



SEMICONDUCTOR BIZ INSIGHT

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

Hi there,

One of the challenges in leveraging IoT is making sense of the humungous amount of data collected from the sensors. I find this a compelling analogy while sifting through a plethora of unstructured data available in various forms when I am working to identify signals on emerging technology & biz trends.Tell me you do know that Business Intelligence through Market and Technology Research & Analysis is one of the professional services I offer:-)

One needs to develop & hone a contextual intelligence in the process.

Starting with this issue, have introduced an “**Insights Capsule**”. To begin with, each month I’ll pick up one semiconductor company and share here some interesting data sets on investments made, adjacencies ventured etc. (which I have structured from some publically available information). Hope to tune this further as we go so do feedback!

If you are keen to derive Market & Technology insights and leverage them to help in your informed business strategy decision-making, give me shout at meenu@asic-vlsi.com

Life Sciences are looked at as one of the adjacencies for the semiconductor industry, especially by some equipment vendors. A recent one in this space is bioelectronic medicine – it places devices directly into the body to alter the activity of specific nerves thus ideally reversing a particular disease state. Alphabet’s Verily’s JV with GSK to form Galvani Bioelectronics is a foray here. Life Sciences players leverage the semicon folks on the nanochips design, wireless communications and other vital electronic components.

Have an interesting read

Cheers
Meenu

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KEY TAKEAWAY

From the Asia-Pac arena
TSMC's adoption of EUV at 5nm,
Toshiba-WD's 1 trillion yen in flash,
ramping up of IC production in
Japan, GE-Huawei IoT partnering,
Chian's further inroads on semicon

Mergers & Acquisitions
ASML GSK-Verily JV,
STMicroelectronics (AMS NFC, RFID
reader biz) , Murata (Sony's
battery biz), SoftBank (ARM),
Analog Devices (Linear), Infineon
(Wolfspeed)

Ps: If you see a need for

- ✓ **Talent Development: Training for your engineers**
(pl. visit <http://asic-vlsi.com/training.html> for a list of offerings)
- ✓ **Strategic Planning: Detailed research and an in-depth analysis for your specific market & technology intelligence requirements,**
- ✓ **Industry/Domain know-how for your financial/equity analysis,**

Do let me know; we can value-add. Visit www.asic-vlsi.com for details or simply [drop me an email](#)

Insights Capsule

[Insights Capsule](#): Have picked up Qualcomm this month. Take a look at the startups its venture capital arm, Qualcomm Venture Capital, has put its money into. Also included are some interesting news on some of its markets: core and adjacent.

Want to derive insights for your informed decision-makings? Simply [drop me an email](#)

Local Asia Pacific News

[Singapore opens centre to test self-driving cars](#)

Source: NTU/EET Asia – 3rd August 2016

The Centre of Excellence for Testing and Research of AVs – NTU (Cetran) is a joint project between the Nanyang Technological University, the Land Transport Authority (LTA), and government industrial developer JTC Corporation. The Test Circuit is expected to be operational in the second half of 2017.

[SJSemi and Qualcomm jointly announce mass production of 14nm wafer bumping technology](#)

Source: PRNewswire – 28th July 2016

Founded in August 2014, SJSemi is a joint venture between Semiconductor Manufacturing International Corp. (SMIC) and Jiangsu Changjiang Electronics Technology Co., Ltd (JCET). In December 2015, Qualcomm Global Trading Pte Ltd., a subsidiary of Qualcomm Incorporated, participated in an additional investment in SJSemi.

[Japan Semi ramps up IC production](#)

Source: Peter Clarke, EET Asia – 19th July 2016

Japan Semi's Iwate and Oita operations are focusing on IC production, aiming 30% of its revenue to come from foundry business in FY18

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Local Asia Pacific News

[GE, Huawei to partner on IoT](#)

Source: Nathan Bomey, USA Today – 20th July 2016

GE said that it had struck a partnership with Chinese telecommunications giant Huawei Technologies to develop machines that are connected to the Internet. GE concurrently opened new \$11 million software incubator in Shanghai to foster new technologies and start-ups — all aimed at hastening the transition to digital machines that operate more efficiently.

[TSMC to adopt EUV at 5nm](#)

Source: Alan Patterson, EE Times – 14th July 2016

The company said it has been using 7nm as a development vehicle for EUV, achieving what it called good integration of EUV scanners, masks and photoresist. TSMC said it is running four state-of-the-art EUV scanners for infrastructure development and will move in another two NXE:3400 EUV production tools from ASML in the first quarter of 2017.

[Toshiba and Western Digital to invest over 1 trillion yen in flash memory production](#)

Source: Japan Times – 5th July 2016

South Korean and other foreign rivals are also stepping up investment in the business as flash memory is expected to be used for a wider variety of purposes.

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Industry Headlines

[ASML reports progress on EUV](#)

Source: Rick Merritt, EE Times – 26th July 2016

ASML announced it received order for four extreme ultraviolet lithography systems in its latest quarter and anticipates selling a dozen EUV systems next year. The report fueled expectations the long-delayed scanners finally will be ready for mass production in 2020, probably for 5nm chips.

[Mobileye split with Tesla spurs debate on self driving tech](#)

Source: Sai Sachin and Paul Lienert, Reuters – 26th July 2016

Mobileye's EyeQ chips provide image analysis for Tesla's Autopilot system, which helps the automaker's vehicles steer and stay in lanes.

[BMW to develop driverless car technology with Intel, Mobileye](#)

Source: Edward Taylor, Reuters – 30th June 2016

The three companies said their new platform would be made available to multiple carmakers and they expected vehicles with highly and fully automated driving would be brought into mass production by 2021.

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Financial Watch

[Silicon wafer shipments set new record with 6.6% QnQ growth](#)

Source: Semi Silicon Manufacturers Group/EET India – 2nd August 2016

Total silicon wafer area shipments were 2,706 million square inches during the most recent quarter, a 6.6% increase from the 2,538 million square inches shipped during the previous quarter. New quarterly total area shipments are 0.1% higher than second quarter 2015 shipments and are at their highest recorded quarterly level.

[ASE to ramp up capacity amid surge in demand](#)

Source: Lisa Wang, Taipei Times – 30th July 2016

ASE is expanding capacities for technologies including leading-edge fan-out capacity, given a drastic increase in demand.

Fan-out packaging technology is becoming a focus of chip packagers and equity investors such as TSMC is expected to supply its integrated fan-out technology to Apple's iPhones.

[LG Display pledges \\$1.7B to expand flexible OLED capacity](#)

Source: Pulse – 27th July 2016

This is to meet growing demand for plastic OLED as Apple and Chinese smartphone makers are mulling to opt flexible display for their premium phones from latter 2017.

[SK Hynix trying hard to escape from low performances](#)

Source: Cho Jin-young/Business Korea – 27th July 2016

A drop in prices of memory semiconductors lowered SK Hynix's operating income in the second quarter of this year to the lowest in 13 quarters. Despite low earnings, the semiconductor company is planning to rebound by making an investment of 3 trillion won (US\$2.6 billion) and concentrating on the growth of the 3D NAND flash business in the second half of this year.

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Financial Watch

[TI stays steady without blockbuster deal](#)

Source: Dylan McGrath, EE Times – 25th July 2016

It reported second quarter sales and profit in line with Wall Street's expectations as the company continues to perform steadily amid a generally sluggish macroeconomic environment and without the boost from a blockbuster acquisition that has buoyed many of its peers over the past two years.

[TSMC reports strong performance in 2nd quarter](#)

Source: John Liu, The China Post – 15th July 2016

It pulled in a cumulative US\$6.84 billion in the second quarter, growing 11.4 percent from the previous quarter and 2.7 percent from the same period last year.

[Korea renews investments in display, semiconductor industries](#)

Source: John Liu, The Korea Herald – 13th July 2016

The Ministry of Trade, Industry and Energy has secured an additional 1.1 billion won to pour into next-generation display panels such as transparent display this year. Next year, the ministry also plans to increase the budget for system semiconductor that is increasingly used for Internet of Things and artificial intelligence technologies.

[Micron tumbles 9% after revenue miss](#)

Source: Anita Balakrishnan, CNBC – 30th June 2016

Revenue for the quarter came in at \$2.90 billion, against the comparable year-ago figure of \$3.85 billion.

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Mergers & Acquisitions, Joint Ventures, Spin-offs

[Google and GSK form venture to develop bioelectronic medicines](#)

Source: Sean Farrell, The Guardian – 1st August 2016

GlaxoSmithKline has teamed up with Google's parent company Alphabet to develop miniature electronic implants for the treatment of asthma, diabetes and other chronic conditions.

[AMS sells NFC and RFID reader business to STMicroelectronics](#)

Source: Rian Boden, NFC World – 29th July 2016

The part of the business sold to STMicroelectronics mainly consists of AMS' NFC front-end/booster solutions for mobile and its RFID reader product line. MS will continue to retain ownership of its NFC/RFID tag business

[Sony says to sell battery business to Murata Manufacturing](#)

Source: Kim Kyung-Hoon, Reuters – 28th July 2016

The announcement comes as Sony banks on growth in its games business with the upcoming launch of its virtual reality headset, while it also plans to re-enter the robotics industry a decade after it last abandoned that business

[Tsinghua leads creation of \\$2.8B Chinese chip giant](#)

Source: Bloomberg News – 26th July 2016

Tsinghua Unigroup Ltd. merged its memory chip-making operations with Chinese government-run XMC's, creating a \$2.8 billion company to spearhead the country's effort to become a global semiconductor player.

[Softbank to buy UK chip designer ARM in a \\$32 billion deal](#)

Source: Chang-Ran Kim and Kate Holton, Reuters – 18th July 2016

Japan's SoftBank will buy Britain's most valuable technology company ARM for \$32 billion in cash, an audacious attempt to lead the next wave of digital innovation with a chip designer that powers the global mobile phone industry.

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Mergers & Acquisitions, Joint Ventures, Spin-offs

[Analog Devices to buy chipmaker peer Linear for \\$14.8 billion](#)

Source: Liana B. Baker, Reuter – 16th July 2016

By buying Linear, Analog is aiming to boost its profitability and increase its share in the fragmented market for analog chips. Linear was viewed as one of the most attractive sales targets in semiconductors because of its high margins and engineering talent.

[Infineon to acquire Wolfspeed for \\$850M in cash](#)

Source: Infineon – 14th July 2016

Combination further strengthens Infineon as leading supplier of power and RF power solutions in high-growth markets such as electro-mobility, renewables and next-generation cellular infrastructure relevant for the Internet of Things (IoT)

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Market Outlook

[MediaTek predicts 25% revenue growth](#)

Source: Lisa Wang, Taipei Times – 4th August 2016

It raised its revenue growth forecast for this year to 25 percent, from a previous estimate of a 10 percent annual increase, on stronger-than-expected smartphone sales by its Chinese clients.

[An unknown Chinese company emerges as world's no 3. TV maker](#)

Source: Cho Jin-young, Business Korea – 2nd August 2016

TrendForce Corp, a market intelligence provider forecasted “China-based LeEco will rank as the No. 3 TV maker following Samsung Electronics and LG Electronics, producing 14.57 million LCD TVs this year.”

[STTMRAM to lead \\$4.6B non volatile memory market in 2021](#)

Source: Yole Developpement/EET Asia – 1st August 2016

Non-volatile memory is still limited to niche markets due to limited densities, but this will change in the near future.

[GaN substrates market is estimated to be worth over 4 billion USD by 2020](#)

Source: PR Rocket – 15th July 2016

Optoelectronics are the key devices that employ GaN substrates, among which, LEDs account for over 70% share.

[Foundry capacity investment led by Taiwan and China](#)

Source: Semi – 5th July 2016

According to SEMI's World Fab Forecast, overall Foundry capacity has surpassed memory capacity in 2015 as the largest segment and is expected to continue the lead in the coming years. Foundry capacity growth is forecast to outgrow the overall industry at about 5 percent each year to reach 6 million wafers per month (wpm) (200mm equivalent) by the end of 2017.

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Views & Opinions

[Executive Insight: Jack Harding](#)

Source: Ed Sperling, Semiconductor Engineering – 3rd August 2016

eSilicon's CEO looks at industry consolidation, competition, China's impact, and what's changing in chip design.

[Executive Insight: Aart de Geus](#)

Source: Ed Sperling, Semiconductor Engineering – 20th July 2016

Synopsys' chairman looks at the biggest changes in the industry and how they will affect technology for the foreseeable future.

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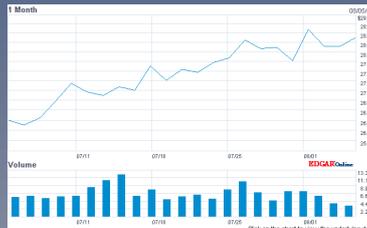
Stock Watch

Source: NASDAQ

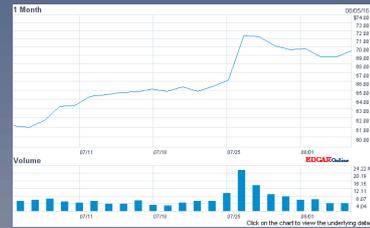
For the year just gone: 2015 year chart for Intel, TSMC, TI, Broadcom, STM, Xilinx, KLA-Tencor, Qualcomm, UMC, Applied Materials, Teradyne



INTEL



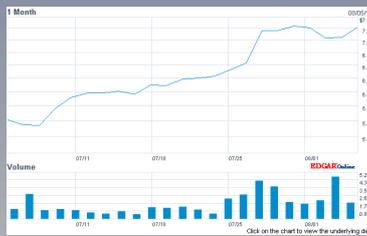
TSMC



TI



BROADCOM



STMICROELECTRONICS



XILINX



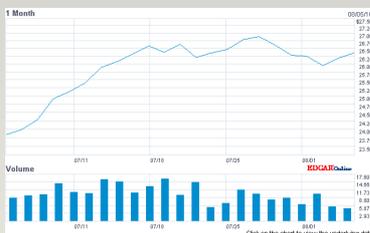
KLA_TENCOR



QUALCOMM



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