

# Big Data: the next big thing

- Global IT demand is evolving from mobile computing devices (MCD) to Big Data, spurred by the Internet of Things (IoT)
- New IoT demand looks set to accelerate, overtake the size of the MCD market in 2017E, and become a USD1tn market by 2018E
- We like companies able to transform their businesses to capitalise on this new trend, and with a solid foothold in the MCD market

## Asia ex-Japan Tech Sector



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## Big Data: the next big thing

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## Asia ex-Japan Tech Sector



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### ■ What's new

Global IT demand is going through a major transformation, evolving from being primarily a market of mobile computing devices (MCDs), ie, smartphones and tablets to encompass Big Data, spurred by the fast-growing market for new Internet of Things (IoT) devices. We expect this to considerably expand the total addressable market for selected tech players, starting in 2015 and accelerating over 2015-18E. To capture this wave from an investment standpoint, we like companies that are transforming their business models to capitalise on this Big Data cycle, and at the same time have built a solid foothold in MCD to bridge the gap during the MCD-to-IoT market transition.

### ■ Catalysts

**Evolution of Big Data.** The evolution of Big Data is being propelled by burgeoning demand for new IoT devices and infrastructure devices, where all dots are smartly connected to create a critical mass. Though we expect MCD demand growth to slow in 2015 as this market approaches maturity, new IoT demand should underpin a strong new wave for Big Data.

### Major implications for the IT industry.

We have identified 2 sources of demand potential for the IT industry: 1) new IoT devices with applications for smart homes/cities, connected cars, healthcare, industrial automation (IA)/robotics and wearable devices at the ground level, and 2) the rise of infrastructure devices such as servers, storage and networking for the cloud/data centre at the air level. These 2 layers of demand, combined with current MCDs, form our total addressable Big Data-enabled market (MCD + cloud + IoT+).

**Potential market scale.** We forecast the size of the IoT+ market (which we define as all new IoT devices excluding MCDs) to grow at about a 100% CAGR over 2014-18 to exceed USD1tn in 2018, and expect its size to overtake that of the MCD market in 2017E. The transition may be a little bumpy as the IoT+ market may only take off in 2016, while the MCD market starts to slow in 2015.

### ■ What we recommend

Our screening process builds upon 5 investment themes we have identified under the Big Data trend: data access, data process, data transmission, data storage and data security. Our Big Data plays are: TSMC, WinSemi, SPIL, ASE, Hon Hai, Largan, Delta, Quanta, Novatek, MediaTek and Lenovo. In addition, we see a few unrated companies we follow having potential exposure to the Big Data trend: eMemory (3529 TT), Holtek (6202 TT), Richtek (6286 TT), Orise (3545 TT), UDE (3689 TT), Altek

(3059 TT), Voltronic (6409 TT) and AIC (3693 TT).

### ■ Risks

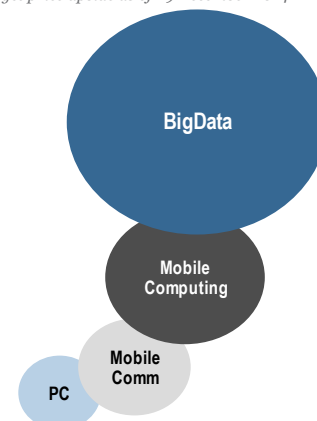
We believe our quantification of the scale of the Big Data-enabled market is non-consensus. In light of our bullish view calling for the IoT+ market to overtake the MCD market by size in 2017, we expect our identified Big Data plays to post strong earnings growth beyond 2015. Should Big Data-enabled demand not grow as we expect after the transition, our forecasts for these plays would be too bullish.

### ■ Daiwa picks among the Big Data plays

Company	Rating	Target (LC)	Upside (%)
TSMC (2330 TT)	Buy (1)	170	20.6
WinSemi (3105 TT)	Buy (1)	40	34.0
SPIL (2325 TT)	Buy (1)	57	17.2
Hon Hai (2317 TT)	Buy (1)	115	31.0
Largan (3008 TT)	Buy (1)	3,060	27.8
ASE (2311 TT)	Outperform (2)	43	12.7
Novatek (3034 TT)	Outperform (2)	190	8.3
Delta (2308 TT)	Outperform (2)	213	12.1
Quanta (2382 TT)	Outperform (2)	85	7.2
MediaTek (2454 TT)	Hold (3)	450	-3.7
Lenovo (992 HK)	Hold (3)	10.50	3.1

Source: Daiwa, Factset

Note: target price upside as of 29 December 2014



Source: Daiwa

**Executive summary**

*We foresee IoT in the Big Data cycle as the next big thing in the global IT industry. How we differ is perhaps that, in this report, we seek to redefine the IoT market, quantify its market potential, and identify potential beneficiaries of this secular trend. Our big-cap picks: TSMC, Hon Hai, Largan, ASE, Delta and Quanta; our beta pick: WinSemi (initiating coverage).*

**Investment thesis**

We forecast the new IoT device market to see a 100% CAGR over 2014-18, with its size exceeding that of the MCD market in 2017, to reach over USD750bn. This bodes well for IT companies that are transforming their business models to capitalise on this Big Data trend, while having built a solid foothold in the MCD cycle to bridge any gap during the transition.

We categorise the Big Data trend into 5 investment themes based on hardware functionality – data access, process, transmission, storage and security – and look for IT stocks with exposure to one or a few of these themes to meet our investment criteria, with details summarised in our screening process of a 2-axis chart that concludes this sector analysis, as well as in Daiwa’s Big Data play table on page 6. Among the 11 Daiwa actively covered stocks we include here, our top-3 picks with market caps of over USD10bn are: TSMC, Hon Hai and Delta. For those <= USD10bn, we recommend SPIL, ASE, Largan, Quanta and Novatek.

In this report, we initiate coverage of WinSemi. Although its market cap is below USD1bn, we see the stock as a small-cap name offering potential upside for investors who are pursuing a beta performance in their portfolio, given WinSemi’s leadership in the niche GaAs PAs foundry market within which it operates (see our accompanying initiation report on WinSemi). Among the 8 stocks Daiwa actively follows but does not have a rating on, eMemory, Holtek, Richtek, Orise, UDE, Altek, Votronic and AIC have potential exposure to the Big Data trend. We also raise our target prices on TSMC, ASE, Novatek and MediaTek by 13%, 8%, 6% and 7%, respectively.

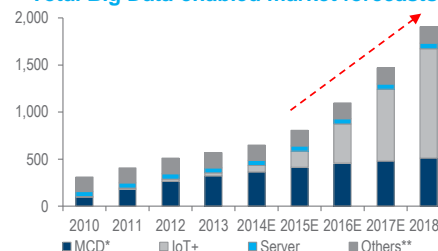
**Valuation**

The Big Data index we create based on the basket of Daiwa Big Data plays has outperformed the TAIEX benchmark since 3Q11, led by TSMC gaining shares in the MCD market. Excluding TSMC, our Big Data index ex-TSMC started to outperform the benchmark from 3Q13 – a precursor to the market’s initial recognition of the potential value from the next wave of Big Data beneficiaries beyond MCD, in our view. We see both Big Data indices (with and without TSMC) continuing their benchmark outperformance in the next 2-3 years, as we expect the Big Data cycle to run its course for multiple years. The key risk to our view is if Big Data-enabled demand fails to grow as strongly as we expect, likely due to slower progress in industry standardisations. Under such a scenario, our forecasts for these plays would turn out to be too bullish.

**Profit outlook**

We expect the net profit for companies in our Big Data-play basket to rise more strongly than the industry average over the next 3-5 years, particularly over 2016-18 when we expect the IoT+ market to take off and exceed the MCD market in dollar terms. This should help these companies in our basket grow revenue faster than others, resulting in above-average profitability (see company section for our P&L forecasts in details).

**Total Big Data-enabled market forecasts**



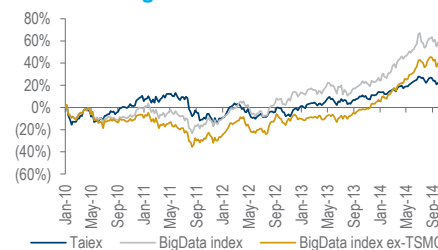
\*MCD=smartphone+tablet; \*\*Others include NB and cloud-related devices like switch, HDD and router  
Source: Daiwa estimates and forecasts

**Demand market forecast: IoT+ vs. MCD**



\*MCD includes smartphone and tablet PC  
Source: Daiwa estimates and forecasts

**Taiex vs Big Data index**



Source: TEI, Daiwa

## Sector stocks: key indicators

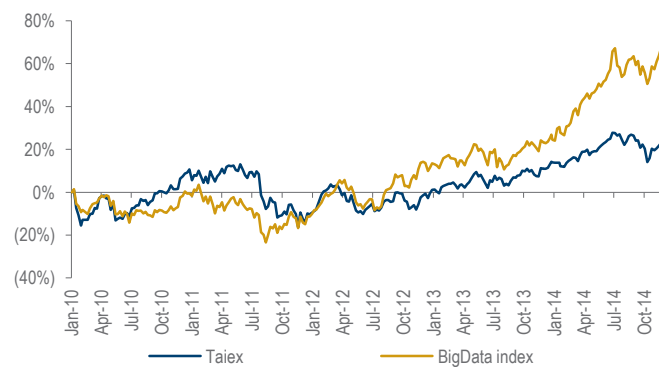
### ■ Daiwa's Big Data panel

Stock	Ticker	(LC)*	Rating	PER (x)			PBR (x)			ROE (%)			EPS growth (%)		
				2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E
<b>Daiwa actively covered</b>															
TSMC	2330 TT	141.00	Buy (1)	14.0	12.0	10.7	3.6	3.0	2.5	27.9	27.1	25.4	38.7	16.8	12.1
WinSemi	3105 TT	29.85	Buy (1)	11.5	9.8	8.6	1.4	1.3	1.2	12.7	14.1	15.0	9.1	18.0	13.9
SPIL	2325 TT	48.65	Buy (1)	14.2	13.7	11.7	2.4	2.2	2.1	17.5	17.0	18.5	80.8	4.1	16.9
Hon Hai	2317 TT	87.80	Buy (1)	10.5	9.2	8.4	1.5	1.3	1.2	15.2	15.4	15.0	14.8	14.0	9.9
Largan	3008 TT	2,395	Buy (1)	17.8	14.5	12.2	7.2	5.4	4.2	48.1	42.6	38.6	87.8	23.0	19.1
ASE	2311 TT	38.15	Outperform (2)	14.5	12.9	11.5	2.3	2.1	1.9	17.2	17.3	17.5	29.9	12.8	11.7
Novatek	3034 TT	175.50	Outperform (2)	15.4	13.2	11.8	3.8	3.5	3.2	26.4	27.6	28.4	46.2	16.5	11.6
Delta	2308 TT	190.00	Outperform (2)	22.0	20.3	17.5	4.5	4.2	3.9	21.5	21.6	23.0	19.2	8.4	15.7
Quanta	2382 TT	79.30	Outperform (2)	16.7	13.9	12.1	2.5	2.3	2.2	15.0	17.5	18.5	-18.6	19.9	14.4
MediaTek	2454 TT	467.50	Hold (3)	15.4	15.3	13.7	3.3	3.0	2.9	22.8	20.7	21.4	48.9	0.8	11.1
Lenovo**	992 HK	10.18	Hold (3)	18.1	16.0	12.0	3.9	2.6	2.0	23.3	19.5	19.0	-7.8	12.6	33.2
<b>Daiwa actively followed***</b>															
eMemory	3529 TT	370.00	NR	60.2	40.9	26.9	16.2	14.3	11.3	26.2	38.8	45.3	58.8	47.2	51.9
Holtek	6202 TT	56.00	NR	16.5	15.2	n.a.	3.2	3.2	n.a.	19.5	20.8	n.a.	2.3	8.7	n.a.
Richtek	6286 TT	168.00	NR	16.5	14.9	13.6	3.5	3.2	3.0	21.1	22.2	23.1	10.2	10.8	9.0
Orise	3545 TT	37.40	NR	10.2	11.0	8.8	1.7	1.6	1.5	14.4	17.9	17.8	39.7	-6.7	24.9
UDE	3689 TT	81.00	NR	10.6	9.0	n.a.	2.1	1.9	n.a.	21.4	22.7	n.a.	-0.4	17.6	n.a.
Altek	3059 TT	35.90	NR	30.9	21.9	n.a.	0.9	n.a.	n.a.	n.a.	n.a.	n.a.	-192.3	41.4	n.a.
Voltronic	6409 TT	293.00	NR	21.9	18.4	16.2	7.8	6.7	5.8	42.2	42.0	38.4	37.6	18.9	13.7
AIC	3693 TT	120.00	NR	12.0	10.0	n.a.	3.1	2.7	n.a.	24.6	26.0	n.a.	18.9	19.7	n.a.

Source: Bloomberg (unrated companies), Daiwa forecasts (rated companies)

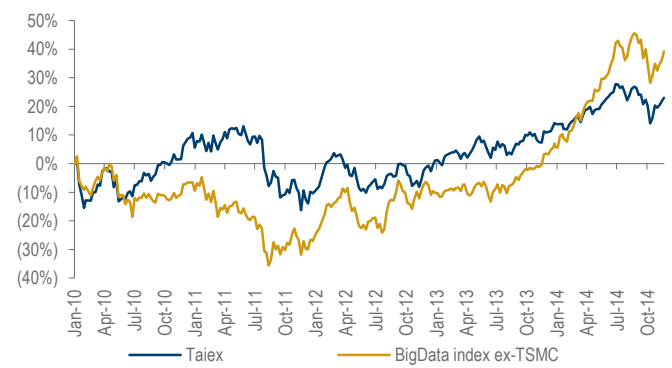
Note: \*Local currency, based on share prices as of 29 December 2014; \*\*March year end for Lenovo, 2014E = FY15E, 2015E = FY16E, 2016E = FY17E; \*\*\*stocks that are actively followed by Daiwa but do not carry a rating

### ■ Daiwa's Big Data index performance vs. Taiex



Source: TEJ, Daiwa

### ■ Daiwa's Big Data index ex-TSMC performance vs. Taiex



Source: TEJ, Daiwa

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SMIC (981 HK)  
SPIL (2325 TT)  
TSMC (2330 TT)  
UMC (2303 TT)  
Win Semiconductor (3105 TT)



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Acer (2353 TT)  
ASUSTeK Computer (2357 TT)  
Casetek Holdings (5264 TT)  
Catcher Technology (2474 TT)  
Compal Electronics (2324 TT)  
Foxconn Technology (2354 TT)  
Ju Teng International (3336 HK)

Lenovo Group (992 HK)  
Pegatron Corp (4938 TT)  
Quanta Computer (2382 TT)  
Simple Technology (6121 TT)  
Wistron (3231 TT)



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AAC Technologies (2018 HK)  
FIH Mobile (2038 HK)  
HTC Corp (2498 TT)  
Hon Hai Precision Industry (2317 TT)  
Largan Precision (3008 TT)  
TCL Communication (2618 HK)  
TPK (3673 TT)

TXC Corp (3042 TT)



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Realtek Semiconductor (2379 TT)  
Sunny Optical Technology (2382 HK)

## Big Data: the next big thing

*Global IT demand is evolving from MCD to Big Data, spurred by fast-growing new IoT devices. We like companies that are transforming their business models to capitalise on this Big Data cycle and have also built a solid foothold in MCD to bridge any gap during the transition.*

### Daiwa's Big Data plays

After the evolution of MCD post the GFC, we believe the industry is now facing a crossroads. With MCD demand growth likely to start slowing down in 2015, several trends look to be emerging in market discussions as the next secular trends in the global IT industry, including the IoT, IA/robotics, and electric vehicles (or E-cars). Our focus, however, is on the Big Data enabled product cycle, which we believe will become the next "big thing" in the IT industry, reshaping human lives into a world of "Big

Intelligence", and take over MCD as the next secular demand driver in both depth and breadth.

**This report is a collective effort by Daiwa's technology team, in which we analyse the emerging ecosystem of the Big Data evolution, its implications for the IT industry, its potential market scale in the next 3-5 years and, most importantly, who would benefit from this new trend in a structural matter. In conclusion, we expect the new IoT ex-MCD (or IoT+) market to take off from 2016 and exceed USD1tn in size in 2018E, thereby growing at about a 100% CAGR over 2014-18E.**

We would highlight that there may be a transitional period during 2015-16 before the IoT+ market takes off while the MCD market slows down. Thus, how to bridge any gap during the MCD-to-IoT+ transition period by leveraging their core competency in the current MCD cycle is also crucial for companies that fall onto our Big Data radar screen.

We identify the following stocks, as shown in a table below, as our potential Big Data plays, categorized into 2 groups - those actively covered and rated by Daiwa, and those actively followed but not rated. The key determinants to qualify as our Big Data plays include **not only these companies' future business** transformations geared toward one or a few investment themes we identify under this Big Data trend, but their current core businesses that have built a solid foothold in MCD for them to leverage as cash-cows and bridge any gap during such a transitional period before the IoT+ market takes off.

#### ■ Daiwa's Big Data play summary

Stock	Ticker	Rating	Market Cap*** USDm	3Mo Avg Daily T/O (USDm)	Big Data exposure					Analyst in charge
					Access	Transmission	Process	Storage	Security	
<b>Daiwa actively covered</b>										
TSMC	2330 TT	Buy (1)	115,167	150.45	X	X	X	X	X	Rick Hsu
WinSemi	3105 TT	Buy (1)*	698	5.42		X				Rick Hsu
SPIL	2325 TT	Buy (1)	5,122	15.10	X	X	X		X	Rick Hsu
Hon Hai	2317 TT	Buy (1)	40,915	104.77	X	X	X	X		Kylie Huang
Largan	3008 TT	Buy (1)	10,120	92.06	X					Kylie Huang
ASE	2311 TT	Outperform (2)	10,422	28.46	X	X	X		X	Rick Hsu
Novatek	3034 TT	Outperform (2)	3,364	15.54	X					Lynn Cheng/Rick Hsu
Delta	2308 TT	Outperform (2)	14,589	34.14			X	X	X	Christine Wang
Quanta	2382 TT	Outperform (2)	9,649	14.23			X	X		Steven Tseng
MediaTek	2454 TT	Hold (3)	23,136	80.37	X	X	X			Rick Hsu
Lenovo	992 HK	Hold (3)	13,894	56.56			X	X		Steven Tseng
<b>Daiwa actively followed**</b>										
eMemory	3529 TT	NR	896	18.86	X		X	X	X	Lynn Cheng/Rick Hsu
Holtek	6202 TT	NR	399	2.08	X		X		X	Lynn Cheng/Rick Hsu
Richtek	6286 TT	NR	786	3.59	X			X	X	Lynn Cheng/Rick Hsu
Orise	3545 TT	NR	165	3.39	X					Lynn Cheng/Rick Hsu
UDE	3689 TT	NR	175	1.09		X				Rick Hsu/Lynn Cheng
Altek	3059 TT	NR	305	5.84	X					Kylie Huang
Voltronic	6409 TT	NR	654	2.27					X	Steven Tseng
AIC	3693 TT	NR	145	1.91			X	X		Steven Tseng

Source: Daiwa forecast, Bloomberg

\* New initiation; \*\* Stocks that are actively followed by Daiwa but do not carry a rating; \*\*\* as of 29 December 2014

## The evolution of Big Data

The Big Data concept is indeed nothing new; it is just the evolution of data consumption flows, in the form of digital or analogue, that has existed in our world since the invention of computers. Yet **what's reshaping, or is soon to reshape** our world that is very different from the past, is the volume of data consumption expansion. Although this expansion looks to be evolutionary, not revolutionary, the amount of Big Data could become so large in the next 3-5 years that some industry watchers are even regarding the Big Data trend as the third Industrial Revolution in human history, following the first one in the 18<sup>th</sup> Century and second in the 19<sup>th</sup> Century.

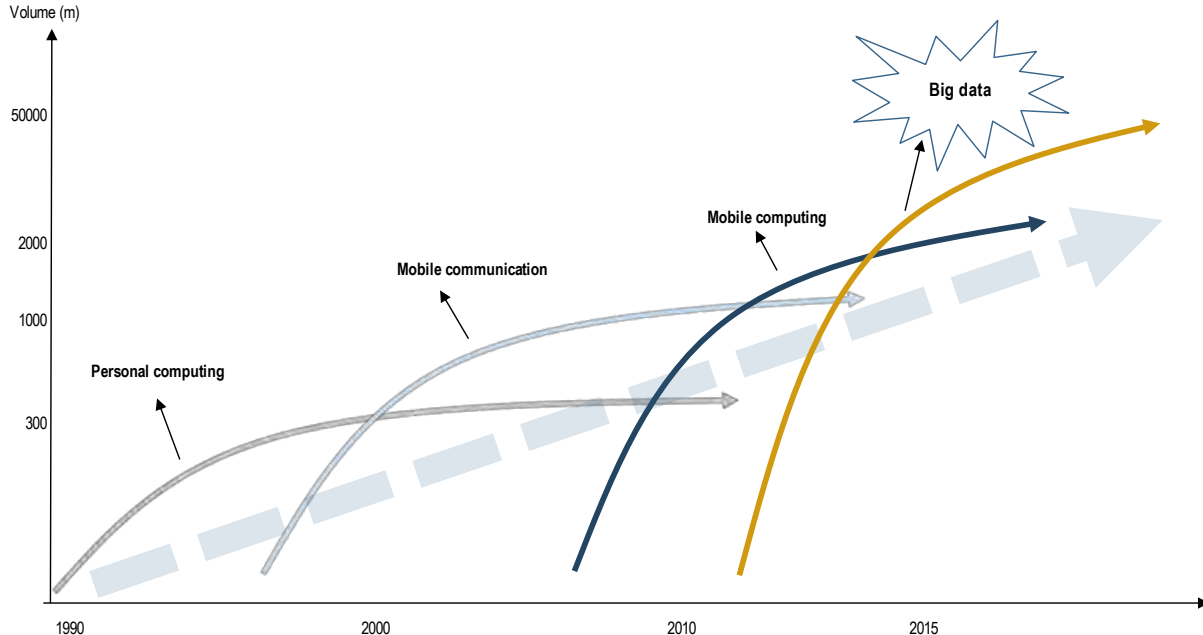
We expect this mounting Big Data to be spurred by the proliferation of new IoT devices that go beyond the current MCD, helping overcome the likely saturation in MCD demand growth and transit the IT industry to

another secular demand cycle in the next 3-5 years. These new IoT devices would likely come from many new markets beyond the traditional consumer electronics market, including healthcare, smart homes, smart cities, connected cars, IA/robotics and wearable devices markets at the ground level, plus associated infrastructure devices such as networking and data centres at the air level, within the umbrella of the Big Data ecosystem, where all dots are smartly connected to create a critical mass.

### What is Big Data?

In the early days of client-server architecture, data was consumed, communicated and stored through fixed wires, or referred to as wired communication where data flows were limited in scale among limited devices from client PCs at one end (the ground end) and PC servers at the other (the remote end).

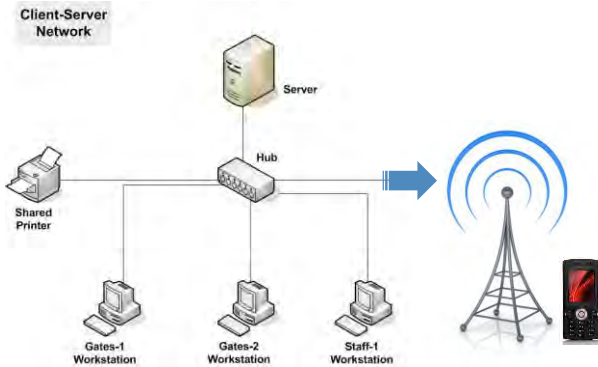
#### ■ Evolution of demand trends in global IT industry



Source: Daiwa



■ **Example of wired-to-wireless data communication evolution**



Source: Daiwa

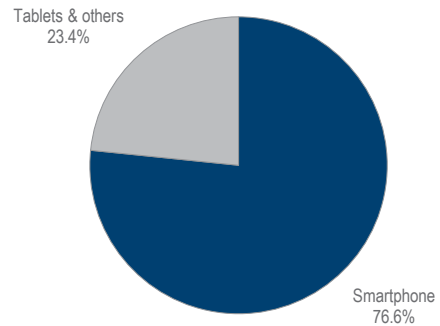
Thanks to the commercialisation of microwave technologies which used to be restricted only to military use, data started to be consumed and communicated without wires at the ground end by the addition of wireless devices such as mobile handsets in the late 1990s. This is referred to as wireless or mobile communication that brought the second wave of evolution in data communication, in our opinion, from PC to mobile as shown in the chart above.

The third wave of evolution in the global IT industry, from mobile communication (feature phones) to mobile computing (smartphones), hit a milestone post the GFC, based on our observations, as this third wave of evolution not only expanded data consumption further, but substantially lifted data traffic flows. This was because the user experience was largely enriched as consumers were able to browse the web and consume video data with mobility, no longer restricted by only fixed connected devices such as desktop PCs.

**What drives Big Data?**

MCDs were created during the third wave to spur mobile data traffic, thanks to the innovating feature of computing capability – the addition of application processors (AP), combined with expansion in bandwidth and data transmission through upgrades of cellular communication standards (from 2G to 3G). The definition of MCD varies, in our opinion, but by our definition, smartphones would account for 77% of the MCD market in dollar value in 2014 (from 74% in 2013), followed by tablet PCs and other MCDs such as wearable devices.

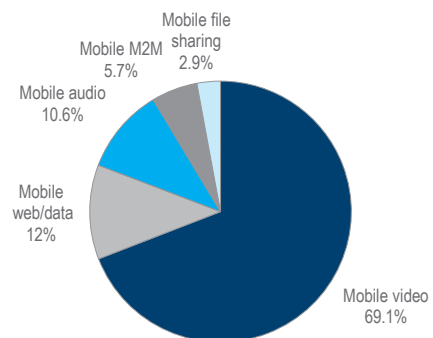
■ **2014E MCD market breakdown**



Source: Daiwa forecasts

Indeed, we contend that the bigger, the better, when it comes to data consumption under the Big Data evolution. This is because more devices will be needed at both ends of the equation to facilitate data communication, computation and storage, which means more business opportunities. Again, data consumption has long existed, but was relatively **limited in scale during the 1990s' PC era**. Feature phones in the 2000s helped increase data consumption with the addition of voice data flows. But it was smartphones post the GFC that lifted data consumption substantially with the addition of mobile video data which built the groundwork for the Big Data evolution.

■ **2013 global mobile data consumption breakdown**



Source: Cisco

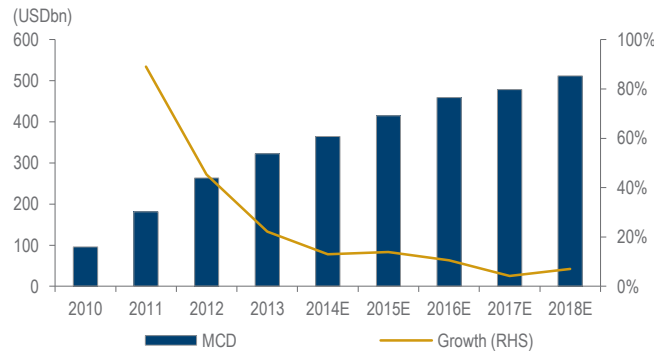
According to Cisco, mobile data traffic in the world reached 1.5 exabytes (EB) per month in 2013, where video data accounted for 69%, followed by web data (12%) and audio data (10%).

Note: EB = 10<sup>18</sup> bytes, or 10<sup>3</sup> times PB (petabytes), 10<sup>6</sup> times TB (terabytes) and 10<sup>9</sup> times GB (gigabytes). GB = 10<sup>3</sup> MB (megabytes) which is 10<sup>6</sup> bytes. Byte is unit count of digital data where one byte = 8 bits.

**MCD growth likely to reach saturation point but ...**

The evolution of the mobile computing trend has driven strong growth of MCD demand since the GFC, and those able to capture the MCD cycle have gained share in the global IT market, regardless of the mediocre industry wide growth.

■ **Global MCD market forecasts**

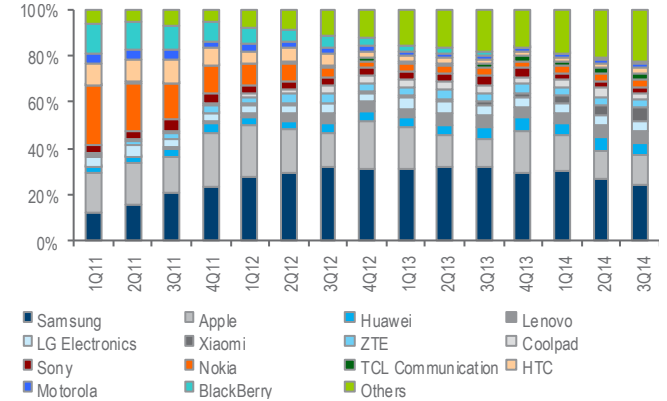


Source: Daiwa estimates and forecasts

At the front end of the MCD supply chain, for example, TSMC (2330 TT, TWD141.00, Buy [1]) and its related semiconductor contract manufacture (SCM) makers have gained share in the semiconductor market through their favourable positioning to capture the growth of manufacturing APs for MCDs; and these SCM makers have in turn captured market share from Intel (INTC US, USD37.18, Hold [3]) in the microprocessor market.

At the back end of the MCD food chain, Apple (AAPL US, USD113.91, Hold [3]) and China brands have collectively gained share in the smartphone market at the expense of the likes of Nokia (NOK1V FH, EUR6.65, Hold [3]), Blackberry (BBRY US, not rated), HTC (2498 TT, TWD137.50, Sell [5]) and Samsung Electronics (SEC, 005930 KR, not rated), benefiting related Apple/China-brand food-chain players like Largan (3008 TT, TWD2,395.00, Buy [1]) and MediaTek (2454 TT, TWD467.50, Hold [3]).

■ **Smartphone market-share trend**

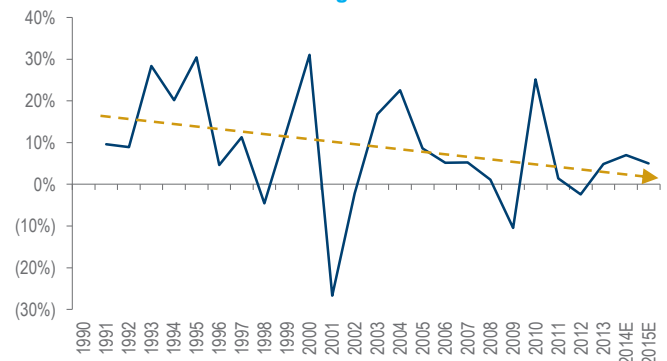


Source: Gartner "Market Share: Devices All Countries, 3Q14 Update", authors include Mikako Kitagawa, David Glenn, Isabelle Durand, Kanae Maita, Meike Escherich, Annette Jump, Lillian Tay, Roberta Cozza, Ranjit Atwal, Tuong Huy Nguyen, Bruno Lakehal, Tracy Tsai, Sandy Shen, Annette Zimmermann, Eileen He, Vishal Tripathi, Anshul Gupta, Atsuro Sato, CK Lu, Jane Zhang, and William Lutman, 14 November, 2014

Daiwa forecasts the MCD market, consist of mainly smartphones and tablets, would grow 13% YoY in 2014 to USD364bn, or a 40% CAGR over 2010-14E, vs. just 3% CAGR for the global semiconductor market in dollar terms. This flags our view that the chip cycle (in terms of dollar value YoY growth) has become **irrelevant to determining an IT company's business outlook**; it is whether the company can capture the right demand trend to gain market shares that is relevant.

**However, despite MCD's outperformance in the past years, market concerns look to be looming on the smartphone market which accounts for the majority of the MCD but demand growth is likely to start slowing down in 2015.**

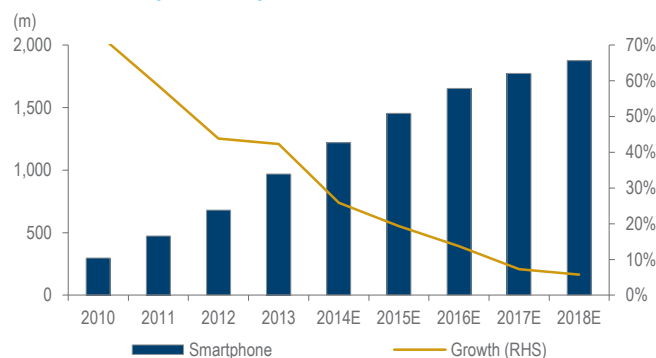
■ **Global semiconductor market growth forecast\***



\*Ex-memory, discrete and opto  
Source: WSTS, Daiwa forecasts

Per our forecasts, global smartphone demand would grow by 26% YoY this year to 1.2bn units, representing a 42% CAGR post the GFC over 2010-14; but we look for growth to slow to 19% YoY for 2015, and to a mid-to high-single digit percentage per year in 2017-18. With such a slowdown in the biggest demand driver for MCDs, cautious investors have begun questioning whether there will be an end in the market-share-gain stories for MCD-centric stocks and are looking for the next trend beyond MCD to pick new winners.

■ **Global smartphone shipment forecasts**



Source: Daiwa estimates and forecasts

**... IoT may rise to drive the data volume higher**

Whereas MCD has been the key driver of data consumption in this demand cycle, we are not concerned about the slowdown in smartphone growth. We believe the next trend of Big Data, or as we call it, **“the Big Data trend”**, will drive a new demand cycle which may be stronger than the current one, and last for multiple years, although the transition may not be smooth initially.

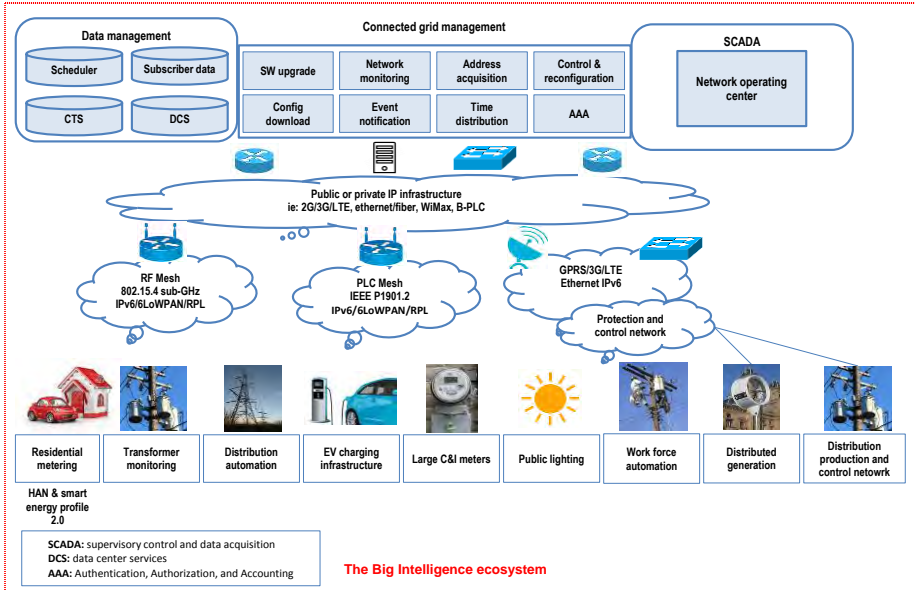
In our view, what will drive data consumption further to evolve into the Big Data trend is the proliferation of all smart connected devices other than smartphones and tablets. As shown in an earlier chart, the Big Data trend is likely to evolve from mobile computing, which could be the fourth wave of evolution in the IT industry. The chart below illustrates the concept of the Big Data ecosystem from our perspective.

This chart is essentially an expansion of the earlier one showing client-server architecture (page 9), where the fundamental technologies are identical regardless of several decades of industry evolutions – data accessing, processing/computing, storing and communicating through wire-line or wireless. However, the biggest difference is the depth and broadness of the 2 ecosystems now and then, where we expect the Big Data-enabled ecosystem to horizontally expand application products in a significant way over the next couple of years.

Thanks to the relentless improvements in mobile communication bandwidth, computing capabilities and power consumption, IT devices have largely gone mobile and significantly expanded in volume. In the PC cycle, for example, market size comprised several hundred million units per year, but in the smartphone cycle, the size exceeded 1bn units per year. For the next few years to come, we expect the newly created smart connected devices, together with existing MCDs, to **reach over 10bn units in scale** (see Daiwa’s key assumption table on page 19 for more details).

With the fundamental technologies and infrastructures ready, we see the number of new smart connected devices, machines, equipment and any other form factors that talk to each other mushrooming at the **“ground level” of such a Big Data ecosystem. At the “air level” of the equation, devices such as mainframe servers and data storage** (ie, data centres and cloud computing) must rise accordingly in order to facilitate new data traffic generated by these new terminal devices on the ground. Further, intermediate devices that sit in between the 2 sides of the equation, mainly data modems, switches, routers and gateways, should also rise to ensure all proper data flows within the ecosystem.

■ **The concept of the Big Data ecosystem**



Source: Daiwa

When all dots are connected within this ecosystem, a critical mass in Big Data consumption should emerge to spur the next big wave of business opportunities, in our view. With this evolution, we believe a world of **“Big Intelligence” will be formed in human** lives, and that these new smart connected devices being created on the ground are indeed the IoT.

**Our focus is IoT+**

IoT, in our view, is a general term that refers to all types of smart connected devices, both existing ones and future ones. MCDs are just a part of IoT. Going forward, we believe those companies that do well with their MCD product offerings will have an advantage when moving into the IoT market. Especially before the IoT trend takes off in 2H16 (say, during 2015 and 1H16), we think companies with strong MCD exposure will enjoy the growth of the MCD trend (even while the growth rate may decelerate).

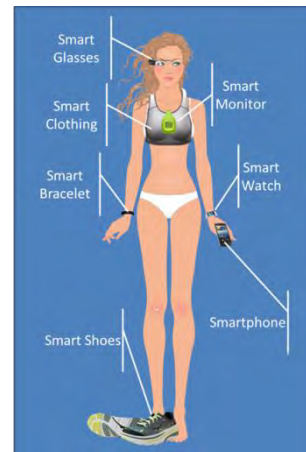
We expect new IoT products to take over MCDs as the next secular demand driver, with momentum likely to take off sometime from 2016. In order to differentiate between existing MCDs and connected devices, we redefine these new IoT products as IoT-plus (or IoT+).

As the Big Data ecosystem chart illustrates, at the ground level, numerous IoT+ terminal devices should emerge in the next few years, heavily influencing human lives in many aspects including daily wearable devices, in the home, transportation, social networking, healthcare, industrial equipment, etc.

While the market value of each IoT application segment, such as wearable devices (smart watches, glasses and bracelets and the like) might not be very big, the aggregate value of all through connection/integration is sizeable enough to change the world and the way we live our lives.

We expect the wearable device market to be just less than USD100bn in 5 years, even smaller than the tablet PC market. But applications that expand by leveraging wearable devices should be sizeable, including **healthcare and medical instrument markets**. Apple’s development of its own operating system (OS) for Apple Watch - Health Kit, is one example of such integration between wearable users and healthcare systems, in our opinion.

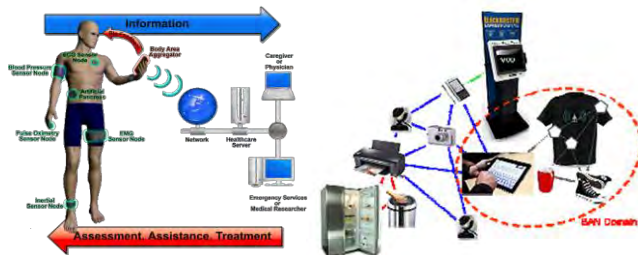
■ **Examples of wearable devices**



Source: Daiwa

By using wearable devices that “sense” human bodies through functions like heart beat and blood pressure, and “communicate” with remote devices through, say smartphones as an intermediate console with a certain scale of data processing, medical doctors can monitor patients and track them down via GPS if they detect any abnormal circumstances. This combination of wearable device and healthcare system application implies meaningful market potential but yet, this is just a fraction of the IoT+ market, in our opinion.

■ The concept of medical IoT



Source: Daiwa

Another IoT+ application market not to be overlooked is smart vehicles, or connected cars. Many of these cars now have “Infortainment” (ie, information and entertainment) systems installed. Thanks to the enhanced semiconductor functionalities in terms of connectivity and sensor technologies, cars embedded with chip solutions have gone beyond infortainment, expanding into safety and security, lifting the silicon content per car, and spurring demand for automobile IoT to make cars smartly connected.

■ The concept of a connected car



Source: Compass Intelligence

Through enhanced chip connectivity, for example, a car driver is able to not only enjoy a better mobile video experience through 4G/LTE data transmission that offers more bandwidth, and 64-bit APs that offer more data processing power, but a driver can also keep

him/herself connected for any information that may come from the cloud (data centre) during mobility.

With enhanced microelectrical-mechanical system (MEMS) technologies, a driver is able to drive a car intelligently with the aid of a variety of different sensors – backup sensors, rear-/side-view sensors, camera-monitoring (or digital video recorder [DVR]), traffic-flow detection for fuel saving, etc. All of these smart functions are integrated in a central controlling console display and work like a central hub or tablet.

Note: infortainment is an information-based multimedia entertaining device or service for cars that delivers a combination of information and entertainment.

A smart home, or smart house, is a home that incorporates advanced automation technologies to provide its inhabitants with intelligent monitoring and control over the building’s functions. Smart home applications offer demand potential for IoT+ that is no smaller than that for medical or connected cars, in our opinion.

■ The concept of a smart home



Source: Daiwa

This potential is due to the significant scalability of smart applications for a house, from indoor smart connected home appliances embedded with IoT chip solutions, on-line camera monitoring for children/elders, smoke/gas sensors, air conditioning and lighting controls, to outdoor security monitoring, climate sensors and even smart sprinkling device (droplet robot) that embeds MEMS sensors to read humidity and temperature, microcontroller unit (MCU) to process data, and WiFi technology to communicate data with the cloud through a router to help plant and conserve natural resources.

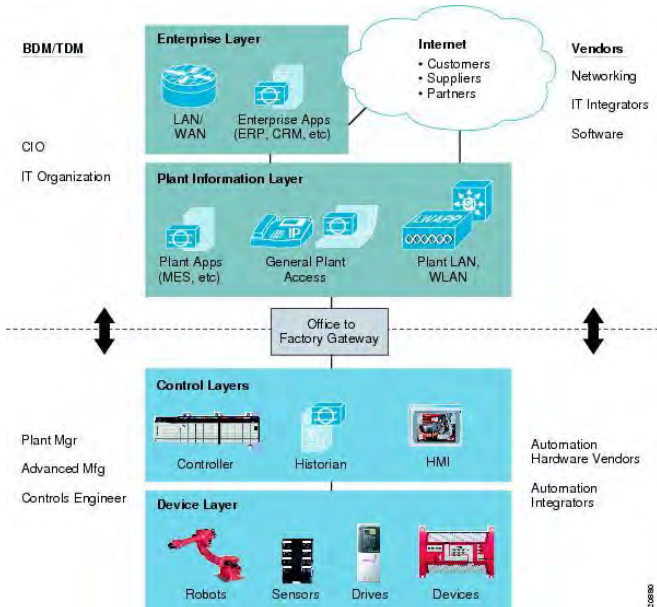
■ **Example of a droplet robot**



Source: Daiwa

All of these indoor/outdoor smart-home controls can be integrated into a central controlling hub such as a smartphone, tablet PC or smart TV; and intermediate IT devices are necessary to facilitate all the commands, including connected PCs, networking devices (wireless and wired), and even mini-servers and optical fibre solutions. Scaling up the same concept to connect more dots, several smart homes can be built and connected to each other to become a smart city, and several smart cities can be connected to form a smart island or even a smart country or a smart planet ultimately. With this scaling up would come business potential.

■ **Illustration of industrial automation/robotics**



Source: Cisco

Last but not least, although its application markets go beyond IT, IA and robotics also offer business potential for IoT, in our opinion. This is because we are seeing rising demand for these IoT chips from factory automation hardware including for the control layer such as industrial PC (IPC), and for the device layer such as sensors and robots, as well as from IT networking hardware including switches, routers and data centres/cloud. To be specific, these IA-related IoT chips include a high variety of MEMS sensors, MCU/AP, power management IC (PMIC), networking and other connectivity chips.

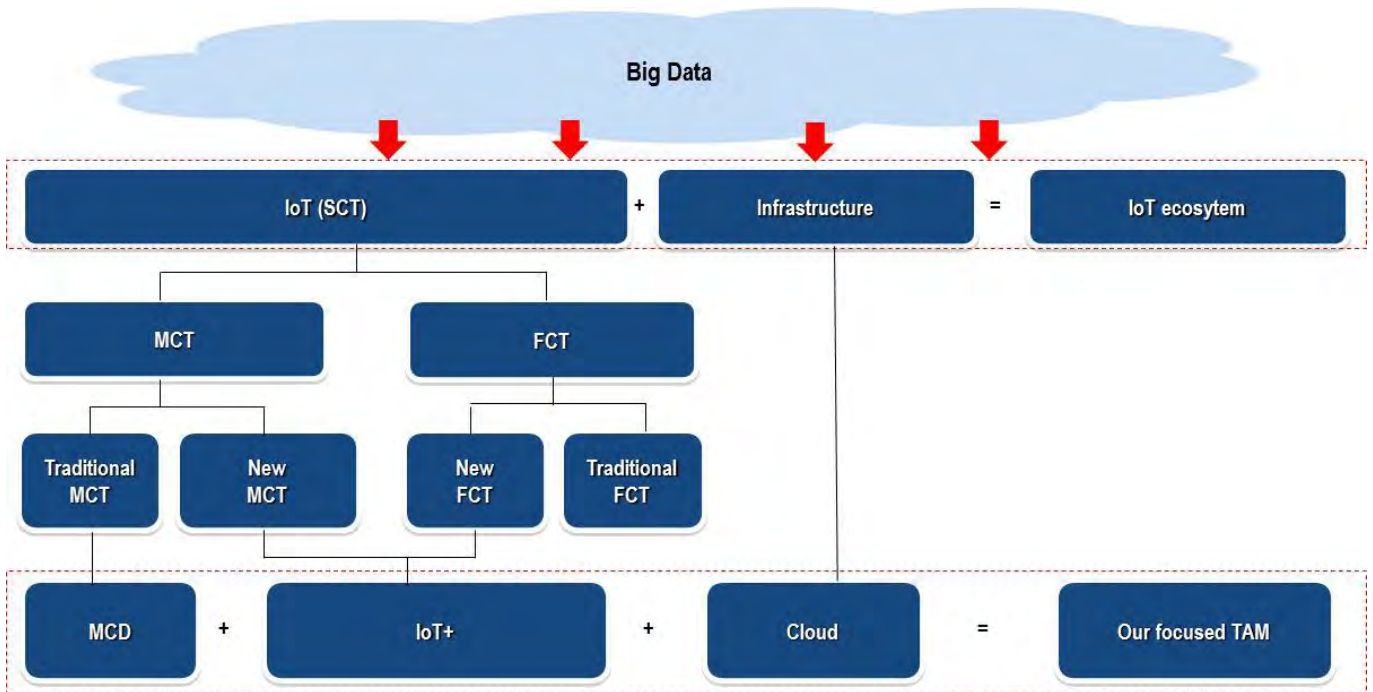
**Implications for the IT industry**

In terms of end product functionalities and connectivity, IoT-related devices feature much wider varieties than traditional consumer electronics products. We have identified 2 areas of potential demand under the Big Data trend:

- 1) At the ground level (the terminal end), we see scope for new IoT products to be created over the next few years for applications in healthcare, smart homes, smart cities, connected cars, IA/robotics and wearable devices as discussed earlier, which indeed are evolving from current IoT products such as MCDs.
- 2) At air level (the cloud end), we see demand expansion for current data-centre/cloud-computing services spurring relevant hardware device builds in the post-MCD cycle, including intermediate networking devices.

As mentioned, in order to clearly distinguish our focused IoT markets from the existing ones, we redefine the connected IT products, as both wireless (mobile) and wired (fixed line), into a diagram illustrated on the next page. Under the umbrella of the Big Data trend, 2 broad product categories are covered – smart connected terminal devices (SCT) and infrastructure devices to support data traffic flows. While SCT is essentially IoT by our definition, the combination of SCT and infrastructure forms an IoT ecosystem under the Big Data trend.

■ Daiwa's definition of IoT



Source: Daiwa

\*SCT=smart connected terminal, MCT=mobile connected terminal, FCT=fixed connected terminal, Cloud=cloud computing+data centre+related networking infrastructure

SCT can be further categorized into mobile connected terminal devices (MCT) and fixed connected terminal devices (FCT). MCT include traditional MCT and new MCT, while FCT also include traditional FCT and new FCT. Except MCD (now part of traditional MCT in our definition), most traditional MCT and FCT are out of favour with us due to their growth having either stalled or declined, including, to name a few, desktop PCs, printers, workstations, notebooks, feature phones, gaming, digital still cameras (DSC)/camcorders, and other portable devices.

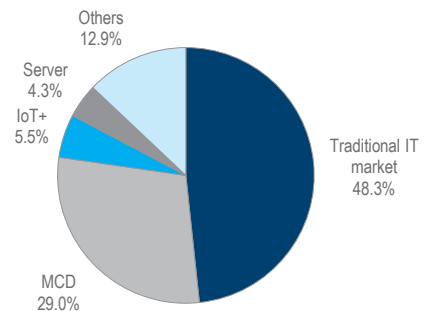
Our focus is new MCT and new FCT, all together making up what we define as the new IoT, or IoT+ devices - horizontal expansion of existing IoT devices at the ground level. Again, these IoT+ devices include healthcare IoT, smart-homes/smart-cities IoT, smart-cars IoT, IA/robotics IoT, wearable devices IoT and, ultimately, all types of IoT devices for the Big Intelligence world where all smart devices are connected.

In the infrastructure space, we also focus on relevant devices as we expect demand here to rise accordingly with the mushrooming IoT+ devices in order to deal with mounting consumption of new data flows. These devices include mainframe servers, storage devices, networking devices such as switches and routers, and all other devices related to data centre/cloud computing; we simply name them cloud devices.

On top of the IoT+ and cloud devices, MCD remains in favour with us since this sizeable demand driver, 29% of 2014 global IT market in dollar terms on our estimates (~USD1.3tn), at the current stage of the cycle represents a cash cow for IT companies that have successfully transformed their business models to capitalize on this trend.

We do not expect the transition from MCD-to-IoT to be smooth, as most of the companies will lack growth drivers from 2015 to 1H16 (given that the IoT cycle will only take off in 2H16, on our estimates). Thus, we prefer companies that have established a strong foothold in the MCD food chain, as MCDs will be the cash cow business that sustains them through the bumpy transition.

■ 2014E global IT market value breakdown



Source: Daiwa forecasts

In sum, against the backdrop of the Big Data trend, our focused total addressable markets consist of IoT+, cloud and MCD, which we refer to as Big Data-enabled markets. So how big is the potential scale of these Big Data-enabled markets? Instead of bottom-up, we seek a possible answer using a top-down approach to come up with our Big Data traffic forecast, discussed in the next section.

## Potential market scale

Instead of doing a bottom-up analysis in an attempt to quantify individual market segments which appear to be challenging due to their depth and broadness as discussed, we adopt a top-down approach by referring to the total data consumption forecasts to quantify the Big Data-enabled markets in scale, particularly for the IoT+ market.

In sum, we forecast the total Big Data-enabled market, including IoT+, MCD and server, as well as other cloud-related peripheral devices, to reach USD1.9tn in 2018, posting a 31% CAGR over 2014-18, driven

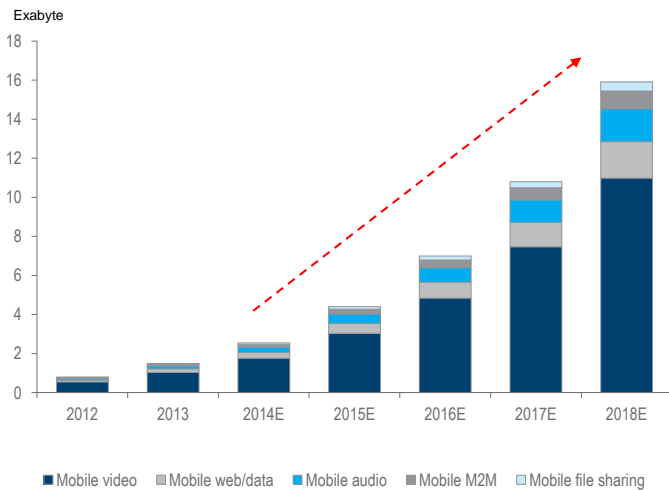
primarily by IoT+ devices, which we look to grow by a 100% CAGR over the same period to exceed USD1tn in 2018, with a market size crossing over MCD in 2017. However, we would highlight that this MCD-to-IoT+ transition may not be smooth in 2015, the IoT+ market **may grow to only 40% of MCD's size in dollar terms**. While MCD growth looks to be slowing in 2015, IoT+ market expansion may not take off substantially until 2016.

## Mounting data traffic to drive IoT growth

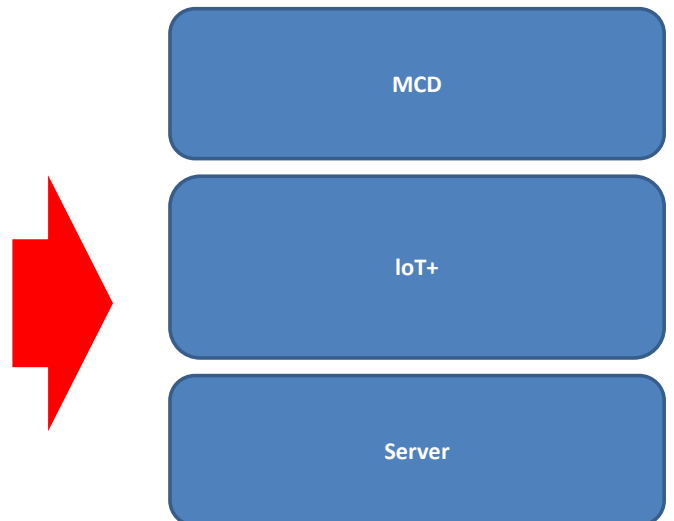
According to Cisco, global mobile data traffic will have risen by nearly 70% YoY in 2014 to an average of 2.6EB per month, and grow at a strong 60% CAGR in 5 years to an average of 15.9EB/month by 2018. This bodes well for SCT devices in the world, particularly those MCT devices that contribute most of this mobile data traffic.

A table at the end of this section depicts key assumptions of our forecasts in details, together with our rationale for quantification.

### Fast-growing mobile data traffic to drive Big Data-enabled market demand



Source: Cisco, Daiwa forecasts

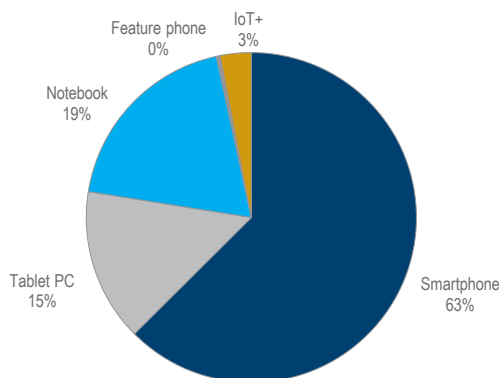




Thanks to the 4G/LTE migration in cellular communication standards, smartphones and tablets appear to be 2 heavy contributors of mobile data traffic, in addition to notebook PCs (NBs), but their contributions should drop back significantly after 2015, likely to some 55% combined in 2018E, from 78% in 2014E. This is because of slowdowns in both volume growth of the 2 devices and in data traffic growth per device, on our assumptions.

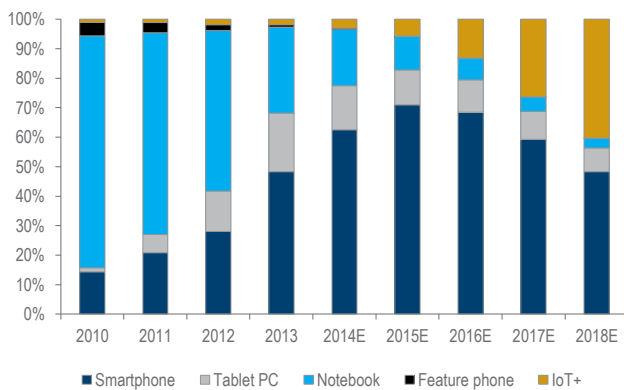
Excitingly, what should make up the difference to support strong mobile data traffic growth beyond 2015 will be those newly created IoT+ devices. Though we assume limited data traffic per device for these IoT+ devices, unit demand should substantially mount to spur total consumption of mobile data. We forecast IoT+ devices to contribute 40% of mobile data traffic in 2018, up from just 3% in 2014.

■ **2014E mobile data consumption breakdown**



Source: Daiwa forecasts

■ **Mobile data traffic contribution forecasts**



Source: Daiwa estimates and forecasts

**Crossover likely in 2017 but ...**

We forecast the global IoT+ market to grow by a strong CAGR of around 100% over 2014-18, from USD69bn in 2014 to some USD1.1tn by 2018. The period of 2010-14 represents an infant stage for these IoT+ device developments, in our opinion, since many industry standards are waiting to be established in many market segmentations. But we expect demand growth momentum for IoT+ to take off in 2016, exceeding MCD in 2017 in terms of market size to reach over USD750bn.

According to our forecasts, 2017 should see a milestone for IoT+ when its market size exceeds that of MCDs, which should significantly lift business growth for companies that successfully transform their business models to capitalize on this new trend. We are observing many industry standards being created to help commoditize IoT+ devices in many application markets. At the system end, for example, Apple is developing its HomeKit OS, on top of its aforementioned HealthKit, and Google (GOOGL US, USD537.31, Outperform [2]) is pushing its Nest OS to standardize its controlling hubs for smart-home IoT. SEC has set up an Open Innovation Centre in the US aiming to leverage its in-house component and own Tizen OS integration to build a standard in the IoT market.

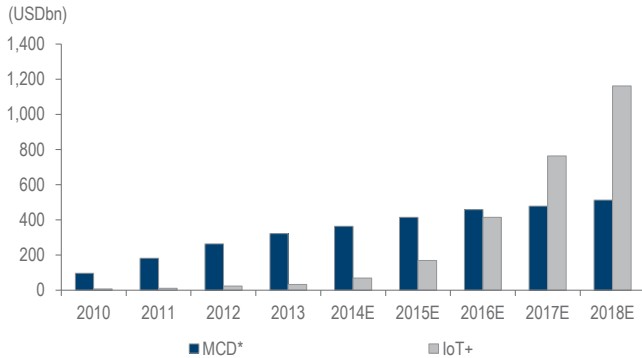
At the component end, since 2014 TSMC has offered a comprehensive ultra-low-power product portfolio for what it believes is the rapidly evolving IoT market, covering virtually all technology spectrums from 0.18μ to 16nm FinFet (FF). MediaTek has introduced its Aster SoC solutions combined with its LinkIt product design platform suitable for standardization of IoT developments for its customers in China. We see all these efforts as positive catalysts for the growth of the IoT market.

**... 2015 may be a transitional year**

That said, 2015 may be somewhat of a transitional year when the market growth of MCDs is likely to slow (we forecast 14% YoY growth in dollar terms) while IoT+ will only ramp to about 40% of MCD in size. As such, we would focus on companies that have built a solid foothold in MCDs as a core competency to keep their cash-cow position during the transition, on top of their business model transformation to capitalize on the Big Data trend.

Within the MCD market, despite unit growth slowing, we expect continued increases in silicon content per device to help bolster demand growth, driven primarily by the 4G/LTE migration (see [Staying ahead of the curve](#) for our TSMC initiation report for details.)

■ Demand market forecast: IoT+ vs. MCD

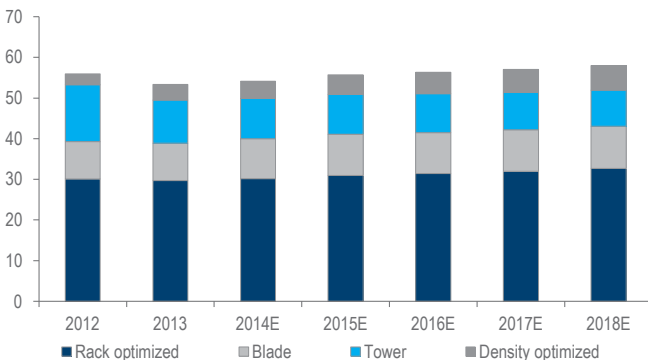


\*MCD includes smartphones and tablet PCs  
Source: Daiwa estimates and forecasts

White-box servers another focus

At the other end of the cloud computing/data centre space, our focus is on white-box servers (or density-optimized types, as the chart below shows) in the global server market. This is because we expect white-box servers to post the strongest growth, in dollar terms, among the various types of servers, at a 9% CAGR over 2014-18, vs. an average of a 2% CAGR for the total server segment, thanks to the demand push from public cloud service companies and large private enterprises to handle the mounting data traffic with their own tailor-made solutions.

■ Global server market forecasts



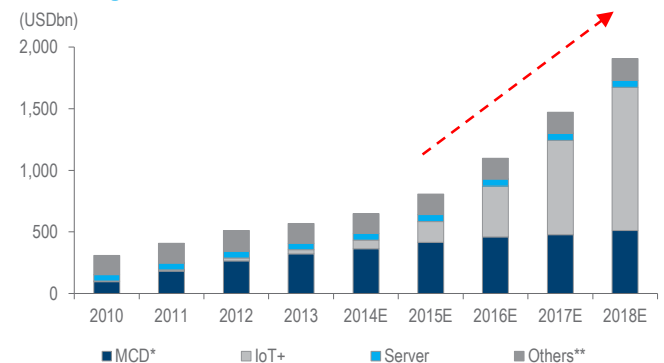
Source: IDC, Daiwa forecasts

Companies with business exposure to this segment should benefit from the Big Data trend, in our view, such as Quanta (2382 TT, TWD79.30, Outperform[2]), Lenovo (992 HK, HKD10.18, Hold[3]), Delta (2308 TT, TWD190.00, Outperform[2]) and Hon Hai (2317 TT, TWD87.70, Buy[1]) (please refer to our report, [Cloud data centres: a different ballgame for the PC supply chain](#), on 5 June, by our computing & data centre analyst, Steven Tseng, for details).

Big Data-enabled market to exceed USD1tn in 2016

In aggregate, IoT+, MCDs and servers, together with NBs and other cloud-related peripheral devices such as switches, routers, gateways and HDDs, give us a total Big Data-enabled market forecast of USD650bn for 2014, up 14% YoY. We look for this market to grow at a 31% CAGR over 2014-18 to some USD1.9tn by 2018, when IoT+ demand begins to take off. As a comparison, Gartner expects the global IoT market to reach USD1.9tn in 2020 (*Gartner, "Forecast: The Internet of Things, Worldwide, 2013", Peter Middleton, Peter Kjeldsen, Jim Tully, 18 November 2013, <https://www.gartner.com/doc/2625419/forecast-internet-things-worldwide->*). We are more aggressive as we expect to see such a level to be reached 2 years earlier than Gartner.

■ Total Big Data-enabled market forecast



Source: Daiwa estimates and forecasts

\*MCD=smartphone+tablet; Others include NB and cloud-related devices like switch, HDD, router and gateways

### Rationale for our quantification

As our key assumption table below shows, summarizing our market research, we assume mobile data traffic per device for the 2 most heavy users – smartphones and tablets – at 1.3GB/month and 1.6GB/month in 2014, with their traffic growing at 33% and 14% CAGRs, respectively, over 2014-18. Multiplying the data traffic/device with our total global shipments forecast for smartphones and tablets works out at an average of 1,977PB/month mobile data consumption by MCD (smartphone + tablet), or 78% of total mobile data traffic/month of 2.6EB/month for 2014, per Cisco's forecast.

Applying the same practice to other SCTs, such as notebooks and feature phones, and aggregating them with MCDs, what is left is the remaining mobile data

consumed by IoT+ (including wearable) devices – only 77PB in 2014. This means, on the back of our assumption of 136MB mobile data traffic per device for IoT+, we calculate a total of 570m IoT+ device shipments in 2014.

Repeating the same practice, if total mobile data traffic reaches 15.9EB in 2018 per Cisco, then IoT+ devices will likely consume around 6.4EB in 2018, which would translate into shipments of 10.8bn, if our mobile data traffic/device of 593MB is applied (a 45% CAGR). Assuming a flat ASP of USD100 for these IoT+ devices over 2014-18, we calculate the total IoT+ market size (including smart TVs and wearable devices) at USD69bn in 2014, USD764bn in 2017 and USD1.16tn in 2018.

#### ■ Daiwa's key assumptions for our Big Data-enabled market forecasts\*

	2010	2011	2012	2013	2014E	2015E	2016E	2017E	2018E
<b>Data traffic/SCT/month (MB)</b>									
Smartphone	200	250	330	750	1,310	2,150	2,900	3,700	4,100
Feature phone	15	15	15	15	15	15	15	15	15
Notebook	1,600	1,850	2,130	2,430	2,700	2,850	3,000	3,100	3,150
Tablet PC	330	490	765	1,350	1,600	1,800	2,150	2,500	2,700
All other IoT+	63	63	63	98	136	171	248	410	593
<b>SCT shipment (m)</b>									
Smartphone	298	473	680	967	1,217	1,453	1,652	1,730	1,874
Feature phone	1,299	1,303	1,066	837	626	475	345	325	246
Notebook	204	210	204	180	180	175	173	171	170
Tablet PC	18	71	143	220	239	288	357	411	472
Smart TV	0	0	2	10	21	33	68	117	167
Wearable	0	0	2	6	20	65	145	320	600
All other IoT+	65	100	230	270	550	1,400	3,558	6,600	10,200
<b>Total data traffic/month (TB)</b>									
Smartphone	59,649	118,223	224,436	725,552	1,594,780	3,123,950	4,791,670	6,401,085	7,685,241
Feature phone	19,478	19,542	15,991	12,557	9,392	7,132	5,175	4,869	3,690
Notebook	327,174	387,914	435,492	438,504	486,673	500,147	518,940	530,876	534,044
Tablet PC	5,811	34,692	109,701	296,528	381,888	518,400	767,550	1,026,375	1,274,758
All other IoT+	4,095	6,300	14,585	27,048	77,520	250,515	916,863	2,837,200	6,402,780
Total data traffic per month	416,208	566,671	800,204	1,500,189	2,550,253	4,400,143	7,000,197	10,800,405	15,900,512
<b>SCT ASP (USD)</b>									
Smartphone	291	314	298	247	232	223	215	210	205
Feature phone	85	63	70	57	51	48	48	47	46
Notebook	733	726	714	711	703	697	692	685	680
Tablet PC	519	465	424	380	343	315	291	280	270
Smart TV	523	501	496	449	448	441	433	425	420
Wearable	150	150	150	170	220	230	200	170	120
All other IoT+	100	100	100	100	100	100	100	100	100
<b>SCT market value (USDbn)</b>									
<b>MCD</b>									
Smartphone	87	148	203	239	282	324	355	363	384
Tablet PC	9	33	61	83	82	91	104	115	127
Total MCD	96	181	264	322	364	415	459	478	512
<b>IoT+</b>									
Wearable	0	0	0	1	4	15	29	54	72
Smart TV	0	0	1	5	10	15	29	50	70
All other IoT+	7	10	23	27	55	140	356	660	1,020
<b>Total IoT+</b>	<b>7</b>	<b>10</b>	<b>24</b>	<b>33</b>	<b>69</b>	<b>169</b>	<b>414</b>	<b>764</b>	<b>1,162</b>
Feature phone	110	82	74	48	32	23	16	15	11
Notebook	150	152	146	128	127	122	120	117	115

Source: Daiwa estimates and forecasts

\*MB = megabytes, TP = terabytes

## Who would benefit?

Through our screening analysis as depicted below, we identify a total of 19 stocks (11 actively covered by **Daiwa's tech team with ratings, 8 actively followed** without ratings) which our team believes have exposure to the rising Big Data trend, while mostly possessing a solid foothold in the current MCD cycle to help bridge any gap during the transition of the 2 secular demand cycles. (Please refer to the table presented at the beginning of section one (page 7) which summarises our Big Data investment ideas at quick glance.)

### Investment themes on functionality

Although the Big Data-enabled markets look broad and complex in application scope, these new products still demand one or few functionalities from our perspective of the fundamental technologies that apply. In order to effectively facilitate our investment ideas to identify which stocks would benefit from this trend, we further categorize our focused Big Data-enabled market demand into 5 themes in the IT space in terms of functionality: data access, data process, data transmission, data storage and data security. Data commerce is a very sizeable IoT market but in this report we focus on the hardware of the IT industry.

Our focus is on companies that have built, or are building a solid foothold in one or a few of the food chains in these technology themes and that have a solid foundation in the MCD cycle and are scalable to the next cycle of IoT+.

We tend to see better business opportunities for the upstream chip & component suppliers than for the

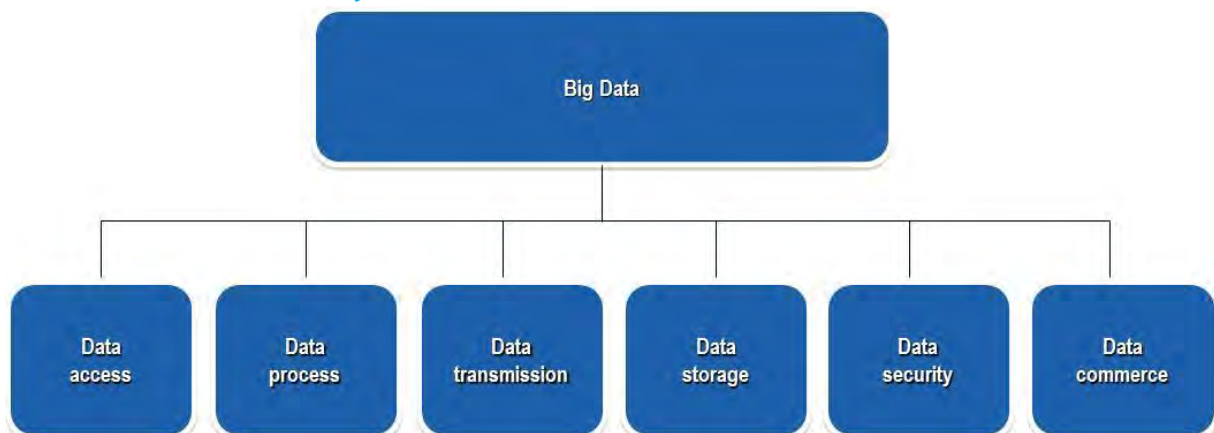
downstream box makers, since most of the technology firms in Asia under our coverage are hardware-oriented, where the upstream looks to stand a better chance to gain market share.

In our view, the businesses of most Asian technology **companies are a function of their customers'** businesses (primary), which in turn are a function of **box branders' business in the end-markets** (derivative). When the branders do well by capturing the right trend (Apple and Chinese branders, for example, gaining shares in the smartphone markets), their chip and component vendors do well; and in return, these Asian tech companies that supply chips and components and assemble them into boxes also do well.

Yet, while added-value in downstream assembly does not seem to be as high as that for upstream chips and components, and therefore scale and logistics management appear crucial, in our opinion, the upstream chip and component suppliers look to be **increasingly capable of sharing the driver's seat with** their customers to help locate the next demand trend, thus adding more value over the years.

For example, in the past 5 years, TSMC, ASE (2311 TT, TWD38.15, Outperform[2]), SPIL (2325 TT, TWD48.65, Buy[1]), MediaTek, Novatek (3034 TT, TWD175.50, Outperform [2]), Kinsus (3189 TT, TWD105.50, Hold[3]), Largan, Catcher (2474 TT, TWD243.00, Outperform[2]), Delta and Quanta have all hit new highs in share prices post the GFC, thanks to their strong foothold built in the MCD and cloud trends to gain market shares. Holtek (6202 TT, not rated) also hit a new high. Most of these names are chip and component makers.

#### ■ Big Data themes in terms of functionality



Source: Daiwa

### **Theme #1: Data access: sensors, DD and touch**

The functions of data access include data input and output. Differing from the old era of PCs and feature phones which relied heavily on keyboards, silicon-based light-sensing technology, or CMOS image sensors (CIS), has been applied broadly in MCDs. We believe this CMOS sensing technology will be the key focus for data access amid the Big Data trend since most of the data flows are mobile, with rising demand for not only existing CIS but a high variety of other MEMS sensors, including pressure sensors, motion sensors, temperature sensors, humidity sensors, voice sensors and even magnetic sensors to access virtually **all types of data in humans' lives.**

Our investment ideas here focus on CIS/MEMS related food-chain plays since, as illustrated by the chart on the next page, most of the sensor merchant supply (not for in-house use such as SEC) is controlled by vendors outside our coverage, such as Omnivision (OVTI US, not rated), Aptina (not listed), STMicroelectronic (STMicro, STM FP, not rated), Bosch (not listed), Freescale (FSL US, not rated), NXP (NXPI US, not rated) and InvenSense (INVN US, not rated). At the CIS chip end, a name to watch is GalaxyCore (not listed) given its home-town advantage in China. At the component end of CIS modules, Largan has a strong foothold here as its cash-cow to help bridge the Big Data cycle, in our view.

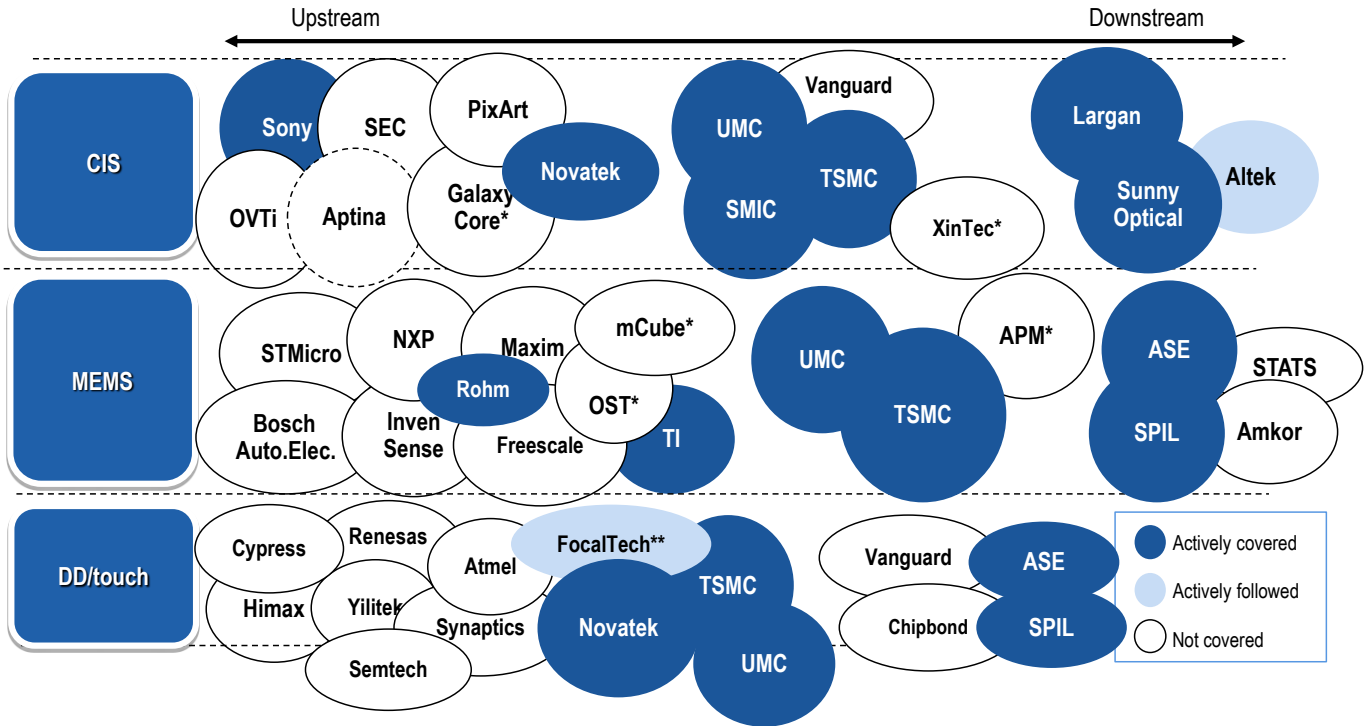
Novatek, though finding a strong foothold in its existing core business of display driver ICs (DD) and TV SoC, is penetrating into CIS and touch controller ICs with a 5MP (mega-pixels) CIS solution ready for applications like car DVRs and DSCs. We see Novatek as heading in the right direction of capitalizing on the Big Data trend.

Although MEMS vendors are mostly not on our radar screen, except Rohm (6963 JP, JPY7,500, Hold [3]), we see their food-chain partners – the semiconductor contract manufacture (SCM) players, as indirect beneficiaries in Asia. This is because many MEMS sensor chips are fabricated at foundries like TSMC and are packaged at outsourced semiconductor assembly & test (OSAT) makers like ASE. Some Asian fabless names are indeed actively penetrating into MEMS. For instance, we believe MediaTek is doing so through its investment in mCube (Not listed).

DD may be one side beneficiary of Big Data access since we expect a large variety of IoT+ devices to be equipped with LCD panels which demand DD to drive data output onto displays. Novatek looks to be in a better position here in our view, relative to peers focusing on small-size DDs (such as Yilitek [not listed] and Renesas [6723 JP, not rated][recently acquired by Synaptics]) which seems to be threatened by a trend towards the touch-integrated display driver IC (TDDi) that aims to integrate a touch function into DD for an **SoC solution.** **Novatek's food-chain** partners such as Vanguard (5347 TT, not rated) and Chipbond (6147 TT, not rated) are also names to watch.

Touch sensors/controllers have benefited from the MCD trend as one major data-input function and we expect the benefits to continue in the Big Data cycle since many IoT+ devices should still need touch-**display functions.** **However, this “touch” space may not** be so rosy since competition has risen from China, especially in the discrete touch IC segment, plus from **DD makers' penetration into the touch as a result** of the TDDi trend. Companies focusing on higher value-added segments like on-cell or in-cell touch IC solutions should be better off, in our view, where Orise is a company to watch, as it will be the surviving entity following a merger with FocalTech, which could diversify into the on-cell/in-cell segments.

■ Theme #1: data access - sensors, DD and touch



\*Not listed

\*\* FocalTech will merge with Orise on 2 January 2015

Source: Daiwa

Note: actively covered stocks have a Daiwa rating; actively followed and not covered stocks are not rated

**Theme #2: Data process: AP, MCU and cloud**

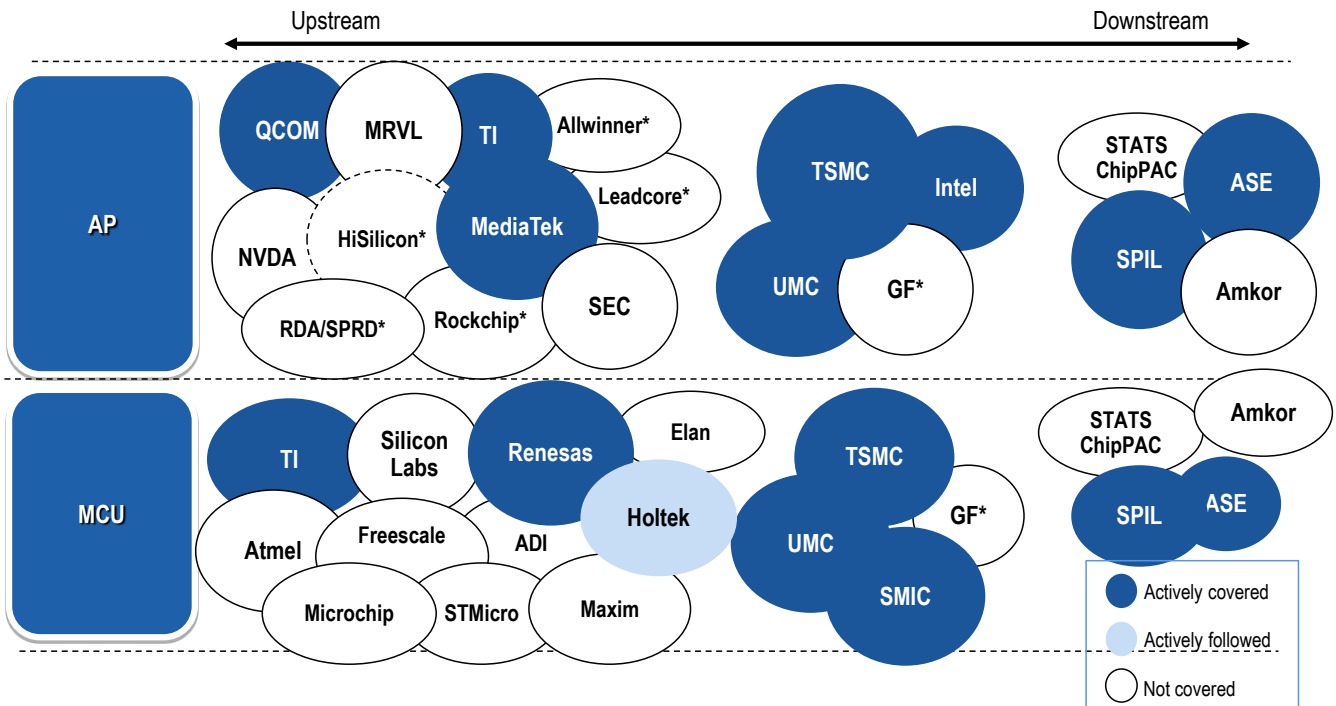
In a typical smart device like an MCD, data is processed after being accessed through either an application processor (AP) – one type of microprocessor (MPU) for heavily-loaded computation – or through a micro-controlling unit (MCU) for less complicated computation work, eg, microwaves, digital food scale, food processors, etc. This computing architecture should persist into IoT+ devices, since **most of them are supposed to be “smart” with computing capabilities**, either heavily loaded with AP or lightly loaded with MCU.

These constitute 2 of our focuses on the data process front, where key vendors include Qualcomm (QCOM US, USD74.99, Hold[3]), Marvell (MRVL US, not rated), MediaTek, HiSilicon (not listed), TI (TXN US, USD54.46, Hold [3]), Atmel (ATML US, not rated), STMicro, Renesas and SEC (mostly in-house use).

Our focus among Asian beneficiaries in the AP/MCU food-chain includes MediaTek (chip design), TSMC (chip foundry), ASE and SPIL (chip packaging). Other names to watch may be Holtek, HiSilicon, Leadcore (not listed) and SMIC (981 HK, HKD0.74, Sell [5]) on the back of China as a sizable demand market for IoT+ devices. But we dislike SMIC at the moment due to its company-specific transition on 28nm which is likely to be a drag on margins.

Data process comes at both ends of the equation – terminal devices on the ground and cloud computing/data centre in the air as discussed earlier. At the air end, data processing is very complex relative to the other end due to the mega-volume of data in computation and storage. We consolidate our discussion of this part into the subsection on data storage.

■ Theme #2: data process – AP, MCU and cloud



\*Not listed  
Source: Daiwa  
Note: actively covered stocks have a Daiwa rating; actively followed and not covered stocks are not rated

**Theme #3: Data transmission: connectivity and PA**

After data is accessed and processed, it requires transmission to ensure data communication on both sides of the equation (ground <-> air). Mobile data transmission is particularly crucial here since MCD and the majority of IoT+ devices should go wireless. Mobile connectivity such as 3G/4G baseband (BB), WiFi, Bluetooth (BT), GPS and near-field communication (NFC) chips that handle the “ground work”, and radio frequency (RF) solutions like power amplifiers (PA) that handle the “air work”, should be the key products to benefit, in our view.

At connectivity, key chip vendors are Broadcom (BRCM US, not rated), Qualcomm, Marvell, MediaTek, HiSilicon, RDA/Spreadtrum (not listed) and Realtek (2379 TT, TWD166, Underperform [4]). Our focus is MediaTek, given its strong foothold in integration of AP and connectivity in Asia. HiSilicon, RDA and Realtek may also benefit. In terms of food-chain beneficiaries, SCM makers are our focus, including TSMC, UMC, SMIC, ASE and SPIL, given their solid exposure in offering contract manufacturing services for AP/connectivity chips.

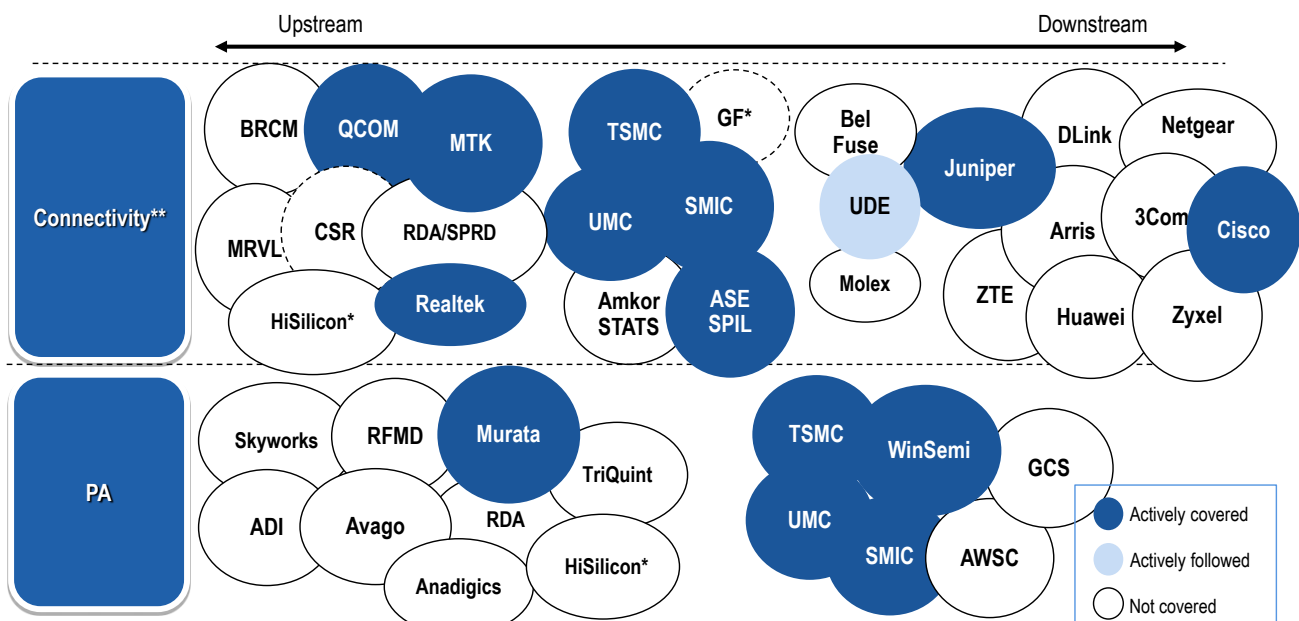
We would not focus on downstream box makers in Asia such as Huawei (not listed), DLink (2332 TT, not rated) and Zyxel (3704 TT, not rated) despite rising demand for their products, due to competition from global vendors like Cisco (CSCO US, USD28.46, Hold [3]),

Juniper (JNPR US, USD22.59, Hold [3]) and Netgear (NTGR US, not rated). Yet, component suppliers are worthy of attention in our opinion, due to the consolidated competition. Rising demand for networking devices such as switches and routers under Big Data should spur demand for Ethernet connectors (or RJ45 jacks), where most of the RJ45 market is controlled by BelFuse (BELFB US, not rated), Molex (acquired by Koch Industries, Inc.[not listed]), Pulse (PULS US, not rated) and UDE. UDE would be a name to watch in Asia.

In PAs, there are quite a few vendors like Avago (AVGO US, not rated), TriQuint (TQNT US, not rated), Skyworks (SWKS US, not rated), RF Micro Devices (RFMD, RFMD US, not rated) and HiSilicon, where our focused beneficiaries in Asia are Murata (6981 JP, JYP13,430, Outperform [2]), followed by **these PA vendors’ key foundry WinSemi (3105 TT, initiating coverage with Buy [1], see company section for more details) at the food chain.**

As opposed to silicon-based CMOS PA, we prefer gallium-arsenide (GaAs) solutions which WinSemi is focusing on, as we believe GaAs PA will control most of the global PA market especially under the trend of 4G/LTE migration which should require GaAs PA with better performances than CMOS PA. Both CMOS and GaAs PAs should co-exist in the IoT+ market which should be big enough to accommodate both solutions, in our view.

■ Theme #3: data transmission – connectivity and PA



\*Not listed, \*\*Including AP SoC which has embedded connectivity thus may reclassify as AP in the Data process theme

Source: Daiwa forecasts

Note: actively covered stocks have a Daiwa rating; actively followed and not covered stocks are not rated



**Theme #4: Data storage: eMemory and data centre**

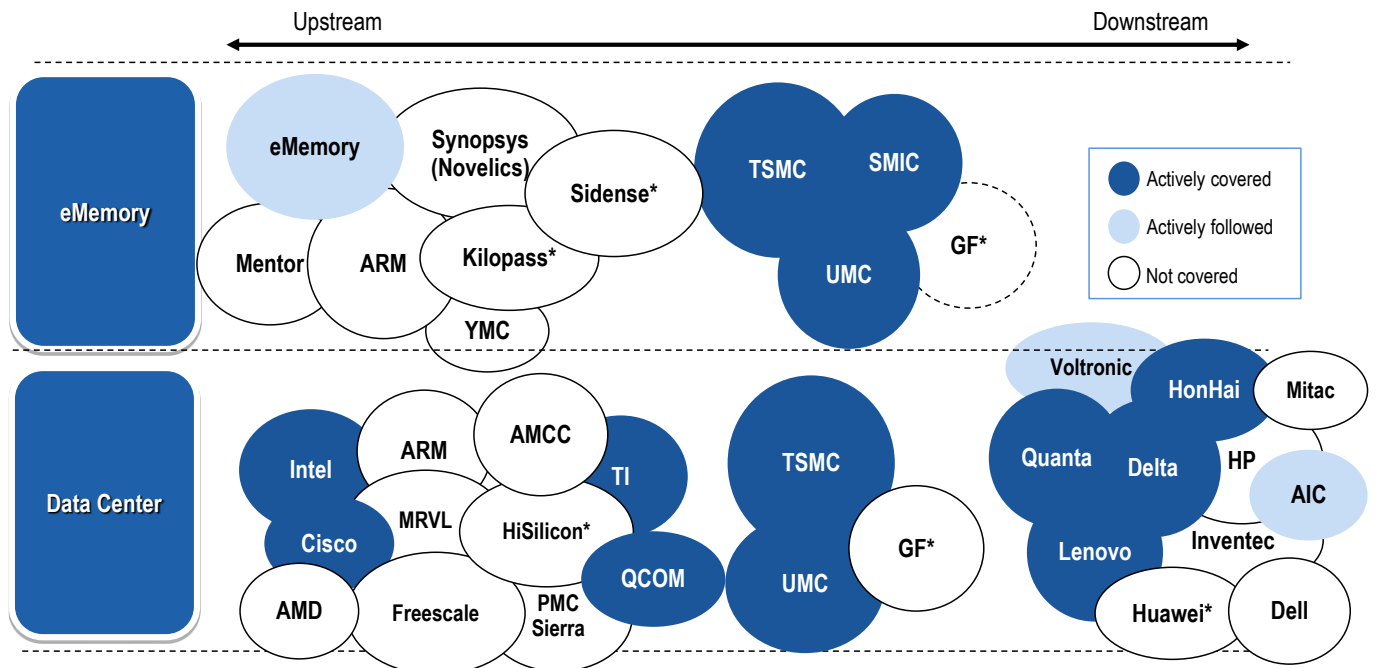
Whereas data access, process and transmission combined serves as the core function for a typical IoT device, data storage functions like a “back office” since data needs to be stored after being consumed and processed. We see data storage for the Big Data-enabled devices come with two layers as well.

At the ground layer, MCDs are virtually all equipped with storage capability such as through discrete mobile DRAM and data flash (NAND), as well as through embedded memories (eMemory) such as embedded code flash (NOR) and embedded non-volatile memories (NVM) that make logic chips smarter with programmable capabilities. We expect to see rising demand for eMemory solutions from IoT+ devices. Names to watch in this area include eMemory IP providers such as Synopsys (SNPS US, not rated), Sidense (not listed) and Kilopass (not listed). Our focus is eMemory (3529 TT, not rated) in Asia, given its broad eNVM and eFlash IP portfolio that covers a wide range of technology spectrum from 0.35µ to 20nm.

In the air layer, heavily loaded data storage is indeed the key to the Big Data ecosystem, which normally comes with hard disc drive (HDD) solutions, though NAND-based solid state drive (SSD) is gradually making an inroad. This data storage, combined with mainframe servers and related peripherals such as uninterrupted power system (UPS) and cooling system, forms a data center and cloud computing architecture.

In the cloud, we like TSMC on the component side which provides foundry services for networking processors and ARM-based server processors for the likes of Cisco, Marvell, AMD (AMD US, not rated), HiSilicon and even Qualcomm. The process technology levels required here are high and TSMC dominates in this domain (28nm and below). At ODM/OBM, beneficiaries include Delta, Hon Hai, Quanta, Lenovo and Voltronic (6409 TT, not rated).

■ Theme #4: data storage – eMemory and data centres



\*Not listed  
Source: Daiwa forecasts  
Note: actively covered stocks have a Daiwa rating; actively followed and not covered stocks are not rated

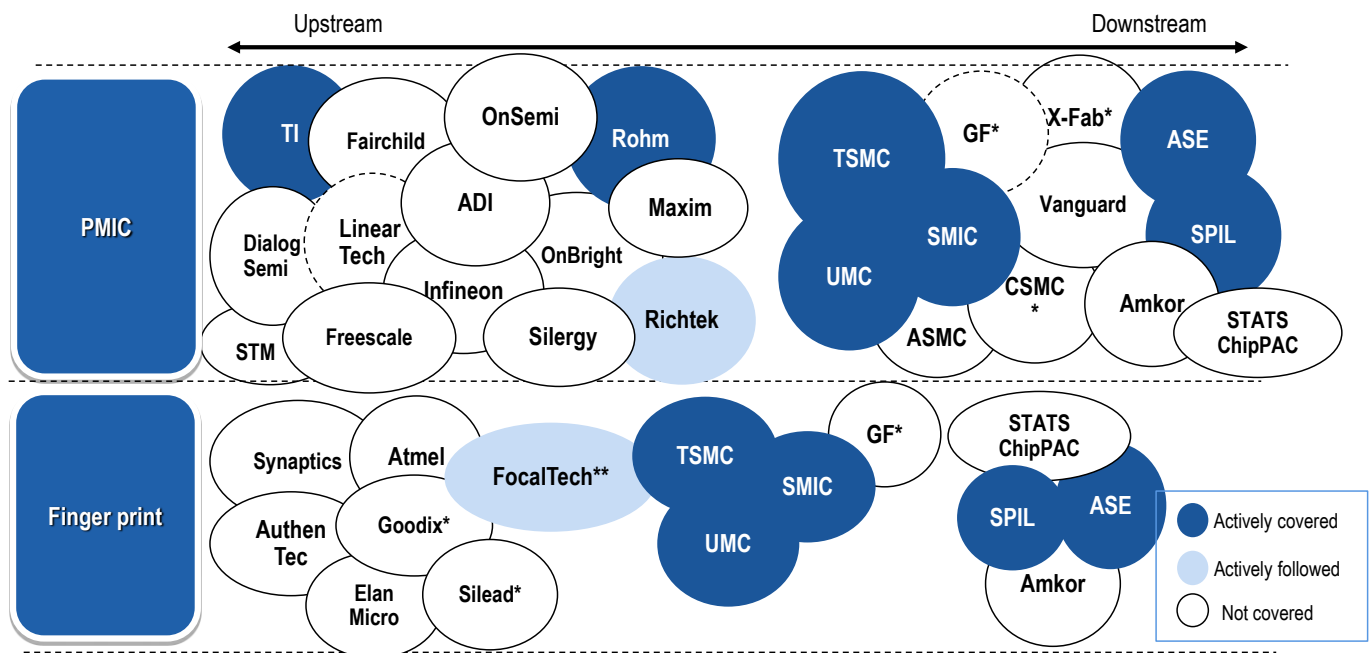
**Theme #5: Data security: PMIC and FP**

Data security is not a core function of Big Data-enabled devices but is crucial to ensure a safe and stable environment for data processing and transmission. Battery lives have been an issue for MCDs, but batteries could be improved for better power management and longer usage hours for mobile IoT+ devices. For this theme, we would focus on power management IC (PMIC) and finger-print (FP) sensor chips which we see as a better fit among other products in data security area. In this area, we pick PMIC and FP products. At the upstream end of the PMIC food chain, there are many chip vendors, such as TI, Linear Tech (LLTC US, not rated) and OnSemi (ONNN US, not rated). The names we would focus on in Asia are Rohm and Richtek. Through self-developments of MEMS

sensors like accelerometers and gyroscopes, and mini-server PMIC, Richtek looks to be further penetrating data access and the personal cloud, enlarging its Big Data exposure. Its SCM partners such as TSMC, Vanguard, ASE and SPIL should benefit accordingly.

In the FP food chain, key players are Synaptics (SYNA US, not rated), AuthenTec (acquired by Apple [AAPL US]) and Atmel. Asian names are newcomers in this space, but names to watch include Orise (the surviving entity following a merger with FocalTech), Goodix (not listed, invested by MediaTek) and Silead (not listed) at the chip-design end, and TSMC, UMC, SMIC, ASE and SPIL at the SCM end.

■ Theme #5: data security – PMIC and fingerprint



\*Not listed

\*\* FocalTech will merge with Orise on 2 January 2015

Source: Daiwa forecasts

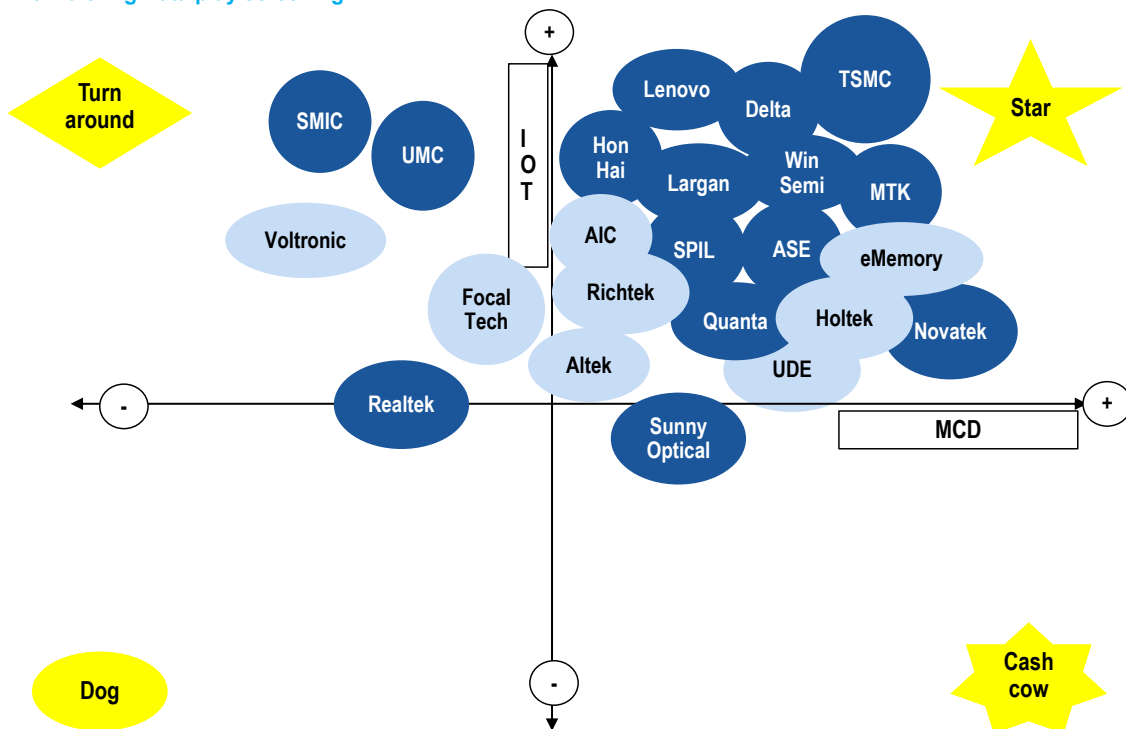
Note: actively covered stocks have a Daiwa rating; actively followed and not covered stocks are not rated

**Data commerce**

At this point in time, we are not including this area in our discussion as our tech team is focusing in this report on hardware in the IT industry. Yet, we would highlight that the data commerce market is potentially sizeable. Aggregate sales from Amazon (AMZN US, USD312.04, Hold [3]), Google, Tencent (700 HK, HKD113.40, Buy[1]), Facebook (FB US, USD80.02, Outperform [2]), Alibaba (BABA US, not rated) and Baidu (BIDU US, USD230.21, Buy [1]), for example, reached USD153bn in 2013, roughly half of the revenue size for the MCD space.

Below is a chart highlighting our investment screening strategy for the cherry-picks of Daiwa's Big Data plays mentioned in this report. In sum, our best breed (Star) are those that have a solid footing in the current MCD cycle and the right strategies to capitalize on the next Big Data cycle, followed by "turnaround" breeds whose current MCD foothold may not be strong, but which we think have the right strategies for Big Data.

■ Summary: Daiwa's Big Data play screening



Source: Daiwa

**Risks**

We foresee IoT in the Big Data cycle as the next big thing in the global IT industry. As such, the key risk to our view is if Big-Data enabled demand fails to grow as strongly as we expect, which could arise due to slower progress in industry standardisations. Under this scenario, our industry forecasts would turn out to be too bullish. In our coverage universe, the companies with the largest exposure to the Big Data trend include TSMC, Hon Hai, SPIL, ASE and MediaTek.

## Appendix

### ■ Glossary of terms

Terminology	Definition
Application processor (AP)	A system on a chip (SoC) solution designed to support applications running in a mobile operating system environment, such as Android, Apple iOS, Windows, etc.
Baseband (BB)	A telecommunication system in which information is carried in digital form on a single multiplexed signal channel on the transmission medium.
Complementary metal oxide semiconductor (CMOS)	CMOS is a type of transistor that produces either a positive (PMOS) or negative (NMOS) charge at any given time. Since one of the circuit types is always off, CMOS chips only draw significant power when switching between on and off modes. Thus, CMOS runs efficiently, using much less power than chips using just one type of transistor. CMOS process technology is widely used for a variety of logic and mixed-signal integrated circuits production.
Dynamic random access memory (DRAM)	A type of random-access memory that stores each bit of data in a separate capacitor within an integrated circuit. The capacitor can be either charged or discharged; these two states are taken to represent the two values of a bit, conventionally called 0 and 1. Since even "nonconducting" transistors always leak a small amount, the capacitors will slowly discharge, and the information eventually fades unless the capacitor charge is refreshed periodically.
Micro-controlling unit (MCU)	MCU is a micro-computer on a single integrated circuit containing a processor core, memory, and programmable input/output peripherals. It is designed for embedded applications which often require less complex computation work. Applications include microwaves, digital food scales, etc.
Microelectromechanical system (MEMS)	Tiny mechanical devices that are built onto semiconductor chips and are measured in micrometers. MEMS are made up of components between 1 to 100 micrometres in size (ie, 0.001 to 0.1mm), and MEMS devices generally range in size from 20 micrometers (20 millionths of a metre) to a millimetre (ie, 0.02 to 1.0mm). They usually consist of a central unit that processes data (the microprocessor) and several components that interact with the surroundings such as micro sensors.
Microprocessor (MPU)	An MPU incorporates the functions of a computer's central processing unit (CPU) on a single or at most a few ICs. It is a multipurpose, programmable device that accepts digital data as input, processes it according to instructions stored in its memory and provides results as output. MPU-based systems are used in traffic light controls, industrial controllers, gaming machine, calculators, etc.
Mobile Computing Devices (MCDs)	Portable devices capable of operating, executing and providing services and applications like a typical computing device. Examples are smartphones, tablet PCs, and some wearable devices.
NAND flash memory	A type of non-volatile memory technology that does not require power to retain data. It is commonly used in devices where large files are frequently uploaded and replaced; for example, MP3 players, digital cameras and USB drivers.
Near-field communication (NFC)	A wireless communication technology for smartphones or MCDs to establish radio communication with each other by touching them together or bringing them into close proximity.
Non-volatile memory (NVM)	Computer memory that can retain stored information when not powered. It is typically used as secondary storage or long-term persistent storage, whereas primary storage is a volatile form of random access memory (RAM). Limitations of NVM relative to RAM are higher cost and poorer performance.
Radio frequency power amplifier (RF PA)	A type of electronic amplifier designed to convert a low-power radio-frequency signal into a larger signal of significant power, typically for driving the antenna of a transmitter.
Touch-integrated display driver IC (TDDi)	Integration of the touch sensors into the display, as well as to integrate the touch controller and display driver functions in a single IC.
White-box server	Density-optimised servers with minimal or "no frills" designs, as a result of the removal of anything that does not improve a data centre's operating efficiency, such as spare memory, bezels, and brand logos.

Source: Daiwa, Wikipedia

When a report covers six or more subject companies please access important disclosures for Daiwa Capital Markets Hong Kong Limited at [http://www.daiwacm.com/hk/research\\_disclaimer.html](http://www.daiwacm.com/hk/research_disclaimer.html) or contact your investment representative or Daiwa Capital Markets Hong Kong Limited at Level 26, One Pacific Place, 88 Queensway, Hong Kong.

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# Initiation

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## Win Semiconductors

3105 TT

# Initiation: Big Data traffic builder

- Looks well positioned to ride on the current mobile computing device cycle and next Internet of Things (IoT) cycle
- Demand drivers: 1) organic growth from migration to 4G; 2) inorganic growth from strong growth in IoT demand
- Initiating with Buy (1) rating and target price of TWD40

Target (TWD): **40.00**  
Upside: **34.0%**  
29 Dec price (TWD): **29.85**

- 1 Buy (initiation)
- 2 Outperform
- 3 Hold
- 4 Underperform
- 5 Sell

How do we justify our view?



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### Investment case

We initiate coverage of WinSemi with a Buy (1) rating. **As the world's largest gallium-arsenide (GaAs) power-amplifier (PA) foundry**, WinSemi looks well-placed to benefit from the current mobile computing device (MCD) cycle and the next Big Data-enabled Internet of things (IoT) wave we envisage by acting as a data traffic builder.

### Catalysts

We believe WinSemi is entering into a new cycle of a structural improvement in profitability, driven by: 1) organic growth from migration to the 4G cellular standard, and 2) inorganic growth from high IoT demand.

**Organic growth: migration to 4G.** As WinSemi derives over 80% of its revenue from the global mobile handsets market on our estimates, its business is driven heavily by smartphone demand. Though we expect smartphone demand to slow, we believe migration to the 4G standard will lift the PA content per device and thus support good revenue growth for WinSemi for 2015-16.

**Inorganic growth: IoT market.** We forecast the global IoT+ market (ie, all new IoT devices ex-MCD) to enjoy strong growth in size, exceeding USD1tn in 2018E. As the PA is a vital chip for most IoT devices dealing with mobile data transmission, we expect new IoT+ demand to expand the size of **WinSemi's addressable market** and bring a new business growth driver mid-to-long term.

### Market concerns overdone.

Concerns that multiband multimode PA (MMPA) could dampen demand for **WinSemi's wafers** and complementary metal oxide semiconductor (CMOS) PA could substitute its GaAs PA look priced in; we expect robust GaAs PA demand given its superior qualities.

### Valuation

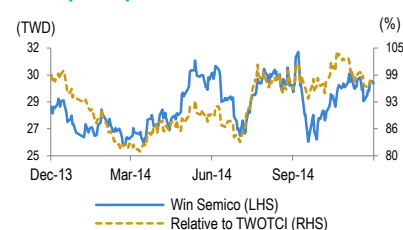
Our 12-month target price is TWD40, based on an ROE-adjusted PBR of 1.8x applied to our 2015E

BVPS. Our target price implies a 12-month forward PER of 13x, which we consider undemanding as we expect a 16% EPS CAGR in 2014-16.

### Risks

We see the key risk as CMOS PA substituting WinSemi's GaAs PA.

### Share price performance



12-month range	25.70-31.75
Market cap (USDbn)	0.70
3m avg daily turnover (USDm)	5.42
Shares outstanding (m)	742
Major shareholder	Nan Shan Life Insurance (6.4%)

### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	9,817	11,114	12,783
Operating profit (m)	2,313	2,774	3,166
Net profit (m)	1,935	2,284	2,602
Core EPS (fully-diluted)	2.585	3.052	3.476
EPS change (%)	9.1	18.0	13.9
Daiwa vs Cons. EPS (%)	7.9	26.7	50.8
PER (x)	11.5	9.8	8.6
Dividend yield (%)	5.4	5.7	6.4
DPS	1.6	1.7	1.9
PBR (x)	1.4	1.3	1.2
EV/EBITDA (x)	5.0	4.4	4.1
ROE (%)	12.7	14.1	15.0

Source: FactSet, Daiwa forecasts

- 1 Buy (initiation)
- 2 Outperform
- 3 Hold
- 4 Underperform
- 5 Sell

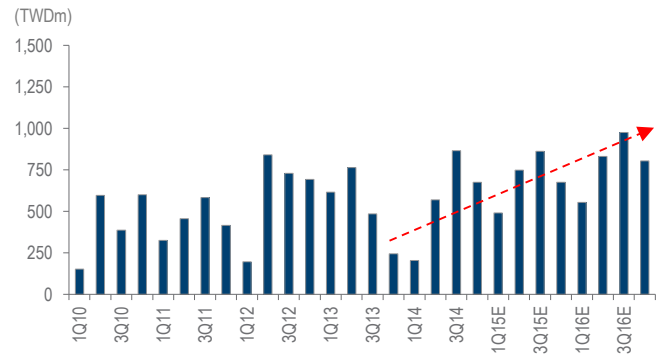
*How do we justify our view?*

- Growth outlook ✓✓✓✓✓
- Valuation ✓✓✓✓✓
- Earnings revisions ✓✓✓✓✓

■ Growth outlook ✓✓✓✓✓

We believe WinSemi offers a promising quarterly operating profit growth outlook over our forecast period. Its operating profit reached a quarterly trough in 1Q14, but we believe it has passed the headwinds caused by **customers' inventory cutbacks and some customers** adopting the multiband multimode PA (MMPA) rather than single-mode PA (which hurt PA wafer demand volumes in 2H13), and is entering a new structural growth cycle. Operating profit rebounded QoQ in 2Q14 and further to a record quarterly high in 3Q14. Post seasonal QoQ weakness we expect for 4Q14 and 1Q15 we expect renewed operating profit growth over 2Q15-2016 amid migration to the 4G mobile standard and as the company ramps up its presence in the IoT+ market.

■ WinSemi: quarterly operating profit trend



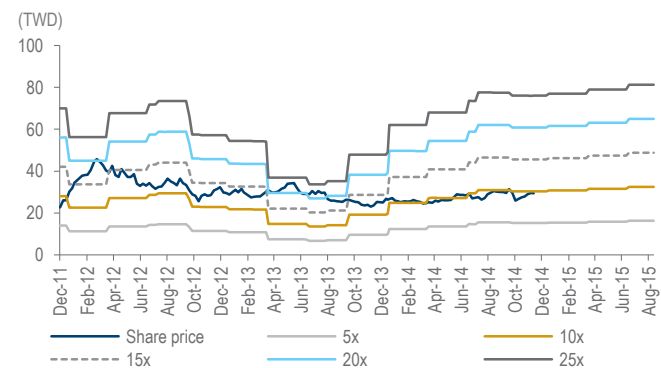
Source: Company, Daiwa forecasts

■ Valuation ✓✓✓✓✓

We use an ROE-adjusted PBR method to value foundry stocks like WinSemi, as we believe it captures well a **foundry's structural profitability during the course of the** highly cyclical chip industry and benchmarking it against a theoretical fair value.

Still, **we believe looking at WinSemi's forward PER bands** is an effective valuation tool to help gauge its stock volatility and time investments in it. WinSemi traded in a 12-month forward PER range of 10-15x between its December 2011 IPO and its share-price correction in 3Q13 and now trades at a 2015E PER of just 9.8x. This looks attractive as it implies a PEG of well below 1x (about 0.6x) on our forecast of a 16% net profit CAGR in 2014-16.

■ WinSemi: 12-month forward PER bands

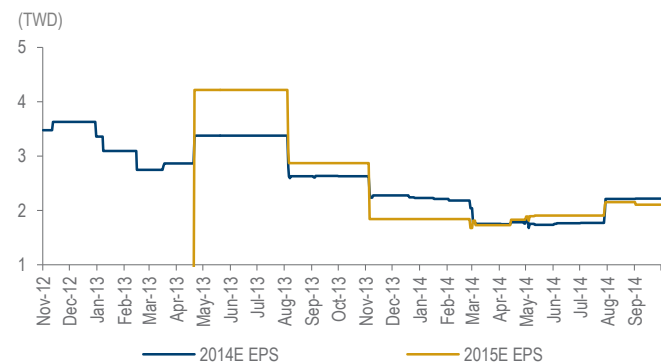


Source: TEJ, Company, Daiwa forecasts

■ Earnings revisions ✓✓✓✓✓

The Bloomberg consensus started raising its 2014-15 EPS forecasts for WinSemi in 2H14, on the back of the **company's strong financial showing in 3Q14**. We expect to see more upward revisions in the coming months, as we believe the consensus under-estimates the strength of **WinSemi's fundamentals. Reflecting our more bullish** view on its fundamentals, our 2015-16E EPS are 27-51% higher than the consensus numbers, though we note that a comparison could be misleading as WinSemi is an under-covered stock for which there is only a small consensus earnings sample.

■ WinSemi: consensus EPS forecast revision trend



Source: Bloomberg

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Wafer Shipment (wpy)	n.a.	n.a.	n.a.	211,659	206,078	206,280	251,910	307,170
Utilization Rate (%)	n.a.	n.a.	n.a.	82	73	72	85	89
ASP (US\$)	n.a.	n.a.	n.a.	1,797	1,705	1,579	1,471	1,387

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cellular	n.a.	n.a.	n.a.	6,005	5,669	4,904	5,323	5,904
Infrastructure	n.a.	n.a.	n.a.	1,528	1,610	2,208	2,767	3,540
Other Revenue	n.a.	n.a.	n.a.	3,705	3,202	2,705	3,024	3,339
<b>Total Revenue</b>	<b>4,790</b>	<b>6,982</b>	<b>8,901</b>	<b>11,238</b>	<b>10,481</b>	<b>9,817</b>	<b>11,114</b>	<b>12,783</b>
Other income	0	0	0	0	0	0	0	0
COGS	(3,565)	(4,903)	(6,097)	(7,598)	(7,249)	(6,381)	(7,151)	(8,253)
SG&A	(359)	(467)	(577)	(652)	(627)	(592)	(633)	(725)
Other op. expenses	(234)	(415)	(450)	(530)	(495)	(531)	(556)	(639)
<b>Operating profit</b>	<b>633</b>	<b>1,197</b>	<b>1,777</b>	<b>2,457</b>	<b>2,110</b>	<b>2,313</b>	<b>2,774</b>	<b>3,166</b>
Net-interest inc./(exp.)	(11)	(42)	(58)	(98)	(64)	(40)	(31)	(34)
Assoc/forex/extraord./others	(59)	554	(550)	(431)	167	102	60	60
<b>Pre-tax profit</b>	<b>563</b>	<b>1,709</b>	<b>1,170</b>	<b>1,928</b>	<b>2,212</b>	<b>2,375</b>	<b>2,803</b>	<b>3,192</b>
Tax	(4)	(0)	109	(281)	(401)	(440)	(518)	(591)
Min. int./pref. div./others	0	0	0	0	0	0	0	0
<b>Net profit (reported)</b>	<b>559</b>	<b>1,709</b>	<b>1,279</b>	<b>1,648</b>	<b>1,812</b>	<b>1,935</b>	<b>2,284</b>	<b>2,602</b>
<b>Net profit (adjusted)</b>	<b>559</b>	<b>1,709</b>	<b>1,279</b>	<b>1,648</b>	<b>1,812</b>	<b>1,935</b>	<b>2,284</b>	<b>2,602</b>
<b>EPS (reported)(TWD)</b>	<b>0.942</b>	<b>2.839</b>	<b>2.045</b>	<b>2.448</b>	<b>2.402</b>	<b>2.608</b>	<b>3.078</b>	<b>3.506</b>
<b>EPS (adjusted)(TWD)</b>	<b>0.942</b>	<b>2.839</b>	<b>2.045</b>	<b>2.448</b>	<b>2.402</b>	<b>2.608</b>	<b>3.078</b>	<b>3.506</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>0.936</b>	<b>2.768</b>	<b>1.971</b>	<b>2.404</b>	<b>2.369</b>	<b>2.585</b>	<b>3.052</b>	<b>3.476</b>
<b>DPS (TWD)</b>	<b>0.000</b>	<b>0.853</b>	<b>0.830</b>	<b>1.688</b>	<b>1.476</b>	<b>1.600</b>	<b>1.700</b>	<b>1.900</b>
<b>EBIT</b>	<b>633</b>	<b>1,197</b>	<b>1,777</b>	<b>2,457</b>	<b>2,110</b>	<b>2,313</b>	<b>2,774</b>	<b>3,166</b>
<b>EBITDA</b>	<b>1,333</b>	<b>2,176</b>	<b>2,811</b>	<b>3,764</b>	<b>3,932</b>	<b>4,193</b>	<b>4,555</b>	<b>5,421</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	563	1,709	1,170	1,928	2,212	2,375	2,803	3,192
Depreciation and amortisation	700	979	1,034	1,307	1,822	1,879	1,781	2,255
Tax paid	(4)	(0)	109	(281)	(401)	(440)	(518)	(591)
Change in working capital	(151)	(261)	(478)	(572)	887	(550)	150	(600)
Other operational CF items	(291)	210	31	508	478	0	0	0
<b>Cash flow from operations</b>	<b>819</b>	<b>2,638</b>	<b>1,865</b>	<b>2,890</b>	<b>4,998</b>	<b>3,264</b>	<b>4,215</b>	<b>4,257</b>
Capex	(1,108)	(2,378)	(3,336)	(3,317)	(2,815)	(1,000)	(2,100)	(5,250)
Net (acquisitions)/disposals	0	0	0	0	0	0	0	0
Other investing CF items	(729)	(1,448)	(172)	(639)	1,233	0	0	0
<b>Cash flow from investing</b>	<b>(1,837)</b>	<b>(3,826)</b>	<b>(3,508)</b>	<b>(3,956)</b>	<b>(1,583)</b>	<b>(1,000)</b>	<b>(2,100)</b>	<b>(5,250)</b>
Change in debt	1,138	909	2,076	718	(2,942)	(744)	(595)	1,524
Net share issues/(repurchases)	0	0	304	3,029	(515)	0	0	0
Dividends paid	0	0	(513)	(519)	(1,136)	(1,113)	(1,187)	(1,261)
Other financing CF items	55	219	164	51	112	100	100	100
<b>Cash flow from financing</b>	<b>1,193</b>	<b>1,128</b>	<b>2,030</b>	<b>3,279</b>	<b>(4,481)</b>	<b>(1,757)</b>	<b>(1,683)</b>	<b>362</b>
Forex effect/others	0	0	0	0	0	0	0	0
<b>Change in cash</b>	<b>174</b>	<b>(60)</b>	<b>388</b>	<b>2,213</b>	<b>(1,065)</b>	<b>507</b>	<b>433</b>	<b>(631)</b>
Free cash flow	(289)	260	(1,470)	(427)	2,183	2,264	2,115	(993)

Source: FactSet, Daiwa forecasts



## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	1,033	2,010	2,399	5,039	3,714	4,221	4,653	4,022
Inventory	970	1,369	1,894	2,101	1,127	1,677	1,477	2,127
Accounts receivable	616	481	653	1,049	650	950	900	1,200
Other current assets	97	243	620	675	198	200	200	200
<b>Total current assets</b>	<b>2,716</b>	<b>4,104</b>	<b>5,566</b>	<b>8,865</b>	<b>5,689</b>	<b>7,048</b>	<b>7,231</b>	<b>7,550</b>
Fixed assets	7,180	8,685	11,267	13,228	12,636	11,804	11,901	14,959
Goodwill & intangibles	183	338	250	128	624	250	250	250
Other non-current assets	1,519	1,762	1,516	1,370	2,162	2,162	2,162	2,162
<b>Total assets</b>	<b>11,598</b>	<b>14,889</b>	<b>18,599</b>	<b>23,591</b>	<b>21,112</b>	<b>21,264</b>	<b>21,543</b>	<b>24,920</b>
Short-term debt	226	365	0	0	0	0	0	0
Accounts payable	869	871	1,090	1,122	635	935	835	1,185
Other current liabilities	925	2,114	1,976	2,464	1,692	1,589	1,445	1,576
<b>Total current liabilities</b>	<b>2,021</b>	<b>3,351</b>	<b>3,066</b>	<b>3,586</b>	<b>2,327</b>	<b>2,524</b>	<b>2,281</b>	<b>2,761</b>
Long-term debt	2,703	2,662	5,484	5,559	3,721	2,977	2,382	3,905
Other non-current liabilities	3	2	4	21	171	148	170	201
<b>Total liabilities</b>	<b>4,727</b>	<b>6,015</b>	<b>8,554</b>	<b>9,166</b>	<b>6,220</b>	<b>5,649</b>	<b>4,832</b>	<b>6,868</b>
Share capital	5,980	6,176	6,486	7,542	7,393	7,393	7,393	7,393
Reserves/R.E./others	892	2,698	3,559	6,883	7,499	8,222	9,319	10,659
<b>Shareholders' equity</b>	<b>6,871</b>	<b>8,874</b>	<b>10,045</b>	<b>14,425</b>	<b>14,892</b>	<b>15,615</b>	<b>16,712</b>	<b>18,052</b>
Minority interests	0	0	0	0	0	0	0	0
<b>Total equity &amp; liabilities</b>	<b>11,598</b>	<b>14,889</b>	<b>18,599</b>	<b>23,591</b>	<b>21,112</b>	<b>21,264</b>	<b>21,543</b>	<b>24,920</b>
EV	24,046	23,165	25,233	22,668	22,157	20,905	19,877	22,032
<b>Net debt/(cash)</b>	<b>1,897</b>	<b>1,017</b>	<b>3,084</b>	<b>520</b>	<b>8</b>	<b>(1,243)</b>	<b>(2,272)</b>	<b>(117)</b>
<b>BVPS (TWD)</b>	<b>11.568</b>	<b>14.741</b>	<b>16.063</b>	<b>21.434</b>	<b>19.746</b>	<b>21.044</b>	<b>22.522</b>	<b>24.329</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	29.3	45.8	27.5	26.3	(6.7)	(6.3)	13.2	15.0
EBITDA (YoY)	17.9	63.3	29.2	33.9	4.4	6.6	8.6	19.0
Operating profit (YoY)	2.0	89.2	48.5	38.3	(14.1)	9.7	19.9	14.2
Net profit (YoY)	15.4	205.5	(25.2)	28.9	10.0	6.8	18.0	13.9
Core EPS (fully-diluted) (YoY)	14.5	195.8	(28.8)	21.9	(1.4)	9.1	18.0	13.9
Gross-profit margin	25.6	29.8	31.5	32.4	30.8	35.0	35.7	35.4
EBITDA margin	27.8	31.2	31.6	33.5	37.5	42.7	41.0	42.4
Operating-profit margin	13.2	17.1	20.0	21.9	20.1	23.6	25.0	24.8
Net profit margin	11.7	24.5	14.4	14.7	17.3	19.7	20.6	20.4
ROAE	8.5	21.7	13.5	13.5	12.4	12.7	14.1	15.0
ROAA	5.4	12.9	7.6	7.8	8.1	9.1	10.7	11.2
ROCE	6.9	11.0	13.0	13.8	10.9	12.4	14.7	15.4
ROIC	7.4	12.8	15.4	15.0	11.6	12.9	15.7	15.9
Net debt to equity	27.6	11.5	30.7	3.6	0.1	n.a.	n.a.	n.a.
Effective tax rate	0.6	0.0	n.a.	14.6	18.1	18.5	18.5	18.5
Accounts receivable (days)	34.5	28.7	23.2	27.6	29.6	29.8	30.4	30.0
Current ratio (x)	1.3	1.2	1.8	2.5	2.4	2.8	3.2	2.7
Net interest cover (x)	59.5	28.7	30.9	25.0	33.0	57.8	89.5	93.1
Net dividend payout	0.0	30.0	40.6	69.0	61.4	61.3	55.2	54.2
Free cash flow yield	n.a.	1.2	n.a.	n.a.	9.9	10.2	9.6	n.a.

Source: FactSet, Daiwa forecasts

### ■ Company profile

Founded in 1999, Win Semiconductors Corp (**WinSemi**) is the world's largest compound semiconductor foundry, focusing on gallium-arsenide (GaAs) foundry services for customers in the wireless and fixed-line communication markets and infrastructure applications. It has a diverse technology portfolio of processes that support microwave frequency requirements from 50MHz to 100GHz. End-market applications for its products encompass smartphones, tablet PCs, infrastructure base-stations, very small aperture terminal (VSAT) hubs, fibre optics, cable televisions (CATV) and the automotive industry.

## Big Data traffic builder

*WinSemi stands to benefit from the current MCD cycle and the next Big Data-enabled IoT cycle, given its strategic position in the mobile communication ecosystem, acting as a data traffic builder.*

### Initiating with a Buy call

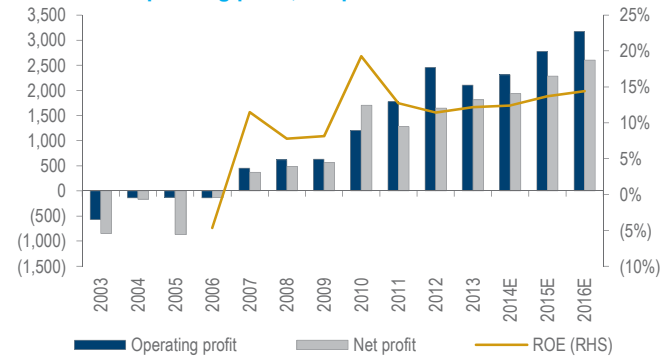
We initiate coverage of WinSemi with a Buy (1) rating and a 12-month target price of TWD40.

WinSemi is the world's largest dedicated gallium-arsenide (GaAs) foundry by revenue for 2014E (on our forecasts and industry analysis). The company provides foundry services (ie, manufacturing) for power amplifier (PA) ICs made using GaAs, which is a compound of the elements gallium and arsenic, is one of the main substrate materials (alongside silicon) used for ICs and offers fast electron travel speeds. End-product applications for WinSemi's products include mobile computing devices (MCD), and new smart connected devices, notably Internet of things (IoT). PAs are a vital chip for the majority of IoT devices that deal with data mobile transmission, including for all mobile devices that use radio frequency (RF) in microwave communications.

As such, we believe WinSemi fits well in our Big Data theme for 2015 and is poised to enjoy solid business growth from both the current MCD cycle and the next Big Data-enabled IoT cycle and burgeoning IoT+market, which encompasses the market for all new IoT devices excluding MCDs.

For a full analysis of the MCD and IoT markets, see our Big Data tech theme report, [Asia ex-Japan Tech Sector: Big Data: the next big thing](#).

■ WinSemi: operating profit, net profit and ROE trend



Source: Company, Daiwa forecasts

WinSemi saw muted earnings growth for 2013, and we forecast soft growth for 2014 (net profit up by 7% YoY), due to inventory cutbacks at some of its customers and some customers adopting the MMPA instead of discrete GaAs PA. However, we consider both these factors as short-lived trends which are now behind WinSemi, as evidenced by its YoY and QoQ earnings rebound in 3Q14. We believe WinSemi is entering into a new cycle of structural improvements in its profitability and forecast an earnings growth pick-up over 2015-16 and thus a net profit CAGR of 16% for 2014-16. We expect its single-year ROE to increase from 12% in 2013-14 to 14% in 2016, driven by 2 structural demand engines: 1) organic growth from migration to the 4G cellular standard within the MCD market, and 2) inorganic growth from the emergence of high demand for IoT products.

Note that WinSemi is currently an under-covered company with operations in the niche compound semiconductor industry. To help readers familiarise themselves with WinSemi and its industry, we provide a detailed Company profile and market analysis section further on in this report.

### Organic growth: 4G migration

WinSemi's customers include Murata (6981 JP, JYP13,430, Outperform [2]), Avago, Skyworks, RFMD and HiSilicon (all not rated) – all primary customers. The majority of its products are used in mobile (wireless) communications that cover end-devices like smartphones, tablets and related infrastructure devices such as base stations and WiFi routers. (See the Company profile and market analysis section further on for details.)

Smartphones are the main end-devices for WinSemi. The global mobile handset industry indirectly accounts for more than **80% of the company's revenue**, on our estimates, since the majority of the PA products it manufactures are sold on to smartphone vendors, such as the global brands Apple (AAPL US, USD113.91, Hold [3]) and Samsung Electronics (SE) (not rated), and China brands Huawei, Xiaomi (both unlisted) and Lenovo (992 HK, HKD10.18, Hold [3]) – making these smartphone brands derivative customers of WinSemi. Thus, within the current MCD cycle, WinSemi's business is driven heavily by global smartphone demand.

**Smartphone demand likely to slow ...**

In the context of WinSemi's high revenue exposure to smartphones, we forecast global smartphone demand to moderate over the next few years as it reaches saturation point, with shipment growth decelerating from 26% YoY for 2014E to 19% for 2015E and just 7% YoY for 2017E. However, we are not concerned about this for WinSemi despite the bulk of its business being a function of smartphone demand. This is because, despite the slowdown we envisage in smartphone demand growth, we expect the PA content per smartphone to increase substantially thanks to the cellular communication standard migration from 3G to 4G within the smartphone industry, thereby driving **demand for WinSemi's GaAs PA products**, as we go on to discuss.

**Global smartphone shipments (m units)**

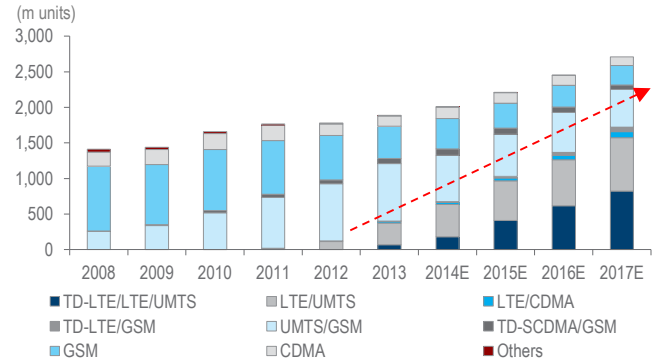


Source: Daiwa estimates and forecasts

**... But migration to 4G standard should drive up the PA content per device**

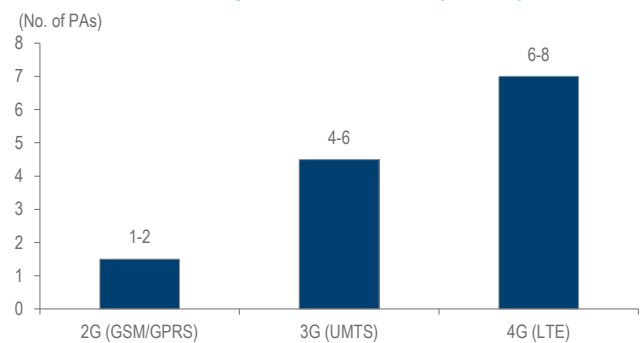
According to research consultancy Navian, 4G/LTE penetration in the smartphone market should rise from 21% in 2013 to around 34% in 2014, more than 45% in 2015 and exceed 60% in 2017. This should spur **smartphones' PA consumption, such that** the latter should outpace smartphone shipment growth over the next few years, as we go on to describe.

**Global mobile handset market: 4G penetration levels**



Source: Navian

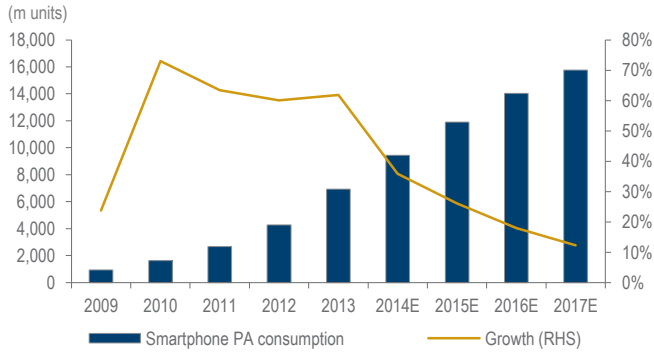
**Estimated PA count per mobile handset (current)**



Source: Daiwa estimates

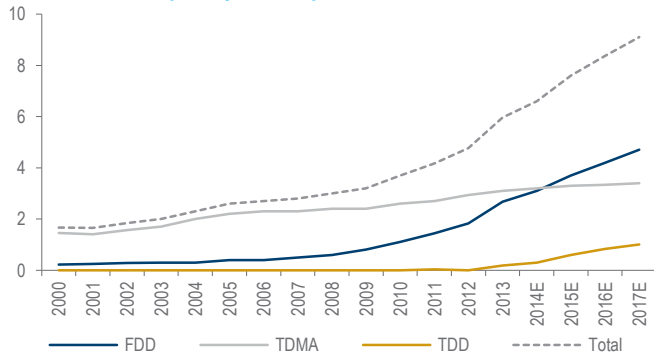
Based on our market research, we estimate the PA count per smartphone is currently 4-6 units for a 3G-configured smartphone and 6-8 units for a 4G smartphone; the 4G range could be wider depending on the number of frequency bands a 4G smartphone covers. This implies that, though we forecast global smartphone shipments to increase at a 13% CAGR over 2014-17, we expect the total number of PAs used in smartphones globally to rise at almost a 20% CAGR over this period, outpacing considerably smartphone shipment growth. We believe this bodes well for WinSemi given it produces PAs for its customers that then sell their products containing these PAs on to smartphone vendors.

■ **Global smartphone PA consumption\***



Source: Daiwa estimates and forecasts  
Note: \* Includes cellular PA and WiFi PA

■ **Number of frequency bands per mobile handset**



Source: Navian

In addition to rising smartphone PA consumption on the back of migration to the 4G standard over the next few years, we expect to see an increasing number of infrastructure device upgrades using a higher PA count, in order to facilitate data communications of the 4G smartphones – such as 4G base stations, which also require a higher PA count per device.

All in all, we expect the migration to 4G to support organic business growth for WinSemi in 2 ways from 2015 onwards – growth from rising PA consumption per smartphone at the terminal end, and growth from rising PA consumption per device at the infrastructure end.

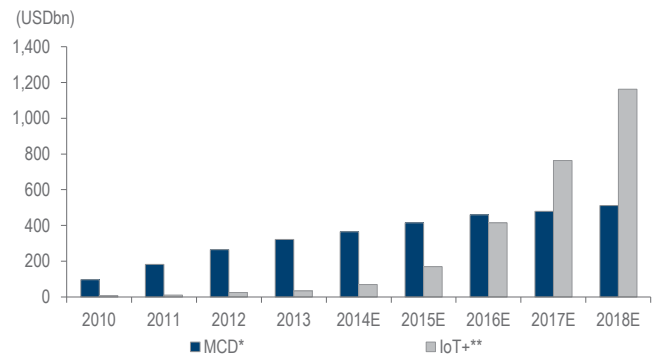
**Inorganic growth: IoT market**

In our sector Big Data theme report, we discuss how we expect that, despite a likely slowdown in the MCD market in 2015 and subsequent years as it reaches saturation point, IoT demand should abound and compensate for a slowing MCD market, albeit the transition from the MCD to the IoT market may not be smooth. We forecast the size of the global IoT+ market (ie, all new IoT devices excluding MCD) to increase at a CAGR of about 100% over 2014-18, overtaking the size

of the MCD market in 2017 and exceeding USD1tn in 2018.

Given the PA is a crucial chip for the majority of the IoT devices dealing with mobile data transmission, we expect burgeoning IoT+ demand to bring an inorganic business growth driver for WinSemi, which should benefit from an acceleration of the IoT+ market we envisage post the MCD-to-IoT transition of 2015-16, and thus from a structural expansion of its overall addressable market.

■ **Global market sizes: IoT+ vs. MCD**



Source: Daiwa estimates and forecasts  
Note: \*MCD includes smartphones and tablets; IoT+ includes all new IoT devices excluding MCD

On the back of our forecast for newly created IoT+ devices to amount to 6.6bn units in 2017, assuming that 1 device is equipped with 1 PA at an ASP of 30 US cents, additional PA demand of nearly USD2bn globally should be generated in 2017, which equals some **6x WinSemi's 2014 revenue of USD327m** based on our forecasts. By comparison, we expect the global **smartphone market's PA consumption to be about USD3bn** by value in 2014, implying that IoT+ devices would create a market comparable in size to the current smartphone PA market by 2017.

**Valuation**

We employ an ROE-adjusted PBR methodology to value the semiconductor foundry stocks including WinSemi, as we believe this method captures well a **foundry's structural profitability during the** course of the highly cyclical chip industry and benchmarking it against a theoretical fair value.

WinSemi traded at an average PBR of 1.8x between its IPO in December 2011 and 3Q13. Its single-year ROE during a broadly comparable window in 2010-13 averaged 14%. From 3Q13, when WinSemi entered a period of contracting earnings (explained in this report – see too our quarterly P&L table further on for details)

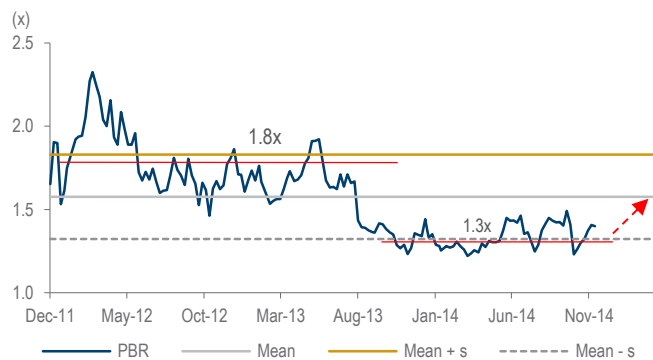
to 1Q14, the stock corrected and traded at an average PBR of 1.3x. However, on the back of our forecast for **WinSemi's single-year ROE to improve to an average level of 14% over 2014-16E, the stock's fair PBR deserves to rerate to its average level in December 2011-3Q13, in our opinion.**

We derive an ROE-adjusted PBR of 1.8x for WinSemi by comparing our average single-year ROE forecast of 14% for the company over 2014-16E with its average 12% single-year ROE over 2007-14E. This yields about **a 16% premium to the company's average PBR of 1.6x** between the time of its IPO and now. Assigning this **16% premium to the company's post-IPO average PBR**, we derive an ROE-adjusted PBR of 1.8x and apply this to our BVPS forecast for 2015 to obtain a 12-month target price of TWD40.

Our target price implies a 12-month forward PER of 13x (based on our EPS forecast). We believe this looks undemanding from a PEG perspective, which typically **assumes that a company's normalised earnings CAGR is equal to its fair PER.** We forecast WinSemi to grow its net profit at a 16% CAGR over 2014-16E, while the stock currently trades at 9.8x 12-month forward PER, a 39% discount.

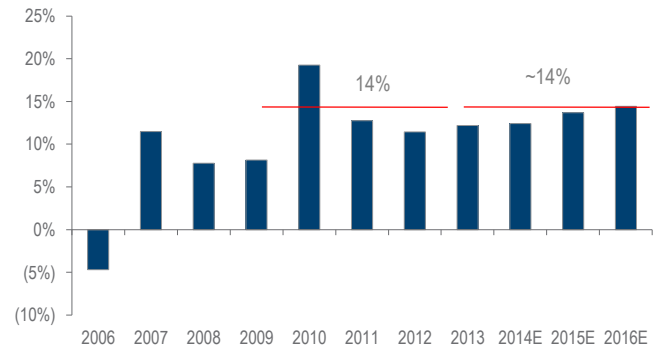
WinSemi stock corrected substantially from 3Q13 to **1Q14, due to the company's operating profit downturn** over that period, but we believe the reasons for this were seasonal, not structural, as discussed in the section Market concerns look overdone. We see good business growth catalysts from both migration to the 4G standard and a ramp-up of the IoT market and thus believe now offers a good buying opportunity in the stock. Our target price implies 34% upside potential, underpinning our Buy (1) rating.

■ WinSemi: PBR trend



Source: TEJ, Company, Daiwa forecasts

■ WinSemi: ROE trend (single-year)



Source: Company, Daiwa forecasts

**Risks**

The main risk to our bullish investment thesis on **WinSemi would be CMOS PA substituting WinSemi's GaAs PA product.** If this scenario were to materialise, as against our current view of the 2 solutions continuing to co-exist side by side, the GaAs-based PA market could be significantly eroded by the CMOS PA market. **Such a trend could hurt WinSemi's business** given it focuses solely on the GaAs PA market.

A secondary risk would be fiercer competition in the GaAs foundry industry, where **WinSemi's sole Taiwan-based competitor in this niche industry, Advanced Wireless Semiconductor Corp (AWSC) (not rated), has grown in scale more rapidly than WinSemi during 2014.** This may induce price competition for WinSemi. (We discuss the competitive landscape in the Company profile and market analysis section.)

■ **WinSemi and Taiwan peers: valuation summary**

Stock	Ticker	Price LC*	Rating	PER (x)			PBR (x)			ROE (%)			Earning growth (%)		
				2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E
TSMC	2330 TT	141.00	Buy	14.0	12.0	10.7	3.6	3.0	2.5	27.9	27.1	25.4	38.7	16.8	12.1
UMC	2303 TT	14.70	Underperform	18.1	22.4	15.4	0.9	0.9	0.8	4.9	3.9	5.6	-18.5	-19.1	45.9
SMIC	981 HK	0.74	Sell	26.5	44.7	25.8	1.2	1.3	1.3	4.9	3.0	5.1	-37.5	-33.9	73.3
WinSemi	3105 TT	29.85	Buy	11.5	9.8	8.6	1.4	1.3	1.2	12.7	14.1	15.0	9.1	18.0	13.9
ASE	2311 TT	38.15	Outperform	14.5	12.9	11.5	2.3	2.1	1.9	17.2	17.3	17.5	29.9	12.8	11.7
SPIL	2325 TT	48.65	Buy	14.2	13.7	11.7	2.4	2.2	2.1	17.5	17.0	18.5	80.8	4.1	16.9

Source: Bloomberg, Daiwa forecasts

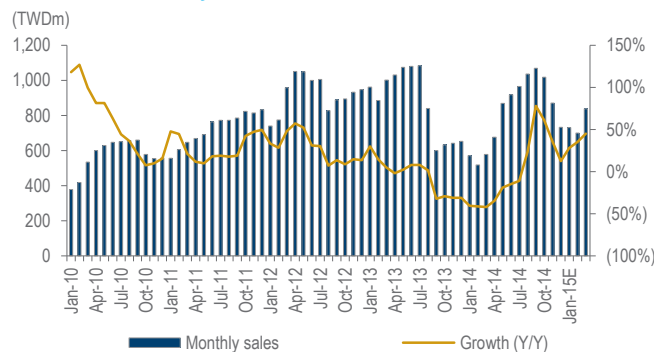
Note: \*Local currency; based on share prices as of 29 December 2014; TSMC = Taiwan Semiconductor Manufacturing, UMC = United Microelectronics, SMIC – Semiconductor Manufacturing Int'l Corp, ASE = Advanced Semiconductor Engineering, SPIL = Siliconware Precision

## 4Q14 and 1Q15 revenue and earnings trends

WinSemi's revenue reached TWD1.1bn for September 2014, which we believe was its monthly peak for 2014. Since then, absolute and YoY revenue for each month in 4Q14 have moderated, based on its reported figures for October-November and our forecast for December. Still, this does not concern us as it follows the typical seasonal pattern for the company during the fourth quarter, when its customers generally make year-end inventory adjustments.

We forecast WinSemi's YoY revenue growth to reach a monthly 2014 trough for December 2014 (+12% YoY). We forecast its absolute monthly revenue to reach a trough level in February 2015 and start to recover when its customers begin restocking. Thus, we expect a seasonal revenue recovery in March and 2Q15, which should help support WinSemi's share-price performance.

■ **WinSemi: monthly revenue trend**



Source: Company, Daiwa forecasts

As illustrated in the following table, our 4Q14 EPS forecast for WinSemi is 6% above the Bloomberg consensus, and we are also more bullish than the consensus for 1Q15 (our EPS forecast is 27% above the consensus), as we only expect seasonal, not structural, business weakness (we forecast 1Q15 revenue to contract by 13% QoQ). We see scope for the consensus to raise its forecasts, which we believe currently do not reflect fully WinSemi's strong fundamentals. However, as highlighted earlier in this report, the sample of consensus earnings forecasts for WinSemi is not that meaningful given that very few sell-side analysts cover the company at present.

■ **WinSemi: 4Q14 results preview**

(TWDm)	4Q14E			1Q15E		
	Daiwa	Consensus	Variance	Daiwa	Consensus	Variance
Revenue	2,619	2,655	-1%	2,268	2,141	6%
Gross profit	937			742		
Operating profit	675			490		
Pre-tax profit	661			493		
Net profit	529	500	6%	402	317	27%
Adjusted EPS (TWD)	0.71	0.67	6%	0.54	0.42	27%
<b>Margins</b>						
Gross margin	35.8%			32.7%		
Operating margin	25.8%			21.6%		
Net margin	20.2%			17.7%		
<b>Operating metrics</b>						
Utilisation*	79%			70%		
Cellular contribution	50%			49%		
Infrastructure contribution	22%			24%		
WiFi contribution	28%			28%		

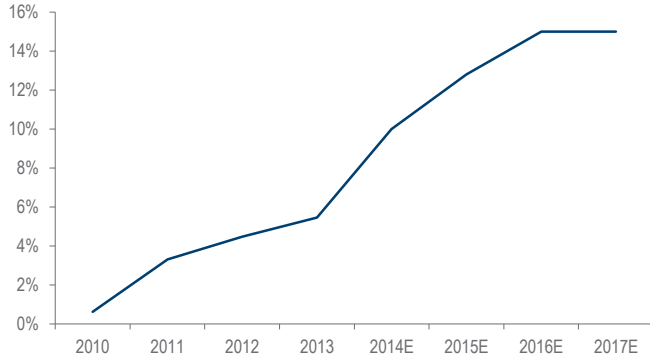
Source: Bloomberg, Daiwa forecasts

Note: \* Calculated as wafer shipments divided by capacity

## Market concerns look overdone

On the back of WinSemi's earnings contraction over 3Q13-1Q14, market concerns have arisen over 2 issues the market believes could structurally hinder WinSemi's business outlook and profitability: 1) the industry's MMPA product, and 2) the industry's CMOS PA product.

■ **Global MMPA penetration (as % of total cellular PA)**



Source: Navian, Daiwa forecasts

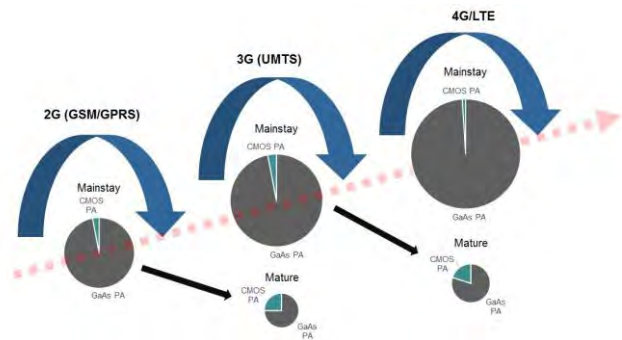
WinSemi's earnings contraction over 3Q13-1Q14 was due to 2 main factors. 1) Some of the company's customers scaled back their inventories, due primarily to 1 of the company's major derivative customers having overestimated end demand for its smartphones. 2) Some customers shifted from using single-mode discrete PA to the MMPA product. This caused a fall in demand for WinSemi's GaAs wafers, since unlike the discrete single-mode, single-band PA, the MMPA integrates 2 bands/modes with frequencies that are close to each other into 1 chip.

The inventory cutbacks issue looks to be behind us. We expect the market's adoption of MMPA to reach saturation point in 2015-16 as our industry research reveals that further band/mode integrations cannot be done if 2 frequencies are not close enough (say, more than a 200MHz gap between them). Thus, we expect MMPA's penetration of the total cellular PA market globally to reach a ceiling at around the 15% level onwards of late 2015 (as the preceding chart shows).

**CMOS PA: should continue to co-exist alongside, not replace, GaAs PA**

Against concerns in the market that the silicon-based CMOS PA market might structurally replace the GaAs PA market and thus be a long-term negative for WinSemi's business, we do not believe the CMOS PA poses a substitute threat for the GaAs PA, given the latter's superior technology features including better efficiency, linearity and harmonic in microwave signal transmission. Rather, we argue that the CMOS PA will continue to co-exist alongside the GaAs PA as an alternative product and that it will only encroach on the GaAs PA product when a mainstay cellular market becomes mature and shrinks in scale.

■ **Illustration of how the CMOS PA and GaAs PA co-exist in the wireless market**



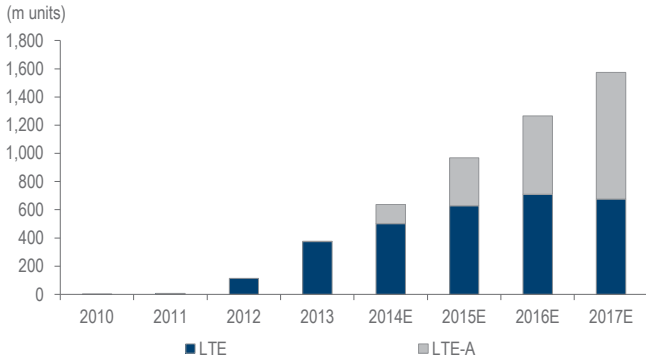
Source: Company

For example, when 2G rose to become the mainstream cellular standard in the mobile handset industry (from 2000 to before the global financial crisis in 2008-09) GaAs PA products controlled the majority of the PA market (as seen in the preceding chart). When 3G replaced 2G to become the mainstay cellular standard (from post the global financial crisis to now), the CMOS PA expanded its share in the 2G market yet the latter market shrank and GaAs PA products still controlled the bulk of the 3G PA market. As 4G is now taking over from 3G and we believe it is likely to become the mainstay cellular standard in 2H15, we expect the CMOS PA to expand its share in the 3G market but the overall size of the 3G PA market to shrink, and thus envisage the GaAs PA remaining the key product in the 4G PA market.

**Migration to LTE-A should also help GaAs PA maintain its product superiority**

Within the 4G/LTE market segment, migrations are now taking place to further increase mobile data transmission speeds, through an upgrade of the current LTE segment (1st generation) to the 2nd generation of LTE with carrier aggregation – known as LTE-Advanced (LTE-A), and described in the Appendix. This migration from LTE to LTE-A within the 4G architecture should preserve demand for GaAs PA against its rival CMOS PA, since LTE-A requires PAs with even greater efficiency, which the GaAs PA can match but the CMOS PA cannot, in our opinion. According to forecasts from Navian, LTE-A penetration in the global 4G market should rise from about 20% in 2014 to 35% in 2015 and over 50% in 2017, and thus in our view should underpin demand for WinSemi's GaAs PA products.

■ **LTE and LTE-A: penetration of the global 4G market**



Source: Navian

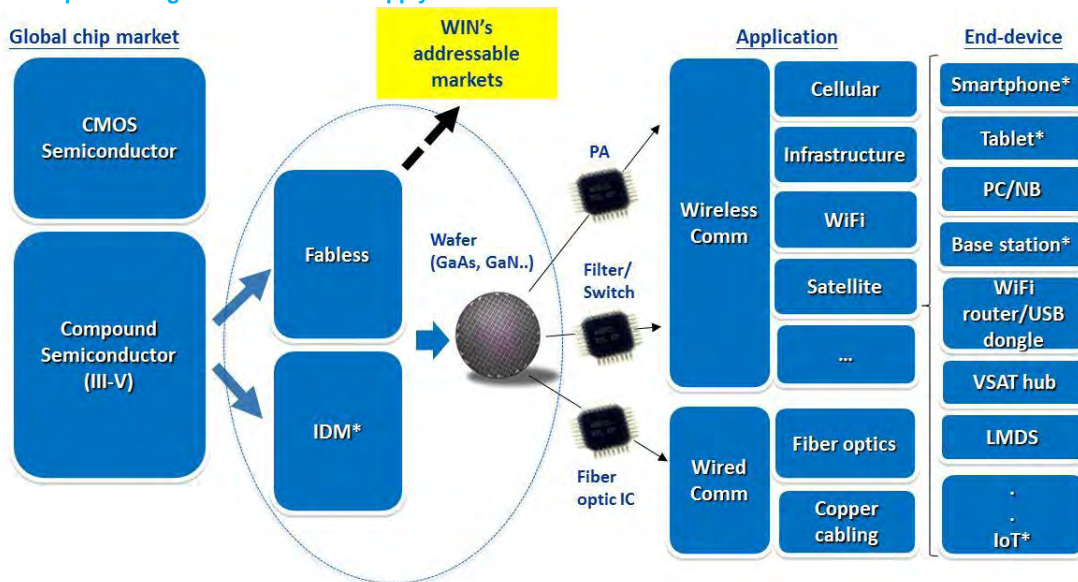
**Company profile and market analysis**

Founded in 1999 and based in Taiwan, Win Semiconductors Corp (WinSemi) is the largest dedicated compound semiconductor foundry in the world that focuses on gallium-arsenide (GaAs) foundry services for customers in the communication markets of wireless, fixed-line (ie, wired) and infrastructure

applications. **The company's GaAs is used to make power amplifiers (PA) that it supplies for the above markets and applications.** Based on our forecasts, WinSemi has a leading 56% share of the global GaAs foundry market by revenue for 2014, as shown in the chart further on.

WinSemi offers its customers a diverse technology portfolio of hetero-junction bi-polar transistor (HBT), pseudo-morphic high electron mobility transistor (pHEMT) and BiHEMT (a combination of HBT and HEMT) processes that support leading-edge communication and infrastructure-related products for microwave frequency requirements ranging from 50MHz to 100GHz. End-market applications for WinSemi's products include smartphones, tablet PCs, infrastructure base stations, very small aperture terminal (VSAT) hubs, fibre optics, cable televisions (CATV) and the automotive industry. We describe the above processes and applications in the Appendix and **display WinSemi's market positioning in the following chart.**

■ **WinSemi: market positioning and relation with supply chain**



Source: Company, Daiwa

Note: \* Indicates sources of growth for WinSemi's business; LMDS = local multipoint distribution services



### WinSemi's market positioning

As illustrated in the preceding chart showing **WinSemi's supply chain, the global semiconductor (chip) industry** can be divided roughly into 2 markets: silicon-based complementary metal oxide semiconductor (CMOS) and compound semiconductor.

The CMOS chip market is the mainstream market globally at present, with well-known players – including Intel (INTC US, USD37.18, Hold [3]), Taiwan Semiconductor Manufacturing (TSMC) (2330 TT, TWD141, Buy [1]), Qualcomm (QCOM US, USD74.99, Hold [3]), Samsung Electronics (SEC) and Micron (not rated). The compound semiconductor market, in which WinSemi operates, is a niche market, with a size of only 2% (ie, USD5.9bn in 2013) of that of the CMOS chip market, according to our industry analysis. Yet despite its niche status in the global semiconductor industry, the industry structure, the compound semiconductor market has a similar business model to the CMOS chip market.

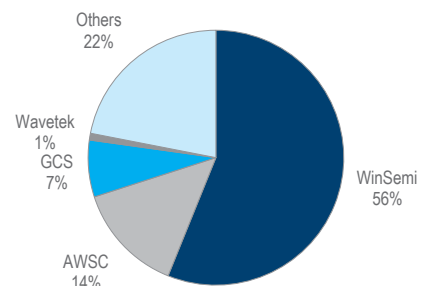
**The compound semiconductor market (ie, WinSemi's market)** comprises fabless chipmakers and integrated device manufacturers (IDM), with IDMs currently controlling some 70% of the market, on our estimates. Whereas fabless chipmakers design chips and use foundry services from the likes of WinSemi, IDMs also use foundry services for strategic purposes and as **capacity buffers. WinSemi's annual revenue contributions from fabless chipmakers and IDMs are roughly 50%/50%.**

Unlike CMOS chipmakers, which produce chips based on a silicon wafer substrate, compound chipmakers produce chips based on a compound wafer substrate (also known as an epi-wafer) – a silicon wafer substrate that is coated with an additional layer made up of a variety of chemical ingredients, such as a combination of GaAs, gallium nitride (GaN), and many other chemicals.

**WinSemi's foundry business is focused on GaAs wafer fabrication, packaging and testing services for supplying final chips.** It focuses on PA products and fibre-optic chips, whose market applications include the following: wireless communications such as cellular, WiFi and infrastructure, and fixed-line (ie, wired) communications such as fibre optics and CATV. As such, end-product applications for its products include smartphones, WiFi routers, cellular base stations, tablets and IoT, all of which we identify as major demand drivers for WinSemi over our forecast horizon.

In addition, we believe outsourcing by IDMs could become another demand driver for WinSemi, though it may take time to materialise. This is because, up to now, IDMs have strategically focused their in-house manufacturing on higher value-added products of high-frequency segments, such as satellite communications and the 4G cellular standard, while outsourcing only the manufacturing of lower value-added products of low-frequency ones like 2G/3G cellular. In our view, 4G-related PAs look to be the next wave of outsourcing focus as 4G is rising to become the mainstream cellular standard, likely from 2H15.

#### Global GaAs: foundry market shares by revenue (2014E)



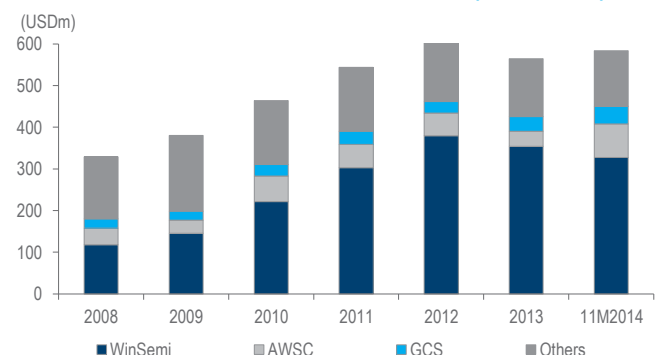
Source: Companies

Note: AWSC = Advanced Wireless Semiconductor Corp, GCS = Global Communication Semiconductor

### Competition

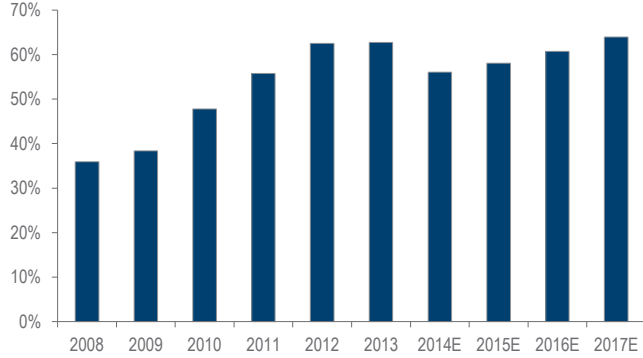
In the dedicated compound foundry market in which WinSemi operates, wafer fabrication processes based on GaAs substrates make up the majority of solutions, and hence we call this industry the GaAs foundry industry. Like the mainstream CMOS foundry market, the global GaAs foundry industry is consolidated, with WinSemi the industry leader, accounting for a 56% market share by revenue (based on 11M14 revenue), followed by AWSC with a 14% share and Global Communication Semiconductor (GCS, unrated) with a 7% share.

#### Global GaAs foundries: market share trend (2008-11M14)



Source: TEJ, Companies

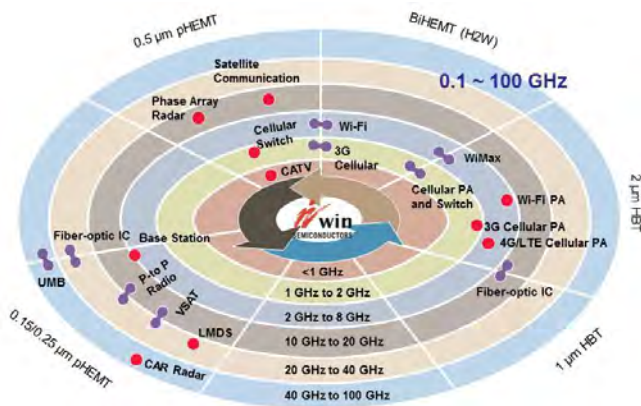
■ **WinSemi PA market share trend**



Our industry research indicates that AWSC gained market share from WinSemi during 2014, when WinSemi underwent a pause in its business growth in 1Q14, due in part to inventory cutbacks at some of its customers (explained elsewhere in this report). Still, we expect WinSemi’s market share to pick up once more from 2015, as our research suggests WinSemi possesses scale and technology advantages over AWSC.

WinSemi’s business breadth can be seen in the following chart illustrating its technology spectrum, which covers almost the entire spectrum of products that require different radio frequencies (RF) ranging from 50MHz to 100GHz.

■ **WinSemi’s technology product portfolio**



Source: Company

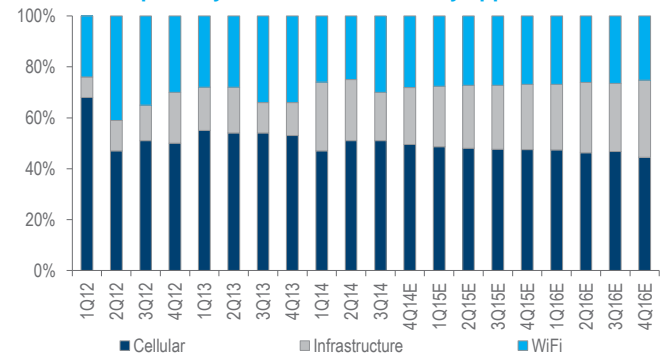
**Sales mix**

WinSemi’s revenue can be broken down by application into cellular, infrastructure and WiFi. Cellular comprises mostly mobile handset-related PAs, while the majority of the company’s infrastructure and WiFi-related PAs also go to mobile handset-related devices, such as WiFi functions of handsets and PAs for intermediate infrastructure devices like base stations.

As noted earlier in this report, the mobile handsets industry accounts for over 80% of WinSemi’s total

revenue, on our estimates. However, the company is aiming to diversify its revenue exposure in order to reduce its high handset revenue concentration, notably by increasing its revenue contributions from infrastructure, in turn by expanding its sales derived from point-to-point radio, base stations, satellites and fibre optic signal conversion.

■ **WinSemi: quarterly revenue breakdown by application**

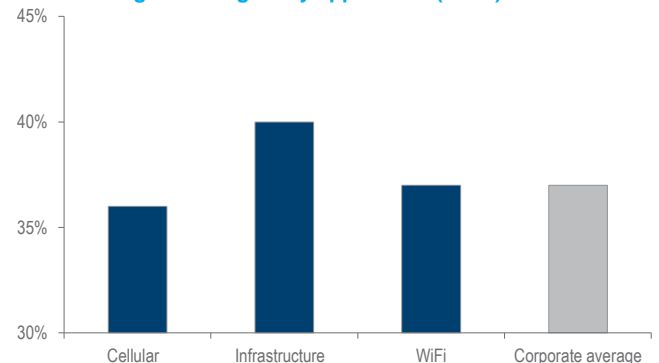


**Gross margin breakdown**

Thanks to WinSemi’s new offering of GaN wafer solutions using its advanced pHEMT process technology, infrastructure generated the highest gross margin of the company’s 3 applications for 3Q14, of about 40%. The WiFi application had the second-highest gross margin (in line with the company’s average 3Q14 gross margin of 37%) and cellular about a 36% margin (as the next chart shows).

Most of the company’s products for cellular and WiFi applications are produced using its HBT technology with process geometries ranging from 1μ to 2μ due to the lower RF requirements for these applications, while its pHEMT technology has process technologies ranging from 0.15μ to 0.5μ due to the higher RF requirements for infrastructure applications. (We describe these technologies in the Appendix.)

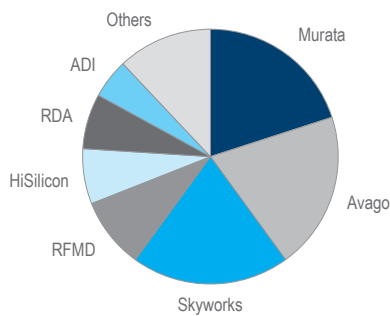
■ **WinSemi: gross margins by application (3Q14)**



**Key customers**

WinSemi's primary customers are handset and WiFi-related PA vendors, including Murata, Avago and Skyworks, which are its top-3 customers (together accounting for about 60% of its revenue, with quarterly variations of some 5-10% in either direction on our estimates). WinSemi's derivative customers – ie, customers to which its primary customers sell products containing WinSemi's PA products – are mostly mobile handset-brand companies, such as Apple (30-40% of its revenue, on our estimates) and SEC (about 15%, on our estimates, as well as infrastructure-related companies globally, including Huawei, Ericsson (not rated), Siemens (not rated) – the latter is for base stations, and ViaSAT (not rated) – for VSATs.

■ WinSemi: revenue breakdown by primary customer (3Q14)



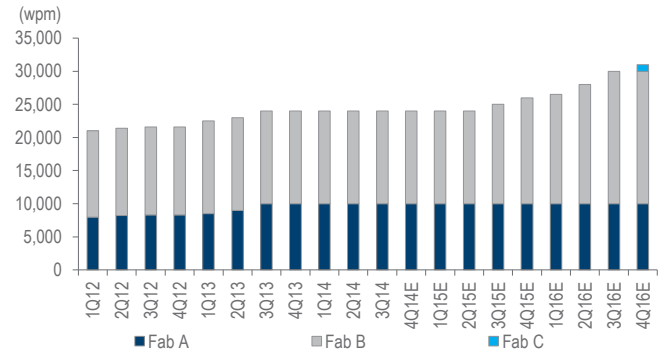
Source: Daiwa estimates  
Note: ADI = Analog Devices, Inc., RDA = RDA Microelectronics, RFMD = RF Micro Devices

**Fab operations**

WinSemi currently operates 2 wafer fabs in Taoyuan in Taiwan, with a combined capacity of 24,000 (6") wafers per month (wpm). Their combined maximum capacity is about 30,000 wpm but expansion took a pause in 2014 due to the volatile business conditions the company encountered in 2H13. Given WinSemi's business is now back on track with capacity utilisation at its fabs having recovered back to the 90% level (as of 3Q14), we expect the company to resume its capacity expansion in 3Q15, post a seasonally weak period for its business we envisage for 4Q14 and 1Q15 (and a pick-up to normal levels in 2Q15).

We expect WinSemi's capacity to reach the maximum level of some 30,000 wpm in 3Q16, and its new and third fab (Fab C in the following chart) should start ramping up in 4Q16.

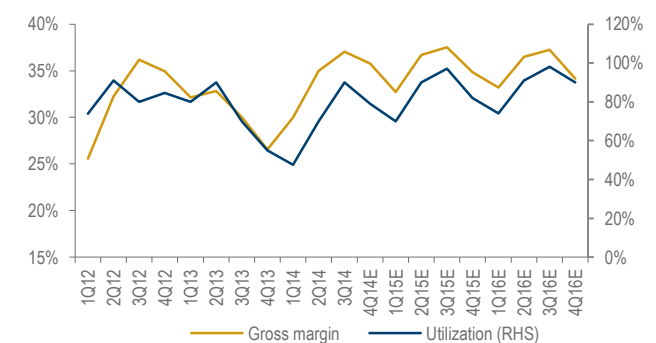
■ WinSemi: quarterly capacity trend



Source: Company, Daiwa forecasts

WinSemi's capex budget for 2014 is around TWD1bn, allocated mainly to the facility construction of its third fab, and down from capex of TWD2.8bn in 2013. We forecast its capex to double YoY to TWD2.1bn in 2015 and TWD5.25bn in 2016 as it resumes its capacity expansion. We forecast the company to maintain a solid utilisation rate and gross margin out to 2016.

■ WinSemi: quarterly capacity utilisation and gross margin

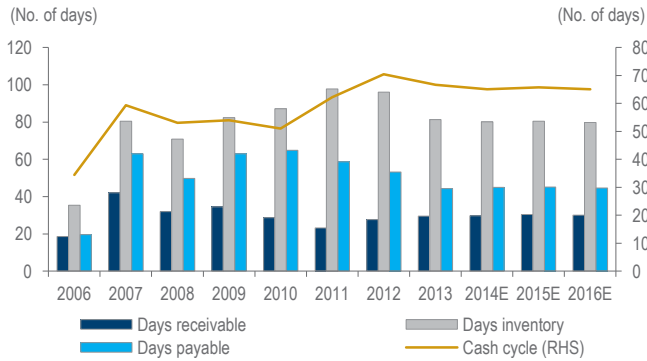


Source: Company, Daiwa forecasts

**Financials**

We believe WinSemi has managed its working capital well in recent years, with receivable days improving to around 1 month, payable days at around 1.5 months and inventory days at about 80 days for 2014, on our forecasts. We expect all these metrics to stay at similar levels over our forecast period, resulting in a cash cycle of about 65 days per annum. This suggests to us that WinSemi will likely need to keep about TWD2bn of cash on hand to meet its working capital requirements.

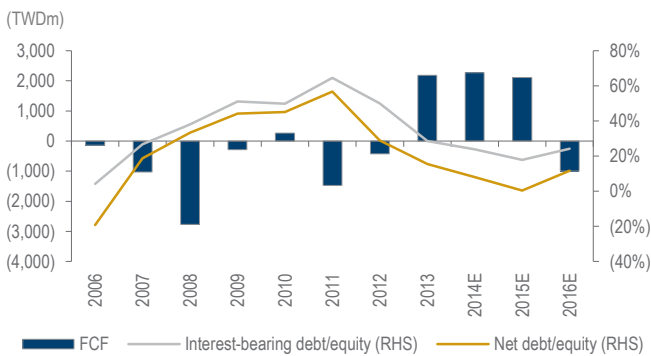
■ **WinSemi: working capital management**



Source: Company, Daiwa forecasts

WinSemi's FCF position saw a significant turnaround to a positive level of TWD2.2bn in 2013. We forecast similar FCF levels for 2014 and 2015, due primarily to **the company's frugal capex control following the volatile business conditions it experienced in 2H13**. We expect its FCF to turn negative once more in 2016 (to TWD993m) on investments in its capacity build-out.

■ **WinSemi: FCF and gearing trend**



Source: Company, Daiwa forecasts

In light of our capex forecasts for WinSemi of TWD2.1bn for 2015 and TWD5.25bn for 2016, we believe the company may have a cash shortfall of about TWD2bn in 2016. Thus, funding needs look likely in order to meet its minimum working capital **requirement. Given the company's solid balance sheet**, with its interest-bearing-debt-to-equity ratio set to stay low at 18-24% over 2014-15, and close to a net cash position likely in 2015 based on our forecasts, we believe taking some leverage via debt financing in order to fund the cash gap for its business expansion would not undermine its balance sheet strength. Nevertheless, owing to cash needs for expansion, we expect management to be fairly conservative with its cash dividend payments over our forecast period.

**We display WinSemi's quarterly P&L statement since 3Q13** along with our 2014-16 forecasts in the following table. This illustrates how, following its earnings downturn in 3Q13-1Q14, WinSemi has emerged from that weak period and looks to be heading for a new earnings recovery cycle.

■ WinSemi: quarterly and annual P&L statement

(TWDm)	1Q14	2Q14	3Q14	4Q14E	1Q15E	2Q15E	3Q15E	4Q15E	2013	2014E	2015E	2016E
Cellular	784	1,255	1,565	1,299	1,104	1,380	1,518	1,321	5,669	4,903	5,323	5,904
Infrastructure	450	591	583	584	538	715	800	714	1,610	2,208	2,766	3,540
WiFi	433	615	921	736	626	782	868	747	3,201	2,706	3,023	3,339
Total revenue	1,667	2,461	3,069	2,619	2,268	2,877	3,186	2,782	10,481	9,817	11,114	12,783
COGS	-1,167	-1,599	-1,932	-1,682	-1,526	-1,821	-1,991	-1,813	-7,249	-6,381	-7,151	-8,253
Gross profit	500	862	1,137	937	742	1,056	1,196	969	3,232	3,436	3,963	4,530
Opex	-297	-293	-271	-262	-252	-308	-335	-295	-1,123	-1,123	-1,189	-1,364
Operating profit	204	569	865	675	490	748	861	674	2,110	2,313	2,774	3,166
EBITDA	671	1,039	1,338	1,145	973	1,160	1,274	1,148	3,932	4,193	4,555	5,421
Pre-tax profit	250	575	889	661	493	755	870	684	2,212	2,375	2,803	3,192
Income taxes	-37	-135	-136	-132	-91	-140	-161	-127	-401	-440	-518	-591
Net profit	213	440	753	529	402	615	709	558	1,812	1,935	2,284	2,602
Fully diluted shares outs. (m)	748	749	749	749	749	749	749	749	765	749	749	749
Fully diluted EPS (TWD)	0.29	0.59	1.01	0.71	0.54	0.82	0.95	0.75	2.37	2.59	3.05	3.48
<b>Margins</b>												
Gross	30%	35%	37%	36%	33%	37%	38%	35%	31%	35%	36%	35%
Operating	12%	23%	28%	26%	22%	26%	27%	24%	20%	24%	25%	25%
EBITDA	40%	42%	44%	44%	43%	40%	40%	41%	38%	43%	41%	42%
Net	13%	18%	25%	20%	18%	21%	22%	20%	17%	20%	21%	20%
<b>Growth (QoQ)</b>												
Cellular revenue	-23%	60%	25%	-17%	-15%	25%	10%	-13%				
Infrastructure revenue	80%	31%	-1%	0%	-8%	33%	12%	-11%				
WiFi revenue	-34%	42%	50%	-20%	-15%	25%	11%	-14%				
Total revenue	-13%	48%	25%	-15%	-13%	27%	11%	-13%				
Gross profit	-2%	72%	32%	-18%	-21%	42%	13%	-19%				
Operating profit	-17%	180%	52%	-22%	-27%	53%	15%	-22%				
EBITDA	-4%	55%	29%	-14%	-15%	19%	10%	-10%				
Net profit	69%	106%	71%	-30%	-24%	53%	15%	-21%				
Fully diluted EPS	73%	106%	71%	-30%	-24%	53%	15%	-21%				
<b>Growth (YoY)</b>												
Cellular revenue	-50%	-27%	15%	27%	41%	10%	-3%	2%	-6%	-14%	9%	11%
Infrastructure revenue	-7%	3%	93%	133%	20%	21%	37%	22%	5%	37%	25%	28%
WiFi revenue	-46%	-31%	7%	12%	44%	27%	-6%	1%	-14%	-15%	12%	10%
Total revenue	-41%	-23%	22%	36%	36%	17%	4%	6%	-7%	-6%	13%	15%
Gross profit	-45%	-18%	50%	83%	48%	23%	5%	3%	-11%	6%	15%	14%
Operating profit	-67%	-26%	78%	176%	141%	31%	0%	0%	-14%	10%	20%	14%
EBITDA	-37%	-15%	42%	64%	45%	12%	-5%	0%	4%	7%	9%	19%
Net profit	-73%	-20%	116%	320%	88%	40%	-6%	5%	10%	7%	18%	14%
Fully diluted EPS	-72%	-17%	121%	329%	88%	40%	-6%	5%	-1%	9%	18%	14%

Source: Company, Daiwa forecasts

## Appendix: terminology definitions

### ■ Definitions of terminologies relating to WinSemi's business

Terminology	Definition
Carrier aggregation (CA)	Carrier aggregation is the preferred solution to support the wider transmission bandwidths required under LTE-Advanced. CA enables multiple LTE carriers to be used together to provide high data transmission rates by increasing the overall bandwidths.
Complementary metal oxide semiconductor (CMOS)	CMOS is a type of transistor that produces either a positive (PMOS) or negative (NMOS) charge at any given time. Since 1 of the circuit types is always off, CMOS chips only draw significant power when switching between on and off modes. Thus, CMOS runs efficiently, using up much less power than chips using just 1 type of transistor. CMOS process technology is widely used for a variety of logic and mixed-signal integrated circuits production.
Compound semiconductor	Compound semiconductor refers to a semiconductor material consisting of 2 or more chemical elements. It can form binary (2 elements, eg, gallium (III) arsenide [GaAs]), ternary (3 elements, eg, indium gallium arsenide [InGaAs]), and quaternary (4 elements, eg, aluminium gallium indium phosphide [AlInGaP]).
Heterojunction bipolar transistor (HBT)	HBT is a type of bipolar junction transistor (BJT) that uses different semiconductor materials for the emitter and base regions, creating a heterojunction. The HBT improves on the BJT in that the HBT can handle signals of very high frequencies, up to several hundred GHz. It is commonly used in modern ultra-fast circuits, RF systems and RF PAs in mobile phones.
High-electron mobility transistor (HEMT)	HEMT is a field-effect transistor incorporating a junction between 2 materials with different band gaps (ie, a heterojunction) as the channel instead of a doped region. In practice, the 2 different materials used for a heterojunction have the same lattice constant (spacing between the atoms) for an enhanced performance. HEMT transistors are able to operate at higher frequencies than ordinary transistors, up to millimetre wave frequencies, and are used in high-frequency products such as mobile phones, satellite TV receivers, voltage converters and radar equipment.
Long Term Evolution (LTE)	LTE is an update of the current generation of 3G cellular communication technology with significantly faster data speeds for both uploading and downloading. It is based on the GSM/EDGE and UMTS/HSPA network technologies, increasing the capacity and speed using a different radio interface together with core network improvements. However, LTE does not satisfy all the 4G requirements set by the International Telecommunication Union (ITU), and is expected to be enhanced with LTE-A over the next few years.
LTE-Advanced (LTE-A)	LTE-A is considered as a revolutionary upgrade of wireless communication which fulfils the 4G benchmarks set by the ITU. LTE-A will offer a peak data rate of at least 100 Mbits/s when moving through the network at high speeds, such as in cars and trains, and 1Gbit/s when in a fixed position. It is expected to be 2-3 times' faster than today's LTE given it will have fewer dropped connections when moving through the 4G network.
Pseudomorphic HEMT (pHEMT)	pHEMT is a version of HEMT where 2 materials with different lattice constants are used. In semiconductors, this can result in crystal defects and form deep-level traps which reduce greatly the performance of the device in which it is used. A HEMT where this rule is violated is called a pHEMT. A pHEMT is achieved by using an extremely thin layer of 1 of the materials that the crystal lattice stretches to fit the second material. This technique allows the construction of transistors with larger band gaps than would otherwise be possible, giving them a better performance.
Very small aperture terminal (VSAT)	VSAT is a 2-way satellite ground station used in real-time transmission of data, voice and video signals, excluding broadcast TV. A VSAT consists of 2 parts: a transceiver that is placed outdoors in the direct line of sight to the satellite, and a device that is placed indoors to interface the transceiver with the end user's communications devices, such as a PC. The transceiver receives or sends signals to a satellite transponder in the sky, while the satellite sends and receives signals from a ground station computer that acts as a hub for the system. Each end user is interconnected with the hub station via the satellite, forming a star topology.

Source: Daiwa

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## **Rated Companies**

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## Taiwan Semiconductor Manufacturing

2330 TT

### Big Data, big exposure

- A clear Big Data play given its broad exposure to all IoT devices
- TSMC's dominance in MCD/advanced technologies should help bridge any potential revenue gaps before IoT+ takes off
- Raising forecasts, target price; we expect consensus to catch up, which should be a positive share price catalyst

Target (TWD): **150.00 → 170.00**  
Upside: **20.6%**  
29 Dec price (TWD): **141.00**

- 1 Buy (unchanged)
- 2 **Outperform**
- 3 Hold
- 4 Underperform
- 5 Sell



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#### What's new

TSMC's technological leadership has seen it dominating the current MCD cycle, in our view. With its enriched ultra-low-power offerings, it looks ready to secure a strong position in the next Big Data cycle, due to take off from 2016, given its broad exposure to the 5 investment themes we identify in our main report.

#### What's the impact

##### Ready for the Big Data wave.

Given that it offers a broad spectrum of process technologies (0.18µm to 16nm FF), TSMC looks set to capture a lot of wafer demand under the next Big Data cycle (ie access, transmission, processing, storage and security). We expect the cycle to add to its revenue growth potential. And that this is on top of its current dominance in the MCD market.

##### Tech dominance to continue.

Although investors appear to be uncertain as to whether TSMC will lose the next generation of Apple application processor (AP) orders to

Samsung Electronics (SEC, not rated), we think it will maintain its Apple presence, given its ramp-up at the 16nm FF+ technology, which appears to be earlier than the market expects. We believe TSMC will keep its dominance in the advanced technologies.

**Preview and outlook.** We expect TSMC's 4Q14 top line to beat its guidance and the consensus, on the back of favourable forex moves and a faster ramp-up in its 20nm process yield. In light of TSMC's ongoing strong capacity utilisation for its 8" wafer business and only seasonal demand weakness for the 12" business, we forecast TSMC's 1Q15 revenue to contract by 4% QoQ, beating the seasonal trend and the consensus. We therefore raise our EPS forecasts by 5%, 9%, 8% for 2014, 2015 and 2016, respectively.

#### What we recommend

We raise our target price to TWD170 (from TWD150), now on 12 months and based on an ROE-adjusted PBR of 3.6x (previously: 3.5x) as we are raising our 2014-16 ROE forecasts (23-24% a year, single year). We reiterate our Buy (1) rating and expect the consensus to raise its 2015 forecasts, which would be a share price catalyst. The key risk: greater-than-expected competition in advanced technologies.

#### How we differ

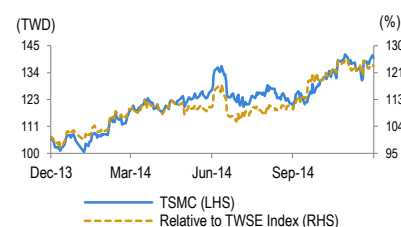
Our 2015-16 EPS forecasts are ahead of consensus due to our more positive stance on the Big Data cycle.

##### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	1.2	4.3	5.6
Net profit change	4.8	8.9	8.4
Core EPS (FD) change	4.8	8.9	8.4

Source: Daiwa forecasts

#### Share price performance



12-month range	100.50-141.50
Market cap (USDbn)	115.17
3m avg daily turnover (USDm)	150.45
Shares outstanding (m)	25,929
Major shareholder	National Development Fund (6.4%)

#### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	762,773	913,383	1,010,703
Operating profit (m)	295,276	352,427	394,898
Net profit (m)	260,959	304,923	341,816
Core EPS (fully-diluted)	10.064	11.760	13.183
EPS change (%)	38.7	16.8	12.1
Daiwa vs Cons. EPS (%)	4.0	12.9	17.6
PER (x)	14.0	12.0	10.7
Dividend yield (%)	2.1	2.8	2.8
DPS	3.0	4.0	4.0
PBR (x)	3.6	3.0	2.5
EV/EBITDA (x)	7.1	5.7	5.0
ROE (%)	27.9	27.1	25.4

Source: FactSet, Daiwa forecasts



**Financial summary**

■ **Key assumptions**

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Wafer Shipment Utilization (%)	77.7	104.7	94.9	93.1	93.8	100.6	104.2	105.8
Blended ASP (USD)	1,124.9	1,090.0	1,134.6	1,204.5	1,269.4	1,330.4	1,386.9	1,376.9
Wafer Shipment ('000)	7,738.0	11,860.0	12,549.0	14,045.0	15,666.0	18,806.0	21,643.2	24,216.1

■ **Profit and loss (TWDm)**

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Wafer Foundry Revenue	285,742	406,963	418,244	500,324	590,144	755,563	903,963	1,000,280
Sub & Other Revenue	10,000	12,574	8,836	5,924	6,880	7,210	9,420	10,423
Other Revenue	0	0	0	0	0	0	0	(0)
<b>Total Revenue</b>	<b>295,742</b>	<b>419,538</b>	<b>427,081</b>	<b>506,249</b>	<b>597,024</b>	<b>762,773</b>	<b>913,383</b>	<b>1,010,703</b>
Other income	0	0	0	0	0	0	0	0
COGS	(166,414)	(212,484)	(233,011)	(262,654)	(316,079)	(385,522)	(459,014)	(507,134)
SG&A	(15,773)	(18,172)	(18,682)	(22,136)	(23,398)	(25,074)	(28,871)	(31,771)
Other op. expenses	(21,593)	(29,707)	(33,830)	(40,402)	(48,118)	(56,901)	(73,071)	(76,900)
<b>Operating profit</b>	<b>91,962</b>	<b>159,175</b>	<b>141,557</b>	<b>181,057</b>	<b>209,429</b>	<b>295,276</b>	<b>352,427</b>	<b>394,898</b>
Net-interest inc./(exp.)	2,209	1,240	852	625	(811)	(1,034)	192	1,372
Assoc/forex/extraord./others	1,291	9,855	2,737	(128)	6,869	9,186	6,114	6,339
<b>Pre-tax profit</b>	<b>95,463</b>	<b>170,270</b>	<b>145,147</b>	<b>181,554</b>	<b>215,487</b>	<b>303,429</b>	<b>358,732</b>	<b>402,610</b>
Tax	(5,996)	(7,988)	(10,694)	(15,590)	(27,468)	(42,568)	(53,810)	(60,391)
Min. int./pref. div./others	(248)	(677)	(252)	195	128	98	0	(403)
<b>Net profit (reported)</b>	<b>89,218</b>	<b>161,605</b>	<b>134,201</b>	<b>166,159</b>	<b>188,147</b>	<b>260,959</b>	<b>304,923</b>	<b>341,816</b>
<b>Net profit (adjusted)</b>	<b>89,218</b>	<b>161,605</b>	<b>134,201</b>	<b>166,159</b>	<b>188,147</b>	<b>260,959</b>	<b>304,923</b>	<b>341,816</b>
<b>EPS (reported)(TWD)</b>	<b>3.453</b>	<b>6.238</b>	<b>5.179</b>	<b>6.410</b>	<b>7.257</b>	<b>10.064</b>	<b>11.760</b>	<b>13.183</b>
<b>EPS (adjusted)(TWD)</b>	<b>3.453</b>	<b>6.238</b>	<b>5.179</b>	<b>6.410</b>	<b>7.257</b>	<b>10.064</b>	<b>11.760</b>	<b>13.183</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>3.444</b>	<b>6.238</b>	<b>5.178</b>	<b>6.409</b>	<b>7.256</b>	<b>10.064</b>	<b>11.760</b>	<b>13.183</b>
<b>DPS (TWD)</b>	<b>2.976</b>	<b>3.000</b>	<b>2.999</b>	<b>2.999</b>	<b>3.000</b>	<b>3.000</b>	<b>4.000</b>	<b>4.000</b>
<b>EBIT</b>	<b>91,962</b>	<b>159,175</b>	<b>141,557</b>	<b>181,057</b>	<b>209,429</b>	<b>295,276</b>	<b>352,427</b>	<b>394,898</b>
<b>EBITDA</b>	<b>172,773</b>	<b>246,986</b>	<b>249,240</b>	<b>312,407</b>	<b>365,612</b>	<b>503,879</b>	<b>606,336</b>	<b>668,239</b>

■ **Cash flow (TWDm)**

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	95,463	170,270	145,147	181,554	215,487	303,429	358,732	402,610
Depreciation and amortisation	80,812	87,810	107,682	131,349	156,182	208,602	253,909	273,340
Tax paid	(5,996)	(7,988)	(10,694)	(15,590)	(27,468)	(42,568)	(53,810)	(60,391)
Change in working capital	(17,277)	(13,810)	4,488	(20,755)	(18,393)	(21,500)	(16,150)	(11,500)
Other operational CF items	6,965	(6,807)	964	12,506	21,575	(3,556)	(3,837)	(4,431)
<b>Cash flow from operations</b>	<b>159,966</b>	<b>229,476</b>	<b>247,587</b>	<b>289,064</b>	<b>347,384</b>	<b>444,407</b>	<b>538,845</b>	<b>599,627</b>
Capex	(87,785)	(186,944)	(213,963)	(246,137)	(287,595)	(301,980)	(332,770)	(354,000)
Net (acquisitions)/disposals	(7,273)	(6,738)	28,244	(27,553)	5,644	(603)	(1,750)	0
Other investing CF items	(1,410)	(8,404)	3,196	494	897	0	0	0
<b>Cash flow from investing</b>	<b>(96,468)</b>	<b>(202,086)</b>	<b>(182,523)</b>	<b>(273,196)</b>	<b>(281,054)</b>	<b>(302,583)</b>	<b>(334,520)</b>	<b>(354,000)</b>
Change in debt	(9,197)	28,570	9,435	63,571	109,388	0	0	0
Net share issues/(repurchases)	0	0	0	0	0	0	0	0
Dividends paid	(76,876)	(77,708)	(77,730)	(77,749)	(77,773)	(77,786)	(103,716)	(103,716)
Other financing CF items	(762)	(1,640)	(1,183)	367	491	0	0	0
<b>Cash flow from financing</b>	<b>(86,835)</b>	<b>(50,779)</b>	<b>(69,478)</b>	<b>(13,811)</b>	<b>32,106</b>	<b>(77,786)</b>	<b>(103,716)</b>	<b>(103,716)</b>
Forex effect/others	0	0	0	(2,118)	850	0	0	0
<b>Change in cash</b>	<b>(23,337)</b>	<b>(23,389)</b>	<b>(4,415)</b>	<b>(62)</b>	<b>99,285</b>	<b>64,039</b>	<b>100,609</b>	<b>141,911</b>
Free cash flow	72,182	42,532	33,624	42,926	59,789	142,427	206,075	245,627

Source: FactSet, Daiwa forecasts

## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	195,797	181,574	150,622	150,918	245,343	309,984	412,344	554,255
Inventory	20,914	28,406	24,841	37,830	37,495	52,495	54,495	63,995
Accounts receivable	35,382	42,982	40,948	52,093	71,942	84,442	98,442	105,442
Other current assets	7,710	8,557	8,850	11,447	3,708	8,800	8,800	8,800
<b>Total current assets</b>	<b>259,804</b>	<b>261,519</b>	<b>225,260</b>	<b>252,289</b>	<b>358,487</b>	<b>455,721</b>	<b>574,080</b>	<b>732,492</b>
Fixed assets	273,675	388,444	490,375	617,529	792,666	814,730	908,981	1,012,442
Goodwill & intangibles	23,372	29,190	24,171	19,430	22,719	22,000	22,000	21,000
Other non-current assets	37,846	39,776	34,459	65,786	89,184	89,184	89,184	89,184
<b>Total assets</b>	<b>594,696</b>	<b>718,929</b>	<b>774,265</b>	<b>955,035</b>	<b>1,263,055</b>	<b>1,381,634</b>	<b>1,594,245</b>	<b>1,855,117</b>
Short-term debt	4,955	32,862	33,889	35,757	15,645	15,645	15,645	68,541
Accounts payable	11,689	12,971	11,859	15,239	16,359	22,359	22,209	27,209
Other current liabilities	62,490	77,358	71,259	91,440	157,774	98,205	111,658	126,756
<b>Total current liabilities</b>	<b>79,133</b>	<b>123,191</b>	<b>117,007</b>	<b>142,436</b>	<b>189,778</b>	<b>136,209</b>	<b>149,511</b>	<b>222,505</b>
Long-term debt	11,388	12,051	20,458	82,161	211,584	211,584	211,584	158,688
Other non-current liabilities	5,126	4,983	4,756	4,683	13,918	10,000	10,000	10,000
<b>Total liabilities</b>	<b>95,648</b>	<b>140,224</b>	<b>142,221</b>	<b>229,281</b>	<b>415,280</b>	<b>357,793</b>	<b>371,095</b>	<b>391,193</b>
Share capital	259,027	259,101	259,162	259,244	259,286	259,286	259,286	259,286
Reserves/R.E./others	236,056	315,044	370,431	463,953	588,222	764,386	963,695	1,204,066
<b>Shareholders' equity</b>	<b>495,083</b>	<b>574,145</b>	<b>629,594</b>	<b>723,198</b>	<b>847,508</b>	<b>1,023,672</b>	<b>1,222,981</b>	<b>1,463,353</b>
Minority interests	3,966	4,559	2,450	2,556	267	169	169	571
<b>Total equity &amp; liabilities</b>	<b>594,696</b>	<b>718,929</b>	<b>774,265</b>	<b>955,035</b>	<b>1,263,055</b>	<b>1,381,634</b>	<b>1,594,245</b>	<b>1,855,117</b>
EV	3,480,501	3,523,887	3,562,164	3,625,545	3,638,142	3,573,402	3,471,043	3,329,534
<b>Net debt/(cash)</b>	<b>(179,454)</b>	<b>(136,661)</b>	<b>(96,275)</b>	<b>(33,000)</b>	<b>(18,114)</b>	<b>(82,755)</b>	<b>(185,115)</b>	<b>(327,026)</b>
<b>BVPS (TWD)</b>	<b>19.113</b>	<b>22.161</b>	<b>24.295</b>	<b>27.897</b>	<b>32.686</b>	<b>39.480</b>	<b>47.167</b>	<b>56.437</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	(11.2)	41.9	1.8	18.5	17.9	27.8	19.7	10.7
EBITDA (YoY)	(7.1)	43.0	0.9	25.3	17.0	37.8	20.3	10.2
Operating profit (YoY)	(11.9)	73.1	(11.1)	27.9	15.7	41.0	19.4	12.1
Net profit (YoY)	(10.7)	81.1	(17.0)	23.8	13.2	38.7	16.8	12.1
Core EPS (fully-diluted) (YoY)	(11.2)	81.1	(17.0)	23.8	13.2	38.7	16.8	12.1
Gross-profit margin	43.7	49.4	45.4	48.1	47.1	49.5	49.7	49.8
EBITDA margin	58.4	58.9	58.4	61.7	61.2	66.1	66.4	66.1
Operating-profit margin	31.1	37.9	33.1	35.8	35.1	38.7	38.6	39.1
Net profit margin	30.2	38.5	31.4	32.8	31.5	34.2	33.4	33.8
ROAE	18.4	30.2	22.3	24.6	24.0	27.9	27.1	25.4
ROAA	15.5	24.6	18.0	19.2	17.0	19.7	20.5	19.8
ROCE	18.0	27.9	21.6	23.7	21.8	25.4	26.1	25.1
ROIC	28.1	39.8	26.8	26.9	24.0	28.7	30.3	30.9
Net debt to equity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	6.3	4.7	7.4	8.6	12.7	14.0	15.0	15.0
Accounts receivable (days)	33.2	34.1	35.9	33.5	37.9	37.4	36.5	36.8
Current ratio (x)	3.3	2.1	1.9	1.8	1.9	3.3	3.8	3.3
Net interest cover (x)	n.a.	n.a.	n.a.	n.a.	258.3	285.6	n.a.	n.a.
Net dividend payout	86.2	48.1	57.9	46.8	41.3	29.8	34.0	30.3
Free cash flow yield	2.0	1.2	0.9	1.2	1.6	3.9	5.6	6.7

Source: FactSet, Daiwa forecasts

### ■ Company profile

Incorporated in Taiwan in 1987, Taiwan Semiconductor Manufacturing Co. (TSMC) is the world's largest semiconductor foundry in revenue terms. TSMC offers foundry services such as wafer masking, fabrication, probing and testing, to a high variety of customers including fabless chipmakers and IDMs. Its manufacturing fabs are located in Taiwan, China, the US and Singapore. In 2Q14, TSMC operated total capacity of 650K (12"-equ) wafers, of which 63% were 12" and 37% were 8" and 6".

■ TSMC: quarterly P&L

TWDbn	1Q14	2Q14	3Q14	4Q14E	1Q15E	2Q15E	3Q15E	4Q15E	2013	2014E	2015E	2016E
Foundry revenue	148	180	207	220	210	224	237	232	590	756	904	1,000
Sub & other revenue	0	3	2	2	2	2	2	2	7	7	9	10
Total revenue	148	183	209	222	213	226	240	235	597	763	913	1,011
COGS	-78	-92	-103	-112	-109	-113	-119	-117	-316	-386	-459	-507
Gross profit	70	91	106	110	103	114	120	117	281	377	454	504
Opex	-18	-20	-21	-22	-24	-25	-27	-26	-72	-82	-102	-109
Operating profit	53	71	84	88	79	88	94	91	209	295	352	395
EBITDA	94	117	141	152	143	152	157	154	366	504	606	668
Pretax profit	53	74	85	91	81	90	95	93	215	303	359	403
Income taxes	-5	-14	-9	-14	-12	-14	-14	-14	-27	-43	-54	-60
Net profit	48	60	76	77	69	77	80	79	188	261	305	342
FD O/S (m)	26	26	26	26	26	26	26	26	26	26	26	26
FD EPS (TWD)	1.85	2.30	2.94	2.97	2.65	2.96	3.10	3.05	7.26	10.06	11.76	13.18
<b>Margin</b>												
Gross	47%	50%	51%	49%	49%	50%	50%	50%	47%	49%	50%	50%
Operating	35%	39%	40%	39%	37%	39%	39%	39%	35%	39%	39%	39%
EBITDA	64%	64%	67%	68%	67%	67%	65%	66%	61%	66%	66%	66%
Net	32%	33%	37%	35%	32%	34%	34%	34%	32%	34%	33%	34%
<b>Growth (QoQ)</b>												
Foundry revenue	3%	22%	15%	6%	-4%	6%	6%	-2%				
Sub & other revenue	-88%	973%	-15%	6%	-4%	6%	6%	-2%				
Total revenue	2%	23%	14%	6%	-4%	6%	6%	-2%				
Gross profit	9%	30%	16%	4%	-6%	10%	6%	-2%				
Operating profit	10%	35%	19%	4%	-9%	11%	6%	-3%				
EBITDA	6%	24%	21%	8%	-6%	6%	3%	-2%				
Net profit	7%	25%	28%	1%	-11%	12%	5%	-2%				
FD EPS	7%	25%	28%	1%	-11%	12%	5%	-2%				
<b>Growth (YoY)</b>												
Foundry revenue	13%	17%	29%	53%	42%	24%	15%	6%	18%	28%	20%	11%
Sub & other revenue	-81%	37%	12%	21%	832%	-8%	15%	6%	16%	5%	31%	11%
Total revenue	12%	17%	29%	53%	43%	24%	15%	6%	18%	28%	20%	11%
Gross profit	16%	19%	34%	70%	47%	25%	14%	7%	15%	34%	20%	11%
Operating profit	18%	23%	42%	83%	51%	25%	11%	4%	16%	41%	19%	12%
EBITDA	16%	22%	41%	71%	52%	30%	11%	1%	17%	38%	20%	10%
Net profit	21%	15%	47%	72%	43%	29%	5%	3%	13%	39%	17%	12%
FD EPS	21%	15%	47%	72%	43%	29%	5%	3%	13%	39%	17%	12%

Source: Company, Daiwa forecasts

■ TSMC: forecast revisions

TWDbn	New			Previous			Change		
	2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E
Revenue	763	913	1,011	754	876	957	1%	4%	6%
Gross profit	377	454	504	370	424	470	2%	7%	7%
Operating profit	295	352	395	285	322	363	4%	9%	9%
EBITDA	504	606	668	493	576	631	2%	5%	6%
Net profit	261	305	342	249	280	315	5%	9%	8%
FD EPS (TWD)	10.06	11.76	13.18	9.61	10.80	12.16	5%	9%	8%
<b>Margin</b>									
Gross	49.5%	49.7%	49.8%	49.1%	48.4%	49.1%			
Operating	38.7%	38.6%	39.1%	37.8%	36.8%	37.9%			
EBITDA	66.1%	66.4%	66.1%	65.5%	65.8%	65.9%			
Net	34.2%	33.4%	33.8%	33.1%	32.0%	32.9%			

Source: Daiwa forecasts.

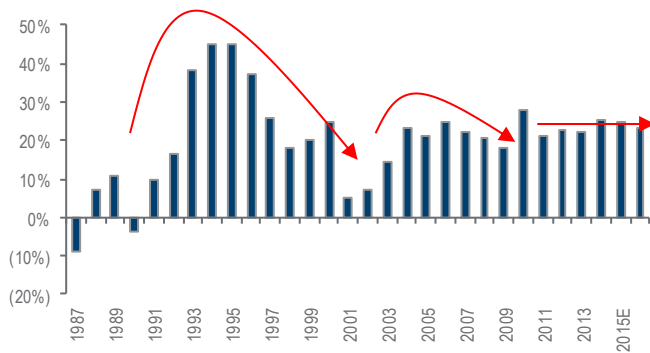
■ **TSMC: 4Q14 preview and 1Q15 outlook**

TWDm	4Q14E			1Q15E		
	Daiwa	Consensus	Variance	Daiwa	Consensus	Variance
Revenue	222,488	218,253	2%	212,640	200,119	6%
Gross profit	110,079			103,155		
Operating profit	87,608			79,340		
Pretax profit	90,647			80,693		
Net profit	77,050	76,119	1%	68,589	65,385	5%
Adjusted EPS (TWD)	2.97	2.93	1%	2.65	2.52	5%
<b>Margin</b>						
Gross	49.5%			48.5%		
Operating	39.4%			37.3%		
Net	34.6%			32.3%		
<b>Operation</b>						
Shipment ('000, 12" equivalent wafers)	2,320			2,197		
Utilization*	104%			99%		
20/16nm sales contribution	17%			20%		

\* Calculated as wafer shipment / capacity.

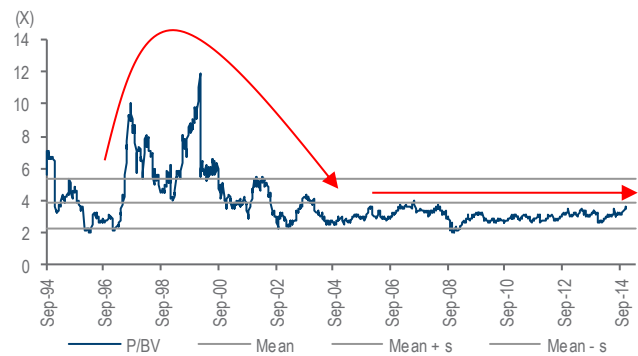
Source: Bloomberg, Daiwa forecasts

■ **TSMC: long-term ROE (single year)**



Source: Company, Daiwa forecasts

■ **TSMC: PBR**



Source: TEJ, Daiwa forecasts

## Siliconware Precision

2325 TT

# A solution for everything

- Broad exposure to the Big Data cycle: data access, processing, transmission and security
- Fast FC capacity ramp-up should help SPIL gain share of the MCD market in 2015
- 4Q14 top line likely to beat guidance; reiterate Buy (1) rating

Target (TWD): **57.00 → 57.00**

Upside: **17.2%**

29 Dec price (TWD): **48.65**

- 1 Buy (unchanged)
- 2 **Outperform**
- 3 Hold
- 4 Underperform
- 5 Sell



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### ■ What's new

SPIL's structural gains in the OSAT market globally should persist in 2015, thanks to its capacity build-up and fast sales ramp-up of advanced technologies, such as flip-chip (FC) and bumping, which should help it sustain its solid foothold in the MCD market. Given its ability to offer a variety of backend technologies to facilitate the frontend foundries, we think SPIL is well positioned to benefit from the Big Data cycle.

### ■ What's the impact

#### **Broad exposure to Big Data.**

As it is part of the same SCM supply chain as TSMC, SPIL should benefit from the rollout of the new IoT devices (its chips provide data access, processing, transmission and security functions). We believe SPIL's technological offerings (from Cu wirebonding [WB] to FC bumping and SiP technologies) should help it secure its foothold in Big Data.

### ■ FC capacity should help SPIL

**gain market share.** SPIL has built up its FC & bumping capacity over the past 2 years, having gained structural share in the Cu WB market in 2011-12. With the fast ramp-up of its FC sales contribution allowing it to capitalise on the ongoing 4G migration, we expect SPIL to continue to gain share of the global OSAT market. The recent merger of Jiangsu Changjiang Electronics Technology (JCET) and STATS-ChipPAC (both not rated) could lead to order reallocation that benefits SPIL.

**Preview and outlook.** We raised our earnings forecasts on 15 December ([Rush orders materialising](#)) to account for rush orders for SPIL in 4Q14. We still expect SPIL to report 4Q14 revenue that beats guidance and that this will be a share price catalyst. As for 1Q15, we expect SPIL to see typical seasonal factors, with single-digit % revenue contraction QoQ.

### ■ What we recommend

SPIL has been on our Buy list since we resumed coverage on 10 October 2014 ([Initiation: inflection point round the corner](#)). We maintain our target price of TWD57 (now 12-month, previously 6-month), based on our ROE-adjusted PBR of 2.6x (unchanged, single year). The key risk: **if SPIL's FC capacity ramp-up is lower than we expect due to competition.**

### ■ How we differ

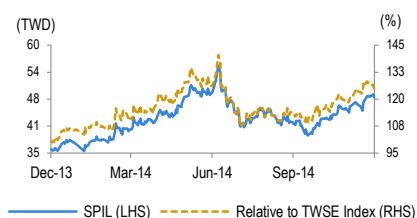
We believe we are one of few brokers providing an analysis of how the Big Data trend will benefit SPIL in 2015.

#### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	-	-	-
Net profit change	-	-	-
Core EPS (FD) change	-	-	-

Source: Daiwa forecasts

#### Share price performance



12-month range	35.40-55.30
Market cap (USDbn)	5.12
3m avg daily turnover (USDm)	15.10
Shares outstanding (m)	3,342
Major shareholder	CITI & SPI GDR (11.9%)

#### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	82,869	92,356	105,143
Operating profit (m)	13,273	14,614	17,004
Net profit (m)	11,423	11,891	13,901
Core EPS (fully-diluted)	3.418	3.558	4.160
EPS change (%)	80.8	4.1	16.9
Daiwa vs Cons. EPS (%)	(4.1)	(6.3)	4.1
PER (x)	14.2	13.7	11.7
Dividend yield (%)	3.5	4.5	5.1
DPS	1.7	2.2	2.5
PBR (x)	2.4	2.2	2.1
EV/EBITDA (x)	6.6	5.9	5.2
ROE (%)	17.5	17.0	18.5

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Packaging utilization (%)	85.0	95.1	89.8	96.2	88.0	84.8	86.5	94.1
Testing utilization (%)	70.4	77.5	71.2	77.7	82.3	82.3	87.8	89.3
FC & bumping utilization (%)	78.8	93.8	93.6	88.7	81.5	88.2	89.2	97.1

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Wirebonding	44,135	45,504	43,642	42,809	39,886	39,720	43,195	48,319
FC & bumping	9,057	12,612	12,084	15,531	21,601	33,144	38,377	44,932
Other Revenue	6,102	5,741	5,511	6,314	7,870	10,005	10,784	11,893
<b>Total Revenue</b>	<b>59,295</b>	<b>63,857</b>	<b>61,237</b>	<b>64,655</b>	<b>69,356</b>	<b>82,869</b>	<b>92,356</b>	<b>105,143</b>
Other income	0	0	0	0	0	0	0	0
COGS	(47,852)	(54,041)	(51,746)	(52,877)	(54,926)	(62,453)	(70,052)	(79,669)
SG&A	(2,024)	(1,902)	(2,399)	(2,777)	(3,086)	(3,556)	(3,894)	(4,265)
Other op. expenses	(1,276)	(1,538)	(2,001)	(2,554)	(3,407)	(3,587)	(3,797)	(4,206)
<b>Operating profit</b>	<b>8,143</b>	<b>6,376</b>	<b>5,090</b>	<b>6,446</b>	<b>7,937</b>	<b>13,273</b>	<b>14,614</b>	<b>17,004</b>
Net-interest inc./(exp.)	12	25	10	(79)	(168)	(203)	(213)	(151)
Assoc/forex/extraord./others	2,058	(12)	444	454	(313)	801	100	100
<b>Pre-tax profit</b>	<b>10,213</b>	<b>6,390</b>	<b>5,544</b>	<b>6,821</b>	<b>7,456</b>	<b>13,872</b>	<b>14,501</b>	<b>16,953</b>
Tax	(1,423)	(763)	(707)	(1,201)	(1,564)	(2,449)	(2,610)	(3,052)
Min. int./pref. div./others	0	0	0	0	0	0	0	0
<b>Net profit (reported)</b>	<b>8,790</b>	<b>5,627</b>	<b>4,837</b>	<b>5,620</b>	<b>5,892</b>	<b>11,423</b>	<b>11,891</b>	<b>13,901</b>
<b>Net profit (adjusted)</b>	<b>8,790</b>	<b>5,627</b>	<b>4,837</b>	<b>5,620</b>	<b>5,892</b>	<b>11,423</b>	<b>11,891</b>	<b>13,901</b>
<b>EPS (reported)(TWD)</b>	<b>2.821</b>	<b>1.806</b>	<b>1.559</b>	<b>1.826</b>	<b>1.902</b>	<b>3.418</b>	<b>3.558</b>	<b>4.160</b>
<b>EPS (adjusted)(TWD)</b>	<b>2.821</b>	<b>1.806</b>	<b>1.559</b>	<b>1.826</b>	<b>1.902</b>	<b>3.418</b>	<b>3.558</b>	<b>4.160</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>2.821</b>	<b>1.806</b>	<b>1.552</b>	<b>1.803</b>	<b>1.891</b>	<b>3.418</b>	<b>3.558</b>	<b>4.160</b>
<b>DPS (TWD)</b>	<b>1.800</b>	<b>2.580</b>	<b>1.627</b>	<b>1.420</b>	<b>1.659</b>	<b>1.678</b>	<b>2.200</b>	<b>2.500</b>
<b>EBIT</b>	<b>8,143</b>	<b>6,376</b>	<b>5,090</b>	<b>6,446</b>	<b>7,937</b>	<b>13,273</b>	<b>14,614</b>	<b>17,004</b>
<b>EBITDA</b>	<b>17,097</b>	<b>15,290</b>	<b>14,736</b>	<b>16,546</b>	<b>18,971</b>	<b>25,890</b>	<b>28,298</b>	<b>31,080</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	10,213	6,390	5,544	6,821	7,456	13,872	14,501	16,953
Depreciation and amortisation	8,954	8,913	9,646	10,100	11,033	12,617	13,684	14,076
Tax paid	(1,423)	(763)	(707)	(1,201)	(1,564)	(2,449)	(2,610)	(3,052)
Change in working capital	(1,496)	487	(1,943)	(2,372)	(2,290)	0	(2,500)	(1,500)
Other operational CF items	(756)	(620)	495	19	3,113	0	0	(0)
<b>Cash flow from operations</b>	<b>15,492</b>	<b>14,407</b>	<b>13,035</b>	<b>13,366</b>	<b>17,748</b>	<b>24,040</b>	<b>23,075</b>	<b>26,478</b>
Capex	(5,391)	(15,321)	(10,982)	(15,142)	(14,979)	(21,225)	(12,450)	(12,300)
Net (acquisitions)/disposals	13	(1,287)	(537)	(374)	(28)	0	0	0
Other investing CF items	(242)	525	(385)	(356)	(582)	0	0	0
<b>Cash flow from investing</b>	<b>(5,621)</b>	<b>(16,083)</b>	<b>(11,903)</b>	<b>(15,872)</b>	<b>(15,588)</b>	<b>(21,225)</b>	<b>(12,450)</b>	<b>(12,300)</b>
Change in debt	(3,427)	5,604	5,217	6,609	3,388	3,726	(3,839)	(4,770)
Net share issues/(repurchases)	0	0	0	0	0	0	0	0
Dividends paid	(5,609)	(8,040)	(5,048)	(4,371)	(5,141)	(5,609)	(7,352)	(8,355)
Other financing CF items	(61)	16	(877)	185	715	0	0	0
<b>Cash flow from financing</b>	<b>(9,097)</b>	<b>(2,420)</b>	<b>(709)</b>	<b>2,423</b>	<b>(1,037)</b>	<b>(1,884)</b>	<b>(11,191)</b>	<b>(13,125)</b>
Forex effect/others	0	0	0	0	0	0	0	0
<b>Change in cash</b>	<b>774</b>	<b>(4,096)</b>	<b>423</b>	<b>(84)</b>	<b>1,123</b>	<b>931</b>	<b>(567)</b>	<b>1,052</b>
Free cash flow	10,101	(915)	2,053	(1,776)	2,769	2,815	10,625	14,178

Source: FactSet, Daiwa forecasts

## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	19,615	15,519	15,941	15,858	16,975	17,906	17,340	18,392
Inventory	2,992	3,516	3,985	3,135	3,668	4,168	4,668	5,168
Accounts receivable	11,340	9,722	10,254	12,920	15,371	16,371	18,871	21,371
Other current assets	2,036	2,436	1,472	1,871	1,811	1,800	1,500	1,000
<b>Total current assets</b>	<b>35,983</b>	<b>31,192</b>	<b>31,652</b>	<b>33,784</b>	<b>37,825</b>	<b>40,245</b>	<b>42,379</b>	<b>45,931</b>
Fixed assets	36,316	42,927	44,145	49,889	55,197	64,346	65,175	65,347
Goodwill & intangibles	0	0	0	0	355	350	250	200
Other non-current assets	6,011	8,438	7,895	7,548	8,432	8,423	8,203	7,703
<b>Total assets</b>	<b>78,311</b>	<b>82,557</b>	<b>83,691</b>	<b>91,221</b>	<b>101,810</b>	<b>113,365</b>	<b>116,007</b>	<b>119,180</b>
Short-term debt	225	1,461	1,514	5,617	5,688	6,373	7,304	6,344
Accounts payable	7,954	7,346	6,404	5,848	6,542	8,042	8,542	10,042
Other current liabilities	6,826	7,736	6,965	7,513	10,300	10,646	11,037	12,495
<b>Total current liabilities</b>	<b>15,005</b>	<b>16,544</b>	<b>14,882</b>	<b>18,978</b>	<b>22,530</b>	<b>25,060</b>	<b>26,883</b>	<b>28,881</b>
Long-term debt	0	4,368	9,532	12,038	15,356	19,081	15,242	10,472
Other non-current liabilities	224	349	481	496	1,454	1,500	1,550	2,000
<b>Total liabilities</b>	<b>15,229</b>	<b>21,261</b>	<b>24,896</b>	<b>31,513</b>	<b>39,340</b>	<b>45,642</b>	<b>43,676</b>	<b>41,354</b>
Share capital	31,164	31,164	31,164	31,164	31,164	31,164	31,164	31,164
Reserves/R.E./others	31,918	30,133	27,631	28,545	31,306	36,559	41,167	46,663
<b>Shareholders' equity</b>	<b>63,081</b>	<b>61,296</b>	<b>58,795</b>	<b>59,708</b>	<b>62,470</b>	<b>67,723</b>	<b>72,331</b>	<b>77,827</b>
Minority interests	0	0	0	0	0	0	0	0
<b>Total equity &amp; liabilities</b>	<b>78,311</b>	<b>82,557</b>	<b>83,691</b>	<b>91,221</b>	<b>101,810</b>	<b>113,365</b>	<b>116,007</b>	<b>119,180</b>
EV	143,199	152,899	157,693	164,386	166,657	170,136	167,795	161,013
<b>Net debt/(cash)</b>	<b>(19,389)</b>	<b>(9,689)</b>	<b>(4,895)</b>	<b>1,797</b>	<b>4,069</b>	<b>7,548</b>	<b>5,207</b>	<b>(1,575)</b>
<b>BVPS (TWD)</b>	<b>20.242</b>	<b>19.669</b>	<b>18.867</b>	<b>19.160</b>	<b>20.046</b>	<b>20.264</b>	<b>21.643</b>	<b>23.288</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	(5.0)	7.7	(4.1)	5.6	7.3	19.5	11.4	13.8
EBITDA (YoY)	(7.0)	(10.6)	(3.6)	12.3	14.7	36.5	9.3	9.8
Operating profit (YoY)	(9.0)	(21.7)	(20.2)	26.6	23.1	67.2	10.1	16.4
Net profit (YoY)	39.2	(36.0)	(14.0)	16.2	4.9	93.9	4.1	16.9
Core EPS (fully-diluted) (YoY)	40.8	(36.0)	(14.0)	16.2	4.9	80.8	4.1	16.9
Gross-profit margin	19.3	15.4	15.5	18.2	20.8	24.6	24.2	24.2
EBITDA margin	28.8	23.9	24.1	25.6	27.4	31.2	30.6	29.6
Operating-profit margin	13.7	10.0	8.3	10.0	11.4	16.0	15.8	16.2
Net profit margin	14.8	8.8	7.9	8.7	8.5	13.8	12.9	13.2
ROAE	14.4	9.0	8.1	9.5	9.6	17.5	17.0	18.5
ROAA	11.6	7.0	5.8	6.4	6.1	10.6	10.4	11.8
ROCE	12.9	9.8	7.4	8.8	9.9	15.0	15.5	17.9
ROIC	16.0	11.8	8.4	9.2	9.8	15.4	15.7	18.1
Net debt to equity	n.a.	n.a.	n.a.	3.0	6.5	11.1	7.2	n.a.
Effective tax rate	13.9	11.9	12.7	17.6	21.0	17.7	18.0	18.0
Accounts receivable (days)	57.5	60.2	59.5	65.4	74.4	69.9	69.6	69.9
Current ratio (x)	2.4	1.9	2.1	1.8	1.7	1.6	1.6	1.6
Net interest cover (x)	n.a.	n.a.	n.a.	81.6	47.2	65.4	68.6	112.6
Net dividend payout	63.8	142.9	104.4	77.8	87.2	49.1	61.8	60.1
Free cash flow yield	6.2	n.a.	1.3	n.a.	1.7	1.7	6.5	8.7

Source: FactSet, Daiwa forecasts

### ■ Company profile

Siliconware Precision Industrial Co. Ltd. (SPIL) is a dedicated outsourced semiconductor, assembly and test (OSAT) player offering chip packaging, testing and wafer bumping services to global customers, including fabless chipmakers and IDMs. Ranked No. 3 in the world in terms of revenue, SPIL operates in Taiwan and China. In Taiwan, it enjoys a geographic advantage from support from the semiconductor supply-chain ecosystem.

■ SPIL: quarterly P&L

TWDm	1Q14	2Q14	3Q14	4Q14E	1Q15E	2Q15E	3Q15E	4Q15E	2013	2014E	2015E	2016E
Wirebonding revenue	9,030	10,306	10,609	9,775	9,302	10,858	11,526	11,510	39,886	39,720	43,195	48,319
FC & bumping revenue	6,863	8,990	8,444	8,846	8,162	9,390	10,324	10,502	21,601	33,144	38,377	44,932
Testing revenue & others	2,168	2,631	2,598	2,608	2,475	2,678	2,817	2,813	7,870	10,005	10,784	11,893
Total revenue	18,060	21,928	21,652	21,229	19,938	22,926	24,667	24,825	69,356	82,869	92,356	105,143
COGS	-14,066	-16,263	-16,103	-16,021	-15,555	-17,411	-18,474	-18,612	-54,926	-62,453	-70,052	-79,669
Gross profit	3,995	5,665	5,549	5,207	4,383	5,515	6,194	6,213	14,431	20,416	22,305	25,475
Opex	-1,603	-1,726	-1,925	-1,889	-1,755	-1,903	-2,023	-2,011	-6,493	-7,143	-7,691	-8,471
Operating profit	2,392	3,939	3,624	3,318	2,629	3,612	4,171	4,202	7,937	13,273	14,614	17,004
EBITDA	5,350	6,981	6,814	6,745	6,015	7,031	7,589	7,663	18,971	25,890	28,298	31,080
Pretax profit	2,551	4,058	3,965	3,297	2,604	3,582	4,141	4,174	7,456	13,872	14,501	16,953
Income taxes	-460	-687	-708	-594	-469	-645	-745	-751	-1,564	-2,449	-2,610	-3,052
Net profit	2,091	3,371	3,257	2,704	2,135	2,937	3,396	3,423	5,892	11,423	11,891	13,901
FD O/S (m)	3,116	3,116	3,116	3,342	3,342	3,342	3,342	3,342	3,116	3,342	3,342	3,342
FD EPS (TWD)	0.67	1.08	1.05	0.81	0.64	0.88	1.02	1.02	1.89	3.42	3.56	4.16
<b>Margin</b>												
Gross	22%	26%	26%	25%	22%	24%	25%	25%	21%	25%	24%	24%
Operating	13%	18%	17%	16%	13%	16%	17%	17%	11%	16%	16%	16%
EBITDA	30%	32%	31%	32%	30%	31%	31%	31%	27%	31%	31%	30%
Net	12%	15%	15%	13%	11%	13%	14%	14%	8%	14%	13%	13%
<b>Growth (QoQ)</b>												
WB revenue	-4%	14%	3%	-8%	-5%	17%	6%	0%				
FC revenue	-4%	31%	-6%	5%	-8%	15%	10%	2%				
Test revenue	-4%	21%	-1%	0%	-5%	8%	5%	0%				
Total revenue	-4%	21%	-1%	-2%	-6%	15%	8%	1%				
Gross profit	-8%	42%	-2%	-6%	-16%	26%	12%	0%				
Operating profit	-10%	65%	-8%	-8%	-21%	37%	15%	1%				
EBITDA	-4%	30%	-2%	-1%	-11%	17%	8%	1%				
Net profit	-7%	61%	-3%	-17%	-21%	38%	16%	1%				
FD EPS	-7%	61%	-3%	-23%	-21%	38%	16%	1%				
<b>Growth (YoY)</b>												
WB revenue	2%	-4%	-3%	4%	3%	5%	9%	18%	-7%	0%	9%	12%
FC revenue	91%	82%	43%	24%	19%	4%	22%	19%	39%	53%	16%	17%
Test revenue	57%	36%	13%	15%	14%	2%	8%	8%	25%	27%	8%	10%
Total revenue	31%	25%	13%	13%	10%	5%	14%	17%	7%	19%	11%	14%
Gross profit	98%	54%	26%	21%	10%	-3%	12%	19%	23%	41%	9%	14%
Operating profit	275%	108%	31%	25%	10%	-8%	15%	27%	23%	67%	10%	16%
EBITDA	63%	52%	23%	21%	12%	1%	11%	14%	15%	36%	9%	10%
Net profit	nm	94%	49%	20%	2%	-13%	4%	27%	5%	94%	4%	17%
FD EPS	nm	94%	49%	12%	-5%	-19%	-3%	27%	5%	81%	4%	17%

Source: Company, Daiwa forecasts

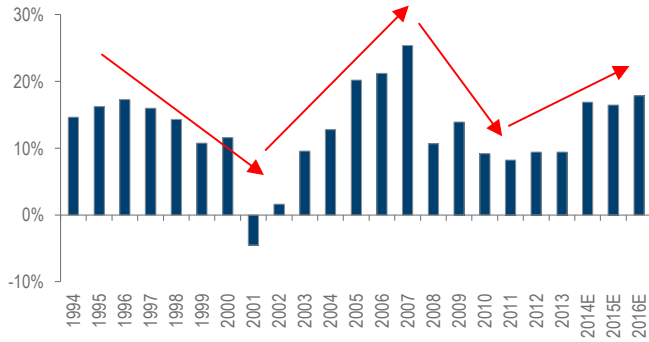
■ SPIL: 4Q14 preview and 1Q15 outlook

TWDm	4Q14E			1Q15E		
	Daiwa	Consensus	Variance	Daiwa	Consensus	Variance
Revenue	21,229	20,533	3%	19,938	19,829	1%
Gross profit	5,207			4,383		
Operating profit	3,318			2,629		
Pretax profit	3,297			2,604		
Net profit	2,704	2,549	6%	2,135	2,294	-7%
Adjusted EPS (TWD)	0.81	0.76	6%	0.64	0.69	-7%
<b>Margin</b>						
Gross	24.5%			22.0%		
Operating	15.6%			13.2%		
Net	12.7%			10.7%		
<b>Operation</b>						
Wirebonder utilization	80%			78%		
Tester utilisation	81%			80%		
Bumping utilisation	82%			78%		

Source: Bloomberg, Daiwa forecasts

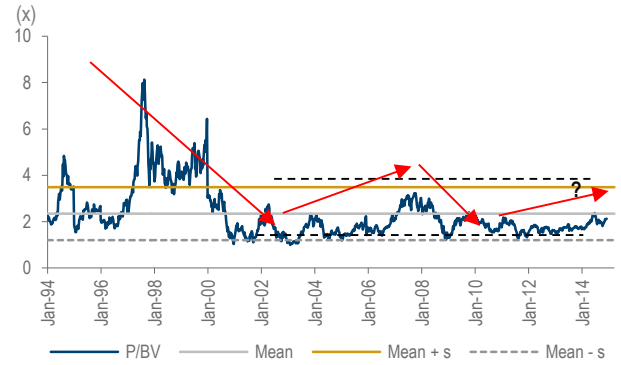


■ SPIL: ROE



Source: Company, Daiwa forecasts

■ SPIL: PBR



Source: TEJ, Daiwa forecasts

## Hon Hai Precision Industry

2317 TT

# Well positioned for the rise of the cloud

- Big Data trend should benefit Hon Hai's server, storage and networking businesses in 2015
- Its core mobile EMS revenue should remain robust over the next 1-2 years given its solid leading position with Apple
- Hon Hai is one of our top picks in the Greater China smartphone space; reaffirming Buy (1) rating

Target (TWD): **115.00 → 115.00**

Upside: **31.0%**

29 Dec price (TWD): **87.80**

- 1 Buy (unchanged)
- 2 Outperform
- 3 Hold
- 4 Underperform
- 5 Sell



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### What's new

On the back of its solid position in the current MCD and server markets, Hon Hai looks set to capitalise on the Big Data cycle (given its broad exposure to the data access, process, transmission, and storage themes), which should provide further earnings upside.

### What's the impact

#### Big Data focuses on the cloud.

We expect demand for servers and storage to surge in the next few years, driven by the Big Data trend. As a major EMS partner for server and storage providers, Hon Hai should be well positioned to capture the opportunities here in 2015.

Hon Hai recently formed JVs with 21Vianet (VNET US, USD15.56, Buy [1]) and HP (HPQ US, USD40.71, Outperform [2]). The first JV aims to address the surge in demand for data centres in China, while the second is a strategic alliance that aims to provide cost-competitive

server solutions to service providers. With favourable industry trends and Hon Hai's **increasing** alliances with industry leaders, we see strong revenue growth potential for the server and storage business (10-15% of its revenue in 2014E) in the long term.

In addition, Hon Hai's networking business (10-15% of 2014E sales) supplies Wi-Fi routers and telecoms equipment to a broad client base, which should also benefit from the surge in demand for IoT devices.

### Core business remains solid.

We expect Hon Hai's core mobile EMS business (50% of 2014E revenue) to remain its main revenue growth driver over 2015-16, given its solid industry position (70-80% order allocation for Apple's iPhone/iPad).

### What we recommend

We reaffirm our Buy (1) rating and target price of TWD115 (now on 12 months, a change from 6 months previously), based on an unchanged 1-year forward PER of 12x. Hon Hai remains one of our top picks in the Greater China smartphone space. The main risk to our call: slower-than-expected operating margin expansion.

### How we differ

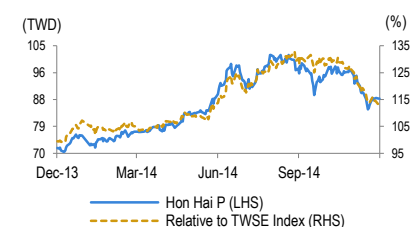
Our call that Hon Hai will be a beneficiary of the Big Data trend appears to be out of consensus.

#### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	-	-	-
Net profit change	-	-	-
Core EPS (FD) change	-	-	-

Source: Daiwa forecasts

#### Share price performance



12-month range	70.53-102.00
Market cap (USDbn)	40.92
3m avg daily turnover (USDm)	104.77
Shares outstanding (m)	14,793
Major shareholder	Terry Kuo (11.0%)

#### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	4,110,000	4,550,000	4,880,000
Operating profit (m)	137,685	161,525	180,560
Net profit (m)	123,570	141,375	155,403
Core EPS (fully-diluted)	8.386	9.557	10.505
EPS change (%)	14.8	14.0	9.9
Daiwa vs Cons. EPS (%)	2.9	3.7	10.2
PER (x)	10.5	9.2	8.4
Dividend yield (%)	2.4	2.7	3.0
DPS	2.1	2.4	2.6
PBR (x)	1.5	1.3	1.2
EV/EBITDA (x)	4.7	3.8	3.0
ROE (%)	15.2	15.4	15.0

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Consumer related sales growth (YoY%)	5.3	11.6	11.5	4.6	20.0	(8.8)	(11.1)	(4.6)
PC and networking related sales growth (YoY%)	(7.2)	48.0	(9.3)	(8.5)	6.0	9.2	3.8	4.1
iPhone shipment (mn units)	25.1	47.2	80.5	119.7	120.0	135.5	162.8	192.1
iPad shipment (mn units)	0.0	14.3	40.0	60.1	55.0	47.7	53.4	59.8

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
PC/NB/networking Revenues	1,009,676	1,551,076	1,505,953	1,312,868	1,283,682	1,359,004	1,399,638	1,450,705
Consumer electronics Revenues	376,979	420,625	468,801	490,474	588,543	536,786	477,064	454,962
Other Revenue	572,527	1,025,504	1,477,928	2,102,053	2,080,092	2,214,210	2,673,298	2,974,333
<b>Total Revenue</b>	<b>1,959,182</b>	<b>2,997,205</b>	<b>3,452,681</b>	<b>3,905,395</b>	<b>3,952,318</b>	<b>4,110,000</b>	<b>4,550,000</b>	<b>4,880,000</b>
Other income	0	0	0	0	0	0	0	0
COGS	(1,772,629)	(2,753,003)	(3,186,299)	(3,575,766)	(3,697,623)	(3,822,300)	(4,231,500)	(4,538,400)
SG&A	(76,982)	(119,265)	(142,691)	(175,552)	(98,800)	(97,510)	(102,034)	(104,676)
Other op.expenses	(26,082)	(38,791)	(40,847)	(45,627)	(46,580)	(52,505)	(54,941)	(56,364)
<b>Operating profit</b>	<b>83,489</b>	<b>86,146</b>	<b>82,845</b>	<b>108,450</b>	<b>109,314</b>	<b>137,685</b>	<b>161,525</b>	<b>180,560</b>
Net-interest inc./(exp.)	(435)	492	2,721	3,752	1,593	2,395	4,160	5,836
Assoc/forex/extraord./others	4,977	4,839	16,970	6,177	25,388	18,764	12,321	9,513
<b>Pre-tax profit</b>	<b>88,031</b>	<b>91,477</b>	<b>102,536</b>	<b>118,379</b>	<b>136,296</b>	<b>158,845</b>	<b>178,006</b>	<b>195,910</b>
Tax	(11,651)	(16,005)	(20,602)	(26,592)	(28,950)	(33,675)	(34,711)	(38,202)
Min. int./pref. div./others	(695)	1,682	(344)	2,975	(649)	(1,600)	(1,920)	n.a.
<b>Net profit (reported)</b>	<b>75,685</b>	<b>77,155</b>	<b>81,591</b>	<b>94,762</b>	<b>106,697</b>	<b>123,570</b>	<b>141,375</b>	<b>155,403</b>
<b>Net profit (adjusted)</b>	<b>75,685</b>	<b>77,155</b>	<b>81,591</b>	<b>94,762</b>	<b>106,697</b>	<b>123,570</b>	<b>141,375</b>	<b>155,403</b>
<b>EPS (reported)(TWD)</b>	<b>5.316</b>	<b>5.391</b>	<b>5.664</b>	<b>6.535</b>	<b>7.303</b>	<b>8.386</b>	<b>9.557</b>	<b>10.505</b>
<b>EPS (adjusted)(TWD)</b>	<b>5.316</b>	<b>5.391</b>	<b>5.664</b>	<b>6.535</b>	<b>7.303</b>	<b>8.386</b>	<b>9.557</b>	<b>10.505</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>5.316</b>	<b>5.391</b>	<b>5.664</b>	<b>6.535</b>	<b>7.303</b>	<b>8.386</b>	<b>9.557</b>	<b>10.505</b>
<b>DPS (TWD)</b>	<b>1.205</b>	<b>0.675</b>	<b>1.113</b>	<b>1.224</b>	<b>1.618</b>	<b>2.105</b>	<b>2.389</b>	<b>2.626</b>
<b>EBIT</b>	<b>83,489</b>	<b>86,146</b>	<b>82,845</b>	<b>108,450</b>	<b>109,314</b>	<b>137,685</b>	<b>161,525</b>	<b>180,560</b>
<b>EBITDA</b>	<b>121,888</b>	<b>127,276</b>	<b>134,301</b>	<b>176,334</b>	<b>182,928</b>	<b>218,730</b>	<b>249,280</b>	<b>275,025</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	88,031	91,477	102,536	118,379	136,296	158,845	178,006	195,910
Depreciation and amortisation	38,399	41,131	51,456	67,883	73,613	81,045	87,755	94,465
Tax paid	(11,651)	(16,005)	(20,602)	(26,592)	(28,950)	(33,675)	(34,711)	(38,202)
Change in working capital	(17,186)	(37,014)	(64,472)	90,647	(11,471)	(17,647)	(50,983)	(57,387)
Other operational CF items	(3,694)	(1,552)	(3,067)	1,016	(5,487)	(4,724)	(5,778)	(4,028)
<b>Cash flow from operations</b>	<b>93,899</b>	<b>78,038</b>	<b>65,852</b>	<b>251,333</b>	<b>164,001</b>	<b>183,843</b>	<b>174,288</b>	<b>190,757</b>
Capex	(24,035)	(68,959)	(87,171)	(64,051)	(35,289)	(50,000)	(50,000)	(50,000)
Net (acquisitions)/disposals	(17,095)	(52,600)	64,657	(12,350)	(3,016)	(12,000)	0	0
Other investing CF items	3,231	(9,952)	(56,878)	(44,325)	(32,904)	(1,646)	(1,685)	(1,724)
<b>Cash flow from investing</b>	<b>(37,899)</b>	<b>(131,511)</b>	<b>(79,392)</b>	<b>(120,727)</b>	<b>(71,209)</b>	<b>(63,646)</b>	<b>(51,685)</b>	<b>(51,724)</b>
Change in debt	20,152	166,043	73,134	71,362	85,635	29,464	30,937	32,484
Net share issues/(repurchases)	0	0	0	0	0	0	0	0
Dividends paid	(8,156)	(17,158)	(9,661)	(16,034)	(17,754)	(23,632)	(31,015)	(35,344)
Other financing CF items	11,160	(19,259)	25,309	(10,028)	29,195	0	0	0
<b>Cash flow from financing</b>	<b>23,155</b>	<b>129,626</b>	<b>88,782</b>	<b>45,300</b>	<b>97,076</b>	<b>5,832</b>	<b>(79)</b>	<b>(2,860)</b>
Forex effect/others	0	0	0	0	0	0	0	0
<b>Change in cash</b>	<b>79,155</b>	<b>76,153</b>	<b>75,242</b>	<b>175,906</b>	<b>189,868</b>	<b>126,029</b>	<b>122,525</b>	<b>136,173</b>
Free cash flow	69,864	9,079	(21,319)	187,282	128,712	133,843	124,288	140,757

Source: FactSet, Daiwa forecasts

## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	179,143	255,296	330,538	506,445	696,312	822,342	944,866	1,078,735
Inventory	180,980	259,384	380,522	349,883	312,785	332,374	384,682	453,840
Accounts receivable	307,606	409,819	476,050	633,049	747,710	777,541	872,603	935,890
Other current assets	31,846	40,049	96,558	53,582	51,774	53,840	59,604	63,927
<b>Total current assets</b>	<b>699,574</b>	<b>964,548</b>	<b>1,283,668</b>	<b>1,542,957</b>	<b>1,808,581</b>	<b>1,986,096</b>	<b>2,261,755</b>	<b>2,532,392</b>
Fixed assets	234,618	272,150	355,373	390,298	379,562	349,102	311,951	268,107
Goodwill & intangibles	0	0	0	0	0	0	0	0
Other non-current assets	87,753	143,835	91,270	111,148	124,318	140,503	145,443	150,574
<b>Total assets</b>	<b>1,021,945</b>	<b>1,380,532</b>	<b>1,730,311</b>	<b>2,044,404</b>	<b>2,312,461</b>	<b>2,475,701</b>	<b>2,719,148</b>	<b>2,951,073</b>
Short-term debt	86,245	230,455	271,512	355,790	400,442	420,464	441,487	463,562
Accounts payable	300,530	427,153	548,494	638,371	712,704	736,735	811,521	870,378
Other current liabilities	88,462	113,644	171,710	255,863	245,815	255,622	282,988	303,512
<b>Total current liabilities</b>	<b>475,236</b>	<b>771,252</b>	<b>991,716</b>	<b>1,250,024</b>	<b>1,358,961</b>	<b>1,412,821</b>	<b>1,535,995</b>	<b>1,637,452</b>
Long-term debt	62,649	87,955	115,979	105,688	132,164	138,772	145,710	152,996
Other non-current liabilities	44,205	40,732	44,785	42,159	56,667	59,500	62,475	65,599
<b>Total liabilities</b>	<b>582,090</b>	<b>899,939</b>	<b>1,152,480</b>	<b>1,397,871</b>	<b>1,547,791</b>	<b>1,611,093</b>	<b>1,744,181</b>	<b>1,856,046</b>
Share capital	85,789	96,612	106,891	118,359	131,287	147,934	147,934	147,934
Reserves/R.E./others	354,066	383,980	470,941	528,174	633,383	716,674	827,033	947,093
<b>Shareholders' equity</b>	<b>439,855</b>	<b>480,593</b>	<b>577,832</b>	<b>646,532</b>	<b>764,670</b>	<b>864,608</b>	<b>974,967</b>	<b>1,095,027</b>
Minority interests	0	0	0	0	0	0	0	0
<b>Total equity &amp; liabilities</b>	<b>1,021,945</b>	<b>1,380,532</b>	<b>1,730,311</b>	<b>2,044,404</b>	<b>2,312,461</b>	<b>2,475,701</b>	<b>2,719,148</b>	<b>2,951,073</b>
EV	1,268,612	1,361,975	1,355,814	1,253,895	1,135,154	1,035,755	941,192	836,684
<b>Net debt/(cash)</b>	<b>(30,249)</b>	<b>63,114</b>	<b>56,953</b>	<b>(44,966)</b>	<b>(163,707)</b>	<b>(263,106)</b>	<b>(357,669)</b>	<b>(462,178)</b>
<b>BVPS (TWD)</b>	<b>30.815</b>	<b>33.463</b>	<b>39.978</b>	<b>44.407</b>	<b>52.041</b>	<b>58.445</b>	<b>65.906</b>	<b>74.021</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	0.4	53.0	15.2	13.1	1.2	4.0	10.7	7.3
EBITDA (YoY)	17.9	4.4	5.5	31.3	3.7	19.6	14.0	10.3
Operating profit (YoY)	18.2	3.2	(3.8)	30.9	0.8	26.0	17.3	11.8
Net profit (YoY)	37.3	1.9	5.8	16.1	12.6	15.8	14.4	9.9
Core EPS (fully-diluted) (YoY)	34.3	1.4	5.1	15.4	11.8	14.8	14.0	9.9
Gross-profit margin	9.5	8.1	7.7	8.4	6.4	7.0	7.0	7.0
EBITDA margin	6.2	4.2	3.9	4.5	4.6	5.3	5.5	5.6
Operating-profit margin	4.3	2.9	2.4	2.8	2.8	3.4	3.6	3.7
Net profit margin	3.9	2.6	2.4	2.4	2.7	3.0	3.1	3.2
ROAE	18.9	16.8	15.4	15.5	15.1	15.2	15.4	15.0
ROAA	8.0	6.4	5.2	5.0	4.9	5.2	5.4	5.5
ROCE	15.5	12.4	9.4	10.5	9.1	10.1	10.8	11.0
ROIC	18.1	14.9	11.2	13.6	14.3	18.0	21.3	23.3
Net debt to equity	n.a.	13.1	9.9	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	13.2	17.5	20.1	22.5	21.2	21.2	19.5	19.5
Accounts receivable (days)	53.6	43.7	46.8	51.8	63.8	67.7	66.2	67.6
Current ratio (x)	1.5	1.3	1.3	1.2	1.3	1.4	1.5	1.5
Net interest cover (x)	191.7	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout	30.4	12.7	20.6	21.6	24.8	28.8	28.5	27.5
Free cash flow yield	5.4	0.7	n.a.	14.4	9.9	10.3	9.6	10.8

Source: FactSet, Daiwa forecasts

### ■ Company profile

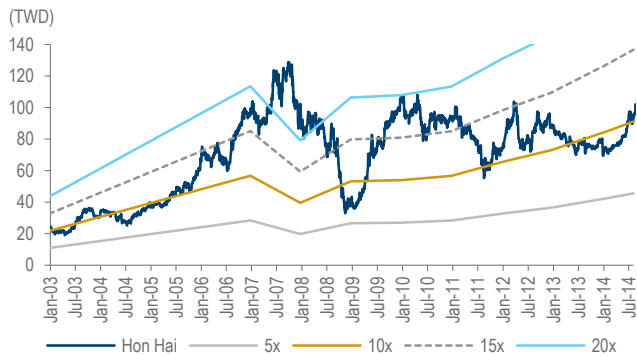
Established in 1974, Hon Hai Precision Industry (Hon Hai) started out making plastic products, connector products and cable assemblies. It is now the largest electronics manufacturing service (EMS) provider globally in terms of design, manufacturing, global logistics and after-market service.

■ **Hon Hai: quarterly and annual P&L statement**

(TWDm)	2014E				2015E				2013	2014E	2015E
	1Q	2Q	3Q	4QE	1QE	2QE	3QE	4QE			
<b>Net sales</b>	883,479	879,094	950,494	1,396,932	1,020,970	996,710	1,057,629	1,474,692	3,952,318	4,110,000	4,550,000
COGS	830,103	817,104	882,997	1,292,096	954,407	930,154	983,325	1,363,614	3,697,623	3,822,300	4,231,500
<b>Gross profit</b>	53,376	61,990	67,497	104,837	66,563	66,556	74,304	111,077	254,695	287,700	318,500
Operating costs	32,470	34,058	36,125	47,362	35,326	33,390	37,546	50,714	145,380	150,015	156,975
<b>Operating profit</b>	20,906	27,932	31,373	57,475	31,237	33,166	36,758	60,364	109,314	137,685	161,525
Pretax profit	25,541	32,417	41,809	59,077	34,533	36,791	40,879	65,802	136,296	158,845	178,006
<b>Net profit</b>	19,543	20,186	34,089	49,752	27,849	27,114	33,040	53,371	106,697	123,570	141,375
<b>Net EPS (TWD)</b>	1.33	1.37	2.31	3.38	1.88	1.83	2.23	3.61	7.30	8.39	9.56
<b>Operating ratio</b>											
Gross margin	6.0%	7.1%	7.1%	7.5%	6.5%	6.7%	7.0%	7.5%	6.4%	7.0%	7.0%
Operating margin	2.4%	3.2%	3.3%	4.1%	3.1%	3.3%	3.5%	4.1%	2.8%	3.4%	3.6%
Pre-tax margin	2.9%	3.7%	4.4%	4.2%	3.4%	3.7%	3.9%	4.5%	3.4%	3.9%	3.9%
Net margin	2.2%	2.3%	3.6%	3.6%	2.7%	2.7%	3.1%	3.6%	2.7%	3.0%	3.1%
<b>YoY (%)</b>											
Net revenue	9%	-2%	3%	5%	16%	13%	11%	6%	1%	4%	11%
Gross profit	16%	19%	4%	14%	25%	7%	10%	6%	-23%	13%	11%
Operating income	50%	50%	-1%	28%	49%	19%	17%	5%	1%	26%	17%
Pretax income	13%	27%	17%	13%	35%	13%	-2%	11%	15%	17%	12%
Net income	20%	19%	11%	17%	43%	34%	-3%	7%	13%	16%	14%
<b>QoQ (%)</b>											
Net revenue	-33%	0%	8%	47%	-27%	-2%	6%	39%			
Gross profit	-42%	16%	9%	55%	-37%	0%	12%	49%			
Operating income	-53%	34%	12%	83%	-46%	6%	11%	64%			
Pretax income	-51%	27%	29%	41%	-42%	7%	11%	61%			
Net income	-54%	3%	69%	46%	-44%	-3%	22%	62%			

Source: Company, Daiwa forecasts

■ **Hon Hai: 1-year-forward PER**



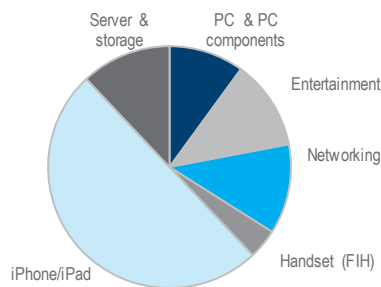
Source: TEJ, Daiwa forecasts

■ **Hon Hai: 1-year-forward PBR**



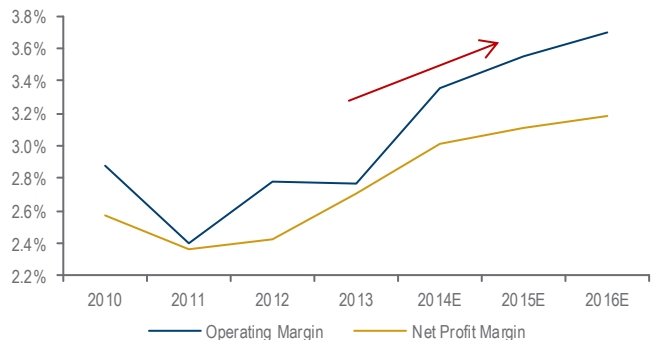
Source: TEJ, Daiwa forecasts

■ **Hon Hai: sales breakdown (2014E)**



Source: Daiwa forecasts

■ **Hon Hai: operating and net margins**



Source: Company, Daiwa forecasts

## Largan Precision

3008 TT

# Big Data should broaden addressable market

- Next Big Data wave provides upside, especially from fast-growing demand for wearable devices/smart TVs
- Dual revenue growth drivers (Apple and China brands) look intact for 2015
- Remains one of our top picks in the Greater China smartphone space; reaffirming Buy (1) rating

Target (TWD): **3,060.00 → 3,060.00**

Upside: **27.8%**

29 Dec price (TWD): **2,395.00**

- 1 Buy (unchanged)
- 2 Outperform
- 3 Hold
- 4 Underperform
- 5 Sell



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### ■ What's new

By leveraging its core competency in the mobile camera-module market, where revenue should continue to grow on lens-spec upgrades, Largan should benefit from the Big Data cycle on the back of its exposure to the Data access theme we identify.

### ■ What's the impact

**Big Data should add to upside.** Given its strength in mobile-camera modules, Largan looks set to capture rising demand from data access. We believe the emerging demand for wearable devices/smart TVs should provide major demand upside for Largan in 2015 and beyond. Daiwa forecasts shipments of wearable devices and smart TVs to reach 767m combined in 2018 vs. 41m for 2014E. Compared with global smartphone shipments of 1.2bn for 2014E, wearables could broaden **Largan's addressable market** by more than 50%.

**Two solid growth engines: Apple and China brands.** We think

Largan is well positioned to benefit from a wide variety of lens specs being upgraded in 2015 (eg, higher megapixels and aperture ratios, and use of dual cameras) on the back of its leading position in the high-end lens business. In addition to Apple (60-70% of lens orders for the iPhone 6 and more than 90% of the 6 Plus, on our estimates), **Largan's China** customers should provide another key earnings growth driver, thanks to continuing spec upgrades.

**Capacity expansion plan should broaden its leading edge.** On 29 Sep 2014, Largan announced plans to acquire land in Taichung for future expansion, with new capacity coming on line in early-2016. In our view, this shows **Largan's confidence in its long-term business growth** and we believe it will broaden its industry-leading position on better economies of scale.

### ■ What we recommend

We reiterate our Buy (1) rating and now have a 12-month target price of TWD3,060 (6 months previously), based on an unchanged 1-year forward PER of 20x (high end of the **stock's past-3-year range** of 9-24x). We see Largan's dual growth drivers of Apple and the China business intact, backed by its solid industry position. Key risk: greater-than-expected price competition.

### ■ How we differ

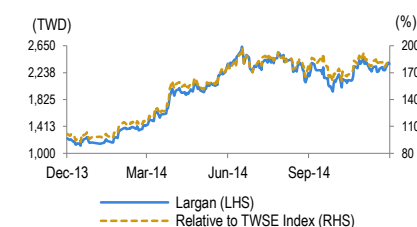
Our call on Largan as a beneficiary of the Big Data trend appears a non-consensus one.

#### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	-	-	-
Net profit change	-	-	-
Core EPS (FD) change	-	-	-

Source: Daiwa forecasts

#### Share price performance



12-month range	1,115.00-2,635.00
Market cap (USDbn)	10.12
3m avg daily turnover (USDm)	92.06
Shares outstanding (m)	134
Major shareholder	Ch'en Shih Ch'ing (5.1%)

#### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	44,600	58,060	68,660
Operating profit (m)	20,726	26,824	31,858
Net profit (m)	18,048	22,204	26,438
Core EPS (fully-diluted)	134.542	165.531	197.092
EPS change (%)	87.8	23.0	19.1
Daiwa vs Cons. EPS (%)	5.2	4.4	12.5
PER (x)	17.8	14.5	12.2
Dividend yield (%)	2.2	2.8	3.3
DPS	53.8	66.2	78.8
PBR (x)	7.2	5.4	4.2
EV/EBITDA (x)	13.0	9.7	8.4
ROE (%)	48.1	42.6	38.6

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Mobile phone lens shipment ('000 units)	173,300	215,100	286,554	344,730	483,614	691,899	869,243	1,009,838
Blended ASP of handset lens (USD)	1.12	1.21	1.33	1.34	1.47	1.77	1.80	1.86
Gross margin of VCM assembly (%)	5.0	7.3	6.8	5.3	6.0	6.0	6.0	6.0

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Mobile Phone Lens Revenues	7,421	11,433	15,243	19,190	26,623	43,698	57,024	67,258
DSC Lens Revenues	377	555	391	415	449	452	446	109
Other Revenue	357	363	351	468	362	450	590	1,294
<b>Total Revenue</b>	<b>8,154</b>	<b>12,351</b>	<b>15,984</b>	<b>20,072</b>	<b>27,433</b>	<b>44,600</b>	<b>58,060</b>	<b>68,660</b>
Other income	0	0	0	0	0	0	0	0
COGS	(4,580)	(6,546)	(9,043)	(11,710)	(14,472)	(20,685)	(27,579)	(32,614)
SG&A	(345)	(374)	(506)	(530)	(887)	(1,298)	(1,489)	(1,705)
Other op. expenses	(507)	(770)	(963)	(1,034)	(1,293)	(1,891)	(2,169)	(2,484)
<b>Operating profit</b>	<b>2,722</b>	<b>4,661</b>	<b>5,472</b>	<b>6,798</b>	<b>10,781</b>	<b>20,726</b>	<b>26,824</b>	<b>31,858</b>
Net-interest inc./(exp.)	30	28	50	84	122	168	276	378
Assoc/forex/extraord./others	(109)	(356)	314	(71)	598	720	(54)	(34)
<b>Pre-tax profit</b>	<b>2,643</b>	<b>4,334</b>	<b>5,837</b>	<b>6,811</b>	<b>11,501</b>	<b>21,614</b>	<b>27,046</b>	<b>32,202</b>
Tax	(157)	(289)	(638)	(1,234)	(1,891)	(3,566)	(4,841)	(5,764)
Min. int./pref. div./others	0	0	0	0	0	0	0	0
<b>Net profit (reported)</b>	<b>2,486</b>	<b>4,044</b>	<b>5,199</b>	<b>5,578</b>	<b>9,610</b>	<b>18,048</b>	<b>22,204</b>	<b>26,438</b>
<b>Net profit (adjusted)</b>	<b>2,486</b>	<b>4,044</b>	<b>5,199</b>	<b>5,578</b>	<b>9,610</b>	<b>18,048</b>	<b>22,204</b>	<b>26,438</b>
<b>EPS (reported)(TWD)</b>	<b>18.651</b>	<b>30.150</b>	<b>38.755</b>	<b>41.581</b>	<b>71.640</b>	<b>134.542</b>	<b>165.531</b>	<b>197.092</b>
<b>EPS (adjusted)(TWD)</b>	<b>18.651</b>	<b>30.150</b>	<b>38.755</b>	<b>41.581</b>	<b>71.640</b>	<b>134.542</b>	<b>165.531</b>	<b>197.092</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>18.651</b>	<b>30.150</b>	<b>38.755</b>	<b>41.581</b>	<b>71.640</b>	<b>134.542</b>	<b>165.531</b>	<b>197.092</b>
<b>DPS (TWD)</b>	<b>10.064</b>	<b>13.500</b>	<b>17.000</b>	<b>17.000</b>	<b>28.500</b>	<b>53.817</b>	<b>66.212</b>	<b>78.837</b>
<b>EBIT</b>	<b>2,722</b>	<b>4,661</b>	<b>5,472</b>	<b>6,798</b>	<b>10,781</b>	<b>20,726</b>	<b>26,824</b>	<b>31,858</b>
<b>EBITDA</b>	<b>3,344</b>	<b>5,398</b>	<b>6,372</b>	<b>8,005</b>	<b>12,229</b>	<b>22,522</b>	<b>29,080</b>	<b>31,858</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	2,643	4,334	5,837	6,811	11,501	21,614	27,046	32,202
Depreciation and amortisation	622	737	900	1,208	1,448	1,796	2,256	2,831
Tax paid	(157)	(289)	(638)	(1,234)	(1,891)	(3,566)	(4,841)	(5,764)
Change in working capital	(466)	(539)	1,202	(783)	(363)	(2,800)	(2,045)	(1,462)
Other operational CF items	14	21	18	(2)	51	(5)	(6)	(6)
<b>Cash flow from operations</b>	<b>2,656</b>	<b>4,263</b>	<b>7,318</b>	<b>6,000</b>	<b>10,746</b>	<b>17,038</b>	<b>22,409</b>	<b>27,801</b>
Capex	(1,057)	(1,066)	(3,149)	(2,865)	(1,504)	(4,000)	(5,000)	(4,000)
Net (acquisitions)/disposals	(20)	(1)	(2)	(101)	9	(10)	(10)	(10)
Other investing CF items	(26)	(21)	(23)	(19)	(1,593)	1,654	0	0
<b>Cash flow from investing</b>	<b>(1,103)</b>	<b>(1,088)</b>	<b>(3,173)</b>	<b>(2,985)</b>	<b>(3,088)</b>	<b>(2,356)</b>	<b>(5,010)</b>	<b>(4,010)</b>
Change in debt	(120)	142	319	(356)	12	(4)	0	0
Net share issues/(repurchases)	0	0	0	0	0	0	0	0
Dividends paid	(1,301)	(1,341)	(1,811)	(2,280)	(2,280)	(3,823)	(7,219)	(8,882)
Other financing CF items	591	(23)	37	(43)	51	0	0	0
<b>Cash flow from financing</b>	<b>(831)</b>	<b>(1,223)</b>	<b>(1,456)</b>	<b>(2,679)</b>	<b>(2,217)</b>	<b>(3,827)</b>	<b>(7,219)</b>	<b>(8,882)</b>
Forex effect/others	0	0	0	0	0	0	0	0
<b>Change in cash</b>	<b>723</b>	<b>1,952</b>	<b>2,690</b>	<b>336</b>	<b>5,440</b>	<b>10,855</b>	<b>10,180</b>	<b>14,909</b>
Free cash flow	1,599	3,197	4,169	3,136	9,242	13,038	17,409	23,801

Source: FactSet, Daiwa forecasts

*Financial summary continued ...*

■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	6,627	8,579	11,268	11,604	17,045	27,900	38,080	52,989
Inventory	622	902	1,461	2,532	2,693	3,448	4,243	4,659
Accounts receivable	2,377	3,182	3,510	6,581	6,823	11,608	15,112	17,870
Other current assets	199	153	234	255	248	372	447	490
<b>Total current assets</b>	<b>9,825</b>	<b>12,815</b>	<b>16,473</b>	<b>20,973</b>	<b>26,809</b>	<b>43,327</b>	<b>57,881</b>	<b>76,009</b>
Fixed assets	5,453	5,795	8,057	9,731	9,800	12,004	14,749	15,918
Goodwill & intangibles	0	0	0	0	0	0	0	0
Other non-current assets	397	386	379	485	2,004	365	381	397
<b>Total assets</b>	<b>15,675</b>	<b>18,996</b>	<b>24,909</b>	<b>31,188</b>	<b>38,614</b>	<b>55,697</b>	<b>73,011</b>	<b>92,324</b>
Short-term debt	16	112	444	93	83	100	100	100
Accounts payable	410	560	1,358	3,555	2,507	3,684	4,911	5,808
Other current liabilities	1,521	1,871	3,243	4,426	5,507	7,194	8,294	9,155
<b>Total current liabilities</b>	<b>1,948</b>	<b>2,543</b>	<b>5,045</b>	<b>8,075</b>	<b>8,097</b>	<b>10,977</b>	<b>13,306</b>	<b>15,063</b>
Long-term debt	0	0	0	0	0	0	0	0
Other non-current liabilities	21	67	54	49	71	50	50	50
<b>Total liabilities</b>	<b>1,969</b>	<b>2,610</b>	<b>5,099</b>	<b>8,124</b>	<b>8,168</b>	<b>11,027</b>	<b>13,356</b>	<b>15,113</b>
Share capital	1,341	1,341	1,341	1,341	1,341	1,341	1,341	1,341
Reserves/R.E./others	12,365	15,045	18,469	21,723	29,104	43,328	58,314	75,870
<b>Shareholders' equity</b>	<b>13,706</b>	<b>16,386</b>	<b>19,810</b>	<b>23,064</b>	<b>30,445</b>	<b>44,670</b>	<b>59,655</b>	<b>77,211</b>
Minority interests	0	0	0	0	0	0	0	0
<b>Total equity &amp; liabilities</b>	<b>15,675</b>	<b>18,996</b>	<b>24,909</b>	<b>31,188</b>	<b>38,614</b>	<b>55,697</b>	<b>73,011</b>	<b>92,324</b>
EV	314,656	312,799	310,441	309,754	304,303	293,466	283,286	268,377
<b>Net debt/(cash)</b>	<b>(6,610)</b>	<b>(8,467)</b>	<b>(10,824)</b>	<b>(11,511)</b>	<b>(16,962)</b>	<b>(27,800)</b>	<b>(37,980)</b>	<b>(52,889)</b>
<b>BVPS (TWD)</b>	<b>102.178</b>	<b>122.156</b>	<b>147.685</b>	<b>171.943</b>	<b>226.965</b>	<b>333.007</b>	<b>444.722</b>	<b>575.601</b>

■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	9.0	51.5	29.4	25.6	36.7	62.6	30.2	18.3
EBITDA (YoY)	(9.2)	61.4	18.0	25.6	52.8	84.2	29.1	9.6
Operating profit (YoY)	(12.7)	71.3	17.4	24.2	58.6	92.2	29.4	18.8
Net profit (YoY)	(23.3)	62.7	28.5	7.3	72.3	87.8	23.0	19.1
Core EPS (fully-diluted) (YoY)	(24.3)	61.7	28.5	7.3	72.3	87.8	23.0	19.1
Gross-profit margin	43.8	47.0	43.4	41.7	47.2	53.6	52.5	52.5
EBITDA margin	41.0	43.7	39.9	39.9	44.6	50.5	50.1	46.4
Operating-profit margin	33.4	37.7	34.2	33.9	39.3	46.5	46.2	46.4
Net profit margin	30.5	32.7	32.5	27.8	35.0	40.5	38.2	38.5
ROAE	19.4	26.9	28.7	26.0	35.9	48.1	42.6	38.6
ROAA	17.0	23.3	23.7	19.9	27.5	38.3	34.5	32.0
ROCE	21.1	30.8	29.8	31.3	40.2	55.1	51.3	46.5
ROIC	38.7	57.9	57.7	54.2	72.0	114.0	114.3	113.7
Net debt to equity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	6.0	6.7	10.9	18.1	16.4	16.5	17.9	17.9
Accounts receivable (days)	86.6	82.1	76.4	91.7	89.2	75.4	84.0	87.7
Current ratio (x)	5.0	5.0	3.3	2.6	3.3	3.9	4.4	5.0
Net interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout	54.0	44.8	43.9	40.9	39.8	40.0	40.0	40.0
Free cash flow yield	0.5	1.0	1.3	1.0	2.9	4.1	5.4	7.4

Source: FactSet, Daiwa forecasts

■ Company profile

In Asia ex-Japan, Largan Precision is the leading lens manufacturer for mobile handsets. Nokia, Motorola, Sony Ericsson, Apple, HTC, and Blackberry are the company's major customers. It currently has about a 28% share of the global handset-lens market.

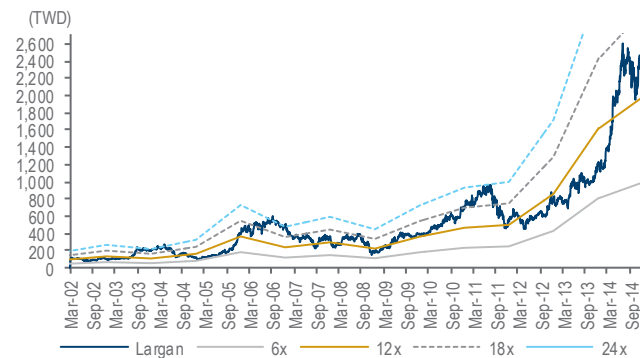


■ **Largan: quarterly and annual P&L statement**

(TWDm)	2014				2015E				2013	2014E	2015E
	1Q	2Q	3Q	4QE	1QE	2QE	3QE	4QE			
<b>Net sales</b>	<b>6,858</b>	<b>9,975</b>	<b>12,088</b>	<b>15,679</b>	<b>12,372</b>	<b>12,608</b>	<b>14,680</b>	<b>18,400</b>	<b>27,433</b>	<b>44,600</b>	<b>58,060</b>
COGS	3,045	4,170	5,743	7,728	5,963	5,518	7,156	8,942	14,472	20,685	27,579
<b>Gross profit</b>	<b>3,814</b>	<b>5,805</b>	<b>6,345</b>	<b>7,951</b>	<b>6,409</b>	<b>7,090</b>	<b>7,524</b>	<b>9,458</b>	<b>12,961</b>	<b>23,915</b>	<b>30,482</b>
Operating costs	601	681	938	969	805	732	951	1,170	2,180	3,189	3,658
<b>Operating profit</b>	<b>3,213</b>	<b>5,124</b>	<b>5,407</b>	<b>6,982</b>	<b>5,604</b>	<b>6,359</b>	<b>6,573</b>	<b>8,288</b>	<b>10,781</b>	<b>20,726</b>	<b>26,824</b>
Pre-tax income	3,527	5,013	6,036	7,038	5,660	6,414	6,628	8,343	11,501	21,614	27,046
<b>Net income</b>	<b>3,000</b>	<b>3,722</b>	<b>5,286</b>	<b>6,040</b>	<b>4,811</b>	<b>4,618</b>	<b>5,634</b>	<b>7,141</b>	<b>9,610</b>	<b>18,048</b>	<b>22,204</b>
<b>Net EPS (TWD)</b>	<b>22.36</b>	<b>27.75</b>	<b>39.40</b>	<b>45.03</b>	<b>35.86</b>	<b>34.43</b>	<b>42.00</b>	<b>53.24</b>	<b>71.64</b>	<b>134.54</b>	<b>165.53</b>
<b>Operating ratios</b>											
Gross margin	55.6%	58.2%	52.5%	50.7%	51.8%	56.2%	51.3%	51.4%	47.2%	53.6%	52.5%
Operating margin	46.9%	51.4%	44.7%	44.5%	45.3%	50.4%	44.8%	45.0%	39.3%	46.5%	46.2%
Pre-tax margin	51.4%	50.3%	49.9%	44.9%	45.7%	50.9%	45.2%	45.3%	41.9%	48.5%	46.6%
Net margin	43.7%	37.3%	43.7%	38.5%	38.9%	36.6%	38.4%	38.8%	35.0%	40.5%	38.2%
<b>YoY (%)</b>											
Net revenue	34%	70%	69%	69%	80%	26%	21%	17%	37%	63%	30%
Gross profit	79%	96%	88%	77%	68%	22%	19%	19%	55%	85%	27%
Operating income	92%	107%	92%	83%	74%	24%	22%	19%	59%	92%	29%
Pre-tax income	75%	88%	123%	71%	60%	28%	10%	19%	69%	88%	25%
Net income	62%	83%	128%	77%	60%	24%	7%	18%	72%	88%	23%
<b>QoQ (%)</b>											
Net revenue	-26%	45%	21%	30%	-21%	2%	16%	25%			
Gross profit	-15%	52%	9%	25%	-19%	11%	6%	26%			
Operating income	-16%	59%	6%	29%	-20%	13%	3%	26%			
Pre-tax income	-14%	42%	20%	17%	-20%	13%	3%	26%			
Net income	-12%	24%	42%	14%	-20%	-4%	22%	27%			

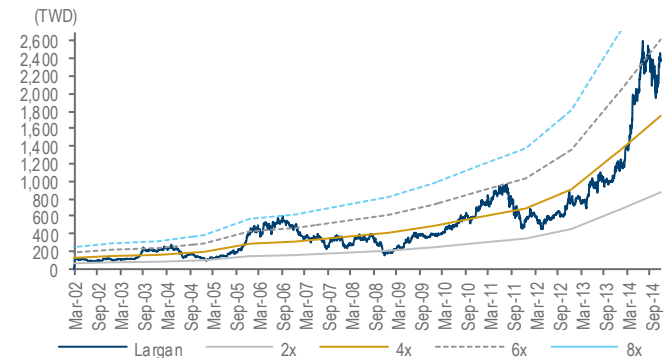
Source: Company, Daiwa forecasts

■ **Largan: 1-year-forward PER**



Source: TEJ, Daiwa forecasts

■ **Largan: 1-year-forward PBR**



Source: TEJ, Daiwa forecasts

## Advanced Semiconductor Engineering

2311 TT

Target (TWD): **40.00 → 43.00**

Upside: **12.7%**

29 Dec price (TWD): **38.15**

# Turnkey solutions a good fit

- ASE's turnkey offering spanning OSAT to EMS fits well in our Big Data-enabled demand theme for 2015 and beyond
- Market-share-gains story looks intact on 2 growth engines: flip-chip and system-in-packaging business
- We expect strong 4Q14 results which should be a share-price catalyst; raise target price to TWD43, reaffirm Outperform (2)

- 1 Buy
- 2 Outperform (unchanged)
- 3 Hold
- 4 Underperform
- 5 Sell



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### What's new

As the leader in the global outsourced semiconductor and test (OSAT) industry, ASE has enjoyed structural market share gains from its overseas counterparts since 2011, and we expect further share gains over 2015-16 on the back of its 2 business growth engines – flip-chip (FC) and system-in-packaging (SiP). Given its broad offerings of backend technologies, we see ASE as among the beneficiaries of our Big Data tech theme for 2015 and beyond.

### What's the impact

#### Turnkey offerings fit well in Big Data.

ASE is one of the very few companies globally offering turnkey services from OSAT to electronic manufacturing services (EMS). In our view, this positions ASE well to capitalise on growth in Big Data-enabled demand. Also positioned in supply chain management, ASE stands to benefit from the rise of new IoT devices given its broad business exposure across data access, data process, data transmission and data security.

### Market share gains intact on 2 growth engines.

ASE has gained OSAT market share via its early entry into copper wirebonding and ramp-up in the FC market. Its penetration into EMS with its turnkey SiP solution has helped it garner market share in the EMS value chain. We expect SiP and FC to remain 2 growth engines and drive further share gains in 2015-16.

**4Q14 likely robust.** We expect robust 4Q14 results, with a strong monthly revenue run rate, given favourable forex effects and on the back of ASE's strength in the EMS business. We forecast its EMS business revenue to be up 32% QoQ for 4Q14 (outpacing guidance for +32% QoQ), thanks to strong sales of fingerprint/WiFi modules and the addition of Apple Watch orders, on our market research. We forecast 4Q14 revenue of TWD76bn, up 15% QoQ (above the Bloomberg consensus of +13% QoQ), and in the light of this we raise slightly our 2014-16E EPS.

### What we recommend

We raise our target price to TWD43, now on a 12-month horizon and based on a 2.3x ROE-adjusted PBR applied to our 2015E BVPS (formerly 6-month target price of TWD40, on 2.2x PBR on average 2014-15E BVPS). We reaffirm our Outperform (2) rating and see a share-price catalyst from potentially strong 4Q14 results. The key risk is if competition for its FC

business intensifies more than we expect.

### How we differ

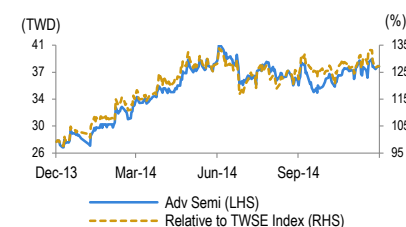
Our above-consensus 4Q14E numbers reflect strong EMS sales.

### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	0.6	1.8	0.4
Net profit change	1.1	1.3	1.1
Core EPS (FD) change	1.1	1.3	1.1

Source: Daiwa forecasts

### Share price performance



12-month range	26.80-41.00
Market cap (USDbn)	10.42
3m avg daily turnover (USDm)	28.46
Shares outstanding (m)	8,672
Major shareholder	ASE Enterprises Ltd. (17.0%)

### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	256,398	308,817	364,721
Operating profit (m)	29,045	33,782	37,322
Net profit (m)	22,792	25,716	28,719
Core EPS (fully-diluted)	2.628	2.965	3.312
EPS change (%)	29.9	12.8	11.7
Daiwa vs Cons. EPS (%)	(6.3)	(6.2)	(7.3)
PER (x)	14.5	12.9	11.5
Dividend yield (%)	3.0	3.7	3.9
DPS	1.2	1.4	1.5
PBR (x)	2.3	2.1	1.9
EV/EBITDA (x)	7.0	6.3	5.7
ROE (%)	17.2	17.3	17.5

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Packaging Utilization Rate (%)	74.9	93.9	88.2	82.5	83.2	83.1	85.6	94.1
Testing Utilization Rate (%)	70.0	84.2	79.7	81.6	79.5	81.2	81.4	88.6
FC&bumping utilization (%)	70.7	88.4	94.3	90.4	85.3	85.5	91.9	97.3

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Packaging Revenue	52,295	101,073	102,719	104,392	112,604	122,352	138,063	154,898
Testing Revenue	12,159	21,956	21,946	22,657	24,732	26,170	28,106	30,907
Other Revenue	21,321	65,714	60,682	66,923	82,526	107,876	142,647	178,916
<b>Total Revenue</b>	<b>85,775</b>	<b>188,743</b>	<b>185,347</b>	<b>193,972</b>	<b>219,862</b>	<b>256,398</b>	<b>308,817</b>	<b>364,721</b>
Other income	0	0	0	0	0	0	0	0
COGS	(67,629)	(148,198)	(150,337)	(157,348)	(177,049)	(203,653)	(246,679)	(293,999)
SG&A	(5,520)	(10,283)	(11,070)	(10,988)	(11,700)	(13,613)	(15,937)	(18,654)
Other op. expenses	(3,612)	(6,162)	(7,118)	(7,874)	(9,069)	(10,087)	(12,420)	(14,746)
<b>Operating profit</b>	<b>9,014</b>	<b>24,099</b>	<b>16,823</b>	<b>17,762</b>	<b>22,044</b>	<b>29,045</b>	<b>33,782</b>	<b>37,322</b>
Net-interest inc./(exp.)	(1,334)	(1,171)	(1,336)	(1,682)	(2,095)	(2,230)	(2,237)	(2,023)
Assoc/forex/extraord./others	708	(105)	1,512	511	(593)	928	600	600
<b>Pre-tax profit</b>	<b>8,388</b>	<b>22,824</b>	<b>16,999</b>	<b>16,591</b>	<b>19,356</b>	<b>27,743</b>	<b>32,145</b>	<b>35,899</b>
Tax	(1,485)	(3,629)	(3,018)	(3,042)	(3,202)	(4,369)	(5,786)	(6,462)
Min. int./pref. div./others	(159)	(857)	(253)	(458)	(466)	(582)	(643)	(718)
<b>Net profit (reported)</b>	<b>6,745</b>	<b>18,337</b>	<b>13,727</b>	<b>13,092</b>	<b>15,689</b>	<b>22,792</b>	<b>25,716</b>	<b>28,719</b>
<b>Net profit (adjusted)</b>	<b>6,745</b>	<b>18,337</b>	<b>13,727</b>	<b>13,092</b>	<b>15,689</b>	<b>22,792</b>	<b>25,716</b>	<b>28,719</b>
EPS (reported)(TWD)	1.306	3.105	2.082	1.758	2.089	2.628	2.965	3.312
EPS (adjusted)(TWD)	1.306	3.105	2.082	1.758	2.089	2.628	2.965	3.312
EPS (adjusted fully-diluted)(TWD)	0.880	2.384	1.783	1.724	2.023	2.628	2.965	3.312
DPS (TWD)	0.499	0.329	0.585	0.570	1.043	1.154	1.400	1.500
EBIT	9,014	24,099	16,823	17,762	22,044	29,045	33,782	37,322
EBITDA	26,652	43,953	39,767	41,176	47,515	54,811	61,074	65,999

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	8,388	22,824	16,999	16,591	19,356	27,743	32,145	35,899
Depreciation and amortisation	17,638	19,854	22,945	23,414	25,471	25,766	27,293	28,677
Tax paid	(1,485)	(3,629)	(3,018)	(3,042)	(3,202)	(4,369)	(5,786)	(6,462)
Change in working capital	(10,064)	(10,713)	(7,065)	(5,705)	(4,058)	(7,000)	(15,000)	(9,000)
Other operational CF items	1,040	8,629	2,077	(2,241)	3,729	1,418	1,357	1,282
<b>Cash flow from operations</b>	<b>15,517</b>	<b>36,965</b>	<b>31,937</b>	<b>29,018</b>	<b>41,296</b>	<b>43,558</b>	<b>40,008</b>	<b>50,396</b>
Capex	(11,446)	(34,109)	(29,418)	(39,301)	(29,143)	(33,000)	(27,000)	(27,000)
Net (acquisitions)/disposals	(3,607)	(1,980)	(1,819)	(294)	(471)	141	0	0
Other investing CF items	(928)	3	(794)	(500)	(312)	0	0	0
<b>Cash flow from investing</b>	<b>(15,981)</b>	<b>(36,085)</b>	<b>(32,031)</b>	<b>(40,094)</b>	<b>(29,926)</b>	<b>(32,859)</b>	<b>(27,000)</b>	<b>(27,000)</b>
Change in debt	337	6,593	7,010	7,969	18,383	2,992	(7,659)	(12,860)
Net share issues/(repurchases)	0	0	0	0	3,393	0	0	0
Dividends paid	(2,576)	(1,941)	(3,858)	(4,242)	(7,835)	(10,005)	(12,141)	(13,008)
Other financing CF items	(879)	(4,692)	(2,034)	3,193	(279)	0	0	0
<b>Cash flow from financing</b>	<b>(3,118)</b>	<b>(40)</b>	<b>1,118</b>	<b>6,920</b>	<b>13,663</b>	<b>(7,013)</b>	<b>(19,799)</b>	<b>(25,868)</b>
Forex effect/others	0	0	0	0	0	0	0	0
<b>Change in cash</b>	<b>(3,581)</b>	<b>840</b>	<b>1,024</b>	<b>(4,156)</b>	<b>25,033</b>	<b>3,686</b>	<b>(6,791)</b>	<b>(2,472)</b>
Free cash flow	4,072	2,856	2,519	(10,283)	12,153	10,558	13,008	23,396

Source: FactSet, Daiwa forecasts

## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	27,578	25,095	25,268	24,436	50,440	53,985	47,194	44,722
Inventory	12,206	23,296	30,070	32,073	34,870	38,870	49,870	56,870
Accounts receivable	17,812	33,382	30,476	37,213	43,236	47,736	61,736	68,736
Other current assets	3,818	3,826	4,317	4,321	3,631	4,000	4,000	4,000
<b>Total current assets</b>	<b>61,413</b>	<b>85,599</b>	<b>90,132</b>	<b>98,042</b>	<b>132,176</b>	<b>144,591</b>	<b>162,800</b>	<b>174,328</b>
Fixed assets	79,364	99,854	111,779	126,150	131,497	147,013	151,665	151,656
Goodwill & intangibles	16,124	20,287	19,747	19,946	20,784	14,000	12,000	11,000
Other non-current assets	5,160	2,400	2,221	2,366	2,357	2,357	2,357	2,357
<b>Total assets</b>	<b>162,061</b>	<b>208,140</b>	<b>223,878</b>	<b>246,504</b>	<b>286,814</b>	<b>307,961</b>	<b>328,821</b>	<b>339,340</b>
Short-term debt	13,960	17,174	26,426	40,099	50,626	52,277	52,478	51,299
Accounts payable	8,954	24,389	21,192	24,227	28,989	30,489	40,489	45,489
Other current liabilities	11,660	18,172	19,144	20,378	21,220	20,056	23,224	24,293
<b>Total current liabilities</b>	<b>34,574</b>	<b>59,735</b>	<b>66,762</b>	<b>84,703</b>	<b>100,835</b>	<b>102,822</b>	<b>116,191</b>	<b>121,081</b>
Long-term debt	49,080	52,375	50,167	44,592	51,057	52,399	44,539	32,858
Other non-current liabilities	3,693	4,191	4,667	4,750	7,756	6,000	7,000	7,700
<b>Total liabilities</b>	<b>87,347</b>	<b>116,300</b>	<b>121,596</b>	<b>134,045</b>	<b>159,649</b>	<b>161,221</b>	<b>167,730</b>	<b>161,640</b>
Share capital	54,799	60,520	67,536	75,941	77,560	77,560	77,560	77,560
Reserves/R.E./others	16,817	28,036	33,634	33,573	45,461	64,454	78,162	94,054
<b>Shareholders' equity</b>	<b>71,616</b>	<b>88,556</b>	<b>101,170</b>	<b>109,515</b>	<b>123,021</b>	<b>142,014</b>	<b>155,722</b>	<b>171,614</b>
Minority interests	3,098	3,283	1,113	2,944	4,144	4,726	5,369	6,087
<b>Total equity &amp; liabilities</b>	<b>162,061</b>	<b>208,140</b>	<b>223,878</b>	<b>246,504</b>	<b>286,814</b>	<b>307,961</b>	<b>328,821</b>	<b>339,340</b>
EV	369,397	378,573	383,275	394,035	386,225	386,254	386,029	376,359
<b>Net debt/(cash)</b>	<b>35,463</b>	<b>44,453</b>	<b>51,325</b>	<b>60,254</b>	<b>51,244</b>	<b>50,691</b>	<b>49,823</b>	<b>39,435</b>
<b>BVPS (TWD)</b>	<b>13.069</b>	<b>11.512</b>	<b>14.980</b>	<b>14.421</b>	<b>15.861</b>	<b>16.376</b>	<b>17.957</b>	<b>19.789</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	(9.2)	120.0	(1.8)	4.7	13.3	16.6	20.4	18.1
EBITDA (YoY)	(8.2)	64.9	(9.5)	3.5	15.4	15.4	11.4	8.1
Operating profit (YoY)	(23.6)	167.3	(30.2)	5.6	24.1	31.8	16.3	10.5
Net profit (YoY)	9.5	171.9	(25.1)	(4.6)	19.8	45.3	12.8	11.7
Core EPS (fully-diluted) (YoY)	13.7	170.8	(25.2)	(3.3)	17.3	29.9	12.8	11.7
Gross-profit margin	21.2	21.5	18.9	18.9	19.5	20.6	20.1	19.4
EBITDA margin	31.1	23.3	21.5	21.2	21.6	21.4	19.8	18.1
Operating-profit margin	10.5	12.8	9.1	9.2	10.0	11.3	10.9	10.2
Net profit margin	7.9	9.7	7.4	6.7	7.1	8.9	8.3	7.9
ROAE	9.5	22.9	14.5	12.4	13.5	17.2	17.3	17.5
ROAA	4.3	9.9	6.4	5.6	5.9	7.7	8.1	8.6
ROCE	6.6	16.1	9.9	9.4	10.3	12.1	13.3	14.4
ROIC	6.8	16.4	9.5	8.9	10.5	13.0	13.6	14.3
Net debt to equity	49.5	50.2	50.7	55.0	41.7	35.7	32.0	23.0
Effective tax rate	17.7	15.9	17.8	18.3	16.5	15.7	18.0	18.0
Accounts receivable (days)	62.1	49.5	62.9	63.7	66.8	64.8	64.7	65.3
Current ratio (x)	1.8	1.4	1.4	1.2	1.3	1.4	1.4	1.4
Net interest cover (x)	6.8	20.6	12.6	10.6	10.5	13.0	15.1	18.4
Net dividend payout	38.2	10.6	28.1	32.4	49.9	43.9	47.2	45.3
Free cash flow yield	1.2	0.9	0.8	n.a.	3.7	3.2	3.9	7.1

Source: FactSet, Daiwa forecasts

### ■ Company profile

Advanced Semiconductor Engineering (ASE) is the world's largest Outsourced Semiconductor Assembly and Test (OSAT) maker offering integrated circuit (IC) packaging and testing services with a wide range of technologies, including leadframe-based wirebonding (WB), substrate-based WB, flip-chip (FC) packaging, system in packaging (SIP) and electronics manufacturing services (EMS). Its client base overlaps to a high degree with the IC foundry companies, including the fabless chipmakers and IDMs globally. The revenue breakdown for 2013 was: packaging (51%), testing (11%) and EMS (36%).

■ ASE: quarterly and annual P&L statement

(TWDm)	1Q14	2Q14	3Q14	4Q14E	1Q15E	2Q15E	3Q15E	4Q15E	2013	2014E	2015E	2016E
Packaging revenue	26,722	30,641	32,031	32,957	30,238	34,241	37,344	36,240	112,604	122,352	138,063	154,898
Testing revenue	5,785	6,600	6,827	6,958	6,405	6,887	7,442	7,373	24,732	26,170	28,106	30,907
EMS & other revenue	22,193	21,374	27,774	36,536	30,363	31,766	37,524	42,994	82,526	107,877	142,647	178,916
Total revenue	54,700	58,615	66,632	76,451	67,006	72,893	82,310	86,607	219,862	256,399	308,817	364,721
COGS	-44,351	-46,015	-52,434	-60,853	-54,080	-57,980	-65,365	-69,254	-177,049	-203,653	-246,679	-293,999
Gross profit	10,350	12,600	14,198	15,598	12,926	14,914	16,946	17,353	42,813	52,746	62,138	70,722
Opex	-5,280	-6,000	-6,114	-6,307	-6,366	-6,706	-7,490	-7,795	-20,769	-23,701	-28,357	-33,400
Operating profit	5,070	6,600	8,084	9,291	6,560	8,208	9,455	9,558	22,044	29,045	33,782	37,322
EBITDA	11,475	12,982	14,489	15,865	13,128	15,092	16,538	16,316	47,515	54,811	61,074	65,999
Pre-tax profit	4,283	6,051	8,590	8,819	6,120	7,773	9,070	9,181	19,356	27,743	32,145	35,899
Income taxes	-727	-818	-1,237	-1,587	-1,102	-1,399	-1,633	-1,653	-3,202	-4,369	-5,786	-6,462
Net profit	3,438	5,094	7,205	7,055	4,896	6,218	7,256	7,345	15,689	22,792	25,716	28,719
Fully diluted shares outst. (m)	7,787	7,810	8,672	8,672	8,672	8,672	8,672	8,672	7,756	8,672	8,672	8,672
Fully diluted EPS (TWD)	0.44	0.65	0.83	0.81	0.56	0.72	0.84	0.85	2.02	2.63	2.97	3.31
<b>Margin</b>												
Gross	19%	21%	21%	20%	19%	20%	21%	20%	19%	21%	20%	19%
Operating	9%	11%	12%	12%	10%	11%	11%	11%	10%	11%	11%	10%
EBITDA	21%	22%	22%	21%	20%	21%	20%	19%	22%	21%	20%	18%
Net	6%	9%	11%	9%	7%	9%	9%	8%	7%	9%	8%	8%
<b>Growth (QoQ)</b>												
Packaging revenue	-7%	15%	5%	3%	-8%	13%	9%	-3%				
Testing revenue	-7%	14%	3%	2%	-8%	8%	8%	-1%				
EMS & other revenue	-24%	-4%	30%	32%	-17%	5%	18%	15%				
Total revenue	-15%	7%	14%	15%	-12%	9%	13%	5%				
Gross profit	-17%	22%	13%	10%	-17%	15%	14%	2%				
Operating profit	-27%	30%	22%	15%	-29%	25%	15%	1%				
EBITDA	-15%	13%	12%	9%	-17%	15%	10%	-1%				
Net profit	-34%	48%	41%	-2%	-31%	27%	17%	1%				
Fully diluted EPS	-34%	48%	27%	-2%	-31%	27%	17%	1%				
<b>Growth (YoY)</b>												
Packaging revenue	7%	6%	7%	15%	13%	12%	17%	10%	8%	9%	13%	12%
Testing revenue	1%	1%	9%	12%	11%	4%	9%	6%	9%	6%	7%	10%
EMS & other revenue	26%	40%	36%	25%	37%	49%	35%	18%	23%	31%	32%	25%
Total revenue	14%	15%	17%	19%	22%	24%	24%	13%	13%	17%	20%	18%
Gross profit	25%	21%	23%	25%	25%	18%	19%	11%	17%	23%	18%	14%
Operating profit	41%	22%	33%	34%	29%	24%	17%	3%	24%	32%	16%	10%
EBITDA	16%	11%	17%	18%	14%	16%	14%	3%	15%	15%	11%	8%
Net profit	54%	33%	63%	35%	42%	22%	1%	4%	20%	45%	13%	12%
Fully diluted EPS	51%	30%	43%	21%	28%	10%	1%	4%	17%	30%	13%	12%

Source: Company, Daiwa forecasts

■ ASE: revisions to revenue and earnings forecasts

(TWDbn)	New			Previous			Change		
	2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E
Revenue	256.40	308.82	364.72	254.99	303.41	363.19	1%	2%	0%
Gross profit	52.74	62.14	70.72	52.20	61.49	70.55	1%	1%	0%
Operating profit	29.04	33.78	37.32	28.65	33.36	36.93	1%	1%	1%
EBITDA	54.81	61.07	66.00	54.53	60.65	65.61	1%	1%	1%
Net profit	22.79	25.72	28.72	22.53	25.37	28.41	1%	1%	1%
Fully diluted EPS (TWD)	2.63	2.97	3.31	2.60	2.93	3.28	1%	1%	1%
<b>Margins</b>									
Gross margin	20.6%	20.1%	19.4%	20.5%	20.3%	19.4%			
Operating margin	11.3%	10.9%	10.2%	11.2%	11.0%	10.2%			
EBITDA margin	21.4%	19.8%	18.1%	21.4%	20.0%	18.1%			
Net margin	8.9%	8.3%	7.9%	8.8%	8.4%	7.8%			

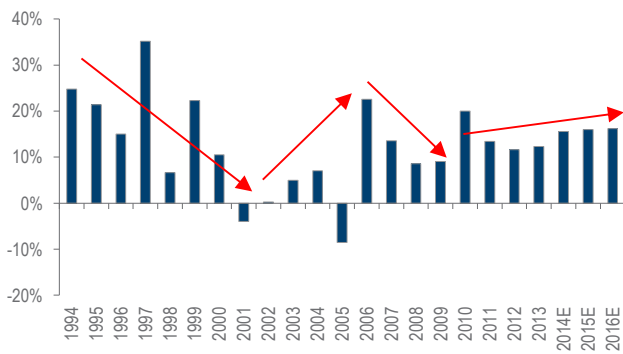
Source: Daiwa forecasts

■ ASE: 4Q14 results preview and 1Q15 results outlook

(TWDm)	Daiwa	4Q14E		Daiwa	1Q15E	
		Consensus	Variance vs. consensus		Consensus	Variance vs. consensus
Revenue	76,451	75,267	2%	67,006	66,171	1%
Gross profit	15,598			12,926		
Operating profit	9,291			6,560		
Pre-tax profit	8,819			6,120		
Net profit	7,055	6,882	3%	4,896	5,037	-3%
Adjusted EPS (TWD)	0.81	0.79	3%	0.56	0.58	-3%
<b>Margins</b>						
Gross margin	20.4%			19.3%		
Operating margin	12.2%			9.8%		
Net margin	9.2%			7.3%		
<b>Operational metrics</b>						
Wirebonder utilisation rate	82%			79%		
Tester utilisation rate	80%			75%		
Bumping utilisation rate	88%			82%		

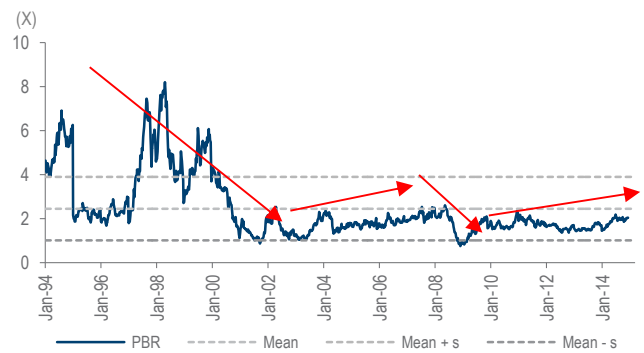
Source: Bloomberg, Daiwa forecasts

■ ASE: single-year ROE trend



Source: Company, Daiwa forecasts

■ ASE: 12-month forward PBR trend



Source: TEI, Daiwa forecasts

## Novatek Microelectronics

3034 TT

### Finer outlook

- TV and smartphone resolution upgrade trend to finer displays remains a multi-year catalyst
- Expanding its system-on-chip business, for which the Internet of Things (IoT) market offers extra upside potential
- Raising target price to TWD190, reiterating Outperform (2) rating on solid business outlook over 2015-16E

Target (TWD): **180.00 → 190.00**

Upside: **8.3%**

29 Dec price (TWD): **175.50**

- 1 Buy
- 2 Outperform (unchanged)
- 3 Hold
- 4 Underperform
- 5 Sell



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**What's new**

Novatek has built a strong foothold in its core business of display driver ICs (DDI), which we expect to enjoy multi-year demand from resolution upgrades for TV and smartphone displays. Ongoing expansion of its system-on-chip (SoC) portfolio should help it penetrate further into non-DDI markets, while its DDIs being applied in multiple product platforms should enable Novatek to build a foothold in data access: an area in our Big Data tech theme for 2015.

**What's the impact**

**Demand driver from TV and smartphone resolution upgrades.** A key demand driver for its DDI business is resolution upgrades of TV displays from full

high-definition (FHD) to ultra-HD (4K2K). Its TV DDI shipments grew by 58% YoY for 11M14, above our prior expectation ([Novatek Microelectronics: Upgrading: tune into finer TV displays](#)). Also, resolution upgrades from high-definition (HD) smartphones should drive demand for its mobile DDIs.

**SoC upside from Big Data.** We expect Novatek's TV SoC to continue its market share gains in the global TV market in 2015. Also, Novatek targets to increase the content value per device via its offerings of other SoC products, eg, touch-controller and CMOS image sensor (CIS) chips, and thus leverage its core competency in display technology.

**Forecast increases.** We raise our 2014-16E EPS by 2-4% on the back of 2-3% revenue increases, reflecting stronger SoC revenue assumptions.

**What we recommend**

We raise our target price, now 12-month, to TWD190 (from TWD180, 6-month), based on an unchanged 15x PER (nearly 1SD above its past-10-year average PER) applied to our 12-month-forward EPS (formerly average of 2014-15E EPS). We reaffirm our Outperform (2) rating for what we see as **Novatek's solid business outlook**. Key risk: worse-than-expected SoC and smartphone DDI competition.

**How we differ**

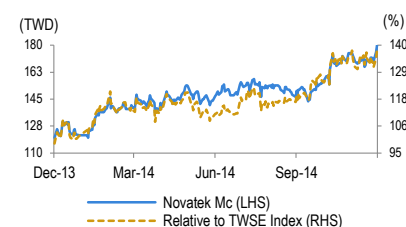
Our 2015-16E EPS are 2-5% above consensus on stronger sales growth.

**Forecast revisions (%)**

Year to 31 Dec	14E	15E	16E
Revenue change	1.6	2.5	2.5
Net profit change	3.7	3.2	2.4
Core EPS (FD) change	3.7	3.2	2.4

Source: Daiwa forecasts

**Share price performance**



12-month range	120.00-175.50
Market cap (USDbn)	3.36
3m avg daily turnover (USDm)	15.54
Shares outstanding (m)	609
Major shareholder	Cathay Life Insurance (4.2%)

**Financial summary (TWD)**

Year to 31 Dec	14E	15E	16E
Revenue (m)	53,677	62,266	69,115
Operating profit (m)	7,713	9,184	10,264
Net profit (m)	6,939	8,080	9,018
Core EPS (fully-diluted)	11.427	13.307	14.851
EPS change (%)	46.2	16.5	11.6
Daiwa vs Cons. EPS (%)	(1.1)	2.4	4.6
PER (x)	15.4	13.2	11.8
Dividend yield (%)	2.8	4.4	5.1
DPS	5.0	7.7	9.0
PBR (x)	3.8	3.5	3.2
EV/EBITDA (x)	11.6	9.7	8.6
ROE (%)	26.4	27.6	28.4

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Large-sized driver IC shipment (m units)	1,074.0	1,958.0	2,009.0	2,149.0	2,428.0	2,867.5	3,161.1	3,477.2
Mobile driver IC shipment (m units)	223.0	267.3	446.7	487.3	621.3	745.5	857.4	1,028.8
Large-sized driver IC ASP (US\$)	0.5	0.4	0.4	0.4	0.3	0.3	0.3	0.3
Mobile driver IC ASP(US\$)	0.6	0.5	0.5	0.6	0.6	0.6	0.7	0.6

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
SoC/PC Peripheral IC Revenues	6,505	6,272	4,666	6,217	7,047	14,063	18,349	22,018
TFT Driver IC Revenues	16,105	25,342	23,114	22,938	23,817	25,851	27,461	29,057
Other Revenue	4,387	4,647	7,254	7,873	10,585	13,763	16,456	18,040
<b>Total Revenue</b>	<b>26,997</b>	<b>36,261</b>	<b>35,034</b>	<b>37,029</b>	<b>41,450</b>	<b>53,677</b>	<b>62,266</b>	<b>69,115</b>
Other income	0	0	0	0	0	0	0	0
COGS	(18,787)	(26,504)	(26,134)	(26,642)	(29,957)	(38,460)	(44,582)	(49,728)
SG&A	(946)	(1,031)	(987)	(1,177)	(1,262)	(1,546)	(1,775)	(1,935)
Other op.expenses	(3,208)	(3,512)	(3,669)	(4,257)	(4,799)	(5,958)	(6,725)	(7,188)
<b>Operating profit</b>	<b>4,056</b>	<b>5,214</b>	<b>4,245</b>	<b>4,954</b>	<b>5,431</b>	<b>7,713</b>	<b>9,184</b>	<b>10,264</b>
Net-interest inc./(exp.)	60	24	63	101	119	123	127	131
Assoc/forex/extraord./others	(3)	(165)	(84)	68	133	130	30	30
<b>Pre-tax profit</b>	<b>4,113</b>	<b>5,074</b>	<b>4,224</b>	<b>5,123</b>	<b>5,683</b>	<b>7,966</b>	<b>9,341</b>	<b>10,425</b>
Tax	(94)	(490)	(530)	(684)	(938)	(1,028)	(1,261)	(1,407)
Min. int./pref. div./others	0	0	0	0	0	0	0	0
<b>Net profit (reported)</b>	<b>4,019</b>	<b>4,584</b>	<b>3,694</b>	<b>4,440</b>	<b>4,745</b>	<b>6,939</b>	<b>8,080</b>	<b>9,018</b>
<b>Net profit (adjusted)</b>	<b>4,019</b>	<b>4,584</b>	<b>3,694</b>	<b>4,440</b>	<b>4,745</b>	<b>6,939</b>	<b>8,080</b>	<b>9,018</b>
<b>EPS (reported)(TWD)</b>	<b>6.815</b>	<b>7.689</b>	<b>6.144</b>	<b>7.359</b>	<b>7.814</b>	<b>11.427</b>	<b>13.307</b>	<b>14.851</b>
<b>EPS (adjusted)(TWD)</b>	<b>6.815</b>	<b>7.689</b>	<b>6.144</b>	<b>7.359</b>	<b>7.814</b>	<b>11.427</b>	<b>13.307</b>	<b>14.851</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>6.815</b>	<b>7.689</b>	<b>6.144</b>	<b>7.359</b>	<b>7.814</b>	<b>11.427</b>	<b>13.307</b>	<b>14.851</b>
<b>DPS (TWD)</b>	<b>3.575</b>	<b>3.997</b>	<b>4.806</b>	<b>3.816</b>	<b>4.644</b>	<b>4.980</b>	<b>7.732</b>	<b>9.005</b>
<b>EBIT</b>	<b>4,056</b>	<b>5,214</b>	<b>4,245</b>	<b>4,954</b>	<b>5,431</b>	<b>7,713</b>	<b>9,184</b>	<b>10,264</b>
<b>EBITDA</b>	<b>4,499</b>	<b>5,622</b>	<b>4,617</b>	<b>5,372</b>	<b>5,870</b>	<b>8,108</b>	<b>9,559</b>	<b>10,620</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	4,113	5,074	4,224	5,123	5,683	7,966	9,341	10,425
Depreciation and amortisation	444	408	372	418	439	395	375	356
Tax paid	(94)	(490)	(530)	(684)	(938)	(1,028)	(1,261)	(1,407)
Change in working capital	(182)	(2,312)	(172)	(115)	(652)	(3,001)	(2,105)	(1,673)
Other operational CF items	647	558	220	582	348	707	510	432
<b>Cash flow from operations</b>	<b>4,928</b>	<b>3,238</b>	<b>4,114</b>	<b>5,325</b>	<b>4,880</b>	<b>5,039</b>	<b>6,861</b>	<b>8,133</b>
Capex	(97)	(539)	(655)	(236)	(219)	(228)	(223)	(225)
Net (acquisitions)/disposals	(154)	(238)	(353)	0	0	0	0	0
Other investing CF items	(208)	230	356	(127)	(138)	0	0	0
<b>Cash flow from investing</b>	<b>(459)</b>	<b>(547)</b>	<b>(652)</b>	<b>(363)</b>	<b>(357)</b>	<b>(228)</b>	<b>(223)</b>	<b>(225)</b>
Change in debt	3,120	1,607	(43)	(509)	(999)	500	(500)	0
Net share issues/(repurchases)	0	0	0	0	0	0	0	0
Dividends paid	(2,635)	(2,978)	(3,481)	(2,774)	(3,397)	(3,643)	(5,657)	(6,588)
Other financing CF items	2	117	101	78	41	0	0	0
<b>Cash flow from financing</b>	<b>487</b>	<b>(1,255)</b>	<b>(3,422)</b>	<b>(3,205)</b>	<b>(4,355)</b>	<b>(3,143)</b>	<b>(6,157)</b>	<b>(6,588)</b>
Forex effect/others	0	0	0	0	0	0	0	0
<b>Change in cash</b>	<b>4,955</b>	<b>1,436</b>	<b>40</b>	<b>1,757</b>	<b>169</b>	<b>1,668</b>	<b>481</b>	<b>1,319</b>
Free cash flow	4,831	2,699	3,459	5,089	4,661	4,811	6,638	7,907

Source: FactSet, Daiwa forecasts



## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	14,567	16,003	16,043	18,123	18,292	19,960	20,441	21,761
Inventory	2,309	3,645	2,818	3,862	4,362	5,600	6,491	7,241
Accounts receivable	8,355	10,010	10,563	10,965	10,778	13,957	16,190	17,971
Other current assets	555	403	533	303	296	383	444	493
<b>Total current assets</b>	<b>25,787</b>	<b>30,062</b>	<b>29,956</b>	<b>33,252</b>	<b>33,727</b>	<b>39,900</b>	<b>43,567</b>	<b>47,465</b>
Fixed assets	1,606	1,538	1,532	1,592	1,522	1,355	1,203	1,072
Goodwill & intangibles	2,908	2,890	2,757	2,041	2,063	2,063	2,063	2,063
Other non-current assets	2,738	2,518	2,213	1,951	1,684	1,770	1,833	1,886
<b>Total assets</b>	<b>33,039</b>	<b>37,008</b>	<b>36,458</b>	<b>38,837</b>	<b>38,996</b>	<b>45,088</b>	<b>48,666</b>	<b>52,486</b>
Short-term debt	6,297	7,897	7,856	7,347	6,348	6,848	6,348	6,348
Accounts payable	3,766	4,445	3,998	5,330	4,991	6,407	7,427	8,284
Other current liabilities	2,282	2,503	2,314	2,716	2,796	3,590	4,162	4,642
<b>Total current liabilities</b>	<b>12,345</b>	<b>14,846</b>	<b>14,168</b>	<b>15,393</b>	<b>14,135</b>	<b>16,846</b>	<b>17,937</b>	<b>19,275</b>
Long-term debt	0	0	0	0	0	0	0	0
Other non-current liabilities	61	61	61	252	242	242	242	242
<b>Total liabilities</b>	<b>12,406</b>	<b>14,907</b>	<b>14,229</b>	<b>15,644</b>	<b>14,378</b>	<b>17,088</b>	<b>18,179</b>	<b>19,517</b>
Share capital	5,957	5,991	6,020	6,059	6,085	6,085	6,085	6,085
Reserves/R.E./others	14,677	16,110	16,209	17,133	18,534	21,915	24,401	26,884
<b>Shareholders' equity</b>	<b>20,634</b>	<b>22,101</b>	<b>22,229</b>	<b>23,192</b>	<b>24,619</b>	<b>28,000</b>	<b>30,486</b>	<b>32,969</b>
Minority interests	0	0	0	0	0	0	0	0
<b>Total equity &amp; liabilities</b>	<b>33,039</b>	<b>37,008</b>	<b>36,458</b>	<b>38,837</b>	<b>38,996</b>	<b>45,088</b>	<b>48,666</b>	<b>52,486</b>
EV	98,523	98,688	98,607	96,018	94,850	93,682	92,701	91,382
<b>Net debt/(cash)</b>	<b>(8,271)</b>	<b>(8,106)</b>	<b>(8,186)</b>	<b>(10,776)</b>	<b>(11,944)</b>	<b>(13,112)</b>	<b>(14,093)</b>	<b>(15,412)</b>
<b>BVPS (TWD)</b>	<b>34.638</b>	<b>36.895</b>	<b>36.926</b>	<b>38.278</b>	<b>40.457</b>	<b>46.014</b>	<b>50.100</b>	<b>54.179</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	3.1	34.3	(3.4)	5.7	11.9	29.5	16.0	11.0
EBITDA (YoY)	12.5	25.0	(17.9)	16.4	9.3	38.1	17.9	11.1
Operating profit (YoY)	11.8	28.6	(18.6)	16.7	9.6	42.0	19.1	11.8
Net profit (YoY)	13.8	14.1	(19.4)	20.2	6.9	46.2	16.5	11.6
Core EPS (fully-diluted) (YoY)	9.6	12.8	(20.1)	19.8	6.2	46.2	16.5	11.6
Gross-profit margin	30.4	26.9	25.4	28.1	27.7	28.4	28.4	28.1
EBITDA margin	16.7	15.5	13.2	14.5	14.2	15.1	15.4	15.4
Operating-profit margin	15.0	14.4	12.1	13.4	13.1	14.4	14.8	14.9
Net profit margin	14.9	12.6	10.5	12.0	11.4	12.9	13.0	13.0
ROAE	20.6	21.5	16.7	19.5	19.8	26.4	27.6	28.4
ROAA	13.7	13.1	10.1	11.8	12.2	16.5	17.2	17.8
ROCE	16.7	18.3	14.1	16.3	17.7	23.4	25.6	27.0
ROIC	32.6	35.7	26.5	32.4	36.1	48.8	50.8	52.3
Net debt to equity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	2.3	9.7	12.5	13.3	16.5	12.9	13.5	13.5
Accounts receivable (days)	98.8	92.4	107.2	106.1	95.7	84.1	88.4	90.2
Current ratio (x)	2.1	2.0	2.1	2.2	2.4	2.4	2.4	2.5
Net interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout	52.5	52.0	78.2	51.9	59.4	43.6	58.1	60.6
Free cash flow yield	4.5	2.5	3.2	4.8	4.4	4.5	6.2	7.4

Source: FactSet, Daiwa forecasts

### ■ Company profile

Founded in 1997, Novatek is a fabless IC-design company. Its product range encompasses LCD-driver and control ICs, as well as video display, commercial and IM products. The company had more than a 15-20% share of large-sized driver-IC market in 2013, and is gaining exposure to the addressable handset driver-IC market.

■ **Novatek: quarterly and annual P&L statement**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	4Q14E	2013	2014E	2015E
Net sales	9,338	10,928	10,574	10,610	10,593	13,083	15,282	14,719	41,450	53,677	62,266
Gross profit	2,606	3,028	2,957	2,902	2,971	3,776	4,335	4,136	11,493	15,218	17,683
Operating profit	1,201	1,494	1,398	1,338	1,389	1,955	2,301	2,067	5,431	7,713	9,184
Non-op profit	52	49	64	87	55	51	108	39	252	253	157
Pre-tax profit	1,252	1,544	1,462	1,426	1,444	2,006	2,409	2,106	5,683	7,966	9,341
Net profit	1,061	1,253	1,239	1,191	1,267	1,767	2,088	1,817	4,745	6,939	8,080
<b>EPS (TWD)</b>	1.75	2.07	2.04	1.96	2.08	2.90	3.43	2.99	7.81	11.43	13.31
<b>Margin (%)</b>											
Gross margin	27.9%	27.7%	28.0%	27.4%	28.0%	28.9%	28.4%	28.1%	27.7%	28.4%	28.4%
Operating margin	12.9%	13.7%	13.2%	12.6%	13.1%	14.9%	15.1%	14.0%	13.1%	14.4%	14.8%
Pre-tax margin	13.4%	14.1%	13.8%	13.4%	13.6%	15.3%	15.8%	14.3%	13.7%	14.8%	15.0%
Tax rate	15.3%	18.8%	15.2%	16.5%	12.3%	11.9%	13.4%	13.8%	16.5%	12.9%	13.5%
Net margin	11.4%	11.5%	11.7%	11.2%	12.0%	13.5%	13.7%	12.3%	11.4%	12.9%	13.0%
<b>QoQ %</b>											
Net sales	-12.7%	17.0%	-3.2%	0.3%	-0.2%	23.5%	16.8%	-3.7%			
Gross profit	-15.8%	16.2%	-2.3%	-1.9%	2.4%	27.1%	14.8%	-4.6%			
Operating profit	-24.9%	24.5%	-6.5%	-4.2%	3.8%	40.7%	17.7%	-10.2%			
Pre-tax profit	-19.7%	23.2%	-5.3%	-2.5%	1.3%	38.9%	20.1%	-12.6%			
Net profit	-20.2%	18.1%	-1.1%	-3.9%	6.4%	39.5%	18.1%	-13.0%			
<b>YoY %</b>											
Net sales	24.4%	27.6%	3.3%	-0.8%	13.4%	19.7%	44.5%	38.7%	11.9%	29.5%	16.0%
Gross profit	30.7%	28.5%	0.8%	-6.3%	14.0%	24.7%	46.6%	42.5%	10.6%	32.4%	16.2%
Operating profit	25.1%	19.4%	-8.9%	-16.2%	15.7%	30.8%	64.7%	54.5%	10.9%	40.2%	17.3%
Pre-tax profit	36.7%	32.2%	-0.8%	-8.6%	15.3%	30.0%	64.8%	47.8%	6.9%	46.2%	16.5%
Net profit	35.9%	21.4%	-4.2%	-10.4%	19.4%	41.0%	68.5%	52.5%	6.2%	46.2%	16.5%

Source: Company

■ **Novatek: revisions to sales and earnings forecasts**

(TWDm)	Revised			Previous			Change		
	2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E
Net sales	53,677	62,266	69,115	52,848	60,776	67,461	1.6%	2.5%	2.5%
Gross profit	15,218	17,683	19,387	14,956	17,199	18,923	1.7%	2.8%	2.5%
Operating profit	7,713	9,184	10,264	7,541	8,891	10,018	2.3%	3.3%	2.5%
Pre-tax profit	7,966	9,341	10,425	7,694	9,048	10,179	3.5%	3.2%	2.4%
Net profit	6,939	8,080	9,018	6,694	7,827	8,805	3.7%	3.2%	2.4%
<b>EPS (TWD)</b>	11.43	13.31	14.85	11.02	12.89	14.50	3.7%	3.2%	2.4%
<b>Margins</b>									
Gross margin	28.4%	28.4%	28.1%	28.3%	28.3%	28.0%			
Operating margin	14.4%	14.8%	14.9%	14.3%	14.6%	14.9%			
Pre-tax margin	0.5%	0.3%	0.2%	0.3%	0.3%	0.2%			
Net margin	14.8%	15.0%	15.1%	14.6%	14.9%	15.1%			

Source: Daiwa forecasts

## Delta Electronics

2308 TT

# Boost from industrial automation and data centres

- We are upbeat on Delta's gross-margin outlook, backed by the company's ongoing moves to enhance its product mix
- Industrial automation (IA), passive components and data centres are bright spots for the business, in our view
- Delta remains one of our top picks in the Taiwan Automation Sector; reaffirming Outperform (2) rating

Target (TWD): **213.00 → 213.00**

Upside: **12.1%**

29 Dec price (TWD): **190.00**

- 1 Buy
- 2 Outperform (unchanged)
- 3 Hold
- 4 Underperform
- 5 Sell



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### ■ What's new

Delta Electronics is actively expanding its customer base through acquisitions and boosting margins by improving its product mix. While we forecast stable revenue growth for its energy and components businesses over 2015-16, we look for its data-centre total solutions business to drive earnings and revenue, given our view of Big Data as the next structural trend in the global IT industry, spurred by the proliferation of IoT devices. We see Delta as well-placed to tap into this new demand cycle.

### ■ What's the impact

**Big Data: another driver.** We estimate Delta's data-centre total solutions business contributed 15-20% of its data centre-related revenue for 2013, and we expect demand for such solutions to exceed that for the component business in 2014-16,

driven by Delta's customers in China and Taiwan.

We forecast Delta's data-centre business to maintain double-digit revenue growth YoY over our forecast horizon, backed by Cisco's projection of a 35% CAGR in traffic for cloud-data centres globally for 2014-17, vs. a 25% CAGR for overall traffic.

**2015 outlook.** Delta expects all its product lines to see YoY revenue growth in 2015 except for PC-related components. We forecast growth in its revenue from passive components, industrial automation, and telecom segments to outpace those for other segments in 2015.

### ■ What we recommend

We maintain our target price (previously 6-month, now 12-month) of TWD213, based on a 2015E PER of 23x (unchanged), which is **in line with the stock's past-5-year peak**. Our Outperform (2) rating stands, as we see the long-term story of product-mix improvement continuing to play out at Delta. The main risk to our call on the stock would be weaker-than-expected end-demand.

### ■ How we differ

We believe we are the first in the market to quantify the impact of the emerging Big Data trend on Delta.

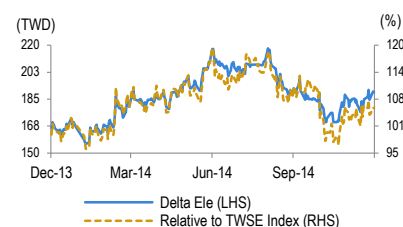
Although we believe its margin-expansion trend is intact, we are below the Bloomberg consensus on our 2015-16E EPS.

### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	-	-	-
Net profit change	0.2	0.9	1.2
Core EPS (FD) change	0.2	0.9	1.2

Source: Daiwa forecasts

### Share price performance



12-month range	156.00-218.00
Market cap (USDbn)	14.59
3m avg daily turnover (USDm)	34.14
Shares outstanding (m)	2,438
Major shareholder	Hsiang Ta International (10.4%)

### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	189,211	200,318	219,250
Operating profit (m)	23,411	25,689	29,902
Net profit (m)	21,052	22,820	26,410
Core EPS (fully-diluted)	8.636	9.362	10.835
EPS change (%)	19.2	8.4	15.7
Daiwa vs Cons. EPS (%)	(0.1)	(4.0)	(3.0)
PER (x)	22.0	20.3	17.5
Dividend yield (%)	2.7	3.3	3.5
DPS	5.2	6.2	6.7
PBR (x)	4.5	4.2	3.9
EV/EBITDA (x)	13.0	11.7	10.1
ROE (%)	21.5	21.6	23.0

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Worldwide PC shipment (m units)	315	358	364	353	316	299	295	293
Worldwide power supply market (USDbn) YoY %	(5.5)	7.9	7.0	6.5	6.0	5.5	5.5	5.5
China AC motor drive (CNYbn) YoY%	12	32	7	7	10	15	15	15

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Power electronics	65,138	75,752	107,086	106,525	102,933	114,640	118,936	126,139
Energy management	16,157	25,955	35,430	35,732	32,778	35,044	39,887	48,022
Other Revenue	44,216	69,595	29,540	33,567	41,343	39,527	41,495	45,089
<b>Total Revenue</b>	<b>125,511</b>	<b>171,302</b>	<b>172,056</b>	<b>175,824</b>	<b>177,053</b>	<b>189,211</b>	<b>200,318</b>	<b>219,250</b>
Other income	0	0	0	0	0	0	0	0
COGS	(99,143)	(134,699)	(139,274)	(134,470)	(132,033)	(137,717)	(145,118)	(158,149)
SG&A	(7,862)	(10,434)	(12,478)	(14,170)	(14,237)	(16,115)	(16,970)	(17,472)
Other op. expenses	(6,743)	(8,901)	(9,986)	(11,233)	(11,274)	(11,968)	(12,542)	(13,727)
<b>Operating profit</b>	<b>11,762</b>	<b>17,269</b>	<b>10,318</b>	<b>15,950</b>	<b>19,508</b>	<b>23,411</b>	<b>25,689</b>	<b>29,902</b>
Net-interest inc./(exp.)	411	349	508	494	548	831	817	814
Assoc/forex/extraord./others	1,364	2,528	3,758	4,660	2,440	2,867	2,426	2,426
<b>Pre-tax profit</b>	<b>13,538</b>	<b>20,146</b>	<b>14,585</b>	<b>21,104</b>	<b>22,497</b>	<b>27,109</b>	<b>28,931</b>	<b>33,142</b>
Tax	(470)	(2,271)	(2,826)	(3,226)	(3,582)	(4,377)	(4,404)	(5,021)
Min. int./pref. div./others	(1,411)	2,128	0	(1,768)	(1,258)	(1,680)	(1,708)	(1,711)
<b>Net profit (reported)</b>	<b>11,657</b>	<b>20,003</b>	<b>11,759</b>	<b>16,110</b>	<b>17,657</b>	<b>21,052</b>	<b>22,820</b>	<b>26,410</b>
<b>Net profit (adjusted)</b>	<b>11,657</b>	<b>20,003</b>	<b>11,759</b>	<b>16,110</b>	<b>17,657</b>	<b>21,052</b>	<b>22,820</b>	<b>26,410</b>
<b>EPS (reported)(TWD)</b>	<b>5.164</b>	<b>8.353</b>	<b>4.893</b>	<b>6.654</b>	<b>7.244</b>	<b>8.636</b>	<b>9.362</b>	<b>10.835</b>
<b>EPS (adjusted)(TWD)</b>	<b>5.164</b>	<b>8.353</b>	<b>4.893</b>	<b>6.654</b>	<b>7.244</b>	<b>8.636</b>	<b>9.362</b>	<b>10.835</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>5.164</b>	<b>8.353</b>	<b>4.893</b>	<b>6.654</b>	<b>7.244</b>	<b>8.636</b>	<b>9.362</b>	<b>10.835</b>
<b>DPS (TWD)</b>	<b>3.622</b>	<b>4.436</b>	<b>6.175</b>	<b>3.674</b>	<b>5.290</b>	<b>5.215</b>	<b>6.218</b>	<b>6.740</b>
<b>EBIT</b>	<b>11,762</b>	<b>17,269</b>	<b>10,318</b>	<b>15,950</b>	<b>19,508</b>	<b>23,411</b>	<b>25,689</b>	<b>29,902</b>
<b>EBITDA</b>	<b>16,562</b>	<b>22,660</b>	<b>16,829</b>	<b>23,979</b>	<b>27,850</b>	<b>33,521</b>	<b>36,824</b>	<b>42,072</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	13,538	20,146	14,585	21,104	22,497	27,109	28,931	33,142
Depreciation and amortisation	4,800	5,391	6,511	8,029	8,342	10,110	11,135	12,169
Tax paid	(470)	(2,271)	(2,826)	(3,226)	(3,582)	(4,377)	(4,404)	(5,021)
Change in working capital	1,300	(6,273)	(6,683)	(353)	(3,022)	(995)	(1,867)	(3,136)
Other operational CF items	2,221	5,087	6,280	(1,922)	1,877	(2,893)	(3,026)	(3,025)
<b>Cash flow from operations</b>	<b>21,389</b>	<b>22,080</b>	<b>17,867</b>	<b>23,632</b>	<b>26,112</b>	<b>28,954</b>	<b>30,771</b>	<b>34,129</b>
Capex	(3,970)	(8,860)	(14,130)	(10,996)	(8,824)	(7,947)	(8,013)	(8,770)
Net (acquisitions)/disposals	(5,143)	731	(2,548)	(275)	1	0	0	0
Other investing CF items	(394)	(874)	1,371	(630)	361	(1,295)	(851)	(1,072)
<b>Cash flow from investing</b>	<b>(9,507)</b>	<b>(9,003)</b>	<b>(15,307)</b>	<b>(11,901)</b>	<b>(8,461)</b>	<b>(9,242)</b>	<b>(8,864)</b>	<b>(9,842)</b>
Change in debt	7,589	4,781	23,791	(21,718)	1,868	238	(119)	59
Net share issues/(repurchases)	1,490	0	1	257	0	0	0	0
Dividends paid	(7,915)	(10,013)	(14,789)	(8,831)	(12,843)	(12,713)	(15,157)	(16,430)
Other financing CF items	263	662	(1,927)	6,380	(222)	(1,011)	(1,031)	(938)
<b>Cash flow from financing</b>	<b>1,427</b>	<b>(4,569)</b>	<b>7,077</b>	<b>(23,911)</b>	<b>(11,197)</b>	<b>(13,486)</b>	<b>(16,307)</b>	<b>(17,308)</b>
Forex effect/others	1,022	(5,312)	2,447	(2,600)	2,770	0	0	0
<b>Change in cash</b>	<b>14,331</b>	<b>3,197</b>	<b>12,084</b>	<b>(14,781)</b>	<b>9,223</b>	<b>6,226</b>	<b>5,600</b>	<b>6,979</b>
Free cash flow	17,419	13,221	3,737	12,635	17,288	21,007	22,758	25,359

Source: FactSet, Daiwa forecasts

## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	58,453	61,408	68,424	52,470	59,806	65,457	69,201	74,543
Inventory	9,748	14,789	19,126	15,461	18,042	20,752	21,867	23,831
Accounts receivable	29,581	34,970	38,938	38,192	44,305	45,618	48,296	52,860
Other current assets	1,421	2,076	3,520	15,767	4,349	14,918	10,011	10,012
<b>Total current assets</b>	<b>99,203</b>	<b>113,243</b>	<b>130,008</b>	<b>121,890</b>	<b>126,503</b>	<b>146,745</b>	<b>149,374</b>	<b>161,245</b>
Fixed assets	20,268	26,901	36,918	34,908	37,195	33,129	36,399	39,918
Goodwill & intangibles	0	0	0	0	0	0	0	0
Other non-current assets	14,442	21,595	26,269	25,090	33,631	25,598	30,859	28,054
<b>Total assets</b>	<b>133,913</b>	<b>161,738</b>	<b>193,194</b>	<b>181,889</b>	<b>197,329</b>	<b>205,473</b>	<b>216,633</b>	<b>229,218</b>
Short-term debt	11,773	9,878	17,599	5,037	4,562	4,799	4,681	4,740
Accounts payable	32,845	39,355	41,659	38,436	32,816	35,844	37,770	41,162
Other current liabilities	3,681	9,003	9,495	15,222	21,990	18,529	20,219	19,374
<b>Total current liabilities</b>	<b>48,299</b>	<b>58,235</b>	<b>68,753</b>	<b>58,695</b>	<b>59,368</b>	<b>59,173</b>	<b>62,670</b>	<b>65,276</b>
Long-term debt	2,974	9,540	24,862	16,492	18,828	18,828	18,828	18,828
Other non-current liabilities	6,795	6,571	7,093	7,298	11,248	11,248	11,248	11,248
<b>Total liabilities</b>	<b>58,068</b>	<b>74,346</b>	<b>100,708</b>	<b>82,485</b>	<b>89,443</b>	<b>89,248</b>	<b>92,746</b>	<b>95,352</b>
Share capital	22,573	23,948	24,034	24,212	24,375	24,375	24,375	24,375
Reserves/R.E./others	40,728	51,883	53,787	59,454	69,272	77,611	85,274	95,253
<b>Shareholders' equity</b>	<b>63,301</b>	<b>75,831</b>	<b>77,821</b>	<b>83,666</b>	<b>93,648</b>	<b>101,987</b>	<b>109,649</b>	<b>119,629</b>
Minority interests	12,544	11,561	14,665	15,738	14,238	14,238	14,238	14,238
<b>Total equity &amp; liabilities</b>	<b>133,913</b>	<b>161,738</b>	<b>193,194</b>	<b>181,889</b>	<b>197,329</b>	<b>205,473</b>	<b>216,633</b>	<b>229,219</b>
EV	431,971	432,703	451,836	447,930	440,954	435,541	431,679	426,396
<b>Net debt/(cash)</b>	<b>(43,706)</b>	<b>(41,990)</b>	<b>(25,962)</b>	<b>(30,941)</b>	<b>(36,417)</b>	<b>(41,830)</b>	<b>(45,693)</b>	<b>(50,975)</b>
<b>BVPS (TWD)</b>	<b>28.043</b>	<b>31.665</b>	<b>32.379</b>	<b>34.556</b>	<b>38.419</b>	<b>41.840</b>	<b>44.983</b>	<b>49.078</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	(12.0)	36.5	0.4	2.2	0.7	6.9	5.9	9.5
EBITDA (YoY)	6.4	36.8	(25.7)	42.5	16.1	20.4	9.9	14.2
Operating profit (YoY)	5.7	46.8	(40.3)	54.6	22.3	20.0	9.7	16.4
Net profit (YoY)	13.7	71.6	(41.2)	37.0	9.6	19.2	8.4	15.7
Core EPS (fully-diluted) (YoY)	10.1	61.7	(41.4)	36.0	8.9	19.2	8.4	15.7
Gross-profit margin	21.0	21.4	19.1	23.5	25.4	27.2	27.6	27.9
EBITDA margin	13.2	13.2	9.8	13.6	15.7	17.7	18.4	19.2
Operating-profit margin	9.4	10.1	6.0	9.1	11.0	12.4	12.8	13.6
Net profit margin	9.3	11.7	6.8	9.2	10.0	11.1	11.4	12.0
ROAE	19.2	28.8	15.3	20.0	19.9	21.5	21.6	23.0
ROAA	9.3	13.5	6.6	8.6	9.3	10.5	10.8	11.8
ROCE	13.8	17.5	8.5	12.5	15.5	17.3	17.9	19.6
ROIC	33.8	39.5	14.9	20.0	23.4	26.9	28.5	31.5
Net debt to equity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	3.5	11.3	19.4	15.3	15.9	16.1	15.2	15.1
Accounts receivable (days)	81.7	68.8	78.4	80.1	85.0	86.7	85.6	84.2
Current ratio (x)	2.1	1.9	1.9	2.1	2.1	2.5	2.4	2.5
Net interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout	77.2	85.9	73.9	75.1	79.5	72.0	72.0	72.0
Free cash flow yield	3.8	2.9	0.8	2.7	3.7	4.5	4.9	5.5

Source: FactSet, Daiwa forecasts

### ■ Company profile

Delta Electronics is the global leader in switching power supply products. Its products include switching power supply products, brushless fans, transformers, projector systems and industrial automation systems. Delta is expanding into green-energy related products including solar products, LEDs, electric vehicle motors and E-paper.

## Quanta Computer

2382 TT

# Potential beneficiary of the rise of cloud computing and IoT

- We expect the cloud server business to become a more important revenue/earnings growth driver for Quanta
- Apple Watch, which is likely to be launched in 1Q15, should be a new revenue driver, as Quanta is likely to be the main supplier
- We reiterate our Outperform (2) rating, with a 12-month target price of TWD85 based on 16x 1-year-forward PER

Target (TWD): **85.00 → 85.00**

Upside: **7.2%**

29 Dec price (TWD): **79.30**

- 1 Buy
- 2 Outperform (unchanged)
- 3 Hold
- 4 Underperform
- 5 Sell



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### ■ What's new

We are positive on Quanta's continued strength in the cloud server business and hence its role as a major player in our Big Data theme for 2015. New smartwatch products could offer upside to 2015E earnings, in our view.

### ■ What's the impact

**Server business.** Quanta's cloud server business (aka white-box server) has seen sustained revenue growth in recent years, and we look for this trend to continue. We forecast the business to contribute 12-13% of Quanta's revenue in 2014 and 15% in 2015, from 9% in 2013. Alongside data-centre buildouts by "hyperscale" clients such as Amazon, Facebook, Microsoft, and Google, we highlight the following as revenue-growth drivers: 1) rising demand for full-rack shipments (meaning that cloud servers are bundled with hardware such as storage, switches, and power supplies) should boost revenue growth and strengthen

Quanta's ties with key clients, and 2) large enterprises' private cloud initiatives should be a revenue-growth driver from 2015 onward, as Quanta has been working with several clients on such projects for some time now.

### Smart watch another focus.

According to our research in the market, Quanta will be the main supplier for the Apple Watch, which is likely to debut in 1Q15. While we only model in a 4-5% sales contribution for Quanta in 2015, there could be upside to our forecasts, given: 1) the product has a big and growing addressable market, ie, iPhone users, 2) Apple has a strong track record of reinventing (eg, iPod for plain old MP3 players, iPhone for conventional mobile phones, and iPad for tablets), which bodes well for the demand outlook.

### ■ What we recommend

We have an Outperform (2) rating on Quanta with a 12-month target price (formerly 6 months) of TWD85, based on 16x 1-year-forward PER (unchanged). While we expect the Apple Watch to cause a spike in operating expenditure for 4Q14, we are positive on Quanta's growth outlook in the server, smart watch, and notebook ODM segments. The key risk to our call: worse-than-expected competition in the cloud-server business.

### ■ How we differ

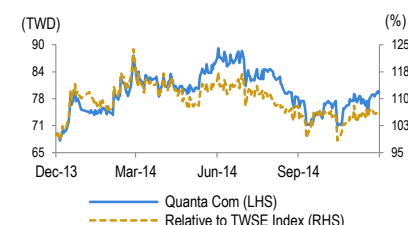
We are more positive than the market on improvements to Quanta's sales mix.

#### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	-	-	-
Net profit change	-	-	-
Core EPS (FD) change	-	-	-

Source: Daiwa forecasts

### Share price performance



12-month range	67.80-89.20
Market cap (USDbn)	9.65
3m avg daily turnover (USDm)	14.23
Shares outstanding (m)	3,863
Major shareholder	Ch'ien-Yu Investment (14.8%)

### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	932,613	998,782	1,074,080
Operating profit (m)	14,901	18,633	22,670
Net profit (m)	18,389	22,051	25,228
Core EPS (fully-diluted)	4.761	5.709	6.531
EPS change (%)	(18.6)	19.9	14.4
Daiwa vs Cons. EPS (%)	(11.5)	(8.5)	(8.4)
PER (x)	16.7	13.9	12.1
Dividend yield (%)	5.9	4.2	4.7
DPS	4.6	3.3	3.7
PBR (x)	2.5	2.3	2.2
EV/EBITDA (x)	13.1	10.9	9.1
ROE (%)	15.0	17.5	18.5

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Notebook ASP (USD)	522	517	479	459	461	422	428	434
Notebook shipment (m units)	36	52	56	54	43	49	50	50
Tablet ASP (USD)	n.a.	n.a.	166	157	125	120	110	102
Tablet shipment (m units)	n.a.	n.a.	7	12	14	12	11	10

### ■ Profit and loss (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Notebook PC	619,369	848,120	788,683	728,235	590,595	621,695	645,559	661,145
Cloud server related	0	0	39,443	57,731	81,389	110,754	138,656	168,395
Other Revenue	220,423	276,608	281,602	231,579	208,419	200,163	214,566	244,540
<b>Total Revenue</b>	<b>839,791</b>	<b>1,124,728</b>	<b>1,109,728</b>	<b>1,017,545</b>	<b>880,402</b>	<b>932,613</b>	<b>998,782</b>	<b>1,074,080</b>
Other income	0	0	0	0	0	0	0	0
COGS	(794,088)	(1,085,917)	(1,067,205)	(978,338)	(843,098)	(890,395)	(952,132)	(1,023,052)
SG&A	(15,100)	(13,751)	(17,467)	(14,167)	(13,733)	(16,416)	(16,824)	(17,255)
Other op.expenses	(8,579)	(9,083)	(9,171)	(9,867)	(10,512)	(10,901)	(11,191)	(11,103)
<b>Operating profit</b>	<b>22,024</b>	<b>15,976</b>	<b>15,885</b>	<b>15,173</b>	<b>13,060</b>	<b>14,901</b>	<b>18,633</b>	<b>22,670</b>
Net-interest inc./(exp.)	(445)	53	1,914	5,077	4,417	6,492	6,206	6,198
Assoc/forex/extraord./others	6,837	10,680	14,743	8,779	10,715	2,873	3,701	3,677
<b>Pre-tax profit</b>	<b>28,415</b>	<b>26,709</b>	<b>32,541</b>	<b>29,029</b>	<b>28,192</b>	<b>24,266</b>	<b>28,540</b>	<b>32,546</b>
Tax	(5,074)	(7,378)	(9,043)	(5,613)	(5,108)	(5,384)	(6,046)	(6,882)
Min. int./pref. div./others	(1,028)	(739)	0	(378)	(492)	(494)	(443)	(435)
<b>Net profit (reported)</b>	<b>22,313</b>	<b>18,592</b>	<b>23,499</b>	<b>23,039</b>	<b>22,593</b>	<b>18,389</b>	<b>22,051</b>	<b>25,228</b>
<b>Net profit (adjusted)</b>	<b>22,313</b>	<b>18,592</b>	<b>23,499</b>	<b>23,039</b>	<b>22,593</b>	<b>18,389</b>	<b>22,051</b>	<b>25,228</b>
<b>EPS (reported)(TWD)</b>	<b>5.900</b>	<b>4.849</b>	<b>6.118</b>	<b>5.986</b>	<b>5.849</b>	<b>4.761</b>	<b>5.709</b>	<b>6.531</b>
<b>EPS (adjusted)(TWD)</b>	<b>5.900</b>	<b>4.849</b>	<b>6.118</b>	<b>5.986</b>	<b>5.849</b>	<b>4.761</b>	<b>5.709</b>	<b>6.531</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>5.900</b>	<b>4.849</b>	<b>6.118</b>	<b>5.986</b>	<b>5.849</b>	<b>4.761</b>	<b>5.709</b>	<b>6.531</b>
<b>DPS (TWD)</b>	<b>3.587</b>	<b>3.871</b>	<b>3.688</b>	<b>4.041</b>	<b>4.135</b>	<b>4.644</b>	<b>3.333</b>	<b>3.739</b>
<b>EBIT</b>	<b>22,024</b>	<b>15,976</b>	<b>15,885</b>	<b>15,173</b>	<b>13,060</b>	<b>14,901</b>	<b>18,633</b>	<b>22,670</b>
<b>EBITDA</b>	<b>26,783</b>	<b>21,532</b>	<b>22,372</b>	<b>22,253</b>	<b>19,761</b>	<b>21,948</b>	<b>25,879</b>	<b>30,129</b>

### ■ Cash flow (TWDm)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	28,415	26,709	32,541	29,029	28,192	24,266	28,540	32,546
Depreciation and amortisation	4,759	5,556	6,487	7,080	6,701	7,048	7,246	7,459
Tax paid	(5,074)	(7,378)	(9,043)	(5,613)	(5,108)	(5,384)	(6,046)	(6,882)
Change in working capital	(11,621)	(25,819)	(33,162)	5,773	23,570	(10,972)	(6,402)	(7,202)
Other operational CF items	4,772	2,527	5,403	(159)	(1,046)	(154)	(36)	(40)
<b>Cash flow from operations</b>	<b>21,251</b>	<b>1,595</b>	<b>2,227</b>	<b>36,111</b>	<b>52,309</b>	<b>14,804</b>	<b>23,302</b>	<b>25,880</b>
Capex	(5,465)	(10,607)	(7,166)	(5,763)	(2,204)	(2,335)	(2,501)	(2,689)
Net (acquisitions)/disposals	(3,115)	2,621	(1,428)	(64)	810	(455)	(544)	(304)
Other investing CF items	(5,991)	(5,900)	10,238	9,268	(2,982)	(4,839)	0	0
<b>Cash flow from investing</b>	<b>(14,571)</b>	<b>(13,886)</b>	<b>1,645</b>	<b>3,441</b>	<b>(4,377)</b>	<b>(7,629)</b>	<b>(3,044)</b>	<b>(2,993)</b>
Change in debt	12,537	97,819	140,432	(100,449)	(9,488)	6,889	(2,437)	0
Net share issues/(repurchases)	0	234	66	0	0	0	0	0
Dividends paid	(13,092)	(14,641)	(14,140)	(15,520)	(15,913)	(17,939)	(12,872)	(14,443)
Other financing CF items	2	6,313	(15,272)	7,859	(3,110)	333	308	327
<b>Cash flow from financing</b>	<b>(553)</b>	<b>89,725</b>	<b>111,087</b>	<b>(108,110)</b>	<b>(28,511)</b>	<b>(10,717)</b>	<b>(15,001)</b>	<b>(14,117)</b>
Forex effect/others	(532)	(5,164)	11,884	(7,200)	4,702	0	0	0
<b>Change in cash</b>	<b>5,595</b>	<b>72,269</b>	<b>126,841</b>	<b>(75,758)</b>	<b>24,123</b>	<b>(3,541)</b>	<b>5,257</b>	<b>8,770</b>
Free cash flow	15,786	(9,012)	(4,939)	30,348	50,104	12,469	20,801	23,191

Source: FactSet, Daiwa forecasts

## Financial summary continued ...

### ■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	101,777	171,642	284,781	200,195	221,682	222,486	227,300	235,635
Inventory	53,946	81,374	113,907	96,168	86,553	96,486	103,176	110,861
Accounts receivable	154,562	183,158	189,698	195,632	181,443	199,718	213,888	230,014
Other current assets	9,093	12,147	17,810	13,992	6,748	6,830	6,830	6,830
<b>Total current assets</b>	<b>319,378</b>	<b>448,321</b>	<b>606,195</b>	<b>505,988</b>	<b>496,426</b>	<b>525,520</b>	<b>551,194</b>	<b>583,339</b>
Fixed assets	44,884	48,233	53,323	50,575	48,042	43,369	38,624	33,854
Goodwill & intangibles	0	0	0	0	0	0	0	0
Other non-current assets	13,142	15,430	11,391	11,062	13,617	14,421	15,001	15,345
<b>Total assets</b>	<b>377,404</b>	<b>511,984</b>	<b>670,909</b>	<b>567,625</b>	<b>558,085</b>	<b>583,310</b>	<b>604,818</b>	<b>632,538</b>
Short-term debt	63,138	131,128	268,713	170,107	159,159	164,409	164,409	164,409
Accounts payable	173,008	203,390	210,230	203,602	191,283	208,519	222,977	239,586
Other current liabilities	26,452	28,123	35,194	42,643	42,267	46,413	43,976	43,976
<b>Total current liabilities</b>	<b>262,599</b>	<b>362,641</b>	<b>514,138</b>	<b>416,352</b>	<b>392,709</b>	<b>419,341</b>	<b>431,362</b>	<b>447,971</b>
Long-term debt	0	29,784	32,680	18,632	31,401	31,499	31,499	31,499
Other non-current liabilities	796	435	329	1,415	2,889	2,879	2,879	2,879
<b>Total liabilities</b>	<b>263,395</b>	<b>392,860</b>	<b>547,147</b>	<b>436,399</b>	<b>426,998</b>	<b>453,719</b>	<b>465,740</b>	<b>482,349</b>
Share capital	37,820	38,339	38,411	38,487	38,626	38,626	38,626	38,626
Reserves/R.E./others	68,799	73,264	77,934	85,332	84,676	82,962	92,449	103,561
<b>Shareholders' equity</b>	<b>106,619</b>	<b>111,603</b>	<b>116,344</b>	<b>123,819</b>	<b>123,302</b>	<b>121,588</b>	<b>131,075</b>	<b>142,187</b>
Minority interests	7,390	7,521	7,418	7,407	7,785	8,003	8,003	8,003
<b>Total equity &amp; liabilities</b>	<b>377,404</b>	<b>511,984</b>	<b>670,909</b>	<b>567,625</b>	<b>558,085</b>	<b>583,310</b>	<b>604,818</b>	<b>632,538</b>
EV	275,054	303,094	330,332	302,253	282,965	287,728	282,914	274,579
<b>Net debt/(cash)</b>	<b>(38,639)</b>	<b>(10,730)</b>	<b>16,612</b>	<b>(11,457)</b>	<b>(31,122)</b>	<b>(26,579)</b>	<b>(31,392)</b>	<b>(39,728)</b>
<b>BVPS (TWD)</b>	<b>28.191</b>	<b>29.110</b>	<b>30.290</b>	<b>32.171</b>	<b>31.922</b>	<b>31.478</b>	<b>33.935</b>	<b>36.811</b>

### ■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	2.6	33.9	(1.3)	(8.3)	(13.5)	5.9	7.1	7.5
EBITDA (YoY)	18.5	(19.6)	3.9	(0.5)	(11.2)	11.1	17.9	16.4
Operating profit (YoY)	19.3	(27.5)	(0.6)	(4.5)	(13.9)	14.1	25.0	21.7
Net profit (YoY)	10.3	(16.7)	26.4	(2.0)	(1.9)	(18.6)	19.9	14.4
Core EPS (fully-diluted) (YoY)	6.4	(17.8)	26.2	(2.2)	(2.3)	(18.6)	19.9	14.4
Gross-profit margin	5.4	3.5	3.8	3.9	4.2	4.5	4.7	4.8
EBITDA margin	3.2	1.9	2.0	2.2	2.2	2.4	2.6	2.8
Operating-profit margin	2.6	1.4	1.4	1.5	1.5	1.6	1.9	2.1
Net profit margin	2.7	1.7	2.1	2.3	2.6	2.0	2.2	2.3
ROAE	23.2	17.0	20.6	19.2	18.3	15.0	17.5	18.5
ROAA	6.6	4.2	4.0	3.7	4.0	3.2	3.7	4.1
ROCE	13.6	7.0	4.5	4.1	4.1	4.6	5.6	6.7
ROIC	26.9	12.6	9.2	9.4	9.7	11.4	13.9	16.4
Net debt to equity	n.a.	n.a.	14.3	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	17.9	27.6	27.8	19.3	18.1	22.2	21.2	21.1
Accounts receivable (days)	56.1	54.8	61.3	69.1	78.2	74.6	75.6	75.4
Current ratio (x)	1.2	1.2	1.2	1.2	1.3	1.3	1.3	1.3
Net interest cover (x)	49.5	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout	60.8	79.8	60.3	67.5	70.7	97.6	58.4	57.3
Free cash flow yield	5.2	n.a.	n.a.	9.9	16.4	4.1	6.8	7.6

Source: FactSet, Daiwa forecasts

### ■ Company profile

Established in 1988 and listed on the Taiwan Stock Exchange in 1999, Quanta Computer (Quanta) is the world's largest notebook ODM in terms of revenue. Aside from notebook PCs, Quanta has entered the cloud computing-related data centre server business in recent years, and has established relationships with key clients like Facebook and Google.

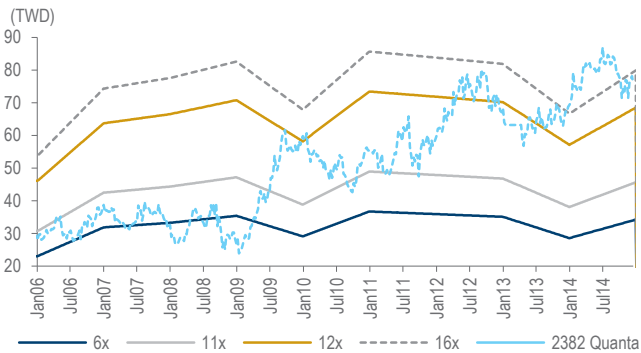


■ **Quanta: quarterly and annual P&L statement**

(TWDm)	2014				2015				2013	2014E	2015E
	1Q	2Q	3Q	4QE	1QE	2QE	3QE	4QE			
Net sales	215,870	214,469	244,333	257,942	221,668	235,051	261,518	280,545	880,402	932,613	998,782
COGS	-207,127	-203,893	-233,337	-246,038	-211,445	-224,115	-249,227	-267,346	-843,097	-890,395	-952,132
Gross profit	8,742	10,576	10,996	11,904	10,223	10,936	12,291	13,199	37,304	42,218	46,649
Operating costs	-5,854	-6,270	-7,352	-7,841	-6,584	-6,675	-7,323	-7,434	-24,245	-27,317	-28,016
Operating profit	2,889	4,306	3,644	4,062	3,640	4,261	4,969	5,764	13,060	14,901	18,633
Non-operating profit	3,261	1,387	2,484	2,234	2,446	2,497	2,435	2,528	15,132	9,366	9,907
Pre-tax profit	6,150	5,693	6,128	6,296	6,086	6,758	7,404	8,292	28,192	24,266	28,540
Taxes	-1,298	-1,460	-1,366	-1,259	-1,217	-1,689	-1,481	-1,658	-5,108	-5,384	-6,046
Net profit	4,675	4,067	4,732	4,915	4,745	4,958	5,826	6,521	22,593	18,389	22,051
Net EPS (TWD)	1.21	1.05	1.23	1.27	1.23	1.28	1.51	1.69	5.85	4.76	5.71
<b>Operating ratios</b>											
Gross margin	4.0%	4.9%	4.5%	4.6%	4.6%	4.7%	4.7%	4.7%	4.2%	4.5%	4.7%
Operating margin	1.3%	2.0%	1.5%	1.6%	1.6%	1.8%	1.9%	2.1%	1.5%	1.6%	1.9%
Pre-tax margin	2.8%	2.7%	2.5%	2.4%	2.7%	2.9%	2.8%	3.0%	3.2%	2.6%	2.9%
Net margin	2.2%	1.9%	1.9%	1.9%	2.1%	2.1%	2.2%	2.3%	2.6%	2.0%	2.2%
<b>YoY (%)</b>											
Net revenue	9%	12%	11%	-5%	3%	10%	7%	9%	-13%	6%	7%
Gross profit	9%	18%	11%	13%	17%	3%	12%	11%	-5%	13%	10%
Operating income	12%	55%	-17%	22%	26%	-1%	36%	42%	-14%	14%	25%
Pre-tax income	2%	1%	0%	-40%	-1%	19%	21%	32%	-3%	-14%	18%
Net income	5%	1%	2%	-48%	2%	22%	23%	33%	-2%	-19%	20%
<b>QoQ (%)</b>											
Net revenue	-21%	-1%	14%	6%	-14%	6%	11%	7%			
Gross profit	-17%	21%	4%	8%	-14%	7%	12%	7%			
Operating income	-13%	49%	-15%	11%	-10%	17%	17%	16%			
Pre-tax income	-41%	-7%	8%	3%	-3%	11%	10%	12%			
Net income	-51%	-13%	16%	4%	-3%	4%	18%	12%			

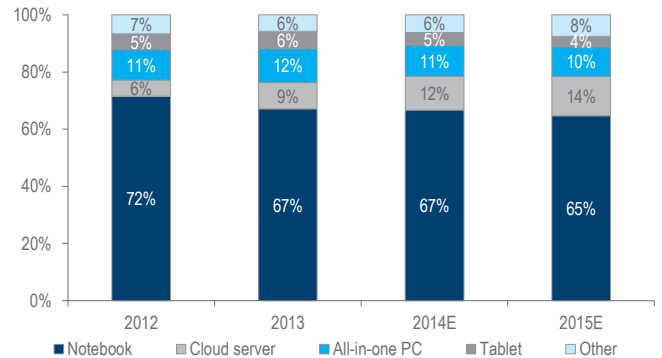
Source: Company, Daiwa forecasts

■ **Quanta: 1-year-forward PER**



Source: TEJ, Daiwa forecasts

■ **Quanta: revenue breakdown by product**



Source: Company, Daiwa forecasts for 2014 and 2015

## MediaTek

2454 TT

# Short-term pain for long-term gain

- BigData: we think MediaTek's strategy of expanding its IoT product offerings is a good move
- MCDs: MediaTek appears to be trading margins for increased share of the 4G market – short-term pain for long-term gain
- Raising earnings forecasts and target price on stronger 4G chipset shipments forecasts; maintain Hold on lack of catalysts

Target (TWD): **422.00 → 450.00**

Downside: **3.7%**

29 Dec price (TWD): **467.50**

- 1 Buy
- 2 Outperform
- 3 Hold (unchanged)
- 4 Underperform
- 5 Sell



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### ■ What's new

MediaTek looks to be trading margins for market share in a bid to build a solid foothold in 4G smartphones. We see this as just short-term pain, and believe the company is a beneficiary of the Big Data theme with its expanding product offerings (which will cover the core functionalities identified in the main section of this report).

### ■ What's the impact

#### Big Data should be a boon.

MediaTek should benefit from the Big Data cycle on 3 fronts: 1) data processing, transmission and access. By leveraging its core competency in mobile SoC (AP + connectivity), together with its LinkIt product design platform, MediaTek should gain a foothold in the new IoT device market by being able to offer an integrated range of AP chips. Further, through its investment in Goodix (touch/finger-print sensors) and mCube (MEMS sensors), the company looks set to expand its IoT offerings.

### MCD: trading margins for market share.

MediaTek is likely to suffer in the near term from margin contraction in its bid to gain share of the 4G smartphone market (*MediaTek: Initiation: wait for the next tide*). Thus, we forecast earnings to decline by 5% YoY for 1H15, which could cap the shares in the near term.

**Preview and outlook.** MediaTek's monthly sales run-rate looks to be a bit below track, likely due to its 3G inventory adjustments in China. We expect MediaTek to report a 4Q14 top line that is near to the low end of its guidance (-6% to +2% QoQ). But we see stronger 4G chip shipments in 1Q15, which could lift its blended ASP and result in revenue beating consensus and seasonality.

### ■ What we recommend

Taking into account the deferral of some chip shipments from 4Q14 to 1Q15, we raise our 2014-15E EPS by 3-6%, which lifts our 12-month target price to TWD450 (from a 6-month target price of TWD422), based on an unchanged 15x 12-month forward PER. We maintain our Hold (3) rating due to a lack of near-term catalysts. The key upside risk is less intense 4G competition than we expect, while the key downside risk is losing 4G smartphone market share.

### ■ How we differ

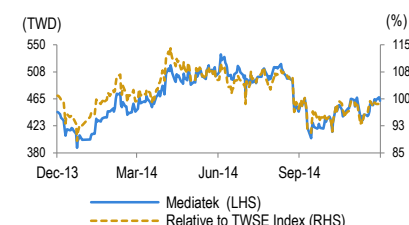
Although the consensus is a buy on MediaTek, we are less bullish on its earnings outlook for 4Q14-1Q15.

#### Forecast revisions (%)

Year to 31 Dec	14E	15E	16E
Revenue change	1.9	8.5	8.6
Net profit change	3.1	5.8	6.4
Core EPS (FD) change	3.1	5.7	6.4

Source: Daiwa forecasts

#### Share price performance



12-month range	388.00-535.00
Market cap (USDbn)	23.14
3m avg daily turnover (USDm)	80.37
Shares outstanding (m)	1,571
Major shareholder	Li Tsui-Hsin (3.0%)

#### Financial summary (TWD)

Year to 31 Dec	14E	15E	16E
Revenue (m)	213,069	234,338	252,173
Operating profit (m)	50,106	50,659	56,445
Net profit (m)	47,708	48,105	53,432
Core EPS (fully-diluted)	30.359	30.612	34.001
EPS change (%)	48.9	0.8	11.1
Daiwa vs Cons. EPS (%)	(1.9)	(6.5)	(1.4)
PER (x)	15.4	15.3	13.7
Dividend yield (%)	3.2	4.3	5.3
DPS	15.0	20.0	25.0
PBR (x)	3.3	3.0	2.9
EV/EBITDA (x)	11.6	10.9	9.9
ROE (%)	22.8	20.7	21.4

Source: FactSet, Daiwa forecasts

**Financial summary**

■ **Key assumptions**

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Blended Smartphone ASP (US\$)	0.00	0.00	13.44	12.60	11.37	10.38	8.96	8.20
Smartphone Shipment ('000)	0	0	16,992	86,083	197,804	356,286	500,518	626,438
Total Handset Market Share (%)	0.0	32.5	31.3	23.6	24.9	32.3	34.7	36.9

■ **Profit and loss (TWDm)**

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Optical Storage Revenue	0	19,265	17,729	15,887	15,925	15,149	14,061	13,185
Digital Home Revenue	0	14,643	11,355	14,393	14,648	42,712	41,874	40,230
Other Revenue	115,512	79,614	57,774	68,983	105,483	155,207	178,403	198,757
<b>Total Revenue</b>	<b>115,512</b>	<b>113,522</b>	<b>86,857</b>	<b>99,263</b>	<b>136,056</b>	<b>213,069</b>	<b>234,338</b>	<b>252,173</b>
Other income	0	0	0	0	0	0	0	0
COGS	(47,694)	(52,614)	(47,513)	(58,201)	(76,250)	(109,015)	(123,701)	(131,070)
SG&A	(7,245)	(6,519)	(5,816)	(6,174)	(8,108)	(11,999)	(13,110)	(14,223)
Other op. expenses	(24,185)	(23,311)	(21,184)	(22,384)	(26,454)	(41,948)	(46,868)	(50,435)
<b>Operating profit</b>	<b>36,387</b>	<b>31,079</b>	<b>12,345</b>	<b>12,505</b>	<b>25,244</b>	<b>50,106</b>	<b>50,659</b>	<b>56,445</b>
Net-interest inc./(exp.)	494	586	1,007	1,621	1,609	2,275	2,644	2,904
Assoc/forex/extraord./others	539	623	852	2,494	2,694	1,471	1,300	1,300
<b>Pre-tax profit</b>	<b>37,420</b>	<b>32,288</b>	<b>14,203</b>	<b>16,620</b>	<b>29,547</b>	<b>53,852</b>	<b>54,603</b>	<b>60,649</b>
Tax	(725)	(1,351)	(587)	(971)	(2,062)	(6,173)	(6,552)	(7,278)
Min. int./pref. div./others	10	25	7	39	30	29	55	61
<b>Net profit (reported)</b>	<b>36,706</b>	<b>30,961</b>	<b>13,623</b>	<b>15,688</b>	<b>27,515</b>	<b>47,708</b>	<b>48,105</b>	<b>53,432</b>
<b>Net profit (adjusted)</b>	<b>36,706</b>	<b>30,961</b>	<b>13,623</b>	<b>15,688</b>	<b>27,515</b>	<b>47,708</b>	<b>48,105</b>	<b>53,432</b>
<b>EPS (reported)(TWD)</b>	<b>34.118</b>	<b>28.439</b>	<b>12.350</b>	<b>12.896</b>	<b>20.508</b>	<b>30.368</b>	<b>30.612</b>	<b>34.001</b>
<b>EPS (adjusted)(TWD)</b>	<b>34.118</b>	<b>28.439</b>	<b>12.350</b>	<b>12.896</b>	<b>20.508</b>	<b>30.368</b>	<b>30.612</b>	<b>34.001</b>
<b>EPS (adjusted fully-diluted)(TWD)</b>	<b>33.899</b>	<b>28.149</b>	<b>11.872</b>	<b>12.896</b>	<b>20.391</b>	<b>30.359</b>	<b>30.612</b>	<b>34.001</b>
<b>DPS (TWD)</b>	<b>13.965</b>	<b>26.034</b>	<b>19.943</b>	<b>8.491</b>	<b>9.000</b>	<b>15.000</b>	<b>20.000</b>	<b>25.000</b>
<b>EBIT</b>	<b>36,387</b>	<b>31,079</b>	<b>12,345</b>	<b>12,505</b>	<b>25,244</b>	<b>50,106</b>	<b>50,659</b>	<b>56,445</b>
<b>EBITDA</b>	<b>39,632</b>	<b>34,056</b>	<b>15,074</b>	<b>16,202</b>	<b>26,971</b>	<b>52,861</b>	<b>53,752</b>	<b>59,722</b>

■ **Cash flow (TWDm)**

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Profit before tax	37,420	32,288	14,203	16,620	29,547	53,852	54,603	60,649
Depreciation and amortisation	3,245	2,978	2,729	3,696	1,727	2,755	3,093	3,277
Tax paid	(725)	(1,351)	(587)	(971)	(2,062)	(6,173)	(6,552)	(7,278)
Change in working capital	2,424	(4,488)	379	(3,650)	5,374	(15,000)	12,000	(15,000)
Other operational CF items	12,876	(19)	(16)	(4,292)	4,987	29	55	61
<b>Cash flow from operations</b>	<b>55,240</b>	<b>29,408</b>	<b>16,707</b>	<b>11,403</b>	<b>39,573</b>	<b>35,464</b>	<b>63,198</b>	<b>41,708</b>
Capex	(1,574)	(2,122)	(2,585)	(2,268)	(1,629)	(3,196)	(3,515)	(3,783)
Net (acquisitions)/disposals	4,367	(3,406)	(260)	231	(369)	0	0	0
Other investing CF items	(1,025)	(746)	3,860	(2,140)	(216)	0	0	0
<b>Cash flow from investing</b>	<b>1,769</b>	<b>(6,274)</b>	<b>1,016</b>	<b>(4,177)</b>	<b>(2,214)</b>	<b>(3,196)</b>	<b>(3,515)</b>	<b>(3,783)</b>
Change in debt	(1)	0	4,255	4,768	20,145	(17)	(14)	(11)
Net share issues/(repurchases)	0	0	(2,110)	0	0	0	0	0
Dividends paid	(15,024)	(28,343)	(21,999)	(10,328)	(12,074)	(23,565)	(31,429)	(39,287)
Other financing CF items	136	270	(62)	139	(23)	0	0	0
<b>Cash flow from financing</b>	<b>(14,889)</b>	<b>(28,073)</b>	<b>(19,917)</b>	<b>(5,421)</b>	<b>8,048</b>	<b>(23,582)</b>	<b>(31,443)</b>	<b>(39,298)</b>
Forex effect/others	(494)	(3,781)	2,088	(1,759)	1,724	0	0	0
<b>Change in cash</b>	<b>41,626</b>	<b>(8,721)</b>	<b>(106)</b>	<b>46</b>	<b>47,131</b>	<b>8,685</b>	<b>28,239</b>	<b>(1,372)</b>
Free cash flow	53,667	27,285	14,123	9,134	37,944	32,267	59,683	37,926

Source: FactSet, Daiwa forecasts

*Financial summary continued ...*

■ Balance sheet (TWDm)

As at 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Cash & short-term investment	96,847	92,073	91,032	90,276	139,219	147,904	176,144	174,772
Inventory	8,173	9,388	9,392	13,867	9,347	23,347	13,847	25,847
Accounts receivable	7,267	7,164	7,384	6,585	7,628	15,628	9,628	18,128
Other current assets	1,751	3,970	4,234	7,343	5,547	5,000	5,000	5,000
<b>Total current assets</b>	<b>114,038</b>	<b>112,595</b>	<b>112,042</b>	<b>118,071</b>	<b>161,741</b>	<b>191,879</b>	<b>204,618</b>	<b>223,746</b>
Fixed assets	6,889	7,808	9,810	10,708	11,312	12,844	14,813	16,957
Goodwill & intangibles	10,623	9,572	16,151	15,842	15,509	73,631	73,631	73,631
Other non-current assets	7,043	8,059	9,738	65,622	70,075	11,918	12,418	12,918
<b>Total assets</b>	<b>138,593</b>	<b>138,035</b>	<b>147,741</b>	<b>210,243</b>	<b>258,637</b>	<b>290,271</b>	<b>305,480</b>	<b>327,252</b>
Short-term debt	0	0	4,089	8,880	29,052	29,052	29,052	29,052
Accounts payable	28,112	24,088	24,736	22,187	10,944	17,944	14,444	19,944
Other current liabilities	1,343	1,698	1,603	1,806	21,389	19,017	19,014	19,011
<b>Total current liabilities</b>	<b>29,454</b>	<b>25,786</b>	<b>30,428</b>	<b>32,873</b>	<b>61,385</b>	<b>66,013</b>	<b>62,510</b>	<b>68,007</b>
Long-term debt	0	0	148	114	87	69	56	44
Other non-current liabilities	248	535	837	1,482	1,812	1,700	1,700	1,800
<b>Total liabilities</b>	<b>29,703</b>	<b>26,321</b>	<b>31,413</b>	<b>34,469</b>	<b>63,283</b>	<b>67,783</b>	<b>64,265</b>	<b>69,851</b>
Share capital	10,901	10,999	11,475	13,494	13,495	15,710	17,925	20,140
Reserves/R.E./others	97,968	100,714	104,803	162,246	181,821	206,779	223,289	237,260
<b>Shareholders' equity</b>	<b>108,869</b>	<b>111,713</b>	<b>116,278</b>	<b>175,740</b>	<b>195,315</b>	<b>222,489</b>	<b>241,214</b>	<b>257,401</b>
Minority interests	21	0	50	34	38	0	0	0
<b>Total equity &amp; liabilities</b>	<b>138,593</b>	<b>138,035</b>	<b>147,741</b>	<b>210,243</b>	<b>258,637</b>	<b>290,271</b>	<b>305,480</b>	<b>327,252</b>
EV	637,616	642,370	647,697	653,195	624,400	615,659	587,406	588,767
<b>Net debt/(cash)</b>	<b>(96,847)</b>	<b>(92,073)</b>	<b>(86,796)</b>	<b>(81,282)</b>	<b>(110,081)</b>	<b>(118,783)</b>	<b>(147,037)</b>	<b>(145,676)</b>
<b>BVPS (TWD)</b>	<b>101.194</b>	<b>102.612</b>	<b>105.409</b>	<b>144.473</b>	<b>145.577</b>	<b>141.622</b>	<b>153.496</b>	<b>163.796</b>

■ Key ratios (%)

Year to 31 Dec	2009	2010	2011	2012	2013	2014E	2015E	2016E
Sales (YoY)	27.8	(1.7)	(23.5)	14.3	37.1	56.6	10.0	7.6
EBITDA (YoY)	62.7	(14.1)	(55.7)	7.5	66.5	96.0	1.7	11.1
Operating profit (YoY)	72.8	(14.6)	(60.3)	1.3	101.9	98.5	1.1	11.4
Net profit (YoY)	91.3	(15.6)	(56.0)	15.2	75.4	73.4	0.8	11.1
Core EPS (fully-diluted) (YoY)	87.2	(17.0)	(57.8)	8.6	58.1	48.9	0.8	11.1
Gross-profit margin	58.7	53.7	45.3	41.4	44.0	48.8	47.2	48.0
EBITDA margin	34.3	30.0	17.4	16.3	19.8	24.8	22.9	23.7
Operating-profit margin	31.5	27.4	14.2	12.6	18.6	23.5	21.6	22.4
Net profit margin	31.8	27.3	15.7	15.8	20.2	22.4	20.5	21.2
ROAE	38.5	28.1	12.0	10.7	14.8	22.8	20.7	21.4
ROAA	30.9	22.4	9.5	8.8	11.7	17.4	16.1	16.9
ROCE	38.2	28.2	10.6	8.2	12.3	21.0	19.4	20.3
ROIC	197.1	188.0	48.1	19.0	26.1	47.0	45.1	48.2
Net debt to equity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	1.9	4.2	4.1	5.8	7.0	11.5	12.0	12.0
Accounts receivable (days)	20.1	23.2	30.6	25.7	19.1	19.9	19.7	20.1
Current ratio (x)	3.9	4.4	3.7	3.6	2.6	2.9	3.3	3.3
Net interest cover (x)	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Net dividend payout	40.9	91.5	161.5	65.8	43.9	49.4	65.3	73.5
Free cash flow yield	7.3	3.7	1.9	1.2	5.2	4.4	8.1	5.2

Source: FactSet, Daiwa forecasts

■ Company profile

MediaTek is the largest fabless chipmaker (IC design house) in Asia, and No. 3 in the world, in terms of 2013 revenue. It has successfully captured the industry demand cycles in the past decade, from ODD (optical disk drive) to feature phones to the current smartphone cycle. MediaTek is the global leader in optical storage and TV SoC IC supply, and one of the major suppliers in the global handset chipset market.



■ **MediaTek: forecast revisions**

TWDbn	New			Previous			Change		
	2014E	2015E	2016E	2014E	2015E	2016E	2014E	2015E	2016E
Revenue	213,069	234,338	252,173	209,048	216,011	232,116	2%	8%	9%
Gross profit	104,053	110,637	121,103	101,399	102,740	111,088	3%	8%	9%
Operating profit	50,106	50,659	56,445	48,522	48,236	53,427	3%	5%	6%
EBITDA	52,861	53,752	59,722	51,012	50,615	55,968	4%	6%	7%
Net profit	47,708	48,105	53,432	46,252	45,476	50,203	3%	6%	6%
FD EPS (TWD)	30.36	30.61	34.00	29.44	28.95	31.96	3%	6%	6%
<b>Margin</b>									
Gross	48.8%	47.2%	48.0%	48.5%	47.6%	47.9%			
Operating	23.5%	21.6%	22.4%	23.2%	22.3%	23.0%			
EBITDA	24.8%	22.9%	23.7%	24.4%	23.4%	24.1%			
Net	22.4%	20.5%	21.2%	22.1%	21.1%	21.6%			

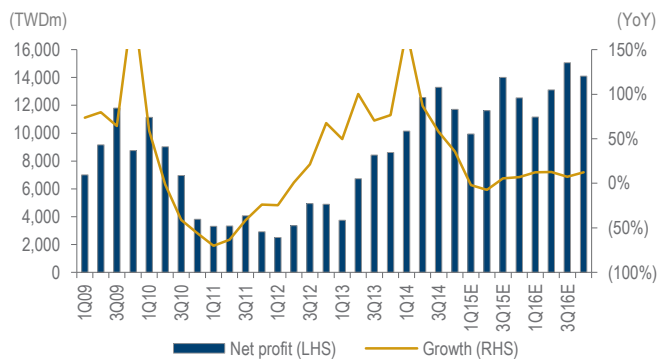
Source: Daiwa forecasts

■ **MediaTek: 4Q14 preview and 1Q15 outlook**

TWDm	4Q14E			1Q15E		
	Daiwa	Consensus	Variance	Daiwa	Consensus	Variance
Revenue	55,459	55,952	-1%	51,417	52,761	-3%
Gross profit	26,770			23,612		
Operating profit	12,739			10,398		
Pretax profit	13,284			11,278		
Net profit	11,703	12,132	-4%	9,936	10,623	-6%
Adjusted EPS (TWD)	7.45	7.73	-4%	6.32	6.76	-6%
<b>Margin</b>						
Gross	48.3%			45.9%		
Operating	23.0%			20.2%		
Net	21.1%			19.3%		
<b>Operation</b>						
Smartphone shipments (m)	97			103		
4G penetration	21%			25%		
Tablet shipments (m)	15			15		

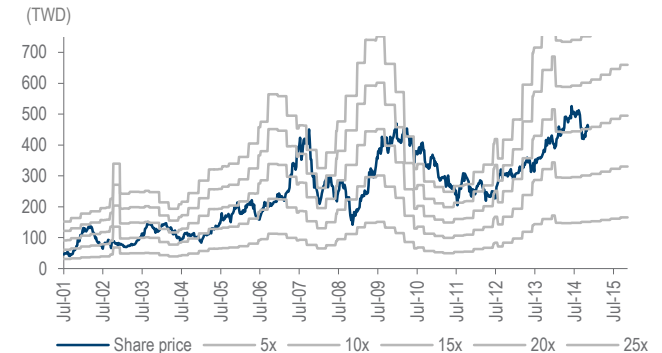
Source: Bloomberg, Daiwa forecasts

■ **MediaTek: quarterly net profit**



Source: TEJ, Daiwa forecasts

■ **MediaTek: 12-month forward PER bands**



Source: TEJ, Daiwa forecasts

## Lenovo Group

992 HK

# Servers should be another earnings growth engine in FY16

- We expect Lenovo to benefit from the next wave of the Big Data cycle, driven by its recent acquisition of the IBM server business
- Server business should be earnings-accretive in FY16, on improved profitability and potential synergies with PC business
- Our Hold (3) rating reflects our concerns about the integration of its newly acquired businesses over the near term



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### What's new

While we are cautious in the near term about Lenovo's integration of its recent acquisitions, we expect servers to become a key element of **the company's** enterprise product offering and another important earnings driver in FY16. Hence, we believe Lenovo will be a major beneficiary of the Big Data cycle.

### What's the impact

**Server business.** After acquiring IBM's x86 server business in 2014, Lenovo has become the No.3 vendor of x86 servers globally, after HP and Dell. In 2015, Lenovo aims to gain more share in markets where it has a strong presence in commercial PCs, ie, China/Asia Pacific. We see promising upside potential for Lenovo in China, given its dominant position in the PC market there and **China's** policy-driven preference for local server vendors. Lenovo also plans to set up cloud data centres in China, Germany, and the US.

**Financial implications.** Lenovo targets USD5bn in annual revenue from its server business after the IBM acquisition, which we estimate will account for 9% of FY16 revenue, up from 1-2% before the deal. We expect the business to be earnings-accretive, as: 1) servers are typically more profitable than PCs, and 2) Lenovo's advantage in components sourcing and manufacturing should ensure stronger cost competitiveness (vs. peers). As such, the server business should be a driver for Lenovo's blended net profit margin after the initial integration stage.

### What we recommend

We maintain our Hold (3) rating on Lenovo with a 12-month target price of HKD10.50, based on 16x our 1-year-forward non-GAAP-based EPS (unchanged; previously a 6-month target price). Despite our positive view on Lenovo's dominant PC-market position and the promising potential of its server business, we are concerned about near-term share-price volatility, relating to issues about the integration of its recent acquisitions. The main downside risk to our call: slower-than-expected IT demand in China, while the main upside risk would be the faster-than-expected integration of its newly acquired businesses.

Target (HKD): **10.50 → 10.50**

Upside: **3.1%**

29 Dec price (HKD): **10.18**

- 1 Buy
- 2 Outperform
- 3 Hold (unchanged)
- 4 Underperform
- 5 Sell

### How we differ

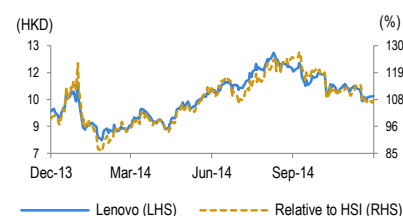
We are more positive than the market on **Lenovo's** industry leadership and management execution.

#### Forecast revisions (%)

Year to 31 Mar	15E	16E	17E
Revenue change	-	-	-
Net profit change	-	-	-
Core EPS (FD) change	-	-	-

Source: Daiwa forecasts

#### Share price performance



12-month range	7.72-12.62
Market cap (USDbn)	13.89
3m avg daily turnover (USDm)	56.56
Shares outstanding (m)	10,590
Major shareholder	Legend Holdings Ltd. (30.6%)

#### Financial summary (USD)

Year to 31 Mar	15E	16E	17E
Revenue (m)	46,120	54,806	59,946
Operating profit (m)	1,085	1,208	1,569
Net profit (m)	769	867	1,155
Core EPS (fully-diluted)	0.073	0.082	0.109
EPS change (%)	(7.8)	12.6	33.2
Daiwa vs Cons. EPS (%)	(12.3)	(19.2)	(20.6)
PER (x)	18.1	16.0	12.0
Dividend yield (%)	1.9	1.8	2.0
DPS	0.025	0.024	0.027
PBR (x)	3.9	2.6	2.0
EV/EBITDA (x)	8.8	7.2	5.3
ROE (%)	23.3	19.5	19.0

Source: FactSet, Daiwa forecasts

## Financial summary

### ■ Key assumptions

Year to 31 Mar	2010	2011	2012	2013	2014	2015E	2016E	2017E
PC Shipment (m unit)	27.5	35.3	47.6	52.4	55.0	62.0	66.0	70.7
PC shipment growth YoY (%)	28	28	35	10	5	13	6	7
Notebook shipment (m unit)	15.6	20.3	27.6	30.7	32.3	37.1	39.3	42.5
Smartphone shipment (m unit)	n.a.	0.5	5.6	29.6	50.1	77.7	111.7	133.1

### ■ Profit and loss (USDm)

Year to 31 Mar	2010	2011	2012	2013	2014	2015E	2016E	2017E
Notebook Revenues	10,405	13,007	16,703	17,936	19,705	21,111	21,565	23,008
Desktop Revenues	5,868	7,266	9,873	10,525	11,039	12,236	12,730	13,194
Other Revenue	332	1,321	2,999	5,413	7,963	12,773	20,511	23,744
<b>Total Revenue</b>	<b>16,605</b>	<b>21,594</b>	<b>29,574</b>	<b>33,873</b>	<b>38,707</b>	<b>46,120</b>	<b>54,806</b>	<b>59,946</b>
Other income	83	0	1	20	22	1	0	0
COGS	(14,815)	(19,230)	(26,128)	(29,800)	(33,643)	(39,742)	(46,868)	(51,243)
SG&A	(1,406)	(1,758)	(2,421)	(2,735)	(3,303)	(4,061)	(5,027)	(5,285)
Other op.expenses	(248)	(224)	(442)	(559)	(731)	(1,234)	(1,703)	(1,849)
<b>Operating profit</b>	<b>219</b>	<b>382</b>	<b>584</b>	<b>800</b>	<b>1,052</b>	<b>1,085</b>	<b>1,208</b>	<b>1,569</b>
Net-interest inc./(exp.)	(43)	(24)	(1)	2	(47)	(117)	(125)	(126)
Assoc/forex/extraord./others	0	(0)	(1)	(1)	9	(7)	0	0
<b>Pre-tax profit</b>	<b>176</b>	<b>358</b>	<b>582</b>	<b>801</b>	<b>1,014</b>	<b>960</b>	<b>1,083</b>	<b>1,443</b>
Tax	(47)	(85)	(107)	(170)	(197)	(184)	(217)	(289)
Min. int./pref. div./others	0	(0)	(2)	4	(0)	(7)	0	0
<b>Net profit (reported)</b>	<b>129</b>	<b>273</b>	<b>473</b>	<b>635</b>	<b>817</b>	<b>769</b>	<b>867</b>	<b>1,155</b>
<b>Net profit (adjusted)</b>	<b>129</b>	<b>273</b>	<b>473</b>	<b>635</b>	<b>817</b>	<b>769</b>	<b>867</b>	<b>1,155</b>
EPS (reported)(USD)	0.014	0.028	0.047	0.062	0.079	0.073	0.082	0.109
EPS (adjusted)(USD)	0.014	0.028	0.047	0.062	0.079	0.073	0.082	0.109
EPS (adjusted fully-diluted)(USD)	0.014	0.028	0.047	0.062	0.079	0.073	0.082	0.109
DPS (USD)	0.001	0.009	0.011	0.019	0.026	0.025	0.024	0.027
EBIT	219	382	584	800	1,052	1,085	1,208	1,569
EBITDA	440	600	826	1,087	1,387	1,439	1,667	2,024

### ■ Cash flow (USDm)

Year to 31 Mar	2010	2011	2012	2013	2014	2015E	2016E	2017E
Profit before tax	176	358	582	801	1,014	960	1,083	1,443
Depreciation and amortisation	222	218	242	287	335	355	459	455
Tax paid	(82)	(76)	(148)	(192)	(137)	(184)	(217)	(289)
Change in working capital	696	598	1,389	(823)	277	(343)	(596)	(246)
Other operational CF items	(41)	(72)	(82)	(8)	53	202	125	126
<b>Cash flow from operations</b>	<b>970</b>	<b>1,025</b>	<b>1,982</b>	<b>66</b>	<b>1,543</b>	<b>990</b>	<b>855</b>	<b>1,489</b>
Capex	(108)	(148)	(329)	(441)	(675)	(767)	(638)	(659)
Net (acquisitions)/disposals	4	30	(179)	(139)	(8)	(2,730)	0	0
Other investing CF items	(222)	84	(557)	5	(398)	24	45	44
<b>Cash flow from investing</b>	<b>(327)</b>	<b>(34)</b>	<b>(1,065)</b>	<b>(575)</b>	<b>(1,081)</b>	<b>(3,473)</b>	<b>(593)</b>	<b>(615)</b>
Change in debt	(219)	(223)	(212)	229	(23)	2,093	(50)	(133)
Net share issues/(repurchases)	14	(61)	11	(38)	(39)	0	0	0
Dividends paid	(12)	(88)	(115)	(195)	(267)	(267)	(253)	(283)
Other financing CF items	0	0	0	(91)	(101)	0	0	0
<b>Cash flow from financing</b>	<b>(217)</b>	<b>(373)</b>	<b>(316)</b>	<b>(94)</b>	<b>(430)</b>	<b>1,826</b>	<b>(303)</b>	<b>(416)</b>
Forex effect/others	12	58	16	(10)	(14)	0	0	0
<b>Change in cash</b>	<b>438</b>	<b>677</b>	<b>618</b>	<b>(613)</b>	<b>17</b>	<b>(657)</b>	<b>(42)</b>	<b>458</b>
Free cash flow	862	877	1,653	(375)	868	223	217	830

Source: FactSet, Daiwa forecasts



## Financial summary continued ...

### ■ Balance sheet (USDm)

As at 31 Mar	2010	2011	2012	2013	2014	2015E	2016E	2017E
Cash & short-term investment	2,238	2,954	3,758	3,454	3,858	3,389	4,041	5,569
Inventory	879	804	1,218	1,965	2,701	2,983	3,646	4,000
Accounts receivable	1,408	1,761	2,994	3,458	3,619	4,892	5,411	5,928
Other current assets	1,711	2,418	3,850	3,513	3,223	3,894	3,894	3,894
<b>Total current assets</b>	<b>6,236</b>	<b>7,936</b>	<b>11,820</b>	<b>12,390</b>	<b>13,401</b>	<b>15,158</b>	<b>16,992</b>	<b>19,391</b>
Fixed assets	277	251	510	700	1,060	1,630	1,560	1,491
Goodwill & intangibles	2,066	2,134	3,091	3,326	3,340	3,934	4,531	4,531
Other non-current assets	377	384	439	465	557	1,661	1,661	1,661
<b>Total assets</b>	<b>8,956</b>	<b>10,706</b>	<b>15,861</b>	<b>16,882</b>	<b>18,357</b>	<b>22,383</b>	<b>24,743</b>	<b>27,074</b>
Short-term debt	65	72	63	176	445	236	286	419
Accounts payable	3,236	2,279	4,178	3,724	4,860	5,855	6,441	7,066
Other current liabilities	3,119	5,682	7,569	8,192	8,157	8,907	8,907	8,907
<b>Total current liabilities</b>	<b>6,419</b>	<b>8,033</b>	<b>11,810</b>	<b>12,091</b>	<b>13,462</b>	<b>14,998</b>	<b>15,634</b>	<b>16,392</b>
Long-term debt	200	0	0	303	10	1,894	1,894	1,894
Other non-current liabilities	731	838	1,603	1,807	1,860	1,887	1,887	1,887
<b>Total liabilities</b>	<b>7,350</b>	<b>8,871</b>	<b>13,413</b>	<b>14,202</b>	<b>15,332</b>	<b>18,780</b>	<b>19,415</b>	<b>20,173</b>
Share capital	31	32	33	33	1,650	1,679	1,679	1,679
Reserves/R.E./others	1,574	1,803	2,328	2,633	1,360	1,903	3,627	5,200
<b>Shareholders' equity</b>	<b>1,606</b>	<b>1,835</b>	<b>2,361</b>	<b>2,667</b>	<b>3,010</b>	<b>3,582</b>	<b>5,306</b>	<b>6,879</b>
Minority interests	0	0	87	14	15	22	22	22
<b>Total equity &amp; liabilities</b>	<b>8,956</b>	<b>10,706</b>	<b>15,861</b>	<b>16,882</b>	<b>18,357</b>	<b>22,383</b>	<b>24,743</b>	<b>27,074</b>
EV	11,920	11,011	10,283	10,930	10,486	12,634	12,032	10,636
<b>Net debt/(cash)</b>	<b>(1,973)</b>	<b>(2,883)</b>	<b>(3,695)</b>	<b>(2,975)</b>	<b>(3,403)</b>	<b>(1,259)</b>	<b>(1,861)</b>	<b>(3,256)</b>
<b>BVPS (USD)</b>	<b>0.176</b>	<b>0.190</b>	<b>0.233</b>	<b>0.259</b>	<b>0.290</b>	<b>0.338</b>	<b>0.501</b>	<b>0.650</b>

### ■ Key ratios (%)

Year to 31 Mar	2010	2011	2012	2013	2014	2015E	2016E	2017E
Sales (YoY)	11.4	30.0	37.0	14.5	14.3	19.2	18.8	9.4
EBITDA (YoY)	520.3	36.2	37.7	31.7	27.6	3.7	15.8	21.4
Operating profit (YoY)	n.a.	74.8	52.8	37.0	31.5	3.1	11.4	29.9
Net profit (YoY)	n.a.	111.2	73.1	34.3	28.7	(5.9)	12.6	33.2
Core EPS (fully-diluted) (YoY)	n.a.	99.8	64.6	32.0	27.9	(7.8)	12.6	33.2
Gross-profit margin	10.8	10.9	11.7	12.0	13.1	13.8	14.5	14.5
EBITDA margin	2.7	2.8	2.8	3.2	3.6	3.1	3.0	3.4
Operating-profit margin	1.3	1.8	2.0	2.4	2.7	2.4	2.2	2.6
Net profit margin	0.8	1.3	1.6	1.9	2.1	1.7	1.6	1.9
ROAE	8.9	15.9	22.5	25.3	28.8	23.3	19.5	19.0
ROAA	1.7	2.8	3.6	3.9	4.6	3.8	3.7	4.5
ROCE	12.7	20.2	26.4	28.2	31.7	23.5	18.2	18.8
ROIC	(47.9)	(41.2)	(41.6)	(81.8)	(252.1)	89.2	33.3	35.3
Net debt to equity	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Effective tax rate	26.6	23.6	18.4	21.2	19.4	19.1	20.0	20.0
Accounts receivable (days)	23.2	26.8	29.3	34.8	33.4	33.7	34.3	34.5
Current ratio (x)	1.0	1.0	1.0	1.0	1.0	1.0	1.1	1.2
Net interest cover (x)	5.1	15.8	738.4	n.a.	22.3	9.2	9.7	12.5
Net dividend payout	9.2	32.2	24.2	30.7	32.6	34.7	29.2	24.5
Free cash flow yield	6.2	6.3	11.9	n.a.	6.2	1.6	1.6	6.0

Source: FactSet, Daiwa forecasts

### ■ Company profile

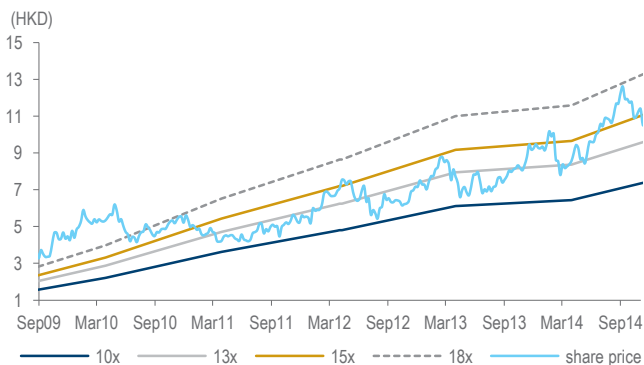
Lenovo is the largest PC vendor in China and worldwide in terms of shipments. In addition to PCs, Lenovo has launched its own-branded handsets and smartphones in China in recent years. The company is currently the second-largest smartphone vendor in China.

■ **Lenovo: quarterly and annual P&L statement**

(USDm)	FY15E				FY16E				FY14	FY15E	FY16E
	1Q	2Q	3QE	4QE	1QE	2QE	3QE	4QE			
<b>Net sales</b>	<b>10,395</b>	<b>10,476</b>	<b>13,501</b>	<b>11,748</b>	<b>12,775</b>	<b>13,858</b>	<b>15,180</b>	<b>12,993</b>	<b>38,707</b>	<b>46,120</b>	<b>54,806</b>
COGS	-9,046	-9,018	-11,597	-10,081	-10,947	-11,856	-12,974	-11,090	-33,643	-39,742	-46,868
<b>Gross profit</b>	<b>1,349</b>	<b>1,457</b>	<b>1,905</b>	<b>1,667</b>	<b>1,827</b>	<b>2,002</b>	<b>2,206</b>	<b>1,903</b>	<b>5,064</b>	<b>6,378</b>	<b>7,938</b>
Operating costs	-1,066	-1,092	-1,620	-1,516	-1,584	-1,705	-1,837	-1,605	-4,012	-5,293	-6,730
<b>Operating profit</b>	<b>283</b>	<b>366</b>	<b>284</b>	<b>152</b>	<b>243</b>	<b>297</b>	<b>369</b>	<b>299</b>	<b>1,052</b>	<b>1,085</b>	<b>1,208</b>
Non-operating profit	-19	-36	-35	-34	-29	-32	-32	-31	-38	-124	-125
<b>Pre-tax profit</b>	<b>264</b>	<b>329</b>	<b>249</b>	<b>118</b>	<b>214</b>	<b>265</b>	<b>337</b>	<b>267</b>	<b>1,014</b>	<b>960</b>	<b>1,083</b>
Taxes & Minorities	-50	-67	-50	-24	-43	-53	-67	-53	-197	-191	-217
<b>Net profit</b>	<b>214</b>	<b>262</b>	<b>200</b>	<b>94</b>	<b>171</b>	<b>212</b>	<b>270</b>	<b>214</b>	<b>817</b>	<b>769</b>	<b>867</b>
<b>EPS (USDcent)</b>	<b>2.06</b>	<b>2.52</b>	<b>1.88</b>	<b>0.89</b>	<b>1.62</b>	<b>2.00</b>	<b>2.55</b>	<b>2.02</b>	<b>7.88</b>	<b>7.27</b>	<b>8.18</b>
<b>Non-GAAP net profit</b>	<b>214</b>	<b>262</b>	<b>255</b>	<b>149</b>	<b>226</b>	<b>267</b>	<b>325</b>	<b>269</b>	<b>817</b>	<b>879</b>	<b>1087</b>
<b>Non-GAAP EPS</b>	<b>2.06</b>	<b>2.52</b>	<b>2.40</b>	<b>1.41</b>	<b>2.14</b>	<b>2.52</b>	<b>3.07</b>	<b>2.54</b>	<b>7.88</b>	<b>8.30</b>	<b>10.26</b>
<b>Operating Ratios</b>											
Gross margin	13.0%	13.9%	14.1%	14.2%	14.3%	14.4%	14.5%	14.6%	13.1%	13.8%	14.5%
Operating margin	2.7%	3.5%	2.1%	1.3%	1.9%	2.1%	2.4%	2.3%	2.7%	2.4%	2.2%
Pre-tax margin	2.5%	3.1%	1.8%	1.0%	1.7%	1.9%	2.2%	2.1%	2.6%	2.1%	2.0%
Net margin	2.1%	2.5%	1.5%	0.8%	1.3%	1.5%	1.8%	1.6%	2.1%	1.7%	1.6%
<b>YoY%</b>											
Net revenue	18%	7%	25%	26%	23%	32%	12%	11%	14%	19%	19%
Gross profit	13%	15%	40%	34%	35%	37%	16%	14%	24%	26%	24%
Operating income	40%	29%	-15%	-35%	-14%	-19%	30%	97%	32%	3%	11%
Pre-tax income	22%	24%	-22%	-45%	-19%	-19%	35%	127%	27%	-5%	13%
Net income	23%	19%	-25%	-40%	-20%	-19%	35%	127%	29%	-6%	13%
<b>QoQ%</b>											
Net revenue	11%	1%	29%	-13%	9%	8%	10%	-14%			
Gross profit	8%	8%	31%	-12%	10%	10%	10%	-14%			
Operating income	22%	29%	-22%	-47%	60%	22%	24%	-19%			
Pre-tax income	24%	25%	-24%	-53%	82%	24%	27%	-21%			
Net income	35%	23%	-24%	-53%	82%	24%	27%	-21%			

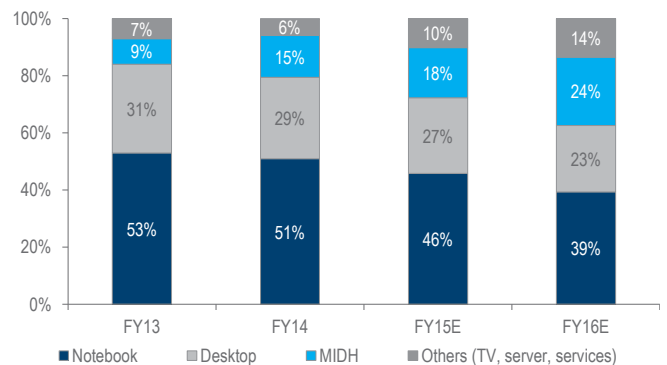
Source: Company, Daiwa forecasts

■ **Lenovo: 1-year-forward adjusted PER (Non-GAAP)**



Source: Bloomberg, Daiwa forecasts

■ **Lenovo: revenue breakdown by product**



Source: Company, Daiwa forecasts

Note: MIDH – mobile Internet digital home

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## **Not Rated Companies**

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## eMemory Technology

3529 TT

# A model embedded with growth

- A leading intellectual property provider of cost-effective eNVM solutions
- Targets CAGRs of about 30% for revenue and more than 40% for net profit over 2014-16
- Broadening its applications to capture the IoT trend

Target (TWD): **n.a.**  
Up/downside: -  
29 Dec price (TWD): **370.00**

■ Not Rated



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■ **Background**

eMemory is a leading Taiwan-based intellectual property (IP) provider of embedded non-volatile-memory (eNVM) technology, offering customers cost-effective solutions in IC design for embedded programmable complementary metal oxide semiconductor (CMOS) devices, which enable its customers to save costs by reducing the number of mask layers needed.

eMemory expects to expand its share of the current MCD market through its broadened embedded memory IP offerings, while penetrating new markets, notably IoT. Given its product offerings broadly cover the 5 themes we identify under the next Big Data cycle, eMemory appears to be a beneficiary of this cycle.

For 3Q14, 77% of eMemory's revenue came from royalty fees

collected from its fabless customers and 23% from upfront licence fees paid by the foundries and fabless customers (see page 2).

■ **Highlights**

**Targets 2014-16 top-line and bottom-line CAGRs of c.30% and above 40%.** Management aims for CAGRs of about 30% for revenue and more than 40% for net profit for 2014-16, based on new IoT business. eMemory booked revenue of TWD746m and net profit of TWD318m for 9M14, up 29% YoY and 59% YoY, respectively, on track with its business goals.

**1) MCD market share.** The company expects to gain shares of the MCD market by increasing its IP content/device, and by expanding its IP to new product applications. On top of its current device exposure to power management ICs (PMICs) and display driver ICs (DDIs), it targets to expand its exposure to application processors (AP), CMOS image sensors (CIS), baseband (BB) and touch-controller ICs. Its sales mix by application for 3Q14 was: smartphones (~80%), other consumer electronics (~20%).

**2) Looking to new IoT markets.** eMemory believes its IP portfolio is set to capture the next "big thing" in IoT, such as wearable devices and other new smart-connected devices,

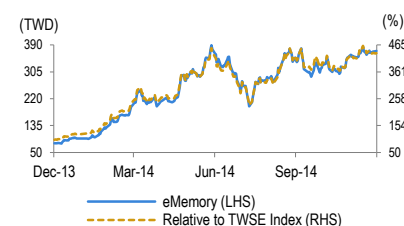
helping expand its total addressable market beyond MCD.

**3) Expects an improving ASP.** eMemory expects its royalty ASP/wafer to rise in 2015 as it charges customers royalty fees on a per-wafer basis, such that when the foundry wafer ASP rises due to the migration to new and upgraded processes, eMemory's royalty/wafer rises. It is expanding its IP portfolio into more advanced technologies (<=28nm) to enjoy higher ASPs. The company believes such ASP improvements should boost its margins, resulting in its higher net-profit growth than revenue growth targeted for 2014-16.

■ **Valuation**

The stock is trading at PERs of 60.2x for 2014 and 40.9x for 2015E (Bloomberg consensus forecasts), compared with its past-3-year PER trading range of 11-51x.

■ **Share price performance**



12-month range	78.40-389.50
Market cap (USDbn)	0.90
3m avg daily turnover (USDm)	18.86

Source: FactSet, Daiwa

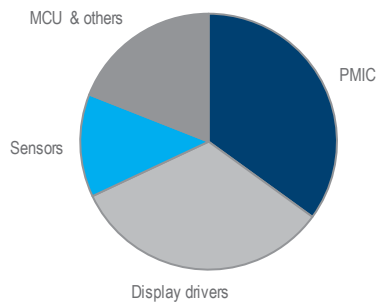
■ **eMemory: product portfolio**

Type	Product	Advantages	Applications	CMOS technology
OTP	NeoBit	Replacement of ROM and EPROM, no mask layers required	PMIC/PMU, DDI, sensors, MCU, camera controller, STB	65/90/110/160/250/350/500nm
	NeoFuse	OTP solutions that consume low power	AP, CIS, B/B, D/D, PMIC, TV SoC	20/28/40/55/90/110/180nm
MTP	NeoEE	Replacement of E-square, no mask layers required	RFIC (Bluetooth, NFC), card IC	40/55/90/110/180/250/350nm
	NeoMTP	Replacement of SPI flash and E-square, requires no additional mask layers or only 1 additional layer	Touch controller, MCU, P-Gamma, RFIC, fuel gauge	55/80/110/180/250nm
	NeoFlash	Replacement of embedded code-flash with significant mask layer cuts	MCU, sensor controller, fuel gauge	28/40/55/90/110/180nm

Source: Company

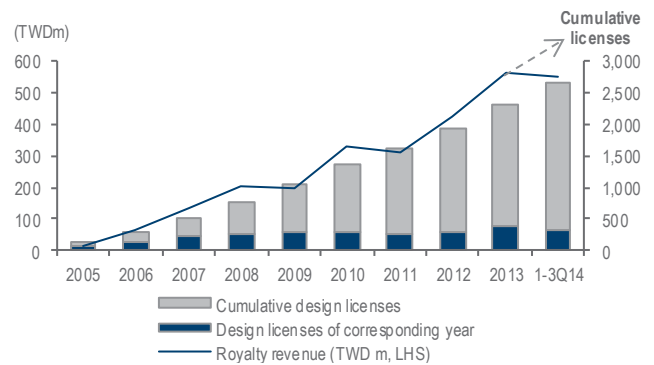
Note: OTP = one time programmable, MTP = multiple time programmable, ROM = read-only memory, EPROM = erasable programmable read only memory, PMU = power management unit, STB = set-top box, BB = baseband, DDI = display driver IC, SoC = system on chip, RFIC = radio frequency IC

■ **eMemory: sales breakdown by device (3Q14)**



Source: Company

■ **eMemory: design licence and royalty revenue trend**



Source: Company

■ **eMemory: quarterly P&L summary**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2010	2011	2012	2013	9M14
Revenue	165	207	205	231	246	225	275	843	644	611	808	746
Gross profit	165	207	205	231	246	225	275	628	520	611	808	746
Operating profit	57	89	88	106	119	96	139	237	163	215	340	354
Pre-tax profit	57	92	85	108	126	94	141	239	181	195	342	361
Net profit	52	76	72	91	111	82	124	227	153	164	291	318
Basic EPS (TWD)	0.70	1.01	0.96	1.20	1.46	1.09	1.64	3.48	2.03	2.17	3.87	4.19
Diluted EPS (TWD)	0.69	1.00	0.95	1.20	1.46	1.08	1.63	3.33	2.01	2.15	3.84	4.18
<b>Margins</b>												
Gross margin	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	100.0%	74.5%	80.8%	99.9%	100.0%	100.0%
Operating margin	34.6%	42.7%	42.9%	45.9%	48.5%	42.5%	50.6%	28.1%	25.3%	35.1%	42.0%	47.5%
Pre-tax margin	34.9%	44.5%	41.3%	46.7%	51.0%	42.0%	51.3%	28.4%	28.1%	32.0%	42.3%	48.4%
Net margin	31.6%	36.5%	34.9%	39.6%	45.1%	36.6%	45.2%	26.9%	23.8%	26.9%	36.0%	42.6%
<b>YoY</b>												
Revenue	4.3%	41.6%	35.6%	48.6%	49.2%	8.4%	33.8%	37.1%	-23.6%	-5.1%	32.2%	29.1%
Gross profit	4.6%	41.7%	35.6%	48.8%	49.2%	8.4%	33.8%	24.2%	-17.1%	17.3%	32.4%	29.1%
Operating profit	26.0%	79.2%	107.4%	42.7%	109.0%	7.8%	57.8%	24.3%	-31.1%	31.6%	58.1%	51.4%
Pre-tax profit	30.3%	114.8%	121.4%	61.9%	118.3%	2.3%	66.3%	87.9%	-24.4%	8.1%	75.1%	53.9%
Net profit	59.0%	111.8%	109.8%	57.1%	112.9%	9.0%	73.6%	78.0%	-32.4%	7.3%	76.9%	59.3%
<b>QoQ</b>												
Revenue	6.3%	25.8%	-1.0%	12.3%	6.7%	-8.6%	22.2%					
Gross profit	6.4%	25.8%	-1.0%	12.3%	6.7%	-8.6%	22.2%					
Operating profit	-23.0%	55.3%	-0.5%	20.0%	12.8%	-20.0%	45.7%					
Pre-tax profit	-13.5%	60.5%	-8.1%	26.9%	16.6%	-24.8%	49.3%					
Net profit	-10.3%	45.1%	-5.2%	27.4%	21.5%	-25.7%	50.9%					

Source: Company

## Richtek Technology

6286 TT

# Boosting its power-management applications

- Richtek is gaining traction in the mobile-power IC business
- Is developing actively its applications for the IoT market
- Aims to increase its content value in all its product segments

Target (TWD): **n.a.**

Up/downside: -

29 Dec price (TWD): **168.00**

■ Not Rated



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## ■ Background

Richtek is a major Taiwan-based fabless-IC company that specialises in analogue ICs for power management. Its focus on power-management applications and product developments in this field suggest it could be a beneficiary of demand for enhanced battery management to ensure stable processing for IoT devices.

**Richtek's 3Q14 revenue breakdown** by product segment was: computing (PCs, notebooks, monitors) 32%, communication (handsets and networks) 30%, consumer (TVs, tablets) 29%, and others (storage) 9%.

## ■ Highlights

**Gaining traction in mobile-power ICs.** Richtek's revenue for 11M14 was up 10.8% YoY. Its product mix has shifted to more communication applications (30% of its 3Q14 revenue vs. 21% for 3Q13). In 3Q14 Richtek started shipping its integrated sub-power-management IC (sub-PMIC) to a Korea smartphone maker; this product combines power management for a **smartphone's battery, charger and camera LED flash light**. According to Richtek, its PMIC product, together with its business gained in 2014 to supply discrete power ICs for micro-USB switches for smartphones are enabling the company to increase its content value per mobile device and drove 44% YoY revenue growth at its communication segment for 9M14.

## ■ Penetrating into IoT market.

Richtek expects a continuous increase in demand for its power ICs for mobile computing devices (MCD) and wearable devices. Also, Richtek is developing MEMS motion sensors (which include a 3-axis accelerometer, G-sensor and pressure sensor) and is sampling the accelerometer. Further, the company sees potential for its PMICs for micro servers on the back of personal cloud demand. These product developments cover the data security, data access and data storage areas of the growing IoT market.

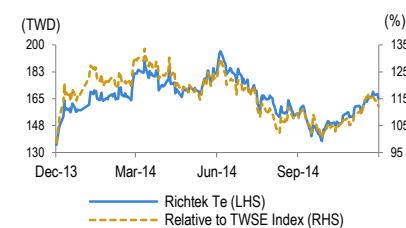
## ■ Business growth outlook.

Richtek guides for about 11% YoY revenue growth for 2014. It expects its mobile sub-PMIC to be a key top-line growth driver and to gain more customers for this product. It is gaining market share in TV-panel PMICs, for which it sees ASP upside as ultra-HD 4K2K TV panels require a higher voltage than HD panels. It expects its computing segment to **benefit from Intel's new Skylake** platform due for launch in 2015 as: 1) Richtek expects this to double the content value of its central processing unit (CPU) core voltage (VCORE) PMIC on Skylake, and 2) it is 1 of **Skylake's reference design suppliers**.

## ■ Valuation

Richtek trades at a PER of 16.5x for 2014E and 14.9x for 2015E on Bloomberg consensus EPS, vs. its past-3-year range of 10-20x.

## ■ Share price performance



12-month range	135.00-196.00
Market cap (USDbn)	0.79
3m avg daily turnover (USDm)	3.59

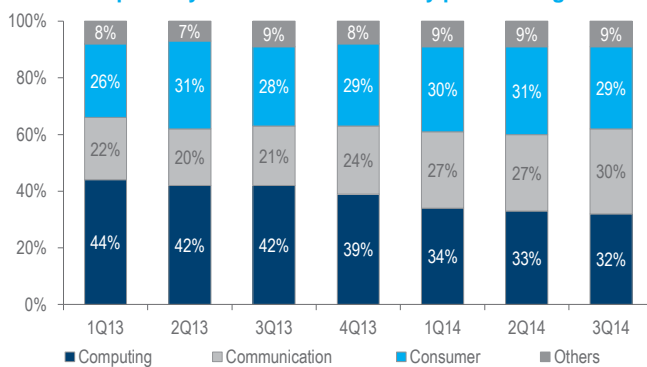
Source: FactSet, Daiwa

■ Richtek: quarterly P&L statement

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2011	2012	2013	9M14
Revenue	2,689	2,792	2,755	2,492	2,758	2,961	3,147	11,115	11,273	10,729	8,867
Gross profit	1,041	1,090	1,062	940	1,040	1,104	1,137	4,252	4,451	4,132	3,281
Operating profit	409	421	400	356	381	407	446	1,730	1,897	1,586	1,233
Pre-tax profit	426	433	406	367	405	416	491	1,772	1,893	1,632	1,312
Net profit	362	347	341	314	340	349	410	1,511	1,692	1,364	1,099
EPS (TWD)	2.44	2.36	2.32	2.12	2.30	2.37	2.77	10.31	11.49	9.25	7.44
<b>Margins</b>											
Gross margin	38.7%	39.0%	38.5%	37.7%	37.7%	37.3%	36.1%	38.3%	39.5%	38.5%	37.0%
Operating margin	15.2%	15.1%	14.5%	14.3%	13.8%	13.7%	14.2%	15.6%	16.8%	14.8%	13.9%
Pre-tax margin	15.8%	15.5%	14.7%	14.7%	14.7%	14.0%	15.6%	15.9%	16.8%	15.2%	14.8%
Net margin	13.5%	12.4%	12.4%	12.6%	12.3%	11.8%	13.0%	13.6%	15.0%	12.7%	12.4%
<b>YoY</b>											
Revenue	0.7%	-7.6%	-6.0%	-5.9%	2.6%	6.0%	14.2%	-8.5%	1.4%	-4.8%	7.7%
Gross profit	-1.5%	-8.2%	-8.4%	-10.3%	-0.1%	1.3%	7.1%	-8.5%	4.7%	-7.2%	2.8%
Operating profit	-7.4%	-21.3%	-21.9%	-13.1%	-6.9%	-3.3%	11.5%	-25.1%	9.7%	-16.4%	0.3%
Pre-tax profit	-3.8%	-20.4%	-20.5%	-7.0%	-4.9%	-4.1%	20.8%	-26.5%	6.8%	-13.8%	3.6%
Net profit	-8.3%	-28.8%	-25.8%	-10.4%	-6.0%	0.7%	20.0%	-30.5%	12.0%	-19.4%	4.7%
<b>QoQ</b>											
Revenue	1.5%	3.9%	-1.3%	-9.5%	10.7%	7.4%	6.3%				
Gross profit	-0.6%	4.6%	-2.6%	-11.5%	10.7%	6.1%	3.0%				
Operating profit	-0.1%	2.8%	-5.0%	-10.9%	7.0%	6.8%	9.5%				
Pre-tax profit	8.0%	1.8%	-6.3%	-9.8%	10.5%	2.7%	18.1%				
Net profit	3.3%	-4.2%	-1.6%	-8.0%	8.3%	2.7%	17.3%				

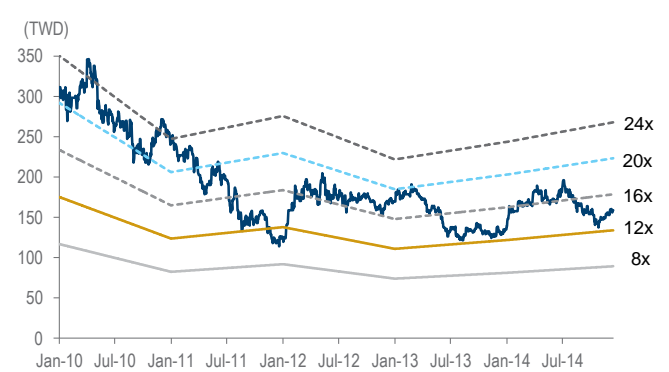
Source: Company

■ Richtek: quarterly revenue breakdown by product segment



Source: Company

■ Richtek: 12-month forward PER bands



Source: Bloomberg

## Voltronic Power Technology

6409 TT

# Shifting towards on-line UPS products

- Voltronic sees opportunities ahead in the uninterruptible power supply (UPS) product space
- Company expects on-line UPS products to drive revenue over the coming years, due to strong demand from data centres
- Management expects 20-30% YoY revenue growth for 2014 and potential margin expansion from an improved product mix

Target (TWD): **n.a.**

Up/downside: -

29 Dec price (TWD): **293.00**

■ Not Rated



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### ■ Background

Founded in 2008 and listed on 31 March 2014, Voltronic focuses on the ODM uninterrupted power supply (UPS) product business. The management team is mostly from Phoenixtec, previously the largest UPS maker in Taiwan but acquired by US-listed Eaton in 2007.

Given Voltronic's product offerings revolve around data security, the stock appears to tie in with our Big Data theme.

### ■ Highlights

**UPS (78% of 9M14 sales).** There are 2 types of UPS products: off-line and on-line. As of 9M14, about 42% of Voltronic's revenue came from off-line UPS products and 36% from on-line. The company has seen stronger revenue growth in on-line UPS products in recent years (up 41% YoY for 9M14), which are typically used for mission-critical equipment such as data centre servers. As for off-line UPS

products, these are mostly for PC-related applications and the **company's related revenue** has been weakening in recent years (down 7% in 9M14, vs. up 6% in 2013). Voltronic expects revenue growth for on-line UPS products to continue to outpace that for off-line, which would be welcome as on-line UPS products have better gross margins (typically 27-28%), with an ASP about 10x that for off-line products.

Voltronic has over 300 clients globally, with 80% of its revenue contributed by "local brands" in each country and 15% from tier-1 global UPS brands, eg, APC and Emerson. As the UPS business requires substantial local support, local brands are typically the leading vendors in their respective markets and hence ideal customers. Longer term, Voltronic sees promising business potential from global tier-1 vendors, which for now remain cautious on outsourcing but could become more receptive to it over time. Voltronic has been successfully qualified by 6 tier-1 brands to date.

**Inverters and others (22% of 9M14 sales).** This business comprises solar-power-related applications. Voltronic was the first in Asia to develop a hybrid inverter (the most complex type) back in 2011. Demand appears to be solid in

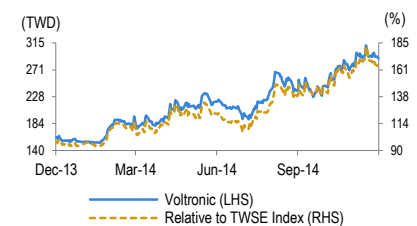
Europe, where solar energy is in fact cheaper than regular electricity. Currently, inverters have the highest gross margin (over 30%) among **Voltronic's major products** and were a key revenue driver in 2014, with 9M14 revenue rising 123% YoY.

**Financials.** Voltronic sees 20-30% YoY revenue growth for 2014 as achievable (9M14 sales were up 21%) and expects a margin improvement on a better product mix and more vertical integration in key component areas. The dividend payout for 2013 was over 70%.

### ■ Valuation

Based on the Bloomberg-consensus forecast, the stock is trading currently at a 2015E PER of 19x.

### Share price performance



12-month range	152.39-311.00
Market cap (USDbn)	0.65
3m avg daily turnover (USDm)	2.27

Source: FactSet, Daiwa

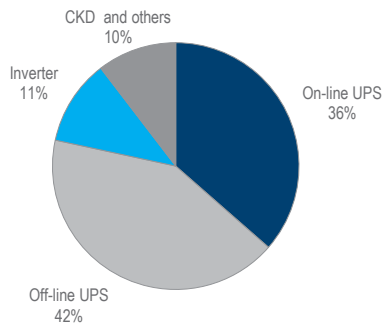


■ **Voltronic: financial highlights**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2011	2012	2013	9M14
Sales	1,320	1,299	1,485	1,387	1,496	1,638	1,837	3,441	4,763	5,491	4,971
COGS	1,010	988	1,121	1,049	1,117	1,209	-1,349	2,785	3,693	4,168	977
Gross profit	310	311	364	338	380	429	488	656	1,069	1,323	1,297
Opex	130	138	154	138	144	149	-152	314	403	560	141
Operating profit	180	173	209	200	236	280	336	342	666	763	852
Non-operating items	18	-9	-20	1	20	-6	20	3	-22	-10	33
Pre-tax income	198	163	190	202	256	274	356	346	644	753	886
Net profit	160	138	150	163	204	232	281	280	520	611	717
EPS (TWD)	2.77	2.35	2.44	2.64	3.29	3.44	3.97	5.51	9.20	10.20	10.69
<b>Margin analysis</b>											
Gross margin	23.5%	23.9%	24.5%	24.4%	25.4%	26.2%	26.6%	19.1%	22.5%	24.1%	26.1%
Op. margin	13.6%	13.3%	14.1%	14.4%	15.8%	17.1%	18.3%	9.9%	14.0%	13.9%	17.1%
Pre-tax margin	15.0%	12.6%	12.8%	14.5%	17.1%	16.7%	19.4%	10.0%	13.5%	13.7%	17.8%
Net margin	12.1%	10.6%	10.1%	11.7%	13.6%	14.2%	15.3%	8.1%	10.9%	11.1%	14.4%

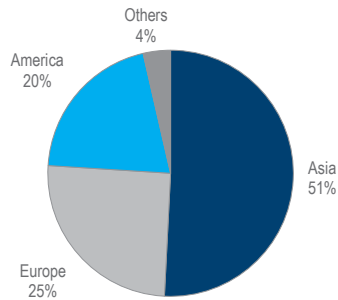
Source: Company

■ **Voltronic: revenue breakdown by product (9M14)**



Source: Company

■ **Voltronic: revenue breakdown by region (9M14)**



Source: Company

■ **Voltronic: 400 VA UPS ~ 200KVA Three-phase UPS**



Source: Company

■ **Voltronic: 1-year-forward PER**



Source: TEJ, Bloomberg

■ **Voltronic: Inverter products**



Source: Company

## Holtek Semiconductor

6202 TT

# Smart interface builder

- A leading Taiwan-based fabless chipmaker of 8-bit microcontroller units
- Its product offering covers diverse applications, positioning it to capture new IoT demand within the Big Data wave
- Sees good potential for its penetration into new IoT devices; guides for a maintained 90-100% cash dividend payout for 2014

Target (TWD): **n.a.**  
Up/downside: -  
29 Dec price (TWD): **56.00**

■ Not Rated



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### ■ Background

Founded in 1998, Holtek is a major Taiwan-based fabless chipmaker focusing on microcontroller units (MCU – about 70% of its revenue for 9M14) and peripheral ICs, with diversified end-product applications spanning home appliances, industrial, medical, PC peripherals, security and e-banking. Holtek is the largest supplier of 8-bit MCUs in Taiwan, based on 2013 sales data.

Leveraging decades of knowhow in microcontroller unit IC design, Holtek is pursuing a strategy to develop as a smart user-interface provider, offering smart-connected devices with easy access to data in a secured environment. Its product strategy fits within the data access and data

security themes we identify as being part of the Big Data wave, while its MCU business is exposed to the data process theme within Big Data.

### ■ Highlights

**Sees potential from exposure to diverse applications.** Holtek's 11M14 revenue was up by just 0.4% YoY, which it attributed to a slowdown in home appliance demand and a high YoY comparison base. Still, Holtek believes its MCU product exposure to diverse applications provides business growth potential beyond the current mobile computing device (MCD) market cycle. The company expects YoY profit growth for 2014 on the back of a gross margin improvement (its 9M14 gross margin was 47.5%, up from 46.3% for 2013).

**Expects to benefit from IoT demand.** In light of its exposure to a broad range of end-applications, Holtek believes it will benefit from IoT demand by leveraging its core competency in MCU to build integrated system-on-chip (SoC) ICs or modules for a variety of IoT devices. For instance, it is developing MCU+voice ICs, MCU+fingerprint sensors, and MCU+radio frequency identification (RFID) to offer users smart interfaces for easy data access and data security, with applications ranging from healthcare to smart

homes, surveillance, automotive and industrial.

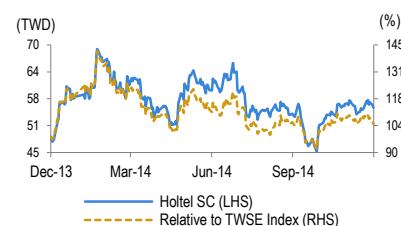
**Position in Big Data.** In the context of our outlook for new IoT demand growth to accelerate in 2016, Holtek should see the size of its addressable market expand post **the tech industry's transition we envisage over 2015-16 from the MCD to the IoT market.**

**Dividend policy.** Holtek guides to maintain its cash dividend payout ratio at c.100% for 2014, which would imply a 6% cash dividend yield at its current share price.

### ■ Valuation

Holtek trades at a PER of 16x for 2014 and 15x for 2015, based on the Bloomberg consensus EPS forecasts, vs. its past-5-year trading range of 7-20x.

### Share price performance



12-month range	45.20-69.10
Market cap (USDbn)	0.40
3m avg daily turnover (USDm)	2.08

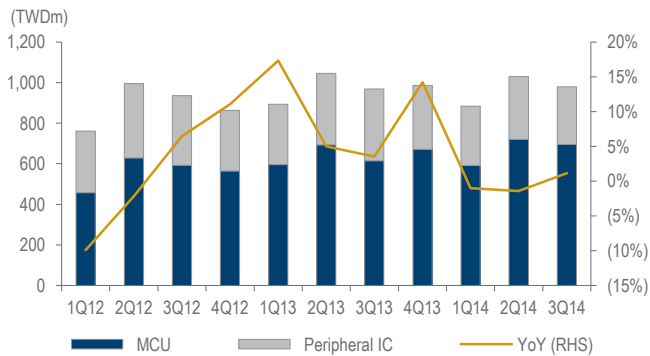
Source: FactSet, Daiwa

■ **Holtek: quarterly and annual P&L statement**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2011	2012	2013	9M14
Revenue	893	1,046	969	986	884	1,031	980	3,519	3,556	3,894	2,895
Gross profit	399	483	465	457	417	491	467	1,522	1,566	1,803	1,375
Operating profit	147	215	203	190	176	226	201	540	582	756	603
Pre-tax profit	175	254	227	227	192	242	245	634	648	882	679
Net profit	150	217	195	182	165	207	204	527	560	745	577
Basic EPS (TWD)	0.67	0.97	0.87	0.81	0.73	0.92	0.90	2.36	2.51	3.32	2.55
<b>Margins</b>											
Gross margin	44.7%	46.2%	48.0%	46.3%	47.1%	47.7%	47.6%	43.2%	44.0%	46.3%	47.5%
Operating margin	16.5%	20.6%	21.0%	19.3%	19.9%	21.9%	20.5%	15.3%	16.4%	19.4%	20.8%
Pre-tax margin	19.6%	24.2%	23.4%	23.0%	21.7%	23.5%	25.0%	18.0%	18.2%	22.6%	23.4%
Net margin	16.9%	20.8%	20.1%	18.5%	18.7%	20.1%	20.9%	15.0%	15.8%	19.1%	19.9%
<b>YoY</b>											
Revenue	17.3%	5.0%	3.6%	14.2%	-1.0%	-1.4%	1.1%	-13.1%	1.0%	9.5%	-0.5%
Gross profit	20.5%	13.6%	11.9%	15.7%	4.5%	1.7%	0.4%	-17.9%	2.9%	15.1%	2.1%
Operating profit	43.4%	19.2%	23.8%	40.7%	19.6%	4.8%	-1.1%	-27.8%	7.9%	29.8%	6.5%
Pre-tax profit	64.3%	23.2%	22.5%	50.8%	9.7%	-4.7%	8.2%	-24.8%	2.3%	36.1%	3.6%
Net profit	57.5%	18.9%	19.4%	53.8%	9.7%	-4.7%	4.7%	-33.0%	6.3%	33.0%	2.4%
<b>QoQ</b>											
Revenue	3.4%	17.2%	-7.4%	1.7%	-10.3%	16.6%	-5.0%				
Gross profit	1.0%	21.2%	-3.8%	-1.8%	-8.8%	18.0%	-5.0%				
Operating profit	9.1%	46.2%	-5.6%	-6.6%	-7.3%	28.2%	-10.9%				
Pre-tax profit	16.1%	45.1%	-10.7%	0.2%	-15.5%	26.1%	1.4%				
Net profit	27.2%	44.5%	-10.3%	-6.8%	-9.2%	25.5%	-1.4%				

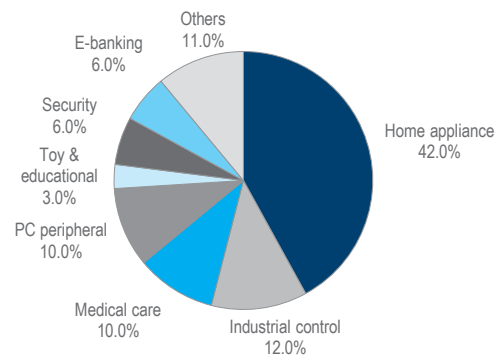
Source: Company

■ **Holtek: quarterly revenue trend**



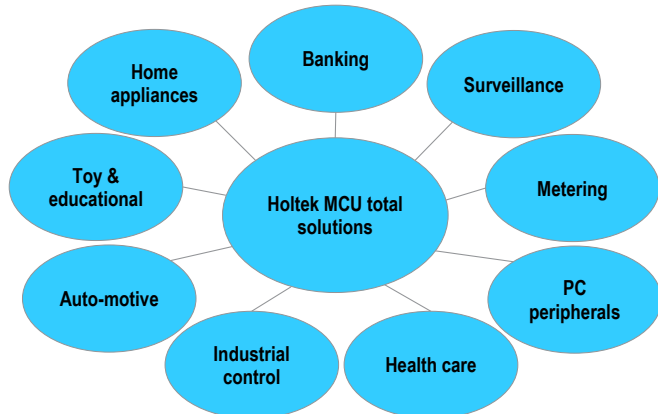
Source: Company

■ **Holtek: MCU sales breakdown by application (9M14)**



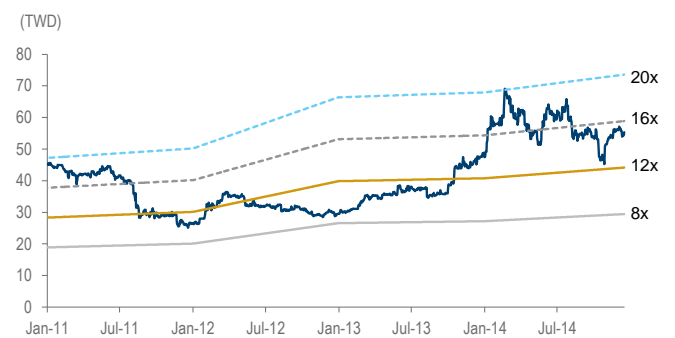
Source: Company

■ **Holtek: MCU applications**



Source: Company

■ **Holtek: 12-month forward PER bands**



Source: Bloomberg

**Altek**

3059 TT

Target (TWD): **n.a.**

Up/downside: -

29 Dec price (TWD): **35.90**

## Transformation on the way

- Fast-growing demand outlook for IoT devices (eg, wearable devices, smart TVs) should expand Altek's addressable market
- It saw a turnaround to profitability in 9M14 on the back of its transformation from digital still cameras to mobile devices
- Is optimistic on its 2015 earnings growth and expects its mobile imaging solutions to be a key driver of margin expansion

■ Not Rated



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■ **Background**

Established in 1996, Altek is one of the leading digital still camera (DSC) and smartphone camera module manufacturers in Taiwan. Over 2011-14, the company has extended its business model from a near-exclusive focus on DSCs to include mobile imaging, automotive imaging and medical imaging solutions, and turned around its profitability. It is now an imaging solutions provider for the smartphone, automotive and healthcare industries. This transformation suggests to us that Altek is positioned to leverage the data access area for new IoT devices, forming part of our Big Data theme.

■ **Highlights**

**Positioning for Big Data theme.**

Altek's strength in mobile image processing suggests it is well positioned to capture the growing demand for wearable devices and smart TVs. Daiwa forecasts global shipments of wearable devices and smart TVs to reach 767m units in

2018 vs. 41m for 2014E. Compared with global smartphone shipments of 1.2bn for 2014E, Altek's exposure to wearables is currently limited but could broaden its addressable market by more than 50%.

■ **Product mix enhancements.**

Slowing demand globally for DSCs since 2011 has prompted Altek to move into higher-margin auto-electronic, medical and mobile imaging solutions. Its DSCs' contribution to sales fell to 30% for 9M14 (from 90% in 2012). As a result of this shift, Altek returned to profitability at the operating and net levels in 9M14 (from losses for 2013) and its gross margin expanded to 10.7% for 3Q14 (from 6% for 2013 and 7.2% for 2012).

■ **Mobile imaging (50-55% of 9M14 sales).**

Altek provides imaging solutions, including camera modules, image processors and assembly, for smartphone brands. In 1H14, it started offering its duo-camera modules to HTC and became the world's first vendor of this product. Altek expects its mobile business to be its key earnings growth driver in 2015 through more projects and client wins.

■ **Automotive and medical (10-15% of 9M14 sales).**

Altek's automotive and medical imaging

products have a gross margin of above 20%, according to the company. In automotive imaging, it is a major vendor of 360-view systems to Taiwan automaker Luxgen and expects to gain a new client in 2015. In the medical segment, it has been supplying glucose meters to Roche since 2H11 and expects to secure more projects in the next 1-2 years.

■ **Optimistic on 2015.** Altek expressed a positive tone on its earnings growth for 2015, which it expects to be driven by mobile project wins, and envisages margin expansion in 2015 and beyond through product mix enhancements.

■ **Valuation**

The stock trades currently at a PBR of 1.0x for 2014E based on the Bloomberg consensus BVPS forecast.

■ **Share price performance**



12-month range	26.25-44.11
Market cap (USDbn)	0.31
3m avg daily turnover (USDm)	5.84

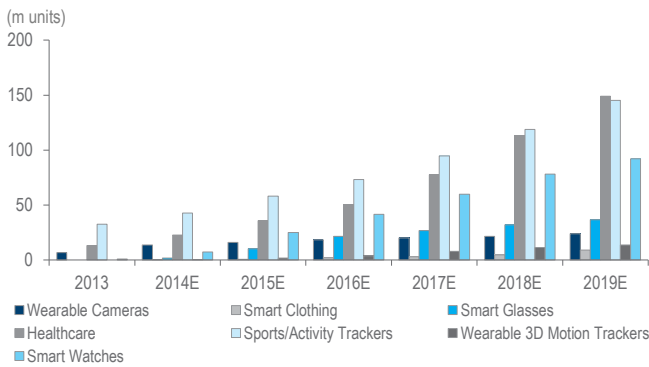
Source: FactSet, Daiwa

■ **Aitek: quarterly P&L statement**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2012	2013	9M14
Sales	4,014	4,854	6,334	3,964	3,804	4,852	3,521	24,575	19,166	12,177
COGS	3,748	4,545	5,979	3,735	3,495	4,348	3,144	22,809	18,007	10,987
<b>Gross profit</b>	<b>266</b>	<b>309</b>	<b>355</b>	<b>229</b>	<b>309</b>	<b>504</b>	<b>377</b>	<b>1,767</b>	<b>1,159</b>	<b>1,190</b>
Opex	326	304	297	295	289	349	318	1,583	1,223	956
<b>Operating profit</b>	<b>(60)</b>	<b>5</b>	<b>58</b>	<b>(66)</b>	<b>20</b>	<b>155</b>	<b>59</b>	<b>184</b>	<b>(64)</b>	<b>234</b>
Non-operating items	14	12	9	(340)	78	1	(20)	146	(304)	59
Pre-tax income	(46)	17	67	(406)	98	156	39	329	(368)	293
<b>Net profit</b>	<b>(46)</b>	<b>16</b>	<b>61</b>	<b>(363)</b>	<b>82</b>	<b>133</b>	<b>31</b>	<b>280</b>	<b>(332)</b>	<b>246</b>
<b>EPS (TWD)</b>	<b>(0.12)</b>	<b>0.04</b>	<b>0.16</b>	<b>(0.93)</b>	<b>0.21</b>	<b>0.34</b>	<b>0.09</b>	<b>5.52</b>	<b>(0.85)</b>	<b>0.64</b>
<b>Margin analysis</b>										
Gross margin	6.6%	6.4%	5.6%	5.8%	8.1%	10.4%	10.7%	7.2%	6.0%	9.8%
Operating margin	-1.5%	0.1%	0.9%	-1.7%	0.5%	3.2%	1.7%	0.7%	-0.3%	1.9%
Pre-tax margin	-1.1%	0.4%	1.1%	-10.2%	2.6%	3.2%	1.1%	1.3%	-1.9%	2.4%
Net margin	-1.1%	0.3%	1.0%	-9.2%	2.2%	2.7%	0.9%	1.1%	-1.7%	2.0%
<b>YoY growth (%)</b>										
Sales	-37%	-32%	2%	-20%	-5%	0%	-44%	-12%	-22%	-20%
Gross profit	-40%	-40%	-22%	-36%	16%	63%	6%	-22%	-34%	28%
Operating profit	n.a.	-95%	4%	n.a.	n.a.	3290%	1.8%	n.a.	n.a.	7702%
Pre-tax profit	n.a.	-88%	-30%	n.a.	n.a.	845%	-41%	168%	n.a.	672%
Net profit	n.a.	-86%	-27%	n.a.	n.a.	743%	-50%	46%	n.a.	692%
<b>QoQ growth (%)</b>										
Sales	-19%	21%	31%	-37%	-4%	28%	-27%			
Gross profit	-25%	16%	15%	-36%	35%	63%	-25%			
Operating profit	n.a.	n.a.	1164%	n.a.	n.a.	666%	-61.9%			
Pre-tax profit	n.a.	n.a.	308%	n.a.	n.a.	60%	-75%			
Net profit	n.a.	n.a.	289%	n.a.	n.a.	63%	-77%			

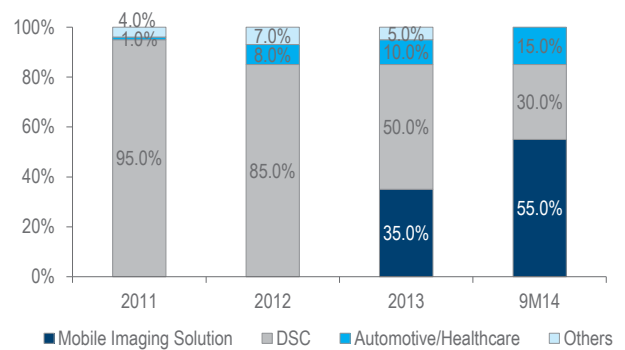
Source: Company

■ **Wearable device market: global shipments**



Source: ABI Research, Daiwa forecasts

■ **Aitek: revenue breakdown by product segment**



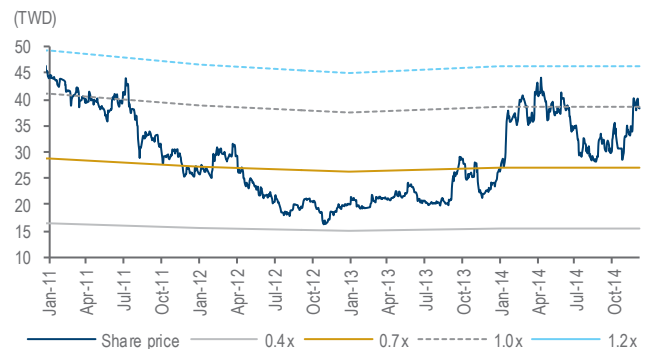
Source: Company

■ **Aitek: snapshot of key products**



Source: Company

■ **Aitek: 1-year forward PBR bands**



Source: TEJ, Bloomberg

**UDE Corp**

3689 TT

Target (TWD): **n.a.**  
Up/downside: -  
29 Dec price (TWD): **81.00**

**The backhaul for data traffic**

- UDE is a major player in the market for RJ45 connectors, which serve as the backhaul to facilitate data traffic in the IT ecosystem
- Expanding TPS automation in order to enhance efficiency, UDE sees a brighter future beyond a transitional 2014
- UDE looks to be part of the Big Data story, as rising data flows point to increasing demand for its RJ45 Ethernet connectors

■ Not Rated



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■ **Background**

Founded in 2005, UDE Corp (UDE) was the **world's second**-largest supplier of Ethernet networking connectors (RJ45 jacks) in terms of revenue for 2013. Bel Fuse, Molex and Foxconn Tech are its main competitors. UDE's **RJ45 jacks** are used in a wide range of applications, including PC motherboards, set-top boxes, servers, TVs and networking devices.

■ **Highlights**

UDE Corp's adoption of the Toyota Production System (TPS) in 2010 has led to significant improvements in its production efficiency, global presence and profitability, per management. Now seeking to maximise the use of the TPS, UDE is targeting margin expansion arising from efficiency gains, likely from 2H15 onward. Management believes UDE ties into the Big Data theme given its circa-9% share of the market for RJ45 connectors (2013 data), which serve as the backhaul for data transmission. In

management's view, UDE's core competency lies in high degree of factory automation, which it expects will boost production efficiency and support increases in its market share and overall profitability.

**Muted 2014: bottlenecks.** 2014 looks to have been a transitional year for UDE. From our conversation with management, revenue growth for 2014 is likely to meet the low end of **the company's prior expectation** of 10-15% YoY, given muted margin expansion due to bottlenecks in the twisting and wiring process, which is largely dependent on labour-intensive subcontracting. UDE has sought to remove this bottleneck by extending the reach of the TPS. According to management, however, the benefits may not come through until 2H15, which could see revenue and margin momentum remaining muted in 1H15.

**2H15E: expecting growth to get back on track.** UDE is targeting a structural margin recovery, along with further share gains in the networking market, from 2H15 onward, when it expects the benefits of twisting and wiring automation to come through. Its long-term goal is for its revenue to reach TWD10bn within 5 years (vs. TWD4.7bn for 2013) and its gross margin to expand to 28-30% (vs. 27% in 2013).

**Potential Big Data beneficiary.**

Through its backhaul status of supplying RJ45 jacks, UDE believes it will secure its position in the Big Data cycle. We expect the proliferation of IoT devices to result in increasing data flows and hence a growing need for infrastructure devices such as routers/switches and servers, and supporting connectivity.

**Financials.** UDE's 9M14 revenue came in at TWD3.9bn, up 12% YoY, while its net profit was down 3% YoY amid margin contraction. UDE expects a 10%-plus QoQ contraction in revenue for 4Q14.

■ **Valuation**

UDE is trading on PERs of 10.6x for 2014E and 9.0x for 2015E (Bloomberg consensus EPS), at the low end of its 12-month forward PER range of 10-15x since its IPO in October 2012.

**Share price performance**



12-month range	76.50-117.00
Market cap (USDbn)	0.18
3m avg daily turnover (USDm)	1.09

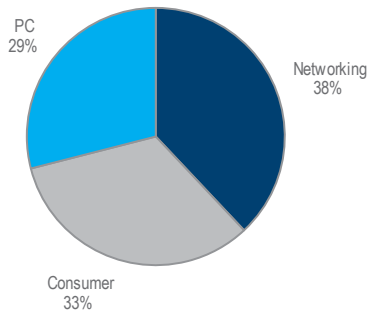
Source: FactSet, Daiwa

■ UDE: P&L summary

TWDm	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2010	2011	2012	2013	9M14
Revenue	1,110	1,198	1,221	1,163	1,276	1,275	1,393	3,094	3,486	3,876	4,692	3,944
COGS	-808	-856	-881	-863	-922	-937	-1,017	-2,274	-2,596	-2,812	-3,408	-2,877
Gross profit	303	342	340	299	354	338	375	820	890	1,063	1,284	1,067
Opex	-136	-156	-166	-162	-161	-181	-203	-349	-436	-535	-620	-545
Operating profit	166	186	174	137	193	157	172	472	454	528	664	522
Pretax profit	168	180	181	144	150	155	206	409	481	539	674	511
Income taxes	-44	-34	-47	-34	-57	-27	-32	-68	-128	-95	-160	-116
Net profit	126	147	135	112	94	128	174	341	353	444	520	396
EPS (TWD, basic)	1.86	2.17	2.00	1.65	1.38	1.87	2.54	6.45	6.08	7.08	7.69	5.77
EPS (TWD, fully diluted)	1.86	2.17	2.00	1.57	1.32	1.80	2.45	6.41	5.76	6.56	7.31	5.57
<b>Margin</b>												
Gross	27%	29%	28%	26%	28%	27%	27%	27%	26%	27%	27%	27%
Operating	15%	16%	14%	12%	15%	12%	12%	15%	13%	14%	14%	13%
Net	11%	12%	11%	10%	7%	10%	13%	11%	10%	11%	11%	10%
<b>Growth (QoQ)</b>												
Revenue	11%	8%	2%	-5%	10%	0%	9%					
Gross profit	10%	13%	0%	-12%	18%	-5%	11%					
Operating profit	16%	12%	-6%	-21%	41%	-19%	10%					
Net profit	25%	16%	-8%	-17%	-16%	36%	36%					
EPS (basic)	16%	16%	-8%	-17%	-16%	36%	35%					
EPS (FD)	25%	16%	-8%	-21%	-16%	36%	36%					
<b>Growth (YoY)</b>												
Revenue	35%	20%	16%	17%	15%	6%	14%		13%	11%	21%	12%
Gross profit	27%	31%	18%	9%	17%	-1%	10%		8%	19%	21%	8%
Operating profit	43%	74%	8%	-5%	16%	-16%	-1%		-4%	16%	26%	-1%
Net profit	68%	18%	-5%	11%	-25%	-13%	29%		4%	26%	17%	-3%
EPS (basic)	52%	7%	-14%	3%	-26%	-14%	27%		-6%	16%	9%	-4%
EPS (FD)	68%	18%	-5%	5%	-29%	-17%	23%		-10%	14%	11%	-8%

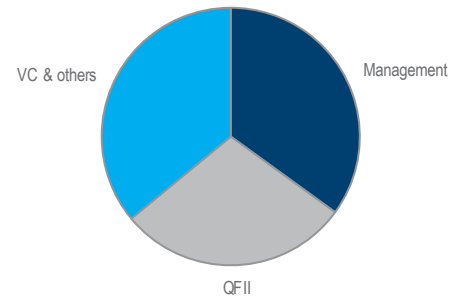
Source: Company

■ UDE: 2013 revenue mix by application



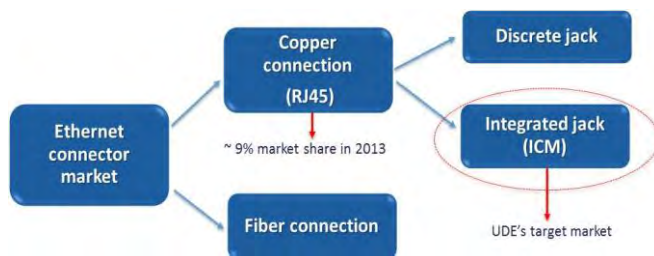
Source: Company

■ UDE: major shareholding structure (as of 3Q14)



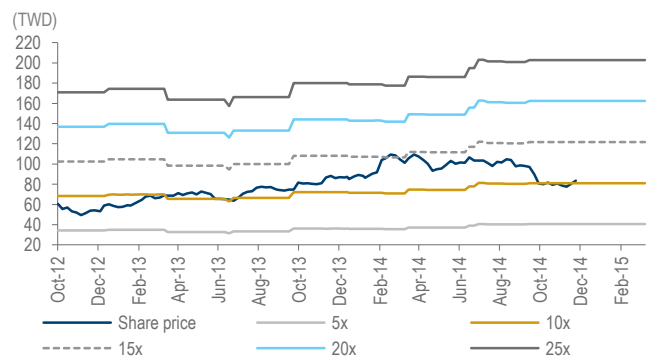
Source: Company

■ UDE: positioning in RJ45 market



Source: Company

■ UDE: 12-month forward PER band



Source: Bloomberg, Company

## Orise Technology

3545 TT

# Specialist touch technology player following merger

- Orise, a mobile display driver IC supplier, will soon merge with touch-controller IC player FocalTech
- FocalTech is developing new product applications to address rising mobile market competition and tap into IoT market
- Sees its planned roll-out of in-cell and on-cell touch solutions as key long-term business catalyst

Target (TWD): **n.a.**

Up/downside: -

29 Dec price (TWD): **37.40**

■ Not Rated



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### ■ Background

Orise is a Taiwan-based IC fabless company which specialises in display driver ICs (DDI) for handset displays. It will be the surviving entity following a merger with FocalTech (5280 TT, not rated), which will take effect on 2 January. The merger is aimed at enhancing **the combined entity's scale and product-integration capabilities**. In our view, FocalTech is exposed to the data input aspect of our Big Data theme, as it focuses on touch-display ICs. **It is one of Asia's leading fabless-IC makers of touch-controller ICs for mobile**, shipping for smartphones (c.90% of revenue) and tablet PCs (c.10%), especially in the China market. It claims about a 50% share of the China handset-

touch IC market by shipments, where its customers include Lenovo, Xiaomi, Huawei, and Coolpad.

### ■ Highlights

**Foothold in mobile.** For 3Q14, FocalTech's revenue declined by 12% QoQ and 16% YoY and its gross-profit margin contracted to 32.5% (down 9.8pp QoQ). Its shipments were disrupted by the China **smartphone market's slower-than-expected shift to 4G**, and handset subsidy cuts. The company lost market share in handset-touch ICs to the likes of Goodix (from a share of some 80% in 2013), due mainly to price competition in China.

### IoT market offers potential.

FocalTech ships touch ICs for wearable devices like sports watches and sports cams, and is working with Japan car brands and qualifying its touch solution for car-infotainment systems.

### Sees in-cell and on-cell touch solutions as key.

FocalTech believes its key longer-term business catalyst will be shipments of new, differentiated products. Its integrated driver and touch-controller IC products (IDC – which integrates its touch-controller IC with its display-driver IC for in-cell touch panels) are in the sampling stage and the company expects to

start shipping them in 2H15. It targets its new in-cell and on-cell touch solutions to improve considerably its overall ASP and gross-profit margins, and to contribute 15%-plus and 50%-plus of its revenue in 2015/16.

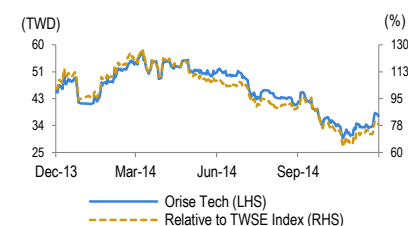
### Revenue and ASP guidance.

FocalTech expects slight QoQ revenue growth for 4Q14 with a normalised market trend, which would imply flat YoY revenue for 2014. It expects its ASP for 2014 to be down by 20% YoY, due to a shift in emerging-market demand towards lower-end smartphones and the handset subsidy cuts of 2H14.

### ■ Valuation

Orise is trading at 10x and 11x PERs for 2014E and 2015E (Bloomberg consensus EPS) vs. its past-1-year range of 9-35x.

### Share price performance



12-month range	29.50-57.80
Market cap (USDbn)	0.16
3m avg daily turnover (USDm)	3.39

Source: FactSet, Daiwa



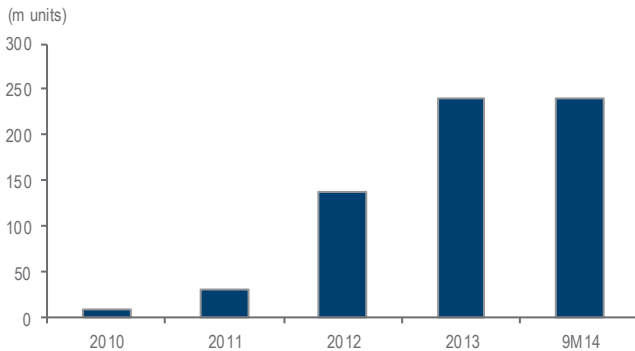
■ **FocalTech: quarterly P&L statement**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2011	2012	2013	9M14
Revenue	1,147	1,117	1,358	1,231	1,195	1,293	1,143	1,209	4,743	4,853	3,631
Gross profit	561	524	549	511	499	547	372	627	2,541	2,145	1,418
Operating profit	359	333	301	282	298	318	141	433	1,880	1,274	757
Pre-tax profit	351	356	307	310	315	328	164	428	1,884	1,324	806
Net profit	336	353	288	291	301	310	153	487	1,784	1,267	764
Basic EPS (TWD)	14.38	7.60	6.20	2.01	5.45	5.53	2.72	111.15	389.17	30.20	13.67
<b>Margins</b>											
Gross margin	48.9%	46.9%	40.4%	41.5%	41.8%	42.3%	32.5%	51.8%	53.6%	44.2%	39.1%
Operating margin	31.3%	29.8%	22.2%	22.9%	24.9%	24.6%	12.3%	35.8%	39.6%	26.3%	20.8%
Pre-tax margin	30.6%	31.8%	22.6%	25.2%	26.4%	25.3%	14.3%	35.4%	39.7%	27.3%	22.2%
Net margin	29.3%	31.6%	21.2%	23.6%	25.2%	24.0%	13.4%	40.3%	37.6%	26.1%	21.1%
<b>YoY</b>											
Revenue	n.a.	n.a.	n.a.	n.a.	4.2%	15.7%	-15.8%	457.4%	292.4%	2.3%	0.2%
Gross profit	n.a.	n.a.	n.a.	n.a.	-11.1%	4.4%	-32.3%	n.m.*	305.5%	-15.6%	-13.2%
Operating profit	n.a.	n.a.	n.a.	n.a.	-17.1%	-4.5%	-53.1%	n.m.*	334.6%	-32.2%	-23.8%
Pre-tax profit	n.a.	n.a.	n.a.	n.a.	-10.2%	-7.9%	-46.6%	n.m.*	340.3%	-29.7%	-20.4%
Net profit	n.a.	n.a.	n.a.	n.a.	-10.3%	-12.2%	-46.7%	n.m.*	266.2%	-28.9%	-21.7%
<b>QoQ</b>											
Revenue	n.a.	-2.6%	21.5%	-9.4%	-2.9%	8.2%	-11.6%				
Gross profit	n.a.	-6.7%	4.8%	-7.0%	-2.3%	9.6%	-32.0%				
Operating profit	n.a.	-7.3%	-9.6%	-6.4%	5.6%	6.8%	-55.6%				
Pre-tax profit	n.a.	1.3%	-13.8%	1.2%	1.6%	3.9%	-50.1%				
Net profit	n.a.	5.0%	-18.4%	1.1%	3.5%	2.8%	-50.5%				

Source: Company

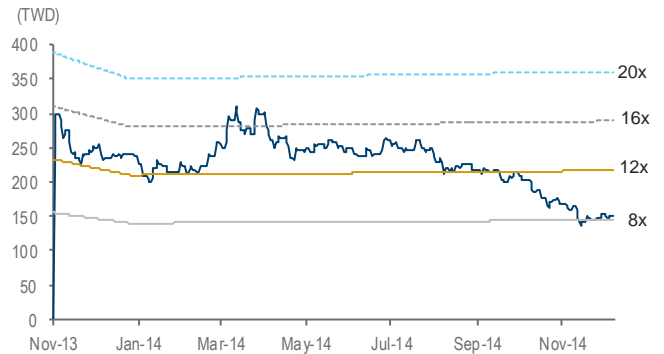
Note: The company posted minimal gross profit and operating loss for 2010

■ **FocalTech: touch-IC shipments**



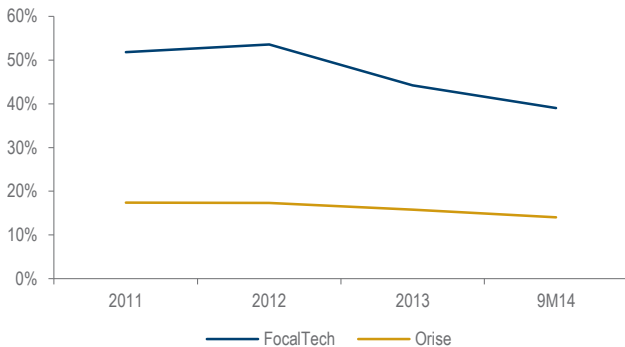
Source: Company

■ **FocalTech: 12-month forward PER bands**



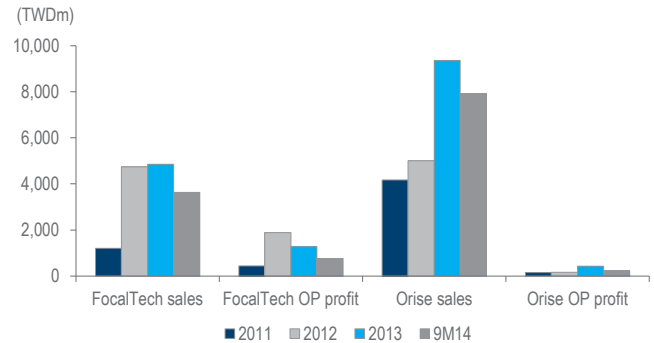
Source: Bloomberg

■ **FocalTech and Orise : gross margin**



Source: Companies

■ **FocalTech and Orise :sales and operating profit**



Source: Companies

**AIC**  
3693 TT

Target (TWD): **n.a.**  
Up/downside: -  
29 Dec price (TWD): **120.00**

## Thriving full-rack business

- AIC expects cloud-data centres and network security to be its main revenue-growth drivers in 2015
- Increase in full-rack shipments is boosting revenue growth but also putting more pressure on margins
- Company expects revenue growth of more than 20% YoY for 2015

■ Not Rated



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### ■ Background

Established in 1996, AIC makes server/storage chassis and related components. In recent years, it has been focusing more on providing servers and storage systems/sub-systems for cloud-data centres in emerging markets. **Given that AIC's** product offerings cover 2 of the Big Data themes we identify (data storage and processing), we think the company could be a beneficiary of the next Big Data cycle.

### ■ Highlights

AIC has a wide range of product applications and a broad client base, but considers cloud-data centre and network securities as its key earnings growth drivers.

**Cloud-data centres (48% of 9M14 sales).** Different from the larger server ODMs (eg, Quanta), AIC is aiming to attract tier-1 players in emerging markets (such as Yandex, the largest search engine company in Russia) and tier-2/3 players in developed markets. It

offers customised products (as opposed to standard solutions) to enhance its profitability. While the North America market commands the majority of data-centre buildouts, demand for the same from the rest of world is flourishing, on rising security awareness, which AIC considers a positive.

That said, AIC says its growing full-rack shipments (ie, server shipments bundled with storage and other hardware, like switches and power supply) appear to be putting pressure on the gross margin, as these shipments have a much higher ASP but lower margins than those for pure server/storage shipments.

In fact, the increase in full-rack shipments (for Yandex) led to a 79% QoQ jump in AIC's 3Q14 revenue, but caused the gross margin to drop to 18.9% (from 31.5% in 2Q14). As demand for full-rack shipments is rising, AIC expects the gross margin to decline YoY in 2015, but earnings growth to remain solid, due to stronger sales growth and better economies of scales from greater components sourcing.

**Networking security (18% of 9M14 sales).** AIC's major clients include global financial institutions and some government agencies. This business tends to have a longer order visibility (at least 1 year) and

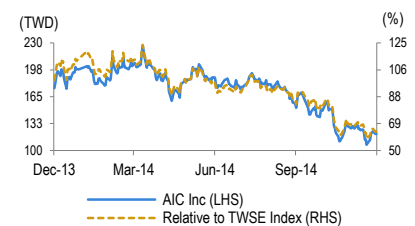
provides a steady revenue stream, with good profitability.

**Financials.** As most of AIC's full-rack shipment orders for 2014 were fulfilled in 3Q14, AIC expects its 4Q14 revenue to be similar to that of 2Q14, suggesting a substantial QoQ decline in revenue. Sales for 2014 could be about TWD3.5bn, up 30% YoY, according to AIC. For 2015, AIC expects sales growth of at least 20% YoY, with full-rack shipments driving the way. In fact, AIC says revenue for 1Q15 could be strong (probably similar to that of 3Q14), as Yandex is expected to start another round of data-centre expansion.

### ■ Valuation

Based on the Bloomberg-consensus EPS forecast, the stock is trading at a 2015 PER of 10x (vs. its past one-year range of 9.5-21.2x).

### Share price performance



12-month range	107.00-226.50
Market cap (USDbn)	0.14
3m avg daily turnover (USDm)	1.91

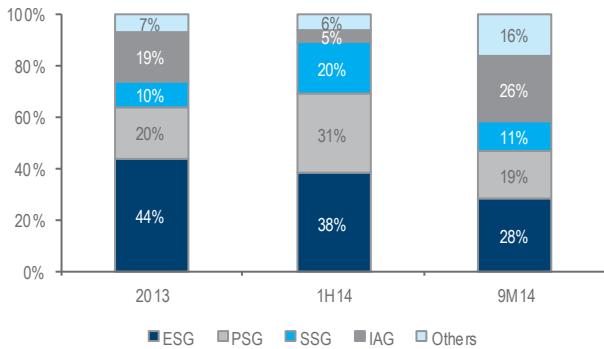
Source: FactSet, Daiwa

■ **AIC: financial highlights**

(TWDm)	1Q13	2Q13	3Q13	4Q13	1Q14	2Q14	3Q14	2011	2012	2013	9M14
<b>Sales</b>	562	723	642	732	779	711	1,273	1,944	2,079	2,659	2,764
COGS	378	513	448	522	538	487	1,032	1,388	1,439	1,861	2,058
<b>Gross profit</b>	184	210	194	210	241	224	241	556	640	798	706
Opex	100	108	104	132	129	129	132	464	438	444	390
R&D expenditure	28	37	33	44	39	47	42				128
<b>Operating profit</b>	83	102	90	79	112	94	109	93	202	354	316
Non-operating items	10	(3)	(5)	6	13	(11)	16	22	(18)	8	19
<b>Pre-tax income</b>	94	99	85	85	126	84	125	114	185	363	334
Income tax	20	26	15	15	19	24	25	19	35	76	68
<b>Net profit</b>	73	73	70	71	106	60	100	95	150	287	266
<b>EPS (TWD)</b>	2.17	2.17	2.08	1.98	2.78	1.56	2.62	2.86	4.44	8.40	6.96
<b>Margin analysis</b>											
Gross margin	32.7%	29.0%	30.2%	28.7%	30.9%	31.5%	18.9%	28.6%	30.8%	30.0%	25.5%
Op. margin	14.9%	14.1%	14.0%	10.8%	14.4%	13.3%	8.5%	4.8%	9.7%	13.3%	11.4%
Pre-tax margin	16.6%	13.7%	13.2%	11.6%	16.1%	11.8%	9.8%	5.9%	8.9%	13.6%	12.1%
Net margin	13.0%	10.1%	10.9%	9.6%	13.6%	8.4%	7.9%	4.9%	7.2%	10.8%	9.6%
<b>QoQ growth (%)</b>											
Sales		29%	-11%	14%	6%	-9%	79%				
Gross profit		14%	-8%	8%	15%	-7%	8%				
Operating profit		22%	-12%	-12%	43%	-16%	15%				
Pre-tax profit		6%	-14%	0%	47%	-33%	50%				
Net profit		0%	-4%	1%	51%	-44%	68%				

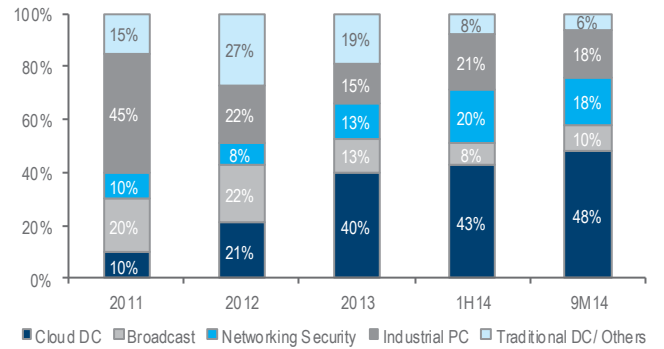
Source: Company

■ **AIC: revenue breakdown by product**



Source: Company

■ **AIC: revenue breakdown by application**



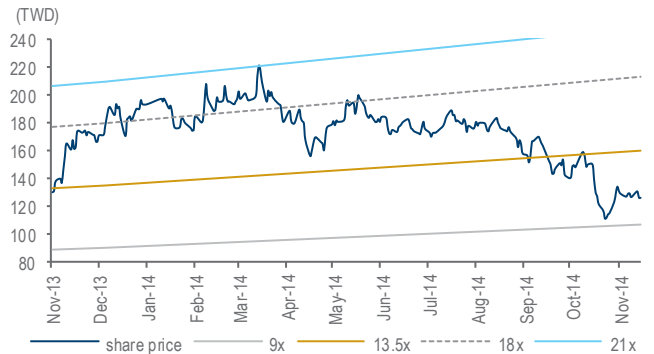
Source: Company

■ **AIC: ultra-high density storage unit**



Source: Company

■ **AIC: 1-year-forward PER**



Source: TEJ, Bloomberg

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