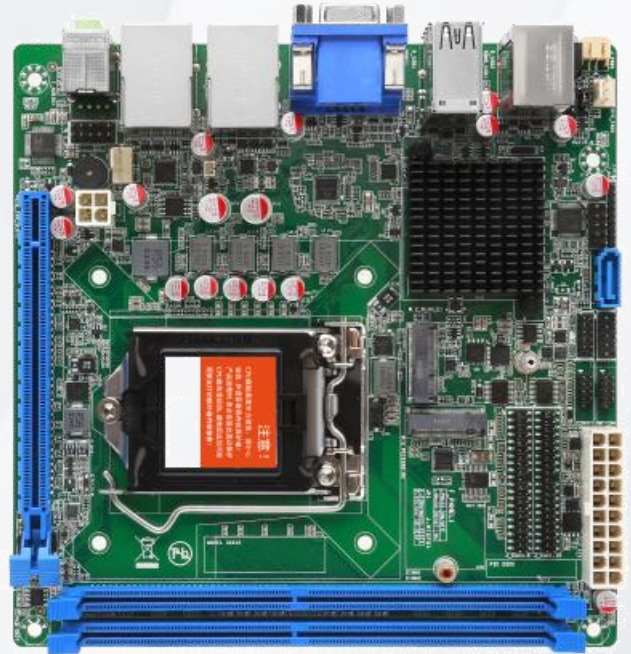


QY-MB-H420E-MITX

- Intel H420E chipset
- Support Pentium/Celeron/10th-i3/i5/i7/i9 CPU
- 2*Gigabit LAN, 8*USB 2.0, 6*USB 3.1, 10*COM
- 1*HDMI, 1*VGA
- 2*DDR III RAM slot
- 1*M.2 SATA slot
- 1*M.2 Key-E Slot+1*SATA Slot
- 1*PCIE 16X slot
- DC 12V power input
- Mini-ITX type board, 17*17 cm
- 1*Mic-in, 1*Line-out connector



1. Specification:

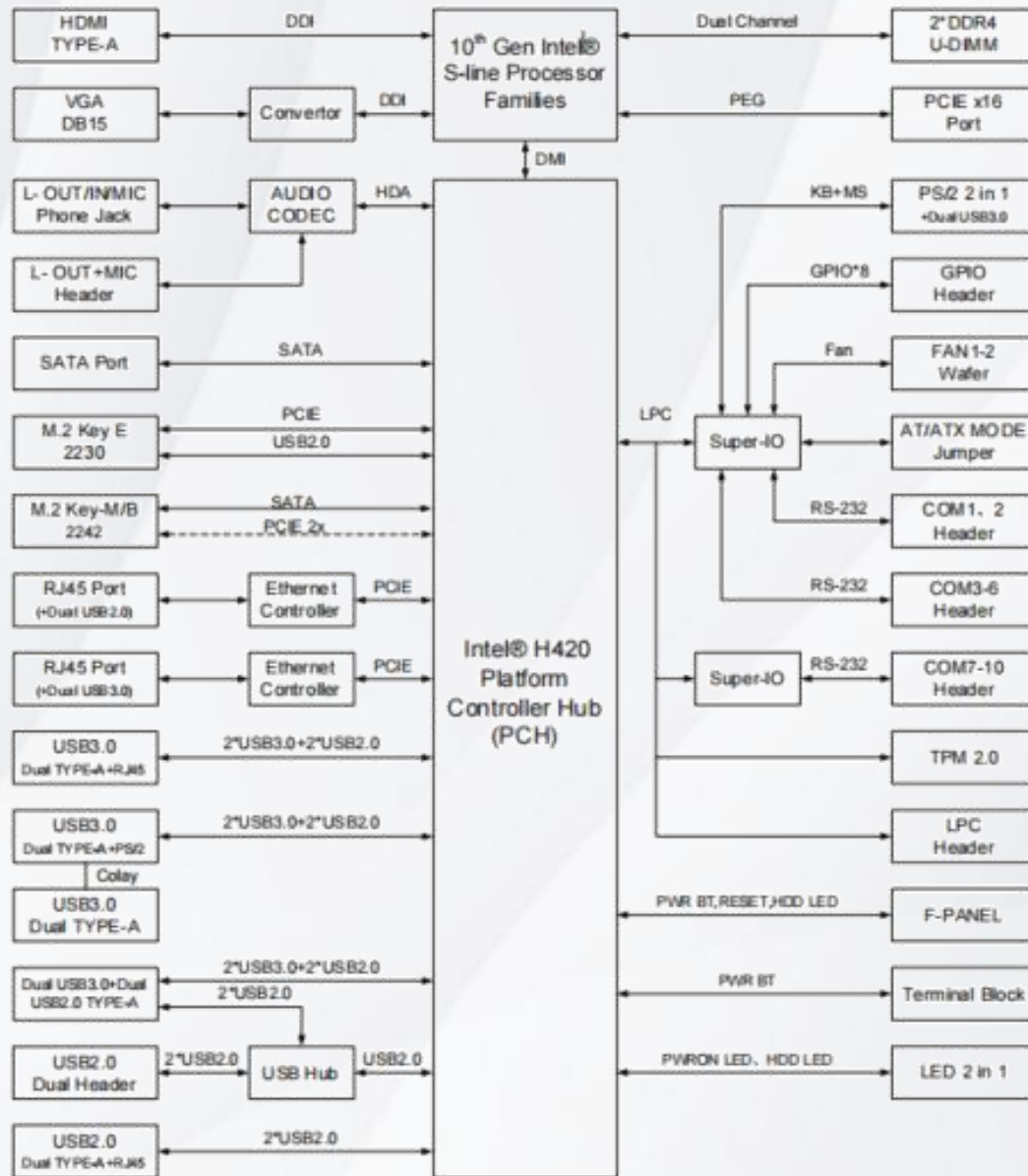
Model	QY-MB-H420E-MITX
CPU	Intel Pentium / Celeron / 10th Generation Core i3/i5/i7/i9 CPU, LGA1200 Intel H420E chipset, TDP 6W
Display	1*HDMI: resolution up to 1920*1080@60Hz 1*VGA: resolution up to 4096*2160@30Hz
Memory	Support DDR4 2133/2400/2666/2933 MHz, 2*U-DIMM Slots, Up to 32GB
Storage	1*SATA 3.0 Ports 1*M.2 Key-M Slot (PCIE 2X/SATA, Default SATA, Support SATA SSD, 2242) ^[1]
Expansion	1*PCIE 16X 1 * M.2 Key-E Slot (PCIE+USB2.0, Support WIFI+BT, 2230)
Ethernet	2 * Realtek GbE LAN Chip (10/100/1000 Mbps, RJ45)
USB	6*USB 2.0 (Rear I/O) 4*USB 3.0 (Rear I/O) 2*USB 2.0 (Header)
COM	10*RS-232
Audio	Realtek HDA Audio Codec 1 * Front Audio Header (Line Out + MIC) 1 * Line-Out + MIC 3.5mm Jack (Line-In Optional) ^[2]
Other Ports	8 * GPIO 1 * PS/2 Connector (Keyboard + Mouse 2in1) 1 * Power Button Wafer 1 * Front Panel Header 1 * CPU FAN Wafer 1 * System FAN Wafer 1 * System +HDD LED 1 * Debug Header
System	Windows 10, Linux
Temperature	Storage: -20°C ~ 75°C Operating: 0°C ~ 60°C
BIOS	AMI UEFI BIOS
Factor	Mini-ITX (17cm*17cm)

Note:

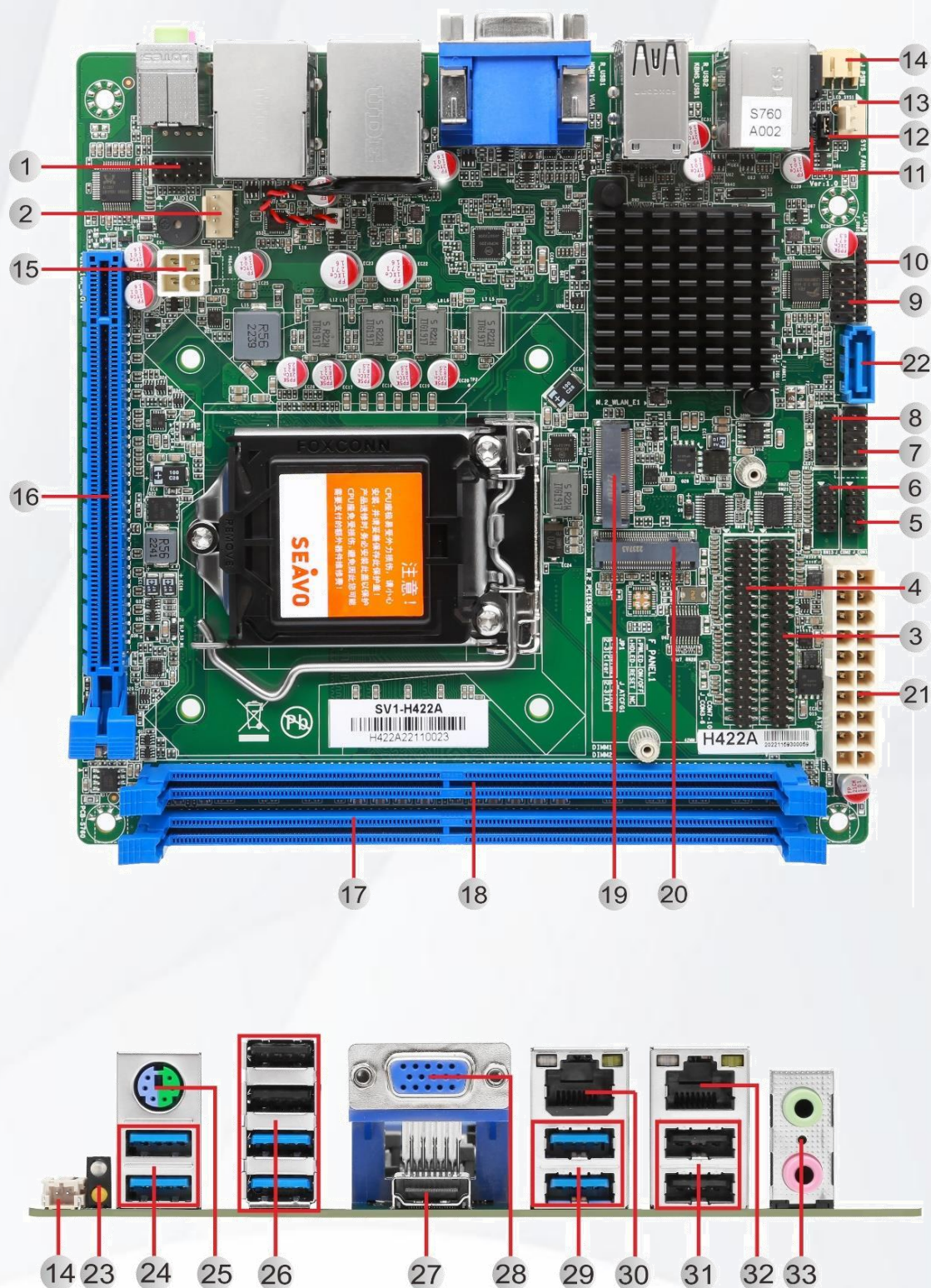
[1]: M.2 Key-M Slot can support PCIE 2x or SATA(default) SSD. (BOM selectable)

[2]: SCN2 can support Line-Out + MIC + Line-In, when selecting three hole 3.5mm jack. (BOM selectable)

2. Date Flow



3. Jumpers / Headers and Connectors



1	Front Audio Pin Header	20	M.2 Key-M Slot (PCIE 2x/SATA, Default SATA, Support SATA SSD, 2242, BOM optional PCIE 2x)
2	CPU FAN Connector	21	ATX 20P Power Input Connector
3	COM7-10 Header	22	SATA3.0 7P Connector
4	COM3-6 Header	23	System State LED
5	COM1 Header	24	Dual USB3.0 TYPE-A Connector
6	COM2 Header	25	PS/2 Connector (Keyboard & Mouse)
7	Front Panel Header	26	Dual USB3.0 + Dual USB2.0 TYPE-A Connector
8	GPIO Header	27	HDMI TYPE-A Connector
9	Front USB2.0 Header	28	VGA DB15/F Connector
10	Debug Header	29	Dual USB3.0 TYPE-A Connector
11	CMOS Clear Jumper	30	GBE LAN RJ45 Connector1
12	AT or ATX Select Jumper	31	Dual USB2.0 TYPE-A Connector
13	System FAN Wafer	32	GBE LAN RJ45 Connector1
14	Power Switch Wafer	33	Line-Out + MIC 3.5mm Jack
15	ATX 4P CPU Power Input Connector		
16	PCI-E 16X Slot		
17	DDR4 CHB U-DIMM Slot2		
18	DDR4 CHA U-DIMM Slot1		
19	M.2 Key-E Slot (PCIE+USB2.0, Support WIFI+BT, 2230)		

4. Definition

(1) F-AUDIO1 (Front Audio Pin Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	MIC_IN_L	2	GND
	3	MIC_IN_R	4	+ 3.3V
	5	LINE_OUT_R	6	MIC_IN_RET
	7	GND		
	9	LINE_OUT_L	10	LINE_OUT_RET

(2) CPU-FAM1 (CPU FAN Connector 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	2	FAN Speed Detection
	3	VCC12	4	FAN Speed Control

(3) J-COM7-10 (COM7-10 Header 20*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM7_DCD	2	COM7_RXD
	3	COM7_TXD	4	COM7_DTR
	5	GND	6	COM7_DSR
	7	COM7_RTS	8	COM7_CTS
	9	COM7_RI	10	GND
	11	N/C	12	COM8_RXD
	13	COM8_TXD	14	N/C
	15	GND	16	N/C
	17	N/C	18	N/C
	19	N/C	20	
	21	N/C	22	COM9_RXD
	23	COM9_TXD	24	N/C
	25	GND	26	N/C
	27	N/C	28	N/C
	29	N/C	30	GND
	31	N/C	32	COM10_RXD
	33	COM10_TXD	34	N/C
	35	GND	36	N/C
	37	N/C	38	N/C
	39	N/C	40	GND

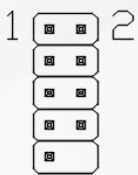
(4) J-COM3-6 (COM3-6 Header 20*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	COM3_PIN1 ^[1]	2	COM3_RXD
	3	COM3_TXD	4	COM3_DTR
	5	GND	6	COM3_DSR
	7	COM3_RTS	8	COM3_CTS
	9	COM3_RI	10	GND
	11	COM4_PIN1 ^[1]	12	COM4_RXD
	13	COM4_TXD	14	COM4_DTR
	15	GND	16	COM4_DSR
	17	COM4_RTS	18	COM4_CTS
	19	COM4_RI	20	
	21	COM5_PIN1 ^[1]	22	COM5_RXD
	23	COM5_TXD	24	COM5_DTR
	25	GND	26	COM5_DSR
	27	COM5_RTS	28	COM5_CTS
	29	COM5_RI	30	GND
	31	COM6_PIN1 ^[1]	32	COM6_RXD
	33	COM6_TXD	34	COM6_DTR
	35	GND	36	COM6_DSR
	37	COM6_RTS	38	COM6_CTS
	39	COM6_RI	40	GND

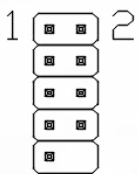
Note:

[1]: Pin1 of JCOM3/4/5/6 can be signal DCD (default) or VCC5. (resistor selectable)

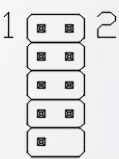
(5) J-COM1 (COM1 Pin Header 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

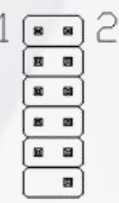
(6) J-COM2 (COM2 Pin Header 5*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	DCD	2	RXD
	3	TXD	4	DTR
	5	GND	6	DSR
	7	RTS	8	CTS
	9	RI		

(7) F-PANEL1 (Front Panel Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	HDD LED+	2	Power LED+
	3	HDD LED-	4	Power LED-
	5	GND	6	PWR+
	7	RESET-	8	PWR -
	9	N/C		

(8) J-GPIO1 (GPIO Header 6*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	SIO_GPI80 (0X0A02 Bit0, H) ^[1]	2	SIO_GPI81 (0X0A02 Bit1, H)
	3	SIO_GPI82 (0X0A02 Bit2, H)	4	SIO_GPI83 (0X0A02 Bit3, H)
	5	GND	6	SIO_GPO84 (0X0A02 Bit4, H)
	7	SIO_GPO85 (0X0A02 Bit5, H)	8	SIO_GPO86 (0X0A02 Bit6, H)
	9	SIO_GPO87 (0X0A02 Bit7, H)	10	VCC5 ^[1]
			12	N/C

Note:

[1] :: “H” or “L” means the default voltage is High or Low level, and GPIO output is 3.3V(default) 5V if specified (resistor selectable).

(9) F-USB1 (Front USB2.0 Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	VCC5	2	VCC5
	3	HUB_USB2.0_3-	4	HUB_USB2.0_4-
	5	HUB_USB2.0_3+	6	HUB_USB2.0_4+
	7	GND	8	GND
			10	N/C

(10) J-LPC1 (Debug Header 9*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	LFRAME_N	6	GND
	2	LPC_AD3_DBG	7	PLTRST_N
	3	LPC_AD2_DBG	8	LPC_CLK_DBG
	4	LPC_AD1_DBG	9	VCC3.3
	5	LPC_AD0_DBG		

(11) JP1 (COMS Clear Jumper 3*1 Pin 2.54mm)

Graphic	Settings	Settings
	1-2 (Default)	Normal
	2-3	Clear CMOS

(12) J-ATCFG1 (AT or ATX Select Jumper 3*1 Pin 2.54mm)

Graphic	Settings	Settings
	1-2 (Default)	ATX MODE
	2-3	AT MODE

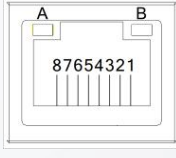
(13) J-PSW1 (Power Switch Wafer 2*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection
	2	VCC12		

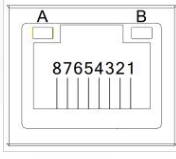
(14) J-PSW1 (Power Switch Water 2*1 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
 1	1	PANSW#	3	GND

(30) RJ45-USB1(LAN (GBE LAN RJ45 Connector1)

Graphic	Pin	Definition	Pin	Definition
	1	MDI0_1+	5	MDI2_1+
	2	MDI0_1-	6	MDI2_1-
	3	MDI1_1+	7	MDI3_1+
	4	MDI1_1-	8	MDI3_1-
	A	Speed LED	B	Active LED
		1000M: Turn Orange		ACT: Twinkling Yellow
		100M: Turn Green		Only LINK: Lights Off
		10M: Lights Off		Stop: Lights Off

(32) RJ45-USB2(LAN) (GBE LAN RJ45 Commector2)

Graphic	Pin	Definition	Pin	Definition
	1	MDI0_2+	5	MDI2_2+
	2	MDI0_2-	6	MDI2_2-
	3	MDI1_2+	7	MDI3_2+
	4	MDI1_2-	8	MDI3_2-
	A	Speed LED	B	Active LED
		1000M: Turn Orange		ACT: Twinkling Yellow
		100M: Turn Green		Only LINK: Lights Off
		10M: Lights Off		Stop: Lights Off