



SEMICONDUCTOR BIZ INSIGHT

- *Your 5 minutes monthly e-link digest brought to you by VLSI Consultancy*

Hi,

It's been raining acquisitions. Some of the major ones included Siemens buying Mentor Graphics, Samsung going for Harman and Broadcom acquiring Brocade. Speaking of Samsung, the Korean electronics giant is possibly heading for the biggest structural change: a split - in its 47-year history.

Last month also saw a flurry of announcements in the automotive space. MediaTek announced plans to roll out fully integrated system solutions in this space. This would cover vision based ADAS, mmWave radar, in-vehicle infotainment and enhanced telematics. The industry bellwether, Intel has also been making news. It announced creating a dedicated Autonomous Driving Group (ADG) and entering into another alliance with Delphi and Mobileye. This follows a separate tie-up with BMW and Mobileye earlier this year and Intel Capital's \$250M commitment to auto tech investment. As Kurt Sievers, NXP's general manager Automotive said, "Automotive has been driving M&A and will be the force behind M&A in the chip sector for some time. Maybe in a broader perspective, all things connected to the internet".

As another year comes to end, I would like to holler a big thank you for tuning into "**Semiconductor Biz Insight – the 5 minutes digest**". If you have liked this e-newsletter, do spread the word around by forwarding it to your relevant colleagues. And if not, well... keep it to yourself 😊

Happy holidays and have fun!

Cheers
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KEY TAKEAWAY

From the Asia-Pac arena
Expansion – UMC (China) , Wistron
(India), Qualcomm (Taiwan)

Mergers & Acquisitions
Macom (Applied Micro), Analog
Devices (Vescent Photonics),
Samsung (Harman), Siemens
(Mentor Graphics), MediaTek
(Mapbar), Synopsys (Cigital,
Codiscope), Canyon Bridge Capital
Partners (Lattice Semiconductor),
Broadcom (Brocade), Photronics
(mfg assets of Infinite Graphics),
Tessera Technologies (assets of
Pelican Imaging)

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Insights Capsule

[Insights Capsule](#)

Have added some more “meat” into the August capsule issue of Qualcomm – take a look at this 18 minutes of insights rich video. Would love to hear your views on it. And of course, if you’d like to discuss further or want to derive insights for your informed decision makings, would be really keen to hear your thoughts. Simply call me up or [drop me an email](#)

Local Asia Pacific News

[Samsung Electronics considers split as investor pressure builds](#)

Source: Se Young Lee, Reuters – 29th November 2016

The shareholder pressure on Samsung comes as the company juggles a leadership succession and a major blow to its brand after issuing an unprecedented recall of at least 2.5 million Galaxy Note 7 smartphones in September.

[MediaTek entering automobile SoCs](#)

Source: Alan Patterson, EE Times – 29th November 2016

The earliest version of the SoCs, which will be on the market during the first quarter of next year, will support vision-based advanced driver assistance systems (ADAS), high-precision millimeter wave radar, in-vehicle infotainment and telematics.

[UMC opens new 12 inch wafer fab in China](#)

Source: Cleanroom Technology – 17th November 2016

United Semi, a joint venture fab in Xiamen, achieves volume production just 20 months after groundbreaking

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Local Asia Pacific News

[SMIC and IMECAS sign cooperation agreement for MEMS R&D and foundry platform](#)

Source: PR Newswire – 15th November 2016

According to the agreement, SMIC and IMECAS will work together closely to take advantage of IMECAS's experiences in MEMS Sensor design and packaging technology design and SMIC's standardized process technology platforms, industry and market influence.

[SK Telecom, Ericsson demonstrate 5G connected BMW at 28 GHz](#)

Source: Monica Allevan, Fierce Wireless – 15th November 2016

SK Telecom and Ericsson are claiming a first after conducting 5G trials with BMW at a BMW driving center in Yeongjong Island, Incheon, South Korea, using the 28 GHz band

[Wistron to open wholly owned Bengaluru plant](#)

Source: Lauly Li, Taipei Times – 12th November 2016

Wistron, an assembler of Apple iPhones, approved a capital injection of US\$33.5 million at its after-sales subsidiary in India so that it can build a smart devices plant for the Indian market.

[Samsung & China Mobile Research Institute complete 5G tests](#)

Source: The Online Reporter – 10th November 2016

The two have been working together on 5G development since June 2016 when Samsung joined China Mobile 5G Innovation Center.

[Toshiba to build new 3D flash memory fab](#)

Source: Richard Wilson, Electronics Weekly – 8th November 2016

Toshiba is to expand production of its proprietary 3D flash non-volatile memory and has announced plans to build a wafer fabrication facility at Yokkaichi, Japan for expanded production of BiCS Flash.

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Local Asia Pacific News

[Qualcomm to invest in Taipei technology laboratory](#)

Source: Lisa Wang, Taipei Times – 8th November 2016

The collaboration would include the development of expertise and cooperation in areas such as the IoT, 4G and 5G operations as well as connected cars.

[SMIC builds South China's first 12-inch fab](#)

Source: Alan Patterson, EET Asia – 7th November 2016

The new fab, which has a total designed capacity of 40,000 wafers per month, is aimed at meeting demand for IoT chips using mature technology

[Foxconn plans to expand its chip ambitions](#)

Source: Nikkei Asian Review – 6th November 2016

Foxconn's chairman Terry Gou said that he is working with Sharp, Foxconn's recently acquired Japanese subsidiary, to build semiconductor capabilities.

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Industry Headlines

[Intel's new business is dedicated to "oiling" self driving cars](#)

Source: Kirsten Korosec, Fortune – 29th November 2016

Intel is reorganizing its business and creating a new division dedicated to autonomous driving as the semiconductor giant ramps up its effort to dominate the fast-emerging market. The world's largest semiconductor maker announced that the new division, called the Automated Driving Group, spun out of its Internet of Things business, an area where Intel has deepened its stake in the past year

[CMOS electronics, Silicon photonics integration targets 1Tb/s](#)

Source: Julien Happich, EETAsia – 23rd November 2016

A European Commission Horizon 2020 project, the COSMICC project launched by Leti aims to combine CMOS electronics and Si-photonics with innovative high-throughput, fiber-attachment techniques.

[Marvell looks at layoffs, asset sales in restructuring](#)

Source: Lightwave – 3rd November 2016

The layoffs will come as Marvell discontinues certain R&D programs, streamlines engineering processes, and consolidates R&D sites.

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Financial Watch

[Taiwan's ChipMOS scraps share sale plan to China Unigroup on regulatory uncertainty](#)

Source: JR Wu, Reuters – 30th November 2016

Instead, the chip test and packaging company will sell a 54.98 percent stake in its Shanghai operations to the Chinese conglomerate and related strategic investors for 498 million yuan (\$72.36 million) to expand its production and business in China

[Macom buys Applied Micro for \\$770M](#)

Source: Optics.org – 24th November 2016

The developer of analog RF, microwave, millimeter wave and photonic semiconductor products, is to acquire Applied Micro Circuits, a developer of cloud and data center applications.

[SMIC creates joint venture for analog, power, RF, optoelectronics](#)

Source: Peter Clarke, EE Times Europe – 23rd November 2016

SMIC has formed a joint venture with the city of Ningbo to address speciality technology applicable to the Internet of Things. Ningbo Semiconductor International Corp. (NSI) is a joint venture between China IC Capital (a wholly owned investment fund of SMIC), Ningbo Senson Electronics, and Hua Capital.

[Analog Devices acquires Vescent Photonics](#)

Source: Telematics Wire – 19th November 2016

Vescent Photonics says that its Liquid Crystal Waveguide technology can overcome many of the drawbacks of bulky mechanical LIDAR systems including problems of reliability, large size, and high cost.

[Samsung is buying Harman in an \\$8 billion bet on connected cars](#)

Source: James Vincent, The Verge – 14th November 2016

The acquisition is Samsung's largest ever, and places the electronics company in the vanguard of the automotive industry — which Harman supplies with infotainment technology.

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Mergers & Acquisitions, Joint Ventures, Spin-offs

[Siemens boosts software business with \\$4.5 billion deal](#)

Source: Maria Sheahan, Reuters – 14th November 2016

German engineering group Siemens has agreed to buy U.S.-based Mentor Graphics in a \$4.5 billion deal that will bolster its industrial software operations and help it keep pace with changes to manufacturing technology.

[Synopsis tangoes to M&A tune for software security](#)

Source: EET India – 9th November 2016

Synopsis has signed a merger deal with Cigital and Codiscope, both software security experts, as the former makes another bid for the cyber-security market

[MediaTek to buy into China's Mapbar](#)

Source: Taipei Times – 5th November 2016

MediaTek said it is to buy a stake in a Beijing-based map location service provider in a bid to cement its foothold in the automotive chip and the Internet of Vehicles markets.

[Autonomous cars to drive chip sector consolidation, says NXP](#)

Source: Reuters – 5th November 2016

The world's largest chip supplier to the automotive industry expects efforts to make self-driving will lead to more consolidation in its sector

[Zeiss and ASML strengthen partnership for next generation of EUV lithography due in early 2020s](#)

Source: ASML – 3rd November 2016

The two have agreed on a 24.9% minority stake of ASML in ZEISS's subsidiary Carl Zeiss SMT, for which ASML will pay ZEISS EUR 1 billion in cash

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Mergers & Acquisitions, Joint Ventures, Spin-offs

[Lattice Semiconductor to be acquired by Canyon Bridge Capital Partners for \\$1.3B](#)

Source: BusinessWire – 3rd November 2016

Upon the completion of the transaction, Lattice will be a standalone subsidiary of Canyon Bridge and Lattice's senior management team will continue to lead the business from its current headquarters in Portland, OR.

[Broadcom to buy Brocade Communications for \\$5.5 billion](#)

Source: Chad Bray, The New York Times – 2nd November 2016

The Brocade transaction is centered around its storage area network business, which provides data storage solutions for businesses, and is expected to complement Broadcom's existing offerings.

[Photronics acquires manufacturing assets of Infinite Graphics](#)

Source: Marketwired – 1st November 2016

Manufacturing assets acquisition enables Photronics to expand and align mainstream production and provides access to niche markets not currently served

[Tessera Technologies acquires assets from Pelican Imaging Corporation](#)

Source: Business Wire – 1st November 2016

Tessera Technologies acquires technologies from Pelican Imaging to expand multi-camera and smart imaging solutions

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Market Outlook

[Toshiba lifts annual profit forecast by 50 percent on strong memory chip demand](#)

Source: Reuters – 8th November 2016

It has raised its annual operating profit forecast by 50 percent on Tuesday, saying it expects demand for its NAND flash memory chips to remain strong for the rest of the business year.

[Fan in wafer level packaging market will grow due to the high demand for miniaturized electronics](#)

Source: Business Wire – 10th November 2016

As per Technavio, the global fan in wafer level packaging market is expected to reach USD 4.75B by 2020, growing at a CAGR of almost 10%

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Views & Opinions

[Chip veterans scan horizon](#)

Source: Rick Merritt, EE Times – 11th November 2016

The chip sector has a long road ahead but faces real challenges attracting top engineers, according to veteran executives. They spoke at the annual dinner of the Semiconductor Industry Association where a lithography expert showed a system that could drive advances in Moore's law for another decade.

[AI chip startup shares insights](#)

Source: Peter Clarke, EE Times – 1st November 2016

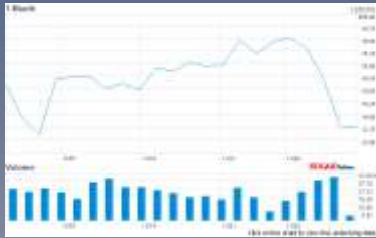
Graphcore, a startup developing a machine learning processor is not ready to make details of its hardware architecture public, but CEO Nigel Toon and CTO Simon Knowles did discuss with *EE Times Europe* some of their thinking on a variety of technology and business issues.

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Stock Watch

Source: NASDAQ

For the year just gone: 2015 year chart for Intel, TSMC, TI, Broadcom, STM, Xilinx, KLA-Tencor, Qualcomm, UMC, Applied Materials, Teradyne, Lam Research



INTEL



TSMC



TI



BROADCOM



STMICROELECTRONICS



XILINX



KLA_TENCOR



QUALCOMM



UMC



APPLIED MATERIALS



TERADYNE



LAM RESEARCH

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