TOP80C

（PCB Rev:1.20）

Manual Version 1.20

2017.12.26

1 Introduction

TOP80C is our company standard Mini-ITX industrial motherboard, use Intel 4th generation Haswell-U single chip CPU.The main features are as follows.

1.1 main features

1.1.1 Onboad CPU，support Intel Mobile 4th Haswell-U/Y CPU（BGA1168）。

1.1.2 1 DDR3 SODIMM 204 Socket，max support 8GB DDR3L ram，1066/1333/1600MHz。

1.1.3 Onboard 2GB/4GB DDR3L ram（Optional）

1.1.4 1 Onboard 32G/64G SSD（Optional）

1.1.5 Onboard 1 个 1000M LAN（can select 2 network cards. When 2 network cards are selected, the USB interface is 5）

1.1.6 Onboard HDAALC662，provide MIC/LINE-OUT and pin interface

1.1.7 On-board dual-channel amplifier with dual 3W 4Ω speakers per channel (optional); SPDIF digital audio interface

1.18 2 Mini-PCIE socket (he Mini-PCIE2 and the touch screen share the USB channel. When the touch screen is available, the Mini-PCIE2 can only use the PCIE channel device.）

1.1.9 1 Mini-SATA socket

1.1.10 2 SATA 3.0 hard disk interface

1.1.11 2 USB 3.0, 5 USB2.0 interface (When 2 LAN are selected, USB2.0 is 3)。

1.1.12 2 RS422/RS485 and 4 RS232（Can choose 6 RS232, select one）

1.1.13 1 PS/2 interface（Pin, can connect keyboard and mouse）

1.1.14 support HDMI Output，Support 4K display Output (3200*2000)

1.1.15 support RGB CRT Output

1.1.16 supports dual 24-bit LVDS Output and EDP1.3, 4Lanes (3840*2160) Output (only one option can be selected)

1.1.17 Supports touch screen (4wire 5wire 8wire)

1.1.18 2 3-Pin FAN interfaces.

1.1.19 support 8 GPIO

1.1.20Power Supply Single Input DC Power Supply, DC12V, +/- 5% (+/- 12% if 12V is not used for hard disk). Support power-on automatic boot function, jumper selection.

1.1.21 170 x 170 mm

1.1.22 Working Environment Main Board Operating Temperature: -20° C ~ +60° C Main Board Storage Temperature: -40° C ~ +85° C

2 TOP80C Front interface layout

TOP The layer layout is shown in the figure below.

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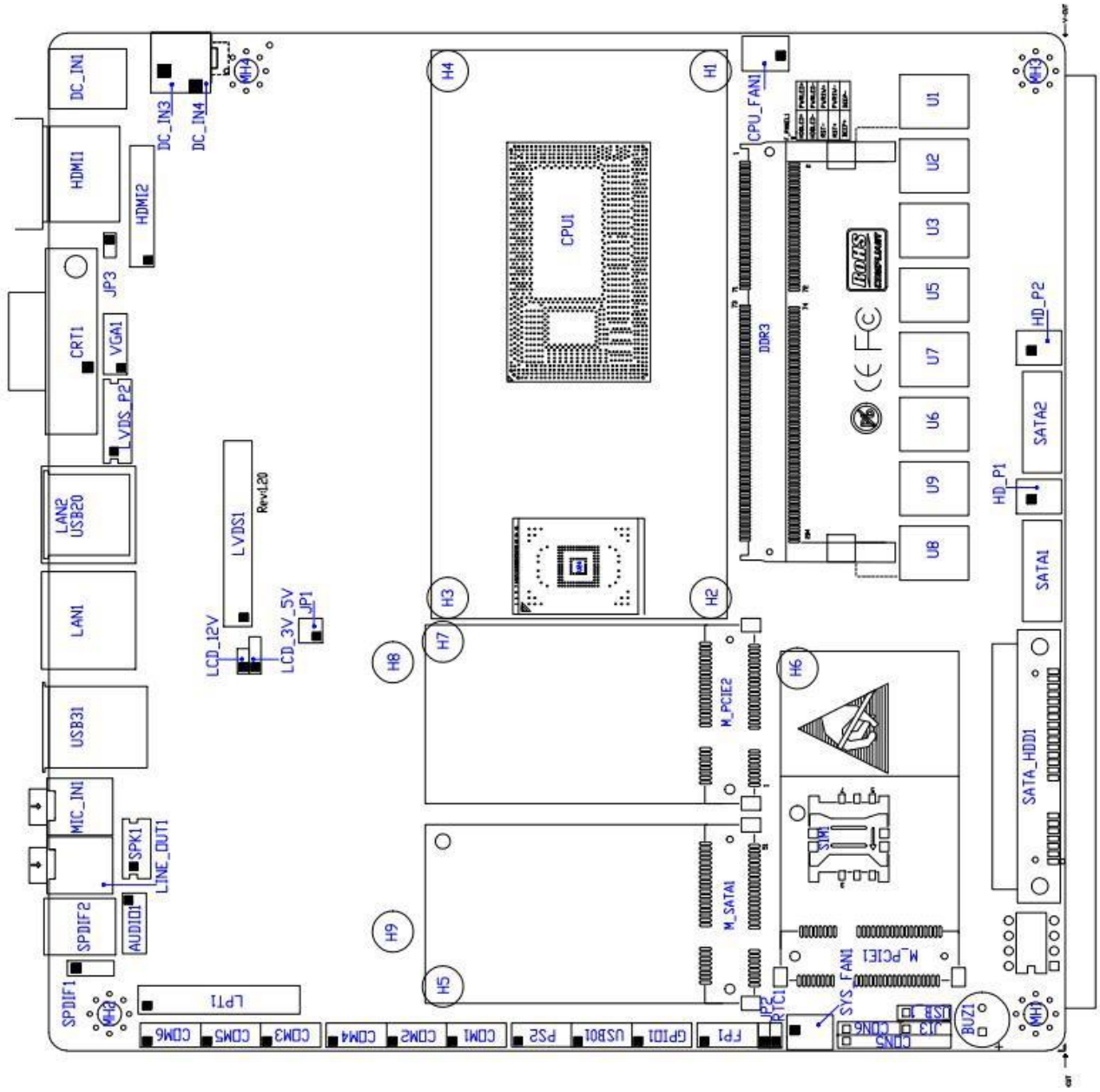


Note: In the picture interface, Pin is square for **Pin 1**。

2.1 DC_IN1 and DC_IN3

The same as the motherboard input power interface, Only one can be selected during production interface, Customer on demand.

DC_IN1 The standard DC-JACK interface, center column 2.5mm.

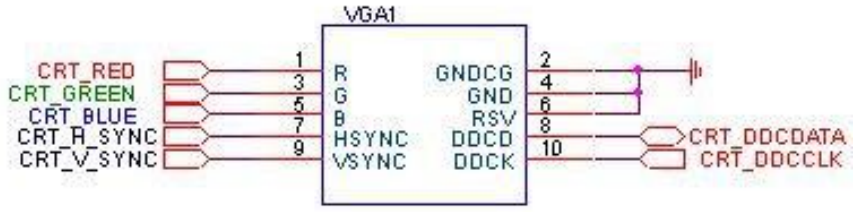
DC_IN3 is DT-126RP-02P type Terminal Blocks interface. Pay special attention to the positive and negative poles of the power supply.

2.2 Note: When assembling, testing, and using, you must power on the device and cable after it is installed.

2.3 CRT1 and VGA1

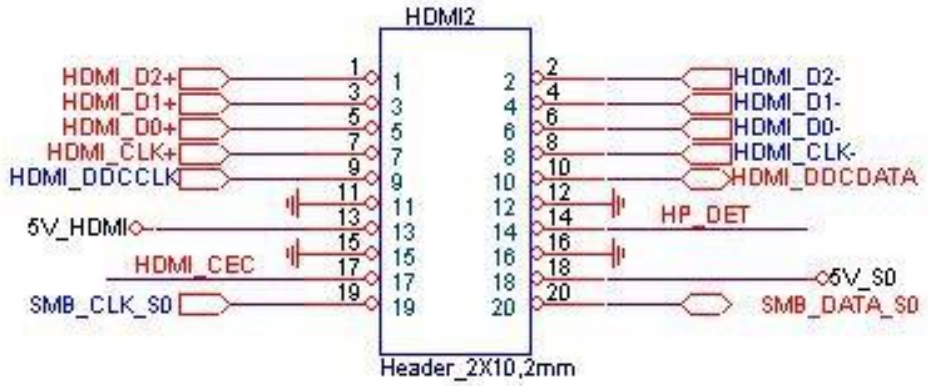
CRT1 is the standard CRT monitor output interface.

VGA1 is 2x5、2mm Pin interface, Both cannot be used simultaneously.



2.4 HDMI1 and HDMI2

HDMI1 standard HDMI output interface, HDMI2 is 2×10, 2mm pin interface, the two can not be connected at the same time, HDMI2 is defined as



follows:

2.5 USB31

USB31 is a standard USB3.0 interface that supports two USB3.0 devices and is compatible with USB 1.0/1.1/2.0 devices.

USB31 Power selection: on F5, not on F6 is standby 5V (default); on F6, not on F5 is boot 5V.

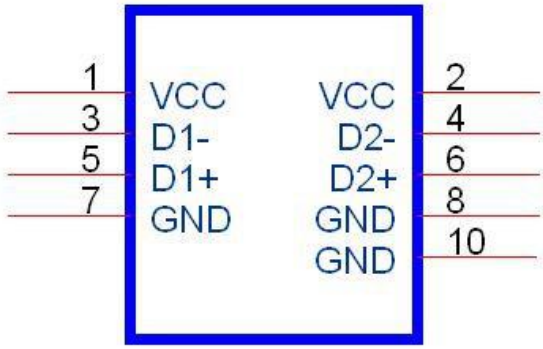
2.6 USB20

USB20 is 2 standard USB2.0 interface

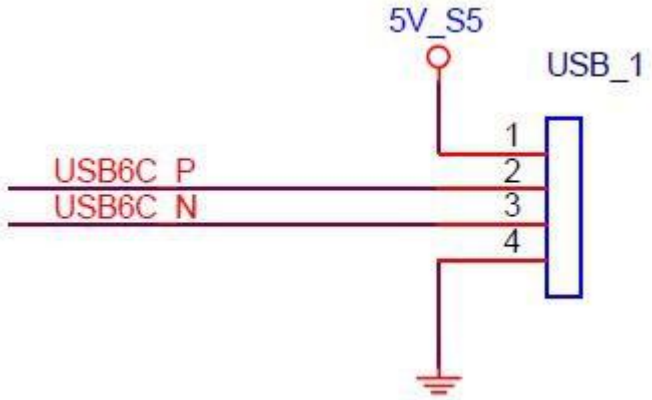
USB20 Power selection: on F4, not on F7 is standby 5V (default); on F7, not on F4 is on 5V

2.7 USB20、USB01、USB_1（USB2.0 is 3 when there are two network cards）

USB20、USB01 是 2x5、2mm Pin interface ， USB 1.0/1.1/2.0 devices are supported and are defined as follows:



USB_1 The definition is as follows:



USB01 Power selection: on F2, not on F3 is standby 5V (default); on F3, not on F2 is on 5V

2.8 LAN1（Can choose 2 network cards）

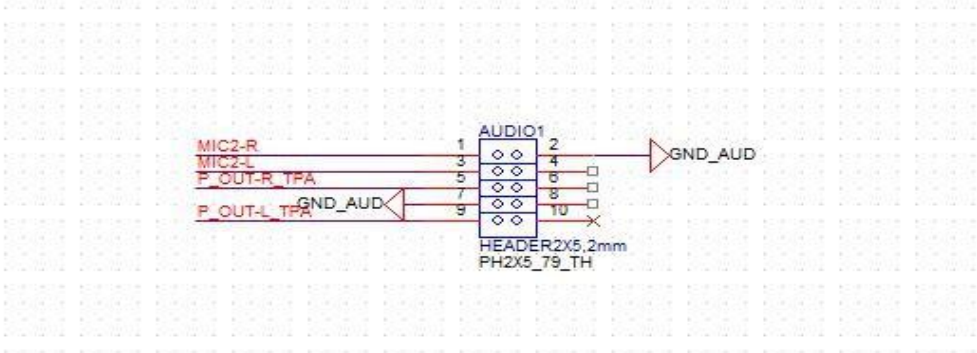
10/100/1000 M LAN standard RJ45 interface, the main control chip is Realtek RTL8111E.

2.9 MIC_IN、LINE_OUT 和 AUDIO1

MIC_IN is MICPHONE onput interface，Use a universal connector.

LINE_OUT is Audio output interface, using a universal connector.

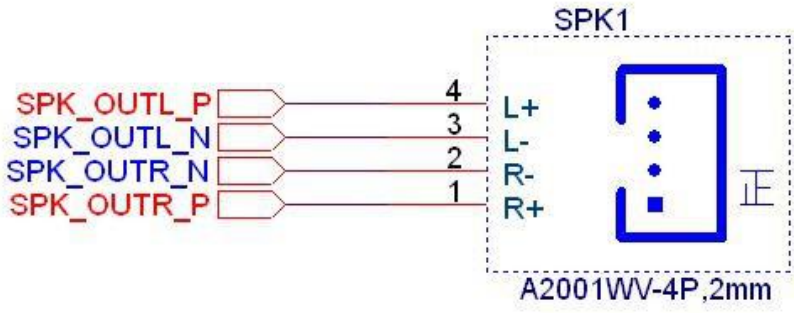
AUDIO1 is 2x5、2mm Pin interface，The definition is as follows:



LINE_OUT for audio output，MIC_IN can choose MIC_IN or LINE_IN

AUDIO1 is LINE_OUT and LINE_IN

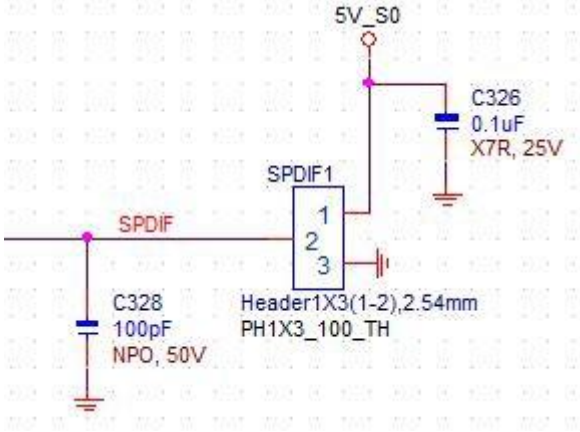
2.10 Audio amplifier output interface SPK1 (optional) is defined as the following figure, dual channel amplifier, each channel supports 6W/8Ω



speaker.

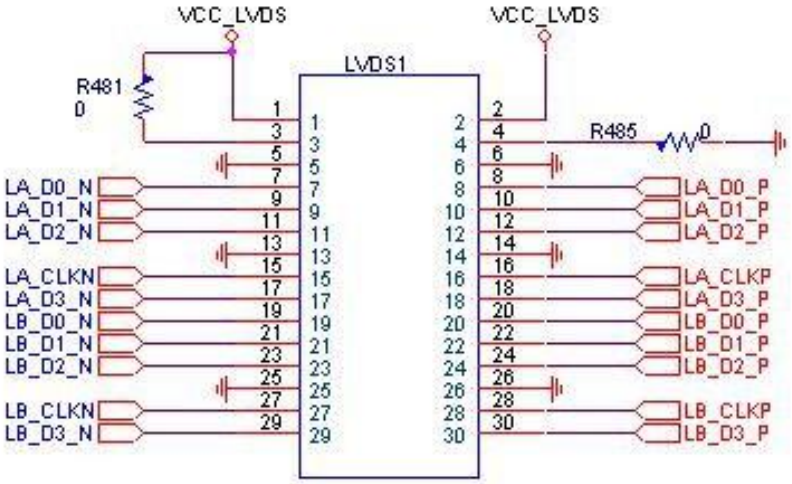
Note: The front panel AUDIO1 has the highest priority, and the front panel AUDIO1 device is plugged in. MIC_IN, LINE_OUT can not be used. Plugged in the LINE_OUT audio output device, SPK1 has no output.

2.11 2.11 SPDIF header and SPIF standard interface (use one of two options) uses 1x3, 2.54mm pin header, as defined below



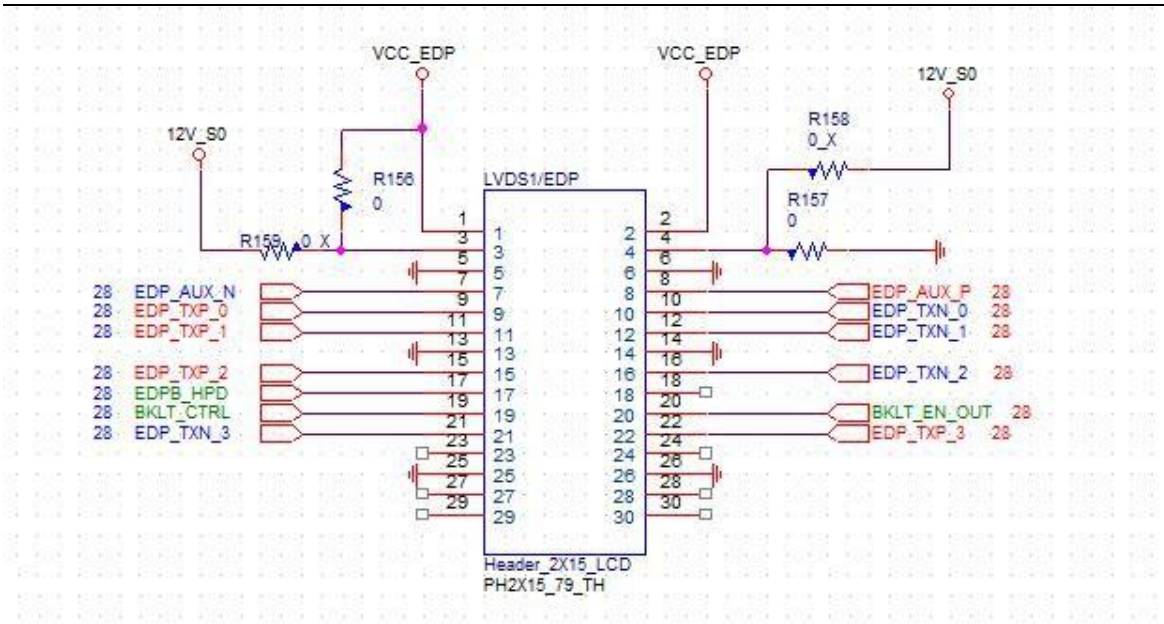
2.12 LVDS1 and EDP(choose one)

24-bit dual-channel LVDS screen interface, 2x15, 2mm pin interface defined as shown



below.

EDP interface the definition is as shown below

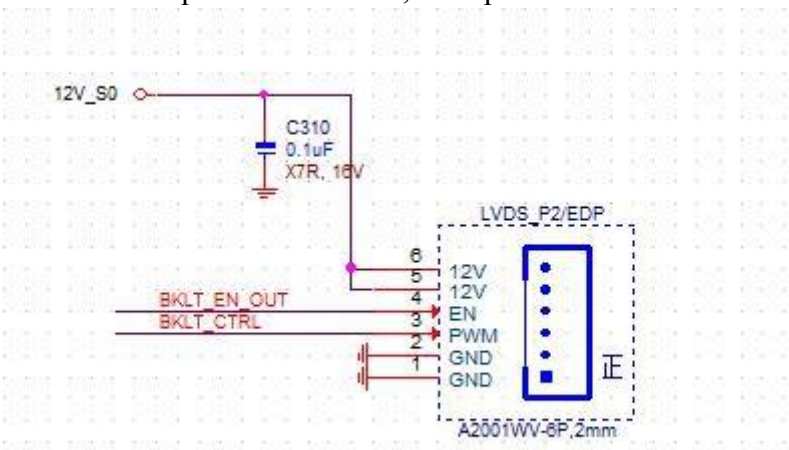


2.13 LCD_3V_5V and LCD_12V LVDS1 and EDP power supply VCC power supply selection.

options	VCC_LVDS Voltage
LCD_3V_5V(1-2)、LCD_12V（Open）	3.3V(Default setting)
LCD_3V_5V(2-3)、LCD_12V（Open）	5V
LCD_3V_5V(Open) 、 LCD_12V（Close）	12V

2.14 LVDS_P1 and EDP

LVDS screen and EDP screen backlight interface, using CJT company A2001WR-6P-1 connector or other compatible connector, each pin is defined as

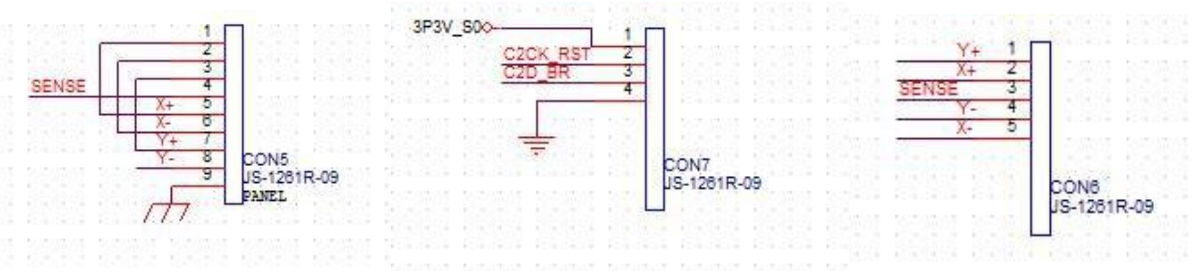


follows.

LVDS_P	LVDS_P Pin definition
1	Ground
2	Ground
3	Backlight brightness control
4	Backlight on

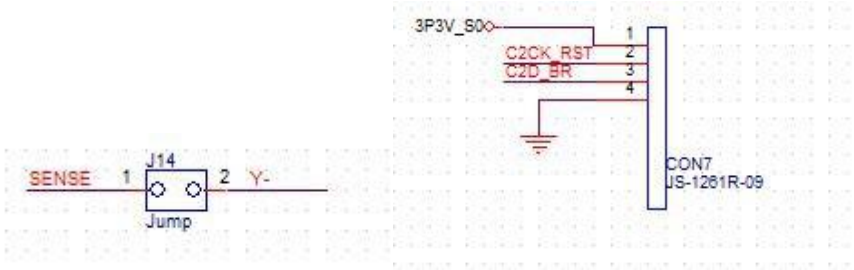
5	12V
6	12V

2.15 CON5 ,CON6,CON7



Touch screen interface definition			
	CON5	CON6	
	8-Wire	4-Wire	5-Wire
PIN1	Right sense	Right	LR(X)
PIN2	Left Sense	Left	LL(L)
PIN3	Bottom Sense	Bottom	Sense(S)
PIN4	TOP Sense	TOP	UR(H)
PIN5	Right Excite	GND	UL(Y)
PIN6	Left Excite	N/A	GND
PIN7	Bottom Excite	N/A	N/A
PIN8	Top Excite	N/A	N/A
PIN9	GND	N/A	N/A

2.16 J14，CON7

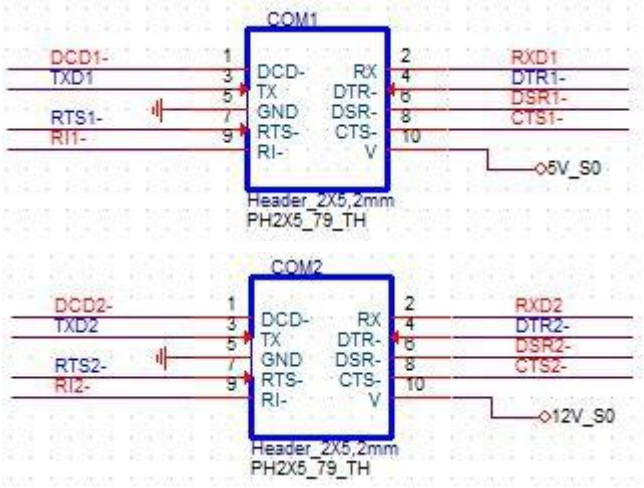


J14 Open：4,8Wire Short：5Wire

CON7 can be connected to write touch screen chip data device

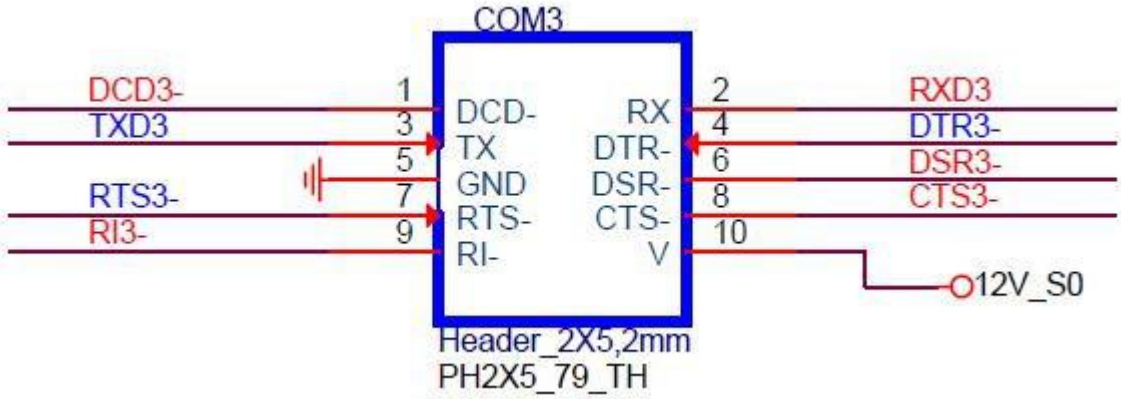
2.17 COM1、COM2(Select either RS232 or RS485/RS422) use Pin interface，use 2x5、2mm Pin，When COM1 and COM2 are RS422/RS485, they are defined as follows:

When COM1 and COM2 are RS232, they are defined as follows:：



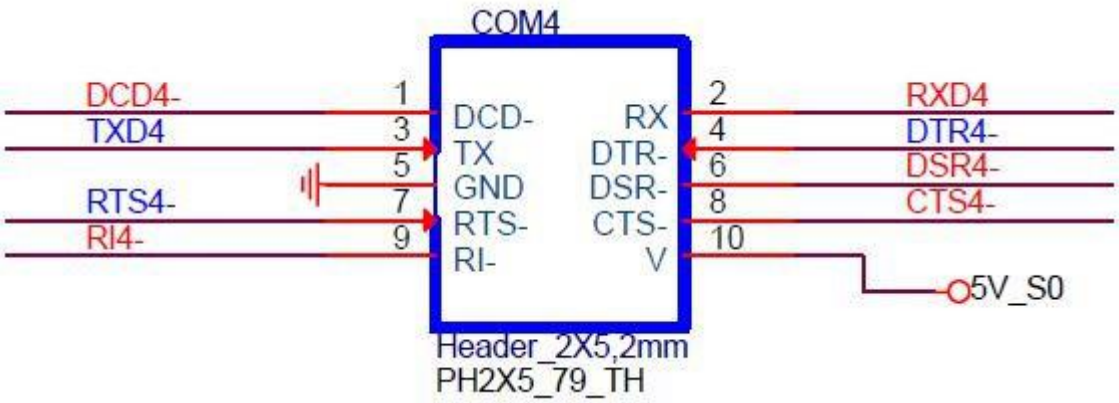
2.18 COM3、COM6

RSR232 Pin interface，use 2x5、2mm Pin，Pin10 is 12V power

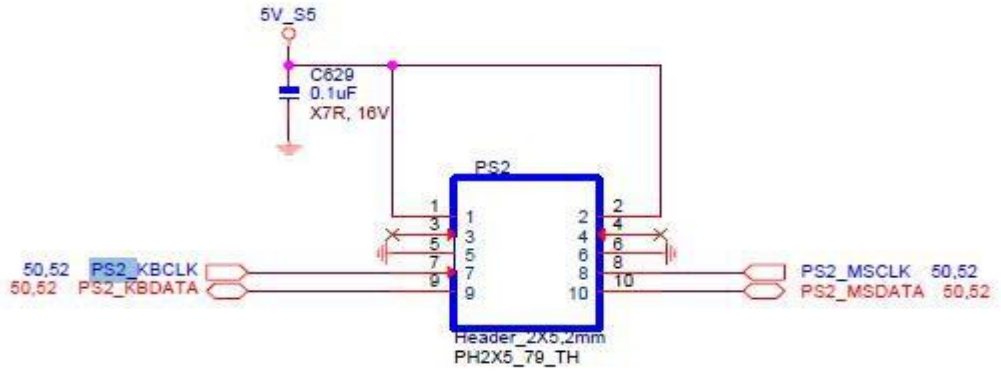


2.19 COM4、COM5

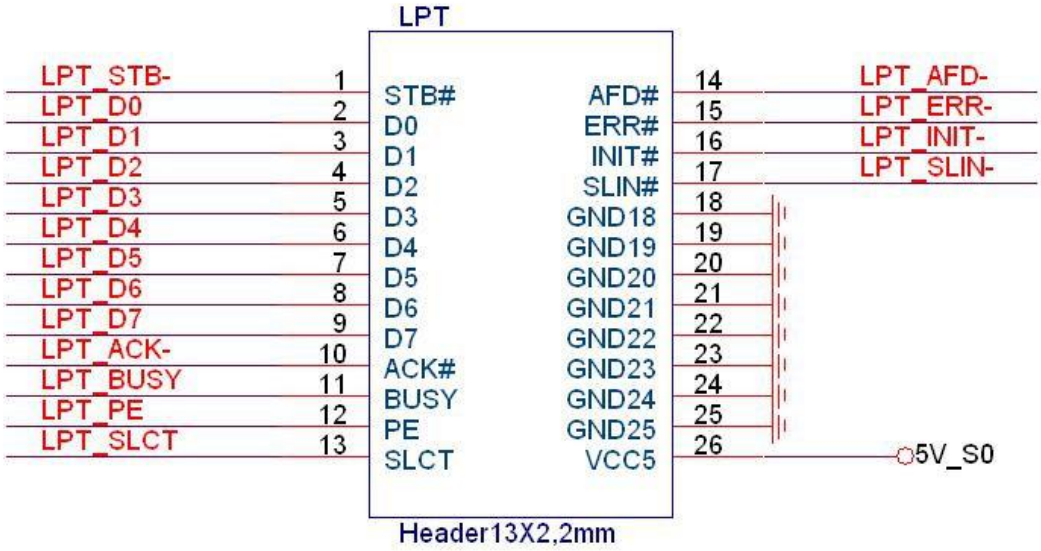
RSR232 Pin interface，use 2x5、2mm Pin，Pin10 is 5V power



2.20PS/2 interface is 2×5 2mm Pin，The definition is as follows:



2.21 Parallel LPT uses 13X2 pin, 2mm, defined as follows

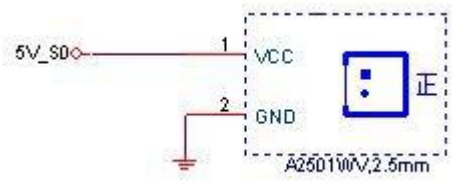


2.22 SATA1、SATA2

Standard SATA device interface, supports SATA3.0 and below. SATA2 can be replaced with a 90-degree bend SATA interface to accommodate low-profile structures

2.23 HD_P1、HD_P2

Two SATA device power interfaces, using CJT A2501WV-2P devices or other compatible devices. Meaning similar to the figure below.



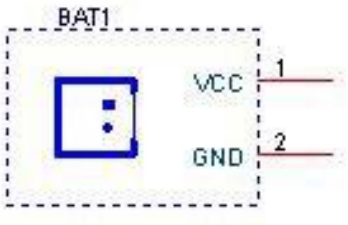
2.24 RTC1

RTC1 is an RTC clear jumper using 1x2, 2mm pin headers.

RTC1	Function Description
Close	Clear RTC CMOS
Open	Default settings

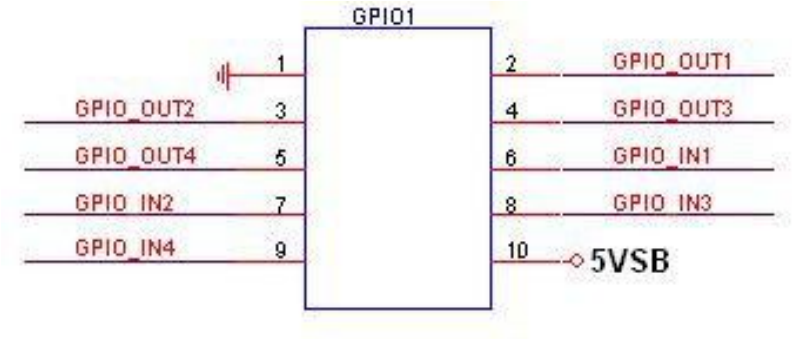
2.25 BAT1

Battery interface, convenient battery replacement. Using CJT A1251WV-2P interface or other compatible interface



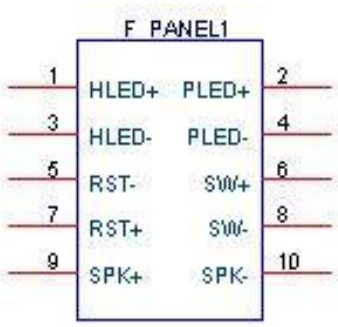
2.26 GPIO1

Alternate GPIO interface, using 2x5, 2mm pin headers, is defined as follows. GPIO input and output characteristics can be BIOS modification. Please contact FAE for GPIO address entry.



2.27 FP1

The control panel uses interface, uses 2x5, 2mm pin header, and integrates HDD_LED, PWR_LED, boot switch, reset switch and SPEAKER function. The pin is defined as follows.



F_PANEL1	Pin definition
1，3	The hard disk reads and writes the positive and negative signal pins.
2，4	Main power indicator positive and negative signal pins.

5，7	Mainboard reset signal positive and negative signal pins.
6，8	Motherboard switch signal positive and negative signal pins.
9，10	Backup buzzer interface.

2.28 JP2

Select the jumper for the AT Power On Mode. When Close is selected, the DC power is turned on and the motherboard is powered on.

PS_ON	Boot mode selection
Close	AT power on mode
Open	ATX power on mode

2.29 MPCIE1

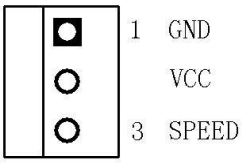
The MPCIE1 is a standard Mini-PCIE card holder with a full-length card. Half-length card Mini-PCIE card, must be connected with an extension card to fix.

2.30 SIM1

3G SIM card holder.

2.31 CPU_FAN1、SYS_FAN1

The FAN interface supports a maximum current of 0.3A, as defined



below.

CPU fan interface, support for automatic speed adjustment. The maximum fan voltage is equal to the input supply voltage. When the input supply voltage is high, select the appropriate fan. The SYS fan does not support automatic speed adjustment.

2.32 DDR3 and onboard ram

DDR3 is an extra plug-in DDR3/DDR3L memory socket, standard DDR3 SODIMM204 memory socket, and supports up to 8GB of memory (1066/1333/1600MHz).Onboard DDR3L memory with 2GB/4GB/above options.

When using external memory and onboard memory at the same time, use the same chip and capacity as much as possible, otherwise it may be unstable.

2.33 JP1

JP1 is used to set the number of LVDS channels and the number of bits;

JP1	Function settings
1-2	Close indicates support for single-channel LVDS screens; Open indicates support for dual-channel screens.
3-4	Close indicates support for 24-bit screens; Open indicates support for 18-bit screens.

2.34 USB4 and touch screen USB signal channel selection instructions

1. On the R830 and R832, the USB signal is connected to the USB4 (pin USB4 is the second USB, the touch is not available)

2.On the R831 and R833, the USB signal is connected to the touch screen interface (the touch screen is available, and the USB4 is a group of USB)

2.35 M_SATA

Supports Mini-SATA memory cards. Since the industry standard is not clear, this board supports MINI-SATA cards defined by some large companies. For specific models, please consult our company's business and support personnel.