

EmCORE-i2305

3.5" Compact Board Quick Installation Guide

Version 1.4

| | | |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------|
| Form Factor <i>3.5" Compact Board</i> | CPU <i>Intel® Atom™ Processor E3800 family & Celeron® Processor N-Series</i> | Video <i>Dual Channel 24-bit LVDS, Analog RGB, Vertical HDMI</i> |
| I/O <i>SATA/ mSATA/ USB/ COM/ DIO/ I2C</i> | LAN <i>2 x Intel i21x PCIe GbE controllers</i> | Audio <i>Realtek HD Audio CODEC, MIC-in/ Line-out/ Line-in</i> |

◆ Technical Support

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

Contact our customer service at the following addresses if your problem persists.
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.

Packing List

Before starting with the installation, make sure the following items are shipped:



1 x EmCORE-i2305 3.5" Compact Board with heatsink



1 x Quick Installation Guide

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

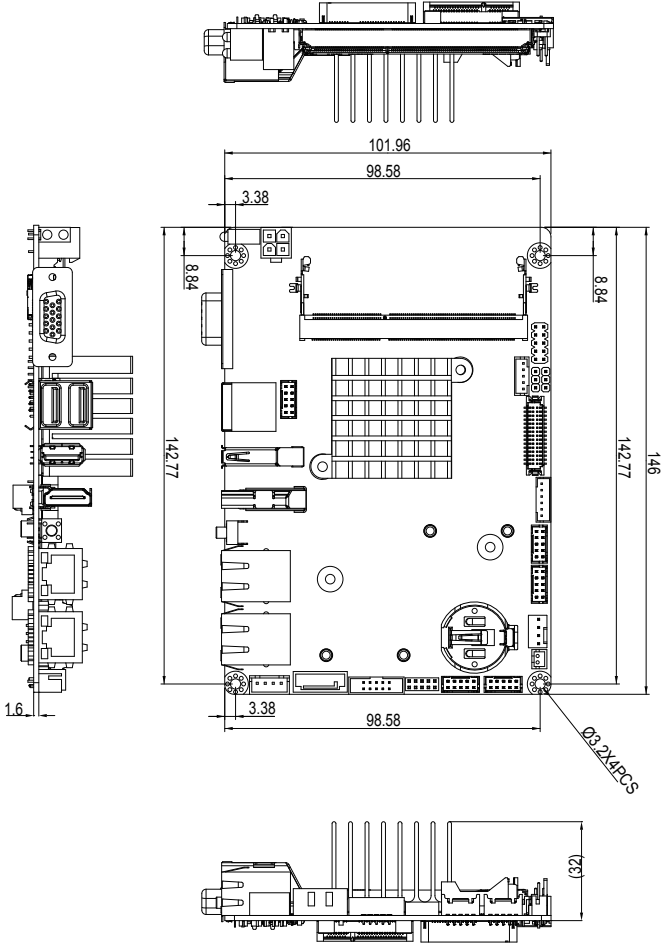
Ordering Information

| | |
|---------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| EmCORE-i2305-E3825 | Intel® Atom™ Processor E3825 3.5" Compact Board |
| EmCORE-i2305-WT-E3825 | Wide range temperature Intel® Atom™ Processor E3825 3.5" Compact Board |
| EmCORE-i2305-E3845 | Intel® Atom™ Processor E3845 3.5" Compact Board |
| EmCORE-i2305-WT-E3845 | Wide range temperature Intel® Atom™ Processor E3845 3.5" Compact Board |
| EmCORE-i2305-N2807 (BTO) | Intel® Celeron® Processor N2807 3.5" Compact Board |
| EmCORE-i2305-N2930 (BTO) | Intel® Celeron® Processor N2930 3.5" Compact Board |
| CBK-07-2305-00 | Cable kit 1 x AUDIO cable 2 x COM port latching cables 1 x Keyboard & mouse latching y-cable 1 x SATA cable 1 x SATA power cable 1 x USB cable |

Driver Installation

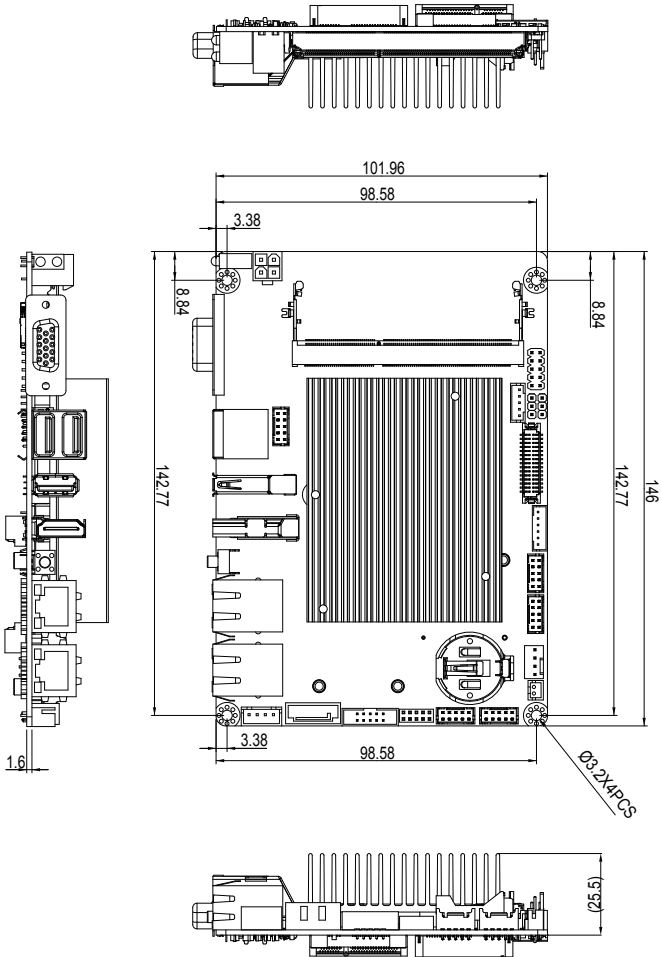
To install the drivers, please visit our website at www.arbor-technology.com and download the driver pack from the product page. If you need login access, please contact your local ARBOR sales representative.

Board Dimensions (SKU-E3825)



Unit: mm

Board Dimensions (SKU-E3845)



Unit: mm

Specifications

| | | |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------|
| Form Factor | 3.5" Compact Board | |
| CPU | Soldered onboard Intel® Atom™ Processor E3825 dual-core 1.33GHz, E3845 quad-core 1.91GHz, Celeron® N2807 dual-core 1.58GHz or N2930 quad-core 1.83GHz | |
| System Memory | 1 x DDR3L SO-DIMM socket, supporting up to 8GB 1333/1600 MT/s SDRAM | |
| Graphics Chipset | Integrated Intel® HD Graphics | |
| Graphics Interface | HDMI | Vertical HDMI connector |
| | LCD | Dual-channel 24-bit LVDS |
| | Analog RGB that supports resolution up to 2048 x 1536 | |
| Ethernet | 2 x Intel i21x PCIe GbE controllers | |
| BIOS | Insyde BIOS | |
| Audio | Realtek® HD Audio CODEC, Mic-in/ Line-in/ Line-out | |
| Storage | 1 x Serial ATA port with 300MB/s HDD transfer rate | |
| | 1 x mSATA socket | |
| | Soldered onboard 16GB eMMC(optional) (E3800 Family Only) | |
| Serial Port | 2 x COM ports (1 x RS-232 port, 1 x RS-232/485 port selectable) | |
| Universal Serial Bus | 4 x USB 2.0 ports | |
| | 1 x USB 3.0 port | |
| Digital I/O | 8-bit programmable Digital Input/Ouput | |
| Expansion Bus | 1 x Mini-card socket | |
| | 1 x Micro-SDXC socket (E3800 family only, supports SDXC card SD 3.0 only) | |
| | 2 x I ² C ports(optional) (E3800 Family Only) | |
| Power Requirement | +12V DC | |
| Power Consumption | 0.56A@+12V (typical) (E3825) 0.65A@+12V (typical) (E3845) | |
| Operating Temp. | -20°C ~ 70°C (-4°F ~ 158°F) -40°C ~ 85°C (-40°F ~ 185°F, WT series) | |
| Operating Humidity | 10% ~ 95% @ 70°C (non-condensing) 10% ~ 95% @ 85°C (non-condensing, WT series) | |
| Watchdog Timer | 1~255 levels reset | |
| Dimension (L x W) | 146 x 102 mm (5.7" x 4.0") | |

Jumpers & Connectors Quick Reference

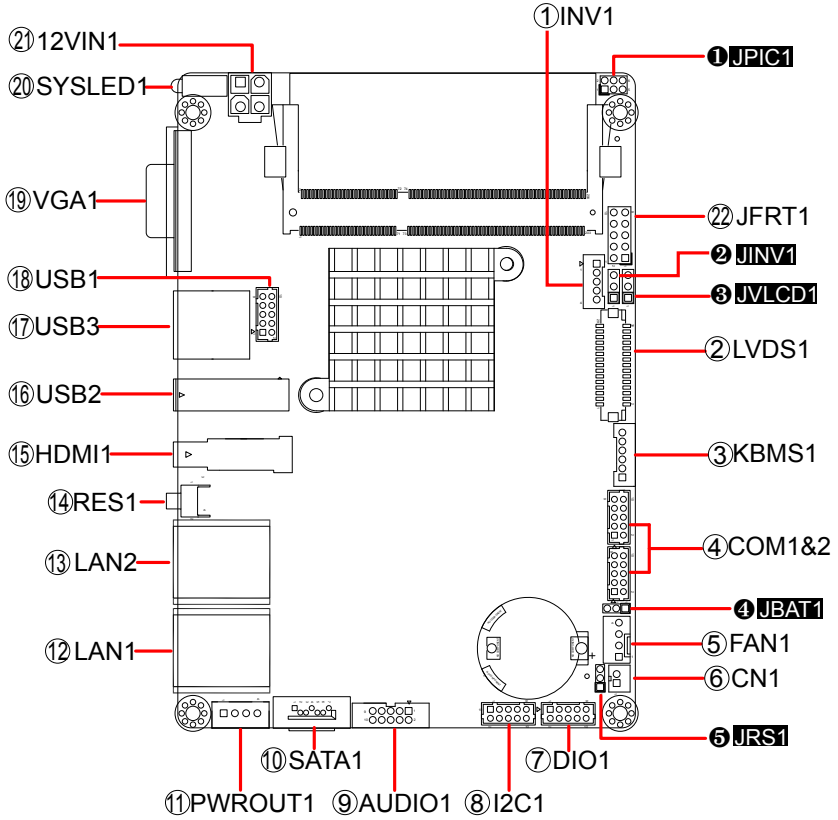
Jumpers

| Jumper | Description |
|---------------|-------------------------------------------------------------------------|
| JPIC1 | Sets the AT/ATX mode |
| JINV1 | Sets the LCD inverter voltage |
| JVLCD1 | Sets the power voltage for LVDS1 LCD. |
| JBAT1 | Clears/keeps CMOS |
| JRS1 | Sets the data transmitting signals for COM2 between RS-232, and RS-485. |

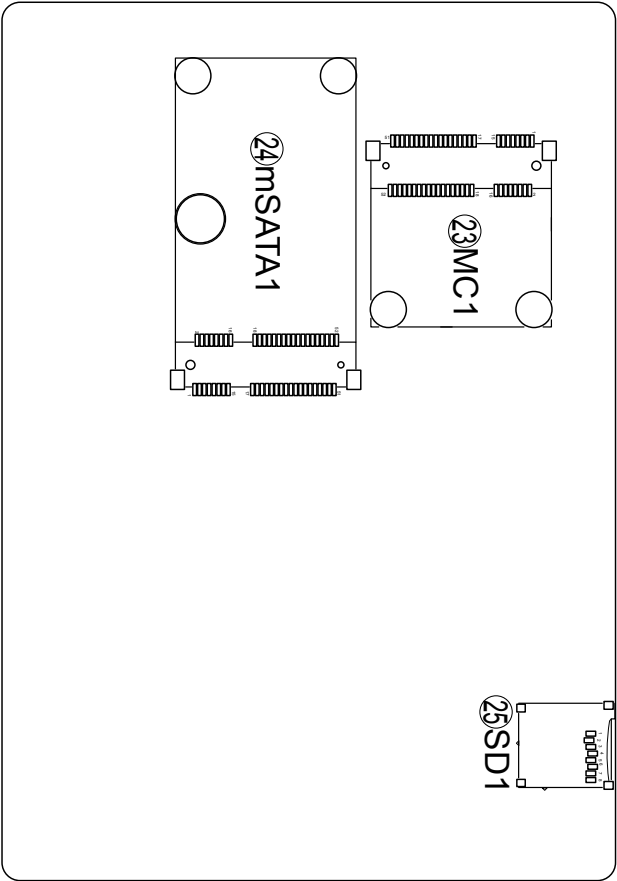
Connectors

| Connector | Description |
|-------------------|-----------------------------------------------|
| INV1 | LCD inverter connector |
| LVDS1 | LVDS LCD panel connector |
| KBMS1 | Keyboard & Mouse Connector |
| COM1&2 | Serial port Connectors |
| FAN1 | Fan Connector |
| CN1 | RS-485 Connector |
| DIO1 | Digital I/O Connector |
| I2C1 | I2C connector |
| AUDIO1 | Audio connector |
| SATA1 | Serial ATA connector |
| PWROUT1 | SATA power connector |
| LAN1,2 | Gigabit Ethernet Connectors |
| RES1 | Reset Button |
| HDMI1 | HDMI Connector |
| USB2 | USB 3.0 Connector |
| USB3 | Double-stacked USB Connectors |
| USB1 | USB 2.0 Connector |
| VGA1 | Analog RGB Connector |
| 12VIN1 | ATX +12V Connectors |
| JFRT1 | Provides connectors to front-panel status LED |
| SYSLED1 | Power ON & HDD LED Indicator |
| MC1 | Mini-card socket (on board bottom) |
| MSATA1 | mSATA socket |
| SD1 | Micro SDXC card socket |

Jumper & Connector Locations



Board Bottom





Jumpers

① JPIC1: Sets the AT/ATX mode

Jumper type: 2.00mm pitch 2x3-pin header



| Pin | Description |
|-----|---------------|
| 2-4 | AT |
| 4-6 | ATX (default) |

② JINV1: Sets the LCD inverter voltage

Jumper type: 2.54mm pitch 1x3-pin header



| Pin | Description |
|-----|---------------|
| 1-2 | +12V |
| 2-3 | +5V (default) |

③ JVLCD1: Sets the power voltage for LVDS1 LCD.

Jumper type: 2.54mm pitch 1x3-pin header



| Pin | Description |
|-----|-----------------|
| 1-2 | +5V |
| 2-3 | +3.3V (default) |

④ JBAT1: Clears/keeps CMOS

Jumper type: 2.00 mm pitch 1x3-pin header



| Pin | Description |
|-----|----------------------|
| 1-2 | Keeps CMOS (default) |
| 2-3 | Clears CMOS |

⑤ JRS1: COM2 RS-232/485 selection

Jumper type: 2.00 mm pitch 1x3-pin header

| Pin | Description |
|-----|------------------|
| 1-2 | RS-232 (default) |
| 2-3 | RS-485 |


Note: To enable RS-485 Port (CN1), beside jumper setting, please go to BIOS Setting Menu to Enable RS-485 mode of COM2. Option is under **Advanced/ SIO FINTEK71869E/ RS-232/485 Setting/ RS-485**. After enabled RS-485 Mode, CN1 will be activated as RS-485 port.

Connectors

① INV1: LCD inverter connector

Connector type: 2.00mm pitch 1x5-pin box wafer connector

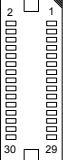
| Pin | Description |
|-----|--------------------|
| 1 | Vin |
| 2 | GND |
| 3 | on/off |
| 4 | Brightness control |
| 5 | GND |



② LVDS1: LVDS LCD panel connector

Connector type: ACES 1.25mm 87209-3040-06 connector that supports 24-bit dual channels.


| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | VDD | 1 | VDD |
| 4 | TX2_CLK+ | 3 | TX1_CLK+ |
| 6 | TX2_CLK- | 5 | TX1_CLK- |
| 8 | GND | 7 | GND |
| 10 | TX2_D0+ | 9 | TX1_D0+ |
| 12 | TX2_D0- | 11 | TX1_D0- |
| 14 | GND | 13 | GND |
| 16 | TX2_D1+ | 15 | TX1_D1+ |
| 18 | TX2_D1- | 17 | TX1_D1- |
| 20 | GND | 19 | GND |
| 22 | TX2_D2+ | 21 | TX1_D2+ |
| 24 | TX2_D2- | 23 | TX1_D2- |
| 26 | GND | 25 | GND |
| 28 | TX2_D3+ | 27 | TX1_D3+ |
| 30 | TX2_D3- | 29 | TX1_D3- |



③ KBMS1: Keyboard & Mouse connector

Connector type: 2.0mm pitch 1x6-pin header

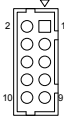
| Pin | Description |
|-----|-------------|
| 1 | KB_DATA |
| 2 | GND |
| 3 | MS_DATA |
| 4 | KB_CLK |
| 5 | PS2_VCC |
| 6 | MS_CLK |



④ COM1&2: Serial port connector

Connector type: 2.00mm pitch 2x5-pin wafer connector

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | RX | 1 | DCD# |
| 4 | DTR# | 3 | TXD |
| 6 | DSR# | 5 | GND |
| 8 | CTS# | 7 | RTS# |
| 10 | N/C | 9 | RI# |



⑤ FAN1: Fan connector

Connector type: 2.54mm pitch 1x4-pin wafer connector.

| Pin | Description |
|-----|-------------|
| 1 | GND |
| 2 | +12V |
| 3 | Fan_Detect |
| 4 | Control |



⑥ CN1: RS-485 connector

Connector type: 2.00mm pitch 1x2-pin Box Wafer Connector

| Pin | Description |
|-----|-------------|
| 1 | DATA - |
| 2 | DATA + |

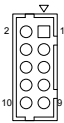


Note: To enable this port, please refer to Jumper Setting: JRS1 on P.10.

⑦ DIO1: Digital I/O connector

Connector type: 2.00mm pitch 2x5-pin wafer connector

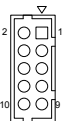
| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 2 | GPIO1 | 1 | GPIO0 |
| 4 | GPIO3 | 3 | GPIO2 |
| 6 | GPIO5 | 5 | GPIO4 |
| 8 | GPIO7 | 7 | GPIO6 |
| 10 | GND | 9 | +5V |



⑧ I2C1: I2C connector (E3800 Family Only)

Connector type: 2.00mm pitch 2x5-pin wafer connector

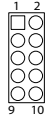
| Pin | Description | Pin | Description |
|-----|-----------------|-----|-----------------|
| 2 | +3.3V | 1 | +3.3V |
| 4 | I2C_CLK1(3.3V) | 3 | I2C_CLK0(3.3V) |
| 6 | I2C_DATA1(3.3V) | 5 | I2C_DATA0(3.3V) |
| 8 | GND | 7 | GND |
| 10 | GND | 9 | GND |



⑨ AUDIO1: Audio connector

Connector type: 2.00mm pitch 2x5-pin headers

| Pin | Description | Pin | Description |
|-----|---------------|-----|----------------|
| 1 | Line Left In | 2 | Line Right In |
| 3 | GND | 4 | GND |
| 5 | MIC1 | 6 | MIC2 |
| 7 | GND | 8 | GND |
| 9 | Line-out Left | 10 | Line-out Right |



⑩ SATA1: Serial ATA connector

Connector type: SATA connector

The pin assignments conform to the industry standard.



⑪ PWROUT1: SATA power connector

Connector type: 2.54mm pitch 1x4-pin wafer connector

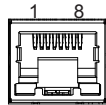
| Pin | Description |
|-----|-------------|
| 1 | VCC 5V |
| 2 | GND |
| 3 | GND |
| 4 | VCC 12V |



⑫⑬ LAN1,2: Ethernet connectors

Connector type: RJ-45 connector that supports 10/100/1000Mbps fast Ethernet

| Pin | Description | Pin | Description |
|-----|-------------|-----|-------------|
| 1 | MDIO+ | 2 | MDIO- |
| 3 | MDI1+ | 4 | MDI1- |
| 5 | MDI2+ | 6 | MDI2- |
| 7 | MDI3+ | 8 | MDI3- |

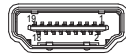


⑭ RES1: Reset Button

⑮ HDMI1: HDMI connector

Connector Type: 19-pin HDMI connector with flange

The pin assignments conform to the industry standard.



⑩ USB2: USB 3.0 connector

Connector type: USB 3.0/2.0 type-A connectors

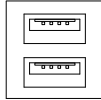
The pin assignments conform to the industry standard.



⑪ USB3: Double-stacked USB connectors

Connector type: Two USB 2.0/1.0 type-A connectors

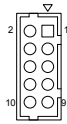
The pin assignments conform to the industry standard.



⑫ USB1: USB 2.0 connector

Connector type: 2.00mm pitch 2x5-pin wafer connector

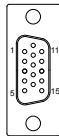
| Pin Description | Pin Description |
|-----------------|-----------------|
| 2 +5V- | 1 +5V |
| 4 USBP1- | 3 USBP0- |
| 6 USBP1+ | 5 USBP0+ |
| 8 GND | 7 GND |
| 10 N/C | 9 GND |



⑬ VGA1: Analog RGB connector

Connector type: D-Sub 15-pin female connector

| Pin | Desc. | Pin | Desc. |
|-----|-------|-----|--------|
| 1 | RED | 9 | N/C |
| 2 | GREEN | 10 | GND |
| 3 | BLUE | 11 | N/C |
| 4 | N/C | 12 | D-DATA |
| 5 | GND | 13 | H-SYNC |
| 6 | GND | 14 | V-SYNC |
| 7 | GND | 15 | D-DCLK |
| 8 | GND | | |

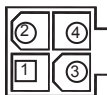


⑭ SYSLED1: Power ON & HDD LED Indicator

⑮ 12VIN1: Supplies ATX +12V

Connector type: 4-pin power connector

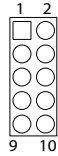
| Pin Description | Pin Description |
|-----------------|-----------------|
| 2 GND | 4 +12V |
| 1 GND | 3 +12V |



⑯ JFRT1: Provides connectors to front-panel status LED and toggles.

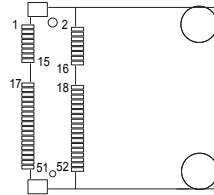
Connector type: 2.54mm pitch 2x5-pin header

| Pin Description | Pin Description |
|-----------------|-----------------|
| 1 RESET+ | 2 RESET- |
| 3 PLED+ | 4 PLED- |
| 5 HLED+ | 6 HLED- |
| 7 SPEAK+ | 8 SPEAK- |
| 9 PSON+ | 10 PSON- |



⑰ MC1: Mini-card socket

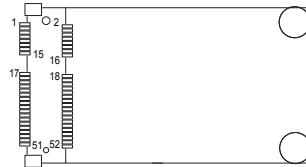
Connector type: Onboard 0.8mm-pitch 52-pin edge card connector interconnected with SIM card socket



⑱ MSATA1: mSATA socket

Connector type: Onboard 0.8mm pitch 52-pin edge card connector

The pin assignments conform to the industry standard.



⑳ SD1: micro SDXC card socket (E3800 family only, supports SDXC card SD 3.0 only)

The pin assignments conform to the industry standard.

