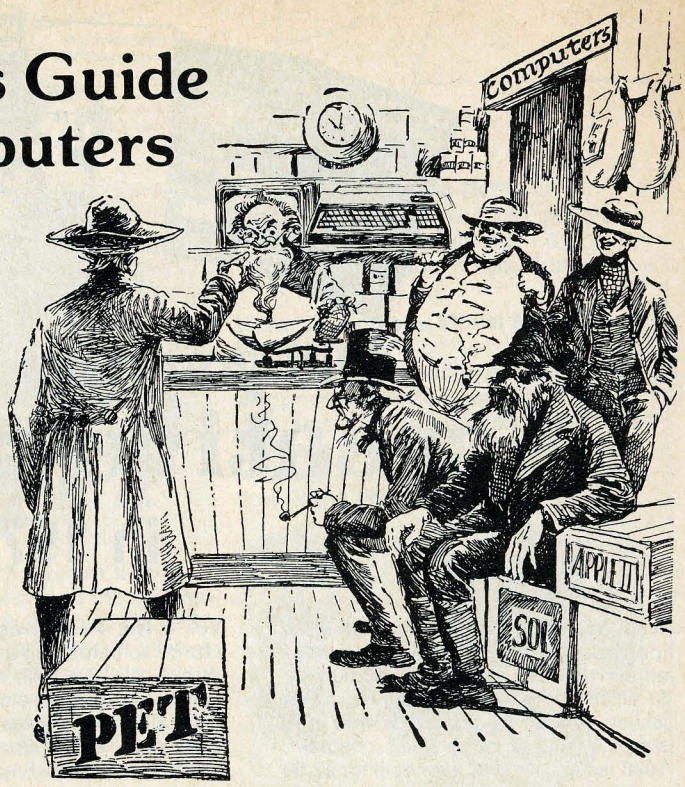
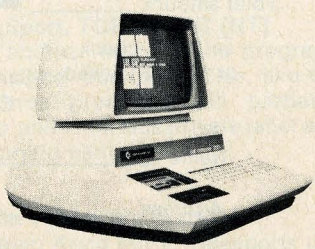
First Annual Buyer's Guide to Consumer Computers

Steve North



Within recent months, a number of consumer electronic firms as well as some of the established microcomputer manufacturers have introduced completely assembled microcomputer systems which can be used by almost anyone. To help you decide which system may best fit your needs, we present here a short comparison of most of the consumer systems. (One suspects that "consumer computer" is about to become one of the most overused phrases in the English language.) Some subjective comments are also included — please don't send parcels of dead fish to the reviewer if you don't agree! Products which have only appeared in a manufacturer's press releases and other pipe dreams are not covered here.

Processor Technology's Sol System was one of the first of the all-in-one computers that don't require connection to a separate (and usually costly) terminal. A single typewriter-sized cabinet contains the CPU and memory, a video interface (with upper/lower case, reverse video and some graphics characters), keyboard and audio cassette interface. You add your own TV set and cassette recorder. The Sol uses the S-100 bus, so you can add up to 64K of memory and plug in any of the widely varied S-100 bus cards. Processor Technology has two BASICs, PILOT, and a FORTRAN compiler which will be out soon. The Sol has been around for quite a while and Processor Tech has a good reputation for supporting its systems through an excellent dealer network. One disadvantage of the Sol is that BASIC is not built-in (in ROM) but must be loaded from cassette tape. On the other hand, this is not much of a problem if you don't want to be stuck with just one BASIC, or if you can afford a disk. In brief, Sol systems are high-quality but, remember that you do have to pay. A minimal Sol is priced at $2095 with 16K of memory, while the top-of-the-line unit with four very fast full-sized floppy disk drives and 64K comes in at $8,750.

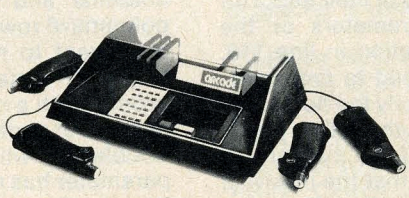


The Complete PET incorporates absolutely *everything* a good computer needs, even the TV monitor and cassette recorder. Microsoft BASIC (more or less a standard in its own right) is built-in and available as soon as you turn the computer on. The PET has the unusual ability to display either upper/lower case, or upper case and a full set of special graphics characters (such as card suits, little boxes and circles, etc.). The video is fast enough to allow animated graphics with these characters. Based on these qualifications, the PET would be an extremely outstanding machine, but there are also some very bad problems. First, the PET has the worst excuse for documentation we've ever seen. This void is partially filled by a number of very active user's groups, who can tell you many of the things Commodore should have in the first place. Second, the PET can't be expanded beyond 8K of memory without using a non-Commodore attachment. Finally, the PET's calculator-style keyboard is ridiculous, maybe one of the worst engineering mistakes in the history of personal computing, although, as many PET owners testify, "you get used to it." Commodore has also announced a PET Printer, an auxiliary cassette unit, and perhaps later they'll have a floppy disk option. While Commodore has been dragging its corporate heels on these peripherals, other companies are second-sourcing PET peripherals and memory, though not with the same variety as S-100 bus products. The standard 8K PET costs $795.

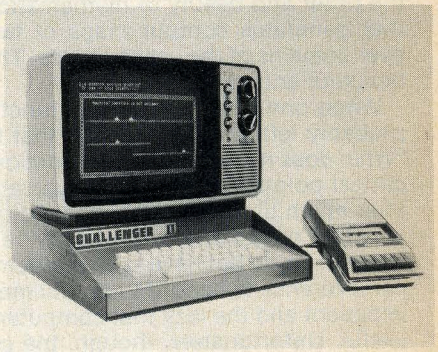
Radio Shack's TRS-80 consists of a keyboard/CPU unit, a video monitor and an audio cassette recorder. The keyboard/CPU unit can contain 4K or 16K of memory, and either Level I or Level II BASIC. Level I BASIC is essentially Palo Alto Tiny BASIC beefed up with floating-point math, while Level II is the ubiquitous Microsoft Extended BASIC. Rumor has it that Level I will be phased out or at least de-emphasized in the future, in favor of the superior Level II BASIC. Both machines are restricted to displaying upper case only, and plotting points on a coarse 128 by 48 grid, certainly not as fun as the PET or Apple. If you want more than 16K of memory or plan to add any peripherals, then you'll need the expansion interface, which contains another 16K of memory, and the hardware needed to connect floppy disk drives and a line printer. The cassette interface in Level I BASIC runs at 250 baud (agonizingly slow) while the 500 baud Level II cassette is not nearly as reliable. The TRS-80 really isn't outstanding in any way, but it is a big seller because it's one of the cheapest ways to get your hands on a BASIC-speaking machine, and because Radio Shack has a marketing and distribution system unequaled by any other micro manufacturer. The cheapie Level I 4K machine is $599, a Level II machine with 16K of memory is $999.

The Apple II is best known for its impressive color graphics. Like the Sol, the Apple requires connection to a TV set and a tape recorder. Two game paddles are also included. Color graphics may be done in a low-resolution mode (40 by 40, with 16 colors), or in high-resolution (160 by 280, with 4 colors). Text and color graphics may be split on the same screen. (Text unfortunately is upper-case only.) The Apple has built-in integer BASIC with special features for accessing the graphics and game paddles, besides some neat debugging aids and a machine-language monitor. Floating-point Applesoft (Microsoft) BASIC is also available. You can add up to 48K of memory to your system, simply by buying the memory chips and plugging them into sockets in the Apple. Options for the Apple include interface cards for a printer and for data communications, and a floppy disk unit (though the floppy disk drives are very hard to get ahold of now). The Apple is a fun and versatile machine. A 16K Apple is $1,195.

The Exidy Sorcerer is one of the most recent entries into the consumer market, and it seems to incorporate many of the best features of its competitors. Like the TRS-80, the Sorcerer consists of a keyboard/CPU unit, a video monitor and a cassette recorder. But there are several innovations worth noting. First, the Sorcerer has a slot in the side for a removable ROM-PAC cartridge, which contains the system software you want to work in. No other system has this capability. Second, the Sorcerer display has upper/lower case, PET-style graphics characters, *and* user-defined graphics characters (which you create by setting up the correct bit-patterns in memory). The Sorcerer comes with a Microsoft Extended BASIC ROM-PAC, but others (for APL, FORTRAN, and word processing are supposedly on the way). Third, an S-100 bus expansion unit with 8 slots may be added. Exidy is also planning on a color-graphics option for the Sorcerer, and it looks like their Disk Operating System will be the powerful and widely used CP/M. The price tag is also very easy to take - $895 for the basic unit with 8K of RAM.



The Bally Video Arcade is mainly a video games machine, but by adding a $50 game cartridge, you can have a BASIC-speaking computer, which allows you to write and execute BASIC programs including music and color graphics. Bally BASIC is really Palo Alto Tiny BASIC in disguise, so it's very easy to learn. The Bally Video Arcade must be programmed through a calculator keypad (the ultimate form of the PET-style keyboard) by using multiple keystrokes to enter a single character or BASIC keyword. Certainly not for anyone who wants to get into any heavy programming, but when you get tired of BASIC there's always gunfight for two players. The Video Arcade is $300, add $50 for the BASIC cartridge.



Ohio Scientific's Challenger II includes a CPU, 4K RAM, keyboard and video display (with upper/lower case and some graphics characters) in one unit. A video monitor and cassette recorder must be added. The Challenger has Microsoft 8K BASIC and a machine-language monitor contained in ROM. Additional memory and floppy disk drives may be plugged in. Probably the Challenger is not as popular as it might be because the cabinet is not that slick-looking, and Ohio Scientific does not have an extensive dealer network (at least in our area of the country). Prices start at $598.

Others. Several of the *real* biggies are threatening to get into the act, most prominently, Texas Instruments. (The wildest rumor I heard concerning TI has them linked with, yes, IBM. Their 9940 based system will feature IBM's favorite language and an externally attached bubble memory module which will use a patented connector. Of course, if IBM did want to do something with TI, they would probably just *buy* TI, but then I did say it was a *wild* rumor.) Another interesting thought: the "Japanese Invasion" is already underway. Where will this leave the American manufacturers in a few years? There is some difference between slapping together a PC board and providing extensive support for a technically sophisticated product, but it's not hard to buy a disk operating system, or BASIC, either. ■