

OPS90B Motherboard

(PCB Rev:1.00)

Manual Version 1.00

2017.03.11

1 introduction

OPS90B Motherboard is our factory Mini-ITX industrial Motherboard , with Intel 4th Mobile Haswell-U Single chipset CPU. Main features as follow:

1.1 Main features

- 1.1.1 Onboard Cpu , Support Intel Mobile 4th Haswell-U/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 Onboard 1*gigabit Ethernet。
- 1.1.5 Onboard HDA ALC662, support MIC/LINE-OUT and Pin Port。
- 1.1.6 Support SPDIF digital audio Port。
- 1.1.7 1* Mini-PCIE
- 1.1.8 1*Mini-SATA
- 1.1.9 1* SATA 3.0 hdd Port 。
- 1.1.10 4*USB 3.0 Port。
- 1.1.11 Support 1 * RS232 Pin Port
- 1.1.12 Support HDMI display, Support 4K display
- 1.1.13 Support RGB CRT output。
- 1.1.14 2*3-Pin FAN Port。
- 1.1.15 Support 8 * GPIO, for User Optional
- 1.1.16 Support OPS Expansion

1.2 Power

Single input DC power supply, DC12-19V, + / - 5%

Support power on automatic boot function, jumper selection.

1.3 Form factor

170 * 190 mm

1.4 Working temperature

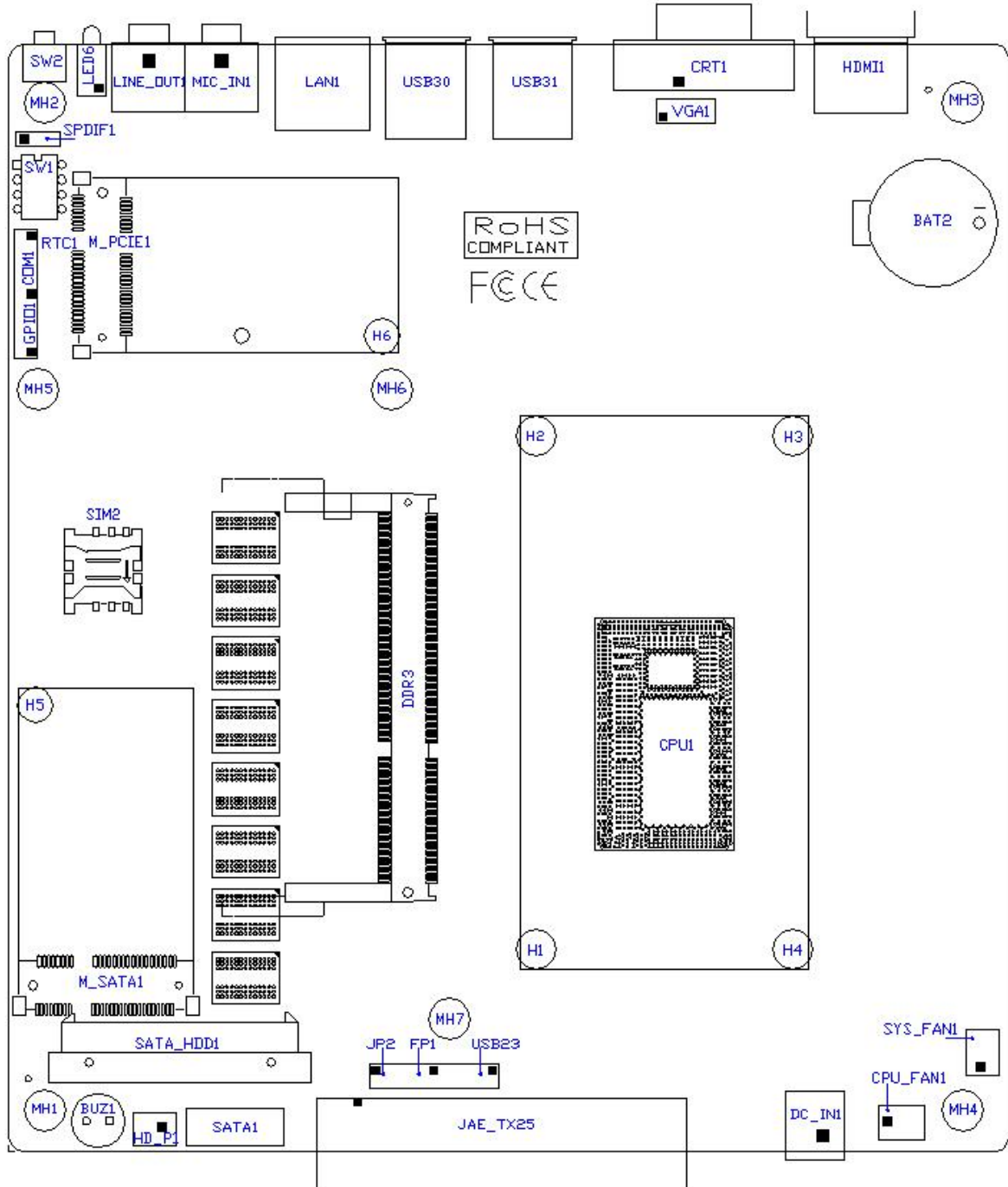
Motherboard working temperature: -20℃ ~ +60℃

Motherboard storage temperature: -40℃ ~ +85℃

2 OPS90B Front side interfaces layout

TOP floor layout as below:

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

2.1 DC_IN1

DC_IN1 is standard DC-JACK port, Center column is:2.5mm

2.2 CRT1 & VGA1

CRT1 is a standard CRT monitor output interface.

VGA1 is 2×5,2.0mm expansion header,can not use at the same time.



2.3 HDMI1 and HDMI2

HDMI1 is standard HDMI output interface.

2.4 USB30, USB31

4*Standard USB3.0 Port, Support 4*USB3.0 equipment, and compatible with USB 1.0/1.1/2.0 device.

2.5 LAN1

10/100/1000 M LAN standard RJ45 Port, Maincontrol chipset all are Realtek RTL8111E.

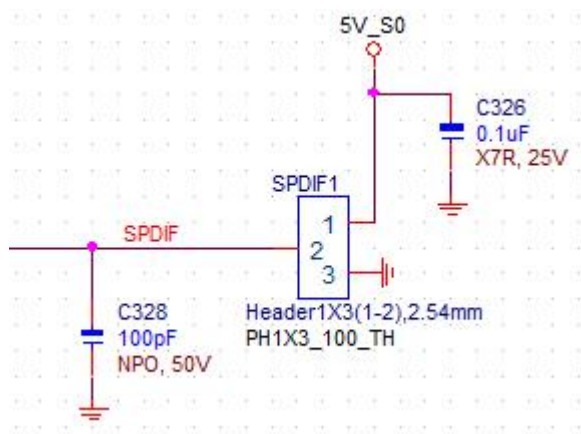
2.6 MIC_IN and LINE_OUT

MIC_IN is MICPHONE input Port, Using a universal connector.

LINE_OUT is Audio output Port, Using a universal connector

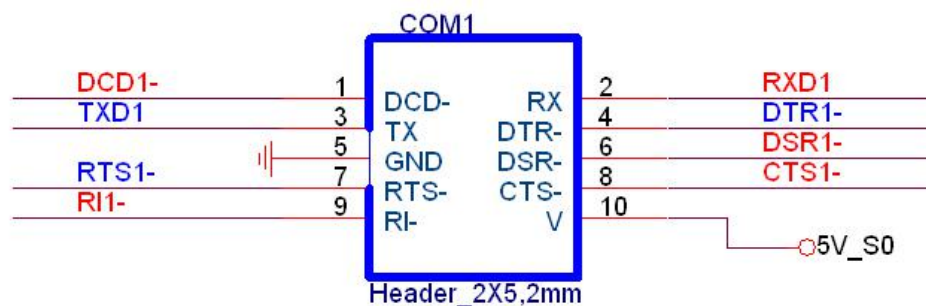
2.7 SPDIF Pin

With 1x3 2.54mm Pin, definition as follow



2.8 COM1

RSR232 Pin header, with 2x5、2mm pin, Pin10 is 5V Power。



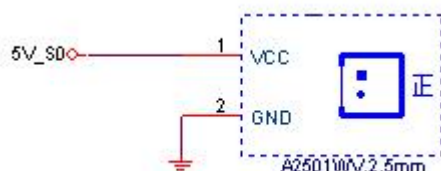
2.9 SATA1、SATA2

Standard SATA device Port, Support SATA3.0 or bellow3.0。

SATA2 can be replaced into a 90 degree bend of the SATA interface to adapt to low-altitude structure.

2.10 HD_P1

1 *SATA device power interface, with CJT company A2501WV-2P devices or other compatible devices. The definition is similar to the following figure.



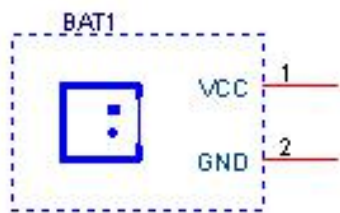
2.11 RTC1

RTC1 is RTC Reset Jumper, with 1x2、2mm Pin。

RTC1	Function introduction
Close	Clear RTC CMOS
Open	default

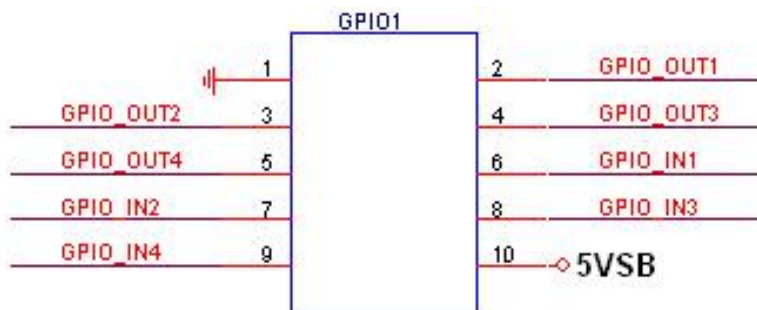
2.12 BAT1

battery Port , Convenient battery replacement. Using CJT A1251WV-2P interface or other compatible interface.



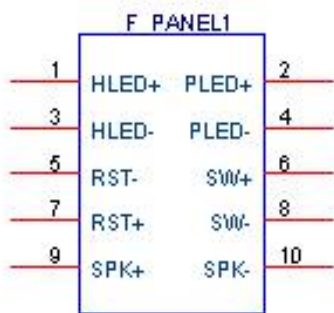
2.13 GPIO1

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



2.14 FP1

Control panel with 2x5, 2mm pin, integrated HDD_LED, PWR_LED, power switch, reset switch, SPEAKER function. The pins are defined as follows.



F_PANEL1	Pin definition
1, 3	Hard disk read and write indicators positive and negative signal pins。
2, 4	Main power indicator Positive and negative signal pins.
5, 7	Motherboard reset signal Positive and negative signal pins.
6, 8	Motherboard switch signal positive and negative signal pins.
9, 10	Alternate buzzer interface.

2.15 JP2

ATPower-on mode selection jumper, When Choose Close Optional, DC Power on and them Motherboard Poweron

PS_ON	Boot mode Optional
Close	ATPower boot mode
Open	ATX Boot mode

2.16 MPCIE1

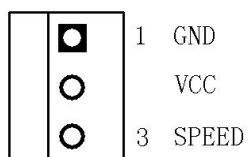
MPCIE1 is standard Mini-PCIE socket, Can be inserted full length card. Half-length card Mini-PCIE card, to be connected to the long card fixed.

2.17 SIM1

3G card SIM socket 。

2.18 CPU_FAN1、SYS_FAN1

FAN interface supports the maximum current of 0.3A, defined as follows.



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

2.19 DDR3 and Onboard Ram

DDR3 is extrapolated DDR3 / DDR3L memory socket, standard DDR3 SODIMM204 memory socket, maximum support 8GB memory (1066/1333 / 1600MHz).

Onboard DDR3L memory, with 2GB / 4GB / above options.

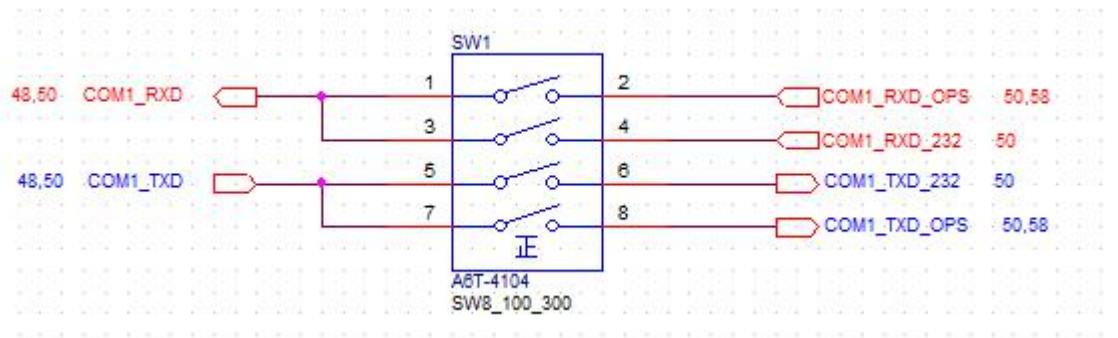
When using extrapolated memory and onboard memory, use the same chip and capacity as much as possible, or it may be unstable.

2.20 JAE_TX25

OPS interface, using TX25-80P-LT-H1E interface. Please refer to OPS specifications, according to the company FAE recommended matching OPS expansion board.

If the selected OPS has a power supply (12V +/- 10%) to the motherboard, the DC_IN1 ~ 3 interface should not plug the power supply. When the OPS board power supply is normal, the motherboard will automatically switch to OPS power supply, not with DC_IN1 ~ 3 power supply conflict.

2.21 SW1Definitions and descriptions are as follows:



SW1 is the COM1 signal channel selector switch

OPS serial port (TTL level) effective: short by 1 - 2, 7 - 8; off 3 - 4, 5 - 6

COM1 pin (232 level) effective: short 3 - 4, 5--6; disconnect 1--2, 7 - 8

2.22 M_SATA

Support Mini-SATA memory card, the industry standard is not clear, the board supports some large companies defined by the MINI-SATA card, the specific model, please consult the company's business and holding support staff.