

**Half-size PCISA CPU Card with 22nm Intel® Atom™ On-board SoC,
VGA, iDP, Dual Intel® PCIe GbE, USB 3.0, PCIe Mini,
SATA, mSATA, COM, Audio and RoHS**

PCISA-BT

Quick Installation Guide

Version 1.0

Dec 18, 2015

Package List

PCISA-BT package includes the following items:

- 1 x PCISA-BT single board computer
- 1 x SATA cable
- 1 x Utility CD
- 1 x QIG (Quick Installation Guide)



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Specifications

- SoC:
 - Intel® Atom™ E3845 on-board SoC (1.91GHz, quad-core, 2MB cache, TDP=10W)
 - Intel® Atom™ E3827 on-board SoC (1.75GHz, dual-core, 1MB cache, TDP=8W)
 - Intel® Atom™ E3826 on-board SoC (1.46GHz, dual-core, 1MB cache, TDP=7W)
 - Intel® Atom™ E3825 on-board SoC (1.33GHz, dual-core, 1MB cache, TDP=6W)
 - Intel® Atom™ E3815 on-board SoC (1.46GHz, single-core, 512KB cache, TDP=5W)
- Memory:
 - One 204-pin 1066/1333MHz single-channel DDR3L SDRAM unbuffered DIMM (system max. 8GB)
- Graphics:
 - Intel® HD Graphics Gen 7 Engines with 4 execution units, supporting DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output:
 - Dual independent display
 - VGA (up to 2560x1600@60Hz)
 - 18/24-bit dual-channel LVDS by CH7511B DP to LVDS converter (up to 1920x1200@60Hz)
 - (optional, MOQ: 100 pcs/lot)
 - iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 2560x1600@60Hz)
- Ethernet:
 - LAN1: Intel® I211-AT PCIe controller
 - LAN2: Intel® I211-AT PCIe controller

- External I/O Interface:
 - 1 x VGA
 - 2 x RJ-45
 - 1 x USB 2.0
 - 1 x USB 3.0
- Internal I/O Interface:
 - 1 x IR
 - 1 x KB/MS (1x6 pin)
 - 1 x LPT (2x13 pin)
 - 4 x USB 2.0 (2x4 pin, P=2.54)
 - 1 x RS-422/485 (1x4 pin, P=2.0)
 - 1 x USB 2.0 (180 degree type A)
 - 2 x RS-232 (2x5 pin, P=2.54)
 - 2 x SATA 3Gb/s
 - 1 x mSATA (SATA 3Gb/s, shares with SATA2)
- Audio:
 - Support 7.1 channel HD audio by IEI AC-KIT-892HD kit
 - 1 x Analog audio (2x5 pin)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I²C: 1 x I²C (1x4 pin)
- Expansion:
 - 1 x microSD socket
 - 1 x PCIe Mini slot
 - PCIe-PCI bridge: ITE8892E
 - LPC-ISA bridge: F85226FG
 - PCI and ISA* signal via golden finger
 - * The ISA function is limited. Please refer to page 5 for details.**
- Watchdog Timer:
 - Software programmable supports 1~255 sec. system reset
- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)

- Fan Connector:
 - 1 x Smart fan connector (1x4 pin)
 - 1 x System fan connector (1x3 pin)
- Power supply: 5V/12V, AT/ATX support
- Power Consumption:
 - 5V@1.55A,12V@0.74A (Intel® Atom™ E3845 1.91GHz CPU with one 8GB 1333MHz memory)
- Operating Temperature: -20 °C ~ 60 °C
- Storage Temperature: -30 °C ~ 70 °C
- Dimensions: 185mm x 128 mm
- Weight(GW/ NW): 1000g / 250g

Ordering Information

- **PCISA-BT-E38451-R10:**
Half-size PCISA CPU card supports Intel® Atom™ E3845 (10W) on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.0, PCIe Mini, SATA, mSATA, COM, Audio and RoHS
- **PCISA-BT-E38251-R10:**
Half-size PCISA CPU card supports Intel® Atom™ E3825 (6W) on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.0, PCIe Mini, SATA, mSATA, COM, Audio and RoHS
- **32205-003800-300-RS:** RS-422/485 cable, 200mm
- **19800-000051-RS:** Dual RS-232 cable, 230mm, P=2.54
- **19800-000075-RS:** PS/2 KB/MS Y-cable with bracket, 220mm
- **32102-000100-200-RS:**
SATA power cable, MOLEX 5264-4P to SATA15P
- **19800-000049-RS:** LPT flat cable, 240mm
- **AC-KIT-892HD-R10:**
7.1-channel HD audio kit with Realtek ALC892 audio codec supporting dual audio stream

- **DP-DVI-R10:**
DisplayPort to DVI-D converter board (for IEI iDP connector)
- **DP-HDMI-R10:**
DisplayPort to HDMI converter board (for IEI iDP connector)
- **DP-LVDS-R10:**
DisplayPort to LVDS converter board (for IEI iDP connector)
- **DP-VGA-R10:**
DisplayPort to VGA converter board (for IEI iDP connector)
- **DP-DP-R10:**
DisplayPort to DisplayPort converter board (for IEI iDP connector)
- **TPM-IN01-R11:**
20-pin Infineon TPM module, software management tool,
firmware V3.17



NOTE:

ISA Limitation of PCISA-BT

Due to the limitation of Intel® Bay Trail processors, the PCISA-BT does not support the following features:

- Bus Master Cycles
- DMA
- LPC Memory Mapped Transactions
- IRQ0, IRQ1, IRQ2, IRQ8, IRQ9, IRQ13, IRQ14
- ISA Enable (IE) Bit
- PnP

Jumpers setting and connectors

LABEL	FUNCTION
ATXCTL1	AT/ATX Power Mode Setting
J_CMOS1	Clear CMOS
JP2	LVDS Power Mode Setting
JP3	LVDS Backlight Mode Setting
SW1	LVDS1 Panel type Selection
J_ATX_AT1	AT/ATX Power Mode Setting
F_PANEL1	PWR & RST Buttons and indicators
VGA1	VGA 15-pin Female Connector
IR1	IR Connector
LAN1, LAN2	RJ45 LAN ports
KB_MS1	Keyboard/Mouse connector
USB3, USB4	Internal USB 2.0 Connectors
SATA1, SATA2	Serial ATA 2.0 Connectors
M-SATA1	M-SATA Card Connector (M-SATA Only)
CPU_FAN1	CPU Fan Connector
SYS_FAN1	System Fan Connectors
DIO1	Digital I/O Connector
CPU12V1	ATX Power Source Connector
TPM1	TPM Connector
SMBUS1	SMBUS Connector
I2C_1	I ² C Connector
LPT1	Internal Parallel Port Connector
CN1	EC Debug Port
JSPI1	Flash SPI ROM Connector
JSPI2	Flash EC ROM Connector
LVDS1	LCD Panel LVDS Interface Connector
INV1	LVDS Panel Backlight +12V Power Source
DP1	DP Connector
COM1, COM2, COM3	Internal Serial Port Connectors
USB1,5	USB2. 0 Port Connectors
USB1	USB3. 0 Port Connectors

J_CMOS1: Clear CMOS	
PIN NO.	DESCRIPTION
NC (default)	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

ATXCTL1: AT/ATX Power Mode Setting	
PIN NO.	DESCRIPTION
Short 1-2	AT Power Mode (default)
Short 2-3	ATX Power Mode

JP2: LVDS Power Mode Setting	
PIN NO.	DESCRIPTION
Short 1-2	+3.3 V (Default)
Short 2-3	+5 V

JP3: LVDS Backlight Mode Setting	
PIN NO.	DESCRIPTION
Short 1-2	DC Mode (Default)
Short 2-3	PWM Mode

F_PANEL1: PWR & RST buttons and indicators					
	PIN	DESCRIPTION	PIN	DESCRIPTION	
PWR LED	1	+5V	2	BEEP_PWR	SPKR
	3	NC	4	IPMI ID_LED+	IPMI LED
	5	GND	6	IPMI ID_LED-	
PWR BTN	7	PWRBTN_SW#	8	PC_BEEP	SPKR
	9	GND	10	NC	
HDD LED	11	+5V	12	EXTRST-	RESET
	13	SATA_LED#	14	GND	

SW1: LVDS panel resolution selection	
* ON=0, OFF=1; Single=S, Dual=D	
4-3-2-1	DESCRIPTION
0000	800x600 18-bit Single (Default)
0001	1024x768 18-bit Single
0010	1024x768 24-bit Single
0011	1280x768 18-bit Single
0100	1280x800 18-bit Single
0101	1280x960 18-bit Single
0110	1280x1024 24-bit Dual
0111	1366x768 18-bit Single
1000	1366x768 24-bit Single
1001	1440x960 24-bit Dual
1010	1400x1050 24-bit Dual
1011	1600x900 24-bit Dual
1100	1680x1050 24-bit Dual
1101	1600x1200 24-bit Dual
1110	1920x1080 24-bit Dual
1111	1920x1200 24-bit Dual

J_ATX_AT1: AT/ATX Power Mode Setting	
PIN NO.	DESCRIPTION
Short 1-2	ATX Power Mode (default)
Short 2-3	AT Power Mode

VGA1: VGA 15-pin Female Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
V1	RED	V2	GREEN
V3	BLUE	V4	NC
V5	GND	V6	GND
V7	GND	V8	GND
V9	VCC	V10	GND
V11	NC	V12	DDCDA
V13	HSYNC	V14	VSYNC
V15	DDCCLK		

IR1: IR Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
P1	5V	P2	NC
P3	RX	P4	GND
P5	TX		

LAN1, LAN2: RJ-45 LAN connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LAN1_MDI0+	7	LAN1_MDI2+
2	LAN1_MDI0-	8	LAN1_MDI2-
3	LAN1_MDI1+	9	LAN1_MDI3+
4	LAN1_MDI1-	10	LAN1_MDI3-

KB_MS1: Keyboard/Mouse Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	Mouse Data
3	Mouse Clock	4	Keyboard Data
5	Keyboard Clock	6	GND

USB3, USB4: Internal USB 2.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

SATA1, SATA2: Serial ATA 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	SATA_RX-
2	SATA_TX+	6	SATA_RX+
3	SATA_TX-	7	GND
4	GND	8	NC

CN2: M-SATA Card Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	PCIE_WAKE#	2	+3.3V
3	N/C	4	GND
5	N/C	6	1.5V
7	N/C	8	N/C
9	GND	10	N/C
11	MSATA_CLK#	12	N/C
13	MSATA_CLK	14	N/C
15	GND	16	N/C
17	PLTRST_N	18	GND
19	N/C	20	+3.3V
21	GND	22	PLTRST_N
23	SATA_RX+	24	+3.3V
25	SATA_RX-	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	SATA_TX-	32	SMB_DATA
33	SATA_TX+	34	GND
35	GND	36	USB_DATA-
37	GND	38	USB_DATA+
39	+3.3V	40	GND
41	+3.3V	42	N/C
43	+3.3V	44	N/C
45	CLINK_CLK	46	N/C
47	CLINK_DATA	48	1.5V
49	CLINK_RST#	50	GND
51	MSATA_DET	52	+3.3V

CPU_FAN1: CPU Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+12V
3	FANIO	4	PWM

SYS_FAN1: System Fan Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	FANIO	2	+12V
3	GND		

DIO1: Digital Input / Output Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	VCC
3	Output 3	4	Output 2
5	Output 1	6	Output 0
7	Input 3	8	Input 2
9	Input 1	10	Input 0

CPU12V1: +12V Power Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

TPM1: Trusted Platform Module Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND
3	LFRAME#	4	KEY
5	LRERST#	6	+5V
7	LAD3	8	LAD2
9	+3.3V	10	LAD1
11	LAD0	12	GND
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND	18	GLKRUN#
19	LPCPD#	20	LDRQ#

SMBus1: SMBUS connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

I2C_1: I²C Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	PCH_GP38
3	PCH_GP39	4	+5V

LPT1: Parallel Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	14	AUTO FORM FEED #
2	DATA0	15	ERROR#
3	DATA1	16	INITIALIZE#
4	DATA2	17	PRINTER SELECT LN#
5	DATA3	18	GND
6	DATA4	19	GND
7	DATA5	20	GND
8	DATA6	21	GND
9	DATA7	22	GND
10	ACKNOWLEDGE#	23	GND
11	BUSY	24	GND
12	PAPER EMPTY	25	GND
13	PRINTER SELECT		

CN1: EC Debug Port Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	EC_EPP_STB#	2	EC_EPP_AFD#
3	EC_EPP_PD0	4	NC
5	EC_EPP_PD1	6	EC_EPP_INIT#
7	EC_EPP_PD2	8	EC_EPP_SLIN#
9	EC_EPP_PD3	10	GND
11	EC_EPP_PD4	12	NC
13	EC_EPP_PD5	14	EC_EPP_BUSY
15	EC_EPP_PD6	16	EC_EPP_KSI5
17	EC_EPP_PD7	18	EC_EPP_KSI4

JSPI1: Flash SPI ROM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+1.8V	2	SPI_CS#
3	SPI_SO	4	SPI_CLK
5	SPI_SI	6	GND

JSPI2: Flash EC ROM Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	SPI_CLK
5	SPI_SI	6	GND

LVDS1: LVDS Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	LVDS_DATA0	4	LVDS_DATA0#
5	LVDS_DATA1	6	LVDS_DATA1#
7	LVDS_DATA2	8	LVDS_DATA2#
9	LVDS_CLK1	10	LVDS_CLK1#
11	LVDS_DATA3	12	LVDS_DATA3#
13	GND	14	GND
15	LVDS_DATA4	16	LVDS_DATA4#
17	LVDS_DATA5	18	LVDS_DATA5#
19	LVDS_DATA6	20	LVDS_DATA6#
21	LVDS_CLK2	22	LVDS_CLK2#
23	LVDS_DATA7	24	LVDS_DATA7#
25	GND	26	GND
27	VCC_LCD	28	VCC_LCD
29	VCC_LCD	30	VCC_LCD

INV1: Backlight inverter connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCD_BKLTCTL	2	GND
3	+12V	4	GND
5	BACKLIGHT ENABLE		

DP1: Internal Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HPD	11	LANE3N
2	AUXP	12	GND
3	GND	13	GND
4	AUXN	14	LANE0P
5	AUX_CTRL_DET_D	15	LANE1P
6	GND	16	LANE0N
7	GND	17	LANE1N
8	LANE2P	18	+3.3V
9	LANE3P	19	+5V
10	LANE2N	20	N/A

COM1, COM2: RS-232 serial port connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RTS
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

COM3: RS-422/485 serial port connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	RXD485#	2	RXD485+
3	TXD485+	4	TXD485#

USB1,5: USB 2.0 Connector			
PIN	DESCRIPTION	PIN	DESCRIPTION
1	VCC	2	USB_DATA-
3	USB_DATA+	4	GND

USB1: USB 3.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+5V	2	USB_DATA-
3	USB_DATA+	4	GND
5	USB3.0RX-	6	USB3.0RX+
7	AGND	8	USB3.0 TX+
9	USB3.0 TX-		

