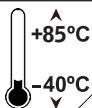


**Wide Operating
Temperature**



EmETXe-i90M3

COM Express® Basic Type 6 CPU Module Quick Installation Guide

Version 1.0

Form Factor <i>COM Express® Basic Type 6 CPU Module</i>	CPU <i>6th Gen. Intel® Core™ i7- 7820EQ/i5-7442EQ/Xeon E3-1505L v6</i>	Video <i>24-bit Dual Channels LVDS/ VGA/DDI</i>
LAN <i>Intel® i219LM PCIe GbE PHY with iAMT</i>	Audio <i>HD Audio Link</i>	I/O <i>USB / SATA/ PCIe / I2C/ GPIO / UART</i>

◆ Technical Support

If you have any technical difficulties, please consult the user's manual first on our website.

<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.

E-mail: info@arbor.com.tw

FCC Class B

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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COM Express supports seven pin-out Type applying to Basic and Extended form factors:

Module Type 1 and 10 support single connector with two rows of pins (220 pins)

Module Type 2, 3, 4, 5 and 6 support two connectors with four rows of pins (440 pins) Connector placement and most mounting holes have transparency between Form Factors.

The differences among the Module Type 6 and EmETXe-i90M3 are summarized in table below:

Module Type	Standard Type 6	EmETXe-i90M3
Connectors	2	2
Connector Rows	A, B, C, D	A, B, C, D
PCIe Lanes (Max)	24	24
LAN (Max)	1	1
Serial Ports (Max)	2	2
Digital Display I/F (Max)	3	2
USB 3.0 Ports (Max)	4	4

Packing List

Before you begin installing your single board, please make sure that the following materials have been shipped:



1 x EmETXe-i90M3 COM Express CPU Module



1 x Quick Installation Guide

If any of the above items is damaged or missing, contact your vendor immediately.

Specifications

System	
CPU	Soldered onboard 7 th Generation Intel® Core™ i7-7820EQ 3.7GHz/i5-7442EQ 2.9GHz/Xeon E3-1505L v6 3.0GHz processor
Chipset	Intel QM175 PCH/CM238
Memory	2 x DDR4 SO-DIMM sockets
BIOS	AMI UEFI BIOS
Watchdog Timer	1~255 levels reset
I/O	
USB Port	12 x USB ports: - 8 x USB 2.0 ports - 4 x USB 3.0 ports
Serial Port	2 x UART ports (RX/TX only)
Expansion Bus	8 x PCIe x1 lanes, 1 x PCIe x16 lane, I2C Interface, GPIO
Storage	4 x Serial ATA ports with 600MB/s HDD transfer rate
Ethernet Chipset	1 x Intel® i219LM PCIe GbE PHY
Audio	HD audio link
TPM	Supports TPM (OEM Request)
Display	
Graphic Chipset	Integrated Intel® HD Graphics 630/P630
Graphic Interface	LCD: Dual Channels 24-bit LVDS
	Analog RGB
	2 x DDI ports
Mechanical & Environmental	
Power Requirement	8.5V~20V +/- 5% wide range voltage input, +5VSB
Power Consumption	4.31A@12V (i7-7820EQ Typical)
Operating Temp.	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10 ~ 95% @ 85°C (non-condensing)
Dimensions (L x W)	125 x 95 mm (4.9" x 3.7")

Ordering Information

EmETXe-i90M3-WT-7820EQ	WT COMe Type 6 Basic CPU Module,Kabylake-H,i7-7820EQ,w/VGA, -40 ~ 85°C
EmETXe-i90M3-WT-7442EQ	WT COMe Type 6 Basic CPU Module,Kabylake-H,i5-7442EQ,w/VGA,-40 ~ 85°C
EmETXe-i90M3-WT-1505LV6	WT COMe Type 6 Basic CPU Module,Kabylake-H,Xeon,E3-1505L v6,w/ VGA,-40 ~ 85°C

Optional Accessories

HS-90M0-C1	Heat sink with Fan, with PAD(125x95x38mm)
PBE-1705-F1	COM Express® Type 6 evaluation carrier board with SIO F71869ED module in ATX form factor
CBK-03-1705-00	Cable kit 1 x SATA cable 2 x COM Flat cables

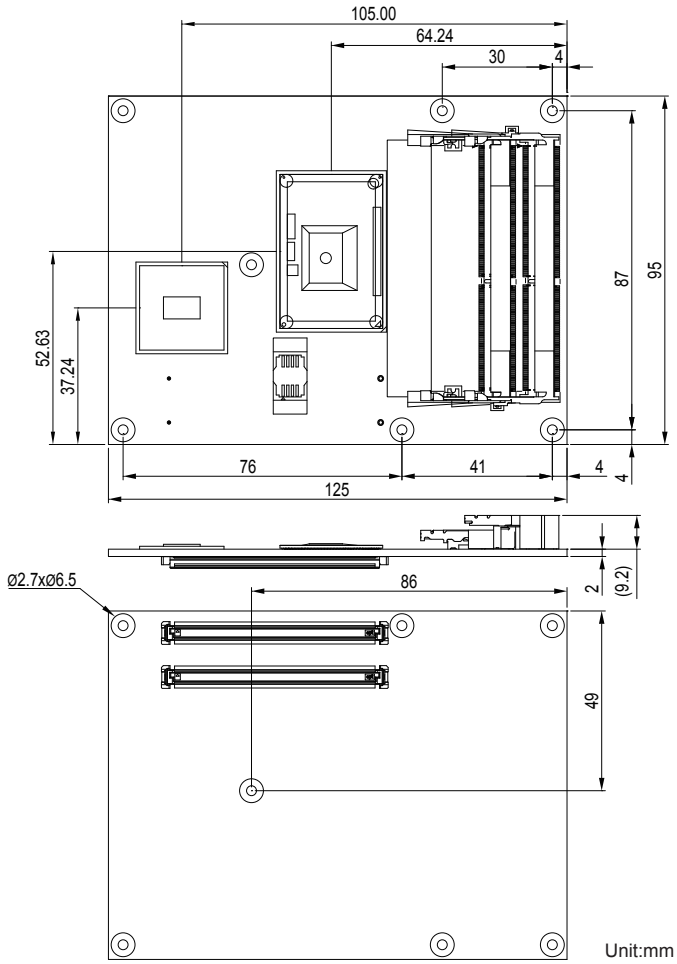
Driver(6.8A) Installation

To install the drivers, please visit our website at www.arbor.technology.com and download the driver pack from the product page.

Windows 10 64-bit

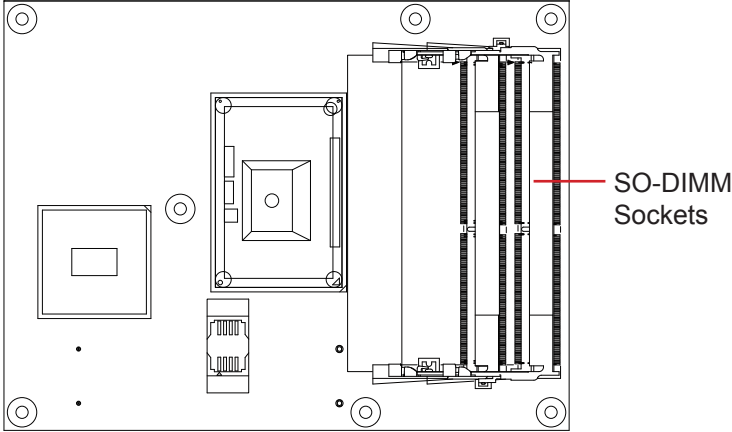
Driver	Path
Chipset	\\EmETXe-i90x0\Chipset
Graphic	\\EmETXe-i90x0\Graphic\win64
Audio	\\EmETXe-i90x0\Audio\Win10_Win8.1_Win8_Win7_WHQLx64
Ethernet	\\EmETXe-i90x0\Ethernet
ME	\\EmETXe-i90x0\ME
RST	\\EmETXe-i90x0\RST\SetupRST

Board Dimensions

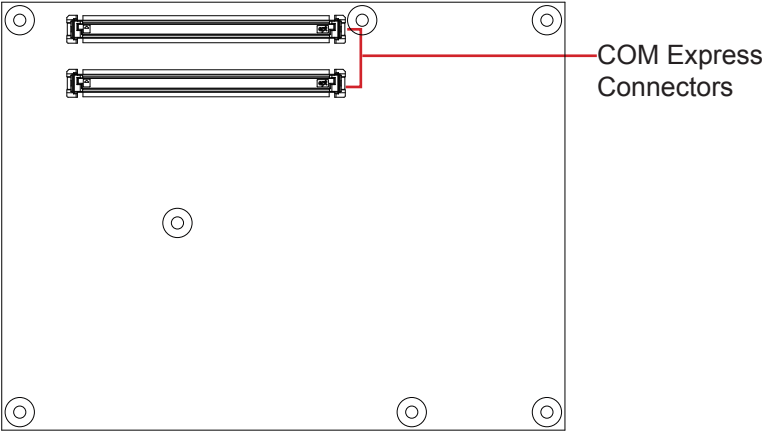


Connectors Quick Reference

Top Side



Bottom Side



COM Express AB Connector (bottom side)

B1	GND (FIXED)	GND (FIXED)	A1	B56	PCIE_RX9-	PCIE_TX9-	A56
B2	GBE0_ACT#	GBE0_MDI3-	A2	B57	DIO_6	GND	A57
B3	LPC_FRAME#	GBE0_MDI3+	A3	B58	PCIE_RX4+	PCIE_TX4+	A58
B4	LPC_AD0	GBE0_LINK100#	A4	B59	PCIE_RX4-	PCIE_TX4-	A59
B5	LPC_AD1	GBE0_LINK1000#	A5	B60	GND	GND	A60
B6	LPC_AD2	GBE0_MDI2-	A6	B61	PCIE_RX3+	PCIE_TX3+	A61
B7	LPC_AD3	GBE0_MDI2+	A7	B62	PCIE_RX3-	PCIE_TX3-	A62
B8	LPC_DRQ0#	GBE0_LINK#	A8	B63	DIO_7	DIO_1	A63
B9	LPC_DRQ1#	GBE0_MDI1-	A9	B64	PCIE_RX2+	PCIE_TX2+	A64
B10	LPC_CLK	GBE0_MDI1+	A10	B65	PCIE_RX2-	PCIE_TX2-	A65
B11	GND (FIXED)	GND (FIXED)	A11	B66	PCH_WAKE#	GND	A66
B12	CB_PWRBTN#	GBE0_MDI0-	A12	B67	EC_WAKE_IN#	DIO_2	A67
B13	CB_SMB_CLK	GBE0_MDI0+	A13	B68	PCIE_RX1+	PCIE_TX1+	A68
B14	CB_SMB_DAT	N/C	A14	B69	PCIE_RX1-	PCIE_TX1-	A69
B15	CB_SMB_ALERT#	SLP_S3#	A15	B70	GND	GND	A70
B16	SATA1_TX+	SATA0_TX+	A16	B71	LVDSB_DATA0+	LVDSA_DATA0+	A71
B17	SATA1_TX-	SATA0_TX-	A17	B72	LVDSB_DATA0-	LVDSA_DATA0-	A72
B18	SUS_STAT#	SLP_S4#	A18	B73	LVDSB_DATA1+	LVDSA_DATA1+	A73
B19	SATA1_RX+	SATA0_RX+	A19	B74	LVDSB_DATA1-	LVDSA_DATA1-	A74
B20	SATA1_RX-	SATA0_RX-	A20	B75	LVDSB_DATA2+	LVDSA_DATA2+	A75
B21	GND (FIXED)	GND (FIXED)	A21	B76	LVDSB_DATA2-	LVDSA_DATA2-	A76
B22	SATA3_TX+	SATA2_TX+	A22	B77	LVDSB_DATA3+	LVDS_VDD_EN	A77
B23	SATA3_TX-	SATA2_TX-	A23	B78	LVDSB_DATA3-	LVDSA_DATA3+	A78
B24	CB_PWROK	SLP_S5#	A24	B79	LVDSBKLTEN	LVDSA_DATA3-	A79
B25	SATA3_RX+	SATA2_RX+	A25	B80	GND	GND	A80
B26	SATA3_RX-	SATA2_RX-	A26	B81	LVDSB_CLK+	LVDSA_CLK+	A81
B27	WDT	PM_BATLOW#	A27	B82	LVDSB_CLK-	LVDSA_CLK-	A82
B28	N/C	SATALED-	A28	B83	COM_BKLT_CTRL	LVDS_EDP_AUXP	A83
B29	HDA_SDIN1	HDA_SYNC	A29	B84	VCC_5V_SBY	LVDS_DAT_EDP_AUXN	A84
B30	HDA_SDIN0	HDA_RST#	A30	B85	VCC_5V_SBY	DIO_3	A85
B31	GND	GND	A31	B86	VCC_5V_SBY	H_RCIN	A86
B32	SPKR	HDA_BITCLK	A32	B87	VCC_5V_SBY	EDP_HPD(Optional)	A87
B33	I2C_CK	HDA_SDOUT	A33	B88	BIOS_DISABLE1#	COM_CLK+	A88
B34	I2C_DAT	BIOS_DISABLE0#	A34	B89	CRT_RED	COM_CLK-	A89
B35	THR#	CB_TRIP#	A35	B90	GND	GND	A90
B36	USB7-	USB6+	A36	B91	CRT_GREEN	SPI_POWER	A91
B37	USB7+	USB6+	A37	B92	CRT_BLUE	SPI_MISO	A92
B38	USB_4_5_OC#	USB_6_7_OC#	A38	B93	CRT_HSYNC	DIO_4	A93
B39	USB5-	USB4-	A39	B94	CRT_VSYNC	SPI_CS	A94
B40	USB5+	USB4+	A40	B95	CRT_DDC_CLK	SPI_MOSI	A95
B41	GND	GND	A41	B96	CRT_DDC_DATA	COM_TPM_PP	A96
B42	USB3-	USB2-	A42	B97	SPL_CS1#	N/C	A97
B43	USB3+	USB2+	A43	B98	N/C	UART_TX0	A98
B44	USB_0_1_OC#	USB_2_3_OC#	A44	B99	N/C	UART_RX0	A99
B45	USB1-	USB0-	A45	B100	GND	GND	A100
B46	USB1+	USB0+	A46	B101	FAN_PWMOUT	UART_TX1	A101
B47	PLTRST#_BUFF	VRTC_BT#	A47	B102	FAN_TACHIN	UART_RX1	A102
B48	EXCD1_CCPE#	PLTRST#_BUFF	A48	B103	SLEEP#	LID#	A103
B49	SYS_RESET#	EXCD0_CCPE#	A49	B104	VCC_12V	VCC_12V	A104
B50	CB_RESET#	LPC_SERIRQ	A50	B105	VCC_12V	VCC_12V	A105
B51	GND	GND	A51	B106	VCC_12V	VCC_12V	A106
B52	PCIE_RX10+	PCIE_TX10+	A52	B107	VCC_12V	VCC_12V	A107
B53	PCIE_RX10-	PCIE_TX10-	A53	B108	VCC_12V	VCC_12V	A108
B54	DIO_5	DIO_0	A54	B109	VCC_12V	VCC_12V	A109
B55	PCIE_RX9+	PCIE_TX9+	A55	B110	GND	GND	A110

COM Express CD Connector (bottom side)

D1	GND (FIXED)	GND (FIXED)	C1	D56	PEG_TX1-	PEG_RX1-	C56
D2	GND	GND	C2	D57	TYPE2#	N/C	C57
D3	USB3_TX1-	USB3_RX1-	C3	D58	PEG_TX2+	PEG_RX2+	C58
D4	USB3_TX1+	USB3_RX1+	C4	D59	PEG_TX2-	PEG_RX2-	C59
D5	GND	GND	C5	D60	GND (FIXED)	GND (FIXED)	C60
D6	USB3_TX2-	USB3_RX2-	C6	D61	PEG_TX3+	PEG_RX3+	C61
D7	USB3_TX2+	USB3_RX2+	C7	D62	PEG_TX3-	PEG_RX3-	C62
D8	GND	GND	C8	D63	N/C	N/C	C63
D9	USB3_TX3-	USB3_RX3-	C9	D64	N/C	N/C	C64
D10	USB3_TX3+	USB3_RX3+	C10	D65	PEG_TX4+	PEG_RX4+	C65
D11	GND (FIXED)	GND (FIXED)	C11	D66	PEG_TX4-	PEG_RX4-	C66
D12	USB3_TX4-	USB3_RX4-	C12	D67	GND	N/C	C67
D13	USB3_TX4+	USB3_RX4+	C13	D68	PEG_TX5+	PEG_RX5+	C68
D14	GND	GND	C14	D69	PEG_TX5-	PEG_RX5-	C69
D15	DDI2_CTRLCLK_AUX+	N/C	C15	D70	GND (FIXED)	GND (FIXED)	C70
D16	DDI2_CTRLCLK_AUX-	N/C	C16	D71	PEG_TX6+	PEG_RX6+	C71
D17	N/C	N/C	C17	D72	PEG_TX6-	PEG_RX6-	C72
D18	N/C	N/C	C18	D73	GND	GND	C73
D19	PCI_E_TX11+	PCI_E_RX11+	C19	D74	PEG_TX7+	PEG_RX7+	C74
D20	PCI_E_TX11-	PCI_E_RX11-	C20	D75	PEG_TX7-	PEG_RX7-	C75
D21	GND(FIXED)	GND(FIXED)	C21	D76	GND	GND	C76
D22	PCI_E_TX12+	PCI_E_RX12+	C22	D77	N/C	N/C	C77
D23	PCI_E_TX12-	PCI_E_RX12-	C23	D78	PEG_TX8+	PEG_RX8+	C78
D24	N/C	DPB_HPD	C24	D79	PEG_TX8-	PEG_RX8-	C79
D25	N/C	N/C	C25	D80	GND (FIXED)	GND (FIXED)	C80
D26	DDI2_PAIR0+	N/C	C26	D81	PEG_TX9+	PEG_RX9+	C81
D27	DDI2_PAIR0-	N/C	C27	D82	PEG_TX9-	PEG_RX9-	C82
D28	N/C	N/C	C28	D83	N/C	N/C	C83
D29	DDI2_PAIR1+	N/C	C29	D84	GND	GND	C84
D30	DDI2_PAIR1-	N/C	C30	D85	PEG_TX10+	PEG_RX10+	C85
D31	GND(FIXED)	GND (FIXED)	C31	D86	PEG_TX10-	PEG_RX10-	C86
D32	DDI2_PAIR2+	DDI3_CLK_AUX+	C32	D87	GND	GND	C87
D33	DDI2_PAIR2-	DDI3_DATA_AUX+	C33	D88	PEG_TX11+	PEG_RX11+	C88
D34	DDI2_DDC_AUX_SEL	DDI3_DDC_AUX_SEL	C34	D89	PEG_TX11-	PEG_RX11-	C89
D35	N/C	N/C	C35	D90	GND (FIXED)	GND (FIXED)	C90
D36	DDI2_PAIR3+	N/C	C36	D91	PEG_TX12+	PEG_RX12+	C91
D37	DDI2_PAIR3-	N/C	C37	D92	PEG_TX12-	PEG_RX12-	C92
D38	N/C	N/C	C38	D93	GND	GND	C93
D39	DDI3_PAIR0+	N/C	C39	D94	PEG_TX13+	PEG_RX13+	C94
D40	DDI3_PAIR0-	N/C	C40	D95	PEG_TX13-	PEG_RX13-	C95
D41	GND(FIXED)	GND(FIXED)	C41	D96	GND	GND	C96
D42	DDI3_PAIR1+	N/C	C42	D97	N/C	N/C	C97
D43	DDI3_PAIR1-	N/C	C43	D98	PEG_TX14+	PEG_RX14+	C98
D44	DPC_HPD	N/C	C44	D99	PEG_TX14-	PEG_RX14-	C99
D45	N/C	N/C	C45	D100	GND (FIXED)	GND (FIXED)	C100
D46	DDI3_PAIR2+	N/C	C46	D101	PEG_TX15+	PEG_RX15+	C101
D47	DDI3_PAIR2-	N/C	C47	D102	PEG_TX15-	PEG_RX15-	C102
D48	N/C	N/C	C48	D103	GND	GND	C103
D49	DDI3_PAIR3+	N/C	C49	D104	VCC_12V	VCC_12V	C104
D50	DDI3_PAIR3-	N/C	C50	D105	VCC_12V	VCC_12V	C105
D51	GND (FIXED)	GND (FIXED)	C51	D106	VCC_12V	VCC_12V	C106
D52	PEG_TX0+	PEG_RX0+	C52	D107	VCC_12V	VCC_12V	C107
D53	PEG_TX0-	PEG_RX0-	C53	D108	VCC_12V	VCC_12V	C108
D54	PEG_LANE_RV#	N/C	C54	D109	VCC_12V	VCC_12V	C109
D55	PEG_TX1+	PEG_RX1+	C55	D110	GND (FIXED)	GND (FIXED)	C110