



SEMICONDUCTOR BIZ INSIGHT

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

Hi,

A snippet from the past month

On the Asian front, the Mattson deal marks one of the first signs that the “Made in China 2025” policy will include targeting semiconductor production equipment as an element in bolstering the domestic chip business in China.

Gartner has cited "Weakened demand for key electronic equipment, the continuing impact of the strong dollar in some regions and elevated inventory" to blame for the 1.9% decline in semiconductor revenue in '15. For the numbers chasers, rankings for Global wafer fab capacity leaders (IC Insights) and Top 10 semiconductor vendors (Gartner) were also released early this month.

Have a good read and wish you a successful year ahead.

Warm Regards
Meenu

KEY TAKEAWAY

From the Asian arena
Reorganizations (Fujitsu, Toshiba),
production lines in China
(Samsung, TSMC, UMC), driverless
cars (Samsung & Baidu, Hyundai)

Mergers & Acquisitions
Apple (Emotient), Amkor (J-
Devices), Intel (Ascending
Technologies), PTC (Kepware),
Google-Ford JV, Dow-Dupont
merger, TDK (Micronas), Micron
(Inotera)

This edition's Stock Watch has the
2015 one year graphs

CONTACT

Meenu Sarin | Director, VLSI Consultancy | Tel +65-98629814|
Providing techno-commercial services to the semiconductor industry

Website www.asic-vlsi.com | Email meenu@asic-vlsi.com |
Blog www.asic-vlsi.com/newblog | Twitter @meenusarin | Facebook [VLSI Consultancy](https://www.facebook.com/VLSIConsultancy) |
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Local Asia Pacific News

Samsung, TSMC remain tops in available wafer fab capacity

Source: IC Insights – 6th January 2016

Collectively the top 10 leaders had installed capacity of 11,737K wafers/month at the end of the year which equates to 72% of global capacity and up slightly from 10,885K wafers/month or 71% in 2014.

Qualcomm signs new patent licensing deals in China

Source: Catherine Shu, TechCrunch – 29th December 2015

Qualcomm announced that it has inked new patent licensing deals in China with smartphone manufacturers Beijing Tianyu Communication Equipment and Haier Group. The San Diego-based chipmaker has made a series of similar agreements over the past two months as it recovers from an antitrust investigation by the Chinese government.

Fujitsu is splitting its PC and mobile divisions into new companies

Source: Jacob Kstrenakes, The Verge – 24th December 2015

The spinoffs will create two new companies: the first, Fujitsu Client Computing Limited, will contain its laptop and desktop divisions; the second, Fujitsu Connected Technologies, will contain its mobile phone division.

Toshiba lets go of consumer biz amid reorg plan

Source: EET Asia – 23rd December 2015

Toshiba is doing away with its consumer systems division in a broad reorganization that underscores the decline of the consumer notebook business. The company will lay off 6,800 people or about 30 per cent of the division designing and making PCs, TVs and appliances as part of the plan.

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Local Asia Pacific News

Samsung, Apple competing in biosensor tech

Source: Business Korea- 22nd December 2015

Samsung Electronics and Apple are working on various biosensor and bio-processor prototypes. Samsung Electronics is increasing its investment in bio-processors in order to manufacture the items from the first quarter of next year. Apple recently acquired the manufacturing facilities of Maxim Integrated, a leader in the industrial sensor industry, to the same end

Samsung puts 3D NAND production line in Xi'an into full operation

Source: Business Korea- 21st December 2015

Samsung Electronics' Xi'an plant in China, which is the main production base of 3D NAND flash memory chips, has achieved the initial wafer production target of 100,000 sheets a month based on its stable market demands. The company, which has ordered 3D NAND manufacturing equipment this year, will make an additional investment in the 3D NAND production line from next year.

Hon Hai to focus on IoT technologies and robots

Source: Taipei Times – 17th December 2015

Hon Hai, the world's largest electronics manufacturing services provider, reached an agreement in mid-June with Softbank and Alibaba to invest in Softbank Robotics Holdings

TSMC work on 5 nm leaves EUV undecided

Source: Alan Patterson, EE Times – 15th December 2015

TSMC's initial development work at 5nm may be yet another indication that EUV has been set back as an eventual replacement for immersion lithography. ASML Holding has been a key proponent of EUV, while competitor Nikon is backing 193i immersion technology.

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Local Asia Pacific News

Samsung and Baidu are getting into self-driving cars

Source: Sam Byford, The Verge – 10th December 2015

Samsung is creating a new team to work on self-driving car technologies. The division will focus on components rather than building an entire vehicle. Another Asian giant is taking a more head-on approach to autonomous driving; Chinese search titan Baidu is developing self-driving vehicles that will serve as public shuttles

UMC to begin 12-inch fab in China two months ahead of time

Source: EET Asia – 10th December 2015

UMC is partnering with Fujian Electronics & Information Group and the Xiamen municipal government. The total investment in the fab located in the city of Xiamen on the southeast coast of China is about \$6.2 billion. UMC will hold about 21 per cent of the venture but will have six out of nine directors on the company board.

Hyundai to invest 2 trillion won to develop semiconductor chips for driverless cars

Source: Jung Min-hee, Business Korea – 10th December 2015

Hyundai Motor Group will develop semiconductor chips through Hyundai Autron, an affiliate that develops non-memory semiconductors and electronic control systems for cars. For this, the group has decided to invest 2 trillion won (US\$1.69 billion) in developing smart car and IT technologies by 2018

Bosch, China join forces for IoT research

Source: EET India – 9th December 2015

The Shanghai Industrial Microtechnology Research Institute (SITRI), a business incubator that is constructing a 200mm More-than-Moore wafer fab, and Bosch China have agreed to collaborate on researching the Internet of Things (IoT)

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Local Asia Pacific News

TSMC aims to build its first 12-inch fab in China

Source: Alan Patterson, EE Times – 7th December 2015

The sum of the entire investment project is \$3 billion, including equipment, some of which will come from existing fabs in Taiwan, and assistance from the Chinese government, according to TSMC.

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Industry Headlines

Cypress sells Bloomington wafer fab

Source: EET India – 16th December 2015

The automotive-qualified fab has a clean room floor space of 80,000 square feet and is capable of 16,700 wafer starts per month. The fab is currently being used by Cypress Foundry Solutions and operates at manufacturing nodes between 0.35 μ and 90nm.

Qualcomm said to lean against breakup seen harming chip prowess

Source: Ian King, Alex Sherman, Bloomberg – 14th December 2015

The company has been considering options including whether to separate its chip and technology-licensing units.

Apple buys former chip fab in North San Jose

Source: Silicon Valley Business Journal – 14th December 2015

It was a manufacturing facility for semiconductor company Maxim Integrated Products

GlobalFoundries expected to be put on the market

Source: Cho Jin-young, Business Korea – 3rd December 2015

It has been found that Mubadala Technology, a state-run company of the United Arab Emirates, is seeking to sell its GlobalFoundries semiconductor plants. Experts predict that the factories will be sold to multiple entities, as few companies in the semiconductor industry are capable of procuring such a large amount of money at once.

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Financial Watch

[Samsung Electronics fourth-quarter guidance underscores tech sector headwinds](#)

Source: Se Young Lee, Reuters, Reuters – 8th January 2016

Samsung Electronics said its fourth-quarter operating profit likely rose 15 percent from a year earlier, missing expectations and fuelling concerns the tech industry may be in for a tough year of slack gadget sales.

[Gartner says worldwide semiconductor revenue declined 1.9 percent in 2015](#)

Source: Se Young Lee, Reuters, Reuters – 8th January 2016

Worldwide semiconductor revenue totaled \$333.7 billion in 2015, a 1.9 percent decrease from 2014 revenue of \$340.3 billion, according to preliminary results by Gartner. The top 25 semiconductor vendors' combined revenue increased 0.2 percent, which was more than the overall industry's growth. The top 25 vendors accounted for 73.2 percent of total market revenue, up from 71.7 percent in 2014

[Micron forecasts surprise loss for current quarter](#)

Source: Kshitiz Goliya, Reuters – 22nd December 2015

Micron has been investing to ramp up production of its higher-margin 20 nm DRAM chips and develop more efficient and cost-effective 3D NAND chips. "Overall, our revenues were impacted by declining pricing particularly in the PC DRAM segment," Chief Financial Officer Ernie Maddock said in a conference call.

[Toshiba predicts record \\$4.5 bn loss](#)

Source: BBC News – 21st December 2015

The 6,800 job cuts will go in its Lifestyle division, essentially its consumer electronics business, and Toshiba said the cuts would be made by March 2016.

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Financial Watch

[Micromax to invest Rs. 300 cr for “Make in India”](#)

Source: The Economic Times – 13th December 2015

The handset maker will invest Rs. 300 crore over the next few months as it sets up three new manufacturing units in India to ramp up domestic production and reduce dependence on imports from China.

[400 billion won invested in smart manufacturing R&D for next 5 years](#)

Source: Cho Jin-young, Business Korea – 11th December 2015

The Ministry of Science, ICT & Future Planning made public its long-term roadmap for smart manufacturing R&D on Dec. 10. The roadmap covers the eight smart manufacturing technologies of smart sensors, cyber physical systems, 3D printing, energy conservation, IoT, cloud computing, big data and holograms.

[Hyundai to invest 2 trillion won to develop semiconductor chips for driverless cars](#)

Source: Jung Min-hee, Business Korea – 10th December 2015

Hyundai Motor Group will develop semiconductor chips through Hyundai Autron, an affiliate that develops non-memory semiconductors and electronic control systems for cars. For this, the group has decided to invest 2 trillion won (US\$1.69 billion) in developing smart car and IT technologies by 2018

[TSMC’s November sales down over 22% month-on-month](#)

Source: Focus Taiwan – 10th October 2015

The world's largest contract chipmaker, said that it posted NT\$63.43 billion (US\$1.92 billion) in consolidated sales in November, down 22.4 percent from a month earlier, and also down 12.2 percent from a year earlier.

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Financial Watch

[Global semiconductor sales increase in October, slight growth projected for next 3 years](#)

Source: Dan Rosso, SIA – 3rd October 2015

SIA announced worldwide sales of semiconductors reached \$29.0 billion for the month of October 2015, 1.9 percent higher than the previous month's total of \$28.4 billion and 2.5 percent lower than the October 2014 total of \$29.7 billion.

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Mergers & Acquisitions, Joint Ventures, Spin-offs

Apple buys artificial intelligence startup Emotient

Source: Reuters – 7th January 2016

San Diego-based Emotient had previously raised \$8 million from investors including Intel Capital

Amkor Technologies announces acquisition of remaining shares of J-Devices

Source: Business Wire – 6th January 2016

J-Devices is the largest OSAT in Japan and sixth largest in the world

Intel acquires German drone company as it pursues aerial computing market

Source: Ben Popper, The Verge – 4th January 2016

The chipmaker now owns Ascending Technology that uses Intel's RealSense camera for obstacle avoidance

PTC to buy software development company for \$100M

Source: EET India – 29th December 2015

PTC has entered a definitive deal to acquire Kepware, a software development company that offers communications connectivity to industrial automation environments. The agreement is valued at about \$100 million, plus up to an additional \$18 million based on achievement of certain strategic initiatives and financial results.

Hon Hai proposes deal to buy Sharp

Source: Taipei Times – 28th December 2015

The world's largest contract electronics maker has proposed to spend ¥300 billion (US\$2.5 billion) to acquire financially struggling electronics firm Sharp, according to Japan's Kyodo news agency. Hon Hai is not the only potential suitor seeking to buy Sharp, the report said, adding that the Innovation Network Corp of Japan (INCJ), which is sponsored by the Japanese government, is studying a buyout of Sharp.

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Mergers & Acquisitions, Joint Ventures, Spin-offs

Google pairs with Ford for self-driving cars

Source: Justin Hyde and Sharon Carty, Yahoo Autos – 22nd December 2015

They will create a joint venture to build self-driving vehicles with Google's technology, a huge step by both companies toward a new business of automated ride sharing

TDK to acquire Micronas to further grow the magnetic sensor business

Source: Doug Green, Asia Manufacturing News – 19th December 2015

TDK is endeavoring to further expand earnings from its five priority businesses in the three priority markets of automobiles, industrial material and ICT

China Resources challenges ON Semiconductor with Fairchild bid

Source: Greg Roumeliotis, Reuters – 8th December 2015

Hua Capital Management a Chinese private equity firm that earlier this year agreed to acquire chipmaker OmniVision Technologies for \$1.9 billion is also part of the group making the new offer for Fairchild.

SK plans semiconductor joint venture

Source: Kim Yoo-chul, The Korea Times – 7th December 2015

SK plans to establish a joint venture focusing on semiconductor components to further bolster its footprint in the semiconductor industry, in which its affiliate SK Hynix has a solid position.

Mattson Technology enters into an agreement to be acquired by the Beijing E-Town Dragon Semiconductor Industry Investment Center

Source: Reuters – 1st December 2015

The global semiconductor wafer processing equipment provider, and Beijing E-Town Dragon Semiconductor Industry Investment Centre jointly announced that they have entered into a definitive merger agreement under which E-Town Dragon will acquire all outstanding shares of Mattson for \$3.80 per share in cash.

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Mergers & Acquisitions, Joint Ventures, Spin-offs

Dow, Dupont eye big tax savings in rare merger of equals

Source: Greg Roumeliotis, Mike Stone, Reuters – 15th December 2015

After their merger, Dow and DuPont plan to create three publicly traded businesses, focusing on agriculture, materials and specialty products.

Micron to acquire remaining interest in Inotera memories of Taiwan

Source: Global Newswire – 14th December 2015

Micron currently owns approximately 33 percent of Inotera. Inotera is expected to be fully deployed on Micron's leading edge 20-nanometer technology by the middle of 2016.

Japan state backed fund mulls buying majority stake in Sharp: Yomui

Source: Reiji Murai, Reuters – 1st December 2015

State-backed fund Innovation Network Corporation of Japan (INCJ) is considering buying a majority stake in Sharp Corp for an estimated 200 billion yen (\$1.63 billion) as part of its restructuring

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Market Outlook

Semiconductor industry set to increase revenues

Source: Lisa Wang, Taipei Times – 19th December 2015

Taiwan's semiconductor industry is expected to grow 2.4 percent in revenue next year, following an estimated 0.9 percent increase this year, as per Market Intelligence and Consulting Institute. The growth would outpace next year's 2.2 percent contraction in the international semiconductor industry because of weak demand for PCs and smartphones

Global chip market to fall by 0.6% next year

Source: EE Times – 14th December 2015

The declining memory average selling prices will drag down the total chip market next year and cause it to fall by 0.6 per cent to \$329 billion, stated

[Samsung Electronics unlikely to recover in operating profits until Q1 next year](#)

Source: Jung Suk-ye, Business Korea – 14th December 2015

Samsung Securities said that it trimmed Samsung Electronics' operating profit forecast for the fourth quarter by 300 trillion won (US\$253.91 million) to 6.8 trillion won (US\$5.76 billion) from the previous 7.1 trillion won (US\$6.01 billion) estimate due to sluggish sales in its component business.

Fab equipment spending: Look for upward swing into 2016

Source: Semi – 8th December 2015

Worldwide semiconductor fab equipment capital expenditure growth (new and used) for 2015 is expected to be 0.5 percent (total capex of US\$35.8 billion), increasing another 2.6 percent (to a total of \$36.7 billion) in 2016.

Semiconductor sector to grow again: TSMC

Source: Lisa Wang, Taipei Times – 4th December 2015

"Inventory correction in the industry would be mostly finished by the end of this year," TSMC co-chief executive officer Mark Liu said in a keynote speech during the company's annual Supply Chain Management Forum in Hsinchu. The company expects double-digit growth in its annual revenue this year, thanks to the advances it has made in the 16-nanometer chip technology

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Views & Opinions

CEO Outlook: 2016

Source: Nikkei Asian Review – 1st December 2015

Semiconductor Engineering talked with 10 CEOs from all sides of the semiconductor industry for a high-level view of what to expect this year—good and bad.

Chinas's price war approach is not sustainable: UMC's CEO

Source: Nikkei Asian Review – 1st December 2015

Yen Po-wen, the chief executive of Taiwan's second-largest contract chipmaker, UMC, is optimistic that his company will benefit from the rise of Internet of Things technology, which links daily items, ranging from home appliances to cars, together. He expressed support for mutual investments between tech sectors in Taiwan and China, but suggested the mainland may want to rethink its "price war" approach.

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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, Avago, UMC, Applied Materials, Teradyne



INTEL



TSMC



TI



BROADCOM



STMICROELECTRONICS



XILINX



KLA_TENCOR



QUALCOMM



AVAGO



UMC



APPLIED MATERIALS



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