The New York Times/Ira Wyman
**Businessmen watching demonstration at "Computermania" in Boston**

# Computer Show's Message: 'Be the First on Your Block'

## By LEE DEMBART
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BOSTON, Aug. 25—The computer revolution seems endless. Every six months, a new product comes along that outdates everything before it. The latest is the microcomputer, based on the same technology as the pocket calculator but capable of putting a powerful computer into homes and small businesses.

Several thousand people, many of them students or businessmen, turned out here today for "Computermania," a major exposition of microcomputers carrying price tags of $300 to $3,500. The displays were extensive, the exhibitors excited and the computer enthusiasts eager to study everything new.

### Limited Only to Imagination

But no one could say for sure why people might need a computer at home. "For fun" seemed the most honest answer. Some manufacturers said a home computer could balance a checkbook, although a $15 calculator could do the same thing. The personal computer seems to be a spectacular toy in search of a use.

"Sometimes it is difficult to explain to somebody what they need it for just as it would have been difficult to explain to someone in 1850 what they needed an automobile for," said Dave Armitage, president of Computer Power Inc. of Warwick, R.I., who was demonstrating a Sol terminal computer. "The uses of a machine like this are limited only to the user's imagination."

At another booth, Steve Jobs was demonstrating the Apple II computer, which is the size of a portable typewriter and hooks up to a regular television set. It plays games, displays color graphics or does sophisticated mathematics. Mr. Jobs suggested that amateur radio operators could use the $1,300 device to figure frequency skips and that investors could use it to chart stock prices or do commodity spreads.

### A Keyboard and Power Chip

But, Mr. Jobs agreed, "most people are buying computers not to do something practical but to find out about computers. It will be a consumer product, but it isn't now. The programs aren't here yet."

On the outside, all of the personal computers have a keyboard, much like those of a typewriter, and a display screen or a capability for attaching to one. Inside, their key element is a micro-processor chip that is a computer on a piece of silicon a quarter-inch square. The chip has the power of the original Eniac computer of 1949, which took up a city block.

Three years ago, there were no microcomputers. People who wanted computers at home had to rent or buy a terminal and plug in to a large computer somewhere, frequently at a university, where they would be one of a hundred other users in a time-sharing network.

"Compared to time-sharing, the microcomputer is very, very powerful," said Gordon Stitt, who was demonstrating the IMSAI system, 10,000 of which have been sold in the last year and a half.

The only thing that big computers do better than microcomputers is a lot of arithmetic. By computer standards, microprocessors are slow at math, capable of doing several hundred additions a second as against hundreds of thousands by the big ones.

### Small Business Market

The personal computer industry, which is estimated to total $30 million a year (up from $5 million two years ago) thinks its biggest market today is not the same hobbyist but the small business with sales of $250,000 a year or less. Up to now, computer time was too expensive for such enterprises.

"It used to be hobbyists," said Alan Hald, owner of the Byte Shop of Tempe, Ariz., which calls itself the affordable computer store. "Now it is more personal business users."

Ervin Fraser, a data processing manager in Boston, said he came to the show today to see what innovations there had been. "You go away for three months and come back, you find things you never heard of before," he said.

A 19-year-old junior at the Massachusetts Institute of Technology, Manuel Ulloa, said he planned to buy a personal computer because, "you can take it in your room and turn the lights out."

"If you invert a matrix on a big computer, that's nothing," Mr. Ulloa said. "But if you add two plus two on your own computer, that's something."