ni.com/aerospace-defense

NI Solution Brief

Software/Controller Component Test (HIL)

Verify the functionality of embedded software using simulated inputs instead of costly or impractical real-world components. Handle changing requirements across a heterogeneous fleet of testers. Effectively integrate accurate model-based simulation of physical system components.

The NI Advantage

- Build a universal test architecture to enable high reuse across test types and programs with NI's open and secure platform
- Better utilize data and more efficiently manage systems with NI's enterprise-ready cloud-based tools
- Easily integrate third-party equipment and customize software and hardware to meet unique test requirements
- Take advantage of an ecosystem of expert hardware-in-the-loop (HIL) specialty partners

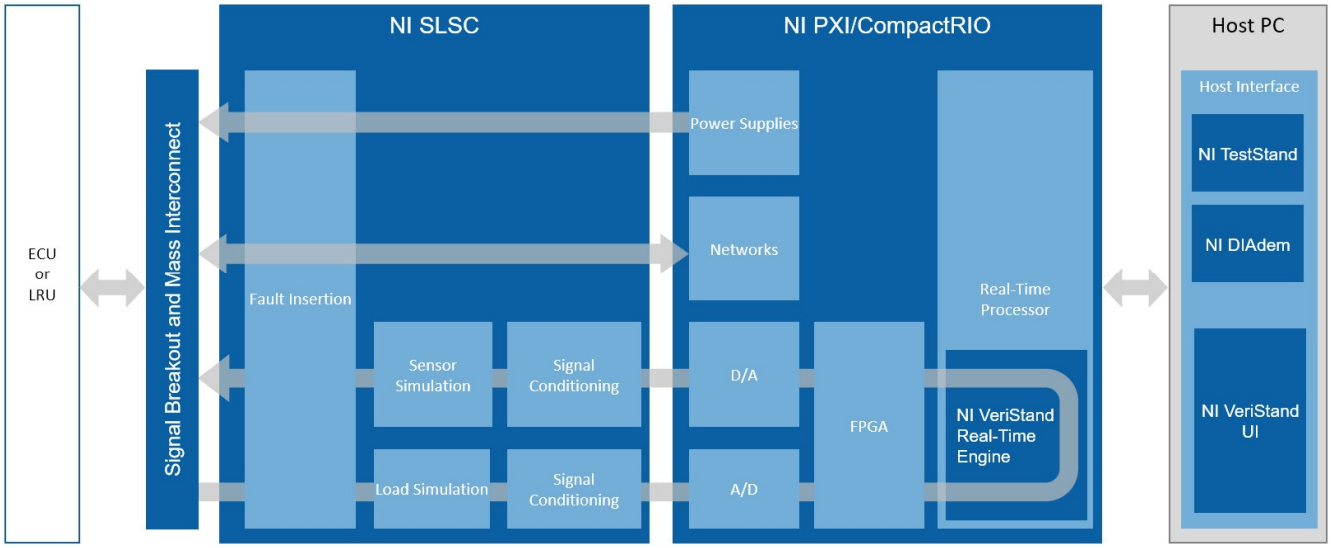
Application Requirements

- Existing system component models
- Custom signal conditioning, fault insertion, mil-aero buses
- Ability to integrate custom signals and unique sensors

NI Solution

- Integrate models from your environment of choice (The MathWorks, Inc. Simulink® software or otherwise) with NI VeriStand
- Reuse modular signal conditioning and fault insertion between test systems with NI switch load signal conditioning (SLSC) hardware
- Account for unique sensor and I/O types with customizable I/O from PXI or CompactRIO backed by a LabVIEW-programmable FPGA

System Diagram



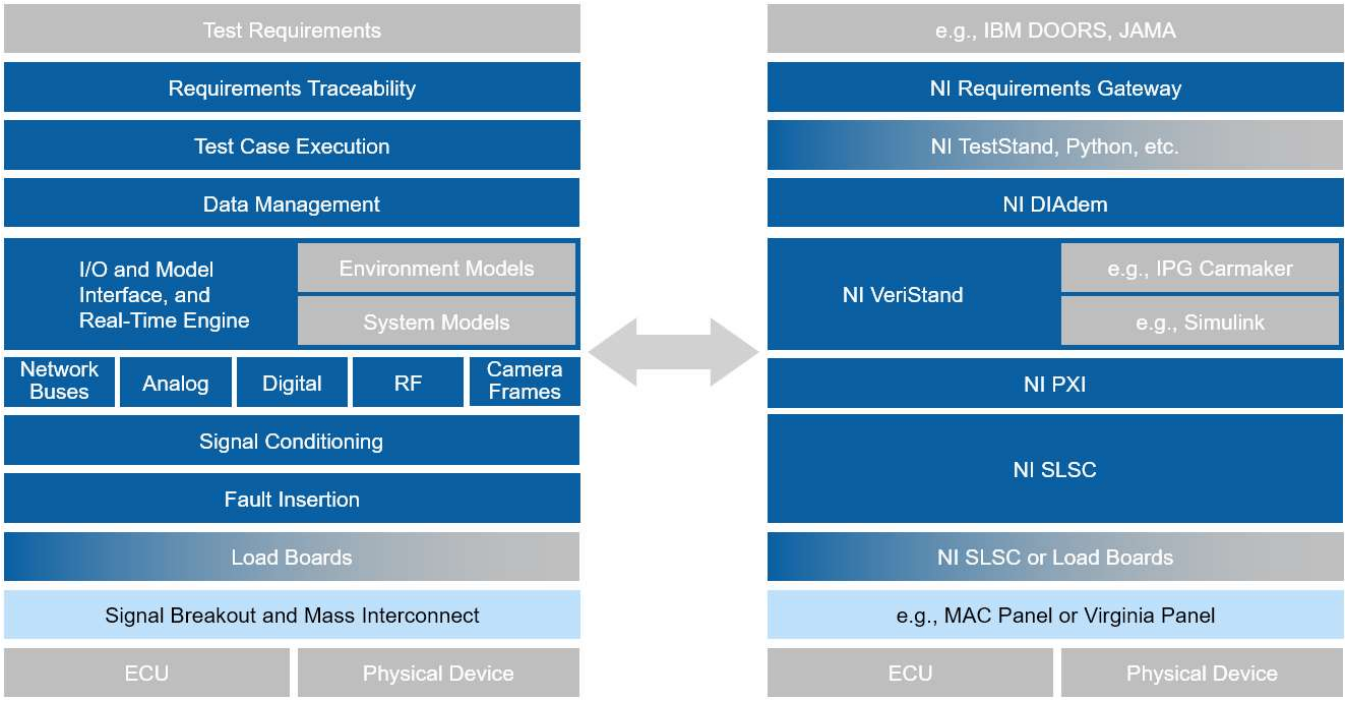
Example System Configuration (Excluding Systems and Data Management)

Saab Elevates Testing of the World's Most Cost-Effective Fighter Plane

"Using the SLSC system further promotes our goal to focus the attention on building HIL test systems and rigs, not developing advanced hardware."

–Anders Tunströmer, SAAB Aeronautics

HIL Architecture Built on the NI Platform



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System Integration on Your Terms

NI offers a variety of solution integration options that can be customized to your application-specific requirements. You can use your own internal integration teams for full system control or leverage the expertise of NI's worldwide network of Alliance Partners to receive a turnkey system.

Contact your account manager or call or email us to learn more about how NI can help you increase product quality and accelerate test timelines.

(888) 280-7645
info@ni.com