

Introduction

Leading-edge silicon products, state-of-the art software solutions and world-class technical support make up the total solution delivered by Xilinx. The software component of this solution is critical to the success of every design project. Xilinx Software Solutions provide powerful tools which make designing with programmable logic simple. Push button design flows, integrated on-line help, multimedia tutorials, plus high performance automatic and auto-interactive tools, help designers achieve optimum results. And the industry's broadest array of programmable logic technology and EDA integration options deliver unparalleled design flexibility.

Product Overview

Xilinx Software Solutions are available in two different product series making it easy for designers to choose the right system for their needs. These two series support the industry's broadest array of programmable logic IC families. This allows users to standardize their design tools for all programmable logic applications and use these tools to realize the benefits of the industry's highest performance and density FPGAs and CPLDs. It also makes it easy to migrate designs to new technologies and re-use existing designs in new applications.

The **Xilinx Foundation Series** provides designers with a complete, ready-to-use solution for programmable logic design.

The **Xilinx Alliance Series** provides designers powerful integration of Xilinx design tools with their existing EDA environment.

Flexible Configurations

Xilinx Software Solutions are available in two device configurations giving designers a cost-effective way to match their tools to the design methodologies they require. These configurations are available for both the Foundation and Alliance Series.

- Base configurations provide push button design flows and support a broad array of FPGA and CPLD devices targeted for low density and high volume applications.
- Standard configurations combine push button flows with powerful auto-interactive tools. These tools give designers more influence and control over implementation while maintaining the benefits of design automation. Standard configurations include support for

all Xilinx programmable logic devices, featuring the industry's largest FPGA devices.

Foundation Series

The Xilinx Foundation Series provides everything required to design a programmable logic device in an easy-to-use environment. This fully integrated tool set allows users to access design entry, synthesis, implementation and simulation tools in a ready-to-use package. Every step in the design process is accomplished using graphical tool bars, icons and pop-up menus supported by interactive tutorials and comprehensive on-line help.

The Xilinx Foundation Series features support for standards based HDL design. All configurations support the popular ABEL language, with integrated compilers optimized for each target architecture. HDL configurations include integrated VHDL/Verilog synthesis from Synopsys with tutorials and graphical HDL design entry tools to turn new users into experts quickly and easily.

HDL Configurations

HDL configurations of the Foundation Series contain integrated VHDL/Verilog synthesis and graphical interactive HDL entry tools with the following features:

- On-line tutorial teaches the art of VHDL design.
- Xilinx HDL Editor provides color coding, syntax checking and single click error navigation making it easy to create and debug VHDL, Verilog and ABEL designs.
- Graphical State Machine editor makes the design of simple or complex state machines simple and intuitive.
- HDL Language Assistant provides libraries of common functions with optimized VHDL, Verilog and ABEL code.
- FPGA and CPLD specific synthesis and optimization from Synopsys tools produce high-utilization, high-performance results

Alliance Series

The Alliance Series provides powerful and integrated design tools for users who require a quality solution for their chosen EDA design solution. With the Alliance Series, users can choose from a wide range of design techniques including schematic capture, module-based design and HDL design solutions. With standard based design interfaces including EDIF, VITAL, VHDL, Verilog and SDF, this series provides maximum flexibility, portability, mixed vendor support, and design reuse.

Quality integration with leading EDA vendors such as ALDEC, Exemplar, Cadence, Mentor Graphics, Model Technology, OrCAD, Synopsys, Synplicity, Veribest and VIEWlogic provide tightly-coupled environments that make it easy to move through the design process and through a mixed EDA vendor flow. The EDA vendors are supported through the Xilinx Alliance Program, insuring high quality tools and accuracy of results. Information on Xilinx Alliance Program vendors can be found on the Xilinx WEB page www.xilinx.com.

The Alliance Series includes an enhanced set of easy-to-use features including, design manager, flow engine, installation, on-line documentation, and answer database. In addition, the Alliance Series includes a powerful and complete implementation toolset, LogiBLOX (next generation module generation), fully integrated EDA vendor support, and a powerful gate-level optimizer. Also included are new advanced place and route software that has incremental design capabilities and SMARTspecs (a robust timing constraint language). Users can achieve up to 25% performance improvements with no additional elapse time through the use of the Alliance Series Turns Engine. The Turns Engine uses networked workstations to run multiple place and route passes for a single design. This feature is included with the Alliance Series BASE and Standard workstation development systems. The libraries and interface provide Xilinx Unified Library schematic symbols, HDL synthesis libraries, VITAL(VHDL) and Verilog simulation models with timing information and translators through a standard netlist format. All of these tools provide a complete spectrum of high density design methodologies from fully-automatic to hand-crafted and close integration with Xilinx LogiCores and AllianceCore partners.

Alliance Series Options

VIEWlogic Workview Office Development System options as part of the Alliance Series are intended for users who want the integration of a complete solution with the power to access board and system level design tools. These products include VIEWlogic Workview Office schematic capture and simulation tools.

Xilinx M1 Software Technology

M1 technology represents Xilinx's next generation software technology. This advanced technology developed as a result of the Xilinx merger with NeoCAD Inc., enables digital system designers to increase design performance, leverage standards-based, high-level design methodologies and quickly receive new software features and device support through Xilinx Foundation Series and Alliance Series software solutions.

Increased Design Performance

The M1 technology provides dramatically improved design performance through advanced place-and-route software

which delivers push-button design flows and incremental design capabilities. These Xilinx-exclusive capabilities leverage results from previous design iterations to reduce runtimes and shorter design iterations to less than ten minutes. As engineers design complex circuits incrementally, this technology allows them to work in their preferred methodology.

M1 Technology also delivers advanced timing driven place-and route capabilities to deliver maximum design performance through push-button flows.

M1 Technical Benefits

Maximum Design Performance

M1 technology enables the user to achieve maximum design performance by providing a unique combination of advanced algorithms and interactive tools. Designer productivity is greatly enhanced through use of simple, push-button flows and optional auto-interactive tools. Customer testing has shown that M1 technology used with XC4000XL/XV devices results in 70 percent shorter run times, up to a 25 percent performance improvement, and the ability to place and route devices with up to 100 percent utilization with a push-button flow.

Modular Software System

The modular architecture of the Xilinx M1 technology allows rapid delivery of incremental technologies, new features, device support, and versions of its leading software product families. New feature sets can now be released independently resulting in users' ability to quickly complete designs without having to re-learn new tools as enhancements are made. The investment Xilinx has made in the M1 technology ensures that the continuous delivery of innovative device architectures and improved software solutions can be done more rapidly, and predictably than previous software versions.

Methodology Flexibility

High-level design methodologies are becoming the methodology choice for the design of complex programmable logic. M1 technology delivers programmable logic specific high-level flows. The flows provide high-quality, high performance optimized results, and afford fast, flexible design changes and iterations to match the way engineers design. Designers employ a mixture of graphical and language-based design entry methods while providing an easy-to-learn environment for Hardware Description Language (HDL) based design. Xilinx recognizes that design environments are variant and, therefore, has created a flexible system enabling the customer to choose the best methodology for their environment or design challenge.