

# **HM77-3 Mainboard**

**(PCB Rev:1.00)**

**Manual Version 1.00**

**2013.07.09**

## 1 Introduction

HM77-3 mainboard is a 3.5" industrial motherboard. Adopt RPGA988B CPU socket and HM77/QM77 chipsets. Support Intel Mobile 2<sup>nd</sup> and 3<sup>rd</sup> Generation i3-i5-i7 CPU.

### 1.1 Main Features

- 1.1.1 RPGA988B Socket, Support Intel Mobile 2<sup>nd</sup> and 3<sup>rd</sup> Generation i3-i5-i7 CPU.
- 1.1.2 1\*DDR3 SODIMM 204 Socket, maximum up to 8GB DDR3 memory, 1066/1333/1600MHz.
- 1.1.3 Onboard 2\*Gigabit Ethernet controller.
- 1.1.4 Onboard HDA ALC662, provide MIC-IN/LINE-OUT and expansion header.
- 1.1.5 Onboard dual channel audio power amplifier. Support 6W/8Ω horn for each channel. (optional), support 3-pin SPDIF.
- 1.1.6 1\*Mini-PCIE socket.
- 1.1.7 1\*Mini-SATA socket.
- 1.1.8 2\*SATA 3.0 connector.
- 1.1.9 8\*USB 3.0 ports.
- 1.1.10 Provide 5\*RS232 pin header, 1\*RS485/RS422 pin header.
- 1.1.11 Support HDMI output.
- 1.1.12 Support RGB & CRT output.
- 1.1.13 Support dual channel 24bit LVDS output.
- 1.1.14 2\*3-Pin FAN connectors.
- 1.1.15 Provide 8bit\*GPIO.

### 1.2 Power Supply

Single input DC power, DC12V (+/-2%) .  
(If don't use 12V for the HDD, +/-10%).  
Support AT/ATX starting mode.

### 1.3 Size

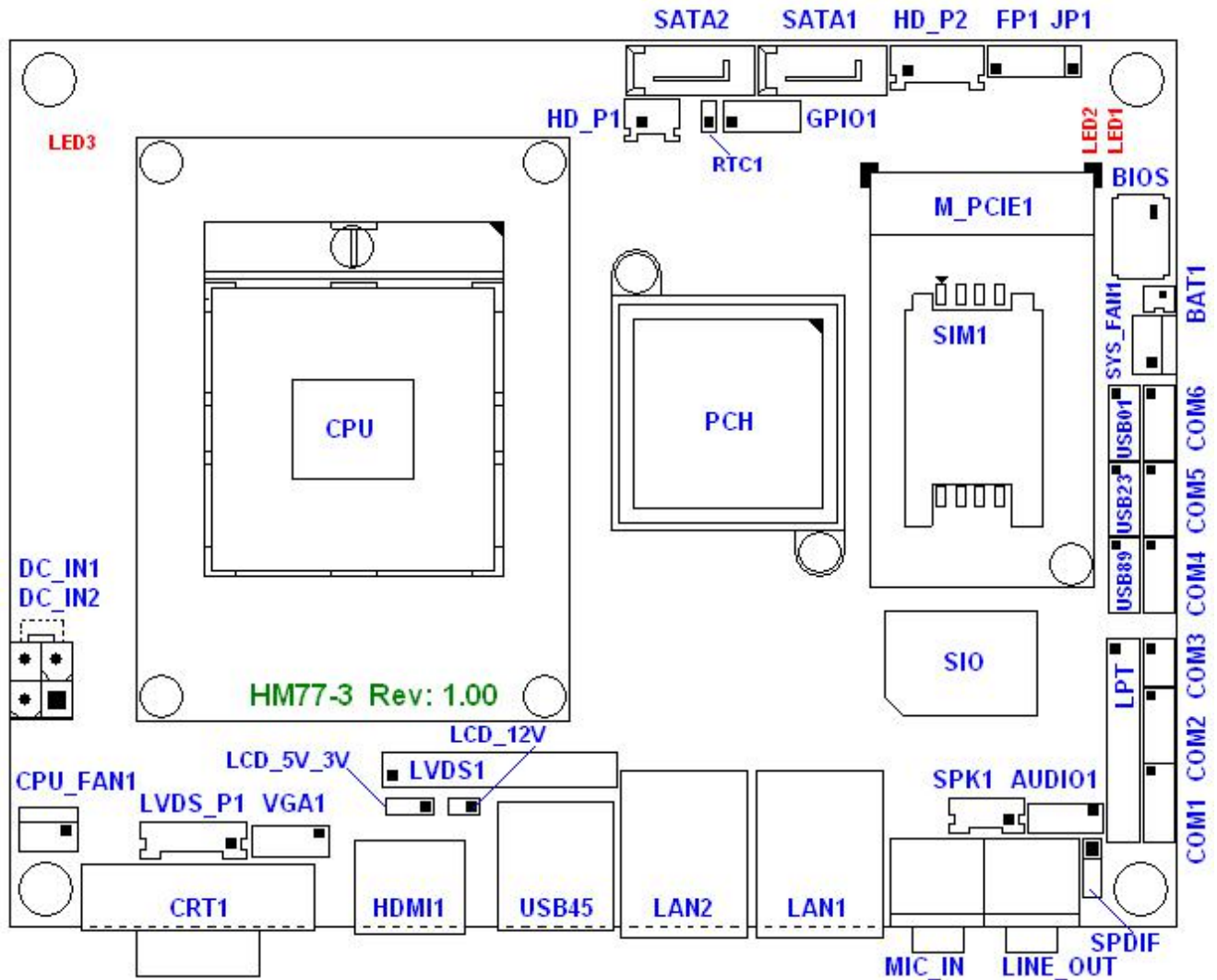
115mm×155mm×20mm

### 1.4 Working Environment

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

## 2 HM77-3 Front side interfaces layout

TOP floor layout as below:

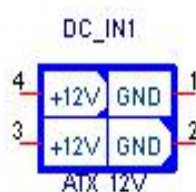


**Remark:** Interfaces in the above picture, **Pin 1** are in square shape.

### 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.



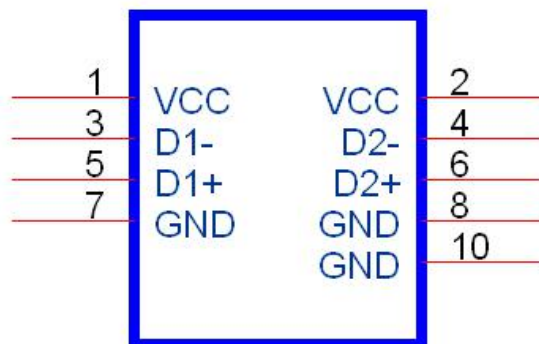
### 2.3 HDMI1

HDMI1 is standard HDMI output interface.

### 2.4 USB01、USB23、USB45 & USB89

All are USB interfaces, support USB 1.0/1.1/2.0/3.0 devices.

USB45 is standard USB Type A interface; USB01、USB23、USB89 2×5,2mm are expansion headers, definition as below:



### 2.5 LAN1 & LAN2

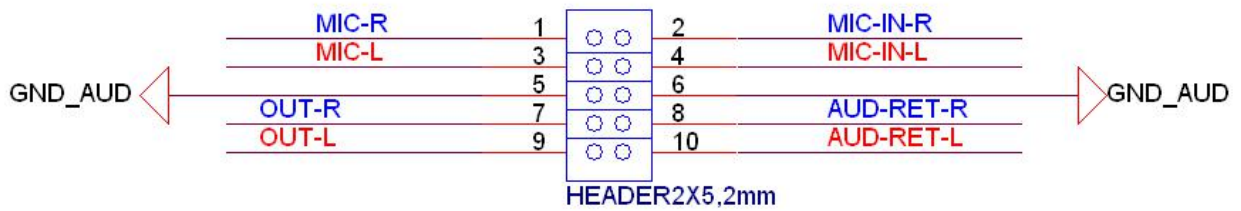
10/100/1000 M LAN is standard RJ45 port, chipset is Realtek RTL8111E.

### 2.6 MIC\_IN、LINE\_OUT and AUDIO1

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

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

AUDIO1 is 2×5,2mm expansion header, definition as below:

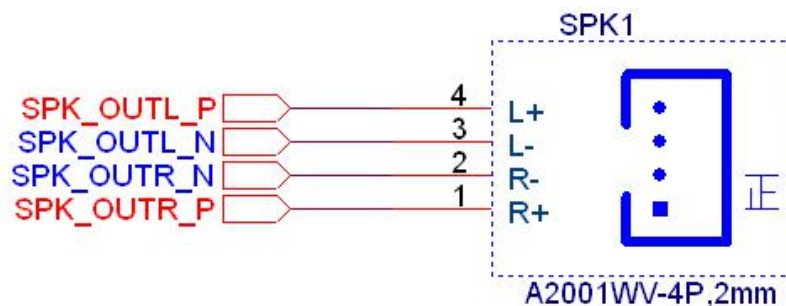


(1: If AUDIO1 have not connect with the AUDIO Cable in the front panel,have to catch Jumper 1-2、3-4、7-8、9-10.

(2: 1、3、5、7、9 pins are the output signal for front panel;2、4、6、8、10 pins are return signal.

## 2.7 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.

## 2.8 SPDIF (optional)

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

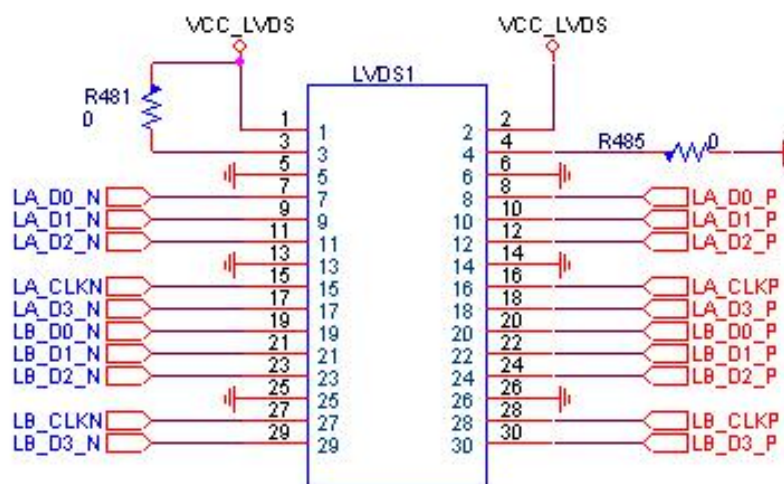
Pin1----5V;

Pin2----SPDIF;

Pin3----GND。

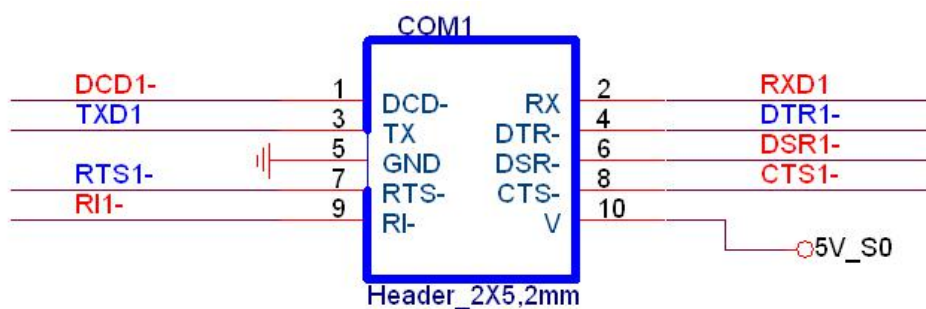
## 2.9 LVDS1

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



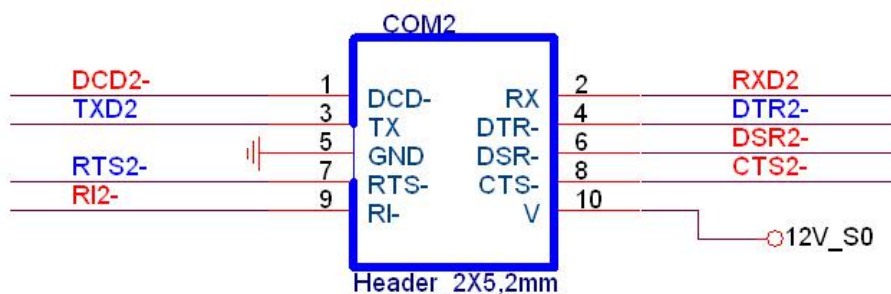
## 2.12 COM1、COM4、COM5

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



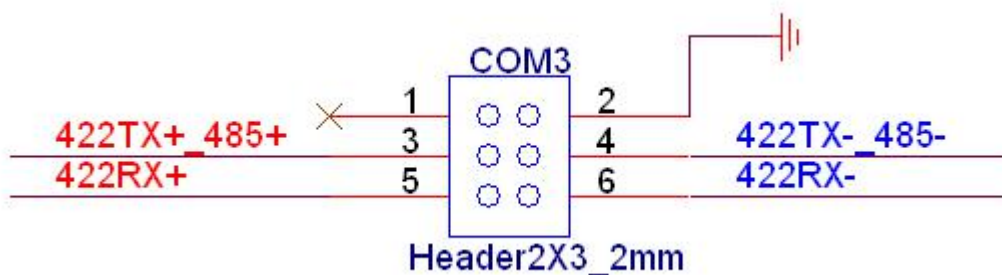
## 2.13 COM2、COM6

RSR232 pin header,adopt 2×5,2mm pin, Pin10 power is 12V.



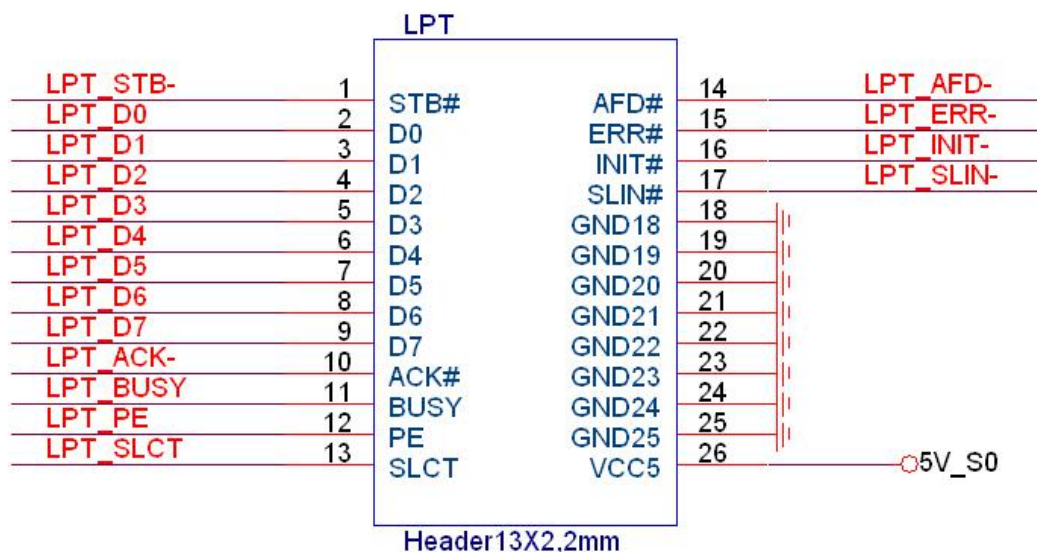
## 2.14 COM3

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:



## 2.15 Parallel Port LPT

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



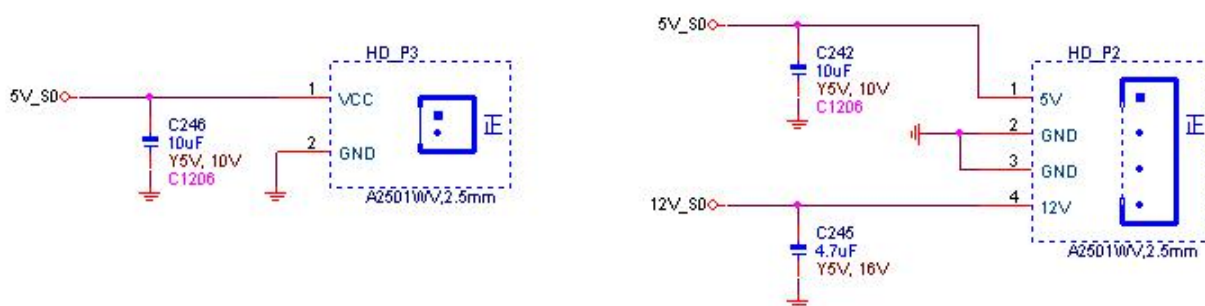
## 2.16 SATA1、SATA2

Standard SATA device interface,support SATA3.0 and below.

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

## 2.17 HD\_P1、HD\_P2

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



HD\_P2 with 2 more pin than HD\_P1,bring in 12V power for the hard disk of commercial computer.The 12V is coming from DC power.If there is a big voltage deviation with the DC power,please do not choose a hard disk with voltage 12V/5V.

## 2.18 RTC1

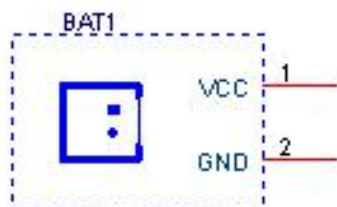
RTC1 is RTC clear jumper line,adopt 1×2,2mm pin,definition as below:

RTC1	Function introduction
Close	Clear RTC CMOS
Open	default setting



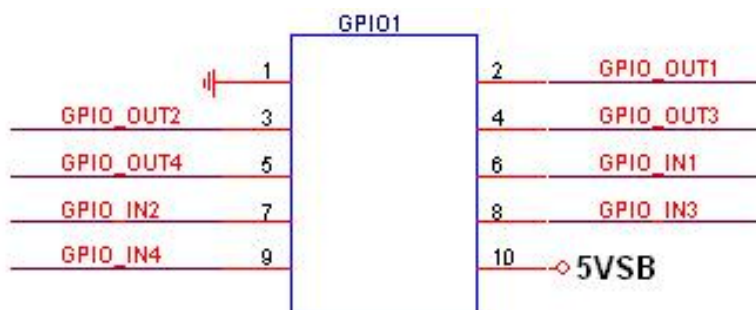
## 2.19 BAT1

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



## 2.20 GPIO1

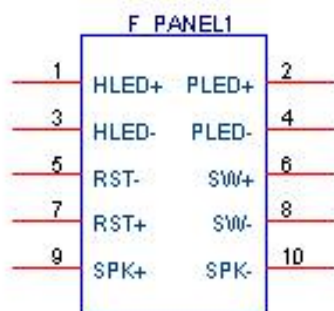
Spare GPIO interface,adopt 2×5,2mm pin,definition as below:



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

## 2.21 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	Mainboard reset positive and negative signal pins.
6, 8	Mainboard on/off positive and negative signal pins.
9, 10	Spare buzzer connector.

### 2.22 JP1

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.

### 2.23 MPCIE1

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

### 2.24 SIM1

MPCIE1 affiliated SIM card slot, for 3G function.

### 2.25 CPU\_FAN1、SYS\_FAN1

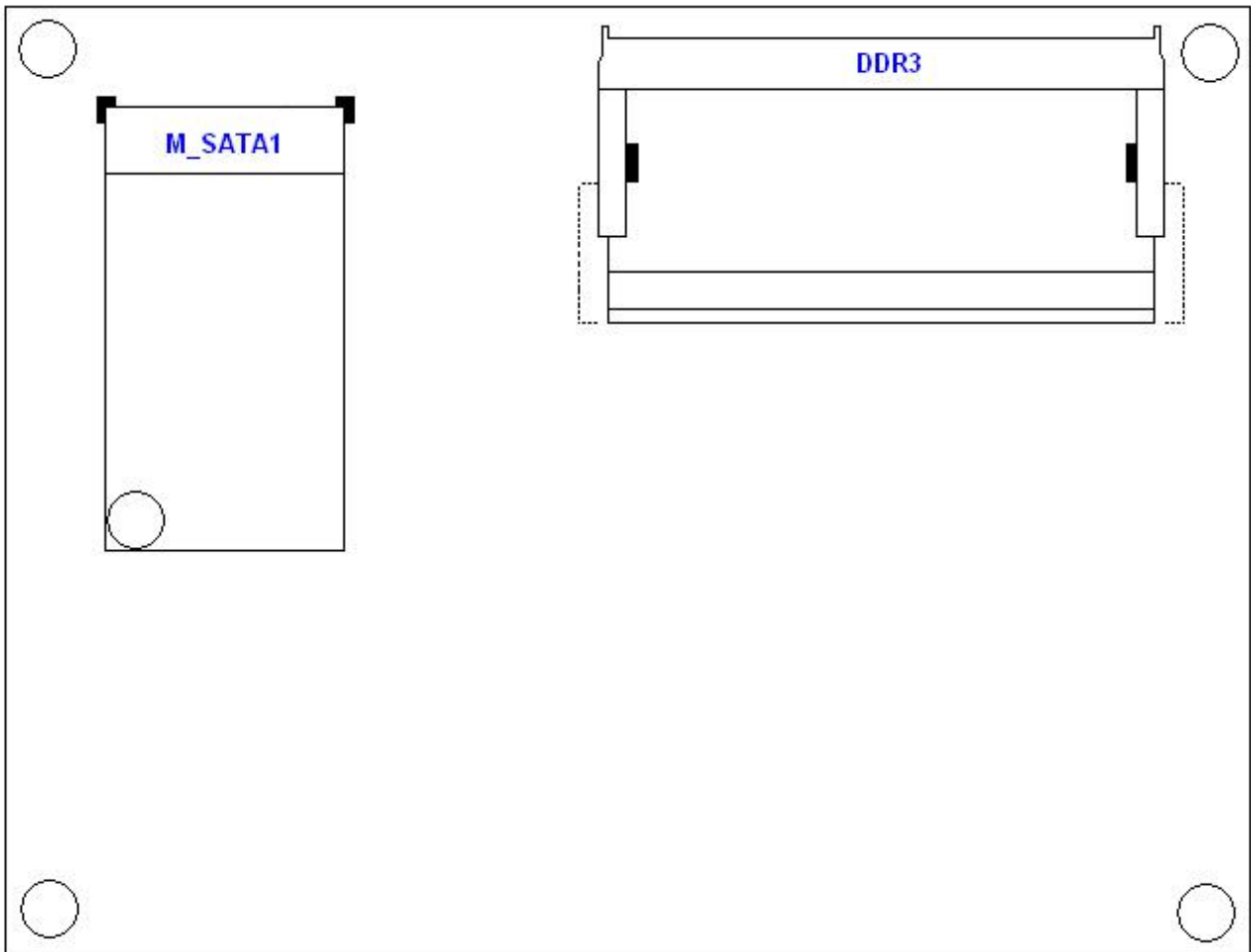
FAN interface support maximum current 0.3A, definition as below:

1	GND
2	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.

## 3 Rear Side Interface Layout

Mainboard rear side layout as below:



### 3.1 DDR3

Standard DDR3 SODIMM204 memory socket,maximum up to 8GB DDR3(1066/1333/1600MHz).

### 3.2 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.