

Precision[®] RTL Plus

Siemens Digital Industries Software Advanced FPGA Synthesis Technologies

Benefits

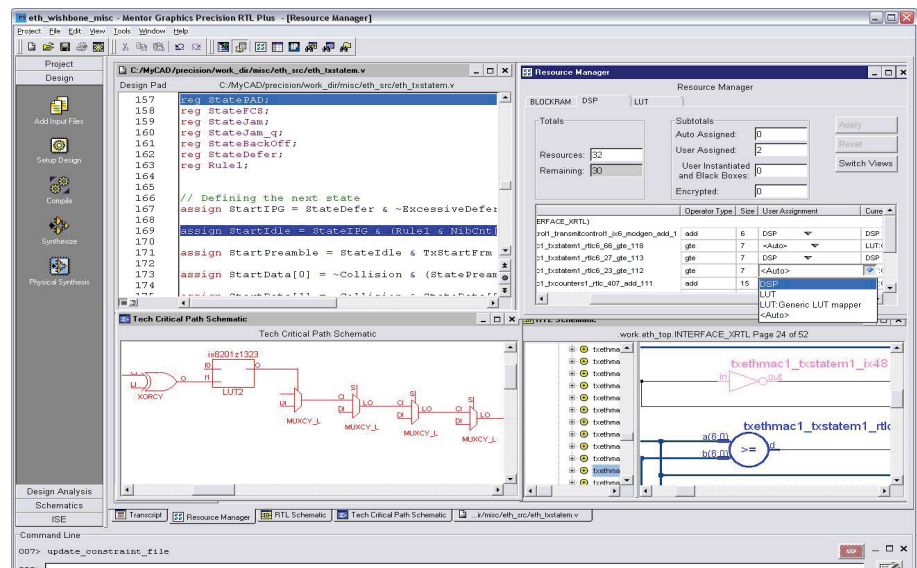
- Mil-aero & safety-critical synthesis technologies
- Multi-vendor physical synthesis improves performance by 10%
- Low power synthesis
- Fully automatic incremental synthesis for up to 60% run-time savings
- Precise-IP™ - FPGA vendor independent IP platform
- Precise-Encrypt™ - encryption based on IEEE P1735 draft
- Leading mixed language support with SystemVerilog
- Unique integration between synthesis and Siemens EDA tools

With the complexity of FPGAs now approaching that of ASICs and SoCs, system houses must consider more advanced FPGA implementation flows. Precision RTL Plus provides advanced synthesis technologies as part of an integrated, FPGA vendor neutral design environment. By delivering high-quality results and offering industry-specific requirements, Precision RTL Plus offers breakthrough advantages for both commercial applications and for mil-aero and safety-critical systems.

FPGA synthesis for mil-aero and safety critical applications

Because mil-aero and safety-critical applications often have unique requirements for safety and must comply with standards such as DO-254, Precision RTL Plus offers the following features and flow integration:

- Repeatability of results for both RTL synthesis and physical synthesis, making it qualified for safety-critical design flows.
- Formal equivalence checking with FormalPro™ to confirm that the final FPGA implementation is equivalent to the original RTL design.
- Assured synthesis mode prevents synthesis/simulation mismatches and enables formal equivalency checking.
- Requirements tracing with ReqTracer™ allows designers to track requirements through synthesis and place and route (P&R).



Precision RTL Plus

Physical synthesis

Precision RTL Plus offers multi-vendor physical synthesis, enabling designers to reach their timing goals faster and with less iteration. With support for over 25 FPGA families from all major device vendors, physical synthesis is a push-button and timing-driven technology, providing an optimized netlist to the FPGA vendors' P&R tool. Precision physical synthesis delivers an average Fmax improvement of 10 percent and ranges from 5 to 40 percent.

Low-power synthesis

Because more FPGAs are moving into low-power applications, designers not only need to carefully select the most power efficient device but also must ensure their implementation flows reduce power to the extent possible. Precision RTL Plus supports a variety of optimizations to reduce dynamic power for multiple device vendors.

Incremental synthesis

Precision RTL Plus enables designers to reduce run-time and preserve work already completed by rapidly and predictably implementing changes using either a fully automatic or partition-based incremental flow. Fully automatic incremental synthesis requires no pre-partitioning, reduces run-time by up to 60%, and achieves even greater run-time savings when used with Xilinx® SmartGuide™ (Xilinx incremental P&R flow). Ideal for team-based design methodologies, partition-based incremental synthesis localizes changes to sub-partitions and offers up to 6x runtime reduction. For further run-time savings, it integrates with partition-based P&R with Xilinx and Altera®.

Precise-IP™:

FPGA vendor-independent IP Platform

As part of a complete FPGA vendor independent methodology, Precision RTL Plus features Precise-IP™, a platform allowing designers to generate a wide selection of pre-verified IP for superior quality of results (QoR) across diverse FPGA families.

In addition, Siemens EDA has partnered with leading IP vendors to offer a wide selection of cores validated for use with Precision Synthesis.

Precise-Encrypt™: encryption flow

Precision RTL Plus offers Precise-Encrypt™—a vendor independent HDL encryption flow based on the IEEE P1735 draft. With Precise-Encrypt, designs can be shared securely with teams and development partners, and IP vendors can securely deliver IP for any FPGA target. When used with ModelSim® or Questa®, designers can use the same encrypted HDL for both simulation and synthesis, thereby ensuring consistency between the functional verification and implementation flows.

Industry-leading language support

The flexibility to leverage the latest in hardware description languages and use IP from any source requires a tool that delivers HDL freedom. Precision Synthesis provides best mixed HDL coverage, including SystemVerilog and VHDL 2008.

Integration with Siemens EDA

FPGA Design Tools

Precision RTL Plus offers extensive integration with other Siemens EDA FPGA design solutions, from design creation to PCB implementation.. Precision RTL Plus offers an integrated flow with:

- Catapult® C for ESL to RTL synthesis
- HDL Designer™ for an integrated environment from design creation to implementation
- FormalPro™ for logic equivalence checking
- I/O Designer for FPGA and PCB co-design
- ReqTracer™ for requirements tracking

Part of the Precision Synthesis family

The Precision Synthesis family includes products to encompass every type of user. Precision RTL is an entry-level solution offering excellent quality of results. Precision RTL Plus is the flagship FPGA synthesis solution from Siemens EDA and is well suited for both commercial and mil-aero applications. Precision Physical features post-P&R physical synthesis to meet aggressive timing requirements.

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