PBE-1700

COM Express Type 2 Evaluation Board

Quick Installation Guide

Version 1.4

Form Factor	Video	Audio
COM Express Evaluation Board	***Dual Channels LVDS, Analog RGB, TV-Out Connector***	***ALC888 CODEC, Line-in/ out, Mic-in, 7.1 + 2 Channel***

I/O	Ethernet
PCI Express x1/x16, COM, USB, LPT, PCI, FDD, Mini-card, SATA, Ultra ATA, CF II	***RJ-45 LAN Connector***

♦ Technical Support

If you have any technical difficulties, please consult the user's manual first at:

ftp://ftp.arbor.com.tw/pub/manual

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

http://www.arbor.com.tw

E-mail: info@arbor.com.tw

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

4041170000140P

COM Express Module Type Summary Features

The COM Express supports seven pin-out Type apply to Basic and Extended form factors:
Module Type 1, 10 support a single connector with two rows of pins (220 pins)
Module Type 2, 3, 4, 5 and 6 support two connectors with four rows of pins (440 pins)
Connector placement and most mounting holes have transparency between Form Factors.
The differences amount the Module Types are summarized in table below:

Module Type	1	10	2	3	4	5	6
Connectors	1	1	2	2	2	2	2
Connector Rows	A, B	A, B	A, B, C, D	A, B, C, D	A, B, C, D	A, B, C, D	A, B, C, D
PCIe Lanes (max)	6	4	22	22	32	32	24
PCI Bus	No	No	Yes	Yes	No	No	No
PATA - IDE	No	No	Yes	No	Yes	No	No
LAN (Max)	1	1	1	3	1	3	1
Serial Ports	No	0 / 2	No	No	No	No	0 / 2
Muxed SDVO	No	No	0 / 2	0 / 2	0 / 2	0 / 2	No
Digital Display I/F	No	No	No	No	No	No	0 / 3
USB 3.0 Ports	No	No	No	No	No	No	0 / 4

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:

1 x PBE-1700 COM Express evaluation board

1 x Quick Installation Guide

If any of the above items is damaged or missing, contact your vendor immediately.

Ordering Information

PBE-1700-W R1.3	COM Express type 2 evaluation board in ATX form factor w/ W83627 Super IO
PBE-1700-F R1.3	COM Express Type 2 evaluation board in ATX form factor w/ F71869 Super IO

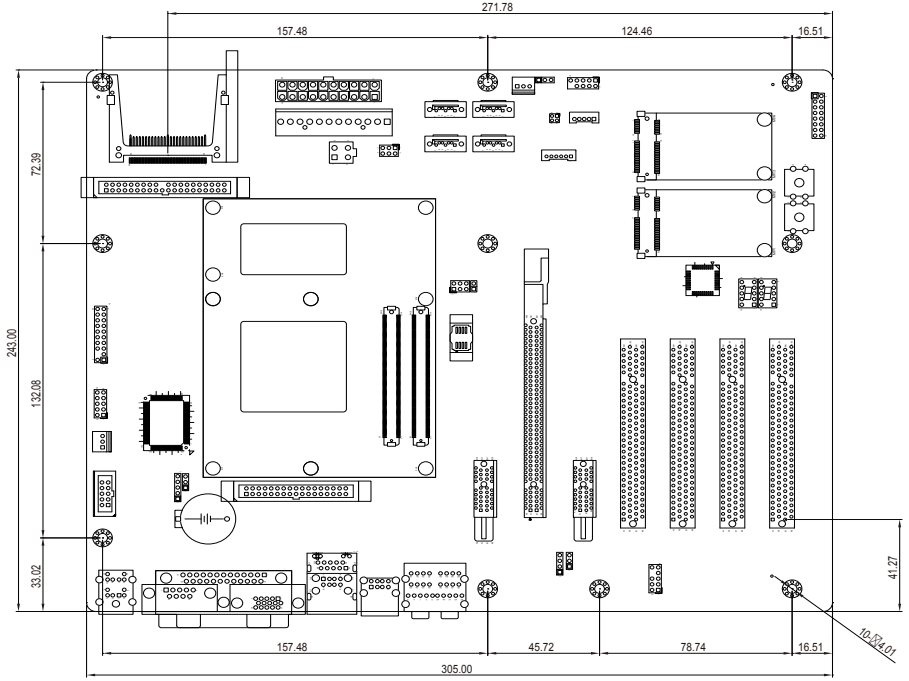
Optional Accessories

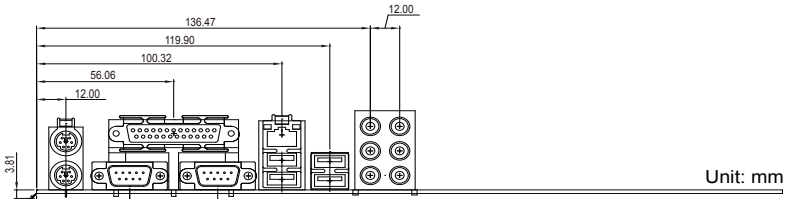
CBK-04-1700-00 (6910417000010P)	Cable kit 1 x SATA cable 1 x COM port cable 1 x FDD cable 1 x IDE cable

Specifications

I/O	
I/O Chipset	Winbond W83627HG or Fintek F71869
Serial Port	2 x COM ports (2 x RS-232)
Parallel Port	SPP/EPP/ECP mode
USB Port	6 x USB 2.0 ports
KB/MS	1 x PS/2 Keyboard connector
	1 x PS/2 Mouse connector
Digital I/O	8-bit Digital Input/Output
Expansion Bus	2 x PCIe x1 slots
	1 x PCIe x16 slot
	4 x PCI Slots
	2 x Mini-card Sockets
Storage	4 x Serial ATA connectors
	1 x Ultra ATA 100/66/33 port connector, supporting 2 IDE devices
	1 x Floppy disk connector (shared with parallel port)
	1 x CompactFlash Type II Socket
Ethernet Chipset	1 x RJ-45 Ethernet connector with LED
Audio Interface	Realtek ALC888 7.1 Channel HD Audio CODEC, Mic-in/ Line-in/Line-out
Display	
Graphics Interface	Analog RGB, LVDS, TV-out connector (depend on CPU module)
Mechanical & Environmental	
Power Requirement	AT or ATX power connector
Operating Temp.	-20 ~ 70ºC (-4 ~ 158ºF)
Operating Humidity	0 ~ 90% (non-condensing)
Dimensions (L x W)	305 x 244 mm (12" x 9.6")

Board dimensions





Jumpers/ Connectors Quick Reference

Jumpers

Label	Function
JCF1	CF II Setting
JBAT1	CMOS Setup
JAUDIO1	AUDIO1 Voltage Selection
JVLCD1	LCD Panel Voltage Selection
JINV1	LCD Inverter Voltage Selection
JBLON1	LCD Panel Backlight Selection
JPWR1	AT/ATX Power Mode Setting
J12V1	+12V Power Supply
JBIOS1	CPU Module BIOS Setting

Switches

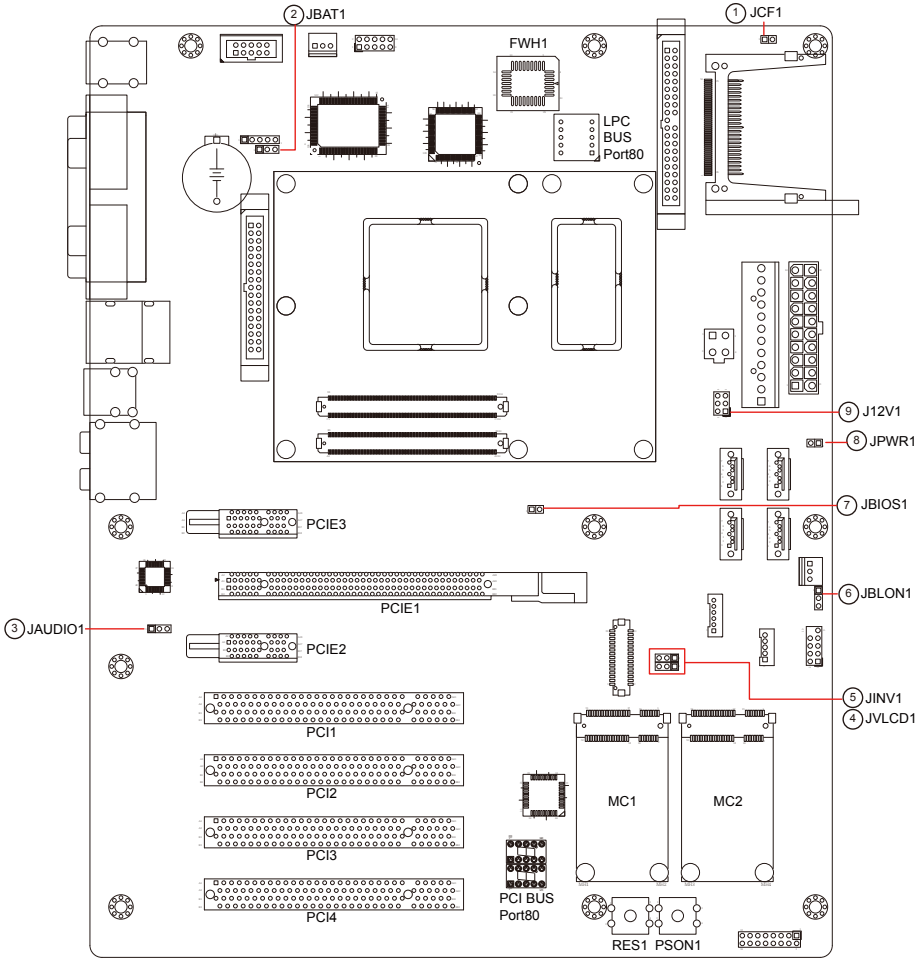
Label	Function
PSON1	Power Switch
RES1	Reset Switch

Connectors

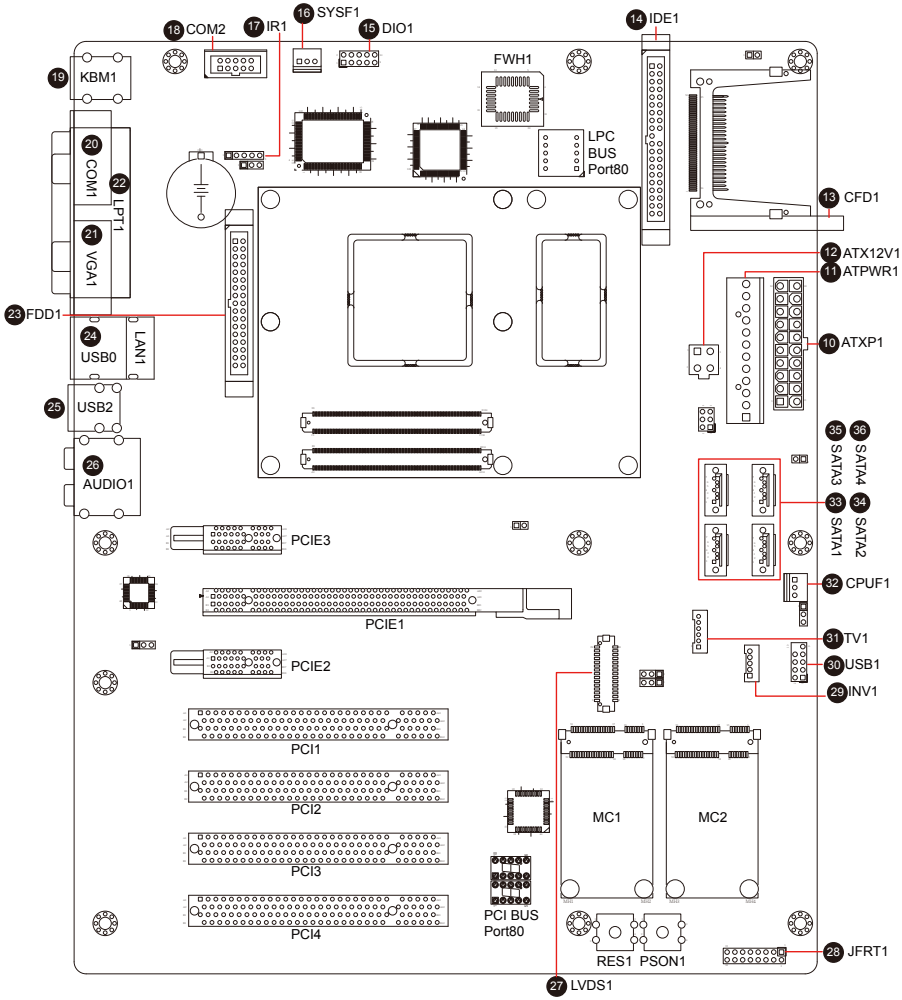
Label	Function
ATXP1	ATX Power Connector
ATPWR1	AT Power Connector
ATX12V1	ATX+12V Connector
CFD1	Compact Flash II Socket
IDE1	IDE Connector
DIO1	Digital I/O Connector
SYSF1	System Fan Power Connector
IR1	Infrared Connector
COM2	RS-232 Connector
KBM1	PS/2 Keyboard & Mouse Connector
COM1	RS-232 Connector
VGA1	Analog RGB Connector
LPT1	Parallel Port Connector
FDD1	Floppy Disk Drive Connector
LAN1 USB0	RJ-45 + Double Stack USB type A Connector
USB2	Double Stack USB type A Connector
AUDIO1	HD AUDIO Connector
LVDS1	LVDS Connector
JFRT1	Switches and Indicators Connector
INV1	LCD Inverter Connector
USB1	USB Connector
TV1	TV-Out Connector
CPUF1	CPU Fan Power Connector
SATA1~4	Serial ATA Connectors
PCI1~4	32-bit PCI Slot
PCIE1	PCI Express x16 Slot
PCIE2~3	PCI Express x1 Slots
MC1~2	PCI Express Mini-card Sockets

Jumpers & Connectors

Jumpers



Connectors


18 COM2
17 IR1
16 SYSF1
15 DIO1
14 IDE1
19 KBM1
FWH1
LPC
BUS
Port80
20 COM1
22 LPT1
21 VGA1
13 CFD1
12 ATX12V1
11 ATPWR1
23 FDD1
24 USB0
LAN1
10 ATXP1
25 USB2
35 36 SATA3 SATA4
26 AUDIO1
33 34 SATA1 SATA2
PCIE3
32 CPUF1
PCIE1
31 TV1
PCIE2
30 USB1
29 INV1
PCI1
PCI2
MC1
MC2
PCI3
PCI BUS
Port80
PCI4
RES1 PSON1
28 JFRT1
27 LVDS1

Jumpers

JCF1: CF II Setting (1)

Connector type: 2.54mm pitch 1x2 pin header.

Pin	Mode	
Short	CF Master (Default)	
Open	CF Slave	

JBAT1: CMOS Setup (2)

Connector type: 2.54mm pitch 1x3 pin header.

Pin	Mode	
1-2	Keep CMOS (Default)	
2-3	Clear CMOS	

JAUDIO1: AUDIO1 Voltage Selection (3)

The voltage of AUDIO1 could be selected by JAUDIO1 in +1.5V or +3.3V.

Connector type: 2.54mm pitch 1×3 pin header.

Pin	Voltage	
1-2	+3.3V (default)	
2-3	+1.5V	

JVLCD1: LCD Panel Voltage Selection (4)

The voltage of LCD panel could be selected by JVLCD1 in +5V or +3.3V.

Connector type: 2.54mm pitch 1x3 pin header.

Pin	Voltage	
1-2	+5V	
2-3	+3.3V (Default)	

JINV1: LCD Inverter Voltage Selection (5)

The voltage of inverter could be selected by JINV1 in +5V or +12V.

Connector type: 2.54mm pitch 1×3 pin header.

Pin	Voltage	
1-2	+5V	
2-3	+12V (default)	

JBLON1: LCD Panel Backlight Selection (6)

Connector type: 2.54mm pitch 1x3 pin header.

Pin	Mode	
1-2	Backlight on Hi Active	
2-3	Backlight on Low Active (Default)	

JBIOS1: CPU Module BIOS Setting (7)

The COM express CPU module's BIOS can be disabled or enabled by JBIOS setting.

Connector type: 2.54mm pitch 1x2 pin header.

Pin	Mode	
Short	Disabled	
Open	Enabled (Default)	

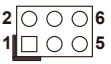
JPWR1: AT/ATX Power Mode Setting (8)

Connector type: 2.54mm pitch 1x2 pin header.

Pin	Mode	
Short	AT	
Open	ATX (Default)	

J12V1: +12V Power Supply (9)

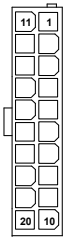
Connector type: 2.54mm pitch 2x3 pin header.

Pin	Mode	
1-2, 3-4, 5-6	Short	
	Open (Default)	

In open mode, ATX12V1 only provides power to CPU module; ATPWR1 or ATXP1 provides 12V power to other devices or connectors on board. In short mode, ATPWR1 or ATXP1 exports 12V power to all devices, including CPU module, but this is used for debug.

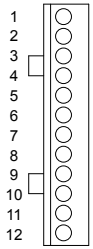
ATXP1: ATX Power Connector (10)

Pin	Desc.	Pin	Desc.
11	+3.3V	1	+3.3V
12	-12V	2	+3.3V
13	GND	3	GND
14	PS-ON	4	+5V
15	GND	5	GND
16	GND	6	+5V
17	GND	7	GND
18	-5V	8	PW-OK
19	+5V	9	+5VSB
20	+5V	10	+12V



ATPWR1: AT Power Connector (11)

Pin	Description
1	PW-OK
2	+5V
3	+12V
4	-12V
5	GND
6	GND
7	GND
8	GND
9	-5V
10	+5V
11	+5V
12	+5V



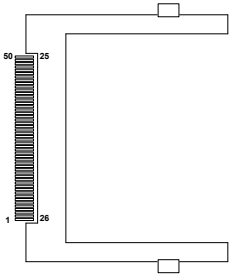
ATX12V1: ATX+12V Connector (12)

ATX +12V voltage is for CPU Processor's use.

Pin	Desc.	Pin	Desc.
2	GND	1	GND
4	+12V	3	+12V

CFD1: Compact Flash II Socket (13)

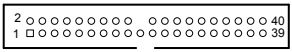
CF II can not support hot-swapping.



Pin	Description	Pin	Description
1	PDD3	26	GND
2	PDD4	27	PDD11
3	PDD5	28	PDD12
4	PDD6	29	PDD13
5	PDD7	30	PDD14
6	PDCS1#	31	PDD15
7	GND	32	PDCS3#
8	GND	33	GND
9	GND	34	PDIOR#
10	GND	35	PDIOW#
11	GND	36	+5V
12	GND	37	PIDEIRQ
13	+5V	38	+5V
14	GND	39	CSEL#
15	GND	40	N/C
16	GND	41	IDERST#
17	GND	42	PIORDY
18	PDA2	43	PDDREQ
19	PDA1	44	PDDACK#
20	PDA0	45	HD_LED1#
21	PDD0	46	PDIAG#
22	PD1	47	PDD8
23	PD2	48	PDD9
24	N/C	49	PDD10
25	GND	50	GND

IDE1: IDE Connector (14)

Connector type: 2.54mm pitch 2x20 box header.



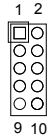
Pin	Description	Pin	Description
1	IDE RESET	2	GND
3	DATA7	4	DATA8
5	DATA6	6	DATA9
7	DATA5	8	DATA10
9	DATA4	10	DATA11
11	DATA3	12	DATA12
13	DATA2	14	DATA13
15	DATA1	16	DATA14
17	DATA0	18	DATA15
19	GND	20	N/C (Key)
21	REQ	22	GND
23	IO WRITE	24	GND
25	IO READ	26	GND
27	IO READY	28	IDESEL
29	DACK	30	GND
31	IRQ14	32	N/C
33	ADDR1	34	ATA66 DETECT
35	ADDR0	36	ADDR2
37	CS0#	38	CS1# (HD SELECT1#)
39	IDEACTP	40	GND

DIO1: Digital I/O Connector (15)

DIO1 is a 8-bit GPIO connector.

Connector type: 2.54mm pitch 2x5 pin header

Pin	Desc.	Pin	Desc.
1	DIO0	2	DIO1
3	DIO2	4	DIO3
5	DIO4	6	DIO5
7	DIO6	8	DIO7
9	+5V	10	GND



SYSF1: System Fan Power Connector (16)

The fan must be a +12V fan.

Connector type: 2.54mm pitch 1x3 wafer one wall connector.

Pin	Description
1	GND
2	+12V
3	FAN_CTL

IR1: Infrared Connector (17)

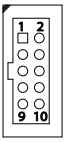
Connector type: 2.54mm pitch 1x5 pin header.

Pin	Description
1	+5V
2	N/C
3	IRRX
4	GND
5	IRTX

COM2: RS-232 Connector (18)

Connector type: 2.54mm pitch 2x5 box header.

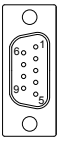
Pin	Desc.	Pin	Desc.
1	DCD#	2	RXD
3	TXD	4	DTR#
5	GND	6	DSR#
7	RTS#	8	CTS#
9	RI#	10	N/C



COM1: RS-232 Connector (20)

Connector type: D-Sub 9-pin male.

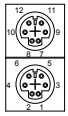
Pin	Desc.	Pin	Desc.
1	DCD#	6	DSR#
2	RXD	7	RTS#
3	TXD	8	CTS#
4	DTR#	9	RI#
5	GND		



KBM1: PS/2 Keyboard & Mouse Connector (19)

Standard PS/2 Keyboard & Mouse connector
Connector type: double stack 6-pin mini DIN.

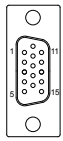
Pin	Description
1	KB Data
2	N/C
3	GND
4	+5V
5	KB Clock
6	N/C
7	MS Data
8	N/C
9	GND
10	+5V
11	MS Clock
12	N/C



VGA1: Analog RGB Connector (21)

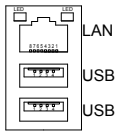
Connector type: D-Sub 15-pin female.

Pin	Desc.	Pin	Desc.
1	RED	9	N/C
2	GREEN	10	GND
3	BLUE	11	N/C
4	N/C	12	D-DATA
5	GND	13	H-SYNC
6	GND	14	V-SYNC
7	GND	15	D-DCLK
8	GND		



LAN1USB0: RJ-45 + Double Stack USB type A Connector (24)

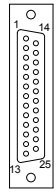
Connector type: RJ-45 + double stack USB type A connector.



LPT1: Parallel Port Connector (22)

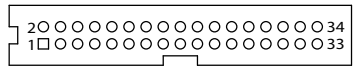
Connector type: D-Sub 25-pin female.

Pin	Desc.	Pin	Desc.
1	STROBE	14	AFD
2	PTD0	15	ERROR
3	PTD1	16	INIT
4	PTD2	17	SLIN
5	PTD3	18	GND
6	PTD4	19	GND
7	PTD5	20	GND
8	PTD6	21	GND
9	PTD7	22	GND
10	ACK	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SELECT		



FDD1: Floppy Disk Drive Connector (23)

Connector type: 2.54mm pitch 2x17 box header.



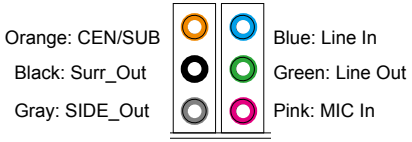
Pin	Description	Pin	Description
1	GND	2	DRVDEN0
3	GND	4	N/C
5	GND	6	DRVDEN1
7	GND	8	INDEX#
9	GND	10	MOA#
11	GND	12	DSB#
13	GND	14	DSA#
15	GND	16	MOB#
17	GND	18	DIR#
19	GND	20	STEP#
21	GND	22	WDATA#
23	GND	24	WGATE#
25	GND	26	TRACK0#
27	GND	28	WP#
29	GND	30	RDATA#
31	GND	32	HEAD#
33	GND	34	DSKCHG#

USB2: Double Stack USB type A Connector (25)

Connector type: double stack USB type A connector.

AUDIO1: HD AUDIO connector (26)

Connector type: 2 x triple stack audio jacks (Stereo ø3.50).

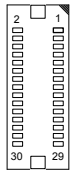


LVDS1: LVDS Connector (27)

The LVDS connector supports up to 24-bit dual channel.

Connector type: DF-13-30DP-1.25V.

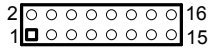
Pin	Desc.	Pin	Desc.
2	VDD	1	VDD
4	TX2CLK+	3	TX1CLK+
6	TX2CLK-	5	TX1CLK-
8	GND	7	GND
10	TX2D0+	9	TX1D0+
12	TX2D0-	11	TX1D0-
14	GND	13	GND
16	TX2D1+	15	TX1D1+
18	TX2D1-	17	TX1D1-
20	GND	19	GND
22	TX2D2+	21	TX1D2+
24	TX2D2-	23	TX1D2-
26	GND	25	GND
28	TX2D3+	27	TX1D3+
30	TX2D3-	29	TX1D3-



JFRT1: Switches and Indicators Connector (28)

It provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status.

Connector type: 2.54mm pitch 2x8 pin header.



Pin	Description	Pin	Description
1	Power LED+	2	PWRBTN-
3	Power LED-	4	PWRBTN+
5	Power LED-	6	RESET+
7	HDD LED+	8	RESET-
9	HDD LED-	10	SPEAKER+
11	SMB_CLK	12	SPEAKER+
13	SMB_DATA	14	SPEAKER-
15	GND	16	SPEAKER-

INV1: LCD Inverter Connector (29)

Connector type: 2.00mm pitch 1x5 box wafer connector.

Pin	Description
1	+12V
2	GND
3	Backlight on/off
4	Brightness control
5	GND

USB1: USB Connector (30)

Connector type: 2.54mm pitch 2x5 pin header.

Pin	Desc.	Pin	Desc.
1	+5V	2	+5V
3	USBD-	4	USBD-
5	USBD+	6	USBD+
7	GND	8	GND
9	GND	10	N/C (Key)

TV1: TV-Out Connector (31)

Connector type: 2.00mm pitch 1x6-pin box wafer connector

Composite Video			
1	CVBS	2	GND
3	Unused	4	GND
5	Unused	6	GND
S-Video			
1	Unused	2	GND
3	Luminance	4	GND
5	Chrominance	6	GND

CPUF1: CPU Fan Power Connector (32)

The fan must be a +12V fan.
Connector type: 2.54mm pitch 1x3 wafer one wall connector.

Pin	Description
1	GND
2	+12V
3	FAN_CTL

SATA1~4: Serial ATA Connectors (33~36)

The onboard SATA quantity is depended on COM Express CPU module.

Pin	Description
1	GND
2	TX+
3	TX-
4	GND
5	RX-
6	RX+
7	GND