

Analog Bus Extension for PXI

Universal High-Density Test Platform

konrad
... technologies ...

ABex

Communication



Switching



Signal Conditioning



Measurement



In-System-Programming



Boundary Scan



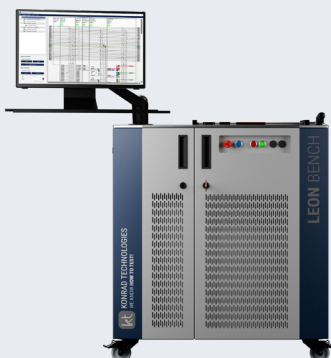
In-Circuit-Test



Scalable Test Platform based on ABex



LEON Fixture
Desktop



LEON Bench
Standalone



LEON Inline
Inline

PXI + ABex
Systems Alliance Analog Bus Extension for PXI



LEON Rack
Your own customized Integration

ABex System Overview

ABex based Test Systems

The ABex (Analog Bus Extension for PXI) offers exceptional flexibility, enabling the development of test solutions that efficiently share analog and digital resources. This optimization helps reduce both development and deployment costs. As a result, the solution delivers test systems with superior instrument-to-DUT connectivity and high reliability.

System Architecture

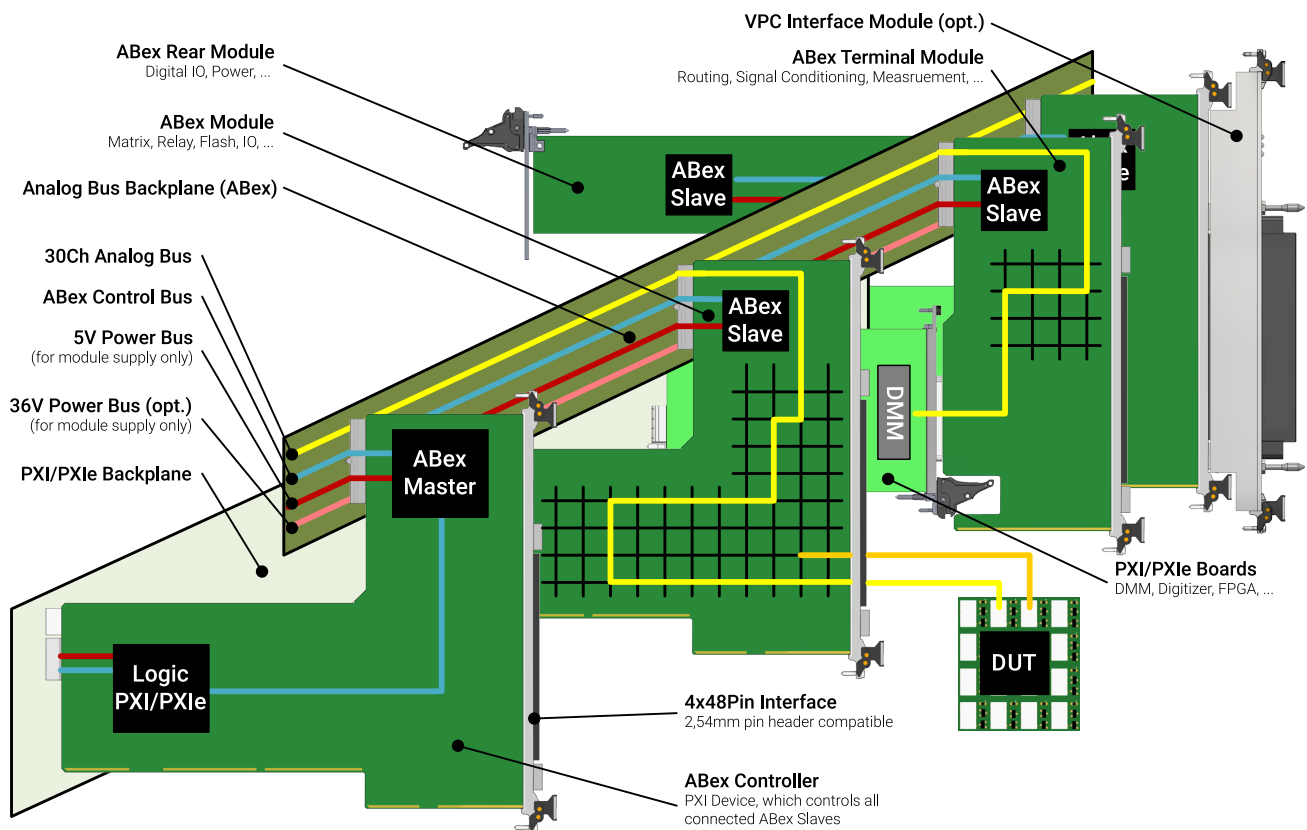
The ABex enhances the PXI/PXIe platform by incorporating an analog bus, enabling fully software-controlled, cable-free routing of analog and digital measurement signals. This allows DUTs to connect directly to switching matrices without additional wiring, improving signal integrity and ensuring stable impedances.

ABex Modules

Terminal modules serve as the bridge between instruments, the bus backplane, and the DUT interface. The ABex platform supports a wide range of popular instruments from vendors such as NI, Pickering, and Meilhaus. Additionally, Konrad offers its own switching and measurement modules to enhance system capabilities.

DUT Interface

Utilizing Virginia Panel technology, this reliable test adapter interface supports a wide range of connector technologies, including 192-position pin/socket configurations, power contacts, and RF contacts rated for up to 20,000 mating cycles. Additionally, a compatible interchangeable test adapter frame is available for seamless test adapter development.



Your Key Benefits

- Complete elimination of internal cabling
- Excellent signal quality
- Flexible applications (ICT, FCT, ISP, BSCAN, ...)
- Up to 16 times parallel or high pin count applications
- Short setup and development time
- Software-based signal routing
- Easy debugging (graphical switching)

Features

- Analog bus for internal signal routing up to 100V
- Integrated PXI/PXIe hybrid backplane
- Fully compatible with PXI and PXIe instruments
- Universal and reliable VPC DUT interface
- ABex chassis with 4, 8 or 18 slots available
- Extensive software support (TestStand, LabVIEW, C++)

ABex Modules Overview

Switching

- Matrixes up to 172x4 switching nodes
- High-Voltage Matrixes up to 1000V
- Relais-Modules up to 100 channels



In-Circuit-Test

- Up to 16 fully parallel ICT sockets
- 86 up to 2838 test points
- PXI-501 as ICT amplifier



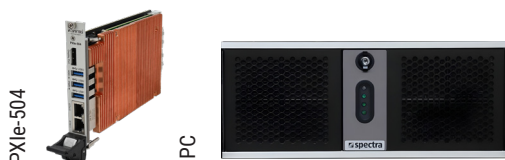
Signal Conditioning

- Signal Conditioning for Scope and AWG
- Routing for SMU and PMU



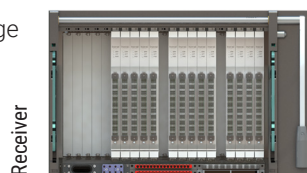
Control

- High performance single slot embedded controller
- Modular 19" industrial PC with MXI interface



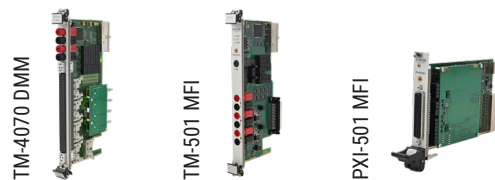
Interfacing

- Cableless high reliable VPC interface for quick fixture change
- Cable interface for permanent installation



Measurement

- Terminal modules for various PXI(e) instruments
- Voltage, current, resistance, capacitance, inductance, ...
- Pico Amp measurements and 1000V options available



In-System-Programming Boundary Scan

- Terminal modules for GOEPEL and JTAG available
- Integrated SMH Flash Runner NXG
- Up to 4-times parallel flashing per slot



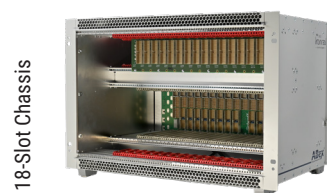
Communication

- I2C, SPI, UART, RS232/422/485, ...
- CAN, CAN-FD, LIN, FLEX-RAY, A2B, MIPI, LVDS, WLAN, Ethernet, USB, Bluetooth, ...
- MIL-STD-1553, ARINC 429, STANAG3910, ...



Base ABex Devices

- 4, 8 and 18 slot chassis available
- Full PXI/PXIe hybrid
- Up to PCIe4 Gen3 connectivity on each slot



ABex systems are programmed using software tools supplied by PXI instrument vendors. Signal routing to the backplane, along with additional terminal module functions, is programmed using ABex API functions and dedicated test panels. Test programs can be developed using common languages such as NI LabVIEW, NI TestStand, C++, and C#. For efficient signal route configuration and editing, a switch routing management solution is available.

Configuration and Debugging

- Live status display of the module functions in parallel to running test executions
- Easy debugging of the switch routes
- Control of module functions
- Alias naming for switching channels
- Selftest functionality of the modules
- Software abstractions and TestStand test steps for easy control of Measurement Devices, DC Power supplies, SMUs and Digital I/O devices

Execution

The Leon OP software is specifically designed for supervising production processes. It offers the following key features:

- Execution of NI TestStand sequences
- Parallel, semi-parallel or sequential execution of test sequences
- Customizable User Interface
- User management with different user levels
- Displaying execution results and statistics by panel or nest

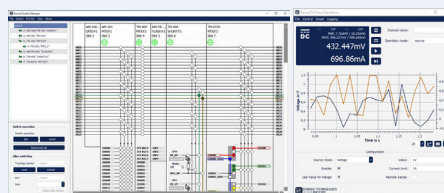
- Integrated Callback structure to adopt to different workflows and communication with test handlers and MES systems
- Result History View to quickly access the last test results

Development

- Interactive development environment for ICT in a text or table editor
- Detailed result output within tables as well as various results diagrams in ICT IDE
- Automatic ICT program generation available via ASTER TestWay
- Management of hardware resources via topology editor
- Pin-Finder function to support adapter wiring

- Windows drivers for Konrad modules with DLL interface for easy integration into various programming languages
- Easy parallelization due to NI hardware abstraction
- Konrad test step library for TestStand
- TestStand sequence editor for easy setup of functional test and integration of third party code modules
- Combined ICT and FCT execution on a single test system

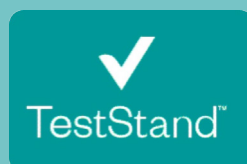
Configuration and Debugging



Development



Open Platform based on



Execution

