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Manual for APQ4XX V1.0

CATALOGUE

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I. Product Description

1. Brief Introduction

APQ4XX motherboard is a Nano Mini-ITX motherboard designed based on the Intel Haswell Platform, with the size of 120mm x130mm.

2. Version Specification

Version	Motherboard NO	Network Card	USB2.0 Ports	USB3.0 Ports
V1.0	APQ4XX	2	2	4

3. Characteristics & Performances

1) Great Reliability

With the adoption of the Intel Haswell ultra-low power consumption processor and switching mode power supply, APQ4XX motherboard can provide stable, sufficient and efficient power. The stability of the motherboard is further guaranteed with the switching mode of power supply applied in memory, too. All of the external devices of the motherboard is composed of some anti-static and jam-proof components which ensured the operation of a stable and efficient system.

2) High Performance

It considerably increases performance of the platform by employing the Intel Haswell chipset of Intel and SATA3.0

3) Full Support of BIOS

Support Diskless booting and Wake on LAN

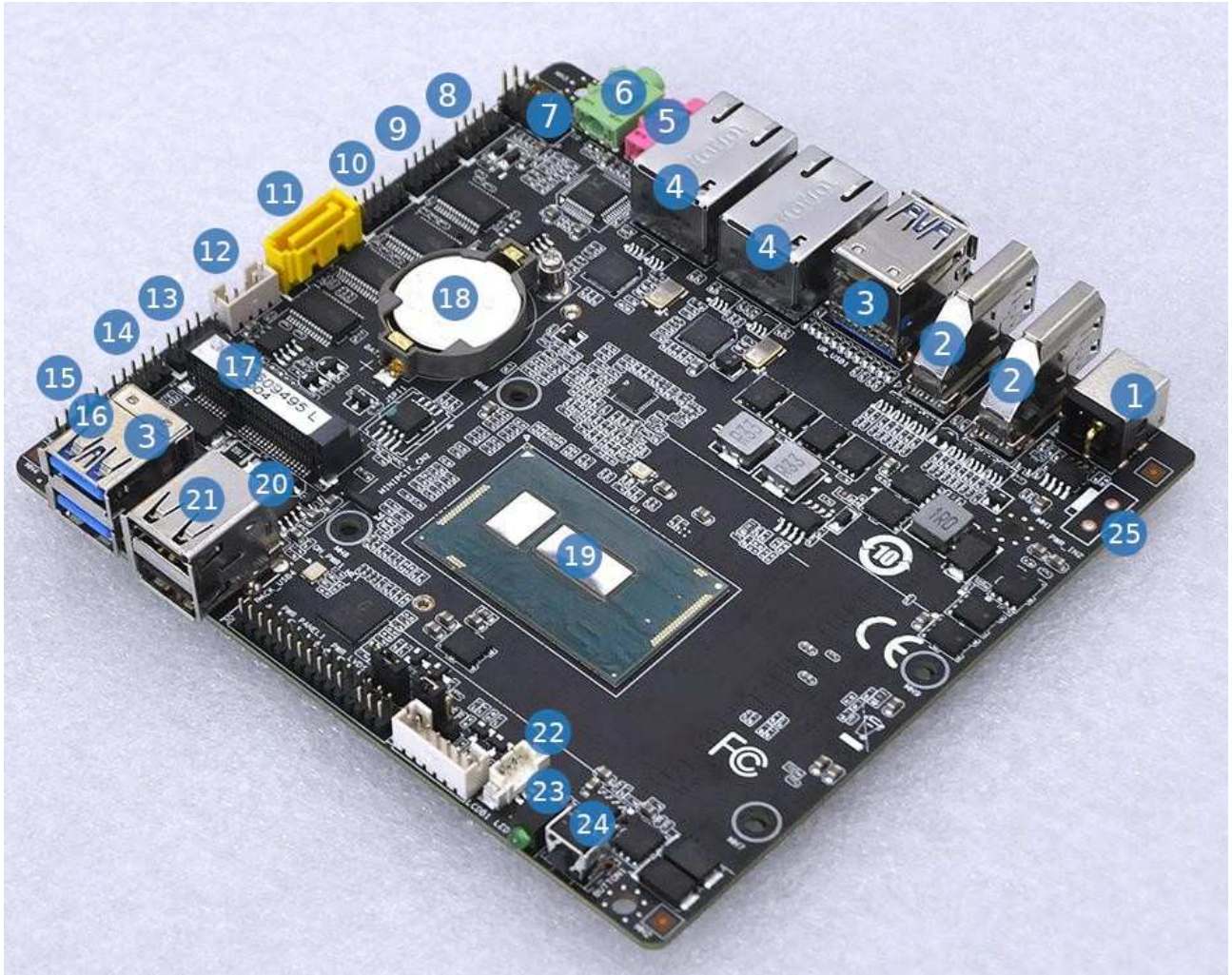
4) Working Condition

Working Temperature: -10°C~50°C

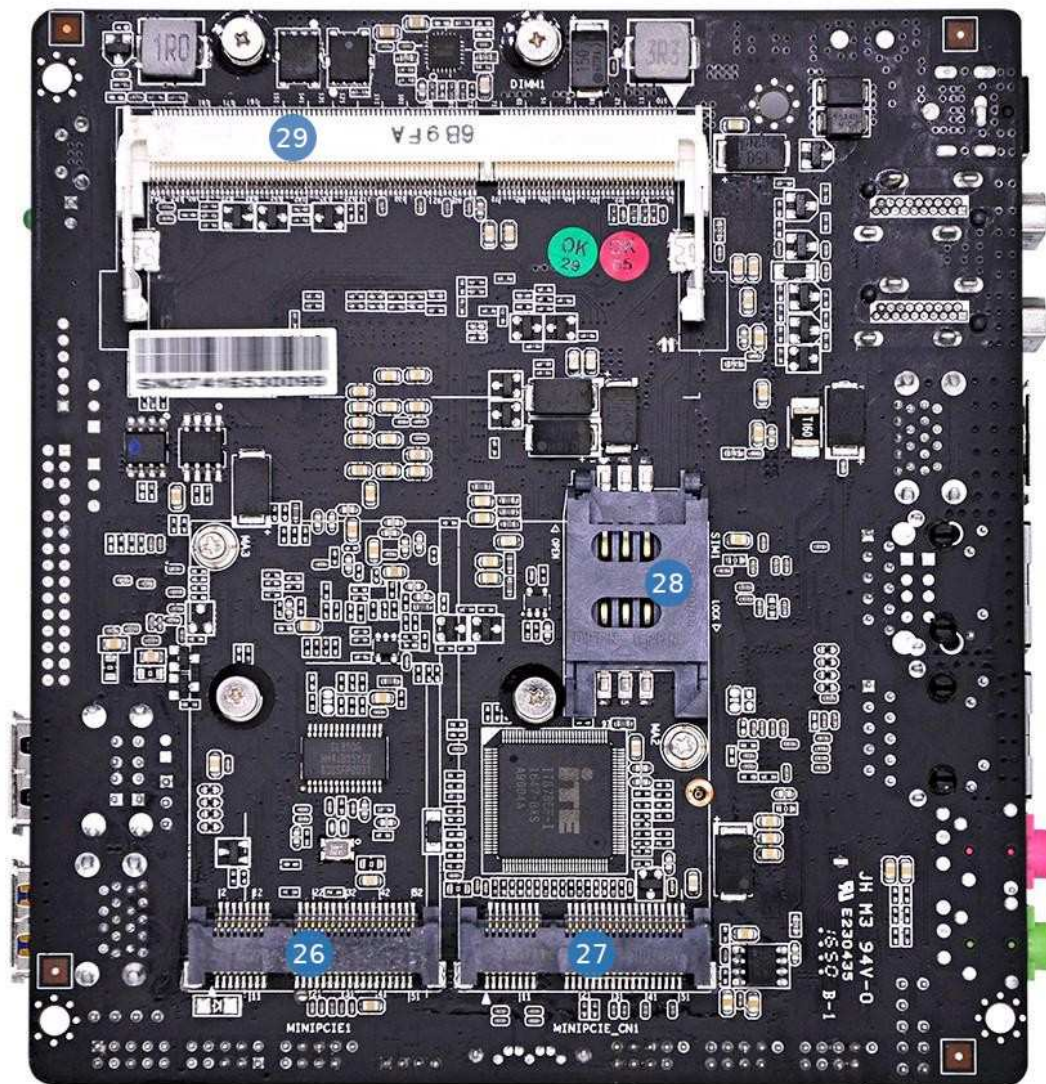
Working Humidity: 5%~95% (Non-gel)

II. Product Overview

1. Front View



2. Back View



3. Connectors and Headers

No.	Description	Signal Name
1	12V DC in Connector	PWR1
2	2 x HDMI	HDV1, HDV2
3	4 x USB3.0	UR_USB1, UR_USB2
4	2 x Gigabit Ethernet	LAN1, LAN2
5	MIC: Connect to outside microphone	F_MIC
6	(Line out): Connect to outside audio device	F_OUT
7	Front panel audio header	F_AUDIO
8	Serial Port Expansion Header (COM4)	COM4
9	Serial Port Expansion Header (COM3)	COM3
10	Serial Port Expansion Header (COM2)	COM2
11	SATA Port	SATA1
12	SATA Power Connector	HD_PWR1
13	Serial Port Expansion Header (COM1)	COM1
14	Front Panel Expansion Header	F_PANEL1
15	GPIO Header	GPIO1
16	Front panel USB 2.0 header	USB1
17	Mini PCI Express connector for 3G/4G module	MINIPCI_CN2
18	Coin Battery Socket	BAT1
19	Processor (Support Haswell)	
20	Automatically boot jumper	ON_PWR1

21	2 x USB 2.0	BACK_USB4
22	CPU fan header	CPU_FAN1
23	Power led	LED1
24	Power button	BUTTON1
25	DC in header (optional)	PWR_IN2
26	Mini PCI Express connector for MSATA SSD	MINIPCI1
27	Mini PCI Express connector for WIFI,Bluetooth module	MINIPCI_CN1
28	SIM card socket	SIM1
29	DDR3L SO-DIMM socket	DIMM1

III. Detailed Description of Connection Ports

1. Power Input Port

- Increased reliability with intensive electrical socket outlet.
- 12V power supply input. Suitable for power adapter (Internal: the positive pole, external: the negative pole) which has the outside diameter of 5.5mm and inside diameter of 2.5mm.

2. HDMI Port

2 x Standard HDMI port.

3. USB 3.0 Port

Universal 4 x USB3.0, Max bandwidth (5.0Gbps, 640MB/s).

4. 1000M LAN Port

2 x gigabit network, support diskless booting and Wake on LAN.

5. Microphone Input

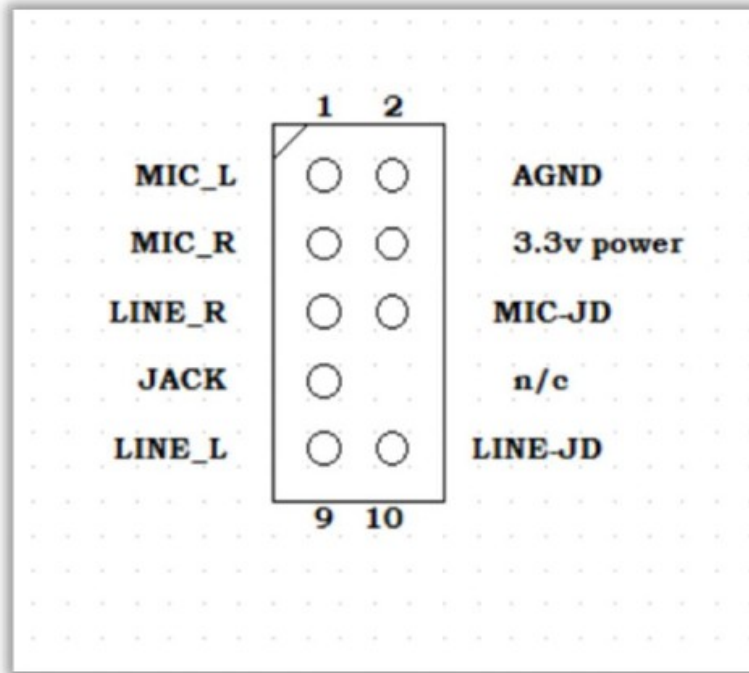
Universal microphone input port

6. Audio Output Port

Universal audio output port

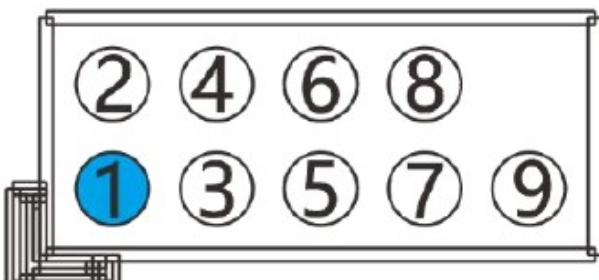
7. Extended Audio Input and Output Pin

For accessing extended audio input and output pin.



8. Serial Port Headers COM4

Standard RS232 Serial Port, Interface is defined as follows: (Pin Spacing:2.0mm)



Pin#	Signal	Function	Note
1	DCD	Data Carrier Detect	
2	RXD	Received Data	
3	TXD	Transmitted Data	
4	DTR	Data Terminal Ready	
5	GND	Signal Ground	
6	DSR	Data Send Ready	
7	RTS	Request to Send	
8	CTS	Clear to Send	
9	RI	Ring Indicator	

9. Serial Port Headers COM3

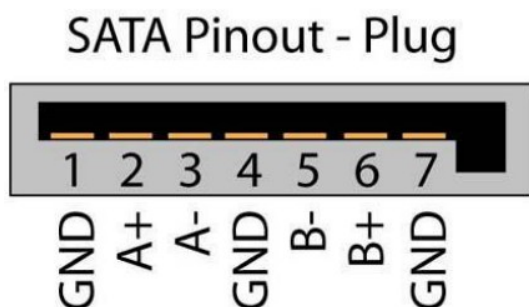
COM3, PIN definition refer to NO.8.

10. Serial Port Headers COM2

COM4, PIN definition refer to NO.8.

11. SATA 3.0(6.0 GB/s)

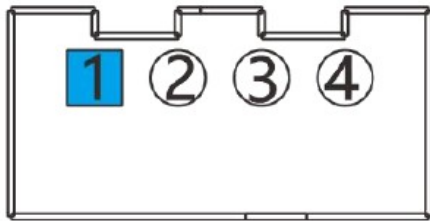
Universal SATA3.0 port.



12. SATA Power Connector

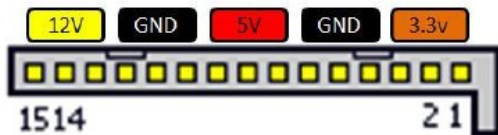
Special power interface, please ask for matching wire from the distributor.

When Power adaptor is 12V, 3.5" HDD can be supported.



Pin#	1	2	3	4
Signal	+5V	+12V	GND	GND

PS: Standard SATA Power Connector Definition. (Pin spacing: 2.0mm)

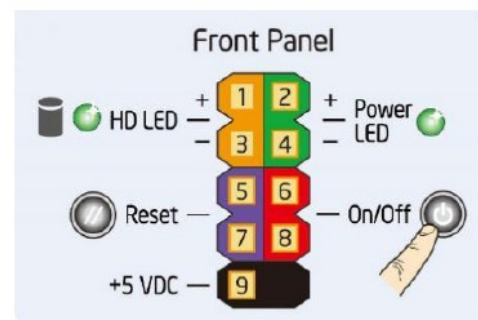
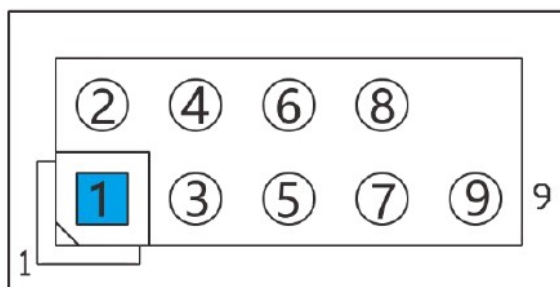


13. Standard Serial Port COM1

Standard RS232 Serial Port. PIN definition refer to NO.8.

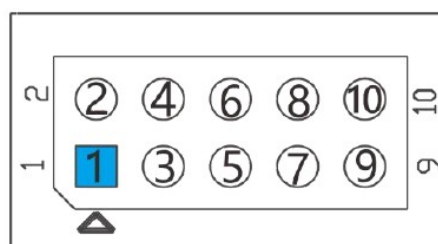
14. Extended Pin for External Panel

For accessing the power switch, power LED, HDD LED, reset switch, Pin spacing: 2.0mm.



15. GPIO Headers

Pin spacing: 2.0mm.



16. Extended USB Pin

Pin for accessing extended USB 2.0.



Pin#	Signal
1	+5V DC
2	D-
3	D+
4	Ground

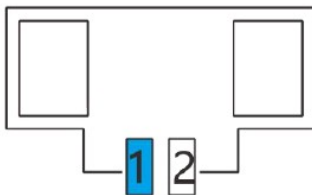
Pin spacing 2.54

17. PCI Express Full-Mini Card Slot

Full Mini PCIE port extending 3G/4G module.

18. Coin Battery Slot

CR2032 Coin Battery.



Pin#	Signal
1	+
2	-

19. Intel Haswell Processor

Support Haswell FCBGA1168 processor

20. Automatically Boot Jumper



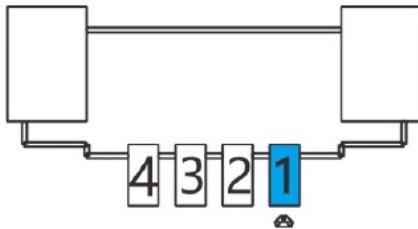
Function	Pin#
Enable	2-3
Disable	1-2

21. USB 2.0 Port

Universal 2 x USB 2.0.

22. CPU Fan Header

For connecting fan of the CPU.



Pin#	Signal
1	GND
2	+5V
3	Detection
4	Control

23. Power LED

Green color for power.

24. Power button

Power switch button.

25. DC in header



Pin#	Signal
1	GND
2	+12V

26. PCI Express Full-Mini Card Slot (For MSATA SSD)

Universal MINI SATA port for accessing MSATA SSD.

27. PCI Express Half-Mini Card Slot

Half Mini PCIE port for extending WIFI and Bluetooth.

28. SIM Card Slot

Coordinate with Item No. 17, the function of 3G/4G can be supported.

29. Memory Slot

Only suitable for SO-DIMM of 1333 MHz or 1600 MHz (1.35V) working frequency, maximum 8 GB single-sided module.