SYS86351V4GA

User's Manual

Ver 1.0

Contents

1.Models and Attentions

1.1 Models

This manual is applied to following models:

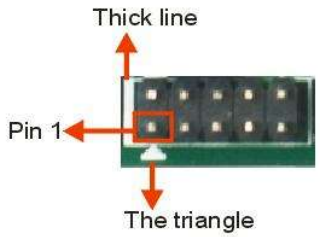
Model	Chipset	COM	LAN	USB	PCIE	MINI PCIE	HDMI	VGA	SATA 3.0	SATA 2.0
SYS86351V4GA	H81	6	4	10	2	mSATA 3G/4G	1	1	1	1

1.2 Attentions

1) **Notes under a table or figure indicate the difference of models, or alternative definition of specific pin of the header (jumper/connector).**

2) **How to identify the first pin of a header or jumper**

- Usually, there is a thick line or a triangle near the header's or jumper's pin 1.



- Square pad, which you can find on the back of the motherboard, is usually used for pin 1.

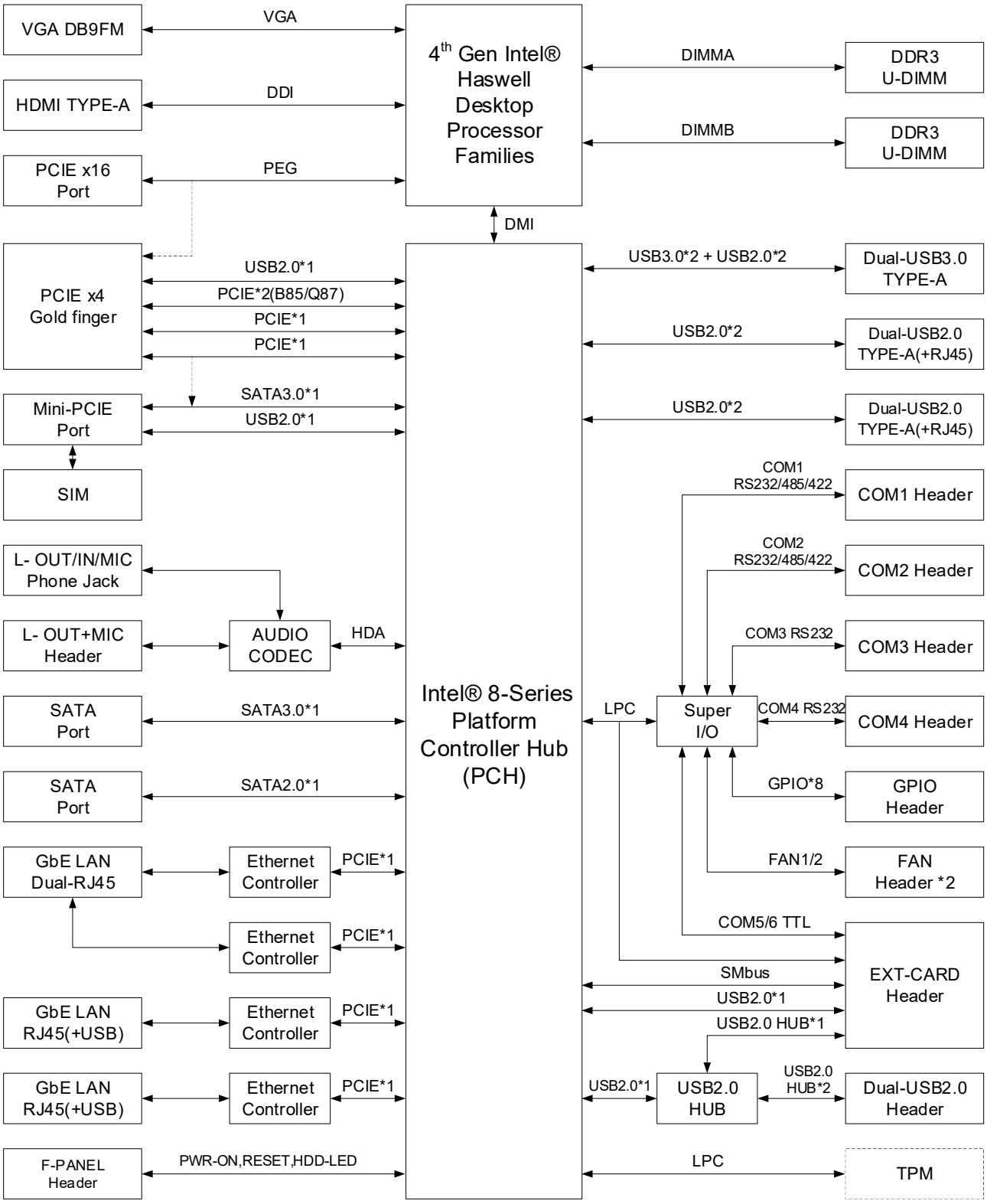
2. Specification

Model	SYS86351V4GA
CPU	Support 4th Generation Intel® Core /Pentium /Celeron Processors, LGA1150 Support MAX CPU TDP: 84W
Chipset	Intel® H81, TDP 4.1W
Display [1]	1 * HDMI (TYPE-A): Support max resolution up to 1920x1200@60Hz 1 * VGA (DB15/F): Support max resolution up to 1920x1200@60Hz
Memory	Support DDR3 1333/1600MHz, 2*U-DIMM Slot, Up to 16 GB
Storage	1 * SATA3.0 7P Connector 1 * SATA2.0 7P Connector 1 * Mini PCI-E Slot (SATA+4G/3G) [2]
Ethernet	4 * Intel I211 GBE LAN Chip (10/100/1000 Mbps, RJ45)
Audio	Realtek ALC662 5.1 Channel HDA Codec, 1 * Line-Out + MIC + Line-In 3.5mm Jack 1 * Front Audio Header (Line-Out + MIC)
PCI-E *	1 * PCI-E 16x Slot (PCI-E 3.0) 1 * PCI-E 16x Gold Finger (PCIEx4 [2][3] + 1*USB2.0 + PCIEx16 (colay 16x Slot) [4])
COM	2 * RS232/RS422/RS485 (COM1/2, Header) 2 * RS232 (COM3/4, Header) 2 * TTL (COM5/6, EXT-CARD Header)
USB	2 * USB3.0 (Rear I/O, TYPE-A) 4 * USB2.0 (Rear I/O, TYPE-A) 2 * USB2.0 (Internal, Header) 2 * USB2.0 (Internal, EXT-CARD Header)
Other Ports	Support TPM2.0 (default not onboard), 1 * EXT-CARD Header (1xLPC, 1xSMbus, with 2xUSB2.0, 2xCOM TTL) 1 * Full-Size SIM Card Slot 1 * CPU FAN Header 1 * System FAN Header 1 * Front Panel Header 1 * GPIO Header 1 * CMOS Clear Jumper
System	Windows7/8.1/10, Linux
Temperature	Storage: -20~80˚C Operating: -10~60˚C
BIOS	AMI UEFI BIOS (Support Watchdog Timer)
Power Supply	Standard ATX (20P + 4P)
Factor	Mini-ITX (170mm * 180mm)

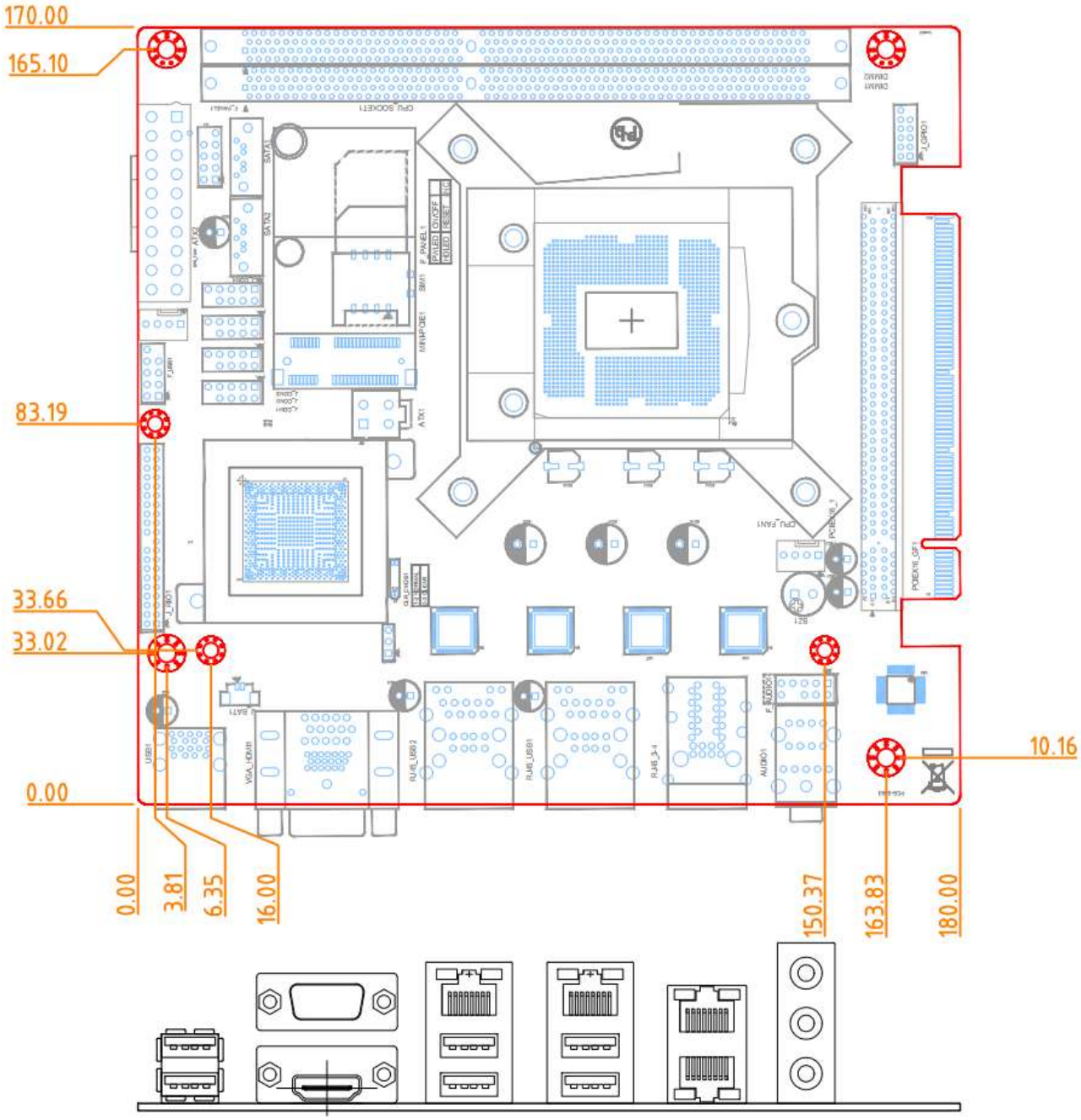
Notes:

*: PCI-E 16x Gold Finger needs to be used with the Seavo customized daughter card.
[1]: Intel® H81 support two independent displays.
[2]: Mini PCI-E Slot support mSATA + 3G/4G by default. It also can support WIFI + 3G/4G. WIFI(PCIE) signal colay with 2nd PCIE(PCIEx4).
[3]: 3-4th PCIE(PCIEx4) can only be used when the PCH is changed to B85/Q87.
[4]: PCI-E 16x Slot and Gold Finger use the same signal, bom option selected, support PCI-E 16x Slot by default.

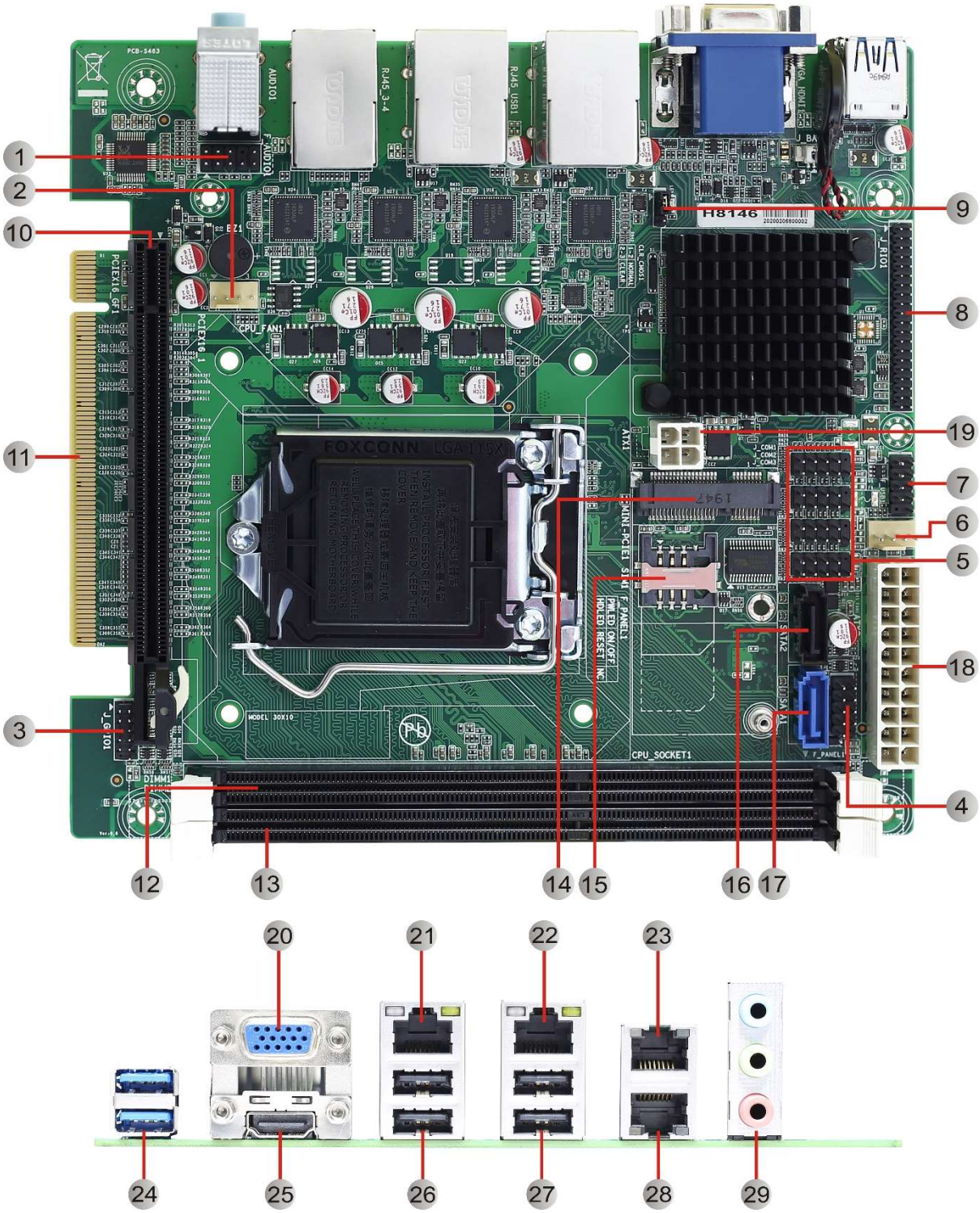
3. Functional Block Diagram

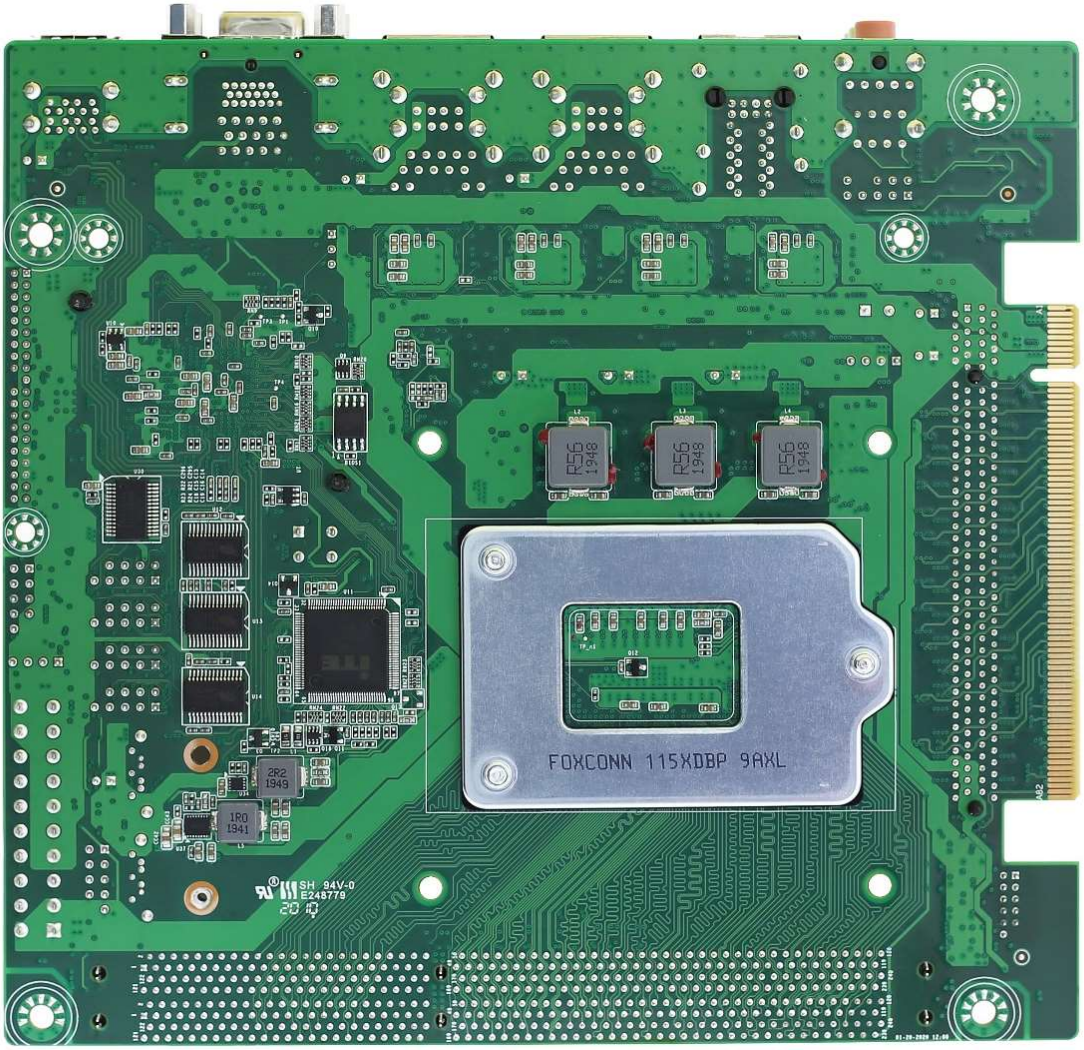


4. Mechanical Drawing



5. Jumpers / Headers and Connectors



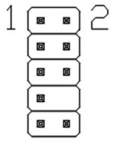


Jumpers / Headers and Connectors		
1	F_AUDIO1	Front Audio Header (Line-Out + MIC)
2	CPU_FAN1	CPU FAN Header
3	J_GPIO1	GPIO Header
4	F_PANEL1	Front Panel Header
5	J_COM1/2/3/4	COM1/2/3/4 Header
6	SYS_FAN1	System FAN Header
7	F_USB1	Front USB2.0 Header
8	J_RIO1	EXT-CARD Header
9	CLR_CMOS1	CMOS Clear Jumper
10	PCIEX16_1	PCI-E 16x Slot
11	PCIEX16_GF1	PCI-E 16x Gold Finger
12	DIMM1	DDR3 CHA U-DIMM Slot
13	DIMM2	DDR3 CHB U-DIMM Slot
14	SIM1	Full-Size SIM Card Slot
15	MINI-PCIE1	Mini PCI-E Slot (SATA+4G/3G)

16	SATA2	SATA2.0 7P Connector
17	SATA1	SATA3.0 7P Connector
18	ATX2	ATX 20P Power Input Connector
19	ATX1	ATX 4P CPU Power Input Connector
20	VGA_HDMI1(VGA)	VGA DB15/F Connector
21	RJ45_USB2(RJ45_2)	GBE LAN RJ45 Connector2
22	RJ45_USB1(RJ45_1)	GBE LAN RJ45 Connector1
23	RJ45_3-4(RJ45_3)	GBE LAN RJ45 Connector3
24	USB1	Dual USB3.0 TYPE-A Connector
25	VGA_HDMI1(HDMI)	HDMI TYPE-A Connector
26	RJ45_USB2(USB2)	Dual USB2.0 TYPE-A Connector2
27	RJ45_USB1(USB1)	Dual USB2.0 TYPE-A Connector1
28	RJ45_3-4(RJ45_4)	GBE LAN RJ45 Connector4
29	AUDIO1	Line-Out + MIC + Line-In 3.5mm Jack

6. Definition of Jumpers /Headers and Connectors

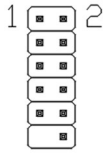
1) F_AUDIO1 (Front Audio Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	MIC_IN_L	2	GND
	3	MIC_IN_R	4	+ 3.3V
	5	AUD_OUT_R	6	MIC_IN_DET
	7	GND		
	9	AUD_OUT_L	10	AUD_OUT_DET

2) CPU_FAN1 (CPU FAN Header 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection1
	2	+ 12V	4	FAN Speed Control1

3) J_GPIO1 (GPIO Header 6*2 Pin 2.00mm)

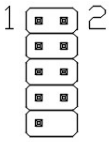
Graphic	Pin	Definition	Pin	Definition
	1	SIO_ GPI70 (0xA06 Bit0, H) [1]	2	SIO_ GPI71 (0xA06 Bit1, H)
	3	SIO_ GPI72 (0xA06 Bit2, H)	4	SIO_ GPI73 (0xA06 Bit3, H)
	5	GND	6	SIO_ GPO74 (0xA06 Bit4, L) [1]
	7	SIO_ GPO75 (0xA06 Bit5, L)	8	SIO_ GPO76 (0xA06 Bit6, L)
	9	SIO_ GPO77 (0xA06 Bit7, L)	10	+ 3.3V [2]
			12	N/C

Notes:

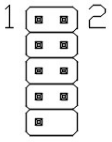
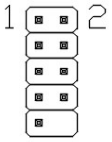
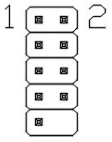
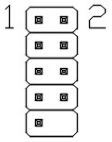
[1]: “H” or “L” means the default voltage is High or Low level.

[2]: Pin10 of GPIO can be 3.3V(default)/ 5V by selecting resistance.

4) F_PANEL1 (Front Panel Header 5*2 Pin 2.54mm)

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

5) J_COM1/2/3/4 (COM1/2/3/4 Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	DCD#1	2	DSR#1
	3	RXD1	4	RTS#1
	5	TXD1	6	CTS#1
	7	DTR#1	8	COM1_PIN8 [1]
J_COM1	9	GND		
	1	DCD#2	2	DSR#2
	3	RXD2	4	RTS#2
	5	TXD2	6	CTS#2
	7	DTR#2	8	COM2_PIN8 [1]
J_COM2	9	GND		
	1	DCD#3	2	DSR#3
	3	RXD3	4	RTS#3
	5	TXD3	6	CTS#3
	7	DTR#3	8	COM3_PIN8 [1]
J_COM3	9	GND		
	1	DCD#4	2	DSR#4
	3	RXD4	4	RTS#4
	5	TXD4	6	CTS#4
	7	DTR#4	8	COM4_PIN8 [1]
J_COM4	9	GND		

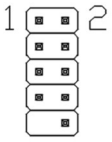
Notes:

[1]: Pin8 of COM1/2/3/4 can be RI#(default)/ 5V/ 12V by selecting resistance.

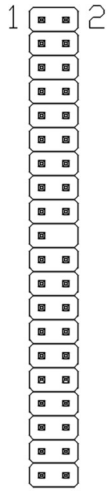
6) SYS_FAN1 (System FAN Header 4*1 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	GND	3	FAN Speed Detection2
	2	+ 12V	4	FAN Speed Control2

7) F_USB1 (Front USB2.0 Header 5*2 Pin 2.54mm)

Graphic	Pin	Definition	Pin	Definition
	1	+ 5V	2	+ 5V
	3	HUB_USB2_1-	4	HUB_USB2_2-
	5	HUB_USB2_1+	6	HUB_USB2_2+
	7	GND	8	GND
			10	N/C

8) J_RIO1 (EXT-CARD Header 20*2 Pin 2.00mm)

Graphic	Pin	Definition	Pin	Definition
	1	RXD5	2	RXD6
	3	TXD5	4	TXD6
	5	RTS#5	6	RTS#6
	7	DTR#5	8	DTR#6
	9	DSR#5	10	DSR#6
	11	CTS#5	12	CTS#6
	13	GND	14	GND
	15	PCH_USB2_10+	16	SMB_SCL
	17	PCH_USB2_10-	18	SMB_SDA
	19	HUB_USB2_3+		
	21	HUB_USB2_3-	22	LFRAME#
	23	GND	24	LAD0
	25	GND	26	LAD1
	27	GND	28	LAD2
	29	GND	30	LAD3
	31	+ 5V	32	GND

	33	+ 5V	34	BUF_RST#
	35	+ 5V	36	CLK33M_SIO2
	37	+ 3.3V	38	+ 3.3V
	39	+ 5VA	40	SERIRQ

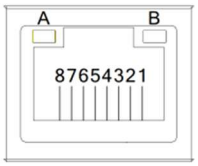
9) CLR_CMOS1 (CMOS Clear Jumper 3*1 Pin 2.54mm)

Graphic	Setting	Function
	1-2 (Default)	Normal
	2-3	Clear CMOS

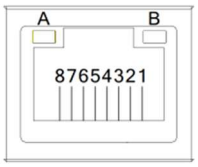
19) ATX1 (ATX 4P CPU Power Input Connector)

Graphic	Pin	Definition	Pin	Definition
	1	GND	2	GND
	3	+12V_CPU	4	+12V_CPU

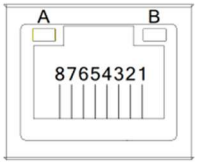
21) RJ45_USB2(RJ45_2) (GBE LAN RJ45 Connector2 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI2_0+		5	MDI2_2+	
	2	MDI2_0-		6	MDI2_2-	
	3	MDI2_1+		7	MDI2_3+	
	4	MDI2_1-		8	MDI2_3-	
	A	Speed LED	1000M: Turn Orange	B	Active LED	ACT: Twinkling Yellow
			100M: Turn Green			Only LINK: Lights On
			10M: Lights Off			Stop: Lights Off

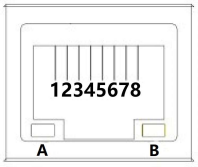
22) RJ45_USB1(RJ45_1) (GBE LAN RJ45 Connector1 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI1_0+		5	MDI1_2+	
	2	MDI1_0-		6	MDI1_2-	
	3	MDI1_1+		7	MDI1_3+	
	4	MDI1_1-		8	MDI1_3-	
	A	Speed LED	1000M: Turn Orange	B	Active LED	ACT: Twinkling Yellow
			100M: Turn Green			Only LINK: Lights On
			10M: Lights Off			Stop: Lights Off

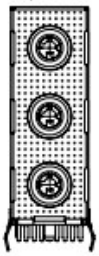
23) RJ45_3-4(RJ45_3) (GBE LAN RJ45 Connector3 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI3_0+		5	MDI3_2+	
	2	MDI3_0-		6	MDI3_2-	
	3	MDI3_1+		7	MDI3_3+	
	4	MDI3_1-		8	MDI3_3-	
	A	Speed LED	1000M: Turn Orange	B	Active LED	ACT: Twinkling Yellow
			100M: Turn Green			Only LINK: Lights On
			10M: Lights Off			Stop: Lights Off

28) RJ45_3-4(RJ45_4) (GBE LAN RJ45 Connector4 8Pin)

Graphic	Pin	Definition		Pin	Definition	
	1	MDI4_0+		5	MDI4_2+	
	2	MDI4_0-		6	MDI4_2-	
	3	MDI4_1+		7	MDI4_3+	
	4	MDI4_1-		8	MDI4_3-	
	A	Speed LED	1000M: Turn Orange	B	Active LED	ACT: Twinkling Yellow
			100M: Turn Green			Only LINK: Lights On
			10M: Lights Off			Stop: Lights Off

29) AUDIO1 (Line-Out + MIC + Line-In 3.5mm Jack)

Graphic	Setting	Function
	Blue	Line-In
	Green	Line-Out
	Pink	MIC-In

7. BIOS setup

See “BIOS Spec for SYS86351V4GA Series” for detail information of BIOS setup.

【End】