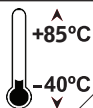


**Wide Operating
Temperature**



EmNANO-i2800

Mini COM Express® Type 10 CPU Module

Quick Installation Guide

Version 1.0

Form Factor <i>COM Express® Mini Type 10 CPU Module</i>	CPU <i>Intel Elkhart Lake SoC processor</i>	Video <i>DDI port, LVDS</i>
LAN <i>Intel i210 Series GbE controller</i>	Audio <i>HD Audio Link</i>	I/O <i>USB/ SATA/ PC / TPM</i>

◆ Technical Support

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

◆ Declaration of Conformity

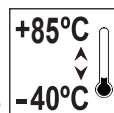
FCC Class B

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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The Ultra-small COM Express® Mini Module

EmNANO-i2800 is a COM Express® Mini Type 10 module. The module size is 55 mm x 84 mm, which is the smallest in ARBOR's COM Express® product lineup, next to the Basic size (125 mm x 95 mm) and Compact size (95mm x 95mm) form factors.

The connector difference between Standard COM Express Mini type 10 and EmNANO-i2800 is tabulated as below:

Module Type	Type 10	EmNANO-i2800
Connectors	1	1
Connector Rows	A, B	A, B
PCIe Lanes (Max)	4	4
LAN (Max)	1	1
DDI 0 (Max)	1	1
LVDS Channel A	1	1
USB 2.0 Ports (Max)	8	8
USB 3.0 Ports (Max)	2	2

Packing List

Before starting to install the single board, make sure the following items are shipped:



1 x EmNANO-i2800 COM Express® Mini CPU Module



1 x Quick Installation Guide

Specifications

Form Factor	COM Express® Mini Type 10 CPU Module
CPU	Soldered onboard Intel® Atom® x6211E 1.3GHz Dual cores TDP 6W Atom® x6413E 1.5GHz Quad cores TDP 9W
Memory	Soldered onboard LPDDR4 3200MT/s 4GB / 8GB SDRAM
BIOS	AMI UEFI BIOS
USB Port	8 x USB 2.0 ports 2 x USB 3.2 ports
Expansion Bus	4 x PCIe1, LPC, I ² C, SMBus, GPIO (option SDIO)
Storage	2 x SATA 3.0 ports Soldered onboard eMMC 5.1 (OEM Request)
Ethernet Chipset	1 x Intel® i210 Series Gigabit Ethernet controller
Audio	HD audio link
TPM	TPM2.0
Graphic Chipset	Integrated in Intel® Gen10 UHD graphic
Graphic Interface	LCD: Single Channel 24-bit via eDP to LVDS NXP PTN3460 1 x DDI port
Power Requirement	5V/12V Auto detect
Power Consumption	1.29A@12V (x6413 CPU Module only)
Operating Temp.	-40 ~ 85°C (-40 ~ 185°F)
Humidity	10 ~ 95%@ 85°C (non-condensing)
Dimension (L x W)	84 x 55 mm (3.30" x 2.17")

Driver (6.7A) Installatoin

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

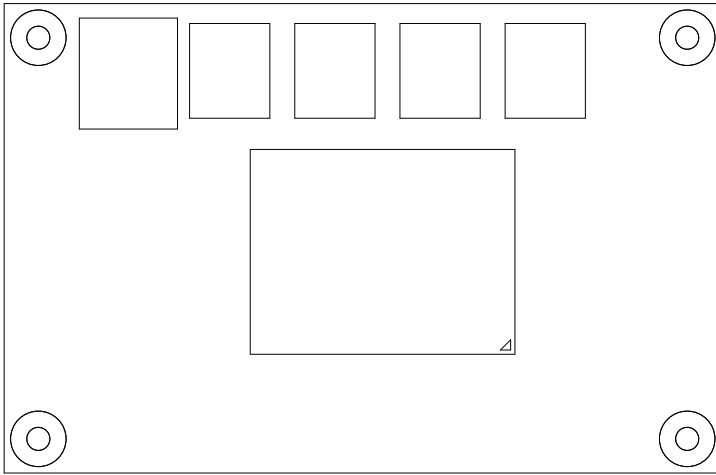
Ordering Information

EmNANO-i2800-WT-x6211E-4G	Mini COM Express Type 10 Intel Elkhart Lake ATOM x6211E CPU Module w/4G memory down, -40~85°C
EmNANO-i2800-WT-x6413E-8G	Mini COM Express Type 10 Intel Elkhart Lake ATOM x6413E CPU Module w/8G memory down, -40~85°C

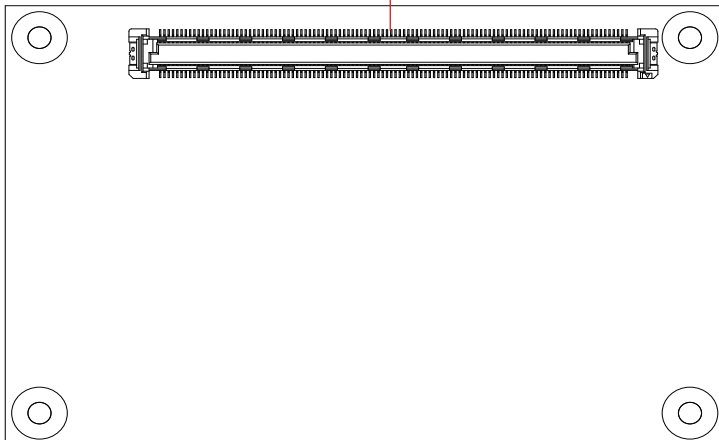
Optional Accessories

HS-2800-F1-T*	Heat spreader with threaded standoffs
HS-2800-F1-NT*	Heat spreader without threaded standoffs
PBN-9007	COM Express Mini evaluation carrier board (EPIC form factor)
CBK-05-9007-00	PBN-9007 cable kit 1 x USB cable 1 x Serial port cable 1 x SATA cable 1 x SATA Power cable 1 x PS/2 cable

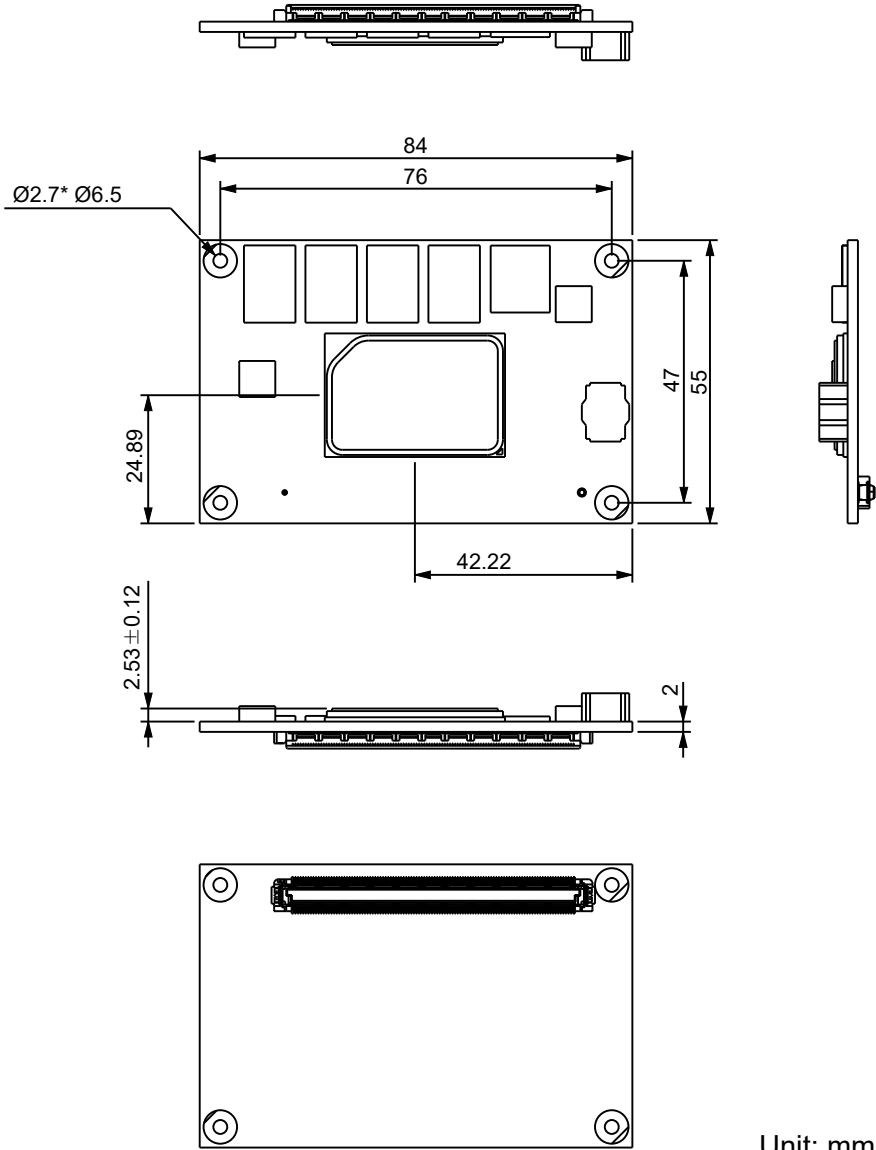
Note: An additional wave heat sink was required during the operation process at 85°C.



COM Express Connector



Board Dimensions



Unit: mm

COM Express® Mini Type 10 AB Connector

Note: A pin with a remark "(N/C)" is a pin that the signal isn't available on this board while the remark beyond the bracket delivers the consortium-specified definition.

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	LPC_DRQ1# (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 (N/C)	A14
B15	SMB_ALRERT#	SMB_DAT	A15
B16	SATA1_TX+	SATA0_TX+	A16
B17	SATA1_TX-	SATA0_TX-	A17
B18	SUS_STAT#	SUS_S4#	A18
B19	SATA1_RX+	SATA1_RX+	A19
B20	SATA1_RX-	SATA1_RX-	A20
B21	GND	GND	A21
B22	USB_SSTX0-	USB_SSRX0-	A22
B23	USB_SSTX0+	USB_SSRX0+	A23
B24	PWR_OK	SUS_S5#	A24
B25	USB_SSTX1-	USB_SSRX1-	A25
B26	USB_SSTX1+	USB_SSRX1+	A26
B27	WDT	BATLOW#	A27
B28	AC_SDIN2(N/C)	ATA_ACT#	A28
B29	AC_SDIN1(N/C)	AC_SYNC	A29
B30	AC_SDINO	AC_RST#	A30
B31	GND	GND	A31
B32	SPKR	AC_BITCLK	A32
B33	I2C_CK	AC_SDOOUT	A33
B34	I2C_DAT	BIOS_DIS1#	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	USB_2_3_OC#	USB0-	A45
B46	USB1-	USB0+	A46
B47	EXCD1_PERST#	VCC_RTC	A47
B48	EXCD1_CPPE#	EXCD0_PERST#	A48
B49	SYS_RST#	EXCD0_CPPE#	A49
B50	CB_REST#	LPC_SERIRQ	A50
B51	GND	GND	A51
B52	RSV13 (N/C)	RSV9 (N/C)	A52
B53	RSV14 (N/C)	RSV10 (N/C)	A53
B54	GPO1/SD_CMD	GPIO/SD_DATA0	A54
B55	RSV15 (N/C)	RSV11 (N/C)	A55

B56	RSV16 (N/C)	RSV12 (N/C)	A56
B57	GPO2/SD_WP	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/SD_CD#	GPI1/SD_DATA1	A63
B64	PCIE_RX1+	PCIE_TX1+	A64
B65	PCIE_RX1-	PCIE_TX1-	A65
B66	WAKE0#	GND	A66
B67	WAKE1#	GPI2/SD_DATA2	A67
B68	PCIE_RX0+	PCIE_TX0+	A68
B69	PCIE_RX0-	PCIE_TX0-	A69
B70	GND	GND	A70
B71	DDIO_PAIR0+	LVDS_A0+/eDP_TX2+	A71
B72	DDIO_PAIR0-	LVDS_A0-/eDP_TX2-	A72
B73	DDIO_PAIR1+	LVDS_A1+/eDP_TX1+	A73
B74	DDIO_PAIR1-	LVDS_A1-/eDP_TX1-	A74
B75	DDIO_PAIR2+	LVDS_A2+/eDP_TX0+	A75
B76	DDIO_PAIR2-	LVDS_A2-/eDP_TX0-	A76
B77	DDIO_PAIR4+ (N/C)	LVDS_VDD_EN/eDP_VDD_EN	A77
B78	DDIO_PAIR4- (N/C)	LVDS_A3+	A78
B79	LVDS_BKLT_EN/eDP_BKLT_EN	LVDS_A3-	A79
B80	GND	GND	A80
B81	DDIO_PAIR3+	LVDS_A_CK+/eDP_TX3+	A81
B82	DDIO_PAIR3-	LVDS_A_CK-/eDP_TX3-	A82
B83	LVDS_BKLT_CTRL/ eDP_BKLT_CTRL	LVDS_I2C_CK/eDP_AUX+	A83
B84	VCC_5V_SBY	LVDS_I2C_DAT/eDP_AUX-	A84
B85	VCC_5V_SBY	GPI3/SD_DATA3	A85
B86	VCC_5V_SBY	FSP1_CS1#	A86
B87	VCC_5V_SBY	RSV18/eDP_HPD(NC)	A87
B88	BIOS_DIS1#	PCIE0_CK_REF+	A88
B89	DDP0_HPD	PCIE0_CK_REF-	A89
B90	GND	GND	A90
B91	DDIO_PAIR5+ (N/C)	SPI_POWER	A91
B92	DDIO_PAIR5- (N/C)	SPI_MISO	A92
B93	DDIO_PAIR6+ (N/C)	SD_CLK	A93
B94	DDIO_PAIR6- (N/C)	SPI_CLK	A94
B95	DDIO_DDC_AUX_SEL	SPI_MOSI	A95
B96	RSV19/USB_HOST_FRSNT(N/C)	TPM_PP	A96
B97	SPI_CS#	TYPE10#	A97
B98	DDIO_CTRLCLK_AUX+	SERR0_TX	A98
B99	DDIO_CTRLCLK_AUX-	SERR0_TX	A99
B100	GND	GND	A100
B101	FAN_PWMOUT(N/C)	SERR1_TX	A101
B102	FAN_TACHIN(N/C)	SERR1_RX	A102
B103	SLEEP#	LID#	A103
B104	VCC_12V	CB_VIN	A104
B105	VCC_12V	CB_VIN	A105
B106	VCC_12V	CB_VIN	A106
B107	VCC_12V	CB_VIN	A107
B108	VCC_12V	CB_VIN	A108
B109	VCC_12V	CB_VIN	A109
B110	GND	GND	A110

Block Diagram

