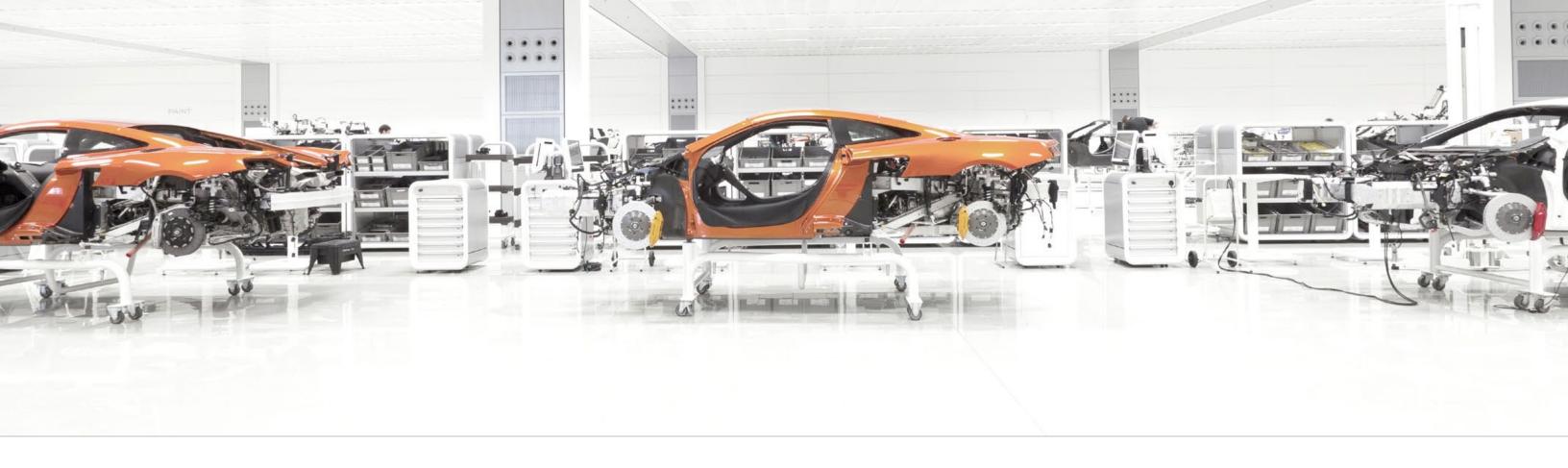COMMON CORE TEST SOLUTIONS

creatEX

RELIABLE DATA   FIRST TIME   EVERY TIME

VTI
Instruments

Ensuring Customer Confidence in the Quality of Your Product

Functional test is used to ensure that a product is performing as intended by its manufacturer against its published specifications. It is a broad application space covering virtually every market segment, and the complexity of a test is often driven by the cost and complexity of the product being tested. For example, a missile guidance control unit requires a more rigorous and time-consuming test than a relay board used in the telecommunications industry.

Constructing an automated test system is attractive because it can decrease overall test time and, thus, enable faster time to market while also reducing the element of human error. Furthermore, today's manufacturers are trending toward automated test equipment (ATE) that is based on a 'common core' of instrumentation that can be reused corporate-wide on all product lines to reduce spares inventory and minimize development time and costs.

Challenges

A properly architected test strategy can have a significant impact on your organization's bottom line and reputation. Some of the most common considerations that occur during development of a test strategy include:
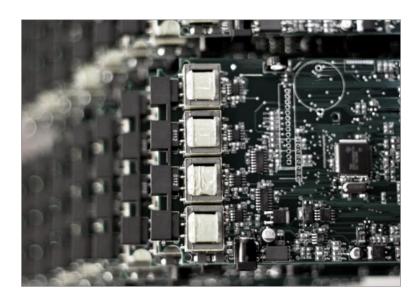
- Containing capital investments and development costs
- Sharing ATE development efforts across the entire corporation
- Minimizing test time and meeting production schedules
- Maintaining a high degree of confidence in accuracy of test results
- Reducing the footprint of a test system to reduce consumption of floor space
- Mitigating obsolescence by selecting long-term test platforms
- Facilitating multi-vendor interoperability through use of open-industry standards

Adopting a top-level strategy that identifies and prioritizes each of the key objectives should be a primary goal when product test is required. By integrating a scalable core instrumentation base into a common test platform, manufacturers can create a versatile system architecture that provides the lowest total cost of ownership.

VTI INSTRUMENTS - Helping you compete

PRESERVING INITIAL DEVELOPMENT AND CAPITAL INVESTMENTS

Any system that is subject to component obsolescence adds product support costs and generates a high degree of pain for the systems engineer responsible for keeping the test system operational. When the allotment of spare equipment has run out, deploying replacement hardware will require new development and requalification of any existing test program set. That pain is amplified when an entire system architecture or platform, such as the RS-232, ISA, or PCI bus, is supplanted with a completely new and incompatible next-generation design.

VTI Instruments takes pride in our track record of delivering instrumentation and test systems that are designed to outlive the products that they are required to test and we are committed to protecting our customers from component obsolescence issues. Extensive re-engineering efforts have resulted in standard products that have been in production for 15-20 years and beyond. We continue to pioneer the development of industry standard platforms that have a rich history of longevity through technological evolution while maintaining backward compatibility with earlier revisions.

20+ YEARS OF INDUSTRY LEADERSHIP

Our commitment to long term open platform standards has enabled customers to develop common ATE systems that are not impacted by the effects of obsolescence, using standard products that are designed to maintain active production status in excess of 15 years.

LEVERAGING MULTIPLE INDUSTRY STANDARDS FOR THE IDEAL TEST SOLUTION

Logo	Organization	Role
VXI	VXI CONSORTIUM	PRESIDENT
LXI	LXI CONSORTIUM	CO-FOUNDER, BOARD MEMBER
IVI	IVI FOUNDATION	BOARD MEMBER
VITA	VITA TECHNICAL COMMITTEE	ACTIVE MEMBER
PXI	PXI SYSTEMS ALLIANCE	ACTIVE MEMBER
PCI SIG	PCI SPECIAL INTEREST GROUP	ACTIVE MEMBER
PICMG	PCI INDUSTRIAL COMPUTER MANUFACTURERS GROUP	EXECUTIVE MEMBER
XILINX	XILINX ALLIANCE PROGRAM MEMBER	ACTIVE MEMBER

VTI INSTRUMENTS - Helping you compete

SHARING ONE ENGINEERING EFFORT ACROSS THE ENTIRE CORPORATION

In today's global economy, manufacturers are increasingly reliant on engineering teams and production facilities that are spread across the world. Standardizing on a finite core of test instrumentation promotes reusability of software and hardware development efforts that can be shared by the entire corporation, from R&D through manufacturing and support. Additionally, a common core philosophy simplifies maintenance and reduces spares overhead.

VTI's reputation in the automated test industry has been built on delivering innovative high-density designs with a common software and hardware base that can be leveraged throughout the life cycle of a product. We have leveraged over two decades of experience both in instrumentation design and test systems in our creatEX family, offering system building blocks that either allow our customers to build their own common core ATE system or a complete turn-key test system from VTI with minimal NRE.

MINIMIZING DEVELOPMENT TIME AND PRODUCTION TEST CYCLES

Long test development cycles and excessive production test times negatively impact a company's bottom line and its ability to compete by either delaying a product's introduction or by causing shipping milestones to be missed. Test engineers can minimize these risks by architecting test systems with instrumentation utilizing embedded intelligence to accelerate the development process and increase product throughput.

The widespread adoption of LXI instrumentation has empowered today's test engineers with increased system performance and a familiar LAN-based infrastructure. VTI has leveraged this technology to embed graphical web interfaces and programming tools in instrumentation to reduce development time and costs by 30-60%. Furthermore, our products incorporate advanced synchronization techniques to provide communication between instruments that is completely independent of the host PC to reduce overall test times and increase throughput. These system level capabilities have also been added to our latest line of PXIe products providing a combination of instruments, controllers, switching and I/O that reduces system overhead from traditional PXI products.

BUILDING THE HIGHEST DEGREE OF CONFIDENCE IN END-PRODUCT QUALITY

The more thoroughly a product is tested, the more confidence you and your customer have in the quality of the delivered goods. A properly architected test system can eliminate erroneous go/no-go decisions that can affect your reputation for quality or on-time delivery.

For decades, major military and aerospace prime contractors worldwide have selected VTI as the core of their major ATE system because we preserve the fidelity of the signals and provide the measurement performance to ensure reliable test results, the first time, every time.
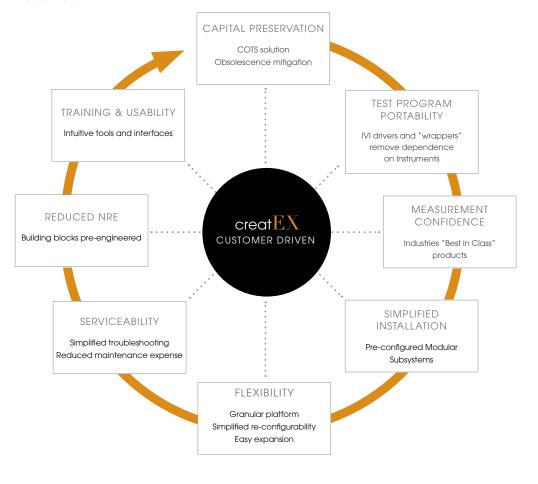
Customer Driven Solutions

VTI's creatEX series offers a broad range of core ATE subassemblies and components that simplify the integration process of any automated test system. The creatEX series includes racks, power, cooling, integrated mainframes, receiver assemblies from Virginia Panel and MAC Panel, as well as cabling and funnel assemblies designed to interface to any instrument module. All solutions are engineered to maximize signal integrity between the system assets and the device under test. Our experienced staff of application engineers can assist in any phase of the process starting from selecting components to helping define and configure complete turn-key systems.

PRE-ENGINEERED MODULAR SUBSYSTEMS REDUCE ENGINEERING AND RISK

The creatEX series is a result of VTI's combined experience as a premier modular instrumentation manufacturer and a custom integration service provider. CreatEX brings pre-engineered subsystems that can be easily combined to design, develop, and configure automated functional test systems (ATE).

These modular building blocks allow our customers to define and build their own ATE systems with minimal engineering, reduced documentation, and subsystems that have already been tested, thereby reducing integration risk and time for build. Alternatively, VTI can ship pre-configured complete ATE systems with test software.

CAPITAL PRESERVATION
COTS solution
Obsolescence mitigation

TEST PROGRAM PORTABILITY
IVI drivers and "wrappers" remove dependence on Instruments

TRAINING & USABILITY
Intuitive tools and interfaces

MEASUREMENT CONFIDENCE
Industries "Best in Class" products

REDUCED NRE
Building blocks pre-engineered

creat**EX**
CUSTOMER DRIVEN

SERVICEABILITY
Simplified troubleshooting
Reduced maintenance expense

SIMPLIFIED INSTALLATION
Pre-configured Modular Subsystems

FLEXIBILITY
Granular platform
Simplified re-configurability
Easy expansion

creatEX - Core ATE Building Blocks

° STEP 1	° STEP 2	° STEP 3	° STEP 4	° STEP 5	° STEP 6	° STEP 7
INSTRUMENTS	SWITCHING AND I/O	MODULAR INSTRUMENT & SWITCHING MAINFRAMES	INTEGRATED SUBSYSTEMS AND TEST ADAPTERS	PRE-CONFIGURED RACKS AND ENCLOSURES	SOFTWARE	COMPLETE TEST SYSTEMS

PXIe

PXIe

PXIe

CORE ATE SUBASSEMBLIES

Proven Test Solutions

25U RACK

TEST EXECUTIVES

VXI

VXI

INTEGRATED PXIE/LXI

INTERFACE ASSEMBLIES

TEST PROGRAM SETS

CUSTOM

LXI

LXI

LXI

CABLE-LESS I/O SOLUTIONS

42U RACK

APPLICATION SOFTWARE

VME

VME

RF/MICROWAVE

TEST ADAPTERS

INTERACTIVE GUI

CREATEX

STEP 1: Instruments

PRECISION MEASUREMENT CAPABILITY

VTI's products and systems are used to monitor and record data that characterizes the physical integrity and performance of aircraft, engines, and other large structures, as well as automate the functional testing of complex electronic systems. Knowing we address applications that range from flight safety to troop security to critical infrastructure defines our ongoing commitment to product performance and quality.

VTI is the industry leader in full bridge strain gauge measurement accuracy, one of five companies worldwide with voltage measurement accuracies of 0.005%, and one of only three companies worldwide that can achieve thermocouple measurement accuracies better than 0.3 °C.

Customers demand measurement fidelity and performance from their test equipment; whether the signal type is a voltage, current, resistance, temperature, pressure, or strain, few companies can match our capabilities.

PLATFORM INDEPENDENT SOLUTIONS

Our modular Core ATE products address a broad range of applications, regardless of platform, allowing our customers to pick the best product for their application. In addition, we partner with other leading instrumentation manufacturers to deliver the best and most cost-effective solutions for our customers.

OVER 200 MODULAR PXIe, LXI, VXI, AND VME PRODUCTS FOR EVERY APPLICATION

	LXI EX1200	LXI EX7000	PXIe	VXI	VME
SIGNAL SWITCHING					
Genearal Purpose	●		●	●	●
High Voltage	●			●	
Power	●		●	●	●
High-Density Matrix	●			●	
Multiplexer	●		●	●	
RF	●		●	●	
Microwave	●	●	●	●	
Optical		●		●	
INSTRUMENTATION					
High-speed Digitizers/Oscilloscopes			●		●
DMM	●		●	●	
Counter/Timers	●		●	●	
Programmable Resistors/Simulators	●			●	
Event Detectors	●			●	
DAC	●		●	●	
DIO	●		●	●	
AWG	●		●	●	
COMMUNICATION					
RS232/422/485			●	●	
Custom FPGA-based			●		
1553/ARINC 429			●	●	

"LEAN" OPEN INSTRUMENT DRIVERS

With our experience as both an instrument manufacturer and a systems integrator, we understand how our customers use our products and deliver software frameworks that save time and money in software development, and simplify system usage.

The most significant investment of any automated test project resides in the system software. VTI's commitment to delivering open architecture solutions extends to software utilities and tools that reduce development time while maximizing the flexibility to choose the application development environment.

VTI's industry standard drivers support application development in all common environments including C#, Visual Basic, LabVIEW™, Python, C/C++, and Java. VTI's innovative approach to driver development also provides true operating system independence with drivers that work seamlessly in Windows and Linux.

LabVIEW is a registered trademark of National Instruments.
MATLAB is a registered trademark of The MathWorks
Windows, Visual Studio are registered trademarks of Microsoft Corp.
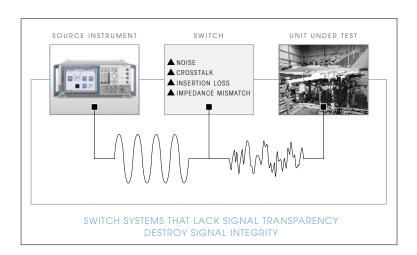*Mac OS is a registered trademark of Apple Inc.*

All VTI's products can be controlled programmatically using either IVI or Plug&Play drivers. These lean open platform drivers are less than 20 MB in size as opposed to multi-gigabyte drivers that can be difficult to download, install, and update. In addition, all products include a web-based soft front panel for basic monitor and control, which does not require any 3rd party software other than a web browser.

TYPICAL LIGHT-WEIGHT DEVICE DRIVER FROM VTI WEBSITE – download and install in minutes, less overheads, easy to update	IVI DRIVER - Comparator IVI DRIVER - Switch IVI DRIVER - System	2 Mb 3 Mb 3 Mb
TYPICAL DRIVER FROM COMPETITOR WEBSITE – 1000x longer to download, install and update.	Standard Download: dcd_feb_13_1.exe (3325.45 MB)	

STEP 2: Switching and I/O

SOURCE INSTRUMENT   SWITCH   UNIT UNDER TEST

▲ NOISE
▲ CROSSTALK
▲ INSERTION LOSS
▲ IMPEDANCE MISMATCH

SWITCH SYSTEMS THAT LACK SIGNAL TRANSPARENCY
DESTROY SIGNAL INTEGRITY

INSTRUMENT GRADE SWITCHING

VTI is the world leader in signal switching/distribution products for ATE systems. Our solutions have been utilized as the core for ATE systems for over 20 years for the simple reason that we view signal switching as a precision instrument and not just a collection of relays on a card. The quality of a switch is not determined by what it does, rather by what it doesn't do; the ideal switching instrument distributes signals transparently, without attenuating, adding noise, or reducing signal integrity in any way.
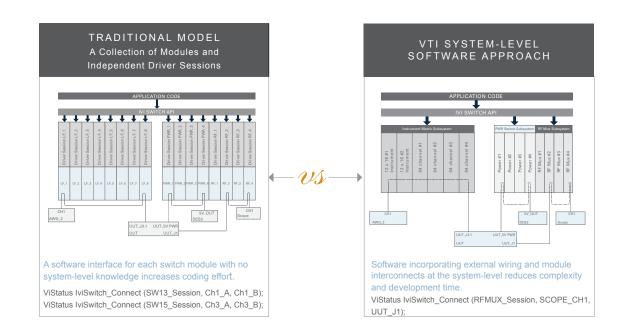
With years of experience in designing precision switch instruments and a widespread install-base in virtually every major ATE system world-wide, VTI Instruments has proven that, when it comes to signal transparency, the performance offered by our switch cards is unmatched.

SYSTEM-LEVEL PROGRAMMING FREES THE USER FROM THIRD PARTY SWITCH EXECUTIVES

System-level I/O can be logically named such that an entire path consisting of multiple relays can be connected with a single function call. Using system-level calls, only input and output channel names need to be specified and the underlying driver will operate the appropriate relays to make the connection, while even taking into consideration external cabling.
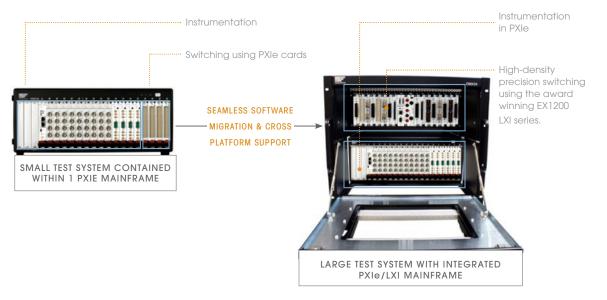
VTI's "lean" system-level drivers take this capability to the next level, allowing paths between switch cards in multiple chassis, and even across different platforms, to be connected with a single function call. This abstracts individual relay operation and allows a system-level view of the switch instrument. More importantly, it reduces the need for expensive additional switch configuration tools or switch executives, providing simplicity in configuration management and reducing time in software development.

STEP 2: Switching and I/O

TRADITIONAL MODEL
A Collection of Modules and Independent Driver Sessions

VTI SYSTEM-LEVEL SOFTWARE APPROACH

A software interface for each switch module with no system-level knowledge increases coding effort.

ViStatus IviSwitch_Connect (SW13_Session, Ch1_A, Ch1_B);
ViStatus IviSwitch_Connect (SW15_Session, Ch3_A, Ch3_B);

Software incorporating external wiring and module interconnects at the system-level reduces complexity and development time.

ViStatus IviSwitch_Connect (RFMUX_Session, SCOPE_CH1, UUT_J1);

SCALABLE SOFTWARE AND CROSS PLATFORM SUPPORT

VTI's LXI and PXI Express switch devices use the same driver allowing applications written around one platform to be seamlessly transferred to the other. This enables easy development of cross platform applications between LXI and PXI Express instruments, allowing users the freedom to choose the right platform for their application. It also allows scalability from small test systems that only need a few PXIe switch cards to large test systems that require the density of LXI switch modules, as production test needs scale up.

Instrumentation

Switching using PXIe cards

Instrumentation in PXIe

High-density precision switching using the award winning EX1200 LXI series.

SEAMLESS SOFTWARE MIGRATION & CROSS PLATFORM SUPPORT

SMALL TEST SYSTEM CONTAINED WITHIN 1 PXIE MAINFRAME

LARGE TEST SYSTEM WITH INTEGRATED PXIe/LXI MAINFRAME

STEP 3 : Modular Instrumentation and Switching Mainframes

VTI Instruments is consistently recognized as one of the leading providers of modular instruments worldwide. We help define and manage the Test and Measurement industry standards in use today, as well as provide over 200 products on the leading modular platforms – VXI, PXIe, and LXI. Being a system integrator of products (both ours and that of other leading suppliers), we have developed a philosophy of "no one platform is ideal for every application". We offer modular mainframes for VXI, PXI Express, and LXI that all have their strengths when building test systems.

THE CREATEX SERIES OFFERS THE FOLLOWING MODULAR MAINFRAME OPTIONS:

Modular LXI mainframes for integrated high-density "precision switching and I/O".

EX1268A: 16-SLOT LXI SWITCHING AND I/O MAINFRAME

EX1266A: 6-SLOT LXI SWITCHING AND I/O MAINFRAME

PXI Express mainframe for high-speed and modular instrumentation as well as applications that require low-density "precision switching and I/O" to be integrated with instruments.

CMX09: 9-SLOT PXI EXPRESS MAINFRAME WITH RACKMOUNT KIT

CMX18: 18-SLOT PXI EXPRESS MAINFRAME

STEP 3 : Modular Instrumentation and Switching Mainframes

Integrated LXI/PXIe mainframe, with custom interface panels and mass interconnect systems. Ideal for "one part number" subsystems completely documented and tested with instruments, switching, and all interconnect cabling and connectors.

CMX34: INTEGRATED PXIE/LXI MAINFRAME

CMX34: INTEGRATED PXIE/LXI MAINFRAME

LXI mainframe for RF and microwave signal switching and routing. This includes custom RF Interface Units (RFIU) with relays, attenuators, splitters, couplers, isolators, and other microwave or RF components.

EX7000 SERIES RF AND MICROWAVE SIGNAL SWITCHING AND SIGNAL CONDITIONING SOLUTIONS

VXI mainframes for very high-density synchronized I/O requirements.

CT-400: 13-SLOT VXI MAINFRAME

CT100C 6-SLOT VXI MAINFRAME

STEP 4: Integrated Subsystems

STEP 4: Integrated Subsystems

Unlike traditional instruments, documenting, configuring, and testing a modular system has time and cost associated with it and, in many cases, these costs can be unforeseen due to interoperability issues. VTI's experience in modular instruments, coupled with our strength in maintaining signal integrity in the complete switching and I/O path, can be leveraged by our customers through the purchase of our integrated subsystems.

MAXIMIZE PERFORMANCE

All solutions are engineered to maximize signal integrity between the system assets and the device under test.

SHORTEN DEVELOPMENT TIME – JUST ONE PART NUMBER AND DOCUMENT

Let our engineers leverage their experience in engineering and documenting the subsystem all under one top level part number. This saves you resources to focus on what you do best – testing YOUR product. In addition, our strong relationships with component manufacturers help us optimize lead times and delivery.

FULLY DOCUMENTED ASSEMBLIES

Being a product manufacturer, we employ the same stringent documentation, MRP, and QA processes to a subsystem as we do to any of our products that we support for 10 to 15 years and beyond.

RELIABLE RESULTS, EVERY TIME

Our established manufacturing processes ensure that our subsystems are fully tested and verified, guaranteeing results for our customers.
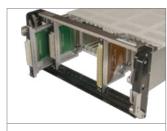
SOFTWARE

Our configuration tools and system-level software simplify application development, saving time and money.

THE CREATEX SERIES OFFERS THE FOLLOWING INTEGRATED SUBSYSTEM OPTIONS:

RECEIVER ASSEMBLIES

Receiver, cabling, and funnel assemblies are available for our entire range of modular instruments.

MAC PANEL PULL-THRU SOLUTIONS
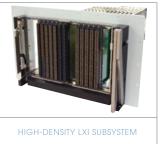

VPC CABLE SOLUTIONS

CORE ATE SUBASSEMBLIES

As a core subsystem is built, customers will receive a fully assembled subsystem, wired, tested, and documented, thus reducing the system engineering cost. Further, signal performance is specified at the receiver level accounting for cable losses and signal degradation factors, providing the user with a known calibrated signal at the UUT interface not the instrument output stage.

VXI SUBSYSTEM

PXIe SUBSYSTEM

PXIe/LXI SUBSYSTEM

HIGH-DENSITY LXI SUBSYSTEM

INTERFACE TEST ADAPTERS (ITA)

In order to maximize the performance of the ATE, correctly interfacing from the test station to the unit under test becomes critical. VTI's engineering group can help design ITAs - whether cable assemblies or complex test adapters with active circuitry. Our engineering experience covers the spectrum from high power to microwave, and this coupled with our manufacturing processes and documentation provides our customers with the confidence of repeatable test adapter builds.

TEST ADAPTERS

RF/MICROWAVE TEST ADAPTERS

RF/MICROWAVE TEST ADAPTERS

STEP 5: Instrumentation Racks

Pre-engineered ATE system racks from VTI save considerable time, money, and documentation for our customers.

Racks are available in 42U and 25U heights, for both 19 inch and 24 inch EIA standards. These fully assembled racks come complete with power distribution, cooling fans and filtering, shelves, and blanking panels.

Optional blowers, mass interconnect/receiver interfaces, manufactured cable assemblies switching, and accessories are also available. Designed specifically for test systems, VTI's creatEX racks ensure that precision test equipment can be housed and cooled appropriately.

Power control: ensures safety of instruments and UUTs

Rear door with lock, vented for optimized air-flow

Locked, removable side panels to simplify equipment installation and cabling

Power strips/PDU simplify power routing to instruments

Bus-bar with single point grounding

Selectable, pre-installed cooling system

Heavy-duty casters for portability

STEP 5: Instrumentation Racks

POWER CONTROL AND DISTRIBUTION

The creatEX racks come standard with a power strip and bus bar, a power control unit, and a power distribution unit.

COPPER BUS BAR AND POWER STRIP

POWER CONTROL UNIT

POWER DISTRIBUTION UNIT

The power control and distribution units are specifically designed for ATE and allow power to be removed from the instruments or DUT in case of an emergency. Single-phase and three-phase options are available.

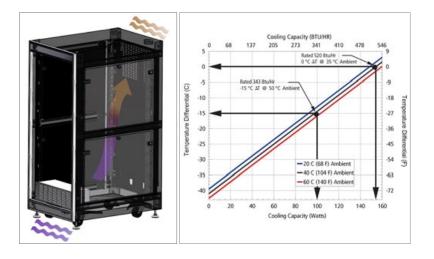| SPECIFICATIONS			
INPUT VOLTAGE	100 VAC to 240 VAC, 50-60 Hz. Three phase options available.		
INPUT CURRENT	30 A		
OUTPUT CURRENT	15 A (per phase for 3-phase) or 20 A (per-phase for 3-phase)		
NEMA POWER INPUT PLUG	NEMA L6-30P		
NEMA OUTLETS	NEMA 5-20R	NEMA 6-20R	IEC-320 C13	IEC-320 C19
NUMBER OF OUTPUTS	8 standard, expandable to 16 in a single unit		

STEP 5: Instrumentation Racks

COOLING SYSTEM

Instrument accuracies and functionalities are often affected by temperature, and modulating the temperature can be critical in ATE systems. VTI delivers each creatEX system with a system cooling mechanism that can be optimized to user-specific requirements. The cooling system is designed and characterized to ensure instrument operating temperature and rack temperature is maintained. Additionally, the cooling system is EMI shielded to prevent noise from the fan from affecting measurements.

When an electronic subassembly is removed from its native environment for the purpose of functional testing, it is also removed from the system level cooling mechanism that has been designed to maintain its operating temperature. Without this cooling, a subassembly can exceed its operating range during test, minimally resulting in erroneous test data. VTI's CMX-940x series is a fully integrated air flow management (AFM) system designed to provide consistent air flow that is required to a cool a unit under test (UUT), ensuring that the device is tested within its specified operating range.

RACK ACCESSORIES

	SPECIFICATIONS	
Communications Interface	LAN
Operating Modes	Manual (3 settings), Auto, through single operation front panel switch
Hose Connections	One inlet, one outlet (3.0" diameter)
Sensors	Airflow/velocity, temperature, pressure
Electromagnetic Compatibility	Consistent with EMC directives 89/366/EEC.

Drawer for keyboard and mouse	Blanking panels to cover unused slots	L-bracket to hold instruments on the rack

STEP 6: Software

The most significant investment of any automated test project resides in the system software. From open architecture software drivers and tools, to complete turnkey ready-to-use suites, to custom software development services, VTI offers customers a wide range of options for every requirement.

SOFTWARE DRIVERS AND TOOLS

All VTI products support industry standard IVI or Plug&Play drivers, and support application development in all common environments including C#, Visual Basic, LabVIEW, Python, C/C++, and Java. Soft front panels and sample code are available for every product to further simplify development.

TURNKEY SOLUTIONS

For data acquisition applications, VTI offers powerful turnkey software solutions that provide programming-free environments with intuitive GUIs to facilitate simplified test setup, acquisition, monitoring and analysis. Turnkey packages include EXLab for general purpose data acquisition requirements, X-Modal for advanced modal analysis, and Test for I-deas for NVH applications.
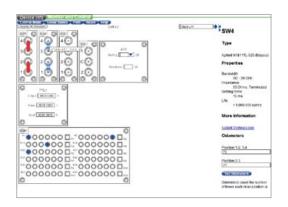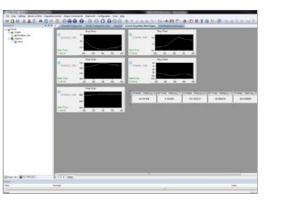
TEST PROGRAM SET DEVELOPMENT/UPGRADE/OFFLOAD SERVICES

From requirements to delivery, VTI can help you plan and execute your test requirements. Our range of capabilities includes:

• Understanding your product and helping you develop test requirement documents

• Developing interface adapters for test requirements.

• Developing programs for specific tests and Integrating our solutions into the test executive

In addition, we can also perform updates to your existing test programs to add new capabilities or improve performance. We also offer TPS offload services to transport or re-implement existing TPSs on new test equipment.

STEP 7: Complete ATE Systems

SOLUTIONS YOU CAN TRUST

VTI'S ESTABLISHED CAPABILITIES GUARANTEE TRANSLATION OF REQUIREMENTS TO RESULTS, WITH PROFESSIONAL EXECUTION AND ON-TIME, ON-BUDGET DELIVERY.

THE VTI DIFFERENCE

PEOPLE

VTI's test engineers have years of experience designing test systems for wide range of applications from mil/aero to commercial. Our expertise can be leveraged by commercial to mil/aero to develop effective test strategies using latest technologies and best-practices in the industry. Combining these capabilities with our established design engineering team and a staff of experienced engineering technicians, we are able to deliver even the most complex test ystems.

PROCESSES

VTI adopts the Agile project management framework in ATE system development. What does this mean for our customers?

* Focus on customer satisfaction.

* Open communications with customer with full visibility on progress and frequent deliverables, ensuring project is on-track and on-specification

* Higher flexibility in handling changes in requirements

* Test-driven development ensuring quality in every stage

* Ability to leverage any organizational resources in project to guarantee delivery

PROCESSES

VTI is an ISO 9001:2008 company with best-in-class practices ensuring our commitment to quality and customer satisfaction.

VTI is also ITAR registered with established infrastructure and processes to handle developments for aerospace and defense organizations.

TURN KEY SYSTEM

DELIVERABLE:

Completely integrated test system with Test Program Sets ready for use by the customer. VTI can either accept set requirements, or work with customers to develop a test strategy and define the system. The customer only needs to review and accept. VTI can also develop ruggedized or portable test systems specific to customer requirements.

BENEFITS:

Customers can leverage VTI's expertise in testing while focusing on their core products or capabilities.

VTI offers long-term system service and maintenance capabilities, offering peace of mind to our customers, and saving time and money in test system development and maintenance.

BASIC INTEGRATION

DELIVERABLE:

Configured system installed in a rack. Optional services include:

* Integrated receiver assemblies
* Self-test adapters and self-test program
* Interface Test Adapters (ITAs)
* Calibration TPS
* UUT Interface and cable sets

BENEFITS:

Customers can focus on system software or TPS development and allow VTI to handle all other aspects of the test system development. Each system is fully tested and verified at a system level before delivery ensuring performance. Significant time and cost savings are achieved in sourcing components, fabricating, and debugging systems.

creatEX Quick Reference Guide

INSTRUMENTS - STEP I

Platform	Model No.	Description	Part No.
DIGITIZERS			
PXIe	EMX-4350	625 kSa/s DSA Instr., 4 Ind. Diff. Ch., 24-bit Digitizer	70-0409-002
PXIe	EMX-4380	625 kSa/s DSA Instr., 4 Ind. Diff. Ch., 24-bit Digitizer, w/ Charge Inputs	70-0409-011
PXIe	EMX-4250	204.8 kSa/s DSA Instr., 16 Ind. Ch., 24-bit Digitizer	70-0409-004
PXIe	EMX-4016	16-ch, Rackmount Breakout Box for use with EMX-4250	70-0409-015
PXIe	EMX-4251	204.8 kSa/s DSA Instr., 8 Ind. Ch, 24-bit Digitizer	70-0409-012
PXIe	EMX-4008	8-ch Breakout box for use with EMX-4251	70-0409-010
PXI-H	PXI-2010	4-ch, 2 MSa/s Simultaneous A/D Multi-function PXI-H Module	70-0504-001
PXI-H	PXI-2005	4-ch, 500 KSa/s Simultaneous A/D Multi-function PXI-H Module	70-0504-000
PXI-H	PXI-2022	16-ch 16-Bit 250 KSa/s Simultaneous Sampling Card	70-0504-003
PXI-H	PXI-2205	64-ch, 500 KSa/s 16-bit Multi-function PXI-H Module	70-0504-004
PXI-H	PXI-2204	64-ch, 3 MSa/s 12-bit Multi-function Module	70-0504-005
PXI-H	PXI-9846D/512	High Resolution Digitizer, 4-ch 16-bit 40 MSa/s with 512 MB SDRAM	70-0504-007
PXIe	PXIe-9848	8-ch 14-bit 100 MSa/s High Speed PXI Express Digitizer	70-0504-008
DAC/WAVEFORM GENERATOR			
PXIe	EMX-1434	204.8 kSa/s Arb. Waveform Source, 4 Ind. Ch., Integr. Tach.	70-0409-008
PXI-H	PXI-2502	8-ch, 1 MSa/s Analog Output Multi-function PXI-H Module	70-0504-006
LXI	EX1200-3608	EX1200-3608A, 8-ch, 400 kSa/s DAC/AWG	70-0363-011
LXI	EX1200-3604	EX1200-3604A, 4-ch, 400 kSa/s DAC/AWG	70-0363-012
LXI	EX1200-1538	EX1200-1538, 8-ch, Enhanced Frequency/Totalizer, 1 MHz, with DAC and DIO	70-0363-024
DMM			
PXI-H	M9183A	PXI-H Digital Multimeter, 6½ digit, Enhanced Performance	70-0506-000
LXI	EX1200-2165	6.5 digit DMM for EX1206A 1U mainframe	70-0462-100
LXI	EX1200-2365	6.5 digit DMM for EX1208A 3U mainframe	70-0462-200
COMMUNICATIONS BUSSES			
PXI-H	PXI-C429-4	Four Channel ARINC-429 on PXI-H	70-0507-000
PXI-H	PXI-C429-8	Eight Channel ARINC-429 on PXI-H	70-0507-001
PXI-H	PXI-C429-16	16 Channel ARINC-429 on PXI-H	70-0507-002
PXI-H	PXI-C429-32	32 Channel ARINC-429 on PXI-H	70-0507-003
PXI-H	PXI-C1553-1	Single 1553 Channel on C-size PXI-H	70-0507-100
PXI-H	PXI-C1553-2	Dual 1553 Channel on C-size PXI-H	70-0507-101
PXI-H	PXI-C1553-4	Quad 1553 Channel on C-size PXI-H	70-0507-102
PROGRAMMABLE LOAD			
LXI	EX1200-7600	5 Watt Programmable Resistor Ladder	70-0363-028

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INSTRUMENTS - STEP I

Platform	Model No.	Description	Part No.
DIGITAL I/O			
LXI	EX1200-7500	64 Channel Digital I/O	70-0363-008
LXI	EX1200-1538	8 Channel Enhanced Frequency/Totalizer, 1 MHz, with DAC and DIO	70-0363-024
SENSOR SIMULATOR			
LXI	EX1200-7008	8 Channel Glitch Free 2/4-Wire Closed Loop Dynamic Temp Sensor Simulator	70-0363-047
COUNTER/COMPARATOR			
LXI	EX1200-7416	16 Channel Comparator/Edge Detector	770-0363-009
LXI	EX1200-1538	8 Channel, Enhanced Frequency/Totalizer, 1 MHz, with DAC and DIO	70-0363-024
THERMOCOUPLE/VOLTAGE MEASUREMENT			
LXI	EX1000A	48 Channel, 1 kSa/s/ch, Voltage/Thermocouple Input Instrument	70-0355-100
LXI	EX1000A-TC	48-ch, 1 kSa/s/ch, Voltage/Thermocouple Input Instrument with Mini-TC Inputs	70-0355-500
LXI	EX1000A-TCDC	48 Channel, 1 kSa/s/ch, Voltage/Thermocouple DC-powered Input Instrument with Mini-TC Inputs	70-0355-510
LXI	EX10SC	Expansion Signal Conditioning Chassis for the EX10xxA	70-0355-600
STRAIN/VOLTAGE MEASUREMENT			
LXI	EX1629	48 Channel, up to 25.6 kSa/s, Strain/Voltage Measurement Instrument	70-0321-000
PROTOTYPING BOARD			
LXI	EX1200-7000	Modular Prototyping Board, 96 DIO Lines	70-0363-046

SWITCHING AND I/O - STEP II

Platform	Model No.	Description	Part No.
HIGH-POWER SWITCHES			
LXI	EX1200-2001	20 Channel, 16 A SPST	70-0363-002
LXI	EX1200-2002	12 Channel, 16 ASPDT	70-0363-003
PXIe	SMX-2002	12 Channel, 16 A SPDT Switch	70-0409-107
HIGH-VOLTAGE SWITCHES			
LXI	EX1200-2007A	48 Channel, 2/4-wire Multiplexer, 1000 V	70-0363-031
LXI	EX1200-2008H	30 Channel, 3 (1x10) High Voltage Mux Card	70-0363-026
LXI	EX1200-2087A	8 Channel Multiplexer (1x2), 1000 V Multiplexer, 1A, w/Independent Contact Monitoring	70-0363-050

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SWITCHING AND I/O - STEP II

Platform	Model No.	Description	Part No.
MULTIPLEXERS			
LXI	EX1200-3001	64 Channel, (8) 1x8 Multiplexer, 300 V/2 A	70-0363-013
LXI	EX1200-3001DS	64 Channel, (8) 1x8 Multiplexer, 300 V/2 A with discharge resistor (3001 DS)	70-0363-045
LXI	EX1200-3048	48 Channel, 300 V/2 A Mux	70-0363-000
LXI	EX1200-3048S	48 Channel FET Mux	70-0363-001
LXI	EX1200-3072	72 Channel, 300 V/2 A Mux	70-0363-004
LXI	EX1200-3096	96 Channel, 100 V/ 0.5 A Mux	70-0363-005
LXI	EX1200-3164	16 (1x4) 2-wire Multiplexer, 300 V/2 A	70-0363-017
PXIe	SMX-3276	152 channel, 300 V/2 A Multiplexer	70-0409-009
MATRICES			
LXI	EX1200-4003	Dual 4x16, 300 V/2 A Matrix	70-0363-006
LXI	EX1200-4128	128 x 4 Single-pole Matrix	70-0363-018
LXI	EX1200-4264	128 Crosspoint Dual, 300 V/2 A Matix	70-0363-037
LXI	EX1200-4265	2 x 64 2-wire Matrix with Bypass, Ideal for Cable Test	70-0363-041
PXIe	SMX-4410	160 crosspoint, Four (4x10)s, 300 V/2A Matrix	70-0409-108
GENERAL PURPOSE SWITCHES			
LXI	EX1200-5001	80 Channel SPST, 300 V/2 A	70-0363-014
LXI	EX1200-5002	32 Channel, 300 V/2A SPDT	70-0363-007
LXI	EX1200-5004	32 Channel, 250 V/5A SPDT	70-0363-030
LXI	EX1200-5006	40 Channel SPST, 300 V/2 A	70-0363-025
LXI	EX1200-5007	12 Channel, 300 V/2A SPDT	70-0363-032
PXIe	SMX-5001	80-ch 300 V/2 A SPST switch	70-0409-110
RF SWITCHES			
LXI	EX1200-6101	10 Channel, 1.3 GHz SP4T, RF Multiplexer	70-0363-010
LXI	EX1200-6102	17 (1 x 2) Coaxial Switches 1.3 GHz	70-0363-023
LXI	EX1200-6111	5 Channel, 1.3 GHz SP4T	70-0363-015
LXI	EX1200-6216	Dual 1 x 16 RF Mux, 1 GHz	70-0363-016
LXI	EX1200-6216HV	Dual High-Voltage Coaxial Star Switch	70-0363-027
LXI	EX1200-6301	4 Channel, SP4T, 3 GHz	70-0363-034
LXI	EX1200-6301T	Four SP4T Multiplexer Tree, 3 GHz w/ 50 Ω Termination	70-0363-035
PXIe	SMX-6301	Four SP4T Multiplexer Tree, 3 GHz	70-0409-112
PXIe	SMX-6301T	Four SP4T Multiplexer Tree, 3 GHz w/ 50 Ω Termination	70-0409-113

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SWITCHING AND I/O - STEP II

Platform	Model No.	Description	Part No.
MICROWAVE SWITCHES			
LXI	EX1200-7100	Microwave Switch Carrier, Up to 3 relays, Double-slot	70-0363-029
LXI	7100	Pass Through Adapter, 6 Drive Lines	70-0146-026
LXI	7102	7102, 2 SPDT 26.5GHz Relay	70-0146-020
LXI	7104	7104, SP4T 26.5 GHz Relay	70-0146-021
LXI	7106	7106, SP6T 26.5 GHz Relay	70-0146-022
LXI	7122	7122, 26.5 GHz Transfer Switch	70-0146-023
PXIe	SMX-7121	1-slot Microwave Switch, Single SPDT, 26.5 GHz	70-0409-114
PXIe	SMX-7122	1-slot Microwave Switch, Dual SPDT, 26.5 GHz	70-0409-115
PXIe	SMX-7200	2-slot Microwave Switch Carrier w/Relay Driver	70-0409-111
PXIe	SMXR-7200	Pass Through Adapter, 6 Drive Lines	70-0146-026
PXIe	SMXR-7202	7102, 2 SPDT 26.5GHz Relay	70-0146-020
PXIe	SMXR-7204	7104, SP4T 26.5 GHz Relay	70-0146-021
PXIe	SMXR-7206	7106, SP6T 26.5 GHz Relay	70-0146-022
PXIe	SMXR-7222	7122, 26.5 GHz Transfer Switch	70-0146-023
	SPDT		
LXI	7202-20	SPDT, 20 GHz	70-0340-001
LXI	7202-26	SPDT, 26 GHz	70-0340-002
LXI	7202-20T	SPDT, 50 Ohm Terminated, 20 GHz	70-0340-003
LXI	7202-26T	SPDT, 50 Ohm Terminated, 26 GHz	70-0340-004
LXI	7202-20TEL	SPDT, 50 Ohm Terminated, 5M Cycles, 20GHz	70-0340-005
LXI	7202-26TEL	SPDT, 50 Ohm Terminated, 5M Cycles, 26GHz	70-0340-006
	SP4T		
LXI	7204-20	SP4T, 20 GHz	70-0341-001
LXI	7204-26	SP4T, 26 GHz	70-0341-002
LXI	7204-20T	SP4T, Self-Terminated, 20 GHz	70-0341-003
LXI	7204-26T	SP4T, Self-Terminated, 26 GHz	70-0341-004
LXI	7204-20TEL	SP4T, 50 Ohm Terminated, 5M Cycles, 20 GHz	70-0341-005
LXI	7204-26TEL	SP4T, 50 Ohm Terminated, 5M Cycles, 26 GHz	70-0341-006

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SWITCHING AND I/O - STEP II

Platform	Model No.	Description	Part No.
MICROWAVE SWITCHES			
	SP6T		
LXI	7206-20	SP6T, 20 GHz	70-0342-001
LXI	7206-26	SP6T, 26 GHz	70-0342-002
LXI	7206-20T	SP6T, 50 Ohm Terminated, 20 GHz	70-0342-003
LXI	7206-26T	SP6T, 50 Ohm Terminated, 26 GHz	70-0342-004
LXI	7206-20TEL	SP6T, 50 Ohm Terminated, 5M Cycles, 20 GHz	70-0342-005
LXI	7206-26TEL	SP6T, 50 Ohm Terminated, 5M Cycles, 26 GHz	70-0342-006
LXI	7206-40TEL	SP6T, 50 Ohm Terminated, 5M Cycles, 40 GHz	70-0342-007
	Transfer		
LXI	7222-26	Transfer, 26 GHz	70-0343-001
LXI	7222-26EL	Transfer, 5M cycles, 26 GHz	70-0343-002

MAINFRAMES - STEP III

Platform	Model No.	Description	Part No.
PXI EXPRESS MAINFRAMES			
PXIe	CMX09	9-slot (1 hybrid) Flexible 4U chassis up to 2 GB/s bandwidth. Tabletop Version	70-0463-000
PXIe	CMX09R	CMX09 Rackmount Kit	70-0463-100
PXIe	CMX09RD	CMX09 Rackmount Kit + Door	70-0463-200
PXIe	CMX09B	CMX09 Bolt Down Option	70-0463-300
PXIe	CMX18	18-slot, 4U PXI Express Chassis, (10 hybrid, 6 PXIe), up to 4 GB/s bandwidth	70-0501-000
PXIe	CMX18R	CMX18 Rackmount Kit	70-0501-001
PXI EXPRESS CONTROLLERS			
PXIe	EMX-2500	Gigabit Ethernet LXI Based interface	70-0409-007
PXIe	EMX-2401	Intel Core i5 2.4 GHz, 8 GB RAM, 160 GB Hard Drive, PXIe Embedded Controller, No OS Installed	70-0505-000
PXIe	EMX-2401-W	Intel Core i5 2.4 GHz, 8 GB RAM, 160 GB Hard Drive, PXIe Embedded Controller, Windows 7(TM) 64-bit Installed	70-0505-001
PXIe	PXIe-PCIe8361	1 lane Gen 1 PCIe Host w/3 m Copper Cable, 200 MB/s Throughput	70-0502-000
PXIe	PXIe-PCIe8371	4 lane Gen 1 PCIe Host w/3 m Copper Cable, 800 MB/s Throughput	70-0502-001
PXIe	PXIe-6674T	Timing and Multichassis Synchronization Module	70-0503-000

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MAINFRAMES - STEP III

Platform	Model No.	Description	Part No.
LXI MAINFRAMES			
LXI	EX1202	EX1200 Series, 2-Slot Mainframe without DMM	70-0373-001
LXI	EX1262	EX1200 Series, 2-Slot Mainframe with 6.5-digit DMM	70-0373-000
		Rackear Kit with Rear Support Bracket for EX1262/02	70-0373-104
LXI	EX1206A	EX1200 Series, 6-Slot Mainframe without DMM	70-0435-100
	EX1266A	EX1200 Series, 6-Slot Mainframe with 6.5-digit DMM	75-0047-200
		Full-Width Rackear Kit with Rear Support Bracket for EX1266A/06A	70-0361-102
LXI	EX1208A	EX1200 Series, 3 U, 16-Slot Mainframe without DMM	75-0046-000
	EX1268A	EX1200 Series, 3 U, 16-Slot Mainframe with 6.5-digit DMM	75-0046-200
		Full-Width Rackear Kit with Rear Support Bracket for EX1268A/08A	70-0370-102
MICROWAVE SWITCH MAINFRAMES			
LXI	EX7000-OEM-x	LXI Interface Bd, 72/48/24 Drive Channels with 32/24/28 Parallel I/O Driver Bd	70-0334-000
LXI	EX7000-72-x	72/48/32 Drive or 32/48/72 Parallel I/O Expansion Board	70-0335-000
LXI	EX7000-72-3	72 TTL/32 Parallel I/O Expansion Board	70-0335-003
LXI	EX71HD	1U Mainframe DC-26.5 GHz, up to 12 Microwave Relay Building Blocks	70-0337-000
LXI	EX72CC	2U Mainframe DC-26.5 GHz Up to 12 Microwave Building Blocks	70-0414-000
LXI	EX72SF	F2U Mainframe, High-Performance, DC-26.5 GHz Up to 12 Microwave Building Blocks	70-0336-000
LXI	EX7204L	1/2 Rack, 2U, 4-slot Microwave Mainframe, LAN-USB (Latching Relays)	70-0406-000
LXI	EX7204A	1/2 Rack, 2U, 4-slot Microwave Mainframe, LAN-USB (Non-Latching Relays)	70-0376-000
LXI	EX7300	3U 200 W Mainframe with 72 Drive Channels and 32 Parallel I/O	70-0344-000
LXI	EX7400	4U 200 W Mainframe with 72 Drive Channels and 32 Parallel I/O	70-0345-000

INSTRUMENTATION RACKS - STEP IV

Platform	Model No.	Description	Part No.
PXI EXPRESS MAINFRAMES			
	CMX-9125	CreatEX 25U Rack, 19"; Single Phase PDU with Removable Door and Side Panels	75-0065-000
	CMX-9125-2	CreatEX 25U Rack, 24" Single Phase PDU with Removable Door and Side Panels	75-0065-001
	CMX-9138	CreatEX 42U Rack, 19"; Single Phase PDU with Removable Door and Side Panels	75-0065-002
	CMX-9350	Blower, 300 CFM	70-0509-000
	CMX-9500	Blower, 470 CFM	70-0509-001
	Option BP19	Blanking Panel Kit, 19" Rack; 1U/2U/3U Panels	70-0510-000
	Option BP24	Blanking Panel Kit, 24" Rack; 1U/2U/3U Panels	70-0510-001
	Option BL	L-bracked, 1 Pair	70-0511-000
	Option PDU3	Swap creatEX PDU 3-phase Input	
	CMX-9400	Smart UUT Air Flow Management System; 19" rack	70-0450-001
	CMX-9401	Smart UUT Air Flow Management System; 24" rack	70-0450-000

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