Japanese computer makers enlist scientists overseas

Tokyo. Japanese computer makers are turning to scientists overseas to help them develop software and applications for massively parallel supercomputers. Next month, NEC will ship a Cenju-2 parallel computer to the new Swiss Scientific Computing Center (CSCS) in Manno, while Fujitsu already has links with Australian scientists and others around the world.

The US computer industry has long used academics to develop software for new high-performance computers. But such links are rare in Japan, and the interaction with foreign scientists is also a recent phenomenon.

In 1991, Fujitsu loaned at no cost a prototype massively parallel computer, the AP1000, to the Centre for Information Science Research at the Australian National University (ANU). The centre, Australia's leading supercomputer facility, in 1989 began a five-year, \$10-million agreement with Fujitsu for joint development of supercomputer software. The company also has three AP1000 computers at its laboratory in Kawasaki that serve users in Switzerland, Britain and the United States.

Fujitsu says that the number of foreign users has tripled in recent months and that 21 groups outside Japan are linked to the computers. There are also about 30 visiting foreign scientists at Kawasaki using the machines. Outside scientists are developing software for generic problems in molecular dynamics, quantum physics, fluid dynamics and high-energy physics as well as parallel software algorithms, computer graphics and circuit design and device simulation of more immediate use to Fujitsu.

Julian Clarke of the University of Man-

chester's Institute of Science and Technology in Britain uses on-line connections via Internet "several times a day" to develop molecular level simulations of polymers and other amorphous materials. "We are able to perform scientific calculations that otherwise would not be feasible", he says. In return, Clarke provides Fujitsu with the computational chemistry software.

The new NEC High Performance Computing Software Development Center in Switzerland, which opened last month in the same building as CSCS, will by the end of this year give a limited number of outside users access to its Cenju-2 parallel supercomputer, says A. Scheidegger, director of CSCS. The centre was established last autumn with SFr40 million (US \$30 million) from the Swiss government and has an NEC SX-3 vector-processing supercomputer linked to the high-capacity Swiss education and research network (SWITCH) and to those carrying out joint research with Swiss government organizations.

Japanese companies have chosen Australia and Switzerland because they lack a domestic industry that might protest against the import of 'free' high-performance computers. Furthermore, both countries have a good track record in software and have extensive computer networks.

The linkage with academics around the world is not confined to Japanese companies. Cray Research Inc. in Minnesota, which has traditionally asked university scientists in the United States to help it to develop software, hopes to work with European scientists to develop specific software.

David Swinbanks

UK companies report increased R&D spending in 1992

London. Spending by British companies on research and development (R&D), which dropped sharply between 1989 and 1991 as a result of the economic recession, appears to be rebounding even before any overall recovery, according to a survey released last week by the Confederation of British Industry (CBI).

The growth has been particularly strong in traditional manufacturing regions, such as the northwest of England and the East Midlands, as well as the high-technology areas of Scotland and East Anglia. It has been lowest in the southeast and southwest of the country, where wealth is based more heavily on service industries.

"The 1992 figures are the highest since the survey began in 1989, and are in marked contrast to 1991's figures, which were the lowest", says Bryan Smith of ICI engineering, and chairman of the CBI's research and innovation committee.

The CBI's conclusions are based on replies from 268 manufacturing companies and 151 non-manufacturing companies to a questionnaire completed at the end of last year. These showed that half of the manufacturing companies increased their R&D spending in 1992 — and that almost as many intended to continue this trend in 1993.

In particular, CBI compared the number of companies increasing (or planning to increase) their R&D spending with those reducing it. Earlier studies by the confederation's NatWest technology unit showed that, between 1989 and 1991, the excess of those increasing R&D spending on new products fell from 40 to 16 per cent. The downward trend was confirmed by figures released in January by the Central Statistical Office showing a 4 per cent drop in business spending on R&D between 1990 and 1991.

In sharp contrast, the returns for 1992 showed an excess of 42 per cent of companies were spending more rather than less on R&D — 9 per cent higher than had been anticipated on the basis of previous declaration by companies of their planned expenditure for the year. (Figures for R&D on new processes showed a smaller increase, from a balance of 15 to 18 per cent; among non-manufacturing companies, the balance of companies spending more on product R&D increased from 10 to 23 per cent.)

The fastest rate of growth in R&D spending was reported by manufacturing companies with between 500 and 1,000 employees, 67 per cent of which reported an increase last year over 1991. In terms of regional differences, East Anglia reported the highest proportion of companies that had raised R&D spending, and the southwest of England the lowest.

David Dickson

Simplify science? I'll drink to that

London. Can you describe what the Higgs boson is — and why you would like to find it — on a single sheet of paper? If so, William Waldegrave, Britain's cabinet minister for science, wants to hear from you.

Waldegrave threw out the challenge to the physics community last week at the annual conference of the Institute of Physics in Brighton. Scientists, he said, must explain to the public what they are doing if they want to receive continued support. More immediately, the winner

will receive a bottle of vintage champagne.

Waldegrave said that the need to promote the public understanding of science would be addressed in the forthcoming White Paper (policy document) on science and technology and that he planned to launch a campaign to "evangelize" science. Hence his proposal for a competition to describe the significance of the Higgs boson — a target of the next generation of accelerators such as the proposed Large Hadron Collider at CERN in Geneva and Superconducting Super Collider under construction in Texas.

"If you can make me understand that, I stand a better chance of helping to get you the money to find it," Waldegrave said. Entries should be sent to him by 1 June at the Office of Public Service and Science, Cabinet Office, 70 Whitehall, London SW1A 2AS.

D.D.