

Full-size PICMG 1.3 CPU card supports LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® per Intel® H81, DDR3, VGA, iDP, Dual PCIe GbE, SATA 6Gb/s, mSATA, USB 3.0, RS-232, HD Audio and RoHS

PCIE-H810

Quick Installation Guide

Version 1.0

Feb 04, 2015.

Package List

PCIE-H810 package includes the following items:

- 1 x PCIE-H810 single board computer
- 2 x SATA cable
- 1 x QIG (Quick Installation Guide)
- 1 x Utility CD



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Specifications

- CPU:
4th generation LGA1150 Intel® Core™ i7/i5/i3, Pentium® or Celeron® processor supported
- PCH: Intel® H81
- Memory:
Two 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:
Dual Realtek RTL8111E PCIe GbE controllers supported
- External I/O Interface:
2 x RJ-45
2 x USB 2.0
1 x VGA
- 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)
2 x RS-232 (2x5 pin, P=2.54)
2 x SATA 6Gb/s, 1 x SATA 3Gb/s (H81 supports AHCI, no RAID)
1 x USB 2.0 (180 degree type A)

- 4 x USB 2.0 (2x4 pin, P=2.54)
- 4 x USB 2.0 (signal to backplane)
- 2 x USB 3.0 (2x10 pin)
- Audio:
 - Support 7.1 channel HD Audio by IEI AC-KIT-892HD kit
- 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)
- TPM: 1 x TPM (2x10 pin)
- SMBus: 1 x SMBus (1x4 pin)
- I2C: 1 x I2C (1x4 pin)
- Expansion:
 - 1 x PCIe connector (PCIe Mini & mSATA colay)
 - One PCIe x16 & four PCIe x1 signal via golden finger
 - PCI signal and ISA signal via golden finger
 - PCI signal by ITE IT 8892 (PCIe to PCI bridge)
- Watchdog Timer:
 - Software programmable support 1~255 sec. system reset
- Digital I/O: 1 x 8-bit digital I/O (2x5 pin)
- 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@3.41A, 12V@0.35A, Vcore_12V@7.52A, 3.3V@1.41A, 5VSB@0.12A (Intel® Core™ i7-4770K 3.90 GHz CPU with 8GB (two 4GB) 1333MHz DDR3 memory)
- Operation Temperature: -20°C ~ 60°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 185mm x 122mm

- Weight GW/NW: 1000g / 260g

Ordering Information

- **PCIE-H810-R10:**
Full-size PICMG 1.3 CPU Card supports LGA1150 Intel® Core™ i7/i5/i3, Pentium® and Celeron® per Intel® H81, DDR3, VGA, iDP, Dual PCIe GbE, SATA 6Gb/s, mSATA, USB 3.0, 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
PCIE x16 Power	PCIEX16 channel mode setting
USB SW1 Power USB SW2 Power	USB power setting
MSATA_SW1	M-SATA switch auto-detect
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
IR1	IrDA Infrared Interface Connector
KB_MS1	Keyboard and mouse connector
LED_LAN1	LAN1 link LED connector
LED_LAN2	LAN2 link LED connector
LPT1	Parallel port connector
CN4	M-SATA card connector
COM1, COM3, COM4, COM5	RS-232 serial port connector
COM2	RS-422/485 serial port connector
SATA1, SATA2, SATA3 SATA4, SATA5, SATA6	SATA 6Gb/s drive connectors
CN2	SMBUS connector
JSPI1	Flash SPI ROM connector
JSPI2	Flash EC ROM connector
SYS_FAN1	System fan connector
TPM1	TPM connector
USB3, USB4	Internal USB 2.0 connectors

CN7	Internal USB 3.0 connector
LAN1, LAN2	RJ45 LAN connectors
CN5	External USB 3.0 ports
VIDEO1	VGA connector

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

PCIEX16 Power: PCIEX16 channel mode setting

PCIEX16	DESCRIPTION
1 x16 PCIE	1 x16 PCIE (default)

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]

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USB SW1, USB SW2: USB power setting	
PCIE x16	DESCRIPTION
+5V DUAL	5V DUAL (default)
+5V	+5V

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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]	

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MSATA_SW1: M-SATA switch auto-detect	
PIN NO.	DESCRIPTION
Open	Auto Detect M-SATA (default)
Short	M-SATA Enable

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

J_AUDIO1: Audio source connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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

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

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

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

DIO1: Digital I/O 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

DP1: Display port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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	20	NC

CN3: EC debug 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

F_PANEL1: Front panel connector					
	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	RESET
HDD LED	11	+5V	12	EXTRST-	
	13	SATA_LED#	14	GND	

CN1: I2C Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	PCH_GP38
3	PCH_GP39	4	+5V

IR1: IrDA connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+V5S	2	NC
3	IR-RX	4	GND
5	IR-TX		

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

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

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

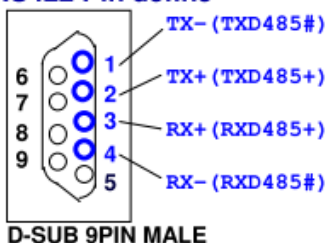
LPT1: Parallel port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	STROBE#	2	DATA0
3	DATA1	4	DATA2
5	DATA3	6	DATA4
7	DATA5	8	DATA6
9	DATA7	10	ACKNOWLEDGE#
11	BUSY	12	PAPER EMPTY
13	PRINTER SELECT	14	AUTO FORM FEED #
15	ERROR#	16	INITIALIZE#
17	PRINTER SELECT LN#	18	GND
19	GND	20	GND
21	GND	22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

CN4: 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

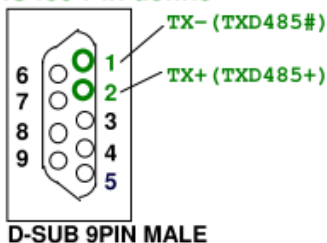
COM1, COM3, COM4, COM5: RS-232 serial port connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DCD	2	DSR
3	RXD	4	RST
5	TXD	6	CTS
7	DTR	8	RI
9	GND	10	GND

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



SATA1, SATA2, SATA3, SATA4, SATA5, SATA6: 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		

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

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

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

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

TPM1: TPM 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#

USB3, USB4: Internal USB 2.0 connectors			
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

CN7: Internal USB 3.0 connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
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		

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

CN5: External USB 2.0 ports			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	DATA-
3	DATA+	4	GND

VIDEO1: VGA connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RED	2	GREEN
3	BLUE	4	NC
5	GND	6	GND
7	GND	8	GND
9	VCC	10	GND
11	NC	12	DDCDA
13	HSYNC	14	VSYNC
15	DDCCLK		

