Quartus II Software and Device Support Release Notes Version 13.1

This document provides late-breaking information about the Altera® Quartus® II software version 13.1.

This document contains the following sections:

For information about operating system support, refer to the **readme.txt** file in your **altera/<version number>/quartus directory**. For the latest information about the MegaCore® IP Library, refer to the *MegaCore IP Library Release Notes and Errata*.

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New Features & Enhancements

The Quartus II software version 13.1 includes the following new features and enhancements:

- Enhanced device support:

    - Full device support for the following Arria® V devices: 5ASTD3, 5ASTD5, 5ASXB3, 5ASXB5

    - Full device support for the following Cyclone® V devices: 5CSEA5, 5CSEA6, 5CSTD5, 5CSTD6, 5CSXC5, 5CSXC6

    - Advance device support for the following Cyclone V devices: 5CSEA2, 5CSEA4, 5CSXC2, 5CSXC4

- Support for Windows 8 64 bit operating systems.

- Expanded Transceiver Toolkit support for Arria V SoCs.

- For designs that target the Stratix V device family, Rapid Recompile automatically preserves the placement and routing of unmodified portions of a design during design interation to reduce compilation time.

- Enhancements to Qsys including:

    - Qsys system visualization, making it easy to modify your Qsys system

    - System hierarchical interconnect support that provides better component visibility, making design simulation and system debug easier

    - A new reset sequencer, allowing you to have direct control of logic reset bring up

    - Custom insertion of pipeline stages, enabling faster timing closure

- The Altera SDK for OpenCL™ is now included with the ACDS installer. The Altera SDK for OpenCL version 13.1 includes the following enhancements:

    - Conformance with the OpenCL Specification version 1.0.

    - Loop optimization by pipelining and task support that allows parallelism extraction from your OpenCL code and resource and performance trade-offs

- Quartus II Help can be used with the following browsers:

    - Local Quartus II Help (Help on a local drive installed by the Altera Installer) is fully compatible with Microsoft Internet Explorer 10 and Safari 5 running on Windows 7 operating systems.

    - You can view local Quartus II Help in Google Chrome; however, you cannot open a Chrome browser from the Quartus II GUI. You must start Chrome with the `--allow-file-access-from-files` flag and then navigate to *<quartus installation directory>*/**common/help/master.htm**.

    - Local Quartus II Help is does not work with Mozilla Firefox on Linux 32-bit systems. Altera recommends you connect to http://quartushelp.altera.com.

    - Quartus II Web Help (hosted at http://quartushelp.altera.com/current) is fully compatible with Microsoft Internet Explorer 10, Mozilla Firefox 17.0, Safari 5, and Google Chrome.

    - Some Help features require you to disable pop-up blocking.

Memory Recommendations

A full installation of the Quartus II software requires up to 18 GB of available disk space on the drive or partition where you are installing the Altera software.

The Quartus II Stand-Alone Programmer requires a minimum of 1 GB of RAM plus additional memory, based on the size and number of SRAM Object Files (**.sof**) files and the size and number of devices being configured.

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

The following table lists the memory required to process designs targeted for Altera devices.

Family	Device	Recommended Physical RAM	
		32-bit	**64-bit**
Arria II GX	EP2AGX45	1.0 GB	1.5 GB
	EP2AGX65	1.5 GB	2.0 GB
	EP2AGX95, EP2AGX125, EP2AGX190	3.0 GB	4.0 GB
	EP2AGX260	4.0 GB	6.0 GB
Arria II GZ	EP2AGZ225	3.0 GB	4.0 GB
	EP2AGZ300	4.0 GB	6.0 GB
	EP2AGZ350	Not recommended	8.0 GB
Arria V	5AGXA1	Not supported	6.0 GB
	5AGTC3, 5AGXA3, 5AGXA5	Not supported	8.0 GB
	5AGXA7, 5AGTC7	Not supported	10.0 GB
	5AGXB1, 5AGXB3, 5AGTD3, 5ASTD3, 5ASXB3	Not supported	12.0 GB
	5AGXB5, 5AGTD7, 5AGXB7, 5ASXB5, 5ASTD5	Not supported	16.0 GB
Arria V GZ	5AGZE1	Not supported	8.0 GB
	5AGZE3, 5AGZE5	Not supported	12.0 GB
	5AGZE7	Not supported	16.0 GB
Cyclone III	EP3C5, EP3C10, EP3C16, EP3C25, EP3C40	512 MB	512 MB
	EP3C55, EP3C80	768 MB	1.0 GB
	EP3C120	1.5 GB	2.0 GB
Cyclone III LS	EP3CLS70, EP3CLS100	1.5 GB	2.0 GB
	EP3CLS150, EP3CLS200	3.0 GB	4.0 GB
Cyclone IV E	EP4CE6, EP4CE10, EP4CE15, EP4CE22, EP4CE30, EP4CE40	512 MB	512 MB
	EP4CE55, EP4CE75	768 MB	1.0 GB
	EP4CE115	1.0 GB	1.5 GB
Cyclone IV GX	EP4CGX15, EP4CGX22, EP4CGX30	512 MB	512 MB
	EP4CGX50, EP4CGX75	1.0 GB	1.5 GB
	EP4CGX110, EP4CGX150	1.5 GB	2.0 GB

Family	Device	Recommended Physical RAM	
		32-bit	**64-bit**
Cyclone V	5CEA2, 5CGXC3, 5CEA4, 5CGXC4, 5CEA5, 5CGTD5, 5CGXC5, 5CSEA5, 5CSTD5, 5CSXC5, 5CSEA6, 5CSXC6, 5CEA7, 5CGTD7, 5CGXC7, 5CSEA2, 5CSEA4, 5CSXC2, 5CSXC4, 5CSTD6	Not recommended	6.0 GB
	5CEA9, 5CGTD9, 5CGXC9	Not recommended	8.0 GB
MAX® II	All	512 MB	512 MB
MAX V	All	512 MB	512 MB
Stratix III	EP3SL50, EP3SE50, EP3SL70	1.0 GB	1.5 GB
	EP3SE80	1.5 GB	2.0 GB
	EP3SL110, EP3SE110, EP3SL150, EP3SL200	3.0 GB	4.0 GB
	EP3SE260, EP3SL340	4.0 GB	6.0 GB
Stratix IV	EP4SGX70	1.5 GB	2.0 GB
	EP4SE230 EP4SGX110, EP4SGX230, EP4S40G2, EP4S100G2	3.0 GB	4.0 GB
	EP4SGX290	4.0 GB	6.0 GB
	EP4SE360 EP4SGX360, EP4S100G3, EP4S100G4	Not recommended	8.0 GB
	EP4SGX530, EP4SE530, EP4SE820, EP4S40G5, EP4S100G5	Not recommended	12.0 GB
Stratix V	5SGSD3	Not supported	8.0 GB
	5SGXA3, 5SGSD4, 5SGXA4, 5SGTC5	Not supported	12.0 GB
	5SGSD5, 5SGXA5, 5SGXB5, 5SGSD6, 5SGXB6	Not supported	16.0 GB
	5SGTC7, 5SGXA7, 5SGSD8	Not supported	20.0 GB
	5SGXA9, 5SEE9	Not supported	24.0 GB
	5SEEB, 5SGXAB, 5SGXB9, 5SGXBB	Not supported	28.0 GB

Changes in Device Support

The following section is divided into device support changes according to whether the change is a notification, and whether the change has been fixed or not fixed.

Description	Workaround
Change Notifications	
Device Support Not Fixed	
Dynamic Reconfiguration does not work in PMA Direct mode with xN clocking Dynamic reconfiguration of the data rate of a PMA-only channel using xN Line clocking fed from two REFCLK sources is not possible. This issue affects Stratix IV devices.	Select the **Use additional CMU/ATX Transmitter PLLs from outside the Transceiver block** option in the **Reconfiguration Settings** page.
SignalTap II requires additional logic resources Additional logic resources are required in SignalTap II to calculate the CRC values of data shifted out of the device to validate data integrity during JTAG communication. This extra logic uses up to 77 logic elements. No SignalTap II IP functionality is affected by this change. The Quartus II software automatically detects the availability of this CRC calculation. However, this extra logic consumption may not be optimal for your design.	Open the `sld_signaltap.vhd` top-level SignalTap megafunction plain-text source file in a text editor. Set the `SLD_DISABLE_TDO_CRC_GEN` parameter to `1`.
Netlist viewers do not refresh when the design is recompiled The Netlist Viewer will not update after recompilation if the Netlist Viewer window is open when you modify and recompile the design by double-clicking on **Fitter** in the Task pane on the left side of the Quartus II software.	Close the Netlist Viewer window prior to compiling the design, or go to **Processing > Start > Start Fitter/Start Analysis and Synthesis** when you modify and recompile the design.
VHDL (*.vho) netlist fails to generate using EDA Netlist Writer in Cyclone V When you generate a VHDL simulation netlist (.vho) for Cyclone V devices, the EDA Netlist Writer generates the following message: `Warning (11101): Unable to generate the VHDL EDA simulation netlist files because the Quartus II software does not currently support VHDL post-compilation simulation for the Cyclone V devices.`	Create a text file called `quartus.ini` in your project directory, if it does not already exist, and enter the following line: `INI (ALLOW_FUNC_SIM_NETLIST = ON)` This generates the vhdl (*.vho) simulation netlist using the EDA Netlist Writer. Do not use this variable for all of your Quartus II projects. It should be specific to the project where you are trying to simulate.
Stratix V and Arria V timing model miscorrelations During timing model finalization of the last 28-nm devices, Altera identified timing model miscorrelations. Altera audited all devices and found issues affected other devices. Therefore the model changes affect devices that had been designated with "Final" timing status in previous versions of the Quartus II software.	Updates were made to the final timing models in version 13.0 SP1 DP5. Version 13.1 also includes these new models. Refer to solution number rd08122013_511 in the Altera Knowledge Base.

Description	Workaround
USB Blaster II device drivers not automatically installed The USB-Blaster™ II device drivers require manual installation so that the cable will be properly recognized.	1. Plug in the USB-Blaster II. 2. Open the **Device Manager** and right-click on the **Unknown device** under the **Other devices** branch. 3. Select **Update Driver Software**. 4. Select **Browse my computer for driver software**. 5. Enter the location of the Quartus II software USB-Blaster II driver files directory (`<quartus>/drivers/usb-blaster-ii`) in the **Search for driver software in this location** field. 6. Click **Next**. 7. Click **Install** in the **Would you like to install this device software?** Windows security dialog box. 8. Close the **Update Driver Software - Altera USB-Blaster II (Unconfigured)** successful installation notification. The Device Manager now shows a new branch called **JTAG cables** with an **Altera USB-Blaster II (Unconfigured)** node. 9. Open the Quartus II Programmer. Within a few seconds, the **JTAG cables** branch displays two nodes: **Altera USB-Blaster II (JTAG interface)** and **Altera USB-Blaster II (System Console interface)**.
Upgrade IP Components dialog box does not recognize some IP changes from version 13.0 to 13.1 The Upgrade IP Components feature in the Quartus II software version 13.1 does not recognize some optional IP updates between versions 13.0 and 13.1. Affected IP cores are known to include the following MegaCore functions: ■ CPRI ■ DDR and DDR2 SDRAM Controllers with ALTMEMPHY IP ■ DDR3 SDRAM Controller with ALTMEMPHY ■ DDR2, DDR3, and LPDDR2 SDRAM Controller with UniPHY ■ FFT ■ SDI ■ SDI II ■ Triple Speed Ethernet ■ Video and Image Processing Suite	For information about updates made to an IP core in version 13.1, consult the chapter pertaining to that IP core in the *MegaCore IP Library Release Notes and Errata* version 13.1.

Description	Workaround
Device Support Fixed	
Extra .svd files generated when used in conjuction with the HPS in 13.0 SP1 In Qsys, the `.svd` files for a `<project_name>.qsys` file which contains an HPS were generated in both the `<project_name>` directory as well as the `<project_name>/synthesis` directory in 13.0sp1. The proper location for those files is in the `<project_name>/synthesis` directory. If the HPS is instantiated as part of a custom `_hw.tcl` composed component, the 13.0 SP1 software generated the following identical files with different file names: ■ `<project>_<submodule>_<interface_or_address_group_name>.svd` ■ `<project>_<submodule>_<submodule_in_composition>_<interface_or_address_group_name>.svd.` The proper filename is `<project>_<submodule>_<submodule_in_composition>_<interface_or_address_group_name>.svd`	This issue is corrected in the Quartus II software version 13.1.
Incorrect synthesis when top-level VHDL entity has unconstrained ports The netlist cannot be generated when ports of variable dimensions are defined in the top-level VHDL entity.	This issue is corrected in the Quartus II software version 13.1.
Error issued when importing database that uses the DPA feature prior to 13.0 SP1 A design compiled in a Quartus II software version earlier than 13.0 SP1 that targets an Arria V, Arria V GZ, or Stratix V device and that uses the DPA feature encounters an error when its database is imported into the Quartus II software version 13.0 SP1 or later.	This issue is corrected in the Quartus II software version 13.1.
The Quartus II software does not automatically detect and update IP cores for PCIe® When creating a design with an IP core for PCI Express® (PCIe) in Qsys prior to version 12.1, **Regenerate IP Component** in the Quartus II software does not automatically update the PCIe IP core to the current version.	This issue is corrected in the Quartus II software version 13.1.

Description	Workaround

Error: Voltage Value 1.2V is not supported by part
 	
In the Quartus II software version 13.0 SP1, if a design:
 	
■ targets an Arria V GX device, and
 	
■ VCCR_GXB is set to 1.2 V, or
 	
■ VCCT_GXB is set to 1.2 V
 	
compilation fails with an error similar to the following:
 	
`Internal Error: Sub-system: CUT, File: /quartus/db/cut/cut_stratixv_hssi_pma_util.cpp, Line: 1434`
 	
`Voltage Value 1.2V is not supported by part`
	This issue is corrected in the Quartus II software version 13.1.

Recommended VCCR_GXB and VCCT_GXB settings for Arria V GX C6 designs that run transceivers at less than or equal to 3.125 Gbps If your design targets an Arria V GX C6 device and implements a data rate less than or equal to 3.125 Gbps, Altera recommends setting VCCR_GXB and VCCT_GXB to 1.1 V to reduce power consumption. The Quartus II software sets the default VCCR_GXB and VCCT_GXB settings to 1.15 V. You may change the VCCR_GXB and VCCT_GXB settings to 1.1 V manually.	This issue is corrected in the Quartus II software version 13.1.
Assign LVDS I/O standard-supported pins in right I/O banks of Arria V A1/A3/C3 devices as PLL clock input pins only If you use the Quartus II software version 13.0 DP2 or 13.0 SP1 to create a design that targets an Arria V A1, A3, or C3 device, and you use the LVDS I/O standard-enabled pins in the right I/O bank for purposes other than as phase-locked loop (PLL) clock input pins, the resulting FPGA hardware might not function properly.	This issue is corrected in the Quartus II software version 13.1.
Some IBIS models contain incorrect timing parameters Some IBIS models are found to have incorrect values for the following IBIS timing parameters: `Vmeas`, `Rref`, `Rref_diff`, `Vref`, `Vinh` and `Vinl`	This issue is corrected in the Quartus II software version 13.0 SP1.
Arria V GX VCCR_GXBR and VCCT_GXB power rail voltage change Pin-out and power reports in the Quartus II software version 13.0 incorrectly reported Arria V GX VCCR_GXB and VCCT_GXB voltage as 1.2 V. The correct voltage is 1.15 V.	This issue is corrected in the Quartus II software version 13.0 SP1.
Arria V ST VCCR_GXBR and VCCT_GXB power rail voltage change Pin-out and power reports in the Quartus II software version 13.0 incorrectly reported Arria V GT VCCR_GXB and VCCT_GXB voltage as 1.15 V. The correct voltage is 1.2 V.	This issue is corrected in the Quartus II software version 13.0 SP1.

Description	Workaround
Vertical migration is not supported in the U672 packages of Cyclone V SE and SX devices Vertical migration between these devices was disabled in Quartus II 13.0 sp1 and earlier software.	This issue is corrected in the Quartus II software version 13.1.
Device Support Removed	
The Quartus II software version 13.1 does not include support for the following device families: ■ Arria GX ■ Cyclone, Cyclone II ■ MAX 3000A, MAX 7000A, MAX 7000AE, MAX 7000B, MAX 7000S ■ HardCopy II, HardCopy III, HardCopy IV ■ Stratix, Stratix GX, Stratix II, Stratix II GX	

Changes to Software Behavior

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

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

Items listed in the following table represent cases in which the behavior of the current release of the Quartus II software is different from a previous version.

Description	Workaround
Timing analysis of some complex related cross-clock transfers might be inaccurate For some complex cross-clock transfers, the TimeQuest Timing Analyzer generates inaccurate setup or hold relationships using a wrong launch or latch clock edge. The inaccuracy usually (but not necessarily) manifests itself as an unrealistically small (that is, 1 ps to 10 ps) setup or hold time requirement.	If timing analysis of your design contains inaccurate setup or hold relationships, you can resolve the inaccuracy by including the following line in your project's `quartus.ini` file: `timequest_enable_more_accuracy = on` If necessary, create a text file named `quartus.ini` in your project directory and add the above line to it. If you include this line in your `quartus.ini` file and have previously created SDC exceptions (`set_multicycle_path`) to work around an inaccurate setup or hold relationship, remove them. Review all SDC exceptions to verify that they are still needed.
Changes to .svd file generation in Qsys In conjunction with the Hard Processor System (HPS) of SoC devices, Qsys no longer generates .svd files in the `<project_name>` directory. Qsys generates .svd files only in the `<project_name>/synthesis` directory.	Do not use files generated in the `<project_name>` directory. Use the files generated in the `<project_name>/synthesis` directory instead.
If you instantiate the HPS as part of a custom `_hw.tcl` composed component, Qsys no longer generates `<project>_<submodule>_<submodule_in_composition>_<interface_or_address_group_name>.svd` files. Qsys generates only `<project>_<submodule>_<interface_or_address_group_name>.svd` files.	Do not use the `<project>_<submodule>_<interface_or_address_group_name>.svd` file. Use the `<project>_<submodule>_<submodule_in_composition>_<interface_or_address_group_name>.svd` file instead.

Device Support and Pin-Out Status

This section contains information about the device support status in the Quartus II software version 13.1.

Full Device Support

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

Device Family	Devices	
Arria V	5ASXB3	5ASXB5
	5ASTD3	5ASTD5
Cyclone V	5CSEA5	5CSEA6
	5CSTD5	5CSTD6
	5CSXC5	5CSXC6

Advance Device Support

Compilation, simulation, and timing analysis support is provided for the devices listed in the following table that will be released in the near future. The Compiler generates pin-out information for these devices in this release, but does not generate programming files.

Device Family	Devices	
Cyclone V	5CSEA2	5CSEA4
	5CSXC2	5CSXC4

Initial Information Device Support

Compilation, simulation, and timing analysis support is provided for the devices listed in the following table that will be released in upcoming versions of the Quartus II software. Programming files and pin-out information are not generated for these devices in this release.

Device Family	Devices	
None	—	—
	—	—

Timing and Power Models

The following table lists a summary of timing and power model status in the current version of the Quartus II software.

Device Family	Device	Timing Model Status	Power Model Status
Arria V	5AGXB5	Final – 12.1 SP1 *(3)*	Final – 13.1
	5AGXB7	Final – 12.1 SP1 *(3)*	Final – 13.1
	5AGTD7	Final – 12.1 SP1 *(3)*	Preliminary
	5AGXA1	Final – 13.0 SP1 *(3)*	Preliminary
	5AGXA3		Preliminary
	5AGXA5	Final – 13.1 *(3)*	Preliminary
	5AGXA7	Final – 13.1 *(3)*	Preliminary
	5AGXB1	Final – 13.0 *(3)*	Final – 13.1
	5AGXB3	Final – 13.0 *(3)*	Final – 13.1
	5AGTC3	Final – 13.0 SP1 *(3)*	Preliminary
	5AGTC7	Final – 13.1 *(3)*	Final – 13.1
	5AGTD3	Final –13.0 *(3)*	Final – 13.1
Arria V GZ	All	Final – 12.1 SP1 *(3)*	Final – 13.0

Device Family	Device	Timing Model Status	Power Model Status
Arria V SoC	5ASXB3	Preliminary	Preliminary
	5ASXB5		
	5ASTD3		
	5ASTD5		
Cyclone IV GX	EP4CGX15	Final – 10.1	Final – 11.0
	EP4CGX22	Final – 11.0	
	EP4CGX30		Final – *(1)*
	EP4CGX50	Final – 11.0	Final –11.1
	EP4CGX75		
	EP4CGX110	Final – 10.1	Final – 11.0
	EP4CGX150		
Cyclone V	5CEA2	Final – 13.0 SP1	Final – 13.1
	5CEA4		Final – 13.1
	5CEA7		Final – 13.1
	5CEA9		Final – 13.1
	5CGXC7		Final – 13.1
	5CGXC9		Final – 13.1
	5CGTD7		Final – 13.1
	5CGTD9		Final – 13.1
	5CEA5	Final – 13.1	Final – 13.1
	5CGXC3	Final – 13.1	Preliminary
	5CGXC4	Final – 13.1	Final – 13.1
	5CGXC5	Final – 13.1	Final – 13.1
	5CGTD5	Final – 13.1	Final – 13.1
Cyclone V SoC	5CSEA2	Preliminary	Preliminary
	5CSEA4		
	5CSEA5		
	5CSEA6		
	5CSXC2		
	5CSXC4		
	5CSXC5		
	5CSXC6		
	5CSTD5		
	5CSTD6		
MAX V	All	Final – 11.0	Final – 11.0

Device Family	Device	Timing Model Status	Power Model Status
Stratix V	5SGXA7, 5SGXA5, 5SGTC5, 5SGTC7	Final – 12.1 *(3)*	Final – 13.0
	5SGSD3, 5SGSD4, 5SGSD5, 5SGXA3, 5SGXA4, 5SGXB5, 5SGXB6, 5SGXAB, 5SGXA9, 5SEE9, 5SEEB, 5SGXB9, 5SGXBB	Final – 12.1 SP1 *(3)*	Final – 13.0
	5SGSD6, 5SGSD8	Final – 13.0 SP1 *(3)*	Final – 13.0

Notes:

(1)   EP4CGX30BF14 and EP4CGX30CF19 are final in 11.0, EP4CGX30CF23 final in 11.1.

(2)   The timing model is updated for PMA Direct transceiver timing in Quartus II software release 12.0.

(3)   The timing model is updated in Quartus II software version 13.1. Refer to the Device Support Fixed section for details.

The current version of the Quartus II software also includes final timing and power models for the Arria II GX, Arria II GZ, Cyclone III, Cyclone III LS, Cyclone IV E, MAX II, MAX II Z, Stratix III, and Stratix IV device families. Timing models for these device families became final in the Quartus II software versions 10.1 or earlier.

IBIS Models

The following table lists a summary of IBIS model status in the current version of the Quartus II software.

Device Family	IBIS Model Status
Arria II GX	Correlated with PHY device operation – 10.0
Arria II GZ	Correlated with PHY device operation – 10.1
Arria V	Preliminary – 12.0
Cyclone III LS	Correlated with PHY device operation – 10.0
Cyclone IV E	Correlated with PHY device operation – 10.0 SP1
Cyclone IV GX	Correlated with PHY device operation – 11.0
Cyclone V	Preliminary – 12.0 SP1
MAX V	Correlated with PHY device operation – 11.0
Stratix III	Correlated with PHY device operation – 9.1
Stratix IV	Correlated with PHY device operation – 9.1
Stratix V	Correlated with PHY device operation – 13.0 SP1

EDA Interface Information

The Quartus II software version 13.1 supports the following EDA tools.

Synthesis Tools	Version	NativeLink Support
Mentor Graphics® DK Design Suite	5.0 SP5	✓
Synopsys® Synplify, Synplify Pro, and Synplify Premier	E-2013.09	✓
Simulation Tools	**Version**	**NativeLink Support**
Aldec Active-HDL	9.2 SP1 (Windows only)	✓
Aldec Riviera-PRO	2013.06	✓
Cadence INCISIV Enterprise Simulator	12.20.14 (Linux only)	✓
Mentor Graphics ModelSim® PE	10.2b	✓
Mentor Graphics ModelSim SE	10.2b	✓
Mentor Graphics ModelSim-Altera	10.1d	✓
Mentor Graphics Questa®	10.2b	✓
Synopsys VCS and VCS MX	2013.06-1	✓
Formal Verification Tools (Equivalence Checking)	**Version**	**NativeLink Support**
Cadence Encounter Conformal	8.1	—

Antivirus Verification

The Altera Complete Design Suite version 13.1 has been verified virus free using the following software:

McAfee VirusScan Enterprise + AntiSpyware Enterprise Version: 8.8.0 (8.8.0.975)
Scan Engine Version (32 bit): 5600.1067
Scan Engine Version (64 bit): 5600.1067
DAT Version: 7234.0000

Software Issues Resolved

The following Customer Service Requests were fixed or otherwise resolved in the Quartus II software version 13.1:

Customer Service Request Numbers Resolved in the Quartus II Software Version 13.1							
10805592	10831170	10836726	10839355	10845840	10846688	10847869	10848497
10849603	10849831	10850854	10851594	10852414	10852592	10854917	10855980
10856905	10856921	10858957	10859422	10859798	10861069	10862046	10862144
10864410	10865226	10865391	10866504	10866729	10867195	10867263	10868606
10868978	10871077	10871537	10871872	10871950	10872623	10873127	10873303
10873398	10873763	10874412	10875202	10875432	10875768	10875769	10875774
10875790	10876217	10877882	10878359	10878366	10879724	10880146	10881152
10881533	10881668	10881818	10881865	10883496	10883858	10884395	10884610
10885366	10886409	10887123	10889295	10890118	10892158	10892439	10892641
10892853	10893197	10893596	10893805	10894090	10894300	10894308	10894643
10894840	10894992	10897105	10897596	10898264	10898541	10898768	10899464
10899701	10900555	10900719	10902028	10902130	10904246	10905665	10905835
10906172	10906405	10906562	10907189	10907254	10907618	10907655	10908832
10908861	10909800	10909831	10910247	10910270	10910770	10911014	10911037
10911525	10912497	10912944	10913479	10914290	10914936	10914972	10915236
10915346	10915495	10915864	10915923	10916426	10916932	10917872	10917927
10918308	10918539	10918610	10918670	10918892	10919100	10919335	10919663
10919762	10920109	10920196	10920834	10920902	10921012	10921171	10921318
10921921	10922058	10922064	10922236	10922290	10922344	10922765	10922913
10923068	10923927	10924034	10924071	10924142	10924678	10924768	10924956
10925017	10925225	10925535	10925727	10925987	10926346	10926378	10926467
10926491	10926778	10927045	10927446	10927488	10927517	10927941	10928029
10928040	10928267	10928467	10928581	10928604	10929859	10929922	10930088
10930162	10930248	10930440	10930444	10931194	10931208	10931308	10931468
10931607	10931610	10931657	10931681	10931683	10931714	10931887	10932011
10932494	10932726	10932770	10932857	10932991	10932992	10933004	10933169
10933357	10933451	10933585	10933612	10933634	10933816	10933826	10933926
10934033	10934092	10934414	10934418	10934505	10934516	10934564	10934634
10934678	10934694	10934753	10934773	10935525	10935629	10935655	10935693

Customer Service Request Numbers Resolved in the Quartus II Software Version 13.1							
10935792	10936052	10936165	10936280	10936366	10936517	10936519	10936814
10936899	10937035	10937167	10937189	10937214	10937323	10937548	10937620
10937723	10937786	10937937	10938052	10938245	10938449	10938508	10938741
10938794	10938855	10939325	10939380	10939433	10939756	10939950	10939953
10940071	10940108	10940168	10940276	10940323	10940361	10940372	10940460
10940538	10940722	10940779	10940796	10941261	10941323	10941464	10941564
10941590	10941633	10941722	10941736	10941785	10941802	10941936	10942038
10942094	10942264	10942286	10942440	10942483	10942522	10942557	10942681
10942854	10943075	10943497	10943674	10943817	10943878	10943968	10944262
10944298	10944324	10944438	10944505	10944629	10945019	10945134	10945136
10945139	10945289	10945421	10945441	10945552	10945697	10945893	10945996
10946218	10946226	10946301	10946405	10946622	10946682	10946917	10946923
10947201	10947407	10947514	10947814	10947925	10947975	10947980	10947984
10948319	10948358	10948428	10948458	10948881	10948886	10948953	10949000
10949082	10949327	10949378	10949673	10949715	10950130	10950151	10950154
10950377	10950813	10950980	10951057	10951068	10951122	10951196	10951232
10951280	10951334	10951388	10951552	10951591	10951676	10951887	10952084
10952117	10952152	10952210	10952268	10952283	10952321	10952431	10952458
10952667	10952685	10952689	10952814	10952912	10952992	10952993	10953096
10953206	10953214	10953216	10953256	10953276	10953364	10953570	10953586
10953616	10953719	10953890	10953959	10954055	10954172	10954183	10954226
10954303	10954322	10954339	10954350	10954371	10954426	10954465	10954538
10954829	10955171	10955214	10955317	10955356	10955402	10955415	10955688
10955738	10955786	10956011	10956223	10956285	10956296	10956382	10956525
10956539	10956555	10956614	10956628	10956655	10956704	10956788	10956927
10956943	10957070	10957236	10957323	10957468	10957616	10957658	10957706
10957853	10957997	10958021	10958090	10958356	10958495	10958864	10959099
10959219	10959410	10959466	10959480	10959513	10959540	10959629	10959665
10959833	10959871	10959974	10959992	10959993	10960008	10960209	10960223
10960296	10960304	10960499	10960553	10960820	10960853	10960865	10960901
10961011	10961084	10961086	10961120	10961134	10961181	10961276	10961376
10961417	10961490	10961656	10961668	10961680	10961732	10961739	10961828
10962081	10962138	10962258	10962353	10962422	10962476	10962544	10962765
10962870	10962943	10962998	10963139	10963242	10963283	10963295	10963348
10963420	10963424	10963692	10963703	10963709	10963808	10963834	10963835
10963836	10964064	10964135	10964166	10964224	10964238	10964450	10964502
10964577	10964675	10964693	10964716	10964734	10964759	10964795	10965018
10965127	10965266	10965511	10965516	10965689	10965698	10965706	10965780
10965842	10965845	10966015	10966034	10966064	10966227	10966320	10966625
10966780	10966801	10966852	10966959	10967025	10967100	10967229	10967234

Customer Service Request Numbers Resolved in the Quartus II Software Version 13.1							
10967333	10967407	10967496	10967548	10967600	10967672	10967985	10968007
10968156	10968191	10968219	10968474	10968496	10968520	10968592	10968746
10968781	10968887	10968905	10968964	10968988	10968991	10969012	10969060
10969065	10969092	10969122	10969174	10969193	10969253	10969254	10969260
10969323	10969541	10969552	10969555	10969579	10969712	10970047	10970267
10970298	10970577	10970586	10970621	10970650	10970685	10970725	10970787
10970935	10970976	10971054	10971113	10971131	10971179	10971390	10971552
10971882	10971942	10971994	10972102	10972249	10972309	10972355	10972459
10972525	10972614	10972663	10972711	10972778	10972943	10972948	10972962
10972966	10972980	10973244	10973274	10973355	10973421	10973442	10973500
10973624	10973711	10973731	10973780	10973951	10974020	10974319	10974459
10974570	10974965	10975168	10975216	10975714	10975815	10975884	10975974
10976249	10976428	10976776	10976883	10976930	10977026	10977320	10977429
10977442	10977650	10977653	10977704	10977811	10977855	10977894	10978287
10978474	10978489	10978638	10978675	10978694	10978814	10978946	10978977
10979311	10979331	10979359	10979365	10979548	10979686	10979820	10979823
10979868	10979965	10980142	10980188	10980289	10980347	10980361	10980467
10980485	10980501	10981046	10981074	10981136	10981173	10981231	10981551
10981606	10981610	10981838	10981934	10981961	10982151	10982260	10982393
10982423	10982937	10982972	10982989	10983032	10983174	10983697	10983757
10983908	10984022	10984055	10984102	10984125	10984164	10984167	10984530
10984742	10984795	10984907	10984908	10984959	10985035	10985474	10985819
10985878	10986103	10986197	10986338	10986459	10986481	10986486	10986870
10986937	10987527	10988266	10988995	10989112	10989429	10989946	10989965
10990154	10990857	10991390	10991622	10992160	10992231	10992245	10992594
10992787	10992804	10993065	10993341	10993419	10994478	10994576	10994593
10994609	10994675	10994744	10994766	10995547	10995793	10996075	10996888
10997353	10998895	—	—	—	—	—	—

Software Patches Included in this Release

The Quartus II software version 13.1 includes the following patches released for previous versions of the Quartus II software:

Quartus II Software Version	Patch	Customer Service Request Number	Quartus II Software Version	Patch	Customer Service Request Number
13.0sp1	1.dp5i	10989660	13.0	0.41	10958090
13.0sp1	1.dp5h	—	13.0	0.40	10966895
13.0sp1	1.dp5d	10983480	13.0	0.39	10965706
13.0sp1	1.dp5c	10978851	13.0	0.38	10964466

Quartus II Software Version	Patch	Customer Service Request Number	Quartus II Software Version	Patch	Customer Service Request Number
13.0sp1	1.dp5a	10969193	13.0	0.37	10936899
13.0sp1	1.59	10991887	13.0	0.36	—
13.0sp1	1.58	—	13.0	0.33	10959833
13.0sp1	1.53	10983480	13.0	0.32	10959513
13.0sp1	1.52	10981838	13.0	0.30	—
13.0sp1	1.49	10963295	13.0	0.27	—
13.0sp1	1.48	—	13.0	0.26	10953890
13.0sp1	1.46	10980707	13.0	0.16	10914609
13.0sp1	1.43	10984075	13.0	0.15	—
13.0sp1	1.42	—	13.0	0.12	10952117
13.0sp1	1.41	10963403	13.0	0.10	10915236
13.0sp1	1.39	10978851	13.0	0.09	10922765
13.0sp1	1.38	10974361	13.0	0.08	10931681, 10936280
13.0sp1	1.36	10971535	13.0	0.03	—
13.0sp1	1.33	—	12.1sp1	1.dp7u	10965523
13.0sp1	1.30	10978946	12.1sp1	1.dp7r	10964714
13.0sp1	1.29	10970892	12.1sp1	1.dp7i	10952210
13.0sp1	1.28	10977868	12.1sp1	1.dp6k	10938449
13.0sp1	1.26	10963403	12.1sp1	1.dp6h	10941261
13.0sp1	1.22	10969193	12.1sp1	1.68	10969260
13.0sp1	1.15	10970690, 10965523	12.1sp1	1.65	10946604
13.0sp1	1.14	10934773	12.1sp1	1.64	10941323
13.0sp1	1.13	—	12.1sp1	1.62	10944324
13.0sp1	1.12	10965706	12.1sp1	1.59	10943817
13.0sp1	1.11	10964795	12.1sp1	1.58	10915236
13.0sp1	1.09	10954426	12.1sp1	1.57	—
13.0sp1	1.07	10961417	12.1sp1	1.56	10922765
13.0sp1	1.06	10964014	12.1sp1	1.54	—
13.0sp1	1.05	10936052	12.1sp1	1.42	10893805
13.0sp1	1.03	10952117	12.1sp1	1.41	—
13.0sp1	1.02	10969012	12.1sp1	1.40	10931208

Quartus II Software Version	Patch	Customer Service Request Number	Quartus II Software Version	Patch	Customer Service Request Number
13.0	0.dp2f	10969193	12.0sp2	2.49	10922765
13.0	0.dp2d	10954322	11.1sp2	2.54	10922765
13.0	0.dp2b	—	11.1sp2	2.52	10937323, 10940796
13.0	0.46	10977894	11.1sp2	2.51	10910695
13.0	0.45	10983908	11.1sp2	2.50	10922765
13.0	0.43	—	11.0	0.61	10926378
13.0	0.42	10963228	—	—	—

Latest Known Quartus II Software Issues

This section provides information about issues that affect the Quartus II Software.

Description	Workaround
Internal Error: Linux could not unlock a mutex The Quartus II software version 13.1 might report an internal error while compiling a design on Linux OS platforms. The error message is `Linux could not unlock a mutex`.	To work around this error message, try the following: ■ Disable parallel compilation if it is enabled. ■ Ensure that you have sufficient memory to run the Quartus II software. Refer to "Memory Recommendations" on page 3. ■ Ensure that you have the latest version of the kernel and `glibc` for your Linux distribution.

For more information about known software issues, look for information on the **Quartus II Software Support** page at the following URL:

http://www.altera.com/support/software/sof-quartus.html

You can find known issue information for previous versions of the Quartus II software on the Knowledge Database page at the following URL:

http://www.altera.com/support/kdb/kdb-index.jsp

Document Revision History

The following table shows the revision history for this document.

Document Revision History

Date	Version	Changes
November 2013	13.1.0	Initial release