

LeonardoSpectrum Now Supported in the Xilinx ISE Software

To take full advantage of the latest FPGAs and CPLDs, you need advanced, high performance development tools, and that's exactly what you get with the new Xilinx ISE software.

by Steve Wenande

Senior Technical Marketing Engineer
steve.wenande@xilinx.com

Xilinx ISE (Integrated Synthesis Environment) provides all the tools you need in a single, tightly integrated package for FPGA and CPLD design. With the release of our 4.1i software, ISE takes the next step in providing seamless integration by adding support for LeonardoSpectrum™ from Exemplar Logic Inc. The addition of LeonardoSpectrum to ISE gives you the ability to target all of the major synthesis technology providers, including:

- XST (Xilinx Synthesis Technology) from Xilinx
- FPGA Express™ from Synopsys
- Synplify™ and Synplify Pro™ from Synplicity

LeonardoSpectrum

LeonardoSpectrum is a market-leading field programmable gate array (FPGA) synthesis tool from Exemplar Logic Inc. It allows you to target Xilinx FPGAs and CPLDs using standard VHDL and Verilog flows. It includes schematic and critical path viewing, and support for CORE Generator™ files in the file list.



ISE integrates the LeonardoSpectrum Quick Setup (Level 1 and Level 2) flow when LeonardoSpectrum is properly installed on the same machine with ISE. LeonardoSpectrum combines push-button ease of use with the powerful control and optimization features associated with workstation-based ASIC tools. The advanced features for block-based and incremental design ensures the best results for your largest designs. The addition of this design flow gives you one more alternative when designing with ISE and brings the power of LeonardoSpectrum to your fingertips.

XST

For HDL optimization, you can use Xilinx XST (Xilinx Synthesis Technology) as an alternative to FPGA Express™, Synplify™ or Synplify Pro™, or LeonardoSpectrum. Xilinx is using XST as a proving ground for many of the innovative optimization ideas that Xilinx engineers are developing for improving HDL design flows. These improvements are then shared with Xilinx third-party synthesis partners to ensure that anyone targeting Xilinx FPGAs as their solution can benefit from the best optimization the industry has to offer.

FPGA Express

FPGA Express is a complete FPGA logic-synthesis and optimization tool. With it you can create optimized FPGA netlists from VHDL code and Verilog HDL code. FPGA Express core technology was developed specifically for FPGA and programmable logic device (PLD) architectures with the following features:



- Architecture-specific mapping and optimization for Xilinx programmable logic devices
- Easy-to-use design flows

- Integrated static timing analysis with TimeTracker
- Spreadsheet-style constraint entry for timing, placement, and synthesis constraints.



Figure 1 - Integrated synthesis options available in ISE

In addition, FPGA Express features BLIS (Block Level Incremental Synthesis), a first for FPGA synthesis, delivering the capability to:

- Modify and re-optimize individual blocks in a previously routed design
- Export these re-optimized blocks as distinct and separate netlists
- Execute a guided place-and-route only on the modified sections of the previously routed design.

This breakthrough technology automatically recalculates timing across the entire design, including taking into account the unmodified portions of the design. Because of this automatic, full-context timing, you are no longer required to re-synthesize the entire chip, repeat a full place and route, and conduct complex manual re-optimization of your design.

Synplify and Synplify Pro

The Synplify solution is a high-performance, sophisticated logic synthesis engine that uses proprietary Behavior Extracting Synthesis Technology (B.E.S.T.)™ to deliver fast, highly efficient FPGA and CPLD

designs. The Synplify product takes Verilog and VHDL hardware description languages as input and outputs an optimized netlist specifically targeting Xilinx devices. The Synplify Pro™ software extends the capability of the Synplify solution to meet the needs of today's complex, high-density designs.

Synplicity and Xilinx have once again teamed together to offer an enhanced synthesis flow with ISE release 4.1i. ISE now runs with the latest offering from Synplicity, version 7.0. The combination of these two products offer advanced capability to users targeting Xilinx devices.



Availability

All synthesis integration will be delivered with Foundation ISE 4.1i products. In addition, XST, FPGA Express, and LeonardoSpectrum integration will be included in WebPACK, available online from the [xilinx.com](http://www.xilinx.com) website.

XST and FPGA Express™ are delivered with the ISE 4.1i installation. To obtain the third-party synthesis products, you can refer to their websites: www.exemplar.com, and www.synplicity.com

Conclusion

Xilinx is committed to providing you with the most advanced design solutions available today. The addition of LeonardoSpectrum integration to the existing synthesis support already in ISE adds even more flexibility for targeting Xilinx devices. By combining the latest software technologies from Xilinx and our partners, you get the fastest and most productive development platform ever, and it just keeps getting better.

For more information on Xilinx ISE software go to:

www.xilinx.com/iselxcell/