

Trends in PC/104 and PC/104-Plus single board computers

By Kristin Allen

PC/104, one of the most widely accepted standards for embedded computer boards, continues to evolve and adapt. The platform follows developments in consumer desktop markets, and newer modules offer increased bandwidth, higher performance processing options, improved I/O efficiencies, and processor options beyond x86.

PC/104 evolved as a successful embedded form factor by following the desktop PC in functionality, while providing the compact size, ruggedness, scalability, low power, and long-term availability that the PC lacked. The standard ISA interface has been an advantage to end users of PC/104 boards due to broad industry support and the relative simplicity and low cost of developing their own proprietary hardware. The addition of the PCI interface to create the PC/104-Plus standard offered increased speed and eliminated ISA resource conflicts. As designers phased out the ISA bus from consumer devices, the PC/104 Embedded Consortium responded by developing the PCI-104 standard, a PCI-only version of the PC/104 standard. Look for more PCI-104 products in future embedded systems, expect continued backwards compatibility (PCI-to-ISA bridge) with new platforms, and anticipate that board and chip-level manufacturers will provide increased training and support for end users.

Many switched fabrics are jockeying to be the next PC architecture. PCI Express, RapidIO, InfiniBand, HyperTransport, and

StarFabric are leading the pack, but the race has just begun. Once a clear winner emerges, the PC/104 Embedded Consortium will provide guidance and standards to help its members develop boards that will go the distance for their embedded customers.

Until recently, most PC/104 single board computers have been x86-based. However, recent PC/104 product introductions include XScale, PowerPC, MIPS, ARM, and other architectures. There will be an increasing number of alternative processors appearing in the coming years.

New standards that incorporate PC/104 technology constantly emerge. New formats such as EBX, EnCore, and PluriBus utilize PC/104 expansion in different ways on boards of different sizes and shapes.

Industry researchers forecast continued growth in the PC/104 market. As a result, expect to see additional manufacturers producing more and better PC/104 products than ever before.

Kristin Allen is marketing communications manager for VersaLogic Corp. For information about VersaLogic, visit www.versalogic.com.

See the charts on the following pages for information about SBCs available in the market today.