EmQ-i2301

Qseven® CPU Module

Quick Installation Guide

Version 1.1

Form Factor	CPU	Video
Qseven® CPU Module	***Intel® Atom™ Processor E3825/E3845***	***Dual-Channel 24-bit LVDS/ Display port/ Analog RGB to GF (Reserved-pin)***

LAN	Audio	I/O
Intel® i210IT PCIe GbE controller	***HD Audio Link***	***USB/ SATA/ PCIex1/ I2C***

♦ Technical Support

If you have any technical difficulties, please consult the user's manual first at:

http://www.arbor-technology.com

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

http://www.arbor-technology.com

E-mail: info@arbor.com.tw

Declaration of Conformity

FCC Class A

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions : (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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Packing List

Before starting with the installation, make sure the following items are shipped:

1 x EmQ-i2301 Qseven® CPU Module

1 x Driver CD

1 x Quick Installation Guide

Specifications

Form Factor	Qseven® CPU Module
CPU	Soldered onboard Intel® Atom™ Processor E3825 dual-core 1.33GHz or E3845 quadcore 1.91GHz
System Memory	Soldered onboard 2GB / 4GB DDR3L SDRAM
VGA/ LCD Controller	SoC Integrated Intel® Gen7 graphic
Ethernet controller	1 x Intel® i210IT PCIe GbE controller
Audio	HD Audio Link
BIOS	Insyde UEFI BIOS
Serial ATA	2 x Serial ATA ports w/ 300MB/s HDD transfer rate
Universal Serial Bus	8 x USB 2.0 ports (Port 0~3 support USB2.0 only)*
Storage	Soldered onboard 16GB eMMC (Optional)**
Graphics Interface	LCD: Dual Channels 24-bit LVDS, resolution up to 1920x1200
	Analog RGB signals (via Qseven® GF reserved pin)
	1 x DDI port
Expansion Bus	3 x PCIe x1 lanes, I2C
Operating Temp.	-20ºC ~ 70ºC (-4ºF ~ 158ºF) for EmQ-i2301
Watchdog Timer	1~ 255 levels Reset
Dimension (L x W)	70 x 70 mm (2.76” x 2.76”)

*Please don’t hot plug USB device with USB port0 to avoid that OS can’t recognize the device (refer to Pin-94&96 in “Connector Pin Definition” on page 8) .
And USB port 0~3 support USB2.0 only (refer to “Connector Pin Definition” on page 8).

**Windows 7 does not include any driver support for eMMC devices. If you select Windows 7 as your OS selection in BIOS, the eMMC device is disabled and grayed out.

Ordering Information

EmQ-i2301-E3825-2G	Intel® Atom™ Processor E3825 Qseven® CPU module with 2GB memory soldered on module
EmQ-i2301-E3845-2G	Intel® Atom™ Processor E3845 Qseven® CPU module with 2GB memory soldered on module
EmQ-i2301-E3825-4G*	Intel® Atom™ Processor E3825 Qseven® CPU module with 4GB memory soldered on module
EmQ-i2301-E3845-4G*	Intel® Atom™ Processor E3845 Qseven® CPU module with 4GB memory soldered on module
EmQ-i2301D-E3825-2G*	Intel® Atom™ Processor E3825 Qseven® CPU module with 2GB memory & 16GB eMMC soldered on CPU module
EmQ-i2301D-E3845-2G*	Intel® Atom™ Processor E3845 Qseven® CPU module with 2GB memory & 16GB eMMC soldered on CPU module
HS-0662-F1	Heat spreader
HS-0000-W3	Universal evaluation Heatsink for Qseven® CPU module
PBQ-3000	Qseven® EPIC evaluation board
CBK-06-3000-00	Cable kit 1 x USB cable 1 x USB2 cable 2 x Serial port cables 1 x SATA cable 1 x SATA power cable

*OEM request

Paths to the Drivers on CD

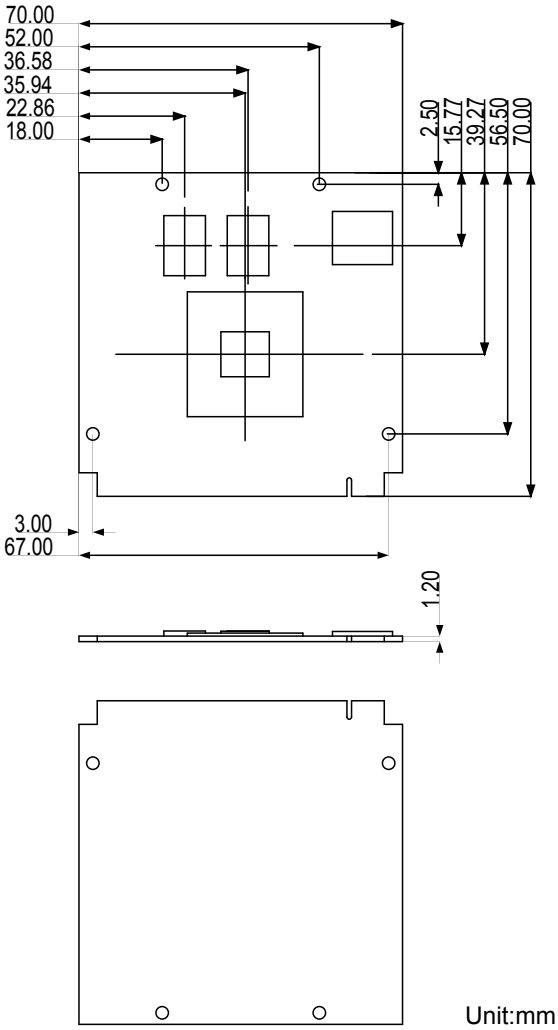
Windows 8.1

Driver	Path
Audio	\Audio\32 bit
	\Audio\64 bit
Chipset	\Chipset\32bit\Chipset Kit 57833 _32
	\Chipset\64bit\Chipset Kit 57833 _64
Ethernet	\Ethernet\Intel\32bit\LAN 18.8.1 _32
	\Ethernet\Intel\64bit\LAN 18.8.1 _64
GPIO/I2C	\GPIO I2C\windows 8 32_64\Intel_Processor_Win8_IO_Drivers_ Gold_MR1
Graphics	\Graphic\win32_153339
	\Graphic\win64_153339
MBI	\MBI\MBI Kit 58443 20140106_windows 8_8.132_64
TXE	\TXE\TXE Kit 100885

Windows 7

Driver	Path
Audio	\Audio\32 bit
	\Audio\64 bit
Chipset	\Chipset\32bit\Chipset Kit 57833 _32
	\Chipset\64bit\Chipset Kit 57833 _64
Ethernet	\Ethernet\Intel\32bit\LAN 18.8.1 _32
	\Ethernet\Intel\64bit\LAN 18.8.1 _64
Graphics	\Graphic\win32_153339
	\Graphic\win64_153339
GPIO/I2C	\GPIO I2C\windows 7 32_64\Intel_Atom_E3800_Processor_Win7_ IO_Drivers_MR1_v4_0
TXE	\TXE\TXE Kit 100885
USB3.0	\USB3.0\SetupUSB3
WINUSB	\USB

Board Dimensions

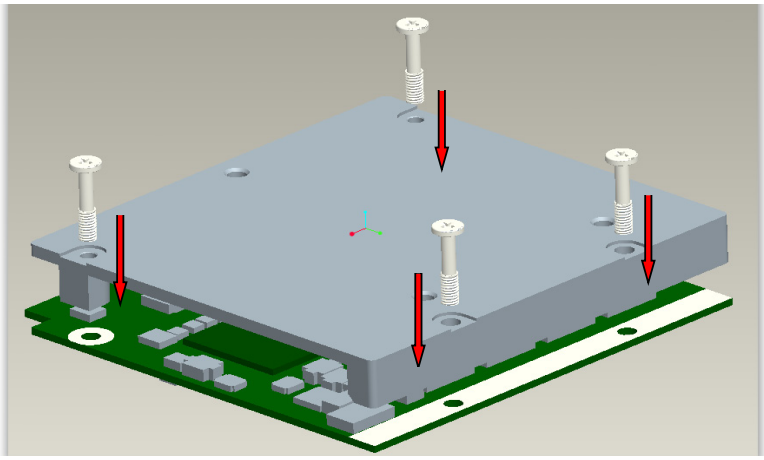


Unit:mm

Heat Spreader Installation

To install the heat spreader:

1. See the illustration below. Mount the heat spreader to the board. Fix the heat spreader in place with fours screws.

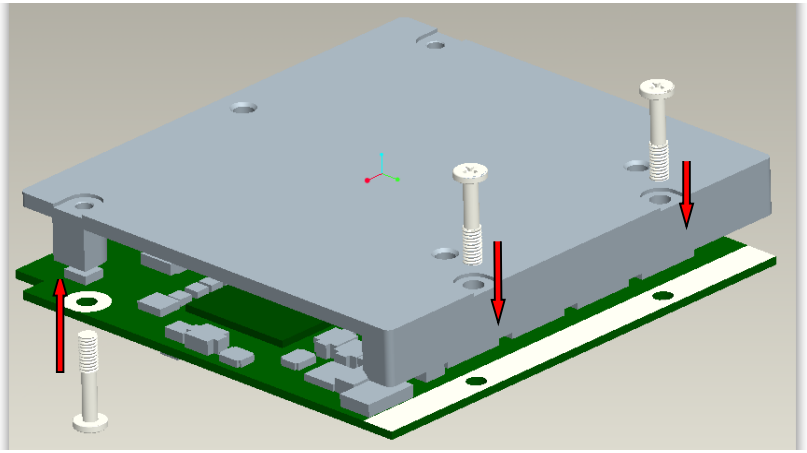


Note there are two approaches to affix the screws:

- Fasten all four screws by top-down direction. See the foregoing illustration.

  OR

- Fasten two screws by top-down direction and the other two by bottom-up direction. See the illustration below.



Connector Pin Assignment

Pin	Signal	Pin	Signal
1	GND	2	GND
3	GBE_MDI3-	4	GBE_MDI2-
5	GBE_MDI3+	6	GBE_MDI2+
7	GBE_LINK100#	8	GBE_LINK1000#
9	GBE_MDI1-	10	GBE_MDI0-
11	GBE_MDI1+	12	GBE_MDI0+
13	GBE_LINK#	14	GBE_ACT#
15	GBE_CTREF	16	SUS_S5#
17	WAKE#	18	SUS_S3#
19	SUS_STAT#	20	PWRBTN#
21	SLP_BTN#	22	LID_BTN#
23	GND	24	GND
	KEY		KEY
25	GND	26	PWGIN
27	BATLOW#	28	RSTBTN#
29	SATA0_TX+	30	SATA1_TX+
31	SATA0_TX-	32	SATA1_TX-
33	SATA_ACT#	34	GND
35	SATA0_RX+	36	SATA1_RX+
37	SATA0_RX-	38	SATA1_RX-
39	GND	40	GND
41	BIOS_DISABLE#	42	SDIO_CLK# (N/C)
43	SDIO_CD# (N/C)	44	SDIO_LED (N/C)
45	SDIO_CMD (N/C)	46	SDIO_WP (N/C)
47	SDIO_PWR# (N/C)	48	SDIO_DAT1 (N/C)
49	SDIO_DAT0 (N/C)	50	SDIO_DAT3 (N/C)
51	SDIO_DAT2 (N/C)	52	SDIO_DAT5 (N/C)
53	SDIO_DAT4 (N/C)	54	SDIO_DAT7 (N/C)
55	SDIO_DAT6 (N/C)	56	RSVD (N/C)
57	GND	58	GND
59	HDA_SYNC	60	SMB_CLK
61	HDA_RST#	62	SMB_DAT
63	HDA_BITCLK	64	SMB_ALERT#

Pin	Signal	Pin	Signal
65	HDA_SDI	66	I2C_CLK
67	HDA_SDO	68	I2C_DAT
69	THRM#	70	WDTRIG#
71	THRMTRIP#	72	WDOUT (N/C)
73	GND	74	GND
75	USB_P7-	76	USB_P6-
77	USB_P7+	78	USB_P6+
79	USB_6_7_OC#	80	USB_4_5_OC#
81	USB_P5-	82	USB_P4-
83	USB_P5+	84	USB_P4+
85	USB_2_3_OC#	86	USB_0_1_OC#
87	USB_P3-	88	USB_P2-
89	USB_P3+	90	USB_P2+
91	USB_HOST_PRES#(N/C)	92	USB_HC_SEL (N/C)
93	USB_P1-	94	USB_P0-
95	USB_P1+	96	USB_P0+
97	GND	98	GND
99	LVDS_A0+	100	LVDS_B0+
101	LVDS_A0-	102	LVDS_B0-
103	LVDS_A1+	104	LVDS_B1+
105	LVDS_A1-	106	LVDS_B1-
107	LVDS_A2+	108	LVDS_B2+
109	LVDS_A2-	110	LVDS_B2-
111	LVDS_PPEN	112	LVDS_BLEN
113	LVDS_A3+	114	LVDS_B3+
115	LVDS_A3-	116	LVDS_B3-
117	GND	118	GND
119	LVDS_A_CLK+	120	LVDS_B_CLK+
121	LVDS_A_CLK-	122	LVDS_B_CLK-
123	LVDS_BLT_CTRL	124	RSVD (N/C)
125	LVDS_DID_DAT	126	CRT_DDC_Data
127	LVDS_DID_CLK	128	CRT_DDC_CLK
129	CAN0_TX (N/C)	130	CAN0_RX (N/C)

Pin	Signal	Pin	Signal
131	DP1_TX3_P	132	SDVO_INT+ (N/C)
133	DP1_TX3_N	134	SDVO_INT- (N/C)
135	GND	136	GND
137	DP1_TX1_P	138	DP1_AUX_C_P
139	DP1_TX1_N	140	DP1_AUX_C_N
141	GND	142	GND
143	DP1_TX2_P	144	SDVO_TVCLKIN+ (N/C)
145	DP1_TX2_N	146	SDVO_TVCLKIN- (N/C)
147	GND	148	GND
149	DP1_TX0_P	150	DP1_AUX_N
151	DP1_TX0_N	152	DP1_AUX_P
153	HDMI_HPD#	154	DP_HPD#
155	PCIE_CLK_REF+	156	PCIE_WAKE#
157	PCIE_CLK_REF-	158	PCIE_RST#
159	GND	160	GND
161	PCIE3_TX+ (N/C)	162	PCIE3_RX+ (N/C)
163	PCIE3_TX- (N/C)	164	PCIE3_RX- (N/C)
165	GND	166	GND
167	PCIE2_TX+	168	PCIE2_RX+
169	PCIE2_TX-	170	PCIE2_RX-
171	EXCD0_PERST#	172	EXCD1_PERST#
173	PCIE1_TX+	174	PCIE1_RX+
175	PCIE1_TX-	176	PCIE1_RX-
177	EXCD0_CPPE#	178	EXCD1_CPPE#
179	PCIE0_TX+	180	PCIE0_RX+
181	PCIE0_TX-	182	PCIE0_RX-
183	GND	184	GND
185	LPC_AD0	186	LPC_AD1
187	LPC_AD2	188	LPC_AD3
189	LPC_CLK	190	LPC_FRAME#
191	SERIRQ	192	LPC_LDRQ# (N/C)
193	VCC_RTC	194	SPKR
195	FAN_TACHOIN (N/C)	196	FAN_PWMOUT (N/C)

Pin	Signal	Pin	Signal
197	GND	198	GND
199	SPI_MOSI	200	SPI_CS0#
201	SPI_MISO	202	SPI_CS1# (N/C)
203	SPI_SCLK	204	CRT_RED
205	VCC_5V_SB	206	VCC_5V_SB
207	CRT_VSYNC	208	CRT_GREEN
209	CRT_HSYNC	210	CRT_BLUE
211	+5V	212	+5V
213	+5V	214	+5V
215	+5V	216	+5V
217	+5V	218	+5V
219	+5V	220	+5V
221	+5V	222	+5V
223	+5V	224	+5V
225	+5V	226	+5V
227	+5V	228	+5V
229	+5V	230	+5V