

# PER13C

Embedded System  
Quick Installation Guide

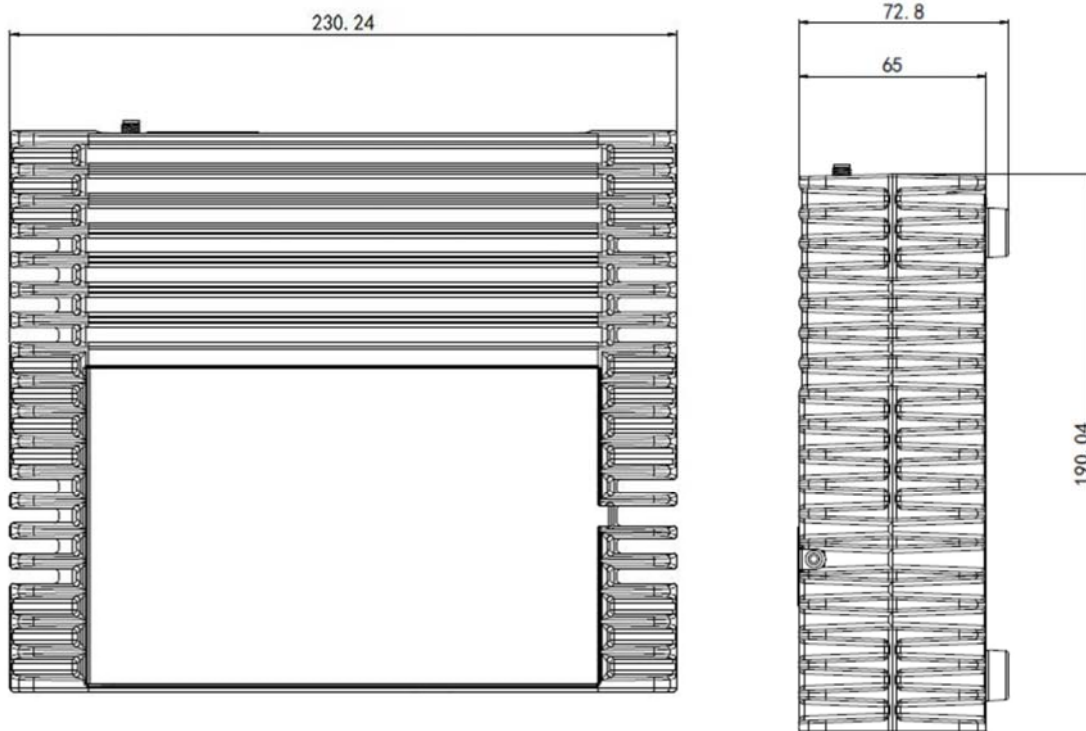


### Packing List

The following items are standard with PER13C:

- 60W Power Adapter
- AC Power Cord x 1
- Wireless (Optional)

### Mechanical Dimensions




## I/O Pin Definition and Jumpers Setting

### External I/O Connectors Pin Definitions

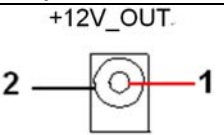
#### DC\_IN (DC Adapter 12V in)

Pin	Definition
1	12V
2	GND
3	12V
4	GND



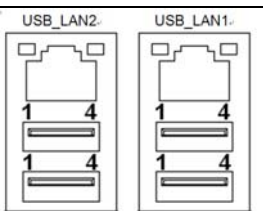
#### +12V\_OUT (12V OUT)

Pin	Definition
1	12V
2	GND



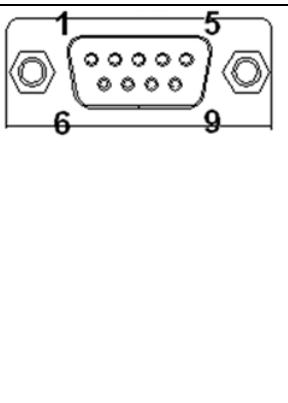
#### USB 2.0 Port

Pin	Definition
1	USB 5V
2	D-
3	D+
4	GND



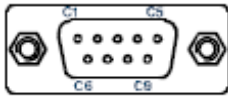
#### COM1, 3, 5, 6: D-Sub 9 Pin Connector

Pin	Definition
1	DCD
2	RXD
3	TXD
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	RI/ 5V /12V



**COM2 (RS-232/422/485 Port A DB-9 Connector)**

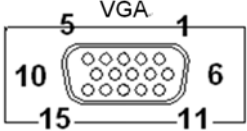
Pin	RS-232	RS-422	Half Duplex RS-485
1	DCD	TX-	DATA-
2	RXD	RX+	NA
3	TXD	TX+	DATA+
4	DTR	RX-	NA
5	GND	GND	GND
6	DSR	NA	NA
7	RTS	NA	NA
8	CTS	NA	NA
9	+5V/+12V/RI	+5V/+12V/NA	+5V/+12V/NA



**DB-9**

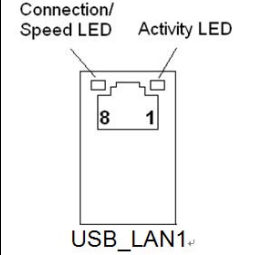
**VGA: D-Sub 15 Pin Connector**

Pin	Definition
1	RED
2	GREEN
3	BLUE
4	NC
5	GND
6	GND
7	GND
8	GND
9	VCC 5V
10	GND
11	NC
12	DDC Data
13	H-SYNC
14	V-SYNC
15	DDC Clock



**LAN1 & LAN2 (LAN connector RJ45)**

Pin	Definition
1	Data 0+
2	Data 0-
3	Data 1+
4	Data 1-
5	Data 2+
6	Data 2-
7	Data 3+
8	Data 3-

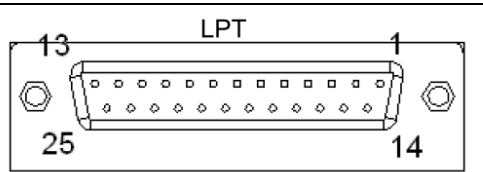


USB\_LAN1<sub>v</sub>

Connection/Speed LED:	
State	Description
Orange	Speed:1 Gbps
Green	Speed:1 00 Mbps
<b>Activity LED:</b>	
State	Description
On	Transmitting
Off	Not Transmitting

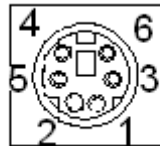
**LPT Port: D-Sub 25 Connector**

Pin	Definition	Pin	Definition
1	STB-	14	AFD-
2	PD0	15	ERR-
3	PD1	16	INIT-
4	PD2	17	SLIN-
5	PD3	18	GND
6	PD4	19	GND
7	PD5	20	GND
8	PD6	21	GND
9	PD7	22	GND
10	ACK-	23	GND
11	BUSY	24	GND
12	PE	25	GND
13	SLCT		



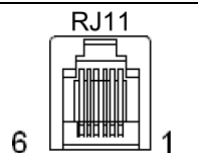
**KB\_MS1 (PS/2 Connector)**

Pin	Definition
1	Keyboard Data
2	Mouse Data
3	GND
4	Mouse Clock
5	5V
6	Keyboard Clock



**DIO (Cash Drawer) RJ11 Port**

Pin	Definition
1	GND
2	GPIO-0
3	CASH Drawer Switch
4	12V
5	GPIO-1
6	GND



**AUDIO\_JACK (Audio Line Out)**

Pin	Definition	
1	GND	
2	Line Out (L)	
3	AUDIO_JD	
4	-ACZ_DET	
5	Line Out (R)	

**Jumper Setting**

**DC\_OUT (12V for external/internal use)**

This connector is reserved for future use

Pin	Definition	
1	GND	
2	GND	
3	12V	
4	12V	

**CPU\_FAN (CPU FAN)**

Pin	Definition	
1	GND	
2	+12V/RPM control	
3	RPM detect	
4	RPM control	

**SYS\_FAN (System FAN)**

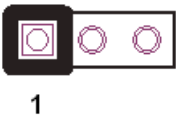
Pin	Definition	
1	GND	
2	+12V/RPM control	
3	RPM detect	

**KB\_MS2 (PS/2 Keyboard and PS/2 Mouse)**

Pin	Definition	
1	GND	
2	KDAT	
3	F_KDAT	
4	KCLK	
5	F_KCLK	
6	5V	

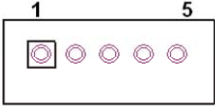
**LVDS\_PWR1 (LVDS 3V/5V selection)**

Pin	Definition
1	3.3V
2	DC input
3	5V
Default: 1-2	



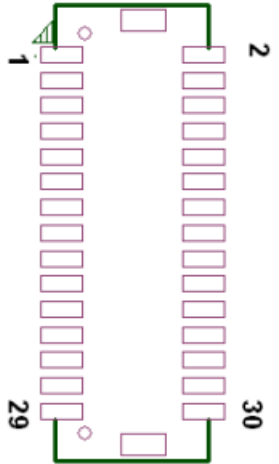
**INV\_BRIG1 (Inverter with Box-header)**

Pin	Definition
1	12V DC out
2	12V DC out
3	GND
4	Backlight Controller
5	Backlight Enable



**LVDS 18-bit Connector**

Pin	Definition	Pin	Definition
1	GND	16	GND
2	NC	17	Data1-
3	EDID Data	18	GND
4	GND	19	GND
5	EDID Clock	20	Backlight 5V/12V option
6	NC	21	LVDS Clock-
7	GND	22	Backlight 5V/12V option
8	NC	23	LVDS Clock+
9	Data0+	24	Backlight 5V/12V option
10	NC	25	GND
11	Data0-	26	GND
12	Backlight Enable	27	Data2-
13	GND	28	LVDS Power 3.3V
14	Backlight Controller	29	Data2+
15	Data1+	30	LVDS Power 3.3V



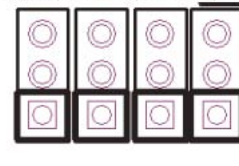
**JRS1, JRS2, JRS3, JRS4, JRS5 (Only COM2 is available for RS232, RS422 or RS485 selections)**

JRS1: Default 1-2	
Pin	Definition
1	RS232
2	UART RXD
3	RS422
4	UART RXD
5	RS485
6	UART RXD

JRS2: Default 2-3 short	
Pin	Definition
1	RS485 D-
2	COM2 Pin 1
3	RS232 DCD

JRS3: Default 2-3short	
Pin	Definition
1	RS485 D+
2	COM2 Pin 2
3	RS232 RXD

JRS2, JRS3, JRS4, JRS5



JRS4: Default 2-3	
Pin	Definition
1	RS422 D-
2	COM2 Pin 4
3	RS232 DTR

JRS5: Default 2-3	
Pin	Definition
1	RS422 D+
2	COM2 Pin 3
3	RS232 TXD

**JCOM1, JCOM2, JCOM3, JCOM5, JCOM6 (for Pin 9 output 5V,12V or RI)**

Pin	Definition
1-2 Short	5V
3-4 Short	RI
5-6 Short	12V
Default 3-4 Short	

\*\*\*PS: JCOM4 is always set as 5-6 short for VFD display use.

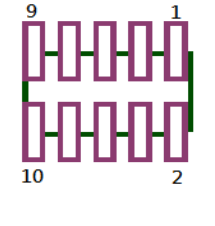
**COM1, COM3, COM5, COM6 (Serial Port with Box-header)**

Pin	Definition	Pin	Definition
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI/+5V/+12V
9	GND	10	RI/+5V/+12V



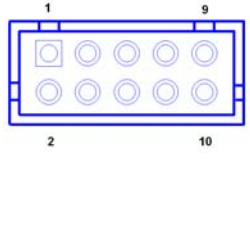
**COM4 (Serial Port with 1.27mm pin-header)**

Pin	Definition	Pin	Definition
1	DSR	2	DCD
3	RTS	4	RXD
5	CTS	6	TXD
7	RI/+5V/+12V	8	DTR
9	RI/+5V/+12V	10	GND



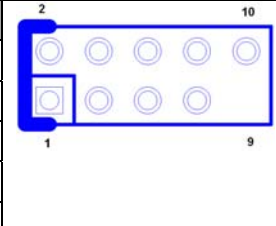
**JFRONT (Front Panel Connector with Box-header)**

Pin	Definition	Pin	Definition
1	Stand-by LED	2	Power LED
3	Power Switch#	4	GND
5	LAN Action LED	6	Stand-by 5V
7	HDD LED#	8	VCC 5V
9	System Reset#	10	GND



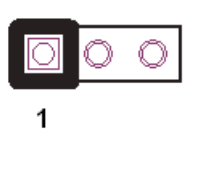
**F\_USB1, F\_USB2, F\_USB3 (USB Pin-header)**

Pin	Definition	Pin	Definition
1	USB Power 5V	2	USB Power 5V
3	USB Dx-	4	USB Dy-
5	USB Dx+	6	USB Dy+
7	GND	8	GND
9	NC	10	NC



**USB\_PWR1, USB\_PWR2, USB\_PWR3 (Jumper for Stand-by, 5V or VCC 5V selections)**

Pin	Definition
1	VCC 5V
2	USB DC IN
3	Stand-by 5V
Default 1-2 short	



**F\_AUDIO (Front Audio Box-header)**

Pin	Definition	Pin	Definition
1	Amplifier Out_R+	2	MIC_L
3	Amplifier Out_R-	4	MIC_R
5	GND	6	Line In_R
7	Amplifier Out_L+	8	Line In_L
9	Amplifier Out_L-	10	Line In_JD
11	GND	12	MIC_JD

**VGA2 (VGA Connector with Box-header)**

Pin	Definition	Pin	Definition
1	V-SYNC	2	H-SYNC
3	GND	4	GND
5	RED	6	GND
7	GREEN	8	DDC Clock
9	BULE	10	DDC Data

**CLR\_COMS1 (Clear CMOS Pin-header)**

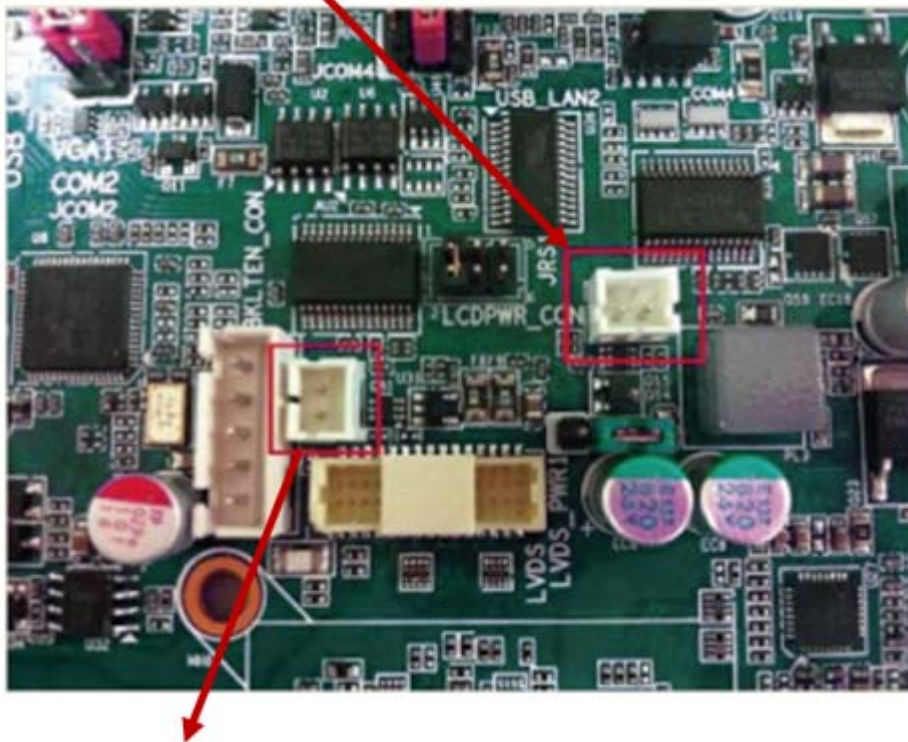
Pin	Definition
1	GND
2	Battery 3V
3	Battery 3V
Default 2-3 short	

**SATAPW\_1, SATAPW\_2 (SATA HDD Power 5V & 12V)**

Pin	Definition
1	+12V
2	GND
3	GND
4	5V

**LCDPWR\_CON (LCD Power ON/OFF)**

ON	Short 1-2	
OFF	Open 1-2	
Default 1-2 Open		



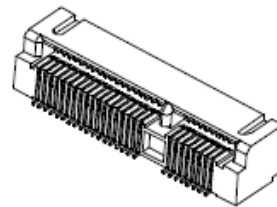
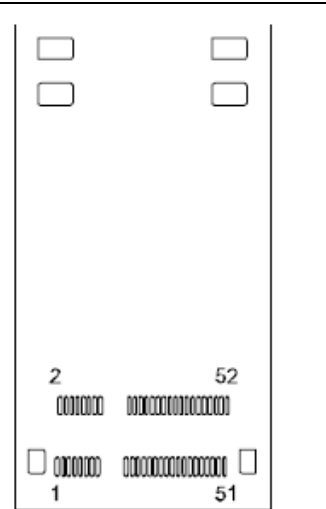
**BKLTEN\_CON (Back light Inverter Enable/Disable)**

Enable	Short 1-2
Disable	Open 1-2
Default 1-2 Open	

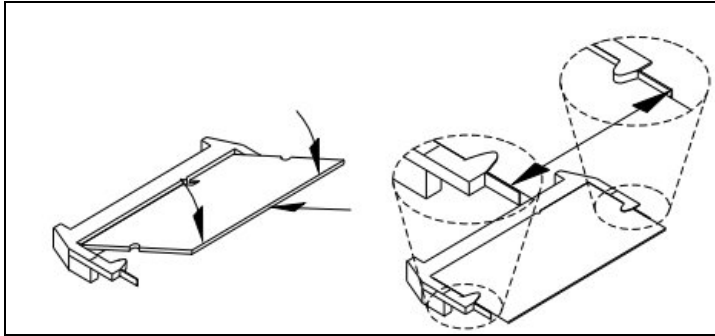
### Onboard Connector Pin Assignment

#### Mini PCIE Socket

Signal Name	Pin	Pin	Signal Name
PCIE_WAKE#	1	2	*+3.3VSB
NC	3	4	GND
NC	5	6	+1.5V
NC	7	8	UIM_PWR
GND	9	10	UIM_DATA
CLK100_MPCIE1#/2#	11	12	UIM_CLK
CLK100_MPCIE1/2	13	14	UIM_RESET
GND	15	16	UIM_VPP
NC	17	18	GND
NC	19	20	MPCIE1/2_EN
GND	21	22	RST_PCIE#
PCIE_RX2-/3-	23	24	+3.3VSB
PCIE_RX2+/3+	25	26	GND
GND	27	28	+1.5V
GND	29	30	SB_SMB_CLK
PCIE_TX2-/3-	31	32	SB_SMB_DAT
PCIE_TX2+/3+	33	34	GND
GND	35	36	USBN
GND	37	38	USBP
+3.3VSB	39	40	GND
+3.3VSB	41	42	LED_WLAN#
GND	43	44	LED_WLAN#
NC	45	46	LED_WLAN#
NC	47	48	+1.5v
NC	49	50	GND
NC	51	52	*+3.3VSB

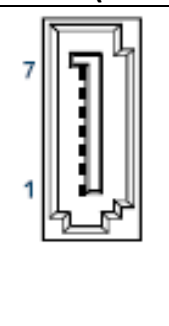


**DDR3\_1 DDR3 Memory DIMM Slot**



**SATA1, SATA2 connector (Serial ATA 2.0)**

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



**SATA3 connector (Serial ATA 2.0)**

Pin	Definition	Description
1	V33	3.3V Power
2	V33	3.3V Power
3	V33	3.3V Power, pre-charge, 2 <sup>nd</sup> Mate
4	Ground	1 <sup>st</sup> Mate
5	Ground	2 <sup>nd</sup> Mate
6	Ground	3 <sup>rd</sup> Mate
7	V5	5V Power, pre-charge, 2 <sup>nd</sup> mate
8	V5	5V Power
9	V5	5V Power
10	Ground	2 <sup>nd</sup> Mate
11	Reserved	-
12	Ground	1 <sup>st</sup> Mate
13	V12	12V Power, Pre-charge, 2 <sup>nd</sup> mate
14	V12	12V Power
15	V12	12V Power

