

60th TV Festival

Video

THE #1 MAGAZINE OF THE HOME ENTERTAINMENT INDUSTRY

**Pro Techniques
for Amateur
Producers**

**MGM: The
Lion Roars on
Cassette**

**Hollywood on
Tape: How
Movies Make
the Move**

**Mornings
with Charles
Kuralt**

**BERGER-
BRAITHWAITE
VIDEOTESTS:**

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Sony Color Camera
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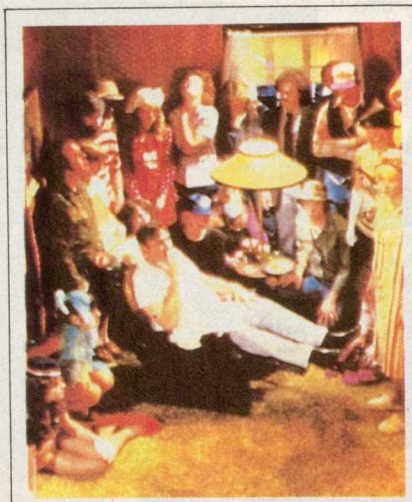


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ABOUT THE COVER

Satellite bathing may never compare with going to the beach but more and more people are interested in TV picture rays which they can receive as satellite signals directly in their back yards. And you thought you had to leave your house to 'go out' to the movies. Cover art by Edwin Herder.



PHOTO CREDITS: John Bishop—44-47; Fred Hopengarten—50; Alan Veldenz—64-66

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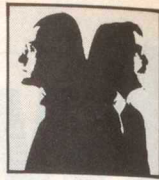


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Arcade Alley

A Critical Look at Video Cartridge Games & Programs

by Bill Kunkel & Frank Laney, Jr.



Computer Cartridges

Beyond BASIC with the Atari 400

Home arcaders searching for exciting new worlds—and games—to conquer should thoroughly investigate the Atari 400 system. This moderately priced (\$400 to \$600) personal computer is certain to appeal to those who have cut their gaming teeth on programmables like Atari's own Video Computer System (VCS).

Whether purchased with the standard 4K memory or one "enhanced" to 16K, this flexible, user-friendly system provides easy access to the world of computer programming while also functioning as a state-of-the-art home arcade. Anyone who can put a plug into a socket can operate the Atari 400 right out of its shipping carton. It attaches to a TV set through an RF modulator exactly the same way video games do, and even hooking up the optional digital recorder is not likely to tax anyone's imagination.

Of course, anyone who wants to learn how to program the Atari 400 has some work and study ahead. Fortunately, the manufacturer has thoughtfully provided would-be programmers with an excellent tool in the form of "Atari Basic." This 332-page opus, included with each computer, is a relatively painless, step-by-step course in Atari's version of the most popular home-computer language, BASIC, with instructions on how to construct a variety of simple programs.

An array of four touch-sensitive buttons, lined up vertically on the console to the right of the keyboard, makes it easy to start and stop play, pick the number of participants, and choose the desired optional rules when using pre-programmed software. The Atari 400 loads prepared software in either of two modes: there's a slot for ROM cartridges—similar to the ones used with programmable video-game systems—located on top of the console, and a jack that accepts the recorder's plug for loading software on tape cassette.

Paddles and joysticks must be purchased separately. This doesn't present much of a problem, especially for those who already own an Atari VCS, since both machines use the same controllers. One of the 400's big advantages for the home



'Super Breakout,' developed for the 400, is actually a package of four games.

arcader is that it has four controller jacks conveniently located on the console's front panel. Not only does this set-up make connecting the controllers a lot easier, it also makes it possible for up to four gamers to wield joysticks at the same time. The manufacturer has even cleaned up a couple of trouble-spots that frequently bedeviled its video-game players in the past. The 400 sports a redesigned RF modulator and a heavier-duty AC adaptor, two little gizmos that require periodic replacement by owners of the VCS.

Now—and continuing in next issue—let's examine the first batch of prepared software Atari has produced for the 400/800 system.

Super Breakout (Atari 400/800 CX4006) is the latest and perhaps the greatest redesign of a popular ball-and-paddle contest that first reached commercial arcades several years ago. Soon after, a home version became one of the best-sellers in the Atari VCS cartridge library, attaining heights of popularity only

recently eclipsed by the CCKS version of "Space Invaders." After another run through the Atari design department, "Breakout" returned in triumph to the nation's coin-operated fun palaces in a revised, souped-up edition. The manufacturer, knowing when it has a proven winner, has done a little more tinkering and developed the deluxe "Super Breakout" for its new computers.

"Super Breakout" actually consists of four games—"Breakout," "Double," "Progressive," and "Captivity"—based on the original concept of hitting a ball with a horizontally moveable paddle to knock down bricks in a multi-tiered, varicolored wall. All four variations of this cartridge offer an infinite succession of target walls and on-screen scoring that includes both a numerical total and a comment by the computer on each player's skill, running from "Oops" to "Best."

"Progressive" is calculated to take the wind out of the sails of gamers who feel they've mastered the basic version. This

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home cameras, though, the 2200's noise increases at low light levels. Don't expect to get full rated signal-to-noise ratio from any camera under typical home lighting conditions; for a really noise-free picture, you'll almost always have to bring in extra lights. If the lighting isn't bright enough for good photography, it's usually not bright enough for good video either.

The built-in microphone covered a range of about 40 to 10,000 Hz, considerably wider than that of today's home VCRs. Its location caused some pickup of camera noise, though less than from some other cameras with similarly-placed microphones that we have tested.

Conclusion. The HVC-2200 is a delightful camera to use, with performance that makes it well worth using. The first time you pick it up it feels as if you could hold it forever, and that's almost true. Sony's attention to detail extends beyond the camera itself to include two excellent manuals—the usual long French/English instruction book plus a quick reference guide of the kind normally only found with VCRs—and a secure, easy-to-use carrying case.

If only it had contained dual color controls, an 8X zoom, and auto-focus (when that's finally perfected), we'd have fallen instantly in love

with it. As it is, the Sony HVC-2200 still inspires warm affection and respect.



Test report: Sony HVC-2200 Color Video Camera

DATA

Date of test: May 1981

Suggested retail price: \$1300

Weight: 6.4 pounds

Dimensions: 7.9 × 8.9 × 13.9 inches (h/w/d) including lens, finder and grip

Lens: 6:1 f1.4 zoom, 11-70mm; with macro and auto iris

Minimum illumination: 4 footcandles

Viewfinder: 1.5-inch CRT electronic, with magnifying hood; screen indicators for iris, white balance, and waveform; LEDs for low light and VCR running/batt.; controls for brightness, peaking and indicator select

Microphone: built-in electret condenser

Controls: Tape Run/Stop, Run/Stop Lock, Power Zoom, White Balance Selector, White Balance Adjust, Sensitivity, Auto/Manual Iris, Focus, Manual Zoom/Macro, Fader, Sharp-

ness, Earphone Source Select, and three on viewfinder

Miscellaneous: 14-pin connector, playback through finder, wide range of accessories including remote control, viewfinder extension cable, telecine adaptor, titler, special-effects generator, and unidirectional condenser microphone

TEST RESULTS & RATINGS

Horizontal resolution: 300 lines (as specified)

Overall picture quality: very good/excellent

Color: good/very good; a slight bias toward green; white balance using meter very good

Audio frequency response: 100-9000 Hz

Audio quality: average

Ease of operation: excellent

Overall performance: excellent/very good

Radio Shack Computer



Radio Shack's original TRS-80 Model I (VIDEO, March 1980) is no more, for reasons VIDEO readers will appreciate: it generated too much interference to meet new FCC requirements. In its place are two computers—the TRS-80 Model III and

the TRS-80 Color Computer. Of the two, the Model III is the closer descendant, while the Color Computer comes closer to filling the original TRS-80's shoes.

The Model III is basically a Model I with most of the bugs, glitches, and omissions taken care of, and most of the add-on features put into one box. It's a far nicer machine to use—we use it daily and write these reports on it—but it does almost nothing the Model I could not already do; it just does it all noticeably better.

The Color Computer, however, does a lot more (in some areas, a bit less) than the Model I or III, and at about the same low price as the Model I. It's less readily expandable than the Model I, which may limit it for business and similar applications. But its high-resolution graphics, color, and sound should make it appealing even more to videophiles.

One reason for the Color Computer's low price is that it comes without a video display (a black-and-white one was included with the Model I). It's a safe assumption that anyone who'd buy a color computer would either have a color TV set or be willing to buy one, so the TRS-80 has RF output for Channels 3 and 4; it can, of course, be used with a black-and-white set too.

Another omission is the audio cassette recorder which was included with the Model I. At first glance that doesn't seem important since most people own cassette recorders nowadays. But hooking a recorder to the Color Computer (or Model III) takes a special cable, and Radio Shack doesn't sell that cable separately—just in a package with its \$60 CTR-80A recorder. (Incidentally, the cable

originally sold for use with the Model I does not work with either of the new models. It's wired the same, but is too thick to fit the new jack.)

What's left—the computer itself—is a good buy. The base-price model (\$399) includes: Color BASIC in ROM, which needs no loading from external tapes or cartridges; 4K of RAM memory for programs; keyboard; and connections for TV output, cassette input/output (I/O), two optional joystick controllers, Program-Pak cartridges with more programs in ROM, and an RS-232 serial port for connection to still other devices. For \$599, the computer also comes with 16K of RAM memory and Extended BASIC—the form in which we tested it, and the one we most strongly recommend.

The 53-key keyboard is color-coded, with the Shift and special computer-function keys (Enter, Clear, and the four directional arrows) in white, the Break key in red, and all others in grey. The rear panel holds all input and output connections and the On/Off and Reset switches. These are positioned where they're unlikely to be accidentally touched, yet are far easier to reach than those on the Model I. The cabinet is a silvery bronze-grey, with a dark background at the keyboard. The cabinet's flat top seems made to hold a small video monitor, but Radio Shack's catalog illustrations never show it that way. A label on the top surface tells how much RAM memory is built in. The keys themselves are small, flat buttons which depress only a short distance. They take a bit of getting used to, but far less so than, say, the membrane keyboard of the Atari 400 (VIDEO, May 1981).

The color computer has a range of nine colors: black, green, blue, yellow, red, buff, cyan, magenta, and orange. In its normal display mode it shows 16 lines of 32 alphanumeric characters. These characters are black on a green field and only upper-case characters can be shown though the computer can print lower-case ones. On-screen, the lower-case letters show as capitals with the colors reversed; green letters on a black field. They may not be used in programming, however, because Color BASIC "understands" only upper-case letters.

One major difference between the Color Computer and the rest of the TRS-80 family is that its Central Processing Unit (CPU) chip, the part that does the actual computing, is from an entirely different family. While the original TRS-80 and Models II and III use a Z80 CPU, the Color Computer uses a newer chip, the 6809. This accounts for some of its graphic and color capability, but it also means the Color Computer can use none of the other models' programs.

Two Types of BASIC. A computer like this can be defined as much by its resident programs—the ones built into it—as by any other means. Both the normal and Extended versions of Color BASIC work as much as possible like Level II BASIC in the original TRS-80, so users of that machine will feel right at home with it. Users moving up to the Extended version from the normal one will feel at home too, since it only adds new functions and commands, changing or deleting virtually none of those in the normal version.

Color BASIC. The 8K color BASIC is the more elementary of the two BASIC interpreters, but it's still pretty powerful. In addition to performing most fundamental BASIC-language functions, it uses a number of the computer's special capabilities. For instance, it not only loads programs and data from cassette but has an AUDIO command that feeds sound from the cassette to the TV speaker. With this, you can write programs with sound effects or audio cues and comments. You can set the background to any of nine colors, including black; it sets itself to a green background if you make no choice. You can also generate sounds of specified frequency and duration, and put graphics on the screen in your choice of colors.

The graphics directly available in this mode are fairly crude—64 by 32 blocks (or "pixels") in a choice of eight colors. However, it's possible to write programs that indirectly provide more detailed graphics: up to 64 by 192 pixels with eight colors, up to 128 by 128 with four colors, and up to 256 by 192 with two colors. Even modes that limit the number of colors on screen at once let you choose which sets of colors are used. You can also use the optional

joysticks (\$25 per pair) to draw pictures, among other things.

There are decent facilities for handling strings—sets of characters, like names, that are not treated as numerical data. Your programs can read any part of any string, from left, right, or middle. (Typical use: getting the same result from inputs of “Y” or “Yes.”) Responses can be typed in from the keyboard without making the user hit the ENTER key when finished (a big help with games and other programs to be run by those unfamiliar with computers, and a convenience any time). Numbers can be converted to strings, and vice versa, and strings can be sorted alphabetically. The program can also check the length of a string and generate any standard character for output, even if it does not appear on the keyboard.

On the mathematical side, there are functions to find absolute numerical values, convert numbers to integers, detect the sign of a number, and find the sines of angles.

Advanced users familiar with BASIC will be pleasantly surprised to find that this BASIC has an IF . . . THEN . . . ELSE construction, file commands, and several commands for machine-language programming (which is harder to write, but runs faster and takes less memory). These commands let you check and change memory locations (PEEK and POKE) and call your own machine-language routines (USRn), and even load machine-language routines on cassette and jump directly to their memory addresses.

Extended Color BASIC. Spend the extra \$99 for the 16K Extended BASIC, though, and you'll be glad you did. (For one thing, there would be an installation charge if you added it later.) As you'd expect from a program twice as long, Extended BASIC does a lot more than the plain-vanilla version. The high-resolution graphics modes for which you had to write long programs in the lower-cost version can now be called up with a command or two. You can draw circles just by specifying the center point, radius, and color, and can even vary the height/width ratio to make them taller or fatter than true circles. You can even specify at which point circle-drawing begins and ends. You can set background and foreground colors with a single command. You can DRAW lines just by

BERGER-BRAITHWAITE VideoTests

specifying their start and end points and colors, and draw boxes by specifying the locations of two diagonally opposite corners. You can PAINT an area within a given border, even if it's an odd shape.

Other graphics functions let you store a rectangle full of graphics and later recall them quickly. You can also store several images in different “pages” of memories, so you can flip the screen from one image to another. Done correctly, this can provide a degree of animation.

Among other special capabilities, there's a new PLAY command which lets you play musical notes through a TV speaker, specifying the note (with sharps or flats), its octave, volume, length, and tempo. There's also a TIMER command which can be preset for up to almost 18 minutes in increments of about 1/60 of a second.

Extended BASIC also has more to offer in general programming. Its EDIT mode works just like those in the other TRS-80 computers, which is to say very well. With it, you can easily fix any errors that occur anywhere in a program line, change numbers within the program, and so on. Without it (with simple 8K Color BASIC), the only way to revise a program line is to retype it—a nuisance, and a frequent source of new inaccuracies. Other editing aids are commands which delete (DEL) blocks of program lines, or renumber (RENUM) them to make space for the insertion of new ones. These alone may make Extended BASIC worth the money for some users.

The PRINT USING command simplifies such tasks as printing numbers of various lengths in columns lined up by decimal points, or filling the spaces before the amount on a check with asterisks. A trace function can show on the screen which steps of a program are being used, and in what order. For math use, there are trigonometric functions (SIN, COS, TAN, and ATN), a LOG function, and others that truncate decimals to whole numbers, cal-

culate square roots, and compute hexadecimal (base-16) numbers.

Documentation. Learning how to use all this is easier than you might think; good instruction manuals are the reason. A 308-page Color BASIC manual and a 31-page Operation Manual comes with every Color Computer; models with Extended BASIC get an additional 215-page manual.

These are tutorial rather than reference manuals. They're good, leisurely, folksy guides to using and programming the computer, though there seem to be a few typos, even in program listings. But they're not as helpful as they might be when you're going to check on anything you have not quite learned or have forgotten. And those who already know BASIC will find it difficult to look through them and quickly learn this system's new features.

To fill that gap, the computer also comes with a reference guide that shows all BASIC statements, functions, error messages, graphics characters, control keys, and other useful information in extremely handy form. Items that pertain only to Extended Color BASIC are shaded grey, so you won't waste your time trying to use them on a lower-level machine.

The Computer System. To be really useful, a computer has to be part of a whole system. The Color Computer qualifies, though its system is still limited. To save programs, so you won't have to key them in each time you want to run them, there's only the cassette recorder. Though that works far faster and more reliably than the cassette system for the original TRS-80, it comes as good news that a faster, more convenient floppy-disk system is forthcoming.

Printers are useful, both to save the results of program runs and to save listings of the programs themselves for reference, comparison, and publication. Radio Shack currently offers two printers for the Color Computer: the \$219 Quick Printer II and the \$399 Line Printer VII. The Quick Printer II prints at a fast 120 lines per minute, but prints only 32 characters per line and uses only 2-3/8-inch-wide rolls of special aluminum-coated paper. The Line Printer VII runs at only 30 characters per second, about half the other printer's speed, but prints up to



Arcade Alley

continued from page 14

one pits players against a succession of four-tier walls that march down the playfield in a manner reminiscent of the attacking aliens in "Space Invaders." Each wall is separated from the one behind it by an empty zone four bricks deep. The speed at which the walls move down the screen is regulated by the number of times the ball hits the paddle. This makes creating a quick breakout—a passage through the wall that allows the ball to bounce around behind the wall and break bricks by the dozen instead of singly—even more critical than in the original "Breakout."

Each color brick has a different point value ranging from one to seven. As lines of bricks inch down the screen, they change color and gradually drop in value. Although bricks disappear before they reach the bottom of the screen without bonus or penalty to the player, patches of low-lying bricks pose this game's most serious hazard. Hitting the top boundary of the playfield automatically halves the size of the paddle, so it's a good idea to place shots carefully when there's a chance of this happening. It's better in the long run to waste a couple of shots by aiming at lower-level targets while the game generates another barrier of seven-point blue bricks at the top.

"Double" is much like regular "Breakout," but adds a second paddle parallel to the first and in the same vertical column. Neophytes will tend to lapse into using just the upper paddle. This is a serious mistake because it effectively shortens the playfield and makes it harder to react to rapid changes in direction of the ball's flight.

"Cavity" also uses the double paddle, but its chief attraction is the pair of extra balls that start the game trapped in recesses within the single wall. They go into active play as soon as the gamer eliminates the restraining bricks. At times, "Cavity" forces players to juggle two or even three balls at once. The best bet is to try to keep them safely imprisoned until you've achieved a breakout. With good timing, an arcader can concentrate on one ball while the other rattles around behind the wall scoring plenty of points.

Space Invaders (Atari 400/800 CX-4111) is another 400 game that will be mighty familiar to most VCS owners. The aliens attacking the moon are faster and deadlier than in the video-game version. They quick-march to a beat suggestive of jungle drums and, as an option, can fire heat-seeking missiles that cross the entire playfield in pursuit of the player's cannon.

Prior to each round, the invaders march onto the screen from doors in a giant

spaceship poised above the lunar surface on the left side of the screen. Each time the defender successfully scrags a legion of aliens, the rocket's altitude drops. If a player actually holds out long enough against the extraterrestrial onslaught to let the rocket land, play momentarily pauses. An enemy saucer swoops down to carry the defender's current cannon off to cosmic Valhalla, without penalty to the player.

Video Easel (Atari 400/800 CX4005), on the other hand, is unlike anything Atari has ever offered for its VCS machine. Players use joysticks to draw anything from simple lines to "quadratics" in which the same pattern appears in all four sections of a quartered screen. The car-

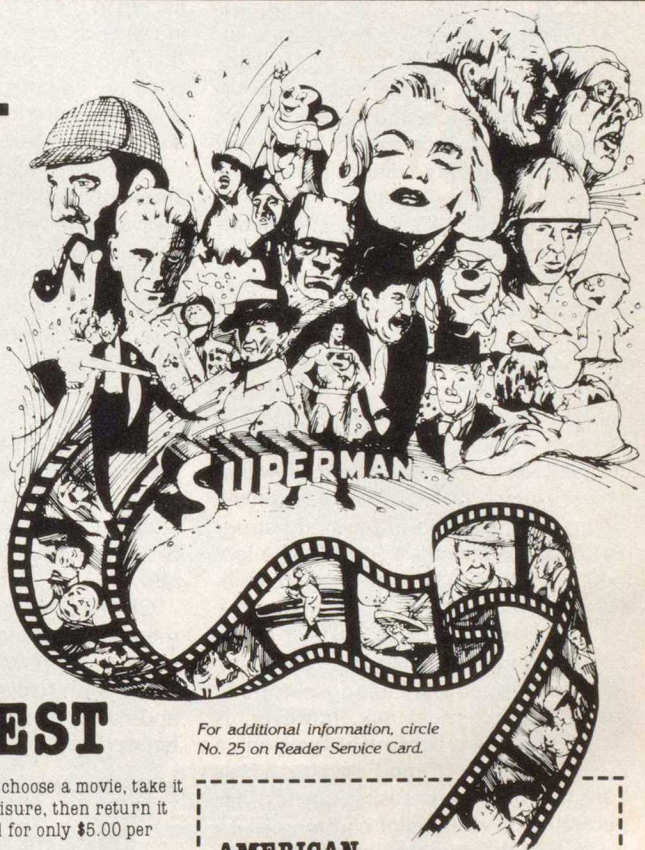
tridge's most exciting feature is that, at the mere touch of a key, the computer sequentially duplicates anything drawn on the screen to form eye-popping designs and patterns. In addition, video artists can select from among six painting modes that cover the screen with a variety of colorful shapes. The speed at which the original designs are elaborated and the hues and intensity of the colors can be easily varied with joysticks.

This kind of computer entertainment, while not a game, strictly speaking, can nonetheless provide hours of fascination. And it's so simple to use that most arcaders will astonish themselves with the designs they create the very first time they give it a try.



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