



Intel® Quartus® Prime Pro Edition Software and Device Support Release Notes

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1 Intel® Quartus® Prime Pro Edition Software and Device Support Release Notes Version 17.0

This document provides late-breaking information about the Intel® Quartus® Prime Pro Edition software release version 17.0.

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

Related Links

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

1.1 New Features and Enhancements

The Quartus Prime Pro Edition software release version 17.0 includes the following new features and enhancements:

- New support for the Intel Cyclone® 10 GX device family.
- New design block reuse feature enables you to reuse certain types of design blocks in other projects by exporting and importing partitions.
- New incremental block-based compilation feature enables incremental compilation flows and supports post-synthesis or post-fit partition preservation of core, periphery, or both, as well as empty partitions.
- New hierarchical partial reconfiguration support for Intel Arria® 10 devices.
- New partial reconfiguration simulation support for Arria 10 devices.
- New and changed GUI elements:
 - New UI elements to support creating, exporting, preserving, and managing design partitions.
 - UI support for when Early Place is executed in a compilation flow. You can view Early Place results while downstream Fitter stages are still running.
- LogicLock Plus Region enhancements:
 - You can now set size attributes for region sizes and origins.
 - New toolbar commands for adding and subtracting region shapes.
 - Rectangular regions can be resized diagonally using corner handles.
- New support for Ubuntu Linux operating systems.
- New support for Microsoft* Windows Server* 2012 operating system.



- New or enhanced Qsys Pro features:
 - System scripting support so that you can run system scripts from the GUI.
 - New Avalon-MM Interconnect Domain View functions:
 - Highlight the memory map domain views in your system and view details on the adaptation.
 - View interfaces of the selected domain and mismatches on a master/slave connection.
 - Improved Quartus and Qsys file synchronization. If you change the location of a .ip file in one tool, the location is updated in the other tool as well.
 - Allow selective upgrading of IP components in a Qsys system if previously generated RTL is available.
- New TimeQuest clock domain crossing (CDC) viewer displays clock transfers in an easy-to-read grid showing endpoint counts, worst-case slack, TNS, and timing relationship for each transfer. The clock transfers are color-coded to show passing and failing transfers, as well as fully cut transfers and clock groups.
- New per-stage ASCII .fit.rpt files show how reports align with Fitter stages.
- New hierarchical JTAG hubs extend the debug network across partial reconfiguration regions.
- New Signal Probe for Arria 10 devices enables incremental route-to-pin with an assignment driven flow.
- Nios® II flash programmer enhanced to support programming MAX® 10 on-chip flash for Arria 10 devices.
- New JNEye features:
 - Common mode noise injection and simulation
 - TX FIR fitting analysis
 - TX SNDR calculation
 - Eye diagram mask extensions for TX and channel outputs

1.2 Operating System Support

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

Related Links

[Operating System Support](#)

1.3 Memory Recommendations

A full installation of the Quartus Prime software requires up to 24 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
	10AX022, 10AS022	20 GB
	10AX016, 10AS016	18 GB
Intel Cyclone 10 GX	10CX85, 10CX105, 10CX150, 10CX220	18 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 Quartus Prime Pro Edition software have been changed from earlier releases of the Quartus Prime Pro Edition software.

Refer to the 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 Quartus Prime software.

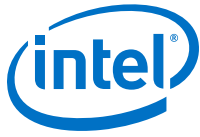
1.6 Device Support and Pin-Out Status

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

Table 2. Advance Device Support

Compilation, simulation, and timing analysis support is provided for these devices. The Compiler generates pinout information for these devices in this release, but does not generate programming files.

Device Family	Devices
Cyclone 10 GX	10CX085, 10CX105 10CX150, 10CX220



1.7 Timing and Power Models

Table 3. Timing and Power Model Status

Device Family	Device	Timing Model Status	Power Model Status
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
Cyclone 10 GX	10CX085, 10CX105, 10CX150, 10CX220	Final – 17.0	Preliminary

Related Links

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

1.8 IBIS Models

Table 4. IBIS Model Status for the Quartus Prime Pro Edition Software Release Version 17.1

Beginning in the Quartus Prime Pro Edition software version 17.0, device families will have IBIS model statuses that are either Advance, Preliminary, or Final.

Device Family	IBIS Model Status
Arria 10	Final – 16.1.2
Cyclone 10 GX	Final – 17.0

1.9 EDA Interface Information

Table 5. Synthesis Tools Supporting the Quartus Prime Pro Edition Software Release Version 17.0

Synthesis Tools	Version
Mentor Graphics* Precision	Mentor Graphics Precision versions that support the Quartus Prime software are typically released after the release of the Quartus Prime software. Contact Mentor Graphics for versions of Mentor Graphics Precision that support Quartus Prime Pro Edition Software Release Version 17.0
Synopsys* Synplify, Synplify Pro, and Synplify Premier	Synopsys Synplify, Synplify Pro, and Synplify Premier versions that support the Quartus Prime software are typically released after the release of the Quartus Prime software. Contact Synopsys for versions of Synopsys Synplify, Synplify Pro, and Synplify Premier Precision that support Quartus Prime Pro Edition Software Release Version 17.0

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- 1 -1 devices were finalized in Quartus Prime software version 17.0
 - 2 All automotive and military grade devices are preliminary.


Table 6. Simulation Tools Supporting the Quartus Prime Pro Edition Software Release Version 17.0

Simulation Tools	Version	Gate-Level Simulation Support
Aldec Active-HDL	10.3(Windows only)	Yes
Aldec Riviera-PRO	2016.10	Yes
Cadence Incisive Enterprise Simulator (IES)	15.20 (Linux only)	Yes
Mentor Graphics* ModelSim* PE	10.5c	Yes
Mentor Graphics ModelSim SE	10.5c	Yes
Mentor Graphics ModelSim-Intel FPGA Edition	10.5c	Yes
Mentor Graphics Questa*	10.5c	Yes
Synopsys VCS and VCS MX	2016.06-SP2-1 (Linux only)	Yes

1.10 Antivirus Verification

The Quartus Prime software release version 17.0 has been verified virus free with the following software:

Antivirus Verification Software for Windows

McAfee Agent Version: 5.0.1.516
 McAfee VirusScan Enterprise + AntiSpyware Enterprise Version: 8.8.0 (8.8.0.1445)
 Scan Engine Version (32 bit): 5800.7501
 Scan Engine Version (64 bit): 5800.7501
 DAT Version: 8507.000

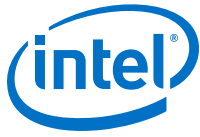
Antivirus VerificationCalm Software for Linux

ClamAV 0.99.2-1

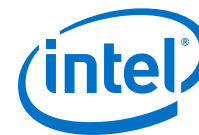
1.11 Software Issues Resolved

Table 7. Issues Resolved in the Quartus Prime Software Release Version 17.0

Customer Service Request Numbers							
10912051	11226385	11247743	11257877	11266499	11277607	11283051	11291060
10968050	11226481	11247863	11257895	11266637	11277838	11283066	11291443
11031972	11228086	11248063	11257946	11266768	11277929	11283209	11291604
11040747	11228199	11248239	11257959	11266786	11277944	11283747	11291751
11041775	11228928	11248274	11257991	11266873	11277953	11284103	11292201
11050552	11229085	11248819	11258242	11267080	11278106	11284162	11292252
11060890	11229219	11249156	11258258	11267097	11278298	11284555	11292318
11076315	11229749	11249315	11258444	11267108	11278549	11284569	11292685
11080975	11230216	11249491	11258857	11267174	11278955	11284650	11292798
<i>continued...</i>							



Customer Service Request Numbers							
11087427	11230541	11250416	11259294	11267199	11279240	11284728	11293027
11092146	11231063	11251323	11259395	11267460	11279512	11285171	11293163
11097121	11233404	11251454	11259681	11267946	11279554	11285524	11293283
11148053	11235653	11251734	11259898	11268014	11279580	11285741	11293892
11151776	11236008	11251778	11260182	11268417	11279812	11285799	11294311
11169211	11236440	11252162	11260265	11268585	11279981	11285819	11294608
11172296	11236927	11252441	11260299	11269382	11280034	11286012	11294626
11174692	11237983	11252934	11260442	11269739	11280185	11286236	11294851
11181112	11239000	11253161	11260460	11269805	11280189	11286594	11295504
11185265	11240069	11253244	11260485	11269977	11280203	11286678	11295817
11189247	11241809	11253257	11260799	11270027	11280252	11286721	11296648
11190921	11241959	11253318	11260959	11270351	11280306	11286800	11296797
11191780	11242647	11253383	11261103	11270352	11280327	11286923	11297189
11192458	11242932	11254221	11261294	11270381	11280367	11287374	11297251
11197609	11243012	11254240	11261599	11271176	11280406	11287520	11297425
11197843	11243067	11254482	11261971	11271512	11280445	11287551	11297665
11199560	11243433	11254575	11262531	11271586	11280459	11287739	11297759
11203713	11243475	11254831	11262600	11271587	11280552	11287867	11297997
11204146	11243527	11255208	11262641	11272070	11280582	11288038	11299178
11208167	11243880	11255213	11262809	11272255	11280609	11288046	11299465
11208278	11243915	11255609	11262842	11272379	11280762	11288328	11299684
11208951	11245111	11255617	11263800	11272585	11280888	11288514	11299772
11211571	11245504	11255890	11263879	11273094	11280992	11288533	11300183
11213041	11245522	11256240	11264541	11273179	11281025	11288694	11301143
11216754	11246460	11256338	11264604	11273864	11281026	11289269	11301274
11220061	11246607	11256687	11264925	11274877	11281149	11289338	11301630
11220748	11246992	11256738	11264932	11275157	11281161	11289468	11302628
11223488	11247128	11256857	11265279	11275297	11281450	11289494	11303447
11224131	11247129	11257038	11265292	11276460	11281680	11289571	11303789
11224405	11247210	11257258	11265431	11276516	11282150	11289955	11304326
11224485	11247398	11257288	11265604	11276545	11282372	11289968	11305271
11225366	11247522	11257533	11266118	11276561	11282412	11290204	11305424
11225379	11247606	11257604	11266452	11276761	11282429	11290386	11305435
11225542	11247640	11257630	11266481	11277186	11282446	11290398	



1.12 Software Patches Included in this Release

Table 8. Software Patches included in the Quartus Prime Software Release Version 17.0

Software Version	Patch	Customer Service Request Number
Quartus Prime software version 16.1.2	2.15	11299414
Quartus Prime software version 16.1.2	2.13	11302934
Quartus Prime software version 16.1.2	2.11	11296583
Quartus Prime software version 16.1.2	2.09	11297400
Quartus Prime software version 16.1.2	2.08	11297678
Quartus Prime software version 16.1.2	2.06	11276545
Quartus Prime software version 16.1.2	2.05	11292006
Quartus Prime software version 16.1.2	2.03	11286236
Quartus Prime software version 16.1.2	2.02	-
Quartus Prime software version 16.1.1	1.04	11278549/11270351
Quartus Prime software version 16.1.1	1.03	11276545
Quartus Prime software version 16.1	0.2	11283600
Quartus Prime software version 16.1	0.19	-
Quartus Prime software version 16.1	0.18	-
Quartus Prime software version 16.1	0.15	11278549/11270351
Quartus Prime software version 16.1	0.1	11276545
Quartus Prime software version 16.1	0.06	11248274
Quartus Prime software version 16.1	0.02	11247129
Quartus Prime software version 16.0.2	2.33	-
Quartus Prime software version 16.0.2	2.3	11292006
Quartus Prime software version 16.0.2	2.27	11276545
Quartus Prime software version 16.0.2	2.2	11251231
Quartus Prime software version 16.0.2	2.17	11248274
Quartus Prime software version 16.0.1	1.09	11225366
<i>continued...</i>		



Software Version	Patch	Customer Service Request Number
Quartus Prime software version 16.0	0.21	11256687
Quartus Prime software version 16.0	0.17	11247129
Quartus Prime software version 16.0	0.16	-
Quartus Prime software version 16.0	0.14	-
Quartus Prime software version 15.1.2	2.39	11228199
Quartus Prime software version 15.1.1	1.19	-
Quartus Prime software version 15.1.1	1.18	-
Quartus II software version 14.0	0.49	-
Quartus II software version 14.0	0.47	11257991
Quartus II software version 13.1.1	1.27	11290604
Quartus II software version 13.1	0.125	11293011
Quartus II software version 10.1	0.8	11293011

1.13 Latest Known Quartus Prime Software Issues

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

[Known Software Issues Affecting the Quartus Prime Software Version 17.0](#)

Table 9. Important Known Issues Affecting the Quartus Prime Software Version 17.0

Description	Workaround
On Ubuntu Linux systems, Quartus Prime software cannot connect to the internet. Features that depend on internet access, such as the crash reporter and the notification center, do not work.	—

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



1.14 Document Revision History

Table 10. Quartus Prime Software Release Version 17.0 Document Revision History

Date	Version	Changes
May 2017	17.0	Initial release.