

unsung heroes of IT

Taiwanese hardware manufacturers spearheaded the 20th century's IT revolution and have also transformed the island's economic status, bringing living standards for many of its inhabitants close to those enjoyed in the west

working population farmed paddy fields. The island's transformation from a third-world agricultural economy into a hi-tech Asian tiger in the space of a generation is nothing short of miraculous.

But this 20th century success story is now facing a major 21st century dilemma. No longer can it afford to remain a faceless workhorse, hiding behind the world's leading IT brands. In their pursuit of market share and in a bid to stay afloat in the midst of an industry-wide recession, international PC assemblers have driven prices down to levels that make it difficult for their Taiwanese component suppliers to make an honest living.

Winning a contract with the likes of Dell obviously guarantees massive international market presence and sizable revenues, but the profit margins are brutally low and it leaves local Taiwanese manufacturers at the mercy of market vagaries if there is a sudden downturn in PC sales.

As such, Taiwan's leading hardware manufacturers are keen to transform themselves, diversifying into higher-end products – notebooks, PDAs (personal digital assistants), graphics cards, wireless networking kit, LCDs (liquid crystal displays) and storage devices – and then exporting them to countries such as the UK under their own names. Over the next few months expect to see a raft

Cast a glance at your PC and chances are you'll find most of the components that make up the beige box and its contents were made by manufacturers based on the tiny island of Taiwan. What's more, unless you work in the IT industry, you've probably never heard of them.

Taiwanese IT products comprise two-thirds of the global PC supply chain. The country is the world's leader in notebook production and its scanner segment accounts for more than 90 percent of global supplies. According to the MIC (Market Intelligence Center), it also provides the major IT brands with 70 percent of all motherboards, 53.7 percent of all monitors, 44 percent of all digital cameras and nearly 40 percent of all CD, DVD and CD-RW drives.

Secret of Taiwan's success

Arriving for the first time in Taiwan's capital Taipei, it's almost impossible to believe that just four decades ago the bulk of the



top Intel's XScale PDA processor is at the heart of Asus' MyPal A600

above The Aio (all in one) DeskNote from ECS will be fully upgradable

of new brands from the island of Taiwan – for example, Benq, CTX and ECS will all grace our shelves with an ever-increasing range of products over the coming months.

By branching out beyond products such as motherboards and launching their own brands – the plan goes – Taiwanese hardware manufacturers will be able to offset the profit squeeze from the large international PC and notebook brands with the kind of margins they will need to continue investing in research and development. Without this investment, Taiwanese hardware manufacturers know they won't be able to remain a global hub for technical innovation.

Moving on from motherboards

Nowhere is this process of change more apparent than among Taiwan's motherboard giants. Progress is being made, though none of the manufacturers as yet appears to be moving back into the black. In the first quarter

of 2002, companies such as Asustek Computer, ECS and MSI generated nearly 50 percent of their revenues from non-motherboard operations.

Asustek, a name synonymous with quality motherboards, has already become a major notebook manufacturer in its own right – Taiwan's seventh largest – and now manufactures for the likes of Sony. The company has also launched its first own-brand PDA, though no firm plans for release in the UK have so far emerged.

ECS, meanwhile, debuted its low-price DeskNote range at the end of last year and is currently looking for distribution in the UK. With sales picking up, the company generated more revenue from notebooks than from its motherboard products in the first quarter of 2002. ECS already supplies products to Argos and Dixons. As of the middle of August, it will also be selling a range of LCD-based PCs aimed at households looking for a space-saving second computer.

FIRST-TIER MOTHERBOARDS: 2002 shipment forecast (thousand units)

	2002 (forecast)		2001	
	Shipments	Global market share (%)	Shipments	Global market share (%)
Asustek	20,000	16.6	15,000	13.1
Gigabyte	11,000	9.1	98,00	8.7
MSI	13,100	10.9	10,300	9
ECS	16,896	14	14,509	12.7
Total	60,996	50.6	49,609	43.5

Source: DigiTimes, May 2002



NOTEBOOKS: BEHIND THE SCENES

Few of the notebook vendors in the *PC Advisor* charts design and build their own notebooks. Instead they outsource, buying in their portables from so-called OEMs (original equipment manufacturers). That goes just as much for the heavyweights – Dell and HP (which has recently merged with Compaq) – as it does for the smaller UK vendors, such as Rock and Hi-Grade.

Instead, these vendors buy notebook chassis from their Taiwanese suppliers and do little more than stick their own brand logos on the case. When the laptops arrive in the UK, those vendors then add the processor, memory and hard drive to the device.

Taiwan's notebook sales in 2002 are set to account for nearly 60 percent of the global market, growing to 63 percent in 2003. According to MIC, the top 10 notebook manufacturers by revenue are:

- 01 **Quanta**
- 02 **Compal**
- 03 **Inventec**
- 04 **Arima**
- 05 **Acer**
- 06 **FIC**
- 07 **Asustek**
- 08 **ECS**
- 09 **Mitac**
- 10 **Clevo**

Source: MIC (Market Intelligence Center)

According to Joseph Chang, general manager for ECS UK, the machines will be fully upgradable, with the ability to flip open the back end of the base to replace components such as the processor, hard drive and memory. At the time of going to press the company was still tinkering with the product's name, but was considering Aio (standing for all in one). ECS will be selling a Pentium 4 Celeron 1.7MHz-based machine with 256MB of DDR (double data rate) RAM for £799 ex VAT.

Following graphics cards, own-brand wireless communications devices have also become a major focus of attention for the leading motherboard manufacturers. Gigabyte hopes to be bringing a WLAN (wireless local area network) router and networking adapter to the UK, while MSI is pushing its own-brand Bluetooth modules and 802.11b – so-called WiFi – network cards. It's also looking at diversifying its range even further with the launch of proprietary LCD monitors and optical storage drives.

Taiwanese chipset supremo Via is also making rapid moves towards diversification, offering a much wider range of semiconductor products including controllers for CD devices and embedded semiconductors. Having snapped up processor manufacturer Cyrix and a part of graphics chipset specialist S3, the company has used acquisition as well as its revolutionary championing of DDR memory, forcing Intel to completely rethink its Rambus RDRAM strategy.

New line of thinking

In light of declining profit margins, Taiwan's mighty notebook manufacturers are also looking at new areas to bring them back to their late 90s level of profitability. In the face of corporate IT cutbacks, they're thinking along consumer lines. This is in keeping with recent estimates from Intel that falling notebook prices will lead consumers to replace their desktops at an annual rate of three to six percent of overall PC sales.

The most interesting result of the Taiwanese company's diversification is the emergence of own-brand superbudget consumer-oriented portable PCs. With a price point of less than £800 and looking identical to hefty desktop replacement notebooks, they're powered by desktop processors rather than the more costly mobile chips and they reside on budget motherboards also originally designed for PCs.

The new portables will be aimed at cash-strapped customers, such as students, and households looking to buy a second PC. In doing so, the price/performance gap between notebooks and desktops of comparable specifications is disappearing.

Quanta – the world's largest notebook manufacturer – has teamed up with Taiwanese stalwart Acer to exploit this emerging segment and should have products heading for UK shores as we speak. With nearly 20 percent of notebooks now using desktop PCs, this is one trend that's proving unstoppable.

Acer's move came after PC motherboard maker ECS made an impression earlier this year with its DeskNote range which – as the name suggests – marries the world of desktop computing with that of notebooks. It also offers a separate battery unit as an optional peripheral, should you want to use a DeskNote on the move. Prices start at £499 ex VAT.

The China syndrome

Just over the Taiwan strait waters on the Chinese mainland – a mere 160km away – there lurks another menace. The PRC (People's Republic of China) has never renounced the use of violence against its Taiwanese brothers. Hundreds of missiles are still trained on Taiwan's shores, capable of destroying the tremendous advances of the past 40 years in a matter of hours.

The PRC government won't even talk to the democratically elected Taiwanese president. The world's most populous nation is still peeved by the two million Chinese nationalists who, not fancying their chances under Mao Tse Tung's great leap forward, beat a hasty retreat to the little island after the 1949 revolution. And to cap it all, Taiwan's new arrivals partook in an economic revolution founded on principles that couldn't have differed more from Mao's little red book.

While relations are improving on the business front, with both economies now

Recent estimates from Intel [say] falling notebook prices will lead consumers to replace their desktops at an annual rate of three to six percent of overall PC sales

members of the WTO (World Trade Organisation), there is an air of disquiet among Taiwan's financial elite. Temptation to shift labour costs to the much cheaper mainland is proving increasingly hard to resist for the ever-watchful bean counters – despite the risk of letting Taiwan's technical cats out of the bag in the process – with manufacturers saving 10 percent on production costs on average.

As technological development skyrockets on the mainland and investors rush to profit from the world economy's next big thing, Taiwan risks being cut out of the loop.





NOTEBOOKS: WHO MAKES WHAT



Dell is made by:
Quanta, Compal, Wistron



HP/Compaq is made by:
Compal, Inventec, Arima, Quanta



Toshiba is made by:
Compal, Inventec



NEC is made by:
FIC, Arima



Sony is made by:
Quanta, Asustek



Fujitsu is made by:
Compal, Quanta

Pressure to relocate to the mainland is also coming from the likes of Dell and HP, which are urging their suppliers to move production completely across the strait. Japanese PC vendors, such as NEC, Toshiba and Sony, have also demanded all or a majority of their orders be fulfilled in China. At this rate China will account for around half of Taiwan's notebook production in 2002.

So far all of Taiwan's top 10 major notebook makers have leased facilities or are busy building their own plants in China. All will be mass-producing notebooks by the second quarter of this year. Aside from cheap labour, low land costs and seductive tax breaks, manufacturers are picking up on another major benefit: better-managed logistics. A rapidly expanding supply base of components makes full PC and notebook production in areas such as Suzhou, in the Jiangsu Province, an efficient and risk-free undertaking.

Taiwan fights back

So is the Taiwanese tiger running out of steam just as its mainland big brother is breaking into its stride? Just as Japan crashed into recession in the late 80s, is Taiwan's economic miracle about to turn sour?

To survive will take a radical reshift and plenty of investment. It will be the companies with the deepest pockets and ability to carve out new niches capable of returning them to 90s levels of profitability that will live to fight another day. They will also have to accelerate their innovation to keep clear water between themselves and their new rivals on the Chinese mainland.

The challenges are great but, given their performance over the past four decades, you wouldn't bet against them pulling it off. And as they slug it out for survival, engaging in inevitable price wars, the UK consumer will laugh all the way to the bank. ■

TAIWAN ON SHAKY GROUND

Taiwan could face a fate worse than being sucked into mainland China's economic vortex. Its IT infrastructure, including its infamous semiconductor fabs, could meet with seismic oblivion because of the island's unfortunate location in a particularly feisty earthquake zone.

Residing along the quake-prone Pacific Rim and crisscrossed by 51 fault lines, Taiwan is shaken up by scores of earthquakes each year. Most are harmless, but on 21 September 1999 a devastating earthquake ripped open the capital, Taipei. Measuring 7.3 on the Richter scale, much of the island's IT industry suffered huge setbacks. More than 50,000 homes were wiped out and around 2,400 people were killed. As a result DRAM prices went through the roof, increasing by as much as 50 percent in the weeks afterwards.

Though contingency plans have since been put in place to ensure minimal impact on production, a series of further eruptions could well deter investment in Taiwan's research and development projects.