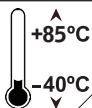


**Wide Operating  
Temperature**



# EmETXe-i89U0

## COM Express® Compact Type 6 CPU Module

### Quick Installation Guide

Version 1.2

<b>Form Factor</b> <i>COM Express® Compact Type 6 CPU Module</i>	<b>CPU</b> <i>6<sup>th</sup> Generation Intel® Core™ i7-6600U/i5-6300U/ i3-6100U/Celeron® 3955U</i>	<b>Video</b> <i>24-bit Dual Channels LVDS/ DDI</i>
<b>LAN</b> <i>Intel® i219LM PCIe GbE PHY with iAMT</i>	<b>Audio</b> <i>HD Audio Link</i>	<b>I/O</b> <i>USB 2.0/ USB 3.0/ SATA/ PCIe x1/ I2C/DIO/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.

<http://www.arbor-technology.com/>

E-mail: [info@arbor.com.tw](mailto:info@arbor.com.tw)

### 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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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-i89U0 are summarized in table below:

Module Type	Standard Type 6	EmETXe-i89U0
Connectors	2	2
Connector Rows	A, B, C, D	A, B, C, D
PCIe Lanes (Max)	24	8
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-i89U0 COM Express CPU Module



1 x Driver CD  
1 x Quick Installation Guide

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

## Specifications

System	
CPU	Soldered onboard 6 <sup>th</sup> Generation Intel® Core™ i7-6600U 2.6GHz (Base)/ 3.4GHz (Turbo), i5-6300U 2.3GHz (Base)/ 2.8GHz (Turbo), i3-6100U 2.3GHz (Base), Celeron® 3955U 2.3GHz (Base)
Memory	2 x DDR4 SO-DIMM sockets
BIOS	AMI UEFI BIOS
Watchdog Timer	1~255 levels reset
I/O	
USB 2.0	8 x USB 2.0 ports
USB 3.0	4 x USB SuperSpeed ports
Serial Port	2 x UART ports (RX/TX only)
Storage	2 x Serial ATA ports Soldered onboard eMMC 5.0 up to 32GB (OEM Request)
Expansion Bus	8 x PCIe lanes, I2C Interface, DIO
Digital I/O	8-bit Digital Input/Output
Ethernet Chipset	1 x Intel® i219LM PCIe GbE PHY with iAMT
Audio	HD audio link
TPM Function	TPM supported (OEM request)
Display	
Graphics Chipset	Intel® HD Graphics 520/ 510
Graphics Interface	LCD: Dual Channels 24-bit LVDS
	2 x DDI ports
Mechanical & Environmental	
Power Requirement	5V~20V +/- 5% wide range voltage input, +5VSB
Power Consumption	1.96A@12V (i7-6600U typical)
Operating Temp.	-40 ~ 85°C (-40 ~ 185°F)
Operating Humidity	10 ~ 95% @ 85°C (non-condensing)
Dimension (L x W)	95 x 95 mm (3.7" x 3.7")

## Ordering Information

EmETXe-i89U0-6600U	6 <sup>th</sup> Generation Intel® Core™ i7-6600U 2.6GHz (Base) / 3.4GHz (Turbo) COM Express® Compact Type 6 WT CPU module (MOQ required)
EmETXe-i89U0-6300U	6 <sup>th</sup> Generation Intel® Core™ i5-6300U WT COM Express® Compact Type 6 CPU module (Build to order, MOQ required)
EmETXe-i89U0-6100U	6 <sup>th</sup> Generation Intel® Core™ i3-6100U WT COM Express® Compact Type 6 CPU module (Build to order, MOQ required)
EmETXe-i89U0-3955U	6 <sup>th</sup> Generation Intel® Celeron® 3955U WT COM Express® Compact Type 6 CPU module (Build to order, MOQ required)

## Optional Accessories

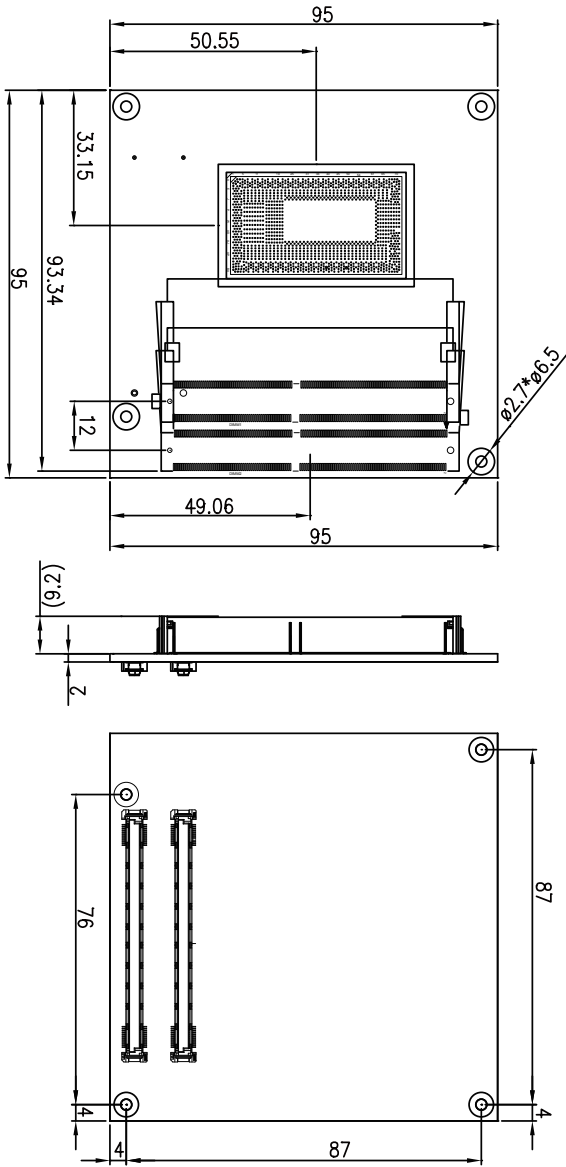
HS-89U0-F2-T	Heat spreader with threaded standoffs (bore hole) (95x95x11mm)
HS-89U0-F2-NT	Heat spreader non-threaded standoffs (bore hole) (95x95x11mm)
HS-89U0-C1	Heat sink with FAN 95x95x11mm
HS-0000-W4	Universal evaluation heatsink kit w/ thermal pad (dimensions: 125x95x22mm, only used on a flat type heat spreader)
PBE-1705-F1	COM Express® Type 6 evaluation carrier board with SIO F71869ED module in ATX form factor
CBK-03-1705-00	Cable kit <ul style="list-style-type: none"> <li>• 1 x SATA cable</li> <li>• 2 x COM Flat cables</li> </ul>

## Find Device Drivers on CD (Windows 8.1 &10 64-bit)

The CPU module supports Windows 8.1 &10. Find the drivers on CD by the following paths:

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_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 <b>(For Win 8.1 only)</b>
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

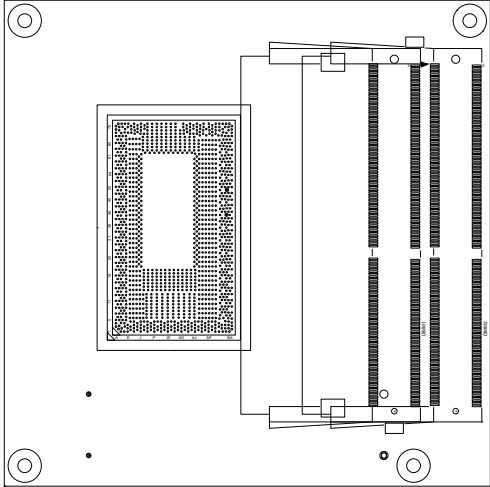


Unit:mm

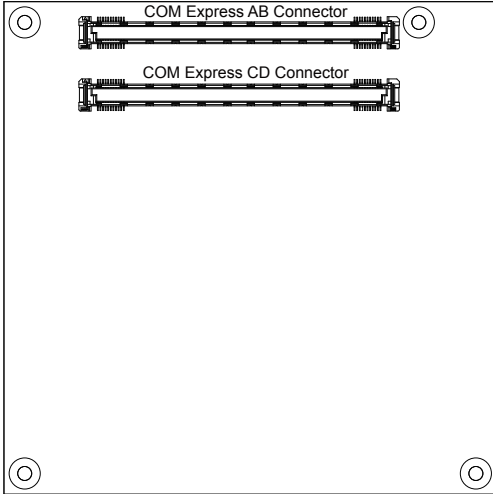
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# Connectors Quick Reference

## Top Side



## Bottom Side



## COM Express AB Connector (bottom side)

B1	GND (FIXED)	GND (FIXED)	A1	B56	PCIE_RX4-	PCIE_TX4-	A56
B2	GBE0_ACT#	GBE0_MDI3-	A2	B57	GPO2	GND	A57
B3	LPC_FRAME#	GBE0_MDI3+	A3	B58	PCIE_RX3+	PCIE_TX3+	A58
B4	LPC_AD0	GBE0_LINK100#	A4	B59	PCIE_RX3-	PCIE_TX3-	A59
B5	LPC_AD1	GBE0_LINK1000#	A5	B60	GND	GND	A60
B6	LPC_AD2	GBE0_MDI2-	A6	B61	PCIE_RX2+	PCIE_TX2+	A61
B7	LPC_AD3	GBE0_MDI2+	A7	B62	PCIE_RX2-	PCIE_TX2-	A62
B8	LPC_DRQ0#	N/C	A8	B63	GPO3	GPI1	A63
B9	LPC_DRQ1#	GBE0_MDI1-	A9	B64	PCIE_RX1+	PCIE_TX1+	A64
B10	LPC_CLK	GBE0_MDI1+	A10	B65	PCIE_RX1-	PCIE_TX1-	A65
B11	GND (FIXED)	GND (FIXED)	A11	B66	WAKE0#	GND	A66
B12	PWRBTN#	GBE0_MDI0-	A12	B67	WAKE1#	GPI2	A67
B13	SMB_CK	GBE0_MDI0+	A13	B68	PCIE_RX0+	PCIE_TX0+	A68
B14	SMB_DAT	GBE0_CTREF	A14	B69	PCIE_RX0-	PCIE_TX0-	A69
B15	SMB_ALERT#	SUS_S3#	A15	B70	GND	GND	A70
B16	SATA1_TX+	SATA0_TX+	A16	B71	LVDS_B0+	LVDS_A0+	A71
B17	SATA1_TX-	SATA0_TX-	A17	B72	LVDS_B0-	LVDS_A0-	A72
B18	SUS_STAT#	SUS_S4#	A18	B73	LVDS_B1+	LVDS_A1+	A73
B19	SATA1_RX+	SATA0_RX+	A19	B74	LVDS_B1-	LVDS_A1-	A74
B20	SATA1_RX-	SATA0_RX-	A20	B75	LVDS_B2+	LVDS_A2+	A75
B21	GND (FIXED)	GND (FIXED)	A21	B76	LVDS_B2-	LVDS_A2-	A76
B22	N/C	N/C	A22	B77	LVDS_B3+	LVDS_VDD_EN	A77
B23	N/C	N/C	A23	B78	LVDS_B3-	LVDS_A3+	A78
B24	PWR_OK	SUS_S5#	A24	B79	LVDS_BKLT_EN	LVDS_A3-	A79
B25	N/C	N/C	A25	B80	GND	GND	A80
B26	N/C	N/C	A26	B81	LVDS_B_CK+	LVDS_A_CK+	A81
B27	WDT	BATLOW#	A27	B82	LVDS_B_CK-	LVDS_A_CK-	A82
B28	N/C	ATA_ACT#	A28	B83	CKLVDS_BKLT_CTRL	LVDS_I2C_CK	A83
B29	AC_SDIN1	AC_SYNC	A29	B84	VCC_5V_SBY	LVDS_I2C_DAT	A84
B30	AC_SDIN0	AC_RST#	A30	B85	VCC_5V_SBY	GPI3	A85
B31	GND	GND	A31	B86	VCC_5V_SBY	RSVD	A86
B32	SPKR	AC_BITCLK	A32	B87	VCC_5V_SBY	RSVD	A87
B33	N/C	AC_SDOUT	A33	B88	BIOS_DIS1#	PCIE0_CK_REF+	A88
B34	N/C	BIOS_DISABLE0#	A34	B89	N/C	PCIE0_CK_REF-	A89
B35	THRM#	THRMTRIP#	A35	B90	GND	GND	A90
B36	USB7-	USB6-	A36	B91	N/C	SPI_POWER	A91
B37	USB7+	USB6+	A37	B92	N/C	SPI_MISO	A92
B38	USB_4_5_OC#	USB_6_7_OC#	A38	B93	N/C	GPO0	A93
B39	USB5-	USB4-	A39	B94	N/C	SPI_CLK	A94
B40	USB5+	USB4+	A40	B95	N/C	SPI_MOSI	A95
B41	GND	GND	A41	B96	N/C	TPM_PP	A96
B42	USB3-	USB2-	A42	B97	SPI_CS#	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	EXCD1_PERST#	VCC_RTC	A47	B102	FAN_TACHIN	UART_RX1	A102
B48	EXCD1_CPPE#	EXCD0_PERST#	A48	B103	SLEEP#	LID#	A103
B49	SYS_RESET#	EXCD0_CPPE#	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_RX5+	PCIE_TX5+	A52	B107	VCC_12V	VCC_12V	A107
B53	PCIE_RX5-	PCIE_TX5-	A53	B108	VCC_12V	VCC_12V	A108
B54	GPO1	GPI0	A54	B109	VCC_12V	VCC_12V	A109
B55	PCIE_RX4+	PCIE_TX4+	A55	B110	GND	GND	A110

## COM Express CD Connector (bottom side)

D1	GND (FIXED)	GND (FIXED)	C1	D56	N/C	N/C	C56
D2	GND	GND	C2	D57	TYPE2#	N/C	C57
D3	USB_SSTX0-	USB_SSRX0-	C3	D58	N/C	N/C	C58
D4	USB_SSTX0+	USB_SSRX0+	C4	D59	N/C	N/C	C59
D5	GND	GND	C5	D60	GND (FIXED)	GND (FIXED)	C60
D6	USB_SSTX1-	USB_SSRX1-	C6	D61	N/C	N/C	C61
D7	USB_SSTX1+	USB_SSRX1+	C7	D62	N/C	N/C	C62
D8	GND	GND	C8	D63	N/C	N/C	C63
D9	USB_SSTX2-	USB_SSRX2-	C9	D64	N/C	N/C	C64
D10	USB_SSTX2+	USB_SSRX2+	C10	D65	N/C	N/C	C65
D11	GND (FIXED)	GND (FIXED)	C11	D66	N/C	N/C	C66
D12	USB_SSTX3-	USB_SSRX3-	C12	D67	N/C	N/C	C67
D13	USB_SSTX3+	USB_SSRX3+	C13	D68	N/C	N/C	C68
D14	GND	GND	C14	D69	N/C	N/C	C69
D15	DDI1_CTRLCLK_AUX+	N/C	C15	D70	GND (FIXED)	GND (FIXED)	C70
D16	DDI1_CTRLCLK_AUX-	N/C	C16	D71	N/C	N/C	C71
D17	N/C	RSVD	C17	D72	N/C	N/C	C72
D18	N/C	RSVD	C18	D73	GND	GND	C73
D19	PCIE_TX6+	PCIE_RX6+	C19	D74	N/C	N/C	C74
D20	PCIE_TX6-	PCIE_RX6-	C20	D75	N/C	N/C	C75
D21	GND(FIXED)	GND(FIXED)	C21	D76	GND	GND	C76
D22	PCIE_TX7+	PCIE_RX7+	C22	D77	N/C	N/C	C77
D23	PCIE_TX7-	PCIE_RX7-	C23	D78	N/C	N/C	C78
D24	N/C	DDI1_HPD	C24	D79	N/C	N/C	C79
D25	N/C	N/C	C25	D80	GND (FIXED)	GND (FIXED)	C80
D26	DDI1_PAIR0+	N/C	C26	D81	N/C	N/C	C81
D27	DDI1_PAIR0-	RSVD	C27	D82	N/C	N/C	C82
D28	N/C	RSVD	C28	D83	N/C	N/C	C83
D29	DDI1_PAIR1+	N/C	C29	D84	GND	GND	C84
D30	DDI1_PAIR1-	N/C	C30	D85	N/C	N/C	C85
D31	GND(FIXED)	GND (FIXED)	C31	D86	N/C	N/C	C86
D32	DDI1_PAIR2+	DDI2_CTRLCLK_AUX+	C32	D87	GND	GND	C87
D33	DDI1_PAIR2-	DDI2_CTRLCLK_AUX-	C33	D88	N/C	N/C	C88
D34	DDI1_DDC_AUX_SEL	DDI2_DDC_AUX_SEL	C34	D89	N/C	N/C	C89
D35	N/C	RSVD	C35	D90	GND (FIXED)	GND (FIXED)	C90
D36	DDI1_PAIR3+	N/C	C36	D91	N/C	N/C	C91
D37	DDI1_PAIR3-	N/C	C37	D92	N/C	N/C	C92
D38	N/C	N/C	C38	D93	GND	GND	C93
D39	DDI2_PAIR0+	N/C	C39	D94	N/C	N/C	C94
D40	DDI2_PAIR0-	N/C	C40	D95	N/C	N/C	C95
D41	GND(FIXED)	GND(FIXED)	C41	D96	GND	GND	C96
D42	DDI2_PAIR1+	N/C	C42	D97	N/C	N/C	C97
D43	DDI2_PAIR1-	N/C	C43	D98	N/C	N/C	C98
D44	DDI2_HPD	N/C	C44	D99	N/C	N/C	C99
D45	N/C	RSVD	C45	D100	GND (FIXED)	GND (FIXED)	C100
D46	DDI2_PAIR2+	N/C	C46	D101	N/C	N/C	C101
D47	DDI2_PAIR2-	N/C	C47	D102	N/C	N/C	C102
D48	N/C	RSVD	C48	D103	GND	GND	C103
D49	DDI2_PAIR3+	N/C	C49	D104	VCC_12V	VCC_12V	C104
D50	DDI2_PAIR3-	N/C	C50	D105	VCC_12V	VCC_12V	C105
D51	GND (FIXED)	GND (FIXED)	C51	D106	VCC_12V	VCC_12V	C106
D52	N/C	N/C	C52	D107	VCC_12V	VCC_12V	C107
D53	N/C	N/C	C53	D108	VCC_12V	VCC_12V	C108
D54	PEG_LANE_RV#	N/C	C54	D109	VCC_12V	VCC_12V	C109
D55	N/C	N/C	C55	D110	GND (FIXED)	GND (FIXED)	C110