MSX Architecture

Video RAM
Some systems can have separate video RAM, thus freeing more memory for BASIC programs

Expansion Connector
All machines have a defined expansion connector

Display Chip
A Texas 9918 or equivalent provides the display with a rather miserly 16 lines by 32 columns, 256×192 graphics in 16 colours and up to 32 sprites

CPU
The popular Z80 microprocessor is used as a basis for all MSX machines

Extras And Add-ons
Beyond the basic specification, MSX machines can incorporate any extras the manufacturer chooses to provide

Sound Chip
An 8910 chip provides three-voice sound with special effects

ROM
The powerful MSX BASIC sits in 32 Kbytes of ROM

RAM
MSX specifies a minimum of 8 Kbytes of RAM

Cassette
MSX machines record on ordinary cassette recorders at a fast rate of either 1,200 or 2,400 baud

Keyboard
MSX machines all have the same keys, although their exact positioning may vary

Cartridge Slot
A standardised cartridge slot allows any MSX cartridge to be plugged in

Disk Drive
MSX includes a specification for a disk system using a standard format
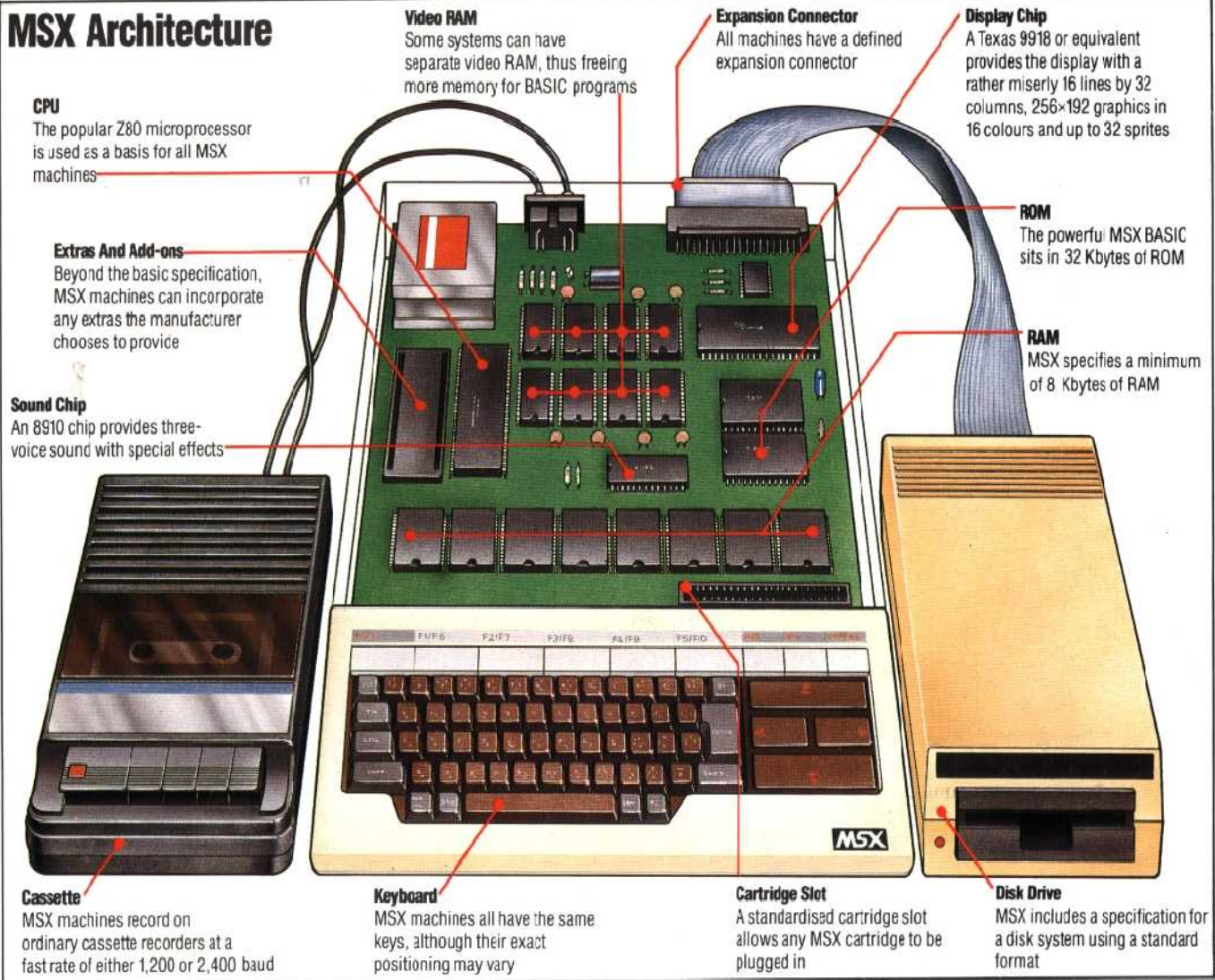
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system. Floppy disk formats for the 3½ inch (Sony), 5¼ inch and 8 inch floppy disks have also been established.

All this means that, if the standards have been adhered to, any program written for one MSX machine, stored on any disk, will be guaranteed to run on any other MSX computer — and be able to take full advantage of its sound and graphics capabilities. The advantages to both manufacturer and consumer are obvious.

But there are disadvantages to the MSX system. The first of these is that any 'standard' will fail to take advantage of innovation in the field. If, for example, a new video controller chip comes along with vastly superior capabilities, MSX programs will not be able to take advantage of it and will leave the field wide open to competitors able to provide software capable of utilising the potential of the new chip.

The second is that eight-bit microprocessors, of which the Z80 is the most successful, have a limited life. Eight-bit processors are inherently unable to address more than 64 Kbytes of main memory directly, nor are they capable of handling data bigger in value than 256 at any one time. In this light, the MSX standard could be seen as a last ditch attempt at prolonging the life of the Z80, which is destined to enjoy only a short-term

success in the market place.

MSX may also provide a pointer to the future. It is hard to suppose seriously that the microcomputer market will be dominated by eight-bit processors in five or 10 years time. If the MSX standard achieves anything it is likely to remind computer developers that standardisation should come early, rather than late, in the life of any computer innovation. MSX may make life easier for the big boys with Z80-based products waiting to be sold at the moment; it is difficult to see how it will have any long-term impact beyond convincing the rest of the world that standardisation does matter. In the field of 16-bit computers, IBM has proved that 'might is right' with its personal computer, which has become a de facto standard. Will the MSX standard be able to do the same for the eight-bit home micro? So far MSX is being supported by a total of 16 manufacturers, including Yamaha, JVC, Hitachi, Sony, Sanyo, National, Pioneer, Canon, Fujitsu and Mitsubishi from Japan, the American company Spectravideo and Daewoo from Korea. No British manufacturer has joined the club so far. Only time and the market will show if the world needs more of the same, or the kind of individualistic innovation we have come to expect from entrepreneurs like Sir Clive Sinclair.

Design Convention
To make programs and add-ons compatible with all MSX systems, the design of an MSX micro follows strict rules. Once the machine reaches the basic specification shown here, designers can add their own special extras