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Forecast: computer revolution; Forecast: Supercomputers

Steven Jobs

David Kuck

FORECAST

Computer Revolution

We are now in the midst of a revolution of the same magnitude and power as the industrial revolution of the nineteenth century. It is changing our society, our skills, and the character of employment in the United States. This revolution is driven by advances in microelectronics, transforming our contemporary world from an industrial to an information society. □ At the heart of this revolution is the computer—destined to become an essential and pervasive tool in the 1980s, as the calculator was in the 1970s. And with this will come a profound change in our understanding of what a computer is, and what it can do. □ The computer of the 1980s will adapt much more closely to the way the human mind works, rather than forcing us to adapt to the computer's way of operating. It will be easier to use, and will take minutes—rather than hours—to learn. Technical advances will allow better graphics, greater integration of software packages, better communication between computers, and input and output devices, such as the "mouse," that allow users to work with the computer much more effectively. □ Though their precise nature cannot be predicted, these changes will impact across the entire spectrum of American life.

STEVEN JOBS
Chairman
Apple Computer, Inc.

Supercomputers

Supercomputers today are widely used for engineering, design, oil exploration, medical diagnosis, weather forecasting, military development, and scientific research. In many areas, much faster computers are required, however. Advances in semiconductor technology (very-large-scale integrated circuits) and computer architecture (highly concurrent processing) will lead to much faster systems in this decade. □ Today's supercomputers are organized in a rather rigid manner that allows them to deliver several hundred million numerical operations—adding or multiplying, for example—per second on arrays of data at peak speeds. However, in many applications their efficiency is about 10 percent, making them much less cost-effective than they could be. Current research in multiprocessing (as opposed to traditional array processing) is demonstrating how to improve supercomputer efficiency. New architectures together with powerful software systems should lead to supercomputers that deliver over a billion numerical operations per second and have much higher peak performances.

DAVID KUCK
Department of Computer Science
University of Illinois
Champaign-Urbana