



# Bond Lift on Wirebonded Plastic Ball Grid Array (PBGA) Packages

XCN06018 (v1.0) June 26, 2006

Quality Alert

## Overview

The purpose of this Quality Alert is to communicate that specific lots of wirebonded PBGA packages sourced through a single combination of suppliers may have a latent manufacturing package defect that presents a potential quality and reliability risk. The affected packages are FT256, FG676, FG900, FG1156, FG400, FG456, FG484, and their Pb-free equivalents, FTG256, FGG676, FGG900, FGG1156, FGG400, FGG456, FGG484, of Spartan™-3, Spartan-3E, and Spartan-3L families. The recommendation for disposition of this material is addressed below.

## Description

Specific lots of wirebonded PBGA packages were found to exhibit bond lift failures through a single customer experience as of this date. An ongoing investigation of this issue points to specific lots of industry-standard mold compound in combination with industry-standard wirebond and molding process as main contributors to this issue. This Quality Alert is an effort to proactively communicate potential impact.

Based on empirical data collected to date, failures are observed either at final test or after board mount. All failures seen to date have been in the early life of the material. Reliability studies are underway to determine the impact to the lifetime of affected material. Failure rate ranges from 1% to 5% per the single customer experience reported.

An affected device would become non-functional and manifest itself as opens on any package pin.

Preventive measures have been put in place in the assembly process to address any potential recurrence of this issue.

Immediate corrective actions by Xilinx include:

- Quarantine all affected material
- Suspend use of affected mold compound till investigation is complete
- Investigate the wirebond process
- Assess risk of all material prior to shipping
- Extensively analyze this multi-variable issue with the assembly vendor and the mold compound supplier

## Products Affected

Table 1: Affected Die-Package Combinations

Family	Package
Spartan-3 Spartan-3E Spartan-3L	FT/FTG256
	FG/FGG400
	FG/FGG456
	FG/FGG484
	FG/FGG676
	FG/FGG900
	FG/FGG1156

**Note:** *Only* specific lots manufactured between Date Codes 0537 to 0617 inclusive are affected.

Please see the [Appendix](#) for a complete list of affected parts.

## Traceability

The affected material is limited to specific Lot IDs that are a subset of all Lot IDs manufactured between Date Codes 0537 to 0617 inclusive. All material marked with Date Codes before 0537 or after 0617 is not affected, and should be used as per normal practice.

To determine the Lot ID of the material:

- The Lot ID is on the third line of the package top mark, as shown in [Figure 1](#).
- The Box/Bag Lot IDs are denoted on the label of the Moisture Barrier Bag (MBB) or the box containing these devices.

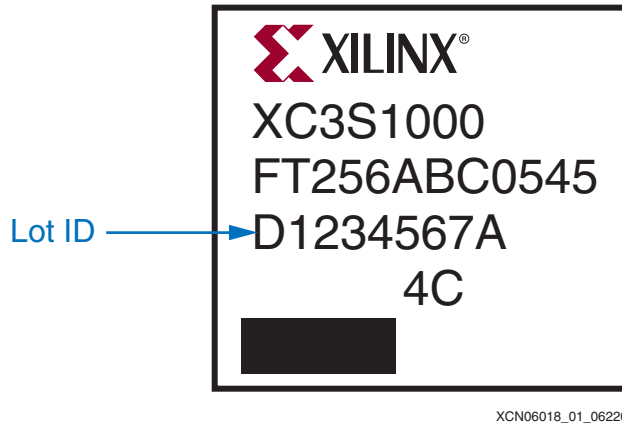


Figure 1: Example of Package Top Mark

## Recommendations

Please [contact your Sales Representative](#) to determine if the Lot IDs of the material you acquired is affected.

Material outside of the affected Lot IDs is not affected and should be used as normal.

For affected material, Xilinx recommends the following:

1. Unassembled affected product should be returned to Xilinx, Inc. for replacement.
2. If you have assembled systems or boards with affected product, please contact your Sales Representative to assess the risk and determine a course of action.

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## Revision History

The following table shows the revision history for this document.

Date	Version	Revision
6/26/06	1.0	Initial release.

## Appendix

Following is a complete list of the affected parts.

XC3S2000FG456C/I	XC3S250EFT256C/I	XC3S1000LFT256C
XC3S2000FG676C/I	XC3S250EFTG256C/I	XC3S1000LFG456C
XC3S2000FG900C/I	XC3S500EFT256C/I	XC3S1500LFG456C
XC3S2000FGG456C/I	XC3S500EFTG256C/I	XC3S1500LFG676C
XC3S2000FGG676C/I	XC3S1200EFG400C/I	XC3S4000LFG900C
XC3S4000FG1156C/I	XC3S1200EFGG400C/I	
XC3S4000FG676C/I	XC3S1200EFT256C/I	
XC3S4000FG900C/I	XC3S1200EFTG256C/I	
XC3S4000FGG1156C	XC3S1600EFG400C/I	
XC3S4000FGG676C/I	XC3S1600EFG484C/I	
XC3S4000FGG900C/I	XC3S1600EFGG400C/I	
XC3S5000FG1156C/I	XC3S1600EFGG484C/I	
XC3S5000FG900C/I		
XC3S5000FGG1156C/I		
XC3S5000FGG900C/I		
XC3S1500FG456C/I		
XC3S1500FG676C/I		
XC3S1500FGG456C/I		
XC3S1500FGG676C/I		
XC3S200FT256C/I		
XC3S200FTG256C/I		
XC3S400FG456C/I		
XC3S400FGG456C/I		
XC3S400FT256C/I		
XC3S400FTG256C/I		
XC3S1000FG456C/I		
XC3S1000FG676C/I		
XC3S1000FGG456C/I		
XC3S1000FGG676C/I		
XC3S1000FT256C/I		
XC3S1000FTG256C/I		