

This document provides late-breaking information about device support in this version of the Altera® Quartus® II software. For information about disk space and system requirements, refer to the **readme.txt** file in your **altera/<version number>/quartus** directory. For information about New Features, EDA Tool version support, and existing and resolved software issues, refer to the *Quartus II Software Release Notes*.

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Device Support & Pin-Out Status

This section contains information about the status of support in the Quartus II software for the devices listed.

Full Device Support

Full compilation, simulation, timing analysis, and programming support is now available for the following new devices and device packages:

Devices with Full Support

Device Family	Devices	
Arria® II GX	EP2AGX190	EP2AGX260
Stratix® IV	EP4SGX290	EPS4GX530
	EP4SGX360	

Advance Device Support

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

Devices with Advance Support

Device Family	Devices	
Cyclone® III LS	EP3CLS70F484	EP3CLS70U484
	EP3CLS70F780	EP3CLS100F484
	EP3CLS100U484	EP3CLS100F780
Cyclone IV E	EP4CE6F17	EP4CE30F23
	EP4CE6E22	EP4CE30F29
	EP4CE10F17	EP4CE40F23
	EP4CE10E22	EP4CE40F29
	EP4CE15F17	EP4CE55F23
	EP4CE15F23	EP4CE55F29
	EP4CE15E22	EP4CE75F23
	EP4CE22F17	EP4CE75F29
	EP4CE22E22	EP4CE115F23
		EP4CE115F29
Cyclone IV GX	EP4CGX15BF14	EP4CGX30CF19
	EP4CGX15BN11	EP4CGX22BF14
	EP4CGX30BF14	EP4CGX22CF19
Stratix IV	EP4SE360H29	EP4SE360F35
	EP4SE820H35	EP4SE820H40
	EP4SE820F43	EP4SGX70HF35
	EP4SGX110HF35	EP4SGX290KF43
	EP4SGX290NF45	EP4SGX360KF43
	EP4SGX360NF45	EP4SGX530KF43
	EP4S100G3F45	EP4S100G4F45
	EP4S40G5H40	EP4S100G5F45
	EP4S100G5H40	

Initial Information Device Support

Compilation, simulation, and timing analysis support is provided for the following devices that will be released in the near future. Programming files and pin-out information, however, are not generated for these devices in this release.

Devices with Initial Information Support

Device Family	Devices	
Cyclone IV GX	EP4CGX30CF23	EP4CGX150CF23
	EP4CGX75CF23	EP4CGX150DF27
	EP4CGX75DF27	EP4CGX150DF31
	EP4CGX50CF23	EP4CGX110CF23
	EP4CGX50DF27	EP4CGX110DF27
		EP4CGX110DF31

Compilation Support

Compilation support with preliminary timing and power analysis support is provided for the following HardCopy® III, HardCopy IV E, and HardCopy IV GX devices.

Devices with Compilation Support

Device Family	Devices	
HardCopy® III	HC325FF484	HC325FF780
	HC325WF484	HC325WF780
	HC335LF1152	HC335FF1152
	HC335LF1517	HC335FF1517
HardCopy IV E	HC4E25WF484	HC4E25FF484
	HC4E25WF780	HC4E25FF780
	HC4E35LF1152	HC4E35FF1152
	HC4E35LF1517	HC4E35FF1517
HardCopy IV GX	HC4GX15LF780	HC4GX15LAF780
	HC4GX25FF1152	HC4GX25LF780
	HC4GX25LF1152	HC4GX35FF1152
	HC4GX35FF1517	

Memory Requirements/Recommendations

A full installation of the Altera Complete Design Suite requires approximately 8.2 GB of available disk space on the drive or partition where you are installing the Altera Complete Design Suite and approximately 30 MB of available space on the drive that contains your **TEMP** directory (Windows only).

The Quartus II Stand-Alone Programmer requires a minimum of 1 GB of RAM plus additional memory, based on the size and number of SOF files and the size and number of devices being configured.

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

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

Memory Requirements/Recommendations (Part 1 of 2)

Device	Recommended Physical RAM	
	32-bit	64-bit
Arria GX (EP1AGX20) Cyclone (EP1C3, EP1C4, EP1C6, EP1C12, EP1C20) Cyclone II (EP2C5, EP2C8, EP2C20) Cyclone III (EP3C5, EP3C10, EP3C16, EP3C25, EP3C40) Cyclone IV E (EP4CE6, EP4CE10, EP4CE15, EP4CE22, EP4CE30, EP4CE40) Cyclone IV GX (EP4CGX15, EP4CGX22, EP4CGX30) All MAX [®] series and MAX II device families Stratix (EP1S10, EP1S20) Stratix GX (EP1SGX10) Stratix II (EP2S15)	512 MB	512 MB
Cyclone III (EP3C55, EP3C80) Cyclone IV E (EP4CE55, EP4CE75)	768 MB	1.0 GB
Arria GX (EP1AGX35, EP1AGX50, EP1AGX60) Arria II GX (EP2AGX45) Cyclone II (EP2C35, EP2C50) Cyclone IV E (EP4CE115) Cyclone IV GX (EP4CGX50, EP4CGX75) Stratix (EP1S25, EP1S30, EP1S40, EP1S60) Stratix GX (EP1SGX25, EP1SGX40) Stratix II (EP2S30) Stratix II GX (EP2SGX30, EP2SGX60) Stratix III (EP3SL50, EP3SE50, EP3SL70)	1.0 GB	1.5 GB
Arria GX (EP1AGX90) Arria II GX (EP2AGX65) Cyclone II (EP2C70) Cyclone III (EP3C120) Cyclone III LS (EP3CLS70, EP3CLS100) Cyclone IV GX (EP4CGX110, EP4CGX150) HardCopy II (HC210) Stratix (EP1S80) Stratix II (EP2S60, EP2S90) Stratix II GX (EP2SGX90) Stratix III (EP3SE80) Stratix IV (EP4SGX70)	1.5 GB	2.0 GB

Memory Requirements/Recommendations (Part 2 of 2)

Device	Recommended Physical RAM	
	32-bit	64-bit
Arria II GX (EP2AGX95, EP2AGX125, EP2AGX190) Cyclone III LS (EP3CLS150, EP3CLS200) Stratix II (EP2S130, EP2S180) Stratix II GX (EP2SGX130) HardCopy II (HC220, HC230, HC240) Stratix III (EP3SL110, EP3SE110, EP3SE150, EP3SL200) Stratix IV (EP4SGX110, EP4SGX230) Stratix IV GT (EP4S40G2 and EP4S100G2)	3.0 GB	4.0 GB
Arria II GX (EP2AGX260) Stratix III (EP3SE260, EP3SL340) Stratix IV (EP4GS290)	4.0 GB	6.0 GB
Stratix IV (EP4SGX360, EP4SGX530, EP4SE530) Stratix IV GT (EP4S40G5, EP4S100G3, EP4S100G4, and EP4S100G5) HardCopy III HardCopy IV (HC4E25)	N/A	8.0 GB
Stratix IV (EP4SE820)	N/A	12.0 GB
HardCopy IV (HC4E35)	N/A	16.0 GB

Timing and Power Models

This section contains a summary of timing and power model status in the current version of the Quartus II software.

Devices with Timing and Power Models (Part 1 of 3)

Device Family	Device	Timing Model Status	Power Model Status
Arria GX	EP1AGX20	Final – 7.2	Final – 7.2
	EP1AGX35	Final – 7.2	
	EP1AGX50	Final – 7.2	
	EP1AGX60	Final – 7.2	
	EP1AGX90	Final – 7.2	
Arria II GX	EP2AGX45	Preliminary	Preliminary
	EP2AGX65		
	EP2AGX95		
	EP2AGX125		
	EP2AGX190		
	EP2AGX260		

Devices with Timing and Power Models (Part 2 of 3)

Device Family	Device	Timing Model Status	Power Model Status
Cyclone III	EP3C5	Final – 8.0 SP1	Final – 8.1
	EP3C10	Final – 8.0 SP1	
	EP3C16	Final – 8.0 SP1	
	EP3C25	Final – 7.2 SP1	
	EP3C40	Final – 8.0	
	EP3C55	Final – 8.0	
	EP3C80	Final – 8.0	
	EP3C120	Final – 7.2 SP1	
Cyclone III LS	EPC3LS70	Preliminary	Preliminary
	EPC3LS100		
	EPC3LS150		
	EPC3LS200		
Cyclone IV E	(All)	Preliminary	Preliminary
Cyclone IV GX	(All)	Preliminary	Preliminary
HardCopy II	HC210	Correlated – 8.0	Correlated – 7.2
	HC210W		
	HC220		
	HC230		
	HC240		
HardCopy III	(All)	Preliminary	Preliminary
HardCopy IV E	(All)	Preliminary	Preliminary
HardCopy IV GX		Preliminary	Preliminary
MAX IIZ	EPM240Z	Final – 9.0 SP1	Final – 9.0 SP1
	EPM570Z		
Stratix II GX	EP2SGX30	Final – 7.0	Final – 7.1
	EP2SGX60	Final – 7.0	
	EP2SGX90	Final – 6.1	
	EP2SGX130	Final – 6.1	
Stratix III	EP3SE50	Final – 9.0	Final – 9.0
	EP3SE80	Final – 8.1	
	EP3SE110	Final – 8.1	
	EP3SE260	Final – 9.0	
	EP3SL50	Final – 9.0	
	EP3SL70	Final – 9.0	
	EP3SL110	Final – 8.1	
	EP3SL150	Final – 8.1	
	EP3SL200	Final – 9.0	
	EP3SL340	Final – 8.1	

Devices with Timing and Power Models (Part 3 of 3)

Device Family	Device	Timing Model Status	Power Model Status
Stratix IV	EP4SE230(1)	Final – 9.1 SP1	Preliminary
	EP4SGX180		
	EP4SGX230(1)		
	EP4S40G2		
	EP4S100G2		
	EP4SE360	Preliminary	
	EP4SE530		
	EP4SE820		
	EP4SGX70		
	EP4SGX110		
	EP4SGX290		
	EP4SGX360		
	EP4SGX530		
	EP4S40G5		
	EP4S100G3		
	EP4S100G4		
	EP4S100G5		

Notes:

(1) Quartus II Software 9.1 SP1

The current version of the Quartus II software also includes final timing models for the Cyclone, Cyclone II, MAX, MAX II, Stratix, Stratix II, and Stratix GX device families. Timing models for these device families became final in the Quartus II software versions 6.0 and earlier.

The current version of the Quartus II software also includes final power models for the Cyclone, Cyclone II, MAX, MAX II, Stratix, Stratix II, and Stratix GX device families. Power models for these device families became final in the Quartus II software versions 6.0 and earlier.

Changes in Device Support

Cyclone IV GX devices enforce incorrect data rate

The Quartus II software version 9.1 SP1 enforces the incorrect transceiver data rate limits for Cyclone IV GX devices with C8 speed grade packages and all F324 or smaller packages. Data rate limits are calculated as follows:

- Data Rate = Channel Width * 125 MHz * X
- Whereby X = 1.25 if 8b/10b Encoding/Decoding is enabled, otherwise X = 1

Applies to: Cyclone IV GX Devices

VCCIO pin count incorrect with device migration turned ON

When you migrate from a Stratix IV to a HardCopy IV or HardCopy IV GX device, if a pin is NC in the Stratix IV device and VCCIO in either HardCopy device, the migration result is NC. The correct migration result should be VCCIO, when the referred IO bank is available in all devices of the current migration chain.

Applies to: HardCopy IV and HardCopy IV GX Devices

Arria II GX and Stratix IV GX require regenerating transceiver reconfiguration Memory Initialization File

When the transceiver channel and PLL dynamic reconfiguration is enabled, and the transceiver bonding mode is X4 or X8, the TX clock (`coreclkout`) is inactive after reconfiguration. You must regenerate the transceiver reconfiguration Memory Initialization File (.mif) with the Quartus II software version 9.1 SP1.

Applies to: Arria II GX and Stratix IV GX devices

Updated Cyclone IV E performance specifications

The Quartus II software version 9.1 SP1 performance specifications for Cyclone IV E devices are incorrect. Refer to the Cyclone IV E handbook for the correct performance specifications.

Applies to: Cyclone IV E devices

Arria II GX devices require recompilation

The Quartus II software versions up to and including 9.1 can produce functional failures in Arria II GX devices due to race conditions in the secondary signal region of RAM. This possible malfunction is fixed in Quartus II software version 9.1 SP1, and requires that you recompile your design.

Applies to: Arria II GX devices

No vertical migration for Engineering Sample Stratix IV 230 GX and E and 530 GX and E

Stratix IV 230 GX and E and 530 GX and E devices in Engineering Sample version are not allowed for vertical migration with the production devices due to the voltage changes. (Core voltage for ES devices is 0.95V, while core voltage for production devices is 0.9V.). To access vertical migration, use the corresponding production device in the design.

Applies to: Stratix IV devices

Migration combinations of devices show fewer VCCIO pins

In certain migration combinations of Arria II GX and Stratix IV GX and Stratix E devices, fewer VCCIO pins may be seen as available, when vertical migration in the following paths is enabled:

Arria II GX devices

EP2AGX95EF35 with EP2AGX190FF35 or EP2AGX260FF35

EP2AGX125EF35 with EP2AGX190FF35 or EP2AGX260FF35

Pins AJ8 and G8 from VCCIO4B (bank 4B) turn to NC when migration is on in these combinations.

Stratix IV E devices

EP4SE530F43 with EP4SE820F43

Multiple VCCIO pins from banks 1B, 1C, 2B, 2C, 3C, 4C, 5B, 5C, 6B, 6C, 7C, 8C turn to NC, when migration is on.

Stratix IV GX devices

EP4SGX110FF35 with EP4SGX180FF35, EP4SGX230FF35, EP4SGX290FF35, EP4SGX360FF35, or HC4GX25LF1152 (HardCopy IV)

Multiple VCCIO pins from banks 1A, 1C, 3C, 4C, 6A, 6C, 7C, 8C turn to NC, when migration is on.

Applies to: Arria II GX and Stratix IV GX and E devices

Power down settings ignored

The **VCCHIP_R power** and **VCCHIP_L power** options have been removed from the Quartus II software in version 9.1 SP1. The **Opportunistically power off** setting is no longer available; use the **Power on** setting instead.

Applies to: Stratix IV GX and Stratix IV GT devices

Design Software Support for Mature Device Families

Design software support for FLEX, APEX, ACEX, and HardCopy Stratix device families is not provided in versions of the Quartus II software beginning with version 9.1. Use the Quartus II software version 9.0 or earlier to support those devices. The Quartus II software version 9.0 and the associated service packs will remain available on the Altera website (<http://www.altera.com>).

Applies to: ACEX, APEX, FLEX and HardCopy Stratix device families