



**Analyze – Accelerate – Automate**

## PRODUCT OVERVIEW

### WHY VIRTUALIZATION BASED DEVELOPMENT

- Virtualize the embedded development process
- Optimize all stages
- Virtual Platforms
  - Arbitrary CPU Type
  - Arbitrary System Architecture
  - Arbitrary Target OS
- Synchronous Control Over Time
- Run code unconstrained by HW
- Automated Debug & Test
- Deterministic collaboration

**VLAB®** is a suite of products used by software and test engineers to accelerate their work by **virtualizing** the embedded product development process. From the first concept, through the development, test, and optimization phases and into deployment and field operations, all aspects of the embedded product life cycle can be optimized. The fundamental power of **VLAB** comes from the recognition that Moore's Law can be harnessed to build better tools for the embedded engineer, and to decrease the complexity of the challenges they face.

A **VLAB Virtual Platform Toolbox** contains a collection of virtual components configured to represent the system being developed, debugged, or tested. A Virtual Platform (VP) represents an embedded system where the CPU type, system architecture, and target operating system are likely different from the host.

The VP is controlled and configured from the **VLAB Express** GUI. It not only gives the embedded software engineer a repeatable platform on which to optimize their code, but also provides the test engineer with an easily controllable platform that is fully compatible with today's popular automation and scripting frameworks.

For the user who wants added functionality, the **VLAB Software Suite** adds a full GUI debugging environment. This environment blends the symbolic debug of a desktop software debugger with the control and observability of a traditional embedded system mode debugger. The **VLAB Software Debug Server** enables 3rd party debuggers to connect to the VP as if the debugger were connected to a probe connected to a physical board. The GUI debug environment and the Debug Server can be used simultaneously giving the user unprecedented access, especially in cases where a 3rd party debugger can only address one cluster in a multi-cluster heterogeneous SoC. As with **VLAB Express**, all aspects, including state modification, are fully Python scriptable enabling automatic test execution and investigation of failures via a favorite IDE.

The **VLAB Suite** extends **VLAB Software Suite** with full access to the simulated hardware state. Every CPU and device register, every byte of RAM, and every I/O signal is now available for inspection and control. All of this functionality is fully scriptable. This brings debug and testing to a new level enabling the user to inject hardware faults allowing testing of fault recovery code. For the virtualization engineer the **VLAB Suite** includes **VLAB Virtual Platform Authoring and Development Tools** which provides the necessary tools, APIs, and frameworks for the development of models of new IP, and customization of the tools for integration into customer specific processes.

Once a user has prepared their environment for automation **VLAB Batch** provides a low-cost option to exploit parallelism. It contains all the same functionality in a totally non-interactive, 'batch-mode' package. Most users will develop test automation scripts using another VLAB product and run them non-interactively in **VLAB Batch**.

