



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

PRODUCT/PROCESS CHANGE NOTICE (PCN)

PCN #: **SR-0505-02** DATE: **8/3/2005**

Product Affected: FPBGA 165 (BQ165) Package

Date Effective: **11/2/2005**

MEANS OF DISTINGUISHING CHANGED DEVICES:

- Product Mark Encrypted assembly date code suffix "EV"
- Back Mark on the assembly lot number. Refer to the
- Date Code illustration on page 4 of the PCN.
- Other

Contact: Geoffrey Cortes

Title: Corporate Quality/Reliability Manager

Phone #: (408) 284 8321

Fax #: (408) 284 1450

E-mail: Geoffrey.Cortes@idt.com

Attachment: Yes No

Samples: Contact the local IDT sales representative

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 customers, that IDT is changing the FPBGA 165 (BQ165) package to a larger solder mask opening and larger ball diameter. This is expected to improve solder joint reliability.
Please refer to the attachment for details.

RELIABILITY/QUALIFICATION SUMMARY:

Please see PCN attachment for qualification/reliability data.

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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PCN Type: Change in solder pad opening and ball diameter for FPBGA 165 (BQ165) package.

Data Sheet Change: There is no change in Moisture Sensitive Level.

Detail of Change: This notification is to advise customers that IDT is changing the FPBGA 165 (BQ165) package with a larger solder mask opening and larger solder ball diameter. There is no change to the substrate material, number of substrate layers, or assembly material set. This is expected to improve the solder joint reliability. Refer to page 7 of 7 of the PCN attachment for the Weibull plot.

There are no datasheet or Moisture Sensitive Level (MSL) changes due to this change. Customers are not expected to be adversely impacted by this change.

| Description | From | To |
|----------------------|---------|---------|
| Solder Mask Opening | 0.37 mm | 0.40 mm |
| Solder Ball Diameter | 0.40 mm | 0.45 mm |

Please see attachment (Appendix - 1) for affected part #s.

Samples are available for selective devices. Please contact your local field sales representative for sample availability and additional information.



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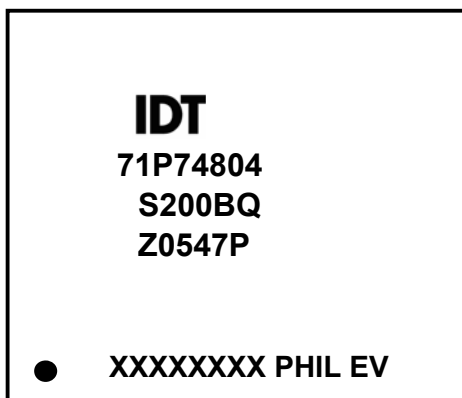
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ILLUSTRATION

Encrypted assembly date code suffix on the assembly lot number

Example of FPBGA 165 Package Top Mark



XXXXXXXX = Assembly Lot Number
PHIL = Country of Origin
EV = Assembly Date Code

EV

└─┬─> ww 45 - 46
└─┬─> 2005

EW = 2005, ww 47 - 48

EX = 2005, ww 49 - 50

↓

FA = 2006, ww 01 - 02



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PRODUCT/PROCESS CHANGE NOTICE (PCN)

ATTACHMENT - PCN #: SR-0505-02

Qualification Plan: P04-10-02

Test Vehicle: IDT71V65803

Qualification Test Plan and Results:

| Description | Test Methods | Sample Size /# Fails | Test Results |
|----------------------------|-----------------------|-------------------------|-------------------------|
| Physical Dimensions | JESD22-B100 | 5/0 | 5/0 (Pass) |
| External Visual Inspection | JESD22-B101 | 25/0 | 25/0 (Pass) |
| Internal Visual Inspection | MIL-STD 883 M-2010 | 5/0 | 5/0 (Pass) |
| Solder Ball Shear Test | JESD22-B117 | 5/0 | 5/0 (Pass) |
| 2nd Level Reliability Test | IPC-9701 | 42 | Refer to page 7 of 7 |



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Product List

Appendix - 1

| | | | | |
|--------------------|---------------------|---------------------|---------------------|---------------------|
| IDT71V2546S100BQ | IDT71V2557S80BQI | IDT71V25781SA166BQ | IDT71V3557SA75BQ | IDT71V35761SA200BQI |
| IDT71V2546S100BQI | IDT71V2557S85BQ | IDT71V25781SA166BQI | IDT71V3557SA75BQI | IDT71V3576S133BQ |
| IDT71V2546S133BQ | IDT71V2557S85BQI | IDT71V25781SA183BQ | IDT71V3557SA80BQ | IDT71V3576S133BQI |
| IDT71V2546S133BQI | IDT71V2557SA75BQ | IDT71V25781SA183BQI | IDT71V3557SA80BQI | IDT71V3576S150BQ |
| IDT71V2546S150BQ | IDT71V2557SA75BQI | IDT71V25781SA200BQ | IDT71V3557SA85BQ | IDT71V3576S150BQI |
| IDT71V2546SA100BQ | IDT71V2557SA80BQ | IDT71V25781SA200BQI | IDT71V3557SA85BQI | IDT71V3576SA133BQ |
| IDT71V2546SA100BQI | IDT71V2557SA80BQI | IDT71V2578S133BQ | IDT71V3558S100BQ | IDT71V3576SA133BQI |
| IDT71V2546SA133BQ | IDT71V2557SA85BQ | IDT71V2578S133BQI | IDT71V3558S100BQI | IDT71V3576SA150BQ |
| IDT71V2546SA133BQI | IDT71V2557SA85BQI | IDT71V2578S150BQ | IDT71V3558S133BQ | IDT71V3576SA150BQI |
| IDT71V2546SA150BQ | IDT71V2558S100BQ | IDT71V2578S150BQI | IDT71V3558S133BQI | IDT71V3577S65BQ |
| IDT71V2546SA150BQI | IDT71V2558S100BQI | IDT71V3548S100BQ | IDT71V3558S166BQ | IDT71V3577S75BQ |
| IDT71V2548S133BQ | IDT71V2558S133BQ | IDT71V3548S100BQI | IDT71V3558S166BQI | IDT71V3577S75BQI |
| IDT71V2548SA100BQ | IDT71V2558S133BQI | IDT71V3548S133BQ | IDT71V3558S200BQ | IDT71V3577S80BQ |
| IDT71V2548SA100BQI | IDT71V2559S75BQ | IDT71V3548S133BQI | IDT71V3558S200BQI | IDT71V3577S80BQI |
| IDT71V2548SA133BQ | IDT71V2559S80BQ | IDT71V3548SA100BQ | IDT71V3558SA100BQ | IDT71V3577S85BQ |
| IDT71V2548SA133BQI | IDT71V2559S85BQ | IDT71V3548SA133BQ | IDT71V3558SA133BQ | IDT71V3577S85BQI |
| IDT71V2548SA150BQ | IDT71V2559SA75BQ | IDT71V3556S100BQ | IDT71V3559S75BQ | IDT71V3577SA75BQ |
| IDT71V2548SA150BQI | IDT71V2559SA80BQ | IDT71V3556S100BQI | IDT71V3559S80BQ | IDT71V3577SA75BQI |
| IDT71V2556S100BQ | IDT71V2559SA85BQ | IDT71V3556S133BQ | IDT71V3559S80BQI | IDT71V3577SA80BQ |
| IDT71V2556S100BQI | IDT71V25761SA166BQ | IDT71V3556S133BQI | IDT71V3559S85BQ | IDT71V3577SA80BQI |
| IDT71V2556S133BQ | IDT71V25761SA166BQI | IDT71V3556S150BQ | IDT71V3559S85BQI | IDT71V3577SA85BQ |
| IDT71V2556S133BQI | IDT71V25761SA183BQ | IDT71V3556S166BQ | IDT71V3559SA75BQ | IDT71V3577SA85BQI |
| IDT71V2556S150BQ | IDT71V25761SA183BQI | IDT71V3556S200BQ | IDT71V3559SA80BQ | IDT71V35781SA166BQ |
| IDT71V2556S166BQ | IDT71V25761SA200BQ | IDT71V3556SA100BQ | IDT71V3559SA85BQ | IDT71V35781SA166BQI |
| IDT71V2556S200BQ | IDT71V25761SA200BQI | IDT71V3556SA100BQI | IDT71V35761S166BQ | IDT71V35781SA183BQ |
| IDT71V2556SA100BQ | IDT71V2576S133BQ | IDT71V3556SA133BQ | IDT71V35761S166BQI | IDT71V35781SA183BQI |
| IDT71V2556SA100BQI | IDT71V2576S133BQI | IDT71V3556SA133BQI | IDT71V35761S183BQ | IDT71V35781SA200BQ |
| IDT71V2556SA133BQ | IDT71V2576S150BQ | IDT71V3556SA150BQ | IDT71V35761S183BQI | IDT71V35781SA200BQI |
| IDT71V2556SA133BQI | IDT71V2576S150BQI | IDT71V3556SA166BQ | IDT71V35761S200BQ | IDT71V3578S133BQ |
| IDT71V2556SA150BQ | IDT71V2577S75BQ | IDT71V3556SA200BQ | IDT71V35761S200BQI | IDT71V3578S133BQI |
| IDT71V2556SA166BQ | IDT71V2577S75BQI | IDT71V3557S75BQ | IDT71V35761SA166BQ | IDT71V3578S150BQ |
| IDT71V2556SA200BQ | IDT71V2577S80BQ | IDT71V3557S80BQ | IDT71V35761SA166BQI | IDT71V3578S150BQI |
| IDT71V2556SA200BQI | IDT71V2577S80BQI | IDT71V3557S80BQI | IDT71V35761SA183BQ | IDT71V3579S65BQ |
| IDT71V2557S75BQ | IDT71V2577S85BQ | IDT71V3557S85BQ | IDT71V35761SA183BQI | IDT71V3579S75BQ |
| IDT71V2557S80BQ | IDT71V2577S85BQI | IDT71V3557S85BQI | IDT71V35761SA200BQ | IDT71V3579S75BQI |

Note: For T & R (shipping method) "8" is added to the part number and for industrial grade, letter "I" is added to the part number.



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Product List

Appendix - 1

| | | | | |
|---------------------|--------------------|--------------------|--------------------|--------------------|
| IDT71V3579S80BQ | IDT71V3579S80BQ | IDT71V65803S150BQ | IDT71V67803S133BQI | IDT71P71804S250BQ |
| IDT71V3579S80BQI | IDT71V3579S80BQI | IDT71V65803S150BQI | IDT71V67803S150BQ | IDT71P71804S250BQI |
| IDT71V3579S85BQ | IDT71V3579S85BQ | IDT71V65902S75BQ | IDT71V67803S166BQ | IDT71P72104S167BQ |
| IDT71V3579S85BQI | IDT71V3579S85BQI | IDT71V65902S80BQ | IDT71V67902S75BQ | IDT71P72104S167BQI |
| IDT71V3579SA75BQ | IDT71V3579SA75BQ | IDT71V65902S85BQ | IDT71V67902S75BQI | IDT71P72104S200BQ |
| IDT71V3579SA75BQI | IDT71V3579SA75BQI | IDT71V65903S75BQ | IDT71V67902S80BQ | IDT71P72104S200BQI |
| IDT71V3579SA80BQ | IDT71V3579SA80BQ | IDT71V65903S80BQ | IDT71V67902S80BQI | IDT71P72104S250BQ |
| IDT71V3579SA80BQI | IDT71V3579SA80BQI | IDT71V65903S85BQ | IDT71V67902S85BQ | IDT71P72104S250BQI |
| IDT71V3576SA150BQI | IDT71V3579SA85BQ | IDT71V67602S133BQ | IDT71V67902S85BQI | IDT71P72204S167BQ |
| IDT71V3577S65BQ | IDT71V3579SA85BQI | IDT71V67602S133BQI | IDT71V67903S75BQ | IDT71P72204S167BQI |
| IDT71V3577S75BQ | IDT71V65602S100BQ | IDT71V67602S150BQ | IDT71V67903S75BQI | IDT71P72204S200BQ |
| IDT71V3577S75BQI | IDT71V65602S133BQ | IDT71V67602S150BQI | IDT71V67903S80BQ | IDT71P72204S200BQI |
| IDT71V3577S80BQ | IDT71V65602S150BQ | IDT71V67602S166BQ | IDT71V67903S80BQI | IDT71P72204S250BQ |
| IDT71V3577S80BQI | IDT71V65603S100BQ | IDT71V67602S166BQI | IDT71V67903S85BQ | IDT71P72204S250BQI |
| IDT71V3577S85BQ | IDT71V65603S100BQI | IDT71V67603S133BQ | IDT71V67903S85BQI | IDT71P72604S167BQ |
| IDT71V3577S85BQI | IDT71V65603S133BQ | IDT71V67603S133BQI | IDT71P71104S167BQ | IDT71P72604S167BQI |
| IDT71V3577SA75BQ | IDT71V65603S133BQI | IDT71V67603S150BQ | IDT71P71104S167BQI | IDT71P72604S200BQ |
| IDT71V3577SA75BQI | IDT71V65603S150BQ | IDT71V67603S150BQI | IDT71P71104S200BQ | IDT71P72604S200BQI |
| IDT71V3577SA80BQ | IDT71V65603S150BQI | IDT71V67603S166BQ | IDT71P71104S200BQI | IDT71P72604S250BQ |
| IDT71V3577SA80BQI | IDT71V65702S75BQ | IDT71V67702S75BQ | IDT71P71104S250BQ | IDT71P72604S250BQI |
| IDT71V3577SA85BQ | IDT71V65702S80BQ | IDT71V67702S75BQI | IDT71P71104S250BQI | IDT71P72804S167BQ |
| IDT71V3577SA85BQI | IDT71V65702S85BQ | IDT71V67702S80BQ | IDT71P71204S200BQ | IDT71P72804S167BQI |
| IDT71V35781SA166BQ | IDT71V65703S75BQ | IDT71V67702S80BQI | IDT71P71204S200BQI | IDT71P72804S200BQ |
| IDT71V35781SA166BQI | IDT71V65703S80BQ | IDT71V67702S85BQ | IDT71P71204S250BQ | IDT71P72804S200BQI |
| IDT71V35781SA183BQ | IDT71V65703S80BQI | IDT71V67702S85BQI | IDT71P71204S250BQI | IDT71P72804S250BQ |
| IDT71V35781SA183BQI | IDT71V65703S85BQ | IDT71V67703S75BQ | IDT71P71604S167BQ | IDT71P72804S250BQI |
| IDT71V35781SA200BQ | IDT71V65703S85BQI | IDT71V67703S80BQ | IDT71P71604S167BQI | IDT71P73104S167BQ |
| IDT71V35781SA200BQI | IDT71V65802S100BQ | IDT71V67703S80BQI | IDT71P71604S200BQ | IDT71P73104S167BQI |
| IDT71V3578S133BQ | IDT71V65802S133BQ | IDT71V67703S85BQ | IDT71P71604S200BQI | IDT71P73104S200BQ |
| IDT71V3578S133BQI | IDT71V65802S133BQI | IDT71V67703S85BQI | IDT71P71604S250BQ | IDT71P73104S200BQI |
| IDT71V3578S150BQ | IDT71V65802S150BQ | IDT71V67802S133BQ | IDT71P71604S250BQI | IDT71P73104S250BQ |
| IDT71V3578S150BQI | IDT71V65803S100BQ | IDT71V67802S133BQI | IDT71P71804S167BQ | IDT71P73104S250BQI |
| IDT71V3579S65BQ | IDT71V65803S100BQI | IDT71V67802S150BQ | IDT71P71804S167BQI | IDT71P73204S167BQ |
| IDT71V3579S75BQ | IDT71V65803S133BQ | IDT71V67802S150BQI | IDT71P71804S200BQ | IDT71P73204S167BQI |
| IDT71V3579S75BQI | IDT71V65803S133BQI | IDT71V67803S133BQ | IDT71P71804S200BQI | IDT71P73204S200BQ |

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Product List

Appendix - 1

| | | | | |
|--------------------|--------------------|--|--|--|
| IDT71P73204S200BQI | IDT71P74804S200BQ | | | |
| IDT71P73204S250BQ | IDT71P74804S200BQI | | | |
| IDT71P73204S250BQI | IDT71P74804S250BQ | | | |
| IDT71P73604S167BQ | IDT71P74804S250BQI | | | |
| IDT71P73604S167BQI | IDT71P79104S167BQ | | | |
| IDT71P73604S200BQ | IDT71P79104S167BQI | | | |
| IDT71P73604S200BQI | IDT71P79104S200BQ | | | |
| IDT71P73604S250BQ | IDT71P79104S200BQI | | | |
| IDT71P73604S250BQI | IDT71P79104S250BQ | | | |
| IDT71P73804S167BQ | IDT71P79104S250BQI | | | |
| IDT71P73804S167BQI | IDT71P79204S167BQ | | | |
| IDT71P73804S200BQ | IDT71P79204S167BQI | | | |
| IDT71P73804S200BQI | IDT71P79204S200BQ | | | |
| IDT71P73804S250BQ | IDT71P79204S200BQI | | | |
| IDT71P73804S250BQI | IDT71P79204S250BQ | | | |
| IDT71P74104S167BQ | IDT71P79204S250BQI | | | |
| IDT71P74104S167BQI | IDT71P79604S167BQ | | | |
| IDT71P74104S200BQ | IDT71P79604S167BQI | | | |
| IDT71P74104S200BQI | IDT71P79604S200BQ | | | |
| IDT71P74104S250BQ | IDT71P79604S200BQI | | | |
| IDT71P74104S250BQI | IDT71P79604S250BQ | | | |
| IDT71P74204S167BQ | IDT71P79604S250BQI | | | |
| IDT71P74204S167BQI | IDT71P79804S167BQ | | | |
| IDT71P74204S200BQ | IDT71P79804S167BQI | | | |
| IDT71P74204S200BQI | IDT71P79804S200BQ | | | |
| IDT71P74204S250BQ | IDT71P79804S200BQI | | | |
| IDT71P74204S250BQI | IDT71P79804S250BQ | | | |
| IDT71P74604S167BQ | IDT71P79804S250BQI | | | |
| IDT71P74604S167BQI | IDT71P71204S167BQ | | | |
| IDT71P74604S200BQ | IDT71P71204S167BQI | | | |
| IDT71P74604S200BQI | | | | |
| IDT71P74604S250BQ | | | | |
| IDT71P74604S250BQI | | | | |
| IDT71P74804S167BQ | | | | |
| IDT71P74804S167BQI | | | | |

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2nd Level Reliability Test

Temp Cycle Conditions (IPC 9701)

| Min. Temp | Max. Temp | Ramp Up/Down Time | High Temp Dwell | Low Temp Dwell | Cycle Duration |
|-----------|-----------|-------------------|-----------------|----------------|----------------|
| (°C) | (°C) | (°C/minute) | (minutes) | (minutes) | (minutes) |
| 0 +0/-5 | 100 +5/-0 | 10 +0/-1 | 5 to 10 | 5 to 10 | 30 to 40 |

0.40mm Solder pad – 0.45 Solder Ball Diameter

0.37mm Solder pad – 0.40 Solder Ball Diameter

Weibull Probability Plot

40 mm: $\beta = 12.49$ $\eta = 4000$ $\rho = 0.98$
37 mm: $\beta = 10.56$ $\eta = 3045$ $\rho = 0.98$

