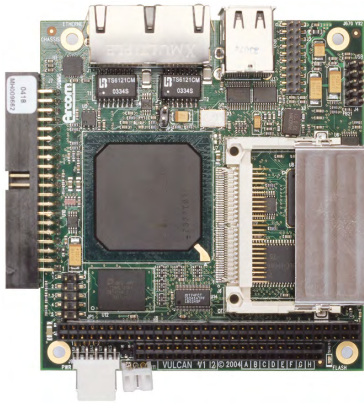


# VULCAN



## PC/104 format 533MHz Intel® IXP425 XScale® communications processor

The VULCAN is a low power PC/104 compatible single board computer based on the Intel IXP425 XScale network processor. The IXP425 is an implementation of the ARM compliant Intel XScale microarchitecture combined with communication peripherals including: two high speed Ethernet MACs, hardware accelerated cryptography, two high speed serial ports, a local PCI interface and a DMA controller. The VULCAN board adds to the IXP425 features with two further serial ports, four USB 2.0 ports, real time clock and expansion via the CompactFlash (CF+) port and PC/104 bus.

### Typical applications

The VULCAN provides a cost effective solution for a range of applications including:

- Communications gateway. The VULCAN is ideal for high speed embedded communications solutions which require secure encryption and authentication. Use the CF+ port to connect Wi-Fi cards or a wireless cellular modem to implement rugged industrial wireless gateway products.
- Remote data acquisition. Using the VULCAN, it is now possible to remotely connect to equipment situated out in-the-field to retrieve critical data which previously may have required an engineer to visit the site. Alternatively, the VULCAN could be used to automatically dial out and alert service personnel that the site needs attention.

### Features

- Intel IXP425 XScale 533MHz network processor (ARM\* architecture v.5TE compliant)
  - 32k data cache/32k instruction cache and 2k mini-data cache
  - Low power RISC technology
- Up to 64MB of soldered SDRAM (133MHz 32-bit data bus)
- Up to 32MB of soldered AMD MirrorBit™ Flash
- 256kB battery-backed SRAM (using external battery)
- Dual 10/100baseTx Ethernet MACs (RJ45 jacks with Speed & Link/Activity LEDs)
- Second Ethernet port includes hardware accelerated cryptography (encryption/authentication)
- Four USB v2.0 host ports: NXP ISP1561 (two USB type A connectors and two headers)
- Four serial ports:
  - 16550 UART: up to 921.6kb/s – (64byte Tx/Rx FIFO) – Tx, Rx, CTS, RTS only via RS232
  - 16550 UART: up to 115kb/s – (16byte Tx/Rx FIFO) – full modem control lines via RS232
  - 16550 UART: up to 921.6kb/s – (64byte Tx/Rx FIFO) – Tx, Rx, CTS, RTS only via RS232
  - 16550 UART: up to 115kb/s – (16byte Tx/Rx FIFO) – Tx, Rx only via RS422 or RS485
- Type II CompactFlash expansion (CF+ for both memory cards and Wi-Fi with hot swap support)
- Security features:
  - Hardware accelerated encryption (DES, 3DES, AES) and authentication (SHA-1 and MD5)
  - Dallas DS2401 Silicon Serial Number device (48-bit unique ID)
  - Tamper detect (switch) input for enclosure intrusion
  - Watchdog timer #1 generates complete board reset on timeout (selectable from 1ms to 60s)
  - Watchdog timer #2 generates CPU reset or interrupt on timeout (selectable up to 64s using a 32-bit register)
- Eight buffered digital inputs/Eight buffered digital outputs (+5V tolerant)
- Real time clock: Dallas DS1302 (with local 5 day backup), accuracy 1 minute/month @ 25°C
- Power requirements: 3.5W @ +5V only supply (typical)
- Dimensions: industry standard PC/104 format – 96mm x 91mm (3.8" x 3.6")
- Operating temperature range:
  - -20°C to +70°C (-4°F to +158°F) standard
  - -40°C to +85°C (-40°F to +185°F) industrial
- Humidity: 10% to 90% (non-condensing)

### Development Kits

The VULCAN is supported with a rapid application Development Kit for embedded Linux.

### Industrial Compact Enclosure

The VULCAN can be supplied inside a rugged industrial compact enclosure (VULCAN ICE) offering easy-to-use system solutions for embedded SBC applications.

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