

**Full-size PICMG 1.0 CPU card supports LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® H81, DDR3, VGA/iDP, Dual Intel® GbE, USB 3.0, SATA 6Gb/s, PCIe Mini, mSATA, RS-232, HD Audio and RoHS**

# **WSB-H810**

## **Quick Installation Guide**

**Version 1.0**

Jul. 4, 2017.

### **Package List**

WSB-H810 package includes the following items:

- 1 x WSB-H810 single board computer
- 2 x SATA cable
- 1 x One Key Recovery CD
- 1 x QIG (Quick Installation Guide)
- 1 x Utility CD



©2006 Copyright by IEI Integration corp.  
All rights reserved.

## Specifications

- CPU:  
4th generation LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- Chipset: Intel® H81
- Memory:  
Twp 240-pin 1600/1333MHz dual-channel DDR3 & DDR3L SDRAM unbuffered DIMMs support up to 16GB
- BIOS: UEFI BIOS
- Graphic Engine:  
Intel® HD Graphics Gen 7.5 supports DX11.1 and OpenCL 1.2, OpenGL 3.2 Full MPEG2, VC1, AVC Decode
- Display Output:  
Dual independent display  
VGA (up to 1920x1200 @ 60 Hz)  
iDP interface for HDMI, LVDS, VGA, DVI, DP (up to 3840x2160 @60 Hz)
- Ethernet:  
LAN1: Intel® I217-LM Ethernet Controller  
LAN2: Intel® I211-AT Ethernet Controller
- Audio:  
7.1 channel HD Audio supported by IEI AC-KIT-892HD kit
- External I/O Interface:  
2 x RJ-45  
2 x USB 2.0  
1 x VGA
- Internal I/O Interface:  
1 x IR (1x5 pin)  
1 x KB/MS (1x6 pin)  
1 x LPT (2x13 pin)  
1 x RS-422/485 (1x4 pin, P=2.0)  
2 x SATA 6Gb/s, 1 x SATA 3Gb/s (Intel® H81 supports AHCI,

no RAID)

1 x USB 2.0 (180 degree type A)

4 x USB 2.0 (2x4 pin, P=2.54)

2 x USB 3.0 (2x10 pin)

2 x RS-232 (2x5 pin, P=2.54)

- Front Panel:

1 x Front panel (2x7 pin, Power LED, HDD LED, Speaker, Power Button, Reset Button)

- LAN LED: 2 x LAN LED (1x2 pin)

- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)

- TPM: 1 x TPM (2x10 pin)

- SMBus: 1 x SMBus (1x4 pin)

- I2C: 1 x I2C (1x4 pin)

- Expansion:

1 x mSATA (SATA 3Gb/s)

1 x PCIe Mini slot

PCI and ISA signal via golden finger

- Watchdog Timer:

Software programmable support 1~255 sec. system reset

- Fan Connector:

1 x CPU smart fan (1x4 pin)

1 x System smart fan (1x3 pin)

- Power supply: 5V/12V, AT/ATX support

- Power Consumption:

5V@3.4A, 12V@0.36A, Vcore\_12V@7.48A, 3.3V@1.42A, 5VSB@0.13A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8GB (two 4GB) 1333MHz DDR3 memory)

- Storage Temperature: -30°C ~ 70°C

- Operation Temperature: -20°C ~ 60°C

- Operation Humidity: 5% ~ 95%, non-condensing

- Dimensions: 338 mm x 122 mm

- Weight GW/NW: 1000g / 260g

## Ordering Information

- **WSB-H810-R10:**  
Full-size PICMG 1.0 CPU card supports LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® CPU per Intel® H81, DDR3, VGA/iDP, Dual Intel GbE, USB 3.0, SATA 6Gb/s, PCIe Mini, mSATA, RS-232, HD Audio and RoHS
- **19800-000051-RS:** Dual RS-232 cable, 230mm, P=2.54
- **32200-074800-RS:** RS-422/485 cable, 200mm
- **19800-003100-100-RS:** USB 2.0 cable, 300mm, P=2.54
- **19800-010500-200-RS:** USB 3.0 cable 457mm with bracket
- **19800-000075-RS:** KB/MS cable with bracket
- **32102-000100-200-RS:**  
SATA power cable, MOLEX 5264-4P to SATA15P
- **32200-015100-RS:** LPT flat cable 28CM
- **CF-1150SE-R10:**  
Special cooler kit for LGA1150, high-performance compatible, 95W
- **CF-1150SC-R10:**  
Special cooler kit for LGA1150, 1U chassis compatible, 65W
- **CF-1150SB-R11:**  
Special cooler kit for LGA1150, high-performance compatible, 65W
- **CF-1150SF-R10:**  
Special cooler kit for LGA1150, high-performance compatible, 54W
- **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)
- **AC-KIT-892HD-R10:**  
7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
- **TPM-IN01-R11:**  
20-pin Infineon TPM module, software management tool, firmware V3.17

## Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX mode select switch
J_CMOS1	Clear CMOS button
USB SW1 Power USB SW2 Power	USB power setting
J_FLASH1	Flash descriptor security override
J_AUDIO1	Audio source connector
CHASSIS1	Chassis status connector
CPU_FAN1	CPU fan connector
CPU12V1	+12V power connector
DIO1	Digital I/O connector
DP1	Display port connector
CN3	EC debug connector
F_PANEL1	Front panel connector
CN1	I2C Connector
KB_MS1	Keyboard and mouse connector
LED_LAN1	LAN1 link LED connector
LED_LAN2	LAN2 link LED connector
LPT1	Parallel port connector
mSATA1	M-SATA card connector(V1.01 move to bottom side)
COM1, COM3, COM4(Un-stuff), COM5(Un-stuff)	RS-232 serial port connector
COM2	RS-422/485 serial port connector
SATA_1, SATA_2	SATA 6Gb/s drive connectors
SATA_3	SATA 3Gb/s drive connector
CN2	SMBUS connector
JSPI1	Flash SPI ROM connector
JSPI2	Flash EC ROM connector
SYS_FAN1	System fan connector
TPM1	TPM connector
USB2-4, USB2-5	Internal USB 2.0 connectors
USB3-1	Internal USB 3.0 connector

USB2-3	USB2.0 Port Connector (type A)
LAN1, LAN2	RJ45 LAN connectors
USB2-1, USB2-2	External USB 2.0 ports
VGA1	VGA connector
J_AT1	(Reserved) ATX simulated to AT mode.
IPMI1	Collocation IPMI Module(iRIS-2400)

#### J\_ATX\_AT1: AT/ATX mode select switch

PIN NO.	DESCRIPTION
Short 1 - 2	ATX Mode (default)
Short 2 - 3	AT Mode

#### J\_CMOS1: Clear CMOS button

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

#### USB SW1, USB SW2: USB power setting

PCIE x16	DESCRIPTION
+5V DUAL	5V DUAL (default)
+5V	+5V

Aptio Setup Utility - Copyright (C) 2012 American Megatrends, Inc.

#### Chipset

```

Auto Power Button Status          [Disabled(ATX)]
Restore AC Power Loss             [Last State]
> PCI Express Configuration
> PCI Azalia Configuration

Power Saving Function(ERP)       [Disabled]

PCIEX16 Power                     [1 x16 PCIE]
USB SW1                           [+5V DUAL]
USB SW2                           [+5V DUAL]

```

Version 2.15.1236. Copyright (C) 2012 American Megatrends, Inc.

<b>J_FLASH1: Flash descriptor security override</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
Short 1 - 2	Disabled (default)
Short 2 - 3	Enabled

<b>J_AUDIO1: Audio source connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	HDA_SYNC	2	HDA_BIT_CLK
3	HDA_SDOUT	4	HDA_SPKR
5	HDA_SDIN	6	HDA_RST#
7	HDA_VCC	8	HDA_GND
9	HDA_+12V	10	HDA_GND

<b>CHASSIS1: Chassis status connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3VSB	2	CHASSIS OPEN

<b>CPU_FAN1: CPU fan connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	+12V
3	FANIO	4	PWM

<b>CPU12V1: +12V power connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	GND
3	+12V	4	+12V



<b>DIO1: Digital I/O connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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

<b>DP1: Display port connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+5V	2	LANE1N
3	LANE1P	4	GND
5	LANE3N	6	LANE3P
7	GND	8	AUX_CTRL_DET_D
9	GND	10	HPD
11	AUXP	12	AUXN
13	GND	14	LANE2P
15	LANE2N	16	GND
17	LANE0P	18	LANE0N
19	+3.3V		

<b>CN3: EC debug connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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

<b>F_PANEL1: Front panel connector</b>					
	<b>PIN</b>	<b>DESCRIPTION</b>	<b>PIN</b>	<b>DESCRIPTION</b>	
PWR LED	1	+5V	2	BEEP_PWR	SPKR
	3	NC	4	NC	
	5	GND	6	NC	
PWR BTN	7	PWRBTN_SW#	8	PC_BEEP	RESET
	9	GND	10	NC	
HDD LED	11	+5V	12	EXTRST-	
	13	SATA_LED#	14	GND	

<b>CN1: I2C Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	I2C_DAT
3	I2C_CLK	4	+5V

<b>KB_MS1: Keyboard and mouse connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	MSDATA
3	MSCLK	4	KBDATA
5	KBCLK	6	GND

<b>LED_LAN1: LAN1 link LED connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	LAN1_LED_LNK#_ACT

<b>LED_LAN2: LAN2 link LED connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	LAN2_LED_LNK#_ACT

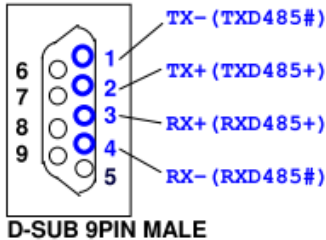
<b>LPT1: Parallel port connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	STROBE#	2	DATA0
3	DATA1	4	DATA2
5	DATA3	6	DATA4
7	DATA5	8	DATA6
9	DATA7	10	ACKNOWLEDGE#
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE#
17	PRINTER SELECT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

<b>mSATA1: M-SATA card connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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	N/C	12	N/C
13	N/C	14	N/C
15	GND	16	N/C
17	N/C	18	GND
19	N/C	20	+3.3V
21	GND	22	PLTRST_N
23	SATA_RX+_C	24	+3.3V
25	SATA_RX-_C	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	SATA_TX-_C	32	SMB_DATA
33	SATA_TX+_C	34	GND
35	GND	36	N/C
37	GND	38	N/C
39	+3.3V	40	GND
41	+3.3V	42	N/C
43	+3.3V	44	N/C
45	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	+3.3V

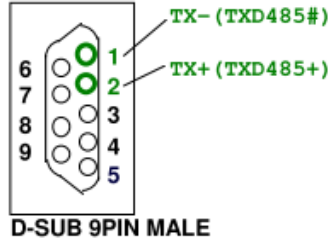
COM1, COM3, COM4, COM5: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RST
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

COM2: RS-422/485 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD485#	2	RXD485+
3	TXD485+	4	TXD485#

#### RS422 Pin define



#### RS485 Pin define



S_ATA1, SATA_2: SATA 6Gb/s drive connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SATA_TX+
3	SATA_TX-	4	GND
5	SATA_RX-	6	SATA RX+
7	GND	8	N/C

<b>S_ATA3: SATA 3Gb/s drive connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	SATA_TX+
3	SATA_TX-	4	GND
5	SATA_RX-	6	SATA_RX+
7	GND	8	N/C

<b>CN2: SMBUS connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

<b>JSPI1: Flash SPI ROM connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	NC
5	GND	6	SPI_CLK
7	SPI_SI	8	NC

<b>JSPI2: Flash EC ROM connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	NC
5	GND	6	SPI_CLK
7	SPI_SI	8	NC

<b>SYS_FAN1: System fan connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	FANIO	2	+12V (PWM)
3	GND		

<b>TPM1: TPM connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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#

<b>USB2-4, USB2-5: Internal USB 2.0 connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	GND
3	USB_DATA-	4	USB_DATA+
5	USB_DATA+	6	USB_DATA-
7	GND	8	VCC

<b>USB3-1: Internal USB 3.0 connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	USB3_RX-
3	USB3_RX+	4	GND
5	USB3_TX-	6	USB3_TX+
7	GND	8	USB_DATA-
9	USB_DATA+	10	NC
11	USB_DATA+	12	USB_DATA-
13	GND	14	USB3_TX+
15	USB3_TX-	16	GND
17	USB3_RX+	18	USB3_RX-
19	VCC		

<b>LAN1, LAN2: RJ45 LAN connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	MDIA3-	2	MDIA3+
3	MDIA2-	4	MDIA1-
5	MDIA1+	6	MDIA2+
7	MDIA0-	8	MDIA0+

<b>USB2-3: USB2.0 Port Connector (type A)</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	DATA-
3	DATA+	4	GND

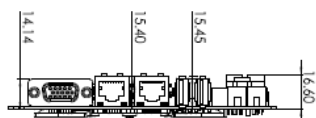
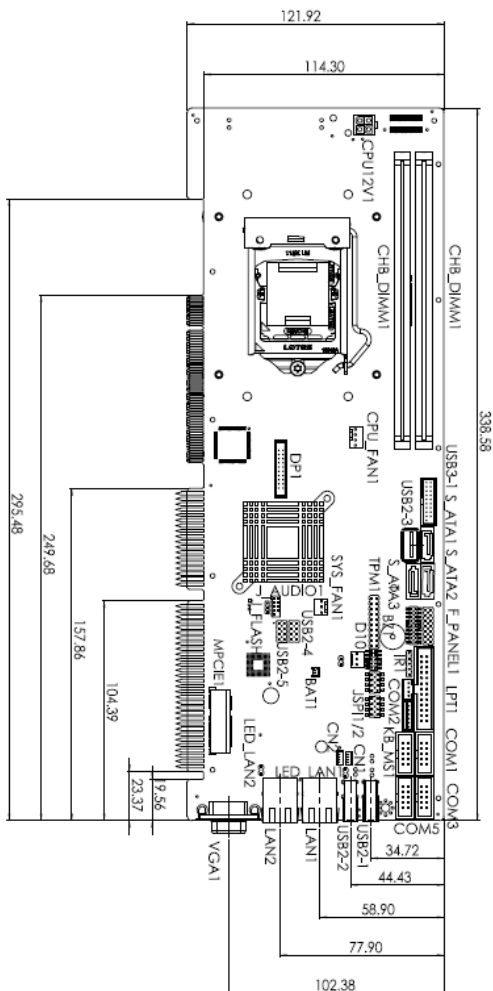
<b>USB2-1, USB2-2: External USB 2.0 ports</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	VCC	2	DATA-
3	DATA+	4	GND

<b>VGA1: VGA connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DCCDA
13	HSYNC	14	VSYNC
15	DDCCLK		

<b>J_AT1: ATX simulated to AT mode. (short pin1 &amp; 2)</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	PS_ON#
2	GND



# Board Layout: Jumper and Connector Locations



(Unit: mm)