



FOR IMMEDIATE RELEASE:

SiP impact, smartphone market saturation... What will be the future of Fan-in packaging?

Fan-In Packaging: Business update 2016 report – Yole
Développement – November 2016

LYON, France – November 24, 2016: Fan-In packaging has been a successful and steadily growing platform for over a decade. However Fan-In packaging should face a challenging future, announces [Yole Développement \(Yole\)](#), the “More than Moore” market research and strategy consulting company. Indeed, despite of unchanged market drivers, Fan-In packaging is showing an uncertain future with a slowing down smartphone market and the growing adoption of SiP¹ technologies. The integration of Fan-In functions in SiP could disrupt the Fan-In market.

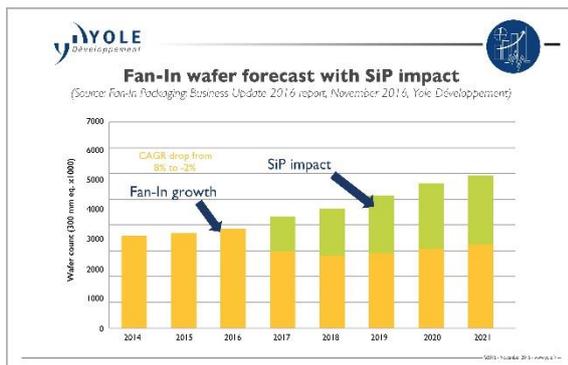
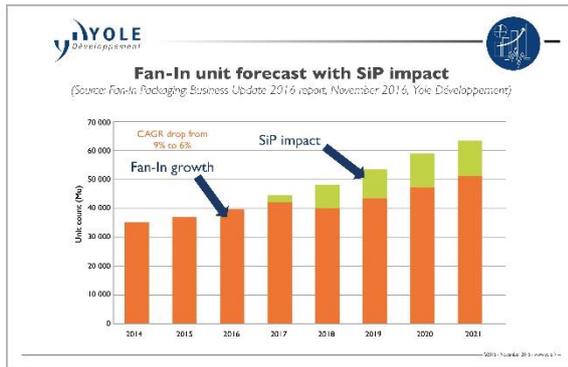
[Fan-In Packaging: Business Update 2016 report](#) from Yole is the 5th edition. This year, Yole’s advanced packaging team proposes a market overview of the Fan-In landscape with updated market figures and technology roadmaps from 2015 to 2021. The consulting company investigates the industrial supply chain with a detailed analysis of the market positioning of each player. This report also offers a detailed analysis of the SiP impact on the market with two scenarios.

The Fan-In packaging platform remains appealing as an inherently unmatched combination of smallest package form factor and low cost. Due to these features, historically it found penetration in form driven handsets and tablets and has maintained growth within these devices. “At Yole we estimate that more than 90% of Fan-In packages today are found in the mobile segment”, comments **Andrej Ivankovic, Technology & Market Analyst, Advanced Packaging & Semiconductor Manufacturing at Yole**. “With respect to Fan-In adoption, in today’s high end smartphones already more than 30% of all packages are Fan-In packages. Therefore, Fan-In packaging spread in the sweet spot mobile segment continues.”

Many companies are today fearing a general slowdown due to smartphone market saturation: against a 35% growth in 2013, Yole announces 8% in 2016 and 6% by 2020.² According to the analysts, the

¹ SiP : System in Package

² Source : [Sensors for Cellphones and Tablets 2016 report](#), Yole Développement, Jun. 2016



market needs to reinvent itself to avoid commoditization. Advanced packaging companies are so searching for new growth opportunities...

The biggest challenge the Fan-In platform will be facing in the future is functional integration of devices into SiP form. Under its new Fan-In report, Yole's analysts indicate the impact of SiP growth on Fan-In unit production, decreasing the overall CAGR³ from 9% to 6%.

In order to increase functionality and potentially decrease overall time to market and packaging costs, multichip packaging in the form of SiPs is already under way. While a variety of SiPs are already present in smartphones, a stronger push for further integration of multiple dies in one package can be expected especially in the RF⁴ and power management domains. This implies that as a consequence of functional integration, a significant portion of Fan-In dies could be integrated in SiPs.

The consulting company Yole analyzed in its report

two scenarios: a disruptive SiP impact and a negligible SiP impact on the Fan-In platform.

In the case of negligible SiP impact, the Fan-In packaging services market is expected to rise from US\$ 3.1 billion in 2015 to US\$ 4.9 billion in 2021 with a 8% CAGR. The Fan-In wafer count is expected to rise from 3.7 to 5.9 million 300mm eq. wafers from 2015 to 2021, respectively, with a CAGR of 8%. Yole's market figures indicates the impact of SiP growth on Fan-In wafer production, decreasing the overall CAGR from 8% to -2%. The impact of SiP growth is greater on wafer level than on unit level, due to the size of particular devices expected to be integrated first.

Yole's report brings a full revenue, wafer and unit forecast by IC device type from 2015 to 2021 as well as a detailed impact of SiP growth. A detailed description of this report is available on [i-micronews.com, advanced packaging reports section](http://i-micronews.com/advanced-packaging-reports-section).

³ CAGR : Compound Annual Growth Rate

⁴ RF : Radio Frequency



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About [Fan-In Packaging: Business update 2016 report:](#)

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Andrej Ivankovic is a Technology & Market Analyst, in the Advanced Packaging and Semiconductor Manufacturing team, at Yole Développement the “More than Moore” market research and strategy consulting company. He holds a master’s degree in Electrical Engineering, with specialization in Industrial Electronics from the University of Zagreb, Croatia and a PhD in Mechanical Engineering from KU Leuven, Belgium. He started as an intern at ON Semiconductor performing reliability tests, failure analysis and characterization of power electronics and packages. The following 4 years he worked as a R&D engineer at IMEC Belgium on the development of 3D IC technology, focusing on electrical and thermomechanical issues of 3D stacking and packaging. Part of this time he also worked at GLOBALFOUNDRIES as an external researcher. He has regularly presented at international conferences authoring and co-authoring 18 papers and 1 patent.

- Companies cited in the report:

ADL, AKM, Amkor, Analog Devices, Analogic Tech, Asahi Kasei, ASE, ATMEL, Audience, AMS, Avago, Bosch, Broadcom, Cambridge CS, Chipbond, ChipMOS, Cirrus Logic, CSR, Cypress, Deca Technologies, Dialog, Discera, Epson, Fairchild, Flip Chip International, FLIR, Freescale, Fujikura, Fujitsu, Hamamatsu, i2a Technologies, IC interconnect, IDEX, IDT, Infineon, Intersil, InvenSense, Ipdia, JCAP, JCET, L3, Lattice, LB Semicon, Linear Technology, Marvell, Maxim, MaxLinear, Microchip, Murata Electronics, MXIC, Nanium, NDK, Nepes, Newport Media, NXP, OKI, Omnivision, ON Semiconductor, Optopac, Pac Tech, Panasonic, PixArt Imaging, Powertech Technology, Qorvo, Qualcomm, Raytheon, Renesas, Ricoh, Rohm Semiconductor, Samsung, Sand9, Sanyo, Sensirion, Seti, Silicon File, SilTech, SiTime, SMSC, Sony, SPIL, ST Microelectronics, STATChipPAC, Summit, TDKEPC, Telephus, Teraprobe, Texas Instruments, Toshiba, TSMC, Unisem, UTAC, Vishay, WACOH, WLCSP China, Wolfson, Xintec, Yamaha... and many more.

About Yole Développement – www.yole.fr

Founded in 1998, Yole Développement has grown to become a group of companies providing marketing, technology and strategy consulting, media and corporate finance services. With a strong focus on emerging applications using silicon and/or micro manufacturing, the Yole Développement group has expanded to include more than 50 collaborators worldwide covering MEMS, Compound Semiconductors, LED, Displays, Image Sensors, Optoelectronics, Microfluidics & Medical, Advanced Packaging, Manufacturing, Nanomaterials, Power Electronics and Batteries & Energy Management.

The “More than Moore” company Yole, along with its partners System Plus Consulting, Blumorpho and KnowMade, support industrial companies, investors and R&D organizations worldwide to help them understand markets and follow technology trends to grow their business.

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