Wide Operating Temperature

COM-870E

Wide Range Temperature COM Express Type 6 CPU Module

Quick Installation Guide

Version 1.0

Form Factor	CPU	Chipset
COM Express Type 6 CPU Module	***Intel® Celeron 827E processor***	***Intel® HM65***

Video	LAN	Audio
24-bit Dual Channels LVDS, Analog RGB, DDI	***Intel 82579LM Gigabit Ethernet***	***HD Audio Interface***

I/O
USB/ SATA/ PCI express

♦ Technical Support

If you have any technical difficulties, please consult the user's manual first at:

ftp://ftp.arbor.com.tw/pub/manual

Please do not hesitate to call or e-mail our customer service when you still can not find out the answer.

http://www.arbor.com.tw

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.

CE

RoHS VERIFIED

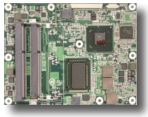
4046650200100P

COM Express supports seven pin-out Type applying to Basic and Extended form factors:
Module Type 1 and 10 supports 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 COM-870E-827E are summarized in table below:

Module Type	Standard Type 6	COM-870E-827E
Connectors	2	2
Connector Rows	A, B, C, D	A, B, C, D
PCIe Lanes (Max)	24	23
PCI Bus	No	No
PATA - IDE	No	No
LAN (Max)	1	1
Serial Ports (Max)	2	0
Muxed SDVO	No	No
Digital Display I/F (Max)	3	3
USB 3.0 Ports (Max)	4	0

Packing List

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



1 x COM-870E COM Express CPU Module

1 x Driver CD
1 x Quick Installation Guide

Specifications

Form Factor	COM Express Type 6 CPU Module
CPU	Intel® Celeron™ 827E 1.4GHz processor
Chipset	Intel® HM65
System Memory	2 x DDR3 SO-DIMM sockets, supporting up to 8GB SDRAM
VGA/ LCD Controller	Intel® Graphics Media Accelerator 3000 graphics core w/ Analog RGB/ Dual Channels 24-bit LVDS (Dual independent displays), 3 x DDI ports
Ethernet controller	1 x Intel 82579LM Gigabit Ethernet PHY
BIOS	AMI PnP Flash BIOS
Storage	2 x Serial ATA ports w/ 600MB/s HDD transfer rate 2 x Serial ATA ports w/ 300MB/s HDD transfer rate
Parallel Port	SPP/EPP/ECP mode selectable (via COM Express carrier board)
Universal Serial Bus	8 x USB 2.0 ports
LCD	Dual Channels 24-bit LVDS
Expansion Interface	1 x PCIe x16 lanes 5 x PCIe x1 lanes SPI, and LPC (Low Pin Count) interface
Operation Temp.	-40ºC ~ 85ºC (-4ºF ~ 185ºF)
Watchdog Timer	1~ 255 levels Reset
Dimension (L x W)	125 x 95 mm (4.9” x 3.7”)

Ordering Information

COM-870E-827E	Intel® Celeron 827E COM Express CPU odule
HS-65M2-F1	Heat Spreader (95 x 125 x 18mm)
HS-65M2-C1	Cooler (95 x 125 x 34.8mm)
PBE-1702	COM Express Type 6 evaluation board in ATX form factor
CBK-04-1702-00	Cable kit 1 x SATA cable 2 x COM port cables 1 x USB cable

The Installation Paths of CD Driver

Windows 2000 & XP

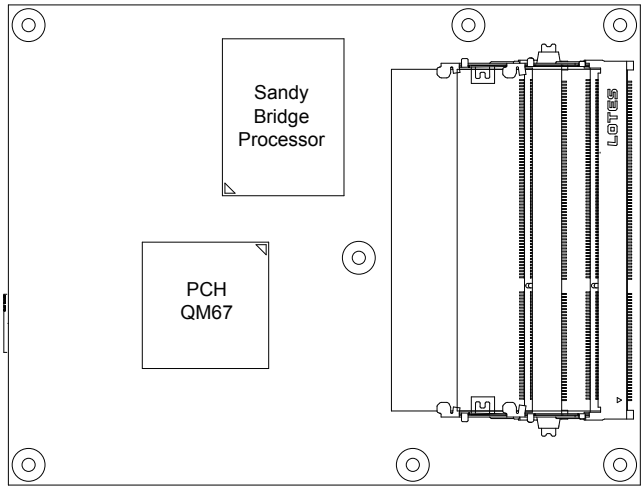
Driver	Path
CHIPSET	\EmETXe-i67M2\CHIPSET
LAN	\EmETXe-i67M2\ETHERNET\XP_WIN7_SERIES\32 \EmETXe-i67M2\ETHERNET\XP_WIN7_SERIES\64
NET Framework	\EmETXe-i67M2\NET Framework
VGA	\EmETXe-i67M2\GRAPHICS\Windows XP 32bit Graphics Drivers\Windows XP Graphics Drivers\ winxp \EmETXe-i67M2\GRAPHICS\Windows XP 64bit Graphics Drivers\Windows XP64 Graphics Drivers\ winxp64
Management Engine	\EmETXe-i67M2\ME
RAID	\EmETXe-i67M2\IRST

Windows 7

Driver	Path
CHIPSET	\EmETXe-i67M2\CHIPSET
LAN	\EmETXe-i67M2\ETHERNET\XP_WIN7_SERIES\32 \EmETXe-i67M2\ETHERNET\XP_WIN7_SERIES\64
VGA	\EmETXe-i67M2\GRAPHICS\Windows 7 Graphics Driver 32_bit\Windows Vista Windows 7 Graphics Driver\WinVista7 \EmETXe-i67M2\GRAPHICS\Windows 7 64-Bit Graphics Driver\Windows Vista Windows 7 64-Bit Graphics Driver\WinVista7_64
Management Engine	\EmETXe-i67M2\ME
Intel Turbo	\EmETXe-i67M2\OTHERS

Connectors Quick Reference

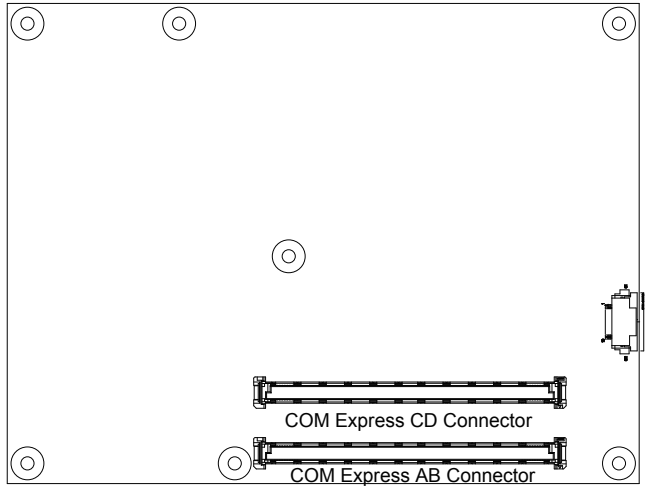
Top side



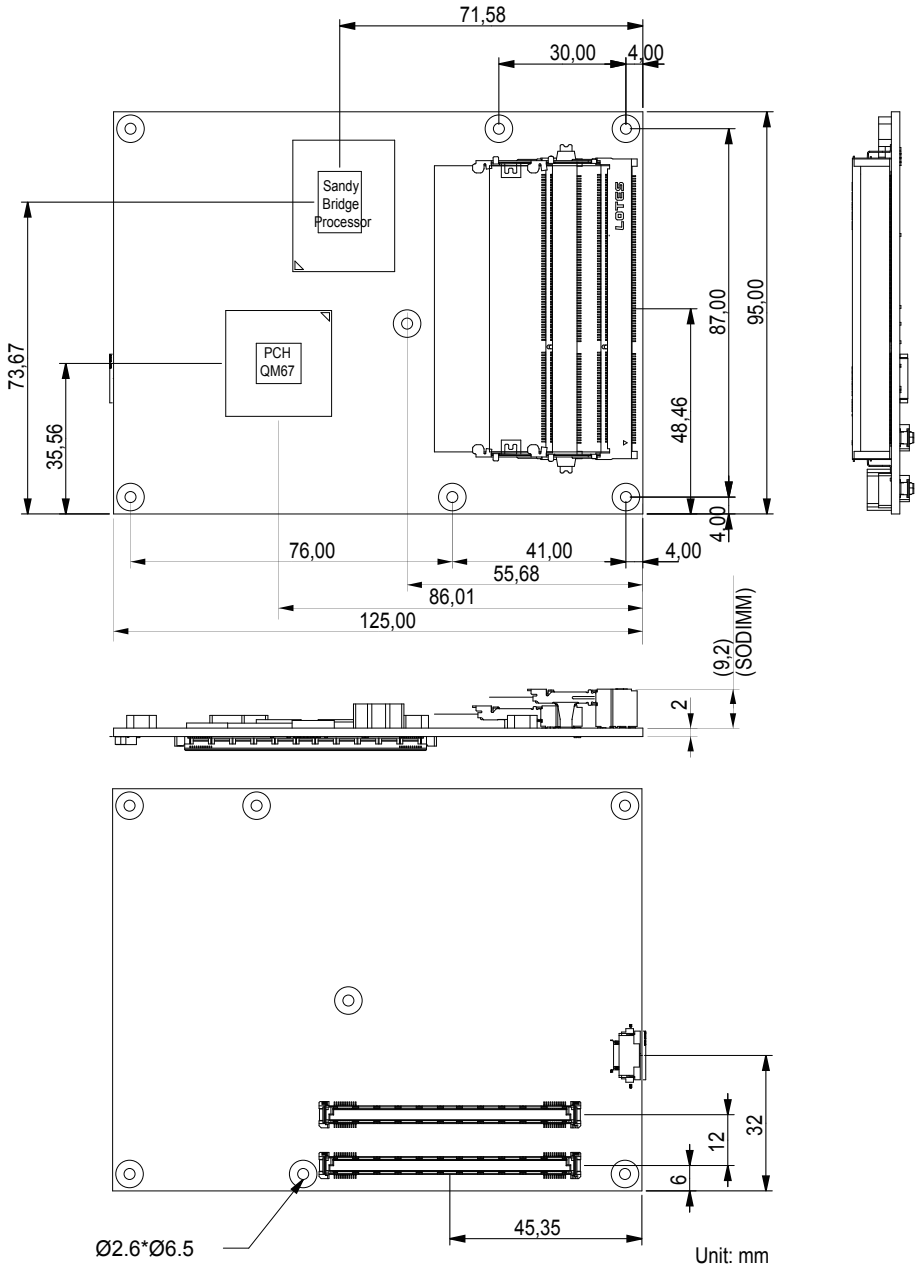
Bottom side

COM Express AB Connector

COM Express CD Connector



Board Dimensions



COM Express AB Connector (bottom side)

B1	GND (FIXED)	GND (FIXED)	A1
B2	GBE0_ACT#	GBE0_MDI3-	A2
B3	LPC_FRAME#	GBE0_MDI3+	A3
B4	LPC_AD0	GBE0_LINK100#	A4
B5	LPC_AD1	GBE0_LINK1000#	A5
B6	LPC_AD2	GBE0_MDI2-	A6
B7	LPC_AD3	GBE0_MDI2+	A7
B8	LPC_DRQ0#	GBE0_LINK#	A8
B9	LPC_DRQ1#	GBE0_MDI1-	A9
B10	LPC_CLK	GBE0_MDI1+	A10
B11	GND (FIXED)	GND (FIXED)	A11
B12	PWRBTN#	GBE0_MDI0-	A12
B13	SMB_CK	GBE0_MDI0+	A13
B14	SMB_DAT	GBE0_CTREF	A14
B15	SMB_ALERT#	SUS_S3#	A15
B16	SATA1_TX+	SATA0_TX+	A16
B17	SATA1_TX-	SATA0_TX-	A17
B18	SUS_STAT#	SUS_S4#	A18
B19	SATA1_RX+	SATA0_RX+	A19
B20	SATA1_RX-	SATA0_RX-	A20
B21	GND (FIXED)	GND (FIXED)	A21
B22	SATA3_TX+	SATA2_TX+	A22
B23	SATA3_TX-	SATA2_TX-	A23
B24	PWR_OK	SUS_S5#	A24
B25	SATA3_RX+	SATA2_RX+	A25
B26	SATA3_RX-	SATA2_RX-	A26
B27	WDT	BATLOW#	A27
B28	AC_SDIN2	ATA_ACT#	A28
B29	AC_SDIN1	AC_SYNC	A29
B30	AC_SDIN0	AC_RST#	A30
B31	GND	GND	A31
B32	SPKR	AC_BITCLK	A32
B33	I2C_CK	AC_SDOUT	A33
B34	I2C_DAT	BIOS_DISABLE#	A34
B35	THRM#	THRMTRIP#	A35
B36	USB7-	USB6-	A36
B37	USB7+	USB6+	A37
B38	USB_4_5_OC#	USB_6_7_OC#	A38
B39	USB5-	USB4-	A39
B40	USB5+	USB4+	A40
B41	GND	GND	A41
B42	USB3-	USB2-	A42
B43	USB3+	USB2+	A43
B44	USB_0_1_OC#	USB_2_3_OC#	A44
B45	USB1-	USB0-	A45
B46	USB1+	USB0+	A46
B47	EXCD1_PERST#	VCC_RTC	A47
B48	EXCD1_CPPE#	EXCD0_PERST#	A48
B49	SYS_RESET#	EXCD0_CPPE#	A49
B50	CB_RESET#	LPC_SERIRQ	A50
B51	GND	GND	A51
B52	PCIE_RX5+	PCIE_TX5+	A52
B53	PCIE_RX5-	PCIE_TX5-	A53
B54	GPO1	GPI0	A54
B55	PCIE_RX4+	PCIE_TX4+	A55

B56	PCIE_RX4-	PCIE_TX4-	A56
B57	GPO2	GND	A57
B58	PCIE_RX3+	PCIE_TX3+	A58
B59	PCIE_RX3-	PCIE_TX3-	A59
B60	GND	GND	A60
B61	PCIE_RX2+	PCIE_TX2+	A61
B62	PCIE_RX2-	PCIE_TX2-	A62
B63	GPO3	GPI1	A63
B64	PCIE_RX1+	PCIE_TX1+	A64
B65	PCIE_RX1-	PCIE_TX1-	A65
B66	WAKE0#	GND	A66
B67	WAKE1#	GPI2	A67
B68	PCIE_RX0+	PCIE_TX0+	A68
B69	PCIE_RX0-	PCIE_TX0-	A69
B70	GND	GND	A70
B71	LVDS_B0+	LVDS_A0+	A71
B72	LVDS_B0-	LVDS_A0-	A72
B73	LVDS_B1+	LVDS_A1+	A73
B74	LVDS_B1-	LVDS_A1-	A74
B75	LVDS_B2+	LVDS_A2+	A75
B76	LVDS_B2-	LVDS_A2-	A76
B77	LVDS_B3+	LVDS_VDD_EN	A77
B78	LVDS_B3-	LVDS_A3+	A78
B79	LVDS_BKLT_EN	LVDS_A3-	A79
B80	GND	GND	A80
B81	LVDS_B_CK+	LVDS_A_CK+	A81
B82	LVDS_B_CK-	LVDS_A_CK-	A82
B83	CKLVDS_BKLT_CTRL	LVDS_I2C_CK	A83
B84	VCC_5V_SBY	LVDS_I2C_DAT	A84
B85	VCC_5V_SBY	GPI3	A85
B86	VCC_5V_SBY	KBD_RST#	A86
B87	VCC_5V_SBY	KBD_A20GATE	A87
B88	RSVD	PCIE0_CK_REF+	A88
B89	VGA_RED	PCIE0_CK_REF-	A89
B90	GND	GND	A90
B91	VGA_GRN	RSVD B91	A91
B92	VGA_BLU	RSVD	A92
B93	VGA_HSYNC	GPO0	A93
B94	VGA_VSYNC	RSVD	A94
B95	VGA_I2C_CK	RSVD	A95
B96	VGA_I2C_DAT	GND	A96
B97	TV_DAC_A	VCC_12V	A97
B98	TV_DAC_B	VCC_12V	A98
B99	TV_DAC_C	VCC_12V	A99
B100	GND	GND	A100
B101	VCC_12V	VCC_12V	A101
B102	VCC_12V	VCC_12V	A102
B103	VCC_12V	VCC_12V	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	USB_SSTX0-	USB_SSRX0-	C3
D4	USB_SSTX0+	USB_SSRX0+	C4
D5	GND	GND	C5
D6	USB_SSTX1-	USB_SSRX1-	C6
D7	USB_SSTX1+	USB_SSRX1+	C7
D8	GND	GND	C8
D9	USB_SSTX2-	USB_SSRX2-	C9
D10	USB_SSTX2+	USB_SSRX2+	C10
D11	GND (FIXED)	GND (FIXED)	C11
D12	USB_SSTX3-	USB_SSRX3-	C12
D13	USB_SSTX3+	USB_SSRX3+	C13
D14	GND	GND	C14
D15	DDI1_CTRLCLK_AUX+	DDI1_PAIR6+	C15
D16	DDI1_CTRLCLK_AUX-	DDI1_PAIR6-	C16
D17	RSVD	RSVD	C17
D18	RSVD	RSVD	C18
D19	PCIE_TX6+	PCIE_RX6+	C19
D20	PCIE_TX6-	PCIE_RX6-	C20
D21	GND(FIXED)	GND(FIXED)	C21
D22	PCIE_TX7+	PCIE_RX7+	C22
D23	PCIE_TX7-	PCIE_RX7-	C23
D24	RSVD	DDI1_HPD	C24
D25	RSVD	DDI1_PAIR4+	C25
D26	DDI1_PAIR0+	DDI1_PAIR4-	C26
D27	DDI1_PAIR0-	RSVD	C27
D28	RSVD	RSVD	C28
D29	DDI1_PAIR1+	DDI1_PAIR5+	C29
D30	DDI1_PAIR1-	DDI1_PAIR5-	C30
D31	GND(FIXED)	GND (FIXED)	C31
D32	DDI1_PAIR2+	DDI2_CTRLCLK_AUX+	C32
D33	DDI1_PAIR2-	DDI2_CTRLCLK_AUX-	C33
D34	DDI1_DDC_AUX_SEL	DDI2_DDC_AUX_SEL	C34
D35	RSVD	RSVD	C35
D36	DDI1_PAIR3+	DDI3_CTRLCLK_AUX+	C36
D37	DDI1_PAIR3-	DDI3_CTRLCLK_AUX-	C37
D38	RSVD	DDI3_DDC_AUX_SEL	C38
D39	DDI1_PAIR0+	DDI3_PAIR0+	C39
D40	DDI1_PAIR0-	DDI3_PAIR0-	C40
D41	GND(FIXED)	GND(FIXED)	C41
D42	DDI1_PAIR1+	DDI3_PAIR1+	C42
D43	DDI1_PAIR1-	DDI3_PAIR1-	C43
D44	DDI2_HPD	DDI3_HPD	C44
D45	RSVD	RSVD	C45
D46	DDI2_PAIR2+	DDI3_PAIR2+	C46
D47	DDI2_PAIR2-	DDI3_PAIR2-	C47
D48	RSVD	RSVD	C48
D49	DDI2_PAIR3+	DDI3_PAIR3+	C49
D50	DDI2_PAIR3-	DDI3_PAIR3-	C50
D51	GND (FIXED)	GND (FIXED)	C51
D52	PEG_TX0+	PEG_RX0+	C52
D53	PEG_TX0-	PEG_RX0-	C53
D54	PEG_LANE_RV#	TYPE0#	C54
D55	PEG_TX1+	PEG_RX1+	C55

D56	PEG_TX1-	PEG_RX1-	C56
D57	TYPE2#	TYPE1#	C57
D58	PEG_TX2+	PEG_RX2+	C58
D59	PEG_TX2-	PEG_RX2-	C59
D60	GND (FIXED)	GND (FIXED)	C60
D61	PEG_TX3+	PEG_RX3+	C61
D62	PEG_TX3-	PEG_RX3-	C62
D63	RSVD	RSVD	C63
D64	RSVD	RSVD	C64
D65	PEG_TX4+	PEG_RX4+	C65
D66	PEG_TX4-	PEG_RX4-	C66
D67	RSVD	RSVD	C67
D68	PEG_TX5+	PEG_RX5+	C68
D69	PEG_TX5-	PEG_RX5-	C69
D70	GND (FIXED)	GND (FIXED)	C70
D71	PEG_TX6+	PEG_RX6+	C71
D72	PEG_TX6-	PEG_RX6-	C72
D73	GND	GND	C73
D74	PEG_TX7+	PEG_RX7+	C74
D75	PEG_TX7-	PEG_RX7-	C75
D76	GND	GND	C76
D77	RSVD	RSVD	C77
D78	PEG_TX8+	PEG_RX8+	C78
D79	PEG_TX8-	PEG_RX8-	C79
D80	GND (FIXED)	GND (FIXED)	C80
D81	PEG_TX9+	PEG_RX9+	C81
D82	PEG_TX9-	PEG_RX9-	C82
D83	RSVD	RSVD	C83
D84	GND	GND	C84
D85	PEG_TX10+	PEG_RX10+	C85
D86	PEG_TX10-	PEG_RX10-	C86
D87	GND	GND	C87
D88	PEG_TX11+	PEG_RX11+	C88
D89	PEG_TX11-	PEG_RX11-	C89
D90	GND (FIXED)	GND (FIXED)	C90
D91	PEG_TX12+	PEG_RX12+	C91
D92	PEG_TX12-	PEG_RX12-	C92
D93	GND	GND	C93
D94	PEG_TX13+	PEG_RX13+	C94
D95	PEG_TX13-	PEG_RX13-	C95
D96	GND	GND	C96
D97	RSVD	RSVD	C97
D98	PEG_TX14+	PEG_RX14+	C98
D99	PEG_TX14-	PEG_RX14-	C99
D100	GND (FIXED)	GND (FIXED)	C100
D101	PEG_TX15+	PEG_RX15+	C101
D102	PEG_TX15-	PEG_RX15-	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