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■ THE NEW TV GAMES ■ 9 GREAT COMPACT RVs

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On the cover
Crewmen of a downed bomber are saved from a raging sea in a daring feat by the nuclear sub USS Barb. See page 73.
—Painting by Ed Valigursky



DECEMBER 1977

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Game in progress: Mind Reader, a number-guessing challenge loaded by cartridge into Fairchild Channel F game system.



Atari, best known for Pong games, offers its Video Computer System with 14 to 50 game variations per game cartridge.



APF M1000's lift-out remote controllers have both joysticks for action and keypads for question-and-answer games.

You're sitting alone in your den, feet up. Turn Two is coming up fast, with a slower car right on the best line and moving to the outside. Should you slow down to take him on the inside, or sit behind him through the turn, accelerating after the apex to blast by him?

Or will you try to better your record at "Breakout" with its tantalizing possibility of really high scores? But the paddle gets smaller and smaller and the ball gets English on every shot . . . intense concentration is necessary, eye-hand coordination almost beyond mortal ken . . . but maybe this time . . .

Yes, there's more to TV games now than just bouncing a square ball around and making pinging noises. The new generation of video games is arriving, programmable microprocessor games run by the same tiny integrated-circuit chips that make microcomputers possible and are now showing up in controls for everything from microwave ovens to CB rigs. The word "programmable" is significant—it makes a virtually unlimited variety of games possible. The programming is accomplished instantly when you plug a solid-state ROM (read-only memory) cartridge into a game unit; the cartridge, in effect, completes a machine designed for the game you want to play. Most car-

New TV games: Livelier, smarter

Programmable microprocessor video games use computer brains to put more excitement into play, add extra features.

by Dave Sagarin

tridges hold more than one game, and several variations on each game are usually available.

These plug-in cartridges have a lot of room for program complexity, so the games can be more challenging than the original slam-the-ball-around type. Individual skill levels can be set, so that players of unequal ability can compete fairly.

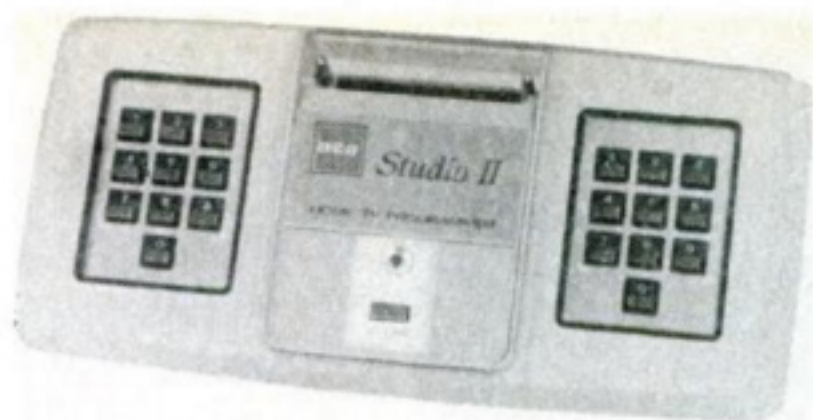
Atari's Blackjack offers House or Casino play, with one or two decks in use. Several makers offer doubles versions of the old paddle games, and there's more color and sound to add life to the action. In the skill games—shooting at targets or driving through traffic, for example—your robot opposition is smarter now, reacting to your moves or varying motions to throw off your aim.

The competitive games keep score

and can vary scores depending on the skill level chosen and how quickly or cleanly you react. The cursor—that square ball—in some games can "feel" a surface, bouncing differently depending on the paddle's direction of movement and velocity, simulating top spin or English, and coming off faster or slower depending on how hard it was hit.

Controllers

As the photos above show, there's more than one way to give input to a games microprocessor. Your driving, shooting, paddling or thinking ability can show up on the screen via a joystick, keypad, trigger, knob or wheel. Each manufacturer has made a choice of controllers based on the games he's got and those he expects to offer in the future. Some picked joysticks for



With RCA's Studio II control, keys mean directions of motion as well as numbers.



Game cartridge for Telstar Arcade system is small triangular object at top.



Bally Professional Arcade has built-in calculator, using TV screen for display.

realistic analog control, while RCA tells us they chose keypads because they feel joysticks are too easily broken under heavy—kid—use. Keypads are fine for numerical input, and give lots of different buttons to push to initiate actions, but they can't give the feel of continuous control. Then again, joysticks or rheostat knobs alone won't do if part of the justification for buying a unit is providing educational games for the youngsters.

Some makers will offer different controllers with different games, packaging them with the ROM cartridges, but you may be paying a premium for the controllers this way. In any case, you're well advised to try out different systems, playing the games you think you'll like, before you make a purchase decision.

Playing with the government

Because these units all connect directly to your TV set's antenna terminals, they put out a VHF signal modulated with game information. That VHF signal introduces the possibility of interference with broadcast TV. Consequently, enter the Federal Communications Commission, which must grant "type approval" to devices like these before they can be sold. All the manufacturers listed in our table *expect* to have type

Games without TV

If there's no TV set near you, you can still play. Several manufacturers are offering a variety of tabletop and hand-held electronic games.

Three little goodies from Mattel, Auto Race, Football and Missile Attack, look like crosses between pocket calculators and some of James Bond's weapons. They provide displays of computer-controlled opponents for you to steer past, run around or attack, plus sound effects.

Comp IV from Milton Bradley is a number-guessing game, and the same company also sells a semielectronic version of Battleships, the old pencil-and-paper favorite.

Parker Brothers' submarine-pursuit game, Code Name: Sector, has a plotting board, with an electronically hidden sub for you to locate, fire at and destroy.

Other microprocessor-based, non-TV games are likely to follow.

What's ahead?

The Bally unit is already being sold as the first block in a home-computer system, under the name Bally Home Library Computer, and other manufacturers tell us they're actively considering offering keyboards and the added random-access memory needed to turn their game units into true microcomputers.

Computer hobbyists have already reportedly figured out how to open up the Fairchild machine and make it into a full-blown computer. Working from the other direction are the software fans who are writing more and more game programs for existing microcomputers. Even a small computer can conduct games much more sophisticated than present TV games; chess-playing programs are available, as are shrunk-down versions of the space-battle games played fanatically wherever people can sneak time on big machines.

We've come quite a distance in only three years. One major feature I think we'll see in the *next* TV-games generation is still greater realism in display and complexity of strategies. For example: Instead of "racing cars" that are little boxy shapes, we'll get perspective views of cartoon-like cars; and instead of instant direction changes in response to controls, we'll get motion that's affected by inertia, traction and slip-streaming.

We'll be able to keep lifetime stats on individual players and replay key moments—your 1000th home run, or when you broke the lap record. Another possibility is instructional interaction, so that a tricky backgammon play can be held for a mathematical analysis of the position, and fast-action events can be replayed in slow motion, to show you what you did wrong or right.—D.S.

approval of their units by the time you read this, but some had not yet obtained it as we went to press, so you shouldn't be surprised if one or two don't make it to dealers' shelves in time for Christmas.

The problem is actually twofold: the FCC is apparently badly backed up in testing games because of the large number appearing at the same time, and the units themselves are hard to stabilize against frequency shifts caused by handling and shipping.

The alternative would be games

putting out only a video signal, eliminating the VHF and the need for FCC approval. But that would require TV sets wired to accept a pure video input, and there's been no stampede among manufacturers to add such a feature to home sets.

Pricing

The prices we show are the manufacturers' suggested list prices, rounded to the nearest dollar. As with all toys, deep discounting will be the rule, and list prices represent a maximum. **PM**

VIDEO-GAME SPECIFICATIONS

Game Name	List Price	Comes With	Cartridge Price	Cartridges Available	Manufacturer
M1000	\$180	1 cartridge	\$20	6	APF Corp., 444 Madison Ave., New York, N.Y. 10022
Video Computer System	\$190	1 cartridge	\$20 ¹	9	Atari, Inc., 1265 Borregas Ave., Sunnyvale, Calif. 94086
Professional Arcade	\$299 ²	2 games built in	\$20	3	Bally, Inc., 2640 West Belmont Ave., Chicago, Ill. 60618
Telstar Arcade	\$125	1 cartridge	\$20	3	Coleco Industries, 945 Asylum Ave., Hartford, Conn. 06105
Channel F	\$170		\$20	15	Fairchild, 4001 Miranda Ave., Palo Alto, Calif. 94304
Studio II	\$150	4 games built in	\$15, \$20 ³	10	RCA, 30 Rockefeller Plaza, New York, N.Y. 10020
Tournament 2711	\$150	4 games built in	\$20	4	Unisonics, 1115 Broadway, New York, N.Y. 10010

Notes: 1. Indy 500 game with special controller is \$40. 2. Built-in calculator uses TV display. 3. Depends on complexity.