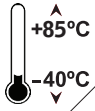
Wide Operating Temperature




# EPIC-747E

## Wide Range Temperature EPIC Compact Board

### Quick Installation Guide

Version 1.0

| Form Factor | CPU | Chipset |
|---|---|---|
| ***EPIC Compact Board*** | ***Soldered onboard Intel® Atom™ N455 1.6GHz Processor*** | ***Intel® ICH8M*** |

| Video | LAN | Audio |
|---|---|---|
| ***Single Channel 18-bit LVDS/ Analog RGB*** | ***2 x Realtek 8111E PCIe Gigabit Ethernet*** | ***Realtek ALC888 HD Audio CODEC, Line-in/ Line-out/ Mic-in*** |

| I/O |
|---|
| ***Mini PCI/ Mini-Card/ SATA/ SIM/ USB/ COM/ DIO*** |

## ♦ 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

+85ºC
-40ºC

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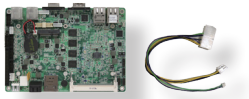
4046290000100P

RoHS VERIFIED

## Packing List

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



1 x EPIC-747E EPIC Compact Board with heat sink
1 x Power cable

1 x Driver CD
1 x Quick Installation Guide

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

## Ordering Information

| | |
|---|---|
| EPIC-747E | Intel® Atom™ N455 1.6GHz Wide range temperature EPIC Compact Board |
| CBK-11-2902-00 | Cable Kit<br>1 x Audio Cable<br>4 x COM Port Cables<br>1 x IDE Cable<br>1 x KB & MS Cable<br>2 x SATA Cables<br>2 x USB Cables |

## The Installation Paths of CD Driver

**Windows XP**

| Driver | Path |
|---|---|
| CHIPSET | \EmCORE-i290H\CHIPSET\WinXP\INF 9.1.1.1020 |
| VGA | \EmCORE-i290H\GRAPHICS\WinXP\6.14.10.5260 |
| AUDIO | \EmCORE-i290H\AUDIO\REALTEK_HD_ALC888\WinXP |
| LAN | \EmCORE-i290H\ETHERNET\WinXP_5794_03162012 |

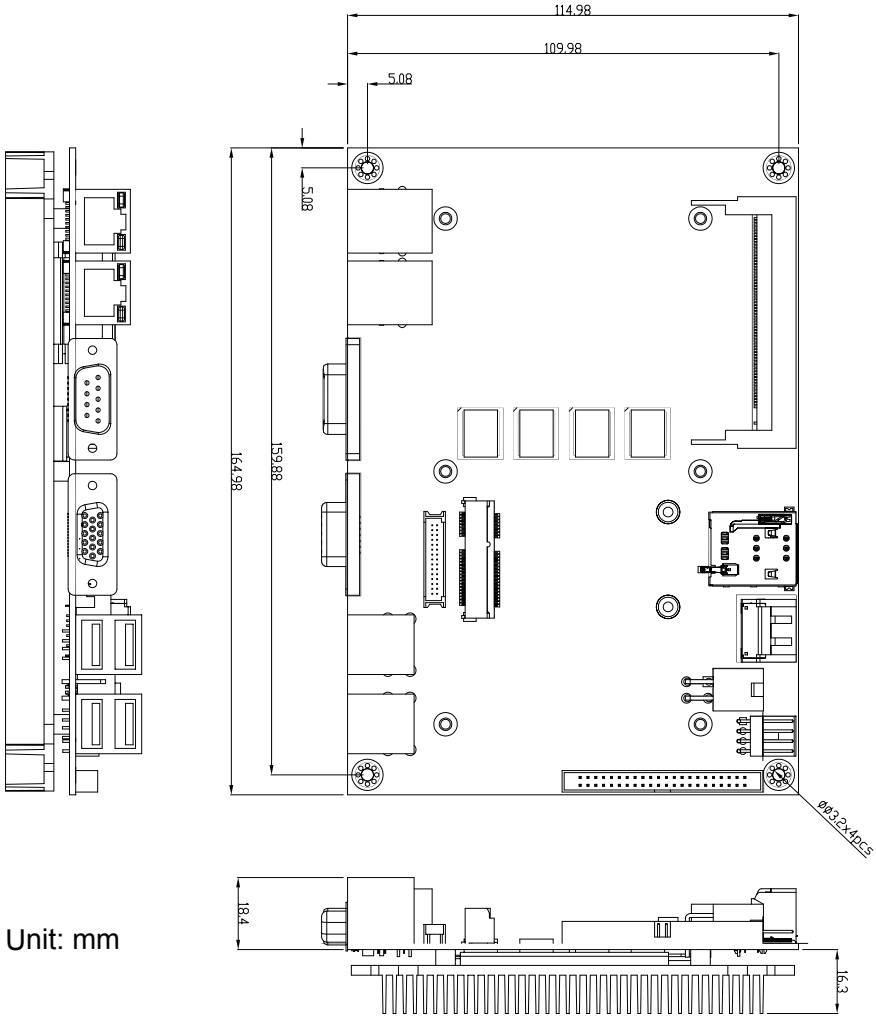
**Windows 7**

| Driver | Path |
|---|---|
| CHIPSET | \EmCORE-i290H\CHIPSET\Win7\INF 9.1 |
| VGA | \EmCORE-i290H\GRAPHICS\Win7 |
| AUDIO | \EmCORE-i290H\AUDIO\REALTEK_HD_ALC888\Win7 |
| LAN | \EmCORE-i290H\ETHERNET\Win7_7053_03162012 |

## Specifications

| | |
|---|---|
| Form Factor | EPIC Compact Board |
| CPU | Soldered onboard Intel® Atom™ N455 1.6GHz processor |
| Chipset | Intel® ICH8M |
| System Memory | Soldered onboard DDR3 2GB SDRAM |
| Display | Integrated Intel® Graphics Media Accelerator 3150,<br>Analog RGB/ Single Channel 18-bit LVDS/ Dual Independent Display |
| Ethernet | 2 x Realtek RTL8111 PCIe Gigabit Ethernet controllers |
| I/O Chip | Winbond W83627UHG |
| BIOS | AMI PnP Flash BIOS |
| Audio | Realtek ALC888 7.1 Channel HD Audio Codec,<br>MIC-in/ Line-in/ Line-out |
| Storage | 2 x ATA ports with 300MB/s HDD transfer rate<br>1 x Ultra ATA, supporting 2 IDE devices<br>Soldered onboard 2GB NANDrive |
| Serial Port | 5 x COM ports (COM1, COM3, COM4, COM5: RS-232,<br>COM2: RS-232/422/485 selectable) |
| KBMS | One 6-pin wafer connector (PS/2 interface Keyboard and Mouse via cable) |
| Universal Serial Bus | 8 x USB 2.0 ports |
| Digital I/O | 8-bit programmable Digital Input/Output |
| Expansion Interface | 1 x Mini-Card Socket<br>1 x Mini-PCI Socket<br>1 x SIM Socket |
| Operation Temp. | -40°C ~ 85°C (-40°F ~ 185°F) |
| Watchdog Timer | 1~255 levels Reset |
| Dimension (L x W) | 165 x 115 mm (6.5” x 4.5” ) |

## Board Dimensions




Unit: mm

## Jumpers/ Connectors Quick Reference

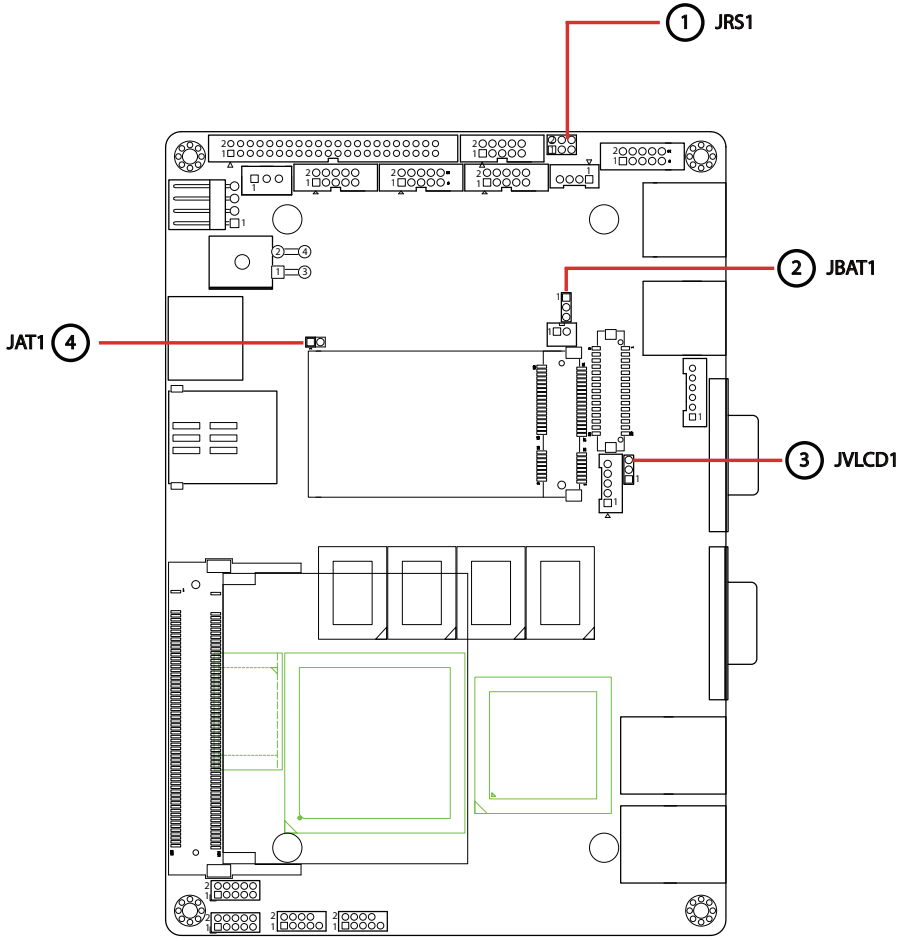
### Jumpers

| Label | Function |
|---|---|
| JAT1 | AT/ATX Power Mode Selection |
| JBAT1 | Clear CMOS Setting |
| JRS1 | COM2 RS-232 / 422 / 485 Selection |
| JVLCD1 | LCD Voltage Selection |

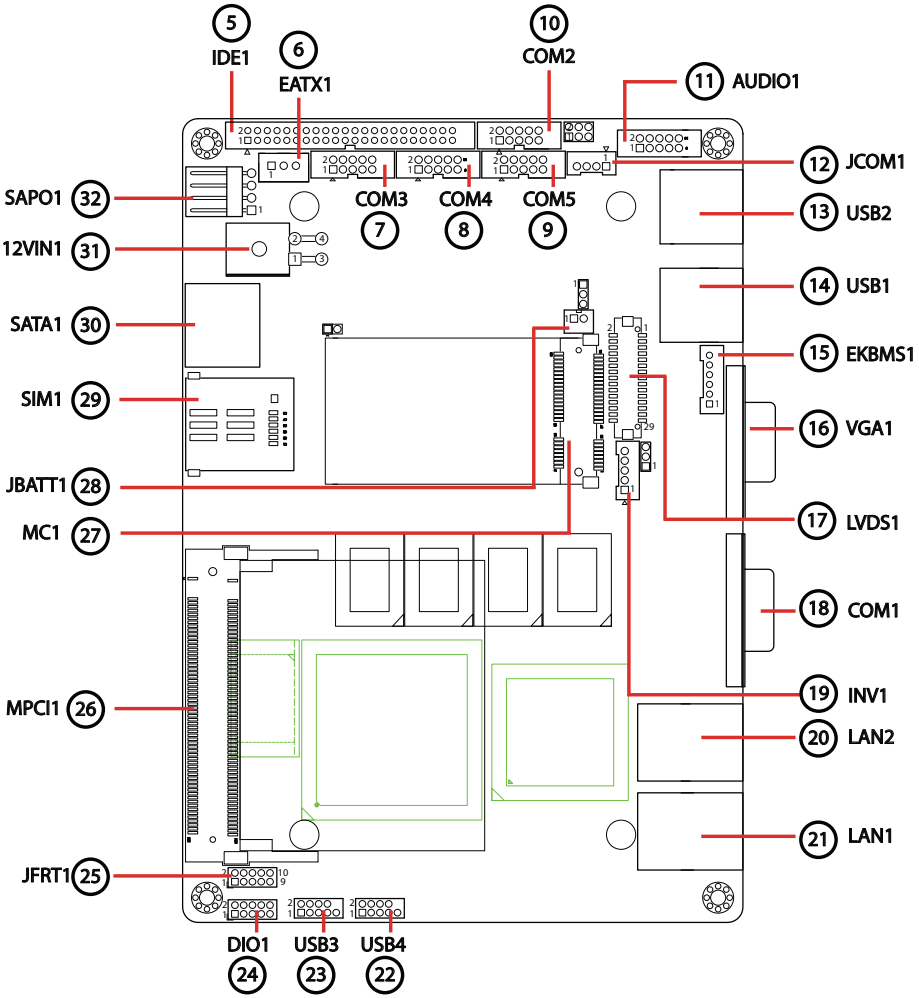
### Connectors

| Label | Function |
|---|---|
| AUDIO1 | Audio Connector |
| COM1 ~ COM5 | Serial port Connectors |
| JCOM1 | RS-422/485 Output Connector |
| DIO1 | Digital I/O Connector |
| EATX1 | ATX feature Connector |
| IDE1 | IDE Connector |
| INV1 | LCD Inverter Connector |
| JFRT1 | Switches and Indicators |
| JBATT1 | External Battery Connector |
| EKBMS1 | PS/2 Keyboard & Mouse Connector |
| LAN1, LAN2 | GbE RJ-45 Connectors |
| LVDS1 | LVDS LCD Connector |
| MC1 | PCI Express Mini-Card Slot |
| MPCI1 | Mini-PCI Socket |
| 12VIN1 | Aux. ATX +12V Power Connector |
| SATA1 | Serial ATA Connectors |
| SIM1 | SIM Socket |
| SAPO1 | Small 4-pin Power Connectors |
| USB1~4 | USB Port Connectors |
| VGA1 | Analog RGB Connector |

## Jumpers Location



## Connectors Location



## Jumpers

### JRS1: COM2 RS-232/422/485 Selection (1)

Connector type: 2.00mm pitch 2x3-pin headers.

| Mode | RS-232 (Default) | RS-422 | RS-485 |
|---|---|---|---|
| 1-2 | Short | Open | Open |
| 3-4 | Open | Short | Open |
| 5-6 | Open | Open | Short |

### JBAT1: Clear CMOS Setting (2)

Connector type: 2.00mm pitch 1x3-pin headers.

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

### JVLCD1: LCD Panel Voltage Selection (3)

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

Connector type: 2.00mm pitch 1x3-pin headers.

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

### JAT1: AT/ATX Power Mode Selection (4)

Connector type: 2.00mm pitch 1x2-pin headers.

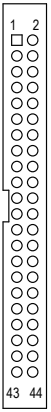
| Pin 1-2 | Power Mode Selection | |
|---|---|---|
| Short | AT Mode | |
| Open | ATX Mode (Default) | |

## Connectors

### IDE1: Primary IDE Connector (5)

Connector type: 2.00mm pitch 2x22-pin box headers.

| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 1 | IDE RESET | 2 | GND |
| 3 | DATA7 | 4 | DATA8 |
| 5 | DATA6 | 6 | DATA9 |
| 7 | DATA5 | 8 | DATA10 |
| 9 | DATA4 | 10 | DATA11 |
| 11 | DATA3 | 12 | DATA12 |
| 13 | DATA2 | 14 | DATA13 |
| 15 | DATA1 | 16 | DATA14 |
| 17 | DATA0 | 18 | DATA15 |
| 19 | GND | 20 | N/C |
| 21 | REQ | 22 | GND |
| 23 | IO WRITE | 24 | GND |
| 25 | IO READ | 26 | GND |
| 27 | IO READY | 28 | IDSEL |
| 29 | DACK | 30 | GND |
| 31 | IRQ14 | 32 | N/C |
| 33 | ADAD1 | 34 | ATA66 DETECT |
| 35 | ADAD0 | 36 | ADAD2 |
| 37 | CS#1 | 38 | CS#3 |
| 39 | IDEACT | 40 | GND |
| 41 | +5V | 42 | +5V |
| 43 | GND | 44 | N/C |




### EATX1: ATX Feature Connector (6)

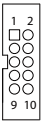
Connector type: 2.54mm pitch 1x3-pin box wafer connector

| Pin | Description |
|---|---|
| 1 | PS-ON |
| 2 | GND |
| 3 | 5V_SB |

### COM2~5: Serial Port Connectors (7, 8, 9, 10)

Connector type: 2.00mm pitch 2x5-pin box headers.

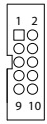
| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 1 | DCD# | 2 | RXD |
| 3 | TXD | 4 | DTR# |
| 5 | GND | 6 | DSR# |
| 7 | RTS# | 8 | CTS# |
| 9 | RI# | 10 | N/C |



## AUDIO1: Audio Connector (11)

Connector type: 2.00mm pitch 2x5-pin box 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 |



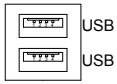

## JCOM1: RS-422/485 Output Connector (12)

Connector type: 2.00mm pitch 1x4-pin box wafer connector.

| Pin | RS-422 | RS-485 |
|---|---|---|
| 1 | TX+ | DATA+ |
| 2 | TX- | DATA- |
| 3 | RX+ | N/C |
| 4 | RX- | N/C |

## USB1, 2: Double Stacks USB type A Connectors (13, 14)

Connector type: double stacks USB type A connector.




## EKBMS1: Keyboard & Mouse Connector (15)

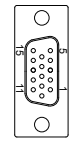
Connector type: 2.0mm pitch 1x6-pin box wafer connector.

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

## VGA1: Analog RGB Connector (16)

Connector type: D-Sub 15-pin female.

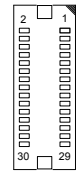
| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 1 | RED | 9 | +5V |
| 2 | GREEN | 10 | CRT_DETECT |
| 3 | BLUE | 11 | N/C |
| 4 | N/C | 12 | D-DATA |
| 5 | GND | 13 | H-SYNC |
| 6 | GND | 14 | V-SYNC |
| 7 | GND | 15 | D-DCLK |
| 8 | GND | | |



## LVDS1: LVDS LCD Connector (17)

Connector type: DF-13-30DP-1.25V connector and supports 18-bit single channel.

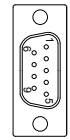
| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 2 | VDD | 1 | VDD |
| 4 | N.C. | 3 | TX1CLK+ |
| 6 | N.C. | 5 | TX1CLK- |
| 8 | GND | 7 | GND |
| 10 | N.C. | 9 | TX1D0+ |
| 12 | N.C. | 11 | TX1D0- |
| 14 | GND | 13 | GND |
| 16 | N.C. | 15 | TX1D1+ |
| 18 | N.C. | 17 | TX1D1- |
| 20 | GND | 19 | GND |
| 22 | N.C. | 21 | TX1D2+ |
| 24 | N.C. | 23 | TX1D2- |
| 26 | GND | 25 | GND |
| 28 | N.C. | 27 | N.C. |
| 30 | N.C. | 29 | N.C. |




## COM1: Serial Port Connector (18)

Connector type: D-Sub 9-pin male.

| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 6 | DSR# | 1 | DCD# |
| 7 | RTS# | 2 | RXD |
| 8 | CTS# | 3 | TXD |
| 9 | RI# | 4 | DTR# |
| | | 5 | GND |



### INV1: LCD Inverter Connector (19)

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

| Pin | Description |
|---|---|
| 1 | +12V |
| 2 | GND |
| 3 | Backlight on/off |
| 4 | Brightness control |
| 5 | GND |

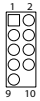
### LAN1, 2: GbE RJ-45 connectors (20, 21)

LAN1, LAN2 support Gigabit Ethernet
Connector type: RJ-45

### USB3~4: USB Connectors (22, 23)

Connector type: 2.00mm pitch 2x5-pin headers.

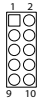
| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 1 | +5V | 2 | +5V |
| 3 | USBD- | 4 | USBD- |
| 5 | USBD+ | 6 | USBD+ |
| 7 | GND | 8 | GND |
| 9 | GND | 10 | N/C (Key) |




### DIO1: Digital I/O Connector (24)

DIO1 is a 8-bit DIO connector w/ onboard 10-pin headers, supports programmable Input / Output.
Connector type: 2.00 mm pitch 2x5-pin headers

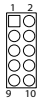
| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | DIO0 | 2 | DIO1 |
| 3 | DIO2 | 4 | DIO3 |
| 5 | DIO4 | 6 | DIO5 |
| 7 | DIO6 | 8 | DIO7 |
| 9 | +5V | 10 | GND |




### JFRT1: Switches and Indicators (25)

It provides connectors for system indicators that provides light indication of the computer activities and switches to change the computer status.
Connector type: 2.00mm pitch 2x5-pin headers.

| Pin | Description | Pin | Description |
|---|---|---|---|
| 1 | RESET+ | 2 | RESET- |
| 3 | POWER_LED+ | 4 | POWER_LED- |
| 5 | HDD_LED+ | 6 | HDD_LED- |
| 7 | SPEAKER+ | 8 | SPEAKER- |
| 9 | PSON+ | 10 | PSON- |




### MPCI1 : Mini-PCI Socket (26)

### MC1: Mini-Card Socket (27)

### JBATT1: External Battery connector (28)

Connector type: 2.00mm pitch 1x2-pin box headers.

| Pin | Description |
|---|---|
| 1 | +3.3V |
| 2 | GND |

### SIM1: SIM card socket (29)

### SATA1: Serial ATA Connectors (30)

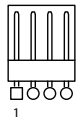
High speed transfer rates (300MB/s).

### 12VIN1: ATX +12V Connector (31)

12VIN1 supplies ATX +12V (Vcore).

| Pin | Desc. | Pin | Desc. |
|---|---|---|---|
| 2 | GND | 4 | +12V |
| 1 | GND | 3 | +12V |

### SAPO1: Small 4P Power Connector (32)

Connector type: 2.54mm pitch 1x4-pin wafer one wall 90D connector

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