EmETXe-i2903

COM Express Type 2 CPU Module

Quick Installation Guide

Version 1.0

Form Factor	CPU	Chipset
COM Express Type 2 CPU Module	***Intel® Atom™ N455 or D525 processors***	***Intel® ICH8M***

Video	LAN	Audio
18-bit Single Channel, Analog RGB	***Intel 82854L Gigabit Ethernet***	***HD Audio Interface***

I/O
USB/ IDE/ COM/ SATA LPT/ FDD/ PCI/ PCIex1

♦ 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

Declaration of Conformity

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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4041290300100P

COM Express supports five pin-out Type apply 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 amount the Module Types are summarized in table below:

Module Type	1	10	2	3	4	5	6
Connectors	1	1	2	2	2	2	2
Connector Rows	A, B	A, B	A, B, C, D	A, B, C, D	A, B, C, D	A, B, C, D	A, B, C, D
PCIe Lanes (max)	6	4	22	22	32	32	24
PCI Bus	No	No	Yes	Yes	No	No	No
PATA - IDE	No	No	Yes	No	Yes	No	No
LAN (Max)	1	1	1	3	1	3	1
Serial Ports	No	0 / 2	No	No	No	No	0 / 2
Muxed SDVO	No	No	0 / 2	0 / 2	0 / 2	0 / 2	No
Digital Display I/F	No	No	No	No	No	No	0 / 3
USB 3.0 Ports	No	No	No	No	No	No	0 / 4

Packing List

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

1 x EmETXe-i2903 COM Express CPU Module

1 x Driver CD
1 x Quick Installation Guide

Specifications

Form Factor	COM Express Type 2 CPU Module
CPU	Intel Atom™ N455 at 1.66GHz or D525 at 1.8GHz processors
Chipset	Intel® ICH8M
System Memory	Soldered onboard 2GB DDR3 SDRAM
VGA/ LCD Controller	Intel® Graphics Media Accelerator 3150 graphics core w/ Analog RGB/ Single Channel 18-bit LVDS (Dual independent displays)
Ethernet controller	1 x Intel 82574L PCIe Gigabit Ethernet
BIOS	AMI PnP Flash BIOS
Serial ATA	3 x Serial ATA ports w/ 300MB/s HDD transfer rate
IDE Interface	1 x IDE (Ultra DMA 100/66/33), supports 2 IDE devices
Universal Serial Bus	8 x USB 2.0 ports
LCD	Single Channel 18-bit LVDS
Expansion Interface	5 x PCIe x1 lanes 4 x PCI masters LPC interface
Operation Temp.	-20ºC ~ 70ºC (-4ºF ~ 158ºF)
Watchdog Timer	1~ 255 levels Reset
Dimension (L x W)	125 x 95 mm (4.9” x 3.7”)

Ordering Information

EmETXe-i2903-N4	Intel® Atom™ N455 COM Exress CPU module
EmETXe-i2903-D5	Intel® Atom™ D525 COM Exress CPU module
HS-0746-F1	Heat Spreader (95 x 125 x 18mm)
HS-0746-W1	Heatsink wave type (95 x 125 x 19mm)
PBE-1700 R1.1	COM Express Type 2 evaluation board in ATX form factor
CBK-04-1700-00	Cable kit 1 x SATA cable 1 x COM port cable 1 x FDD cable 1 x IDE cable

The Installation Paths of CD Driver

Windows 2000 & XP

Driver	Path
CHIPSET	\CHIPSET\INF 9.11
LAN	\ETHERNET\INTEL\82574IT\WINXP_32_155 \ETHERNET\INTEL\82574IT\WINXP_64_155
VGA	\GRAPHICS\INTEL_2K_XP_32\5182
AUDIO	\AUDIO\REALTEK_HD\WIN2K_XP_x86x64_R252

Windows 7

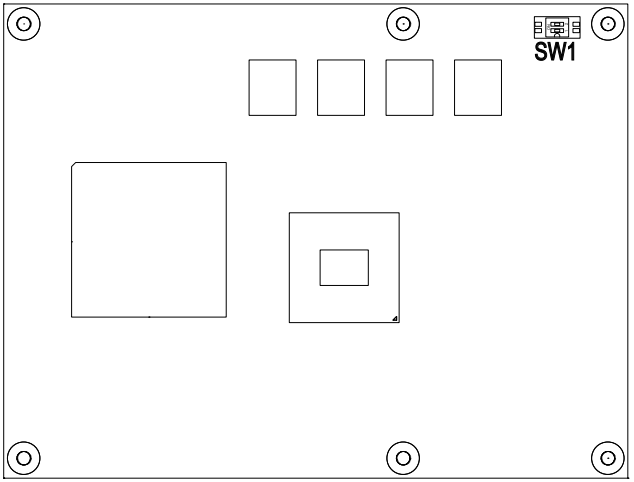
Driver	Path
CHIPSET	\CHIPSET\INF 9.11
LAN	\ETHERNET\INTEL\82574IT\WIN7_32 \ETHERNET\INTEL\82574IT\WIN7_64
VGA	\GRAPHICS\INTEL_WIN7_32\2230 \GRAPHICS\INTEL_WIN7_64\2214
AUDIO	\AUDIO\REALTEK_HD\Win7_R252

Connectors Quick Reference

COM Express AB Connector (bottom side)

COM Express CD Connector (bottom side)

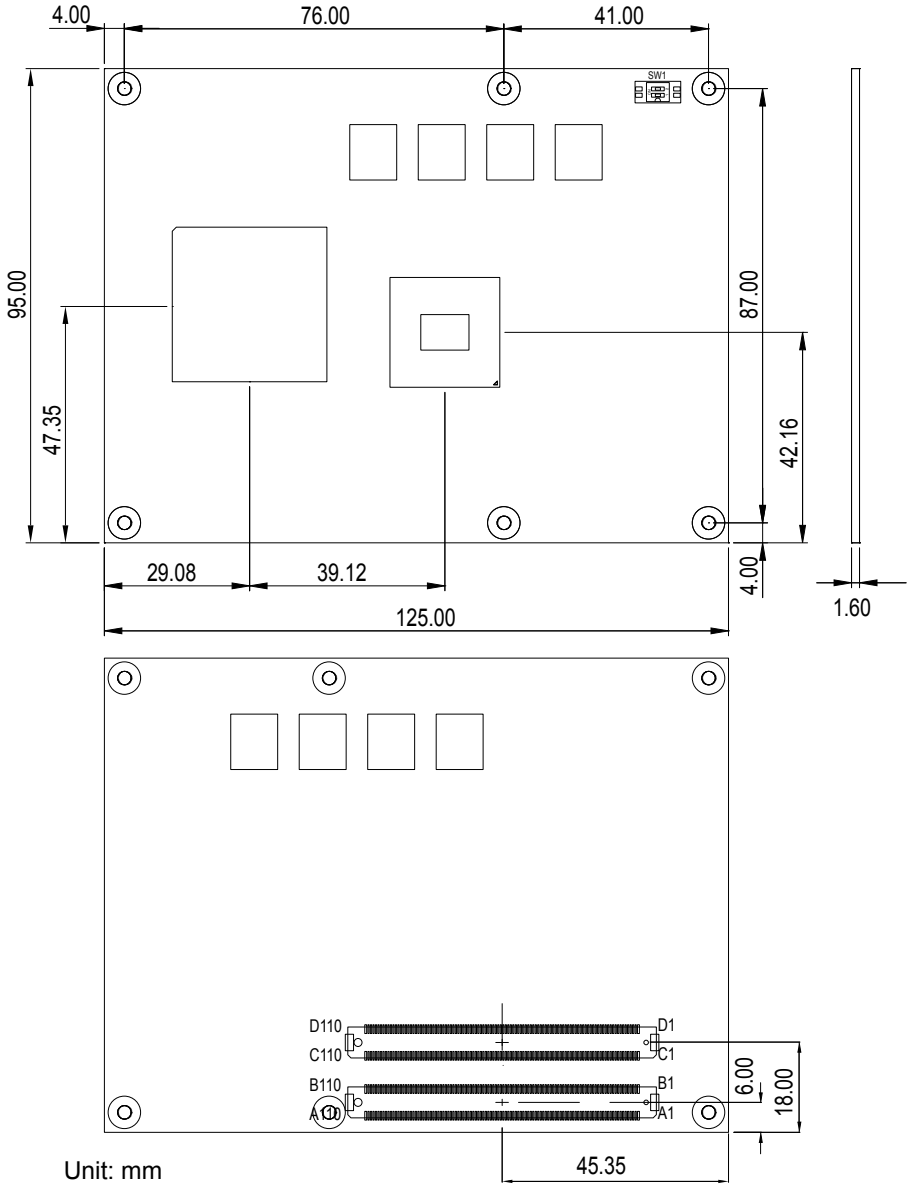
SW1 AT/ATX Power mode selection (top side)



SW1: AT/ATX Power mode selection

	Power Mode Selection
	AT Mode
	ATX Mode (Default)

Board Dimensions



Unit: mm

COM Express AB Connector

B1	GND	GND	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	N/C	GBE0_MDI1-	A9
B10	LPC_CLK	GBE0_MDI1+	A10
B11	GND	GND	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	N/C	SATA0_TX+	A16
B17	N/C	SATA0_TX-	A17
B18	N/C	N/C	A18
B19	N/C	SATA0_RX+	A19
B20	N/C	SATA0_RX-	A20
B21	GND	GND	A21
B22	N/C	N/C	A22
B23	N/C	N/C	A23
B24	PWR_OK	N/C	A24
B25	N/C	N/C	A25
B26	N/C	N/C	A26
B27	WDT	N/C	A27
B28	N/C	ATA_ACT#	A28
B29	N/C	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	N/C	N/C	A52
B53	N/C	N/C	A53
B54	N/C	N/C	A54
B55	N/C	N/C	A55

B56	N/C	N/C	A56
B57	N/C	GND	A57
B58	N/C	N/C	A58
B59	N/C	N/C	A59
B60	GND	GND	A60
B61	PCIE_RX2+	PCIE_TX2+	A61
B62	PCIE_RX2-	PCIE_TX2-	A62
B63	N/C	N/C	A63
B64	PCIE_RX1+	PCIE_TX1+	A64
B65	PCIE_RX1-	PCIE_TX1-	A65
B66	WAKE0#	GND	A66
B67	N/C	N/C	A67
B68	PCIE_RX0+	PCIE_TX0+	A68
B69	PCIE_RX0-	PCIE_TX0-	A69
B70	GND	GND	A70
B71	N/C	LVDS_A0+	A71
B72	N/C	LVDS_A0-	A72
B73	N/C	LVDS_A1+	A73
B74	N/C	LVDS_A1-	A74
B75	N/C	LVDS_A2+	A75
B76	N/C	LVDS_A2-	A76
B77	N/C	LVDS_VDD_EN	A77
B78	N/C	N/C	A78
B79	LVDS_BKLT_EN	N/C	A79
B80	GND	GND	A80
B81	N/C	LVDS_A_CK+	A81
B82	N/C	LVDS_A_CK-	A82
B83	CKLVDS_BKLT_CTRL	N/C	A83
B84	VCC_5V_SBY	N/C	A84
B85	VCC_5V_SBY	N/C	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	A91
B92	VGA_BLU	RSVD	A92
B93	VGA_HSYNC	N/C	A93
B94	VGA_VSYNC	RSVD	A94
B95	VGA_I2C_CK	RSVD	A95
B96	VGA_I2C_DAT	GND	A96
B97	N/C	VCC_12V	A97
B98	N/C	VCC_12V	A98
B99	N/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

D1	GND	GND	C1
D2	IDE_D5	IDE_D7	C2
D3	IDE_D10	IDE_D6	C3
D4	IDE_D11	IDE_D3	C4
D5	IDE_D12	IDE_D15	C5
D6	IDE_D4	IDE_D8	C6
D7	IDE_D0	IDE_D9	C7
D8	IDE_REQ	IDE_D2	C8
D9	IDE_IOW#	IDE_D13	C9
D10	IDE_ACK#	IDE_D1	C10
D11	GND	GND	C11
D12	IDE_IRQ	IDE_D14	C12
D13	IDE_A0	IDE_IORDY	C13
D14	IDE_A1	IDE_IOR#	C14
D15	IDE_A2	PCI_PME#	C15
D16	IDE_CS1#	PCI_GNT2#	C16
D17	IDE_CS3#	PCI_REQ2#	C17
D18	IDE_RESET#	PCI_GNT1#	C18
D19	PCI_GNT3#	PCI_REQ1#	C19
D20	PCI_REQ3#	PCI_GNT0#	C20
D21	GND	GND	C21
D22	PCI_AD1	PCI_REQ0#	C22
D23	PCI_AD3	PCI_RESET#	C23
D24	PCI_AD5	PCI_AD0	C24
D25	PCI_AD7	PCI_AD2	C25
D26	PCI_C/BE0#	PCI_AD4	C26
D27	PCI_AD9	PCI_AD6	C27
D28	PCI_AD11	PCI_AD8	C28
D29	PCI_AD13	PCI_AD10	C29
D30	PCI_AD15	PCI_AD12	C30
D31	GND	GND	C31
D32	PCI_PAR	PCI_AD14	C32
D33	PCI_SERR#	PCI_C/BE1#	C33
D34	PCI_STOP#	PCI_PERR#	C34
D35	PCI_TRDY#	PCI_LOCK#	C35
D36	PCI_FRAME#	PCI_DEVSEL#	C36
D37	PCI_AD16	PCI_IRDY#	C37
D38	PCI_AD18	PCI_C/BE2#	C38
D39	PCI_AD20	PCI_AD17	C39
D40	PCI_AD22	PCI_AD19	C40
D41	GND	GND	C41
D42	PCI_AD24	PCI_AD21	C42
D43	PCI_AD26	PCI_AD23	C43
D44	PCI_AD28	PCI_C/BE3#	C44
D45	PCI_AD30	PCI_AD25	C45
D46	PCI_IRQC#	PCI_AD27	C46
D47	PCI_IRQD#	PCI_AD29	C47
D48	N/C	PCI_AD31	C48
D49	PCI_M66EN	PCI_IRQA#	C49
D50	PCI_CLK	PCI_IRQB#	C50
D51	GND	GND (FIXED)	C51
D52	N/C	N/C	C52
D53	N/C	N/C	C53
D54	N/C	N/C	C54
D55	N/C	N/C	C55

D56	N/C	N/C	C56
D57	N/C	N/C	C57
D58	N/C	N/C	C58
D59	N/C	N/C	C59
D60	GND	GND	C60
D61	N/C	N/C	C61
D62	N/C	N/C	C62
D63	RSVD	RSVD	C63
D64	RSVD	RSVD	C64
D65	N/C	N/C	C65
D66	N/C	N/C	C66
D67	GND	RSVD	C67
D68	N/C	N/C	C68
D69	N/C	N/C	C69
D70	GND	GND	C70
D71	N/C	N/C	C71
D72	N/C	N/C	C72
D73	N/C	N/C	C73
D74	N/C	N/C	C74
D75	N/C	N/C	C75
D76	GND	GND	C76
D77	N/C	RSVD	C77
D78	N/C	N/C	C78
D79	N/C	N/C	C79
D80	GND	GND	C80
D81	N/C	N/C	C81
D82	N/C	N/C	C82
D83	RSVD	RSVD	C83
D84	GND	GND	C84
D85	N/C	N/C	C85
D86	N/C	N/C	C86
D87	GND	GND	C87
D88	N/C	N/C	C88
D89	N/C	N/C	C89
D90	GND	GND	C90
D91	N/C	N/C	C91
D92	N/C	N/C	C92
D93	GND	GND	C93
D94	N/C	N/C	C94
D95	N/C	N/C	C95
D96	GND	GND	C96
D97	N/C	RSVD	C97
D98	N/C	N/C	C98
D99	N/C	N/C	C99
D100	GND	GND	C100
D101	N/C	N/C	C101
D102	N/C	N/C	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	GND	C110