Qualification Report for XCN06016 - New Assembly Partner (SCS)

RPT058 (v1.0) September 25, 2006

Introduction

As per XCN06016, released on September 25, 2006, STATS ChipPAC Singapore (SCS) has been qualified as a new assembly partner for wire bond packages. Tables 1 through 7 summarize the qualification data for this new site. For more information regarding this change, please refer to XCN06016 (http://www.xilinx.com/bvdocs/notifications/xcn06016.pdf).

Qualification Data

Test Purpose

- Assembly Vendor Qualification of STATS ChipPAC for Spartan™ family of wire bond packages.
- Packages: CPG132, FGG320, FGG456, FGG676, PQG208, VQG100, TQG144, and FTG256.
- Six device/package combinations used as qualification vehicles. Remaining combinations are qualified by extension.
- Sample size: ~77 units from three assembly lots per package per test.
- Criteria: Zero failures at 1000 cycles or hours.

Qualification Plan

Table 1: **Qualification Vehicles and Stress Tests**

Device-Package	TCB	HTS	TH	THB	HAST
XC3S250E-VQG100	X	X	X		X
XC3S250E-TQG144	X	X	X		X
XC2S600E-FGG676	X	X	X		X
XC2S400E-FTG256	X	X		X	X
XC3S500E-CPG132	X	X		X	X
XC3S500E-PQG208	X	X		X	X

Table 2: **Stress Test Details**

No	Test	Description	Condition
1	TCB	Preconditioning +Temperature Cycle	J-STD-020C Moisture Sensitivity Level 3; 260°C Reflow JESD22-A104-B Condition B, 1000 cycles; -55°C to 125°C
2	TH	Preconditioning + Temperature Humidity Test	Un-Biased 85°C/85%R.H. MSL3, 260°C Reflow; 1000 hours
3	THB	Preconditioning + Biased Temperature Humidity Test	Biased 85°C/85%R.H. MSL3, 260°C Reflow Temperature; 1000 hours
4	HTS	High Temperature Storage Tests	3X Reflow at 260°C + 150°C bake; 1000 hours
5	HAST	Preconditioning + Highly Accelerated Stress Test	Biased 130°C/85%R.H. MSL3, 260°C Reflow Temperature; 96 hours

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Results

Table 3: **TC: Temperature Cycle Test Results**

Device	PreCon	500 Cycles	1000 Cycles	1250 Cycles	Comments
XC3S250E-VQG100	0/76	0/76	0/76	0/76	
XC3S250E-TQG144	0/74	0/74	0/74	0/74	
XC2S600E-FGG676	0/77	0/77	0/77	0/77	
XC2S400E-FTG256	0/77	0/77	0/77	0/77	
XC3S500E-CPG132	0/77	0/77	0/77	0/77	
XC3S500E-PQG208	0/77	0/77	0/77	0/77	

Table 4: **TH: Un-Biased 85°C/85%R.H. MSL3; 260°C Reflow Temperature**

Device	PreCon	500 Hours	1000 Hours	Comments
XC3S250E-VQG100	0/77	0/77	0/77	
XC3S250E-TQG144	0/76	0/76	0/76	
XC2S600E-FGG676	0/76	0/76	0/76	

Table 5: **THB: Biased 85°C/85%R.H. MSL3; 260°C Reflow Temperature**

Device	PreCon	500 Hours	1000 Hours	Comments
XC2S400E-FT256	0/77	0/77	0/77	
XC3S500E-CPG132	0/77	0/77	0/77	
XC3S500E-PQG208	0/78	0/78	0/78	

Table 6: **HTS: 150°C Bake. 3X Reflow**

Device	500 Hours	1000 Hours	Comments
XC3S250E-VQG100	0/76	0/76	
XC3S250E-TQG144	0/77	0/77	
XC2S600E-FGG676	0/74	0/74	
XC2S400E-FTG256	0/78	0/78	
XC3S500E-CPG132	0/77	0/77	
XC3S500E-PQG208	0/78	0/78	

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Table 7: **HAST**

Device	PreCon	96 Hours	168 Hours	Comments
XC3S250E-VQG100	0/78	0/78	-	
XC3S250E-TQG144	0/78	0/78	-	
XC2S600E-FGG676	0/78	0/78	-	
XC2S400E-FTG256	0/78	0/78	-	
XC3S500E-CPG132	0/78	0/78	-	
XC3S500E-PQG208	0/77	0/77	0/77	

Conclusion

All the reliability tests passed the criteria for qualification and support the qualification of STATS as a new assembly site for wire bond packages.

Revision History

Date	Version	Revision
9/25/06	1.0	Initial release.

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