

Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E, 8th/9th Gen. Core™ i9/i7/i5/i3/Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, M.2, HD Audio, Intel® AMT and RoHS

SPCIE-C246

Quick Installation Guide

Version 1.1

September 18, 2020

Package List

SPCIE-C246 package includes the following items:

- 1 x SPCIE-C246 single board computer
- 1 x SATA cable
- 1 x Mini jumper pack
- 1 x QIG (Quick Installation Guide)



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Specifications

- CPU:
LGA1151 socket supports Intel® Xeon® E, 8th/9th generation Core™ i9/i7/i5/i3, Pentium® or Celeron® processor
- Chipset: Intel® C246
- Memory:
Four 288-pin 2666MHz dual-channel DDR4 SDRAM unbuffered DIMMs support up to 64GB ECC & non-ECC memory
- BIOS: AMI UEFI BIOS
- Graphics Engine:
Intel® HD Graphics Gen 9 Engines with 16 low-power execution units, supports DX2015, OpenGL 5.X and OpenCL2.x, ES 2.0
- Display Output:
Dual display supported
1 x HDMI (up to 4096 x 2304@30Hz)
1 x Internal DisplayPort (up to 4096 x 2304@60Hz)
- Ethernet:
LAN1: Intel® I219LM PHY
LAN2: Intel® I211-AT PCIe controller (Co-lay I210-AT)
- External I/O Interface:
2 x USB 3.2 Gen 1 (5Gb/s) (rear IO, Type A)
1 x USB 2.0 (Type A 180°)
- Internal I/O Interface:
1 x KB/MS (1x6 pin)
1 x RS-422/485 (1x4 pin, P=2.0)
2 x USB 3.2 Gen 1 (5Gb/s) (2x10 pin)
3 x RS-232 (2x5 pin, P=2.54)
6 x SATA 6Gb/s (RAID 0/1/5/10 supported)
6 x USB 2.0 (2x4 pin, P=2.54)

- Audio:
 - Support 7.1 channel HD audio by IEI AC-KIT-892HD kit
- Front Panel: 1 x Front Panel (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 M.2 M-key 2280 slot
 - 1 x PCIe x16 signal via golden finger
 - 4 x PCIe x1 signal via golden finger
 - 4 x PCI signal via golden finger
- Watchdog Timer:
 - Software programmable support 1~255 sec. system reset
- Digital I/O: 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:
 - AT/ATX power supply
 - Support AT/ATX mode
 - ErP/EuP Compliant
- Power Consumption:
 - 5V@3.12A, 12V@6.85A, 3.3V@1.13A, 5VSB@0.15A
 - (4.0 GHz Intel[®] Core™ i7-8700K CPU with four 16 GB 2666 MHz DDR4 memory)
- Operation Temperature: -20°C ~ 60°C
- Operation Humidity: 5% ~ 95%, non-condensing
- Dimensions: 338 mm x 126 mm
- Weight GW/NW: 1000g / 500g
- CE/FCC compliant

All the drivers and utilities for the SPCIE-C246 are available on IEI Resource Download Center. Type SPCIE-C246 and press Enter to find all the relevant software, utilities, and documentation. To install software from the downloaded ISO file, mount the file as a virtual drive to view its content.

IEI Resource Download Center

<https://download.ieiworld.com>



Ordering Information

- **SPCIE-C246-R11:**
Full-size PICMG 1.3 CPU Card supports LGA1151 Intel® Xeon® E, 8th/9th Gen. Core™ i7/i5/i3/Pentium®/Celeron® CPU per Intel® C246, ECC & non-ECC DDR4, HDMI, DP, Dual Intel® PCIe GbE, M.2, USB 3.2 Gen 1 (5Gb/s), SATA 6Gb/s, HD Audio, iAMT and RoHS
- **19800-000075-RS:** PS/2 KB/MS cable with bracket, 220mm, P=2.0
- **32102-000100-200-RS:** SATA power cable, MOLEX 5264-4P to SATA15P
- **AC-KIT-892HD-R10:**
7.1 channel HD Audio kit with Realtek ALC892 support dual audio streams
- **CF-1150SA-R10:** Special cooler kit for LGA1150, high-performance compatible, 95W
- **CF-1150SB-R11:** Special cooler kit for LGA1150, high-performance compatible, 65W
- **CF-1150SC-R20:**
Special cooler kit for LGA1150, 1U chassis compatible, 65W
- **CF-1150SE-R11:**
Special cooler kit for LGA1150, 1U chassis compatible, 95W
- **CF-1150SF-R10:**
Special cooler kit for LGA1150, 1U chassis compatible, 54W

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

Jumpers setting and connectors

LABEL	FUNCTION
J_ATX_AT1	AT/ATX Power Mode Setting
J_CMOS2	Clear CMOS Button
PCIe x16 Power	PCIe x16 Channel Mode Setting
USB SW1 Power USB SW2 Power	USB Power Setting
J_FLASH1	Flash Descriptor Security Override
F_PANEL1	Front Panel Connector
KB_MS1	6-pinheader Keyboard/Mouse Connector
DIO1	Digital Input / Output Connector
CPU12V1	+12V Power Connector
CPU_FAN1	CPU Fan Connector
SYS_FAN1	System Fan Connector
J_AUDIO1	Audio Source Connector
HDMI1	HDMI Connector
DP1	Internal DisplayPort Connector
TPM1	TPM Connector
I2C1	I ² C Connector
SMB1	SMBus Connector
CN1	EC Debug Connector
MPCIE1	mSATA Card Connector
USB3_1, USB3_2	External USB 3.2 Gen 1 Connectors
USB3_34	Internal USB 3.2 Gen 1 Connector
SATA1, SATA2, SATA3 SATA4, SATA5, SATA6	SATA 6Gb/s Drive Connectors
COM1, COM2, COM3	Internal RS-232 Serial Port Connectors
COM4	Internal RS-422/485 Serial Port Connector
USB1, USB2, USB4	Internal USB 2.0 Connectors
USB3	External USB 2.0 Connector
LAN1, LAN2	RJ-45 LAN Connectors
JSPI1	Flash SPI ROM Connector

JSPI2	Flash EC ROM Connector
LED_LAN1	LAN1 Link LED Connector
LED_LAN2	LAN2 Link LED Connector
CHASSIS1	Chassis Status Connector

J_ATX_AT1: AT/ATX Power Mode Setting

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

J_CMOS2: Clear CMOS Button

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

PCIEX16 Power: PCIe x16 Channel Mode Setting

PCIEX16 Power	DESCRIPTION
1 x16	One PCIe x16 (default)
2 x8	Two PCIe x8
1 x8 , 2x4	One PCIe x8 + Two PCIe x4

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Chipset

PEG Port Configuration	
PEG Link Width Configuration	[1 x16] -----
PEG 0:1:0	Not Present
Enable Root Port	[Enabled]
Max Link Speed	[Auto]

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USB SW1, USB SW2: USB Power Setting	
USB SW	DESCRIPTION
+5V DUAL	5V DUAL (default)
+5V	+5V

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Chipset

PCH-IO Configuration

Auto Power Button Status	[Disable (ATX)]	
Restore AC Power Loss	[Last State]	-----
<ul style="list-style-type: none"> > PCI Express Configuration > SATA And RST Configuration > HD Audio Configuration 		
Power Saving Function(ERP)	[Disabled]	
USB Power SW1	[+5V DUAL]	
USB Power SW2	[+5V DUAL]	

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J_FLASH1: Flash Descriptor Security Override	
PIN NO.	DESCRIPTION
Short 1 - 2	Disabled (default)
Short 2 - 3	Enabled

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	

KB_MS1: 6-pinheader 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

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

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 (PWM)
3	GND		

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

HDMI1: HDMI Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	HDMI_DATA2-1	2	GND
3	HDMI_DATA2#-1	4	HDMI_DATA1-1
5	GND	6	HDMI_DATA1#-1
7	HDMI_DATA0-1	8	GND
9	HDMI_DATA0#-1	10	HDMI_CLK-1
11	GND	12	HDMI_CLK#-1
13	NA	14	NA
15	HDMI_SCL-DVI	16	HDMI_SDA-DVI
17	GND	18	+5V
19	HDMI_HPD-DVI		

DP1: Internal DisplayPort Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	DPD_OB_LANE0_P_C	11	GND
2	GND	12	DPD_OB_LANE3_N_C
3	DPD_OB_LANE0_N_C	13	AUX_CTRL_DET_D
4	DPD_OB_LANE1_P_C	14	CONFIG2
5	GND	15	DPD_AUX_CTRL_P2
6	DPD_OB_LANE1_N_C	16	GND
7	DPD_OB_LANE2_P_C	17	DPD_AUX_CTRL_N2
8	GND	18	DDI2_HPD#
9	DPD_OB_LANE2_N_C	19	GND
10	DPD_OB_LANE3_P_C	20	DP PWR

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#

I2C1: I²C Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	PCH_GP38 (I2C_DAT)
3	PCH_GP39 (I2C_CLK)	4	+5V

SMB1: SMBus Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	SMB_DATA
3	SMB_CLK	4	+5V

CN1: 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

MPCIE1: mSATA Card Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	2	+3.3V
3	GND	4	+3.3V
5	PCIE_RXN3	6	N/C
7	PCIE_RXP3	8	N/C
9	GND	10	DAS/DSS#
11	PCIE_TXN3	12	+3.3V
13	PCIE_TXP3	14	+3.3V
15	GND	16	+3.3V
17	PCIE_RXN2	18	+3.3V
19	PCIE_RXP2	20	N/C
21	GND	22	N/C
23	PCIE_TXN2	24	N/C
25	PCIE_TXP2	26	N/C
27	GND	28	N/C
29	PCIE_RXN1	30	N/C
31	PCIE_RXP1	32	N/C
33	GND	34	N/C
35	PCIE_TXN1	36	N/C
37	PCIE_TXP1	38	DEVSLP
39	GND	40	N/C
41	PCIE_RXN0	42	N/C
43	PCIE_RXP0	44	N/C
45	GND	46	N/C
47	PCIE_TXN0	48	N/C
49	PCIE_TXP0	50	PERST#
51	GND	52	CLKREQ#
53	REFCLKN	54	PEWAKE
55	REFCLKP	56	N/C
57	GND	58	N/C
59	Notch	60	Notch
61	Notch	62	Notch
63	Notch	64	Notch
65	Notch	66	Notch

67	N/C	68	SUSCLK
69	PEDET	70	+3.3V
71	GND	72	+3.3V
73	GND	74	+3.3V
75	GND		

USB3_1, USB3_2: External USB 3.2 Gen 1 Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VBUS	2	D-
3	D+	4	GND
5	STDA_SSRX_N	6	STDA_SSRX_P
7	GND_DRAIN	8	STDA_SSTX_N
9	STDA_SSTX_P		

USB3_34: Internal USB 3.2 Gen 1 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	11	USB_DATA+
2	USB3_RX-	12	USB_DATA-
3	USB3_RX+	13	GND
4	GND	14	USB3_TX+
5	USB3_TX-	15	USB3_TX-
6	USB3_TX+	16	GND
7	GND	17	USB3_RX+
8	USB_DATA-	18	USB3_RX-
9	USB_DATA+	19	VCC
10	NC		

SATA1, SATA2, SATA3, SATA4, SATA5, SATA6: SATA 6Gb/s Drive Connectors			
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	N/C

COM1, COM2, COM3: Internal RS-232 Serial Port Connectors			
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

COM4: Internal RS-422/485 Serial Port Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	RXD422-	2	RXD422+
3	TXD422+/TXD485+	4	TXD422-/TXD485-

USB1, USB2, 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

USB3: External USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	DATA-
3	DATA+	4	GND

LAN1, LAN2: RJ-45 LAN Connectors			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	MDIA3-	5	MDIA1+
2	MDIA3+	6	MDIA2+-
3.	MDIA2-	7	MDIA0-
4.	MDIA1-	8	MDIA0+

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

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

LED_LAN2: LAN1 Link LED Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3V	2	LAN2_LED_LNK#_ACT

CHASSIS1: Chassis Status Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	+3.3VSB	2	CHASSIS OPEN

Board Layout: Jumper and Connector Locations



