



# Process Change Notification

PCN Number: PCN-2018-97

PCN Notification Date: 07/31/2018

## Final PCN

DPS (Die Processing Service) Back-end assembly, Probe Test and Final Pack Processes transfer from Amkor Technology (Korea) to ASE Chung-Li (Taiwan)

Dear Customer,

We are pleased to announce the successful completion of the DPS (Die Processing Service) Back-end assembly, Probe Test and Final Pack Processes transfer from Amkor Technology (Korea) to ASE Chung-Li (Taiwan).

This document serves as the Final PCN notification for the DPS (Die Processing Service) Back-end assembly, Probe Test and Final Pack Processes transfer from Amkor Technology (Korea) to ASE Chung-Li (Taiwan).

The described change is effective as of the date of this notification and delivery will commence immediately to ensure continuity of supply without disruption.

Cirrus Logic would like to take this opportunity to thank our customers for their cooperation and assistance in this respective matter. Any specific or immediate inquiries should be directed to your local Field Sales Representative.

If you have any questions, please contact your Sales Representative.

Sincerely,

Quality Systems Administrator  
Cirrus Logic Corporate Quality  
Phone: +1(512) 851-4000

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**Products Affected:**

The devices listed on subsequent pages are the complete list of affected devices. According to our records, one or more of these devices have been purchased by your organization within the past twenty-four (24) months. The corresponding customer part number is also listed, if available.

Technical details of this Process / Product Change follow on the next page(s).

<b>Title:</b>		DPS (Die Processing Service) Back-end assembly, Probe Test and Final Pack Processes transfer from Amkor Technology (Korea) to ASE Chung-Li (Taiwan)			
<b>Customer Contact:</b>		Local Field Sales Representative	<b>Phone</b> :	(512) 851-4000	<b>Dept:</b> Corporate Quality
<b>Proposed 1<sup>st</sup> Ship Date:</b>		Q3 2018	<b>Estimated Sample Availability Date:</b>		Q2 2018
<b>Change Type:</b>					
X	Assembly Site		Assembly Process		Assembly Materials
	Wafer Fab Site		Wafer Fab Process		Wafer Fab Materials
	Wafer Bump Site		Wafer Bump Process		Wafer Bump Material
X	Test Site		Test Process		Design
	Electrical Specification		Mechanical Specification		Part Number
	Packing/Shipping/Labeling	X	Other		
<b>Comments:</b>		"Other" – Reference Specific Changes in Description Change Section Below:			

## PCN Details

**Description of Change(s):**

- DPS (Die Processing Service) Back-end Assembly Only**

Cirrus Logic Part Number	Site Transfer From	Site Transfer To
WM8904ECS/R	Amkor Technology (Korea)	ASE – Chung Li (Taiwan)
WM8944BECS/R	Amkor Technology (Korea)	ASE – Chung Li (Taiwan)

- Probe Test and DPS (Die Processing Service) Back-end Assembly**

Cirrus Logic Part Number	Site Transfer From	Site Transfer To
WM8994ECS/R	Amkor Technology (Korea)	ASE – Chung Li (Taiwan)

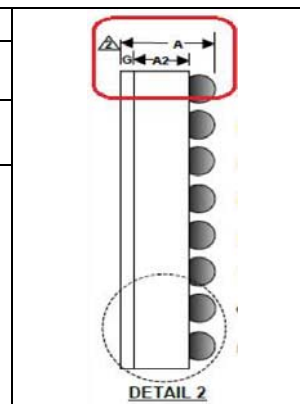
- POD (Package Outline Drawing):**

	From	To
Amount of BSC (Back Side Coat)	0.022 mm (+/- 0.003 mm)	0.025 mm (+/- 0.003 mm)
DIE Thickness	0.280 mm (+/- 0.015 mm)	0.277 mm (+/- 0.015 mm)

'g' – Denotes: Back Side Coat  
'A2' – Denotes: DIE Thickness

Note: Overall thickness does not change.

(Data Sheet Reference: [www.cirrus.com](http://www.cirrus.com))



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• **Carrier Tape:**

Cirrus Logic Part Number	From	To
WM8904ECS/R	Kostat KS-1208-1003	Laser Tek DBM09318611
WM8994ECS/R	Kostat KS-1208-565	Laser Tek DBM09318711
WM8944BECS/R	Kostat KS-1204-180	Laser Tek DBM09318511

• **Marking Format: Consistent with Cirrus Logic Mark Format Standard**

**Note:** Cirrus Logic acquired Wolfson in August 2014

Cirrus Logic Part Number	From	To	
WM8904ECS/R			<p><b>TOP SIDE BRAND</b></p> <p>Line 1: Part Number Line 2: Package Mark Line 3: Country of Origin</p> <p><b>PACKAGE MARK FIELDS</b></p> <p>12 character Package Mark appears on PO as 6 fields of 2 characters each in the following format: FFAARRLLYYWW where, FF = Foundry Code AA = Assembly Site Code RR = Die Rev Code LL = Lot Sequence Code YY = Year of Manufacture WW = Work Week of Manufacture</p>
WM8994ECS/R			
WM8944BECS/R			

**Reason for Change:**

Cirrus Logics' Wafer Level Chip Scale Package (WLCSP) will transfer operations from Amkor Technology to ASE Chung-Li to maintain long term continuity of supply.

**Anticipated Impact on Form, Fit, Function, Quality or Reliability:**

No anticipated adverse impact to the Quality and/or Reliability of said product. However, the customer may have to adjust Pick-N-Place recognition system to adapt to the Cirrus Logic part marking standardization.

**Anticipated Impact on Material Declaration:**

- No Impact to the Material Declaration
  Material Declarations or Product Content reports are driven from production data and will be available following the production



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release.

**Product Affected:**

Device	Cirrus Logic Part Number
1	WM8904ECS/R
2	WM8994ECS/R
3	WM8944BECS/R

## Qualification Result

Qualification: <input type="checkbox"/> Plan <input checked="" type="checkbox"/> Test Results			
Reliability Test	Standard	Conditions	Sample Size (PASS/FAIL)
<b>PC</b> (Precondition)	JESD22-A113	Bake: 24Hr 125°C; MSL 1 168Hrs 85°C / 85% RH Soak, (Reflow 260°C x3)	3 Lots @ 154 pcs ea. <b>Passed</b>
<b>TC</b> (Temperature Cycling)	JESD22-A104	-40°C to +125°C for 1000 cycles	3 Lots @ 77 pcs ea. <b>Passed</b>
<b>UHAST</b> (Unbiased Highly Accelerated Temperature and Humidity Stress Test)	JESD22-A118	110°C/85% RH, 17.7 PSIA, 264 hrs	3 Lots @ 77 pcs ea. <b>Passed</b>
<b>Notes:</b> <ul style="list-style-type: none"> <li>Qualification tests "pass" on zero fails for each test.</li> <li>The WM8944B component served as the primary qualification vehicle and the remaining components (WM8904 and WM8994) are QBS (Qualified By Similarity).</li> </ul>			

## Probe Test Equipment Correlation Result

**Note:**

- The Equipment Platform Technology, Hardware and Software remain the same.
- The Visual / Mechanical inspection and Tape and Reel operations are compliant to JEDEC industry standards

**The Probe Test Equipment Correlation:      Passed**

- Running the new site program with an OPEN Socket or No Unit to ensure “All” tests fail.

**Success Criteria: Confirmed “All” tests fail with OPEN Socket**

- Correlation of Control (Known Good) Units and testing the material on both test platforms (Existing and New Location) at all applicable test temperatures utilizing the same load-board and test site(s). A correlation comparison will be made on “All” individual components. If there is a concern or discrepancy exists, a bench level correlation will be performed to ensure new site meets data sheet requirements.

**Success Criteria: Bin 1 should show critical parameter difference < 10%**

- Running samples from 2 or more lots at the existing site and at new site location. The results from each site will be compared.
- Running (the same) sample non-continuity failures (different failing tests) and testing them at the existing site and at the new site. All units are expected to fail at the new site location.

**Success Criteria: Confirmed bad units remained bad & do not flip to Bin 1**

- Performing GR&R (Gauge Repeatability & Reproducibility)

**Success Criteria: Confirmed “All” measurements are equivalent or better at new site**