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

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: W-1002-01(R4) DATE: October 4, 2010

Affected Products: Refer to the attached list of products transferring from IDT Fab 4 to TSMC

Date Effective: Refer to the attachment for qualification details and sample availability

MEANS OF DISTINGUISHING CHANGED DEVICES:

- ■ Product Mark Refer to details in attachment 1
- ☐ Back Mark
- ■ Date Code
- ☐ Other

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Attachment: ■ Yes ☐ No

Additional details are shown on attachment 1 and in the part list

DESCRIPTION AND PURPOSE OF CHANGE:

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

This is an update to the previously published PCN regarding the transfer of selected products from IDT Hillsboro, Oregon (Fab 4) wafer fab to Taiwan Semiconductor Manufacturing Corporation (TSMC).

Qualification has been completed on some of the lead vehicles and extended product. The Qualification summary to date, is shown in this PCN update.

TSMC is closely matching the IDT Fab 4 process for each technology transferred. Each product transferred will use the same design rules of the existing product.

There is no expected change to the data sheet, package or backend manufacturing process.

Production at IDT Hillsboro, Oregon Fab 4 is expected to continue through August 2011.

A full list of affected IDT part numbers and earliest sample availability is provided in the affected part list. Updates to the transfer schedule listed in this PCN will be published as qualification is completed, or upon request and are subject to change.

RELIABILITY/QUALIFICATION SUMMARY:

Wafer and Component level Qualification and Characterization tests will verify that there is no change to the performance or reliability of the product. Refer to the completed qualification page for results to date on the component qualifcation.

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 90 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: _____

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PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT I - PCN # : W-1002- 01(R4)

PCN Type: Wafer Fab Manufacturing Site Change

Data Sheet Change: No Change to Datasheet Parameters.

Details Of Change:

IDT is continuing the process of transferring the wafer fab production of selected products currently manufactured in the IDT Fab 4, Hillsboro, Oregon Fab to TSMC Fab 3 or Fab 8, both of which are in Hsinchu, Taiwan.

TSMC are closely matching the IDT Fab 4 process for each technology transferred. Each product transferred will use the same design rules of the existing product. The transferring products will be manufactured in the TSMC Foundry sites as follows.

≥ 0.35µ to TSMC Fab 3, Hsinchu, Taiwan
< 0.35µ to TSMC Fab 8, Hsinchu, Taiwan

There is no expected change to the data sheet, package or backend manufacturing process.

TSMC Fab 3 and Fab 8 are both qualified Wafer Foundry sites for IDT products. TSMC has qualified technologies of similar geometry sizes.

The Technology Transfer is in progress on lead technology vehicles for each technology. Wafer and component level qualification will be completed on 3 production lots of each technology vehicle. Extended products from each of the lead vehicles will also be subjected to additional qualification tests and reports provided on request.

Production lots for qualification started in February 2010 with the first products completing qualification in May 2010. Additional products will be started and qualified in a staggered schedule and finalized by August 2011.

Qualification results are shown in this PCN update for the lead vehicles and extended products that have completed qualification to date, and have been released for production shipments. Additional details are available on request.

The affected part list will show the current schedule of the earliest sample availability of production lots. The samples will be available from production lots that have completed a full qualification on the lead technology vehicles.

The earliest sample availability date is based on the completed technology qualification.

The means to distinguish the change will be in the standard convention, with a die revision shown on the top mark or traceability code in the assembly lot# (suffix "F"). The die rev and/or assembly lot# is included on the standard labels.

Sample availability dates are subject to change and may not be available for all products on the list unless specifically requested in advance. Please contact your IDT sales representative to request samples or additional information.

TSMC Transfer Qualification Test Result Summary

Technology Information: 0.18 μm, 3.3 V
Fab Location: TSMC Fab 8

Technology Qualification Vehicle Test Summary – JESD47 Recommended Tests

Test / Conditions	Lead Vehicle: 71V656Z 9M SRAM
	Sample Size / Rejects / each lot
High Temperature Operating Life (Dynamic) JESD22-A108B, +125°C @ 1000 hours or equivalent	158 / 0 154 / 0 154 / 0
Temperature Cycle JESD22-A104B, -55°C -/125°C, 1000 cycles	45 / 0 45 / 0 45 / 0
High Temperature Storage Bake JESD22-A-103-B, 150°C, 1000 hrs	77 / 0 77 / 0 77 / 0
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0
Latch-up JESD78B	6 / 0
Electrical Characterization per Datasheet conditions	10

Technology Qualification Vehicle Test Summary – Supplemental Tests

Test / Conditions	Lead Vehicle: 71V656Z 9M SRAM
	Sample Size / Rejects/ each lot
Ball Shear Test JESD22-B116-A, Ball Shear Strength > 5.7g	5 / 0 5 / 0 5 / 0
Highly Accelerated Stress Test (HAST) EIA/JESD22-A110B, 130°C/85%R.H. Vcc max for 100 hours.	45 / 0 45 / 0 45 / 0
Autoclave EIA/JESD22-A102C, 168hrs @ 2 ATM, Saturated Steam @ 121°C	45 / 0 45 / 0 45 / 0

Extended Products / Bridge Qualification Test Summary
Technology Information: 0.18 μm, 3.3 V, Fab Location: TSMC Fab 8

Test / Conditions	71V424Y 4M SRAM	71V556X 4M SRAM	71V576Y 4M SRAM
	Sample Size / Rejects	Sample Size / Rejects	Sample Size / Rejects
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0	3 / 0	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0	3 / 0	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0	3 / 0	3 / 0
Latch-up JESD78B	6 / 0	6 / 0	6 / 0
Electrical Characterization per Datasheet conditions	10	10	10

Note: For HAST, Autoclave and Temperature Cycle, samples have been subjected to pre-conditioning per JESD22-A113

TSMC Transfer Qualification Test Result Summary

Technology Information: 0.35 μm, 5.0 V
Fab Location: TSMC Fab 3

Technology Qualification Vehicle Test Summary – JESD47 Recommended Tests

Test / Conditions	Lead Vehicle: 71024M 1M SRAM
	Sample Size / Rejects / each lot
High Temperature Operating Life (Dynamic) JESD22-A108B, +125°C @ 1000 hours or equivalent	154 / 0 79 / 0 79 / 0
Temperature Cycle JESD22-A104B, -55°C -/125°C, 1000 cycles	45 / 0 45 / 0 45 / 0
High Temperature Storage Bake JESD22-A-103-B, 150°C, 1000 hrs	77 / 0 77 / 0 77 / 0
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0
Latch-up JESD78B	6 / 0
Electrical Characterization per Datasheet conditions	10

Technology Qualification Vehicle Test Summary – Supplemental Tests

Test / Conditions	Lead Vehicle: 71024M 1M SRAM
	Sample Size / Rejects/ each lot
Ball Shear Test JESD22-B116-A, Ball Shear Strength > 5.7g	5 / 0 5 / 0 5 / 0
Highly Accelerated Stress Test (HAST) EIA/JESD22-A110B, 130°C/85%R.H. Vcc max for 100 hours.	45 / 0 45 / 0 45 / 0
Autoclave EIA/JESD22-A102C, 168hrs @ 2 ATM, Saturated Steam @ 121°C	45 / 0 45 / 0 45 / 0

Extended Products / Bridge Qualification Test Summary
Technology Information: 0.35 μm, 5.0 V, Fab Location: TSMC Fab 3

Test / Conditions	71256TT, 256K SRAM
	Sample Size / Rejects
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0
Latch-up JESD78B	6 / 0
Electrical Characterization per Datasheet conditions	10

Note: For HAST, Autoclave and Temperature Cycle, samples have been subjected to pre-conditioning per JESD22-A113

TSMC Transfer Qualification Test Result Summary

Technology Information: 0.35 μm, 3.3 V
Fab Location: TSMC Fab 3

Technology Qualification Vehicle Test Summary – JESD47 Recommended Tests

Test / Conditions	Lead Vehicle: 70V28Y 1M SRAM Sample Size / Rejects / each lot
High Temperature Operating Life (Dynamic) JESD22-A108B, +125°C @ 1000 hours or equivalent	152 / 0 79 / 0 79 / 0
Temperature Cycle JESD22-A104B, -55°C -/125°C, 1000 cycles	45 / 0 45 / 0 45 / 0
High Temperature Storage Bake JESD22-A-103-B, 150°C, 1000 hrs	77 / 0 77 / 0 77 / 0
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0
Latch-up JESD78B	6 / 0
Electrical Characterization per Datasheet conditions	10

Technology Qualification Vehicle Test Summary – Supplemental Tests

Test / Conditions	Lead Vehicle: 70V28Y 1M SRAM Sample Size / Rejects/ each lot
Ball Shear Test JESD22-B116-A, Ball Shear Strength > 5.7g	5 / 0 5 / 0 5 / 0
Highly Accelerated Stress Test (HAST) EIA/JESD22-A110B, 130°C/85%R.H. Vcc max for 100 hours.	45 / 0 45 / 0 45 / 0
Autoclave EIA/JESD22-A102C, 168hrs @ 2 ATM, Saturated Steam @ 121°C	45 / 0 45 / 0 45 / 0

Note: For HAST, Autoclave and Temperature Cycle, samples have been subjected to pre-conditioning per JESD22-A113

TSMC Transfer Qualification Test Result Summary

Technology Information: 0.50 μm, 5.0 V
Fab Location: TSMC Fab 3

Technology Qualification Vehicle Test Summary – JESD47 Recommended Tests

Test / Conditions	Lead Vehicle: 72265Y 256K SRAM Sample Size / Rejects / each lot
High Temperature Operating Life (Dynamic) JESD22-A108B, +125°C @ 1000 hours or equivalent	79 / 0 79 / 0 79 / 0
Temperature Cycle JESD22-A104B, -55°C -/125°C, 1000 cycles	45 / 0 45 / 0 45 / 0
High Temperature Storage Bake JESD22-A-103-B, 150°C, 1000 hrs	77 / 0 77 / 0 77 / 0
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0
Latch-up JESD78B	6 / 0
Electrical Characterization per Datasheet conditions	10

Technology Qualification Vehicle Test Summary – Supplemental Tests

Test / Conditions	Lead Vehicle: 72265Y 256K SRAM Sample Size / Rejects/ each lot
Ball Shear Test JESD22-B116-A, Ball Shear Strength > 5.7g	5 / 0 5 / 0 5 / 0
Highly Accelerated Stress Test (HAST) EIA/JESD22-A110B, 130°C/85%R.H. Vcc max for 100 hours.	45 / 0 45 / 0 45 / 0
Autoclave EIA/JESD22-A102C, 168hrs @ 2 ATM, Saturated Steam @ 121°C	45 / 0 45 / 0 45 / 0

Note: For HAST, Autoclave and Temperature Cycle, samples have been subjected to pre-conditioning per JESD22-A113

TSMC Transfer Qualification Test Result Summary

Technology Information: 0.35 μm, 3.3 V
Fab Location: TSMC Fab 3

Technology Qualification Vehicle Test Summary – JESD47 Recommended Tests

Test / Conditions	Lead Vehicle: AV265 Clock
	Sample Size / Rejects / each lot
High Temperature Operating Life (Dynamic) JESD22-A108B, +125°C @ 1000 hours or equivalent	77 / 0 77 / 0 77 / 0
Temperature Cycle JESD22-A104B, -55°C -/125°C, 1000 cycles	45 / 0 45 / 0 45 / 0
High Temperature Storage Bake JESD22-A-103-B, 150°C, 1000 hrs	77 / 0 77 / 0 77 / 0
ESD: Human Body Model JESD22-A114F, Rating: 2000V	3 / 0
ESD: Charged Device Model JEDEC 22-101C, Rating: 500V	3 / 0
ESD: Machine Model JESD22-A115B, Rating: 200V	3 / 0
Latch-up JESD78B	6 / 0
Electrical Characterization per Datasheet conditions	10

Technology Qualification Vehicle Test Summary – Supplemental Tests

Test / Conditions	Lead Vehicle: AV265 Clock
	Sample Size / Rejects/ each lot
Ball Shear Test JESD22-B116-A, Ball Shear Strength > 5.7g	5 / 0 5 / 0 5 / 0
Highly Accelerated Stress Test (HAST) EIA/JESD22-A110B, 130°C/85%R.H. Vcc max for 100 hours.	45 / 0 45 / 0 45 / 0
Autoclave EIA/JESD22-A102C, 168hrs @ 2 ATM, Saturated Steam @ 121°C	45 / 0 45 / 0 45 / 0

Note: For HAST, Autoclave and Temperature Cycle, samples have been subjected to pre-conditioning per JESD22-A113