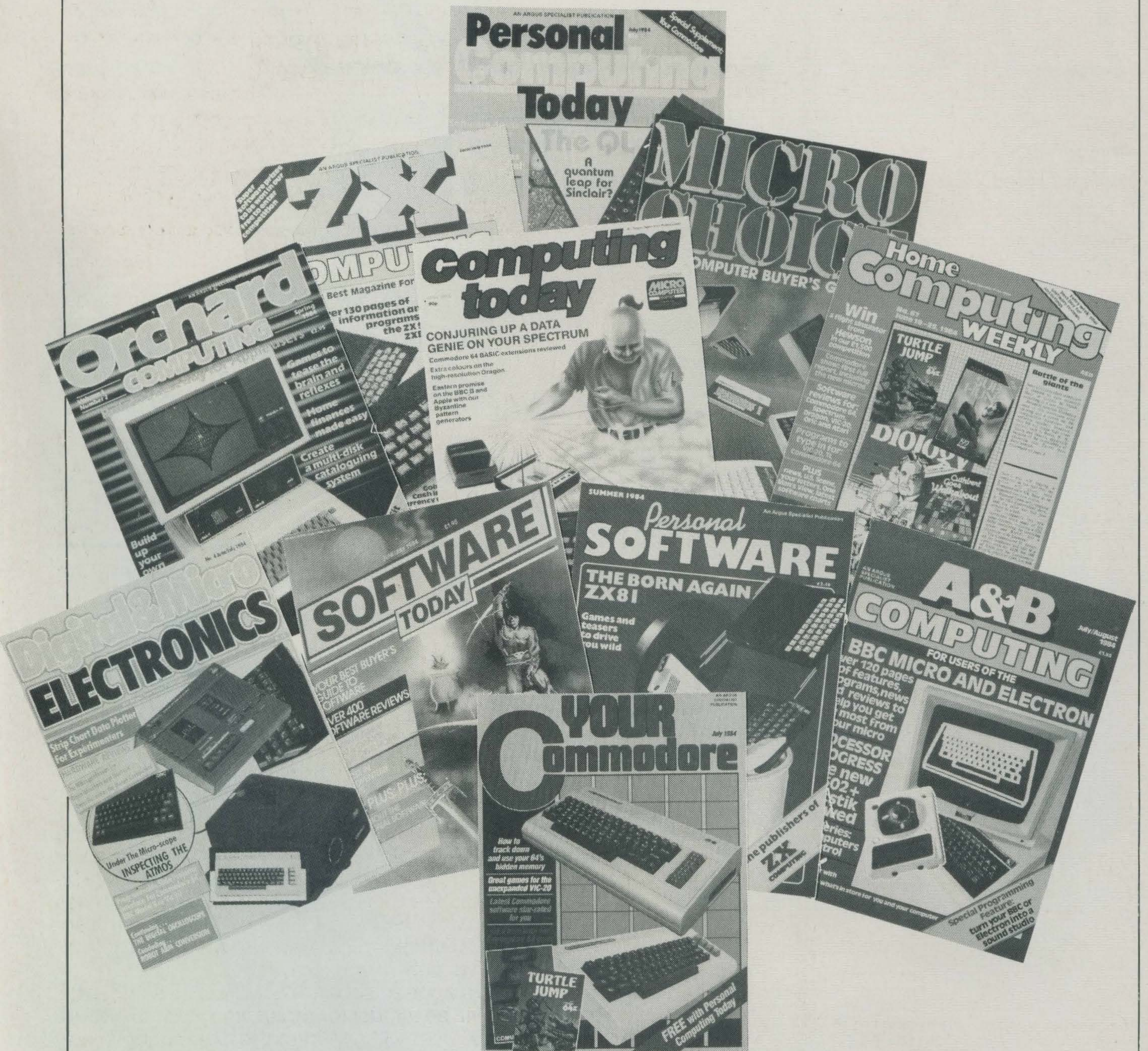# MSX

USER

No. 1

The Japanese Viewpoint

MSX Anatomy

MSX BASIC Explained

FREE with Computing Today

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. . . FOR THE BEST IN COMPUTING MAGAZINES.

MSX

No. 1 USER

FREE WITH COMPUTING TODAY, AUGUST 1984

WELCOME TO THE WORLD OF MSX USER

Welcome to the first issue of MSX User, the magazine for anyone interested in this new computer standard. MSX is the eight-bit computer specification developed by Microsoft and adopted enthusiastically by many major computer manufacturers in Japan. Although MSX machines are not due to appear for sale until September in the UK, we are publishing this free supplement in Computing Today each month until then to acquaint you with MSX and its potential.

When MSX computers do appear, so will MSX User, as a separate newstand publication that will be a must for those who want to get the most from their system. MSX User will continue the Computing Today tradition of in-depth hardware reviews and fact-filled technical articles delving into the heart of the machines. Full coverage will be given to the whole range of software available for MSX, from games, through utility packages of business software. And of course there will be a large selection of program listings for you to type in yourself.

MSX is big business and has a big future. MSX User will let you get the most out of it.

MSX will not get underway properly until the Autumn, but already it is generating great interest. Here's a run-down on some of the current news items.

News

MSX TO TAKE OVER ?

Microsoft say that their MSX standardisation for eight-bit personal computers is now set to become the dominant low-end microcomputer system in Europe. "The MSX project is one facet of Microsoft's commitment to standardisation in the microcomputer industry" commented David Fraser, General Manager of Microsoft Ltd, adding "The endorsement of MSX by so many major manufacturers will ensure the establishment of a broad base of software, benefitting both consumer and software producer alike."

The MSX specification was first introduced by Microsoft in June 1983. The aim of MSX is to generate low-cost software which is portable across a range of manufacturers' machines. MSX defines the chip set, language, peripheral connections, and the ROM cartridge format for a home computer. There is also a standard disc operating system, MSX-DOS, which shares the same disc format as MS-DOS. This allows the ex change of data between eight- and 16-bit systems.

Microsoft is currently tailoring a range of products for the MSX environment, including a disc-based MSX-BASIC interpreter; FORTRAN, BASIC, COBOL, and Pascal compilers; and an MSX version of the Multiplan Electronic Spreadsheet.

David Fraser, General Manager of Microsoft.

Television Printer
Speaker
Composite Output
R.G.B. Output
R/F Output
Monochrome or Colour Monitor
R.G.B. Monitor
Interface
Mitsubishi Hi-Fi System 45
Amplifier
Audio Output
Cassette Input/Output
Data Recorder
Printer Output
Printer
ROM Cartridge
Ten-key Input
Joy-stick Input
Ten-key Numeric Key Pad
Mitsubishi ML F110
Joy Sticks (2)
Interface
Mitsubishi Move Master RM101
Extension Box
Internal Extension
Expanded RAM Board
RS-232C Board
Floppy Disk Drive Control Board
Micro-floppy Disk Drive

COMING SOON

Mitsubishi's first MSX personal computer to be launched in the U K will be the ML-F110, it has been announced at a joint press conference with Microsoft. To support the Mitsubishi ML-F110 a full range of hardware and peripheral equipment will be launched in time for the Christmas market, with the full product range to be marketed through the existing Mitsubishi TV and video dealership.
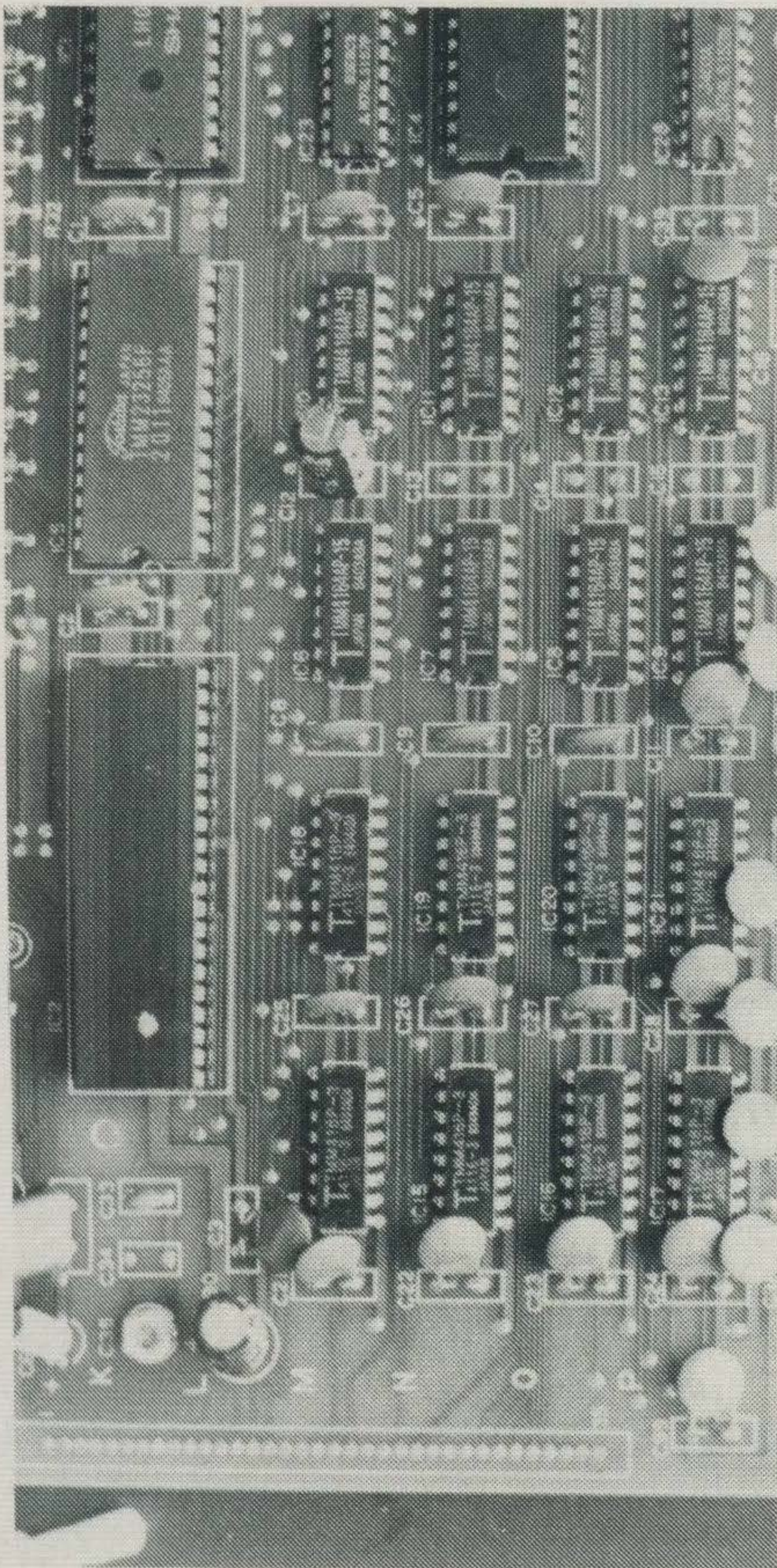
Mitsubishi are the third largest mainframe manufacturers in Japan and also have the largest share of installed industrial computers. This expertise has been invaluable in their further development of MSX and the ML-F110.

NEW CHIPS FOR OLD

In the past six years, Texas Instruments has been producing an advanced range of video display processors. It claims a continuing lead in VDP chips which it says is evidenced by the selection by the MSX Manufacturers Group of its three chip package for the new range of MSX computers.

The MSX range will now contain TI's TMS9118 processor which, with two TMS4416 (16 K by 4) dynamic RAMs, makes a logical low-cost choice for designers of low-to-medium resolution graphics systems.

The 9118 chip set of three was first introduced in 1982, representing a considerable advance on the nine-chip 9918 set (including eight TMS4116 dynamic RAMs) first launched in 1978.

The state of the VDP art is now represented in TI's third generation, the TMS9228/9229, announced two months ago at the Videotex Conference in Chicago. These new devices demonstrate TI's commitment to upwards compatibility of its VDP family, since they will run software written for any member of the family (with the exception of the multicolour mode).

TI says that this gives manufacturers a clear upgrade path, with no compromise necessary on the standard MSX system software. The TMS9228 also meets requirements for teletext in the USA, and details on the European-standard TMS9229 will be announced as soon as they are available.

The new chips have the following features: a 256 (horizontal) by 210 (vertical) pixel resolution in the bit-mapped mode, with 16 colours, providing NAPLPS compatibility for both videotex and teletext applications; up to 16 colours displayed from an on-chip 512-colour palette; an 80-character by 24-line text mode; both horizontal and vertical scrolling on a pixel-by-pixel basis; an external video mode allowing the overlay of computer-generated alphanumerics and graphics on conventional video images; a high-resolution table-driven graphics mode (512 by 192 pixels); complex sprites for enhanced animation capabilities; a block move command to provide enhanced animation and polygon-fill capabilities; an on-chip complex sound generator; and a programmable interrupt to allow the CPU to reconfigure the VDP on any defined horizontal scan line.

MITSUBISHI AND MSX

The Mitsubishi Electric Corporation has recently launched a new MSX-standard home computer in Japan and will start marketing another model shortly. The new computers, the ML-F120 and the ML-F120D (catchy names!) are advanced versions of the ML-8000 which Mitsubishi introduced to the local market last year, and feature higher performance and functions as well as easy operation.

In addition to 32 K of read-only memory (ROM), which contains the MSX BASIC, and 32 K of random access memory (RAM), the MSX computers both have a 16 K ROM package of seven easy-to-use programs for home data management — home account book, address book, file management, school record management, memorandum, health management and robot manipulation. Using Mitsubishi's C-BOL, a simple spreadsheet with 10 commands, the operator can create data in table form, edit data, total and average data, sort data and so on. Separately available 4 K cartridge units enable easy and high speed data storage and retrieval.

The robot manipulation program is for radio controlling Mitsubishi's ML-ROBO robot. Both computers have various built-in interfaces for future system upgrading by adding peripherals.

Having a 21-pin analogue RGB output plug, the ML-F120D can produce clear 16-colour graphics on a suitable monitor.

LASKY'S LOVE MSX

At the Press launch for the MSX standard in the UK, the impact of MSX for consumers and retailers was spelt out by Peter Klein, Chief Executive of Lasky's, one of Britain's leading specialist multiple retailers of home electronics. He said: "I see the emergence of MSX as a catalyst which will bring orderly marketing of both hardware and software to the home computer industry, which will enable retailers to offer a better service to their customers, and to do so more profitably. We will, for instance, be able to carry a wider range of software and peripherals without the unacceptable risks and stock costs which exist today. That will of course mean a greater choice for the consumer, and will improve dramatically our ability to be able to satisfy customer demand first time."

"I hope," he continued, "that the existing British, European and American home computer manufacturers will also recognise the significance of MSX and its advantages and therefore embrace it. By doing so I believe that they will also help the development of an integrated home computer market to the benefit of manufacturer, retailer and consumer alike."

Currently eight companies — Canon, Hitachi, JVC, Mitsubishi, Sanyo, Sony, Teleton and Toshiba are committed to launching in Britain shortly, and it is expected that several more major companies, including British and European manufacturers, will follow suit.

It is predicted that MSX machines will capture 15 per cent of the important pre-Christmas market in Britain this year, and that next year the market share for the standard in the UK will grow to around one-third.

HITACHI TAKE OFF

Hitachi is to enter the UK home computer market with the launch this Autumn of its MSX product, the Hitachi MB-H80, in good time for the Christmas buying season. Giving preliminary details of the new home computer, Colin Leader of Hitachi Sales (UK) Ltd explained that Hitachi was one of the original group of companies to subscribe to the development of hardware for the MSX micro in Japan — a success that he expects to be repeated in the UK. In Japan, between November 1983 and February 1984, Hitachi sold over 130,000 MSX machines which combine to give Hitachi a 15 per sent share of the Japanese microcomputer market.

"But we are not just taking the Japanese version of the MB-H80 and bringing it to the UK. We carried out a great deal of research into the UK market needs, and enhanced the MB-H80 accordingly, with the result that we now have one of the most powerful and flexible machines in the MSX range.

"Initially we shall be selling the new computer through the leading multiples, as well as our established network of hi-fi and electrical dealers."

The MB-H80 is one of the most sophisticated of the MSX offerings, giving a total of 80K of RAM, made up of 64K of user RAM and 16K of video RAM, the latter being controlled by its own video display processor. In addition, the system has 40K of ROM. It features two cartridge slots, allowing expansion to 576K and the facility to connect the soon-to-be-announced Hitachi MSX disc drives. The video display output is 16 colour, with 39 characters by 24 lines of text and a graphics capability of 240 by 192 pixels, together with an eight-octave, three voice polyphonic sound capability.

The two joystick ports are sensibly situated on the side of the machine, as is the socket for an ordinary cassette recorder, together with the RF output for TV sound and picture.

The MB-H80 has a full QWERTY typewriter-style keyboard which includes numerics, cursor control and five special function keys.

"The micro is highly portable" adds Colin Leader. "It has a total weight of just 3.4 kilograms, and even has a carrying handle built into it so it can be carried just like a briefcase."

The current projected price for the MB-H80 is less than £200, and it is expected to be popular as a family computer — though Hitachi says that it could also be used as a central module for the development of a business machine.

DATA CASSETTE FROM JVC

As well as its contribution to the MSX range of computers (a video processing oriented machine which was on show at a recent exhibition and which we'll be looking at in more detail in a future issue), JVC has designed a data recorder for reliable file storage.

The data recorder has full logic control and a phase shift facility. A very high transfer rate of 2400 baud is possible and is compatible with the MSX standard. The program search and edit/talk facilities with built-in microphone and monitor loudspeaker will make this unit the clear favourite for low-cost data storage, claim the company.

A number of floppy disc drives, in both the 3½ and 5¼ inch formats, will be available, giving between 500K and 1 Megabyte storage capacity, with a transfer rate of 250 kilobaud per second. All will work to the MSX-DOS standard.

To support the above products,

special 10 and 15 minute long data cassette tapes and high quality floppy discs will be available.
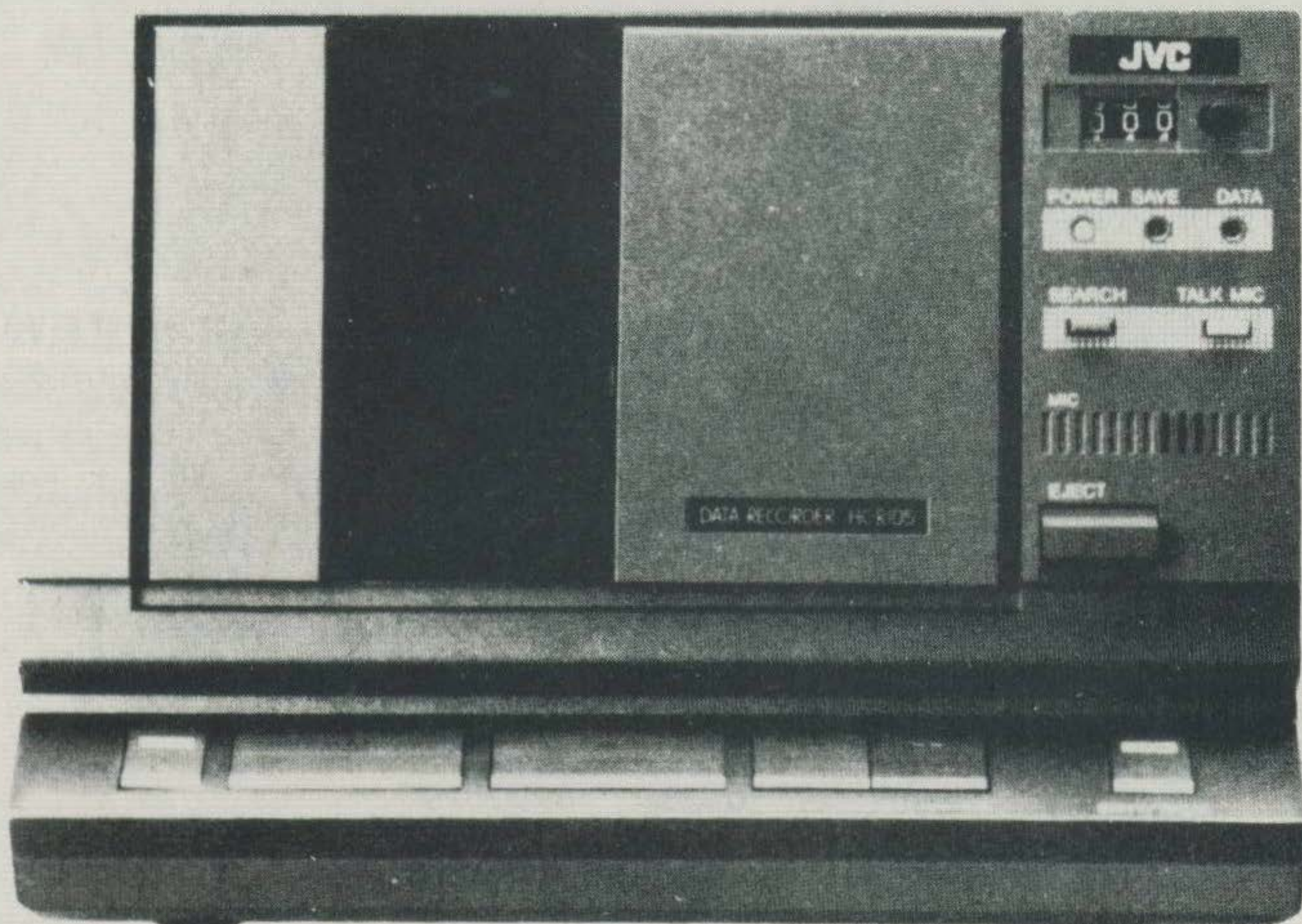
ENTER ZEN

The results of Kuma Computers' intensive development program for the new MSX standard microcomputers has bourne fruit. The first MSX program to be launched by any company in Europe is the ZEN v1.0 Editor/Assembler/Disassembler from Kuma.

Zen is a complete system for the generation and analysis of Z80 assembly language programs. Included in the package are a symbolic assembler and disassembler, a text editor and a machine code monitor. The complete source code of ZEN itself is supplied to every user: this provides a valuable introduction to Z80 programming for the beginner while allowing the expert to customise if desired, and Kuma are to be applauded on this decision.

Jon Day, Sales Manager of Kuma, said "We see MSX as a major force in the UK micro market place and we are developing a comprehensive range of utility and entertainment software for MSX. ZEN will be invaluable to users wishing to write and debug efficient assembly code programs. ZEN is the first program to be released in our MSX Software library; more programs will be released shortly."

ZEN for MSX is available from Kuma Computers; dealer and distributor enquiries are welcome. For further details regarding MSX hardware and software contact Kuma Computers Ltd, 12 Horseshoe Park, Pangbourne, RG8 7JW (phone 07357 4335).
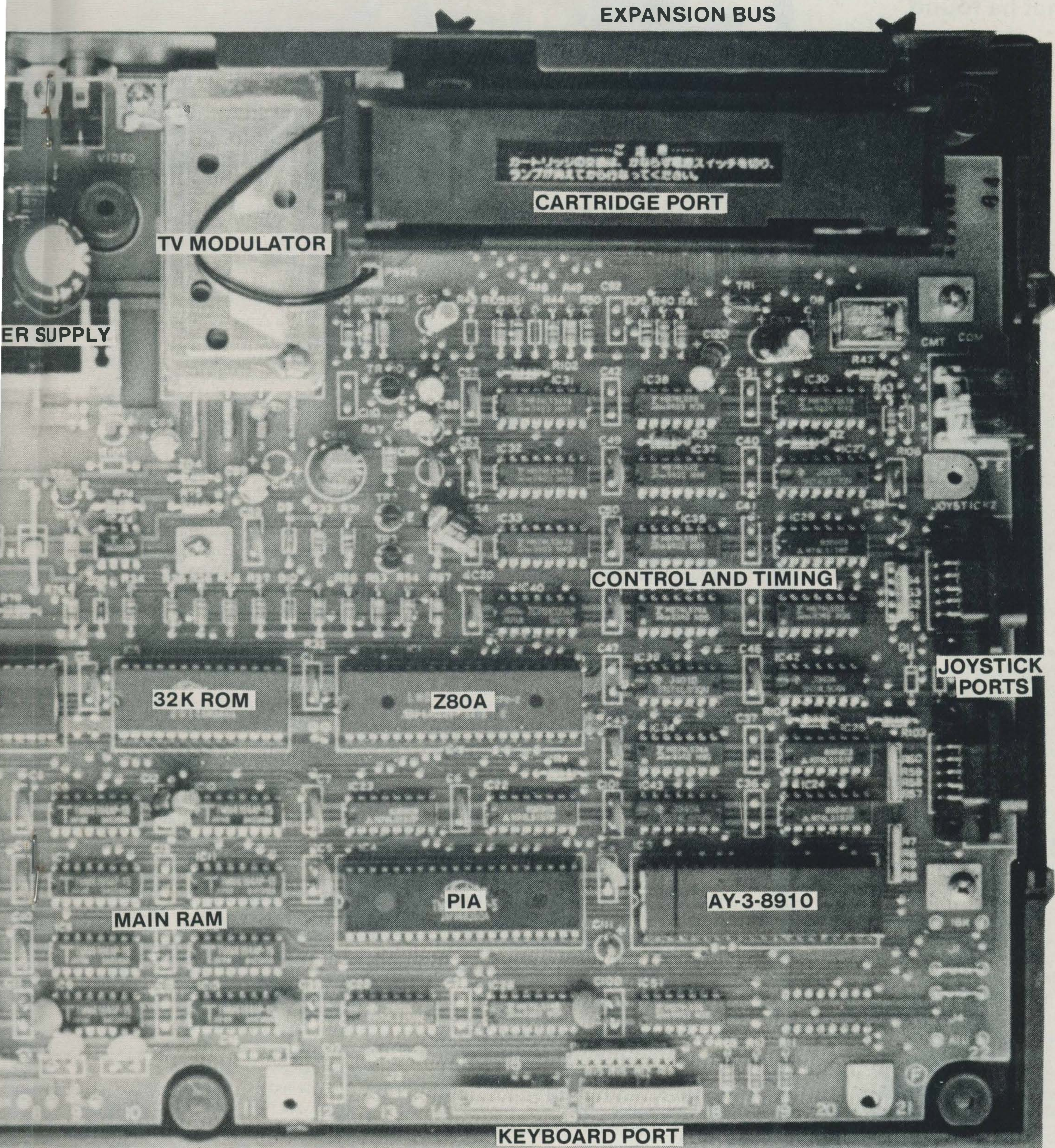
The MSX standard is not just a software specification but a detailed hardware spec as well. Here we've taken the lid off a Toshiba HX-10 to show you what goes where.

MSX

MAINS TRANSFORMER

POWER SUP

9929 VDP

SCREEN RAM
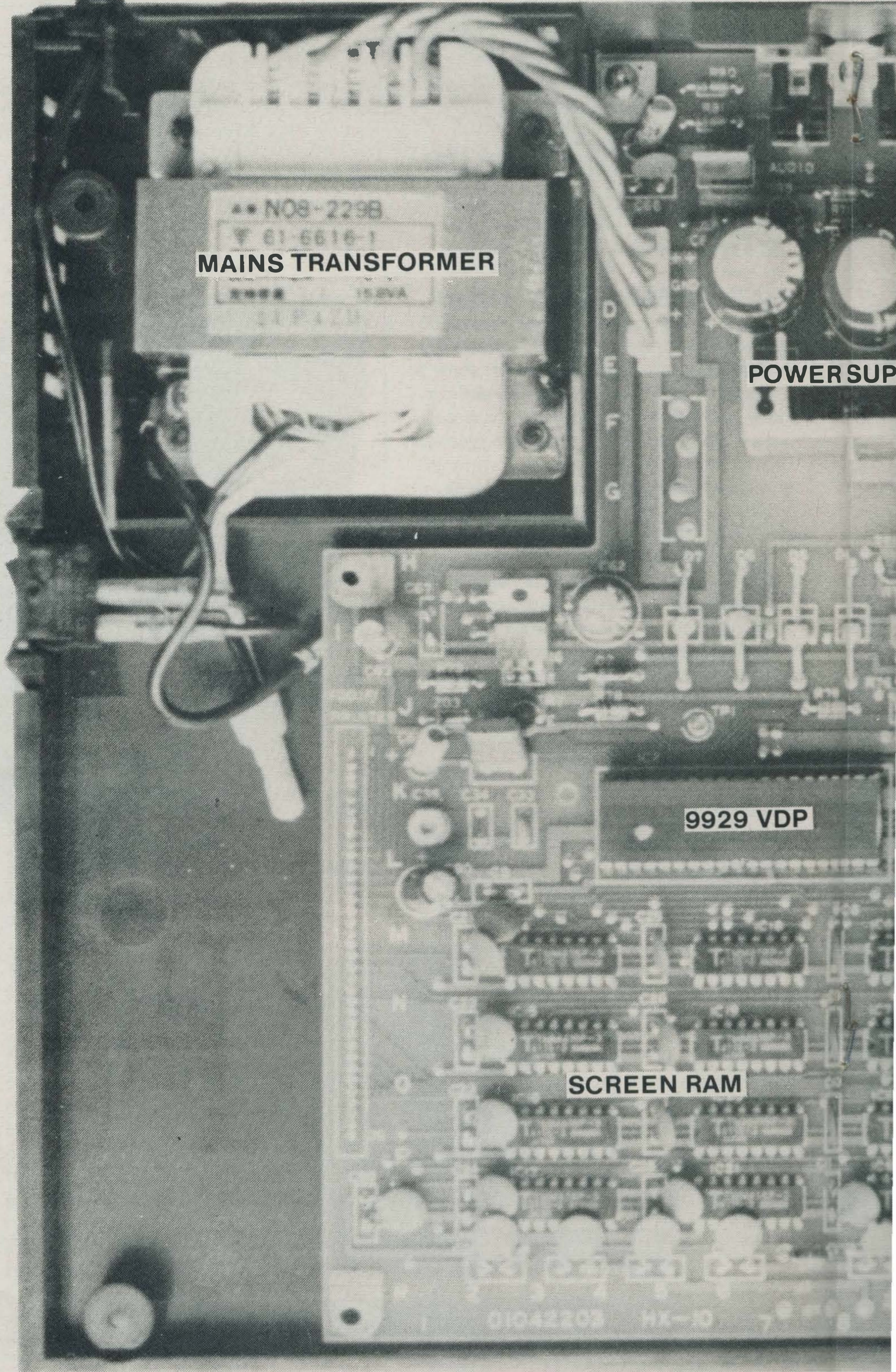
Anatomy

EXPANSION BUS

CARTRIDGE PORT

TV MODULATOR

ER SUPPLY

CONTROL AND TIMING

32K ROM

Z80A

JOYSTICK PORTS

PIA

AY-3-8910

MAIN RAM

KEYBOARD PORT

How have the Japanese taken to MSX, both at home and at work? Rex Malik has visited the country and this is what he found.

The Japanese Viewpoint

His name is Takeshi Fuchi, and no, you will not have heard of him. He is 19, has just started an engineering degree course at Tokyo University, and when I last saw him in April, just before he went, he was sitting in his parents' house working on an Othello program.

He was then talking large, if unqualified, numbers. For Takeshi had spotted that MSX could lead to fortunes being made, and gave indications that he wanted to make one. And MSX was the route that he was choosing

So far, nothing unusual: there are a lot of bright young programmers in the West who have already made fortunes, and no doubt there will be a lot more . What makes him unusual is that he is the eldest son in a home where someone really knows about computers

For father is Kazihiro Fuchi, the pride of Japan, the man chosen to head its revolutionary Fifth Generation project, that long term attempt to create intelligent machines on which the Japanese are ex pected to spend many billions before the century is out .

Mr. Fuchi, as he is known throughout the computer and electronics industry, says that Takeshi knows more about these sorts of machines than he does, but watches Takeshi like a hawk in case he too could learn something It is a mark of the truly brilliant that they do not mind where or who from they obtain their ideas .

The Fuchi family is quintessentially Japanese: Takeshi did not buy that MSX machine without family consultation, of that we can be sure.

And one suspects that the same sort of consultation has been going on all over Japan. The knowledgable — and Japan, one must not forget, has well over half-a-million software specialists working in commercial companies and two to three times that number of electronics engineers (ex cluding those in education) — will, in the main, have come to the same conclusion: what Japan needs is a range of inex pensive personal computers, standards to which many manufacturers subscribe, standards which will ensure that they are locked in some years ahead so that one does not have to go out, say, five years from now and do an ex pensive fix to bring one's kit up to date, or have to junk all one's software and perhaps some of the peripherals — before starting out all over again.

Japan needs that all right: since the personal computer business began, and prior to MSX, there had been over 700 models of personal and microcomputers on the Japanese market And if Japan needs it, so does the rest of the world. The Japanese know that they are not alone in their problems out there.

I shall eschew technical data on MSX: that is the job of the rest of these pages. What I will say is that MSX is not confined to the knowledgeable, it is meant to be aimed at the reverse. The knowledgeable, however, are known to have bought it in Japan in large numbers initially because they above all understood what the problems of conversion and upgrading could be.

But that was not the only reason. The rise of MSX in Japan has been ex tremely rapid. It is not much more than two years ago, after all, that ASCII Microsoft started its discussions with Japanese industry. Yet early this year, Hitachi could be found claiming that they had gone from almost nothing to 15 % of the Japanese microcomputer market. They had probably done so because even by Japanese standards they had moved ex tremely fast .

What, you may well ask, is going on? Why should you care anyway ? For the answer to that we have to go back a

step to consider something which is highly unusual in mass market electronics: that was the rise of the personal computer industry prior to MSX.

A personal computer is a consumer product, right? Right. So please tell me where the large consumer electronics manufacturers have been until MSX? They have been elsewhere: which did not mean that they did not understand digital electronics, far from it Almost any manufacturer of washing machines for the mass market now has microprocessor controlled machines out there. The place is full of digital electronic controls on cameras, on recorders of various kinds, on hi-fi, on televisions: you name it, if they make it in millions, it is electronic and it has more than a simple on/off button, someone — usually, but not ex clusively, the Japanese — will have stuck a microprocessor in there.

So why weren't they into personal computers? Because they were late: the reason they were late was that the production runs were not long enough to attract them. And they faced the problem that there was no software out there to build on.

What was needed was a standard. It is already a cliche of the burgeoning MSX industry that the pre-MSX microcomputer industry was as if the record player/hi-fi industry was operating with tape and record-playing mechanisms unique to each manufacturer.

Not any old standard, of course: it had to be one that had stood up to the market in pre-MSX days, a combination of tried and tested elements, operating system, basic BASIC software and hardware elements about which a lot was known and which were readily available.

It is Z80-based, so a lot is known. Indeed, at the UK Press launch that led

to one of the best jokes so far made on that particular scene. "There's nothing old about the Z80, it's just that it's not new".

It is all these things, and it is still capable of ex pansion! MSX BASIC, it is claimed, has around 96/97 % compatibility with the IBM PC version.

The MSX launch in Japan was critically determined by the number of manufacturers who were willing to take it up. There is no point in putting forward a standard unless those who will determine it will be such, actually do so. Were those fence sitters, the large consumer electronics companies, all going to join in — or at least enough of them to make a majority — and open up the software creation market by making it look as if there was one basic operational type of product out there?

Nobody wanted to see a repeat of the VTR standard battle, with Sony on one side and much of the rest of the industry on the other In the event, almost everybody one can think of has gone along, and those market leaders, NEC and Fujitsu, who already had sizeable shares in the microcomputing market, are adding MSX products to their ranges.

So now, before the Europeans are signed up, or the Americans (and the industry is full of rumours about that: by the time this is in print announcements may have been made), there is a burgeoning standard out there.

You would not ex pect anything else, would you, when you have those electronic giants entering the market place: the Mitshubishi's, Sanyo's, JVC's and Sony's of this world, the companies who are acknowledged as the world leaders in mass production consumer electronics, either in volumes or quantity: sometimes in both.

The MSX standard is fix ed at the

core, but quite flex ible at the periphery. Thus, there are already on the Japanese market MSX machines (I nearly wrote sets, as in radio or television: that near slip is itself interesting) which can or will allow the following:

Stereophonic sound capabilities
FM sound synthesiser and a music board
A Japanese character word processor
A capability to be hooked up to a TV printer for computer graphics printout

Frame grabber function which will give the capability to convert images appearing on the VDU into digital signals for reading into the computer
Video editing

Yet all this is just the start. What we face with MSX is manufacturers who are accustomed to runs of — well, as I have written over the years, while tens of thousands is nice, hundereds of thousands is nicer, and millions is nicer still. Their tendency is to not consider much below the higher numbers in the second group and onwards. For, as has also been pointed out time and again, it requires little more management skill to manage the last than it does the first. And the economics of the sort of manufacturers now in the MSX market predicated on getting those sorts of runs; if not in the first year, then certainly in year two or three.

And we have not finished. You can look seriously at MSX like a record or tape player: the ROM cartridge mechanisms are standard. That is what the programs come on: that's obvious.

Not so obvious is that the Japanese understand silicon, which is what ROMs are likely to be made of as far forward as you care to look, and that their investment in it is large: the investment in silicon production capability in Japan last year was well over £2000 million.

Which means that they are equipped to churn out ROM: which means in turn that the Top Twenty list which changes from month to month may well soon be an industry reality, not the hype of any one commercial manufacturer.

And down the track, probably a year or two, comes something else — but we shall not go into that in this column. I must leave myself something else to write about should the editor ever ask me again.

Not that I suspect there will be a shortage of matters to discuss.

So, as they say, "Welcome to the wonderful world of MSX". It sounds like Disney, doesn't it? It might well be just that, and go on just as long, however long that is. . .

Toshiba mean to be at the forefront of the MSX explosion in the UK. Products manager Chris Greet talked to Elspeth Joiner about their plans.

Toshiba UK

In early Autumn the MSX group of Japanese computer manufacturers will launch into the UK with standardised machines: and Toshiba is convinced that its own computer will be a front runner.

Toshiba's products manager, Chris Greet, reckons that come the Autumn people will be stampeding into their local retailers to get their hands on a Toshiba HX-10. Toshiba, together with five other firms, has built its new computer according to the MSX specification.

And in case you've been living in a hermit's cave recently and haven't heard of MSX, here's a quick recap. MSX is the brainchild of the Microsoft company. It is a specification for home computers intended to standardise machines. This is the first time that such a venture has been attempted in the field of computing and it has met mixed reactions from Press and public alike.

So far the only companies who have bought the MSX specification are Japanese, which means that companies such as Sony, Canon, Toshiba, Mitsubishi, Hitachi, Sanyo and Teleton will make a joint bid to break into the UK and European market. For years people have been waiting with bated breath for the Japanese to launch Westernised computers and it looks as if they are now doing it in a big way.

Chris Greet explains why Toshiba has waited so long to produce a computer for the European market: "We felt that MSX was the chance for us to get into this market. We have been looking around for a long time for a computer to launch in the UK and this could be the ideal opportunity." He He believes the advantages of MSX and the joint venture are manifold.

"The major benefit is compatibility among computers. Introducing a standard means that software companies are going to have a much larger market at which to aim their software. Another advantage to software houses is that future MSX hardware will not make current software obsolete".

It all sounds wonderful for the software firms involved in the production of MSX-compatible programs, but what about the customers? Obviously, any software you buy which bears the MSX logo will run on any of the MSX machines — both those currently available and those
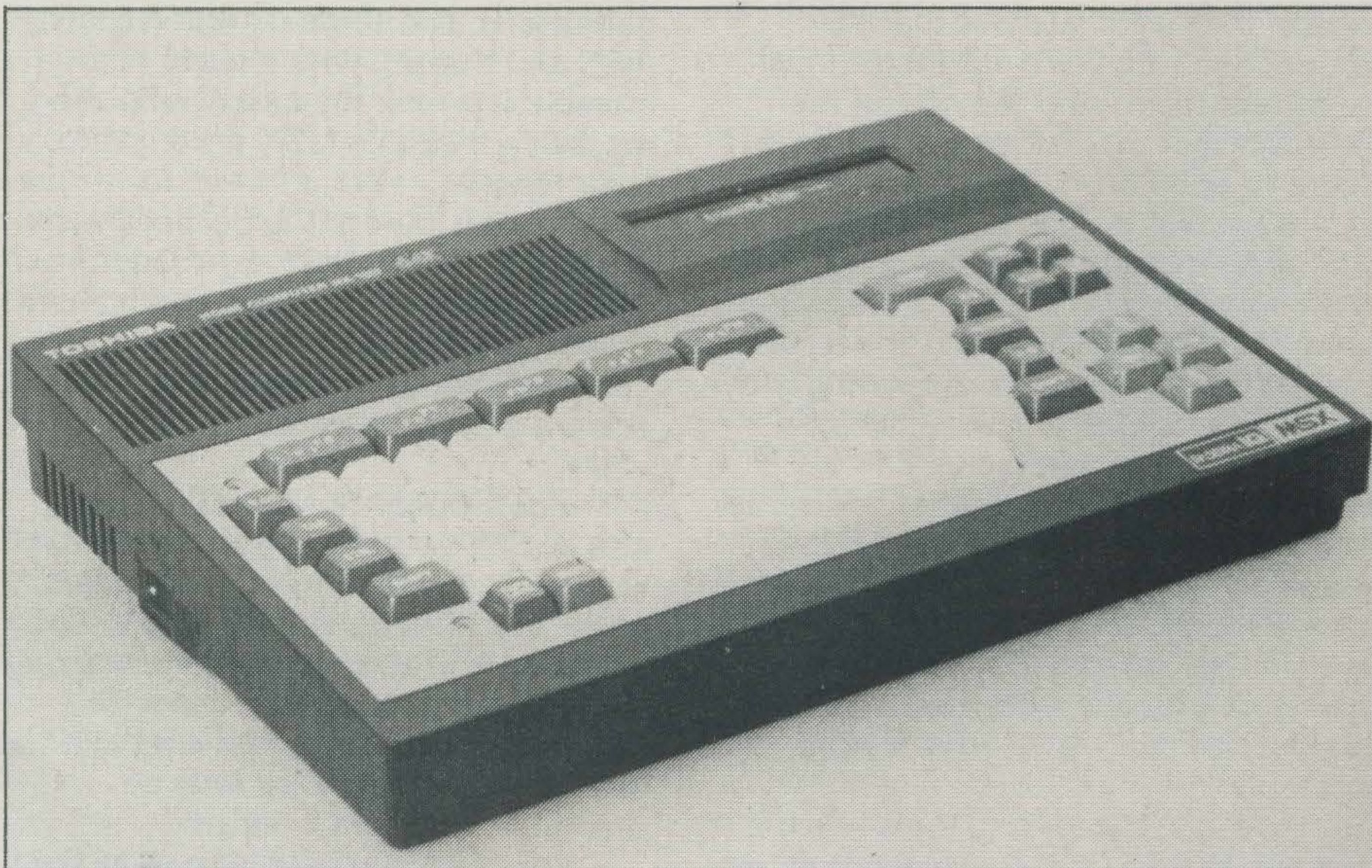
yet to be developed.

And the hardware manufacturers — what do they get out of it? Hopefully, a large chunk of the UK computer sales. The MSX group has so far achieved 30 per cent sales in Japan, which Chris Greet feels is quite substantial, although he agrees that MSX machines have an advantage in their own Japanese market. It might be different here.

At the moment Chris Greet thinks that Toshiba's HX-10 will sell for around £270, but this may change. He said: "It really depends on the other firms; we all have different marketing plans, different ideas and different overheads.

"But I don't think price is that important. It's not the only thing to consider and obviously there will be some software which will not run on, say, the Hitachi because of the different memory size. Toshiba will probably produce more business software as that is where the 64K memory (which the HX-10 has) is important. Not all MSX machines will be rigidly standard. Some will have individual features over and above the MSX specifications, which could influence the customer".

Chris Greet says 17 companies have signed on the MSX dotted line to produce computers according to the standard — all are companies based in the Far East. As the deals have not been finalised the names are still secret. It is hoped some European firms will join the MSX band but Greet says the investment required by firms involved

in the MSX venture is considerable.

"The financial commitment is quite large, probably larger than most UK companies can afford", he said, giving some idea of the investment involved. For a start, the cost of buying a licence to produce MSX standard computers, so Mr. Greet says, runs to "not much less than £1 million".

To make sure that its investment is not wasted, the MSX group has gone to great pains to get the cooperation of almost all the major British software producers. Mr. Greet explained: "The software industry in the UK is probably the most advanced in the world. We won't be using any Japanese software on the MSX machines. We are working as a group to get the software we want. Our own philosophy is that we are experts in manufacturing hardware and we will be fully supporting companies who can give us the right software".

Toshiba hasn't got any software ready for the September launch because the firm has only recently given computers to interested software houses to work on. But Chris Greet says that all areas of software needs will be provided for, including games, educational and business. There will probably be more games than anything else initially because "there is no difficulty in obtaining good games".

In fact, Mr. Greet considers software to be of such importance to the success of the HX-10's sales that he is now spending about 60 per cent of his time wearing his MSX hat and talking to

software firms. Having set up the MSX venture in the UK, he is currently more involved with the software plans. He thinks that, although it will be easy for programmers to convert already successful products to run on the MSX standard, programmers will not be content to do merely that. "Because good programmers are interested in doing new things we will probably see a lot of exciting new titles in the Autumn".

And if you like the look of the Toshiba HX-10 you'll be able to buy one from September. They'll be on sale "in all the usual places", which means High Street retailers, but they will also be on sale in small independent retailers. According to Mr. Greet, Toshiba is a company very strongly committed to small independent retailers", and it is the firm's intention to persuade such outlets to go into the computer marketplace. If they do it won't be for lack of retailers that you can't buy an HX-10 over the counter. Neither should it be for lack of computers as Chris Greet has guaranteed that "Toshiba will have computers in this country in September".

In fact, Mr. Greet was brimming over with confidence at the prospect of the success of the forthcoming HX-10 and the MSX venture into the UK. "I don't think anybody will lose out, from the consumer to the manufacturer. MSX will create more of a demand in the marketplace and that has to be an advantage to everyone".

It will be some time
before MSX
advertising appears
over here, so we
thought you might be
interested to see some
of the ads from the
Japanese MSX
Magazine.

Odd Ads
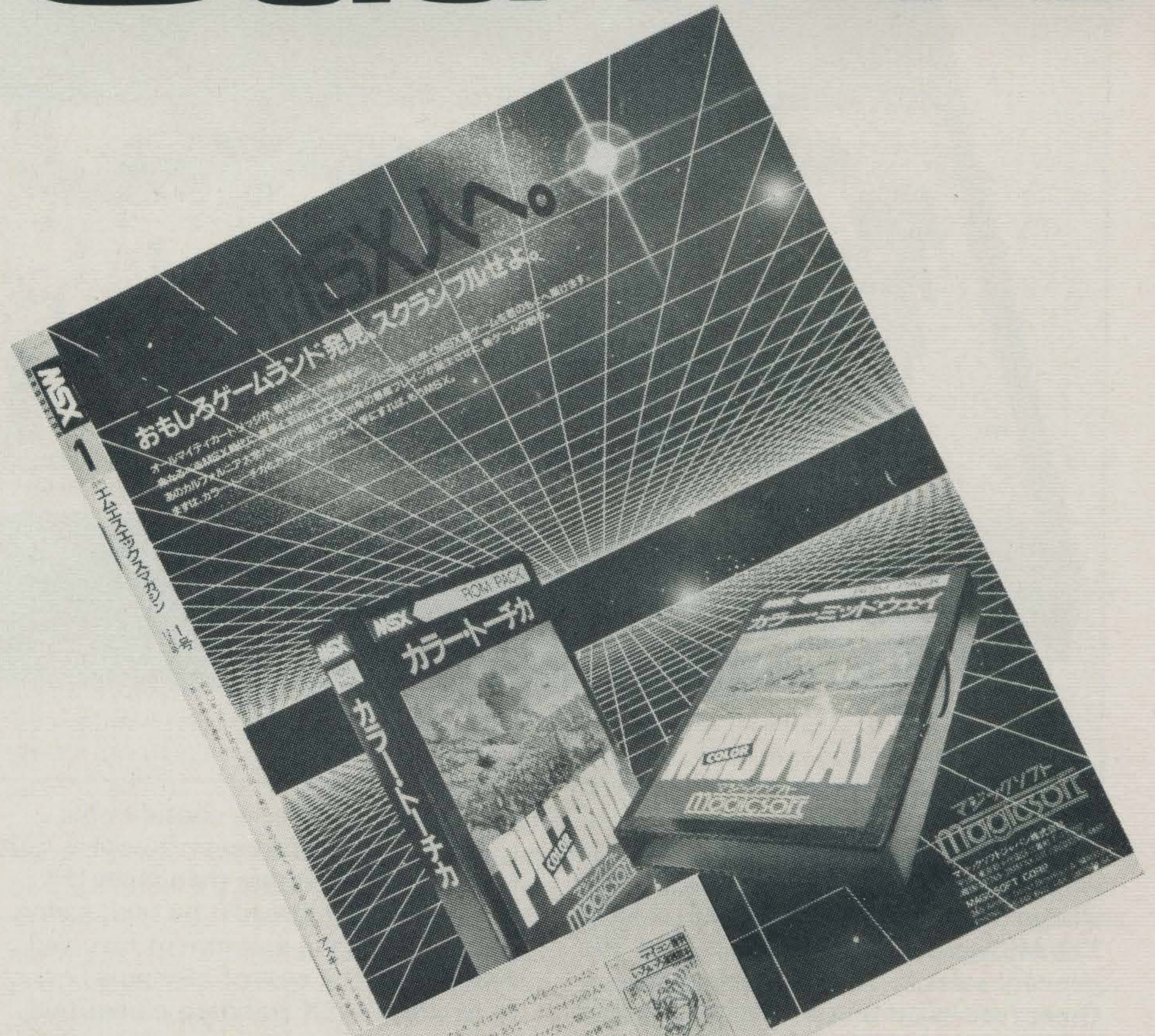
The End...

. . . of the beginning.

That brings us to the end of the first issue of MSX User: we hope you've found it interesting. If we've whetted your appetite, look out for the features coming up soon.

We'll be examining the MSX BASIC language keyword-by-keyword, explaining just what each one does. We hope to bring you the first full-length useful games listing to be published in the UK — an MSX version of that old favourite Froglet.

We are hoping to get details of the amazing musical abilities of some of the MSX range, and a look at the equally exciting video effects possible with the JVC machine.

If you want to know about MSX, you can't afford to miss the next edition of . . .

MSX USER