

## TrendForce Compuforum 2016: NAND Flash Prices to Stabilize in Second Half of 2016 as Demand Returns

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[TrendForce](#) and TechNews jointly held “Compuforum 2016: The Future of Mobile Devices” on May 31 at the fourth-floor VIP room of Taipei International Conventional Center, as part of the Computex Taipei 2016. This year’s conference featured guest speakers from SanDisk, the global leader in Flash memory solutions, and other major international brands such as Qualcomm and NXP. Sean Yang, research director of TrendForce’s memory division [DRAMeXchange](#), was also at the event to offer the attendees his insights on the NAND Flash market for this year’s second half.

Below is a summary of Yang’s presentation at the event:

The NAND Flash end-market demand has started to gradually pick up recently on account of Apple stocking up for the next iPhone release and the strong growth in the SSD market. At the same time, the demand from Chinese smartphone brands has been steady because they have also introduced new product models to the market. Consequently, the global NAND Flash market will shift away from oversupply and reach a balance in the third quarter. By that time, NAND Flash prices are expected to cease falling and stay on a stable trend. The market situation in the fourth quarter will depend on sales momentums of the next iPhone and other smartphone products. On the whole, supply-demand situation in the second half of this year will be steadier compared with the first half.

Preparation for the next iPhone release and rapid growth in SSD demand are the major highlights in the NAND Flash market.

Yang noted that two major storage options in the iPhone series, 64GB and 128GB, make up over 60% of the cumulative shipments of iPhone 6/6 Plus and iPhone 6s/6s Plus from their market releases to now. Consequently, iPhone as an individual product accounted for the largest share of the overall NAND consumption in 2015 at 15%, up from 12% in 2014. Apple is expected to raise the maximum storage capacity of the next iPhone (also referred to as iPhone 7) to 256GB, so the first wave of related stock-up demand will likely give a huge boost to the NAND Flash market. Additionally, falling prices of eMMC and eMCP encourage other smartphone brands to differentiate their products by upgrading storage specs. DRAMeXchange projects the average density of eMMC for this year to reach 30GB, representing an annual increase of 36%.

SSDs is another major application driving the NAND Flash market. Since the second quarter, rising prices of traditional HDDs have made Client-SSDs more attractive to consumers. The average selling price of SSDs is anticipated to drop further next year when manufacturers start to promote products based on 3D-NAND technology. TrendForce forecasts that the SSD adoption rate in the notebook market will exceed 50% by 2018.

The Enterprise-SSD market is also heating up owing to the fast growing demand for cloud computing services and data centers. While Intel and Samsung remain the top two brands the Enterprise-SSD market, the pursuing competitors are also accelerating their product development in this segment. With demand increasing steadily every quarter, DRAMeXchange estimates that the annual growth of the worldwide Enterprise-SSD shipments this year will be over 30%, amounting to 16 million units.

### Tight supply for both planar NAND and 3D-NAND

NAND Flash chips of mainstream densities started to drop sharply in the third quarter of 2015. Going into this year’s first quarter, suppliers transitioned to 3D-NAND production and lowered their outputs for planar (2D) NAND. Suppliers also shifted more of their capacities towards meeting the reliable OEM demand and scaled back shipments to channels. As a result, prices in the channel NAND Flash market began to stabilize at the end of this March and rebounded slowly afterwards.

Yang said last year NAND Flash suppliers devoted most of their capital expenditures to 3D-NAND development, so the increase in the overall planar NAND output was marginal. The supply of planar NAND is anticipated to noticeably tighten in this year's third quarter as this architecture is still used for most channel products as well as for eMMCs and eMCPs. At the same time, the strong SSD demand may cause an overall shortage of 3D-NAND Flash as well. NAND Flash bit shipments in the third and fourth quarter of this year will see limited quarterly growths of 13% and 12%, respectively, based on DRAMeXchange's estimation.

Picture: TrendForce Compuforum 2016



## About TrendForce

TrendForce is a global provider of the latest development, insight, and analysis of the technology industry. Having served businesses for over a decade, the company has built up a strong base membership base of 435,000 subscribers. TrendForce has established a reputation as an organization that offers insightful and accurate analysis of the technology industry through five major research divisions: DRAMXchange, WitsView, LEDinside, EnergyTrend and Topology. Founded in Taipei, Taiwan in 2000, TrendForce has extended its presence in China since 2004 with offices in Shenzhen and Beijing. For more details about TrendForce, please visit [www.trendforce.com](http://www.trendforce.com)

### Major research divisions:

**DRAMeXchange** focuses on memory, storage and the consumer electronics industry including PC DRAM, Mobile DRAM, Server DRAM, NAND Flash, SSD and smartphone.

**WitsView** offers comprehensive coverage of the display industry from upstream components, midstream panels/touch modules to downstream system integrators, brands and channels.

**LEDinside** covers all aspects of the LED supply chain from upstream equipment/materials, midstream chip/packaging to the downstream backlight and lighting market.

**EnergyTrend** specializes in green energy research, such as solar energy, lithium battery, energy storage systems and xEVs.

**Topology** studies structural trends of technology industries in the Greater China Region and beyond, focusing on semiconductors, photovoltaic technology, telecommunications, and IA.

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