Assembly Supplier and Material Changes for Xilinx Flip-Chip Products Including Introduction of Virtex-4 FX Step 1 Devices

XCN07017 (v1.0) August 31, 2007 Product Change Notice

Overview

The purpose of this notification is to announce qualification of new second source construction materials, and the addition of a second source supplier for Xilinx plastic flip-chip products.

In addition, a mask set stepping introduction for select Virtex™-4 FX products.

Description

This notification includes the following four changes to be implemented on Xilinx plastic flip-chip products:

1. **Second Source Underfill Material:** Namics has been selected as a second source underfill material for Xilinx flip-chip products. The addition of this material will allow Xilinx to ensure supply continuity. Namics underfill material is one of the industry standard materials used by leading flip-chip assembly subcontractors worldwide. Namics underfill material is qualified and in production for Virtex-5 products.

   Products Affected: All Xilinx Commercial and Industrial "XC" and Military "XQ" plastic flip-chip products from Virtex-II, Virtex-II Pro, and Virtex-4 families (see Table 2).

2. **Additional Substrate Material set from Fujitsu Technologies:** An additional substrate material set from Fujitsu Technologies has been selected to allow substrate standardization and ensure continuity of supply for flip-chip products. This substrate material set is currently qualified and in production for Virtex-4 and Virtex-5 products.

   Products Affected: Xilinx Commercial and Industrial "XC" plastic flip-chip products from Virtex-II Pro family (see Table 2).

3. **Second Source Bump and Assembly Supplier:** Amkor Technologies has been selected as a second source bump and assembly supplier for Xilinx plastic flip-chip products. Assembly, bump, and other related material sets and processes used by Amkor are being added as an additional source of supply as part of this change.

   Amkor Technologies will help expand assembly capacity and ensure business continuity. Amkor technologies is one of the top three leading bump and assembly subcontractors in the world. Adding Amkor as a second source supplier allows Xilinx to support the growing flip-chip demand from its end customers. Xilinx is currently using Amkor Technologies as a Qualified vendor for Virtex-5 products.

   Products Affected: Xilinx plastic flip-chip products from Virtex-II, Virtex-II Pro, and Virtex-4 families (see Table 2).

4. **Virtex-4 FX Family (Step 1 Introduction):** The Virtex-4 FX family of devices will be transitioning to a new product stepping, designated as Step 1. This change will eliminate errata associated with this product, currently in production as Step 0. The Step 1 devices are a functional superset of existing Step 0 devices and are form, fit, function, and bitstream-compatible with Step 0 (see Table 1).

Table 1: **Specification Differences Between Step 0 and Step 1 Devices**

Functionality	Step 0 Silicon	Step 1 Silicon
Static Operating Behavior - not configured	Requires work-around (see XAPP732)	Improvement in cumulative hours
Static Operating Behavior - no data transitions on receiver	Calibration block v1.4.1 required	No calibration block required
CDM ESD of RocketIO pins	150V (XC4VFX20 and XC4VFX60) 100V (XC4VFX100)	Minimum of 300V
TXENOOB	Can be higher than 65 mV when TXENOOB is asserted	Condition removed
JTAG ID Code	See Table 62 "*JTAG ID Code by Step*": http://www.xilinx.com/bvdocs/publications/ds302.pdf	

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Products Affected

Table 2: **Affected Product**

#	Changes	Products Affected
1	Namics Underfill	All Xilinx Commercial and Industrial “XC” and Military “XQ” plastic flip-chip products from Virtex-II, Virtex-II Pro, and Virtex-4 families
2	Additional Substrate Material Set	Plastic flip-chip packages for Virtex-II Pro in the following device/packages: XC2VP20 - FF(G)896 and FF(G)1152 XC2VP30 - FF(G)896 and FF(G)1152 XC2VP40 - FF(G)1152 XC2VP50 - FF(G)1152 and FF(G)1517
3	Second Bump and Assembly Supplier	Plastic flip-chip packages for Virtex-II, Virtex-II Pro, Virtex-4, and Non-Military Grade “XQ”
4	Virtex-4 FX Step 1	-10 and -11 Commercial temperature of XC4VFX20, XC4VFX60, and XC4VFX100 devices

For more information on the Xilinx Stepping Methodology, see Xilinx Answer 20947.

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Traceability

Table 3 shows an example of part number and material control after the PCN period. Table 4 shows an example of the ordering codes and shipping box labeling.

Table 3: **Top Mark Detail**

#	Changes	Identification	Marking Example
1 2 3	Namics Underfill Additional Substrate Material Set Second Bump and Assembly Supplier	Date Codes 0801 and later (January 1, 2008 and later)	 XCN07017_01_082707
4	Virtex-4 FX Step 1	Step 1 marked	 XCN07017_02_083107

Table 4: **Virtex-4 FX Family (Step 1) Ordering Codes and Shipping Box Label Example**

Prior to PCN	During PCN Period	After PCN Implementation Date	Shipping Box Label
XC4VFX60-10FF672C (Step 0 material only)	XC4VFX60-10FF672C (Step 0 material only)	XC4VFX60-10FF672C (Step 0 or Step 1 material)	XC4VFX60-10FF672C
XC4VFX60-10FF672CS1 Step 1 only	XC4VFX60-10FF672CS1 Step 1 only	XC4VFX60-10FF672CS1 Step 1 only	XC4VFX60-10FF672CS1

Notes:

Customers who want to leverage the functional enhancement of Step 1 devices for -10 and -11 speed grade commercial devices must order Step 1 specific devices. To order Step 1 devices, append “S1” to the end of the standard ordering part number (e.g., XC4VFX60-10FF672CS1).

All of the corresponding XC4VFX20, XC4VFX60, and XC4VFX100 -12C, -10I, and -11I, as well as all of the XC4VFX40 and XC4VFX140 part offerings are not affected by this specification change; these devices will go to production for the first time with Step 1 silicon.

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Key Dates

Key date changes are provided in the following summary tables:

Table 5: **Key Dates**

#	Changes	Implementation Dates
1	Namics Underfill	Date Code 0801 and later (January 1, 2008 and later)
2	Second Bump and Assembly Supplier	Date Code 0801 and later (January 1, 2008 and later)
3	Additional Substrate Material Set	Date Code 0801 and later (January 1, 2008 and later)
4	Virtex-4 FX Step 1	
	- XC4VFX20	November 31, 2007 and later
	- XC4VFX60	November 31, 2007 and later
	- XC4VFX100	December 7, 2007 and later

Table 6: **Production Step 1 Device Availability**

Device	Initial Step 1 Availability
XC4VFX20	August 31, 2007
XC4VFX60	August 31, 2007
XC4VFX100	September 7, 2007

Qualification Data

Qualification data for each of the four changes will be available upon request.

Response

No response is required. For additional information or questions, please contact Xilinx Technical Support.

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Revision History

The following table shows the revision history for this document.

Date	Version	Revision
08/31/07	1.0	Initial Xilinx release.

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