

**Full-size PEMUX CPU Card supports LGA2066 Intel® Xeon® W CPU per , Intel® C422, DDR4 ECC RDIMM, IPMI VGA output, Intel® PCIe GbE, Aquantia 10GbE, USB 3.1 GEN 1 (5Gb/s) , USB 2.0, SATA 6Gb/s, HD Audio, IPMI, TPM, M.2 and RoHS**

# **PEMUX-XEW1**

## **Quick Installation Guide**

**Version 1.0**

Feb.19, 2019

### **Package List**

PEMUX-XEW1 package includes the following items:

- 1 x PEMUX-XEW1 Single Board Computer
- 1 x mini SAS to 4 SATA Cable
- 1 x QIG (Quick Installation Guide)



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## Specifications

- Form Factor: PEMUX Full-size CPU card (12 layers)
- CPU:  
LGA2066 socket supports Intel® Xeon W processor
- Chipset: Intel® C422
- Memory:  
Four 288-pin Dual-Channel DDR4 ECC RDIMM supported up to 256GB
- BIOS: UEFI BIOS
- Super I/O: Fintek F81216D
- EC: IWDD
- Display Output: 1 x IPMI VGA display
- Ethernet:  
LAN1: 1 GbE NIC: Intel® i210-AT with NCSI support  
LAN2: 10 GbE NIC: Aquantia AQC107
- External I/O Interfaces:  
2 x USB 2.0  
4 x USB 3.1 GEN 1 (5Gb/s)
- Internal I/O Interfaces:  
2 x RS-232 by pin header  
2 x USB 3.1 GEN 1 (5Gb/s) pin header  
1 x USB DOM header  
1 x M.2 2280  
2 x mini SAS SFF-8643 (for 8 x SATA 6Gb/s)
- Front Panel:  
1 x Front Panel  
(Power LED, HDD LED, Speaker, Power Button, Reset Button)
- Audio:  
2 x 5-pin pin header
- TPM:

- 2 x 10-pin pin header
- SMBus: 1 x SMBus to backplane
- Expansion:
  - 56-Lane PCIe signal via golden finger
- Watchdog Timer:
  - Software programmable, supports 1~255 sec. system reset
- Fan Connector:
  - 1 x 4-pin Smart FAN Connector (CPU FAN)
  - 2 x 4-pin Smart FAN Connector (System CPU FAN)
- Power Supply:
  - 5V/12V, AT/ATX support
- Operating Temperature: -20°C ~ 40°C
- Operating Humidity: 5% ~ 95%, non-condensing
- Dimensions: 338.58 mm x 150.5 mm
- Weight (GW/NW): 700g

## Ordering Information

- **PEMUX-XEW1-R10:**  
Full-size PEMUX CPU Card supports LGA2066 Intel® Xeon® W C422, DDR4 ECC RDIMM, VGA, Intel® PCIe GbE, Aquantia 10GbE, USB 3.1 GEN 1 (5Gb/s) , USB 2.0, SATA 6Gb/s, HD Audio, IPMI and RoHS
- **32102-000100-200-RS:** SATA Power Cable
- **CF-2011B-RS:**  
High performance LGA1355/1356/2011 cooler kit, 130W
- **iRIS-2400-R10:**  
IPMI 2.0 adapter card with AST2400 BMC chip for DDR3 SO-DIMM socket interface
- **32037-000600-100-RS:** mini SAS to 4 SATA Cable
- **32005-005000-100-RS:** RS-232 cable

## Jumper Settings and Connectors

LABEL	FUNCTION
J_CMOS1	CMOS Setup Keep / Clear
J_FLASH1	Flash Descriptor Security Override
J_LOAD1	Load Default Connector
F_PANEL1	External Switches and Indicators Panel
CPU_FAN1	CPU Fan Connector
SYS_FAN1/2	System Fan Connectors
J_AUDIO1	Audio Source Connector
VGA1	VGA Connector
TPM1	Trusted Platform Module Connector
CON8	EC Debug Port Connector
M2_M1	M-SATA Card Connector
USB3-1	Internal USB 3.1 GEN 1 (5Gb/s) Connector
COM1/2	Internal Serial Port Connectors
LAN_USB1	External USB 2.0 and RJ-45 LAN Connectors
JSPI1	Flash SPI ROM Connector
EC_SPI1	Flash EC ROM Connector
LAN_CN1	RJ-45 LAN connector
USB_CON1	External USB 3.1 GEN 1 (5Gb/s) Connectors
PSU1	+12V Power Connector

<b>J_CMOS1: CMOS Setup Keep / Clear</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
NC (Default)	Keep CMOS Setup (Normal Operation)
Press button	Clear CMOS Setup

<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_LOAD1: Load Default Connector</b>	
<b>PIN NO.</b>	<b>DESCRIPTION</b>
NC (Default)	GND
Press button	Load Default

<b>F_PANEL1: External Switches and Indicators Panel</b>					
<b>Function</b>	<b>PIN</b>	<b>DESCRIPTION</b>	<b>Function</b>	<b>PIN</b>	<b>DESCRIPTION</b>
PWR LED	1	+5V	SPKR	2	BEEP_PWR
	3	NC	IPMI LED	4	IPMI ID_LED+
	5	GND		6	IPMI ID_LED-
PWR BTN	7	PWRBTN_SW#	SPKR	8	PC_BEEP
	9	GND	RESET	10	NC
HDD LED	11	+5V		12	EXTRST-
	13	SATA_LED#		14	GND

<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>SYS_FAN1/2: System Fan Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	2	+12V
3	FANIO	4	PWM

<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_SDOOUT	4	HDA_SPKR
5	HDA_SDIN	6	HDA_RST#
7	HDA_VCC	8	HDA_GND
9	HDA_+12V	10	HDA_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	DDCDA
13	HSYNC	14	VSYNC
15	DDCCLK		

<b>TPM1: Trusted Platform Module 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>CON8: EC Debug Port 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>USB3-1: Internal USB 3.1 Gen 1 (5Gb/s) Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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		

<b>M2_M1: M-SATA Card Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
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		

<b>COM1/2: Internal Serial Port Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	DCD	6	CTS
2	DSR	7	DTR
3	RXD	8	RI
4	RTS	9	GND
5	TXD		

<b>LAN_USB1: External USB 2.0 and RJ-45 LAN Connectors</b>			
<b>External USB 2.0 Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
U1	VCC	U5	VCC
U2	USB_DATA-	U6	USB_DATA-
U3	USB_DATA+	U7	USB_DATA+
U4	GND	U8	GND
<b>RJ-45 LAN connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
2	LAN_MDI0P	6	LAN_MDI2P
3	LAN_MDI0N	7	LAN_MDI2N
4	LAN_MDI1P	8	LAN_MDI3P
5	LAN_MDI1N	9	LAN_MDI3N
2	LAN_MDI0P	6	LAN_MDI2P

<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	SPI_CLK
5	SPI_SI	6	GND

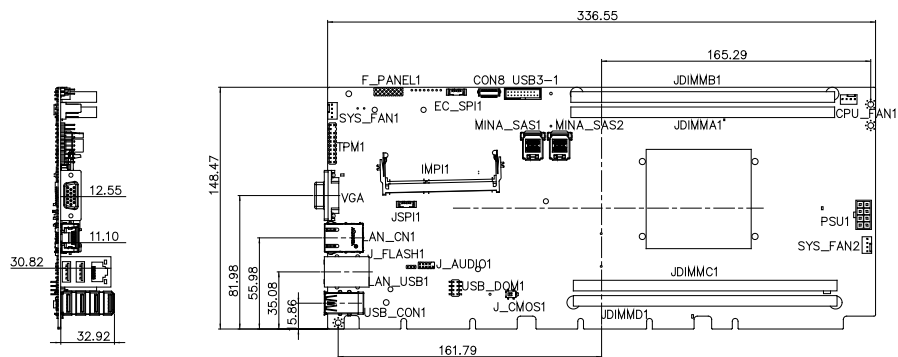
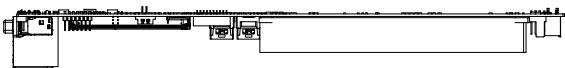
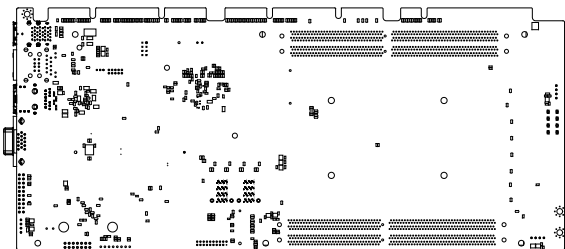
<b>EC_SPI1: Flash EC ROM Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	+3.3V	2	SPI_CS#
3	SPI_SO	4	SPI_CLK
5	SPI_SI	6	GND

<b>LAN_CN1: RJ-45 LAN connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	10G_MDIO+	7	10G_MDIO2+
2	10G_MDIO-	8	10G_MDIO2-
3	10G_MDIO1+	9	10G_MDIO3+
4	10G_MDIO1-	10	10G_MDIO3-

<b>PSU1: +12V Power Connector</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
1	GND	5	12V
2	GND	6	12V
3	GND	7	12V
4	GND	9	12V

<b>USB_CON1: External USB 3.1 Gen 1 (5Gb/s) Connectors</b>			
<b>PIN NO.</b>	<b>DESCRIPTION</b>	<b>PIN NO.</b>	<b>DESCRIPTION</b>
A1	USB_VCC	A2	USB2_D0-
A3	USB2_D0-	A4	GND
A5	USB3_RXD0-	A6	USB3_RXD0+
A7	GND	A8	USB3_TXD0-
A9	USB3_TXD0+		
B1	USB_VCC	B2	USB2_D0-
B3	USB2_D0-	B4	GND
B5	USB3_RXD0-	B6	USB3_RXD0+
B7	GND	B8	USB3_TXD0-
B9	USB3_TXD0+		
C1	USB_VCC	C2	USB2_D0-
C3	USB2_D0-	C4	GND
C5	USB3_RXD0-	C6	USB3_RXD0+
C7	GND	C8	USB3_TXD0-
C9	USB3_TXD0+		
D1	USB_VCC	D2	USB2_D0-
D3	USB2_D0-	D4	GND
D5	USB3_RXD0-	D6	USB3_RXD0+
D7	GND	D8	USB3_TXD0-
D9	USB3_TXD0+		

# Board Layout: Jumper and Connector Locations



(Unit: mm)