

# RADIO CONTACT

**Motorola is a company that is most often associated with car radios. But, from humble beginnings, Motorola Incorporated has grown to its present position as one of the world's leading microelectronic component manufacturers, with factories in Europe and the United States producing microprocessors for the 16-bit market.**

— notably the colour television business — the investment of large sums in research and development, and the purchase of companies in new areas where Motorola hoped to make an impact. This was a considerable risk, but then the company had little choice in the matter.

The gamble seems to have paid off. During the latter part of the 1970s Motorola lagged far behind the leading firms in the semiconductor market, but after heavy investment in new technology the company can now claim to be breathing down the neck of market leader Texas Instruments. As Robert Galvin says: 'Companies that used to be competitors to Motorola aren't around any more, because they haven't adapted to the environment.'

Motorola has continued to have problems in making its products available at the right time. In the mid-1970s, when the microcomputer industry was in its infancy, the Motorola 6800 eight-bit microprocessor was outsold by the Mostek 6502 chip, which was adopted by Apple for its hugely successful personal computers, and by the Intel 8085 and Zilog Z80 used on CP/M computers. The company introduced the 6809 in 1976; this was generally acknowledged to be the best available eight-bit microprocessor, but the race for the mass market had already been lost and the chip appeared in only a few home micros such as the Tandy Color Computer and the Dragon.

However, the company continued to invest heavily in research — 'to get maximum advantage soonest', according to Robert Galvin — and is far better placed in the race for the 16-bit market. The 68000 microprocessor was launched in 1979, although it did not become widely available until 1982. This processor has been adopted for Apple's Lisa and Macintosh microcomputers and by Sinclair Research for the QL. It is an extremely powerful device containing 17 32-bit registers, a 16-bit data bus and a 24-bit address bus.

Motorola continues to develop new products from its research centres in Phoenix, Arizona, Geneva in Switzerland and East Kilbride, Scotland. The East Kilbride factory produces CMOS (Complementary Metal Oxide Semiconductors) and MOS (Metal Oxide Semiconductors) chips for a wide range of applications. The company is now organised into five groups, dealing with communications, semiconductors, information systems, automotive and industrial electronics and government electronics. Despite some concern over low profitability in some sectors, the company reported sales of \$1.26 billion in the first quarter of 1983 and seems set to maintain its strong position in the market.

Like many other successful business concerns, Motorola began as a one-man business. The company dates back to 1928, when Paul Galvin founded the Galvin Manufacturing Corporation in Chicago, where he specialised in the production of domestic radios. During the 1930s the company diversified, manufacturing police and car radios under the brand name 'Motorola'. In the 1940s the corporation — now known as Motorola Incorporated — was one of the first electronics firms to produce semiconductors.

Paul Galvin died in 1959, and was succeeded as chairman by his son, Robert. During the ensuing decade other manufacturers, notably those in Japan, began to compete with Motorola in the semiconductor and consumer electronics markets. The world recession of the mid-1970s led to enormous losses for the company, and Motorola was forced to rethink its strategy. New personnel were hired, many coming from Motorola's arch-rival, Texas Instruments, and the decision was taken to abandon the more traditional electronics field — in which the company could no longer compete — and instead concentrate on high technology microelectronics.

This involved the sale of some company assets



Robert Galvin, Motorola's Chairman

Motorola's Headquarters, Illinois, USA

