



# Intel<sup>®</sup> Quartus<sup>®</sup> Prime Pro Edition

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## Version 21.3 Software and Device Support Release Notes

Updated for Intel<sup>®</sup> Quartus<sup>®</sup> Prime Design Suite: **21.3**



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# 1. Intel® Quartus® Prime Pro Edition Version 21.3 Software and Device Support Release Notes

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This document provides late-breaking information about Intel® Quartus® Prime Pro Edition Version 21.3.

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](#)
- [Download Center for FPGAs](#)

## 1.1. New Features and Enhancements

Intel Quartus Prime Pro Edition Software Version 21.3 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.

Intel Quartus Prime Pro Edition Software Version 21.3 includes the following new features and enhancements:

- Added support for the following simulation software:
  - Questa\*-Intel FPGA Edition  
This software replaces ModelSim\*-Intel FPGA Edition.
  - Questa-Intel FPGA Starter Edition  
This software replaces ModelSim-Intel FPGA Starter Edition.
- Introduced the Nios® V/m soft processor that is based on the open-source RISC-V architecture

## New Platform Designer Features and Enhancements

- Added ability to preserve signals during compilation. Preserved signals remain available for debugging in Signal Tap Logic Analyzer and are not optimized away.
- Added the System Diff Tool that highlights the differences between two Platform Designer systems or IP components (.qsys or .ip files).
- Added the ability to launch the BSP Editor from Platform Designer in *integrated mode* for the Nios V soft processor. In integrated mode, BSP Editor automatically updates for any changes that you make to your system in Platform Designer.
- Added the ability to change Platform Designer GUI font sizes.

## New Synthesis Features and Enhancements

- Added support for the following VHDL-2019 features:
  - Conditional analysis tool directives (IEEE Std 1076-2019 Section 24.2)
  - Interface declarations (IEEE Std 1076-2019 Section 6.5)
- Enhanced synthesis reports as follows:
  - Added **Hierarchies Optimized Away During Sweep** report to provide information about entities that were optimized away during synthesis.
  - Added **Warning Messages** summary reports to see the types of warning messages generated for each source file.
  - Added **Preserve for Debug Assignments** report to provide information about RTL nodes that were explicitly marked to preserve the signals through compilation.

## New Compiler Features and Enhancements

- Added the **Fast Functional Test** compilation mode.

This compilation mode can help you save time early in your design cycle when you are testing algorithmic logic or other logic that is not critical to the  $f_{MAX}$  of your design.
- Added ability to preserve signals during compilation. Preserved signals remain available for debugging and are not optimized away.
- Reduced the memory requirements for processing Intel Agilex™ designs:
  - Memory requirements for processing designs that target AGFA012, AGFA014, AGFB012, and AGFB014 devices are now 32 GB, reduced from 64 GB.
  - Memory requirements for processing designs that target AGFA022, AGFB022, AGFA027, and AGFB027 devices are now 64 GB, reduced from 72 GB.
- Enhanced the security of Intel Agilex devices with Attestation via JTAG command and FPGA mailbox.

### New Timing Analyzer Features and Enhancements

- Enhanced Timing Analyzer reports as follows:
  - Added **Report Clock Network** report to identify and evaluate advanced clock structures, such as clock muxes, clock gates, and clock dividers.
  - Added **Report Exceptions Reachability** report to show the scope of exception constraints in your project.
  - Added **Report Data Delay** report that shows the worst-case slack for the datapath delay exception for a given path.

### New Design Assistant Features and Enhancements

- Enhanced Design Assistant with new rule checks and improved run time for some existing checks.

### New Signal Tap Logic Analyzer Features and Enhancements

- (Beta) Added the ability to use RTL simulation tools using data captured by Signal Tap Logic Analyzer:
  - Added support for using Signal Tap signal and acquisition data directly in your simulation software for enhanced visibility into the internal signal in a design hierarchy.
  - Added support for transforming Signal Tap data into an RTL simulation testbench. This support helps expand the signal states in the simulation tool beyond the data that Signal Tap captures.
- Added the ability to make iterative changes to the post-fit Signal Tap nodes that you want to target, without rerunning full compilation to implement the changes.

### New Advanced Link Analyzer Features and Enhancements

- Updated support for Agilex F-tile and R-tile
- Added beta-level support for forward clocking IBIS-AMI simulation support
- Added low latency FEC support
- Updated PAM4 jitter analysis capabilities
- Updated channel analysis and compliance test for 106G Ethernet and 112G OIF-CEI standards
- Extended device ERL compliance test support

### New Power and Thermal Calculator Features and Enhancements

- For Intel Agilex devices, added **Typical** to the **Power characteristics** field to enable power characterization for typical operation of your design in addition to the power characterization of maximum operation of your design.
- For Intel Stratix® 10 devices with high-bandwidth memory (HBM), updated power models to reflect more realistic use cases, rather than worst-case power consumption.



## Bug Fixes

Intel Quartus Prime Pro Edition Software Version 21.3 also includes bug fixes. Review [Software Issues Resolved](#) on page 16 and [Software Patches Included in this Release](#) on page 17 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.

- The IEEE 1735 v1 private key was changed in Intel Quartus Prime Pro Edition Version 21.3. This change is backward compatible with existing Intel Quartus Prime projects.  
The key in Intel Quartus Prime Pro Edition Version 21.1 was extracted by Florian Schweins as well as security researchers from the Max Planck Institute for Security and Privacy for research proposes.
- 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.

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.

### 1.2.1. Deprecated Features and Functions

The functions and features listed in this section have been deprecated but not removed from Intel Quartus Prime Pro Edition Version 21.3 or earlier. Migrate your tools and processes to use the replacement or alternate features and functions before the deprecated features and functions are removed.

#### Features and Functions Deprecated as of Intel Quartus Prime Pro Edition Version 21.3

No features or functions have been deprecated in Intel Quartus Prime Pro Edition Version 21.3.

#### Features and Functions Deprecated as of Intel Quartus Prime Pro Edition Version 21.2

No features or functions have been deprecated in Intel Quartus Prime Pro Edition Version 21.2.

#### Features and Functions Deprecated as of Intel Quartus Prime Pro Edition Version 21.1

No features or functions have been deprecated in Intel Quartus Prime Pro Edition Version 21.1.

#### Features and Functions Deprecated as of Intel Quartus Prime Pro Edition Version 20.4

No features or functions have been deprecated in Intel Quartus Prime Pro Edition Version 20.4.

## 1.2.2. Removed Features and Functions

The functions and features listed in this section have been removed from Intel Quartus Prime Pro Edition Version 21.3 or earlier.

### Features and Functions Removed from Intel Quartus Prime Pro Edition Version 21.3

- Removed ModelSim-Intel FPGA Edition and ModelSim-Intel FPGA Starter Edition  
This simulation software has been replaced by Questa-Intel FPGA Edition and Questa-Intel FPGA Starter Edition respectively.
- Removed support for 32-bit simulation software.  
This change removes support for the following simulation tools:
  - Aldec\* Active-HDL\* (32-bit)  
Use a 64-bit version of Aldec Active-HDL or use Aldec Riviera-PRO\* instead.
  - Mentor Graphics\* ModelSim PE  
Use Siemens\* EDA ModelSim SE or Siemens EDA Questa Advanced Simulator instead.
- Removed NicheStack TCP/IP Stack.

### Features and Functions Removed from Intel Quartus Prime Pro Edition Version 21.2

No features or functions have been removed from Intel Quartus Prime Pro Edition Version 21.2.

### Features and Functions Removed from Intel Quartus Prime Pro Edition Version 21.1

- Removed support for Cadence\* Incisive\* Enterprise Simulator (IES).
- Removed Rapid Recompile flow.
- For Intel Stratix 10 devices, removed support for the following Active Serial configuration clock (AS\_CLK) frequencies: 133 MHz, 108 MHz.

### Features and Functions Removed from Intel Quartus Prime Pro Edition Version 20.4

No features or functions have been removed from Intel Quartus Prime Pro Edition Version 20.4.



## 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.

### Operating System Support Changes in Intel Quartus Prime Pro Edition Version 21.2

There are no operating system support changes in Intel Quartus Prime Pro Edition Version 21.2.

### Operating System Support Changes in Intel Quartus Prime Pro Edition Version 21.1

There are no operating system support changes in Intel Quartus Prime Pro Edition Version 21.1.

### Operating System Support Changes in Intel Quartus Prime Pro Edition Version 20.4

There are no operating system support changes in Intel Quartus Prime Pro Edition Version 20.4.

### Operating System Support Changes in Intel Quartus Prime Pro Edition Version 20.3

Intel Quartus Prime Pro Edition Version 20.3 added 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

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

- Red Hat Enterprise Linux 6
- Ubuntu Linux 14 LTS

#### Related Information

[Operating System Support](#)

## 1.4. Memory Recommendations

A full installation of the Intel Quartus Prime Pro Edition software requires up to 140 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, AGFA023, AGFA027, AGFB022, AGFB023, AGFB027, AGIB022, AGIB027	64 GB
	AGFA012, AGFA014, AGFB012, AGFB014	32 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
	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 Agilex	AGFA012R24B, AGFA014R24B, AGFA022R25, AGFA027R25 AGFB012R24B, AGFB014R24B, AGFB022R25, AGFB027R25
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
<i>continued...</i>	

Device Family	Devices
	1SG040H, 1SG065H, 1SG085H, 1SG10MH, 1SG110H, 1SG165H, 1SG166H, 1SG210H, 1SG211H, 1SG250H, 1SG250L, 1SG280H, 1SG280L 1SM16BE, 1SM16BH, 1SM16CH, 1SM21BE, 1SM21BH, 1SM21CH, 1ST040E, 1ST085E, 1ST110E, 1ST165E, 1ST210E, 1ST250E, 1ST280E 1SX040H, 1SX065H, 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	AGFA012, AGFA014, AGFA014-R0 AGFB012, AGFB014, AGFB014-R0 AGIB027R29-R0, AGIB027R31-R0
Intel Stratix 10	1SD110P-S1 1SG280H-S3, 1SG280L-S3 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	AGFA022R24, AGFA022R31, AGFA023, AGFA027R24, AGFA027R31 AGFB022R24, AGFB022R31, AGFB023, AGFB027R24, AGFB027R31 AGIB022, AGIB027R29, AGIB027R31

**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 21.3.	

### 1.5.1. Changes in Device Support

Starting with Intel Quartus Prime Version 20.1, a new device support level was 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 21.3 with **Advance** device support:

- AGFA023
- AGFB023

#### Changed Device Support

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

- AGFA012R24B
- AGFA014R24B
- AGFA022R25
- AGFA027R25
- AGFB012R24B
- AGFB014R24B
- AGFB022R25
- AGFB027R25

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

- AGIB027R31-R0

## 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 for Intel Agilex Devices**

Device Family	Device	Timing Model Status	Power Model Status	Device Status
Intel Agilex	AGFA014-R0, AGFB014-R0	Preliminary	Preliminary	Preliminary
	AGFA012R24B, AGFA014R24B, AGFA022R25, AGFA027R25 AGFB012R24B, AGFB014R24B, AGFB022R25, AGFB027R25	Final - 21.3	Final - 21.3	Final - 21.3
	AGFA012, AGFA014, AGFA022R24, AGFA022R31, AGFA023, AGFA027R24, AGFA027R31 AGFB012, AGFB014, AGFB022R24, AGFB022R31, AGFB023, AGFB027R24, AGFB027R31	Preliminary	Preliminary	Preliminary
	AGIB022, AGIB027	Preliminary	Preliminary	Preliminary
	AGIB027R29-R0, AGIB027R29A-R0, AGIB027R31-R0	Preliminary	Preliminary	Preliminary

**Table 7. Timing Model, Power Model, and Device Status for Intel Arria 10 Devices**

Device Family	Device	Timing Model Status	Power Model Status	Device Status
Intel Arria 10	10AX016, 10AS016, 10AX022, 10AS022, 10AX027, 10AS027, 10AX032, 10AS032	Final - 16.1 <sup>(1)</sup> <sub>(2)</sub>	Final - 17.0	Final - 17.0
	10AX048, 10AS048	Final - 16.0.2 <sup>(2)</sup>	Final - 17.0	Final - 17.0
	10AX057, 10AS057, 10AX066, 10AS066, 10AT090, 10AX090	Final - 16.0.1 <sup>(2)</sup>	Final - 16.0.1	Final - 16.0.1
	10AX115, 10AT115	Final - 16.0 <sup>(2)</sup>	Final - 16.0	Final - 16.0

**Table 8. Timing Model, Power Model, and Device Status for Intel Cyclone 10 Devices**

Device Family	Device	Timing Model Status	Power Model Status	Device Status
Intel Cyclone 10 GX	10CX085, 10CX105, 10CX150, 10CX220	Final - 17.0	Final - 18.0	Final - 18.0

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

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

**Table 9. Timing Model, Power Model, and Device Status for Intel Stratix 10 Devices**

Device Family	Device	Timing Model Status	Power Model Status	Device Status
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	Final - 21.1
	1SG065H, 1SX065H	Final - 21.2	Final - 21.2	Final - 21.2

## 1.7. IBIS Models

**Table 10. IBIS Model Status for the Intel Quartus Prime Pro Edition Software Release Version 21.3**

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

Device Family	IBIS Model Status
Intel Agilex	Refer to <a href="#">IBIS Models for Intel Devices</a> .
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 11. Synthesis Tools Supporting the Intel Quartus Prime Pro Edition Software Release Version 21.3**

Synthesis Tools	Version
Siemens EDA Precision* FPGA Synthesis	Siemens EDA Precision FPGA Synthesis versions that support the Intel Quartus Prime software are typically released after the release of the Intel Quartus Prime software. Contact Siemens EDA for versions of Siemens EDA Precision FPGA Synthesis that support Intel Quartus Prime Pro Edition Software Version 21.3.
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 21.3.

**Table 12. Simulation Tools Supporting the Intel Quartus Prime Pro Edition Software Release Version 21.3**

The following simulation tools support RTL and functional gate-level simulation. Only 64-bit simulation tools are supported.

Simulation Tools	Version
Aldec Active-HDL	12.0 (Windows* only)
Aldec Riviera-PRO	2021.4
Cadence Xcelium* Parallel Logic Simulation	20.09.012 (Linux* only)
Questa-Intel FPGA Edition*	2021.2
Siemens EDA ModelSim SE	2021.2
Siemens EDA Questa Advanced Simulator	2021.2
Synopsys VCS* and VCS MX	R-2020.12-SP1-1 (Linux only)

\*Questa-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.

You can obtain the Intel FPGA Edition of simulation tools from the Download Center for FPGAs.

### Operating System Support for Siemens EDA Questa-Intel FPGA Edition Version 2021.2

- 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)

#### Related Information

[Download Center for FPGAs](#)

## 1.9. Antivirus Verification

The Intel Quartus Prime software release version 21.3 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: 10100 created Sep 7 2021

## 1.10. Software Issues Resolved

The following customer service requests were fixed or otherwise resolved in Intel Quartus Prime Pro Edition Version 21.3:

**Table 13. Issues Resolved in the Intel Quartus Prime Pro Edition Version 21.3**

Customer Service Request Numbers							
00396630	00430698	00452010	00488136	00508292	00509979	00512080	00513973
00517813	00519229	00527418	00530553	00531917	00546229	00550737	00550956
00552062	00553465	00555228	00557819	00560178	00569587	00571983	00572020
00573634	00573738	00575223	00575709	00578469	00583702	00584087	00585167
00585479	00585506	00585724	00586099	00586886	00586895	00587231	00587398
00589564	00589881	00590197	00591296	00591302	00592571	00592604	00592767
00592783	00592796	00592827	00593182	00593344	00593876	00594443	00594842
00595917	00596657	00597640	00597672	00599679	00599845	00600321	00600654
00601709	00601914	00603863	00604341	00604379	00604502	00604807	00604974
00605273	00605277	00606036	00606092	00606104	00606363	00606550	00607053
00607234	00607423	00607589	00608246	00608669	00610075	00610116	00610335
00612015	00612608	00613061	00614552	00614560	00614867	00615123	00615582
00616268	00616585	00618295	00618572	00618963	00619039	00619982	00620337
00620470	00621181	00622219	00622444	00622586	00623541	00624129	00624587
<i>continued...</i>							



Customer Service Request Numbers							
00624905	00624908	00625191	00625215	00626294	00627311	00628385	00628643
00629079	00630114	00630187	00630432	00631729	00631867	00633038	00638981
00642354	00645198	04773275	04960293	04979466	05009805	11330956	

## 1.11. Software Patches Included in this Release

Intel Quartus Prime Pro Edition Version 21.3 contains the following patches for previous versions of Intel Quartus Prime Pro Edition software:

**Table 14. Software Patches included in Intel Quartus Prime Pro Edition Version 21.3**

Software Version	Patch	Customer Service Request Number
Intel Quartus Prime Version 21.2	0.29	00628643
Intel Quartus Prime Version 21.2	0.25	00629079
Intel Quartus Prime Version 21.2	0.23	-
Intel Quartus Prime Version 21.2	0.21	-
Intel Quartus Prime Version 21.2	0.19	00612608
Intel Quartus Prime Version 21.2	0.18	00622008
Intel Quartus Prime Version 21.2	0.15	-
Intel Quartus Prime Version 21.2	0.14	-
Intel Quartus Prime Version 21.2	0.13	-
Intel Quartus Prime Version 21.2	0.12	00592827
Intel Quartus Prime Version 21.2	0.08	00618572
Intel Quartus Prime Version 21.2	0.07	00615123
Intel Quartus Prime Version 21.2	0.06fw	-
Intel Quartus Prime Version 21.2	0.05ct	-
Intel Quartus Prime Version 21.2	0.05	-
Intel Quartus Prime Version 21.2	0.03	-
Intel Quartus Prime Version 21.2	0.01fw	00606550
Intel Quartus Prime Version 21.1	0.48	00618963
Intel Quartus Prime Version 21.1	0.43fw	-
Intel Quartus Prime Version 21.1	0.42	00628643
Intel Quartus Prime Version 21.1	0.41ct	-
Intel Quartus Prime Version 21.1	0.41	-
Intel Quartus Prime Version 21.1	0.4	-
Intel Quartus Prime Version 21.1	0.37	00618572
Intel Quartus Prime Version 21.1	0.35	00594443
Intel Quartus Prime Version 21.1	0.34	-

*continued...*



Software Version	Patch	Customer Service Request Number
Intel Quartus Prime Version 21.1	0.33	-
Intel Quartus Prime Version 21.1	0.32	00604974
Intel Quartus Prime Version 21.1	0.31	-
Intel Quartus Prime Version 21.1	0.29	00608669
Intel Quartus Prime Version 21.1	0.21	00610116
Intel Quartus Prime Version 21.1	0.18fw	00606550
Intel Quartus Prime Version 21.1	0.14cl	-
Intel Quartus Prime Version 21.1	0.09	-
Intel Quartus Prime Version 21.1	0.08	00606092
Intel Quartus Prime Version 21.1	0.02	-
Intel Quartus Prime Version 20.4	0.40	00621353
Intel Quartus Prime Version 20.4	0.39	-
Intel Quartus Prime Version 20.4	0.38	00614128
Intel Quartus Prime Version 20.4	0.37	00579516
Intel Quartus Prime Version 20.4	0.36	00608669
Intel Quartus Prime Version 20.4	0.33	-
Intel Quartus Prime Version 20.4	0.32	00599094
Intel Quartus Prime Version 20.4	0.31	-
Intel Quartus Prime Version 20.4	0.24	-
Intel Quartus Prime Version 20.4	0.19	00589564
Intel Quartus Prime Version 20.3	0.67	00615123
Intel Quartus Prime Version 20.3	0.64	-
Intel Quartus Prime Version 20.3	0.62	-
Intel Quartus Prime Version 20.3	0.61	00599845
Intel Quartus Prime Version 20.3	0.59	00600321
Intel Quartus Prime Version 20.3	0.58	00608669
Intel Quartus Prime Version 20.3	0.57	00592827
Intel Quartus Prime Version 20.3	0.56	00587231
Intel Quartus Prime Version 20.3	0.54	00591302
Intel Quartus Prime Version 20.3	0.50	00592571
Intel Quartus Prime Version 20.2	0.56	00600321
Intel Quartus Prime Version 20.2	0.55	00589564
Intel Quartus Prime Version 20.1	0.59	-
Intel Quartus Prime Version 19.4	0.42	00627598
Intel Quartus Prime Version 19.3	0.81	-

*continued...*

Software Version	Patch	Customer Service Request Number
Intel Quartus Prime Version 19.3	0.80	-
Intel Quartus Prime Version 19.3	0.79	00591302
Intel Quartus Prime Version 19.2	0.32	00627598
Intel Quartus Prime Version 19.1	0.59	00584345
Intel Quartus Prime Version 18.0	0.35	00557266
All versions	0.02i	00600654

## 1.12. Latest Known Intel Quartus Prime Software Issues

Information about known issues that affect Intel Quartus Prime Pro Edition Version 21.3 is available in the Intel FPGA Knowledge Base.

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 21.3 Software and Device Support Release Notes Archives

Intel Quartus Prime Pro Edition	Publication
21.2	<a href="#">Intel Quartus Prime Pro Edition Version 21.2 Software and Device Support Release Notes</a>
21.1	<a href="#">Intel Quartus Prime Pro Edition Version 21.1 Software and Device Support Release Notes</a>
20.4	<a href="#">Intel Quartus Prime Pro Edition Version 20.4 Software and Device Support Release Notes</a>
20.3	<a href="#">Intel Quartus Prime Pro Edition Version 20.3 Software and Device Support Release Notes</a>
20.2	<a href="#">Intel Quartus Prime Pro Edition Version 20.2 Software and Device Support Release Notes</a>
20.1	<a href="#">Intel Quartus Prime Pro Edition Version 20.1 Software and Device Support Release Notes</a>
19.4	<a href="#">Intel Quartus Prime Pro Edition Version 19.4 Software and Device Support Release Notes</a>
19.3	<a href="#">Intel Quartus Prime Pro Edition Version 19.3 Software and Device Support Release Notes</a>
19.2	<a href="#">Intel Quartus Prime Pro Edition Version 19.2 Software and Device Support Release Notes</a>
19.1	<a href="#">Intel Quartus Prime Pro Edition Version 19.1 Software and Device Support Release Notes</a>
18.1	<a href="#">Intel Quartus Prime Pro Edition Version 18.1 Software and Device Support Release Notes</a>
18.0	<a href="#">Intel Quartus Prime Pro Edition Software and Devices Support Release Notes</a>
17.1	<a href="#">Intel Quartus Prime Pro Edition Software and Devices Support Release Notes</a>
17.0	<a href="#">Intel Quartus Prime Pro Edition Software and Devices Support Release Notes</a>

## 1.14. Document Revision History

**Table 15. The Intel Quartus Prime Pro Edition Software Release Version 21.3 Document Revision History**

Document Version	Intel Quartus Prime Version	Changes
2021.10.04	21.3	<ul style="list-style-type: none"> <li>Initial release.</li> </ul>