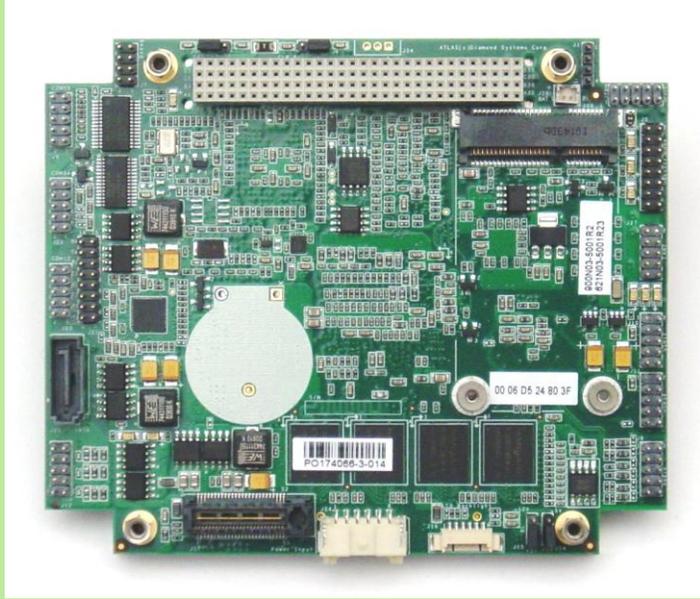# ATLAS SBC Family

PCI/104-Express SBC

1.86GHz Intel N2800 CPU with On-board SDRAM and PCIe MiniCard Expansion

◆ Intel 1.86GHz N2800 Cedar Trail CPU

◆ Intel NM10 chipset

◆ 2GB or 4GB 64-bit DDR3 SDRAM soldered on board

◆ Support for:
   – 4 USB 2.0 ports
   – 4 RS-232/422/485 ports
   – 2 RS-232 ports
   – 1 Gigabit Ethernet port
   – 1 SATA port for hard drive
   – 18-bit LVDS LCD display with dual independent displays
   – VGA CRT
   – ALC892 HD audio
   – 8 GPIO lines
   – Programmable watchdog timer
   – Shared expansion socket auto-selects for either PCIe MiniCard or mSATA flashdisk modules

◆ High degree of I/O expandability with PCIe/104, PCI/104-Express, and PCIe MiniCard

◆ PC/104-*Plus* form factor (4.55" x 3.775") with wings

◆ Extremely rugged with soldered RAM and -40°C to +75°C (-40°F to +167°F) operating temperature

Highly Integrated SBC

Atlas is a compact, rugged, PCI/104-Express single board computer that features the Intel N2800 Cedar Trail processor in the PC/104-*Plus* form factor with wings. In this compact form factor, Atlas offers a wide range of I/O, meeting the majority of today's connectivity requirements.

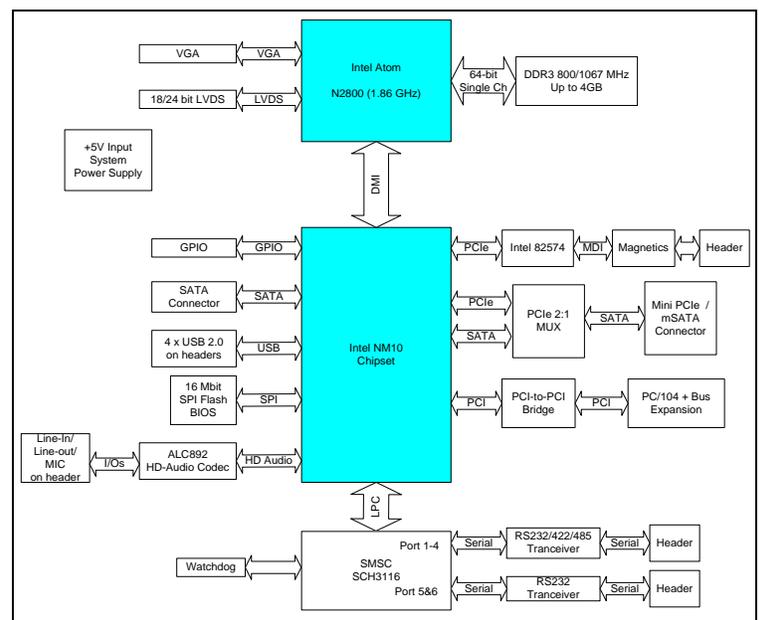## Flexible I/O Expansion

Atlas supports I/O expansion with PCIe/104 and PCI/104-Express I/O modules. The new one-bank connector supports both PCIe/104 Type 1 and Type 2 modules. The new miniature, cost-effective expansion connector supports most PCIe/104 I/O modules while reducing the cost of Atlas and increasing the PCB area available for other I/O features.

Atlas 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 now available in the PCIe MiniCard form factor, providing compact expandability without increasing the total height of the system.

Rugged Design

The Atlas SBC was designed with rugged applications in mind. From an operating temperature of -40°C to +75°C, the on-board DDR3 SDRAM, integrated heat spreader thermal solution, and its high tolerance for shock and vibration, Atlas SBCs thrive in harsh environments.
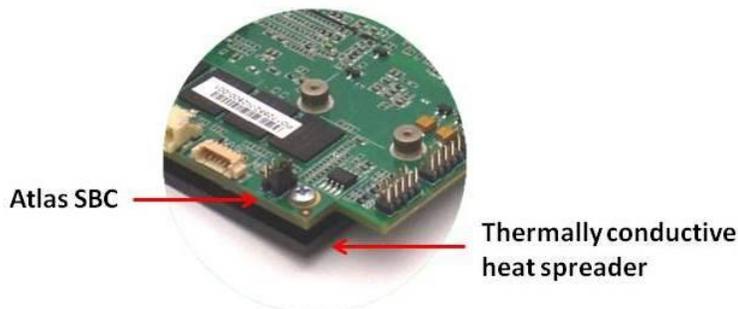
Atlas: Intel N2800 PCI/104-Express SBC

Specifications

Processor	Intel 1.86GHz N2800 Cedar Trail CPU
CPU Passmark	653
Cooling	Heatspreader, fan-less
Memory	2GB or 4GB onboard 64-bit DDR3 SDRAM
Display type	18-bit LVDS LCD flat panel interface with support for dual independent displays VGA CRT
Display resolution	LVDS: 1366 X 768 maximum VGA: 1280 X 1024 maximum
USB ports	4 USB 2.0
Serial ports	4 RS-232/422/485 ports 2 RS-232 ports
Networking	1 Gigabit Ethernet from Intel 82574IT
Mass storage	1 SATA port for external drive 1 mSATA Disk Module interface*
GPIO	8 lines
Keyboard/Mouse	USB
Audio	HD Audio CODEC from Realtek ALC892 with stereo line out, line in and microphone
WDT	Programmable watchdog timer
Expansion sockets	PCIe MiniCard socket*
Expansion bus	PCI-104 and PCIe/104
Input power	+5VDC +/-5%
Power consump	7.53W idle
Operating temp	-40°C to +75°C (-40°F to +167°F)
Shock	IEC68-2-27 compatible
Vibration	MIL-STD-810E 514.4 compatible
FCC	Class A compatible
Weight	7.6oz (215.5 grams) with heatspreader
Dimensions	4.550" x 3.775" (116mm x 96mm)

*shared interface, can use only one

Diamond's family of Atlas PCI/104-Express SBCs combines excellent CPU performance and a wealth of I/O at a competitive price. Available I/O includes USB 2.0, RS-232/422/485, Gigabit Ethernet, digital I/O, and SATA ports.

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.

Development Kits

Atlas system development kits and software development kits are available with a bootable Linux image pre-loaded on a 16GB mSATA flashdisk. The Development Kit has everything you need to get started on your design project right out of the box.

Software Support

Atlas SBCs run Linux, Windows Embedded Standard 7, and Windows Embedded CE.

Ordering Information

ATLN2800-4G	Atlas SBC, 1.86GHz Atom N2800 CPU, 4GB DDR3 SDRAM
ATLN2800-2G	Atlas SBC, 1.86GHz Atom N2800 CPU, 2GB DDR3 SDRAM
DK-ATLN-LNX	Atlas Development Kit: ATLN2800-2G SBC, SDK-ATLN-LNX, CK-ATLAS-01
SDK-ATLN-LNX	Atlas Linux Software Development Kit with 16GB mSATA flashdisk
CK-ATLAS-01	Atlas Cable Kit for most on-board I/O

Atlas SBC

Thermally conductive heat spreader