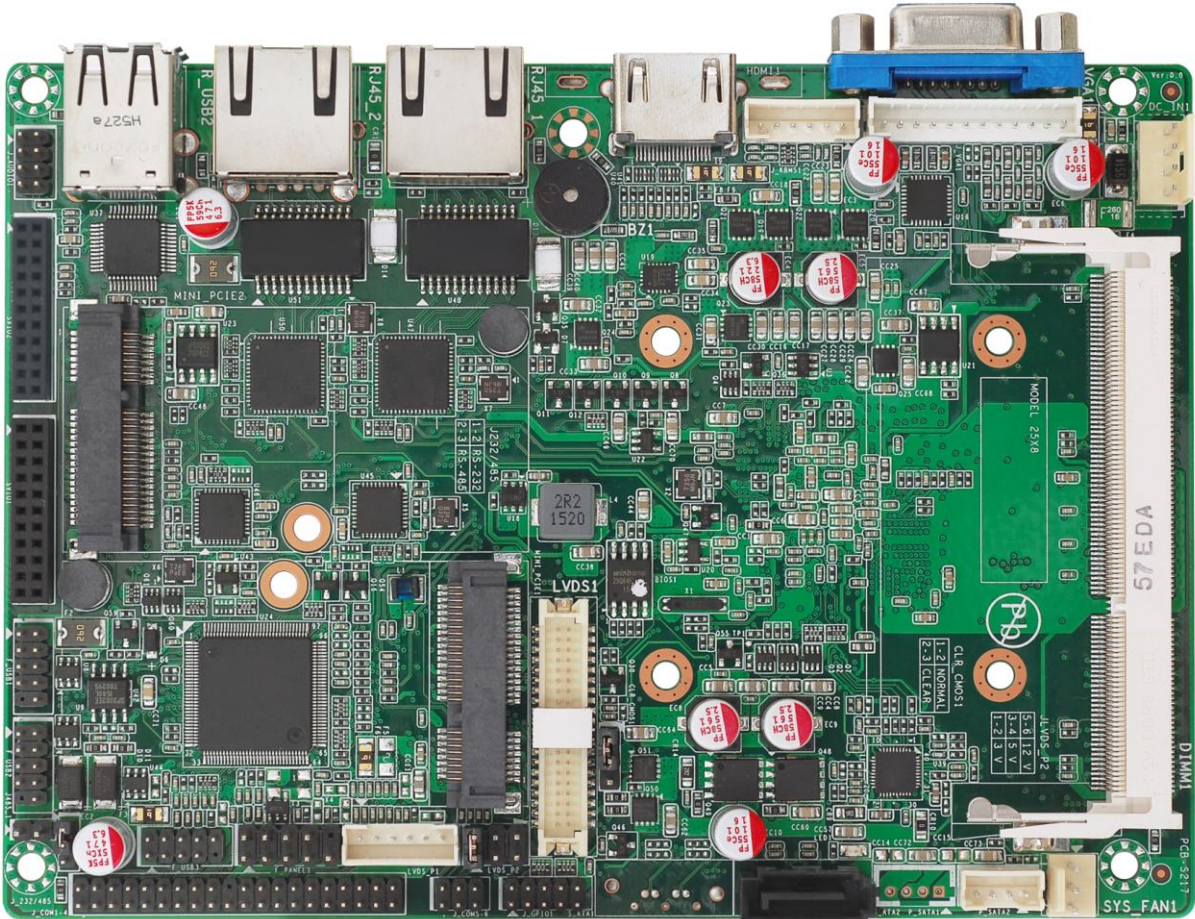


AEMBT-026 Series Motherboard

User Guide

Ver 1.0



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1. Models and Attentions

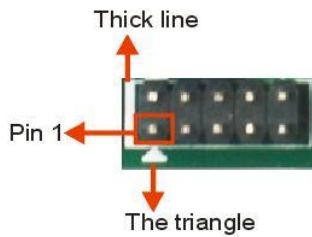
1.1 Models

This manual is applied to following models:

Model	CPU	COM	LAN	USB	LVDS	HDMI
AEMBT-026	J1900	6	2	7	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	AEMBT- 026
CPU	Intel® Celeron® J1900 ^[1] , Dual-core, clock speed 2.41G, TDP 10W
Display	1 * VGA 1 * Dual Channel 24-bit LVDS ^[2] 1 * HDMI ^[3]
Memory	Support DDR3L 1333 MHz, 1 * SO-DIMM Slot, Up to 8GB
Storage	1 * Serial ATA 2.0 Port + 1 * mSATA ^[4]
Ethernet	2 * Intel i211 (10/100/1000 Mbps)
Audio	Realtek ALC662 5.1 Channel HDA Codec, Support MIC/Line-out Ports
COM	6 * RS232 ^[3] 1 * RS485 ^[5]
Other Ports	7 * USB2.0: 2(Rear I/O) + 5(Header) ^[6] 8 * GPIO 2 * Mini PCI-E ^[7] 1 * SIM Card Connector 1 * PS/2 1 * SYS_FAN Connector 1 * Front Audio Connector 1 * DC12V Power Input Connector
Temperature	Storage: -20~75°C Operating: 0~60°C
BIOS	AMI UEFI BIOS
Factor	3.5 Inch (146mm * 105mm)

Notes:

[1]: CPU can be customized into Celeron® J1800.

[2]: The Dual Channel 24-bit LVDS supports a max resolution of 1920x1200.

[3]: COM1 (DB9) Connectors and HDMI on rear I/O share the same position and are mutually exclusive, when HDMI populated, COM1 is available via J_COM1 Pin Header.

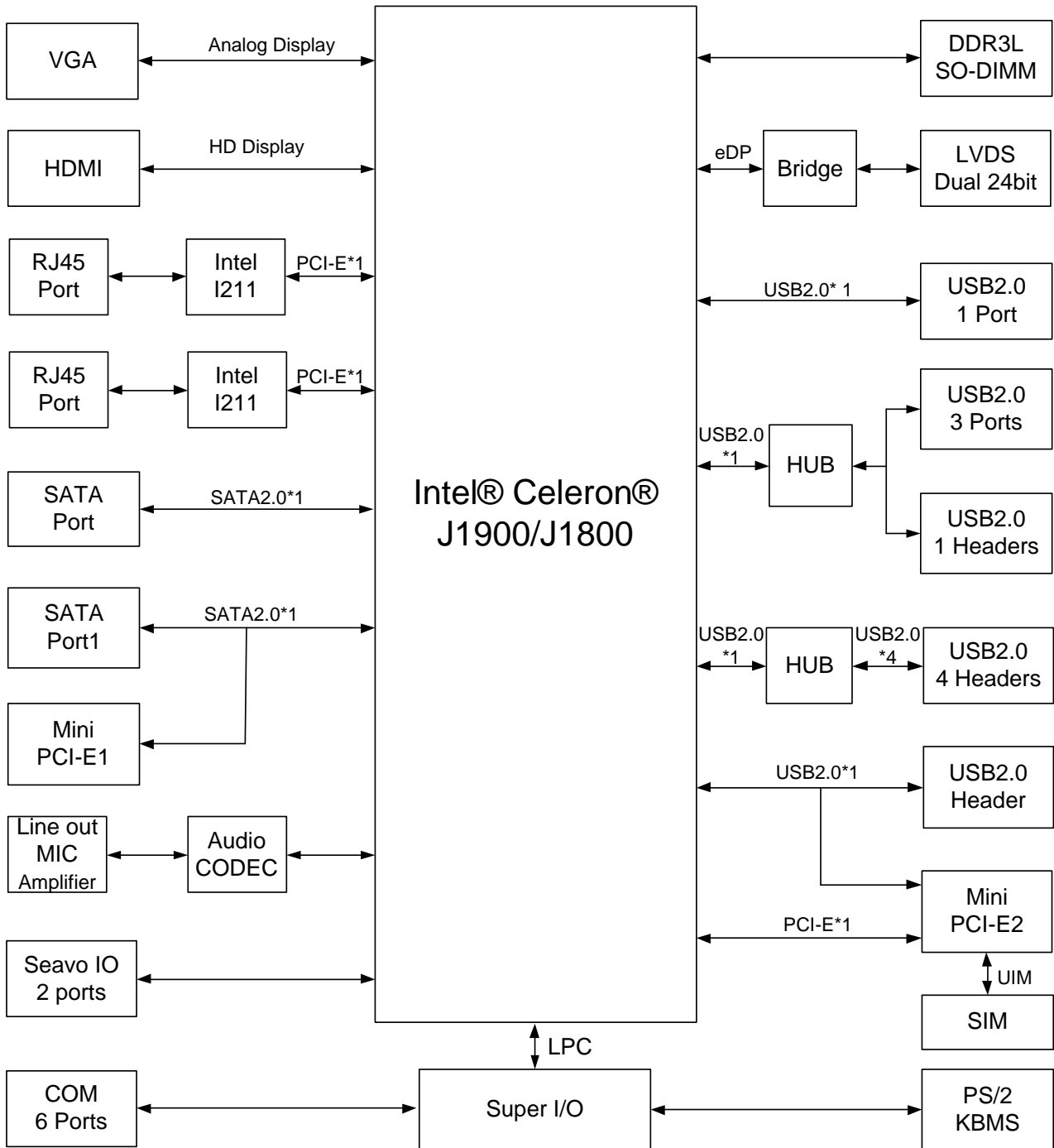
[4]: If mSATA is not supported, one more SATA Port could be supplied.

[5]: J485_1 and COM6 share the same signal, they can't be accessed simultaneously.

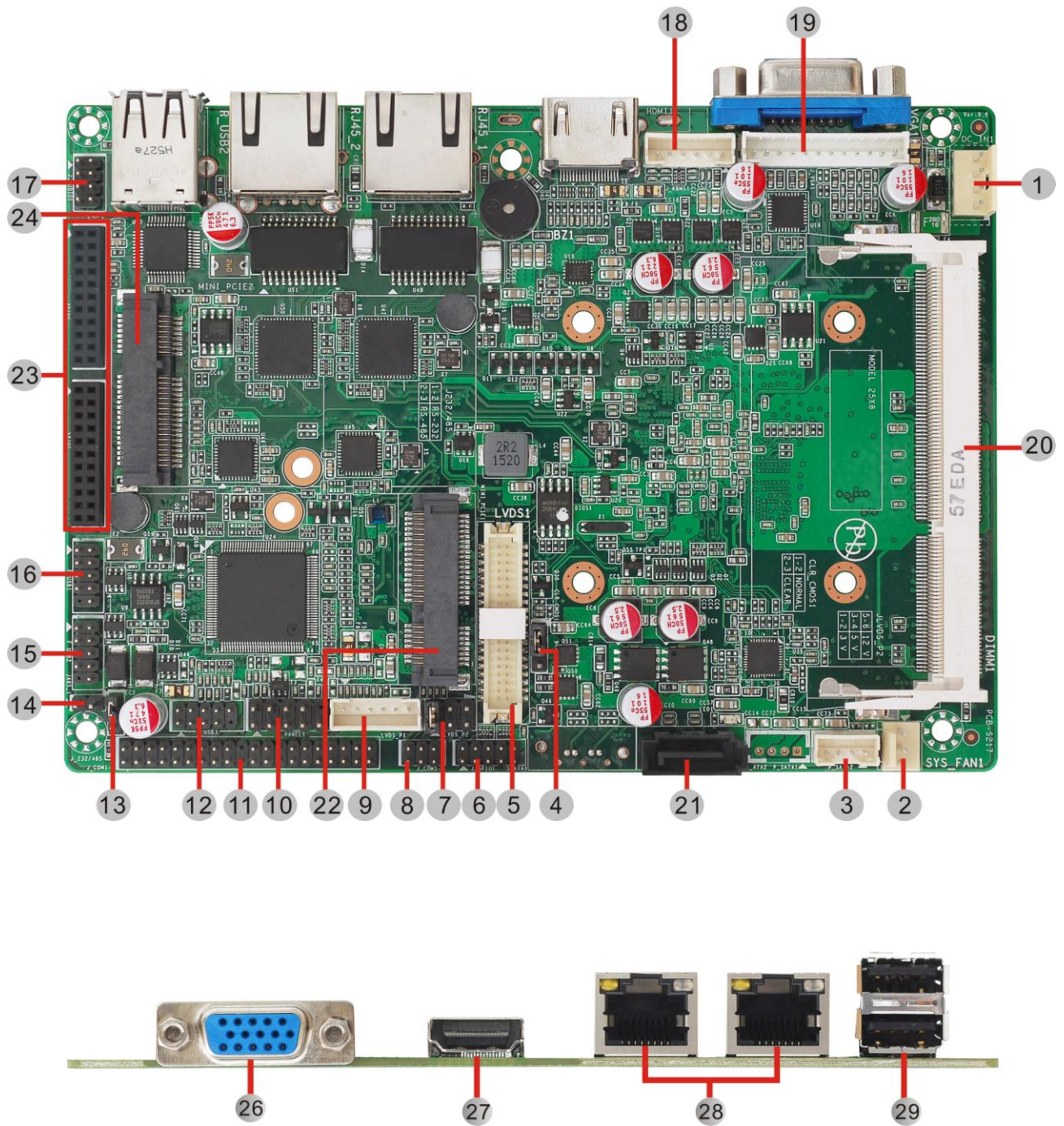
[6]: There are 2 USB ports co-lays with LAN2, so single-LAN model can supply 4 rear USB ports. And if Mini PCI-E do not support 3G device, one more front USB header can be supplied (see page 10).

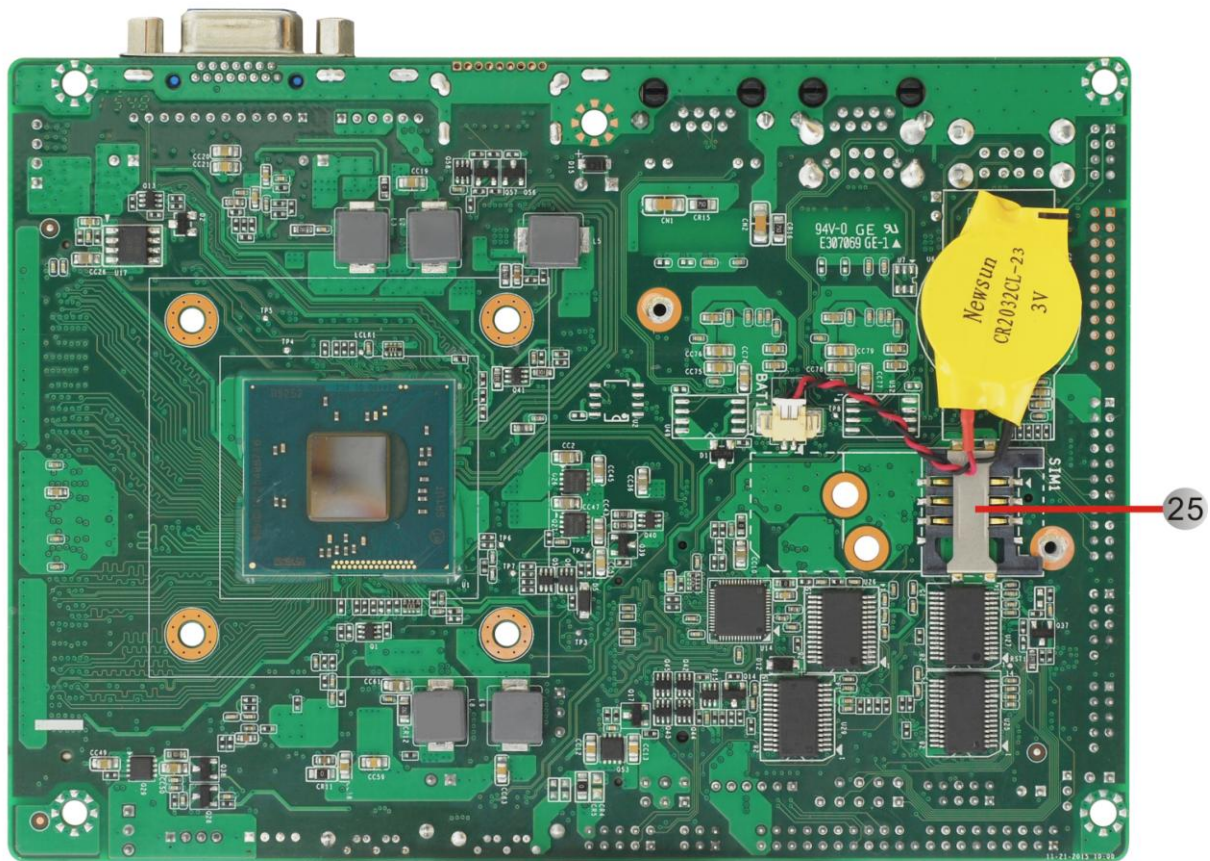
[7]: Mini PCI-E1 slot only supports mSATA. And Mini PCI-E2 slot only supports WIFI and 3G.

3. Data Flow



4. Jumpers / Headers and Connectors





Jumpers/Headers/Connectors					
1	DC12V Power Input Connector	P ₇	16	Front USB1 Pin Header	P ₁₁
2	System Fan Connector	P ₇	17	Front Audio Pin Header	P ₁₁
3	SATA Power Pin Header	P ₇	18	Keyboard and Mouse Connector	P ₁₂
4	CMOS Clear Jumper	P ₇	19	VGA Pin Header	P ₁₂
5	LVDS Connector	P ₇	20	DDR3L SO-DIMM Slot	
6	GPIO Pin Header	P ₈	21	SATA 2.0 Connector	
7	LVDS VDD Select Jumper	P ₉	22	Mini PCI-E1 Slot	
8	COM5-6 Pin Headers	P ₉	23	Seavo IO Ports	
9	LVDS Backlight Control Pin Header	P ₉	24	Mini PCI-E2 Slot	
10	Front Panel Header	P ₉	25	SIM Card Slot	
11	COM1-4 Headers	P ₉	26	VGA Connector	
12	Front USB3 Pin Header	P ₁₀	27	HDMI Connector	
13	RS232/RS485 Select Jumper	P ₁₁	28	LAN Connector	
14	RS485 Header	P ₁₁	29	USB2.0 Connectors	
15	Front USB2 Pin Header	P ₁₁			

5. Definition of Jumpers/Headers and Connectors

[1] DC12V Power Input Connector (4*1 Pin 2.54mm)

Location	Connector	Pin	Definition	Pin	Definition
1	DC_IN1	1	+ 12V IN	2	+ 12V IN
		3	GND	4	GND

[2] System Fan Connector (3*1 Pin 2.54 mm)

Location	Connector	Pin	Definition	Pin	Definition
2	SYS_FAN1	1	GND	2	+ 12V
		3	FAN Speed Detection		

[3] SATA Power Pin Header (4*1 Pin 2.00mm)

Location	Connector	Pin	Definition	Pin	Definition
3	P_SATA2	1	+ 12V	2	GND
		3	GND	4	+ 5V

[4] CMOS Clear Jumper (3*1 Pin 2.54mm)

Location	Jumper	Setting	Function
4	CLR_CMOS1	1-2(Default)	Normal
		2-3	Clear CMOS

[5] LVDS(24-bit Dual Channel) Connector (20*2 Pin 1.25mm)

Location	Connector	Pin	Definition	Pin	Definition
5	LVDS1	1	VCC ^[1]	2	VCC ^[1]
		3	PRSNT#	4	GND
		5	VCC ^[1]	6	VCC ^[1]
		7	LVDS_A_DATA0-	8	LVDS_B_DATA0-
		9	LVDS_A_DATA0+	10	LVDS_B_DATA0-
		11	GND	12	GND
		13	LVDS_A_DATA1-	14	LVDS_B_DATA1-
		15	LVDS_A_DATA1+	16	LVDS_B_DATA1+

		17	GND	18	GND
		19	LVDS_A_DATA2-	20	LVDS_B_DATA2-
		21	LVDS_A_DATA2+	22	LVDS_B_DATA2+
		23	GND	24	GND
		25	LVDS_A_CLK-	26	LVDS_B_CLK-
		27	LVDS_A_CLK+	28	LVDS_B_CLK+
		29	GND	30	GND
		31	LDDC_DATA	32	LDDC_CLK
		33	GND	34	GND
		35	LVDS_A_DATA3-	36	LVDS_B_DATA3-
		37	LVDS_A_DATA3+	38	LVDS_B_DATA3+
		39	N/C	40	GND

Notes:

[1]: Panel Power VDD is 3.3V by default, 5V or 12V is selectable by “LVDS VDD Select Jumper”(LVDS_P2, Location 7).

[6] GPIO Pin Header (5*2 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
6	J_GPIO1	1	SIO_ GPI70 (0xA06 Bit0)	2	SIO_ GPI71 (0xA06 Bit1)
		3	SIO_ GPI72 (0xA06 Bit2)	4	SIO_ GPI73 (0xA06 Bit3)
		5	GND	6	SIO_ GPO74 (0xA06 Bit4,H) ^[1]
		7	SIO_ GPO75 (0xA06 Bit5,H)	8	SIO_ GPO76 (0xA06 Bit6,H)
		9	SIO_ GPO77 (0xA06 Bit7,H)	10	+ 5V *

Note:

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

[2]: * Power on this Pin and GPIO output is 5V signaling by default, 3.3V is available if specified (resistor selectable).

[7] LVDS VDD Select Jumper (3*2 Pin 2.54mm)

Location	Connector	Pin	Definition	Pin	Definition
7	LVDS_P2	1	+ 3.3V	2	VDD_LVDS
		3	VDD_LVDS	4	+ 5V
		5	+ 12V	6	VDD_LVDS

[8] COM5-6 Pin Headers (3*1 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
8	J_COM5	1	RXD	2	TXD
		3	GND		
	J_COM6	1	RXD	2	TXD
		3	GND		

[9] LVDS Backlight Control Pin Header (6*1 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
9	LVDS_P1	1	GND	2	GND
		3	LVDS_BKL_CTL	4	LVDS_BKL_EN
		5	+ 12V	6	+ 12V

[10] Front Panel Header (5*2 Pin 2.54mm)

Location	Header	Pin	Definition	Pin	Definition
10	F_PANEL1	1	HD LED+	2	Power LED+
		3	HD LED-	4	Power LED-
		5	RESET+	6	PWR+
		7	RESET-	8	PWR-
		9	N/C		

[11] COM1-4 Headers (20*2 Pin 2.00 mm)

Location	Header	Pin	Definition	Pin	Definition
11	J_COM1-4	1	COM1_DCD ^{[1][4]}	2	COM1_RXD ^[4]
		3	COM1_TXD ^[4]	4	COM1_DTR ^[4]
		5	GND ^[4]	6	COM1_DSR ^[4]

		7	COM1_RTS ^[4]	8	COM1_CTS ^[4]
		9	COM1_RI ^[4]	10	GND ^[4]
		11	COM2_DCD ^[1]	12	COM2_RXD
		13	COM2_TXD	14	COM2_DTR
		15	GND	16	COM2_DSR
		17	COM2_RTS	18	COM2_CTS
		19	COM2_RI ^[2]		
		21	COM3_DCD ^[1]	22	COM3_RXD
		23	COM3_TXD	24	COM3_DTR
		25	GND	26	COM3_DSR
		27	COM3_RTS	28	COM3_CTS
		29	COM3_RI ^[2]	30	GND
		31	N/C ^[3]	32	COM4_RXD
		33	COM4_TXD	34	COM4_DTR
		35	GND	36	COM4_DSR
		37	COM4_RTS	38	COM4_CTS
		39	N/C ^[3]	40	GND

Notes:

[1]: This pin is default to be DCD signal and alternative to be 5V or 12V.

[2]: This pin is default to be RI signal and alternative to be 5V or 12V.

[3]: This pin is default to be N/C signal and alternative to be 5V or 12V.

[4]: COM1 header co-lays with the rear panel's DB9 connector.

[12] Front USB3 Pin Header (5*2 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
12	F_USB3	1	+ 5 V	2	+ 5 V
		3	USB6-	4	USB5- ^[1]
		5	USB6+	6	USB5+ ^[1]
		7	GND	8	GND
				10	GND

Notes:

[1]: Mini PCI-E2 slot support 3G devices (default), at the cost of invalidating one of the USB ports of F_USB3.

[13] RS232/RS485 Select Jumper (3*1 Pin 2.54mm)

Location	Jumper	Setting	Function
13	J_232/485	1-2(Default)	RS232
		2-3	RS485

[14] RS485 Header (2*1 Pin 2.54mm)

Location	Header	Pin	Definition	Pin	Definition
14	J485_1	1	RS485+	2	RS485-

[15] Front USB2 Pin Header (5*2 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
15	F_USB2	1	+ 5 V	2	+ 5 V
		3	USB9-	4	USB10-
		5	USB9+	6	USB10+
		7	GND	8	GND
				10	GND

[16] Front USB1 Pin Header (5*2 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
16	F_USB1	1	+ 5 V	2	+ 5 V
		3	USB7-	4	USB8-
		5	USB7+	6	USB8+
		7	GND	8	GND
				10	GND

[17] Front Audio Pin Header (4*2 Pin 2.00mm)

Location	Header	Pin	Definition	Pin	Definition
17	J_AUDIO1	1	LINEOUT_R	2	MIC_R
		3	GND	4	GND
		5	GND	6	GND
		7	LINEOUT_L	8	MIC_L

[18] Keyboard and Mouse Connector (6*1 Pin 2.0mm)

Location	Connector	Pin	Definition	Pin	Definition
18	J_KBMS1	1	KB_CLK	2	KB_DATA
		3	MS_CLK	4	GND
		5	+ 5V	6	MS_DATA

[19] VGA Pin Header (12*1 Pin 2.00 mm)

Location	Header	Pin	Definition	Pin	Definition
19	J_VGA1	1	GND	2	VSYNC
		3	HSYNC	4	GND
		5	RED	6	GND
		7	GREEN	8	GND
		9	BLUE	10	GND
		11	DDCDAT	12	DDCCLK