8-Bit Microcontroller Executive Overview

MARKET ENVIRONMENT

The core architecture of 8-bit microcontrollers is microprocessor-based. To increase control, bit operation instruction and efficient memory use have been improved.

The capacity of built-in ROM and RAM has been increased. Currently, 16KB ROM and 512KB RAM are found in single chips. Some devices contain one-time EPROM and EEPROM. For auxiliary functions, time counters and serial communication interfaces are reinforced, and two or more of them are built in to improve real-time operation and separate processing. Paralleling the expansion of the general consumer market is the development of computers offering special functions such as A/D and D/A converters, fluorescent display tubes, LDC driving circuits, and in some cases, gate arrays. The range of built-in functions on a single chip is widening.

In the future, semiconductor integration technology will include larger memories and more sophisticated built-in functions on a single chip.

MARKET SIZE

During 1985, approximately 161 million 8-bit MCUs were shipped worldwide, representing almost 48 percent of total MCU market shipments. Revenue generated from these shipments amounted to $722 million, representing 65 percent of total 1985 MCU revenue. U.S. manufacturers of 8-bit MCUs held more than 44 percent of market share in 1985, but they are losing share every year. Japan manufacturers held more than 42 percent of MCU market share in 1985, and European manufacturers held approximately 13 percent market share during the same year.

MARKET FORECAST

Dataquest expects 8-bit microcontroller revenue to increase by 29.1 percent from 1985 to 1986, to $932.5 million, with an ASP of $4.14. Estimated shipment revenue of $932.5 million in 1986 and $2,354.9 million in 1991 reflect a 20.4 percent CAGR during this period.

We expect 8-bit microcontroller unit shipments to grow from 161.7 million units in 1985 to 225.2 million units in 1986, increasing approximately 39.3 percent. Estimated unit shipments of 225.2 million units in 1986 and 853.2 million units in 1991 reflect a 30.5 percent CAGR during this period.

COMPETITIVE ENVIRONMENT

Of the approximately 28 worldwide merchant manufacturers of 8-bit microcontrollers, NEC, Motorola, and Intel, (ranking one, two, and three, respectively) accounted for approximately 45 percent of all 8-bit unit shipments during 1985. The leading products--the 8049, 6805, 8048, and 8051 (ranking one, two, three, and four, respectively)--had more than 50 percent market share during 1985.

Shipments of 8-bit CMOS MCUs reached approximately 20 percent of 8-bit MCU unit shipments during 1985; however, shipments are expected to reach 50 percent of 8-bit MCU unit shipments during 1988. Dataquest expects Japanese manufacturers to gain market share rapidly in the 8-bit MCU segment, as the demand for CMOS increases.