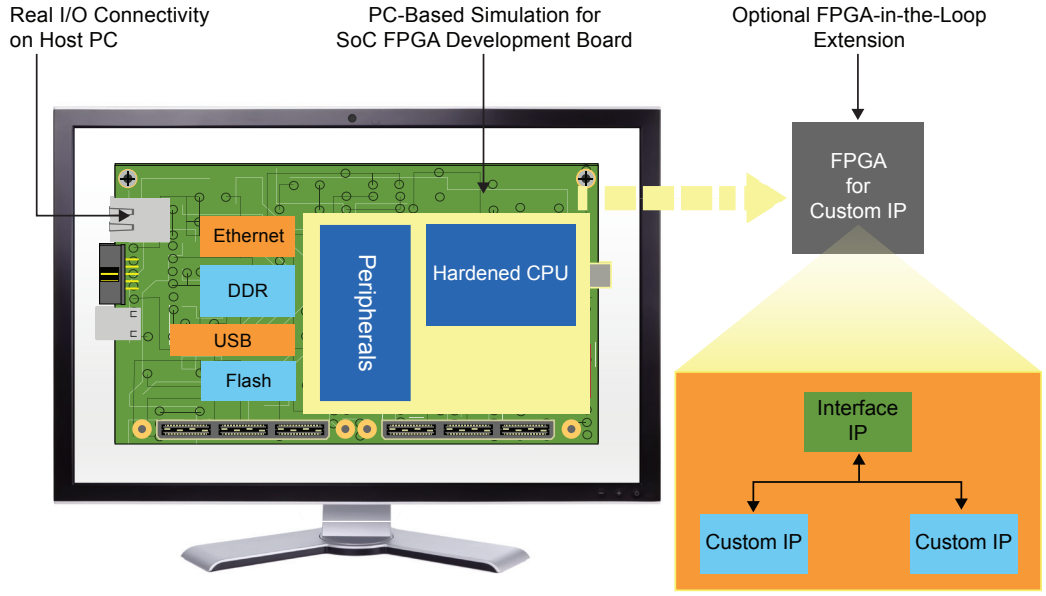
Enhance Productivity

Jump-Start Software Development with the SoC FPGA Virtual Target

The Altera® SoC FPGA Virtual Target is a PC-based fast functional simulation of an embedded development system for our Cyclone® V and Arria® V SoC FPGA devices. Based on proven virtual prototyping technology from Synopsys, the Virtual Target represents a binary- and register-compatible, functional equivalent of the same dual-core ARM® Cortex™-A9 MPCore™ processor and CPU system peripherals featured in the SoC FPGA devices.

The Virtual Target also lets you simulate board-level components such as DDR SDRAM, flash memory, and I/O devices. An optional FPGA-in-the-loop extension, seen in Figure 1, allows the PC-based simulation to interact with user-defined custom peripherals and hardware accelerators that run on an Altera FPGA. Using the Virtual Target, you can start your project early, create device-specific production software, and later move it to your hardware platform with minimal effort.

Figure 1: Virtual Target with Optional FPGA-in-the-loop Extension



Virtual Target Advantages

With Altera's SoC FPGA Virtual Target, you can jump-start your software development well in advance of hardware availability, make your software team more productive, and improve your software quality.

- Proven technology – Industry-proven virtual prototyping tools enable software development before target hardware availability, reducing product time to market.
- Ready to use – Pre-built, fully functional simulation model of a complete embedded system that runs out of the box. You do not need any prior modeling or simulation experience to use the Virtual Target.
- Device specific – The Virtual Target is binary- and register-compatible with the target hardware that it simulates, allowing you to develop software that can run unmodified on the equivalent hardware platform.
- Fast simulation speed – Fast functional simulation that can boot the Linux operating system (OS) in approximately 20 seconds on a typical development PC. This allows you to iterate your software development process faster.
- Embedded OS support –Comes with a prebuilt, open source Linux kernel with device support for most major hardware components in the system. A VxWorks board support package will also be available.
- Compatible with ARM ecosystem – Works with best-in-class ARM ecosystem tools, including the GNU tools, ARM Development Suite (DS-5™) tools, Lauterbach TRACE32 debugger, and Wind River Workbench.
- Connected to the real world – Connects to the real world using the physical interface hardware of the host PC such as Ethernet and USB interfaces, allowing you to test your device drivers and applications with real-world stimuli.
- Full system visibility and control - Provides you with much more visibility and control, especially for debugging. You have many more tools at your disposal for tracking down and fixing tough bugs in a complex, multicore system.

Virtual Target Availability

We offer a Virtual Target for the following Altera SoC FPGA devices:

- Cyclone V SoC FPGA
- Arria V SoC FPGA

Want to Dig Deeper?

To learn more about the SoC FPGA Virtual Target, please contact your Altera sales representative or visit **www.altera.com/virtualtarget**.

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