Samsung’s Galaxy S7 Processor Packages: Qualcomm/Shinko’s MCeP vs. Samsung’s PoP

Comparison of both Samsung Galaxy S7 processor packages: Qualcomm Snapdragon 820 MSM8996 with MCeP packaging technology vs. Samsung Exynos 8 with TMV Package-on-Package

Qualcomm has gained more than 100 design wins in multiple applications, including automotive and smartphone, for its high-end model, the Snapdragon 820. The Snapdragon shares Samsung’s latest flagship with the in-house Samsung Exynos 8 worldwide. Depending on the region, the Galaxy S7 integrates the Exynos 8 with classic Package-on-Package (PoP) packaging or the Snapdragon 820, with Molded Core Embedded Package (MCeP) technology, developed by Shinko, and embedded trace route substrate.

Located under the DRAM chip on the main board, the two processors are packaged using PoP technology. The international version features an Exynos chipset while the US and Eastern Asia version feature the Snapdragon 820 chipset.

The Qualcomm Snapdragon 820 is an embedded die package with Shinko’s packaging technology, using Copper Core Solder ball to replace the well-known Through Molded Via (TMV) technology. In the previous generation of the 800 series Qualcomm used Shinko’s MCeP packaging. In this report, we will show the differences and the innovations of this package, including copper pillar flip-chip and a coreless substrate with embedded trace substrate technology. The detailed comparison with the Exynos 8 will give the pros and the cons of the MCeP technology compared to standard PoP.

Thanks to this MCeP process, Qualcomm is able to offer a very thin PoP with a high number of I/O pads. The result is a very cost-effective component that can compete with a standard PoP. The report compares the costs of the different approaches.

This report also includes a technical comparison with the previous Qualcomm CPU, the Snapdragon 810 and the previous Samsung CPU, the Exynos 7.
Overview/Introduction

Company Profile & Supply Chain

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Cost and price comparison with Samsung Exynos 8 PoP

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Dr Stéphane Elisabeth has joined our team this year. He has a deep knowledge of Materials characterizations and Electronics systems. He holds an Engineering Degree in Electronics and Numerical Technology, and a PhD in Materials for Microelectronics.

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The new 77 GHz Radar Chipset for ADAS from NXP/Freescale - SiGe:C xHBT technology & Fan-Out RCP Wafer-Level Packaging.

Qualcomm’s Fan-Out Wafer-Level Package Chip Audio Codec in eWLB Package inside Samsung Galaxy S7 and S7 Edge.

Latest GS66508T power transistor of GaN Systems packaged with a top-side cooling.

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