

INFORMATION TECHNOLOGY

US dominance of computer technology is now being challenged from Japan. Major Japanese electronics companies have developed through a tightly coordinated programme of joint research and development to dominate their own market and are now seeking outlets into the US and West Europe in an expansion of trade which is causing concern to US vendors.

Concern is highest in the most technologically spectacular sector of the information technology industry — the sector manufacturing memory and processor chips. Since the development of chip production techniques just over 11 years ago which allowed designers to put enough components on a single chip to make up a complete computer processor, the US has made all the running in chip developments. A handful of fast growing California and Texas-based companies won market leadership in the early 1970s, earning themselves 'technological rent' because of the extent of their advances. The UK electronics industry, often drained of initiative by the dominance of Ministry of Defence work, was unable to respond effectively to US chip developments. As a result the chip products of Texas Instruments, Mostek, Intel, Fairchild and Motorola have dominated the UK market. Only UK companies specialising in particular chips have survived the competition.

Plessey manufactured chips for the computer manufacturer ICL and Ferranti developed a complex micro-processor mostly for military work but neither them nor other UK electronics firms, such as GEC, won any sizeable share of the world market.

In Japan the government funded joint chip development and then urged the major manufacturers to attack the international markets. Japan now has some of the most

complex chips on the market and has won a 70% share of a major slice of business — the world supply of memory chips for use in computers, phone exchanges and control devices.

The Inmos initiative, launched by the last Labour government to manufacture chips to the design of two of America's leading chip designers, is this year trying to break into the world market with its first products at just the wrong time. The world chip industry is now in the sixteenth successive month of recession, the longest recession it has ever experienced. The recession has been caused by over production coinciding with the general business recession. The US leaders are reporting losses and laying off staff just as the Japanese drive down prices and step up their own production to win a bigger market share. The future of Inmos is in the balance as long as the chip recession lasts; at the beginning of 1982 industry economists were confident that a new period of rapid expansion would start in the second half of this year. That prediction has now been shelved and several companies fear the new lift off will not start until well into 1983, by which time the world chips markets may be completely dominated by the Japanese suppliers Hitachi, Nippon Electric and Fujitsu.

Growth is, however, the order of the day in the personal computer market. Three US companies currently dominate that market which is beginning to emerge from its origins as a hobby market and now will soon be supplying more personal computers for business use than for hobby use. The Apple Computer Company, a classic story of US entrepreneurial capitalism, has been growing at rates of 50% a year since its foundation in the mid 1970s. Tandy and Commodore, two US companies are alongside Apple in the lead of the personal computer market. The UK has, however, already won a place in this growing market. A host of small companies have taken relatively cheap computer chips and designed them into a complete personal computer to stand on a desk. The Acorn company of Cambridge has got a shot in the arm by capturing the contract to supply its Atom computer to be used in conjunction with the BBC computer programming series of programmes. And Sinclair still has the cheapest personal computer on the market with the ZX81, made for it by Timex and now distributed through a mass retail chain in the US. But Sinclair has been through the same hoops before with a flat screen display and hi-fi equipment. Equally the UK vendors are fighting US leaders, Apple, Tandy and Commodore and new entrants such as NEC from Japan, but also the major US traditional computer



vendors who have woken up to the potential and threat of the personal computer. IBM has launched its personal computer in the UK after first putting it out in the US where it was received with near rapture by industry analysts.

The next step up in the tree of computer power from the personal computer, the mini computer, is also dominated by US companies. One in particular, Digital Equipment Corporation (DEC), has come almost to dominate the mini industry with a diverse product line and very strong financial base. The mini industry is going through a shake-out where second league companies which failed to gain a significant market share in the late 1970s are falling by the wayside. The UK contenders have already largely been seen off the domestic market let alone the international market. GEC makes a range of minis, as does Ferranti, but neither have more than 10% of the UK market. A few much smaller companies survive, such

as Digico and ABS, but their growth is seldom in line with the market and even the US second ranking companies, Data General and Prime, are able to win a bigger market share in the UK than they are.

The position in the UK market for larger more traditional computers, although financially in trouble, is much more healthy from the aspect of market share in the UK. ICL though still not through its financial crisis which nearly bankrupted the company in 1981, continues to hold about 36% of the UK mainframe market, a larger share in value than IBM holds. The UK is the only country, outside Japan, where IBM does not have between 60% and 70% of the mainframe market. Not only has ICL held its own against IBM, it has also held back the attacks of the second league US mainframe companies, Burroughs, Honeywell, Control Data, NCR and Univac. The international position of ICL is, however, less rosy. Although it does about half of its business

outside the UK it has virtually negligible penetration of West Germany, West Europe's biggest informational technology market, little of value in the US and no presence in Japan.

UK written software, the programmes which run computers, is said to be the best in the world. UK programmers are used to writing complex programmes which squeeze as much out of the computer electronics, the hardware, as possible because of the tight financial climate in the UK. Software problems have often been 'solved' in the US by running rather inefficient programmes in fast or large computers, an option not open to UK users given their lower profits. As a result a handful of UK companies, Logica, Scicon (a BP subsidiary), Systems Designer, SPL and Cap — gain business in the world market writing programmes for major projects in banks, the oil industry and for military applications.

The final sector of the information technology industry, telecommunications, is a classic example of early technical advantage in the UK being whittled away by the US and Japan. The UK pioneered the development of viewdata, the use of computers to store and retrieve information which can be called up by phone, and teletext, the transmission of data along with regular TV broadcasts. But the UK market in both forms of videotext has not been big enough to support a sustained onslaught on international markets and local decisions have often cramped the chances of UK products earning international orders. Equally the UK is relatively slow in turning its analogue phone network into one which can handle digital signals, a system both faster and, in the long run, cheaper which brings computer, voice, image and document transmission into the same fold. The digital phone exchanges developed for British Telecoms, System X, have yet to earn any sizeable orders overseas while Japanese, German and Swedish products have already been ordered by Brazil, Egypt and a host of other phone authorities.

In the words of the Department of Industry, 'the picture is patchy and performance uneven ... in no area is the (UK) industry an undisputed world leader and there are examples of where advanced technical products have not been turned to real market advantage.' Despite the Conservative Government's U-turn on industrial policy to support 'sunrise industries' and its support for the Information Technology Year campaign, the weakness of the UK industry in world capitalist markets is likely to deepen rather than be reversed.

Mike Duncan

