Embedded Consortium

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PC/104 Consortium Chairman

PC/104: A robust embedded concept for the long run

For more than 15 years, PC/104 has been synonymous with words like versatile, expandable, rugged, miniature, solid, and long life. The unique stackable bus structure, rooted in well-proven and accepted desktop market technologies, has allowed PC/104, PC/104-*Plus*, PCI-104, EBX, and EPIC to flourish and become industry standards. A vast pool of fully interchangeable products spanning all industries has been and continues to be created. PC/104 ISA and PCI bus connectors have been integrated onto many other form factors to draw upon the success of the PC/104 architecture. This allows OEMs to remove the burden of PCB development and allows quick time-to-market product design limited only by their imagination.

The embedded market has evolved over the years as computers have left their sheltered environments of offices and buildings to manage the operations of our everyday lives. Computers have infiltrated almost every device we encounter down to the smallest of sizes; therefore, many argue that the embedded market will dominate the computer industry in the not-too-distant future.

This market is being pulled by many forces, not all of which are headed in the same direction. When defining a solution, OEMs are faced with the daunting task of specialized/custom versus general purpose, new versus long-standing, general desktop buses versus specialty buses, and so on. The PC/104 architecture provides balance by drawing on the benefits of the rack-mount industry's large network of modules with easy integration of multiple modules without heavy, bulky cages and of the mezzanine industry's quick add-on of specialty or complex modules to custom OEM designs without single stack-high module limitations.

System-, board-, and component-level qualifications of OEM embedded products can be very costly and time consuming. The fast-paced change in the computer industry is forcing OEMs to confront a never-ending barrage of specifications that addresses current needs but runs the risk of becoming outdated because it lacked long-term vision or it did not purge critical technical deficiencies. Next-generation standards must address the needs of today and envision what is needed tomorrow. They also must consider how to provide a backward-compatible path that allows end users to advance fielded designs as cheaply and quickly as possible. This has been the hallmark of PC/104 specification advancements that the embedded industry has come to depend on and expect.

> "Next-generation standards must address the needs of today and envision what is needed tomorrow."

The Consortium's newly elected board of directors has made one of its top priorities the release of the next-generation bus structure incorporating PCI Express that will be standard across the PC/104, EBX, and EPIC form factors. Board members include Tom Barnum of VersaLogic, secretary/treasurer; Johnny Wang of VIA Technologies, VP North America & Asia; Matthias Huber of Kontron, VP Europe; Robert Burckle of WinSystems; Bill Gallas of Intel; Matthias Fellhauer of LiPPERT Embedded Computers; Cameron Swen of AMD; and myself as chairman and president.

Being rooted in stable, well-accepted, and robust bus structures that have followed the PC market has been key to the success of PC/104, PC/104-*Plus*, and PCI-104. PCI Express is the next-generation PC bus and provides a natural extension of the well-established PCI-104 platform. This will create a new product development path for current and future users while maintaining the expected level of backward compatibility for established markets.

The technical committee, which is led by Jim Blazer of RTD Embedded Technologies, is driven by a diverse group of highly qualified people representing module, processor, and connector manufacturers. These companies are committed to the successful and timely completion of the specifications as evidenced by the increased number of meetings and leveraged member resources and expertise.

In conjunction with this endeavor, the Consortium is working to advance the process of sending its message to end users. Through the efforts of marketing committee chair Michele Kasza and her team, www.pc104.org is being overhauled to simplify use and provide better exposure for individual members and their products.

The success of the PC/104 specification is a measure of the combined efforts of the Consortium as a whole, its individual members, and the OEMs and customers that use its products. But one must never forget that the technology is the specification's foundation. The technology is what has made the PC/104 architecture concept and the standards created from it so successful.

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