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Revision: 1.0.0

PCN Issue Date: 04/29/2016

PROCESS CHANGE NOTIFICATION

PCN1606

Alternate Assembly Site for Cyclone® IV FBGA-
484/672/896 Pins Selected Devices

Change Description:

Altera announces the qualification of **Advanced Semiconductor Engineering Inc., Kaohsiung (ASEK)** as an alternate assembly site for selected devices under the following:

Product Family: Cyclone IV GX

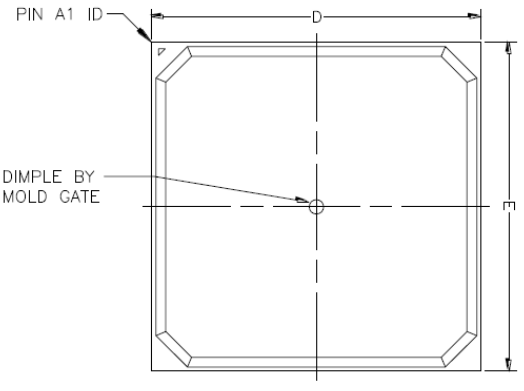
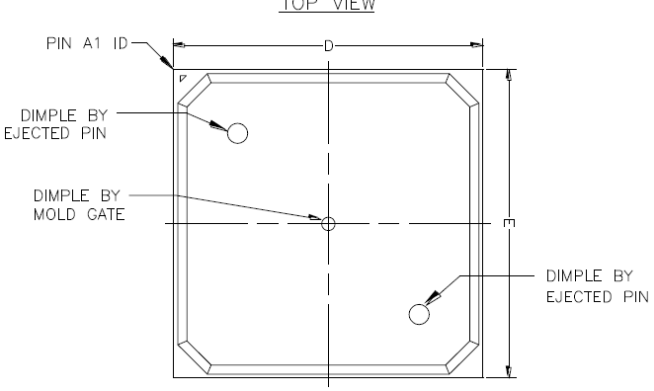
Package: FBGA - 484 / 672 / 896 pins

See [Appendix 1](#) for the complete list of affected part numbers.

Table 1a

	Current Site (Change from)	Added Alternate Site (Change to)
Assembly Site	Amkor Technology, Korea (ATK)	Advanced Semiconductor Engineering Inc., Kaohsiung, Taiwan (ASEK)
Marking	Country of Origin (COO): Korea	COO: Taiwan
Final Packing and Label	COO: Korea	COO: Taiwan

Table 1b

Package Appearance	
Current Site: ATK	Added Alternate Site: ASEK
	<p style="text-align: center;"><u>TOP VIEW</u></p> 
1 mold gate (center)	1 mold gate (center) & 2 ejector pin dimple (corners)

There is no change to the package dimensions. ASEK and ATK use similar direct materials.

Recommended Action

Customers are requested to:

- 1) Acknowledge receipt of this notification, to review, and provide approval of this change at the earliest convenience.
- 2) Please refer to the “Product Transition Dates” for the key milestones.

Upon implementation, Altera will ship material from either assembly site.

Reason for Change:

Ensure supply continuity and longevity for the affected products.

Impact and Benefit of Change:

Qualifying an alternate assembly site mitigates supply risks, and ensures supply continuity for the affected products.

ASEK is a long-time qualified assembly site for several Altera products and packages.

This change does not affect the form, fit, function of the product as defined in the datasheet. Successful qualification testing was performed to ensure product quality and reliability requirements are met or exceeded.

Products Affected:

Product Family: Cyclone IV GX
Package: FBGA
Pin count: 484, 672, 896 pins

See [Appendix 1](#) for the complete list of affected Ordering Part Numbers (OPN).

Method to Identify Change Product:

The change can be identified through the Country of Origin (COO) marking shown on the component top mark and label:

Top mark COO: Taiwan
Label COO: Taiwan

Product Transition Dates:

Customers are requested to take note of the key dates shown in the table below.

Table 2

Milestone	Date
PCN samples available to order ¹	May 1, 2016
Last date to acknowledge receipt of this notification ²	June 1, 2016
Last date to order samples if required for qualification ³	June 1, 2016
Last date to request additional information or clarification	July 1, 2016
Estimated earliest shipment date of changed products ⁴	October 1, 2016

Note 1, 3: Sample orders must be placed no later than the last date to order qualification samples, as shown in Table 2. Lead-time will vary per product.

Note 2: JESD46D stipulates that a change is deemed acceptable if no response or acknowledgement is received within 30 days from the date of the notification.

Note 4: Effective the first ship date listed in Table 2, Altera will begin the shipment of changed products.
Customers will start to receive shipments from either assembly site.

Qualification Data:

Test	Conditions	# of Lots	SS/lot	Results (fail/total samples)
Bake @ 1000 hrs with Preconditioning	150°C	5	25-45	0/160
Temperature Cycle - condition B @ 1000 cycles with Preconditioning	-55°C / 125°C	5	30-80	0/249
uHAST 96hrs with Preconditioning	85%RH, 130°C	5	30	0/150
THB @1000hrs with Preconditioning	85%RH, 85°C at VCCmax	4	30-60	0/150

Qualification Vehicle Devices

Package Type: FBGA

Pin count: 672 pins, 896 pins, 1152 pins

Product Family: Cyclone IV GX, Cyclone II, Cyclone V GX

Contact

For more information, please contact Sales or Customer Quality Engineering (CQE) in your region, or submit a Service Request at Altera's [mySupport](#) website.

Customer Notifications Subscription

Customers that have subscribed to Altera's customer notification mailing list will receive the PCN document automatically via email.

If you would like to receive automatic customer notifications by email, please subscribe to our customer notification mailing list at:

<https://www.altera.com/subscriptions/email/signup/eml-index.jsp>

Altera references JESD46 guidelines for PCN.

In accordance with JESD46D, this change is deemed acceptable to the customer if no acknowledgement is received within 30 days from this notification.

Revision History

Date	Rev	Description
04/29/2016	1.0.0	Initial Release

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Appendix 1. Affected Ordering Part Numbers

Affected Ordering Part Numbers (OPNs)	
EP4CGX150DF27I7NAE	EP4CGX50DF27C7N
EP4CGX150DF27I7NAF	EP4CGX50DF27C8
EP4CGX150DF31I7NAC	EP4CGX50DF27C8N
EP4CGX150DF31I7NAD	EP4CGX50DF27I7
EP4CGX30CF23C6	EP4CGX50DF27I7N
EP4CGX30CF23C6N	EP4CGX75CF23C6
EP4CGX30CF23C7	EP4CGX75CF23C6N
EP4CGX30CF23C7N	EP4CGX75CF23C7
EP4CGX30CF23C8	EP4CGX75CF23C7N
EP4CGX30CF23C8N	EP4CGX75CF23C8
EP4CGX30CF23I7	EP4CGX75CF23C8N
EP4CGX30CF23I7N	EP4CGX75CF23I7
EP4CGX50CF23C6	EP4CGX75CF23I7N
EP4CGX50CF23C6N	EP4CGX75DF27C6
EP4CGX50CF23C7	EP4CGX75DF27C6N
EP4CGX50CF23C7N	EP4CGX75DF27C7
EP4CGX50CF23C8	EP4CGX75DF27C7N
EP4CGX50CF23C8N	EP4CGX75DF27C8
EP4CGX50CF23I7	EP4CGX75DF27C8N
EP4CGX50CF23I7N	EP4CGX75DF27I7
EP4CGX50CF23I7NAA	EP4CGX75DF27I7N
EP4CGX50DF27C6	EP4CGXDF27I7NAC
EP4CGX50DF27C6N	EP4CGXDF27I7NAD
EP4CGX50DF27C7	