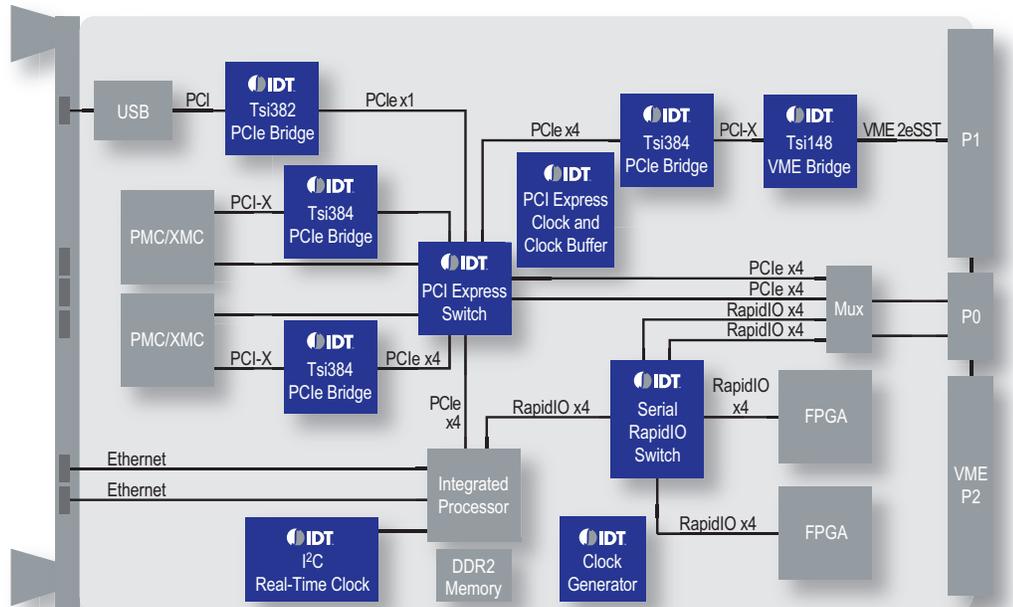


RapidIO and PCI Express

RapidIO was designed for multiprocessing architectures and provides a rich feature set that fits well in critical embedded systems, while PCI Express has become a ubiquitous interconnect in computing environments and offers seamless attachment to a variety of peripherals. Designs for VXS- and VPX-based applications will often find both of these interconnects in the same system.



Who uses VXS and VPX standards?

Military and Industrial applications increasingly make use of serial interconnect technology to increase performance, while maintaining parallel interconnects such as VME for attachment to legacy devices. The VMEbus International Trade Association (VITA) VXS (VITA 41) and VPX (VITA 46) standards allow for a serial bus alongside the parallel VME bus thus providing backward compatibility with new performance levels. The two most popular serial interconnects in VXS- and VPX- based applications are Serial RapidIO® and PCI Express®.

How can IDT help?

Several ways: with a wide array of RapidIO and PCI Express devices, along with a variety of devices specifically designed for computing environments, Integrated Device Technology is a leader in offering solutions for embedded computing applications. We design solutions with end-to-end system integration in mind. And at IDT, we understand embedded computing applications because top system designers trust us to deliver solutions to their real-time challenges every day.

Prove it.

The example shown above illustrates some of the IDT solutions that might be found in an embedded computing application employing multiple standards – in this case a VXS example.



Why the VXS and VPX standards matter in embedded computing applications

POWER MANAGEMENT | ANALOG & RF | **INTERFACE & CONNECTIVITY** | CLOCKS & TIMING | MEMORY & LOGIC | TOUCH & USER INTERFACE | VIDEO & DISPLAY | AUDIO

IDT Solution	Description	Key Benefits
Serial RapidIO switches www.IDT.com/go/SRIO	<ul style="list-style-type: none"> Broad line of high-performance, low-latency switches Ideal for aggregation of RapidIO-based processors and FPGAs in embedded applications Flexible port and lane options for a variety of application types Available in extended temperature range through IDT partners 	<ul style="list-style-type: none"> Proven interoperability with leading RapidIO processor and FPGA suppliers Low latency, high performance, with up to 10 Gbps bandwidth per port in each direction Scalability in link bandwidth and power
PCI Express switches www.IDT.com/go/PCle	<ul style="list-style-type: none"> Industry's broadest and most comprehensive family of PCI Express switching solutions Optimized to maximize performance per watt for the most demanding server, storage, communications, embedded and consumer application 	<ul style="list-style-type: none"> High performance and scalability; up to 64 lanes at 64 Gbps and up to 16 ports Optimum resource utilization with partitionable switch architecture Small footprint saves board space Switches are available in Industrial temperature range -40 to +85
Tsi382 PCI Express to PCI bridge www.IDT.com/go/PCleBridges	<ul style="list-style-type: none"> A small form-factor, high performance forward bridge that connects a single lane PCI Express (x1 PCIe®) interface to the PCI bus standard PCle Interface is compliant to the PCI Express Specification (Revision 1.1) 32-bit PCI interface can operate up to 66 MHz in PCI mode 	<ul style="list-style-type: none"> Greater application coverage, extensive interface flexibility supports three types of address modes: transparent, opaque, and non-transparent IDT RapidIO Gen2 switches support up to 6.25 Gbaud per link and a number of new RapidIO Gen2 specific features
Tsi384 PCI Express to PCI-X bridge www.IDT.com/go/PCleBridges	<ul style="list-style-type: none"> A high-performance forward bridge that connects the PCI Express protocol to the PCI and PCI-X bus standards PCle interface supports 1, 2, or 4 lanes, enabling the bridge to offer exceptional throughput performance up to 1 Gbps 	<ul style="list-style-type: none"> Interface offers designers extensive flexibility by supporting three types of addressing modes: transparent, opaque, and non-transparent PCI / X interface operates up to 133 MHz in PCI-X mode, or up to 66 MHz in PCI mode
Tsi148 VME bridge www.IDT.com/go/PCIxtoVME	<ul style="list-style-type: none"> Next generation, high performance VMEbus system interconnect device Fully compliant with the 2eSST and VME64 Extension standards Local bus supports either a 66 MHz PCI bus or a 133 MHz PCI-X bus interface 	<ul style="list-style-type: none"> Eases design constraints of VME Single Board Computers (SBCs) Provides the advantage of higher performance VME protocols, while preserving investment in VME boards that implement legacy protocols
PCI Express clock generators, buffers and synthesizers www.IDT.com/go/PCle-Clocks	<ul style="list-style-type: none"> The IDT family of clock generation and clock buffering solutions is the industry's broadest offering of high performance, low power, PCI Express® Gen1 and Gen2 devices Optimized for demanding applications in server, storage, communications and consumer products 	<ul style="list-style-type: none"> IDT clock products meet or exceed the stringent PCIe SIG specifications to ensure robust and error-free operation Broad family of products including clock synthesizers, fan-out buffers, zero delay buffers (ZDB), muxes, jitter attenuators, frequency translators
Real-time clocks www.IDT.com/go/RTC	<ul style="list-style-type: none"> Ultra low power clock/date devices with programmable time-of-day alarms and programmable square wave outputs Offer high noise immunity, low current consumption, 12/24 hour mode of operation, auto correction for leap year and programmable square wave output Ideal for a wide range of design applications 	<ul style="list-style-type: none"> Cost-effective devices save board space by including fast and standard I²C interface, time and date function, in a variety of packages High noise immunity, low current consumption, 12/24 hour mode of operation, auto correction for leap year and programmable square wave output make these devices ideal for a wide range of design applications Enables long battery life with operation over an extended supply voltage range of 1.8V to 5.5V, a temperature range of -40°C to +85°C and consumes less than 1 A current
Frequency synthesizers and clock generators www.IDT.com/go/ClockGen	<ul style="list-style-type: none"> IDT is a leading provider of standard and semi-custom clock solutions, including clock generators and frequency synthesizers The broad offering of IDT clock generators are used to produce a timing signal (known as a clock signal and behaves as such) for use in synchronizing a circuit's operation IDT frequency synthesizers, including the FemtoClock® family of low-noise, high-performance devices and the VersaClock® family of programmable synthesizers, are used to generate a range of frequencies from a single fixed timebase 	<ul style="list-style-type: none"> Comprehensive families of clock solutions, including standard off-the-shelf and semi-custom devices, speeding time to market and simplifying board design
Signal Integrity Products www.IDT.com/go/SIP	<ul style="list-style-type: none"> IDT signal repeaters offer the industry a blend of top analog performance, lower power, and the most system-level features optimized for demanding applications Signal repeater products from IDT condition the high speed I / O for extended distances and alleviate layout constraints in server, storage and bladed systems, providing a simpler, lower cost, and lower power solution than improving the chipset PHY 	<ul style="list-style-type: none"> Repeaters are available for multiple protocols: SAS / SATA 6G, PCI Express Gen2, S-RIO 2.0, and USB 3.0 Signal conditioning features include programmable input equalization and programmable output de-emphasis Advanced diagnostic and power saving features Built-in mux/demux for fail-over support

¹ Common Frequency Synthesizer variants for embedded computing applications include 250 MHz, 156.25 MHz, 125 MHz and 100 MHz frequencies

Discover what IDT know-how can do for you: www.IDT.com/go/VXS_VPX

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