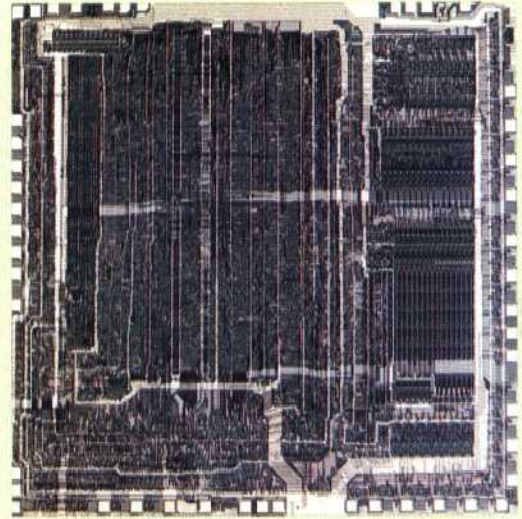
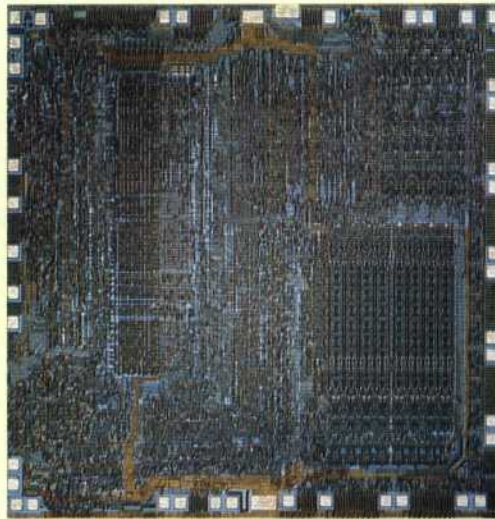


# BREAKING AWAY

## Chip Set

These photo-micrographs illustrate the complexity of microprocessor circuits. On the left is a highly magnified picture of Zilog's immensely successful Z80 and on the right, a more recent chip from the Z8000 series. Notice that the Z8000, being a 16-bit chip, has a more dense design and more connections around the edge of the chip



**When Zilog Incorporated first introduced the Z80 microprocessor in 1977, few people suspected that it was about to begin a revolution. But within a few short years, the Z80, and its arch rival the 6502, would turn into reality what had previously been considered a flight of science fiction fantasy — a computer in every home.**

The history of Zilog begins in the early seventies when Frederico Faggin and Masatoshi Shima, two employees of the microchip manufacturer Intel, broke away to form their own company. The two men had been involved in the development of the 8080A microchip (considered the first 'computer on a chip'), and using this experience they began work on a new development of the microprocessor. The 8080 was already proving to be very popular with computing designers and hobbyists, and so Faggin and Shima, not unnaturally, decided to design the new chip to be compatible with the 8080. It could therefore take advantage of the large quantity of software that had already been written for the 8080. Using their detailed knowledge of the 8080, they were able to extend the instruction set (the list of machine code commands contained within the microprocessor) by introducing extra registers, two-byte op-codes and other techniques. The microprocessor — the Z80 — was a considerable improvement.

This revolution in hardware fortunately coincided with a parallel revolution in software. In 1972, Gary Kildall and John Torode wrote a program called Control Program/Monitor, or CP/M, which allowed a microprocessor to

handle the recently introduced floppy disk. Because Kildall was a consultant to Intel, the program was designed to run on the 8080 and 8085. CP/M was rapidly becoming the dominant disk handling system for microcomputers, and with their powerful new 8080-compatible microprocessor, Zilog were ideally placed to take advantage of the rush to CP/M software.

Zilog's path has not been so smooth in subsequent years. Although the Z80 is still selling in vast quantities — the company still produces around a million a month — attempts to upgrade the chip to the 16-bit market have met with a mixed response.

Zilog's first attempt at a 16-bit processor was the Z8000. Although generally acknowledged as a very powerful device, with a comprehensive instruction set and a large number of registers, it proved to be an extremely complex chip to program. The Z8000 encountered several other major obstacles. To begin with, although compatible with the yet to be launched 32-bit Z80000 (or Z80K), it was not compatible with the Z80 and so was unable to take advantage of the range and variety of programs that had been written for the Z80 in the preceding years. This meant that those manufacturers interested in 16-bit upgrades for their machines tended to turn to a less demanding microchip.

With the Z8000 proving to be unpopular in the microcomputer market, Zilog went back to the drawing board. The company is soon to launch the Z800 16-bit processor, which is compatible with the Z80. Things are also looking bright in other areas: Commodore have announced that their new range of business machines will be powered by the Z8000.



Zilog's President,  
Frank de Weeger