

The background is a deep blue gradient. It features a perspective view of binary code (0s and 1s) receding into the distance, creating a sense of depth. In the foreground, there are stylized, glowing blue circuit traces and nodes, some of which are highlighted with white or light blue circles.

# QUARTUS II DESIGN SOFTWARE

## Fastest Path to Your Design

Quartus® II software is number one in performance and productivity for CPLD, FPGA, and SoC designs, providing the fastest path to convert your concept into reality. Quartus II software can easily adapt to your specific needs in all phases of FPGA and CPLD design in different platforms.

Quartus II software provides everything you need to design with Altera devices:

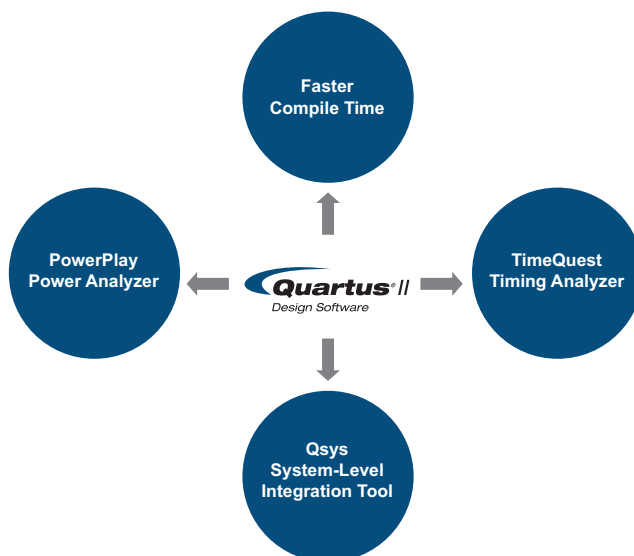
- Qsys system integration tool
- TimeQuest timing analyzer
- Transceiver Toolkit
- External Memory Interface Toolkit
- PowerPlay power analysis tools
- DSP Builder Advanced Blockset
- Altera SDK for OpenCL™
- ModelSim®-Altera Edition simulation software

**ModelSim**  
Altera Edition

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### Quartus II Software Key Features

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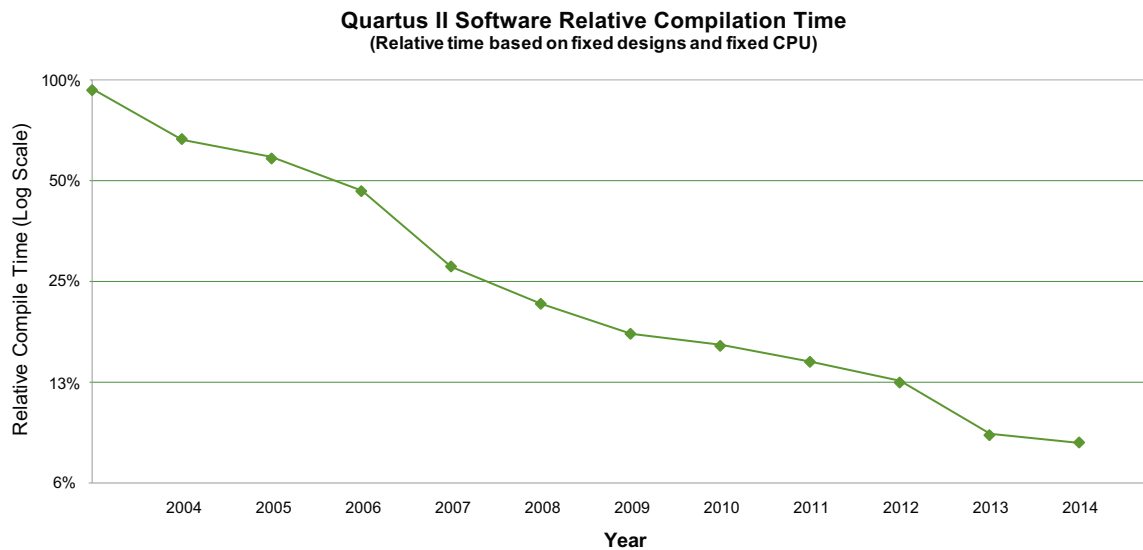


### Industry-Leading Compile Time

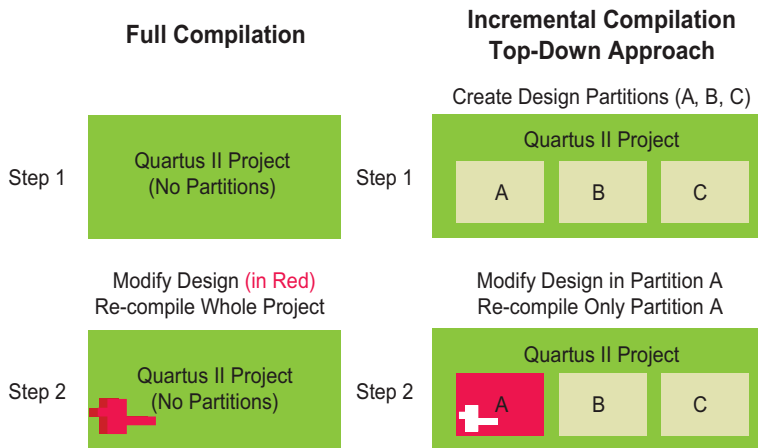
Quartus II software delivers superior synthesis and placement and routing, resulting in compilation time advantages for both Web Edition and Subscription Edition software. Additional compilation time reduction features include the following:

- Multiprocessor support
- Incremental compile
- Advanced place-and-route algorithms

## Compile Time Comparison



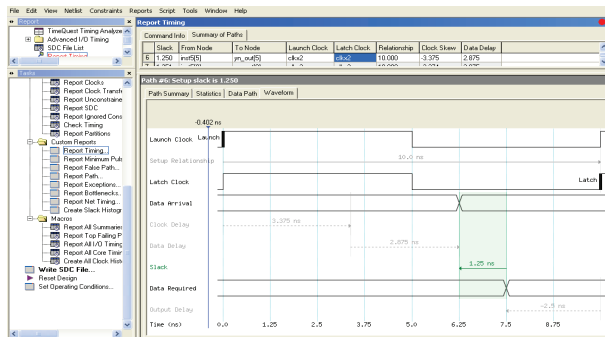
## Compare Full and Incremental Compile



## Incremental Compile

- Compiles only the changes in a partition to reduce compile time by up to 70 percent
- Preserves timing in unchanged partitions for performance preservation
- Enables team-based designs

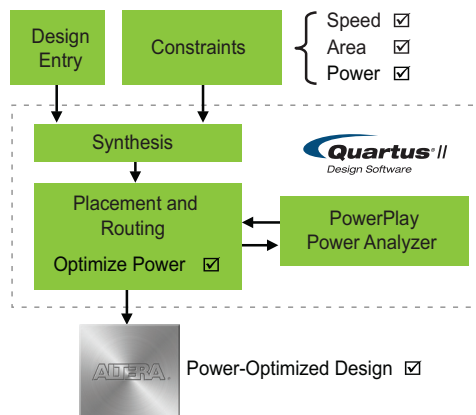
## TimeQuest Timing Analyzer



### TimeQuest Timing Analyzer GUI

- Comprehensive Synopsys® Design Constraints (SDC) support
- Second-generation, easy-to-use timing analyzer
- Complete GUI environment and scripting support to create timing constraints and reports
- Easy-to-use wizard to create SDC constraints

## PowerPlay Power Analyzer Flow



### PowerPlay Power Analyzer

- Push-button power optimization technology
- Automated power optimization for an average 10 percent reduction in power consumption



## Qsys System Integration Tool

The Qsys system integration tool saves significant time and effort in the FPGA design process by automatically generating interconnect logic to connect intellectual property (IP) functions and subsystems. Qsys is powered by a new FPGA-optimized network-on-a-chip (NoC) technology, delivering higher performance, improved design reuse, and faster verification.

- High-performance Qsys interconnect based on the NoC architecture and automatic pipelining delivers up to 2X higher performance
- Hierarchical design flow enables scalable designs, supports team-based design, and maximizes design reuse
- Higher flexibility with support for mixing different industry-standard interfaces, such as the AMBA® AXI™, AMBA APB™, AMBA AHB™, and Avalon® interfaces
- IP management capabilities enable designs and systems to appear as an IP for easier reuse
- Faster board bring-up with a system-level debug approach using address-based transactions and System Console

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### Qsys – Altera's System Integration Tool

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## Quartus II Software Design Flow

Quartus II Software Design Flow			
	Quartus II Software Key Features	Availability	
		Subscription Edition	Web Edition (Free)
<b>Design Entry</b>	Cyclone® FPGA and MAX® device support	✓	✓
	Arria® and Stratix® FPGA device support	✓	✓ <sup>1</sup>
	SoCs	✓	✓
	Multiprocessor support (faster compile time support)	✓	✓ <sup>2</sup>
	IP Base Suite (includes licenses for 15 popular IP cores)	✓	Available for purchase
	Qsys system integration tool	✓	✓
	Rapid Recompile (faster compile for small design changes)	✓	
	Incremental compile (performance preservation and team-based design)	✓	
<b>Functional Simulation</b>	ModelSim-Altera Starter Edition software	✓	✓
	ModelSim-Altera Edition software	✓ <sup>3</sup>	✓ <sup>3</sup>
<b>Synthesis</b>	Quartus Integrated Synthesis (synthesis tool)	✓	✓
<b>Placement and Routing</b>	Fitter (placement and routing tool)	✓	✓
<b>Timing and Power Verification</b>	TimeQuest tool (static timing analysis)	✓	✓
	PowerPlay tool and optimization (power analysis)	✓	✓
<b>In-System Debug</b>	SignalTap™ II Logic Analyzer (embedded logic analyzer)	✓	✓ <sup>2</sup>
	Transceiver Toolkit (transceiver interface and verification tool)	✓	
	JNEye link analysis tool	✓	
<b>System Design Software</b>	Nios® II Embedded Design Suite	✓	✓
	Altera SDK for OpenCL	✓ <sup>3</sup>	
	DSP Builder Advanced Blockset	✓ <sup>3</sup>	✓ <sup>3</sup>
	Operating System Support	Availability	
		Subscription Edition	Web Edition (Free)
	Windows/Linux 64 bit support	✓	✓

<sup>1</sup>The only Arria II FPGA supported is the EP2AGX45 device.

<sup>2</sup>Available with TalkBack feature enabled.

<sup>3</sup>Requires an additional license.

## Quartus II Software Ordering Information

Purchase Quartus II software and increase your productivity today.

Pricing	Description
<b>\$2,995</b> (SW-QUARTUS-SE-FIX) Renewal \$2,495 (SWR-QUARTUS-SE-FIX)	Fixed-node license: subscription for one year—Windows only.
<b>\$3,995</b> (SW-QUARTUS-SE-FLT) Renewal \$2,495 (SWR-QUARTUS-SE-FLT) Add seat \$3,995 (SW-QUARTUS-SE-ADD)	Floating-node license: subscription for one year—Windows/Linux.

ModelSim-Altera Edition Software	
<b>\$945</b> (SW-MODELSIM-AE) Renewal \$945 (SWR-MODELSIM-AE)	ModelSim-Altera Edition software is available as a \$945 option for both Quartus II software Subscription Edition and Web Edition. It's 33 percent faster than Starter Edition, with no line limitation.
ModelSim-Altera Starter Edition Software	
<b>Free</b>	Free for both Quartus II software Subscription Edition and Web Edition softwares with a 10,000 executable line limitation, ModelSim-Altera Starter Edition software is recommended for simulating small FPGA designs.

### Want to Dig Deeper?

Are you ready to accelerate your design process? Take these steps to gain proficiency in designing with Quartus II software:

- Step 1:** Download free Web Edition software  
[www.altera.com/download](http://www.altera.com/download)
- Step 2:** Sign up for training  
[www.altera.com/training](http://www.altera.com/training)
- Step 3:** Download documentation  
[www.altera.com/literature/lit-qts.jsp](http://www.altera.com/literature/lit-qts.jsp)

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Components Supply Platform

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