



NEC makes a huge number of PCs and mobile computing devices but sells mostly under the Packard Bell brand.

Andrew Charlesworth paid a visit to its plants in Silicon Glen and found that, despite a tough 2001, the company is still doing Sterling work

It was recently said that, if all the other hi-tech companies disappeared overnight, the world could still function quite normally on the products made by NEC. This is due to the diversity of the company's range, which stretches from supercomputers to chips.

NEC is a hi-tech megalith employing 150,000 people worldwide – a workforce that generated \$43bn of revenue in the financial year 2000-2001. Six percent of turnover is ploughed back into research and development each year.

But in this country, NEC is best known for the products it produces at the lower end of that scale: mobile phones, desktop and notebook PCs and, recently, a PDA (personal digital assistant).

Division bell

Despite the range of products, NEC is highly divisionalised, each division having to stand or fall on its merits. The computer division, for example, is under

Supplier profile: NEC

no obligation to buy chips from the semiconductor division for its own products, despite them both having production plants within a few miles of each other in Scotland.

When the NEC semiconductor factory was closed in January 2002 – a victim of the downturn in the hi-tech market in general – the computer factory carried on without a hiccup. The chip plant was supplying mostly to mobile phone producers and other 'embedded' applications, that is, non-PC customers such as automotive, consumer durables and telecommunications equipment.

This extends to the retail end – as a customer you can't go to NEC and ask them to do a deal on, say, a selection of phones, desktops and PDAs. "It makes sense, but would require a reseller with a relationship with all the divisions of NEC," admits Clive Matkin, sales and marketing director of the UK computer division. "The good news is that product line integration is increasing inside NEC."

According to market research firm IDC, in the third quarter of 2001, NEC ranked fourth among the UK's top suppliers of desktop PCs with a nine percent market share. Just ahead is HP with a smidgen over nine percent, then there's a big jump to Compaq with 23 percent and Dell with 26 percent.

In notebooks, IDC puts NEC eighth with five percent, trailing Dell, Toshiba, Compaq, IBM, Acer, HP and Sony.

The computer division, NEC CI, didn't have a good time last year. It contributed \$2bn to the group turnover, but made its first ever loss – \$15m, a large chunk of which was because of unfavourable exchange rates.

Hopefully things will get better. Increased sales of PCs, improved efficiency at its production plants in Sterling and Angers in France, and better currency management, reducing the company's exposure to the weak yen, should see the computer division return to a small profit in 2002, says Matkin.

Masters of the glen

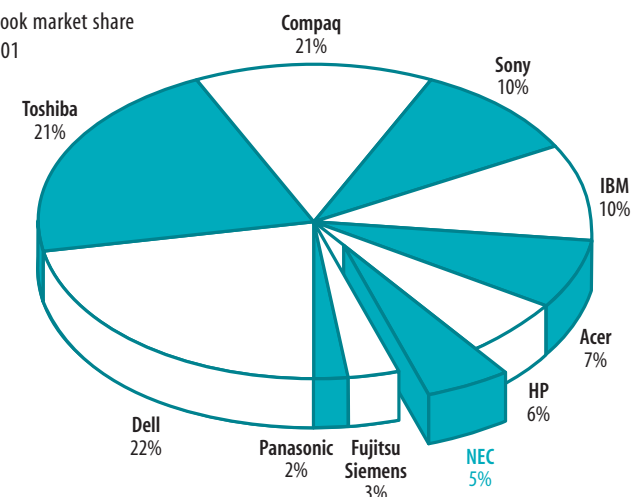
With its British staff and factories, it's sometimes difficult to remember that the Nippon Electric Company is Japanese. Only the semiconductor foundry in Scotland's Silicon Glen had a Japanese managing director, Mr H Goto.

NEC's British customers include a number of local authorities and the Department of Social Security, some medium-sized corporates, a raft of small businesses which often purchase maybe a dozen PCs at a time, and an increasing number of individual one-machine businesses and consumers.

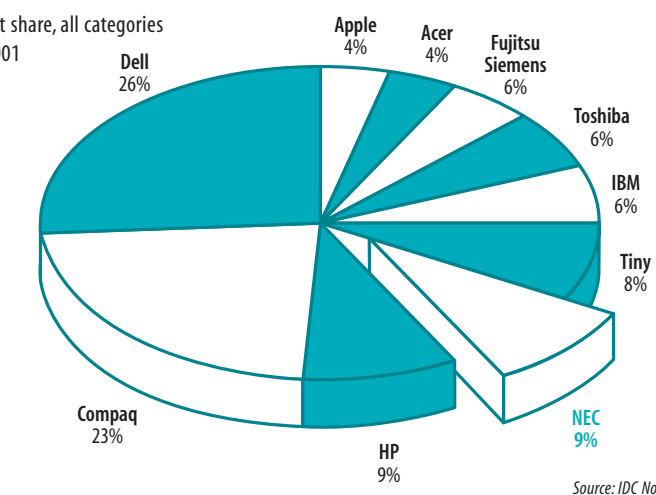
Market shares

NEC operates in all areas of the hi-tech market, so while performance in one sector, for example notebooks, may be below par, overall it maintains a comfortable position

UK notebook market share
Q1-Q3 2001



UK market share, all categories
Q1-Q3 2001



Source: IDC November 2001

The biggest customer, buying more PCs than all the others put together, is Dixons. Readers who frequent PC World will know NEC by the Packard Bell brand, which NEC jointly owns with the French company Groupe Bull. These it supplies exclusively to Dixons Stores Group in the UK.

Packard Bell PCs are made in the same factory in Sterling as NEC's iMedia and iXtreme models. NEC builds its own-branded PCs to order and Packard Bell PCs for retail stock, so the production lines differ slightly at the beginning and end, but are otherwise identical.

The differences occur at kitting up – the process of allocating components to the production line – and at final testing.

Kitting up for a day's production of identical bog-standard Packard Bell PCs is less complex than allocating components for NEC's one-offs.

Thereafter the two types of machine run down five parallel production lines where one person assembles a whole PC, at a rate of seven an hour for Packard Bell PCs and five an hour for NEC's, passing them on to the first test.

The first test is for electronic functionality: are all the bits there that should be and do they power up?

Failure is not an option

The factory is run by a materials – and resource-planning suite called Peoplesoft, standard stuff used by manufacturers all over the world and shaped to fit the individual business. It links the unit ordered by the customer with the breakdown of components used to make it.

Quality assurance in production is enforced by peer pressure whereby the failure rates are posted up graphically with the names of individual assemblers attached

If the order has been made correctly, what comes off the production line should match the order exactly, or the PC will fail its first test and be sent back for a rework.

Quality assurance in production is enforced by peer pressure, a distinctly oriental methodology borrowed from car manufacturers, whereby the failure rates are posted up graphically with the names of individual assemblers attached.

"If people don't like this, aren't spurred on to improve quality by knowing their performance can be seen by everybody, it becomes pretty obvious that we aren't

Warranties

Standard desktop warranty is 12 months onsite cover, which can be upgraded to three years and lifetime technical support on factory-installed software for £69 excluding VAT.

Standard notebook warranty is 12 months collect and return, upgradable to three years for £99 plus VAT. A three-year warranty is standard on all of NEC's most expensive notebooks.

Servers have a standard three-year next-day onsite warranty with upgrades to 24x7 support and four-hour response time by negotiation.

suites and they soon leave," says Tony Allen, director of production. Five percent of PCs fail at this point.

There are 197 people on production, 60 percent of which are full-time employees with the remainder on a monthly contract awaiting a full-time post. Whether they get the post largely depends on how they respond to the quality regime.

Production line staff range from school-leavers to near-pensioners and mums returning to work. NEC has mopped up quite a number who were made redundant when Motorola's mobile phone plant closed last year.

New recruits are given a week's training in handling electronic components and PC assembly as well as a period of production line simulation, and are then assigned to assembly or test. Their quality performance is monitored closely in the first fortnight and they repeat specific training modules if required. Everyone gets 80 hours of training in the first year, says Allen, more than half of which is delivered before they get near a customer's PC.

PCs are given a five-hour 'soak test', a run through all the downloaded software, which 2.5 percent of machines fail.

Further testing depends on the type of machine. Six percent of bog-standard Packard Bell PCs are sampled for an 'out-of-box audit' which simulates customer usage. All one-off NEC own-brand PCs are audited this way, but long runs of identical machines, for example, for the DSS, are sample tested.

Sneaking through the system

The factory at Sterling turns out some 3,500 PCs a day this way, 80 percent of which were labelled Packard Bell when *PC Advisor* went visiting in the build-up to Christmas, when Dixons' business takes

→ NEC's rigorous testing procedures and the practice of posting the production staff's personal failure rates on factory notice boards keep the rate of dead-on-arrival PCs down to less than one percent

off. Production of NEC's own-brand PCs peaks towards the end of the financial year, when government departments traditionally replace their PCs to mop up any unused budget, but the numbers never get near to outstripping the steady flow of Packard Bell boxes.

Dead-on-arrivals – machines that refuse to boot when the customer takes it out of the box or which die irretrievably in the first few hours of operation – run at less than one percent of output, says Allen.

But how do any sneak through all the testing? Some components just fail when started for the third or fourth time, even though they sailed through testing, that's a fact of life. But PC makers also blame damage which occurs in transit, especially "leads which work loose due to vibration," as one PC maker told *PC Advisor*.

Vibration? Do you know how much you have to vibrate a PC to make the hard disk lead fall out? You have to pick it up and shake it like an electronic cocktail for hours, drop it from head height and then repeatedly kick it. And it's not leads falling out that would cause the failure.

It makes you wonder what couriers do with these machines. Or it makes you doubt that the leads were fitted properly in the first place.

Should such an unlikely scenario befall your NEC computer, the company operates a customer service centre at Sterling, open 8.30am to 6pm five days a week, and a technical support centre at Nottingham, open 8am to 8pm five days a week, employing between 300 and 400 people respectively.

NEC's onsite support is subcontracted across the world to Unisys, to which several other computer companies entrust their maintenance cover. Faulty notebooks are covered by a straightforward next-day replacement service.



Telephone service and support staff are recruited from graduates, usually with some experience. They are given four weeks' customer-handling and product training before they get to answer a phone for real. After three months they are ready to deal with 'difficult customers'.

What marks out NEC's service from other PC makers? "Compare the amount of time you spend in queues and using voice-activated menus with other computer companies," says Simon Bennett, customer services manager. "You get to speak to an individual when you call NEC. If you speak to Chris today, you can call him again tomorrow."

There is no auto-response on email enquiries: NEC undertakes to respond the same day in person.

NEC is a global supplier with the approach of a local manufacturer, and a good reputation to boot. Its weak spot in the UK is its dependency on Dixons – a large, dominant customer can always make a supplier slightly vulnerable. ■

NEC at a glance

- Sales **0870 010 6326** (email: salesuk@nec-computers.com)
- Customer service **0870 333 6322** (email: customer.relationsuk@nec-computers.com)
- Technical support **0870 901 8000** (email: techsupportuk@nec-computers.com)
- Website www.nec-computers.com

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