# VIPER
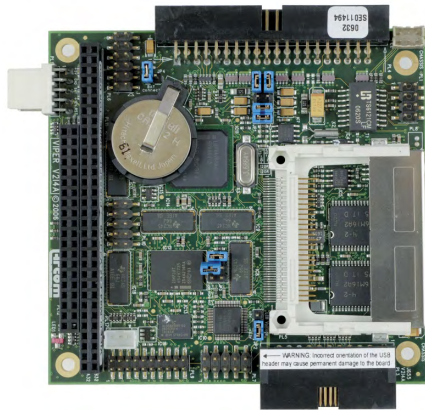


## PC/104 format 400MHz PXA255 XScale® SBC

The VIPER is an ultra low power PC/104 compatible single board computer based on the 400MHz PXA255 XScale RISC processor. The PXA255 is an implementation of the Intel® XScale micro-architecture combined with a comprehensive set of integrated peripherals including: flat panel graphics controller, DMA controller, interrupt controller, real time clock and multiple serial ports.

The VIPER offers a long list of features making it ideal for power-sensitive embedded communications and multimedia applications. The board has been designed to take advantage of the power saving modes of the PXA255 RISC processor and other onboard peripherals to achieve an incredible 1.9W maximum power consumption. It also supports a very low power standby mode.

## Typical applications

Industries in which the VIPER is widely used include:

- Multimedia interface panels. The VIPER is ideal for use in space-constrained enclosures or mounted directly behind a flat panel for Windows CE-based multimedia machine control applications. The ultra-low power dissipation means you don't need a fan or ventilation for system cooling.

- Communications gateway. The combination of embedded Linux with five serial channels, dual USB and the Ethernet port makes the VIPER ideal as a communications gateway, protocol converter or wireless network management device.

- Telematics. The low power consumption and wide operating temperature range of the VIPER combined with VIPER-UPS (un-interruptible power supply) product serves as a reliable platform for telematics solutions including taxis, trucks, railway wagons and buses.

## Features

- PXA255 XScale 400MHz processor (ARM* architecture v.5TE compliant) with:
  - 32k data cache/32k instruction cache
  - Low power RISC technology
- Up to 64MB SDRAM
- Up to 32MB Intel StrataFlash (P30)
- 256kB battery-backed SRAM (using onboard battery)
- TFT/STN flat panel graphics controller (up to 640 x 480 x 16-bit colour)
- 10/100baseTx Ethernet controller - SMSC 91C111
- Five high performance UART channels:
  - 16550 up to 230.4kb/sec: full modem control lines via RS232. (This channel can be factory fitted for TTL signals.)
  - 16550 up to 921.6kb/s: Tx, Rx, CTS and RTS via RS232
  - 16550 up to 230.4kb/s: Tx, Rx only via RS232
  - 16550 up to 115kb/s with 128byte Tx/Rx FIFO: full modem control lines via RS232
  - 16550 up to 115kb/s with 128byte Tx/Rx FIFO: Tx, Rx for RS422 and RS485 with auto-RTS control for line turnaround
- Dual USB host controller, v1.1 - Philips ISP1160. Can be configured for one USB host and one USB client port (PXA255)
- Integrated peripherals:
  - Audio controller with AC97 codec (LM4548) and 250mW stereo amplifier
  - Battery-backed real time clock
  - I²C controller
  - 48 channel programmable interrupt controller
  - 16 channel DMA controller
  - 4 channel interval timer (OS Timer)
  - Watchdog timer (270ns to 19 minutes) with interrupt or reset generation
- Drive support:
  - CompactFlash (hot swap Type II socket for memory and I/O cards)
  - Onboard resident Flash drive (with JFFS2 support for Linux, Transaction biSafe FAT for Windows® CE and TrueFFS for VxWorks®)
- 1MB BootROM
- Eight buffered digital inputs/eight buffered digital outputs (+5V tolerant)
- Trusted Platform Module (TPM) & tamper detect input option (factory fit only)
- JTAG port for test and debugging
- Real time clock, accuracy 1 minute/month @ 25°C
- Power requirements: 340mA (typical), 50mA (deep sleep) @ 5V +/- 5%
- Dimensions: industry standard PC/104 format – 96mm x 91mm (3.8" x 3.6")
- Operating temperature: -20°C to +70°C
- Humidity: 10% to 90% (non-condensing)

## Development Kits

The VIPER is supported with rapid application Development Kits for Windows CE 5.0 and embedded Linux (with optional RTLinux and Java™ technology).

## Industrial Compact Enclosure

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

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