



Integrated Device Technology, Inc.
6024 Silver Creek Valley Road, San Jose, CA - 95138

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: **A1302-02 (R1)** DATE: **11-Apr-2013**
 Product Affected: 23.0mm x 23.0mm FCBGA-484
 27.0mm x 27.0mm FCBGA-676
 31.0mm x 31.0mm FCBGA-900
 35.0mm x 35.0mm FCBGA-1156
 Refer to Attachment II for the affected part numbers
 Date Effective: **11-Jul-2013**

MEANS OF DISTINGUISHING CHANGED DEVICES:
 Product Mark Lot# will have a "AT" prefix to denote alternate site, Amkor Taiwan.
 Back Mark
 Date Code The existing RoHS products (package code suffix BR) will be changed to Lead free products with package code suffix BLG.
 Other

Contact: WH Yeoh
 Title: QA, Product Assurance Attachment: Yes No
 Phone #: (408) 574-6456
 E-mail: wei-hwa.yeoh@idt.com Samples: Please contact your local sales representative for request & availability.

DESCRIPTION AND PURPOSE OF CHANGE:

<input type="checkbox"/> Die Technology <input type="checkbox"/> Wafer Fabrication Process <input type="checkbox"/> Assembly Process <input type="checkbox"/> Equipment <input checked="" type="checkbox"/> Material <input type="checkbox"/> Testing <input checked="" type="checkbox"/> Manufacturing Site <input type="checkbox"/> Data Sheet <input type="checkbox"/> Other	<p>This notification is to advise our customers that IDT is adding Amkor, Taiwan as an alternate assembly facility for the selective devices of the FCBGA package types. The die bump material will be changed from High Pb to Green bump and the underfill material will be changed from SEU-1/ NAU-8 to NAU-27.</p> <p>There is no change to the moisture performance.</p> <p>Attachment I details the qualification data for this change and Attachment II shows the affected list of part numbers.</p>
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RELIABILITY/QUALIFICATION SUMMARY:
 Refer to qualification data shown in attachment I.

CUSTOMER ACKNOWLEDGMENT OF RECEIPT:
 IDT records indicate that you require written notification of this change. Please use the acknowledgement below or E-Mail to grant approval or request additional information. If IDT does not receive acknowledgement within 30 days of this notice it will be assumed that this change is acceptable.
 IDT reserves the right to ship either version manufactured after the process change effective date until the inventory on the earlier version has been depleted.

Customer: _____ **Approval for shipments prior to effective date.**
 Name/Date: _____ E-Mail Address: _____
 Title: _____ Phone# /Fax# : _____

CUSTOMER COMMENTS: _____

IDT ACKNOWLEDGMENT OF RECEIPT:
 RECD. BY: _____ DATE: _____



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ATTACHMENT I - PCN # : A1302-02 (R1)

PCN Type: Manufacturing Site - Alternate Assembly Location

Data Sheet Change: None

No change in moisture sensitivity level (MSL)

Detail Of Change:

This notification is to advise our customers that IDT is adding Amkor, Taiwan as an alternate assembly facility for the selective devices of the FCBGA package types. The die bump material will be changed from High Pb to Green bump and the underfill material will be changed from SEU-1/ NAU-8 to NAU-27.

The material sets used at Amkor, Taiwan are qualified IDT materials.

There is no change to the moisture performance of these packages using the assembly material sets as listed in the below table.



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ATTACHMENT I - PCN # : A1302-02 (R1)

Qualified Material Sets, by Assembly Subcontractor

Description	Existing	Add
Assembly Location	Amkor, Philippines	Amkor, Taiwan
Assembly Materials - FCBGA-900 (AL900, AR900), FCBGA-676 (BR676)	Heat spreader thermo grease: TTG3	SHA-4
	Adhesive: DCL-4	DCL-4
	Die bump: 95Pb5Sn	Sn2.3Ag
	Underfill: NAU8	NAU27
	Substrate: E679FGR / PHP-900 IR15S-3 / ABF-GX13 / AUS703	Substrate: E679FGR / PHP-900 IR15S-3 / ABF-GX13 / AUS703
	Solder Balls: Sn63/Pb37 (standard), Sn96.5/Ag3.0/Cu0.5 (RoHS5)	Sn63/Pb37 (standard), Sn96.5/Ag3.0/Cu0.5 (RoHS5)
Assembly Materials - FCBGA-1156 (BL1156, BR1156)	Heat spreader thermo grease: TTG3 / SHA-1	SHA-4
	Adhesive: DCL-4	DCL-4
	Die bump: 95Pb5Sn	Sn2.3Ag
	Underfill: NAU8	NAU27
	Substrate: E679FGR / PHP-900 IR15S-3 / ABF-GX13 / AUS703	Substrate: E679FGR / PHP-900 IR15S-3 / ABF-GX13 / AUS703
	Solder Balls: Sn63/Pb37 (standard), Sn96.5/Ag3.0/Cu0.5 (RoHS5)	Sn63/Pb37 (standard), Sn96.5/Ag3.0/Cu0.5 (RoHS5)
Assembly Materials - FCBGA-484 (BL484, BR484)	Heat spreader thermo grease: TTG3	SHA-4
	Adhesive: DCL-4	DCL-4
	Die bump: 95Pb5Sn	Sn2.3Ag
	Underfill: SEU-1	NAU27
	Substrate: E679FGR / PHP-900 IR15S-3 / ABF-GX13 / AUS703	Substrate: E679FGR / PHP-900 IR15S-3 / ABF-GX13 / AUS703
	Solder Balls: Sn63/Pb37 (standard), Sn96.5/Ag3.0/Cu0.5 (RoHS5)	Sn63/Pb37 (standard), Sn96.5/Ag3.0/Cu0.5 (RoHS5)



PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT I - PCN # : A1302-02 (R1)

Qualification Test Plans and Results :

Qual Plan & Results: The qualification was performed in accordance with JEDEC47 recommended tests

Qual Vehicle: 35.0mm x 35.0mm Lead Free FCBGA-1156 (3 lots)

Test Description	Test Method	Test Results (SS / Rej)		
		Lot 1	Lot 2	Lot 3
* HAST - unbiased (130 °C/85% RH, 100 Hrs)	JESD22-A118	25/0	25/0	25/0
* Temperature Cycle / Condition B (-55 °C to +125 °C, 700 Cyc)	JESD22-A104	25/0	25/0	25/0
High Temp. Storage Test (150 °C, 1000 Hrs)	JESD22-A103	25/0	25/0	25/0
Solder Ball Shear Test (1000 Hrs)	JESD22-B117	5/0	NA	NA
External Visual Inspection	JESD22-B101	25/0	NA	NA
Internal Visual Inspection	IDT Spec MAC-3001, MAC-3002	5/0	NA	NA
X-ray Examination	IDT Spec MAC-3012	45/0	NA	NA

Note:

* Test requires moisture pre-conditioning sequence per JESD22-A113 prior to stress test



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ATTACHMENT II - PCN # : A1302-02 (R1)

Affected Part Numbers

Part Number	Part Number	Part Number	Part Number
89HPES16H16ZABL	89HPES22T16ZABR	89HPES34T16ZABR	89HPES48T12BR
89HPES16H16ZABLI	89HPES22T16ZABRI	89HPES34T16ZABRI	89HPES48T12BRI
89HPES16H16ZABR	89HPES32H8AL	89HPES48H12BL	89HPES48T12ZABL
89HPES16H16ZABRI	89HPES32H8ALI	89HPES48H12BLI	89HPES48T12ZABLI
89HPES16T16ZABL	89HPES32H8AR	89HPES48H12BR	89HPES48T12ZABR
89HPES16T16ZABR	89HPES32H8ARI	89HPES48H12BRI	89HPES48T12ZABRI
89HPES22H16ZABL	89HPES32H8ZAAL	89HPES48H12SZABR	89HPES64H16BL
89HPES22H16ZABL8	89HPES32H8ZAALI	89HPES48H12SZABR8	89HPES64H16BLI
89HPES22H16ZABLI	89HPES32H8ZAAR	89HPES48H12SZABRI	89HPES64H16BR
89HPES22H16ZABLI8	89HPES32H8ZAARI	89HPES48H12SZABRI8	89HPES64H16BRI
89HPES22H16ZABR	89HPES34H16ZABL	89HPES48H12ZABL	89HPES64H16ZABL
89HPES22H16ZABR8	89HPES34H16ZABLI	89HPES48H12ZABLI	89HPES64H16ZABLI
89HPES22H16ZABRI	89HPES34H16ZABR	89HPES48H12ZABR	89HPES64H16ZABR
89HPES22H16ZABRI8	89HPES34H16ZABRI	89HPES48H12ZABRI	89HPES64H16ZABRI
89HPES22T16ZABL	89HPES34T16ZABL	89HPES48T12BL	
89HPES22T16ZABLI	89HPES34T16ZABLI	89HPES48T12BLI	