

**Half-size PCIe CPU Card Supports LGA1155 32nm Intel® Core™  
i7/i5/i3 CPU with Intel® B65, DDR3, VGA, Dual Realtek PCIe GbE, USB  
2.0, SATA 6Gb/s, HD Audio and RoHS**

# **PIC0e-B650**

## **Quick Installation Guide**

### **Version 1.01**

Jan. 11, 2012

#### **Package List**

PIC0e-B650 package includes the following items:

- 1 x PIC0e-B650 Single Board Computer
- 1 x Dual RS-232 Cable
- 2 x SATA Cable
- 1 x USB cable
- 1 x Mini Jumper Pack
- 1 x Utility CD (within manual)
- 1 x QIG (Quick Installation Guide)



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## Specifications

- CPU  
LGA1155 socket supports Intel® Core™ i7/i5/i3/Pentium® /Celeron® processor
- System Chipset: Intel® B65
- BIOS: UEFI BIOS
- System Memory:  
One 204-pin 1333/1066MHz DDR3 SO-DIMM supported. (system max. 8GB)Graphic: VGA Integrated in Intel® H61
- Display Output:  
1 x VGA
- Ethernet:  
Dual Realtek RTL8111E PCIe GbE controllers, LAN1 with ASF2.0 supported
- Super I/O: Fintek F81866
- I/O Interface:  
2 x RS-232  
4 x USB 2.0 (2 on rear, 2 by pin header)  
1 x 6-pin wafer for KB & MS  
1 x SATA 6Gb/s  
1 x SATA 3Gb/s
- Digital I/O: 8-bit Digital I/O (4-bit input, 4-bit output)
- Infrared Interface: 1 x 5-pin infrared connector
- Audio: Supports by IEI AC-KIT-888HD Audio Kit
- Front Audio: 2 x 5-pin pin header
- TPM: 2 x 10-pin pin header
- SMBus: 1 x 4-pin wafer
- I2C: 1 x 4-pin wafer
- Expansion: PCI signal and 4 x PCIe x1 signal via golden finger
- Watchdog Timer: software Programmable support 1~255 sec.  
System reset
- FAN connector:  
1 x 4-pin smart fan connector

- Power Supply: 5V@3.17A, 12V@0.46A, Vcore\_12V@7.26A, 5VSB@0.18A (3.4GHz Intel® Core™ i7-2600K with two 2GB 1333MHz DDR3 memory)
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 185mm X 122mm
- Weight: 1.0Kg

## Ordering Information

**PIC0e-B650-R10:** Half-size PCIe CPU card supports 32nm LGA1155 Intel® Core™ i7/i5/i3 CPU with Intel® B65, DDR3, VGA, dual Realtek PCIe GbE, USB 2.0, SATA 6Gb/s, HD Audio and RoHS

**19800-000075-RS:** KB/MS cable with Bracket

**SAIDE-KIT01-R10:** SATA to IDE/CF Converter board

**32102-000100-200-RS:** SATA Power Cable

**AC-KIT-888HD-R10:** 7.1 channel HD Audio kit with Realtek ALC888 support dual audio streams

**CPU-DT-i5-2500T:** Intel® Core™ i5-2500T processor, LGA1155, Quad core 2.3GHz, 6M Cache, 45W, compatible with CF-1156C-RS CPU cooler

**CPU-DT-i5-2390T:** Intel® Core™ i5-2390T processor, LGA1155, Dual core 2.7GHz, 3M Cache, 35W, AMT, compatible with CF-1156C-RS CPU cooler

**CPU-DT-i3-2100T:** Intel® Core™ i3-2100T processor, LGA1155, Dual core 2.5GHz, 3M Cache, 35W, compatible with CF-1156C-RS CPU cooler

**CPU-DT-P-G620T:** Intel® Pentium G620T processor, LGA1155, Dual core 2.2GHz, 3M Cache, 35W, compatible with CF-1156C-RS CPU cooler

**CPU-DT-C-G440:** Intel® Celeron G440 processor, LGA1155, Single core 1.6GHz, 1M Cache, 35W, compatible with CF-1156C-RS CPU cooler

**CF-1156A-RS-R10:** High-performance LGA1155/LGA1156 cooler kit, 1U chassis compatible, 73W

**CF-1156B-RS-R10:** High-performance LGA1155/LGA1156 cooler kit, 95W

**CF-1156C-RS:** LGA1155/LGA1156 cooler kit, 1U chassis compatible, 45W  
**CF-1156D-RS:** LGA1155/LGA1156 cooler kit, 1U chassis compatible, 65W

**TPM-IN01-R11:** 20-Pin Infineon TPM module, software management tool, firmware V3.17

## Jumpers setting and Connectors

**Table of Jumpers**

LABEL	FUNCTION
J_CMOS1	CMOS state setting
JATX_AT1	Power Mode Setting
J_PCIE1	PCIe status select

**Table of Connec**

LABEL	FUNCTION
SATA1	SATA 6Gb/s Connector
SATA2	SATA 3Gb/s Connector
F_PANEL1	Front Panel connector
JSPI1	SPI Flash Program Connector
TPM1	Trusted Platform Module connector
COM1~2	Internal Serial 2*5 Pin-header
DIO1	Digital I/O Connector
CPU_FAN1	4-pin CPU FAN Connector
J_AUDIO1	Audio Kit Connector
ATXCTL1	+5VSB Power Connector
CPU12V1	+12V Power Source Connector
KB_MS1	PS/2 Mouse & Keyboard 1*6 Pin-header
I2C_1	I2C Connector
SMBUS_1	SMBUS Connector
USB_C1~2	External USB2.0 Connector
CRT1	External CRT Port DB-15 Connectors
USB2	Internal USB2.0 2*4 Pin-header
LAN1~2	RJ-45 LAN Connector

## Jumpers setting

- **J\_CMOS1: Clear CMOS Setup**

J_CMOS1	DESCRIPTION
Short 1-2	Keep CMOS Setup(default) (Normal Operation)
Short 2-3	Clear CMOS Setup

- **JATX\_AT1: ATX or AT Mode Selection**

JATX_AT1	DESCRIPTION
Short 1-2	ATX Mode
Short 2-3	AT Mode

- **J\_PCIE1: PCIe Status Selection**

J_PCIE1	DESCRIPTION
Short	Four PCIe x1
Open	One PCIe x4

## Connectors

- **SATA1~SATA2: SATA 6Gb/s & SATA 3Gb/s Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	5	RXN
2	TXP	6	RXP
3	TXN	7	GND
4	GND	8	N/C

- **F\_PANEL1: PWR & RST Buttons and Indicators panel**

	PIN NO.	DESCRIPTION
	1	NC
PWR_BTN	2	PWR_BTN
	3	GND
HDD_LED	4	IDE_LED+
	5	IDE_LED-
PWR_LED	6	PWR_LED+
	7	PWR_LED+
	8	GND
RST_BTN	9	RST_BTN
	10	GND

• **JSPI1: Flash SPI ROM Connector**

PIN NO.	DESCRIPTION
1	SPI_VCC
2	SPI_CS#
3	SPI_MISO
4	SPI_CLK
5	SPI_MOSI
6	GND

• **TPM1: Trusted Platform Module connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCLK	2	GND2
3	LERAME#	4	KEY
5	LRESRT#	6	+5V
7	LAD3	8	LAD2
9	+3V	10	LAD1
11	LAD0	12	GND3
13	SCL	14	SDA
15	SB3V	16	SERIRQ
17	GND1	18	GLKRUN#
19	LPCPD#	20	LDRQ#

• **COM1~2: External Serial Port Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	-NDCD1	6	-NCTS1
2	-NDSR1	7	-NDTR1
3	NSIN1	8	-XRI1
4	-NRTS1	9	GND
5	NSOUT1	10	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 MAIN POWER Connector

ATX 12V1			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	GND
3	+12V	4	+12V

•CPU\_FAN1: CPU Fan Connector

PIN NO.	DESCRIPTION
1	GND
2	+12V
3	FANIO1
4	PWM

• KB\_MS1: 6-pin Wafer Keyboard Connector

PIN NO.	DESCRIPTION
1	VCC5_KBMS
2	MSDATA
3	MSCLK
4	KBDATA
5	KBCLK
6	KBGND

• I2C\_1: I2C Connector (for Debug)

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	PCH_GP38_PU
3	PCH_GP39_PU
4	GND

• SMBus\_1: SMBus Connectors

PIN NO.	DESCRIPTION
1	+5V_DUAL
2	SMBCLK
3	SMBDATA
4	GND

• **USB2: Internal USB Connectors**

USB			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	GND
3	DATA-	4	DATA+
5	DATA+	6	DATA-
7	GND	8	VCC

• **USB\_C1~USB\_C2**

USB	
PIN NO.	DESCRIPTION
1	VCC
2	DATA-
3	DATA+
4	GND

• **VGA1 : 15-pin Female Connector**

PIN	DESCRIPTION	PIN	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DDCDAT
13	HSYNC	14	VSYNC
15	DDCCLK		

**LAN1 、 LAN2: RJ45 LAN Connector**

PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3.	MDIA2-	7	MDIA0-
4.	MDIA1-	8	MDIA0+



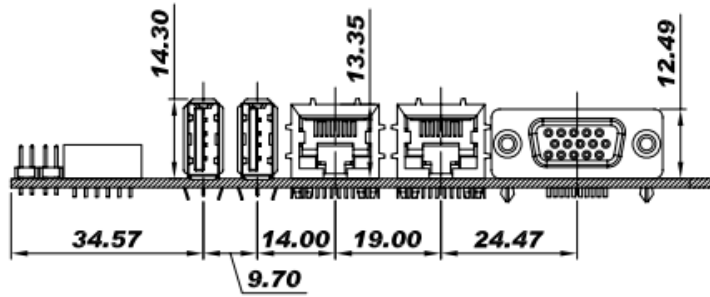
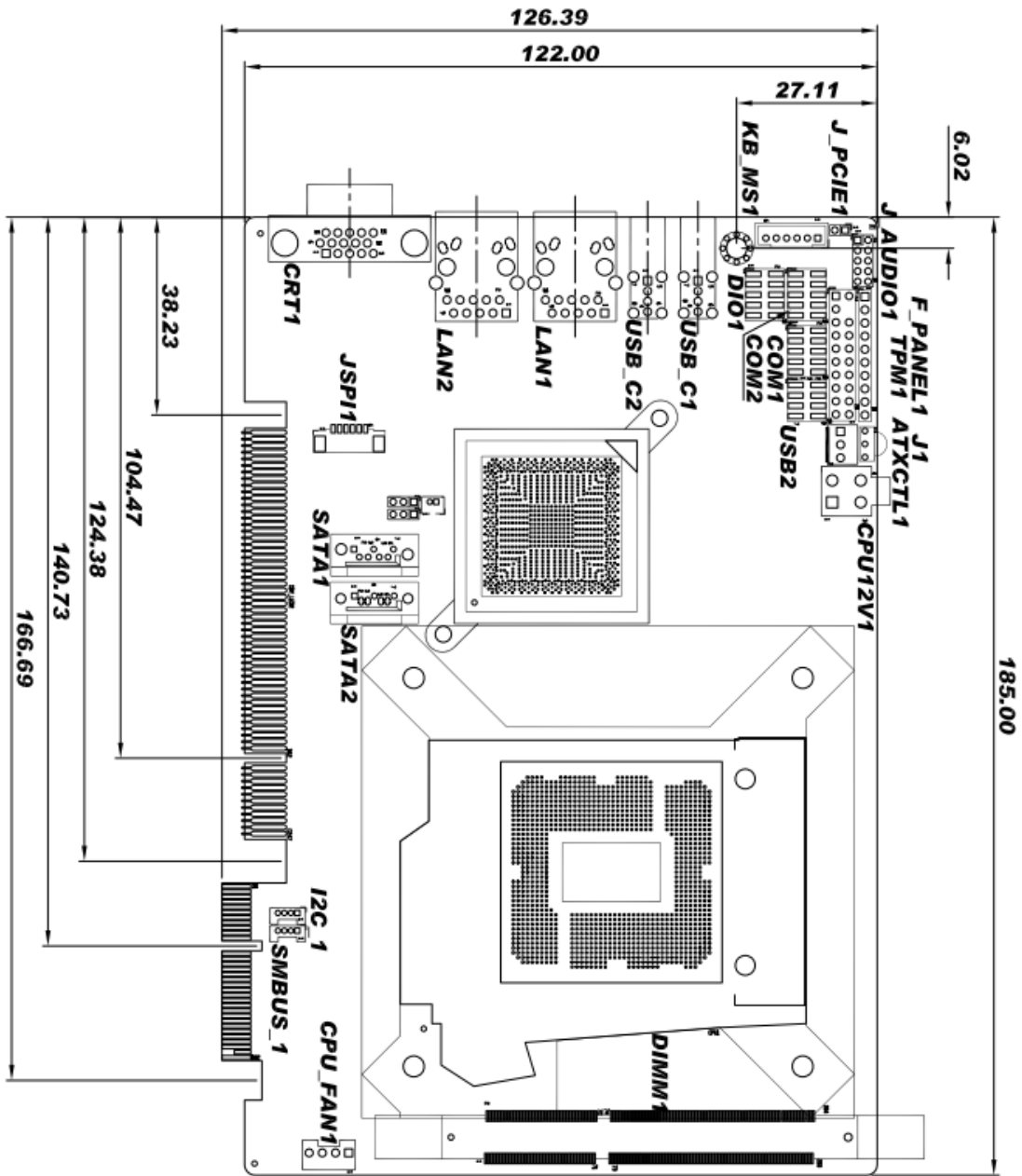
**ATXCTL1 : +5VSB Power Connector**

<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND
2	PS-ON
3	+5V Standby

**AUDIO1 : Audio Connector**

<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	HDA_SYNC	2	HDA_BITCLK
3	HDA_SDOUT	4	PC_BEEP
5	HDA_SDIN0	6	HDA_RST#
7	+5V	8	GND
9	+12V	10	GND

# Board Layout: Jumper and Connector Locations



(Unit:mm)