Revision: 1.1.0

PROCESS CHANGE NOTIFICATION
PCN0902

ADDITIONAL ASSEMBLY SOURCE AND BILL OF MATERIAL CHANGE FOR ALTERA FLIP CHIP PRODUCTS

Change Description

This is an update to PCN0902; please see the revision history table for information specific to this update.

The purpose of this notification is to announce the qualification of Amkor Technology Taiwan (AHT), located in Hukou, Taiwan as an additional assembly manufacturing site for Altera® flip-chip packages. AHT will become the primary assembly site for the products indicated in this change notification. Altera has also qualified alternate construction materials, including the conversion from high lead (Pb) to eutectic bump composition and from a two-piece lid to a single-piece lid (SPL). These construction materials will be standardized across both Amkor Korea (ATK) and AHT.

This change does not affect the fit or function of the devices. There is a slight appearance change to the form due to the conversion from a two-piece to a single-piece lid. There is no change in the current moisture sensitivity rating levels (per JEDEC J-STD-020D) or the thermal performance. The package dimensions are the same. Both the single-piece and the two-piece lids are constructed using the same Ni plated Cu materials.

Recommended Action

Customers may want to review their existing heatsink application for compatibility with the new SPL design. Both the additional assembly site and the construction material set change have been verified through the successful completion of full qualification. Supporting reliability data are included in this notification.

Reason for Change

The alternate construction material set allows Altera's larger packages to withstand 260° C reflow temperatures required by JEDEC to support Pb-free manufacturing. This change also enables Altera to better support long-term customer demand for the affected products. Altera will continue to have the flexibility to ship products from both Amkor Korea and Amkor Technology Taiwan.

Products Affected

The product lines affected by this change are listed in Table 1. A list of ordering part numbers is included in Appendix I. There are exception product lines that will incorporate the bump change but not the lid change, see Table 3. A list of the exception ordering part numbers is included in Appendix II. The products will transition to the new changes as the current inventory is consumed. Target transition dates are subject to change based on product demand.

Table 1: Affected Product Lines

Product Family	Product Line	Pin Count	New SPL	Package Type	Sample Availability	Product Transition
Stratix Series	EP1S10	484	Yes	FBGA	*Note (1)*	Nov 2009
		780	Yes		March	Nov 2009
	EP1S20	484	Yes	FBGA	*Note (1)*	Nov 2009
		780	Yes		*Note (1)*	Nov 2009
	EP1S25	780	Yes	FBGA	March	Nov 2009
		1020	Yes		*Note (1)*	Nov 2009
	EP1S30	956	Yes	BGA	*Note (1)*	Nov 2009
		780	Yes	FBGA	*Note (1)*	Nov 2009
		1020	Yes		*Note (1)*	Nov 2009
	EP1S40	956	Yes	BGA	*Note (1)*	Nov 2009
		780	Yes	FBGA	*Note (1)*	Nov 2009
		1020	Yes		March	Nov 2009
		1508	Yes		*Note (1)*	Nov 2009
	EP1S60	956	Yes	BGA	*Note (1)*	Nov 2009
		1020	Yes	FBGA	March	Nov 2009
		1508	Yes		*Note (1)*	Nov 2009
	EP1S80	956	Yes	BGA	*Note (1)*	Nov 2009
		1020	No	FBGA	March	Nov 2009
		1508	Yes		*Note (1)*	Nov 2009

Product Family	Product Line	Pin Count	New SPL	Package Type	Sample Availability	Product Transition
Stratix Series	EP1SGX10	672	Yes	FBGA	March	Nov 2009
	EP1SGX25	672	Yes	FBGA	March	Nov 2009
		1020	Yes		March	Nov 2009
	EP1SGX40	1020	Yes	FBGA	*Note (1)*	Nov 2009

Table 1: Affected Product Lines (continued)

Product Family	Product Line	Pin Count	New SPL	Package Type	Sample Availability	Product Transition
Stratix II	EP2S15	484	Yes	FBGA	*Note (1)*	Jan 2010
		672	Yes		*Note (1)*	Jan 2010
	EP2S30	484	Yes	FBGA	March	Sept 2009
		672	Yes		March	Sept 2009
	EP2S60	484	No	FBGA	April	July 2009
		672	Yes		April	July 2009
		1020	Yes		March	July 2009
	EP2S90	484	No	HBGA	*Note (1)*	July 2009
		780	Yes	FBGA	*Note (1)*	July 2009
		1020	Yes		April	July 2009
		1508	Yes		*Note (1)*	July 2009
	EP2S130	780	No	FBGA	*Note (1)*	Sept 2009
		1020	Yes		March	Sept 2009
		1508	Yes		*Note (1)*	Sept 2009
	EP2S180	1020	Yes	FBGA	*Note (1)*	Sept 2009
		1508	Yes		March	Sept 2009

Product Family	Product Line	Pin Count	New SPL	Package Type	Sample Availability	Product Transition
Stratix II GX	EP2SGX30	780	Yes	FBGA	March	Sept 2009
	EP2SGX55	1152	Yes	FBGA	*Note (1)*	Sept 2009
	EP2SGX60	484	Yes	FBGA	*Note (1)*	Sept 2009
		780	Yes		*Note (1)*	Sept 2009
		1152	Yes		April	Sept 2009
	EP2SGX85	1508	Yes	FBGA	*Note (1)*	Sept 2009
	EP2SGX90	1152	Yes	FBGA	April	Sept 2009
		1508	Yes		*Note (1)*	Sept 2009
	EP2SGX125	1508	Yes	FBGA	*Note (1)*	Sept 2009
	EP2SGX130	1508	Yes	FBGA	April	Sept 2009

Product Family	Product Line	Pin Count	New SPL	Package Type	Sample Availability	Product Transition
Arria GX	EP1AGX20	484	Yes	FBGA	*Note (1)*	Oct 2009
		780	Yes		*Note (1)*	Oct 2009
	EP1AGX35	484	Yes	FBGA	*Note (1)*	Oct 2009
		780	Yes		*Note (1)*	Oct 2009
	EP1AGX50	484	Yes	FBGA	*Note (1)*	Jan 2010
		780	Yes		*Note (1)*	Jan 2010
		1152	Yes		*Note (1)*	Jan 2010
	EP1AGX60	484	No	FBGA	*Note (1)*	Jan 2010
		780	Yes		*Note (1)*	Jan 2010
		1152	Yes		*Note (1)*	Jan 2010
	EP1AGX90	1152	Yes	FBGA	April	Nov 2009

Table 1: Affected Product Lines (continued)

Product Family	Product Line	Pin Count	New SPL	Package Type	Sample Availability	Product Transition
HardCopy II	HC210	484	Yes	FBGA	*Note (1)*	Jan 2010
	HC220	672	Yes	FBGA	*Note (1)*	Jan 2010
		780	Yes		*Note (1)*	Jan 2010
	HC230	1020	Yes	FBGA	*Note (1)*	Jan 2010
	HC240	1020	Yes	FBGA	*Note (1)*	Jan 2010
		1508	Yes		*Note (1)*	Jan 2010

Notes: (1) Please visit Altera's sample request page for availability.

For device samples please visit http://www.samplecomponents.com/scripts/SampleCenter.dll?Altera

Table 2: Summary of current vs. standardized bill of material

Items	Current BOM (ATK)	BOM Change at ATK & AHT
Affected Families	Stratix®, Stratix II, Stratix GX, Stratix II GX, Arria®, HardCopy® II	
Assembly Site	ATK	ATK and AHT
Package Lid Type	2 Piece Lid	Single Piece Lid (SPL)
Bump Composition	High Pb (5%Sn/95%Pb)	Eutectic (63%Sn/37%Pb)
Expected Implementation		Starting July 2009

Table 3: Summary of bill of materials for the exception products

Items	Current BOM for 2pc Lid design	BOM Change
Exception products	EP1S80F1020, EP2S60F484	
Assembly Site	ATK	ATK
Package Lid Type	2pc Lid	2pc Lid
Bump Composition	**High Pb**	**Eutectic**
Expected Implementation		Starting July 2009
Items	**Current BOM for Channel Lid design**	**BOM Change**
Exception products	EP2S130F780, EP2S90H484, EP1AGX60F484, EP1AGX50F484, EP2SGX60F484	
Assembly Site	ATK	ATK
Package Lid Type	Channel Lid	Channel Lid
Bump Composition	**High Pb**	**Eutectic**
Expected Implementation		Starting July 2009

Altera may elect to implement similar changes to additional product families in the future, see Table 4. In the event Altera chooses to proceed with changes to any of the product families indicated in Table 4, an update to this PCN will be provided.

Table 4: Summary of additional potential product families

Items	Current BOM (ATK)	BOM Change at ATK & AHT
Potential Affected Families	APEX™, APEX™ II Mercury™, Excalibur™, HardCopy APEX 20K, HardCopy Stratix	
Assembly Site	ATK	ATK and AHT
Package Lid Type	2 Piece Lid	Single Piece Lid (SPL)
Bump Composition	High Pb (5%Sn/95%Pb)	Eutectic (63%Sn/37%Pb)
Expected Implementation		TBD

Product Traceability and Transition Dates

This change will be implemented in July 2009. Customers may receive products with this change beginning with a date-code marking of 0925 or later on the top of the package. See Figure 1. The 0925 date-code marking indicates the earliest date that the new material may be used for any of the affected devices. However, initial samples may have an earlier date-code marking.

Figure 1. Date-Code Marking

Altera Date Code Marking Format
A XβZαα**0925**T

Figure 2. Comparative top side images of the current lid and new single piece lid

2pc Lid

SPL Lid

Qualification Data

Qualification data meets Altera's quality and reliability requirements as summarized in Table 5.

Table 5: Summary of Qualification Data for AHT

Product Family	Product Line	Representative Packages	Qualification Test	Readout	Results
Stratix FPGA	EP1S60	FBGA 1020	High Temp Bake 150°C	1000 hrs	0 /25
			PCL 3 + Unbiased HAST (130°C/85%RH)	96 hrs	0 /25
			PCL 3 + Temp Cycle "B" @245°C reflow	1000 cyc	0 /99
			PCL 3 + Temp Cycle "B" @260°C reflow	700 cyc	0 /75
			Temperature Humidity Bias (85°C/85%RH)	1000 hrs	0 /24
			Life Test	1000 hrs	0 /23
Stratix FPGA	EP1S80	FBGA 1508	High Temp Bake 150°C	1000 hrs	0 /25
			PCL 3 + Unbiased HAST	96 hrs	0 /25
			PCL 3 + Temp Cycle "B" @245°C reflow	1000 cyc	0 /25
			PCL 3 + Temp Cycle "B" @260°C reflow	700 cyc	0 /17
			Temperature Humidity Bias (85°C/85%RH)	1000 hrs	0 /25
			Life Test	1000 hrs	0 /25
			Board Level Temp Cycle (0°C to 100°C)	3500 cyc	0 /30
Stratix II FPGA	EP2S130	FBGA 1508	High Temp Bake 150°C	1000 hrs	0 /25
			PCL 3 + Unbiased HAST	96 hrs	0 /25
			PCL 3 + Temp Cycle "B" @245°C reflow	1000 cyc	0 /25
			PCL 3 + Temp Cycle "B" @260°C reflow	700 cyc	0 /25
			Temperature Humidity Bias (85°C/85%RH)	1000 hrs	0 /25
			Life Test	1000 hrs	0 /25
			Board Level Temp Cycle (0°C to 100°C)	3500 cyc	0 /40
Supporting Qualification Data	N/A	FBGA 1020	High Temp Bake 150°C	1000 hrs	0 /25
			PCL 3 + Temp Cycle "B" @245°C reflow (-55°C to 125°C)	1000cyc	0 /25
			Temperature Humidity Bias (85°C/85%RH)	1000 hrs	0 /25
			Life Test	1000 hrs	0 /25
	N/A	FBGA 1020	Board Level Temp Cycle (0°C to 100°C)	4780 cyc	0 /16
			PCL 3 + Temp Cycle "B" @245°C reflow (-55°C to 125°C)	1000cyc	0 /25

Table 6: Summary of Qualification Data for ATK

Product Family	Product Line	Representative Packages	Qualification Test	Readout	Results
Stratix® II FPGA	EP2S130	FBGA 1508	High Temp Bake 150°C	1000 hrs	0 /25
			PCL 3 + Unbiased HAST	96 hrs	0 /25
			PCL 3 + Temp Cycle "B" @245°C reflow	1000 cyc	0 /25
			Temperature Humidity Bias (85°C/85%RH)	1000 hrs	0 /24
			Life Test	1000 hrs	0 /25
Supporting Qualification Data	N/A	FBGA 672 (Channel Lid)	PCL 3 + Temp Cycle "B" @245°C reflow	1000 cyc	0 /25

Note: PCL 3 = Precondition Level 3

Contact

For more information, please contact Altera Customer Quality Engineering at customer-quality@altera.com.

Customer Notifications Subscription

If you would like to receive customer notifications by e-mail, please subscribe to our customer notification mailing list at https://www.altera.com/subscriptions/email/signup/eml-index.jsp

In accordance with JESD46-C, this change is deemed acceptable to the customer if no acknowledgement is received within 30 days from this notification.

Revision History

Date	Rev	Description
04/17/2009	1.0.0	Initial Release
02/12/2010	1.1.0	Add exception products in Table 3 and Appendix II

Appendix I. Affected Ordering Part Numbers

Stratix FPGA

EP1S10F484C5
EP1S10F484C5N
EP1S10F484C6
EP1S10F484C6N
EP1S10F484C7
EP1S10F484C7N
EP1S10F484I6
EP1S10F484I6N
EP1S10F780C5
EP1S10F780C5N
EP1S10F780C6
EP1S10F780C6N
EP1S10F780C7
EP1S10F780C7N
EP1S10F780I6
EP1S10F780I6N
EP1S20F484C5
EP1S20F484C5N
EP1S20F484C6
EP1S20F484C6GA
EP1S20F484C6N
EP1S20F484C7
EP1S20F484C7N
EP1S20F484I6
EP1S20F484I6N
EP1S20F780C5
EP1S20F780C5N
EP1S20F780C6
EP1S20F780C6N
EP1S20F780C7
EP1S20F780C7N
EP1S20F780I6
EP1S20F780I6N
EP1S25F1020C5
EP1S25F1020C5N
EP1S25F1020C6
EP1S25F1020C6N
EP1S25F1020C7
EP1S25F1020C7N
EP1S25F1020I6
EP1S25F1020I6N
EP1S25F780C5
EP1S25F780C5AA
EP1S25F780C5AC
EP1S25F780C5N
EP1S25F780C6
EP1S25F780C6N
EP1S25F780C7
EP1S25F780C7N
EP1S25F780I6
EP1S25F780I6N
EP1S30B956C5
EP1S30B956C6
EP1S30B956C7
EP1S30F1020C5
EP1S30F1020C5N
EP1S30F1020C6
EP1S30F1020C6N
EP1S30F1020C7
EP1S30F1020C7N
EP1S30F1020I6
EP1S30F1020I6N
EP1S30F780C5
EP1S30F780C5N
EP1S30F780C6
EP1S30F780C6DM
EP1S30F780C6N
EP1S30F780C7
EP1S30F780C7AA
EP1S30F780C7N
EP1S30F780C8
EP1S30F780C8N
EP1S30F780I6
EP1S30F780I6N
EP1S40B956C5
EP1S40B956C6
EP1S40B956C6N
EP1S40B956C7
EP1S40B956I6
EP1S40F1020C5
EP1S40F1020C5AA
EP1S40F1020C5DM
EP1S40F1020C5GA
EP1S40F1020C5N
EP1S40F1020C6
EP1S40F1020C6N
EP1S40F1020C7
EP1S40F1020C7N
EP1S40F1020I6
EP1S40F1020I6AA
EP1S40F1020I6N
EP1S40F1508C5
EP1S40F1508C5N
EP1S40F1508C6
EP1S40F1508C6N
EP1S40F1508C7
EP1S40F1508C7N
EP1S40F780C5
EP1S40F780C5N
EP1S40F780C6
EP1S40F780C6N
EP1S40F780C7
EP1S40F780C7N
EP1S40F780C8
EP1S40F780C8N
EP1S40F780I6
EP1S40F780I6N
EP1S60B956C6
EP1S60B956C6N
EP1S60B956C7
EP1S60B956I7
EP1S60F1020C5
EP1S60F1020C5N
EP1S60F1020C6
EP1S60F1020C6DM
EP1S60F1020C6N
EP1S60F1020C6NAA
EP1S60F1020C7
EP1S60F1020C7N
EP1S60F1020I6
EP1S60F1508C6
EP1S60F1508C6N
EP1S60F1508C7
EP1S60F1508C7N
EP1S60F1508I6
EP1S80B956C6
EP1S80B956C6AA
EP1S80B956C6N
EP1S80B956C7
EP1S80B956C7N
EP1S80F1508C5
EP1S80F1508C5N
EP1S80F1508C6
EP1S80F1508C6AA
EP1S80F1508C6N
EP1S80F1508C7
EP1S80F1508C7N
EP1S80F1508I7
EP1S80F1508I7N

Appendix I. Affected Ordering Part Numbers (continued)

Stratix® GX FPGA

EP1SGX10CF672C5	EP1SGX25CF672C6N	EP1SGX25DF672C7	EP1SGX40DF1020C6BN
EP1SGX10CF672C5N	EP1SGX25CF672C7	EP1SGX25DF672C7N	EP1SGX40DF1020C6N
EP1SGX10CF672C6	EP1SGX25CF672C7N	EP1SGX25DF672I6	EP1SGX40DF1020C7
EP1SGX10CF672C6GA	EP1SGX25CF672I6	EP1SGX25DF672I6N	EP1SGX40DF1020C7N
EP1SGX10CF672C6N	EP1SGX25CF672I6N	EP1SGX25FF1020C5	EP1SGX40DF1020I6N
EP1SGX10CF672C7	EP1SGX25DF1020C5	EP1SGX25FF1020C5N	EP1SGX40GF1020C5
EP1SGX10CF672C7N	EP1SGX25DF1020C5N	EP1SGX25FF1020C6	EP1SGX40GF1020C5N
EP1SGX10DF672C5	EP1SGX25DF1020C6	EP1SGX25FF1020C6BN	EP1SGX40GF1020C6
EP1SGX10DF672C5N	EP1SGX25DF1020C6B	EP1SGX25FF1020C6N	EP1SGX40GF1020C6B
EP1SGX10DF672C6	EP1SGX25DF1020C6BN	EP1SGX25FF1020C7	EP1SGX40GF1020C6BN
EP1SGX10DF672C6N	EP1SGX25DF1020C6N	EP1SGX25FF1020C7N	EP1SGX40GF1020C6N
EP1SGX10DF672C7	EP1SGX25DF1020C7	EP1SGX25FF1020I6	EP1SGX40GF1020C7
EP1SGX10DF672C7N	EP1SGX25DF1020C7N	EP1SGX25FF1020I6N	EP1SGX40GF1020C7N
EP1SGX10DF672I6	EP1SGX25DF33C6BNGA	EP1SGX25FF1020I6NA	EP1SGX40GF1020I6
EP1SGX10DF672I6N	EP1SGX25DF672C5	EP1SGX25FF33C6BNGA	EP1SGX40GF1020I6N
EP1SGX25CF672C5	EP1SGX25DF672C5N	EP1SGX40DF1020C5	EP1SGX40GF1020I6NA
EP1SGX25CF672C5N	EP1SGX25DF672C6	EP1SGX40DF1020C5N	
EP1SGX25CF672C6	EP1SGX25DF672C6N	EP1SGX40DF1020C6	

Appendix I. Affected Ordering Part Numbers (continued)

Stratix II FPGA

EP2S130F1020C3
EP2S130F1020C3N
EP2S130F1020C3NRB
EP2S130F1020C3TT
EP2S130F1020C4
EP2S130F1020C4N
EP2S130F1020C4NGA
EP2S130F1020C4RB
EP2S130F1020C5
EP2S130F1020C5N
EP2S130F1020C5NGA
EP2S130F1020C5NRB
EP2S130F1020I4
EP2S130F1020I4GA
EP2S130F1020I4N
EP2S130F1020I4RB
EP2S130F1020I5
EP2S130F1020I5N
EP2S130F1508C3
EP2S130F1508C3N
EP2S130F1508C4
EP2S130F1508C4ES
EP2S130F1508C4N
EP2S130F1508C4RB
EP2S130F1508C5
EP2S130F1508C5ES
EP2S130F1508C5GA
EP2S130F1508C5N
EP2S130F1508C5NRB
EP2S130F1508C5RB
EP2S130F1508I4
EP2S130F1508I4N
EP2S130F1508I4RB
EP2S130F1508I4TT
EP2S15F484C3
EP2S15F484C3N
EP2S15F484C4
EP2S15F484C4N
EP2S15F484C4TT
EP2S15F484C5
EP2S15F484C5N
EP2S15F484I4
EP2S15F484I4N
EP2S15F672C3
EP2S15F672C3N
EP2S15F672C4
EP2S15F672C4N
EP2S15F672C5
EP2S15F672C5N
EP2S15F672I4
EP2S15F672I4N
EP2S180F1020C3
EP2S180F1020C3N
EP2S180F1020C3TT
EP2S180F1020C4
EP2S180F1020C4N
EP2S180F1020C5
EP2S180F1020C5N
EP2S180F1020I4
EP2S180F1020I4N
EP2S180F1508C3
EP2S180F1508C3N
EP2S180F1508C3NAA
EP2S180F1508C4
EP2S180F1508C4N
EP2S180F1508C4NAB
EP2S180F1508C4TT
EP2S180F1508C5
EP2S180F1508C5N
EP2S180F1508I4
EP2S180F1508I4N
EP2S30F484C3
EP2S30F484C3N
EP2S30F484C4
EP2S30F484C4N
EP2S30F484C4TT
EP2S30F484C5
EP2S30F484C5N
EP2S30F484C5TT
EP2S30F484I4
EP2S30F484I4AA
EP2S30F484I4AB
EP2S30F484I4N
EP2S30F484I4NAA
EP2S30F484I4TT
EP2S30F672AA
EP2S30F672C3
EP2S30F672C3N
EP2S30F672C4
EP2S30F672C4N
EP2S30F672C4NAA
EP2S30F672C4TT
EP2S30F672C5
EP2S30F672C5AA
EP2S30F672C5N
EP2S30F672C5NRB
EP2S30F672C5RB
EP2S30F672I4
EP2S30F672I4N
EP2S30F672I5
EP2S30F672I5N
EP2S30F672I5TT
EP2S60F1020C3
EP2S60F1020C3ES
EP2S60F1020C3N
EP2S60F1020C3TT
EP2S60F1020C4
EP2S60F1020C4ES
EP2S60F1020C4N
EP2S60F1020C4TT
EP2S60F1020C5
EP2S60F1020C5ES
EP2S60F1020C5N
EP2S60F1020C5NGA
EP2S60F1020I4
EP2S60F1020I4N
EP2S60F1020I4NGA
EP2S60F1020I5
EP2S60F1020I5N
EP2S60F672C3
EP2S60F672C3ES
EP2S60F672C3N
EP2S60F672C4
EP2S60F672C4ES
EP2S60F672C4N
EP2S60F672C5
EP2S60F672C5ES
EP2S60F672C5N
EP2S60F672C5NGA
EP2S60F672I4
EP2S60F672I4N
EP2S60F672I5
EP2S60F672I5TT
EP2S90F1020C3
EP2S90F1020C3AA
EP2S90F1020C3N
EP2S90F1020C3TT
EP2S90F1020C4
EP2S90F1020C4N
EP2S90F1020C4TT
EP2S90F1020C5
EP2S90F1020C5N
EP2S90F1020I4
EP2S90F1020I4AB
EP2S90F1020I4N
EP2S90F1020I4NAB
EP2S90F1020I4NGA
EP2S90F1020I5
EP2S90F1020I5N
EP2S90F1020I5TT
EP2S90F1508C3
EP2S90F1508C3N
EP2S90F1508C4
EP2S90F1508C4N
EP2S90F1508C5
EP2S90F1508C5N
EP2S90F1508I4
EP2S90F1508I4N
EP2S90F780C4
EP2S90F780C4N
EP2S90F780C5
EP2S90F780C5N
EP2S90F780I4
EP2S90F780I4N
EP2S90F780I4NAB
EP2SEVOL1F672NAA
EP2SEVOL2F672NAA

Appendix I. Affected Ordering Part Numbers (continued)

Stratix II GX FPGA

EP2SGX125GF1508C3
EP2SGX125GF1508C3N
EP2SGX125GF1508C4
EP2SGX125GF1508C4N
EP2SGX125GF1508I4
EP2SGX125GF1508I4N
EP2SGX130GF1508C3
EP2SGX130GF1508C3N
EP2SGX130GF1508C4
EP2SGX130GF1508C4N
EP2SGX130GF1508C5
EP2SGX130GF1508C5N
EP2SGX130GF1508I4
EP2SGX130GF1508I4N
EP2SGX130GF40C5NGA
EP2SGX30CF780C3
EP2SGX30CF780C3N
EP2SGX30CF780C4
EP2SGX30CF780C4N
EP2SGX30CF780C5
EP2SGX30CF780C5N
EP2SGX30DF780C3
EP2SGX30DF780C3N
EP2SGX30DF780C4
EP2SGX30DF780C4N
EP2SGX30DF780C5
EP2SGX30DF780C5N
EP2SGX30DF780I4
EP2SGX30DF780I4N
EP2SGX55EF1152C3
EP2SGX55EF1152C3N
EP2SGX55EF1152C4
EP2SGX55EF1152C4N
EP2SGX55EF1152I4
EP2SGX55EF1152I4N
EP2SGX60CF484I4
EP2SGX60CF780C3
EP2SGX60CF780C3N
EP2SGX60CF780C4
EP2SGX60CF780C4N
EP2SGX60CF780C5
EP2SGX60CF780C5N
EP2SGX60DF780C3
EP2SGX60DF780C3N
EP2SGX60DF780C4
EP2SGX60DF780C4N
EP2SGX60DF780C5
EP2SGX60DF780C5N
EP2SGX60DF780I4
EP2SGX60DF780I4N
EP2SGX60EF1152C3
EP2SGX60EF1152C3N
EP2SGX60EF1152C4
EP2SGX60EF1152C4N
EP2SGX60EF1152C5
EP2SGX60EF1152C5N
EP2SGX60EF1152I4
EP2SGX60EF1152I4N
EP2SGX85FF1508C3
EP2SGX85FF1508C3N
EP2SGX85FF1508C4
EP2SGX85FF1508C4N
EP2SGX85FF1508I4
EP2SGX85FF1508I4N
EP2SGX90EF1152C3
EP2SGX90EF1152C3N
EP2SGX90EF1152C4
EP2SGX90EF1152C4N
EP2SGX90EF1152C5
EP2SGX90EF1152C5N
EP2SGX90EF1152I4
EP2SGX90EF1152I4N
EP2SGX90FF1508C3
EP2SGX90FF1508C3N
EP2SGX90FF1508C4
EP2SGX90FF1508C4N
EP2SGX90FF1508C5
EP2SGX90FF1508C5N
EP2SGX90FF1508I4
EP2SGX90FF1508I4N
EP2SGX90FF40C3NAA
EP2SGXF1152AA
EP2SGXF1152AB
EP2SGXHC17F33C4NAA
EP2SGXHC17F33I4NAA

Arria GX FPGA

EP1AGX20CF484C6
EP1AGX20CF484C6N
EP1AGX20CF484I6
EP1AGX20CF484I6N
EP1AGX20CF780C6
EP1AGX20CF780C6N
EP1AGX20CF780I6
EP1AGX20CF780I6N
EP1AGX35CF484C6
EP1AGX35CF484C6N
EP1AGX35CF484I6
EP1AGX35CF484I6N
EP1AGX35DF780C6
EP1AGX35DF780C6N
EP1AGX35DF780I6
EP1AGX35DF780I6N
EP1AGX50CF484C6
EP1AGX50CF484C6N
EP1AGX50CF484I6N
EP1AGX50DF1152C6N
EP1AGX50DF1152I6N
EP1AGX50DF780C6
EP1AGX50DF780C6N
EP1AGX50DF780I6
EP1AGX50DF780I6N
EP1AGX60DF780C6N
EP1AGX60DF780I6N
EP1AGX60EF1152C6N
EP1AGX60EF1152I6N
EP1AGX90EF1152C6
EP1AGX90EF1152C6N
EP1AGX90EF1152I6
EP1AGX90EF1152I6N

Appendix I. Affected Ordering Part Numbers (continued)

HardCopy II Devices

HC210F484NAC
HC210F484NAF
HC220F672AW
HC220F672NAL
HC220F672NAN
HC220F672NAO
HC220F780AJ
HC220F780NAA
HC220F780NAG
HC220F780NAK
HC220F780NAM
HC220F780NAR
HC220F780NAS
HC220F780NAT
HC230F1020AD
HC230F1020AE
HC230F1020AF
HC230F1020AG
HC230F1020AH
HC230F1020AJ
HC230F1020AO
HC230F1020AW
HC230F1020BA
HC230F1020BE
HC230F1020BF
HC230F1020BH
HC230F1020BK
HC230F1020BL
HC230F1020BN
HC230F1020NAI
HC230F1020NAK
HC230F1020NAL
HC230F1020NAM
HC230F1020NAQ
HC230F1020NAS
HC230F1020NAU
HC230F1020NAV
HC230F1020NAX
HC230F1020NAZ
HC230F1020NBC
HC230F1020NBD
HC230F1020NBG
HC230F1020NBM
HC230F1020NBO
HC240F1020AQ
HC240F1020AR
HC240F1020AV
HC240F1020NAO
HC240F1020NAT
HC240F1020NAZ
HC240F1020NBC
HC240F1508BD
HC240F1508NAE
HC240F1508NAF
HC240F1508NAG
HC240F1508NAH
HC240F1508NAI
HC240F1508NAW
HC240F1508NAX
HC240F1508NAY
HC240F1508NBF

Appendix II. Ordering Part Number exceptions that are not affected by the lid change

EP1S80F1020C5
EP1S80F1020C5N
EP1S80F1020C6
EP1S80F1020C6N
EP1S80F1020C7
EP1S80F1020C7AB
EP1S80F1020C7N
EP1S80F1020I7
EP1S80F1020I7N
EP2S60F484C3
EP2S60F484C3N
EP2S60F484C4
EP2S60F484C4ES
EP2S60F484C4N
EP2S60F484C5
EP2S60F484C5ES
EP2S60F484C5N
EP2S60F484I4
EP2S60F484I4N
EP2S130F780C4
EP2S130F780C4N
EP2S130F780C5
EP2S130F780C5N
EP2S130F780I4N
EP2S90H484C4
EP2S90H484C5
EP1AGX60CF484C6N
EP1AGX60CF484I6N
EP1AGX50CF484C6
EP1AGX50CF484C6N
EP1AGX50CF484I6N
EP2SGX60CF484I4