

TOM-M5  
Rev 1.0

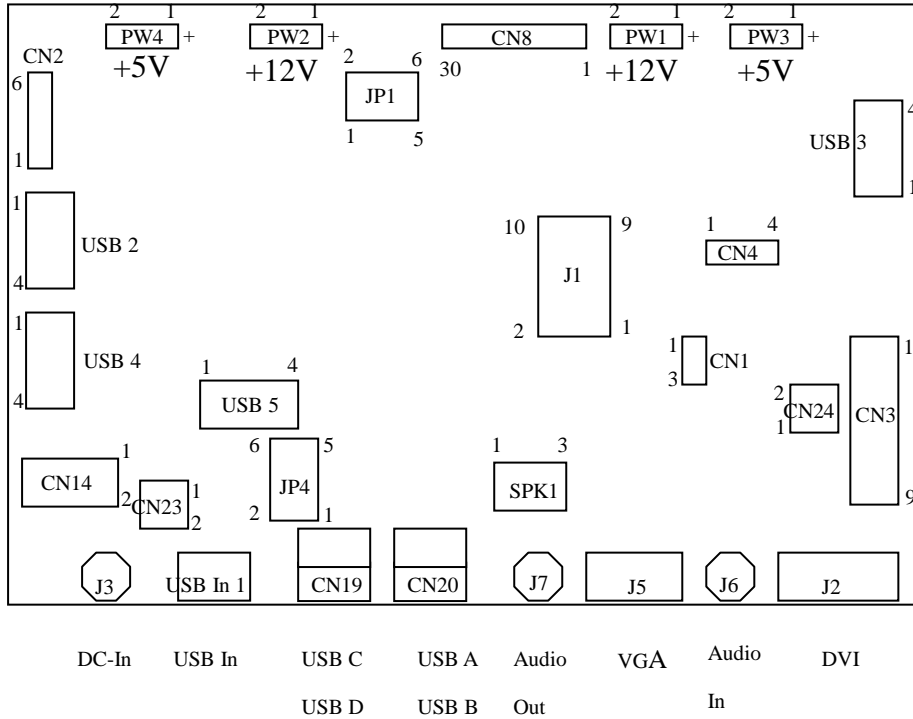
System Board

Hardware Description

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# Board layout



## Jumpers Settings

- **JP1:** LCD Voltage setting

Pin No	Description
1-2	+3.3V
3-4	+5V
5-6	+12V

**Default Setting: JP1(1-2) +3.3V**

- **JP4:** Internal USB5 or External USB C

Pin No	Description
1-3, 2-4	External USBC
3-5, 4-6	Internal USB5

**Default Setting: JP4 (1-3, 2-4)**

# Connectors

J1	VGA Input ( 2x5 pin header)
J2	D-SUB DVI Female Connector
J3	DC In (+12V)
J5	DB-15 Female VGA Input Connector
J6	Audio input Jack
J7	Audio output Jack
CN1	Debugged Port
CN2	Inverter Interface Connector
CN3	External OSD Connector
CN4	Debugged Port
CN8	LCD Interface Connector
CN19,CN20	External USB Output Connectors
CN22	Switch and +12V power
CN23	Audio Speaker Output Right Connector
CN24	Audio Speaker Output Left Connector
SPK1	Audio Speaker Output connector (3pins)
USBIN1	USB Input Connector
USB2,USB3,USB4,USB5	Internal USB Output Connectors
PW1, PW2	+ 12V Power Output Connector
PW3, PW4	+ 5V Power Output Connector

## 1. Analog and Digital Input Connector (J1,J2,J5)

TOM-M5 provides one built-in 10-pin header signal input connector ,one D-SUB VGA female connector and one D-SUB DVI female connector .

- **J1: VGA Input Connector (2X5 pin header/2.54mm male box)**

PIN	Description	PIN	Description
1	RED	2	SMCLK
3	GREEN	4	SMDATA
5	BLUE	6	GND
7	H-SYNC	8	GND
9	V-SYNC	10	GND

- **J2: Digital Input Connector (D-SUB DVI Female Connector)**

PIN	Description	PIN	Description
1	RX2-	2	RX2+
3	GND	4	NC
5	NC	6	DVI-SCL
7	DVI-SDA	8	NC
9	RX1-	10	RX1+
11	GND	12	NC
13	NC	14	DVI-5V
15	GND	16	HOT-PLUG
17	RX0-	18	RX0+
19	GND	20	NC
21	NC	22	GND
23	RXC+	24	RXC-

- **J5: DB-15 Female VGA Input Connector (DB-15 female)**

PIN	Description	PIN	Description
1	RED	2	GREEN
3	BLUE	4	N/C
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	N/C	12	DDC DAT
13	HSYNC	14	VSYNC
15	DDC CLK		

## 2. Debugged Port (CN1, CN4)

The TOM-M5 provides one port for debugging the 80C51 microcontroller. It supports Full-duplex enhanced UART . It's for manufacture only.

- **CN1: Debugged Port (3 pins JST/2.0mm)**

PIN	Description
1	GND
2	SCL
3	SDA

- **CN4: Debugged Port (4 pins JST/2.0mm)**

<b>PIN</b>	<b>Description</b>
1	+5V
2	TX
3	RX
4	GND

### **3. External OSD Connector (CN3)**

- **CN3: External OSD and LED Indication Connector (9 pin JST/2.0mm)**

<b>PIN</b>	<b>Description</b>
1	LED_RED
2	LED_SENSOR
3	LED_GREEN
4	MENU/ENTER
5	RIGHT
6	LEFT
7	AUTO/EXIT
8	LCD ON/OFF
9	GND

#### **Menu/Enter Button**

Press it to open OSD window and enter user mode to do the function adjustment or selection of the item . It may have many levels in one item. As you select this kind of item, you will enter the next level and see the sub-items.

#### **Right Button**

Press it to Scroll item Right or to decrease the value or to switch the selected item to another.

#### **Left Button**

Press it to Scroll item Left or to increase the value or to switch the selected item to another.

#### **Auto/Exit Button**

Auto Configuration to suitable pattern.

#### **LCD ON/OFF Button**

Control LCD ON/OFF button

#### 4. Power Output Connector (PW1,PW2,PW3,PW4)

- **PW1,PW2:** + 12V Power Output Connector

PIN	Description
1	+12V
2	GND

- **PW3,PW4:** + 5V Power Output Connector

PIN	Description
1	+5V
2	GND

#### 5. Power Input Connector (J3,CN22)

- **CN22:** Switch and + 12V Power

PIN	Description
1-2	Switch
3	+12V
4	GND

Default setting: Pin1 and Pin 2 short.

- **J3:** Power Input jack (**power jack**)

PIN	Description
1	GND
2	GND
3	+12V

## 6. LCD Interface Connector (CN8)

The TOM-M5 can support 18/24/36/48 bits LVDS interface panel directly.

### CN8: LVDS Signal Output Connector (Hirose DF14-30F)

PIN	Description	PIN	Description
1	GND	2	GND
3	TXO3+	4	TXO3-
5	TXOC+	6	TXOC-
7	TXO2+	8	TXO2-
9	TXO1+	10	TXO1-
11	TXO0+	12	TXO0-
13	GND	14	GND
15	TXE3+	16	TXE3-
17	TXEC+	18	TXEC-
19	TXE2+	20	TXE2-
21	TXE1+	22	TXE1-
23	TXE0+	24	TXE0-
25	GND	26	GND
27	PANEL VDD	28	PANEL VDD
29	PANEL VDD	30	PANEL VDD

## 7. Inverter Interface Connector (CN2)

The TOM-M5 provides the connector of Inverter. The PBIAS control the status(ON/OFF) of Inverter . The BKLT\_ADJ can adjust brightness of OSD brightness function . OSD brightness function can control a PWM input and variable DC voltage to minimize flickering (due to the interference between panel timing and inverter's AC timing), and adjust LCD back light brightness.

### CN2: Inverter interface connector (6 pin JST /2.0mm)

PIN	Description
1	+12V
2	+12V
3	GND
4	BKLT_ADJ
5	GND
6	H:ON L:OFF



## 8. USB Input Connector (USBIN1)

USBIN1: USB Signal Input connector (4 pin JST /2.5mm)

PIN	Description
1	NC
2	USBD0-
3	USBD0+
4	GND

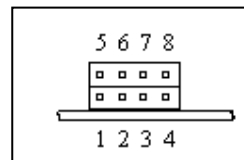
## 9. USB Output Connector (USB2,USB3,USB4,USB5,CN19,CN20)

- USB2,USB3,USB4,USB5: USB Internal Output connector (4 pin JST /2.5mm)

PIN	Description
1	+5V
2	USBD0-
3	USBD0+
4	GND

- CN19,CN20: 4 External USB Connectors

PIN		Description
1	5	+5V
2	6	USBD0-
3	7	USBD0+
4	8	GND



## 10. Audio Connector (J7,SPK1,CN23,CN24)

- J7: Audio Output Jack

PIN	Description
1	AGND
2	Audio_Output_Left
3	AGND
4	AGND
5	Audio_Output_Right

- **J6: Audio input Jack**

<b>PIN</b>	<b>Description</b>
1	AGND
2	Audio_Output_Left
3	AGND
4	AGND
5	Audio_Output_Right

- **SPK1: Audio Speaker Output connector (3pin JST /2.5mm)**

<b>PIN</b>	<b>Description</b>
1	Audio_Output_Right
2	AGND
3	Audio_Output_Left

- **CN23: Audio Speaker Output Right connector (2pin JST /2.5mm)**

<b>PIN</b>	<b>Description</b>
1	Audio_Output_Right
2	AGND

- **CN24: Audio Speaker Output Left connector (2pin JST /2.5mm)**

<b>PIN</b>	<b>Description</b>
1	Audio_Output_Left
2	AGND