



Intel[®] Quartus[®] Prime Pro Edition

Version 20.3 Software and Device Support Release Notes

Updated for Intel[®] Quartus[®] Prime Design Suite: **20.3**



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1. Intel® Quartus® Prime Pro Edition Version 20.3 Software and Device Support Release Notes

This document provides late-breaking information about Intel® Quartus® Prime Pro Edition Version 20.3.

For additional information about this software release, refer to the Intel Quartus Prime Pro Edition README file in the following location: `<installation directory>/quartus/readme.txt`

For information about operating system support, refer to the following web page: [Intel FPGA Operating System Support](#).

Related Information

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

1.1. New Features and Enhancements

Intel Quartus Prime Pro Edition Software Version 20.3 includes functional and security updates. Keep your software up-to-date and follow the [technical recommendations](#) that help improve the security of your Intel Quartus Prime installation. Additional security updates are planned and will be provided as they become available.

You should promptly install the latest version.

Intel Quartus Prime Pro Edition Software Version 20.3 includes the following new features and enhancements:

- Enhanced Platform Designer as follows:
 - Enhanced HDL parameter support for generic components. A **Parameters** tab is now included in the generic component instantiation windows for HDL and Blackbox modes. Previously, only IP mode provided the tab.
 - Added `add_parameter` command that you can use to add HDL parameters to a system from the command line.
 - Added passing HDL parameters values to the IP component via RTL for generic components.
- Added Fitter Physical RAM Information report to the Fitter reports. This report helps you to identify opportunities to save M20Ks and other hardened memories.
- Added support for creating and placing flip-flop nodes to the following ECO flow commands: `create_new_node`, `create_wirelut`, and `place_node`.



- Enhanced the Power and Thermal Calculator as follows:
 - Improved GUI look-and-feel, including adding tooltips and changing terminology to better align with terminology used in the Early Power Estimator tool.
 - For Intel Agilex™ devices, added the following new pages:
 - **Thermal Analysis** page.
 - **Empirion* Regulator Selection** page.
- Enhanced Power Analyzer as follows:
 - Added **Thermal Power Dissipation by Hierarchy** report that reports power by logical hierarchy.
 - For Intel Agilex devices, added **Thermal Map** view that offers a temperature heatmap and a power density heatmap of the device.
- Enhanced Timing Analyzer reports as follows:
 - Added design metrics reports to help with timing closure and reducing area use:
 - Register spread report (`report_register_spread`) – For diagnosing high fanout net challenges.
 - Router nets of interest report (`report_router_nets_of_interest`) – For diagnosing routing congestion and runtime challenges.
 - Hierarchical retiming restrictions report (`report_hierarchical_retiming_restrictions`) – For diagnosing retiming readiness.
 - Pipelining information report (`report_pipelining_information`) – For identifying area savings opportunities due to excessive pipelining.
 - Added more detailed information and cross-probing improvements to existing reports.
 - Added the `-extra_info` option to the timing report (`report_timing`) to help with timing closure diagnosis.
- Added new Timing Analyzer SDC command: `set_data_delay`. Use this command to constrain bus-based handshaked CDC transfers that go through logic.
- Enhanced the **Back Annotation Assignments** dialog box in the Intel Quartus Prime GUI to provide access to options that were previously available only from the command line.
- Enhanced the Analysis and Elaboration part of the Analysis and Synthesis compilation stage to provide stricter language reference manual (LRM) compliance error checking for Verilog and VHDL.

This stricter LRM-compliance error checking might result in new error messages for your existing designs.



- Enhanced Design Assistant as follows:
 - Added 37 new rules to help with clock/reset correctness, CDCs/RDCs, functional correctness, and timing closure.
 - Improved cross-probing for Design Assistant rule violations, with path-based cross-probing added to some violations. Also, some violations now support cross-probing to Report Timing.
 - Improved bus grouping.
 - Improved runtime on existing rules.
 - Added new rule severity level: **Fatal**. Violation of rules with a **Fatal** severity level stops the compilation flow and causes the compilation stage to fail. By default, no rules with a **Fatal** severity are provided.
 - Added Design Assistant Waiver, which helps you manage waivers for Design Assistant rules.
- Enhanced Advanced Link Analyzer as follows:
 - Added new ITOL Noise Calibration engine and wizard.
 - Expanded compliance test support for 106G Ethernet and 112G OIF-CEI.
 - Improved SNDR and PAM4 jitter (Jnu/Jrms) analysis.
 - Improved simulation speed.
 - Added wrapper support for Intel Agilex F-Tile resources (both general purpose and high-speed transceiver blocks).
 - Added wrapper support for Intel Agilex R-Tile resources.
 - Added support for the PCI Express (PCIe) Gen 5 specification.

Intel Quartus Prime Pro Edition Software Version 20.3 also includes bug fixes. Review [Software Issues Resolved](#) on page 15 and [Software Patches Included in this Release](#) on page 16 to see if this version contains fixes for or otherwise resolves any of your customer service requests.



1.2. Changes to Software Behavior

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

- As of Intel Quartus Prime Pro Edition Version 20.3, support for Cadence* Incisive* Enterprise Simulator (IES) is deprecated and might be removed in a future release.
Use Cadence Xcelium* Parallel Logic Simulation or another supported simulation tool instead. For a list of supported simulation tools, see [EDA Interface Information](#) on page 13.
- As of Intel Quartus Prime Pro Edition Version 20.3, the following Intel Quartus Prime components or features are deprecated and might be removed in a future release:
 - Rapid Recompile compile flow
Use ECO compile flow instead.
 - **Report Timing Closure Recommendations** command
Use the **Report DRC** command in Design Assistant instead. The rules in the design rule check (DRC) include rules used to report timing closure recommendations.
 - Intel Hyperflex™ Retimer Rules (HRR) category in Design Assistant.
The rules in the HRR category have been moved into the Timing Closure Rules (TMC) category and the Reset Rules (RR) category.
- Logic Analyzer Interface is enabled.
- As of Intel Quartus Prime Version 20.3, the components that comprised the Intel SoC Embedded Development Suite (EDS) are available only through GitHub.
For details, see the Intel Download Center for FPGAs: <https://fpgasoftware.intel.com/soceds/>.
- Intel Quartus Prime Pro Edition software now requires processors with one of the following microarchitectures:
 - Intel Nehalem (2008) or later
 - AMD Bulldozer (2011) or laterProcessors must support SSE4.2 or later.
- Starting with the Intel Agilex device family, the EDA netlist writer does not support IBIS model generation. The EDA netlist writer continues to support IBIS model generation for earlier device families.
You can download IBIS models for all device families from the following web page: [IBIS Models for Intel Devices](#). This page is updated as IBIS models for devices become available.



- Intel FPGA IP cores are transitioning to a new version number scheme. Previously, IP core version numbers aligned with Intel Quartus Prime version numbers.

Under the new scheme, IP core version numbers move to a three-part version numbering scheme (X.Y.Z) that is independent of Intel Quartus Prime version numbers. Changes in the parts of an IP core version number indicate different things and might require actions on your part:

- X: A change in X indicates a major revision of the IP. You must regenerate the IP.
- Y: A change in Y indicates that the IP includes new features, but retains backwards compatible behavior, ports, and parameters with all X level IP cores. Regenerate the IP to include these new features.
- Z: A change in Z indicates that the IP includes bug fixes and minor improvements, but retains backwards compatible behavior, ports, and parameters with all X level IP cores. Regenerate the IP to include the fixes and improvements.

In addition, new IP cores start their version numbering at 1.0.0. Existing IP cores adopt the new numbering scheme but increment the version number from their current version number.

Review your IP core release notes to confirm the versioning scheme for your IP core.

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.



1.3. Operating System Support

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

Intel Quartus Prime Pro Edition Version 20.3 adds support for the following operating systems:

- CentOS* 8.0
- Red Hat* Enterprise Linux* 8
- SUSE* Linux Enterprise Server 15
- Ubuntu* Linux 20 LTS
- Windows Server* 2019

As of Intel Quartus Prime Pro Edition Version 20.3, support for the following operating systems is removed:

- Red Hat Enterprise Linux 6
- Ubuntu Linux 14 LTS

Related Information

- [Operating System Support](#)
- [Download Center for FPGAs](#)

1.4. Memory Recommendations

A full installation of the Intel Quartus Prime Pro Edition software requires up to 75 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 might 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 Agilex	AGFA022, AGFB022, AGFA027, AGFB027	72 GB
	AGFA012, AGFB012, AGFA014, AGFA014-R0, AGFB014, AGFB014-R0	64 GB
Intel Arria® 10	10AT115, 10AX115	48 GB
	10AT090, 10AX090	44 GB
	10AS066, 10AX066	32 GB
	10AS057, 10AX057	30 GB
	10AS048, 10AX048	28 GB
	10AS032, 10AX032	24 GB

continued...



Family	Device	Recommended Physical RAM
	10AS027, 10AX027	22 GB
	10AS022, 10AX022	20 GB
	10AS016, 10AX016	18 GB
Intel Cyclone® 10 GX	10CX85, 10CX105, 10CX150, 10CX220	18 GB
Intel Stratix® 10	1SD21BP, 1SD280P, 1SG10MH, 1SG210H, 1SG211H, 1SG250H, 1SG250L, 1SG280H, 1SG280L, 1SM21BE, 1SM21BH, 1SM21CH, 1ST210E, 1ST250E, 1ST280E, 1SX210H, 1SX250H, 1SX250L, 1SX280H, 1SX280L	64 GB
	1SG165H, 1SG166H, 1SM16BE, 1SM16BH, 1SM16CH, 1ST165E, 1SX165H	48 GB
	1SD110P, 1SG040H, 1SG065H, 1SG085H, 1SG110H, 1ST040E, 1ST085E, 1ST110E, 1SX065H, 1SX085H, 1SX110H, 1SX040H	32 GB

1.5. Device Support and Pin-Out Status

Table 2. Final Device Support

Final compilation, simulation, timing analysis, and programming support is available for the devices listed in this table. These devices have finalized device models, bitstream, and firmware.

Device Family	Devices
Intel Arria 10	10AS016, 10AS022, 10AS027, 10AS032, 10AS048, 10AS057, 10AS066, 10AT090, 10AT115, 10AX016, 10AX022, 10AX027, 10AX032, 10AX048, 10AX057, 10AX066, 10AX090, 10AX115
Intel Cyclone 10 GX	10CX085, 10CX105, 10CX150, 10CX220
Intel Stratix 10	1SD110P, 1SD21BP, 1SD280P, 1SG085H, 1SG10MH, 1SG110H, 1SG165H, 1SG166H, 1SG210H, 1SG211H, 1SG250H, 1SG250L, 1SG280H, 1SG280L, 1SM16BE, 1SM16BH, 1SM16CH, 1SM21BE, 1SM21BH, 1SM21CH, 1ST040E, 1ST085E, 1ST110E, 1ST165E, 1ST210E, 1ST250E, 1ST280E, 1SX085H, 1SX110H, 1SX165H, 1SX210H, 1SX250H, 1SX250L, 1SX280H, 1SX280L

Table 3. Preliminary Device Support

Full compilation, simulation, timing analysis, and programming support is available for the devices listed in this table.

Device Family	Devices
Intel Agilex	AGFA014-R0, AGFB014-R0
Intel Stratix 10	1SD110P-S1, 1SD280P-S1, 1SG040H, 1SG110H-S1, 1SG280H-S2, 1SG280H-S3, 1SG280L-S2, 1SG280L-S3, 1SM21BH-S1, 1SM21CH-S1, 1SX040H, 1SX110H-S1, 1SX280H-S3, 1SX280L-S3

Table 4. 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
Intel Agilex	AGFA012, AGFA014, AGFA022, AGFA027, AGFB012, AGFB014, AGFB022, AGFB027
Intel Stratix 10	1SG065H, 1SX065H



Table 5. Initial Device Support

Compilation, simulation, and timing analysis support is provided for these devices. Programming files and pinout information are not generated for these devices in this release.

Device Family	Devices
No devices with this status in Intel Quartus Prime Pro Edition Version 20.3.	



1.5.1. Changes in Device Support

Starting with Intel Quartus Prime Version 20.1, a new device support level is introduced: **Preliminary** device support.

For devices with **Preliminary** device support, Intel Quartus Prime provides full compilation, simulation, timing analysis, and programming support but the device models, bitstreams, and firmware for the devices are not finalized.

Devices with **Final** device support (previously *Full*) have finalized device models, bitstreams, and firmware.

The definitions of **Initial** and **Advance** device support levels are unchanged.

For information about known device issues and workarounds, refer to the following web page: [Intel FPGA Knowledge Base](#).

New Device Support

Support for the following devices is added to Intel Quartus Prime Pro Edition Version 20.3 with **Advance** device support:

- AGFA022
- AGFA027
- AGFB022
- AGFB027

Changed Device Support

Support for the following devices moves from **Advance** device support to **Preliminary** device support:

- 1SG040H
- 1SX040H

Support for the following devices moves from **Initial** device support to **Advance** device support:

- AGFA012
- AGFA014
- AGFB012
- AGFB014



1.6. Timing Model, Power Model, and Device Status

Only devices with a timing model, power model, and device status of **Final** are suitable for production systems.

Table 6. Timing Model, Power Model, and Device Status

Device Family	Device	Timing Model Status	Power Model Status	Device Status
Intel Agilex	AGFA014-R0, AGFB014-R0	Preliminary	Preliminary	Preliminary
	AGFA012, AGFA014, AGFA022, AGFA027, AGFB012, AGFB014, AGFB022, AGFB027	Preliminary	Preliminary	Preliminary
Intel Arria 10	10AX016, 10AS016, 10AX022, 10AS022, 10AX027, 10AS027, 10AX032, 10AS032	Final – 16.1 ⁽¹⁾ (²)	Final – 17.0	Final – 17.0
	10AX048, 10AS048	Final – 16.0.2 ⁽²⁾		
	10AX057, 10AS057, 10AX066, 10AS066, 10AT090, 10AX090	Final – 16.0.1 ⁽²⁾	Final – 16.0.1	Final – 16.0.1
	10AX115, 10AT115	Final – 16.0 ⁽²⁾	Final – 16.0	Final – 16.0
Intel Cyclone 10 GX	10CX085, 10CX105, 10CX150, 10CX220	Final – 17.0	Final – 18.0	Final – 18.0
Intel Stratix 10	1SG280L, 1SX280L, 1SG250L, 1SX250L	Final – 18.0.1	Final – 18.1.1	Final – 18.1.1
	1SG280H, 1SX280H, 1SG250H, 1SX250H, 1SG210H, 1SX210H, 1SG165H, 1SX165H, 1SG110H, 1SX110H, 1SG085H, 1SX085H	Final – 18.1.1	Final – 18.1.1	Final – 18.1.1
	1ST280E, 1ST250E	Final – 18.1.1	Final – 19.4	Final – 19.4
	1SM21BH, 1SM21CH, 1SM16BH, 1SM16CH	Final – 19.1	Final – 19.1	Final – 19.1
	1SG10MH, 1SG166H, 1SG211H	Final – 19.1	Final – 19.3	Final – 19.3
	1ST210E, 1SM21BE, 1ST165E, 1SM16BE	Final – 19.2	Final – 19.4	Final – 19.4
	1SD280P, 1ST040E, 1ST085E, 1ST110E	Final – 20.1	Final – 20.1	Final – 20.1
	1SD110P	Final – 20.2	Final – 20.2	Final – 20.2
	1SD21BP	Final – 20.3	Final – 20.3	Final – 20.3
	1SG040H, 1SX040H	Final – 20.3	Final – 20.3	Preliminary
1SG065H, 1SX065H	Preliminary	Preliminary	Preliminary	

Related Information

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

(1) Devices with a -1 speed grade were finalized in Intel Quartus Prime software version 17.0

(2) All military grade devices were finalized in Intel Quartus Prime software version 18.0.1.



1.7. IBIS Models

Table 7. IBIS Model Status for the Intel Quartus Prime Pro Edition Software Release Version 20.3

Device families have IBIS model statuses that are either Advance, Preliminary, or Final.

Device Family	IBIS Model Status
Intel Agilex	Refer to IBIS Models for Intel Devices .
Intel Arria 10	Final - 16.1.2
Intel Cyclone 10 GX	Final - 17.0
Intel Stratix 10	Final - 18.1

Starting with the Intel Agilex device family, IBIS models are available only online at the following web page: [IBIS Models for Intel Devices](#). This page is updated as IBIS models for devices become available or are updated.

1.8. EDA Interface Information

Table 8. Synthesis Tools Supporting the Intel Quartus Prime Pro Edition Software Release Version 20.3

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 Pro Edition Software Version 20.3.
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 that support Intel Quartus Prime Pro Edition Software Version 20.3.

Table 9. Simulation Tools Supporting the Intel Quartus Prime Pro Edition Software Release Version 20.3

The following simulation tools support RTL and functional gate-level simulation.

Simulation Tools	Version
Aldec* Active-HDL*	11.5 (Windows 32-bit only)
Aldec Riviera-PRO*	2019.10 (64-bit only)
Cadence Incisive Enterprise Simulator (IES) As of Intel Quartus Prime Pro Edition Version 20.3, support for IES is deprecated.	15.20 (64-bit Linux only)
Cadence Xcelium Parallel Logic Simulation	20.03 (64-bit Linux only)
Mentor Graphics ModelSim* PE	2020.3 (Windows 32-bit only)
Mentor Graphics ModelSim SE	2020.2 (64-bit only)
Mentor Graphics ModelSim-Intel FPGA Edition*	2020.3 (32-bit only)
Mentor Graphics Questa* Advanced Simulator	2020.2 (64-bit only)
Synopsys VCS* and VCS MX	P-2019.06 (64-bit Linux only)



Mentor Graphics ModelSim-Intel FPGA Edition requires licensing daemon version 11.16.4.0 (or later). You can obtain the licensing daemon from the [Intel FPGA License Daemon Downloads](#) web page.

Operating System Support for Mentor Graphics ModelSim-Intel FPGA Edition version 2020.2 (requires 32-bit libraries)

- Red Hat Enterprise Linux 7 (64-bit)
- Red Hat Enterprise Linux 8 (64-bit)
- SUSE Linux Enterprise Server 12 (64-bit)
- Windows* 10 (64-bit)

1.9. Antivirus Verification

The Intel Quartus Prime software release version 20.3 has been verified virus free with the following software:

Antivirus Verification Software

McAfee VirusScan Command Line for Linux64 Version: 6.1.3.242
AV Engine version: 6010.8670 for Linux64.
Dat set version: 9757 created Sep 27 2020



1.10. Software Issues Resolved

The following customer service requests were fixed or otherwise resolved in Intel Quartus Prime Pro Edition Version 20.3:

Table 10. Issues Resolved in the Intel Quartus Prime Pro Edition Version 20.3

Customer Service Request Numbers							
00284846	00299479	00379971	00390596	00390824	00431419	00434963	00443282
00448218	00461444	00461994	00462412	00464557	00465691	00466078	00467114
00469277	00469685	00470889	00472804	00473130	00475473	00476432	00476701
00476757	00476783	00477991	00478173	00478513	00478873	00479486	00481910
00481979	00484526	00486023	00486992	00488994	00489028	00489547	00489965
00490218	00490442	00490510	00490538	00490688	00491372	00492070	00492375
00492598	00492943	00493838	00494304	00494396	00494725	00495006	00495198
00496864	00497072	00499063	00499388	00499704	00499721	00499768	00499933
00499967	00499972	00500015	00500061	00501067	00501256	00501613	00501644
00501661	00501691	00504025	00504696	00504900	00505311	00505872	00505988
00506212	00508306	00508339	00508340	00508586	00508617	00508997	00509503
00509738	00510421	00512163	00513730	00514178	00514375	00516063	00516197
00517824	00519229	00519446	00519455	00519999	00520328	00520833	00520892
00521336	00521855	00522237	00522286	00522720	00523492	00523563	00524285
00524452	00525057	00525584	00525592	00525746	00527962	00528546	00528709
00529816	00530164	00530527	00532301	00533129	00534428	00535358	00536122
00538274	00538302	00538320	00538328	00538514	00538856	00539628	00539960
00540764	00541117	00541788	00544885	04343337	04505705	04527698	04559744
04606031	04733486	11367051	11370544	11383876	11412034		



1.11. Software Patches Included in this Release

Intel Quartus Prime Pro Edition Version 20.3 contains the following patches for previous versions of Intel Quartus Prime Pro Edition software:

Table 11. Software Patches included in Intel Quartus Prime Pro Edition Version 20.3

Software Version	Patch	Customer Service Request Number
Intel Quartus Prime Version 20.2	0.44	541117
Intel Quartus Prime Version 20.2	0.41	–
Intel Quartus Prime Version 20.2	0.39	533408
Intel Quartus Prime Version 20.2	0.37	541971
Intel Quartus Prime Version 20.2	0.34	–
Intel Quartus Prime Version 20.2	0.33	00504900, 00499933
Intel Quartus Prime Version 20.2	0.28	535358
Intel Quartus Prime Version 20.2	0.27fw	528303
Intel Quartus Prime Version 20.2	0.26	–
Intel Quartus Prime Version 20.2	0.25	–
Intel Quartus Prime Version 20.2	0.21	522237
Intel Quartus Prime Version 20.2	0.20	508339
Intel Quartus Prime Version 20.2	0.19	–
Intel Quartus Prime Version 20.2	0.17	519446
Intel Quartus Prime Version 20.2	0.15	522237
Intel Quartus Prime Version 20.2	0.13fw	–
Intel Quartus Prime Version 20.2	0.05	–
Intel Quartus Prime Version 20.2	0.04	–
Intel Quartus Prime Version 20.1	0.45	–
Intel Quartus Prime Version 20.1	0.44	00525154, 00544568
Intel Quartus Prime Version 20.1	0.41	–
Intel Quartus Prime Version 20.1	0.38	–
Intel Quartus Prime Version 20.1	0.37	538514
Intel Quartus Prime Version 20.1	0.33	523162
Intel Quartus Prime Version 20.1	0.31	529066
Intel Quartus Prime Version 20.1	0.30	–
Intel Quartus Prime Version 20.1	0.28	508617
Intel Quartus Prime Version 20.1	0.27	–
Intel Quartus Prime Version 20.1	0.25	509503
Intel Quartus Prime Version 20.1	0.22	–
Intel Quartus Prime Version 20.1	0.21	489028

continued...



Software Version	Patch	Customer Service Request Number
Intel Quartus Prime Version 20.1	0.20	513029
Intel Quartus Prime Version 20.1	0.19	-
Intel Quartus Prime Version 20.1	0.17	499704
Intel Quartus Prime Version 20.1	0.12	-
Intel Quartus Prime Version 20.1	0.11	-
Intel Quartus Prime Version 20.1	0.08	-
Intel Quartus Prime Version 20.1	0.07	508340
Intel Quartus Prime Version 20.1	0.05	-
Intel Quartus Prime Version 20.1	0.04	-
Intel Quartus Prime Version 20.1	0.02	-
Intel Quartus Prime Version 19.4	0.37	492904
Intel Quartus Prime Version 19.4	0.36	-
Intel Quartus Prime Version 19.4	0.33	-
Intel Quartus Prime Version 19.4	0.31	522238
Intel Quartus Prime Version 19.4	0.28	499768
Intel Quartus Prime Version 19.4	0.27	-
Intel Quartus Prime Version 19.4	0.26	-
Intel Quartus Prime Version 19.4	0.24	-
Intel Quartus Prime Version 19.4	0.23	492070
Intel Quartus Prime Version 19.4	0.22	-
Intel Quartus Prime Version 19.4	0.19	-
Intel Quartus Prime Version 19.4	0.18	-
Intel Quartus Prime Version 19.4	0.17	489028
Intel Quartus Prime Version 19.4	0.14	-
Intel Quartus Prime Version 19.3	0.66	-
Intel Quartus Prime Version 19.3	0.65	-
Intel Quartus Prime Version 19.3	0.63	-
Intel Quartus Prime Version 19.3	0.61	508339
Intel Quartus Prime Version 19.3	0.57	501661
Intel Quartus Prime Version 19.3	0.55	-
Intel Quartus Prime Version 19.3	0.54	-
Intel Quartus Prime Version 19.3	0.50	499704
Intel Quartus Prime Version 19.3	0.49	-
Intel Quartus Prime Version 19.3	0.48fw	505872
Intel Quartus Prime Version 19.3	0.47	508340

continued...



Software Version	Patch	Customer Service Request Number
Intel Quartus Prime Version 19.3	0.46	-
Intel Quartus Prime Version 19.3	0.43	-
Intel Quartus Prime Version 19.3	0.42	-
Intel Quartus Prime Version 19.3	0.41	-
Intel Quartus Prime Version 19.3	0.40fw	470889
Intel Quartus Prime Version 19.3	0.32	-
Intel Quartus Prime Version 19.2	0.18fw	481910
Intel Quartus Prime Version 19.2	0.27	-
Intel Quartus Prime Version 19.2	0.24	-
Intel Quartus Prime Version 19.2	0.22	522286
Intel Quartus Prime Version 19.2	0.21	284846
Intel Quartus Prime Version 19.2	0.20	-
Intel Quartus Prime Version 19.2	0.19	-
Intel Quartus Prime Version 19.2	0.17	486023
Intel Quartus Prime Version 19.1	0.53	-
Intel Quartus Prime Version 19.1	0.50	-
Intel Quartus Prime Version 19.1	0.49	-
Intel Quartus Prime Version 19.1	0.48	508340
Intel Quartus Prime Version 19.1	0.47	504349
Intel Quartus Prime Version 18.1.2	2.08	-
Intel Quartus Prime Version 18.1.2	2.07	-
Intel Quartus Prime Version 18.1.1	1.26	-
Intel Quartus Prime Version 18.1.1	1.25	-
Intel Quartus Prime Version 18.1	0.51	-
Intel Quartus Prime Version 18.1	0.47	-
Intel Quartus Prime Version 18.1	0.46	494304
Intel Quartus Prime Version 18.1	0.45	-
Intel Quartus Prime Version 18.1	0.43	390596
Intel Quartus Prime Version 18.0.1	1.63	-
Intel Quartus Prime Version 18.0.1	1.62	-



1.12. Latest Known Intel Quartus Prime Software Issues

Information about known issues that affect Intel Quartus Prime Pro Edition Version 20.3 is available in the Intel Programmable Solutions Knowledge Base.

Table 12. Important Known Issues Affecting Intel Quartus Prime Pro Edition Version 20.3

Description	Workaround
<p>If you have VHDL code in your design that uses a `range definition inside a generate loop that is declared inside a generate block, you might see hardware failures. The following code example illustrates the kind of VHDL code that can cause this issue:</p> <pre data-bbox="261 659 751 863"> gen_example: case NUM generate when 8 => signal sig : std_logic_vector(1 downto 0); begin gen_test : for i in sig'range generate and_gate:and01 port map (inp => inp, outp => outp); end generate gen_test; end; end generate gen_example; </pre> <p>If your design is affected by this problem, your design will likely cause synthesis warnings messages such as the following:</p> <pre data-bbox="261 961 623 997"> Warning (16788): Net does not have a driver at .vhd(line number) </pre>	<p>For details about this issue and the availability of any fixes, refer to the following article in the Intel Programmable Solutions Knowledge Base: Why does my VHDL design fail in hardware when I have a `range definition in a loop?</p>
<p>In Platform Designer, the following error occurs when you add the Avalon® Streaming Credit Source bus function model (BFM):</p> <pre data-bbox="261 1115 774 1310"> Error: test_avst_credit_src_bfm_0: b> add_instance: Component altera_avalon_st_source_bfm version 19.1 is not installed. Please modify the IP Search Path to include the component. while executing "add_instance avst_src altera_avalon_st_source_bfm 19.1" (procedure "compose" line 92) invoked from within "compose" </pre>	<p>For details about this issue and the availability of any fixes, refer to the following article in the Intel Programmable Solutions Knowledge Base: Error: test_avst_credit_src_bfm_0: b>add_instance: Component altera_avalon_st_source_bfm version 19.1 is not installed</p>
<p>In Platform Designer, the following error occurs when you add the Avalon Streaming Credit Sink BFM:</p> <pre data-bbox="261 1402 800 1577"> Error: test_avst_credit_snk_bfm_0: b> add_instance: Component altera_avalon_st_sink_bfm version 19.1 is not installed. Please modify the IP Search Path to include the component. while executing "add_instance avst_snk altera_avalon_st_sink_bfm 19.1" (procedure "compose" line 93) invoked from within "compose" </pre>	<p>For details about this issue and the availability of any fixes, refer to the following article in the Intel Programmable Solutions Knowledge Base: Error: test_avst_credit_snk_bfm_0: b>add_instance: Component altera_avalon_st_sink_bfm version 19.1 is not installed</p>

continued...



Description	Workaround
For Intel Stratix 10 devices, you might encounter an error when you try to enable certain Advanced Security features such as the Intrinsic ID PUF or Black Key Provisioning.	For details about this issue and the availability of any fixes, refer to the following article in the Intel Programmable Solutions Knowledge Base: Why do I receive an error when using the Intel Quartus Prime Programmer Version 20.3 to enroll the Intrinsic ID PUF or perform Black Key Provisioning on an Intel Stratix 10 Device?
For Intel Agilex devices, the AVST_READY signal might get stuck high when reconfiguring the device over JTAG if the device was previously configured over AVSTx16 or AVSTx32.	For details about this issue and the availability of any fixes, refer to the following article in the Intel Programmable Solutions Knowledge Base: Why is AVST_READY stuck high when reconfiguring Intel Agilex devices over JTAG when they are in AVSTx16 or AVSTx32 mode?
The Nios® II Embedded Design Suite (EDS) does not work on Microsoft* Windows 10 Version 1903 or later.	Use Nios II EDS on Microsoft Windows 10 Version 1809 (build 17763.1457) or earlier builds of Version 1809.

You can find known issue information for previous versions of the Quartus Prime software on the [Intel FPGA Knowledge Base](#) web page.

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](#) web page.

Information about issues affecting the Intel FPGA IP Library is available in the release notes for each IP. You can find the IP release notes on the [Intel FPGAs and Programmable Devices Release Notes](#) web page.

Related Information

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



1.13. Intel Quartus Prime Pro Edition Version 20.3 Software and Device Support Release Notes Archives

Intel Quartus Prime Pro Edition	Publication
20.2	Intel Quartus Prime Pro Edition Version 20.2 Software and Device Support Release Notes
20.1	Intel Quartus Prime Pro Edition Version 20.1 Software and Device Support Release Notes
19.4	Intel Quartus Prime Pro Edition Version 19.4 Software and Device Support Release Notes
19.3	Intel Quartus Prime Pro Edition Version 19.3 Software and Device Support Release Notes
19.2	Intel Quartus Prime Pro Edition Version 19.2 Software and Device Support Release Notes
19.1	Intel Quartus Prime Pro Edition Version 19.1 Software and Device Support Release Notes
18.1	Intel Quartus Prime Pro Edition Version 18.1 Software and Device Support Release Notes
18.0	Intel Quartus Prime Pro Edition Software and Devices Support Release Notes
17.1	Intel Quartus Prime Pro Edition Software and Devices Support Release Notes
17.0	Intel Quartus Prime Pro Edition Software and Devices Support Release Notes

1.14. Document Revision History

Table 13. The Intel Quartus Prime Pro Edition Software Release Version 20.3 Document Revision History

Document Version	Intel Quartus Prime Version	Changes
2020.09.28	20.3	<ul style="list-style-type: none"> Initial release.