

Full-size PICMG 1.0 CPU Card supports Intel® Celeron™ on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.0, PCIe Mini, SATA, mSATA, COM, CF, Audio and RoHS

WSB-BT

Quick Installation Guide

Version 1.0

Mar 21, 2019.

Package List

WSB-BT package includes the following items:

- 1 x WSB-BT single board computer
- 1 x Dual RS-232 cable with bracket
- 1 x SATA cable
- 1 x QIG



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Specifications

- CPU:
 - Intel® Celeron® J1900 on-board SoC (2GHz, quad-core, 2MB cache, TDP=10W)
 - Intel® Celeron® N2807 on-board SoC (1.58GHz, dual-core, 2MB cache, TDP=4.3W)
- Memory:
 - One 204-pin 1333/1066MHz dual-channel DDR3L SDRAM unbuffered DIMM supports up to 8GB (J1900) or 4GB (N2807)
- BIOS: AMI UEFI BIOS
- Graphics:
 - Intel® HD Graphics Gen 7 Engines with 4 execution units, supports DX11.1, OpenGL 4.2 and OpenCL1.2
- Display Output:
 - 1 x VGA (up to 1920x1200@60Hz)
 - 1 x 18/24-bit dual-channel LVDS (up to 1920x1200@60Hz)
 - 1 x 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:
 - 1 x USB 3.0
 - 1 x USB 2.0
- Internal I/O:
 - 1 x CF Type II
 - 1 x KB/MS (1x6 pin)
 - 1 x LPT (2x13 pin)
 - 1 x mSATA (SATA 3Gb/s)
 - 1 x USB 2.0 (180° Type-A)
 - 2 x RS-232/422/485 (2x5 pin, P=2.54)
 - 2 x SATA 3Gb/s

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

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

- Front Panel:

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

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

- TPM: 1 x TPM (2x10 pin)

- Audio:

7.1 channel HD Audio supported by IEI AC-KIT-892HD kit

- SMBus: 1 x SMBus (1x4 pin)

- I²C: 1 x I²C (1x4 pin)

- Expansion:

1 x Full/Half-size PCIe Mini card slot

PCI and ISA signal via golden finger

*** *The ISA function is limited. Please refer to page 5 for details.***

- 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

- Operation Temperature: -20°C ~ 60°C

- Storage Temperature: -30°C ~ 70°C

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

- Dimensions: 338 mm x 122 mm

- Weight: GW: 1000g / NW: 260g

- CE/FCC compliant

All the drivers and One Key Recovery utility for the WSB-BT are available on IEI Resource Download Center. Type WSB-BT 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

- **WSB-BT-J19001-R10:**
Full-size PICMG 1.0 CPU card supports Intel® Celeron™ J1900 on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.0, PCIe Mini, SATA, mSATA, COM, CF, Audio and RoHS
- **WSB-BT-N28071-R10:**
Full-size PICMG 1.0 CPU card supports Intel® Celeron™ N2807 on-board SoC with VGA, iDP, Dual Intel® PCIe GbE, USB 3.0, PCIe Mini, SATA, mSATA, COM, CF, Audio and RoHS
- **19800-000049-RS:** LPT flat cable, 240mm, P=2.54
- **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
- **DP-DP-R10:**
DisplayPort to DisplayPort converter board (for IEI iDP connector)
- **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)
- **AC-KIT-892HD-R10:**
7.1 channel HD Audio kit with Realtek ALC892 support dual audio stream
- **TPM-IN01-R20:**
20-pin Infineon TPM1.2 module, software management tool, firmware v3.17
- **TPM-IN02-R20:**
20-pin Infineon TPM2.0 module, software management tool, firmware v5.5

NOTE:

ISA Limitation of WSB-BT

Due to the limitation of Intel® Bay Trail processors, the WSB-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
J_CMOS1	Clear CMOS
ATXCTL1	AT/ATX Power Mode Setting
F_PANEL1	PWR & RST Buttons and Indicators
VGA1	VGA 15-pin Female Connector
CN1	CF Connector
LAN1	RJ-45 LAN connector
LAN2	RJ-45 LAN connector
KB_MS2	6 Pin-header Keyboard & Mouse Connector
USB2	Internal USB 2.0 Connector Type A
USB2-1, USB2-2	Internal 4 Pin-header USB 2.0 Connectors
SATA1, SATA2	Serial ATA 2.0 Connectors
M_SATA1	mSATA Card Connector
CPU_FAN1	CPU Fan Connector
SYS_FAN1	System Fan Connectors
DIO1	Digital Input / Output Connector
CPU12V1	+12V Power Connector
TPM1	Trusted Platform Module Connector
SMBUS1	SMBUS Connector
I2C_1	I2C Connector
LPT1	Parallel Port Connector
CN2	EC Debug Port Connector
JSPI1	Flash SPI ROM Connector
JSPI2	Flash EC ROM Connector
LVDS1	LVDS Connector
INV1	5-pin Header Inverter Connector
DP1	Internal Display Port Connector
COM1, COM2	Internal RS-232/RS-422/RS-485 Serial Port Connectors
COM3, COM4 COM5, COM6	Internal RS-232 Serial Port Connectors
USB3	USB 2.0 Connector
USB1	USB 3.0 Connector

J_AUDIO1	Audio Source Connector
M_PCIE1	Mini PCIe Connector

J_CMOS1: Clear CMOS Button	
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

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	

VGA1: 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		

CN1: CF Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	GND	26	CD1#
2	D3	27	D11
3	D4	28	D12
4	D5	29	D13
5	D6	30	D14
6	D7	31	D15
7	CE#	32	CE2#
8	A10	33	N/C
9	OE#	34	IOR#
10	A9	35	IOW#
11	A8	36	WE#
12	A7	37	IRQ
13	VCC	38	VCC
14	A6	39	CSEL#
15	A5	40	N/C
16	A4	41	RESET#
17	A3	42	WAIT#
18	A2	43	INPACK#
19	A1	44	REG#
20	A0	45	BVD2
21	D0	46	BVD1
22	D1	47	D8
23	D2	48	D9
24	IOCS16#	49	D10
25	CD2#	50	GND2

KB_MS2: 6-pin header 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

LAN1: RJ-45 LAN connector			
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-

LAN2: RJ-45 LAN connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LAN2_MDI0+	7	LAN2_MDI2+
2	LAN2_MDI0-	8	LAN2_MDI2-
3	LAN2_MDI1+	9	LAN2_MDI3+
4	LAN2_MDI1-	10	LAN2_MDI3-

USB2: Internal USB 2.0 Connector Type A			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	USB_DATA+
3	USB_DATA-	4	GND

USB2-1, USB2-2: Internal 4 Pin-header 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

SATA1, SATA2: Serial ATA 2.0 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

M_SATA1: mSATA 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	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	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 (PWM)
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	DESCRIPTION	PIN	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		

CN2: 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_DATA1#
5	LVDS_DATA0#	6	LVDS_DATA1
7	GND	8	GND
9	LVDS_DATA2#	10	LVDS_CLK1#
11	LVDS_DATA2	12	LVDS_CLK1
13	GND	14	GND
15	LVDS_DATA3#	16	LVDS_DATA4#
17	LVDS_DATA3	18	LVDS_DATA4
19	GND	20	GND
21	LVDS_DATA5#	22	LVDS_DATA6#
23	LVDS_DATA5	24	LVDS_DATA6
25	GND	26	GND
27	VCC_LCD	28	LVDS_DATA7#
29	VCC_LCD	30	LVDS_DATA7
31	GND	32	GND
33	<i>LVDS Detect (GND)*</i>	34	GND
35	VCC_LCD	36	VCC_LCD
37	VCC_LCD	38	VCC_LCD
39	VCC_LCD	40	VCC_LCD
41	NC	42	NC
43	NC	44	NC

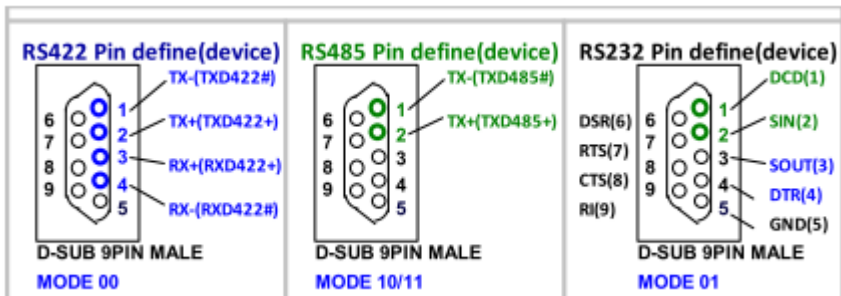
****LVDS Detect must be connected to GND.***

Caution: Pin 33 on the LVDS cable must be GROUND; otherwise the system will not display through LVDS even the LVDS cable is connected to the WSB-BT.

INV1: 5-pin Header Inverter Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	LCD_BKLTCTL	2	GROUND
3	+12V	4	GND
5	BACKLIGHT ENABLE		

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

COM1,COM2: Internal RS-232/RS-422/RS-485 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, COM4, COM5, COM6: Internal 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

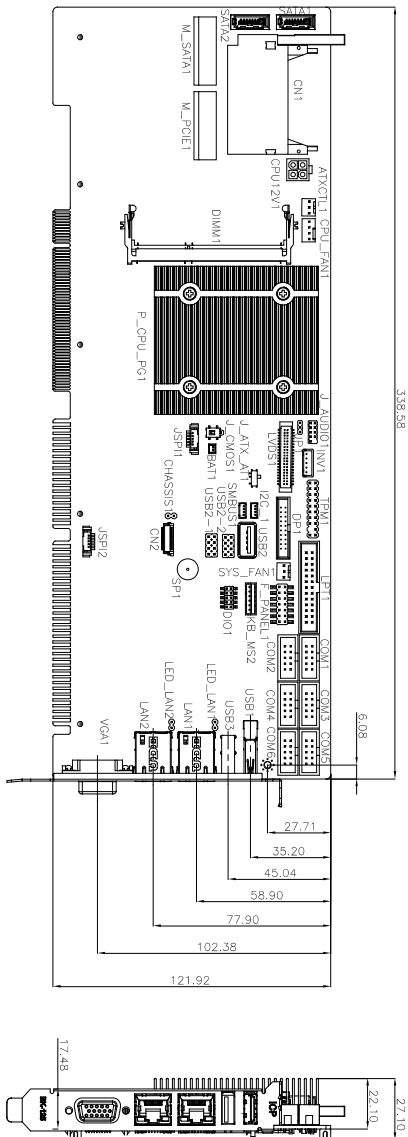
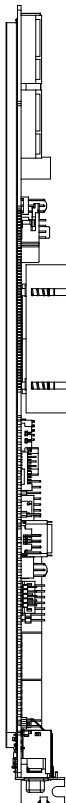
USB3: USB 2.0 Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	VCC	2	USB_DATA-
3	USB_DATA+	4	GND

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	GND	8	USB3.0 TX+
9	USB3.0 TX-		

J_AUDIO1: Audio Source Connector			
PIN NO.	DESCRIPTION	PIN NO.	DESCRIPTION
1	AC97_SYNC	2	AC97_BITCLK
3	AC97_SDOUT	4	AC97_PCBEEP
5	AC97_SDIN	6	AC97_RST#
7	AC97_VCC	8	AC97_GND
9	AC97_12V	10	AC97_GND

M_PCIE1: Mini PCIe 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	PCle_CLK#	12	N/C
13	PCle_CLK	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	PCle_RX+	24	+3.3V
25	PCle_RX-	26	GND
27	GND	28	1.5V
29	GND	30	SMB_CLK
31	PCle_TX+	32	SMB_DATA
33	PCle_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	N/C	46	N/C
47	N/C	48	1.5V
49	N/C	50	GND
51	N/C	52	+3.3V

Board Layout: Jumper and Connector Locations



(Unit: mm)