EPX-C414

PC/104 Intel® Atom™ Processor E3800
Single Board Computer

Features

Performance for Industrial IoT Applications

- Intel E3800 (Bay Trail-I) Processor
- Up to 8 GB DDR3-LV System RAM
- Hardware-based Intel® Virtualization Technology
- Higher per watt performance

Rugged Design for Demanding Environments

- -40°C to +85°C Operating Temperature Range
- EPIC Form Factor
- Shock and Vibration Tested
- Latching connectors

Fast Graphics at High Resolutions

- Intel Low Power Gen7 Graphics Engine
- Multiple Displays Supported
- Full-HD and 3D Graphics acceleration

Enhanced Security and Content Protection

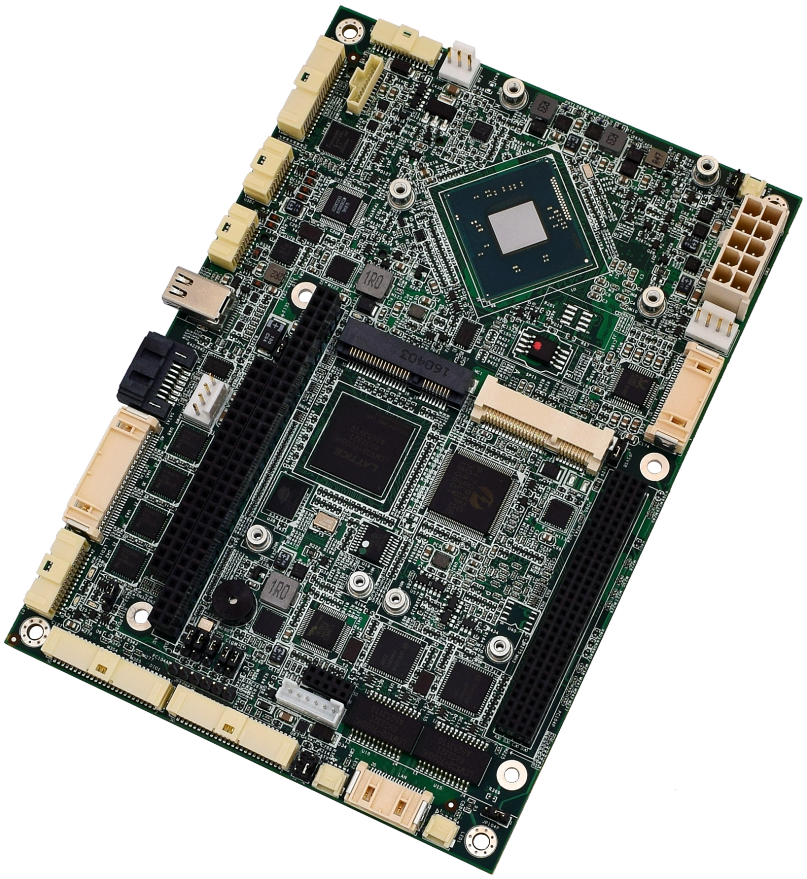
- Hardware-assisted Intel AES NI
- Secure Boot capable

Connectivity and I/O for Embedded Systems

- Dual Ethernet
- 8x USB 2.0
- 48 GPIO with event sense
- Four Serial Ports
- LPT

Expansion Options

- PC/104-Plus
- 2x Mini-PCIe Sockets



Product Description

WinSystems' EPX-C414 is an EPIC form factor single board computer (SBC) with PC/104-Plus expansion featuring the Intel® Atom™ E3800 SOC processor. Its small size, rugged design and extended operational temperature make it a great fit for industrial IoT applications and embedded systems in the industrial control, transportation, Mil/COTS, and energy markets.

The WinSystems EPX-C414 single board computer features the industrial Intel Atom E3800 Series SOC (formerly known as Bay Trail-I). Quad core and dual core solutions are available from inventory, while single core and custom variants require a minimum order quantity, depending on the processing and graphics requirements of the application. The EPX-C414 includes a SODIMM socket which supports up to 8 GB DDR3-LV system memory and a non-removable 1MB SRAM for battery backed data. A mSATA socket, CFast socket, and SATA interface are included for solid state storage of an operating system (OS) and applications.

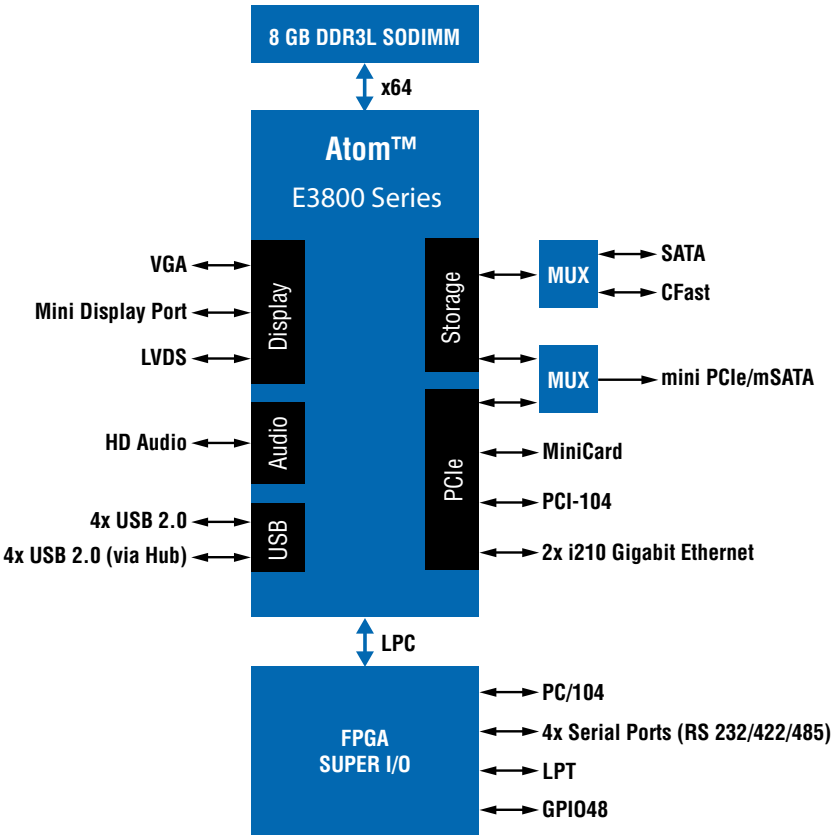
This full-featured SBC has onboard I/O and supports two simultaneous displays from the DisplayPort, LVDS, and VGA video interfaces. It provides dual Gigabit Ethernet interfaces, eight USB 2.0 channels, four serial COM channels, 48 general purpose I/O (GPIO) lines, HD audio, an bi-directional LPT port and a watchdog timer.

The board also has dual MiniCard sockets and PC/104-Plus expansion connectors to utilize the ecosystem of legacy modules.

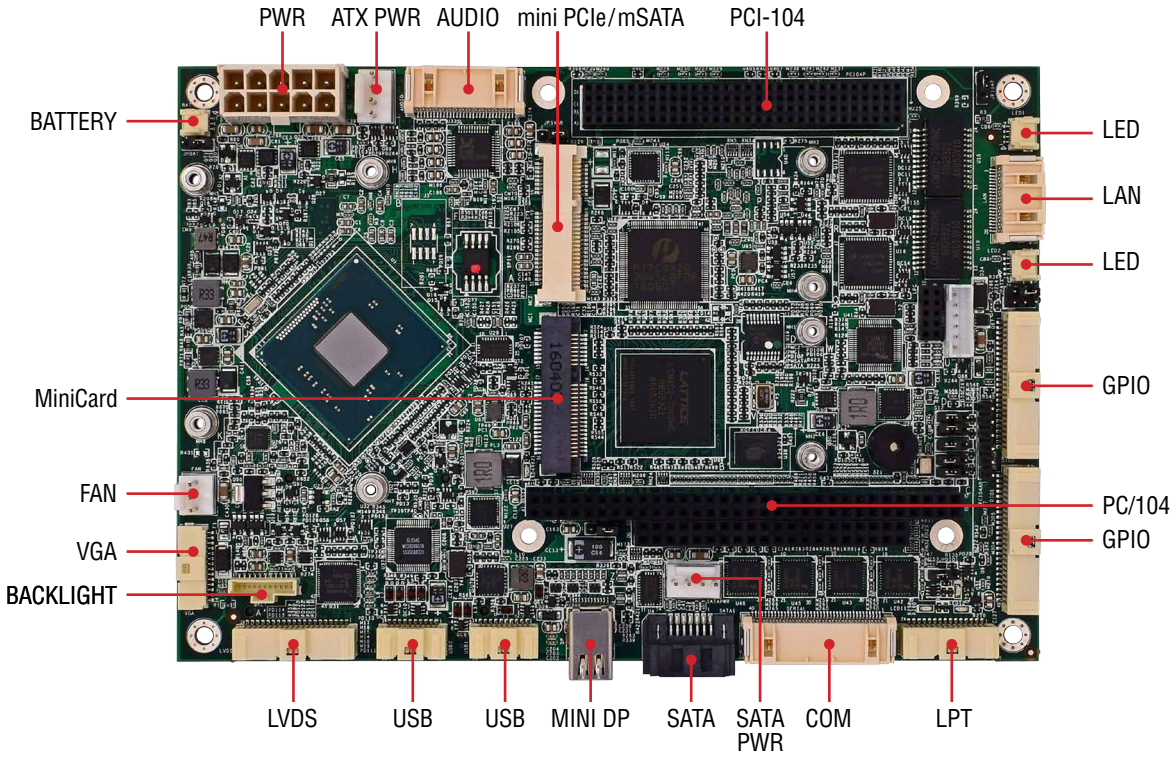
The EPX-C414 supports Linux, Windows® 10 desktop, Windows® 10 IoT, and other x86-compatible real-time operating systems. Drivers are available from the WinSytems website.

WinSystems, Inc. | 715 Stadium Drive, Arlington, Texas 76011 | 817-274-7553 | info@winsystems.com | www.winsystems.com

Block Diagram



Connectors



EPX-C414

Technical Specifications

PROCESSOR	**Intel® Atom™ E3825** Dual-core (1.33 GHz)	**Intel® Atom™ E3845** Quad-core (1.91 GHz)
OS COMPATIBILITY	• Linux, Windows, DOS and other x86 compatible OS	
MEMORY	• Up to 8 GB of DDR3 SODIMM (Socketed)	
BIOS	• Insyde - UEFI	
DISPLAY	• Dual, simultaneous video output support – Analog VGA resolution up to SXGA 1400x1050 – LVDS resolution up to 1366x768 or 1280x800 • DisplayPort – The unit supports two active displays from the 3 different interfaces.	
STORAGE	• 1 SATA (2.0) channels • CFast Socket • 1 MB soldered-on SRAM • mSATA Socket	
NETWORK INTERFACE	• Two 1000 Mbps using the Intel i210 LAN controller – Supports Wake on LAN on both channels – Status & Activity LEDs for both Ethernet controllers	
ONBOARD I/O	• Digital I/O: 48 Bidirectional GPIO; 24 with event sense • Serial I/O: 4 serial ports (RS-232/422/485) • Printer I/O: LPT interface with SPP/EPP support • 8 USB 2.0 ports • Watchdog Timer: Adjustable from 1 second to 255 minute reset – HD Audio supported Realtek ALC888S-VD2-GR	
EXPANSION BUS	• PC/104 • PC/104-Plus • 2x Mini PCIe (1x shared mSATA or MiniPCIe)	
POWER	• +5V DC +/- 5%, Max: 1.9A, Typical: 1.5A, S3 Suspend: 350mA	• +5V DC +/- 5%, Max: 2.2A, Typical: 1.8A, S3 Suspend: 350mA
ENVIRONMENTAL	• -40°C to +85°C (-40°F to +185°F) with 200 LFM airflow • -40°C to +80°C (-40°F to +176°F) still air	• -40°C to +85°C (-40°F to +185°F) with 200 LFM airflow • -40°C to +70°C (-40°F to +158°F) still air
	• Random Vibration Testing: MIL-STD-202G, Method 214A, Condition D 0.1g/Hz (11.95g rms), 20 minutes per axis, 3 axis • Mechanical Shock Testing: MIL-STD-202G, Method 213B, Condition A 50g half-sine, 11 ms duration per axis, 3 axis	
MECHANICAL	• EPIC-compliant • Dimensions: 4.5 x 6.5 inches (115 x 165 mm) • Weight: 9.6 oz. (273 g) with heat sink, 10.4 oz. (295 g) with optional fan	

Order Information

SBC PART NUMBER	**EPX-C414-3825-c** Intel E3825 Dual core 1.33 GHz c = 0 (fanless), 1 (optional CPU fan)	**EPX-C414-3845-c** Intel E3845 Quad core 1.91GHz c = 0 (fanless), 1 (optional CPU fan)
RAM	• SODIMM204-3-16-2G (2GB DDR3 PC3-1600 LV SDRAM SODIMM 204-PIN) • SODIMM204-3-16-4G (4GB DDR3 PC3-1600 LV SDRAM SODIMM 204-PIN) • SODIMM204-3-16-8G (8GB DDR3 PC3-1600 LV SDRAM SODIMM 204-PIN)	
CABLES	• CBL-SET-414-2 cable and accessories set includes: – Termination Board – Ethernet & USB, Dual RJ45 & Type A – ADP-IO-G-EBC0364 – External 3.6V, 1650 mAH battery with plug-in connector – BAT-LTC-E-36-16-2 – Power – Unterminated, 18" - CBL-265-G-2-1.5 – Ethernet – Dual 2mm Molex Milli-Grid, 12" - CBL-ENET2-004-12 – Serial I/O cable with four DB9 connectors – CBL-SER4-002-12 – Four USB ports with two 8-pin 2mm connectors – CBL-USB4-002-12 – Video – (VGA) DB15, 12" - CBL-VGA-002-12	
OPTIONAL BATTERY	• BAT-LTC-E-36-16-2 (External 3.6 V, 1650 mAH) • BAT-LTC-E-36-27-2 (External 3.6 V, 2700 mAH)	

PARHELIA

Parhelia B.V.
www.parhelia-bv.com
+31(0)10 741 00 28

Expansion and Customization Options

WinSystems provides additional cables, expansion cards, power supplies, and solid state drives to complete your embedded computing solution including data acquisition, communications, location, and other features via PCIe/104 and M.2 interfaces. Our Application Engineers are available to guide you through product selection and customized options.

Contact an Application Engineer or visit our website for more information.

WinSystems® The Embedded Systems Authority

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WinSystems, Inc. | 715 Stadium Drive, Arlington, Texas 76011 | 817-274-7553 | info@winsystems.com | www.winsystems.com

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