



Product Change Notification

Change Notification #: 117537 - 02
Change Title: Alternate Assembly Site for Selected Cyclone® III and Cyclone® IV Devices, PCN 117537-02, Manufacturing Site
Reason for Revision: [Corrected hyperlink to affected products](#)
Date of Publication: April 7, 2020

Key Characteristics of the Change:

Manufacturing Site

Forecasted Key Milestones:

Last date to acknowledge receipt of this notification¹	September 20, 2019
Estimated earliest shipment date of changed products²	January 1, 2020

Note 1: J-STD-046, section 3.2.3.1b, stipulates that lack of acknowledgement of the PCN within 30 days constitutes acceptance of the change.

Note 2: Effective the earliest ship date listed above, Intel PSG may begin the shipment of changed products.

Intel reserves the right to continue shipment of pre-change product after the change implementation date, and customers will receive shipments of either pre-change or post-change product.

Description of Change to the Customer:

[This revision is the same one communicated as a follow up to PCN1912, issued on March 13, 2020.](#)

Reason for Revision: [Corrected hyperlink to affected products](#)

Intel is announcing the addition of the Advanced Semiconductor Engineering Inc., Malaysia (ASEM) as an alternate assembly site of selected Cyclone III and Cyclone IV devices.

This is the same change described in PCN1912 issued on August 09, 2019.

ASEM is a long-time qualified, high-volume assembly site for Cyclone 10 LP devices, which have the same package type as Cyclone III and Cyclone IV E.

Table 1: Added Assembly Site

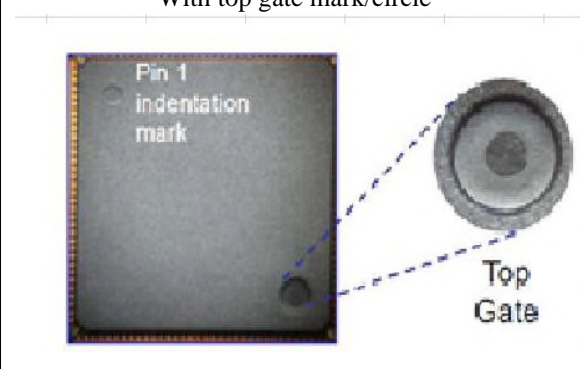

	Current Site	Added Alternate Site
Assembly Site	Amkor Technology Philippines (ATP)	Advanced Semiconductor Engineering Inc., Malaysia (ASEM)
Country of Origin	Philippines	Malaysia

Table 2: Change to Bill of Materials (BOM)

	Change From (ATP)	Change To (ASEM)
Mold Compound	EME-G700 series	EME-G631 series
Wire Bond	Copper Wire	PCC (Palladium Coated Copper) Wire
Lead frame	Copper base material C18045 (Cu, Cr, Sn Zn)	Copper base material C7025 (Cu, Ni Plating, Si, Mg, Ag)

Note: The rest of the BOM remains the same

Table 3: Change to Package Appearance

Change from (ATP)	Change to (ASEM)
<p>With top gate mark/circle</p> 	<p>No top gate mark or circle</p> 

Reason for Change:

The qualification of an additional production assembly site for the affected devices supports supply chain risk mitigation.

Customer Impact of Change and Recommended Action:

Impact and Benefit of Change:

There are no changes to device performance, functionality or thermal characteristics. The product datasheet remains the same.

Additional qualification has been performed to further evaluate the quality and reliability performance of ASEM for the products specific to this PCN (See Qualification Data Section, Table 4).

Method to Identify Change Product:

The changed product can be identified by the following:

- COO (Country of Origin) is Malaysia on the top mark and label for ASEM parts as indicated on Table 1.
- Package appearance difference where ASEM site does not have a top gate mark/circle as shown in Table 3 above.

Qualification Data:

Qualification testing was performed to further evaluate the quality and reliability performance of ASEM for the products specific to this PCN.

Table 4: Reliability Test Data

All tests passed with zero failures

Test	Time point	Conditions	Vehicle Device	# of Lots	SS/Lot	Results (Fail/Total SS)
Temperature Cycle Test (TCB)	2000 Cycles	-55°C /125°C	EP3C25 E144	4	30-74	0/250
			EP3C16 E144	1	83	0/83
Temperature Humidity Bias (THB)	2000hrs	85°C/85% RH	EP3C25 E144	3	64-68	0/200
Unbiased Highly Accelerated Stress Test (uHAST)	192hrs	130°C / 85%RH	EP3C25 E144	3	80	0/240
			EP3C16 E144	1	80	0/80
High Temp Storage (Bake)	2000hrs	150°C	EP3C25 E144	5	75-80	0/387

Note 1: Preconditioning performed according to J-STD-020, MSL3 @ 260C reflow

Note 2: Rel#: 17080010, 18060017, 18060025, 17080009, 17080012, 18060018, 18060025, 19020001,

Note 3: Qualification testing and sample size based on standard J-STD-020 requirements

Recommended Action

Customers are requested to:

1. Acknowledge receipt of this notification.
2. Review and inform us, at the earliest convenience, any questions or concerns regarding this change.

Please refer to the "Forecasted Key Milestones" table above for the key milestones.

Upon implementation, Intel will ship materials from either ATP or ASEM.

For more information, please contact Sales in your region, or submit a Service Request at the My Intel support page.

Products Affected / Intel Ordering Codes:

Product Family	Package – Pin Count
Cyclone III	EQFP - 144
Cyclone IV	EQFP - 144

The list of affected OPNs can be downloaded in Excel form:

<https://www.intel.com/content/dam/www/programmable/us/en/pdfs/literature/pcn/pcn1912-opn-list.xlsx>

PCN Revision History:

Date of Revision:	Revision Number:	Reason:
April 6, 2020	00	Originally Published PCN
April 7, 2020	01	Updated Table 2: Change to Bill of Materials (BOM) to add changes to Wire Bond and Lead Frame. Corrected 'Assembly and Test Site' in Table 1 to 'Assembly Site'.
April 17, 2020	02	Corrected hyperlink to affected products



Product Change Notification

117537 - 02

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Should you have any issues with the timeline or content of this change, please contact the Intel Representative(s) for your geographic location listed below. No response from customers will be deemed as acceptance of the change and the change will be implemented pursuant to the key milestones set forth in this attached PCN.

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