



Teradyne PXI Express Core Infrastructure Products

High Performance PXIe Chassis, Embedded Controllers, and Remote Computer Interfaces

Teradyne PXI Express (PXIe) Core Infrastructure Products provide the core chassis and computing components that support current, future, and legacy PXI instrumentation while addressing the unique requirements of Defense & Aerospace test systems. Performance, flexibility, and long-term supportability are the key features that optimize overall cost of ownership.

Background

Defense & Aerospace test systems that integrate the latest PXI Express products must be built on a strong foundation that integrates high-performance chassis and computing infrastructure for current, future, and legacy instrumentation. Critical technical requirements include high bandwidth, low latency, and flexible interconnection between controllers and instruments. Embedded computing controllers and external computers must be accommodated without compromising performance.

The Teradyne Advantage

Teradyne is the ideal supplier of PXI Express infrastructure products based on years of system integration experience and proven long-term support. This includes the most advanced PXI Express instruments in hundreds of Teradyne High Speed Subsystem (HSSub) and Spectrum 9100/Spectrum HS system platforms. Teradyne's Best in class System Engineering expertise optimizes performance and reliability while minimizing program risk.

Chassis

All slots of the Teradyne chassis family support PXI Express with high-bandwidth, low-latency connections from controller to instruments and directly between instruments. Each chassis is compliant with all PXI Express specifications, and contains the required system controller slot, as well as slots for multiple instruments. They employ the latest generations of PCI Express backplane bus technology along with backward compatibility to avoid costly test asset obsolescence. Each chassis provides an ample supply of hybrid slots that support both PXI Express as well as legacy parallel PCI bus instruments.

Features

- Flexible Integration capability for Spectrum Systems and HSSub
- Best in class long-term Support

Benefits

- Support for past and future instrumentation avoids the high cost of obsolescence
- Proven long-term Defense & Aerospace supplier minimizes program risk and overall cost of ownership

Embedded PXI Express Controllers

Teradyne's embedded controllers combine an advanced Intel-based computer with the PXI Express I/O capability. A proven combination of Teradyne PXI Express chassis, computing controller, Microsoft Windows 10 64-bit operating system and PXI infrastructure software avoids the risks of compatibility and interoperability. Optimized results are provided whether the configuration includes Teradyne instrumentation, products from third-party suppliers, or the likely combination of both sources.

Remote Controllers

Many ATE systems require a single computer to control many instruments. Also, large systems may require a range of peripherals that exceeds the capability of an embedded

controller. Teradyne Remote Controllers provide high performance solutions for these configurations. A PCI Express interface module is added to an expansion slot in the external computer and a PXI Express Controller module is located in the chassis. The two modules are interconnected by a PCI Express cable. The combination provides the same uncompromising high bandwidth and low latency as an Embedded Controller. The external computer can control PXI, LXI, VXI, GPIB and other system functions.

PXI Express Chassis			
Teradyne Model (1)	P1821	P0621	P1831
Teradyne P/N	660-057-00	660-051-00	660-045-00
Total of Instrument Slots	16	5	16
Instrument Slots with PXI Express Capability	16	5	16
Instrument Slots with Parallel PXI Capability (Hybrid Slots)	10	5	6
Timing Controller Slots	1	0	1
PCIe Bus Configuration (2)	Gen 2 x8	Gen 2 x4	Gen 3 x8
Slot-to-slot bandwidth (2) (3)	4 GB/s	2 GB/s	8 GB/s
System bandwidth (3) (4)	8 GB/s	8 GB/s	24 GB/s
Power per Slot	38W	38W	50W
Operating Temperature	0 – 55 °C	0 – 55 °C	0 – 55 °C
AC Power	100 – 240 VAC 50 – 60 Hz	100 – 240 VAC 50 – 60 Hz	100 – 240 VAC 50 – 60 Hz
Fan Speed Control	Automatic	Manual	Automatic

Embedded PXI Express Computing Controllers		
Teradyne Model	P921	P931
Teradyne P/N	660-512-00	660-058-00
System bandwidth (3) (4)	8 GB/s (PCIe Gen2 x16)	16 GB/s (PCIe Gen3 x16)
Computer to individual instrument bandwidth (3)	4 GB/s (PCIe Gen 2 x8)	8 GB/s (PCIe Gen3 x8)
Internal Storage	240 GB SSD	240 GB SSD
Processor	Intel Corei7-4700EQ	Intel Core7-7820E
USB Ports	USB 3.0 (2), USB 2.0 (4)	USB 3.0 (2), USB 2.0 (4)
Network Ports	Gb Ethernet (2)	Gb Ethernet (2)
Serial Ports	RS232/422/485 (1)	RS232/422/485 (1)
Display Ports	DisplayPort (2)	DisplayPort (2)
Included Software	Microsoft Windows 10 (64-bit)	Microsoft Windows 10 (64-bit)

Remote PCI Express Chassis Controllers		
Teradyne Model	P821	P831
Teradyne P/N	660-055-00	660-056-00
PCIe Bus Configuration (computer to instrument)	Gen 2 x8	Gen 3 x8
Computer to chassis bandwidth (3)	4 GB/s	8 GB/s

Notes:

1. All chassis include rackmount kit
2. Controller to instrument or instrument to instrument
3. Maximum theoretical bandwidth
4. Controller to all instrument slots