



Intel[®] Quartus[®] Prime Standard Edition Software and Device Support Release Notes



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1 Intel® Quartus® Prime Standard Edition Software and Device Support Release Notes Version 17.1

This document provides late-breaking information about the Intel® Quartus® Prime Standard Edition software release version 17.1.

For information about operating system support, refer to the `readme.txt` file in your `intelFPGA/<version number>/quartus` directory.

Related Links

[Intel Quartus Prime Pro Edition Software and Device Support Release Notes](#)

1.1 New Features and Enhancements

The Intel Quartus Prime Standard Edition software release version 17.1 includes the following new features and enhancements:

- Some Intel Quartus Prime tools and components have new names:
 - Blueprint is now Interface Planner.
 - Qsys is now Platform Designer.
 - EyeQ is now Eye Viewer.
 - JNEye is now Advanced Link Analyzer.
 - LogicLock is now Logic Lock Region.
 - TimeQuest is now Timing Analyzer.
- New support for Intel Cyclone® 10 LP device families.
- New Intel High Level Synthesis Compiler.
- Improved physical synthesis with physical delay analysis and optimization.
- Faster debug iterations with incremental Signal Tap routing
- Improved GUI for IP upgrades.
- New Design Partition Planner tool to view design connectivity.
- New Timing Analyzer Reports based on snapshots and viewable during compilation flow.
- New support in Platform Designer (formerly Qsys) for System Verilog Interfaces and files from the Intel High Level Synthesis Compiler.
- Enhanced Logic Lock Regions now allow user-name regions, and the ability to create a region in the Logic Lock Region window.



- Enhancements for DSP Builder and DSP IP:
 - New Dynamic Interpolate support in FIR Filter.
 - Improved FFT performance.
- New Advanced Link Analyzer (formerly JNEye) features:
 - New support for Intel Stratix® 10 and Intel Cyclone 10 GX device families.
 - New support for Intel Cyclone 10 LP device families.
 - Improved IBIS-AMI Wrapper features beyond standalone IBIS-AMI models:
 - Joint RX and TX optimization
 - Reference clock and TX link optimization
 - IEEE 802.3bj/by/bs/cd RS(528, 514) and RS(544, 514) FEC
 - IEEE 802.3bs/cd & CEI-56G-MR-PAM4/CEI-56G-LR-PAM4 COM Support
- New support for EPCQ-A configuration devices.

1.2 Operating System Support

Information about OS support for the Intel Quartus Prime Design Suite is available on the Operating System Support page of the Intel FPGA website.

Related Links

[Operating System Support](#)

1.3 Memory Recommendations

A full installation of the Intel Quartus Prime Standard Edition software requires up to 40 GB of available disk space.

Intel recommends that your system be configured to provide virtual memory equal to the recommended physical RAM that is required to process your design.

Note: Peak virtual memory may exceed these recommendations. These recommendations are based on the amount of physical memory required to achieve runtime within 10% of that achieved on hardware with an infinite amount of RAM.

Table 1. Memory Requirements for Processing Designs

These requirements are the same for both Windows and Linux installations.

Family	Device	Recommended Physical RAM
Intel Arria® 10	10AT115, 10AX115	48 GB
	10AX090	44 GB
	10AS066, 10AX066	32 GB
	10AS057, 10AX057	30 GB
	10AS048, 10AX048	28 GB
	10AX032, 10AS032	24 GB
	10AX027, 10AS027	22 GB
		<i>continued...</i>



Family	Device	Recommended Physical RAM
	10AX022, 10AS022	20 GB
	10AX016, 10AS016	18 GB
Arria V	5AGXB5, 5AGTD7, 5AGXB7, 5ASXB5, 5ASTD5	16 GB
	5AGXB1, 5AGXB3, 5AGTD3, 5ASTD3, 5ASXB3	12 GB
	5AGXA7, 5AGTC7	10 GB
	5AGTC3, 5AGXA3, 5AGXA5	8 GB
	5AGXA1	6 GB
Arria V GZ	5AGZE7	16 GB
	5AGZE3, 5AGZE5	12 GB
	5AGZE1	8 GB
Arria II GX	EP2AGX260	6 GB
	EP2AGX95, EP2AGX125, EP2AGX190	4 GB
	EP2AGX65	2 GB
	EP2AGX45	1.5 GB
Arria II GZ	EP2AGZ350	8 GB
	EP2AGZ300	6 GB
	EP2AGZ225	4 GB
Intel Cyclone 10 LP	10CL120	1.5 GB
	10CL080, 10CL055	1 GB
	10CL006, 10CL010, 10CL016, 10CL025, 10CL040	512 MB
Cyclone V	5CEA9, 5CGTD9, 5CGXC9	8 GB
	5CEA2, 5CGXC3, 5CEA4, 5CGXC4, 5CEA5, 5CGTD5, 5CGXC5, 5CSEA5, 5CSTD5, 5CSXC5, 5CSEA6, 5CSXC6, 5CEA7, 5CGTD7, 5CGXC7, 5CSEA2, 5CSEA4, 5CSXC2, 5CSXC4, 5CSTD6	6 GB
Cyclone IV GX	EP4CGX110, EP4CGX150	2 GB
	EP4CGX50, EP4CGX75	1.5 GB
	EP4CGX15, EP4CGX22, EP4CGX30	512 MB
Cyclone IV E	EP4CE115	1.5 GB
	EP4CE55, EP4CE75	1 GB
	EP4CE6, EP4CE10, EP4CE15, EP4CE22, EP4CE30, EP4CE40	512 MB
Intel MAX® 10	10M50	2 GB
	10M16	2 GB
	10M25	2 GB
	10M40	2 GB
	10M04, 10M08	1 GB
	10M02	512 MB

continued...



Family	Device	Recommended Physical RAM
MAX V	All	512 MB
MAX II	All	512 MB
Stratix V	5SEEB, 5SGXAB, 5SGXB9, 5SGXBB	28 GB
	5SGXA9, 5SEE9	24 GB
	5SGTC7, 5SGXA7, 5SGSD8	20 GB
	5SGSD5, 5SGXA5, 5SGXB5, 5SGSD6, 5SGXB6	16 GB
	5SGXA3, 5SGSD4, 5SGXA4, 5SGTC5	12 GB
	5SGSD3	8 GB
Stratix IV	EP4SGX530, EP4SE530, EP4SE820, EP4S40G5, EP4S100G5	12 GB
	EP4SE360 EP4SGX360, EP4S100G3, EP4S100G4	8 GB
	EP4SGX290	6 GB
	EP4SE230 EP4SGX110, EP4SGX230, EP4S40G2, EP4S100G2	4 GB
	EP4SGX70	2 GB

1.4 Changes in Device Support

For information about known device issues and workarounds, see the [Intel FPGA Knowledge Base](#).

1.5 Changes to Software Behavior

This section documents instances in which the behavior and default settings of the Intel Quartus Prime Standard Edition software have been changed from earlier releases of the Intel Quartus Prime Standard Edition software.

Refer to the Intel Quartus Prime Default Settings File (.qdf), *<Quartus Prime installation directory>/quartus/bin/assignment_defaults.qdf*, for a list of all the default assignment settings for the latest version of the Intel Quartus Prime software.

Timing Analyzer Changes for Product Families Earlier Than Intel Arria 10

A change was made to families older than Intel Arria 10 which run in Intel Quartus Prime Standard Edition Version 17.1 but enable TimeQuest2 which can be enabled with the qsf assignment "set_global_assignment -name TIMEQUEST_SPECTRA_Q ON"

Timing Analysis has changed to recover 100% of common clock path pessimism on inverting transfers. Previously, this recovery was 0%. This change brings TimeQuest2 in line with TimeQuest1 for older families.

The effect on timing closure is expected to be strictly positive



1.6 Device Support and Pin-Out Status

All production devices currently have full compilation, simulation, timing analysis, and programming support.

1.7 Timing and Power Models

Table 2. Timing and Power Model Status

Device Family	Device	Timing Model Status	Power Model Status
Intel Arria 10	10AX016, 10AS016, 10AX022, 10AS022, 10AX027, 10AS027, 10AX032, 10AS032,	Final – 16.1 ⁽¹⁾ ⁽²⁾	Final – 17.0
	10AX048, 10AS048	Final – 16.0.2 ⁽²⁾	
	10AX057, 10AS057, 10AX066, 10AS066, 10AX090	Final – 16.0.1 ⁽²⁾	Final – 16.0.1
	10AX115, 10AT115	Final – 16.0 ⁽²⁾	Final – 16.0
Intel Cyclone 10 LP	10CL006, 10CL010, 10CL016, 10CL025, 10CL040, 10CL055, 10CL080, 10CL120	Final – 17.0	Final – 17.1
Intel MAX 10	10M02, 10M04, 10M08	Final – 15.1 ⁽³⁾	Final – 15.1
	10M16, 10M25, 10M40, 10M50	Final – 15.1.2	Final – 15.1

The current version of the Intel Quartus Prime software also includes final timing and power models for the Arria II GX, Arria II GZ, Arria V, Arria V GZ, Arria V SoC, Cyclone IV E, Cyclone IV GX, Cyclone V, Cyclone V SoC, MAX II, MAX II Z, MAX V, Stratix IV, and Stratix V device families. Timing models for these device families became final in the Intel Quartus Prime software versions 11.1 or earlier.

Related Links

[System Design with Advance FPGA Timing Models](#)

⁽¹⁾ -1 devices were finalized in Intel Quartus Prime software version 17.0

⁽²⁾ All automotive and military grade devices are preliminary.

⁽³⁾ Timing model statuses for MAX 10 A6 speed grade parts remain as Preliminary.



1.8 IBIS Models

Table 3. IBIS Model Status for the Intel Quartus Prime Standard Edition Software Release Version 17.1

Beginning in the Intel Quartus Prime Standard Edition software version 17.1, device families will have IBIS model statuses that are either Advance, Preliminary, or Final.

Device Family	IBIS Model Status
Intel Arria 10	Final – 16.1.2
Arria V	Correlated with PHY device operation – 14.0
Arria II GX	Correlated with PHY device operation – 11.1
Arria II GZ	Correlated with PHY device operation – 11.1
Intel Cyclone 10 LP	Final – 17.0
Cyclone V	Correlated with PHY device operation – 14.0
Cyclone IV E	Correlated with PHY device operation – 11.1
Cyclone IV GX	Correlated with PHY device operation – 11.1
Intel MAX 10	Final – 16.0
MAX V	Correlated with PHY device operation – 11.1
Stratix V	Correlated with PHY device operation – 13.0 SP1
Stratix IV	Correlated with PHY device operation – 11.1

1.9 EDA Interface Information

Table 4. Synthesis Tools Supporting the Intel Quartus Prime Standard Edition Software Release Version 17.1

Synthesis Tools	Version
Mentor Graphics* Precision	Mentor Graphics* Precision versions that support the Intel Quartus Prime software are typically released after the release of the Intel Quartus Prime software. Contact Mentor Graphics for versions of Mentor Graphics Precision that support Intel Quartus Prime Standard Edition Software Release Version 17.1.
Synopsys* Synplify, Synplify Pro, and Synplify Premier	Synopsys Synplify, Synplify Pro, and Synplify Premier versions that support the Intel Quartus Prime software are typically released after the release of the Intel Quartus Prime software. Contact Synopsys for versions of Synopsys Synplify, Synplify Pro, and Synplify Premier Precision that support Intel Quartus Prime Standard Edition Software Release Version 17.1

Table 5. Simulation Tools Supporting the Intel Quartus Prime Standard Edition Software Release Version 17.1

Simulation Tools	Version	NativeLink Support
Aldec Active-HDL	10.3 (Windows only)	Yes
Aldec Riviera-PRO	2015.10	Yes
Cadence Incisive Enterprise Simulator (IES)	14.20 (Linux only)	Yes
Mentor Graphics ModelSim* PE	10.4d	Yes
Mentor Graphics ModelSim SE	10.4d	Yes
<i>continued...</i>		



Simulation Tools	Version	NativeLink Support
Mentor Graphics ModelSim-Intel FPGA Edition	10.5b	Yes
Mentor Graphics Questa*	10.4d	Yes
Synopsys VCS and VCS MX	2014.12-SP1 (Linux only)	Yes

OS support for Mentor Graphics ModelSim-Intel FPGA Edition version 10.5b (requires 32-bit libraries)

- Windows 7 SP1 (64-bit)
- Windows 8.0 (64-bit)
- Windows 10 (64-bit)
- Windows Server 2008 R2 SP1(64-bit)
- Red Hat Enterprise Linux 5.10 (64-bit)
- Red Hat Enterprise Linux 6.5 (64-bit)
- Red Hat Enterprise Linux 7.2 (64-bit)

1.10 Antivirus Verification

The Intel Quartus Prime software release version 17.1 has been verified virus free with the following software:

Antivirus Verification Software for Windows

Windows McAfee Agent
 McAfee VirusScan Enterprise + AntiSpyware Enterprise 8.8
 Scan engine version (32-bit): 5900.7806
 Scan engine version (64-bit): 5900.7806
 DAT version: 8691.000
 DAT created on: 10/21/2017

Antivirus Verification Calm Software for Linux

ClamAV 0.99.2/23982

1.11 Software Issues Resolved

Table 6. Issues Resolved in the Intel Quartus Prime Standard Edition Version 17.1

Customer Service Request Numbers							
11227348	11239361	11274243	11279947	11289751	11293073	11301033	11309860
11311321	11320830	11321237	11324372	11333557	11334141	11334841	11338073
11340861	11341572	11342808	11346703				



1.12 Software Patches Included in this Release

Table 7. Software Patches included in Intel Quartus Prime Standard Edition Version 17.1

Software Version	Patch	Customer Service Request Number
Intel Quartus Prime software version 17.0.2	2.06std	-
Intel Quartus Prime software version 17.0.2	2.04std	11340609
Intel Quartus Prime software version 17.0.2	2.03std	11340609
Intel Quartus Prime software version 17.0.2	2.02std	11333858
Intel Quartus Prime software version 17.0	0.17std	11289751
Intel Quartus Prime software version 17.0	0.13std	11320738
Intel Quartus Prime software version 17.0	0.12std	11329149
Intel Quartus Prime software version 15.1.2	2.47	11334115

1.13 Latest Known Intel Quartus Prime Software Issues

Information about known issues that affect the Intel Quartus Prime software version 17.0 is available in the Knowledge Base:

[Known Software Issues Affecting the Quartus Prime Software Version 17.1](#)

You can find known issue information for previous versions of the Quartus Prime software on the Knowledge Base webpage.

Information about known software issues that affect previous versions of the Quartus II software is available on the Intel Quartus Prime and Quartus II Software Support webpage.

Information about issues affecting the Intel FPGA IP Library is available in the *Intel FPGA IP Release Notes*.

Related Links

- [Knowledge Base](#)
- [Intel Quartus Prime and Quartus II Software Support](#)
- [Intel FPGA IP Release Notes](#)



1.14 Document Revision History

Table 8. Intel Quartus Prime Software Release Version 17.1 Document Revision History

Date	Version	Changes
November 2017	17.1	Initial release.