

QE-E71

Qseven Module

User's Manual

Edition 1.3
2017/11/17



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Any questions please visit our website at <http://www.commell.com.tw>

Packing List:

Please check the package content before you starting using the board.

1 x QE-E71 Qseven module
(include Heat conductive sheet)



Optional :

Cooler Fan

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Chapter 1 <Introduction>

1.1 <Product Overview>

QE-E71 is Qseven module which supports 5th/4th Generation Intel® Core™ U-series i7, i5, i3, Celeron Mobile Processor with Wildcat Point PCH-LP, integrated HD Graphics, DDR3L memory, Realtek High Definition Audio, Intel Gigabit LAN, Serial ATA3 with AHCI function for a system.

Intel Broadwell-U Processor with Wildcat Point PCH-LP

The 5th Generation Intel® Core™ U-series processor family is the next generation and compatible with Haswell-U, multi-core mobile processor built on 14/22 nanometer process with MCP technology.

The Broadwell-U has a lower TDP 15W and 28W, it provides new HD Graphics (GT2 and GT3 GPU) support triple display at the same time, maximum supported is up to 16GB of DDR3L, better performance, flexibility and more enhanced security that is suitable for a variety of intelligent systems the ideal choice.

All in One multimedia solution

The board provides high performance onboard graphics, DDI (Digital Display Interface) which supports DisplayPort, HDMI and DVI, eDP, High Definition Audio, to meet the very requirement of the multimedia application.

Flexible Expansion Interface

The board provides four PCIe x1 to expand PCIe device or PCIe, miniPCIe, ... etc interface or combined into 1 x PCIe x4.

1.2 <Product Specification>

System

Processor	Intel® Broadwell/Haswell Core™ i7, i5, i3, Celeron U-series Processor FCBGA1168 with MCP
Chipset	Wildcat Point-LP
Memory	DDR3L 1600 MHz 2/4GB memory down
Expansion	4 x PCIe x1 or 1 x PCIe x4

Graphics

Chipset	Intel® 5th/4th Gen integrated HD Graphics
Display Interface	1 x DDI for DVI-D or DisplayPort, 1 x eDP

LAN

Chip	1 x Intel® I218-LM Gigabit LAN (Support iAMT10.0)
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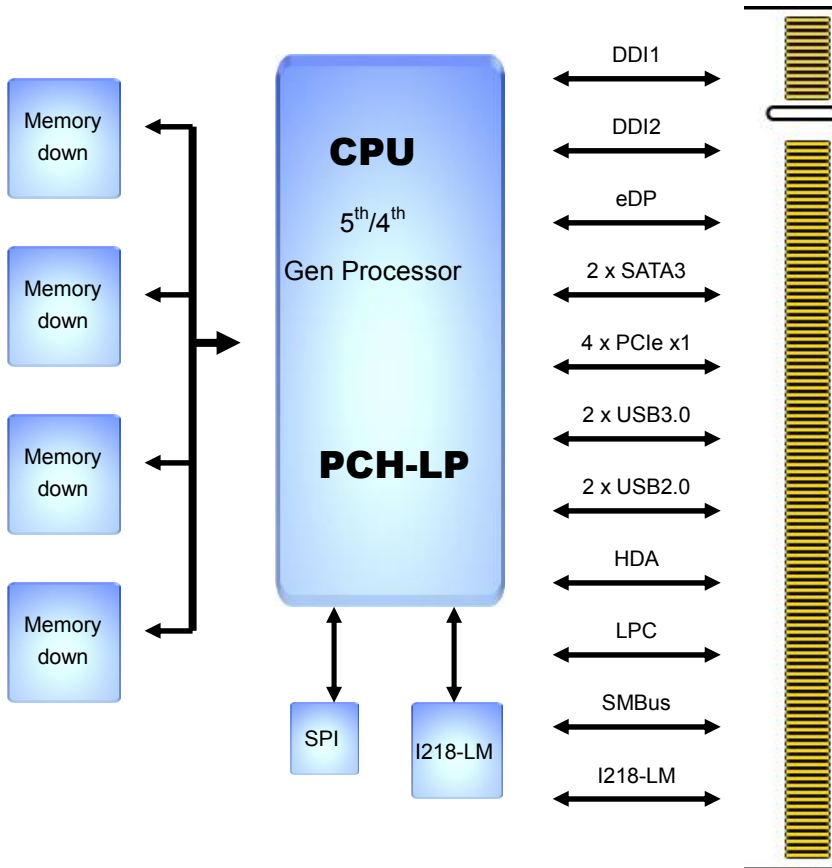
I/O

Audio	Support High Definition Audio Interface
Expansion I/O	2 x SATA3, 2 x USB2.0, 2 x USB3.0, 1 x LPC, 1 x SMBUS

Mechanical & Environmental

Power Requirement	DC input 5V & 5VSB & RTC
Size & Thickness	70mm x 70mm (L x W), 1.2mm
Temperature	Operating within 0°C~60°C (32°F~140°F) Storage within -20°C~80°C (-4°F~176°F)
Relative Humidity	10%~90%, non-condensing

1.4 <Block Diagram>



Chapter 2 <Hardware setup>

2.1 <Qseven interface 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# / BOOT_ALT#	42	SDIO_CLK#
43	SDIO_CD#	44	SDIO_LED
45	SDIO_CMD	46	SDIO_WP
47	SDIO_PWR#	48	SDIO_DAT1
49	SDIO_DAT0	50	SDIO_DAT3
51	SDIO_DAT2	52	SDIO_DAT5
53	SDIO_DAT4	54	SDIO_DAT7
55	SDIO_DAT6	56	RSVD
57	GND	58	GND
59	HDA_SYNC/ I2S_WS	60	SMB_CLK/ GP1_I2C_CLK
61	HDA_RST#/ I2S_RST#	62	SMB_DAT/ GP1_I2C_DAT
63	HDA_BITCLK/ I2S_CLK	64	SMB_ALERT#
65	HDA_SDI/ I2S_SDI	66	GP0_I2C_CLK
67	HDA_SDO/ I2S_SDO	68	GP0_I2C_DAT
69	THRM#	70	WDTRIG#

71	THRMTRIP#	72	WDOUT
73	GND	74	GND
75	USB_P7-/ USB_SSTX0-	76	USB_P6-/ USB_SSRX0-
77	USB_P7+/ USB_SSTX0+	78	USB_P6+/ USB_SSRX0+
79	USB_6_7_OC#	80	USB_4_5_OC#
81	USB_P5-/ USB_SSTX1-	82	USB_P4-/ USB_SSRX1-
83	USB_P5+/ USB_SSTX1+	84	USB_P4+/ USB_SSRX1+
85	USB_2_3_OC#	86	USB_0_1_OC#
87	USB_P3-	88	USB_P2-
89	USB_P3+	90	USB_P2+
91	USB_CC	92	USB_ID
93	USB_P1-	94	USB_P0-
95	USB_P1+	96	USB_P0+
97	GND	98	GND
99	eDP0_TX0+/ LVDS_A0+	100	eDP1_TX0+/ LVDS_B0+
101	eDP0_TX0-/ LVDS_A0-	102	eDP1_TX0-/ LVDS_B0-
103	eDP0_TX1+/ LVDS_A1+	104	eDP1_TX1+/ LVDS_B1+
105	eDP0_TX1-/ LVDS_A1-	106	eDP1_TX1-/ LVDS_B1-
107	eDP0_TX2+/ LVDS_A2+	108	eDP1_TX2+/ LVDS_B2+
109	eDP0_TX2-/ LVDS_A2-	110	eDP1_TX2-/ LVDS_B2-
111	LVDS_PPEN	112	LVDS_BLEN
113	eDP0_TX3+/ LVDS_A3+	114	eDP1_TX3+/ LVDS_B3+
115	eDP0_TX3-/ LVDS_A3-	116	eDP1_TX3-/ LVDS_B3-
117	GND	118	GND
119	eDP0_AUX+/ LVDS_A_CLK+	120	eDP1_AUX+/ LVDS_B_CLK+
121	eDP0_AUX-/ LVDS_A_CLK-	122	eDP1_AUX-/ LVDS_B_CLK-
123	LVDS_BLT_CTRL /GP_PWM_OUT0	124	GP_1-Wire_Bus
125	GP2_I2C_DAT/ LVDS_DID_DAT	126	eDP0_HPD# / LVDS_BLC_DAT
127	GP2_I2C_CLK / LVDS_DID_CLK	128	eDP1_HPD# / LVDS_BLC_CLK
129	CAN0_TX	130	CAN0_RX
131	DP_LANE3+/ TMDS_CLK+	132	RSVD (Differential Pair)
133	DP_LANE3-/ TMDS_CLK-	134	RSVD (Differential Pair)
135	GND	136	GND
137	DP_LANE1+/ TMDS_LANE1+	138	DP_AUX+
139	DP_LANE1-/ TMDS_LANE1-	140	DP_AUX-
141	GND	142	GND
143	DP_LANE2+ / TMDS_LANE0+	144	RSVD (Differential Pair)
145	DP_LANE2- / TMDS_LANE0-	146	RSVD (Differential Pair)
147	GND	148	GND
149	DP_LANE0+ / TMDS_LANE2+	150	HDMI_CTRL_DAT

151	DP_LANE0- / TMD5_LANE2-	152	HDMI_CTRL_CLK
153	DP_HDMI_HPD#	154	RSVD
155	PCIE_CLK_REF+PCIE_CLK_REF+	156	PCIE_WAKE#
157	PCIE_CLK_REF-	158	PCIE_RST#
159	GND	160	GND
161	PCIE3_TX+	162	PCIE3_RX+
163	PCIE3_TX-	164	PCIE3_RX-
165	GND	166	GND
167	PCIE2_TX+	168	PCIE2_RX+
169	PCIE2_TX-	170	PCIE2_RX-
171	UART0_TX	172	UART0_RTS#
173	PCIE1_TX+	174	PCIE1_RX+
175	PCIE1_TX-	176	PCIE1_RX-
177	UART0_RX	178	UART0_CTS#
179	PCIE0_TX+	180	PCIE0_RX+
181	PCIE0_TX-	182	PCIE0_RX-
183	GND	184	GND
185	LPC_AD0 / GPIO0	186	LPC_AD1 / GPIO1
187	LPC_AD2 / GPIO2	188	LPC_AD3 / GPIO3
189	LPC_CLK / GPIO4	190	LPC_FRAME# / GPIO5
191	SERIRQ / GPIO6	192	LPC_LDRQ# / GPIO7
193	VCC_RTC	194	SPKR / GP_PWM_OUT2
195	FAN_TACHOIN / GP_TIMER_IN	196	FAN_PWMOUT / GP_PWM_OUT1
197	GND	198	GND
199	SPI_MOSI	200	SPI_CS0#
201	SPI_MISO	202	SPI_CS1#
203	SPI_SCK	204	MFG_NC4
205	VCC_5V_SB	206	VCC_5V_SB
207	MFG_NC0	208	MFG_NC2
209	MFG_NC1	210	MFG_NC3
211	VCC	212	VCC
213	VCC	214	VCC
215	VCC	216	VCC
217	VCC	218	VCC
219	VCC	220	VCC
221	VCC	222	VCC
223	VCC	224	VCC
225	VCC	226	VCC
227	VCC	228	VCC
229	VCC	230	VCC

Appendix A <Flash BIOS>

A.1 <Flash tool>

The board is based on Phoenix BIOS and can be updated easily by the BIOS auto flash tool. You can download the tool online at the address below:

<http://www.commell.com.tw/Download/BIOS/FPT10.rar>

The tool's file name is "fpt.exe", it's the utility that can write the data into the BIOS flash chip and update the BIOS.

A.2 <Flash BIOS process>

1. Please make a bootable UFD which can boot into DOS environment.
2. Unzip the flash tool and copy it into bootable UFD.
3. Add a bin file to the same folder..
4. Power on the system and flash the BIOS under the DOS environment.
(Command: fpt -savemac -f xxx.bin)
5. Power off the system and then power on.

Appendix B <Installation driver Notes>

B.1 <iAMT(ME) driver>

Before installing, it need to install Microsoft Hotfix KB2685611 first for Win7 32/64 bit. More information please refer

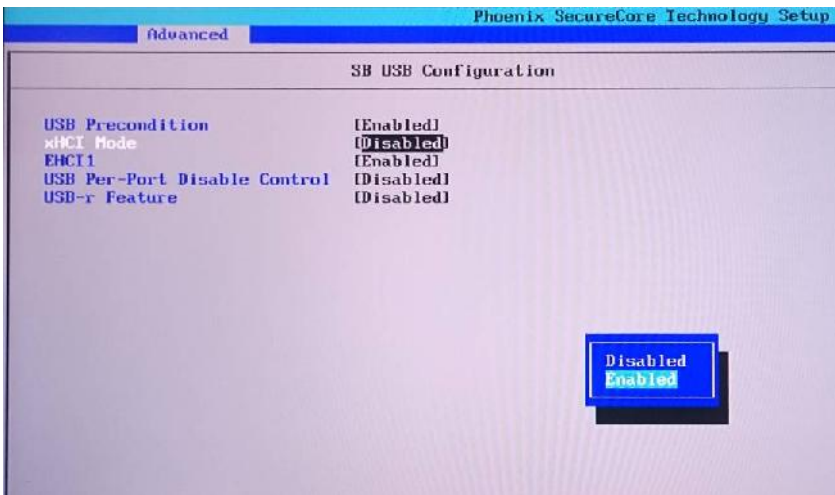
<https://www.microsoft.com/en-us/download/details.aspx?id=38423>

B.2 <USB3.0 driver>

Before Win7 install the USB3.0 driver or use in Win8 and Win8.1, xHCI needs to be enabled in the BIOS.

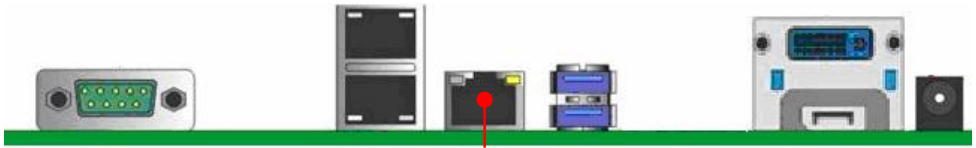
Note that if enable xHCI, all USB port will unusable in Win7. So first need copy driver folder to your HDD, then enable xHCI, and use PS/2 to do install. The path is "X:\Driver\USB3.0\Intel_USB_3.0_xHC_Driver_4.0.0.27_PV"

Advanced > South Bridge Configuration > SB USB Config > xHCI Mode



Appendix C <Using QE-E71 carrier board notes>

Commell LE-5Q0 with QE-E71 rear I/O



I218-LM

The I218-LM Gigabit Ethernet is provided from QE-E71.

Some pins in QE-E71 does not follow the Qseven 2.0 specification (Pin 100, 102, 104, 106, 108, 110, 114, 116, 120, 122, 128. Please see subsection 2.1 red mark pins), these pins do not support eDP signal, replaced by DP signal.

When using Commell LE-5Q0 carrier board, the double layer DP connector **only upper side** has function, lower side is NC.

The QE-E71 has onboard SPI (BIOS flash ROM), if carrier board also has SPI, it must be disabled QE-E71 onboard SPI. (Use Pin 39)

Contact information

Any advice or comment about our products and service, or anything we can help you please don't hesitate to contact with us. We will do our best to support you for your products, projects and business.

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