

[H420EK54]

[User's Manual]



六联智能
SIXUNITED

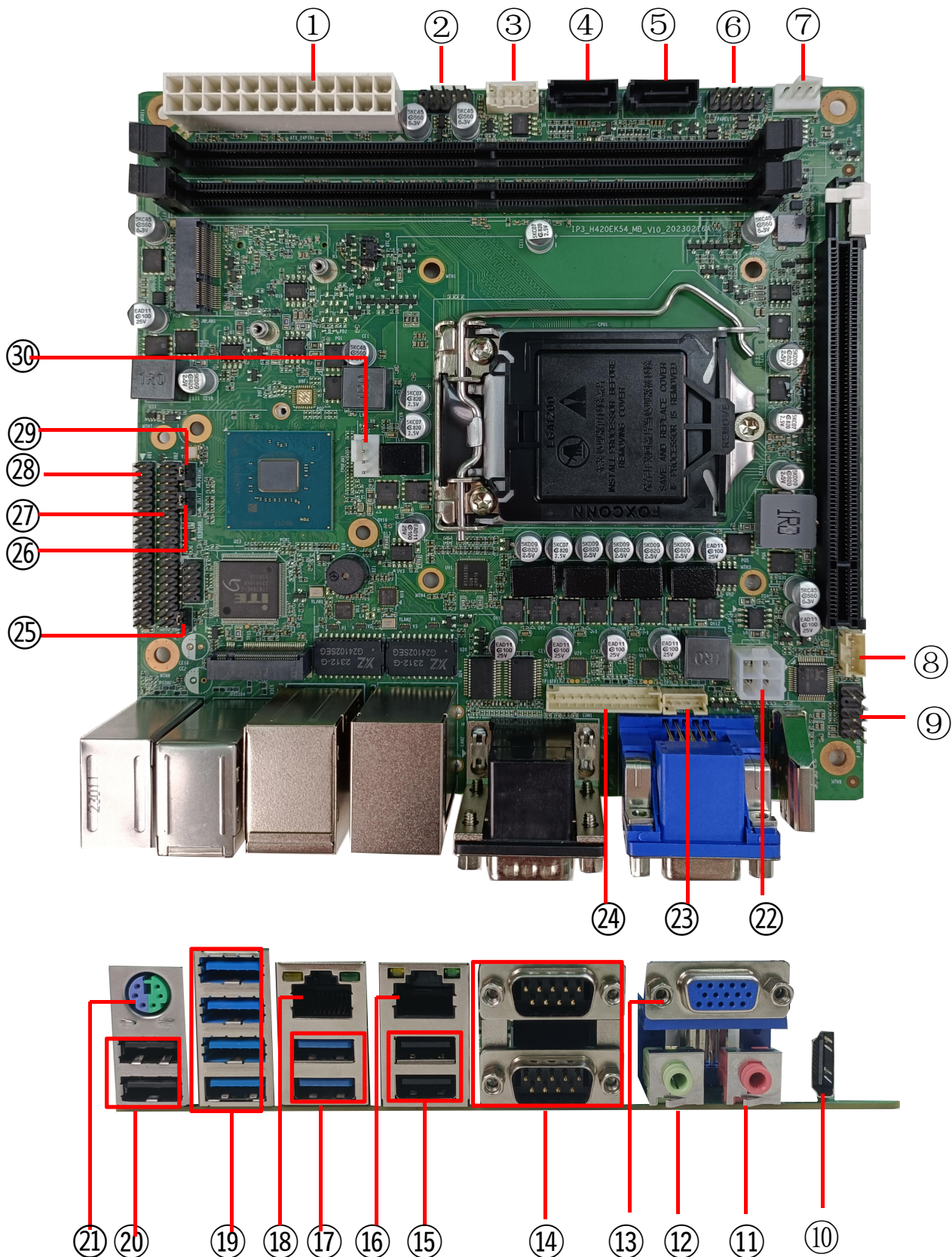
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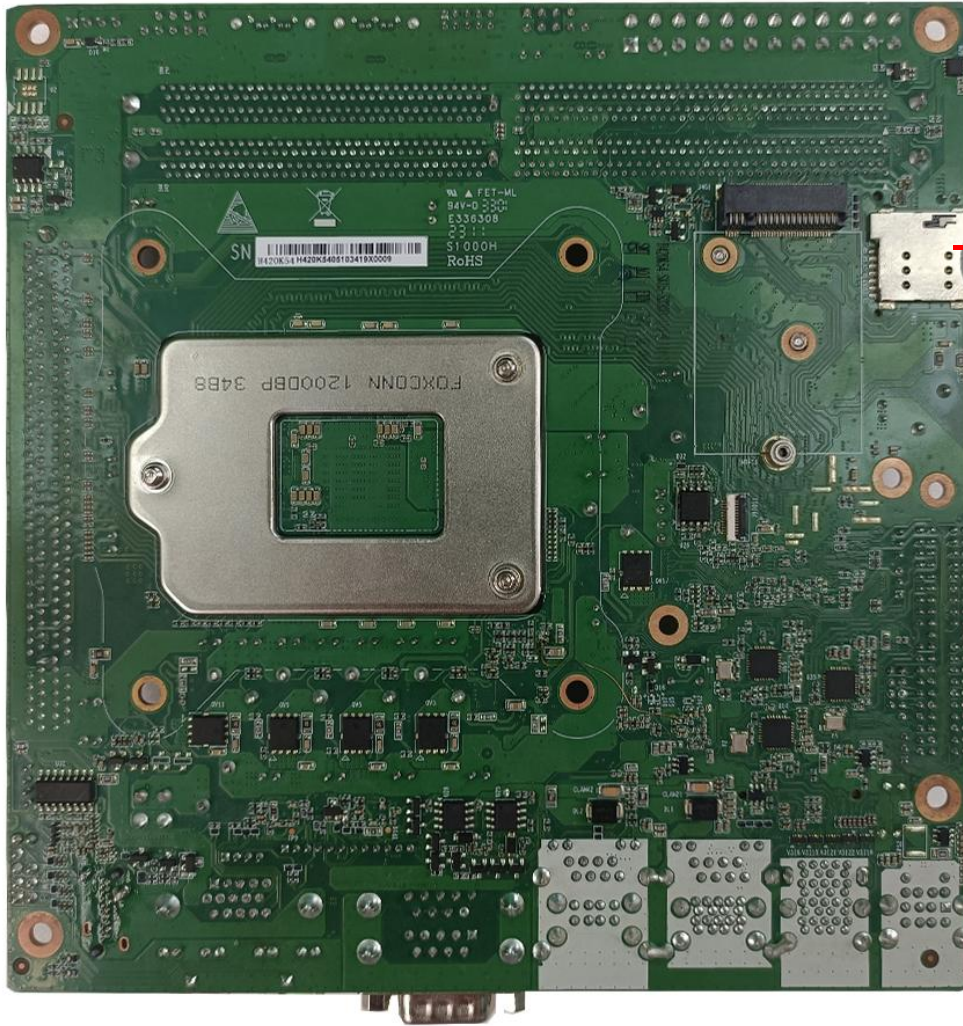
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1. Specifications

model	H420EK54
CPU	Support Intel Comet Lake S & Rocket Lake S
Chipset	Intel H420E
Memory	2*DDR4 U-DIMM, Dual Channel, Up to 64GB
Graphics	1*HDMI 2.0b, Maximum resolution 4096x2160@60Hz 2*VGA, Maximum resolution 1920x1200@60Hz
Storage	1*M.2 M Key 2280 SSD, PCI-E X2/SATA3.0 2*SATA3.0
LAN	2*Realtek RTL8111H 1000M LAN
Serial Port	2 COM,(COM1~COM2 DB9),RS232/RS485 mode, jumper optional
Rear I/O	1*PS/2(2 in 1) 4*USB 2.0 6*USB 3.2 Gen1 2*RJ45 2*COM 1*VGA 1*Line_out+1*Mic_in
Front I/O	NA
Internal I/O	1*SATA Connector 1*Front Panel Header 1*Front Audio Header 1*Internal Stereo Speaker 1*FAN Headers 1*VGA Header 1*Clear CMOS 1*GPIO 1*USB2.0 Header 1*SM BUS 1*ATX 4Pin 1*ATX 24Pin 1*Daughter Board CONN1 1*Daughter Board CONN2
Size	170mm *170mm
Temperature	Operation: -10~60°C, Storage: -40~85°C
Relative Humidity	Operation: 10~90%, Storage: 5~95%
Power Input	ATX 24+4 Power

2. Locations

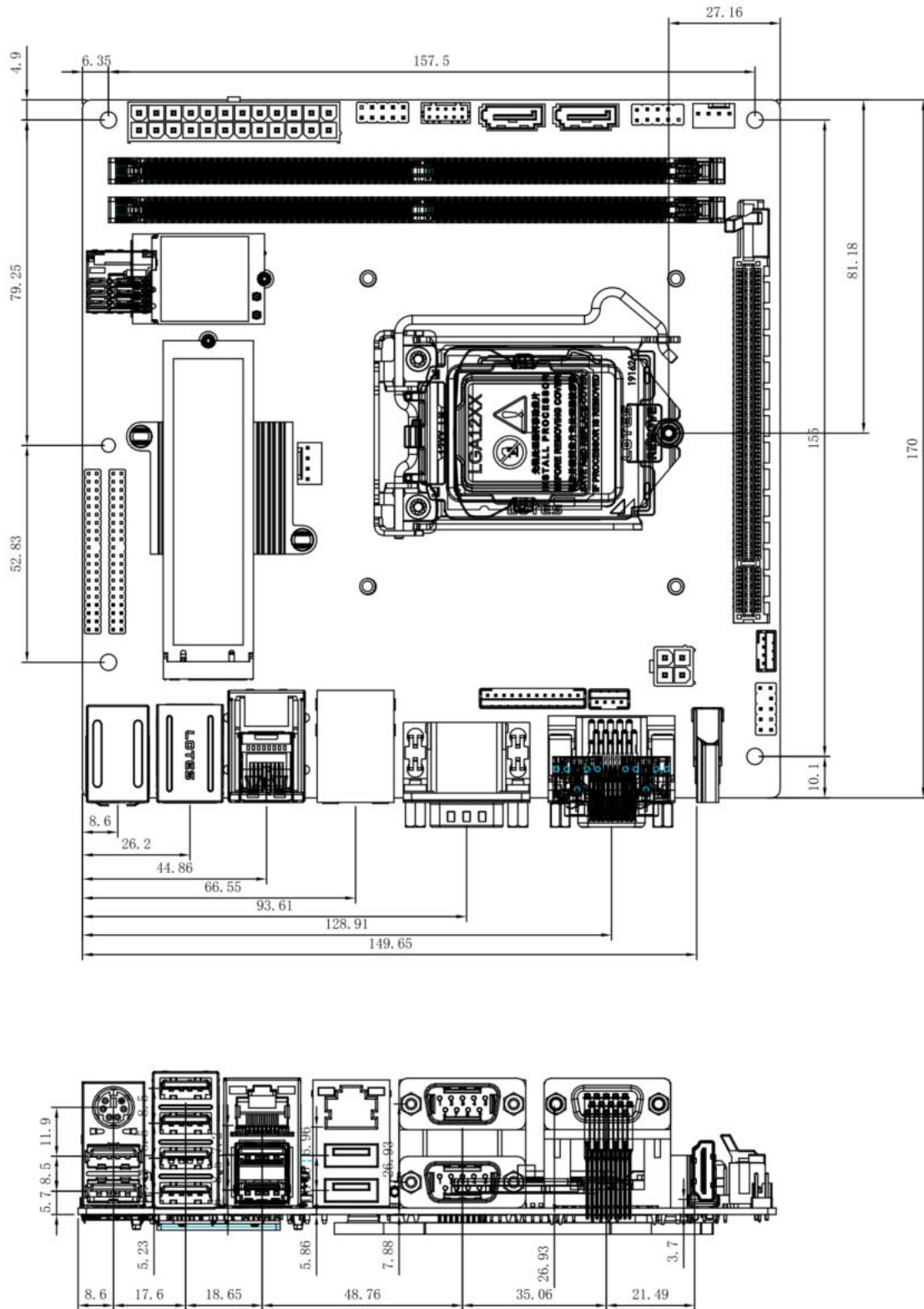




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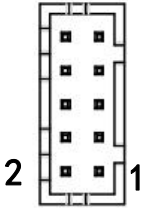
Locations	
1	24 Pin ATX
2	USB 2.0(2*5Pin)
3	GPIO(2*5Pin)
4	SATA
5	SATA
6	F_panel(2*5Pin)
7	SYS_FAN(1*4Pin)
8	Speaker(1*4Pin)
9	F_AUDIO(2*5Pin)
10	HDMI
11	Mic_IN
12	Line_out
13	VGA
14	COM
15	USB 2.0
16	LAN
17	USB 3.2 Gen1
18	LAN
19	USB 3.2 Gen1
20	USB2.0
21	PS/2(2 in1)
22	4 Pin ATX
23	SMBUS(1*4Pin)
24	VGA(1*12Pin)
25	Auto Power(1*3Pin)
26	JBAT1(1*3Pin)
27	DB2(2*20Pin)
28	DB1(2*20Pin)
29	Power_on(1*3Pin)
30	CPU_FAN(1*4Pin)
31	SIM

3. Dimension

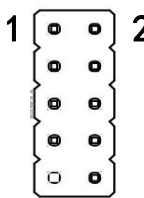


4. Connector and Jumper Setting

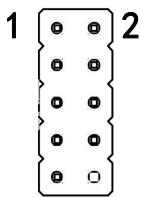
1) GPIO(2×5Pin,2.0mm)

Graphic	PIN	Define	PIN	Define
	1	GPIO_C_1	2	GPIO_C_2
	3	GPIO_C_3	4	GPIO_C_4
	5	GPIO_C_5	6	GPIO_C_6
	7	GPIO_C_7	8	GPIO_C_8
	9	VCC_GPIO(3.3V/5V)	10	GND

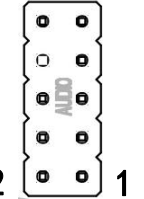
2) USB 2.0(2×5Pin,2.54mm)

Graphic	PIN	Define	PIN	Define
	1	+V5P0A_USB_HD	2	+V5P0A_USB_HD
	3	USB2_HD1_DN	4	USB2_HD2_DN
	5	USB2_HD1_DP	6	USB2_HD2_DP
	7	GND	8	GND
	9	NC	10	GND

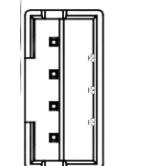
3) F_panel(2×5Pin,2.54mm)

Graphic	PIN	Define	PIN	Define
	1	HDLED+	2	PWRLED+
	3	HDLED-	4	GND
	5	GND	6	PWRRSW_N
	7	RERST_BTN	8	GND
	9	NA		

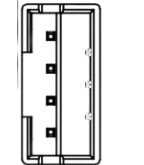
4) F_Audio(2×5Pin,2.54mm)

Graphic	PIN	Define	PIN	Define
	1	MIC2_L	2	GND_AUD
	3	MIC2_R	4	+3.3VD
	5	LINE2_R	6	MIC2_JD
	7	GND_AUD	8	NC
	9	LINE2_L	10	LINE2_JD


5) SPEAKER(1×4Pin,2.0mm)

Graphic	PIN	Define
	1	SPKR_RN_CON
	2	SPKR_RP_CON
	3	SPKR_LN_CON
	4	SPKR_LP_CON


6) SMBUS(1×4Pin,2.0mm)

Graphic	PIN	Define
	1	VCC3
	2	SMBLCK
	3	SMBDATA
	4	GND


7) JBAT1(1×3Pin,2.0mm)

Graphic	PIN	Define
	1	RTC_RES_N/SRTC_RST_N
	2	GND
	3	NC

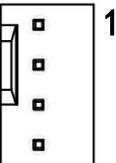
8) PWR ON(1×3Pin,2.0mm)

Graphic	Setting	Function
	1-2	AT mode
	2-3 (Default)	ATX mode

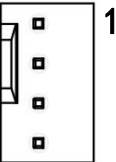
9) AUTO PWRON(1×3Pin,2.0mm)

Graphic	Setting	Function
	1-2	AT mode
	2-3 (Default)	ATX mode

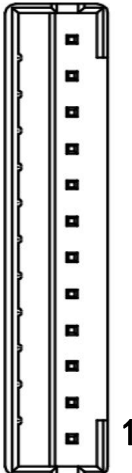
10) CPU_FAN(1×4Pin)

Graphic	PIN	Define
	1	GND
	2	+VCC_12V
	3	CPU_FAN_TAC1
	4	CPU_FAN_CTL1

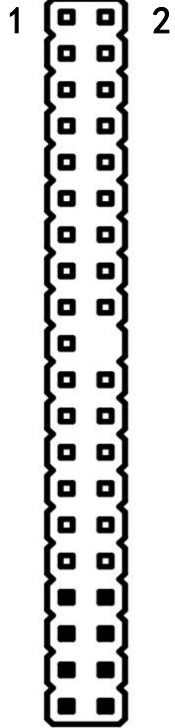
11) SYS_FAN(1×4Pin)

Graphic	PIN	Define
	1	GND
	2	+VCC_12V
	3	SYS_FAN_TAC1
	4	SYS_FAN_CTL1

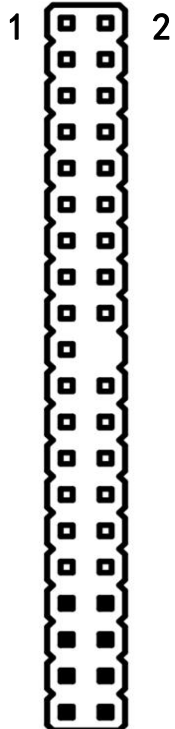
12) VGA(1×12Pin,2mm)

Graphic	PIN	Define
	1	GND
	2	VSOUT
	3	HSOUT
	4	GND
	5	VGA2_R+
	6	GND
	7	VGA2_G+
	8	GND
	9	VGA2_B+
	10	GND
	11	VGA2_DDCSDA
	12	VGA2_DDCSCL

13) DB1(2×20Pin)

Graphic		PIN	Define	PIN	Define
	1	1	RI#3	2	CTS#3
	2	3	DCD#3	4	DTR#3
		5	DSR#3	6	SOUT3
		7	SIN3	8	RTS#3
		9	GND	10	CTS#4
		11	RI#4	12	DCD#4
		13	DTR#4	14	SIN4
		15	SOUT4	16	DSR#4
		17	RTS#4	18	GND
		19	+V3P3_LDO	20	GND
		21	-12V	22	VCC3
		23	RTS#6	24	DSR#6
		25	SOUT6	26	SIN6
		27	DTR#6	28	DCD#6
		29	RI#6	30	CTS#6
		31	NA	32	GND
		33	RTS#5	34	DSR#5
		35	SOUT5	36	SIN5
		37	DTR#5	38	DCD#5
		39	RI#5	40	CTS#5

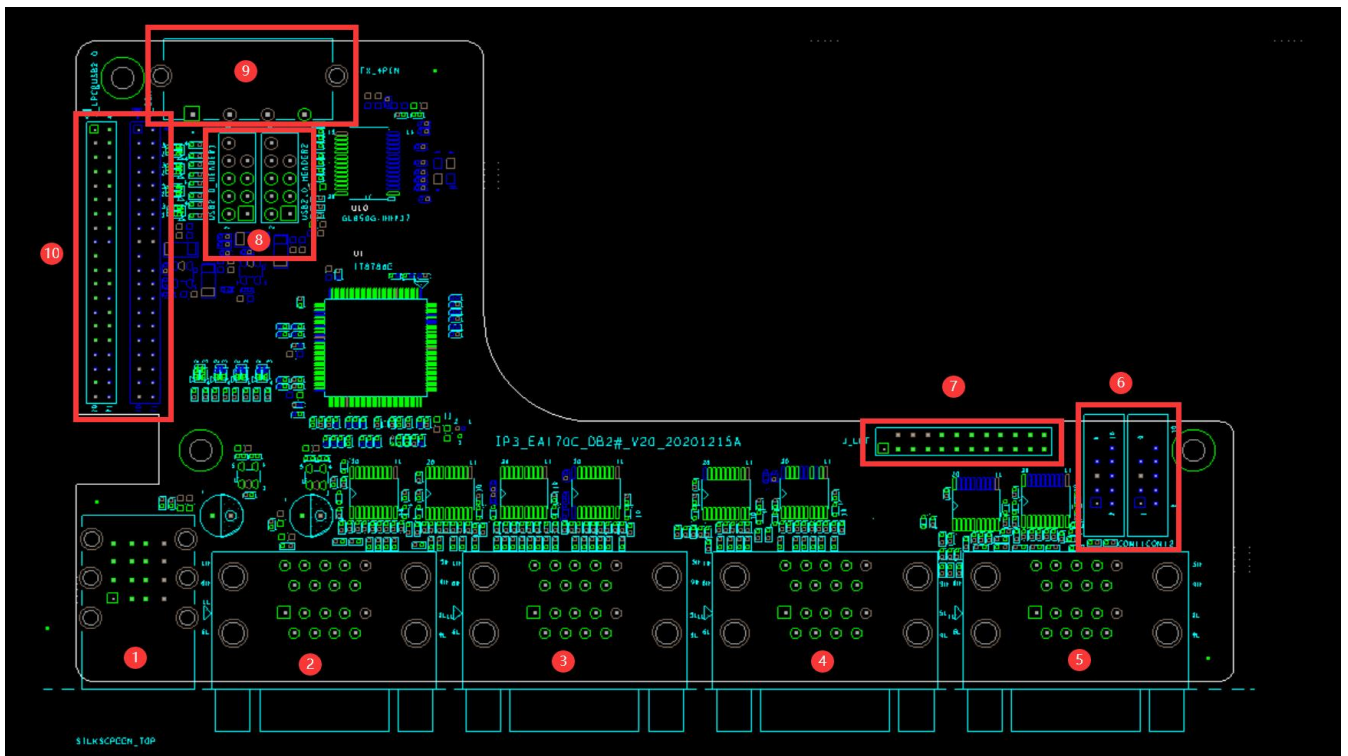
14) DB2(2×20Pin)

Graphic		PIN	Define	PIN	Define
	1	1	USBP3P	2	GND
	2	3	USB_PORT1_P_3	4	USB_PORT2_P_3
		5	GND	6	USB_PORT3_P_3
		7	USB_PORT4_P_3	8	GND
		9	IO_PSON_N	10	+5VDUAL
		11	+5VDUAL	12	+5VDUAL
		13	+5VDUAL	14	+3.3VDUAL
		15	PLT_RST_N	16	LPC_PIRQ_PU
		17	SER_IRQ	18	L_FRAME_N
		19	+V3P3_LDO	20	GND
		21	CLK_LPC24M	22	ESPI_RESET_N
		23	KBRST_N	24	L_AD3
		25	L_AD2	26	L_AD1
		27	L_AD0	28	+3.3VDUAL
		29	+5VDUAL	30	+5VDUAL
		31	NA	32	SLP_S3_N
		33	SLP_S4_N	34	USB_PORT4_N_3
		35	GND	36	USB_PORT3_N_3
		37	USB_PORT2_N_3	38	GND
		39	USB_PORT1_N_3	40	USBP3N

5. Daughter board Information 子板信息

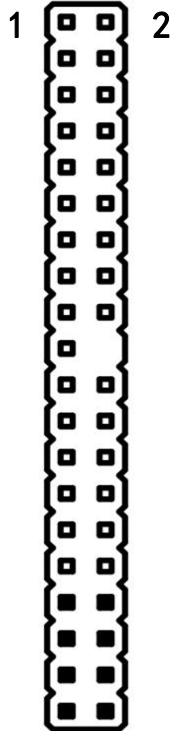
Daughter board 1

Daughter board 1		
Rear IO	①	4×USB2.0
	②③④⑤	8× RS232 DB9 COM
Internal IO	⑩	2×DB CON
	⑧	2×USB 2.0(2×5 Pin header),Expandable 4×USB 2.0
	⑨	1×12V Power(Support RS232 Conversion chipset)
	⑦	1×LPT Support DB2 Conversion Standard LPT CON
	⑥	2×9Pin RS232 COM header (9Pin UART, Support DB2 Conversion RS232 COM)

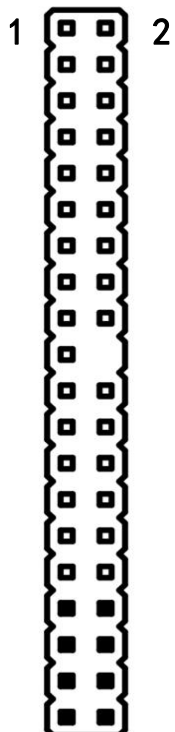


5-1 Daughter board 1

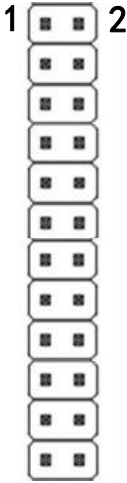
1) J3(2×20Pin)⑩

Graphic	PIN	Define	PIN	Define
	1	ZX_USB2_P0_DP	2	GND
	3	ZX_USB2_P3_DP	4	ZX_USB2_P2_DP
	5	GND	6	USB_PORT3_P_3
	7	ZX_USB2_P5_DP	8	GND
	9	PS0N#MB	10	+5VDUAL
	11	+5VDUAL	12	+5VDUAL
	13	+5VDUAL	14	+3.3VDUAL
	15	-LPCRST	16	-LPC_PIRQ0
	17	SER_IRQ	18	-LPCFRAME
	19	+3.3VSUS_VBAT	20	GND
	21	LPC_SIO_CLK	22	GND
	23	KBRST-	24	LPCAD3
	25	LPCAD2	26	LPCAD1
	27	LPCAD0	28	+3.3VDUAL
	29	+5VDUAL	30	+5VDUAL
	31	NA	32	SUSB_MB
	33	-SUSC	34	ZX_USB2_P4_DP
	35	GND	36	ZX_USB2_P5_DP
	37	ZX_USB2_P2_DP	38	GND
	39	ZX_USB2_P3_DP	40	ZX_USB2_P0_DP


2) J1(2×20Pin)⑩

Graphic	PIN	Define	PIN	Define
	1	RI#3_MB	2	CTS#3_MB
	3	DCD#3_MB	4	DTR#3_MB
	5	DSR#3_MB	6	SOUT3_MB
	7	SIN3_MB	8	RTS#3_MB
	9	GND	10	CTS#4_MB
	11	RI#4_MB	12	DCD#4_MB
	13	DTR#4_MB	14	SIN4_MB
	15	SOUT4_MB	16	DSR#4_MB
	17	RTS#4_MB	18	GND
	19	+V3.3VAL_LDO	20	GND
	21	-12V	22	+3.3V
	23	RTS#6_MB	24	DSR#6_MB
	25	SOUT6_MB	26	SIN6_MB
	27	DTR#6_MB	28	DCD#6_MB
	29	RI#6_MB	30	CTS#6_MB
	31	NA	32	GND
	33	RTS#5_MB	34	DSR#5_MB
	35	SOUT5_MB	36	SIN5_MB
	37	DTR#5_MB	38	DCD#5_MB
	39	RI#5_MB	40	CTS#5_MB

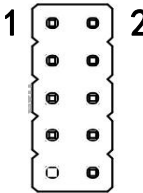
3) JLPT(2×12Pin)⑦

Graphic	PIN	Define	PIN	Define
	1	+12V	2	NA
	3	-12V	4	GND
	5	+5V	6	GND
	7	PD5	8	GND
	9	PD4	10	PD6
	11	PD2	12	PD3
	13	PDO	14	PD1
	15	AFD#	16	STB#
	17	INIT#	18	ERR#
	19	ACK#	20	SLIN#
	21	PE	22	BUSY
	23	SLCT	24	PD7

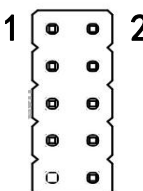
4) ATX(1×4Pin)⑨

Graphic	PIN	Define
	1	+5V
	2	GND
	3	GND
	4	+12V

5) COM(2×5Pin)⑥

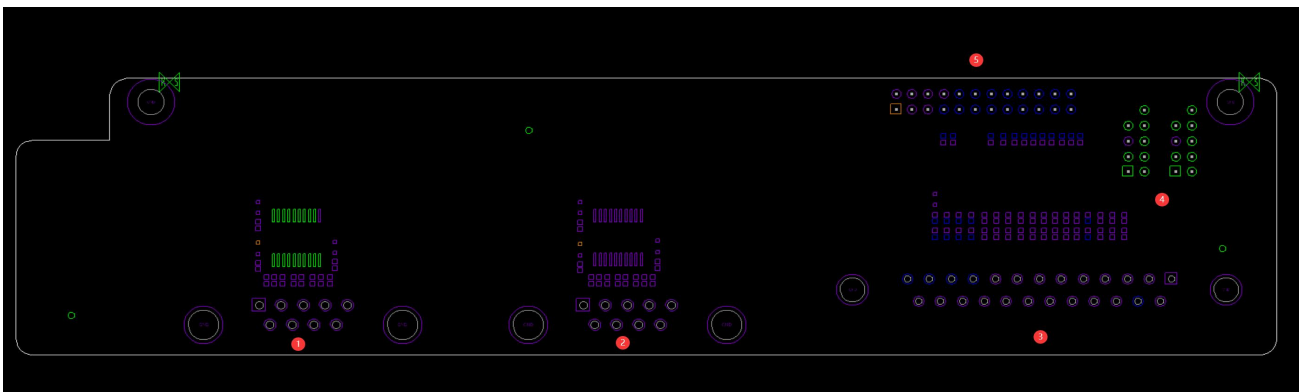
Graphic	PIN	Define	PIN	Define
	1	DCD5#_MB	2	SRX5_MB
	3	STX5_MB	4	DTR5#_MB
	5	GND	6	DTS5#_MB
	7	RTS5#_MB	8	CTS5#_MB
	9	NC	10	RI5#_MB

6) USB 2.0(2×5Pin)⑧

Graphic	PIN	Define	PIN	Define
	1	+V5A_HEADER1	2	+V5A_HEADER1
	3	HUB2_P2_DM_HD	4	HUB2_P1_DM_HD
	5	HUB2_P2_DP_HD	6	HUB2_P1_DP_HD
	7	GND	8	GND
	9	NA	10	GND

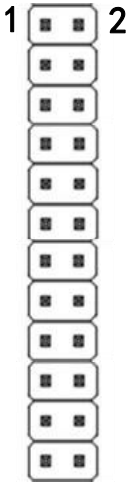
Daughter board 2

Daughter board 2		
Rear IO	③	1×LPT
	①②	2×RS232 DB9 COM
Internal IO	④	2×9Pin UART header(Connect DB1 UART Header, Support DB2 Conversion RS232 COM)
	⑤	1×LPT(Connect DB1 LPT Header, Support DB2 Conversion Standard LPT)

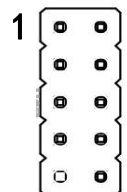


5-2 Daughter board 2

1) LPT Header(2×12Pin)⑤

Graphic	PIN	Define	PIN	Define
	1	+12V	2	NA
	3	-12V	4	GND
	5	+5V	6	GND
	7	SLIN#	8	GND
	9	SLCT	10	INIT#
	11	BUSY	12	PE
	13	PD7	14	ACK#
	15	PD5	16	PD6
	17	PD3	18	PD4
	19	PD1	20	PD2
	21	ERR#	22	PD0
	23	AFD#	24	STB#

2) COM Header(2×5Pin)④

Graphic	PIN	Define	PIN	Define
	1	DCD5#_MB	2	SRX5_MB
	3	STX5_MB	4	DTR5#_MB
	5	GND	6	DSR5#_MB
	7	RTS5#_MB	8	CTS5#_MB
	9	NC	10	RI5#_MB