
EmETXe-i87M0

COM Express® Basic Type 6 CPU Module Quick Installation Guide

Version 1.1

Form Factor <i>COM Express® Basic Type 6 CPU Module</i>	CPU <i>Intel® 4th Generation Core™ i5 4402E 1.6GHz processor</i>	Chipset <i>Intel® PCH QM87</i>
Video <i>24-bit Dual Channels LVDS/ DDI/ RGB</i>	LAN <i>Intel® i217 PCIe GbE PHY</i>	Audio <i>HD Audio Interface</i>
I/O <i>USB 2.0/ USB 3.0/ SATA/ PCIe x1/ PCIe x16/ DIO</i>		

◆ Technical Support

If you have any technical difficulties, please consult the user's manual first at:
<http://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://arbor-technology.com/>

E-mail: 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-i87M0 are summarized in table below:

Module Type	Standard Type 6	EmETXe-i87M0
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	0
Digital Display I/F (Max)	3	3
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-i87M0 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	Intel® 4th Generation Core™ i5-4402E 1.6GHz processor
Memory	2 x DDR3L SO-DIMM sockets, supporting up to 16GB SDRAM
Chipset	Intel® PCH QM87
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
Digital I/O	8-bit programmable Digital Input/Output
Storage	4 x Serial ATA ports: - 2 ports with 600MB/s HDD transfer rate - 2 ports with 300MB/s HDD transfer rate
	SATA RAID 0, 1, 5, 10 supported
Expansion Bus	1 x PCIe x16 Gen3 lanes
	8 x PCIe x1 Gen2 lanes
Ethernet Chipset	1 x Intel® i217 PCIe GbE PHY
Audio	HD Audio link
Display	
Graphics Chipset	Integrated Intel® HD Graphics 4600
Graphics Interface	Analog RGB supports up to 1920x1200@60Hz
	LCD: Dual Channels 24-bit LVDS up to 1920 x 1200 @60Hz
	3 x DDI ports
Mechanical & Environmental	
Power Requirement	+12V

Power Consumption	3A @+12V
Operating Temp.	-20 ~ 70°C (-4 ~ 158°F) -40 ~ 85°C (-40 ~ 185°F), WT series
Operating Humidity	10 ~ 95% @ 60°C (non-condensing) 10 ~ 95% @ 85°C (non-condensing), WT series
Dimension (L x W)	125 x 95 mm (4.9" x 3.7")

Ordering Information

EmETXe-i87M0-4402E	4 th Generation Intel® Core™ i5-4402E/ QM87 COM Express CPU module
EmETXe-i87M0WT--4402E	4 th Generation Intel® Core™ i5-4402E/ QM87 WT COM Express CPU module

Optional Accessories

HS-87M0-F1	Heat spreader (125x95x18mm)
HS-87M0-F2	Heat spreader (95x95x11mm)
HS-0000-W4	Universal evaluation heat sink kit w/ thermal pad (Dimensions: 125x95x22mm, only used on a flat-type heat spreader)
HS-87M2-C2	Cooler 125x95x34mm
PBE-1702	COM Express type 6 evaluation carrier board (ATX form factor)
CBK-04-1702-00	Cable Kit <ul style="list-style-type: none"> • 1 x SATA cable • 2 x COM port cables • 1 x USB cable

Find Device Drivers on CD

The CPU module supports Windows 7 and 8. Find the necessary drivers on the CD that comes with your purchase. For different OS, the driver installation may vary slightly, but generally they are similar. **DO** install **Chipset**→**Graphic**→**Audio** before the rest to prevent errors.

Find the drivers on CD by the following paths:

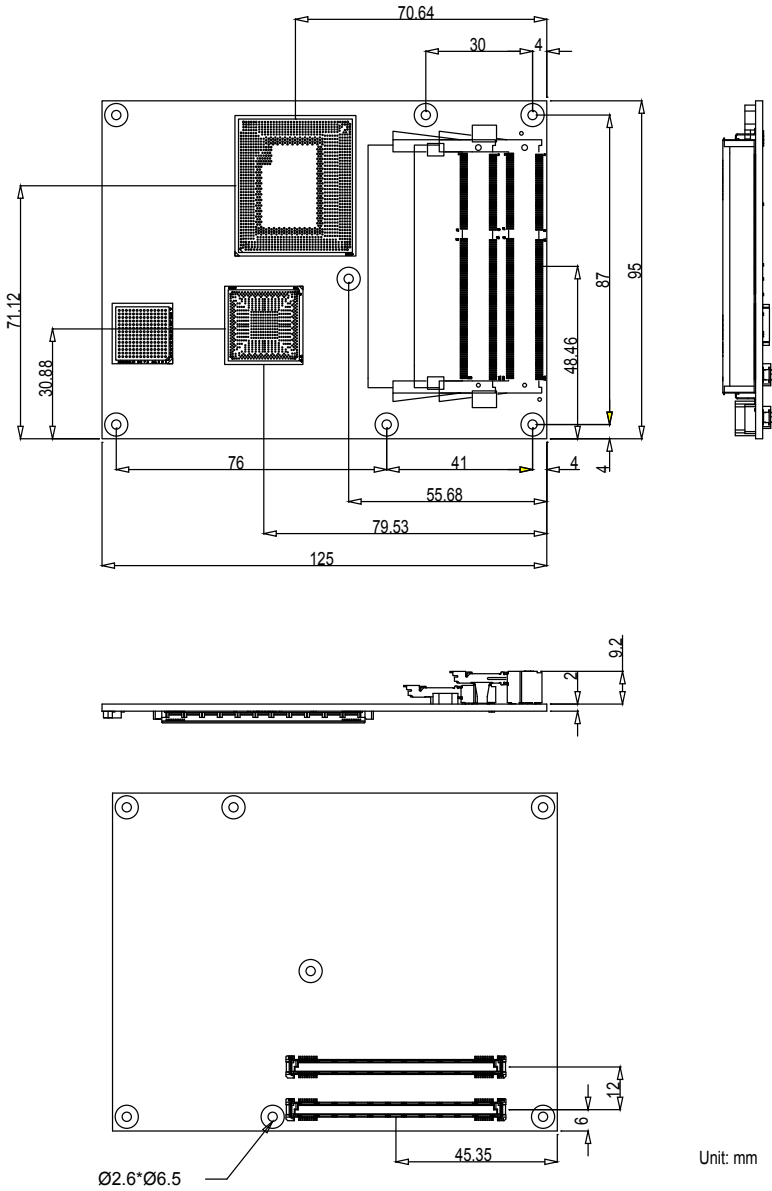
Windows 8

Driver	Path
Chipset	EmETXe-i87M0\Chipset
Graphic	EmETXe-i87M0\Graphic\32 Bit\Win32_V9.18.10.3107
	EmETXe-i87M0\Graphic\64 Bit\win64_V9.18.10.3107
Audio	EmETXe-i87M0\Audio\win7_win8\32Bit
	EmETXe-i87M0\Audio\win7_win8\64Bit
LAN	EmETXe-i87M0\Ethernet\Win8\32Bit
	EmETXe-i87M0\Ethernet\Win8\64Bit
ME	EmETXe-i87M0\ME\ME9.0_5M_V9.0.2.1345
USB3.0	EmETXe-i87M0\USB 3.0\USB3_V2.5.0.19

Windows 7

Driver	Path
Chipset	EmETXe-i87M0\Chipset
Graphic	EmETXe-i87M0\Graphic\32 Bit\Win32_V9.18.10.3107
	EmETXe-i87M0\Graphic\64 Bit\win64_V9.18.10.3107
Audio	EmETXe-i87M0\Audio\win7_win8\32Bit
	EmETXe-i87M0\Audio\win7_win8\64Bit
LAN	EmETXe-i87M0\Ethernet\Win7\32Bit
	EmETXe-i87M0\Ethernet\Win7\64Bit
ME	EmETXe-i87M0\ME\ME9.0_5M_V9.0.2.1345
USB3.0	EmETXe-i87M0\USB 3.0\USB3_V2.5.0.19

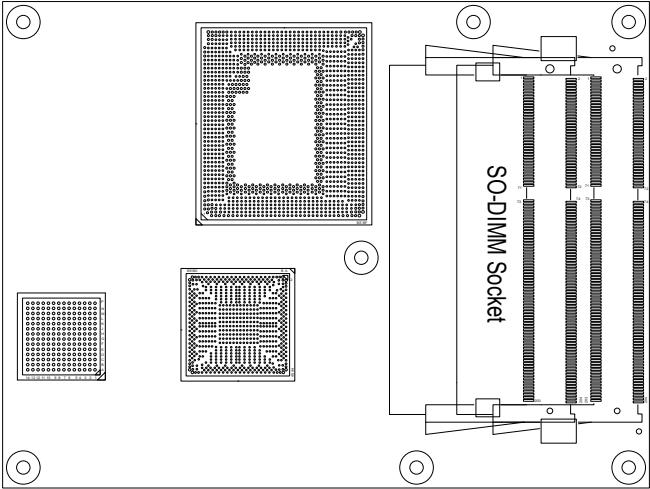
Board Dimensions



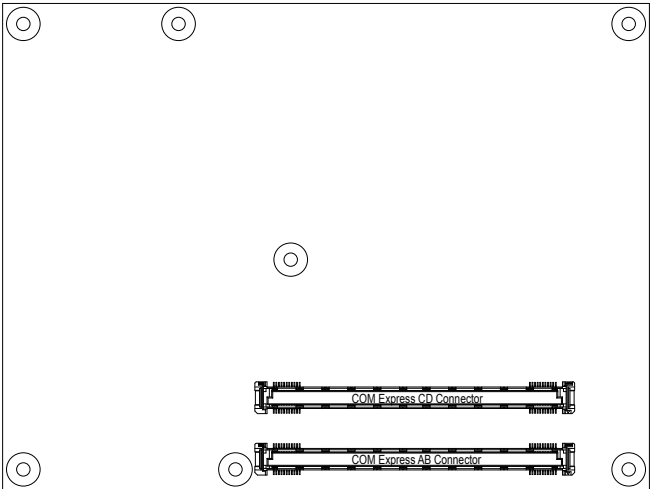
Unit: mm

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	N/C	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	SATA3_TX+	SATA2_TX+	A22	B77	LVDS_B3+	LVDS_VDD_EN	A77
B23	SATA3_TX-	SATA2_TX-	A23	B78	LVDS_B3-	LVDS_A3+	A78
B24	PWR_OK	SUS_S5#	A24	B79	LVDS_BKLT_EN	LVDS_A3-	A79
B25	SATA3_RX+	SATA2_RX+	A25	B80	GND	GND	A80
B26	SATA3_RX-	SATA2_RX-	A26	B81	LVDS_B_CK+	LVDS_A_CK+	A81
B27	WDT	BATLOW#	A27	B82	LVDS_B_CK-	LVDS_A_CK-	A82
B28	AC_SDIN2	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	I2C_CK	AC_SDOUT	A33	B88	BIOS_DIS1#	PCIE0_CK_REF+	A88
B34	I2C_DAT	BIOS_DISABLE0#	A34	B89	VGA_RED	PCIE0_CK_REF-	A89
B35	THR#	THR#TRIP#	A35	B90	GND	GND	A90
B36	USB7-	USB6-	A36	B91	VGA_GRN	SPI_POWER	A91
B37	USB7+	USB6+	A37	B92	VGA_BLU	SPI_MISO	A92
B38	USB_4_5_OC#	USB_6_7_OC#	A38	B93	VGA_HSYNC	GPO0	A93
B39	USB5-	USB4-	A39	B94	VGA_VSYNC	SPI_CLK	A94
B40	USB5+	USB4+	A40	B95	VGA_I2C_CK	SPI_MOSI	A95
B41	GND	GND	A41	B96	VGA_I2C_DAT	N/C	A96
B42	USB3-	USB2-	A42	B97	SPL_CS#	TYPE10#	A97
B43	USB3+	USB2+	A43	B98	N/C	N/C	A98
B44	USB_0_1_OC#	USB_2_3_OC#	A44	B99	N/C	N/C	A99
B45	USB1-	USB0-	A45	B100	GND	GND	A100
B46	USB1+	USB0+	A46	B101	FAN_PWMOUT	N/C	A101
B47	EXCD1_PERST#	VCC_RTC	A47	B102	FAN_TACHIN	N/C	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	PEG_TX1-	PEG_RX1-	C56
D2	GND	GND	C2	D57	TYPE2#	TYPE1#	C57
D3	USB_SSRX0-	USB_SSRX0-	C3	D58	PEG_TX2+	PEG_RX2+	C58
D4	USB_SSTX0+	USB_SSRX0+	C4	D59	PEG_TX2-	PEG_RX2-	C59
D5	GND	GND	C5	D60	GND (FIXED)	GND (FIXED)	C60
D6	USB_SSTX1-	USB_SSRX1-	C6	D61	PEG_TX3+	PEG_RX3+	C61
D7	USB_SSTX1+	USB_SSRX1+	C7	D62	PEG_TX3-	PEG_RX3-	C62
D8	GND	GND	C8	D63	RSVD	RSVD	C63
D9	USB_SSTX2-	USB_SSRX2-	C9	D64	RSVD	RSVD	C64
D10	USB_SSTX2+	USB_SSRX2+	C10	D65	PEG_TX4+	PEG_RX4+	C65
D11	GND (FIXED)	GND (FIXED)	C11	D66	PEG_TX4-	PEG_RX4-	C66
D12	USB_SSTX3-	USB_SSRX3-	C12	D67	RSVD	RSVD	C67
D13	USB_SSTX3+	USB_SSRX3+	C13	D68	PEG_TX5+	PEG_RX5+	C68
D14	GND	GND	C14	D69	PEG_TX5-	PEG_RX5-	C69
D15	DDI1_CTRLCLK_AUX+	DDI1_PAIR6+	C15	D70	GND (FIXED)	GND (FIXED)	C70
D16	DDI1_CTRLCLK_AUX-	DDI1_PAIR6-	C16	D71	PEG_TX6+	PEG_RX6+	C71
D17	RSVD	RSVD	C17	D72	PEG_TX6-	PEG_RX6-	C72
D18	RSVD	RSVD	C18	D73	GND	GND	C73
D19	PCI_E_TX6+	PCI_E_RX6+	C19	D74	PEG_TX7+	PEG_RX7+	C74
D20	PCI_E_TX6-	PCI_E_RX6-	C20	D75	PEG_TX7-	PEG_RX7-	C75
D21	GND(FIXED)	GND(FIXED)	C21	D76	GND	GND	C76
D22	PCI_E_TX7+	PCI_E_RX7+	C22	D77	RSVD	RSVD	C77
D23	PCI_E_TX7-	PCI_E_RX7-	C23	D78	PEG_TX8+	PEG_RX8+	C78
D24	RSVD	DDI1_HPD	C24	D79	PEG_TX8-	PEG_RX8-	C79
D25	RSVD	DDI1_PAIR4+	C25	D80	GND (FIXED)	GND (FIXED)	C80
D26	DDI1_PAIR0+	DDI1_PAIR4-	C26	D81	PEG_TX9+	PEG_RX9+	C81
D27	DDI1_PAIR0-	RSVD	C27	D82	PEG_TX9-	PEG_RX9-	C82
D28	RSVD	RSVD	C28	D83	RSVD	RSVD	C83
D29	DDI1_PAIR1+	DDI1_PAIR5+	C29	D84	GND	GND	C84
D30	DDI1_PAIR1-	DDI1_PAIR5-	C30	D85	PEG_TX10+	PEG_RX10+	C85
D31	GND(FIXED)	GND (FIXED)	C31	D86	PEG_TX10-	PEG_RX10-	C86
D32	DDI1_PAIR2+	DDI2_CTRLCLK_AUX+	C32	D87	GND	GND	C87
D33	DDI1_PAIR2-	DDI2_CTRLCLK_AUX-	C33	D88	PEG_TX11+	PEG_RX11+	C88
D34	DDI1_DDC_AUX_SEL	DDI2_DDC_AUX_SEL	C34	D89	PEG_TX11-	PEG_RX11-	C89
D35	RSVD	RSVD	C35	D90	GND (FIXED)	GND (FIXED)	C90
D36	DDI1_PAIR3+	DDI3_CTRLCLK_AUX+	C36	D91	PEG_TX12+	PEG_RX12+	C91
D37	DDI1_PAIR3-	DDI3_CTRLCLK_AUX-	C37	D92	PEG_TX12-	PEG_RX12-	C92
D38	RSVD	DDI3_DDC_AUX_SEL	C38	D93	GND	GND	C93
D39	DDI1_PAIR0+	DDI3_PAIR0+	C39	D94	PEG_TX13+	PEG_RX13+	C94
D40	DDI1_PAIR0-	DDI3_PAIR0-	C40	D95	PEG_TX13-	PEG_RX13-	C95
D41	GND(FIXED)	GND(FIXED)	C41	D96	GND	GND	C96
D42	DDI1_PAIR1+	DDI3_PAIR1+	C42	D97	RSVD	RSVD	C97
D43	DDI1_PAIR1-	DDI3_PAIR1-	C43	D98	PEG_TX14+	PEG_RX14+	C98
D44	DDI2_HPD	DDI3_HPD	C44	D99	PEG_TX14-	PEG_RX14-	C99
D45	RSVD	RSVD	C45	D100	GND (FIXED)	GND (FIXED)	C100
D46	DDI2_PAIR2+	DDI3_PAIR2+	C46	D101	PEG_TX15+	PEG_RX15+	C101
D47	DDI2_PAIR2-	DDI3_PAIR2-	C47	D102	PEG_TX15-	PEG_RX15-	C102
D48	RSVD	RSVD	C48	D103	GND	GND	C103
D49	DDI2_PAIR3+	DDI3_PAIR3+	C49	D104	VCC_12V	VCC_12V	C104
D50	DDI2_PAIR3-	DDI3_PAIR3-	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#	TYPE#	C54	D109	VCC_12V	VCC_12V	C109
D55	PEG_TX1+	PEG_RX1+	C55	D110	GND (FIXED)	GND (FIXED)	C110