



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

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## Version 18.1 Software and Device Support Release Notes



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# 1. Intel® Quartus® Prime Standard Edition Version 18.1 Software and Device Support Release Notes

This document provides late-breaking information about the Intel® Quartus® Prime Standard Edition software release version 18.1.

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

## Related Information

[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 18.1 contains no new features or enhancements.

## 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 Information

[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 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 Arria® 10	10AT115, 10AX115	48 GB
	10AX090	44 GB

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\*Other names and brands may be claimed as the property of others.



Family	Device	Recommended Physical RAM
	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
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

*continued...*



Family	Device	Recommended Physical RAM
	10M16	2 GB
	10M25	2 GB
	10M40	2 GB
	10M04, 10M08	1 GB
	10M02	512 MB
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.

## 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 <sup>(1)</sup> <sup>(2)</sup>	Final – 17.0
	10AX048, 10AS048	Final – 16.0.2 <sup>(2)</sup>	
	10AX057, 10AS057, 10AX066, 10AS066, 10AX090	Final – 16.0.1 <sup>(2)</sup>	Final – 16.0.1
	10AX115, 10AT115	Final – 16.0 <sup>(2)</sup>	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 <sup>(3)</sup>	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.

## 1.8. IBIS Models

**Table 3. IBIS Model Status for the Intel Quartus Prime Standard Edition Software Release Version 18.1**

Beginning in the Intel Quartus Prime Standard Edition software version 16.0, device families 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
<i>continued...</i>	

<sup>(1)</sup> -1 devices were finalized in Intel Quartus Prime software version 17.0

<sup>(2)</sup> All automotive and military grade devices are preliminary.

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



Device Family	IBIS Model Status
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 18.1**

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 18.1.
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 18.1.

**Table 5. Simulation Tools Supporting the Intel Quartus Prime Standard Edition Software Release Version 18.1**

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
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 18.1 has been verified virus free with the following software:

#### Antivirus Verification Software for Windows

Windows McAfee Endpoint Security 10.5 Version : 10.5.3.3197  
Hotfix number: 1219192  
Patch: 3  
McAfee Agent Version : 5.0.6.220  
Adaptive Threat Protection Version : 10.5.3.3119  
Threat Protection Version : 10.5.3.3271

#### Antivirus Verification Calm Software for Linux

ClamAV 0.99.2/24187

### 1.11. Software Issues Resolved

Table 6. Issues Resolved in the Intel Quartus Prime Standard Edition Version 18.1

Customer Service Request Numbers							
11302245	11328988	11361837	11373007	11373390	11374364	11378258	11384121
11385250	11387678	11387946	11388516	11388965	11394254	11396298	11396301
11396624	11397798	11399372	11401891	11402566	11403118	11403858	11405683
11407689	11407702	11408310	11408524	11409271	11409995	11410776	11412147
11412733	11415550	11416032	11417023	11417133			

### 1.12. Software Patches Included in this Release

Table 7. Software Patches included in Intel Quartus Prime Standard Edition Version 18.1

Software Version	Patch	Customer Service Request Number
Intel Quartus Prime software version 18.0	0.08std	-
Intel Quartus Prime software version 18.0	0.04std	11408310
Intel Quartus Prime software version 16.1.2	2.32	11373390

### 1.13. Latest Known Intel Quartus Prime Software Issues

Information about known issues that affect the Intel Quartus Prime software version 18.1 is available in the Intel Programmable Solutions Knowledge Base.





**Table 8. Important Known Issues Affecting the Intel Quartus Prime Standard Edition Version 18.0**

Description	Workaround
The Intel HLS Compiler is not included in the Windows* release of Intel Quartus Prime Design Suite Version 18.1. The Intel Quartus Prime Design Suite Version 18.1 HLS Compiler is available on all supported Linux distributions.	None

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 Information**

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

## 1.14. Document Revision History

**Table 9. The Intel Quartus Prime Standard Edition Software Release Version 18.1 Document Revision History**

Document Version	Intel Quartus Prime Version	Changes
2018.09.24	18.1	Initial release.