



# SEMICONDUCTOR BIZ INSIGHT

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

Hi,

While the “when” of EUV is still unclear, the multi e-beam market saw some action last month. Intel is said to be in the process of acquiring multi e-beam equipment vendor, IMS Nanofabrication. E-beam giant NuFlare had also recently disclosed its new multi-beam mask writer technology.

SEMICON Southeast Asia 2016 is scheduled for 26<sup>th</sup> - 28<sup>th</sup> April this year in Penang, Malaysia. I am chairing one of the tracks, Technology Innovation Forum, with the theme, **"Internet of Things: Enabling a Smart Manufacturing Revolution for the Semiconductor Industry"**. Scheduled for 27<sup>th</sup> April 2016, the track will include 6 keynotes by eminent speakers from GlobalFoundries, Lam Research, A\*STAR, Infineon, Applied Materials and Deloitte Consulting followed by a brief panel discussion, **"IoT – Is IoT triggering the next disruption in semiconductor manufacturing?"**. The target audience includes key leaders and decision makers in the semiconductor ecosystem, analysts and VCs.

Details can be accessed at <http://semiconsea.org/technology-innovation-forum>. If you are planning to be there for this event, do let me know; would be great to meet up.

Have a good read & interesting month ahead.

Cheers  
Meenu

## CONTACT

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

Website [www.asic-vlsi.com](http://www.asic-vlsi.com) | Email [meenu@asic-vlsi.com](mailto:meenu@asic-vlsi.com) |  
Blog [www.asic-vlsi.com/newblog](http://www.asic-vlsi.com/newblog) | Twitter @meenusarin | Facebook [VLSI Consultancy](https://www.facebook.com/VLSIConsultancy) |  
LinkedIn <http://sg.linkedin.com/in/meenusarin>

---

## INDEX

[Local Asia Pacific News](#)

[Industry Headlines](#)

[Financial Watch](#)

[Mergers & Acquisitions,  
Joint Ventures, Spin-offs](#)

[Market Outlook](#)

[Views & Opinions](#)

[Stock Watch](#)

## KEY TAKEAWAY

---

From the Asian arena

China semiconductor in the news –  
TSMC expansion in China,  
Groundbreaking of XMC memory  
fab, Korea wary of threat from  
China on semiconductor

Mergers & Acquisitions

Foxconn (Sharp), Analog Devices  
(SNAP Sensor), Synopsys  
(WinterLogic), Cisco (Leaba  
Semiconductor)

---

**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](http://www.asic-vlsi.com) for details or simply [drop me an email](#)

## Local Asia Pacific News

### [TSMC strikes record deal with Nanjing](#)

Source: Lisa Wang, Taipei Times – 29<sup>th</sup> March 2016

TSMC has signed a US\$3 billion investment agreement with the government of Nanjing city in China to produce 16-nanometer chips in the world's largest semiconductor market. Revenue from Chinese clients made up 8 percent of TSMC's overall revenue of NT\$843.5 billion (US\$25.8 billion) last year, according to TSMC's financial report.

### [Groundbreaking of new XMC memory fab in China signals another breakthrough in Chinese Nand flash industry, says Trendforce](#)

Source: Sean Yang, TrendForce – 21<sup>st</sup> March 2016

Major Chinese memory manufacturer XMC will begin the construction of a new wafer fab at the end of March. This fab is expected to enter production by the start of 2018 and its main strategic product at the outset will be 3D-NAND Flash, the most advanced Flash memory product available on the market.

### [TSMC details silicon roadmap](#)

Source: Rick Merritt, EE Times – 16<sup>th</sup> March 2016

It is ramping its 16nm process and making progress on plans to roll out 10 and 7nm nodes over the next two years

### [Korea urged to cut China threat to semiconductors](#)

Source: Kom Yoo-chul, The Korea Times – 6<sup>th</sup> March 2016

The government has been urged to form an alliance with local semiconductor companies in order to counter a growing market threat, mainly initiated by Beijing's moves to help Chinese chipmakers expand.

[Back to Index](#)

## Local Asia Pacific News

### [Taiwan passes South Korea to become #1 in total IC wafer fab capacity](#)

Source: IC Insights – 6<sup>th</sup> March 2016

As of Dec-2015, Taiwan led all regions/countries in wafer capacity with nearly 22% of worldwide IC capacity installed in the country. For wafers 150mm in diameter and smaller, Japan was the top region in terms of the amount of capacity. The capacity leaders for 200mm wafers were Taiwan and Japan. For 300mm wafers, South Korea was at the forefront, followed by Taiwan.

[Back to Index](#)

## Industry Headlines

### [NVidia creates a 15B transistor chip for deep learning](#)

Source: Dean Takahashi, Venture Beat – 5<sup>th</sup> April 2016

NVidia chief executive Jen-Hsun Huang announced that the company has created a new chip, the Tesla P100, with 15 billion transistors for deep-learning computing. It's the biggest chip ever made, Huang said.

### [Chipmaker Marvell seen in play after exit](#)

Source: Abhirup Roy, Reuters – 5<sup>th</sup> April 2016

Marvell Technology Group Ltd's CEO and president - a husband-wife duo who co-founded the company - are stepping down; a move analysts said could presage a sale of the chipmaker.

### [UConn discovers new polymers using machine learning](#)

Source: EET India – 10<sup>th</sup> March 2016

Using this method the University of Connecticut has now discovered the properties of organic electronics with a machine-learning algorithm that discovered the specific laws governing the dielectric breakdown of polymers thus accurately predicting their bandgap and dielectric constant from their atomic structure.

### [Intel working on augmented reality headset](#)

Source: Don Clark and Orr Hirschauge, MarketWatch – 3<sup>rd</sup> March 2016

The chip giant is developing a wearable headset to deliver augmented-reality experiences, people briefed on the company's plans said. Intel plans to exploit its 3-D camera technology called RealSense.

[Back to Index](#)

## Financial Watch

### [NAND revenue declines as prices fall](#)

Source: Dylan McGrath, EE Times – 21<sup>st</sup> March 2016

Contract prices of NAND flash memory chips declined by roughly 9 to 10% in the fourth quarter of 2015, due largely to oversupply, according to market research firm TrendForce. Prices of embedded multi-media card (eMMC) and solid-state drive (SSD) products declined by 10 to 11% in the fourth quarter due to weaker-than-expected shipments of smartphones, tablets and notebook PCs

### [Cisco to invest \\$100M in India's digital push](#)

Source: Jim Young, Reuters – 18<sup>th</sup> March 2016

Cisco's Executive Chairman John Chambers said the company will work with federal and provincial governments in India to launch incubation centers for entrepreneurs and training students. Cisco will invest \$40 million of the total planned investment into funding early and mid-stage startups.

### [Applied Materials eyes expansion in China](#)

Source: China Daily – 15<sup>th</sup> March 2016

The world's largest semiconductor materials engineering solutions provider is planning to expand in the China market through investments and other projects with a combined value of 4 billion yuan (\$616 million) in the next few years, said its President and CEO Gary Dickerson.

### [Chip shipments decline due to quake damage](#)

Source: Lisa Wang, Taipei Times – 11<sup>th</sup> March 2016

TSMC said revenue declined 16 percent last month from January, after an earthquake last month caused greater-than-expected damage to its wafer shipments.

[Back to Index](#)

## Financial Watch

### [Chip sales off to slow start to 2016](#)

Source: Dylan McGrath, EE Times – 4<sup>th</sup> March 2016

As per SIA, chip sales declined on both a sequential and annual basis across all regions except China, where sales increased compared with January 2015. It marked the third straight month that China was the only region to post year-to-year growth in chip sales. Global chip sales totaled \$26.9 billion in January, down 3% from the previous month and down 6% compared with January 2015, according to the sales numbers, compiled by the World Semiconductor Trade Statistics (WSTS) organization.

### [Broadcom saves \\$300M in axed ops](#)

Source: EE Times – 4<sup>th</sup> March 2016

Former CEO of Avago, Hock Tan identified about \$300 million in discontinued operations from the classic Broadcom Corp. "There's more than one [non-core] business, [they are] not necessarily in wireless, but we really prefer not to divulge more details because we are running a process," he said in his first quarterly call with analysts since the merger was announced in May.

### [Inpria announces new funding from Air Liquide, Samsung, Intel Capital and Tok and broadens industry support](#)

Source: Venture Beat/Business Wire – 1<sup>st</sup> March 2016

Financing to be used to complete EUV photoresist development and commence scale-up manufacturing

[Back to Index](#)

## Mergers & Acquisitions, Joint Ventures, Spin-offs

### [Foxconn finally agrees to Sharp takeover at lower price](#)

Source: James Vincent/The Verge – 30<sup>th</sup> March 2016

Following months of rumors and delays, Taiwan's Foxconn Technology Group has approved a deal to buy 66 percent of Japanese firm Sharp.

### [Analog Devices acquires SNAP Sensor, enhances IoT sensing portfolio](#)

Source: New Electronics – 18<sup>th</sup> March 2016

Analog Devices says the acquisition will help it to build upon platform-level Internet of Things (IoT) solutions such as its Blackfin Low Power Imaging Platform (BLiP), a low-cost, low- power embedded computer vision platform targeting real-time sensing applications.

### [Synopsys announces acquisition of WinterLogic](#)

Source: Streetinsider– 2<sup>nd</sup> March 2016

The addition of WinterLogic's leading fault simulation capability extends Synopsys' large and growing solutions for safety and security in the areas of functional verification, hardware-software verification, software quality and cyber security, and automotive grade IP.

### [Cisco buying Israel's Leaba Semiconductor for \\$320 million](#)

Source: Reuters – 2<sup>nd</sup> March 2016

Cisco plans to acquire Israel's Leaba Semiconductor, a designer of networking chips, for \$320 million in cash plus additional incentives to retain employees.

[Back to Index](#)



## Market Outlook

### [ABI Research values ADAS market at \\$132B in 2026](#)

Source: Semi – 4<sup>th</sup> April 2016

“Vulnerable user detection system shipments, including pedestrian, animal, and cyclist detection, will exhibit strong growth over the next decade, with a 49% CAGR,” says James Hodgson, Research Analyst at ABI Research. “The growth will primarily be driven by OEMs seeking to develop more robust autonomous emergency braking systems that will be effective in a greater number of driving scenarios.”

### [Slow but positive 2016 followed by double digits in 2017](#)

Source: Semi – 10<sup>th</sup> March 2016

The biggest contributors to the growth are foundries, 3D NAND fabs, and companies beginning to equip and prepare for the 10nm ramp-up in 2017. Dedicated foundries continue to represent the largest spending segment

### [Market for GaN and SiC power semiconductors to top \\$1 billion in 2020](#)

Source: IHS – 9<sup>th</sup> March 2016

“Declining prices will spur faster adoption of the technology,” said Richard Eden at IHS Technology. “In contrast, GaN power transistors and GaN modules have only just recently appeared in the market. GaN is a wide bandgap material offering similar performance benefits to SiC, but with greater cost-reduction potential.

[Back to Index](#)

## Views & Opinions

### [MIT Media Lab's Joi Ito on Digital Innovation Disruption](#)

Source: BCG Perspectives: 29<sup>th</sup> March 2016

Joichi "Joi" Ito, the Lab's director since 2011, has been recognized for his work as an activist, entrepreneur, venture capitalist, and advocate of emergent democracy, privacy, and Internet freedom. He is currently exploring how radical new approaches to science and technology can transform society in substantial and positive ways.

### [Advice for Silicon startups](#)

Source: EE Times – 8<sup>th</sup> March 2016

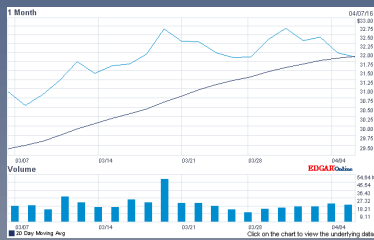
A co-founder of an incubator for semiconductor startups gives advice to entrepreneurs working in silicon.

[Back to Index](#)

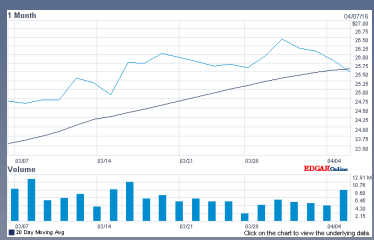
# Stock Watch

Source: NASDAQ

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



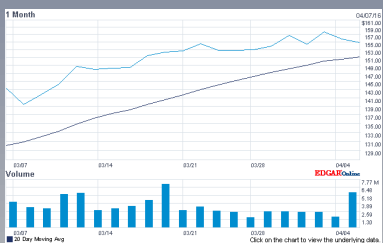
INTEL



TSMC



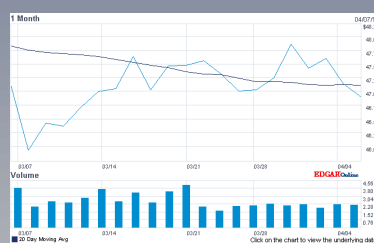
TI



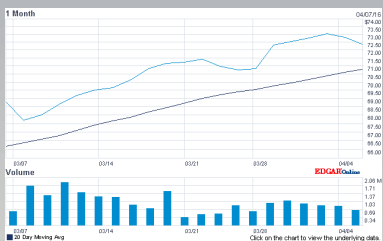
BROADCOM



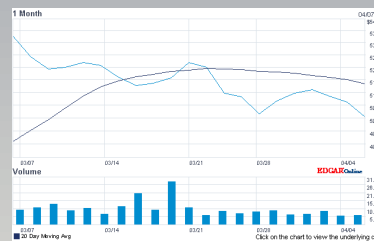
STMICROELECTRONICS



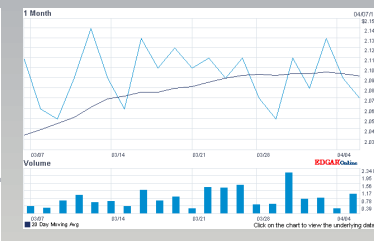
XILINX



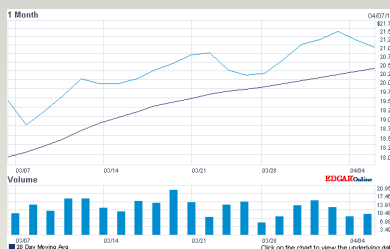
KLA\_TENCOR



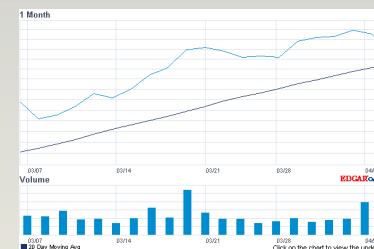
QUALCOMM



UMC



APPLIED MATERIALS



TERADYNE

**SPONSORSHIP & ADVERTISING OPPORTUNITIES**

For sponsorship and advertising opportunities in this e-newsletter, pl. email to [sales@asic-vlsi.com](mailto:sales@asic-vlsi.com)

**SUBSCRIBE/FORWARD TO A COLLEAGUE**

Please tell your colleagues about Semiconductor Biz Insight, your 5 minute monthly e-link Digest brought to you by VLSI Consultancy - forward this email to a colleague so that they can Subscribe today

**UNSUBSCRIBE**

If you no longer wish to receive Semiconductor Biz Insight, please reply to this email with UNSUBSCRIBE in the Subject line.

**DISCLAIMER**

The Semiconductor Biz Insight is compiled by VLSI Consultancy. The newsletter includes a compilation of news-stories that appeared on the Internet in leading company and news sites. We provide the links for your ease and urge and encourage you to read the original story at the respective website following the URL/Link of the news-item. All information provided in this document is of a general nature and is not provided with any warranty as to its suitability to the circumstances of each individual business. Readers and users are entirely and individually responsible for taking appropriate action with regard to the setting up of such services and for the consequences of such actions.