**Screen printing PCIEX2:** It can be used for expanded PCIe devices like networking cards and graphics cards.

**Screen printing M.2\_W5S:** M.2 Key B, supporting 4G/5 Module with standard SIM Card slot; Please set the corresponding module power supply voltage according to the screen printing PWR\_5G pins, while using 4G/5G modules.

**Module Power Supply:**(Screen Printing: PWR\_5G)

Interface	Settings	Function
1-2	Close	Module Power Supply (3.3V)
2-3	Close	Module Power Supply (3.8V)

## 2.6 USB Interface

The board is equipped with 2 x USB3.0 (Rear),2x USB2.0(Rear),4x USB2.0 onboard Pins (distance in between 2.54mm).

**USB1, USB2:**(Screen Printing: F\_USB1, F\_USB2)

Signal	Pin		Signal
VCC 5V	1	2	VCC 5V
USB DATA-	3	4	USB DATA-
USB DATA+	5	6	USB DATA+
GND	7	8	GND
NC	9	10	N/A

## 2.7 LAN (Screen Printing: LAN\_LED)

Applying high-performance Gigabit Ethernet control chip (intel i211) technology, it features 2xRJ45 interfaces, supports Magic packet wake up with UEFI PXE network boot. Please set the IPv4 PXE Support to **Enabled** while using UEFI PXE network under the BIOS.

**Interface LED Status Indicators:**

LI_LED(Green)Status	Function	ACT_LED(Orange)Status	Function
Always on	Network Connected	Blinking	Data transfer

**LAN\_LED** (Screen Printing: LAN\_LED)

Pin	Signal
1	LAN1_D+
2	LAN1_D-
3	LAN2_D-
4	LAN2_D+

## 2.8 Audio Interface (Screen Printing: FP\_AUDIO, JAUD)

Realtek Audio controlling chip. The green interface is for audio output (Line-out), and the pink interface is for Mic input (Mic-in). The JAUD pin is for the power amplifier.

**FP\_AUDIO** (Screen Printing: FP\_AUDIO)

Signal	Pin		Signal
MIC2-L	1	2	AGND
MIC2-R	3	4	AVCC(NC)
FRO-R	5	6	MIC2-JD
F-IO-SEN(AGND)	7	8	N/A



FRO-L	9	10	LIN2-JD
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**JAUD** (Screen Printing: JAUD)

Pin	Signal
1	L+
2	L-
3	R-
4	R+

## 2.9 COM (Screen Printing: COM1, J1, J2, J3)

The board equipped 1x COM port (internal headers with 2.54mm distances in between) RS232 default, RS485/RS422 optional.

**COM1** (Screen Printing: COM1)

Pin	RS232	RS485	RS422
1	DCD	DATA-	TX-
2	RXD	DATA+	TX+
3	TXD	(NC)	RX+
4	DTR	(NC)	RX-
5	GND	GND	GND
6	DSR	(NC)	(NC)
7	RTS	(NC)	(NC)
8	CTS	(NC)	(NC)
9	RI	(NC)	(NC)

**COM1 Setting Mode** (Screen Printing: J1, J2, J3)

	RS232	RS485	RS422
COM1	J1(1-3)(2-4) J2(1-3)(2-4) J3(1-2)(3-5)	J1(3-5)(4-6) J2(1-3)(2-4) J3(3-4)(7-8)	J1(3-5)(4-6) J2(3-5)(4-6) J3(1-3)(5-6)

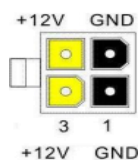
## 2.10 Board Power Supply (Screen Printing: PWR1, PWR2)

Supports 12V DC-in power adapter or ATX 12V supplementary power (2x2 pin)

**PWR1:**12V DC-in power socket



**PWR2:**ATX12V Supplementary power supply socket(2x2PIN)



## 2.11 Switch panel pin (Screen Printing: JPOWER)

The front control panel interfaces are to connect the functional buttons and indicators on the front panel.

**JPOWER** (Screen Printing: JPOWER)

Signal	Pin		Signal
HDD_LED+	1	2	PWR_LED+
HDD_LED-	3	4	PWR_LED-
RSTBTN-	5	6	PWR_ON+
RSTBTN+	7	8	PWR_ON-
NC	9	10	N/A

## 2.12 System Fan (Screen Printing: SYSFAN)

The board provides one system fan socket default 12V power supply (5V Optional).

**SYSFAN** (Screen Printing: SYS\_FAN)

Pin	Signal
1	GND
2	VCC
3	TAC
4	CTL

## 2.13 CPU FAN Socket (Screen Printing: CPU\_FAN)

The board provides a CPU Fan socket for cooling, default 5V power supply (12V Optional).

**CPU\_FAN** (Screen Printing: CPU\_FAN)

Pin	Signal
1	VCC
2	GND
3	TAC
4	CTL

**CPU\_FAN** (Screen Printing: CPU\_FAN) Standard definition

Pin	Signal
1	GND
2	VCC
3	TAC
4	CTL

## 2.14 CMOS Clearance/Retention (Screen Printing: CLR\_CMOS)

CMOS is powered by onboard button batteries. Clearing CMOS will permanently remove the previous system settings and restore the board to the original (factory settings) system settings.

**Step 1:** Turn off the PC and disconnect the power adapter.

**Step 2:** Use the jumper cap to connect the 1<sup>st</sup> and 2<sup>nd</sup> header of CLR\_CMOS for about 10 seconds, then disconnect.

**Step 3:** Plug the jumper cap into the 2<sup>nd</sup> or 3<sup>rd</sup> header of CLR\_CMOS. (Please note: Connecting the 1<sup>st</sup> and 2<sup>nd</sup> header: CLR\_CMOS, Connecting the 2<sup>nd</sup> and 3<sup>rd</sup> header: Normal boot)

**Step 4:** When starting the device, press the <Del> button to enter the BIOS, load the optimal default value, save, and exit the settings.

**COMS** (Screen Printing: CLR\_CMOS)

Pin	Settings	Function
1-2	Connect	Clear COMS
2-3	Open	Normal boot



Please do not clear COMS when the PC is connected to power in case of any board damage.