PCN
micropaedia
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CHRISTMAS MICRO BUYER'S GUIDE

SORD M-5

VIC 20

ORIC 1

BBC B

TANDY MC-10

NEC

COMMODORE 64

APPLE IIe

SPECTRUM

TANDY COLOUR

AQUARIUS

LYNX

APRICOT

ATARI 1000XL

COLOUR GENIE

SHARP MZ700

ELECTRON

DRAGON 32

LASER

IBM PC-1

ZX 81

PULL OUT AND KEEP

How to buy a micro

If you're thinking of buying a micro, you've probably already decided you need a guide. And if you've been looking for any length of time, contradictory advice from sales assistants may even have made you wonder if you need a guide to the guides.

But before you despair, remember that micros today are better and cheaper than they've ever been before, so if you choose wisely, you'll get a bargain. But equally, if you get it wrong, and buy a micro that doesn't suit you, you could end up putting yourself off the beasts for a very long time.

So how do you start? If you're new to micros, it's possibly best to stick to the more popular machines, because although you may find a gem just right for you somewhere in the micro jungle, you're much more likely to pick up a complete turkey.

Your first step should be to find out what you can afford — there's no point in spending your time salivating over a Sirius if your wallet will only fit a ZX81. So you should first list the micros that fall into your price range, and then decide between them on the basis of what you want from your micro.

Inevitably you're the one who's going to be best equipped to say why you want to buy a micro, but there are a number of common reasons:
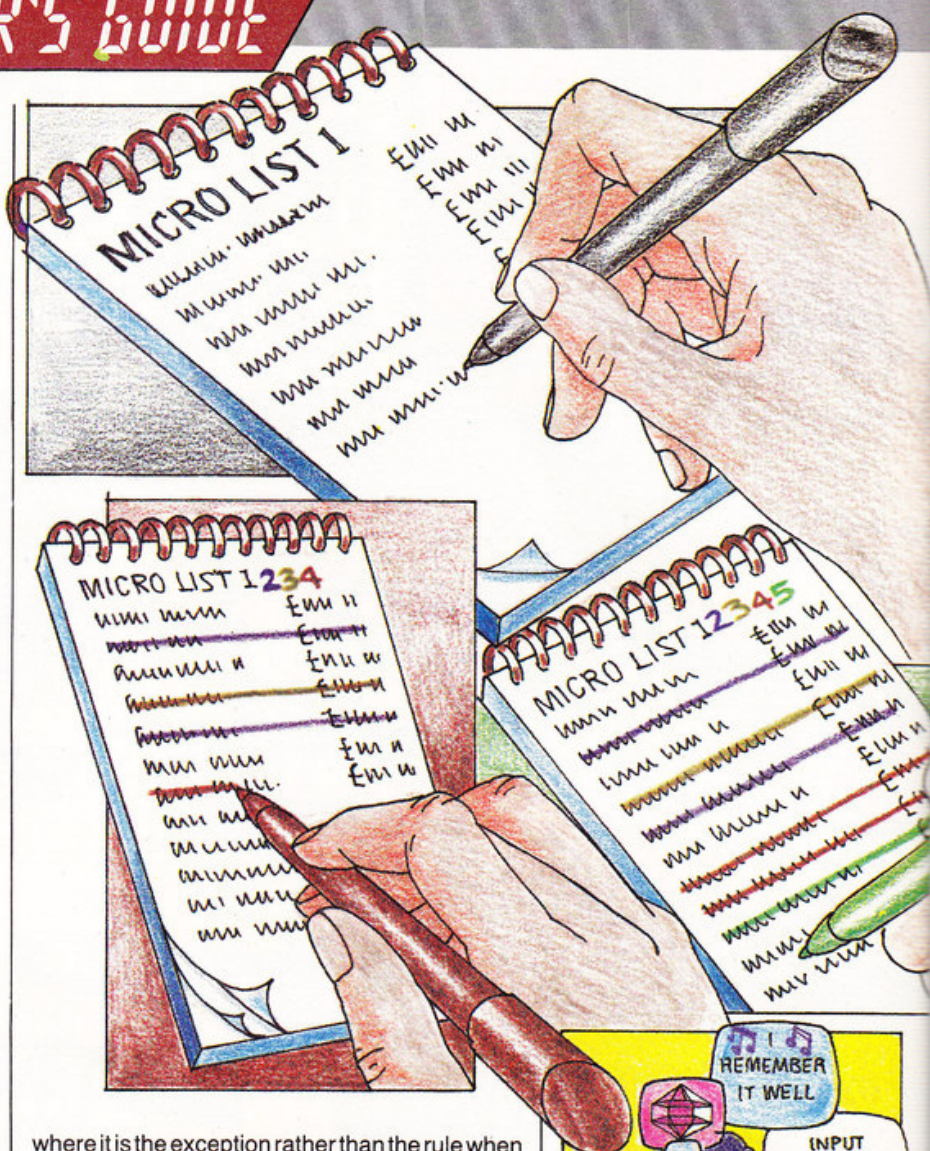
1 You feel you want to learn about programming, or

2 You want to play games

3 You want to use a micro for home filing

4 You think a micro would be helpful in your business

It's likely that you'll fall into several of these categories, but bear in mind, the more you want from your micro, the more it's liable to cost. Naturally you'll still want to get the best deal that you can, and therefore you should be looking at the expansion potential of your choice, but again this will cost money.

The availability of software is also something that should concern you. For example, you could buy a dynamic new machine with specifications streets ahead of other micros in its price range. But unless you just want the machine to write your own programs, you'll almost inevitably have to wait, first for the machine, and then for people to start writing and selling the software.

In the case of some machines, the now deceased Jupiter Ace for example, this never happens, so if you decide on a new and untried machine you should either be quite straight in your mind that you're either going to write your own software, or that a wide body of software is guaranteed.

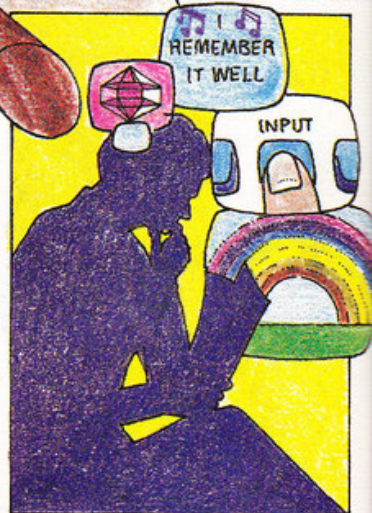Perhaps a word about guarantees would be in order at this juncture. The micro industry has a sorry track record on promises, to the extent where it is the exception rather than the rule when a product is launched on time. So when the word is a micro is due to be launched in the next few months, take it with a pinch of salt, as you may find yourself hanging on for a lot longer than you bargained.
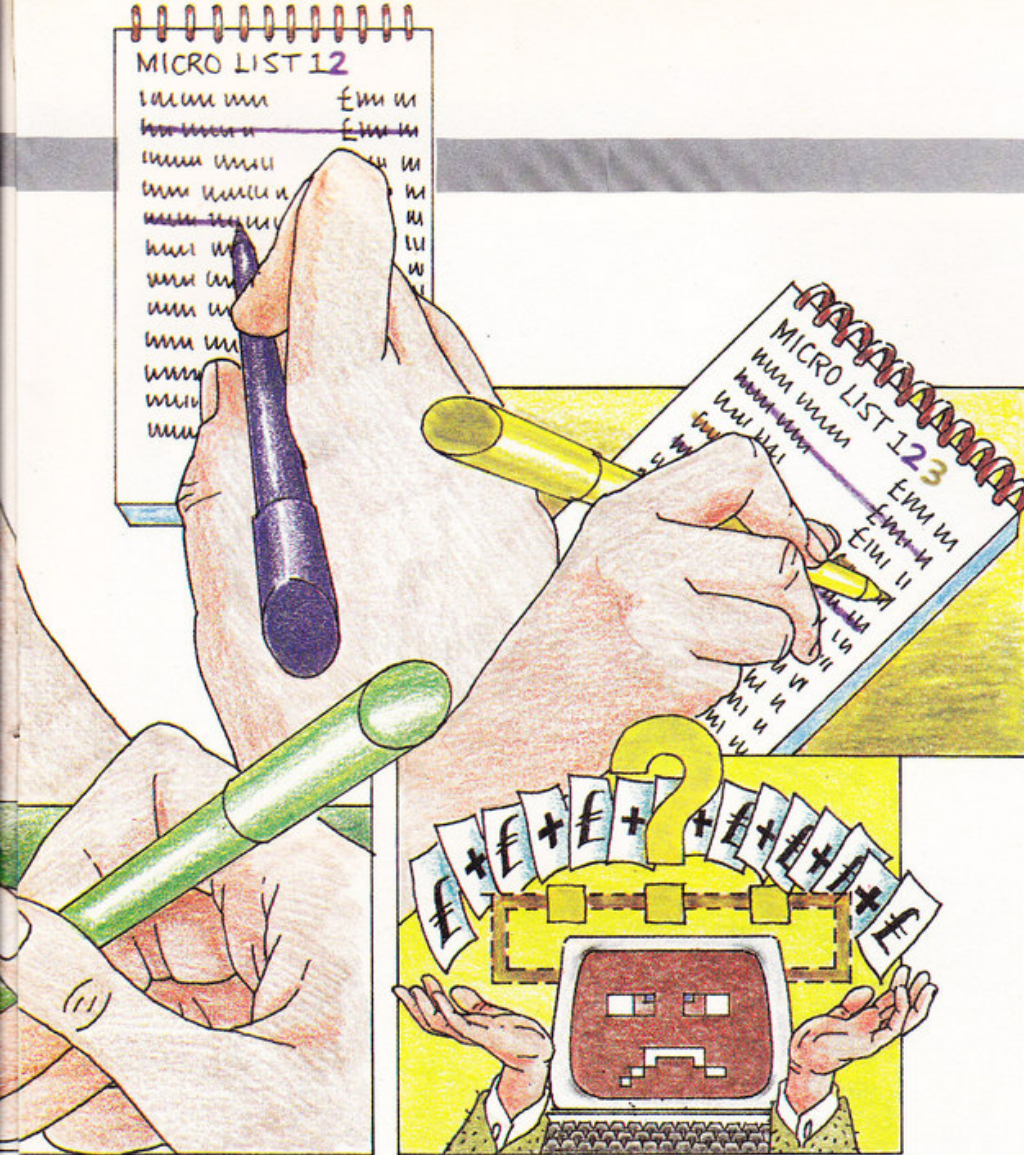
Similarly, if you decide you're going to need add-ons, either immediately or in the near future, buy a machine that already has them available. You could wait a long time — and plenty of people already have — for a printer interface and disk drives for your micro, and if you happened to be buying a micro for word processing, you'd feel pretty silly, check?

If you want a micro to learn about programming, you may not need to be so concerned about support. Unless you're feeling particularly masochistic, you'll probably want to buy one with a good, well-debugged Basic, but provided it's got that, along with good documentation, it's a safe bet you've got enough to get started.

For example, both BBC and Sinclair Basic have been around long enough to be relatively bug-free, and the manuals, although perhaps a little on the turgid side, are informative. Oric and Lynx Basic, on the other hand, are only now starting to shape up, as bugs are found and fixed, and the manuals are still being 'updated' through the good offices of various user groups. Fine machines for those who know what they're doing, but a little dispiriting for a beginner who bought one just after they came out.

For games, your requirements are liable to be

MICRO LIST 12

MICRO LIST 123

a little different. The first thing you should look at here, naturally, is the games available for the micros on your shortlist. You might also like to bear in mind that it isn't just a question of what's available — you've also got to think about what is available near where you live, unless you want to trust mail order companies.

There are other things you'll need to consider. Does your choice have a built-in joystick interface, and if not, can you buy one for it? You may want to be able just to plug games in, rather than having to wait for them to load from tape, so you must also ask whether or not your machine will take cartridge software.

Finally, ask yourself how much the games cost for the various machines. You may find yourself buying a machine that costs less initially, but in the long run costs you a lot more because of the price of the software.

Using a micro for home filing or for work is again a question of software, but you're also likely to want to use a printer, and if the jobs you intend to do are big, then you may well want disk drives.

So first you should check to see what software is available, say in fields such as home accounts, word processing and filing. You should also check out a few reviews of these packages, because there's little point in buying a micro that only has third rate and/or inconvenient-to-use serious software supporting it.

For large files, disks will be a must, as slowly and laboriously saving information on tape will take up too much time, and may limit the size and versatility of your files. So make sure your choice of micro can be connected up to a disk system, and also to a printer, if you're going to want written output.
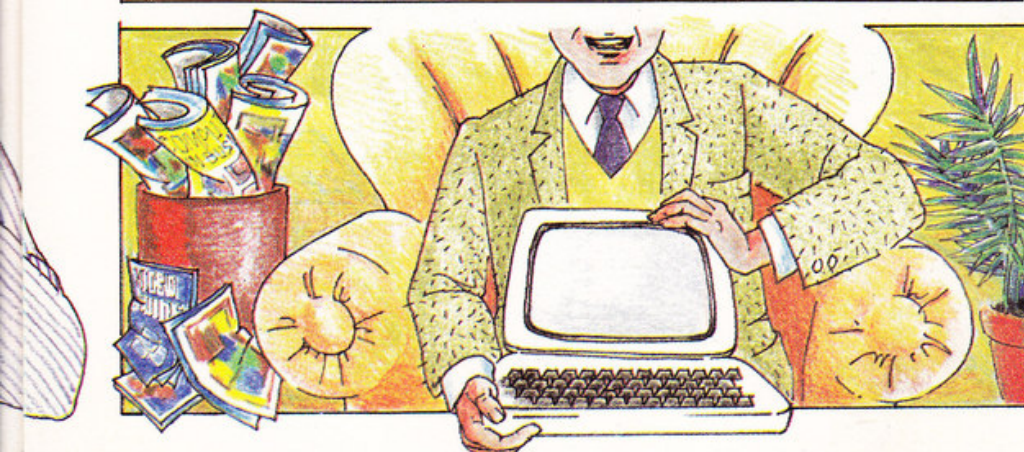
If you're going to spend a lot of time writing on your micro, you'll want a proper typewriter style keyboard. You may find yourself thinking that you could make do with one of the cheaper variants, such as the Oric, but resist this temptation. Keyboards do come in all shapes and sizes, but you can really only do professional word processing tasks on full sizes, full-travel keyboards.

And if you're still confused? Don't despair: as we said at the outset, micros today are incredibly cheap, and really the best way to learn about them is to get on. So, if you can't make up you mind, don't buy an expensive system — buy a cheaper, tried and tested one. Sure, in a year's time you'll probably be thinking of upgrading, but once you've been bitten by the bug, that goes for all of us . . .

1 List all the micros you can afford.
2 If you have any specific tasks to perform, such as word processing eliminate any micros where this will be impossible/inconvenient.
3 Look at the software available for the micros left on the list, and cross off any which are poorly served, or which do not have the software you're liable to need for specialist tasks.
4 Look at the peripherals available, and cross off any with problems similar to those under software, above.
5 If you've let any micros through on the grounds that software and peripherals are 'coming soon' go back to 3 and 4 and cross them off.
6 Ask yourself if there's anything non-standard about the micros still on the list. For example, you need an interface if you want to run any printer but the ZX Printer off the Spectrum, and Commodore machines tend to lock you into Commodore peripherals. Add any extra cost you're liable to incur.
7 Now — and only now — look at the specifications of the machines on your shortlist. How many colours do they have? How much memory? What is the screen resolution? Do they have user defined graphics? Do they have sprites?
8 Look at the supporting literature.
9 If you're still not down to one micro, or if one on your list hasn't turned out to be miles ahead of the others, buy the cheapest.

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NEXT WEEK

Next week we continue our series of buyer's guides with a look at peripherals — printers, plotters, disk drives, monitors. Don't miss it.

Over the next 13 pages we'll give you not one, but two complete home micro buyer's guides. Each on its own would be valuable in helping you choose a micro for Christmas, but taken together they are an uparalleled complementary package for the discerning micro buyer.

The first eight pages of this guide consist of details of 17 home micros under £400 and four notable business micros over £900 — comparing similarly-priced machines and giving thumbnail sketches of what software and hardware is available for each machine.

The last six pages is our Databasics section, normally published at the back of the magazine. To make it easy to use with this special Micropaedia buyer's guide, we have put the two together as one quick reference package.

In the comparison charts the machines are compared for price, standard RAM offering, maximum RAM. and the maximum text and graphic resolutions.

Name ZX81
Price £45 (new ZX-81 starter pack)
Standard memory 16K with expansion pack included in starter pack.
Comments The original black-and-white soundless 'starter computer' from Sinclair costs £45. With the vast library of software established for the machine over the past few years, it's probably the best black and white first computer you can get. It's also one of the few black and white computers that has survived.
Interfaces Cassette, TV and expansion port. The ZX81 is by nature a simple beast, but so many people have felt challenged by its simplicity that a vast range of peripheral devices from 80-column printer interfaces to disk drive connectors have been developed for it by third party hardware manufacturers.
Software Given the machine's limited memory and graphics — and its lack of sound — some quite stunning packages have been produced for it, most of them games. But with the machine's flat keyboard it's perhaps surprising that a number of software houses have produced professional word processors and spreadsheets for it.

Lots of good games for this starter computer and a surprising number of serious computing utilities.

Name Aquarius
Price £59.95
Standard memory 4K expandable to 52K
Comments This micro started life as the Mattel Aquarius, but has been taken over by the machine's manufacturers Radifon Electronics. However, the market pressures that caused the switch to direct sales by Radifon also forced Mattel to drop the machine's price to £59.95 just before it made that switch. The new price makes the Aquarius one of the cheapest colour computers, although Radifon has indicated they will push the price back up after Christmas.
Interfaces The Aquarius currently offers expansion to run an own-brand cassette recorder, a small thermal printer, games paddles and cartridge games. The mini-expander unit also allows memory upgrade, initially with 16K memory pack.

The machine uses a Spectrum-style rubber keyboard and allows for overlays that help to assign specific tasks to different keys in both games and applications packages.
Software This has, until recently, been almost exclusively in the cartridge format. Radifon has promised, however, to have 50 cassette programs on the shelves by Christmas — releasing them at the rate of three a week.

Machine	Price	Standard RAM	Max RAM	Text	Graphics
ZX81	£45	1K	16K	32×24	64×42
Aquarius	£60	4K	52K	40×24	80×72
Laser 200	£70	4K	64K	32×16	128×64
Oric 1	£99	16K	48K	40×28	240×200
Spectrum	£99	16K	48K	32×24	256×192

Name Laser 200
Price £69.95
Standard memory 4K (immediately expandable to 20K, with the promise of future expansion to 64K)
Comments Until the Aquarius price drop, this machine wore the mantle of the cheapest colour computer in the UK. It is billed as a competitor to Sinclair's Spectrum colour computer and has a good deal in common with that machine: the same type of rubber keyboard, single-key Basic keyword entry and the same Z80 processor.
Interfaces The Laser offers the standard TV output, cassette I/O plug-ins, a memory expansion and the traditional cartridge expansion slot. The 16K RAM expansion — which brings the price of a 20K Laser up to the price of Sinclair's Spectrum (£99) — slots into the said memory expansion slot at the back of the machine.

Promised for the future are printer, joystick and disk drive interfaces.
Software This is perhaps the biggest question-mark surrounding the Laser. Although the machine sports a standard Microsoft Basic, it's early days yet to predict how much software will be written for it. Abbex software has committed itself to producing some packages, but it's a 'wait and see' situation.

Name Sinclair ZX Spectrum
Price £99 (for basic 16K model), £125 (for 48K model)
Standard memory 16K or 48K
Comments The best-selling colour computer in the UK, with arguably both the biggest third-party peripherals and software base of any machine bar the Apple II.

Although some may gripe about the Spectrum's 'spongy keys', they have kept the price of this machine consistently low. And enough third-party peripheral houses have made their own 'real' keyboard available to mean that this is no longer a major issue.
Interfaces Printers, disk drives, (Microdrives), joysticks, cartridge software, networking, memory expansion: you name it, it seems it can be plugged into the Spectrum. Sinclair itself offers the Microdrive, a cartridge software and joystick interface, an RS-232C, Microdrive and network interface and the ZX printer (which can also be used with the ZX81). But that's only a fraction of what's available from third-party peripheral developers.
Software Again, there are reams of it, including a lot of very good games.

Name Oric-1
Price £99 (£79.95 mail-order from Oric)
Standard memory 16K expandable to 48K
Comments There are actually two models of Oric, the 16K and the 48K, but for the purposes of this buyers guide they are more or less the same machine. After a difficult first year when the Oric was greeted with mixed reactions, and the company had considerable problems with its ROM, Oric has achieved considerable success in France and a good software base has developed for the machine here.
Interfaces It has a keyboard somewhat superior to its major competitor — Sinclair's Spectrum — and supports more standard interfaces, including a built-in parallel interface (to use standard 80-column dot-matrix printers) and Oric's own colour printer/plotter, a plug-in for RGB professional colour monitors and an expansion 'bus' that will soon take promised three inch disk drives.

Oric has also promised a modem for the machine which will use its built-in Teletext graphics facility to connect to Prestel.
Software Here again, Oric has recently found itself recovering from teething troubles. Word-processing, spreadsheet and machine language software is now available, in addition to a growing collection of both arcade and adventure games.

Name Sord/CGL M-5
Price £150
Standard memory 4K available RAM, 16K video memory (expandable to 32K)
Comments Since this machine arrived in the UK last spring, it has consistently been passed off as 'nice, but pricey' by reviewers — but Sord and CGL (Sord's major distributor in the UK) are hoping a drop from £190 to £150 will change all that.

The machine comes with only 4K of memory, but that memory is a good deal more useful than it might appear as the 16K video memory does a lot of work with the screen.
Interfaces The Sord comes with interfaces for motor-controlled cassette storage, joysticks, cartridge software (plug-in game and business packages) and colour television display. It also includes a plug-in for Centronics full 80-column printers like the Epson MX-80F/T.
Software Software development for such machines as the M-5 is a chicken and egg question. Well-built and high-quality machines like the M-5 always come with some software, but the availability of more depends greatly on whether the machine sells well enough to impress third-party software houses.

But sales of any machine always depend to some extent on the software available, so the whole thing is rather circular and you're probably going to have to decide whether or not to buy the machine on the basis of what it will do rather than on what it can do just now.

Name Commodore Vic-20
Price £139
Standard memory 5K (expandable to 32K)
Comments This old standard from Commodore rivals the Sinclair machines in popularity and — in its current 'starter pack' form — offers very good value. The starter pack includes the standard 3K RAM Vic-20, the dedicated Vic cassette recorder and a cassette including 20 programs.
Interfaces The standard Vic comes with joystick port, serial port, expansion slot and user port, and TV output modulator (both the picture and sound are output through the TV).
Software The standard Vic-20 comes with a cassette containing 20 programs including 'Type-a-tune', 'Blitz' and 'Hoppit', but that's only the briefest hint of the vast array of software that's been built up for this machine. Software on both cartridge and cassettes is available from Commodore and many other third party software houses.

Name Tandy MC-10
Price £99.00
Standard memory 4K (expandable to 20K)
Comments The MC-10 is Tandy's first entry in the under £100 computer sweepstakes and provides a low-cost counterpart to the company's more upmarket Colour Computer. The machine is small — not much larger than the ZX-81 — but supports hard-plastic keys, a printer interface and an RS-232C communications port.

The machine also allows single-key Basic keyword entry and a modified version of Microsoft Basic called Micro Colour Basic.

Interfaces Tandy offers a small thermal printer with the MC-10, as well as it's range of peripherals such as computer cassette recorders, dot matrix printers and plotters. Tandy is also expected to produce a cheap modem that would allow the machine to 'talk' to other computers over the telephone.
Software Given that it uses much the same Basic as the Colour Computer — and that Tandy is certainly capable of putting out lots of its own software — there should soon be a great deal of software available for this machine. But the operative words here are 'should' and 'soon'. Just how true that prediction is depends entirely on Tandy.

Name Atari 600XL
Price £160
Standard memory 16K (expandable to 64K)
Comments The Atari 600XL is not a great deal different from its predecessors, the Atari 400 and Atari 800. Like the 400, the 600 XL has 16K memory as standard kit — but unlike the 400, the price also includes a full travel keyboard, the Basic programming language built into the main board of the machine and expandability to 64K.

At £160, it represents very good value — particularly since it can run the whole range of existing Atari disk, cartridge and cassette software.
Interfaces The 600XL uses Atari's non-standard peripherals interface for disk drives, cassette recorders and printers. Using Atari's standard peripheral expansion interface, you can also hook up standard parallel printers in addition to the new range of Atari dot matrix and letter quality printers. There's also a parallel bus and even a planned Expander box that give you dual RS-232C connectors, a Centronics port and eight other expansion slots.
Software There's loads of it — although a surprising amount is still only available in the more expensive cartridge form. But a large range of applications are represented in the Atari software list, including an official implementation of Visicalc and a quite respectable cartridge word-processor called Atariwriter.

Name Colour Genie
Price £168
Standard memory 16K RAM (expandable to 32K)
Comments Also known as the EACA EG2000, the Colour Genie is distributed by Lowe of Matlock, which offers full support and service. One of the earlier contenders in the USA home micro marketplace, the Colour Genie is generally comparable to both the Vic and TRS-80/I moulds.
Interfaces Like other (more expensive) members of the Genie family, a healthy selection of plugs and sockets ensures that most kinds of add-on can be tailored for the Colour Genie. Serial, parallel, audio, video, cassette, television, and expansion connectors, as well as an internal speaker, are standard fixtures and fittings.
Software Supplied with the machine is a demo cassette, containing programs written in Basic. Unless you have some add-ons, you are pretty much limited to using the built-in (Microsoft-styled) ROM Basic language. The semi-high resolution graphics are great for games, but the text display is somewhat resistant to more serious applications.

Name Dragon 32
Price £175
Standard memory 32K
Comments The Dragon 32 has a common heritage with the Tandy Colour Computer, but has traditionally maintained a lower price than its chief (but much larger) rival. Most colour computer software will run on the Dragon, and in the year or so that it's been available the Dragon has built up a good software base of its own — mostly from third-party software houses. Dragon have also been no slouches in producing their own peripherals, releasing both joysticks and a disk drive.
Interfaces The Dragon comes with a standard parallel printer interface, plug-ins for joysticks, a composite video monitor socket, a cassette interface and its own expansion port. Dragon's recently released disk drive unit and disk controller round out the expansion options — with the disk controller containing an upgraded version of Microsoft Basic.
Software The Dragon's compatibility with the Tandy colour computer gave it a software advantage to start with, and with the large numbers of Dragon programs written and released in the past year, the machine is one of the better-equipped popular micros. In addition to a plethora of games, a number of both word-processing and spreadsheet programs have been developed for the machine.

Machine	Price	Standard RAM	Max RAM	Text	Graphics
Tandy MC10	£99	4K	20K	40×24	64×32
Vic 20	£139	3.5K	32K	22×23	160×176
Sord	£150	4K	32K	40×24	256×192
Atari 600XL	£160	16K	64K	40×24	320×192
Colour Genie	£168	16K	32K	40×24	160×102
Dragon 32	£175	32K	32K	32×16	256×192

Name Tandy Colour Computer
Price £179
Standard memory 16K (expandable to 32K)
Comments The Tandy Colour Computer was Tandy's first entry into the low-cost home colour computer market, and as it has been around for some time has developed a good software base and a wide range of peripherals. So far, the colour computer wins out in its contest with the Dragon on the basis of having more peripherals, software and a larger dealer network — but the Dragon still scores over the Tandy by having a better keyboard and more memory.

Interfaces Much the same as the Dragon, except that all Tandy peripherals will — of course — work without modification on the colour computer. And the Tandy-Dragon connection can sometimes work in Tandy's favour as many third-party peripherals for the Dragon will run without modification.
Software Cartridge software has always been the colour computer's forte, but with the recent rash of cassette programs for the Dragon that could change feature. Although these machines are in competition, Dragon, Tandy and the users of both machines will benefit from more sales of either machine.

Name Lynx
Price £225
Standard memory 48K RAM (expandable to 192K)
Comments The Lynx is perhaps less well-known than other micros produced in Cambridge, however it boasts many of the features found in machines costing 50% to 75% more. Including a 'real' keyboard, colour graphics, and loudspeaker, the design of the Lynx micro is of the lightweight desktop variety.
Interfaces As with many Z80 based micros, a comprehensive expansion connector allows you to bolt-on peripherals. This is where additional ROM and RAM get grafted on, as well as floppy disk equipment. As supplied, Lynx sports television, cassette, video, RGB, light pen, and serial interface connectors.
Software The Lynx contains ROM Basic as standard, although ROM Pascal, Forth and Comal languages are offered. With optional floppy disks fitted, the plethora of CP/M software is available.

Name Electron
Price £199
Standard memory 32K RAM
Comments This machine is the much-heralded offspring of the BBC Micro. As such, its principal features are a real keyboard, the BBC Basic language, and almost complete compatibility with existing BBC software. Due to great advance demand, it is presently difficult to find an Electron in stock, so you'd be well advised to check availability before setting your sights on this one for Christmas.
Interfaces To compete in the under £200 marketplace, the Electron contains only the barest minimum of built-in interfaces. Apart from cassette, television, video, and RGB connectors, all other peripherals (will) use the large expansion connector. Unfortunately, being yet another very young machine, not even a handful of Electron interfaces can presently be found off the shelf. However, there's a growing range of mail-order bolt-ons.
Software The shortage of interfaces means you are restricted in the usefulness of any of the existing BBC software which will run on an Electron. Also, until you can connect a printer, writing your own programs will be somewhat tedious. Content yourself with a few games for Christmas, however, then get serious in the New Year.

Name Sharp MZ700
Price £275
Standard memory 64K RAM
Comments Another young machine, the MZ700 offers complete compatibility with its predecessors, the Sharp MZ80 series. As such, the considerable number of school and business MZ80 users will find everything they know, plus more, within this latest machine from Sharp. With its lithe and stylish keyboard, the MZ700 approaches the realm of professional micros, although it is not very well known yet.
Interfaces The most prominent feature of the MZ700 is its ability to hold both its optional cassette recorder and colour printer/plotter within its cabinet. Included in the standard machine are both a real keyboard and internal loudspeaker. Standard connectors include cassette, printer, television, video monitor, RGB monitor, joysticks, and I/O.
Software Apart from the Sharp Basic language, a word processor and a few games, there are few MZ700-specific programs available. However, the standard 64K Z80A design and wide range of MZ80 software should be enough.

Name Commodore 64
Price £229
Standard memory 64K RAM
Comments The youngest member of the well-known Commodore family (remember the PET?) offers one of the better values for money in Santa's sackful. As well as a real keyboard, you get powerful colour graphics, sound generator, lots of RAM memory, ROM Basic, and a reliable expansion system.
Interfaces Like the Commodore Vic 20, the 64 offers serial (RS232), parallel, cassette (Commodore standard), joystick, and television (picture and sound) connectors. A cartridge/expansion connector allows games and peripherals to be fitted quickly and easily, notably Z80 processor, floppy disk, and 80-column screen expansions.
Software There's now much software to choose from for the 64 with word processors, databases, and some excellent games. Watch out for a software explosion with the announcement of the CP/M operating system interface for the 64, and if you can afford the prices, American import packages are exceptional.

Name BBC Model B
Price £399
Standard memory 32K RAM
Comments Here is the most expensive machine in our list, although by no means the most expensive home micro on the market! There is presently nothing to beat it at this price for versatility. Its very name reinforces its pedigree, as well as assuring additional acceptance by both education and business users. Also, the BBC Basic language is very likely to become a world-wide standard, if it isn't already.
Interfaces There are many products available, and countless more in the pipeline. The standard Model B has a full real keyboard, ROM Basic, colour graphics, and sound generator with built-in loudspeaker. Standard connectors include cassette, printer, television, video monitor, RGB monitor, and analog (includes voltage-measuring, light pen, and joysticks). Also provided, but requiring extra components to be fitted, are speech, network, floppy disk, and second-processor connectors.
Software Quite a lot of it and largely of very high quality. There's a wide choice for games players and, thanks to the machine's educational pedigree, a lot of packages in that area too. The majority of what's available comes on cassette although there are many utilities and business applications on plug-in ROMs. Surprisingly little disk software so far. Serious programmers are very well catered for with a number of language implementations.

Machine	Price	Standard RAM	Max RAM	Text	Graphics
Tandy Color	£179	16K	32K	32×16	256×192
Electron	£199	32K	32K	80×32	640×256
Lynx	£275	48K	192K	40×24	256×248
Commodore 64	£229	64K	64K	40×24	320×200
BBC Micro	£399	32K	32K	80×32	640×256

Name Apricot
Price £1,890
Standard memory 256K RAM
Comments The newest addition to the blossoming tribe of true 16-bit micros, and portable as well. Only a very old-fashioned businessperson would not develop technological twinkles in the eyes at finding this marvel under the Christmas tree.
Interfaces In step with most business micros, the Apricot has most of the fundamentals included, such as video monitor and disk drives. Connectors provided are minimal but essential: Centronics parallel and RS232 D-type serial. Expansion is obtained through (only) two internal connectors, which may be used to implement the imminent new products.
Software Where the Apricot has staked much of its faith is in its built-in 3.5 inch microfloppy disk drives from Sony. Although the machine supports CP/M-86, MS-DOS, and Concurrent CP/M-86, it may be slightly difficult to keep it fed with new disks for a while.

Name Apple IIe (Europlus)
Price £972
Standard memory 64K RAM (expandable)
Comments Not to be confused with its (now retired) predecessor the Apple II, the IIe is the current version of 'The thing that started it all'.
Interfaces If it moves, it can be interfaced to an Apple. Although the basic machine carries only cassette, video, and games connectors, there is a plethora of interface cards which can be slotted into the internal expansion connectors. This is where the cost starts to mount, as a quick total of essential business add-ons will show. Some dealers may still sell older Apple cards which will not work in the current model, but the bulk of standard cards (printer interfaces, expansion RAM, floppy disk, winchester disk) will work without alteration.
Software It's doubtful if anyone actually knows how much there is. Languages, business, education, games. Should any of you feel slightly wary of having to actually write your own programs, no other micro can offer as wide a catalogue of existing software as Apple.

Name IBM PC-1
Price £2,392
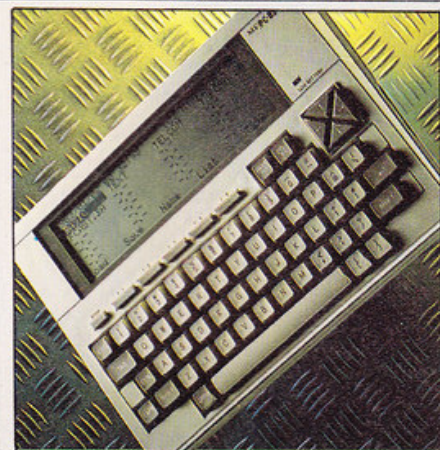**Standard memory** 64K RAM (expandable to 576K)
Comments At last we settle down to our well-earned Christmas rest with the famous IBM PC micro. Actually, the PC is currently available in two versions (three in the New Year), so here we describe the lowest-price model, the PC-1. The entire concept of using micros in business took a big jump when IBM revealed its idea of how to do it. A detached keyboard, a separate cabinet and a standard cabinet and a standard video monitor. All with the unmistakable air of legitimacy which only IBM can exude. Not the cheapest, not the fastest, but what better insurance can you get against micro obsolescence than those three little letters?
Interfaces The basic philosophy of the IBM PC is very simple: nothing more than you need. Standard facilities include serial and parallel interfaces and the requisite video monitor output, but like the Apple anything else is extra. The five internal expansion connectors have spawned a truly awesome range of

products, with RAM expansions, high-resolution RGB interfaces, second processors, video digitisers, speech recognition devices, fibre optic systems, and many more.
Software Even IBM is a relative newcomer to the micro marketplace, but the amount of software currently available for the PC is more than some other machines will ever see in their lifetimes. Most software for the PC is designed to run under MS-DOS or CP/M-86, the two most popular 16-bit operating systems. Why not come in from the snow, and gather round the nice warm glow of the mighty IBM software furnace.

Name NEC PC-8201A
Price £475
Standard memory 16K RAM (expandable to 128K)
Comments Perhaps unfairly, at the bottom of our business person's Christmas shopping list is a true battery-operated professional micro. The eagle-eyed shopper will notice more than a slight physical similarity to the Tandy Model 100, although the NEC is designed differently, has twice as much RAM and actually costs £24 less.
Interfaces With its own built-in 40-column screen display and plug-in RAM storage cartridges, the NEC doesn't really need (hence doesn't offer) either video display or disk drive facilities. The main machine memory can be expanded four-fold, although there is no limit to the number of slot-in 32K CMOS RAM storage cartridges which you may use to save your inscrutable data. Provision is made for either serial or parallel printers, a bar-code reader device, and RS232 gadgets (such as modems).
Software The NEC is supplied with both Microsoft Basic and a word processor as built-in ROMs, and additional Basic programs on standard cassette tape. The latter include a name & address book, an investment portfolio calculator, and of course some entertainment generators (games).