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Taiwan WLAN sector

DIGITIMES Research
ICT Report – 4Q 2008

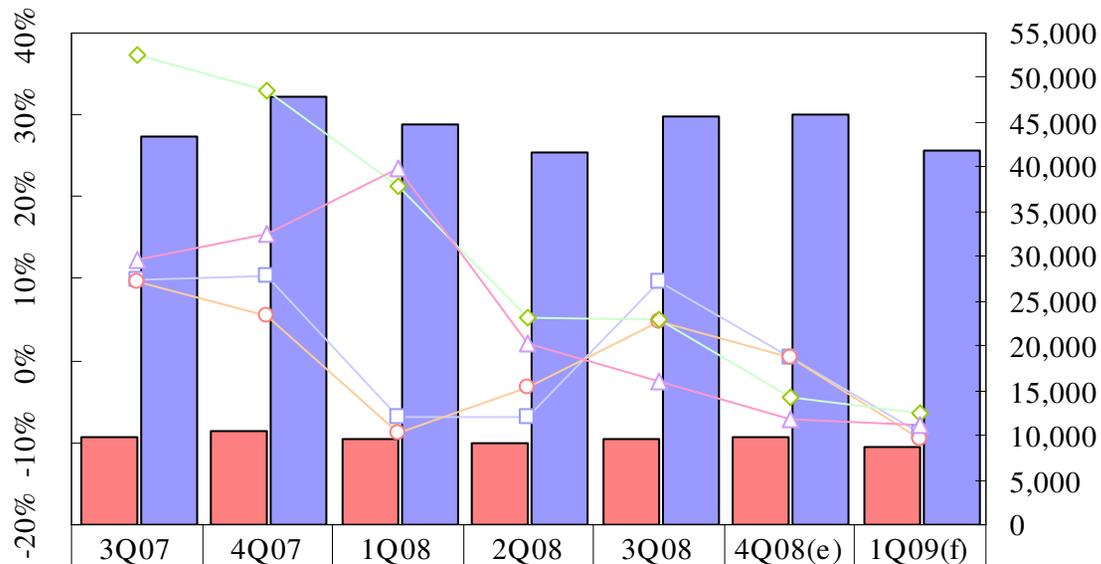
Original Chinese: Simon Lin, DIGITIMES Research, January 2009

English edition: Rodney Chan, DIGITIMES, January 2009

Introduction

- ✓ Taiwan shipped 55.5 million WLAN devices in the fourth quarter of 2008, up 0.4% sequentially but down 5% from the same period one year earlier.
- ✓ WLAN shipments will decrease 8.9% sequentially in the first quarter of 2009, and will decrease 6.7% from the same period in 2007.
- ✓ NIC shipments totaled 45.8 million units in 4Q08, up 0.3% sequentially but down 4.5% on year.
- ✓ WR shipments totaled 9.7 million units in 4Q08, up 0.5% sequentially but down 7.1% on year.
- ✓ Taiwan shipped 216 million WLAN devices in 2008, representing growth of 5.4% from 2007. The total included 177.8 million NICs and 38.1 million WRs.
- ✓ For 2009, Digitimes Research forecasts that Taiwan will ship 183.1 million NICs and 38.5 million WRs.
- ✓ *NOTE: Unless otherwise indicated, all figures and tables in this report refer to output from Taiwan makers.*

WLAN equipment shipments, 3Q07-1Q09 (k units)



NIC	43,445	47,960	44,671	41,634	45,647	45,805	41,794
WR	9,904	10,438	9,520	9,219	9,649	9,696	8,779
NIC Q/Q	9.8%	10.4%	-6.9%	-6.8%	9.6%	0.3%	-8.8%
WR Q/Q	9.7%	5.4%	-8.8%	-3.2%	4.7%	0.5%	-9.5%
NIC Y/Y	37.4%	32.9%	21.4%	5.2%	5.1%	-4.5%	-6.4%
WR Y/Y	12.4%	15.6%	23.4%	2.1%	-2.6%	-7.1%	-7.8%

Industry watch (1)

- ✓ Taiwan's WLAN flat shipments were flat in the fourth quarter of 2008 as demand in the retail market dropped and the sales channel spent the quarter digesting inventories.
- ✓ For network interface cards (NICs), all interface segments saw a decline in shipments in the fourth quarter, except for special interfaces (chiefly for game consoles) and mini PCI, which was mainly for notebook shipments.
- ✓ For wireless routers (WRs; including access points in this report), demand from the retail channel dropped while orders from telecom carriers stayed flat. Overall demand from emerging markets decreased.
- ✓ In the first quarter of 2009, seasonality, coupled by the global economic crisis, will further slow demand in the retail market. Retailers will be even less willing to refill their inventories. Shipments of network interface cards (NICs) will drop also because of weaker notebook demand for the quarter. Shipments of WRs will also decrease.

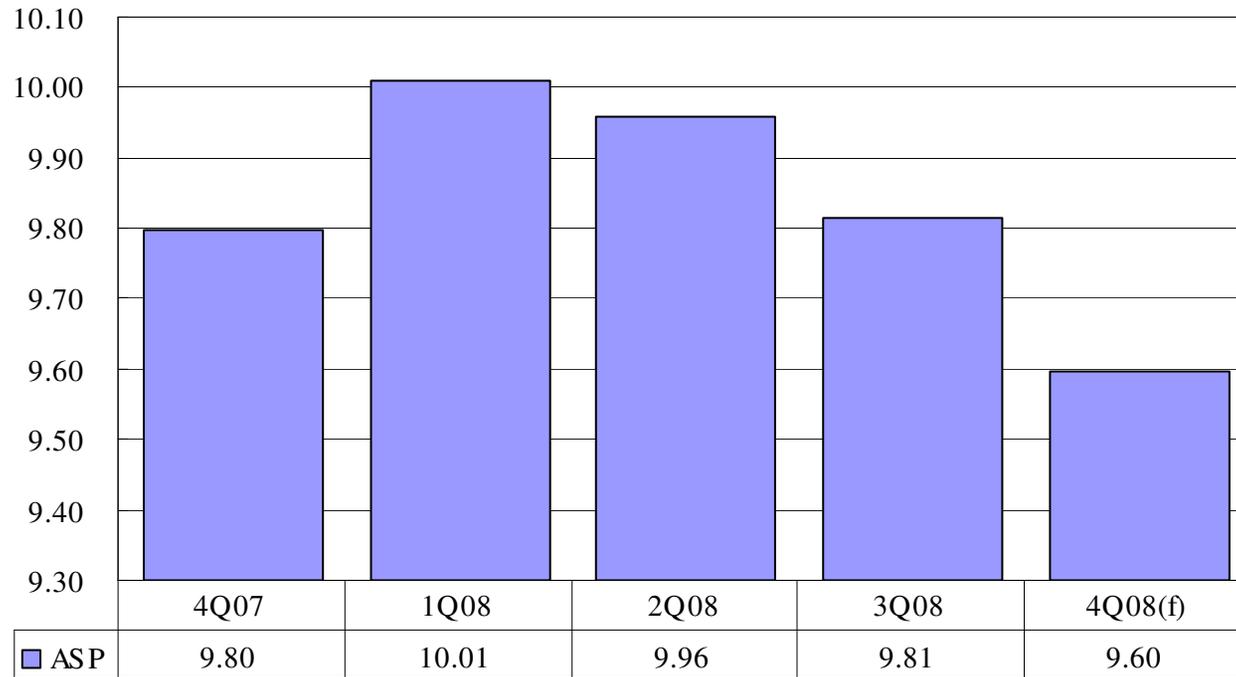
Industry watch (2)

- ✓ Global demand for WLAN products in 2009 will continue to be sluggish impacted by a weak global economy and lack of killer applications. Since Taiwan WLAN products account for 90% of total global WLAN shipments, and shipment growth of Taiwan NICs and WRs in 2009 is expected to be low, down from 5% of 2008 to 3% in 2009.
- ✓ The Wi-Fi Alliance developed the Voice-Personal certification program to verify that access points (or wireless routers) and client devices (handsets, notebooks, etc.) meet the specific requirements for voice over Wi-Fi applications. The program can strengthen support of WRs for voice applications and enable four VoIP devices communicate at the same time. However, the program is not expected to drive demand for WLAN products until the second half of 2009 because fewer consumers are willing to replace their current devices.
- ✓ Stronger demand for netbooks will help increase NIC shipments this year but demand for traditional notebooks will decline from 2008. Therefore, shipments of NICs will not have significant growth this year.
- ✓ In terms of WRs, major vendors including Linksys will continue to control their inventory levels since demand from the end market has not recovered, which will suppress shipment growth of WRs.

Industry watch (3)

- ✓ Although the share of 11n is expected to increase in 2009 as companies are promoting 1x1 11n chips, 11n sales will not be able to drive strong growth in the WLAN market.
- ✓ Telecommunication service providers have been planning integrated access device (IAD) since the second half of 2008. Although the 11n standard has been accepted in the market, the financial crisis has impacted the market and providers are not investing in upgrading to 11n, preferring to maintain shipments. Therefore, 11g will remain the mainstream this year.
- ✓ Telecommunication service providers' delay of using 11n will also counter chipmakers' promotion of entry-level 1x1 11n chips and weaken demand for 11n, resulting in slower shipment growth of NICs and WRs in 2009.
- ✓ Although US president Barack Obama's plan for increasing investment in broadband networks is expected to bring benefits to the network industry, the benefit to Taiwan companies is limited because the channel of networking equipment is mostly controlled by larger international players,. Taiwan players mostly target consumer networking products.
- ✓ Total shipments of Taiwan NICs in 2009 will be 183 million units, up 3% on year. Shipments of Taiwan WRs in 2009 will only increase 380,000 units from 2008, up 1% on year.

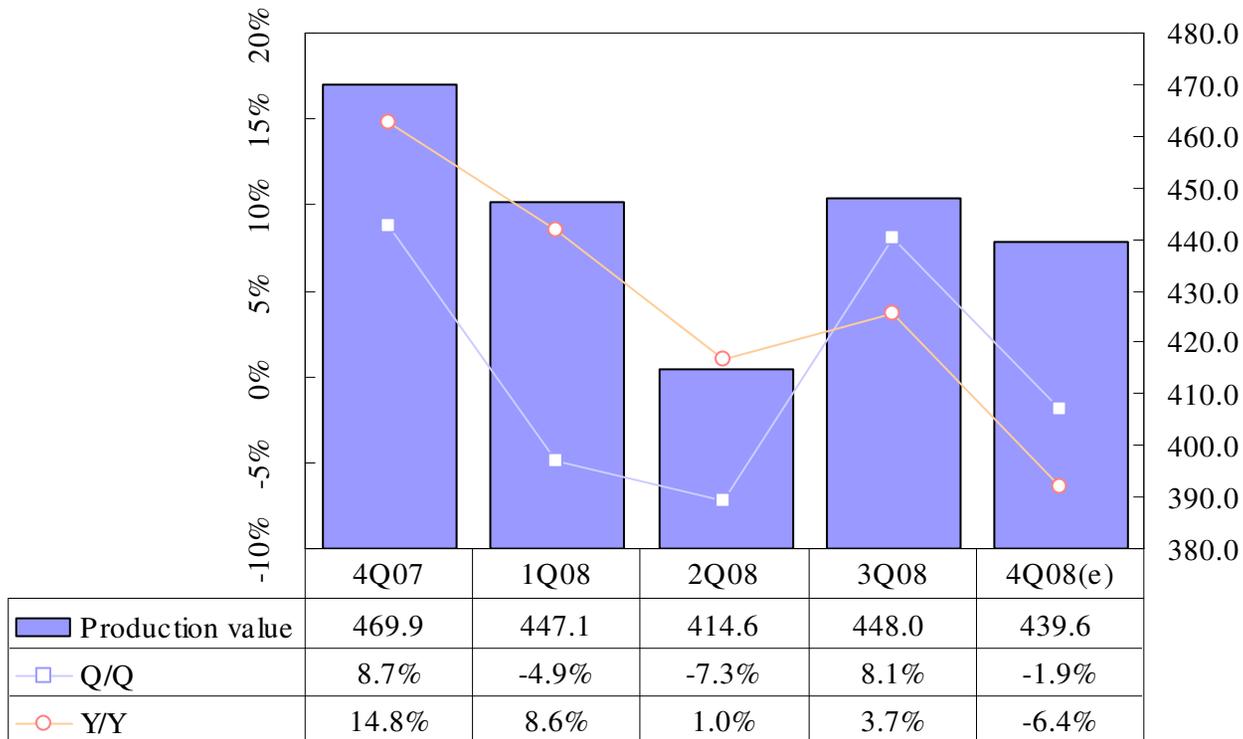
NIC ASP, 4Q07-4Q08 (US\$)



NIC ASP, 4Q07-4Q08 (US\$)

- ✓ Falling chip prices brought down average selling price (ASP) for NIC shipments in the fourth quarter.

NIC production value, 4Q07-4Q08 (US\$ million)



NIC production value, 4Q07-4Q08 (US\$ million)

- ✓ As a result of the falling ASP and flat shipment growth, the production value of NIC shipments dropped in the fourth quarter.

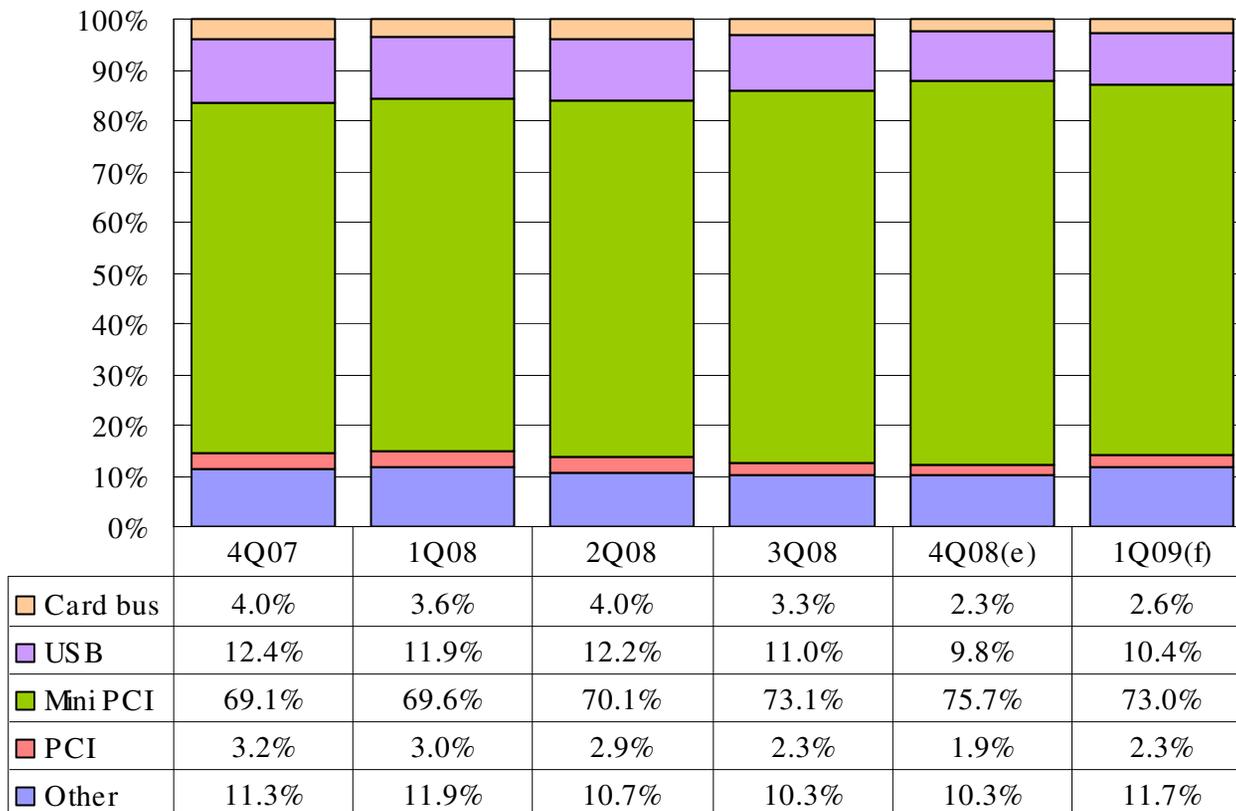
NIC shipment proportion by standard, 4Q07-1Q09



NIC shipment proportion by standard, 4Q07-1Q09

- ✓ The proportion of 11n only rose slightly as demand did not pick up in the retail market in the fourth quarter. Related shipments were up 5%.
- ✓ In the first quarter, the proportion of all three segments will remain similar to that in the fourth quarter as the market will remain sluggish without favoring any of them. The 11n segment will fare the best with a drop of only 6% in shipments.

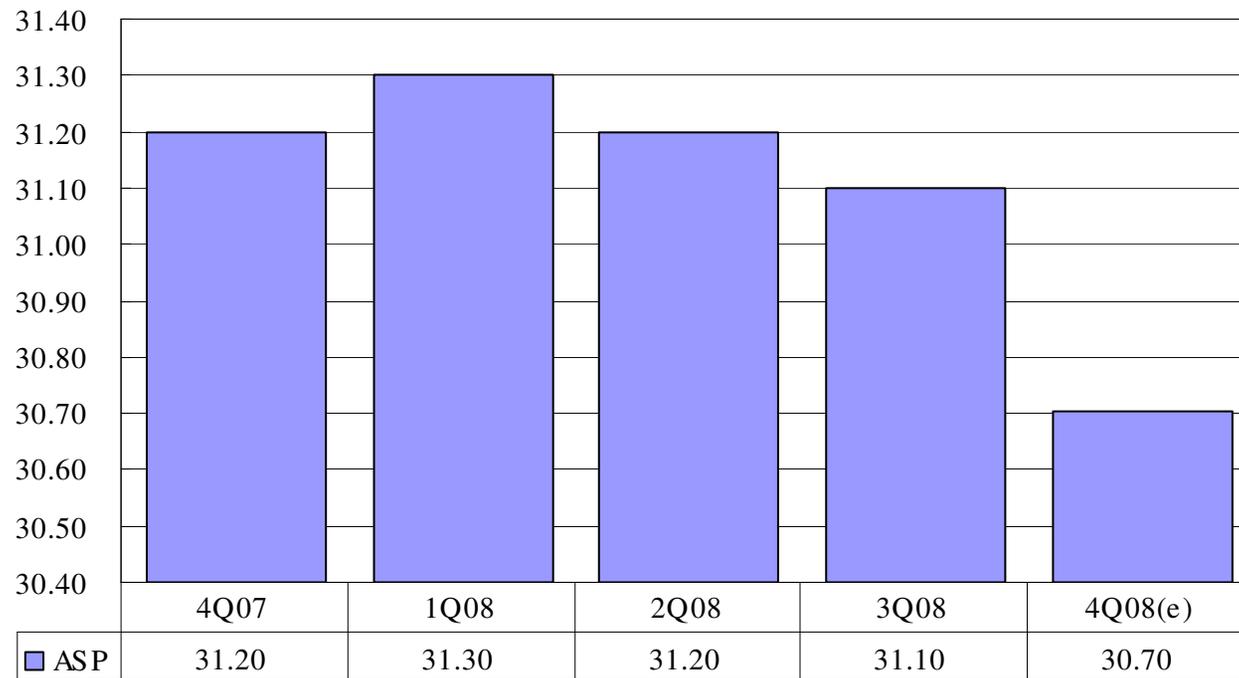
NIC shipment proportion by interface type, 4Q07-1Q09



NIC shipment proportion by interface type, 4Q07-1Q09

- ✓ Demand from the netbook market drove up the proportion of the Mini PCI segment in the fourth quarter. Related shipments were up 4%.
- ✓ In the first quarter, weaker demand from the netbook market will drive down the proportion of Mini PCI. Related shipments will fall 12%.
- ✓ NICs with special interfaces (listed in the “Other” category) are mostly applications for game consoles, demand for which has been relatively stable. Related shipments will increase 3.8% in 1Q09.
- ✓ Shipments for PCI will rebound in 1Q09 and show the strongest growth, at 8%.

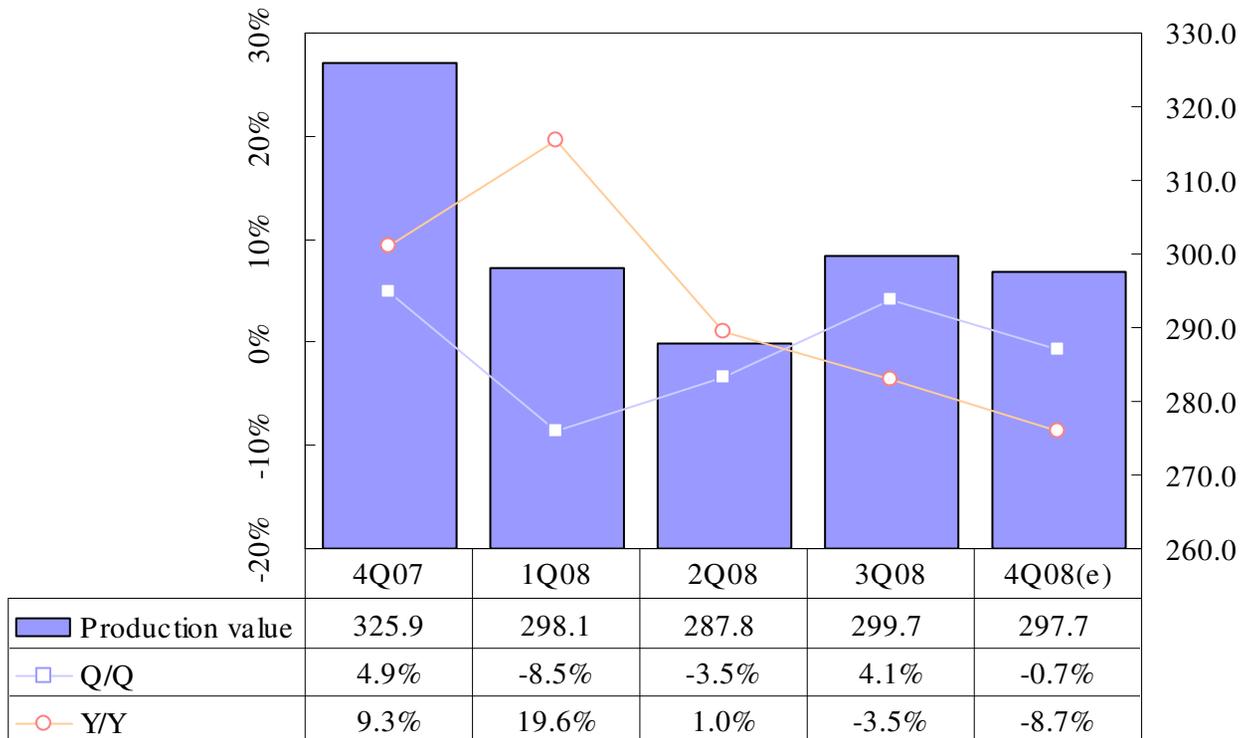
ASP for wireless routers, 4Q07-4Q08 (US\$)



ASP for wireless routers, 4Q07-4Q08 (US\$)

- ✓ Prices of 11n chips dropped as a result of the launch entry-level 1x1 applications. The WR ASP declined in the fourth quarter by 1.27%.

Wireless router production value, 4Q07-4Q08 (US\$ million)



Wireless router production value, 4Q07-4Q08 (US\$ million)

- ✓ A falling ASP led to a slight sequential decline in WR production value in the fourth quarter, despite increased shipments.

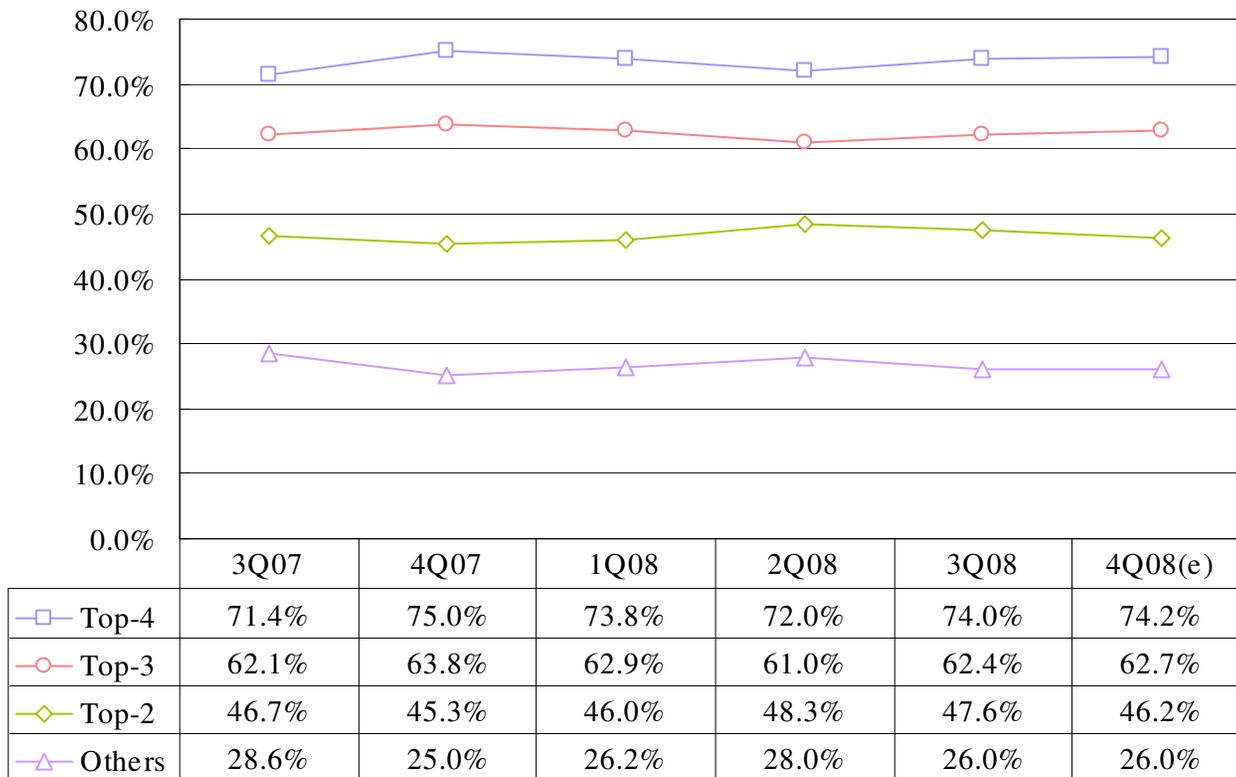
Wireless router shipments by standard, 4Q07-1Q09



Wireless router shipments by standard, 4Q07-1Q09

- ✓ The introduction of 11n 1x1 chips reduced prices of the 11n segment closer to 11g. But the proportion of 11n shipments stayed flat due to a lack of killer applications. 11n shipments were up 0.49% while 11g shipments were up 1.03%.
- ✓ In the first quarter, prices of 11n 1x1 chips, which are meant to replace 11g ones, will continue to drop, and the proportion of the 11n segment will rise. Shipments of 11g will fall 10.36% while shipments of 11n will fall 6.43% due to seasonality.

NIC shipments by maker, 3Q07-4Q08



NIC shipments by maker, 3Q07-4Q08

- ✓ The Top-four makers' share of NIC shipments remained similar in the fourth quarter. Foxconn has been the top maker in Taiwan for eight consecutive quarters. Foxconn's shipments have chiefly been notebook-use and game console-use modules.
- ✓ The Top-4 makers 4Q08 were Foxconn, Gemtek, USI and Asustek.

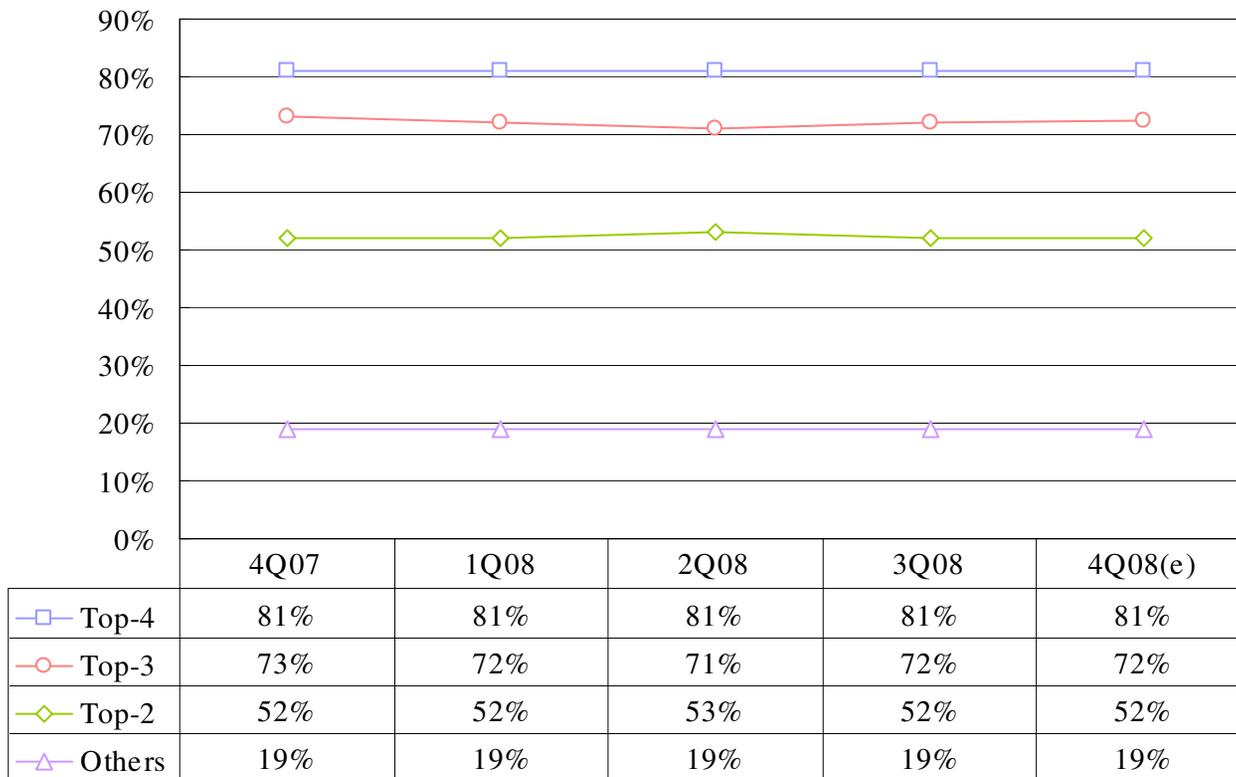
Wireless router shipments by maker, 3Q07-4Q08



Wireless router shipments by maker, 3Q07-4Q08

- ✓ Foxconn has been the top maker for five straight quarters, while CyberTAN climbed to second place in the fourth quarter from third place in the third quarter.
- ✓ The Top-4 makers in 4Q08 were Foxconn, CyberTAN, Arcadyan and Sercomm.

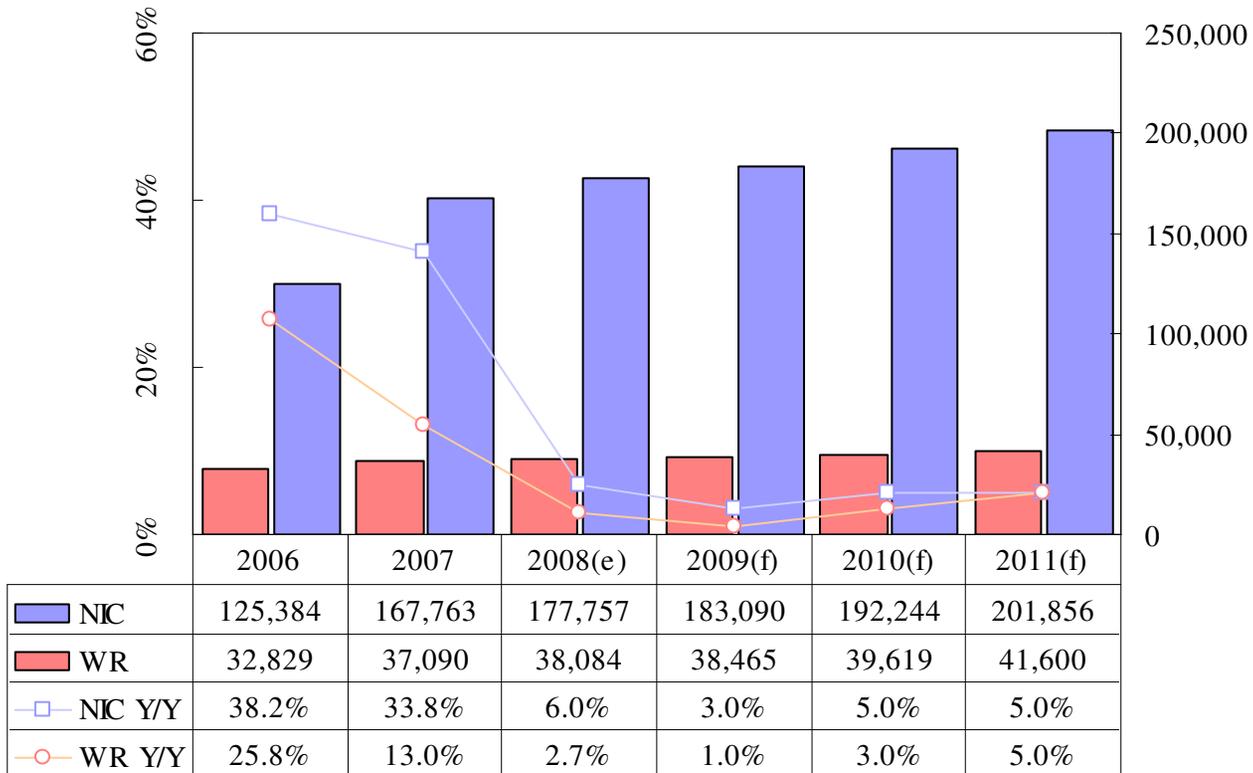
Share of WLAN chipmakers, 4Q07-4Q08



Share of WLAN chipmakers, 4Q07-4Q08

- ✓ Broadcom overtook Atheros as the number one chip supplier for Taiwan's WLAN shipments in the fourth quarter, while Atheros dropped to second place. The ranking for Intel and Marvell was unchanged at third and fourth place compared to the third quarter.
- ✓ The Top-4 WLAN chipmakers in 4Q08 were Broadcom, Atheros, Intel and Marvell.

WLAN equipment shipments, 2006-2011 (k units)



WLAN equipment shipments, 2006-2011 (k units)

- ✓ The WLAN market is expected to be sluggish in 2009, as vendors will keep their inventories low and reduce orders for Taiwan makers.
- ✓ Notebook-use modules will remain the major segment in NIC shipments. As the notebook market growth is likely to slow down, projected NIC shipment growth through 2011 has been revised down to only 3% for 2009, 5% for 2010, and 5% for 2011, compared to Digitimes Research's previous forecasts of 11%, 14% and 15% respectively.
- ✓ For the WR segment, the worsening macroeconomic outlook and low order visibility have prompted downward adjustments to shipment forecasts to 1%, 3% and 5% for 2009, 2010, and 2011. Digitimes Research previously expected growth of 7%, 5%, and 5%, respectively.