

interactive computing

PRESS REVIEW

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Desktop Computer, Mini Differ Widely

By Jeffrey Beeler
CW Staff

PHILADELPHIA — Much confusion has arisen recently about the distinction between desktop computers and minis, but many basic differences separate the two classes of equipment, according to Fred Bode, marketing manager of Hewlett-Packard Co.'s Calculator Products Division.

Although both desktop computers and minis use basically the same technology, they take very different approaches to optimizing that technology, Bode explained during a seminar at a recent conference here. They also serve fundamentally different types of users, he noted, although their applications do not differ substantially.

Focusing primarily on scientific and technical applications, Bode said desktop computers are optimized to be "friendly" and

easy to use, especially for individual users. Desktop computer buyers can easily link programs from cartridges, large disks or floppy disks, edit easily and quickly from their keyboards and execute individual programs in memory with the ability to interrupt and branch to service routines.

Minicomputers, by contrast, are optimized for flexibility, speed, power and multiprogramming, Bode said. Users of this equipment class can execute many programs concurrently in main memory and swap many others automatically from disks.

With the resulting increase in operating system complexity, users can maximize hardware and software performance if they have the expertise and inclination to do so,

PRODUCT CHARACTERISTICS	DESKTOP COMPUTERS	MINICOMPUTERS
Keyboard Access	Immediate	Multiterminal Capability
Languages	Interpretive; Requires No Compiling	Multilanguage Capability; Requires Compiling
Packaging	Integrated Package	Usually Packaged As Stand-Alone System
Upward Compatibility	Can Accommodate Added Memory and Peripherals	Can Expand to Multiprocessor Network Using Same Software
Distributive Systems	Unable to Serve as CPU in Multiprocessor Networks	Can Control Distributed Network
Operating Systems	Program Editing Controlled By Firmware	Software Modules Developed by Executive Packages
Operating Personnel	Requires Little Training to Program And Operate	Requires Systems Manager With Specialized Training

Contrary to popular user opinion, many basic differences in product characteristics separate desktop computers and minis.

the marketing manager said.

Differences in Users

Because of the differences in how the two CPU classes optimize their technology, desktop computers primarily suit "professional noncomputer users," whereas minis mainly serve DP experts, Bode explained. In the former category, he included users like "scientists, engineers or business people who are experts in their professions [but who] do not necessarily want to become computer sophisticates."

In the latter category, he included users who "are experts at what they do but [who] in general have developed expertise in the use of computers as well." Such users demand flexible and expandable systems because they attack a much wider range of computing problems than users with little or no DP background, he said.

Bode partly attributed the frequent failure to understand the differences between desktop computers and minis to converging product trends. As desktop computers and minis have grown more alike in performance, cost and size, the line separating the two equipment classes has become increasingly blurred, he explained.

Bode also blamed the confusion on the origin of desktop computers. Most of the current leaders in that product market — Hewlett-Packard, Wang Laboratories, Inc.

and Tektronix, Inc. — began as programmable calculator manufacturers.

As a result, "many people still regard [desktop computers] as calculators with considerably less power and capability than

minicomputers."

Elsewhere in his address, Bode further contrasted desktop computers and minis by noting how they differ in the following product characteristics:

- Keyboard access. Desktop computers provide immediate or "live" keyboard access that allows users to perform many operations while running programs.

Minicomputers, on the other hand, provide a multiterminal capability that allows concurrent program development and multistation operation in conversational or batch mode, Bode said.

- Languages. Most desktop computers use an interpretative language like Basic and APL, which users can run without compilation. Language selection depends on the firmware users specify when they buy their systems.

Minicomputers, by contrast, usually use Fortran, Cobol and other languages that require compiling. The language that mini users select is determined by the software they obtain for their systems, Bode explained.

- Packaging. Desktop computers usually come in an integrated package incorporating all the peripherals that constitute a typical system, whereas minis are often configured as stand-alone units without peripherals, the HP executive noted.

- Upward compatibility. With desktop computers, this usually means "transportability of data and programs to larger machines via either data communications or some storage media like tapes, floppies and hard disks." Bode said.

With minicomputers, the concept means users applying

the same set of software, can grow from a processor with a small memory base to a very large multiprocessor, multi-

disk system.

- Distributive systems. Although most desktop computers are compatible with and can report the results of their local processing to larger CPUs, they cannot serve as central processors in multiprocessor networks, Bode pointed out.

Late model minicomputers, however, usually come with operating systems that allow the machines to control distributed processing networks.

- Operating systems. Desktop computers usually provide firmware-controlled editing capabilities that facilitate program development.

With most minis, on the other hand, users develop their software with the help of "very powerful" operating systems, Bode said. These executive packages permit the configuration of software modules like file managers, editors and device drivers.

- Operating personnel. Besides requiring little formal training to operate and program, desktop computers permit easy access and can be easily modified to suit custom applications. With minis, by contrast, users require DP managers with specialized training to configure hardware/software systems and to coordinate the activities of their computer operators, Bode said.

Take Vendor Claims With Salt, Microdata Executive Advises

By Jeffrey Beeler

CW Staff

PHILADELPHIA — Consultants and other disinterested parties have long warned users to challenge minicomputer makers' glowing sales claims, but now the advice comes from one of the vendors — and in unusually hard-nosed language.

"Be an extremely tough negotiator when you're in the market for a system, and make sure you get your vendor's key guarantees in writing," Jack Bertch, Microdata Corp.'s vice-president, warned prospective minicomputer owners at a recent seminar.

Although the DP industry is slowly shedding its reputation for unreliability and inadequate service, "caveat emptor still applies to hardware acquisition, and it will never disappear completely," Bertch said.

Outlining some pointers first-time users should keep in mind when selecting a minicomputer system, Bertch stressed the importance of not underestimating installation costs. "Estimate the total amount you will have to pay for your new system, then double the figure because no matter how carefully you try to predict your expenses, unanticipated costs will invariably arise," he said.

In choosing a prospective hardware supplier, users should list every capability they expect from a reliable vendor and then rate the available candidates in each performance category, Bertch recommended. Some of the selection criteria most frequently mentioned by companies that have already installed minicomputer systems include operating system software, vendor reputation, system reliability, price and field maintenance.

After rating each of the potential suppliers, users should compare their findings with the evaluations of current minicomputer users, Bertch continued.

Consultants can also prove an "invaluable" aid to first-time users, not just in selecting the right hardware vendor, but also in defining the users' needs and generating systems specifications, Bertch said. He advised prospective buyers to rely heavily on their consultants. "Drive your consultant nuts," he urged. "In most cases, it won't be such a long drive."

After a lengthy and thorough vendor evaluation has narrowed the field of potential hardware suppliers to a few candidates, first timers should visit local minicomputer users in their respective industries, Bertch recommended. "But," he added, "you should not limit

yourself to the installations chosen by the vendors because they will show you only their most successful accounts."

Rather, users should choose for themselves what sites they wish to visit, either by calling companies listed in the yellow pages of their local phone directories or by contacting International Data Corp. (IDC) in Waltham, Mass. "For a small fee, IDC can make available to you its prepared lists of computer users in every major city in the country," Bertch told his listeners.

If the final stage of vendor selection ends in indecision about two differently priced systems — all other factors being equal — users should pick the more expensive configuration, provided the difference in cost does not exceed 15%, he asserted.

Before making the final vendor selection, users should also prepare detailed plans for emergency computer backup, determine how often the hardware suppliers will perform preventive maintenance and how much it will cost, uncover any hidden expenses and find out if the vendors' software would be transportable during subsequent systems upgrades, Bertch advised.

"Very often, users acquire software only to discover later they can't continue to use the package when they expand their configurations," he explained.

After choosing a hardware supplier and specifying a system, first-time users should hire an attorney to review the contract and make sure it does not unduly favor the vendor. "In 90% of the cases, the contract does favor the vendor," the Microdata executive warned.

Hardware From the Service Firms

National CSS offering a 'megamini' and others will resell DEC 2020s

Any doubts that the big computer service firms intended to move aggressively into the hardware market were eliminated last month as a number of companies announced plans to remarket DECSYSTEM-2020 computers and National CSS unveiled plans to introduce a 370-compatible megamini called the 3200 series.

Automatic Data Processing, of Clifton, N.J., launched a major program to offer the 2020 to customers as an in-house processor that would be linked to ADP's time-sharing facilities. Tymshare, Inc., of Cupertino, said it aims to move customers from its shared DECSYSTEM there to their own machines without considerable reprogramming and will do this with a 2020 sometime in the late spring. Rapidata, CompuServ and Dataline Systems Ltd. all plan to acquire DECSYSTEM 2020s this spring and summer for the same purpose.

And while these announcements represent a major commitment to hardware sales as an integral part of their time-sharing offerings, the NCSS project is, in scope, the most ambitious undertaking.

In effect NCSS is gambling it can emulate IBM's SBS strategy—combining data communications, hardware, distributed processing, and software all into one

NCSS gambles that it can emulate IBM's strategy for SBS—combine data communications, hardware, and distributed processing in one package.

package—long before the giant computer manufacturer ever gets SBS off the ground.

\$16 million system

Toward this end, NCSS has spent \$16 million developing a system that will compete head-on with the largest DEC, Data General, Hewlett-Packard, Interdata, and Prime offerings, and serve as a 370 replacement. Importantly, also, the company intends to apply sometime this summer to the Federal Communications Commission for permission to compete as a specialized communications carrier providing a national packet-switched network. That network is already operational, and NCSS only needs a green light



WEISSMAN AND MCGUIRE OF NCSS
A 370-compatible megamini
called the 3200 series

from the FCC to put it in business, company president Robert Weissman says.

The introduction of the 3200 and its commitment to the data communications market represent significant steps for NCSS, which in fiscal 1978 (NCSS's fiscal year ends Feb. 28th) has seen revenues jump more than 16% over last year's \$41 million plus figure and pretax profits increase about 34%. To accommodate this growth and its new ventures, the company has moved into new corporate headquarters in Wilton, Conn. Concurrently, its former headquarters in nearby Norwalk have been converted to a base for the firm's newly formed computer division—a group that will be headed up by 34-year-old former IBMer James McGuire, who previously took NCSS's data base management system NOMAD from ground zero to over \$8 million in sales.

Compact controllers

Unlike ADP, which is buying DEC hardware off the shelf then reselling it, NCSS has manufactured its own machine through a subsidiary of U.S. Phillips Trust. This approach is a definite plus in the company's favor, McGuire claims. Specifically, by producing its own 370-compatible megamini, NCSS has, it

claims, improved on the original, designing the controllers to be far more compact than the 370 controllers. "This makes the system less expensive and not nearly as big," says McGuire. "As a result the customer can use it without the computer room environment needed for the 370."

He adds the scaled down megamini is particularly suited for a distributed processing environment, a market NCSS wants to penetrate. "The 3200 could also be used as an extension of a saturated 370, if the 370 owner wants a second machine dedicated to the new, distributed applications for on-line program development," an NCSS marketing paper on the 3200 reads.

Additionally, the 32-bit machine, which sells for about \$200,000 fully configured and is in the 370/135 plus power range, offers multiple language capability, the ability to run all 370 applications, simultaneous time-sharing, RJE and batch capabilities, and virtual memory.

Microcode not a constraint

However, the system's real selling strength is NCSS's existing operational and applications software, the company believes. "With IBM the user has to accept whatever IBM chooses to give him," notes Bob Weissman. "And if IBM decides to change its software or the microencoding embedded in the system, the user has to scramble. But since we produce and maintain our own software, that's not a constraint for us."

Moreover, the lack of constraint may provide NCSS with an edge over some of the PCM's which are vulnerable to IBM's changes. And make no mistake about it, NCSS may be introducing a megamini but its sights are set on a larger target. As Weissman points out, a customer who needs 370/158 power to handle his peak processing requirements once or twice a month, can simply plug into the NCSS network. The 3200 coupled with the packet-switched capability gives a customer the tools he needs to set up his own distributed network, and NCSS's big 370s and Amdahl machines provide him with big system capabilities without the accompanying overhead.

On paper the NCSS strategy makes sense. What will happen in the marketplace is an altogether different question.

—Laton McCartney