

PRODUCT
BRIEF

ScanWorks® Processor-based Functional Test for All Xilinx Zynq SoC Families

Key Benefits:

- Firmware IP ready to run on custom circuit boards with no modifications
- Utilizes an existing on-board SoC ARM processor core as an embedded test engine
- Supports testing of GPIO, I2C, SPI, UART, PCI/PCIe, Ethernet, Flash Memory, SD/MMC, Ethernet, SATA, MMC, NAND, NOR, and USB
- Quick Scan and operational verification of each component tested
- Excellent solution for new boards with no software, or boards that will not boot

Key Features:

- Testing a SoC device speeds. Captures escapes missed by static testing
- ScanWorks test action compliant
- Supplied Configuration files for popular development platforms
- Bare-metal application that requires no other software, operating system, or boot loader

Overview

ASSET's ScanWorks® Processor-based Functional Test (PFT) product supports the Xilinx Zynq All Programmable SoC portfolio. The Zynq devices enable highly differentiated designs for a wide range of embedded applications.

The ASSET ScanWorks PFT provides functional board testing of buses and devices, other than DDR, via target resident IP. This new functional test IP is integrated with the best-in-class ScanWorks test platform. PFT provides high test coverage for all devices with at-speed functionality. Combining PFT with ScanWorks PFTDDR delivers greater test coverage to meet design quality requirements of today's high speed designs. ScanWorks tools are designed to maximize production efficiency and simplify the test development life-cycle.

PFT (Figure 1) uses a target agent to configure the interface between SoC embedded controller and the bus endpoints. The agents are installed in On-Chip Memory (OCM) and provide task specific actions: testing for device existence and device verification. The in-target agent tasks ensure maximum testing speeds and accurate device control.

The ScanWorks design environment provides for the control and management of a project resources. Once the resources are configured, the action development is intuitive to create a test action. This environment methodology supports rapid transition from development to deployment and ensures consistency regardless of where the project is deployed. Thus eliminating costly communications mistakes.

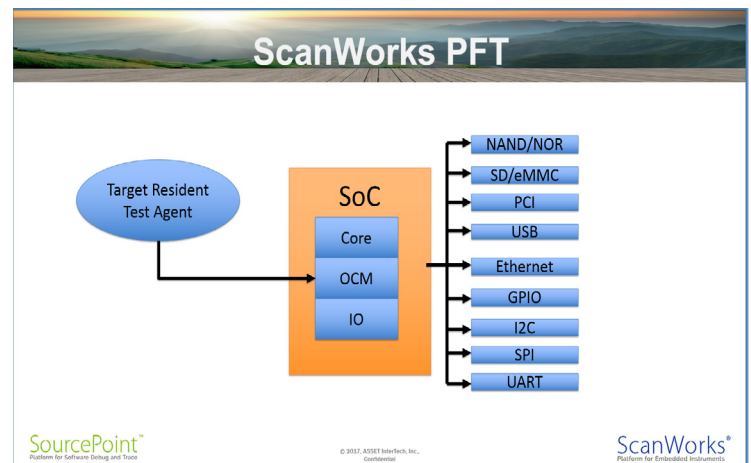


Figure 1. PFT Target Agent with SoC Block Diagram

PFT Development Tool

ScanWorks PFT (Figure 2) is the user access point to configure the desired testing events or task and sequence. The task loaded provides a layout of possible tests to conduct and provides for parameter input for test customization.

PFT provides fast testing of all bus devices supported by the Xilinx Zynq SoC/MPSoC families. At-speed testing catches problems with cross talk or injected noise that escape other forms of structural testing.

Testing Tasks are bus specific and by merely selecting a bus type, test configuration can begin. The bus types supported within the Xilinx Zynq-7000 are: PCI/PCIe, USB, and Ethernet.

The SoC IO setup is a necessary step for programming embedded controller access. The programming setup is aided by the ability to import the IO configuration files (ps_init.c) provided by Xilinx Vivado tool chain.

Also, shipped with the product are example board configuration files that support the most popular development platforms from Xilinx and their third party partners.

It then becomes a simple matter of connecting the ScanWorks hardware controller to the UUT and launch the ScanWorks application.

ScanWorks Platform for Embedded Instruments

ScanWorks Platform for Embedded Instruments is a seamless software environment to access, run and collect data from any instrument in your chips, circuit boards or systems. The ScanWorks Platform includes products for Boundary-Scan Test (BST), Processor-based Fast Programming (PFP), Processor-based Functional Test (PFT), Processor-based Functional Test for DDR (PFTDDR), Processor-Controlled Test (PCT), FPGA-based Fast Programming (FFP), FPGA-Controlled Test (FCT) and JTAG test.

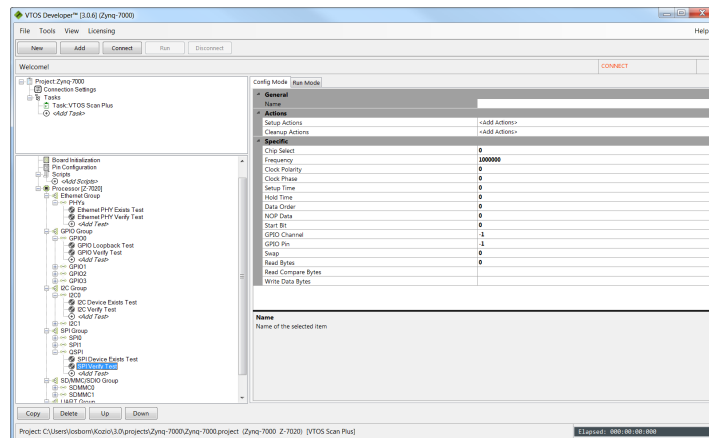


Figure 2. PFT Task Development

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