



# PROCESS CHANGE NOTIFICATION

## PCN0714 UPDATE

### ASSEMBLY PLANT CHANGE FOR PQFP AND TQFP PACKAGES

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#### **Change Description:**

*This is an update to PCN0714; please see the revision history table for information specific to this update.*

The plastic quad flat pack (PQFP) and thin quad flat pack (TQFP) packages currently assembled in Amkor Korea will be assembled in Amkor Philippines.

Amkor Philippines is an existing, fully qualified strategic-manufacturing partner for Altera® products. They have demonstrated manufacturing excellence, good assembly performance, and the ability to accommodate Altera's high-volume capacity requirements.

This is a manufacturing plant change only. The product bill of materials will remain the same.

#### **Reason for Change**

Amkor is moving and consolidating the manufacturing line of PQFP and TQFP packages from their Korea site to their Philippines site. This alignment will help improve manufacturing efficiency and overall capacity and will enable Altera to better support increased demand for affected products.

#### **Product Traceability and Transition Dates**

This change will be implemented starting Dec 3, 2007. Customers may receive products with this change beginning with a date code marking of 0749 on top of the package, see Figure 1. The week of 0749 indicates the earliest date that the change can occur for any of the affected products. Customers may receive products from both assembly sites with a date code marking of 0749 during the transition phase. However, the shipments at the box level will contain product from only one assembly site.

**Figure 1: Altera Date Code Marking Format**

Altera Date Code Marking Format
A XβZαα <b>0749</b> T

### Products Affected

Appendix 1 lists the products affected by this change. Specific ordering part numbers are available upon request.

Altera’s QFP products or product families that currently have no schedule for shipping from Amkor Philippines are listed in Appendix 2. In the event any of these products or product families becomes scheduled to ship from Amkor Philippines, standard notification will be provided through a revision to this document, PCN0714.

### Qualification Data

Product qualification data supporting the TQFP 32 package is listed in Table 1.

**Table 1: Summary of Qualification Data Supporting the TQFP 32 Package**

Representative Package	Qualification Test	Read Out	Results (3 lots)
TQFP 44 *	High Temp Bake@ 150°C	1000 hrs	0/90
	PCL3 + HAST	96 hrs	0/135
	Autoclave	96 hrs	0/135
	PCL3 + Temperature Cycle B	1000 cys	0/135
	Lifetest	1000 hrs	0/154

Note: \* Qualification data collected on the TQFP 44, also qualifies the TQFP 32 by extension.

**Table 2: Summary of Qualification Data Supporting the PQFP 208, 240, TQFP 144 and EQFP 144 Packages**

Representative Package	Qualification Test	Read Out	Results
PQFP 208	High Temp Bake@ 150°C	1000 hrs	0/179
	PCL3 + HAST	96 hrs	0/179
	Autoclave	96 hrs	0/154
	PCL3 + Temperature Cycle B	1000 cyc	0/179
PQFP 240	Temp Humidity Bias	1000 hrs	0/25
	PCL3 + HAST	96 hrs	0/50
	Autoclave	96 hrs	0/75
	PCL3 + Temperature Cycle B	1000 cyc	0/71
TQFP 144	High Temp Bake@ 150°C	1000 hrs	0/231
	PCL3 + HAST	96 hrs	0/271
	Autoclave	96 hrs	0/271
	PCL3 + Temperature Cycle B	1000 cyc	0/298
EQFP 144	High Temp Bake@ 150°C	1000 hrs	0/30
	Temp Humidity Bias	500 hrs	0/66
	Autoclave	96 hrs	0/80
	PCL3 + Temperature Cycle B	1000 cyc	0/80

## Contact

For more information on this PCN, please contact Altera Customer Quality support at [customer-quality@altera.com](mailto:customer-quality@altera.com).

## Customer Notifications Subscription

Customers that have subscribed to Altera's customer notification mailing list will receive updates automatically via email.

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>

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

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## Revision History:

Date	Rev	Description
09/13/2007	1.0.0	Initial Release
11/14/2007	1.1.0	Update Appendix 1 to change the effective date of PQFP to January 2008
01/29/2008	1.2.0	Update Table 2 with the qualification data for PQFP 208 and TQFP 144.
06/28/2010	1.3.0	Update Table 2 with PQFP 240 and EQFP 144 qualification data and Appendix 2 to include PQFP 240 and E144 to the affected product list.

### Appendix 1: Products Affected by PCN0714 (Part 1 of 2)

Package	Pin	Product Line	Effective Date
PQFP	160	EPF8452A	January 2008
		EPF8636A	January 2008
		EPF8820A	January 2008
		EPM7128E	January 2008
		EPM7128S	January 2008
		EPM7160E	January 2008
		EPM7160S	January 2008
		EPM7192E	January 2008
		EPM7192S	January 2008
		EPM7256E	January 2008
		MPF8452A	January 2008
		MPM7192S	January 2008
		MPM7256E	January 2008
		208	EP1K100
	EP1K30		January 2008
	EP1K50		January 2008
	EP20K100		January 2008
	EPF10K100E		January 2008
	EPF10K10A		January 2008
	EPF10K30A		January 2008
	EPF10K30E		January 2008
	EPF10K50E		January 2008
	EPF10K50S		January 2008
	EPF6016A		January 2008
	EPF6024A		January 2008
	EPF81188A		January 2008
	EPF8636A	January 2008	
EPF8820A	January 2008		
EPM3256A	January 2008		
EPM3512A	January 2008		
EPM7256AE	January 2008		
EPM7256B	January 2008		
EPM7256S	January 2008		
EPM7512AE	January 2008		
EPM7512B	January 2008		
MPF8820A	January 2008		

**Appendix 1: Products Affected by PCN0714 (Part 2 of 2)**

<b>Package</b>	<b>Pin</b>	<b>Product Line</b>	<b>Effective Date</b>
TQFP	32	EPC1441	January 2008
		EPC2	January 2008
TQFP	144	EP1C3	January 2008
		EP1C6	January 2008
		EP1K30	January 2008
		EP1K50	January 2008
		EP20K100	January 2008
		EP20K100E	January 2008
		EP20K160E	January 2008
		EPF10K10A	January 2008
		EPF10K30A	January 2008
		EPF10K30E	January 2008
		EPF10K50E	January 2008
		EPF10K50S	January 2008
		EPF6010A	January 2008
		EPF6016	January 2008
		EPF6016A	January 2008
		EPF6024A	January 2008
		EPF8820A	January 2008
		EPM1270	January 2008
		EPM1270G	January 2008
		EPM3128A	January 2008
		EPM3256A	January 2008
		EPM7128AE	January 2008
		EPM7128B	January 2008
		EPM7256AE	January 2008
		EPM7256B	January 2008
		EPM7512AE	January 2008
EPM7512B	January 2008		

## Appendix 2. QFP Products Now Scheduled to Move to Amkor Philippines

Package	Pin	Product Line	Earliest Shipment Date
PQFP	240	EP20K100	October 2010
		EP20K60E	October 2010
		EP20K100E	October 2010
		EP20K160E	October 2010
		EP20K200E	October 2010
		EP20K300E	October 2010
		EPF10K100E	October 2010
		EPF10K130E	October 2010
		EPF10K30A	October 2010
		EPF10K50E	October 2010
		EPF10K50S	October 2010
		EPF10K50V	October 2010
		EPF6016	October 2010
		EPF6024A	October 2010
		EPF81188A	October 2010
		EPF81500A	October 2010
		EP1C12	October 2010
		EP1C6	October 2010
		EP2C20	October 2010
		EP3C16	October 2010
EP3C25	October 2010		
EP3C40	October 2010		
EQFP	144	EP3C5	January 2011
		EP3C10	January 2011
		EP3C16	January 2011
		EP3C25	January 2011