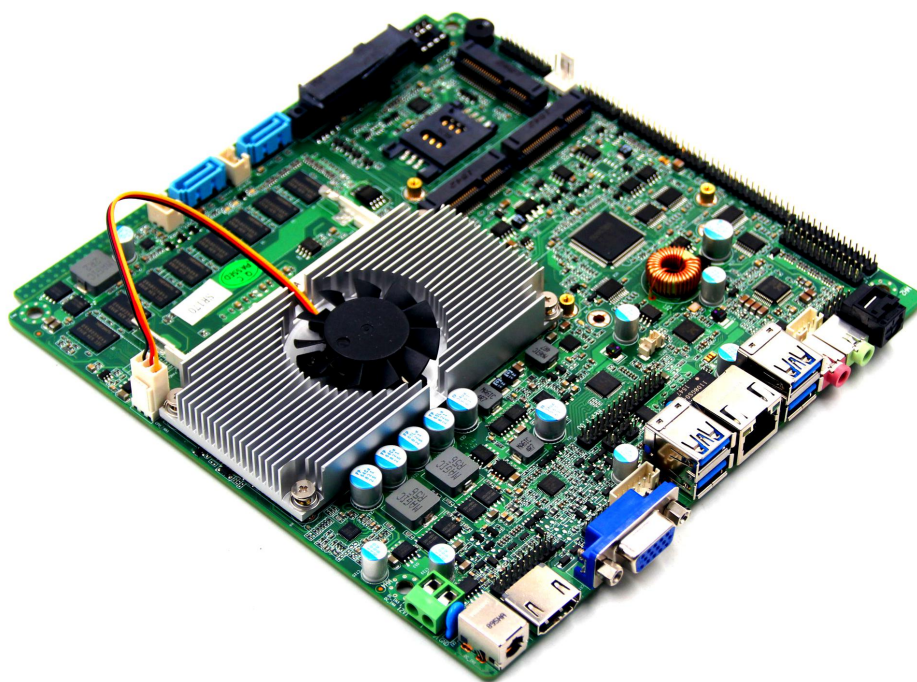


# TOP80B Mainboard

(PCB Rev:1.00)

**Manual Version 1.00**

**2016.12.1**



## 1 SUMMARY

TOP80B is Standard Mini-ITX Industrial grade motherboard with INTEL CORE the 4<sup>th</sup> generation Haswell-U SOC Processor.

### 1.1 Main Features

- 1.1.1 Onboard BGA CPU, Support Intel Mobile 4<sup>th</sup> Haswell-U/Y CPU (BGA1168)
- 1.1.2 Onboard 1\*DDR3L RAM Slot,Maximumcapactiy 8GB DDR3L 1066/1333/1600MHz。
- 1.1.3 Onboard 2GB/4GB DDR3L (optional)
- 1.1.4 Onboard 32G/64G SSD(optional) Or 1\*SATA 2.5inch HDD (one slot only)
- 1.1.5 Onboard 1000M RJ45 LAN
- 1.1.6 Onboard HDA ALC662 with MIC/LINE-OUT and Pin header
- 1.1.7 Onboard dual channel Amplifier module,support 3W 4  $\Omega$  Speaker(optional), Support SPDIF
- 1.1.8 Onboard 2\* Mini-PCIE slot
- 1.1.9 Onboard 1\* Mini-SATA slot
- 1.1.10 Onboard 2\* SATA 3.0 slot
- 1.1.11 Onboard 4\*USB 3.0 and 2\*USB2.0
- 1.1.12 Onboard 2\*USB 2.0 Pin header。
- 1.1.13 Onboard 5\* RS232 and 1\*RS485/RS422 Pin header
- 1.1.14 Onboard 1\*PS/2 Pin header for Mouse, Keyboard
- 1.1.15 Onboard HDMI
- 1.1.16 Support RGB CRT output
- 1.1.17 Support dual channel 24bit LVDS
- 1.1.18 Support onboard Touch panel controller for 4/5/8 wires
- 1.1.19 Onboard 2\* Fan power supply interface (3pin)
- 1.1.20 Support 8bit GPIO

### 1.2 Power supply

Single input DC power,DC12V (+/-5%), (If don't use 12V for the HDD,+/-10%) 。  
Support Restore On AC Power Loss by BIOS settings or Jumper (hardware)

### 1.3 Size

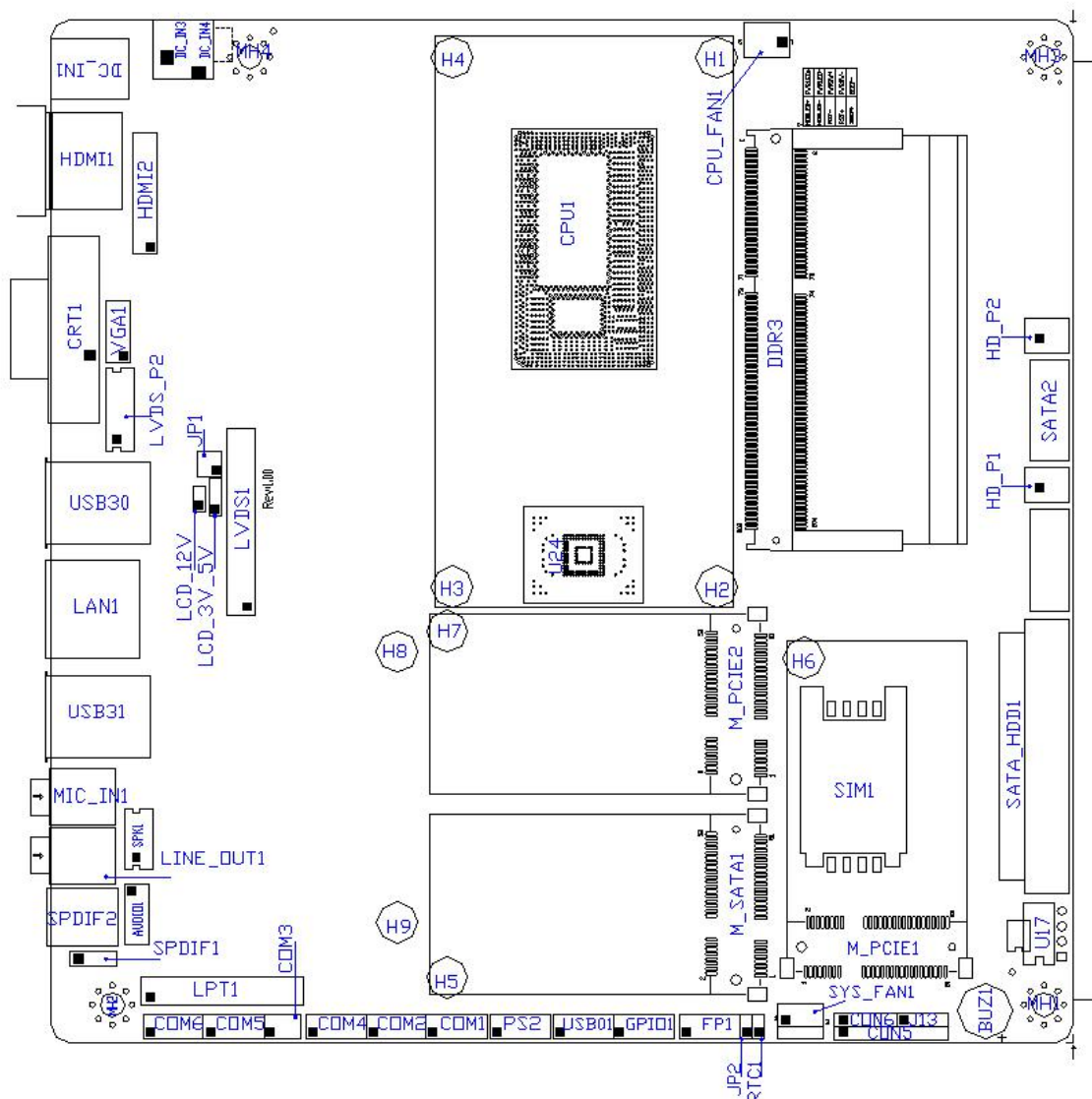
170 x 170 mm

### 1.4 Working Environment

Working Temp:--20°C~70°C (-4°F~158°F)  
Storage Temp:-20°C~80°C (-4°F~176° )  
Operating Humidity:10%~90% (non-condensing)

## 2 TOP80B Front side interfaces layout

TOP layout as below:

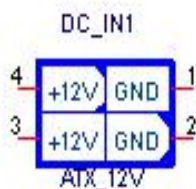


**Remark:** Interfaces in the above picture, **Pin 1** are in square shape.

## 2.1 DC\_IN1 & DC\_IN2

Motherboard input power connectors, the same application can only choose to plug one input power.

DC\_IN1 adopt ATX\_12V interface, as Regular production.



DC\_IN2 is DT-126RP-02P Terminal Blocks interface. Please pay attention to the Positive/Negative electrode of power.

(please input the power, after devices, cables all installed.)

## 2.2 CRT1 & VGA1

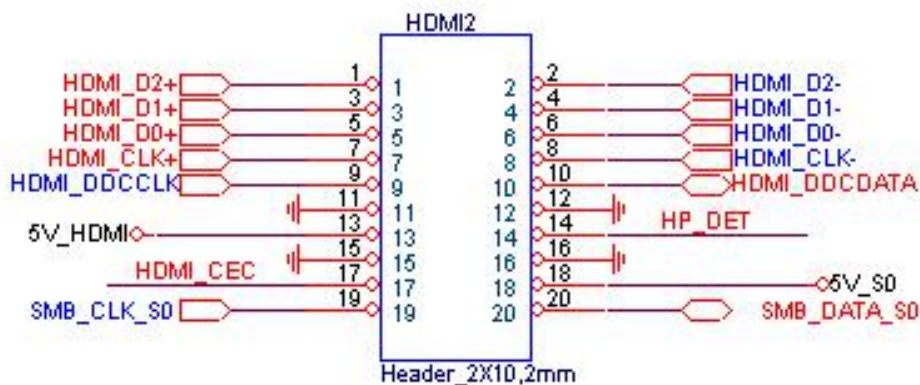
CRT1 is a standard CRT monitor output interface.

VGA1 is 2×5, 2mm expansion header, can not use at the same time.



## 2.3 HDMI1 and HDMI2

HDMI1 is standard HDMI output I/O, HDMI2 is 2×10, 2mm Pin header, Both HDMI port can not be used at same time, HDMI2 definition as below:

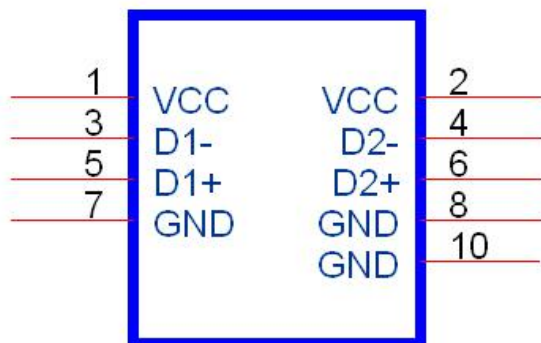


## 2.4 USB30, USB31

4\*standard USB3.0 support 4\*USB3.0 device and compatible with USB 1.0/1.1/2.0

## 2.5 USB01

USB01 is 2x5,2mm pin header compatible USB 1.0/1.1/2.0 device and definition below:



## 2.6 LAN1

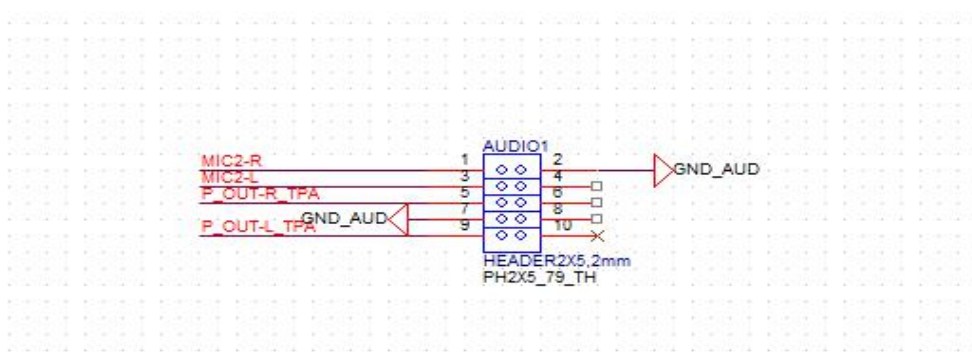
10/100/1000 M LAN is standard RJ45 port, chipset is Realtek RTL8111E. Support Wake-On-Lan and PXE booting.

## 2.7 MIC\_IN、LINE\_OUT and AUDIO1

MIC\_IN is Microphone input port, adopt general connector.

LINE\_OUT is audio output port, adopt general connector.

F\_AUDIO is 2x5,2mm expansion header, definition as below:

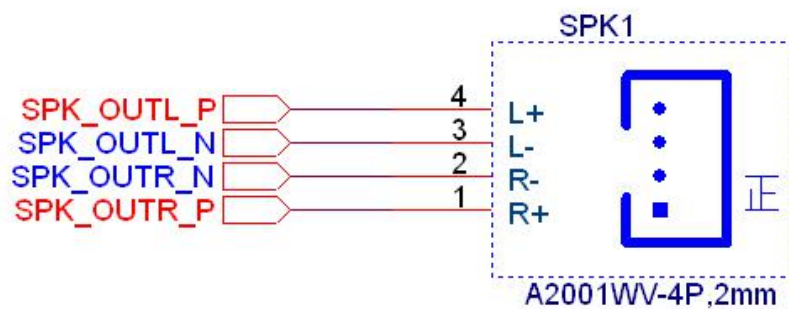


LINE\_OUT is audio output, MIC\_IN can be selected by MIC\_IN or LINE\_IN

AUDIO1 is for LINE\_OUT and LINE\_IN

## 2.8 Audio power amplifier output interface SPK1 (optional)

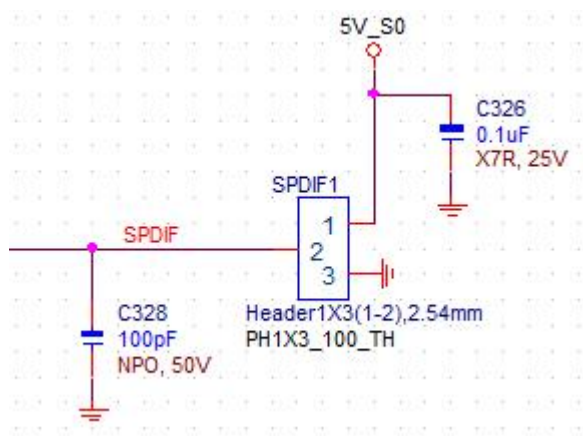
Dual channel power amplifier, support 6W/8Ω horn for each channel. Definition as below:



Attention: The front panel AUDIO1 has priority. MIC\_IN、LINE\_OUT can not work, if the front panel AUDIO1 connected. The SPK1 can not output, if the LINE\_OUT connected.

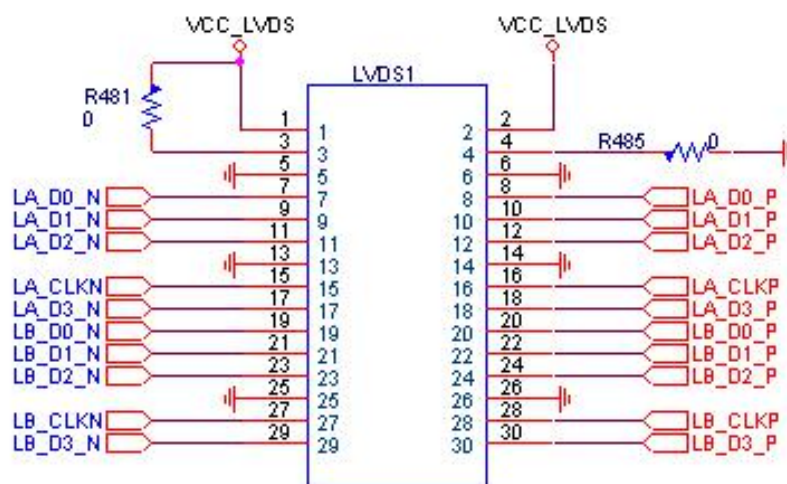
## 2.9 SPDIF pin header and SPIF standard I/O can not work at same time

Adopt 1×3, 2.54mm expansion header, interface optional.



## 2.10 LVDS1

24bit dual CH LVDS interface, adopt 2×15, 2mm pin header, definition as below:



VCC\_LVDS is the power for screen, LCD\_3V\_5V or LCD\_12V, choose through the jumper.

## 2.11 LCD\_3V\_5V & LCD\_12V

LVDS1 power: VCC\_LVDS power selection:

selection mode	VCC_LVDS Voltage
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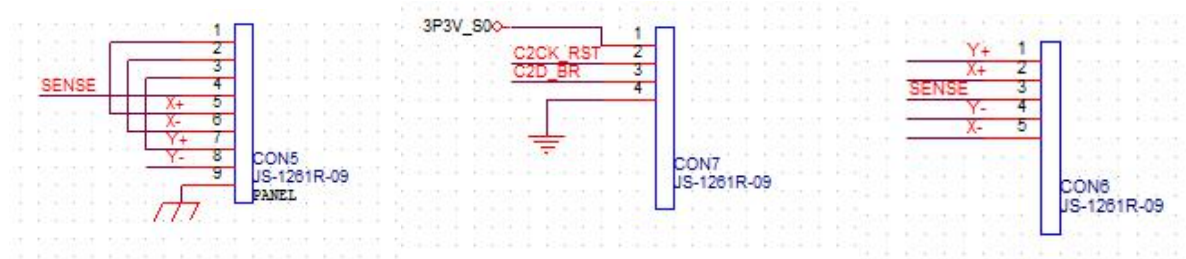
LCD_3V_5V(1-2)、LCD_12V (Open)	3.3V (default setting)
LCD_3V_5V(2-3)、LCD_12V (Open)	5V
LCD_3V_5V(Open)、LCD_12V (Close)	12V

## 2.12 LVDS\_P1

LVDS screen back light interface,adopt CJT A2001WR-6P-1connector or other compatible connector.Definition as below:

LVDS_P	LVDS_P definition
1	Ground
2	Ground
3	Back light luminance control
4	Back light-ON
5	12V
6	12V

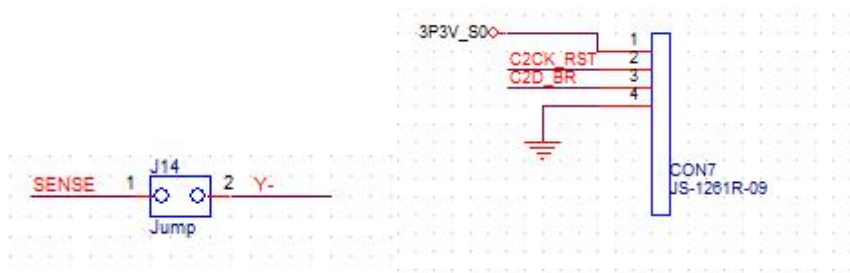
## 2.13 CON ,CON6,CON7



Touch panel 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

## 2.14 J14, CON7



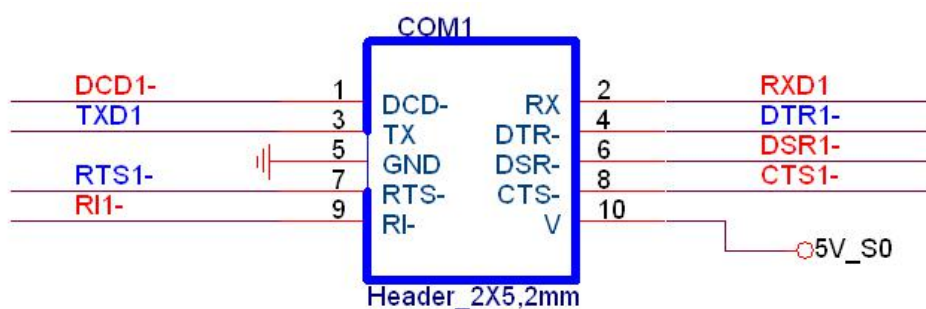


J14 Open: 4,8Wire Short: 5Wire

CON7 connect to chip Flash device to reprogram chips

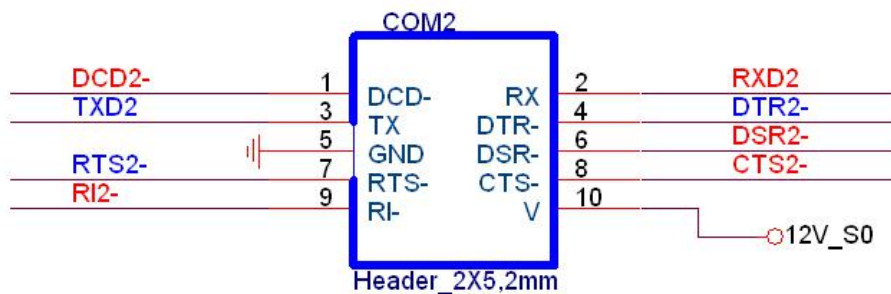
## 2.14 COM1、COM4、COM5

RSR232 pin header,adopt 2×5,2mm pin, Pin10 power is 5V.



## 2.15 COM2、COM6

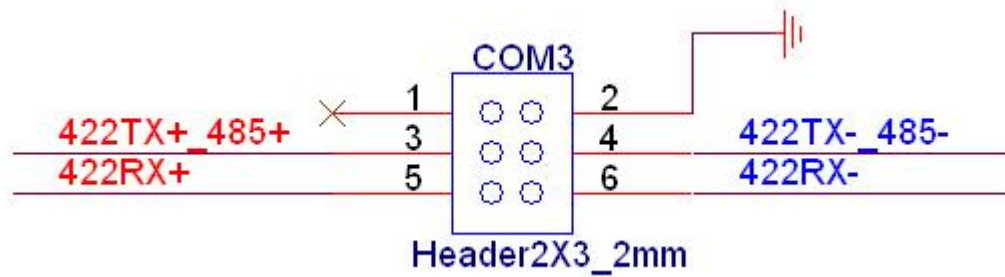
RSR232 pin header,adopt 2×5,2mm pin, Pin10 power is 5V.



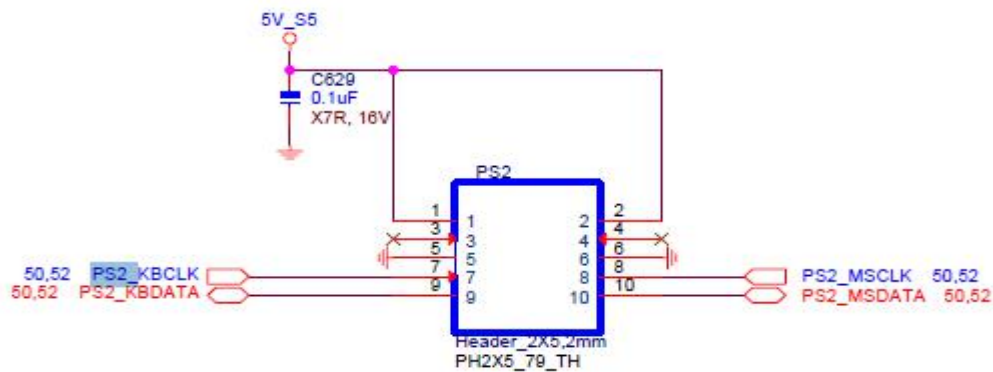
## 2.16 COM3

RS485/R422 can use the same interface,adopt 2×3,2mm pin header,must comply with the setting and type of COM3 in CMOS.Definition as below:



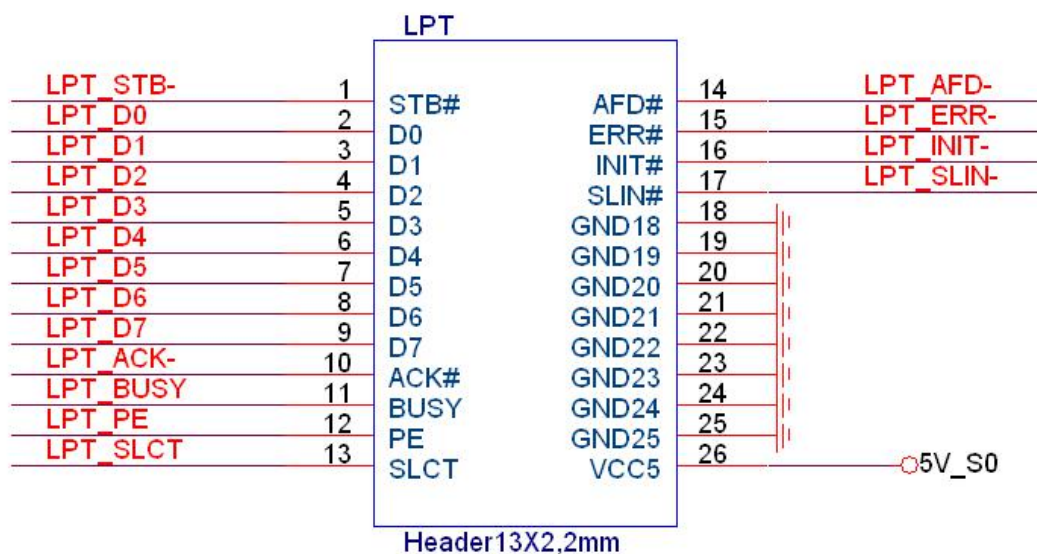


2.17 PS/2 port is 2×5 2mm pin header, definition:



## 2.18 Parallel Port LPT

Adopt 13×2,2mm pin header.Definition as below:



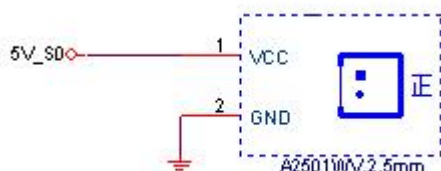
## 2.19 SATA1、SATA2

Standard SATA device interface,support SATA II (3Gb/s) and below.

SATA2 can be change to a bend 90 degree SATA connector,suitable for low height structure.

## 2.20 HD\_P1、HD\_P2

2\*SATA power interface,adopt CJT A2501WV-4P,A2501WV-2P device or other compatible devices,definition as below:



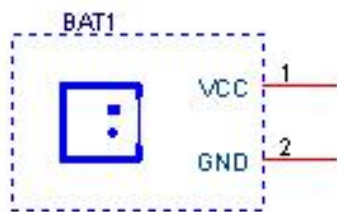
## 2.21 RTC1

RTC1 is RTC clear jumper line,adopt 1×2,2mm pin,definition as below:

RTC1	Function introduction
Close	Clear RTC CMOS
Open	default setting

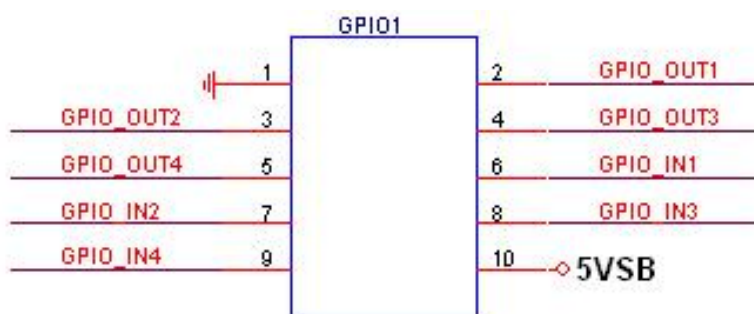
## 2.22 BAT1

Battery interface,for battery changing.Adopt CJT A1251WV-2P connector or other compatible connector.



## 2.23 GPIO1

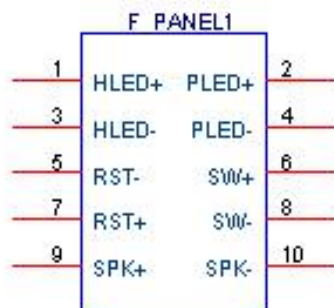
Spare GPIO interface,adopt 2×5,2mm pin,definition as below:



(The I/O features of GPIO can be amend through BIOS.)

## 2.24 FP1

Control panel interfaces,adopt 2×5,2mm pin,integrated HDD\_LED、PWR\_LED、on/off、reset switch、SPEAKER function.Pin definition as below:。



F_PANEL1	Pin Definition
1, 3	Hard disk access lamp positive and negative signal pins.
2, 4	Main power indicator light positive and negative signal pins.
5, 7	Motherboard reset positive and negative signal pins.
6, 8	Motherboard on/off positive and negative signal pins.
9, 10	Spare buzzer connector.

## 2.25 JP2

AT starting mode jumper line. When you choose "Close", the DC power plug, then the board electrify at the same time.

PS_ON	Starting Mode Selection
Close	AT power starting mode
Open	ATX power starting mode

**Remark:** JP1 & FP1 combine to a pin header: 2x6、2mm. The JP1 function can be lead to the Front/Rear panel of the chassis.

## 2.26 MPCIE1、MPCIE2

MPCIE1,2 is standard Mini-PCIE socket, suit for full-size card. The half-size card Mini-PCIE card, must be fixed with a extended card.

## 2.27 SIM1

MPCIE1 affiliated SIM card slot, for 3G function.

## 2.28 CPU\_FAN1、SYS\_FAN1

FAN interface support maximum current 0.3A, definition as below:

1	GND
	VCC
3	SPEED

CPU fan connector, rotational speed adjust automatically. The maximum voltage is the power input voltage. Please choose a suitable fan, when the input voltage is higher. SYS fan does not support adjust automatically.

## 2.29 DDR3 RAM slot and onboard DDR3L RAM

DDR3 is standard DDR3/DDR3L RAM SODIMM204 slot, maximum support 8GB (1066/1333/1600MHz) RAM

Onboard DDR3L RAM, 2GB/4GB optional

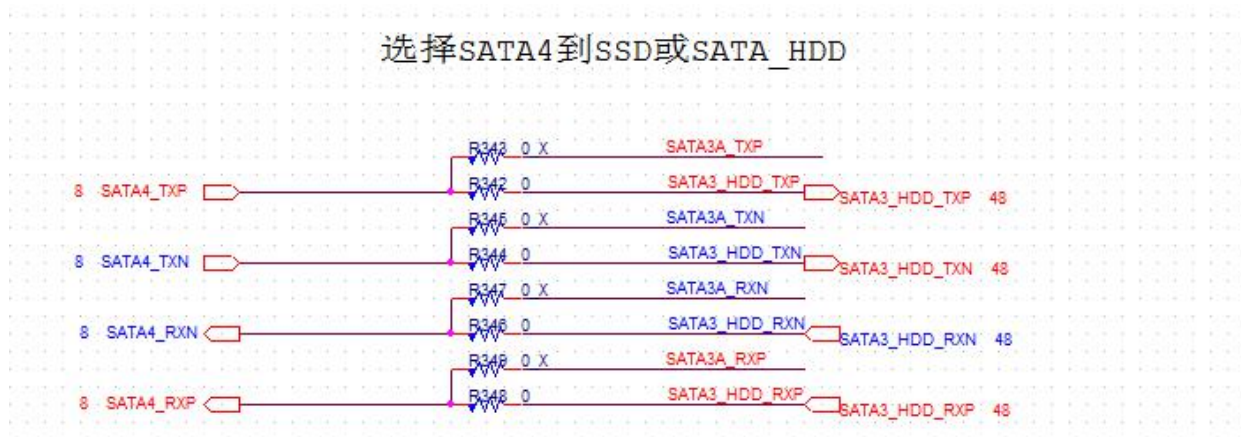
## 2.30 JP1 and U18

JP1 is for setting LVDS channels and bits, U18 is for storing LVDS resolutions.

JP1 and U18 Need to set same parameters

JP1	Functions
1-2	Close for support single channel LVDS, Open for dual channel
3-4	Close for 24bit LVDS, Open for 18bit LVDS

## 2.31 Onboard SSD and SATA HDD1 selection instruction



1. Molding R342、R344、R346、R348 resistance on is for SATA HDD1
2. Molding R343、R345、R347、R349 resistance on is for onboard SSD

## 2.32 HOW to select Mini-PCIE2 & USB signal channel and Touch panel USB signal channel?



1. Molding R830 and R832 ,USB signal connect to Mini-PCIE2 ( On Mini-PCIE2 slot can use USB signal's device and Touch panel offline)
2. Molding R831 and R833,USB signal connect to Touch panel interface (Touch panel online,Mini-PCIE2 only work on PCIE signal device, USB signal device offline)

## 2.32 M\_SATA

Support Mini-SATA SSD.This motherboard support most of the large company's Mini-SATA card.For detailed informations,please contact with our salesman and technician.