

Questions And Answers

What is the 'fifth generation' of computers, and what were the first four?

The fifth generation is the stage of computer development towards which computer engineers and programmers are currently working. Such computers are expected to represent a significant leap beyond present technology.

The term 'fifth generation' was adopted by the Japanese to describe their long term research projects. Computers of the fifth generation will not have keyboards, and they will not have to be programmed in computer languages such as BASIC and PASCAL. Instead we can expect to be able to talk to our computers and they will answer back in whatever language we require. These fifth generation computers are also likely to be able to write their own programs as solutions to problems we present them with.

The first generation of computers were the first all-electronic computing devices, invented just after the Second World War. The second generation used essentially the same concepts with transistors instead of valves and relays, making computers smaller and cheaper. The third generation used integrated circuits (electronic circuits mounted on silicon). These integrated circuits were the earliest form of the microchip and marked the beginning of the reduction in price of computers. However these computers were still too expensive for the average home or office.

The fourth generation represents current technology. These

computers use LSI (Large Scale Integration) circuits. The development of these microchips has brought the computer within the range of most people's budgets.



Where is Silicon Valley?

Silicon Valley is the name given to an area of land around San Jose to the south of San Francisco, where the headquarters or research departments of most of the large American computer and microelectronics companies are situated. The reason why so much expertise is collected together in such a small area is purely historical — there are no natural resources beneficial to the manufacture of microchips! Until 20 years ago the area was known only for producing fruit.



Is all the loose 'untidy' wiring at the back of some computers necessary?

Most of today's microcomputers are designed with as much

thought put into the outward appearance as that of the electronics. 'Untidy' wires are normally hidden away. But with some advanced research computers, the loose wiring is very important. Electricity moves at the speed of light, but it still takes a certain time to travel down a wire. These research computers work so quickly that the information has to arrive at the right place at exactly the right time. The lengths of the wires are calculated precisely to ensure the timing is perfect.



Computers are often advertised as having a Z80 or 6502 microprocessor. What is the significance of these numbers? The numbers themselves have no significance — '6502' is merely the identifying reference or 'name' for a particular microprocessor chip; 'Z80' is another. All computers which are based on the same microprocessor understand the same set of fundamental instructions (called Machine Code) from which programs are built up. However, programs are usually written by the user in a high level language such as BASIC and then interpreted into machine code by the computer. So unless you specifically want to write programs directly in machine

code, it doesn't make any difference what sort of microprocessor your computer has.

Though some types of microprocessor operate at a higher speed than others, the rate at which you see things happen in a typical application is far more dependent on the way in which the software has been written.



How can computers help in the fight against crime?

The Police National Computer Unit was set up in 1968 and the first file of information (stolen and suspect vehicles) was installed in 1974. Since this time, data has been included to list the details of all people with criminal records. The police are currently exploring the possibility of using microcomputers in 'incident rooms' to cope with emergencies. At present a few police cars have computer terminals through which they can access information from the central computer. The current state of storage technology means that it would be feasible for the police to store the personal details of every citizen. Fortunately, the government has implemented various 'watchdog' committees to safeguard the interests of the innocent.