



# Intel® Quartus® Prime Design Software

The Intel® Quartus® Prime software is revolutionary in performance and productivity for FPGA, CPLD, and SoC designs, providing the fastest path to convert your concept into reality. The Intel Quartus Prime software also supports many third-party tools for synthesis, static timing analysis, board-level simulation, signal integrity analysis, and formal verification.

## INTEL QUARTUS PRIME SOFTWARE DESIGN FLOW

KEY FEATURES FOR INTEL QUARTUS PRIME SOFTWARE V17.1			AVAILABILITY		
			PRO EDITION (\$)	STANDARD EDITION (\$)	LITE EDITION (FREE)
Device Support	Stratix® series	IV, V	✓	✓	
		10	✓		
	Arria® series	II			✓ <sup>1</sup>
		II, V	✓	✓	
		10	✓	✓	
Cyclone® series	IV, V	✓	✓	✓	
	10 LP		✓	✓	
	10 GX	✓ <sup>2</sup>			
	MAX® series		✓	✓	
Design Entry/Planning	Multiprocessor support (faster compile time)		✓	✓	
	IP Base Suite		✓	✓	Available for purchase
	Platform Designer (Standard)			✓	
	Platform Designer (Pro)		✓		
	Design Partition Planner		✓	✓	
	Chip Planner		✓	✓	✓
Functional Simulation	Interface Planner		✓		
	ModelSim*-Intel FPGA Starter Edition software		✓	✓	✓
Synthesis	ModelSim*-Intel FPGA Edition software		✓ <sup>3</sup>	✓ <sup>3</sup>	✓ <sup>3</sup>
	Industry-standard language for design portability (SystemVerilog and VHDL-2008)		✓		
Placement and Routing	Fitter (Place and Route)		✓	✓	✓
	Logic Lock regions		✓	✓	
	Incremental Optimization		✓		
	Early Placement		✓		
	Register Retiming		✓	✓	
Design Flow	Hybrid Placer		✓	✓ <sup>4</sup>	
	Partial Reconfiguration		✓	✓ <sup>5</sup>	
	Rapid Recompile		✓	✓ <sup>6</sup>	
Timing and Power Verification	Block-Based Design		✓		
	Timing Analyzer		✓	✓	✓
	Design Space Explorer II		✓	✓	✓
In-System Debug	Power Analyzer		✓	✓	✓
	Signal Tap Logic Analyzer		✓	✓	✓
	Transceiver toolkit		✓	✓	✓
Operating System (OS) Support	Intel Advanced Link Analyzer		✓	✓	
	Windows*/Linux* 64 bit support		✓	✓	✓
Add-On Development Tools	Intel FPGA SDK for OpenCL™		✓	✓	✓
	Intel HLS Compiler		✓	✓	✓
	DSP Builder for Intel FPGAs		✓ <sup>4</sup>	✓ <sup>4</sup>	✓ <sup>4</sup>
	Nios® II Embedded Design Suite		✓	✓	✓ <sup>3</sup>
	Intel SoC FPGA Embedded Development Suite		✓	✓	✓
Price			Buy	Buy	Free
			Fixed - \$3,995	Fixed - \$2,995	
			Float - \$4,995	Float - \$3,995	
Download			<a href="#">Download Now</a>	<a href="#">Download Now</a>	<a href="#">Download Now</a>

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### Notes:

1. The only Arria II FPGA supported is the EP2AGX45 device.
2. The Intel Cyclone 10 GX device support is available for free in the Pro Edition software.
3. Requires an additional license.
4. Available for Intel Arria 10, Stratix V, Arria V, and Cyclone V devices.
5. Available for Cyclone V and Stratix V devices only.
6. Available for Stratix V, Arria V, and Cyclone V devices.

## INTEL QUARTUS PRIME DESIGN SOFTWARE FEATURES SUMMARY

Interface Planner	Enables you to quickly create your I/O design using real time legality checks.
Pin planner	Eases the process of assigning and managing pin assignments for high-density and high-pin-count designs.
Platform Designer	Automates system development by integrating IP functions and subsystems (collection of IP functions) using a hierarchical approach and a high-performance interconnect based on a network-on-a-chip architecture.
Off-the-shelf IP cores	Lets you construct your system-level design using IP cores from Intel and from Intel's third-party IP partners.
Synthesis	Provides expanded language support for System Verilog and VHDL 2008.
Scripting support	Supports command-line operation and Tcl scripting, as well as graphical user interface (GUI) design.
Rapid Recompile	Maximizes your productivity by reducing your compilation time (for a small design change after a full compile). Improves design timing preservation.
Incremental Optimization	Offers a faster methodology to converge to design sign-off. The traditional fitter stage is divided into finer stages for more control over the design flow.
Partial Reconfiguration	Creates a physical region on the FPGA that can be reconfigured to execute different functions. Synthesize, place, route, close timing, and generate configuration bitstreams for the functions implemented in the region.
Block-Based Design Flows	Provides flexibility of reusing timing-closed modules or design blocks across projects and teams.
Intel HyperFlex™ FPGA Architecture	Provides increased core performance and power efficiency for Intel Stratix 10 devices.
Physical synthesis	Uses post placement and routing delay knowledge of a design to improve performance.
Design space explorer (DSE)	Increases performance by automatically iterating through combinations of Intel Quartus Prime software settings to find optimal results.
Extensive cross-probing	Provides support for cross-probing between verification tools and design source files.
Optimization advisors	Provides design-specific advice to improve performance, resource usage, and power consumption.
Chip planner	Reduces verification time while maintaining timing closure by enabling small, post-placement and routing design changes to be implemented in minutes.
Timing Analyzer	Provides native Synopsys* Design Constraint (SDC) support and allowing you to create, manage, and analyze complex timing constraints and quickly perform advanced timing verification.
Signal Tap logic analyzer <sup>1</sup>	Supports the most channels, fastest clock speeds, largest sample depths, and most advanced triggering capabilities available in an embedded logic analyzer.
System Console	Enables you to easily debug your FPGA in real time using read and write transactions. It also enables you to quickly create a GUI to help monitor and send data into your FPGA.
Power Analyzer	Enables you to analyze and optimize both dynamic and static power consumption accurately.
EDA partners	Offers EDA software support for synthesis, functional and timing simulation, static timing analysis, board-level simulation, signal integrity analysis, and formal verification. To see a complete list of partners, visit <a href="http://www.altera.com/eda-partners">www.altera.com/eda-partners</a> .

### Notes:

1. Available with Talkback feature enabled in the Intel Quartus Prime Lite Edition software.

## Getting Started Steps

Step 1: Download the free Intel Quartus Prime Lite Edition software

[www.altera.com/download](http://www.altera.com/download)

Step 2: Get oriented with the Intel Quartus Prime software interactive tutorial

After installation, open the interactive tutorial on the welcome screen.

Step 3: Sign up for training

[www.altera.com/training](http://www.altera.com/training)

