NANTES, FRANCE – November 9, 2016: The MEMS microphone market has enjoyed continuous growth since its debut. The “More than Moore” market research and strategy consulting company, Yole Développement (Yole) forecasts a 10% CAGR between 2015 and 2021. According to its analysts, this growth is due a strong demand coming from the smartphone and home appliance market segment. Today, MEMS microphones’ penetration rate in smartphones is already close to 100%.

Under this context, the reverse engineering and costing company, System Plus Consulting, proposes today a comprehensive technical analysis of the 4 microphones embedded in Apple iPhone 7 Plus. What are the technologies selected by Apple for its latest smartphone and proposed by the leading MEMS companies Goertek/Infineon Technologies, Knowles and STMicroelectronics? What is the added-value of each device? Are there strong differences? Entitled “Apple iPhone 7 Plus: MEMS Microphones”, System Plus Consulting’s report includes a relevant physical analysis of the 4 MEMS microphones, a detailed description of the manufacturing process flow with the related cost analysis as well as a estimated selling price.

Every day, System Plus Consulting’s team is analyzing and modeling production cost and selling price of semiconductors, electronic boards and systems. Discover today the reverse engineering & costing analysis of the MEMS microphones selected by Apple. What’s inside?...
The Apple iPhone 7 and 7 Plus each are both featuring the following MEMS microphones:

- A front-facing top microphone
- Two front-facing bottom microphones
- And a rear-facing top microphone.

“In every iPhone 7 Plus we examined, we observed a Knowles design win for the rear-facing top microphone and an STMicroelectronics design win for the front-facing top microphone”, explains Sylvain Hallereau in charge of costing analyses for IC, Power and MEMS at System Plus Consulting.

From their side, the two front-facing bottom microphones were sourced by either Knowles or Goertek.

The competitive landscape of the MEMS microphones industry is showing a lot of companies including Knowles, AAC Technologies, Infineon Technologies, Goertek, STMicroelectronics, Gettop, InvenSense, Bosch Akustica, and Cirrus Logic. Knowles, AAC and Goertek are the top players of the consumer market field. Knowles also addresses, in a leading position, the medical application of hearing aids.

On the manufacturing process side, System Plus Consulting’s team is highlighting in the report, the full in-house manufacturing microphone developed by STMicroelectronics. “Indeed, for the 1st time, the leading company now makes the MEMS die internally without relying on the Japanese company, OMRON”, comments Sylvain Hallerau. “This strategic choice confirms a new manufacturing process developed by STMicroelectronics.”

Under a different strategy, Goertek still relies on Infineon Technologies for die manufacturing. The company integrates the latest Infineon Technologies MEMS microphone process, which delivers a differential MEMS microphone using a dual backplate technology.

The third manufacturer, Knowles, makes strategic technical choices internally which allows the company to propose the smallest MEMS die.

Each four microphones share the same Apple-specific package dimensions. However they present total different internal structures. System Plus Consulting’s engineers list for example: the number of substrate metal layers, the embedded capacitance and more...

“The 4 MEMS devices do present any significant technical innovations, like the dual backplane of Infineon Technologies used in the Goertek device”, comments Michel Allain, System Plus Consulting’s CEO.

“In addition, the key change is probably located at the supply chain level. Indeed some players decided to manage internally the full manufacturing steps of their devices; some selected leading partners to provide them the relevant solutions. And these strategies are directly impacting the cost analysis and at the end the selling price of each MEMS component”.
System Plus Consulting’s team attends Electronica 2016 this week in Munich, Germany. Feel free to come at System Plus Consulting booth (## B5.224/4) and meet System Plus Consulting’s experts. Contact: Lizzie Levenez (llevenez@systemplus.fr)
A detailed description of System Plus Consulting report is available on its website or click here.

About System Plus Consulting
System Plus Consulting specializes in the cost analysis of electronics, from semiconductor devices to electronic systems. Created more than 20 years ago, System Plus Consulting has developed a complete range of services, costing tools and reports to deliver in-depth production cost studies and estimate the objective selling price of a product. System Plus Consulting engineers are experts in Integrated Circuits - Power Devices & Modules - MEMS & Sensors - Photonics – LED - Imaging – Display - Packaging - Electronic Boards & Systems. Through hundreds of analyses performed each year, System Plus Consulting offers deep added-value reports to help its customers understand their production processes and determine production costs. Based on System Plus Consulting’s results, manufacturers are able to compare their production costs to those of competitors. System Plus Consulting is a sister company of Yole Développement. More info at www.systemplus.fr.
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