

Rod Hall's Daily Download

Smartphone update, SEC prelim Q3, QCOM/NXP progress, AAPL cloud, Gartner PC and more...

- **Smartphone Outlook Update: Forecasting Unchanged Growth in 2017 but Weaker \$400+ Units, Rod Hall, CFA:** Consistent with our macro and demand assumptions, we are forecasting 3% Y/Y growth in 2017, unchanged from 3% in 2016. We also note that we expect continued declines in the key \$400+ ASP category after a ~7% decline Y/Y in Q2. Click [here](#) for the report.
- **SEC's Prelim Q3: Revenue Misses but Margin Better:** Samsung's (covered by JPM's analyst JJ Park) Q3 revenue guide of ~49T Korean won miss consensus by 3.9% and operating margin guide of ~15.9% beat consensus by 1.1pp. (Samsung)
- **Qualcomm Said to Make Progress in Talks with NXP:** Qualcomm is the only company in talks to acquire NXP and is making progress toward an agreement on a fair price, Bloomberg reported. There is currently a valuation gap of less than 10% between Qualcomm and NXP as they discuss a possible transaction, Bloomberg reported. Qualcomm is reportedly considering a deal structure of 75% cash and 25% stock. NXP would prefer all cash. (Bloomberg) **Our View:** *We continue to see a deal with NXP as positive for Qualcomm.*
- **Apple is said to Plan Improved Cloud Services by Unifying Teams:** Apple plans to unify its separate internet services groups into a single campus to better compete with Alphabet's Google and Amazon.com in the cloud, Bloomberg reported. Apple cloud services teams run by executive Eddy Cue, including Siri, Maps, iCloud, Apple Pay, Apple News and parts of iTunes and Apple Music, will reportedly move together into the company's existing Infinite Loop campus in Cupertino, California. (Bloomberg) **Our View:** *We see any moves to increase the quality of Apple's services offerings as a positive, in our opinion, given ongoing problems with many of the services as reported by numerous product reviewers.*
- **AT&T Partners with AWS to Integrate Cloud and Networking Capabilities:** AT&T announced that it has reached a multi-year, alliance agreement with AWS to optimize delivery of integrated solutions built on the companies' respective cloud and networking capabilities, which will help both existing and new customers more efficiently migrate to and utilize the AWS Cloud with the AT&T network. (AT&T)
- **Gartner Says PCs will Decline 8%; Smartphones to Rise 5% in 2016:** Gartner expects the PC market to bottom out in 2016 and expects it to fall 8% Y/Y. Mobile phone shipments are on pace to decline 2% in 2016, with smartphones up 4.5% Y/Y. Premium smartphones are expected to fall 1.1% Y/Y, while Apple is expected to be down Y/Y. Gartner expects the market for premium smartphones to grow 3.5% Y/Y in 2017 driven by stronger replacement cycles as well as anticipation for the new iPhone next year. (Gartner) **Our View:** *We currently forecast a PC decline of 7% Y/Y, smartphone growth of 3% Y/Y and an iPhone decline of 11% Y/Y in 2016.*

Table 2: Coverage Universe: Multiples and Performance

Company	Rec	Current Price	EV/Sales CY16E	P/E			Absolute Perf. YTD
				CY16E	QTD		
AAPL	OW	\$113.89	2.3x	13.5x	1%		8%
ADTN	OW	\$19.53	1.1x	25.5x	2%		13%
ANET	N	\$85.47	4.7x	29.2x	0%		10%
ATEN	OW	\$9.75	2.3x	NM	(9%)		49%
BRCD	N	\$9.40	1.6x	9.4x	2%		2%
CIEI	OW	\$22.67	1.3x	14.9x	4%		10%
COMM	OW	\$31.41	2.1x	12.6x	4%		21%
CSCO	N	\$31.48	2.5x	13.3x	(1%)		16%
ERIC	OW	SEK 60.95	0.7x	11.7x	(2%)	(26%)	
FFIV	N	\$124.94	3.5x	17.0x	0%		29%
GLW	N	\$23.87	2.2x	16.2x	1%		31%
HPQ	N	\$15.60	0.6x	9.0x	0%		32%

Company	Rec	Current Price	EV/Sales CY16E	P/E			Absolute Perf. YTD
				CY16E	QTD		
HPE	NR	\$22.68	0.9x	10.2x	(0%)		49%
INFN	N	\$9.57	1.3x	25.7x	6%	(47%)	
JNPR	OW	\$24.52	1.9x	12.4x	2%	(11%)	
LITE	OW	\$44.48	2.6x	27.7x	6%	102%	
MSI	N	\$74.64	2.6x	16.4x	(2%)	9%	
NMBL	N	\$8.91	1.4x	NM	1%	(3%)	
NOK	OW	€ 4.93	0.8x	17.0x	(6%)	(27%)	
NTAP	N	\$34.79	1.3x	15.9x	(3%)	31%	
QCOM	OW	\$67.54	3.4x	14.8x	(1%)	35%	
STX	UW	\$37.81	1.4x	16.2x	(2%)	3%	
VIAV	N	\$7.38	1.6x	22.2x	(0%)	21%	
WDC	N	\$58.05	1.5x	14.8x	(1%)	(3%)	

See page 9 for analyst certification and important disclosures, including non-US analyst disclosures.

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Table 1: One-Day Index Performance

	Index	1 day
DJ Stoxx 600	341	(0.4%)
S&P 500	2161	0.0%
Nasdaq Comp	5307	(0.2%)
DJ Tech	364	(0.5%)
DJ Telco	285	(0.8%)

Source: Bloomberg. Priced at close on Oct 06, 2016

Source: J.P. Morgan estimates, Bloomberg, Priced as of Oct 06, 2016

Overnight News

Orange and Ericsson Partner for 5G: Orange and Ericsson announced that they will develop 5G use cases and service scenarios, including technical alignment and external demonstrations. The partnership will enable 5G technology building blocks, proof of concepts, and pilots across Europe from 2017 onwards. This collaboration will also cover 4G to 5G solutions evolution, including energy and cost efficiencies, and use of SDN and NFV technologies. (Ericsson)

Oculus Tries to Regain Its Footing in Virtual Reality: Oculus, reuniting its developers this week for the first time since the launch of the Rift goggles, is coping with competition from HTC and Sony, and a string of disappointing gaffes. Shipping problems and a higher-than-expected price bungled the launch. The headset still doesn't have a hit game that would broaden its appeal to mainstream consumers. (WSJ)

Ericsson and Vodafone M-Pesa to Simplify Safe Water Payments: Ericsson M-Commerce Interconnect solution provides interconnection between Vodafone M-Pesa mobile wallets and Grundfos safe water kiosks in Kenya and Tanzania. M-Pesa is the global brand for Vodafone's Mobile Money service, now present in 10 countries. (Ericsson)

Qualcomm Announces Quarterly Cash Dividend: Qualcomm announced a quarterly cash dividend of \$0.53 per common share, payable on December 16, 2016, to stockholders of record at the close of business on November 30, 2016. (Qualcomm)

Lenovo Reportedly in Talks to Acquire Fujitsu's PC Business: China's Lenovo Group is reportedly in talks to bring Fujitsu's PC business under its control, allowing the Japanese company to focus on IT services and other businesses. The two companies reportedly aim to reach a deal this month, with some 2,000 Fujitsu workers likely move to Lenovo, the Nikkei business daily said on Thursday. (Fortune)

Samsung Makes Big Move In AI: Samsung said on Thursday it is acquiring U.S. artificial intelligence (AI) platform developer Viv Labs, a firm run by a co-creator of Apple's Siri voice assistant program. Samsung said in a statement it plans to integrate the San Jose-based company's AI platform, called Viv, into the Galaxy smartphones and expand voice-assistant services to home appliances and wearable technology devices. (Fortune, Reuters)

Optus and Nokia sign MoU to Collaborate on 5G: As the two companies collaborate on the development of 5G, a key project will be a 5G trial using Optus' 3500MHz spectrum, a globally harmonized band by the International Telecommunications Union (ITU) for mobile broadband usage. Optus and Nokia expect to undertake an early 5G prototype in Optus's band in Australia by 2017. (Cellular News)

Dell Launches 4 New PowerEdge servers: Dell has launched four new enterprise PowerEdge servers in Taiwan, aiming to expand its presence in Taiwan's 4U server market. The executives claim that the four new servers PowerEdge R930, R830, FC830 and M830, cover enterprise-oriented high-end models to models designed specifically for datacenter. (Digi Times)

Taiwan's MediaTek to Triple India Workforce: Leading Taiwanese chip designer MediaTek Inc, said on Thursday it will triple its workforce in India within three years to 1,500 from more than 500 as it expands research and software development as well as customer service operations. (Reuters)

AT&T Chooses VeloCloud to Deliver SD-WAN: AT&T on Wednesday announced its software-defined wide area networking (SD-WAN) strategy. The service provider has chosen VeloCloud to deliver SD-WAN over multiple types of network connections. AT&T says it's going to offer two different types of SD-WAN: a network-based system and an on-premises-based system. (Sdxcentral, Light Reading)

Apple Releases a New iOS: Apple on Wednesday released the latest beta version of its iOS 10.1 software, iOS 10.1 public beta 2. (BGR)

Apple Discontinued its 3rd generation TV: Apple discontinued the \$69 third generation Apple TV, which leaves the \$149 Apple TV 4 as the only new option for purchase on the Apple store. (Cnet)

Indian Telecom Spectrum Auction Ends: The government has raised a total of 65,789 cr INR from the spectrum auctions which ended on Thursday. Against a total of 2353 MHz spectrum put up for sale, the government managed to sell only around 965 MHz in this sale. The government had mopped up a record Rs 1.1 lakh crore in the last spectrum auctions, but failed to have a strong response this year. No airwaves were sold in the 70" MHz and 900 MHz bands. (Times of India)

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North America Equity Research
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Overnight Research

The following extracts are from recently published research. Please see the relevant research report and important disclosures, including a discussion of valuation and risks, for any security recommended herein before forming any investment opinion whatsoever. J.P. Morgan research is available at <http://www.jpmorganmarkets.com>, or you can contact the analyst named below.

Global

Smartphone Outlook Update

Forecasting unchanged growth in 2017 but weaker \$400+ units

(Analyst: Rod Hall, CFA)

Smartphone sell-through data for Q2 came in below our estimate, following weaker than expected Q1 numbers. While sell-in indications have improved a little, particularly in the consumer PC segment, we are not convinced that consumer demand in the smartphone category will be strong in Q4. Consistent with our macro and demand assumptions, we are forecasting 3% Y/Y growth in 2017, unchanged from 3% in 2016. We also note that we expect continued declines in the key \$400+ ASP category after a ~7% decline Y/Y in Q2.

- **Q2 smartphone performance:** Q2 total smartphone shipments at 344m fell 2% or 6m units short of our estimate. Sell-through in India and a number of emerging countries (Rest of World) are tracking below our estimates. We note that smartphone sell-through grew by only 16% Y/Y in H1'16 in India, down significantly from 43% Y/Y growth in 2015. We consider a 16% growth rate in India low due to penetration levels of only ~25%.
- **Growth unchanged in 2017:** We are increasing our 2016 smartphone growth forecast to 3% Y/Y for 2016 from 2% Y/Y to account for a slightly better expected Q3 than we had forecast. For 2017, we are forecasting growth to be unchanged at 3% Y/Y to 1,511m units. Our 2017 estimate assumes continued consumer weakness in H1'17 before replacement driven demand kicks in in H2'17. An overview of our forecasts can be found in Table 1 on page 2.
- **Apple share loss lower but in a shrinking ASP category:** Apple lost 1.9pp Q/Q share in Q2'16 in the total smartphone market, which is better than the 3.3pp Q/Q share loss in Q2'15 and 3.1pp Q/Q share loss in Q2'14. We believe that Apple's share in the \$400+ category actually grew by 1% Q/Q to 55% (vs. a 2% Q/Q decline in Q2'15) as that market weakened. However, the \$400+ category was down by ~7% Y/Y in Q2 and we expect this weakness to continue in H2.

- **Regional growth details:** We note that smartphone growth improved in Japan, APAC and MEA, while it slowed in N. Am, WE and LatAm. In Japan growth was better at 11% Y/Y in Q2 vs. -4% decline in Q1. In APAC ex. Japan growth was 8.9% in Q2 vs. 8.7% in Q1 and in Middle East and Africa growth was 4% Y/Y vs. 2% in Q1. In N. Am, smartphones declined by -8% Y/Y, following -7% Y/Y decline in Q1. In Western Europe, smartphones declined by -2%, following -3% decline in Q1. LatAm declined by -8% in Q2 vs. -6% decline in Q1.
- **Total handsets touch light:** Q2'16 total handsets at 445m came in a touch 0.4% below our estimate as non-smartphones turned out to be better than our estimate and offset some of the smartphone weakness. Our handsets units estimate for 2016 is now -2.7%, which is a touch lower than our previous estimate of -1.7%. For 2017, we are forecasting total handsets growth of 1.2%.

US

KLA-Tencor

Post-Merger Termination, We Expect the Company to Build on Its Industry-Leading Model; Remain OW (Analyst: Harlan Sur)

KLA-Tencor held a conference call with investors this morning and, in our view, provided a compelling overview of its product cycles, near-term outperformance and potential to improve on its industry-leading operating model. With market share gains and served available market (SAM) expansion, we believe the company can build on its growth in 2016 and outperform relative to peers, even if the spending environment in 2017 becomes more memory-centric. Given this morning's call was the first time the management team has discussed its strategy since July 2015, and now that the deal overhang has been removed, we believe the stock is set to outperform from here. We remain OW KLAC and see strong product cycle growth, market share gains, and SAM expansion over the next few years driving outperformance.

- **September quarter in line with prior guidance.**
Without providing precise results, KLA-Tencor

announced shipments, revenue and EPS will all be within the guided range for the Sep-Q. As a reminder, the team guided for Sep-Q shipments of \$735M-\$815M, revenue of \$695M-\$755M and non-GAAP EPS of \$0.90-\$1.10. We anticipate sequential growth in the December quarter on strong Foundry spending and expect KLA-Tencor to deliver double-digit revenue growth in CY16.

- With market share gains and SAM expansion, we believe KLA-Tencor revenues can outgrow WFE again in 2017 even in a memory-centric spending environment. KLA-Tencor is on track to gain 1-2% market share in CY16E, which we believe is largely due to solid execution in inspection. Additionally, as we have discussed, the GEN5 patterned wafer inspection tool (39xx) has the capability to expand KLA-Tencor's SAM by seeing defects that only e-beam tools could see in the past and we are already seeing evidence of this with early development tools. Though 29xx inspection tools are the clear workhorse tools now, we see the next leg of 39xx tool growth in 2017 as the benefits of the tool become clearer and KLA-Tencor identifies further production use cases. We also remind investors of strong product cycles in unpatterned wafer inspection (record orders in FY16) and reticle inspection. Furthermore, KLA-Tencor continues to make progress in the memory space with incrementally higher process control intensity, particularly in DRAM, and we expect the team to make strides in 3D NAND next year. Along with strong service growth, KLA-Tencor has the potential to outgrow WFE again in 2017 despite 2017 shaping up to be a relatively strong memory spending year. We see consensus estimates moving up from here.
- **We see further improvements to the operating model.** KLA-Tencor has been tracking ahead of its target model posted in July 2015 with GMs of ~61% vs. 58-59% in the model and with OPMs of 33% vs. 30-32% in the model. Going forward, based on product mix and strong execution, we see the likelihood of KLA-Tencor tracking 100-200 bps ahead of the prior target model for both GMs and OPMs, even when considering likely opex increases as the company funds its growth initiatives.
- With strong cash generation, there is plenty of firepower to fund the business, de-lever the model AND increase shareholder returns over time. In terms of use of cash, we expect KLA-Tencor to refocus its efforts on product competitiveness and strategic initiatives to grow the business in areas such as 3D NAND. After that, the company intends to keep its payout ratio at ~40-50% with regular increases in dividend payout. Thirdly, the company plans to pay

down debt further. Finally, we see the potential for the company to increase share buybacks, but this will likely occur over a longer period of time with focus on the other priorities for use of cash.

- **We remain OW KLAC and see further upside in the stock.** We think today's investor call was a solid step in educating investors on potential growth drivers for the company and for the stock. Though there may be some skepticism by investors on KLA-Tencor's growth potential from here, we believe the company's strong product cycles in inspection (wafer and reticle) and SAM expansion can drive outperformance for the company over the next 18-24 months.

Lam Research

Post-Merger Termination - Expect Strong Performance on Stand-Alone Basis and Potential Upside to Shareholder Returns

(Analyst: Harlan Sur)

Lam Research held a conference call with investors this morning covering the topic of the merger termination. We did not learn much from the conference call, as the company is planning to update investors during its earnings call on October 19th and at its investor event on November 19th. However, we remain of the view that the company has very strong growth drivers on a stand-alone basis with a positive equipment spending backdrop in 2H16 and 2017, customer spending mix that is favorable, and the wherewithal to increase shareholder returns. We continue to see upside in the stock and maintain our OW rating on LRCX.

- **Large cap deals in semiconductor equipment are not likely to happen.** The US DOJ's commentary, as outlined in our note yesterday, points to a scenario where we will not likely see large semicap equipment companies coming together. While unclear in terms of timing and financial ramifications, we expect Lam Research and KLA-Tencor to continue collaborating, but on a stand-alone basis. We would not be surprised if Lam considers other smaller, tuck-in companies, particularly in process control, as we pointed out earlier this morning.
- **The company has enough growth drivers ahead of it stand-alone...** With strong market share positions, expanding SAM (including increasing layer count for 3D NAND) and continued WFE spending growth into next year, we expect LRCX to outperform peers on a stand-alone basis. Though the company did not update its Sep-Q results or mid-term outlook, we think the 2H of this year overall is shaping up ahead of Lam's expectations at the time the company provided guidance back in July. Additionally, 2017 is looking

like another solid growth year, particularly in 3D NAND and DRAM, where the company is very well positioned.

- **... and look for increases in capital returns at the investor event.** The company did not provide an update to its capital return strategy other than reiterating its focus on funding its growth and strategic initiatives. However, with a strong balance sheet, 20% FCF margins (trailing 12 months) and likely improving cash position on a go-forward basis, we expect the company to enhance its capital return strategy at its November investor event.
- **We remain OW LRCX.** With market share and SAM expansion on a stand-alone basis, we expect Lam Research to deliver revenue and earnings growth ahead of wafer fab equipment (WFE) spending growth.

Asia Pacific

China telcos

CU goes on the offensive

(Analyst: Michelle Wei, CFA)

Our recent study on mobile pricing trends in China, through store visits in several cities and online store browsing, indicates a pickup in mobile competition since September, driven by CU's launch of an enriched selection of more aggressive tariff plans, many of which target new customers. Given CU's relatively under-utilized 4G network and 4G laggard position, we think the pursuit of more competitive pricing to drive subscriber and top-line growth in the near term is the right strategy. We see a low likelihood of CM or CT following suit on a large scale or of CU keeping up such promotional intensity for a prolonged period of time, due to potential profitability and network pressure. We would turn incrementally negative about the sector if the other two respond in a similar way and if tariff plans with subdued economics, such as unlimited data plans and Rmb1 for 500MB daily data packs, become norms in the market.

- **Notable change in CU's 4G strategy recently** (Tables 1 and 2), accelerating top-line growth, consensus earnings downside remains: As CU's Chairman Wang expressed at the earnings briefing in August, the company plans to ramp up its 4G push, with its 4G network largely ready in many cities by August. He emphasized an approach of "introducing more variety of data plans that appeal to different needs" instead of increasing subsidies. The recent change in pricing strategy seems to be consistent with the earlier

comments. We expect accelerating mobile service revenue growth (>3% yoy) in 3Q16 off a low base and better subscriber trends from September. However, Street earnings estimates of Rmb5bn for 2016 and some investors' expectations of Rmb1.5-2bn for 3Q16 are too optimistic, in our view.

- **More aggressive pricing, especially online stores:** CU's data offerings are noticeably more attractive to us than months ago, which does not come as a surprise. The fully ready 4G networks in 100+ cities and the relatively low network utilization allow the operator to encourage more data usage without worrying much about network pressure in the near term. As a 4G laggard, the company has to provide more competitive pricing than peers to entice customers to experience its network and to build up its 4G brand name.
- **Increased efforts on sub acquisition, targeting dual SIM handset users:** The aggressive Rmb1 for 500MB daily data pack requires a new SIM subscription, with the marketing slogan saying, "Must-have for dual SIM handsets, enjoy more data without changing numbers." The unlimited data plans are available only to new SIM card purchasers in some provinces. This looks like a change from the previous strategy, which focused on customer retention and ARPU uplift of existing customers.
- **More delegation to local companies:** Contrary to its centralized approach in the past few years, CU has delegated more decision-making power to local companies, which allows the latter to better adjust offerings based on local affordability, network conditions and competitive landscape. We observe a higher degree of tariff plan variations in different areas. For example, the unlimited data and Rmb1 for 500MB/day offerings are available only in certain provinces, mainly in southern China, and the terms vary (see Tables 1 and 2).
- **Limited competitor reaction so far:** Although we have noticed incrementally more aggressive offerings by CM, overall there has been no meaningful change in CM's or CT's data pricing in response to CU's new offerings. CT's Chairman Yang said in our meeting last week at the company's reverse roadshow that CT did not plan to follow suit, with a mindset to safeguard industry value. Instead, the company would take a prudent approach by adjusting plans accordingly in areas where competition is fierce to test the waters and assess the impact. We see a low likelihood of CM or CT, which have higher 4G sub penetration and 4G network utilization rates, following suit on a large scale, given the potential ARPU dilution and network pressure. We also do not expect CU's aggressive promotions to last long, for similar reasons.

- **QTD decelerating industry revenue growth reflects CM's slowdown (Figure 1):** The telecom industry revenue data reported by MIIT shows a slowdown of growth from 7% yoy in 2Q16 to 4% yoy in the first two months of 3Q16. We think this is partly due to slower top-line growth at CM. In recognition of satisfactory 1H16 results and smooth operations, CM management said recently that it planned to accelerate the phase-out of domestic long distance and roaming (LD&R) fees in 2H16. The first step is not to offer any new plan that incorporates domestic LD&R fees, and the next step is to terminate existing plans with the charges. A complete migration from LD&R charges to flat-rate plans will likely have a mid-single-digit impact on revenue, based on our estimates. This is one of the main reasons why management says a 10% recurring earnings increase for 2016 would be very difficult, despite solid growth in 1H16 and a very low base in 4Q15.
- **Please see our takeaways from CT's recent reverse roadshow here:** Part 1: [Management meeting](#); Part 2: [IDC update](#); and Part 3: [IPTV update](#).

PC, server, and tablet model update

Increasing PC forecasts; server strength to continue in 2017

(Analyst: Gokul Hariharan)

We are increasing our forecasts for global PC units by ~1% for 2016 and 2017 each, and now expect a decline of 7% Y/Y in 2016 and 3% Y/Y in 2017. Upward revisions are largely coming in for the notebook market, and are driven by better-than-expected demand trends (particularly in US markets), lean channel inventories and growing traction for 2-in-1 notebooks and gaming PCs. We had recently highlighted seeing upward revisions to 3Q ODM notebook builds as well. We believe that PC data-points could remain on the uptrend given supportive comps, extremely low expectations and low inventories until the end of the year and expect the Asia PC supply chain to likely witness a tradable rally through the year-end and outperform the Asian semiconductor supply chain. We are keeping our server forecasts largely unchanged but expect a stronger 2H16 driven by hyperscale spending – datacenter build outs by leading ISPs and increasing 25G Ethernet adoption. Our pecking order within the Asia PC supply chain is Quanta > Ju Teng > Compal > Asus > Lenovo > Wistron.

- **Increasing PC forecasts; upward revisions to notebook PCs; desktops unchanged.** We increase our forecasts for global PC units by ~1% for 2016 and

2017 each, and now expect a decline of 7% Y/Y in 2016 and 3% Y/Y in 2017. Upward revisions are largely centered on the notebook market, and are driven by better-than-expected demand trends (particularly in US markets), lean channel inventories and growing traction for 2-in-1 notebooks and gaming PCs. We had recently highlighted seeing upward revisions to 3Q ODM notebook builds as well. Our desktop unit assumptions for 2016 / 2017 remain broadly unchanged.

- **Servers – expecting a backend loaded 2016, strength likely to continue in 2017 as well.** After a muted 1H16, we expect servers to grow 8% H/H in H2'16, following growth of 6% H/H in H2'15. We believe this ramp will be driven primarily by hyperscale spending – datacenter build outs by leading ISPs and increasing 25G Ethernet adoption. We expect the server growth momentum to continue in 2017 as well led by a potential refresh cycle (Intel's launch of Purley platform) and acceleration in 25G Ethernet adoption.
- **Tablet units weaker; ASP helped by product mix.** We note that tablet shipments were slightly below our estimates in 1H16, but this is offset by a significant increase in ASPs. We believe this was driven by the introduction of the 9.7" iPad Pro as well as the continued cannibalization of low-end tablets by smartphones.
- **Set-up favorable for PC stocks in 4Q16.** We believe that PC data-points could remain on the uptrend given supportive comps, extremely low expectations and low inventories until the end of the year. Moreover, Mac units have been declining by 10% yoy in the past two quarters and may see strong demand trends with the launch of the upcoming Mac Pro refresh. Consequently, we expect the Asia PC supply chain will likely witness a tradable rally through the year-end and outperform the Asian semiconductor supply chain.
- **What can turn us outright positive on the PC market?** Stronger-than-expected Win 10 enterprise replacement cycle from late 4Q onwards could turn us outright positive on the PC market.

Note published in conjunction with Rod Hall, US telecom and networking equipment / IT hardware analyst ([Link](#)).

Table 3: Peer Group Valuation Multiples

	JPM Rating	Target price	Price 10/6/2016	Market Cap (Local mn)	Net Debt (Cash) (Local mn)	Sales (Local MM)		EV/Sales		EV/EBITDA		EPS (Local)		P/E		P/E (Adjusted)	
						CY 16E	CY 17E	CY 16E	CY 17E	CY 16E	CY 17E	CY 16E	CY 17E	CY 16E	CY 17E	CY 16E	CY 17E
Large Cap																	
Apple	OW	\$107.00	\$113.89	613,690	(146,585)	206,887	206,406	2.3x	2.3x	6.7x	6.5x	8.42	8.58	13.5x	13.3x	10.7x	10.5x
Amphenol	NC	NA	\$65.52	20,228	2,010	6,172	6,524	3.6x	3.4x	15.7x	14.6x	2.62	2.91	25.0x	22.5x	25.0x	22.5x
Cisco Systems	N	\$29.00	\$31.48	157,852	(37,113)	49,049	50,405	2.5x	2.4x	7.6x	7.4x	2.37	2.48	13.3x	12.7x	10.4x	9.9x
Corning	N	\$21.00	\$23.87	24,750	(2,947)	9,693	9,987	2.2x	2.2x	6.8x	6.6x	1.47	1.72	16.2x	13.8x	14.3x	12.2x
Ericsson	OW	SEK 74.00	SEK 60.95	198,434	(41,150)	239,922	246,423	0.7x	0.6x	4.2x	4.0x	5.22	5.72	11.7x	10.7x	9.3x	NM
F5 Networks	N	\$125.00	\$124.94	8,272	(1,124)	2,023	2,131	3.5x	3.4x	9.0x	8.4x	7.35	7.96	17.0x	15.7x	14.8x	13.6x
HP Inc	N	\$13.00	\$15.60	26,690	1,199	46,624	44,231	0.6x	0.6x	6.5x	7.0x	1.73	1.59	9.0x	9.8x	9.0x	9.8x
HPE	NR	NA	\$22.68	37,774	5,522	49,327	47,592	0.9x	0.9x	5.3x	5.5x	2.23	2.39	10.2x	9.5x	10.2x	9.5x
HTC	UW	NT\$50.00	NT\$89.10	73,316	(22,782)	96,425	102,628	0.5x	0.5x	NM	NM	(9.26)	(2.86)	NM	NM	NM	NM
Juniper Networks	OW	\$26.50	\$24.52	9,390	(212)	4,897	5,079	1.9x	1.8x	6.9x	6.3x	1.98	2.18	12.4x	11.2x	12.1x	11.0x
Motorola Solutions	N	\$72.00	\$74.64	12,444	3,265	6,008	6,111	2.6x	2.6x	9.3x	9.3x	4.55	4.84	16.4x	15.4x	16.4x	15.4x
NetApp	N	\$31.00	\$34.79	9,695	(2,930)	5,382	5,394	1.3x	1.3x	6.8x	5.4x	2.19	3.13	15.9x	11.1x	11.1x	7.8x
Nokia	OW	€ 6.50	€ 4.93	28,770	(7,662)	25,938	25,698	0.8x	0.8x	6.4x	5.7x	0.29	0.40	17.0x	12.5x	12.5x	9.1x
Qualcomm	OW	\$70.00	\$67.54	99,530	(19,259)	23,829	23,741	3.4x	3.4x	8.5x	8.7x	4.56	4.65	14.8x	14.5x	12.4x	12.2x
Seagate	UW	\$20.00	\$37.81	11,342	2,999	10,550	9,497	1.4x	1.5x	8.1x	8.6x	2.33	2.23	16.2x	16.9x	14.0x	14.8x
TE Connectivity	NC	NA	€ 64.79	23,036	3,342	12,447	13,005	2.1x	2.0x	10.2x	9.6x	4.15	4.47	15.6x	14.5x	15.6x	14.5x
Western Digital	N	\$53.00	\$58.05	16,502	8,616	17,075	16,695	1.5x	1.5x	6.6x	6.2x	3.91	5.53	14.8x	10.5x	14.8x	10.5x
Average								1.9x	1.8x	7.8x	7.5x			14.9x	13.4x	13.3x	12.2x
Median								1.9x	1.8x	6.9x	6.8x			15.2x	13.0x	12.4x	11.0x
Small & Mid Cap																	
A10 Networks	OW	\$9.00	\$9.75	641	(114)	232	267	2.3x	2.0x	NM	NM	(0.08)	0.10	NM	NM	NM	NM
ADTRAN	OW	\$22.50	\$19.53	945	(280)	617	641	1.1x	1.0x	11.8x	10.0x	0.77	0.93	25.5x	20.9x	18.9x	15.4x
Arista Networks	N	\$67.00	\$85.47	5,955	(783)	1,102	1,349	4.7x	3.8x	15.5x	13.3x	2.93	3.34	29.2x	25.6x	25.4x	22.2x
Belden	NC	NA	\$70.14	2,954	1,509	2,372	2,451	1.9x	1.8x	10.3x	9.5x	5.30	5.43	13.2x	12.9x	13.3x	13.0x
Brocade	N	\$9.00	\$9.40	3,768	364	2,626	2,617	1.6x	1.6x	6.6x	5.9x	1.00	1.08	9.4x	8.7x	9.4x	8.7x
Ciena	OW	\$30.00	\$22.67	3,159	216	2,663	3,008	1.3x	1.1x	8.0x	7.2x	1.52	1.94	14.9x	11.7x	14.9x	11.7x
CommScope	OW	\$35.00	\$31.41	6,050	4,419	4,897	4,956	2.1x	2.1x	9.6x	9.4x	2.49	2.66	12.6x	11.8x	12.6x	11.8x
Finisar	NC	NA	\$30.91	3,407	(362)	1,378	1,572	2.2x	1.9x	11.9x	9.0x	1.53	1.94	20.2x	15.9x	18.1x	14.2x
Infinera	N	\$8.50	\$9.57	1,370	(248)	883	887	1.3x	1.3x	9.2x	12.6x	0.37	0.12	25.7x	NM	21.1x	NM
Lumentum	OW	\$35.00	\$44.48	2,673	(157)	979	NA	2.6x	NA	15.6x	NA	1.61	NA	27.7x	NM	26.0x	NM
Nimble Storage	N	\$9.50	\$8.91	758	(195)	398	497	1.4x	1.1x	NM	NM	(0.66)	(0.40)	NM	NM	NM	NM
Oclaro	NC	NA	\$9.22	1,530	(28)	496	586	3.0x	2.6x	22.0x	14.2x	0.34	0.45	27.1x	20.7x	26.6x	20.3x
Pure Storage	NC	NA	\$14.90	2,839	(605)	693	978	3.2x	2.3x	NM	NM	(2.37)	(0.48)	NM	NM	NM	NM
ShoreTel	NC	NA	\$8.11	548	(108)	358	359	1.2x	1.2x	32.8x	25.5x	(0.01)	0.08	NM	NM	NM	NM
Sonus Networks	NC	NA	\$7.75	383	(89)	262	284	1.1x	1.0x	10.1x	8.6x	0.36	0.37	21.3x	20.9x	16.5x	16.1x
Viavi	N	\$7.50	\$7.38	1,718	(379)	859	849	1.6x	1.6x	8.1x	7.5x	0.33	0.40	22.2x	18.5x	17.3x	14.4x
Average								2.0x	1.8x	13.2x	11.0x			20.8x	16.8x	18.3x	14.8x
Median								1.7x	1.7x	10.2x	9.5x			21.7x	17.2x	17.7x	14.3x
Source: Company data, Bloomberg, J.P. Morgan estimates. JPM Rating: OW = Overweight, N = Neutral, UW = Underweight, NC = Not Covered. JPM Analysts: HTC (Narci Chang) Dec-16 PT end dates Note: Enterprise Value adjusts for minority interest, pension deficit obligations and deferred tax assets, where applicable, in addition to net debt Note: Priced as of CoB October 6, 2016 Note: P/E (Adjusted) is P/E adjusted for Cash																	

Table 4: Peer Group Price Performance

	CCY	Target	Price	3-Yr Range		Short Interest		Absolute Performance					Relative to Index				
		Price	10/6/2016	High	Low	%	1M Chg	YTD	QTD	1 Day	1 M	12M	YTD	QTD	1 Day	1 M	12M
Large Cap																	
Apple	US\$	\$107.00	\$113.89	133.00	68.71	1%	16%	8%	1%	1%	5%	3%	2%	-2%	1%	6%	-5%
Amphenol	US\$	NA	\$65.52	65.68	37.42	2%	14%	25%	1%	1%	4%	27%	20%	-2%	1%	5%	19%
Cisco Systems	US\$	\$29.00	\$31.48	31.87	20.24	1%	-11%	16%	-1%	0%	-1%	14%	10%	-4%	0%	0%	6%
Corning	US\$	\$21.00	\$23.87	25.00	14.00	7%	-22%	31%	1%	0%	5%	34%	25%	-2%	0%	6%	26%
Ericsson	SEK	SEK 74.00	SEK 60.95	114.30	57.00	NA	NA	-26%	-2%	-1%	2%	-29%	-20%	-6%	0%	4%	-23%
F5 Networks	US\$	\$125.00	\$124.94	135.11	79.43	6%	4%	29%	0%	0%	4%	5%	23%	-9%	0%	3%	-5%
HP Inc	US\$	\$13.00	\$15.60	18.49	9.02	2%	6%	32%	0%	0%	6%	23%	26%	-9%	0%	6%	12%
HPE	US\$	NA	\$22.68	23.24	12.06	2%	-38%	49%	0%	-1%	3%	NA	43%	-10%	0%	2%	NA
HTC	NT\$	NT\$50.00	NT\$89.10	175.00	40.35	11%	NA	15%	3%	1%	5%	40%	4%	-4%	1%	5%	31%
Juniper Networks	US\$	\$26.50	\$24.52	32.23	18.47	2%	13%	-11%	2%	-1%	5%	-17%	-17%	-1%	-1%	6%	-25%
Motorola Solutions	US\$	\$72.00	\$74.64	78.32	56.79	3%	-5%	9%	-2%	0%	-4%	7%	3%	-5%	0%	-3%	-1%
NetApp	US\$	\$31.00	\$34.79	45.85	21.22	6%	5%	31%	-3%	0%	-2%	10%	25%	-6%	0%	-1%	2%
Nokia	EUR	€ 6.50	€ 4.93	7.77	4.54	NA	NA	-27%	-6%	-2%	-7%	-20%	-20%	-10%	-1%	-4%	-15%
Qualcomm	US\$	\$70.00	\$67.54	81.60	42.96	1%	-1%	35%	-1%	1%	8%	19%	29%	-4%	1%	9%	11%
Seagate	US\$	\$20.00	\$37.81	68.82	18.72	11%	-9%	3%	-2%	-2%	4%	-20%	-3%	-12%	-2%	3%	-31%
TE Connectivity	US\$	NA	€ 64.79	73.42	49.91	1%	28%	0%	1%	0%	2%	5%	-5%	-2%	0%	4%	-4%
Western Digital	US\$	\$53.00	\$58.05	114.28	35.44	6%	0%	-3%	-1%	-2%	9%	-31%	-9%	-10%	-2%	8%	-42%
Small & Mid Cap																	
A10 Networks	US\$	\$9.00	\$9.75	16.21	3.93	1%	13%	49%	-9%	-1%	-5%	53%	43%	-18%	0%	-5%	42%
ADTRAN	US\$	\$22.50	\$19.53	27.24	14.38	2%	-9%	13%	2%	1%	3%	26%	7%	-8%	1%	3%	15%
Arista Networks	US\$	\$67.00	\$85.47	93.31	43.00	8%	17%	10%	0%	1%	5%	28%	4%	-9%	1%	5%	17%
Belden	US\$	NA	\$70.14	95.14	37.15	9%	0%	47%	2%	1%	1%	40%	41%	-8%	1%	1%	29%
Brocade	US\$	\$9.00	\$9.40	12.85	7.67	4%	9%	2%	2%	-1%	3%	-10%	-4%	-8%	-1%	3%	-21%
Ciena	US\$	\$30.00	\$22.67	27.67	14.16	8%	-9%	10%	4%	3%	0%	0%	4%	-6%	3%	-1%	-11%
CommScope	US\$	\$35.00	\$31.41	33.45	14.88	3%	8%	21%	4%	2%	5%	3%	15%	-5%	2%	4%	-8%
Finisar	US\$	NA	\$30.91	30.91	10.82	6%	-5%	113%	4%	0%	31%	166%	107%	-6%	0%	30%	155%
Infinera	US\$	\$8.50	\$9.57	24.72	7.06	8%	-9%	-47%	6%	1%	9%	-51%	-53%	-4%	1%	8%	-62%
Lumentum	US\$	\$35.00	\$44.48	44.48	14.12	5%	17%	102%	6%	3%	19%	192%	96%	-3%	3%	19%	181%
Nimble Storage	US\$	\$9.50	\$8.91	56.23	5.73	4%	5%	-3%	1%	0%	6%	-63%	-9%	-9%	0%	6%	-74%
Oclaro	US\$	NA	\$9.22	9.22	1.32	4%	-17%	165%	8%	2%	9%	267%	159%	-2%	2%	8%	256%
Pure Storage	US\$	NA	\$14.90	19.74	9.77	10%	1%	-4%	10%	0%	19%	-7%	-10%	0%	1%	18%	-18%
ShoreTel	US\$	NA	\$8.11	10.42	5.90	2%	-15%	-8%	1%	-3%	-1%	3%	-14%	-8%	-3%	-1%	-7%
Sonus Networks	US\$	NA	\$7.75	21.05	5.26	2%	-12%	9%	0%	1%	-12%	21%	3%	-10%	1%	-12%	11%
Viavi	US\$	\$7.50	\$7.38	9.25	4.73	2%	-20%	21%	0%	0%	-6%	27%	15%	-10%	0%	-7%	16%
Index																	
DJ Stoxx 600			341	387	303			(7%)	3%	(0%)	(3%)	(5%)					
Nasdaq Comp			5307	5343	4210			6%	10%	(0%)	0%	11%					
S&P 500			2161	2194	1810			6%	3%	0%	(1%)	8%					
TWSE			9284	9303	7628			11%	7%	0%	0%	9%					
Index: Relative to S&P 500/NASDAQ Composite for US stock, DJ Stoxx 600 for European and TWSE Index for Taiwan stocks																	
Source: Bloomberg; Index: Nasdaq Composite (US), S&P 500, TWSE, DJ STOXX 600, J.P. Morgan estimates																	
Note: Priced as of CoB October 6, 2016																	
JPM Analysts: HTC (Narci Chang)																	
Dec-16 PT end dates																	

Companies Discussed in This Report (all prices in this report as of market close on 07 October 2016, unless otherwise indicated)

ASUSTek Computer (2357.TW/NT\$279.00/Neutral), Apple Inc. (AAPL/\$113.89[06 October 2016]/Overweight), China Mobile (0941.HK/HK\$96.45/Overweight), China Telecom (0728.HK/HK\$4.04/Overweight), China Unicom - H (0762.HK/HK\$9.41/Overweight), Compal Electronics, Inc. (2324.TW/NT\$19.20/Neutral), KLA-Tencor (KLAC/\$71.79[06 October 2016]/Overweight), Lam Research (LRCX/\$100.19[06 October 2016]/Overweight), Lenovo Group Limited (0992.HK/HK\$5.20/Neutral), Quanta Computer Inc. (2382.TW/NT\$66.80/Overweight), Wistron Corporation (3231.TW/NT\$24.00/Underweight)

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