Integrated Device Technology, Inc.
6024 Silver Creek Valley Road
San Jose, CA 96138

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: **A0808-04** DATE **September 29, 2008**

Product Affected: 20mm x 20mm TQFP-144 (Standard and Green)

Date Effective: **December 29, 2008**

MEANS OF DISTINGUISHING CHANGED DEVICES:

- ☐ Product Mark
- ■ Back Mark — Lot # will have "UT" prefix.
- ☐ Date Code
- ☐ Other

Contact: Geoffrey Cortes
Title: Product Quality
Phone #: (408) 284-8321
Fax #: (408) 284-1450
E-mail: Geoffrey.Cortes@idt.com

Attachment: ■ Yes ☐ No

Samples: Contact your local IDT sales representative for sample requests.

DESCRIPTION AND PURPOSE OF CHANGE:

- ☐ Die Technology
- ☐ Wafer Fabrication Process
- ☐ Assembly Process
- ☐ Equipment
- ■ Material
- ☐ Testing
- ■ Manufacturing Site
- ☐ Data Sheet
- ☐ Other

This notification is to advise our customers that IDT has successfully completed the qualification of Copper bond wire and plans to ship products of 20mm x 20mm TQFP-144 with copper bond wire process assembled in USG, Singapore in December 2008.
In addition, IDT has added USG, Singapore as an alternate assembly facility for selective IDT part numbers.
Please refer to the following attachments for additional information.
Attachment 1 outlines the qualification data.
Attachment 2 shows the affected part numbers for Copper Wire Process.
Attachment 3 shows the affected part numbers assembled in alternate assembly location USG, Singapore and with Copper Wire Process

RELIABILITY/QUALIFICATION SUMMARY:

Refer to qualification data shown in attachment 1.

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 1 - PCN # : A0808-04

PCN Type: Assembly Material Change - Gold wire to Copper wire & Add Assembly Site

Data Sheet Change: None

Detail Of Change:

This notification is to advise our customers that IDT has successfully completed the qualification of Copper bond wire and plans to ship products of 20mm x 20mm TQFP-144 with copper bond wire process assembled in USG, Singapore in December 2008. There is no change to the RoHS compliance and moisture performance of these packages.

Copper bond wire process is presently used by selective semiconductor suppliers due to the following key advantages:

A. Better electrical performance - higher current handling capability, ~18% improvement in resistance for 1 mil bond wire.
B. Better high temperature bake performance. Minimal intermetallic compound build-up.
C. Higher ball shear and wire pull test result - smaller bond pad real estate is now possible.
D. Stiffer wire – minimize wire swaying, longer wires than gold is now possible.

IDT has already successfully qualified Copper wire bond process and has shipped million of units assembled at Carsem, Malaysia for VFQFP-N-72 (PCN# A0709-02R1), and Unisem, Indonesia for VFQFP-N-64, 72, 6.1 mm TSSOP 56, 64 (PCN# A0802-01R1).

Customers may expect to receive shipments with Cu wire process no sooner than 90 days from the date of this notification, September 22, 2008. Product assembled with Au and Cu wire will be shipped during the transition period or until the Au wire inventory has been depleted. Please note that product assembled with Au and Cu wire will not be mixed in one tray stack, or tape and reel.

In addition, IDT has added USG, Singapore as an alternate assembly facility for selective IDT part numbers as listed in Attachment 3 using the assembly material set, which is in compliance with ROHS 6 (green products) and ROHS 5 (standard products) requirement. Refer to Table 1 for material set used in existing and alternate assembly facility.

We request you to acknowledge receipt of this notification within 30 days of the date of this PCN notification. If you require samples to conduct an evaluation, please make your sample request within 30 days as samples are not built ahead of the change for all device options. You may contact your local sales representative to acknowledge this PCN and request samples.

Please refer to the following attachments for additional information.

Attachment 1 outlines the qualification data.
Attachment 2 shows the affected part numbers.

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PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT 1 - PCN # : A0808-04

Qualification Information and Qualification Data:

Affected Packages: 20mm x 20mm TQFP-144

Assembly Material: See Table 1

Description	Existing	Add
Assembly Location	ATP, Philippines	USG, Singapore
Assembly Materials	Die Attach: 3230	3230
	Wire: Au wire	Cu wire
	Mold Compound: G700L	CEL9220HF10
	Lead Frame: Copper Alloy	Copper Alloy
	Plating: Sn/Pb (standard) and matte 100% Sn (green)	Sn/Pb (standard) and matte 100% Sn (green)

Qualification Test Result:

1. Bond Wire Qual Results

The following tests were successfully completed on below qual vehicles:
14mm x 14mm PQFP-80 (Green)
Die Attach: Ablebond 3230
Wire: 25um Tanaka
Mold Compound: CEL9220HF10

Test Description	Test Method	Test Results (SS / Rej)
* Auto Clave (121°C, 100% RH, 2 ATM, 96 hours)	JESD22-A102	55/0
* Temperature Cycle (-65 °C to +150 °C, 1000 Cyc)	JESD22-A104	55/0
High Temp. Storage (150 °C, 500 Hrs)	JESD22-A103	55/0

Note: * Test requires moisture pre-conditioning sequence per JESD22-A113 @ MSL 3

2. Product Electrical Characterization

Product electrical characterization has been successfully completed on representative product families and copper wire performance was comparable to gold wire performance.

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ATTACHMENT 2 - PCN #: A0808-04

Affected Part Number for Copper Wire Process

Part Number	Part Number	Part Number	Part Number
ICS1531Y-100	IDT72V70840DAG	IDT79RC32V364-100DA	IDT82V2048SDAG
ICS1531Y-100T	IDT72V71623DA	IDT79RC32V364-100DAG	IDT82V2054DA
ICS1531Y-140	IDT72V71623DAG	IDT79RC32V364-133DA	IDT82V2054DAG
ICS1531Y-140LF	IDT72V71643DA	IDT79RC32V364-133DAG	IDT82V2058DA
ICS1531Y-140LFT	IDT72V71643DAG	IDT82V2044DA	IDT82V2058DAG
ICS1531Y-140T	IDT72V73260DA	IDT82V2044DAG	IDT82V2058LDA
ICS1531Y-165	IDT72V73260DA8	IDT82V2048DA	IDT82V2058LDAG
ICS1531Y-165T	IDT72V73260DAG	IDT82V2048DAG	IDT82V2058XDA
IDT72V70210DA	IDT77V011L155DA	IDT82V2048LDA	IDT82V2058XDAG
IDT72V70210DAG	IDT77V011L155DA8	IDT82V2048LDAG	IDTV105ADAG
IDT72V70840DA	IDT77V012L155DA	IDT82V2048SDA	IDTV105ADAG8

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PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT 3 - PCN #: A0808-04

Affected Part Number Assembled in Alternate Assembly Location USG, Singapore and With Copper Wire Process

Part Number	Part Number	Part Number	Part Number
IDT72V70210DA	IDT72V71623DA	IDT72V73260DA	IDT79RC32V364-100DAG
IDT72V70210DAG	IDT72V71623DAG	IDT72V73260DA8	IDT79RC32V364-133DA
IDT72V70840DA	IDT72V71643DA	IDT72V73260DAG	IDT79RC32V364-133DAG
IDT72V70840DAG	IDT72V71643DAG	IDT79RC32V364-100DA	