Replacement of SAC+ Solder Balls By SACN Solder Balls for Platform Flash FBGA Devices

XCN06024 (v1.0) January 1, 2007

Product/Process Change Notice

Overview

The purpose of this notice is to inform Xilinx Platform Flash PROM users of a change in the composition of the solder balls for the Pb-free 48TFBGA (FSG48) packages.

Description

This is a package assembly material change for the Platform Flash PROM sourced by ST Microelectronics. The SAC+ solder balls of the 48TFBGA (FSG48) packages will be replaced by SACN solder balls using existing processes and in-process control methods. There will be no change in BGA pad metallurgy (CuOSP). The reasons for this change are:

- To offer Pb-free solder balls compliant with RoHS requirements: Without lead (Pb) and antimony (Sb).
- The new SACN balls' metallurgy will increase the bonding strength of solder balls on BGA, reinforcing the inter-metallic strength at the BGA side with more ductile balls than SAC+.
- To provide better board level reliability.
- Standardization to a common industry SACN metallurgy used in matrix BGA.

SACN stands for **Sn** (Tin) - **Ag** (Silver) - **Cu** (Copper) - **Ni** (Nickel).

Ni is used as a dopant that concentrates in (Cu, Ni) 6Sn5 inter-metallic.

Products Affected

This change affects the following 48 FBGA Platform Flash devices:

Table 1: **Platform Flash devices impacted by the SACN Solder Ball change**

Platform Flash Devices	
XCF08PFSG48C	XCF08PFSG48C0973
XCF16PFSG48C	XCF16PFSG48C0973
XCF32PFSG48C	

Key Dates

The estimated date code of first shipment of new SACN solder ball FSG48 product is WW19, 2007.

Response

The melting temperature is higher for the SACN FSG48 solder balls than the existing SAC balls. If you are using the Eutectic Solder Reflow profile on Pb-free parts, the melting temperature of the SACN solder balls might require you to adjust the solder profile higher (within JEDEC-20C). The melting range for the existing SAC+ alloy is 218°C to 222°C. The new melting range for the SACN alloy is 220°C to 226°C. Both melting ranges fully meet the JEDEC-20C specification.

Solder ball composition change does not impact the FSG48 package structure reliability. 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
01/01/07	1.0	Initial release.