

Taiwan notebooks

Introduction 2

Chart 1: Notebook shipments, 4Q14-1Q16 (k units) 3

Shipments breakdown 5

Clients 5

Chart 2: Notebook shipments to top-10 clients, 4Q14-1Q16 (k units) 5

Chart 3: Notebook shipment share by top-10 clients, 4Q14-1Q16 6

Chart 4: Global top-10 vendors' shipments, 4Q14-1Q16 (k units) 7

CPUs 8

Chart 5: Notebook shipments by CPU, 4Q14-1Q16 (k units) 8

Chart 6: Notebook shipment share by CPU, 4Q14-1Q16 8

Screen size 9

Chart 7: Notebook shipments by screen size, 4Q14-1Q16 (k units) 9

Chart 8: Notebook shipment share by screen size, 4Q14-1Q16 9

Makers 10

Chart 9: Notebook shipments by maker tier, 4Q14-1Q16 (k units) 10

Chart 10: Notebook shipment share by maker tier, 4Q14-1Q16 10

Chart 11: Top makers' notebook shipments, 4Q14-1Q16 (k units) 11

Chart 12: Vendor-ODM relationship, 3Q15 (k units) 11

Chart 13: Vendor-ODM relationship, 4Q15 (k units) 12

Chart 14: Chromebook shipments, 4Q14-1Q16 (k units) 13

Annual shipments 14

Chart 15: Taiwan and worldwide notebook shipments, 2012-2016 (k units) 14

Chart 16: Top makers' shipments, 2012-2015 (k units) 14

Chart 17: Global top-10 vendors' shipments, 2012-2015 (k units) 15

Original Chinese: Jim Hsiao, DIGITIMES Research, January 2016

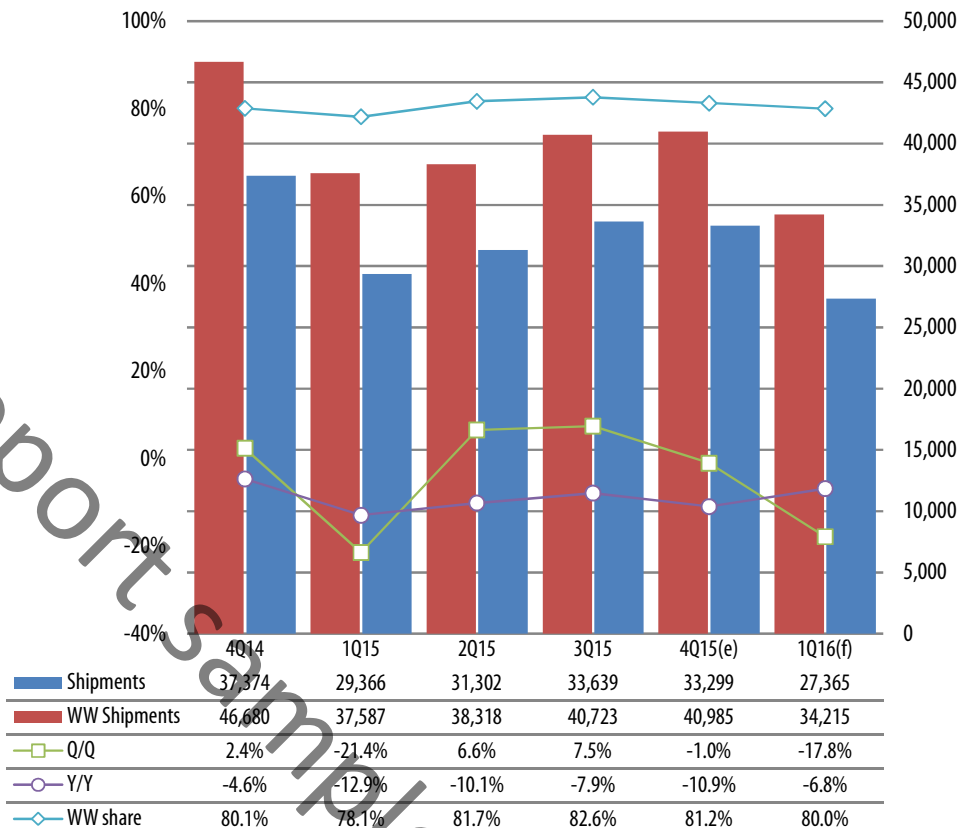
English edition: Joseph Tsai, DIGITIMES, February 2016

LEGAL DISCLAIMER: DIGITIMES does not guarantee the accuracy of any content, data or information, and is not liable for any errors, factual or otherwise, in this report. It is the responsibility of the customer to evaluate the accuracy, completeness, usefulness, or appropriateness of any information provided by DIGITIMES.

Introduction

- ✓ Worldwide notebook shipments enjoyed a slight growth of 0.6% sequentially in the fourth quarter of 2015 thanks to stable demand from the year-end holidays in Europe and North America plus brand vendors have been pushing new Windows 10-based entry-level and mid-range notebooks.
- ✓ Hewlett-Packard (HP) and Dell both saw good performance in the fourth quarter of 2015 because of North America's year-end holiday and enterprise demand. Apple saw decreased shipments because its MacBook Air has already been available for over have a year and is seeing weakening demand, according to Digitimes Research's latest report about notebook.
- ✓ Lenovo continued to snatch market share from Acer in Europe and North America in the fourth quarter of 2015, while Asustek surpassed Acer and Apple and became the fourth largest vendor worldwide in the quarter because of its aggressive push of new products.
- ✓ As for ODMs, Pegatron Technology's notebook shipments also surpassed Inventec to rank as fourth largest in the fourth quarter of 2015 with a major growth in Asustek's orders.
- ✓ Worldwide notebook shipments will suffer a sequential drop of 16.5% and an on-year drop of 9% in the first quarter of 2016 because of inventory from the fourth quarter of 2015, seasonal factors, weak Chromebook shipments and the Lunar New Year holidays, which will cause fewer working hours in the quarter.
- ✓ The top-5 brand vendors will all suffer over 15% on-quarter shipment declines in the first quarter. Lenovo will be the one with the least decline thanks to the Lunar New Year holiday demand.
- ✓ Among the top-5, HP will suffer the largest decline in the first quarter because of its high inventory from the previous quarter. Dell will see a smaller decline than HP because enterprise notebooks are not affected by seasonality as much.
- ✓ Samsung Electronics will turn its focus from tablets to notebook and will be the only vendor with sequential shipment growth in the first quarter.
- ✓ Quanta will see its shipments drop sharply in the first quarter due to decreasing orders from HP and Apple as well as orders for Chromebooks. Compal will surpass Quanta and become the largest ODM in the quarter.

Chart 1: Notebook shipments, 4Q14-1Q16 (k units)



Source: Digitimes Research, January 2016

- ✓ Stable demand from the year-end holidays in North America and Europe accompanied by US-based vendors and Asustek Computer's volume shipments of new products helped Taiwan's notebook shipments to perform better than expected and dropped only 1% sequentially in the fourth quarter of 2015. However, compared to the same quarter a year ago, the volume still decreased more than 10%.
- ✓ Demand for new mid-range and entry-level Windows 10-based notebooks was better than expected, which relatively boosted related orders from Europe and North America in the fourth quarter of 2015. A return to stability for Intel's supply of Core i3 and i5 processors also helped boost shipments for new mid-range and entry-level notebooks.
- ✓ The sequential shipment drop in the fourth quarter of 2015 was mainly due to the Chromebook, which dropped 370,000 units sequentially in the quarter due to the education market already reaching saturation along with competition from inexpensive Wintel notebook models.
- ✓ Taiwan's share in worldwide notebook shipments dropped 1.4pp sequentially to 81.2% in the fourth quarter of 2015 because Lenovo had shipment growth and saw both its in-house production rate and outsourcing proportion to China-based ODMs rising from the previous quarter.
- ✓ In addition to Europe and North America, demand from emerging markets such as Southeast Asia was also strong in the fourth quarter of 2015.
- ✓ Worldwide notebook shipments rose slightly by 0.6% sequentially in the fourth quarter of 2015 thanks to better than expected demand. However, the volume dropped 12.2% on year.
- ✓ Taiwan's notebook shipments will drop 17.8% sequentially to reach only 27.37 million units in the first quarter of 2016, the lowest since the first quarter of 2009, because of seasonality, weak demand visibility and the fact that most vendors still have undigested inventory from the previous quarter.

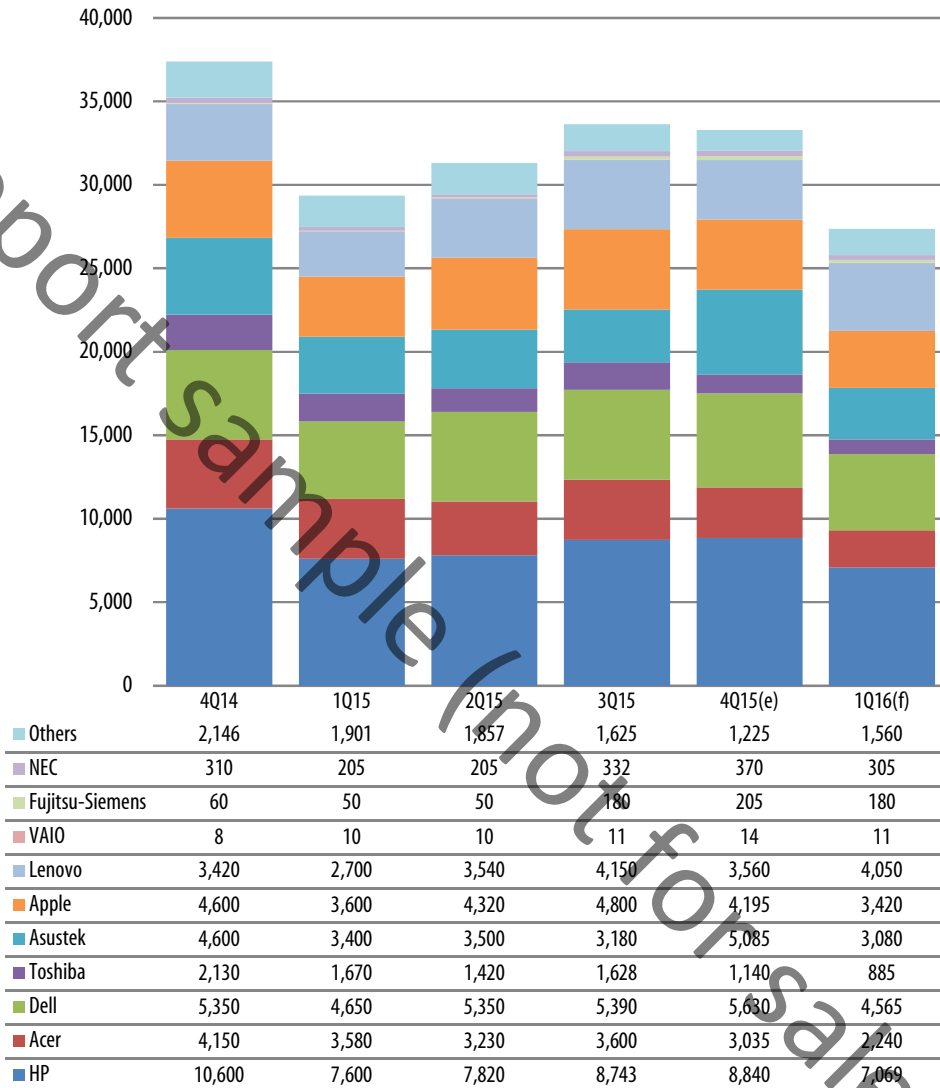
- ✓ With over 60% of Lenovo's notebook shipments being supplied in-house or by China-based ODMs plus the fact that Toshiba is gradually quitting the consumer notebook sector (orders mostly go to Taiwan ODMs), Taiwan's share of worldwide notebook shipments will drop further to only 80%.
- ✓ The Lunar New Year holidays will cause decreased working hours in February and affect Taiwan shipments.
- ✓ Market saturation and the slow season will hurt Chromebook shipments by over 200,000 units in the first quarter of 2016.
- ✓ Microsoft and Intel have cooperated with China's supply chain to push inexpensive notebook solutions for emerging markets and related orders from brand vendors will increase in the first quarter of 2016 and impact Taiwan's shipment performance.
- ✓ The continuing appreciation of the US dollar will impact US-based vendors' profitability and increase non-US vendors' costs in the first quarter of 2016 and impact vendors' orders.
- ✓ Worldwide notebook shipments will drop 16.5% sequentially in the first quarter of 2016 because of factors including the slow season in Europe and North America, China's future economic uncertainties, which could trigger further currency depreciation and a weaker worldwide economy, which has caused vendors to become more pessimistic about upcoming notebook demand.
- ✓ The global notebook market is expected to see a 9% on-year shipment decline in the first quarter of 2016, showing that the market is still under pressure of weakening.

Report sample (not for sale)

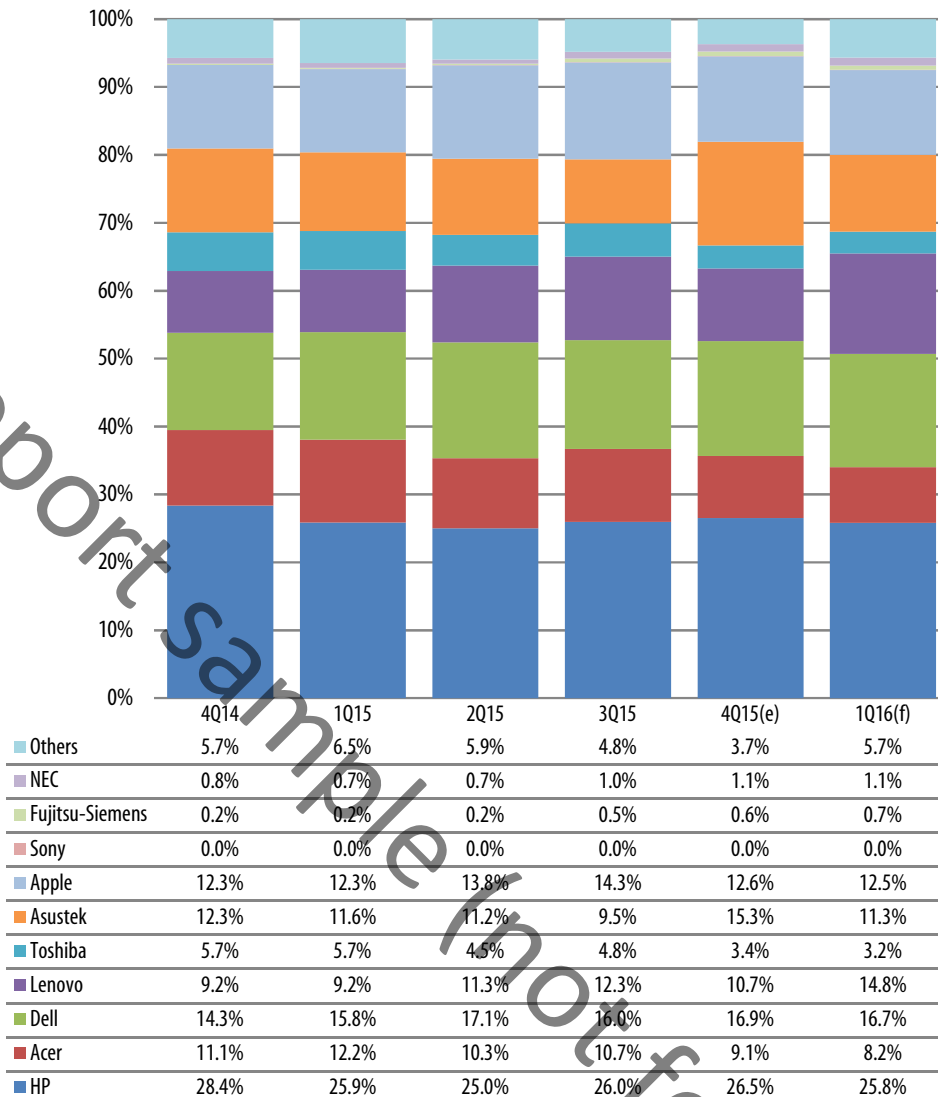
Shipments breakdown

Clients

Chart 2: Notebook shipments to top-10 clients, 4Q14-1Q16 (k units)



Source: Digitimes Research, January 2016

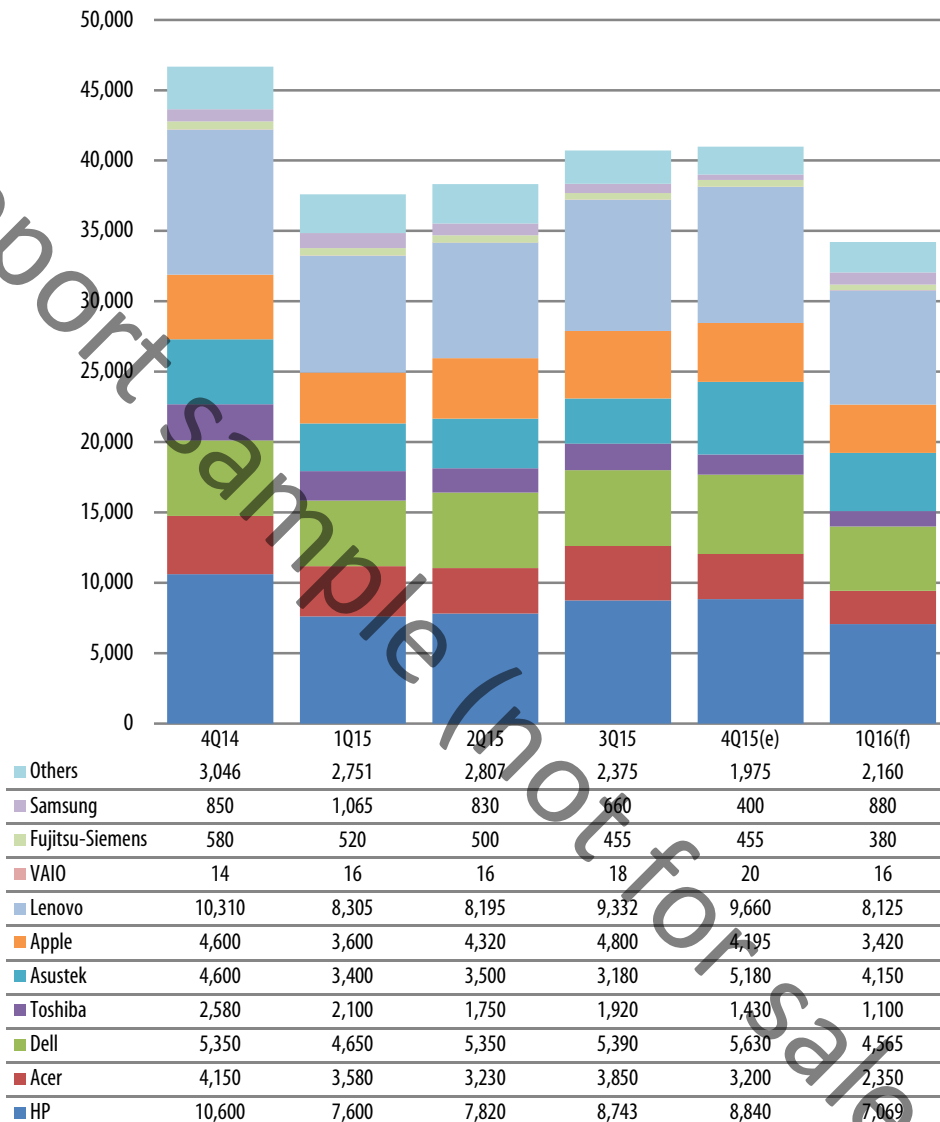
Chart 3: Notebook shipment share by top-10 clients, 4Q14-1Q16

Source: Digitimes Research, January 2016

- ✓ The top-5 vendors contributed over 80% of Taiwan's notebook shipments in the fourth quarter of 2015.
- ✓ Hewlett-Packard (HP) and Dell both placed increased orders for the fourth quarter of 2015 thanks to strong demand during the year-end holidays in North America.
- ✓ With Apple ending production of its 13-inch MacBook Pro and the fact that demand for its MacBook Air series from 2015 has started to weaken as they entered the third quarter of sales, which caused Apple's orders to drop by 12.6% sequentially in the fourth quarter of 2015.
- ✓ Lenovo had increased shipments in the fourth quarter of 2015, but it continued to cut its outsourcing to Taiwan makers.
- ✓ Asustek increased its notebook orders by about two million units in the fourth quarter of 2015 as the company had been pushing its new products in Europe and North America.
- ✓ Lenovo will be the only vendor with increased orders in the first quarter of 2016 as the company will benefit from Lunar New Year holiday demand in China.
- ✓ US-based brand vendors will continue to digest their inventory from the fourth quarter of 2015 in the first quarter of 2016 and relatively reduced their orders for the quarter.

- ✓ After merging with other Japan-based vendors, Toshiba will turn its focus to the enterprise market, an area Toshiba mainly supplies from its in-house production lines and will reduce its cooperation with Taiwan makers.
- ✓ Apple is ready to launch its next-generation MacBook Air in the second quarter of 2016, which will make the first quarter of 2016 be its weakest quarter in 2016.

Chart 4: Global top-10 vendors' shipments, 4Q14-1Q16 (k units)

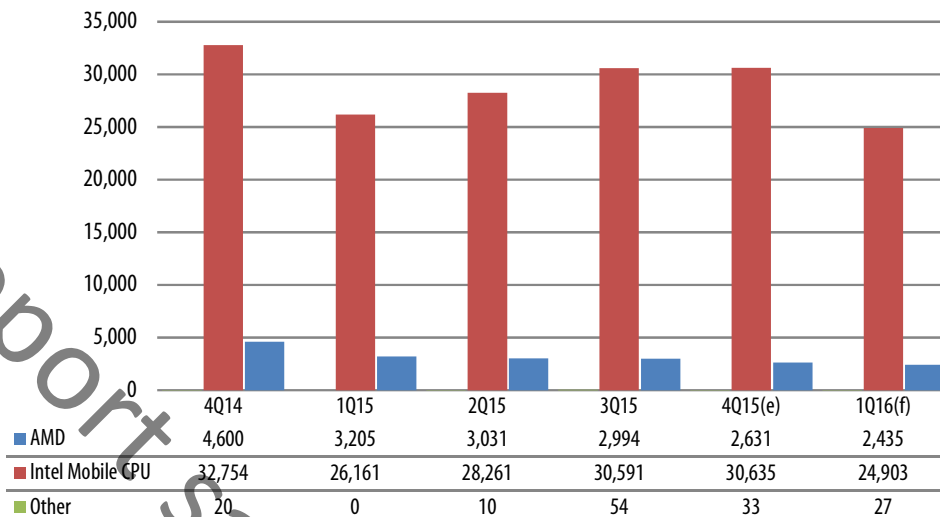


Source: Digitimes Research, January 2016

- ✓ Lenovo continued to snatch market share from Acer in Europe and North America, helping its shipments reach 9.66 million units in the fourth quarter of 2015.
- ✓ HP enjoyed sequential shipment growth in the fourth quarter of 2015, but its shipments were down 16.6% from a year ago, showing its business split still has had some negative influence on its shipment performance.
- ✓ Dell saw good growth in the fourth quarter of 2015 thanks to strong shipments in both the consumer and enterprise segments.
- ✓ With the North America market entering the slow season, HP and Dell will both see shipment declines in the first quarter of 2016.
- ✓ Samsung Electronics has turned its focus from the tablet to the notebook market and will start pushing its shipments in North America in the first quarter of 2016.

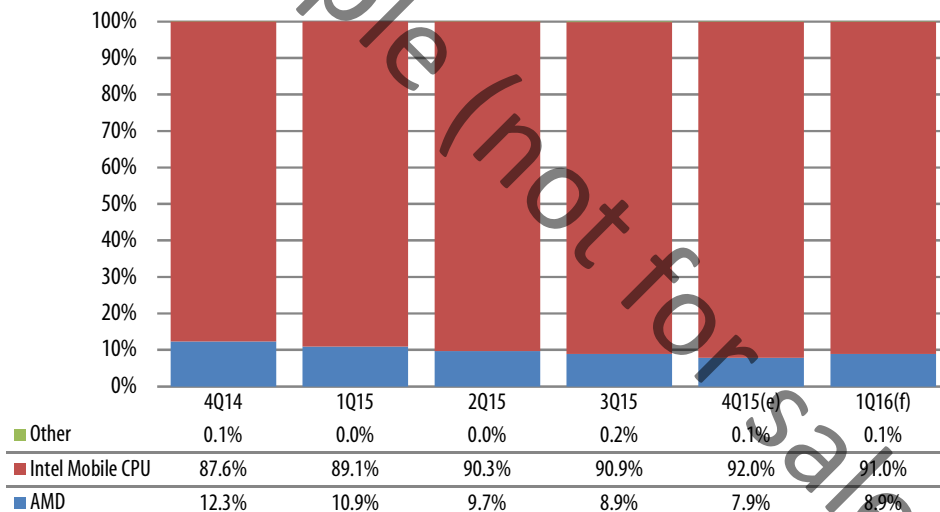
CPUs

Chart 5: Notebook shipments by CPU, 4Q14-1Q16 (k units)



Source: Digitimes Research, January 2016

Chart 6: Notebook shipment share by CPU, 4Q14-1Q16

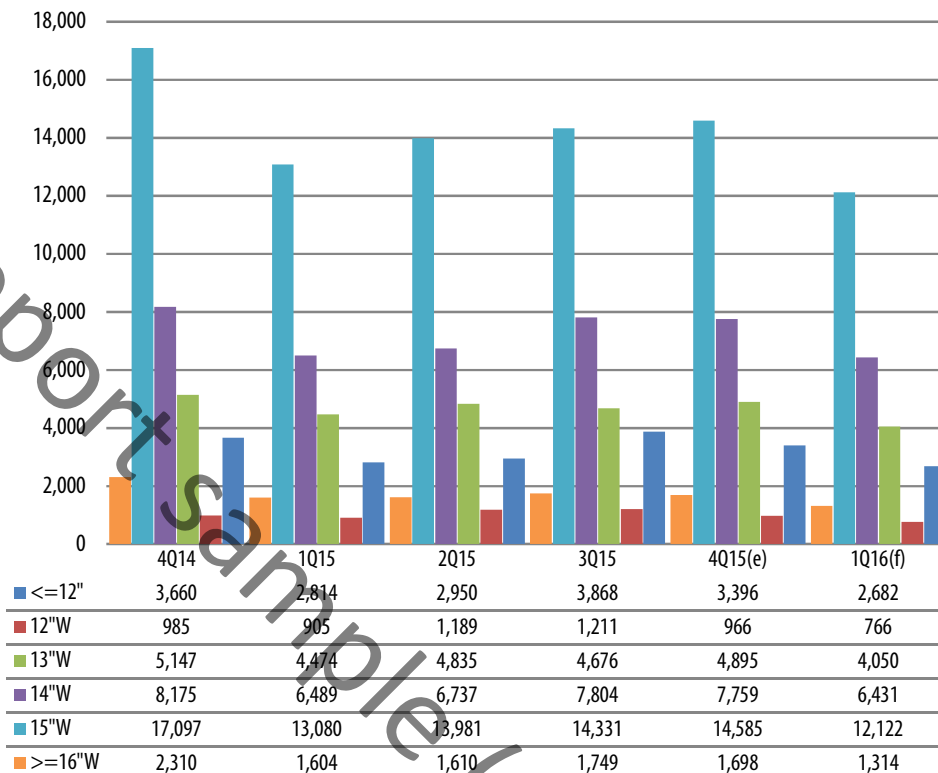


Source: Digitimes Research, January 2016

- ✓ Taiwan's notebook shipments performed better than expected in the fourth quarter of 2015 partly because of new models using Intel's Skylake-based entry-level and mid-range processors, which relatively helped Taiwan's shipments of Intel-based notebooks to achieve growth.
- ✓ Weak Chromebook demand had a significant impact on shipments of Rockchip solution-based products, which are categorized under the "Other" segment for the fourth quarter of 2015.
- ✓ Because of the slow season, Intel will decrease its Skylake processor shipments which will give a relative boost to the share of AMD-based notebooks up to almost 9% in the first quarter of 2016.

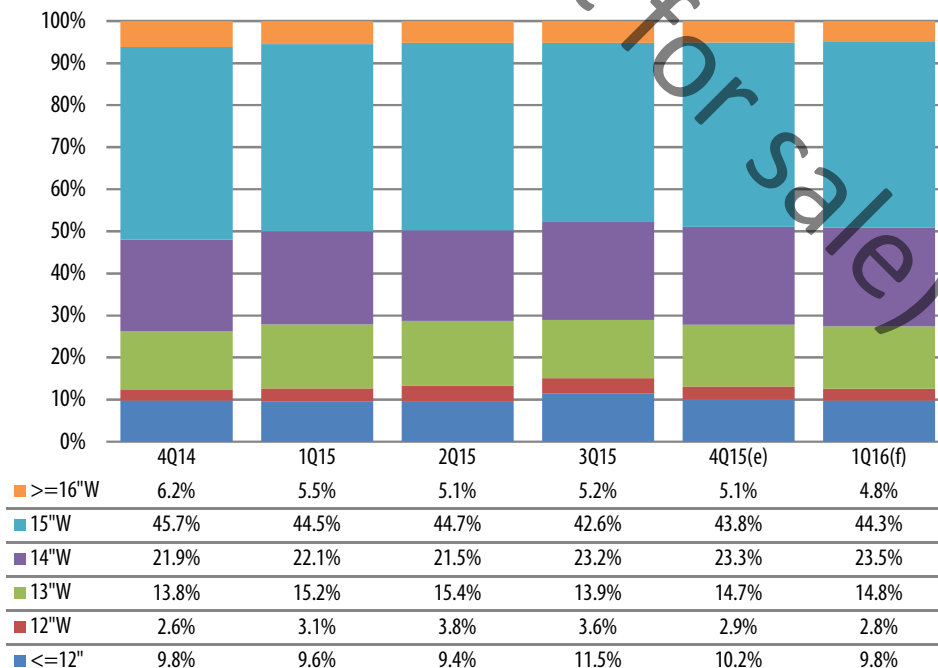
Screen size

Chart 7: Notebook shipments by screen size, 4Q14-1Q16 (k units)



Source: Digitimes Research, January 2016

Chart 8: Notebook shipment share by screen size, 4Q14-1Q16

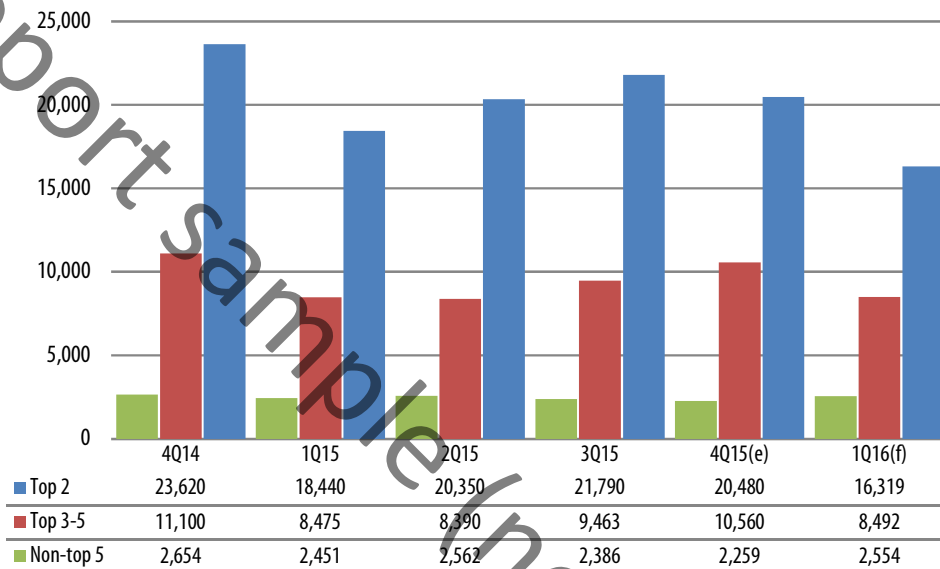


Source: Digitimes Research, January 2016

- ✓ Demand for inexpensive 11.6-inch models such as Chromebooks was weaker than expected and caused related shipments to decline sequentially in the fourth quarter of 2015.
- ✓ New notebooks using Intel's Skylake processors for the fourth quarter of 2015 were mostly models using 14- or 15-inch displays, helping the two segments perform better than the overall average.
- ✓ Although 12-inch notebooks will be the mainstream in 2016, their mass shipments will not begin until after the second quarter of 2016.

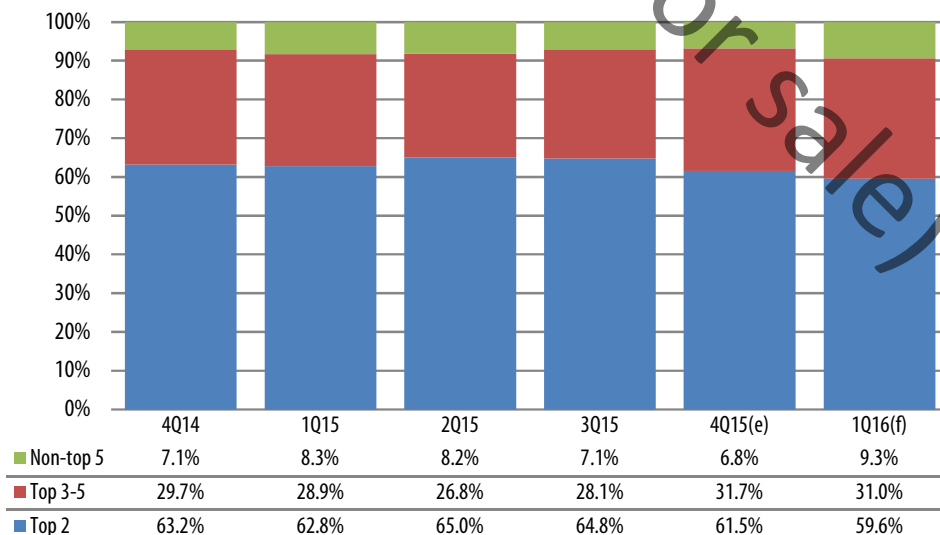
Makers

Chart 9: Notebook shipments by maker tier, 4Q14-1Q16 (k units)



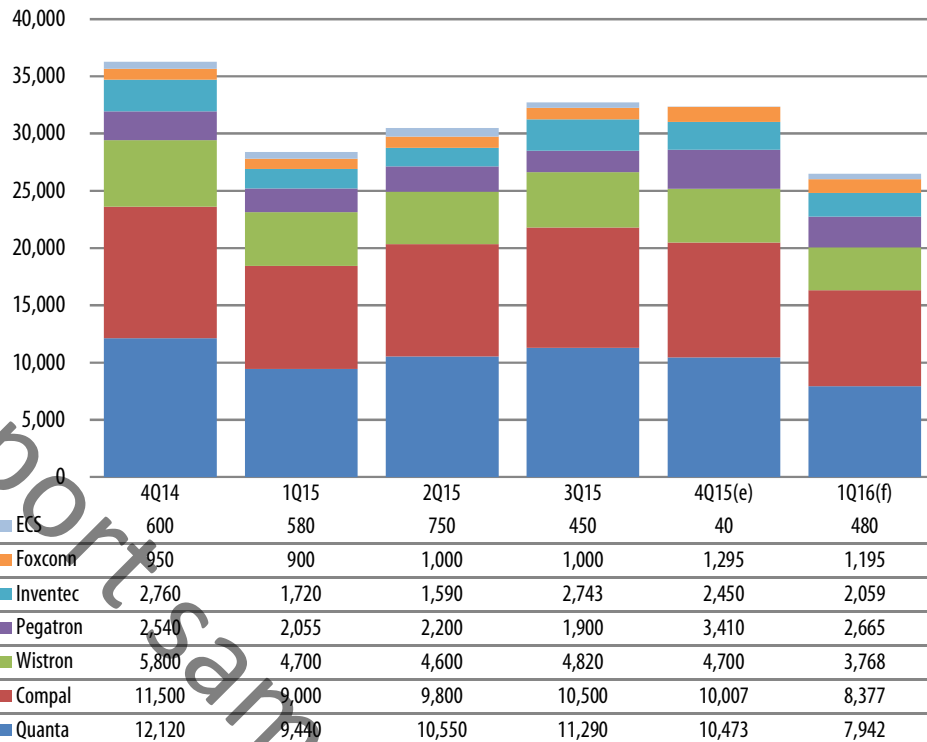
Source: Digitimes Research, January 2016

Chart 10: Notebook shipment share by maker tier, 4Q14-1Q16



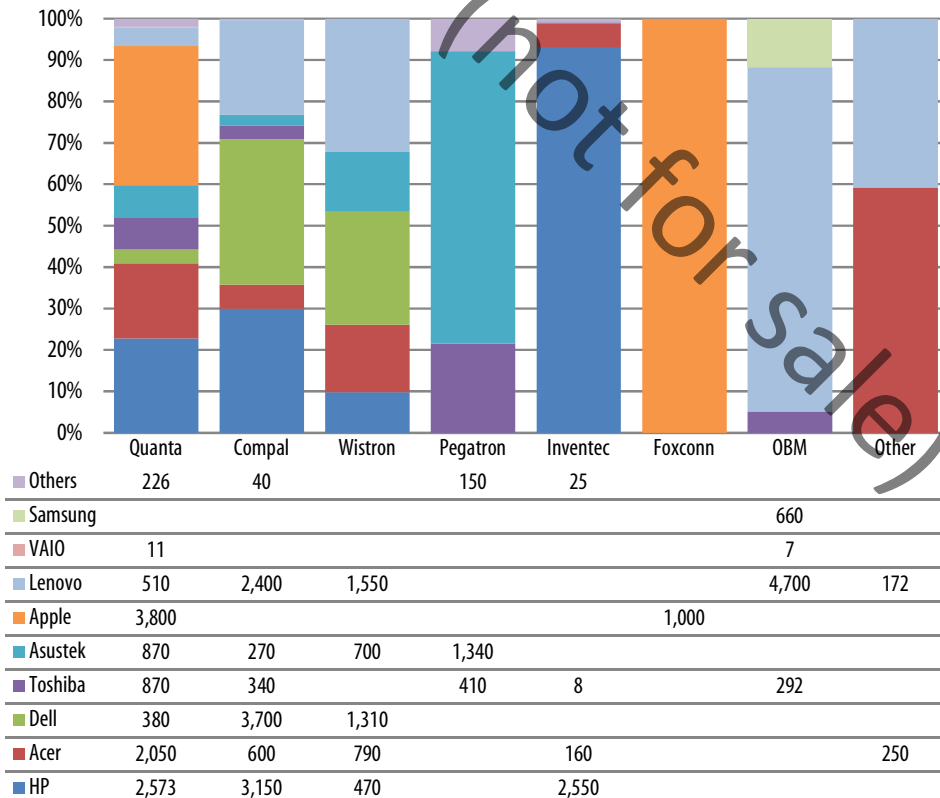
Source: Digitimes Research, January 2016

Chart 11: Top makers' notebook shipments, 4Q14-1Q16 (k units)



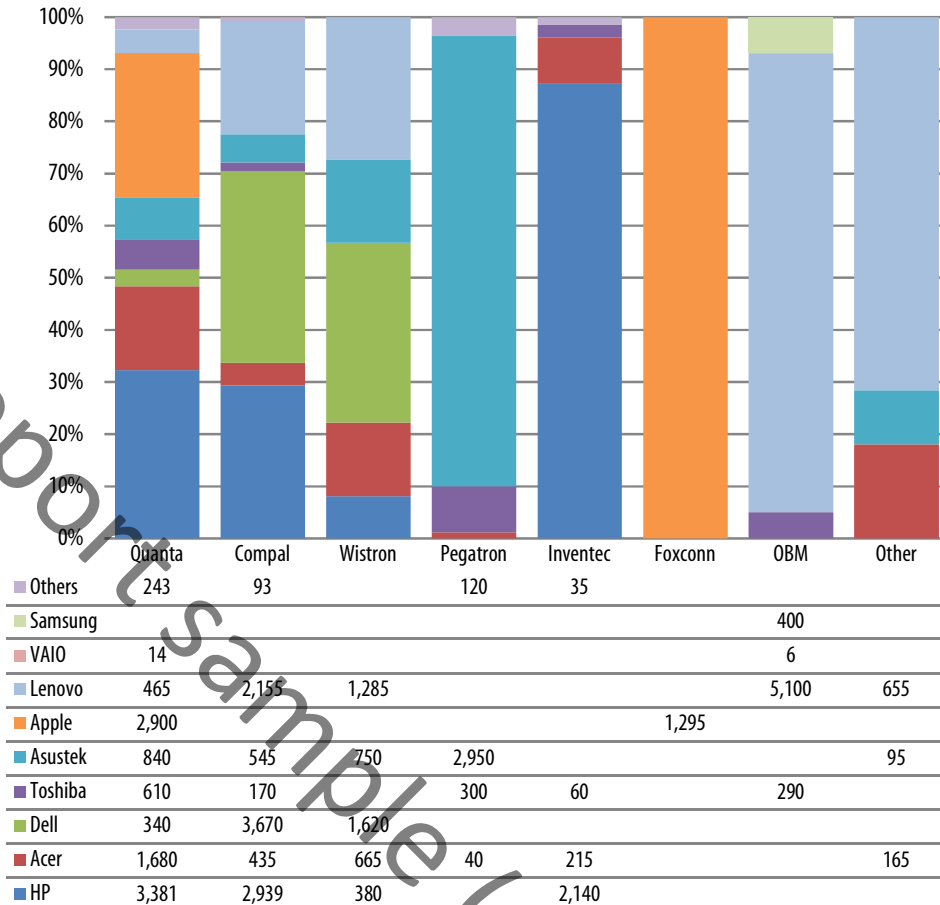
Source: Digitimes Research, January 2016

Chart 12: Vendor-ODM relationship, 3Q15 (k units)



Note: This chart provides updated data compared to the previous 3Q15 Notebook report; Source: Digitimes Research, January 2016

Chart 13: Vendor-ODM relationship, 4Q15 (k units)

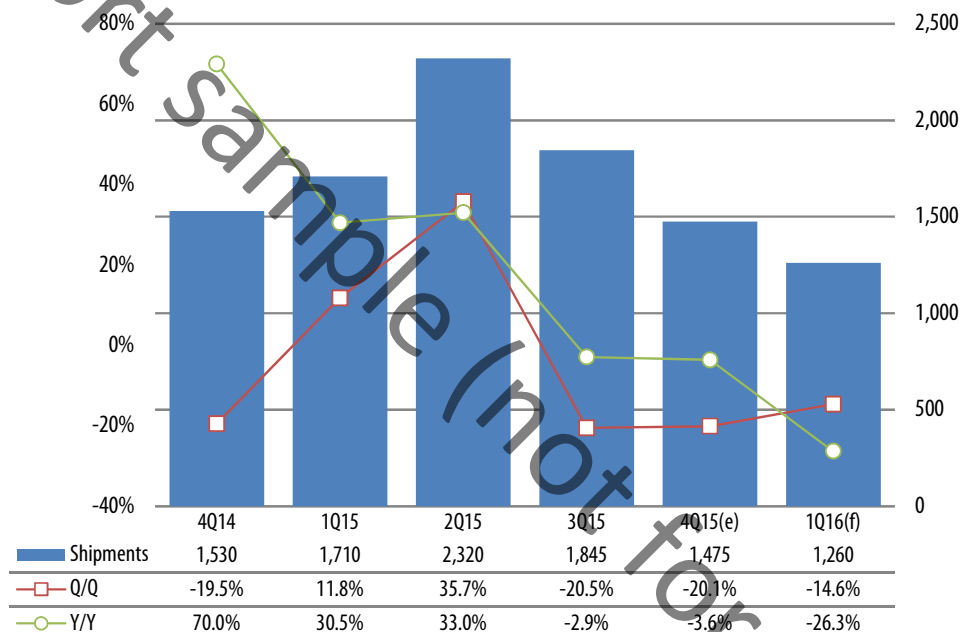


Source: Digitimes Research, January 2016

- ✓ Quanta Computer's notebook shipment performance in the fourth quarter of 2015 was worse than expected, dropping 7.2% sequentially. Despite seeing growth in orders from HP, the volume was still not sufficient to offset the order declines from Acer and Apple and dropping orders for Chromebooks.
- ✓ Compal Electronics performed better than expected in the fourth quarter of 2015, seeing a sequential drop of only 4.7%. The drop was because Lenovo and HP both cut their orders by over 200,000 units.
- ✓ Wistron had a sequential shipment drop of 2.5% in the fourth quarter of 2015. Wistron's orders from Lenovo slid 250,000 units from the previous quarter, while HP and Acer both reduced their orders by around 100,000 units. However, Dell's orders increased by 300,000 units.
- ✓ Pegatron Technology's orders from Asustek rose dramatically by over 1.6 million units from the previous quarter in the fourth quarter of 2015, helping its overall shipments grow almost 80% sequentially and the maker surpassed Inventec to become the fourth largest maker worldwide.
- ✓ Inventec's notebook shipments dropped about 10% in the fourth quarter mainly due to decreased orders from HP.
- ✓ Although Apple suffered a shipment drop, Foxconn Electronics (Hon Hai Precision Industry) was able to achieve shipment growth in the fourth quarter of 2015 as Apple shifted a greater share of its overall notebook orders to the EMS provider.
- ✓ Compal shipments will drop 16.3% sequentially in the first quarter of 2016, but it will become the largest notebook maker in Taiwan in the quarter thanks to the support from Lenovo and Dell orders.

- ✓ Quanta will suffer a sequential shipment decline of 24.2%, the largest among the top-five makers in the first quarter of 2016, dropping its shipments below eight million units. This is because of serious declines in orders from HP and Apple as well as orders for Chromebooks.
- ✓ Wistron's first-quarter-2016 notebook shipments will drop 19.8% sequentially with Dell and Lenovo remaining its major clients.
- ✓ Pegatron will suffer an over 20% sequential shipment drop in the first quarter of 2016 because of reduced orders from Asustek and Toshiba.
- ✓ Inventec will see notebook shipments drop 16% sequentially in the first quarter of 2016 and will mainly rely on HP's entry-level notebooks to support its shipments.
- ✓ Foxconn's shipments will drop by 7.7% sequentially in the first quarter of 2016 thanks to orders from Apple.
- ✓ Non-top-5 makers are mainly relying on education and gaming notebook models to support their shipments.

Chart 14: Chromebook shipments, 4Q14-1Q16 (k units)

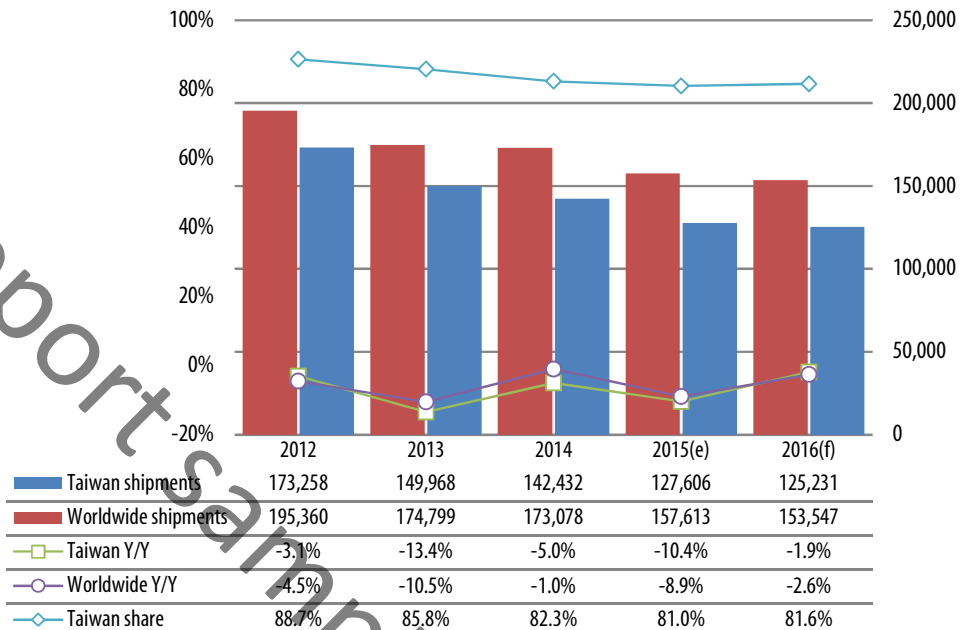


Source: Digitimes Research, January 2016

- ✓ The top-4 Chromebook vendors, Acer, HP, Dell and Lenovo all suffered sequential shipment declines in the fourth quarter of 2015 with Lenovo having the highest drop of over 150,000 units.
- ✓ HP had the smallest shipment drop in the fourth quarter of 2015, which helped the US vendor, which had the same Chromebook shipments as Acer in the third quarter of 2015, to surpass the Taiwan vendor and become the largest Chromebook vendor worldwide.
- ✓ With North America's education market already reaching saturation and vendors having difficulties expanding into the consumer market, Chromebook shipments will continue to drop in the first quarter of 2016.

Annual shipments

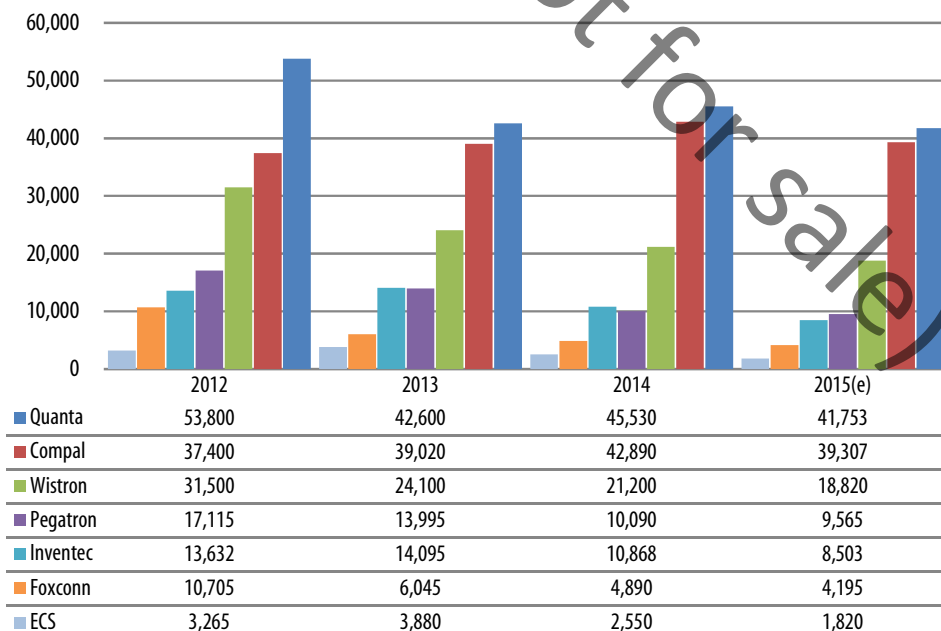
Chart 15: Taiwan and worldwide notebook shipments, 2012-2016 (k units)



Source: Digitimes Research, January 2016

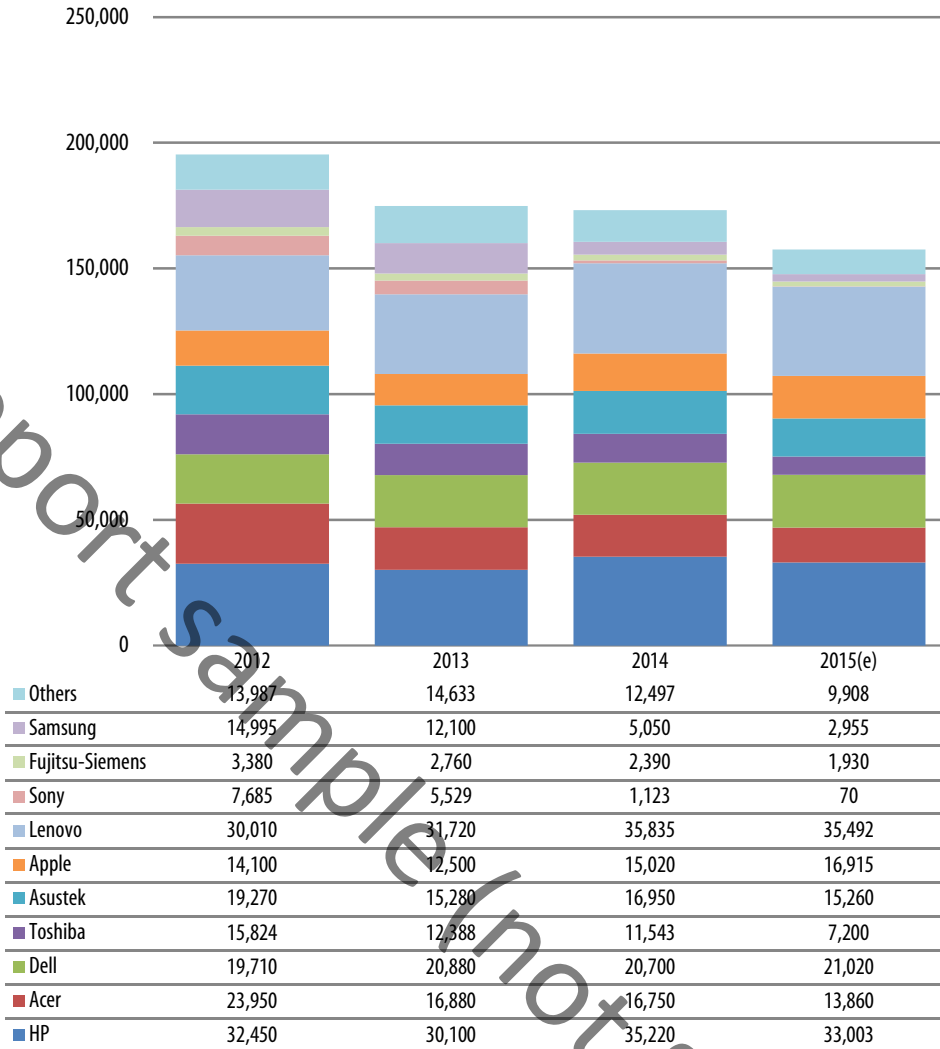
- ✓ Notebook shipments continued to see declines in 2015 for both Taiwan and worldwide, but the drops are expected to slow down in 2016 to reach only around 2%.

Chart 16: Top makers' shipments, 2012-2015 (k units)



Source: Digitimes Research, January 2016

Chart 17: Global top-10 vendors' shipments, 2012-2015 (k units)



Source: Digitimes Research, January 2016