

EmCORE-i2802

3.5" Compact Board Quick Installation Guide

Version 1.2

Form Factor 3.5" Compact Board	CPU Soldered onboard Intel® Elkhart Lake Processor Celeron® N6210 1.2GHz/ Atom® x6413E 1.5GHz	Audio ITS 92HD81B1C5 NLGXRAX HDA, Mic-in/ Line-in/ Line-out
Video 1 x Display Port 2 x Dual Channels 24-bit Display Port	LAN 2 x Realtek RTL8111 PCIe Gigabit Ethernet	I/O SATA/ USB/ COM/ Mini- card/ DIO/ Micro SIM

◆ 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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4040280200100P

Packing List

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



1 x EmCORE-i2802 3.5"
Intel® Elkhart Lake Celeron® N6210 Compact Board /
Intel® Elkhart Lake Atom® x6413E Compact Board



1 x Quick Installation Guide

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

Ordering Information

EmCORE-i2802-N6210	Intel Elkhart Lake Celeron N6210, 3.5" compact board
EmCORE-i2802-x6413E	Intel Elkhart Lake Atom x6413E, 3.5" compact board
CBK-10-2802-00	Cable kit 2 x USB 2.0 cables (2 ports / cable) 3 x COM ports cables 1 x AUDIO cable 2 x SATA cable 2 x SATA power cables

Driver Installation

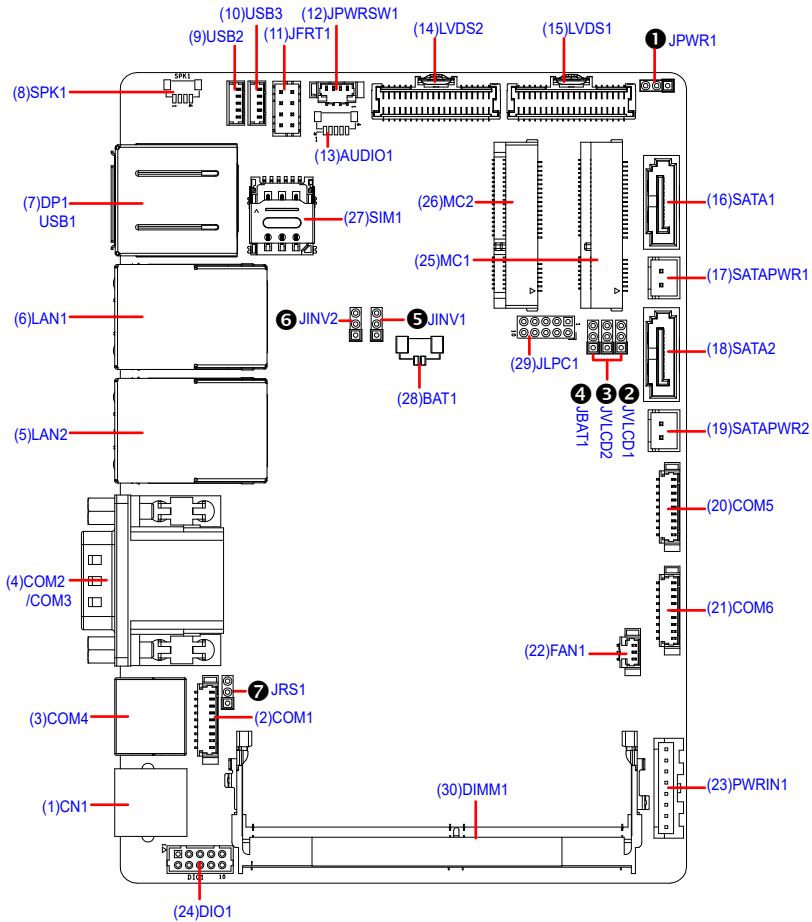
To install the drivers, please visit our website at www.arbor-technology.com and download the driver pack from the product page.

Unit: mm

Specifications

Form Factor	3.5" Compact Board
CPU	Soldered onboard for Intel® Elkhart Lake / Celeron® N6210 1.2GHz/ Atom® x6413E 1.5GHz Processor
Memory	1 x DDR4 SO-DIMM socket, up to 16GB DDR4 3200 MT/s SDRAM
BIOS	AMI BIOS
Watchdog Timer	1~255 levels reset
Serial Port	6 x Serial Ports
USB Port	4 x USB 2.0 ports 2 x USB 3.0 / 2.0 ports
Expansion	2 x Mini-card sockets
	1 x Micro SIM socket (for full size Mini-card)
Storage	2 x Serial ATA ports with 600MB/s HDD transfer rate
Ethernet Chipset	2 x Realtek RTL8111 PCIe GbE controllers
Digital I/O	8-bit Programmable
Audio	MIC-in/ Line-in/ Line-out
Graphic Chipset	Integrated Vega Core Graphics controller
Graphic Interface	1 x Display Port
	2 x Dual Channel 24-bit LVDS ports
Power Input	DC 8V ~ 13.2V
Power Consumption	TBD
Operating Temp.	-20 ~ 70°C (-4 ~ 158°F)
Operating Humidity	10 ~ 95% @ 60°C (non-condensing)
Dimensions (L x W)	146 x 102 mm (5.7" x 4.0")

Jumpers and Connectors Location on Top side



Jumpers & Connectors Quick Reference

Jumpers

Jumper	Description
① JPWR1	AT/ATX Power Mode Selection
②③ JVLCD1, 2	LVDS1, 2 LCD Voltage Selection
④ JBAT1	CMOS Setting
⑤⑥ JINV1, 2	LVDS1, 2 LCD Inverter Voltage Selection
⑦ JRS1	COM1 Power Source Special Support

Connectors

Connector	Description
(1)CN1	DREWR Connector
(2)COM1	RS-232 Serial Port Connector
(3)COM4	Serial Port Connector
(4)COM2, COM3	RS-232 Serial Port Connectors
(5)(6)LAN2, 1	RJ-45 LAN and USB 2.0 Stack Connectors
(7)DP1 & USB1	USB 3.0 Stack Connectors and DisplayPort
(8)SPK1	2Watt (rms)/4Ω per Channel Speaker Output Connector
(9)(10)USB2, 3	USB Hub
(11)JFRT1	Switches and Indicators
(12)JPWRSW1	Power Switches and LED
(13)AUDIO1	MIC, LINE Audio Connector
(14)(15) LVDS2, 1	LVDS Connector
(16)(18)SATA1, 2	SATA Connector Channel 0, 1
(17)(19)SATAPWR1, 2	SATA Power Connector
(20)(21)COM5,6	RS-232 Serial Port Connector
(22)FAN1	Smart Fan Connector
(23)PWRIN1	DC +12V Power Input Connector
(24)DIO1	Digital I/O Connector
(25)MC1	Full size Mini-Card Socket
(26)MC2	Half size Mini-Card
(27)SIM1	MC1 NANO SIM Socket
(28)BAT1	Battery Connector
(29)JLPC1	LPC to 80 Port Debug Card Connector
(30)DIMM1	DDR4 SO-DIMM Socket

Jumpers

①JPWR1: AT/ATX Power Mode Selection

Connector type: 2.0mm pitch 1x3 pin header

Pin	Power Mode Selection
1-2	ATX Mode (Default) 
2-3	AT Mode 

②JVLCD1, 2: LVDS1, 2 LCD Voltage Selection

The voltage of LVDS1, 2 LCD panel could be selected by JVLCD1 in +5V or +3.3V.

Connector type: 2.0mm pitch 1x3 pin header

Pin	Voltage
1-2	+5V 
2-3	+3.3V (Default) 

③JBAT1: CMOS Setting

Connector type: 2.0mm pitch 1x3-pin header

Pin	Mode
1-2	Keep CMOS (Default) 
2-3	Clear CMOS 

④JINV1, 2: LVDS1, 2 LCD Inverter Voltage Selection

The voltage of LVDS1, 2 LCD panel inverter could be selected by JINV1, 2 in 12V or +5V.

Connector type: 2.0mm pitch 1x3 pin header

Pin	Voltage
1-2	+12V (Default) 
2-3	+5V 

⑦JRS1: COM1 Power Source Special Support

Connector type: onboard 1x3 pin 2.0mm header

Pin	Mode
1-2	POS: +5V on Pin9 (Default) 
2-3	RI 

Connectors

(1)CN1: DREWR Connector

Connector type: RJ-11 Connector

Pin	Description
1	FRAME GND
2	DRWER1
3	SW_IN
4	24V
5	DRWER2
6	GND



(2)COM1: RS-232 Serial Port Connector

Connector type: 1.25mm pitch 1x9-pin wafer connector

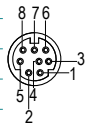
Pin	Description
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	no connection
7	RTS
8	CTS
9	+5V/RI (JRS1 Switchable)



(3)COM4: Serial Port Connector

Connector type: 8-Pin mini DIN connector

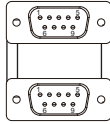
Pin	Description
1	CTS
2	RTS
3	RXD
4	GND
5	TXD
6	DSR
7	DTR
8	+V5S



(4)COM2/COM3: RS-232 Serial Port Connector

Connector type: External 9-pin D-sub male connector.

Pin	Desc.	Pin	Desc.
1	DCD	6	DSR
2	RX	7	RTS
3	TX	8	CTS
4	DTR	9	+5V
5	GND		



(5)(6)LAN2, 1: RJ-45 LAN and USB 2.0 Stack Connectors

Connector type: RJ-45 LAN and double-stacked USB connectors

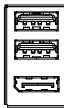
The pin assignments conform to the industry standard.



(7)DP1 & USB1: USB 3.0 Stack Connectors and DisplayPort

Connector type: Double-stacked USB connectors and DisplayPort

The pin assignments conform to the industry standard.



(8)SPK1: 2Watt (rms)/4Ω per Channel Speaker Output Connector

Connector type: 1.25mm pitch 1x4 pin header

Pin	Description
1	SP_R-
2	SP_R+
3	SP_L-
4	SP_L+



(9)(10)USB2, 3: USB Hub Connector

Connector type: 1.25mm pitch 1x5 pin header

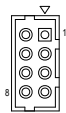
Pin	Description
1	USB_+5V
2	USB-
3	USB+
4	GND
5	GND



(11)JFRT1: Switches and Indicators

Connector type: 2.0mm pitch 2x4 pin wafer connector

Pin	Desc.	Pin	Desc.
2	POWER_LED-	1	POWER_LED+
4	HDD_LED-	3	HDD_LED+
6	12V_-	5	12V_+
8	RESET-	7	RESET+



(12)JPWRSW1: Power Switches and LED

Connector type: 1.25mm pitch 1x4 pin wafer connector

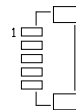
Pin	Description
1	PSON+
2	PSON-
3	POWER_LED2+
4	POWER_LED2-



(13)AUDIO1: MIC,LINE Audio connector

Connector type: 1.25mm pitch 1x5 pin connector

Pin	Description
1	MIC
2	GND
3	LINE IN L (Default)
4	LINE IN R (Default)
5	GND

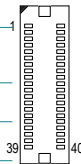


Note: LINE IN can be switched to LINE OUT by OEM BIOS.

(14)(15) LVDS2, 1: LVDS Connector

Connector type: 1.25mm pitch 2x20 pin connector, supporting 24-bit dual channels

Pin	Description	Pin	Description
1	LCD_VDD(+3.3V/+5V)	2	LCD_VDD(+3.3V/+5V)
3	GND	4	LCD_VDD(+3.3V/+5V)
5	LVDS_DA0-	6	LVDS_DB0-
7	LVDS_DA0+	8	LVDS_DB0+
9	GND	10	GND
11	LVDS_DA1-	12	LVDS_DB1-
13	LVDS_DA1+	14	LVDS_DB1+
15	GND	16	GND
17	LVDS_DA2-	18	LVDS_DB2-
19	LVDS_DA2+	20	LVDS_DB2+
21	GND	22	GND
23	LVDS_A_CLK-	24	LVDS_B_CLK-
25	LVDS_A_CLK+	26	LVDS_B_CLK+
27	GND	28	GND
29	LVDS_DA3-	30	LVDS_DB3-
31	LVDS_DA3+	32	LVDS_DB3+
33	GND	34	BKL_CONTROL
35	USB+ (USB2.0 PORT4)	36	BKL_ENABLE
37	USB-(USB2.0 PORT4)	38	GND
39	USB_+5V	40	BKL_PWR(+5V/+12V)



(16)(18)SATA1, 2: SATA Connector Channel 0, 1

Connector type: SATA Connector

The pin assignments conform to the industry standard.



(17)(19)SATAPWR1, 2: SATA Power Connector

Connector type: 2.0mm pitch 1x2-pin wafer connector

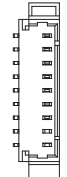
Pin	Description
1	+5VS
2	GND



(20)(21)COM5,6: RS-232 Serial Port Connector

Connector type: 1.25mm pitch 1x9-pin wafer connector

Pin	Description
1	DCD
2	RX
3	TX
4	DTR
5	GND
6	DSR
7	RTS
8	CTS
9	COM5: RI / COM6: +V5S



(22)FAN1: Smart Fan Connector

Connector type: 1.25mm pitch 1x3-pin wafer connector

Pin	Description
1	+5V~3V
2	GND
3	FANIN1



(23)PWRIN1: DC +12V Power Input Connector

Connector type: 2.5mm pitch 1x8 pin header

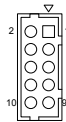
Pin	Description
1	VIN: 8V~13.2V
2	VIN: 8V~13.2V
3	GND
4	GND
5	+5V LED
6	COM1 DSR
7	GND
8	VIN:+24V



(24)DIO1: Digital I/O Connector

Connector type: 2.00mm pitch 2x5 pin wafer connector

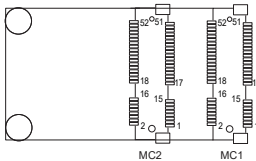
Pin	Desc.	Pin	Desc.
2	DIO1	1	DIO0
4	DIO3	3	DIO2
6	DIO5	5	DIO4
8	DIO7	7	DIO6
10	GND	9	V5S+



(25)MC1: Full size Mini-Card Socket

(26)MC2: Half size Mini-Card Socket
Connector type: Onboard 0.8mm-pitch 52-pin edge card connector

The pin assignments conform to the industry standard.



(28)BAT1: Battery Connector

Connector type: 1.25mm pitch 1x2-pin connector.

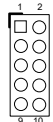
Pin	Description
1	GND
2	Battery Power



(29)JLPC1: LPC to 80 Port Debug Card Connector

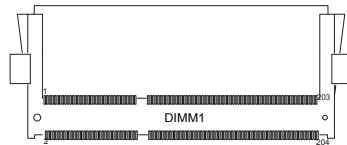
Connector type: 1.25mm pitch 2x5 pin header

Pin	Desc.	Pin	Desc.
1	LPC_CLK0	2	GND
3	LPC_LFRAME#	4	3.3V_LPC_LAD0
5	PLTRST#	6	N/C
7	LPC_LAD3	8	LPC_LAD2
9	+3.3VS	10	LPC_LAD1



(30)DIMM1: DDR4 SO-DIMM Socket

Connector type: DDR4 SO-DIMM socket supporting 3200MHz SDRAM up to 16GB



(27)SIM1: MC1 NANO SIM Socket

Connector type: SMD,6P,1.27mm, H1.5 socket

Pin	Desc.	Pin	Desc.
C1	VCC	C2	RST
C3	CLK	C5	GND
C6	VPP	C7	I/O

