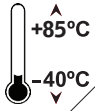
Wide Operating Temperature



EmETXe-i89M3

COM Express® Basic Type 6 CPU Module

Quick Installation Guide

Version 1.2

Form Factor	CPU	Video
COM Express® Basic Type 6 CPU Module	*6th Gen. Intel® Core™ i7-6822EQ / i5-6442EQ / Xeon E3-1505L v5 / E3-1505M v5*	*24-bit Dual Channels LVDS/ DDI/VGA*

LAN	Audio	I/O
Intel® i219LM PCIe GbE PHY with iAMT	*HD Audio Link*	*USB 2.0 / SATA/ PCIe/ I2C/ GPIO/UART*

♦ Technical Support

If you need technical support with the product, please contact us via our web-site or email:

https://www.arbor-technology.com/

E-mail:info@arbor.com.tw

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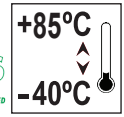


COM Express supports seven pin-out Type applying to Basic and Extended form factors:
Module Type 1 and 10 support single connector with two rows of pins (220 pins) Module Type 2, 3, 4, 5 and 6 support two connectors with four rows of pins (440 pins) Connector placement and most mounting holes have transparency between Form Factors.
The differences among the Module Type 6 and EmETXe-i89M3 are summarized in table below:

Module Type	Standard Type 6	EmETXe-i89M3
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-i89M3 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 6th Generation Intel® Core™ i7-6822EQ 2.8GHz / i5-6442EQ 2.7GHz / Xeon E3-1505L v5 / E3-1505M v5 2.8GHz
Chipset	Intel® PCH QM170 for i7-6822EQ / i5-6442EQ CM236 for Xeon E3-1505L v5 / E3-1505M v5
Memory	2 x DDR4 SO-DIMM sockets
BIOS	AMI UEFI BIOS
Watchdog Timer	1~255 levels reset
I/O	
USB Port	8 x USB 2.0 ports
	4 x USB 3.0 ports
Serial Port	2 x UART ports (RX/TX only)
Storage	4 x Serial ATA ports with 600MB/s HDD transfer rate
Expansion Bus	8 x PCIe x1 lanes, 1 x PCIe x16 lane,I2C Interface,GPIO
Ethernet Chipset	1 x Intel® i219LM PCIe GbE PHY with iAMT
Audio	HD audio link
TPM	TPM supported (OEM request)
Display	
Graphics Chipset	Intergrated Intel® HD Graphics 530
Graphics Interface	LCD: Dual Channels 24-bit LVDS
	Analog RGB
	2 x DDI ports
Mechanical & Environmental	
Power Requirement	5V~20V +/- 5% wide range voltage input, +5VSB
Power Consumption	2.07A@12V(i7-6822EQ typical)
Operating Temp.	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10 ~ 95% @ 85ºC (non-condensing)
Dimension (L x W)	125 x 95 mm (4.9” x 3.7”)

Ordering Information

EmETXe-i89M3-WT-6822EQ	WT COMe Type 6 Basic CPU Module, i7-6822EQ, w/ VGA, -40 ~ 85°C
EmETXe-i89M3-WT-6442EQ	WT COMe Type 6 Basic CPU Module, i5-6442EQ, w/ VGA, -40 ~ 85°C
EmETXe-i89M3-WT-1505L	WT COMe Type 6 Basic CPU Module, E3-1505L v5, w/ VGA, -40 ~ 85°C
EmETXe-i89M3-WT-1505M	WT COMe Type 6 Basic CPU module, E3-1505M v5, w/ VGA, -40 ~ 85°C

Optional Accessories

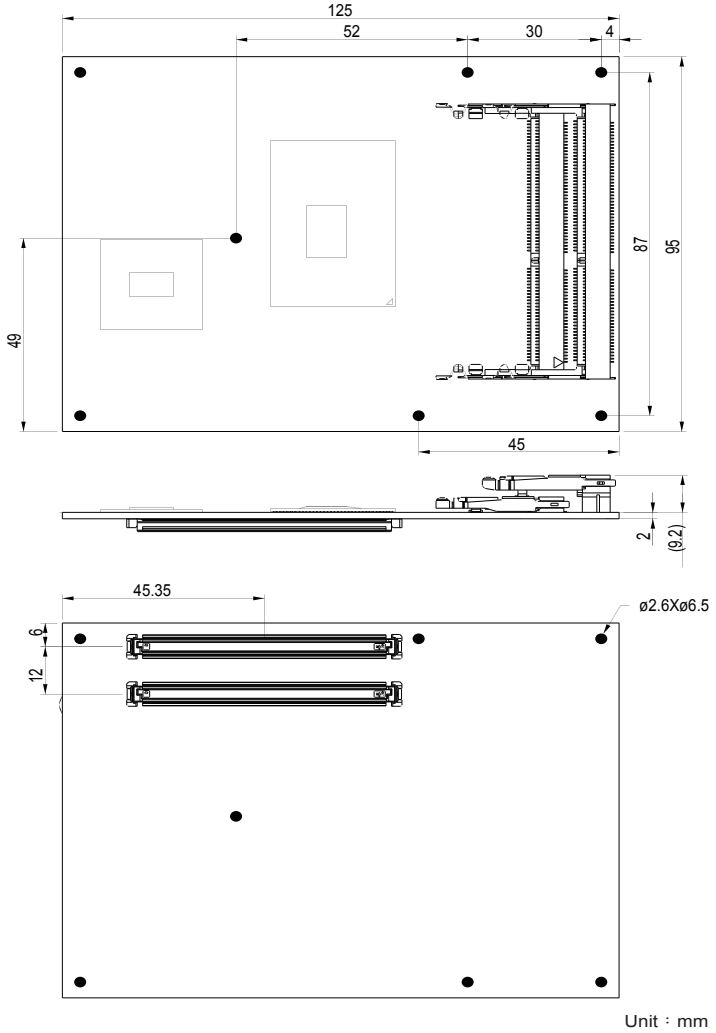
HS-89M0-C1	Heat sink with FAN 125x95x35mm
HS-89M0-F1	Heat spreader with PAD 125x95x18mm
PBE-1705-F1	COM Express® Type 6 evaluation carrier board with SIO F71869ED module in ATX form factor
CBK-03-1705-00	Cable kit • 1 x SATA cable • 2 x COM Flat cables

Driver(6.6A) Installation

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

Driver	Path
Chipset	\i89X\Chipset\Chipset_10.1.1.13_Public
Graphic	\i89X\Graphic\IntelR Graphics Driver Production Version 15.40.16.64.4364
Audio	\i89X\Audio\7687_PG436_Win10_Win8.1_Win8_Win7_WHQLx64
Ethernet	\i89X\Ethernet
USB3.0	\i89X\USB3.0\win8.1 64bit\Intel_USB_3.0_xHC_Adaptation_Driver_MR1_Release_1.0.1.45_PV **(For Win 8.1 only)**
ME	\i89X\ME\Intel(R)_ME_11.0_Corporate_11.0.0.1202
RAID	\i89X\RAID\Intel Rapid Storage Technology Driver 14.8.0.1042

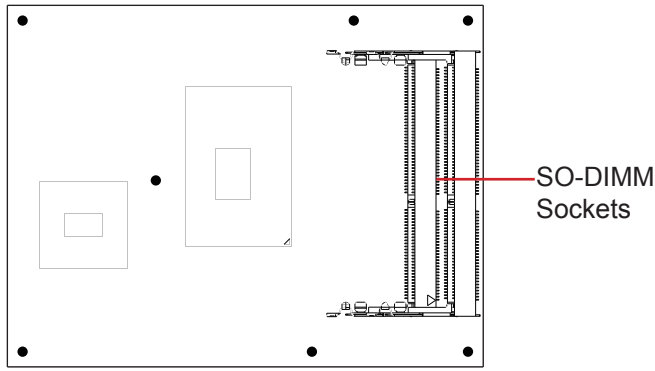
Board Dimensions



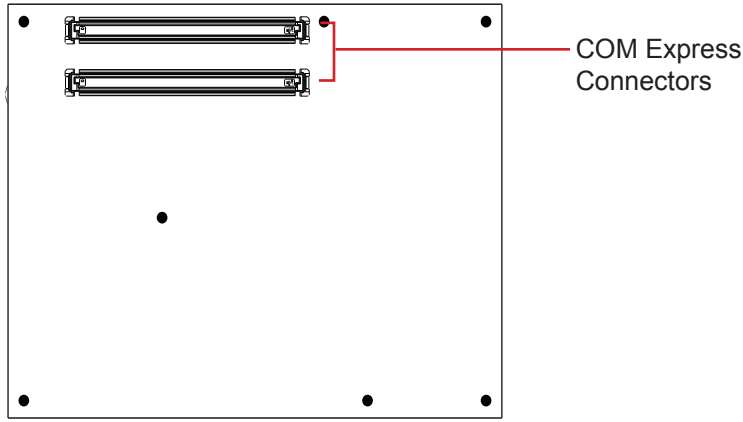
Unit：mm

Connectors Quick Reference

Top Side



Bottom Side



COM Express AB Connector (bottom side)

B1	GND (FIXED)	GND (FIXED)	A1
B2	LAN_LED_LNK#	LAN1_MDI3N	A2
B3	LPC_FRAME#	LAN1_MDI3P	A3
B4	LPC_AD0	LAN_LED_100#	A4
B5	LPC_AD1	LAN_LED_1000#	A5
B6	LPC_AD2	LAN1_MDI2N	A6
B7	LPC_AD3	LAN1_MDI2P	A7
B8	LPC_DRQ0-	LAN_LED_LNK#	A8
B9	LPC_DRQ1-	LAN1_MDI1N	A9
B10	LPC_CLK	LAN1_MDI1P	A10
B11	GND (FIXED)	GND (FIXED)	A11
B12	PWRBTN#	LAN1_MDI0N	A12
B13	CB_SMB_CLK	LAN1_MDI0P	A13
B14	CB_SMB_DATA	N/C	A14
B15	CB_SMB_ALERT#	SLP_S3#	A15
B16	SATA_TXP1_C	SATA_TXP0_C	A16
B17	SATA_TXN1_C	SATA_TXN0_C	A17
B18	SUS_STAT#	SLP_S4#	A18
B19	SATA_RXP1_N	SATA_RXP0_C	A19
B20	SATA_RXN1_C	SATA_RXN0_C	A20
B21	GND (FIXED)	GND (FIXED)	A21
B22	SATA_TXP3_C	SATA_TXP2_C	A22
B23	SATA_TXN3_C	SATA_TXN2_C	A23
B24	CB_PWROK	SLP_S5#	A24
B25	SATA_RXP3_C	SATA_RXP2_C	A25
B26	SATA_RXN3_C	SATA_RXN2_C	A26
B27	WDT	PM_BATLOW#	A27
B28	N/C	SATALED-	A28
B29	HDA_SDIN1	HDA_SYNC	A29
B30	HDA_SDIN0	HDA_RST-	A30
B31	GND	GND	A31
B32	SPKR	HDA_BIT_CLK	A32
B33	I2C_CLK	HDA_SDOUT	A33
B34	I2C_DAT	BIOS_DISABLE0#	A34
B35	THRM#	CB_TRIP#	A35
B36	USBP_7N	USBN_6N	A36
B37	USBP_7P	USBN_6P	A37
B38	USBOC_45-	USBOC_67-	A38
B39	USBP_5N	USBN_4N	A39
B40	USBP_5P	USBN_4P	A40
B41	GND	GND	A41
B42	USBP_3N	USBN_2N	A42
B43	USBP_3P	USBN_2P	A43
B44	USBOC_01-	USBOC_23-	A44
B45	USBP_1N	USBN_0N	A45
B46	USBP_1P	USBN_0P	A46
B47	PLTRST#_BUFF	VRTC_BTB	A47
B48	EXCD1_CPPE#	PLTRST#_BUFF	A48
B49	CB_SYSRST#	EXCD0_CPPE#	A49
B50	CB_RESET#	LPC_SERIRQ	A50
B51	GND	GND	A51
B52	PCIE_RXP10	PCIE_TXP10	A52
B53	PCIE_RXN10	PCIE_TXN10	A53
B54	DIO_5	DIO_0	A54
B55	PCIE_RXP9	PCIE_TXP9	A55

B56	PCIE_RXN9	PCIE_TXN9	A56
B57	DIO_6	GND	A57
B58	PCIE_RXP4	PCIE_TXP4	A58
B59	PCIE_RXN4	PCIE_TXN4	A59
B60	GND	GND	A60
B61	PCIE_RXP3	PCIE_TXP3	A61
B62	PCIE_RXN3	PCIE_TXN3	A62
B63	DIO_7	DIO_1	A63
B64	PCIE_RXP2	PCIE_TXP2	A64
B65	PCIE_RXN2	PCIE_TXN2	A65
B66	PCH_WAKE#	GND	A66
B67	EC_WAKE_IN#	DIO_2	A67
B68	PCIE_RXP1	PCIE_TXP1	A68
B69	PCIE_RXN1	PCIE_TXN1	A69
B70	GND	GND	A70
B71	LVDSB_DATA0	LVDSA_DATAP0	A71
B72	LVDSB_DATA0-	LVDSA_DATAN0	A72
B73	LVDSB_DATA1	LVDSA_DATAP1	A73
B74	LVDSB_DATA1-	LVDSA_DATAN1	A74
B75	LVDSB_DATA2	LVDSA_DATAP2	A75
B76	LVDSB_DATA2-	LVDSA_DATAN2	A76
B77	LVDSB_DATA3	LVDS_VDD_EN	A77
B78	LVDSB_DATA3-	LVDSA_DATA3	A78
B79	LVDS_BKLTEN	LVDSA_DATA3-	A79
B80	GND	GND	A80
B81	LVDSB_CLK	LVDSA_CLKP	A81
B82	LVDSB_CLK-	LVDSA_CLKN	A82
B83	LVDS_BKLT_CTRL	LVDS_DDC_CK	A83
B84	VCC_5V_SBY	LVDS_DDC_DAT	A84
B85	VCC_5V_SBY	DIO_3	A85
B86	VCC_5V_SBY	H_RCIN#	A86
B87	VCC_5V_SBY	EDP_HPD (Optional)	A87
B88	BIOS_DISABLE1#	COM_EXP_CLK_P	A88
B89	CRT_RED	COM_EXP_CLK_N	A89
B90	GND	GND	A90
B91	CRT_GREEN	SPI_POWER	A91
B92	CRT_BLUE	SPI_MISO	A92
B93	CRT_HSYNC	DIO_4	A93
B94	CRT_VSYNC	SPI_CK	A94
B95	CRT_DDC_CLK	SPI_MOSI	A95
B96	CRT_DDC_DATA	TPM_PP	A96
B97	SPI_CS1#	N/C	A97
B98	N/C	UART_TX0	A98
B99	N/C	UART_RX0	A99
B100	GND	GND	A100
B101	FAN_PWMOUT	UART_TX1	A101
B102	FAN_TACHIN	UART_RX1	A102
B103	SLEEP#	LID#	A103
B104	VCC_12V	VCC_12V	A104
B105	VCC_12V	VCC_12V	A105
B106	VCC_12V	VCC_12V	A106
B107	VCC_12V	VCC_12V	A107
B108	VCC_12V	VCC_12V	A108
B109	VCC_12V	VCC_12V	A109
B110	GND	GND	A110

COM Express CD Connector (bottom side)

D1	GND (FIXED)	GND (FIXED)	C1
D2	GND	GND	C2
D3	USB3_TXN1	USB3_RXN1	C3
D4	USB3_TXP1	USB3_RXP1	C4
D5	GND	GND	C5
D6	USB3_TXN2	USB3_RXN2	C6
D7	USB3_TXP2	USB3_RXP2	C7
D8	GND	GND	C8
D9	USB3_TXN3	USB3_RXN3	C9
D10	USB3_TXP3	USB3_RXP3	C10
D11	GND (FIXED)	GND (FIXED)	C11
D12	USB3_TXN4	USB3_RXN4	C12
D13	USB3_TXP4	USB3_RXP4	C13
D14	GND	GND	C14
D15	DDI2_CLK_AUX	N/C	C15
D16	DDI2_CLK_AUX#	N/C	C16
D17	RSVD	RSVD	C17
D18	RSVD	RSVD	C18
D19	PCIE_TXP11	PCIE_RXP11	C19
D20	PCIE_TXN11	PCIE_RXN11	C20
D21	GND(FIXED)	GND(FIXED)	C21
D22	PCIE_TXP12	PCIE_RXP12	C22
D23	PCIE_TXN12	PCIE_RXN12	C23
D24	RSVD	DPB_HPD	C24
D25	RSVD	N/C	C25
D26	DDI2_PAIR_0	N/C	C26
D27	DDI2_PAIR_0#	RSVD	C27
D28	RSVD	RSVD	C28
D29	DDI2_PAIR_1	N/C	C29
D30	DDI2_PAIR_1#	N/C	C30
D31	GND(FIXED)	GND (FIXED)	C31
D32	DDI2_PAIR_2	DDI3_CLK_AUX	C32
D33	DDI2_PAIR_2#	DDI3_DATA_AUX#	C33
D34	DDI2_DDC_AUX_SEL	DDI3_DDC_AUX_SEL	C34
D35	RSVD	RSVD	C35
D36	DDI2_PAIR_3	N/C	C36
D37	DDI2_PAIR_3#	N/C	C37
D38	RSVD	N/C	C38
D39	DDI3_PAIR_0	N/C	C39
D40	DDI3_PAIR_0#	N/C	C40
D41	GND(FIXED)	GND(FIXED)	C41
D42	DDI3_PAIR_1	N/C	C42
D43	DDI3_PAIR_1#	N/C	C43
D44	DPC_HPD	N/C	C44
D45	RSVD	RSVD	C45
D46	DDI3_PAIR_2	N/C	C46
D47	DDI3_PAIR_2#	N/C	C47
D48	RSVD	RSVD	C48
D49	DDI3_PAIR_3	N/C	C49
D50	DDI3_PAIR_3#	N/C	C50
D51	GND (FIXED)	GND (FIXED)	C51
D52	PEG_TXP0	PEG_RXP0	C52
D53	PEG_TXN0	PEG_RXN0	C53
D54	CFG2	N/C	C54
D55	PEG_TXP1	PEG_RXP1	C55

D56	PEG_TXN1	PEG_RXN1	C56
D57	TYPE2#	N/C	C57
D58	PEG_TXP2	PEG_RXP2	C58
D59	PEG_TXN2	PEG_RXN2	C59
D60	GND (FIXED)	GND (FIXED)	C60
D61	PEG_TXP3	PEG_RXP3	C61
D62	PEG_TXN3	PEG_RXN3	C62
D63	RSVD	RSVD	C63
D64	RSVD	RSVD	C64
D65	PEG_TXP4	PEG_RXP4	C65
D66	PEG_TXN4	PEG_RXN4	C66
D67	GND	RSVD	C67
D68	PEG_TXP5	PEG_RXP5	C68
D69	PEG_TXN5	PEG_RXN5	C69
D70	GND (FIXED)	GND (FIXED)	C70
D71	PEG_TXP6	PEG_RXP6	C71
D72	PEG_TXN6	PEG_RXN6	C72
D73	GND	GND	C73
D74	PEG_TXP7	PEG_RXP7	C74
D75	PEG_TXN7	PEG_RXN7	C75
D76	GND	GND	C76
D77	RSVD	RSVD	C77
D78	PEG_TXP8	PEG_RXP8	C78
D79	PEG_TXN8	PEG_RXN8	C79
D80	GND (FIXED)	GND (FIXED)	C80
D81	PEG_TXP9	PEG_RXP9	C81
D82	PEG_TXN9	PEG_RXN9	C82
D83	RSVD	RSVD	C83
D84	GND	GND	C84
D85	PEG_TXP10	PEG_RXP10	C85
D86	PEG_TXN10	PEG_RXN10	C86
D87	GND	GND	C87
D88	PEG_TXP11	PEG_RXP11	C88
D89	PEG_TXN11	PEG_RXN11	C89
D90	GND (FIXED)	GND (FIXED)	C90
D91	PEG_TXP12	PEG_RXP12	C91
D92	PEG_TXN12	PEG_RXN12	C92
D93	GND	GND	C93
D94	PEG_TXP13	PEG_RXP13	C94
D95	PEG_TXN13	PEG_RXN13	C95
D96	GND	GND	C96
D97	RSVD	RSVD	C97
D98	PEG_TXP14	PEG_RXP14	C98
D99	PEG_TXN14	PEG_RXN14	C99
D100	GND (FIXED)	GND (FIXED)	C100
D101	PEG_TXP15	PEG_RXP15	C101
D102	PEG_TXN15	PEG_RXN15	C102
D103	GND	GND	C103
D104	VCC_12V	VCC_12V	C104
D105	VCC_12V	VCC_12V	C105
D106	VCC_12V	VCC_12V	C106
D107	VCC_12V	VCC_12V	C107
D108	VCC_12V	VCC_12V	C108
D109	VCC_12V	VCC_12V	C109
D110	GND (FIXED)	GND (FIXED)	C110