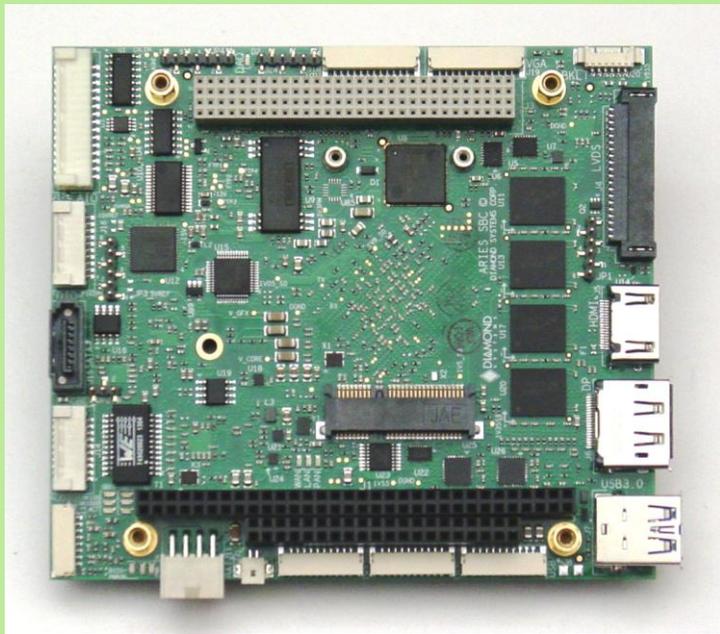


ARIES SBC Family

Rugged Intel Bay Trail E3800 Series SBC with Soldered Memory and Data Acquisition



Highly Integrated SBC

Aries is a compact, rugged, single board computer that features the Intel E3800 Bay Trail processor in an extended PC/104-Plus form factor. The full rectangular shape provides more coastline for I/O connectors than other boards its size. In this compact form factor, Aries includes a wide range of I/O plus data acquisition functionality, meeting the majority of today's connectivity requirements in a single board.

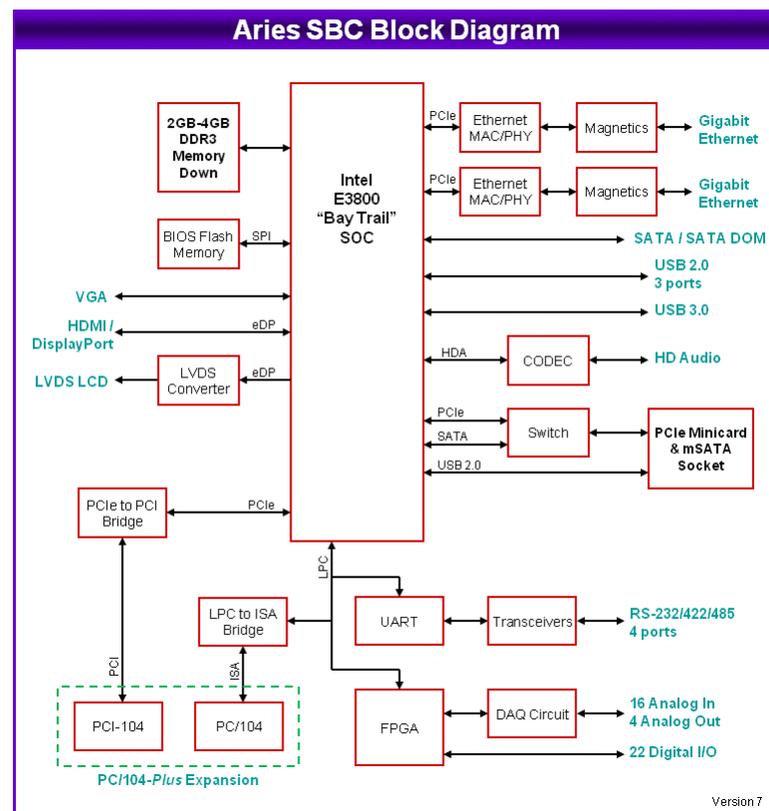
Flexible I/O Expansion

Aries supports stackable I/O expansion with PC/104-Plus (ISA + PCI) I/O modules. Aries also provides a dual-use PCIe MiniCard / mSATA socket for additional I/O expansion. I/O modules featuring WiFi, Ethernet, analog I/O, digital I/O, and CAN are available in the PCIe MiniCard form factor, providing compact expandability without increasing the total height of the system.

Rugged Design

The Aries SBC was designed with rugged applications in mind. With an operating temperature of -40°C to +85°C, soldered on-board memory, integrated heat spreader for efficient conduction cooling, 50% thicker PCB, and full suite of latching connectors, Aries is the perfect choice for vehicle and other harsh environment applications.

- ◆ 1.91GHz Intel quad core E3845 or 1.46GHz dual core E3826 Bay Trail CPU
- ◆ 2GB or 4GB 64-bit DDR3 SDRAM soldered on board
- ◆ I/O Support:
 - 3 USB 2.0 ports, 1 USB 3.0 port
 - 4 RS-232/422/485 ports with programmable protocol and line termination
 - 2 10/100/1000Mbps Ethernet ports
 - 1 SATA port for disk-on-module or external drive
 - 24-bit LVDS LCD display and VGA CRT
 - DisplayPort or HDMI with dual independent display
 - HD audio
 - Shared expansion socket auto-selects for either PCIe MiniCard or mSATA flashdisk modules
- ◆ Data Acquisition:
 - 16 16-bit analog inputs, 250KHz max sample rate
 - 4 16-bit analog outputs with waveform generator
 - 22 digital I/O lines with programmable direction
 - 8 counter/timers, 4 PWMs
- ◆ PC/104-Plus and PCIe MiniCard expansion capability
- ◆ PC/104-Plus extended form factor (4.5" x 4.0")
- ◆ Extremely rugged with soldered RAM and -40°C to +85°C (-40°F to +185°F) operating temperature

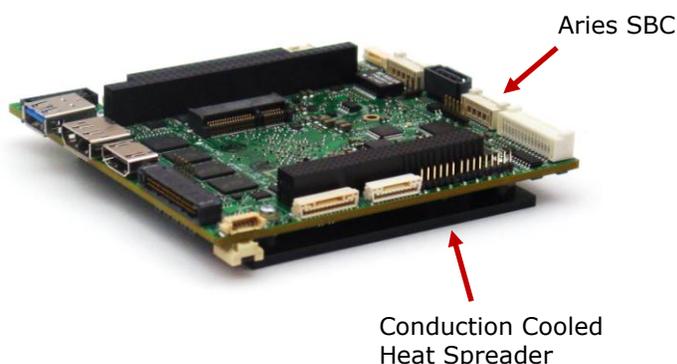


Aries: Intel E3800 PC/104-Plus SBC

Specifications

Processor	1.91GHz quad core Intel E3845 CPU or 1.46GHz dual core Intel E3826 CPU
Memory	2GB or 4GB onboard 64-bit DDR3 SDRAM
Display type	24-bit LVDS LCD flat panel interface VGA CRT Display port or HDMI
Display resolution	LVDS: 2560 X 1600 maximum VGA: 2560 X 1600 maximum Display Port: 2560 x 1600 maximum HDMI: 1920 x 1080 maximum
USB ports	3 USB 2.0, 1 USB 3.0
Serial ports	4 RS-232/422/485 ports
Networking	2 Gigabit Ethernet
Mass storage	1 SATA v2.0 port for external hard drive or SATA DOM 1 mSATA Disk Module interface*
Analog inputs	16 16-bit
Input ranges	±10V, ±5V, ±2.5V, ±1.25V, 0-10V, 0-5V, 0-2.5V programmable
Sample rate	250KHz maximum
On-board FIFO	2048 samples, programmable threshold
DAQ calibration	Autocalibration values stored in EEPROM
Analog outputs	4 16-bit
Output ranges	±10V, ±5V, 0-10V, 0-5V programmable
Digital I/O	22 lines independently programmable
PWM	4 24-bit pulse width modulators
Counter/timers	8 32-bit counter/timers
Keyboard/mouse	USB
Audio	HD Audio CODEC with stereo line out, line in and microphone
WDT	Programmable watchdog timer
Other	Voltage monitor Operating hour counter
Expansion socket	PCIe MiniCard socket*
Expansion bus	PC/104-Plus (ISA + PCI)
Input power	+5VDC +/-5%
Power consumption	8.5W idle (E3845 CPU) 8.0W idle (E3826 CPU)
Operating temperature	-40°C to +85°C (-40°F to +185°F)
Shock	MIL-STD-202G compatible
Vibration	MIL-STD-202G compatible
Dimensions	4.5" x 4.0" (115.5mm x 101.5mm)
Weight	8.6oz (243.8g) with heat spreader
RoHS	Compliant

*shared interface, can use only one



Diamond's family of Aries PC/104-Plus SBCs combines excellent CPU performance, a wealth of PC I/O, and on-board data acquisition circuitry at a competitive price. Available PC I/O includes USB 2.0/3.0, RS-232/422/485, dual Gigabit Ethernet, and a SATA port. The data acquisition circuit includes 16 16-bit analog inputs, 4 16-bit analog outputs and 22 digital I/O lines configurable as counter/timers and pulse width modulators.

A shared PCIe MiniCard / mSATA socket is provided to add either additional I/O or a flashdisk of up to 64GB in capacity. This shared socket auto selects the appropriate interface after identifying the installed module.

Software Support

Aries SBCs run Linux, Windows Embedded Standard 7, and 8. Both Linux and Windows Embedded 7 Software Development Kits are available with bootable images and drivers to get you started on your design project right out of the box.

Development Kits

Complete Development Kits with a bootable operating system are available with all the components you need to get started on your embedded design project. The kit contains an Aries SBC, 32GB MLC SATA-DOM flashdisk with your choice of Windows Embedded 7 or Linux pre-loaded, cable kit, AC adapter, and software CD.

Ordering Information

ARS3845-4GA	Aries SBC, 1.91GHz E3845 CPU, 4GB DDR3 SDRAM, analog I/O & digital I/O
ARS3845-4GN	Aries SBC, 1.91GHz E3845 CPU, 4GB DDR3 SDRAM, digital I/O
ARS3826-2GA	Aries SBC, 1.46GHz E3826 CPU, 2GB DDR3 SDRAM, analog I/O & digital I/O
ARS3826-2GN	Aries SBC, 1.46GHz E3826 CPU, 2GB DDR3 SDRAM, digital I/O
DK-ARS-WE7	Aries Development Kit with ARS3845-4GA SBC, cables and Windows Embedded 7 OS
DK-ARS-LNX	Aries Development Kit with ARS3845-4GA SBC, cables and Linux OS
SDK-ARS-WE7	Aries Windows Embedded 7 Software Development Kit
SDK-ARS-LNX	Aries Linux Software Development Kit
CK-ARS-01	Aries Cable Kit for all on-board I/O
ACC-HS104-12.7	Heat Sink Accessory