Life in the age of the Atari 8-bit computers

Vol. A "Video Games & Consoles"

* 5 *

Other Early Video Game Consoles

Wikipedia articles curated by Laurent Delsarte
Downloaded from https://www.atari800xl.eu

Foreword

Talking with some very young colleagues at the office made me fully realise just how difficult it is to describe what the world of video games and personal computers was like in the early 1980s.

Their impression of it is distorted by series such as "Stranger Things" and other recent films set in the 80s. It simply doesn't match what I experienced as a child born in 1971, a teenager in France during the 80s.

How can I explain to them that, at the time, all of this was so new, so exciting? Of course, everyone – parents included – quickly understood what video game consoles were for. But trying to explain that you wanted a computer – that we called a "microcomputer" – which was far more expensive than a video game console, was quite another matter. Why? What for?

First of all, to play video games – that was the obvious honest answer, and there was no point denying it, even for those who swore otherwise. But you could do so much more with it, especially learning to program the machine, which seemed incredibly promising for the future. The name "Atari" was practically synonymous with "video game" back then. So, if you wanted to ask for an Atari computer, you needed solid arguments to justify it. And why an Atari rather than something else? There were so many options!

We didn't have access to many sources of information back then. Apart from a few magazines, there wasn't much at all. Spending time in a computer or video game shop was genuinely entertaining, even if you didn't buy anything. And an hour or so in an arcade was like stepping into a whole new world – with no direct view of the outside, constantly stimulated by those flashy colours and sounds coming from all around. The games were absolutely stunning – especially visually. They were far superior to their microcomputer versions, which were released only months, or even years, later.

Today's generation can feel anxious when they're disconnected, without a network, cut off from their tribe. But that was completely normal in the 80s. The Internet did exist, but it wasn't available to the general public – only to the military and universities. In fact, ordinary people had never even heard of the Internet, and websites hadn't been invented yet. We were only just beginning to imagine connecting via a modem – painfully slow – to a local BBS (Bulletin Board System). In the US, other services like CompuServe, PLATO, The Source and so on were available, but not in France. That said, at the same time, we did have the Minitel.

To try to begin sketching out as accurately as possible the contours of these technological revolutions of the 1970s and 1980s, I've selected a collection of Wikipedia articles, grouped by theme. Of course, this isn't exhaustive. Of course, this selection reflects a certain perspective on certain topics, and some choices had to be made. But the approach is entirely honest. You won't be fascinated by every single article, but I'm certain that, like me, you'll make some wonderful discoveries. I plan to compile these articles into about twenty themed books. Happy reading, happy exploring.

Magnavox Odyssey

The **Magnavox Odyssey** is the first commercial home video game console. The hardware was designed by a small team led by Ralph H. Baer at Sanders Associates, while Magnavox completed development and released it in the United States in September 1972 and overseas the following year. The Odyssey consists of a white, black, and brown box that connects to a television set, and two rectangular controllers attached by wires. It is capable of displaying three square dots and one line of varying height on the screen in monochrome black and white, with differing behavior for the dots depending on the game played. Players place plastic overlays on the screen to display additional visual elements for each game, and one or two players for each game control their dots with the knobs and buttons on the controller by the rules given for the game. The console cannot generate audio or track scores. The Odyssey came packaged with dice, paper money, and other board game paraphernalia to accompany the games, while a peripheral controller—the first video game light gun—was sold separately.

The idea for a video game console was conceived by Baer in August 1966. Over the next three years he, along with Bill Harrison and Bill Rusch, created seven successive prototype consoles. The seventh, known as the Brown Box, was shown to several manufacturers before Magnavox agreed to produce it in January 1971. After releasing the console through their dealerships, Magnavox sold 69,000 units in its first calendar year and 350,000 by the time the console was discontinued in 1975.

Magnavox Odyssey

A Magnavox Odyssey with a controller

Developer	Sanders Associates
Manufacturer	Magnavox
Product family	Odyssey series
Type	Home video game console
Generation	First
Released	NA: September 1972 UK: 1973 EU: 1974
Introductory price	US$99.95 (equivalent to about $770 in 2025)
Discontinued	1975
Units sold	350,000
Controller input	Two paddles, light gun
Successor	Magnavox Odyssey 100/Magnavox Odyssey 2

The console spawned the Odyssey series of dedicated consoles as well as the 1978 Magnavox Odyssey 2. One of the 28 games made for the system, a ping-pong game, was an inspiration for Atari's successful 1972 *Pong* arcade game, in turn driving sales of the Odyssey. Patents by Baer and the other developers for the system and the games, including what was termed by a judge as "the pioneering patent of the video game art", formed the basis of a series of lawsuits spanning 20 years, earning Sanders and Magnavox over US$100 million. The release of the Odyssey marked the beginning of the first generation of video game consoles and was an early part of the rise of the commercial video game industry.

Design

An Odyssey controller

The Odyssey consists of a black, white, and brown oblong box connected by wires to two rectangular controllers. The console connects to the television set through an included switch box, which allows the player to switch the television input between the Odyssey and the regular television input cable, and presents itself like a television channel on channel three or four, which thereafter became the standard for game consoles.[1] The controllers, designed to sit on a flat surface, contain one button marked Reset on the top of the controller and three knobs: one on the right side of the controller, and two on the left with one extending from the other. The reset button resets individual elements depending on the game, such as making a player's dot visible after it is turned off. The system can be powered by six C batteries, which were included; an optional AC power supply was sold separately.[2] The Odyssey lacks sound capability and can only display monochrome white shapes on a blank black screen.[3]

Internally, the Odyssey architecture is composed of digital computing parts. The circuitry is implemented in diode–transistor logic using discrete transistors and diodes. The games themselves do not use ROM cartridges like later consoles, but instead, use "game cards" composed of printed circuit boards that plug into the console. These cards modify the internal circuitry like a set of switches or jumpers, causing the Odyssey to display different components and react to inputs differently. Multiple games use the same cards, with different instructions given to the player to change the style of the game.[4]


Table Tennis game for the Odyssey on a CRT television, without any overlay

The Odyssey is capable of displaying three square dots and a vertical line on the screen. Two of the dots are controlled by the two players, and the third by the system itself. The main console has two dials, one of which moves the vertical line across the screen, and one which adjusts the speed of the computer-controlled dot. Different games direct the player to adjust the dials to different positions, such as changing the center line of a tennis game into the side wall of a handball game. The games include plastic overlays that stick to the television via static cling to create visuals. Games that use the same game card can have different overlays, which can change a game with the same controls from, for example, a mountain ski path to a movement-based Simon Says game.[4]

In addition to the overlays, the Odyssey came with dice, poker chips, score sheets, play money, and card decks.[5] One peripheral controller was released for the Odyssey, the first video game light gun. Named the Electronic Rifle, the rifle-shaped device registered a hit when pointed at a light source such as a dot on the television screen.[3] Four shooting-based games were included with the light gun.[6] The light guns were designed and manufactured by Nintendo, based on their 1970 Beam Gun toy.[7]

Development

In 1951, while working for military contractor Loral Electronics, engineer Ralph H. Baer was assigned to build a television set; Baer later claimed that, while doing so, he had the idea to build something into a television set that the owner could control in addition to its normal function of receiving signals from a remote television station. Loral did not pursue the idea, but it returned to Baer in August 1966 while waiting for a bus.[1] Baer, then the head of the Equipment Design Division at military contractor Sanders Associates, came up with the concept of using a television to play games, and the next morning wrote up a four-page proposal for a "game box" that would plug into a television screen, costing around US$25 (equivalent to about $250 in 2025).[8][9] The proposed device would transmit a signal that the television set could tune into like a television channel, which Baer referred to as Channel LP, short for "let's play", and he described several games that could be played on it.[1][8] While electronic computer games had been developed since the start of the 1950s, they were typically only found in large academic or research institutions, and in 1966 no commercial games or video game industry existed, or any form of video games for consumer television sets.[8][10]

As a "game box" had little to do with the typical military contracts Sanders worked on, Baer picked an empty room and assigned one of his technicians, Bob Tremblay, to work on it with him rather than bring the idea to his bosses.[1][9] By December 1966, they had completed an initial prototype later christened "TV Game #1", which could display and move a vertical line on a television screen. Baer demonstrated the prototype to the Sanders director of research and development, Herbert Campman, who hesitantly agreed to fund it for US$2,000 (equivalent to about $19,850 in 2025) for labor and US$500 (equivalent to about $4,960 in 2025) for materials, making it an official project.[1]

"Brown Box" replica constructed by Baer on display at the National Videogame Museum

Baer spent the next few months designing further prototypes, and in February 1967, assigned technician Bill Harrison to begin building the project. Harrison spent the next few months in between other projects building out successive modifications to the prototype.[1] Baer, meanwhile, brainstormed with engineer Bill Rusch on ideas for games for the console, resulting in a proposal for the basis of many games later created for the system. Harrison began developing some early games in May, beginning with a two-player game where the players repeatedly press a button in competition to fill or empty a bucket of water, and by June multiple games were completed for what was then a second prototype box.[11] These included a game where players controlled dots chasing each other and a light gun shooter game with a plastic rifle. Baer demonstrated the new prototype to Campman, who enjoyed the shooting game, increased funding, and recommended Baer demonstrate the project to senior management.[8][11] Baer demonstrated the console to the board, who were largely uninterested, though a couple of members were enthusiastic; nevertheless, CEO Royden Sanders authorized the project to be continued with the aim of selling or licensing the console as a commercial product.[8][9][11]

By August 1967, Baer and Harrison completed a more focused prototype machine with fewer components, but found that to even come near to Baer's initial price target of US$25 the console would require so much to be excluded that the resulting product would not be very enjoyable. Baer additionally felt that he was not proving successful at designing fun games for the system; to make up for this he formally added Bill Rusch, who had helped him come up with the initial games for the console, to the project.[11] Though the pair found Rusch difficult to work with, he soon proved his value to the team by coming up with a way to display a third, console-controlled spot on the screen in addition to the previous two player-controlled ones, and proposing the development of a ping-pong game.[8][11] By November, the team, now on their fourth prototype machine, had a ping-pong game, a chasing game, a light gun game, and three types of controllers: joysticks for the chase game, a rifle for the light gun game, and a three dial controller for the ping-pong game. Campman felt that the system was advanced enough to begin trying to find a manufacturer to buy it; they had decided to sell the rights to produce the console, as Sanders was not in the business of making and selling commercial electronics.[11]

Magnavox Odyssey Cartridge No 6

The team first approached the cable television industry, and the prototype attracted the attention of TelePrompTer Corporation, who had seen it during a visit. After a few months of talks, cash-flow problems forced TelePrompTer to back out in April 1968.[8] The same economic downturn that caused TelePrompTer's problems caused financial difficulties at Sanders as well, which put the project on hold after the fifth prototype was developed while simultaneously undergoing large-scale layoffs. It was picked up again in September, this time without Rusch, and went through two more iterations resulting in January 1969 in the seventh prototype, known as the "Brown Box" due to the wood-grain stickers on the casing.[12] With the system now largely complete, as the team began filing for patents they were unsure whom to approach to sell it until a Sanders patent attorney recommended contacting television manufacturers. Baer demonstrated the system to several companies, who all expressed enthusiasm; only RCA wanted to purchase the device, however, and an agreement could not be reached. Soon afterwards, though, RCA executive Bill Enders left RCA for Magnavox and convinced them to look at the console again. The creators of the Brown Box again demonstrated the device to Magnavox in July 1969; they received a tepid reaction from most of the executives, but Vice President of Magnavox Console Products Planning Gerry Martin was in favor, and Magnavox agreed to produce the console. After a long period of negotiations the two companies finally signed an agreement in January 1971.[13][14]

A team from Magnavox led by George Kent turned the prototype console into a final product. They designed the exterior of the machine and re-engineered some of the internals with consultation from Baer and Harrison; they removed the ability to display color, used only the three dial controller, and changed the system of selecting games from a dial to separate game cards that modified the console's circuitry when plugged into the console.[12] At the time, color televisions were still seen as a luxury item, and the ability to show color would have added additional expense and time spent dealing with FCC testing and


The inside of the Magnavox Odyssey showing its motherboard and battery compartment

regulations.[15] The internal circuitry had been designed with discrete components rather than integrated circuits due to cost concerns, and although integrated circuits were becoming common by 1972 Magnavox did not redesign the circuitry to use them.[4] The games for the system were designed by Ron Bradford of Bradford/Cout Design and adman Steve Lehner, based largely on the ones developed by Baer, Harrison, and Rusch.[6] The product planning for the console was initially overseen by Bob Wiles of the color television division, but was turned over to product manager Bob Fritsche as its own category of product in September 1971.[12]

Magnavox named the console first as the Skill-O-Vision while testing, and then released it as the Odyssey.[13] The rifle game was turned into a separately sold add-on game, *Shooting Gallery*, and Magnavox added paper money, playing cards, and poker chips to the console, to go along with the plastic overlays for the games designed by Bradford that enhanced the primitive visuals.[6] The new additions helped raise the price of the console to US$99.95 (equivalent to about $770 in 2025).[12] Baer was upset with the board game additions, which he felt were pointless add-ons that would go unused by players.[13][16] Magnavox performed market surveys and playtests in Los Angeles and Grand Rapids, Michigan, and demonstrated it to dealers in Las Vegas in May 1972. The console was publicly unveiled at a press event at the Tavern on the Green in New York City on May 22, 1972. Magnavox announced the system's launch date of September 1972, with availability restricted to dealers in 18 metropolitan areas, and demonstrated it for the next few months to Magnavox dealerships and media.[12]

Reception

Magnavox began advertising the Odyssey in mid-September 1972, including an appearance on the game show *What's My Line?* on October 16, 1972. As the term "video game" was not yet in use, the company described the console as "the new electronic game of the future" and "closed-circuit electronic playground".[17][18] Magnavox initially ordered 50,000 units, but before release increased its production capabilities and built a larger inventory, as market testing found an enthusiastic response to the console. The Odyssey was sold only through Magnavox dealers, who handled their own advertising in their local markets; the company hoped that as the video game console was the first such product, consumers would visit its stores specifically for it.[6][18]

The Magnavox Odyssey at the 2010 Festival du Jeu Vidéo

The Magnavox Odyssey at the Finnish Museum of Games in Tampere, Finland in 2017

There are conflicting reports between Baer and Magnavox employees as to whether Magnavox produced 120,000 or 140,000 consoles in 1972. Magnavox only sold 69,000 units.[6][19][20] Baer believed that the low initial sales were due to the high price, and because Magnavox restricted sales to its dealerships and implied that the device only worked with Magnavox televisions.[6][16][20] Other sources have stated that dealers may have misled customers to sell more televisions, though advertisements and in-store promotional videos explicitly stated that the Odyssey

worked with "any brand TV, black and white or color".[18][21] Customers unfamiliar with the new device, seeing it was only sold at Magnavox dealerships, may have misunderstood its interoperability.[17][18][22]

Magnavox assistant product planner Don Emry said that the sales were in line with the original projections, if not the production run.[4] After the initial holiday season Magnavox considered discontinuing the console, but the modest continuing demand, along with high customer satisfaction reports in surveys, convinced it to continue stocking the console.[23] Magnavox published two catalogs each year, one before the Christmas season and another for its annual sale in January. The Odyssey did not appear in the pre-Christmas 1972 catalog, but the January 1973 catalog depicted the console in a two-page spread with pictures of bundled and optional games and the light gun.[18] Fritsche's team proposed the creation of alternate versions of the Odyssey, a "lite" version with five games and a version with four controllers and a dozen new or updated games. Baer proposed an add-on that would add sound to games, and a putting controller and associated golf game.[23][24] Magnavox rejected the proposals, instead releasing four games for sale in 1973, designed wholly or in part by Emry.[4][23]

Although still only available at Magnavox dealers, national marketing for Odyssey began in late 1973.[18] The company lowered the price to US$50 (equivalent to about $360 in 2025) if purchased with a television.[17][18][23] The console was released that year with different games in the United Kingdom.[4][25][26][27] In late 1973, Magnavox ran a large advertising campaign for its 1974 products, including sponsoring Frank Sinatra's November television special *Ol' Blue Eyes Is Back*.[28][29] Commercials during the special and advertisements for it showed the Odyssey and other Magnavox products.[17][18] Continuing demand led Magnavox to manufacture an additional 27,000 units for the 1973 holiday season, selling 20,000 of them according to Baer.[19][23] It was released in 1974 in limited quantities in several other countries: Australia, Belgium, France, Germany, Greece, Israel, Italy, the Soviet Union, Switzerland, and Venezuela.[4] It was additionally released at some point in other countries, such as Mexico, where it was named the Magnavox Odisea.[30] Clone versions were released by other manufacturers such as the Overkal in Spain, released commercially in early 1974 by Inter Electrónica. The Overkal was developed in 1973 by electronics engineer Felipe Mor Pérez, and was modified to select games through push-buttons, removing the use of game cards. It may have been the first console produced in Europe.[31][32] In 1974, Odyssey appeared in the Sears Wish Book.[18] Magnavox sold 89,000 consoles in total in 1973, 129,000 Odyssey units in 1974, and 80,000 units in 1975.[19][23] According to Baer the company sold 350,000 Odysseys in total worldwide, though Fritsche stated it reached 367,000.[19][20][23] The light gun peripheral sold 20,000 units.[3]

Legacy

Although there was continued customer demand for the console, Magnavox discontinued production of the Odyssey in the fall of 1975. Rising inflation had raised the manufacturing cost of the system to Magnavox from roughly US$37 to US$47 (equivalent to about $280 in 2025), and Magnavox was unable to raise the retail price to match. Instead, it sought a cheaper alternative; in May 1974 it signed a contract with Texas Instruments for integrated circuits to replace the transistors and diodes of the original system, and designed a limited version of the console around them.[23] The result was the first of several dedicated consoles—consoles that could only play games built into the system—in the Magnavox Odyssey series, the Magnavox Odyssey 100 and Magnavox Odyssey 200, as part of the first generation of video game consoles; the Odyssey 100

was only capable of playing the ping-pong and hockey games from the original Odyssey, while the 200 also had the handball game and a rudimentary on-screen scoring system.[22][23] The 100 and 200 were released in November 1975 to replace the Odyssey for US$69.95 (equivalent to about $420 in 2025) and US$109.95 (equivalent to about $660 in 2025), respectively.[23] Eleven dedicated Odyssey consoles were produced before a follow-up non-dedicated console in 1978, the Magnavox Odyssey 2.[4]


Ralph Baer being given the National Medal of Technology in February 2006

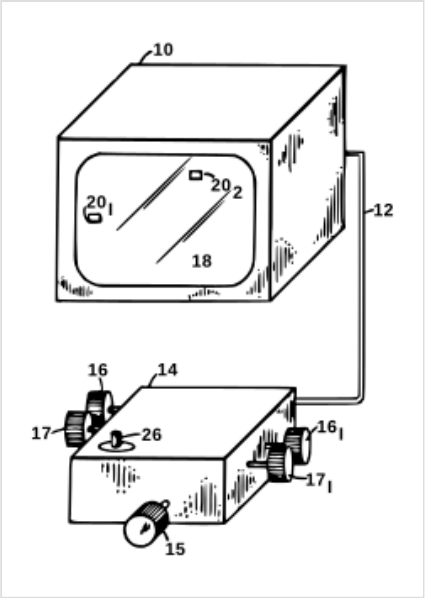
While it showed the potential of video game consoles and was an early part of the rise of the commercial video game industry, the Odyssey is not generally considered a major commercial success. Magnavox produced no more games for the console after 1973 and rejected proposals for different versions of the console or accessories.[4][24] While a few clone systems were produced in limited quantities, and multiple dedicated systems—generally focused on ping-pong game variants—were created by several companies, no other home video consoles capable of playing separately-produced games were released until the 1976 Fairchild Semiconductor Channel F.[4]

Due to his work on the Odyssey, Baer has been referred to as the "Father of Video Games".[33] In 2004, Baer was awarded the National Medal of Technology for "his groundbreaking and pioneering creation, development and commercialization of interactive video games, which spawned related uses, applications, and mega-industries in both the entertainment and education realms".[34] The Museum of Modern Art (MoMA) added the Magnavox Odyssey to its permanent collection of video games in 2013. MoMA's Paul Galloway described the console as "a masterpiece of engineering and industrial design" and stated that it was "hard to overstate the importance of [Ralph Baer's] place in the birth of the industry".[35] The Brown Box prototype and the TV Game #1 prototype are located in Washington, D.C. at the Smithsonian Institution's National Museum of American History.[36]

Lawsuits

In May 1972, Nutting Associates chief engineer Nolan Bushnell, designer of the first commercial arcade video game, *Computer Space*, saw a demonstration of the Odyssey.[13] Inspired, when he and Ted Dabney quit Nutting to found Atari, he assigned Allan Alcorn to create a cheap ping-pong arcade game as a training exercise, though he did not tell Alcorn that it was for training nor that the idea was based on the Odyssey *Table Tennis* game. Alcorn soon developed *Pong* (1972), which Bushnell recognized as a potential hit, and it became the company's first game. *Pong* was very successful, and in turn helped drive sales of the Odyssey; Baer noted that customers bought the console because of *Table Tennis*, in turn because of *Pong*, and joked that they may as well have stopped designing games after that game card. In April 1974, however, Magnavox sued Atari along with several competitors, including Allied Leisure, Bally Midway, and arcade distributor Empire, for infringing on its patents for video games played on a television screen.[13][38] Two more lawsuits joined it by 1975, against Sears, Nutting, Williams Electronics, and others.[38] Baer later stated that the lawsuits were not filed right away because Magnavox and Sanders needed to wait until they could expect to be awarded more money than it would cost to pursue the suits.[24] The root of the conflict was a set of patents by Baer and the development team—particularly a pair

which described how the Odyssey showed player-controlled objects, or dots, on a video monitor and described a number of games that could be played with the system, with one patent by Baer and one by Rusch.[37][39]



Patent drawing for the Magnavox Odyssey[37]

The judge, John Grady, ruled in early 1977 that Baer's patent for the Odyssey constituted "the pioneering patent of the video game art", held the defendants' games as infringing, and set a precedent that any video game where a machine-controlled visual element hit and bounced off a player-controlled element violated Rusch's patent. At the time of judgement, only Seeburg Corporation and Chicago Dynamic Industries—though bankrupt—remained out of the defendants of the initial three lawsuits, with all other companies having settled out of court.[38] Atari's settlement, made in June 1976, granted it a license in exchange for US$1.5 million (equivalent to $10.9 million) and access granted to Magnavox to all technology produced by Atari from June 1976 to June 1977; other defendants paid higher penalties.[13][19][40] Over the next twenty years, Sanders and Magnavox sued several other companies over the issue, focusing on "paddle-and-ball" type games like *Pong* and *Table Tennis* that more clearly violated the patent; the final lawsuits ended in the mid-1990s.[9][24] Defendants included Coleco, Mattel, Seeburg, and Activision; Sanders and Magnavox won or settled every lawsuit.[9][41][42] Many of the defendants unsuccessfully attempted to claim that the patents only applied to the specific hardware implementations that Baer had used, or that they were invalidated by prior computer or electronic games.[43] In 1985, Nintendo sued in an effort to invalidate the patents, claiming as prior art the 1958 *Tennis for Two* game built by William Higinbotham. The court, however, ruled that the oscilloscope-based game did not use video signals and therefore did not qualify as a video game, and ruled again in favor of Magnavox and Sanders.[3] Magnavox won more than US$100 million in the various lawsuits and settlements involving the Odyssey related patents before they expired in the early 1990s.[44]

Games

A total of 28 games distributed on 11 different game cards were released for the Magnavox Odyssey. 13 games were included with the console—a set of 12 in America and a different set of 10 in other countries—with six others available for purchase either individually or in a bundle; the additional games primarily used the same game cards with different screen overlays and instructions. Another game, *Percepts*, was available for free to players that sent in a survey card. A light gun accessory, *Shooting Gallery*, was available for purchase, and included four games on two cards that used the rifle. A final four games were released for sale in 1973.[4] The console does not enforce game rules or keep track of scores for the games; that is left up to the players.[14]

Title[4]	Game card	Description	US version	International version
Table Tennis	1	Two players use paddles to knock a ball back and forth on a screen; does not use an overlay	Included with console	Included with console
Ski	2	One player moves a dot representing a skier back and forth as they go down a mountain path; players must keep track of their own time and penalties	Included with console	Included with console
Simon Says	2	A three-player game where two players must race to touch the body part of their chosen character's picture when the third player tells them to, based on a deck of Simon Says cards	Included with console	Included with console
Tennis	3	Two players use paddles to knock a ball back and forth on a screen; uses an overlay of a tennis court and players are intended to follow the rules of tennis	Included with console	Included with console
Analogic	3	A math game where players can move to either square depicted on the overlay based on if the number on the square is even or odd and is the sum of the other player's move and another number	Included with console	Included with console
Hockey	3	Two players use paddles to knock a ball back and forth on a screen; uses an overlay of a hockey rink and players score only if the puck reaches the opponent's goal on the overlay	Included with console	Included with console
Football	3, 4	Two players use a combination of on-screen movement, dice, and play cards to simulate a game of football; kickoff, passing, and punting plays use Card #3 while running plays use Card #4	Included with console	—
Cat and Mouse	4	A two-player chase game played on a grid, with the mouse attempting to return to its house before the cat catches it	Included with console	Sold separately
Haunted House	4	A two-player chase game played on a haunted house overlay, with the detective trying to collect all of the clue cards without being caught by the ghost	Included with console	Sold separately
Submarine	5	A target shooting game, with one player moving a submarine along shipping lanes and the other player using their spot as a torpedo	Included with console	Included with console
Roulette	6	A game of chance where players bet with chips, and randomly spin their controller dial to launch a spot at a roulette wheel overlay	Included with console	Sold separately
States	6	An educational game played with an overlay of the United States and a deck of fifty trivia cards with questions about each state	Included with console	—
Fun Zoo	2	A racing game using an overlay of a zoo, with a third player drawing animal cards for the players to race to	Sold separately	—
Baseball	3	Two players use a combination of on-screen movement, dice, and play cards to simulate a game of baseball	Sold separately	—
Invasion	4, 5, 6	A combination of strategic moves made on a separate game board and tactical combat resolved on the screen; different assaults use different cards	Sold separately	—
Wipeout	5	A racing game using both a track overlay and a game board; the game board keeps track of laps and the second player's dot along with the ball dot keeps time	Sold separately	Included with console
Volleyball	7	Two players use paddles to knock a ball back and forth on a screen; uses an overlay of a volleyball	Sold separately	Included with console

Title[4]	Game card	Description	US version	International version
		court, and players must knock the ball over the net for scores to count		
Soccer	3	Two players use paddles to knock a ball back and forth on a screen; uses an overlay of a soccer court and players score only if the ball reaches the opponent's goal on the overlay	—	Included with console
Handball	8	Two players use paddles to knock a ball back and forth on a screen; it uses an overlay of a handball court, and players are both on the same side of the screen with a wall on the other side	Sold separately	—
Prehistoric Safari	9	One player sets their dot on overlays of prehistoric animals, while the other player attempts to shoot the dot with the light gun in as few shots as possible	Sold with light gun	Sold with light gun
Dogfight!	9	One player moves their dot along a flight path on the overlay, while the other player attempts to shoot it with the light gun	Sold with light gun	Sold with light gun
Shootout!	9	One player is a bandit in an Old West town, and moves along a path, stopping at windows for the other player to try to shoot with the light gun	Sold with light gun	Sold with light gun
Shooting Gallery	10	The overlay contains rows of shooting gallery targets, and the player attempts to shoot the computer-controlled dot with the light gun as it moves over them	Sold with light gun	Sold with light gun
Percepts	2	A racing game in which the overlay has squares containing patterns and symbols on them; players race to the correct square when the corresponding card is drawn from a deck	Free with survey	—
Brain Wave	3	A complicated strategy game using cards and dice	Sold separately (1973)	—
W.I.N.	4	Players move their dot to symbols on the overlay to fill out their "Win card", while their dot is invisible until the reset button is pressed	Sold separately (1973)	—
Basketball	8	Two players use paddles to knock a ball back and forth on a screen; uses an overlay of a basketball court	Sold separately (1973)	—
Interplanetary Voyage	12	The player guides their dot, which has momentum, to planets to complete missions given by cards with a maximum number of moves allowed	Sold separately (1973)	—

References

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Odyssey series

Magnavox Odyssey is the general brand name of Magnavox's complete line of home video game consoles released from 1972 through 1978. The line includes the original Magnavox Odyssey console, the Magnavox Odyssey series of dedicated home video game consoles, and the Magnavox Odyssey 2, a ROM cartridge-based video game console released in 1978. **Philips Odyssey** is the brand name that includes the Philips Odyssey series of dedicated home video game consoles.

Odyssey series

Manufacturer	Magnavox, Philips
Type	Series of home video game consoles
Generation	First generation Second generation
Lifespan	NA: 1972—1978

Magnavox sold a total of 1,773,918 units across the entire Odyssey brand between 1972 and 1981 with a total sales value of around $71,300,000.00.[1] Nearly half of those sales occurred between August 1972 and September 1976 with total sales at that time being around $45,000,000.00 selling 800,000 units.[2]

Magnavox Odyssey (1972)

The **Magnavox Odyssey**, released by Magnavox in September 1972, is the world's first commercial video game console. Designed by Ralph H. Baer and first demonstrated on a convention in Burlingame, California on May 24, 1972,[3] it was sold by Magnavox and affiliates through 1975. The Odyssey uses a type of removable printed circuit board card that inserts into a cartridge slot, allowing the player to select the unit's various games by connecting different paths along the unit's internal logic circuitry. They do not contain any programming.

A Magnavox Odyssey and one of its two accompanying game controllers

Magnavox Odyssey series (1975–1977)

There are eight dedicated home video game consoles and one TV with a built-in game console in the Odyssey series. All of these consoles were released in the US by Magnavox after its purchase by Philips in 1974.[4]

Magnavox Odyssey 100

The **Magnavox Odyssey 100** dedicated console was announced in the Spring of 1975 with first shipments on October 30[2] and a launch price of $99.95,[5][6] although pricing dropped quickly with pricing listed at $80 by June 1976[7] and by Christmas of 76 as low as $39.95.[8] It uses a multi-chip discrete component design, which makes it much simpler than all later dedicated

consoles Magnavox would eventually release. Magnavox already had a single-chip design in mind that year, but wanted to have a product they could release immediately if Texas Instruments, the supplier of their single video game chips, was unable to deliver in a timely manner.[9]

Magnavox Odyssey 100

The Odyssey 100 was designed around four Texas Instruments chips. It has two games (Tennis and Hockey). Neither game had on-screen scoring and the system used a crude buzzer for sound. The Odyssey 100 is powered by either six "C" batteries or a 9 volt AC adapter. Each player had three knobs for horizontal movement, vertical movement and ball trajectory adjustment ("English").

Magnavox Odyssey 200


Magnavox Odyssey 200

The **Magnavox Odyssey 200** dedicated console was released in 1975 as a deluxe companion of the Odyssey 100. Marketed at the same time as the Odyssey 100, it began shipping units on November 12, 1975[2] at $129.95.[6] Using the same TI multi-chip design, but adding 2 chips,[10] the console improved on the Odyssey 100 in several areas. In addition to Tennis and Hockey, the Odyssey 200 featured a third game variation called "Smash" (essentially, the sport known as Squash). The Odyssey 200 was also the first dedicated system to feature an option for four on-screen paddles instead of the customary two.[9] The game manual, as well as Magnavox's service documentation describe this as an option for two or four "players," although the console itself can only be physically operated by two persons; consequently, the 200 is frequently and erroneously described as a "four-player" console today. The Odyssey 200 also added a unique method of non-digital on-screen scoring in which a white rectangle moved one space to the right each time a player scored a point. Like the Odyssey 100, the Odyssey 200 is powered by either six "C" batteries or a 9 volt AC adapter and uses three control dials for vertical and horizontal movement and ball "english."

Magnavox Odyssey 300


Magnavox Odyssey 300

The **Magnavox Odyssey 300** dedicated console, announced in May 1976,[11] it was released in October for US$69.[12] Unlike Magnavox's previous two dedicated console products, the Odyssey 300 was meant to compete directly with the Coleco Telstar. Like the Telstar, the Odyssey 300 uses the AY-3-8500 chip as its logic and was among the first dedicated consoles to use a single IC chip as the focus of its design rather than multiple computer chips or transistor–transistor logic.[13] The Odyssey 300 has the same three games as the Odyssey 200, although, owing to its usage of the AY-3-8500, their gameplay more closely resembles Atari's Pong than Magnavox's previous games; horizontal control was absent, ball angle was automated, and the games are controlled with a single dial instead of three. Unlike the 200, the Odyssey 300 console has three difficulty levels: Novice, Intermediate, and Expert.[13] Also owing to its implementation of the AY-3-8500, the 300 introduced digital on-screen scoring.

Magnavox Odyssey 400

Magnavox Odyssey 400

The **Magnavox Odyssey 400** dedicated console was released in 1976[14] for $100.[11] The Odyssey 400 is an updated version of the Odyssey 200 with automatic serve and on-screen digital scoring features added. The console plays the same three games as the Odyssey 200—Squash (known as Smash), Tennis, and Hockey—and has the same three control dials for vertical movement, horizontal movement, and "english" control. An additional Texas Instruments chip was used to implement on-screen scoring;[14] the mechanical score sliders of the 200 were dispensed with.

Magnavox Odyssey 500


Magnavox Odyssey 500

The **Magnavox Odyssey 500** (model number: 7520) was released in 1976 for $130[11] as Magnavox's high-end companion to the Odyssey 300 and Odyssey 400 systems. The Odyssey 500 is essentially a deluxe version of the Odyssey 400 with several crucial improvements. The 500 featured color graphics (the first Odyssey game unit to do so) and replaced the standard paddles with sprites representing the athletes of its various games: a tennis player, a squash player, and a hockey player. The three players and three playfields were each chosen by separate toggle switches; games were thus selected by matching the player to its appropriate playfield. In addition to the Smash, Hockey, and Tennis games, Odyssey 500 featured a fourth game, Soccer, by using the squash player graphics with the hockey playing field.[9] Unlike the Odyssey 400, however, the 500 does not support four onscreen "players."

The Odyssey 500's manual acknowledged that the player graphics, being of different sizes, essentially represented different difficulty options. Interestingly, while Magnavox exploited the "mismatching" of players and playfields to market the Odyssey 500 as having a fourth game, the remaining five possible game combinations were not advertised or documented.

Odyssey 500 offers automatic serve, displays digital on-screen scores between plays, and provides manually adjustable ball speed control. As with all previous Odyssey units, power is delivered via an AC adapter or six "C" cell batteries.[15]

Magnavox Odyssey 4305

The **Magnavox Odyssey 4305** (model number: 3616R061A) was released in 1976[16][17][18] or 1977[19] and is a 19 inch[20] color TV with a built-in Magnavox Odyssey 300[21][18] or 500.[17] The label on the backside of the TV reads "October 1976".[22] It was sold for US$499.[23][24] Its two wired game controllers are very similar to those of the Ping-O-Tronic, with each containing one button and a paddle. It is extremely rare.[17]

Magnavox Odyssey 2000

Magnavox Odyssey 4305

The **Magnavox Odyssey 2000** (model number: BH7510) dedicated console was released in 1977. The Odyssey 2000 was basically an updated version of the Odyssey 300. Like the 300, the Odyssey 2000 uses the AY-3-8500 single-chip design (which is also used in the Odyssey 3000). The Odyssey 2000 is set up for two players and uses a single rotating knob for each player's game control instead of the three knobs used by earlier Magnavox dedicated video game consoles. In addition to the Tennis, Hockey, and Squash ("Smash") game variations, the Odyssey 2000 adds the Practice variation of one-player squash.[25] Points scored during gameplay are shown at the top of the screen when each player scores and the winner is the first player to gain 15 points. Like earlier Odyssey models, the Odyssey 2000 is powered by either six "C" batteries or an optional AC adapter.[15]:18 The Odyssey 2000 has a built in speaker inside of it.


Magnavox Odyssey 2000

Magnavox Odyssey 3000


Magnavox Odyssey 3000

The **Magnavox Odyssey 3000** (model number: 7508) dedicated console was released in 1977. The Odyssey 3000 features the same game variations as the Odyssey 2000 (Tennis, Hockey, Smash, Practice). The unit is set up for two players but a solo-play Practice mode for Smash is also available. A three-position handicap switch allows players to set skill level, and additional controls allow players to select automatic or manual serve, ball speed, and ball deflection angle (20 or 40 degrees).[15]:21 With the Odyssey 3000, Magnavox abandoned its old case design with one with a more contemporary style. The console itself is more angular and less rounded; two flat buttons are used for the serve and reset functions[26] and the console settings knobs were reduced in size. The Odyssey 3000 uses a flat circular knob for selecting different games and unlike all previous Odyssey dedicated video game consoles, the Odyssey 3000 features detachable game paddles (without any fire buttons).[27] The Odyssey 3000 is powered by either six "C" batteries or an optional AC adapter.[15]:21

Magnavox Odyssey 4000


Magnavox Odyssey 4000

Magnavox concluded their line of dedicated video game consoles with the **Magnavox Odyssey 4000**. The Odyssey 4000 (model number: 7511) dedicated console was released in 1977. Based around the AY-3-8600 single-chip design, the Odyssey 4000 features a total of six games (Tennis, Hockey, Soccer, Basketball, Smash and Gridball and includes a Practice mode for solo-play in Basketball and Smash). As with the Odyssey 3000, the Odyssey 4000 offers a skill switch for novice, semi-pro, and professional skill levels. Additional features include automatic serve and

variable ball speeds.[15]:24–25 Unlike the Odyssey 3000, the Odyssey 4000 featured detachable joysticks. The AY-3-8615 chip enabled the Odyssey 4000 to display their games in color instead of black and white graphics.[27] The 4000 is powered by an included AC adapter.It's unknown how many Magnavox's Odyssey's 4000 were sold.[15]:25

Magnavox Odyssey 5000 (prototype)

The **Magnavox Odyssey 5000** would have contained two chips, National Semiconductor's MM571068 and Signetics' MUGS-1, and featuring a total of seven games (Tennis, Hockey, Volleyball, Basketball, Knockout, Tank, and Helicopter) which with variations could be expanded to twenty-four different gaming experiences. The unit would have allowed up to four players and included a Practice mode for solo-play against the computer. The console never was released commercially, and remained in development.[9] Its prototype helped shape the next generation of Magnavox Odyssey home console, the Magnavox Odyssey 2.

Philips Odyssey series (1976–1978)

Dutch electronics manufacturer Philips purchased Magnavox in 1974,[4] after which it began to release its own versions of the dedicated Odyssey consoles in Europe.

Philips Odyssey 200

The **Philips Odyssey 200** is the same as its US released counterpart. Released across Europe in 1976, it was replaced by the Philips Odyssey 2000 in 1977.[28]

Philips Odyssey 200

Philips Odyssey 2000

The **Philips Odyssey 2000** is the same as its US released counterpart, with the exception that the European version features thin physical paddles while the American one has wide paddles. Released across Europe in 1977, it was replaced by the Philips Odyssey 2001 in 1977.[29]

Philips Odyssey 2000

Philips Odyssey 2001

The **Philips Odyssey 2001** is Philips' version of the Magnavox Odyssey 4000, with differences in the games offered and the use of detachable paddles instead of joysticks. Released in 1977, the Philips Odyssey 2001 is based on the National Semiconductor MM-57105 chip, which plays Tennis, Hockey, and Squash, and allows full color and direct sound on the TV.[30]

Philips Odyssey 2001

Philips Odyssey 2100

The **Philips Odyssey 2100** was released in 1978 and uses the same case design as the 2001. Using the National Semiconductor MM-57186N chip, the Philips Odyssey 2100 plays 6 games with multiple variations: Wipe-Out (Breakout style, 7 variants), Flipper (7 variants), Tennis (2 variants), Handball (2 variants), Ice Hockey (2 variants), Football (3 variants).[31]

Philips Odyssey 2100

Magnavox Odyssey 2 (1978)

The **Magnavox Odyssey 2** (stylized as **Magnavox Odyssey²**) is a second-generation home video game console developed by Philips' Odyssey division subsequent to its purchase of Magnavox in 1974. It was released in 1978.

A Magnavox Odyssey² with its two accompanying game controllers

See also

- Philips Videopac+ G7400 - Developed by Philips as the Odyssey³ and intended to have backward compatibility with the Odyssey².[32]
- Philips Tele-Game series - Another pong console series of Philips.
- Color TV-Game series - Another popular series of early video game consoles by Nintendo.

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Coleco Telstar series

The **Coleco Telstar** is a series of dedicated first-generation home video game consoles produced, released and marketed by Coleco from 1976 to 1978. Starting with Coleco Telstar's *Pong* clone-based video game console on General Instrument's AY-3-8500 chip in 1976,[1] there were 14 consoles released in the Coleco Telstar series. About one million units of the first model, called Coleco Telstar, were sold.[2]

Coleco sold over a million units at the price of $50 in 1976. Coleco was unaffected by a chip shortage that year, as their early orders meant it was entirely supplied.[3] The large product lineup and the impending fading out of the *Pong* machines led Coleco to face near-bankruptcy in 1980.[4] The first Telstar system included single control knobs for each player. It was sold as a bundle that contained the three internal ping pong style games *Tennis*, *Hockey* and *Handball*.[5]

Coleco Telstar series

Manufacturer	Coleco
Type	Series of dedicated home video game consoles
Generation	First
Lifespan	1976-1978
Units sold	> 1 million (Coleco Telstar model only)
Successor	ColecoVision

Model comparison

Telstar models

Console	Model and chip	Release date	Integrated games	Description	Size (height x wide x depth)	Cite	Picture
Coleco Telstar	No.6040, AY-3-8500	1976	▪ hockey ▪ handball ▪ tennis	Two fixed paddles. Games are *Pong* variants.	Unknown	[6]	
Coleco Telstar Classic	No.6045, AY-3-8500	1976	▪ hockey ▪ handball ▪ tennis	Two fixed paddles. Deluxe wood case.	Unknown		
Coleco Telstar Deluxe (a.k.a. "Video World of Sports")	model number unknown, AY-3-8500	1977	▪ hockey ▪ handballs ▪ tennis ball	Two fixed paddles. Brown stand case with wood panel. Made for Canadian market with French and English text.	Unknown		No picture available
Coleco Telstar Ranger	No.6046, AY-3-8500	1977	▪ hockey ▪ handball ▪ tennis ▪ jai alai ▪ target ▪ skeet	Black and white plastic case, includes Colt 45-style light gun and separate paddle controllers. Four ball games, two target games. Special features of the four ball games include automatic serve and variable paddle and speed control for three experience levels (beginner, intermediate, and professional). Uses six C batteries or an optional AC adapter, light gun requires one nine-volt battery.	4 lb. 17.5×6×8 in.	[7]:22 [8]:35	

Console	Model and chip	Release date	Integrated games	Description	Size (height x wide x depth)	Cite	Picture
Coleco Telstar Alpha	No.6030, AY-3-8500	1977	▪ hockey ▪ handball ▪ tennis ▪ squash	Black and white plastic case, fixed paddles. The games feature an automatic serve function and variable settings for three skill levels (beginner, intermediate, and pro). Uses six C batteries or optional 9 volt AC adapter.	2.5 lb. 13.5×3.5×7.5 in.	[7]:17 [8]:34	
Coleco Telstar Colormatic	No.6130, AY-3-8500 Texas Instruments SN76499N (color)	1977	▪ hockey ▪ handball ▪ tennis ▪ jai alai	Black and white plastic case, detached wired paddles. Color graphics - each game is a different color. The games feature an automatic serve function and variable settings for three skill levels (beginner, intermediate, and professional). Uses six C batteries.	2.5 lb. 13×6.5×7.5 in.	[7]:18	
Coleco Telstar Regent	No.6036, AY-3-8500	1977	▪ hockey ▪ handball ▪ tennis ▪ jai alai	Black and white plastic case, detached wired paddles. The games feature an automatic serve function and variable settings for three skill levels (beginner, intermediate, and professional). Uses six C batteries.	2.5 lb. 13.5×4×8 in.	[7]:18	
Coleco Telstar Sportsman	model number unknown, AY-3-8500	1978		Black and white plastic case, detached wired paddles, and light gun.	Unknown		No picture available

Console	Model and chip	Release date	Integrated games	Description	Size (height x wide x depth)	Cite	Picture
Coleco Telstar Combat!	No.6065, General Instrument AY-3-8700 Tank chip	1977	▪ *Combat* ▪ *Night Battle* ▪ *Robot Battle* ▪ *Camouflage Combat*	Four fixed joysticks (two per player). Games are variations on Kee Games' *Tank*. Uses six C batteries or an optional AC adapter.	5.5 lb. 15×8×10.5 in.	[7]:23 [8]:37	
Coleco Telstar Colortron	No.6135, AY-3-8510	1978	▪ Tennis ▪ Hockey ▪ Handball ▪ Jai-alai	In color, built in sound, fixed paddles. Games are *Pong* variants and feature variable settings for three skill levels (beginner, intermediate, and pro). Uses two nine-volt batteries or an optional AC adapter.	1 lb. 2×11.25×4 in.	[8]:34	
Coleco Telstar Marksman	No.6136, AY-3-8512	1978	▪ Tennis ▪ Hockey ▪ Handball ▪ Jai-alai ▪ Skeet ▪ Target	In color, larger light gun with removable stock, fixed paddles. Four *Pong* variants and two gun games. Uses two nine-volt batteries or an optional AC adapter.	1 lb. 2×11.25×5 in.	[8]:36	
Coleco Telstar Galaxy	model number unknown, AY-3-8600 (games) AY-3-8615 (color encoder)	1977	48 variations of: ▪ Tennis ▪ Hockey ▪ Handball ▪ Soccer ▪ Basketball ▪ Foosball	Separate joysticks and fixed paddles	Unknown		No picture available
Coleco Telstar Gemini	model number unknown, MOS Technology MPS 7600-004	1977	▪ Four pinball games ▪ Two light-gun games	In color, light gun, two flipper buttons on left and right sides of case, pinball launch button and field adjustment sliders on top, light gun.	Unknown		No picture available

Console	Model and chip	Release date	Integrated games	Description	Size (height x wide x depth)	Cite	Picture
Coleco Telstar Arcade	model number 6175, MOS Technology MPS-7600 (each cart)	1977	▪ Pack-in game (Tennis, road racing, quick draw) **Others**	Cartridge-based, triangular case includes light gun, steering wheel with gear shift, and paddles, one on each side.	4 lb. 7.5×18×16 in.	[7]:28 [8]:37–38	

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External links

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Fairchild Channel F

The **Fairchild Channel F**, short for "Channel Fun",[1] is a home video game console, the first to be based on a microprocessor and to use ROM cartridges (branded "Videocarts") instead of having games built in. It was released by Fairchild Camera and Instrument in November 1976 across North America[2] at a retail price of US$169.95 (equivalent to $960 in 2025). It was launched as the "Video Entertainment System", but Fairchild rebranded their console as "Channel F" the next year while keeping the Video Entertainment System descriptor.

The Fairchild Channel F sold only about 350,000 units before Fairchild sold the technology to Zircon International in 1979, trailing well behind the Atari VCS.[1] The system was discontinued in 1983.[3]

History

In 1974, Alpex Computer Corporation employees Wallace Kirschner and Lawrence Haskel developed a home video game prototype consisting of a base unit centered on an Intel 8080 microprocessor and interchangeable circuit boards containing ROM chips that could be plugged into the base unit. The duo attempted to interest several television manufacturers in the system, but were unsuccessful. Next, they contacted a buyer at Fairchild, which sent engineer Jerry Lawson to evaluate the system. Lawson was impressed by the system and suggested Fairchild license the technology, which the company did in January 1976.[1][4]

Lawson worked with industrial designer Nick Talesfore and mechanical engineer Ronald A. Smith to turn the prototype into a viable project. Jerry Lawson replaced the 8080 with Fairchild's own F8 CPU, while Nick Talesfore and Ron Smith were responsible for adapting the prototype's complex keyboard controls into a single control stick and encasing the ROM circuit boards into plastic cartridges reminiscent of 8-track tapes.[4][5][6] Talesfore and Smith collaborated on the styling and

Fairchild Channel F

Channel F and its two controllers

Also known as	Fairchild Video Entertainment System
Developer	Jerry Lawson
Manufacturer	Fairchild Camera and Instrument
Type	Home video game console
Generation	Second
Released	NA: November 1976 JP: October 1977
Lifespan	1976–1983
Introductory price	US$169.95 (equivalent to $960 in 2025)
Discontinued	1983
Units sold	c. 310,000 (as of 1979)[1]
Media	ROM cartridge
CPU	Fairchild F8
Memory	64 bytes RAM 2 KB video buffer
Display	c. 104 × 60 pixels (of 128 x 64 VRAM)
Controller input	Joystick/digital paddle, JetStik (has added fire button)
Best-selling game	Videocart-17: Pinball Challenge

function of the 8 degrees of freedom hand controller. They were responsible for the design of the hand controllers, console, and video game cartridges. Talesfore also worked with graphic designer Tom Kamafugi, who did the original graphic design for the early video cartridges cartons.

John Donatoni, the marketing director of Fairchild's video games division, stated that the console followed the razor and blades model where they would sell the "hardware, and then we're going to make the profit on the cartridge sales". Their marketing campaign was conducted by Ogilvy.[7]

Fairchild announced the console at the Consumer Electronics Show on June 14, 1976, and the Federal Communications Commission approved it for sale on October 20.[8][9][10] It was released as the Video Entertainment System (VES) at the price of $169.95, but renamed to the Channel F the next year. Channel F was unable to compete against Atari's Video Computer System (VCS) as the console only had 22 games compared to Atari's 187.[11] Marketing for the console included an event featuring Ken Uston playing Video Blackjack[12] and commercials starring Milton Berle.[7]

The console was licensed in Europe to television manufacturers[13] and led to the clone consoles of Ingelen Telematch Processor in Austria, Barco Challenger in Belgium, ITT Telematch-Processor and Nordmende Color Teleplay μP in Germany, Dumont Videoplay System and Emerson Videoplay System in Italy, Luxor TV-Datorspel and Luxor Video Entertainment Computer in Sweden, and Grandstand Video Entertainment Computer in the United Kingdom. Both models of the Saba Videoplay were sold in Germany and Italy.[14][15]

Channel F System II

Channel F System II

Lawson moved on to form his own company, Video Soft in 1980.[16] Talesfore continued working on the system at Fairchild, and eventually a number of these improvements resulted in the improved System II. The major changes were that the controllers were now removable, using the Atari joystick port connector (not Atari compatible), and their storage was moved to the back of the machine. The sound was now mixed into the RF modulator so the user could adjust it on their TV set instead of a fixed volume internal speaker. The internal electronics were also simplified, with two custom logic chips replacing the standard TTL logic chips. This resulted in a much smaller motherboard which allowed for a smaller, simpler and more modern-looking case design.

Fairchild left the video game market in April 1979.[7] Zircon International acquired the rights to the system and related assets in 1979. The company redesigned the console into the Channel F System II. This featured removable controllers and audio coming from the TV rather than a speaker within the console. It was sold at the price point of $99.95 or $69.95 if the previous console was traded in. Zircon released an additional four games for a final library of 26 games on the console.[17]

Design

The Channel F is based on the Fairchild F8 microprocessor, which was innovative compared to other contemporary processors and integrated circuits.[18] Because chip packaging was not initially available with enough pins, a few pins were used to communicate with other chips in the system. At least two chips were necessary to set up an F8 processor system to be able run any code. The savings from using standard pin layout enabled the inclusion of 64 bytes of internal scratchpad RAM in the CPU. The VES/Channel F, as well as the System II, had one CPU and two storage chips (PSU:s). (A single-chip variant of the F8 was used by the VideoBrain computer system).

The Channel F is able to use one plane of graphics and one of four background colors per line, with three plot colors to choose from (red, green, and blue) that turns white if the background is set to black, at a resolution of 128 × 64, with approximately 104 × 60 pixels visible on the TV screen. This VRAM or framebuffer was "write only" and not usable for anything else. 64 bytes of scratchpad RAM are available for general use - half the amount of the later Atari 2600.[19][20] The Maze game (Videocart-10) and Hangman game (Videocart-18) used 1024 bits of on-cartridge static RAM connected directly to one PSU port - adding to the cost of manufacturing it. The Chess game contained considerably more on-cartridge RAM than that, 2048 Bytes accomplished by using an F8 memory interface circuit to be able to use industry standard ROM and RAM. The F8 processor at the heart of the console is able to provide AI to allow for player versus computer matches, a first in console history. All previous machines required a human opponent. *Tic-Tac-Toe* on Videocart-1 had this feature, it was only for one player against the machine. The same is true for the chess game, which could have very long turn times for the computer as the game progressed, depending on the set difficulty.

The Channel F is also the first video game console to feature a pause function; There is a 'Hold' button on the main unit of the console which allows players to freeze inside the two built-in games and change several game settings in the meantime. Button is controlled through code so it was used for other things in other games.[21]

Nordmende Color TelePlay µP

Adman Grandstand Video Entertainment Computer

Luxor Video Entertainment Computer

SABA Videoplay

Controllers

The palette of the Channel F

The controllers for the system were conceived by Lawson and built by Nicholas Talesfore.[22]

Unlike the Atari 2600 joystick, Channel F controllers lack a base. Instead, the main body is a large handgrip with a triangular "cap" on top, which can move in eight directions. It could be used as both a joystick and paddle (twist), and not only could it be pushed down to operate as a fire button, it could be pulled up as well.[23] The model 1 unit contained a small compartment for storing the controllers when moving it or when not in use. The System II featured detachable controllers with two holders at the back to wind the cable around and to store the controller in. Zircon later offered a special controller that featured an action button on the front of the joystick. It was marketed by Zircon as "Channel F Jet-Stick" in a letter sent out to registered owners before Christmas 1982.[24]

One feature, unique to the console, is the 'hold' button, which allows the player to freeze the game, change the time or speed of the game.[25] The hold function is however not universal (like the hardwired reset) as the four buttons are set up in code. The programmer can choose their function/purpose. The text labels explains the button functions in the built-in games (and some of the Videocarts).

Despite the failure of the Channel F, the joystick's design was so popular—*Creative Computing* called it "outstanding"— that Zircon also released an Atari joystick port-compatible version, the Video Command Joystick,[26] first released without the extra fire button. Before that, only the downwards plunge motion was connected and acted as the fire button; the pull-up and twist actions were not connected to anything.

Technical specifications

PCB Scan of the Grandstand Video Entertainment Computer (UK Channel F II variant)

- CPU microprocessor: Fairchild F8 (8-bit)[27] operating at 1.7897725 MHz (NTSC colorburst/2). PAL gen. 1: 2.0000 MHz, gen. 2: 1.9704972 MHz (PAL colorburst*4/9)
- RAM: 2 KB VRAM (128 × 64 × 2 bits)[28] for the write only framebuffer (four Mostek MK4027 or MK4015 4Kx1bit DRAMs), plus 64 bytes of scratchpad memory.[29]
- Additional SRAM supported via add-in cartridges. Maze and Hangman has 1K x 1 bit, expanded with 3853 SMI Chess has 2048 Bytes.
- Resolution: Approximately columns 3-107 and rows 2-62 are visible, depending on TV. (Columns 125 and 126 controls palette per row). Although VRAM could cover 128 × 64 pixels,[30]
- Refresh rate: 60 Hz[31]
- Colors: 8 colors[32] (either black/white lines or lines using background grey/blue/green with red, green or blue pixels)
- Audio: 120 Hz, 500 Hz and 1 kHz beeps (can be modulated to produce different tones). Audio quality is quite superior on the System II, versus the original model.

- Input: two custom game controllers, hardwired to the console (original release) or removable (Channel F System II)
- Output: RF modulated composite video signal, cord hardwired to console in original release, detachable in System II.

Games

Twenty-seven cartridges, termed "Videocarts", were officially released to consumers in the United States during the ownership of Fairchild and Zircon, the first twenty-one of which were released by Fairchild. Several of these cartridges were capable of playing more than one game and were typically priced at $19.95 (equivalent to $91 in 2020).[33][34] The Videocarts were yellow and approximately the size and overall texture of an 8 track cartridge.[35] They usually featured colorful label artwork. The earlier artwork was created by nationally known artist Tom Kamifuji and art directed by Nick Talesfore. The console contained two built-in games, Tennis and Hockey, which were both advanced *Pong* clones. In Hockey, the reflecting bar could be changed to different diagonals by twisting the controller knob and could move all over the playing field. Tennis was similar to the original Pong, albeit players could move forwards and backwards.

A sales brochure from 1978 listed "Keyboard Videocarts" for sale. The three shown were *K-1 Casino Poker*, *K-2 Space Odyssey*, and *K-3 Pro-Football*. These were intended to use the Keyboard accessory, which is displayed on the Channel F II box. All further brochures, released after Zircon took over from Fairchild, never listed this accessory nor anything called a Keyboard Videocart.

There was one cartridge released outside the numbered series, listed as Videocart-51 and simply titled "Demo 1". This Videocart was shown in a single sales brochure released shortly after Zircon acquired the company. It has not been seen listed for sale after this single brochure which was sent out in the winter of 1979.

List of physical Videocart releases

Title	Release date	Genre
Hockey (integrated)	1976	Sports
Tennis (integrated)	1976	Sports
Videocart-1: *Tic-Tac-Toe, Shooting Gallery, Doodle, Quadra-Doodle*	1976	Trivia, shooter
Videocart-2: *Desert Fox, Shooting Gallery*	1976	Action, shooter
Videocart-3: *Video Blackjack*	1976	Gambling
Videocart-4: *Spitfire*	1977	Action, shooter
Videocart-5: *Space War*	1977	Action, shooter
Videocart-6: *Math Quiz I (Addition & Subtraction)*	1977	Educational
Videocart-7: *Math Quiz II (Multiplication & Division)*	1977	Educational
Videocart-8: *Magic Numbers (Mind Reader & Nim)*	1977	Trivia
Videocart-9: *Drag Race*	1977	Racing
Videocart-10: *Maze, Jailbreak, Blind-Man's-Bluff, Trailblazer*	1977	Maze
Videocart-11: *Backgammon, Acey-Deucey*	1977	Trivia
Videocart-12: *Baseball*	1977	Sports
Videocart-13: *Robot War, Torpedo Alley*	1977	Platform, action
Videocart-14: *Sonar Search*	1977	Strategy
Videocart-15: *Memory Match 1, Memory Match 2*	1978	Puzzle
Videocart-16: *Dodge' It*	1978	Platform, action
Videocart-17: *Pinball Challenge*	1978	Pinball
Videocart-18: *Hangman*	1978	Puzzle
Videocart-19: *Checkers*	1978	Trivia
Videocart-20: *Video Whizball*	1978[36]	Miscellaneous
Videocart-21: *Bowling*	1978	Sports
Chess (Schach)	1979 (SABA Videoplay, German-exclusive)	Board
Videocart-22: *Slot Machine*	1980	Gambling
Videocart-23: *Galactic Space Wars*	1980	Action, shooter
Videocart-24: *Pro Football*	1981	Sports
Videocart-25: *Casino Poker*	1981	Gambling
Videocart-26: *Alien Invasion*	1981[36]	Action, shooter
Videocart-27: *Pac-Man*	2009[37]	Maze, Homebrew
Kevin vs Tomatoes	2018	Maze, Homebrew
Videocart-28: *Tetris*	2019	Puzzle, Homebrew
trimerous	2020	Sports, Shooter, Homebrew
Videocart-29: *The Arlasoft Collection*	2022	Puzzle, Shooter, Homebrew

- Democart (was briefly available to the general public)
- Democart 2

Unreleased carts:

- Keyboard Videocart-1: *Casino Poker*
- Keyboard Videocart-2: *Space Odyssey*
- Keyboard Videocart-3: *Pro-Football*

German electronics manufacturer SABA also released a few compatible carts different from the original carts: translation in Videocart-1 *Tic-Tac-Toe* to German words, Videocart-3 released with different abbreviations (German), and Videocart-18 changed graphics and has a German word list.

In 2021, a number of new 'Homebrew' games were released on itch.io (https://itch.io/c/1611179/fairchild-channel-f) by retro developer Arlasoft. These included ports of mobile puzzle games Tents & Trees, 2048 and Threes, as well as a port of the classic arcade shooter *Centipede*. Through a secret button combination a hidden game could also be started, the box and instruction booklet has multiple hints about the needed code.
These were released on cartridge as Videocart-29.[38]

Reception


Gamers playing on a Fairchild Channel F

The Channel F had beaten the Atari VCS to the market, but once the VCS was released, sales of the Channel F fell, attributed to the types of games that were offered. Most of the Channel F titles were slow-paced educational and intellectual games, compared to the action-driven games that launched with the VCS. Even with the redesigned Channel F II in 1978, Fairchild was unable to meet the sales that the VCS and its games were generating. By the time Fairchild sold the technology to Zircon in 1979, around 350,000 total units had been sold.[1]

Ken Uston reviewed 32 games in his book *Ken Uston's Guide to Buying and Beating the Home Video Games* in 1982, and rated some of the Channel F's titles highly; of these, *Alien Invasion* and *Video Whizball* were considered by Uston to be "the finest adult cartridges currently available for the Fairchild Channel F System".[39] The games on a whole, however, rated last on his survey of over 200 games for the Atari, Intellivision, Astrocade and Odyssey consoles, and contemporary games were rated "Average" with future Channel F games rated "below average".[40] Uston rated almost one-half of the Channel F games as "high in interest" and called that "an impressive proportion" and further noted that "Some of the Channel F cartridges are timeless; no matter what technological developments occur, they will continue to be of interest." His overall conclusion was that the games "serve a limited, but useful, purpose" and that the "strength of the Channel F offering is in its excellent educational line for children".[41]

In 1983, after Zircon announced its discontinuation of the Channel F, *Video Games* reviewed the console. Calling it "the system nobody knows", the magazine described its graphics and sounds as "somewhat primitive by today's standards". It described *Space War* as "may be the most

antiquated game of its type still on the market", and rated the 25 games for the console with an average "interest grade" of three ("not too good") on a scale from one to ten and "skill rating" at an average 4,5 of 10. The magazine stated, however, that Fairchild "managed to create some fascinating games, even by today's standards", calling the poker game *Casino Royale* (actually Videocart-25, *Casino Poker*) "the best card game, from blackjack to bridge, made for *any* TV-game system". It also favorably reviewed *Dodge-It* ("simple but great"), *Robot War* ("Berzerk without guns"), and *Whizball* ("thoroughly original ... hockey *with* guns"), but concluded that only those interested in nostalgia, video game collecting, or card games would purchase the Channel F in 1983.[42][43]

See also

- *TV Powww*

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External links

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RCA Studio II

The **RCA Studio II** is a home video game console made by RCA that debuted in January 1977. The graphics of Studio II games were black and white[2] and resembled those of earlier Pong consoles and their clones. The Studio II also did not have joysticks or similar game controllers but instead used two ten-button keypads that were built into the console itself.[3] The console was capable of making simple beep sounds with slight variations in tone and length. The Studio II included five built-in games.[4]

The Studio II was not a successful product; the previously released Fairchild Channel F made it obsolete at launch and the Atari 2600, superior to both, was released ten months later. After poor Christmas sales in 1977, RCA discontinued the Studio II.

RCA Studio II

RCA Studio II

Manufacturer	RCA
Type	Home video game console
Generation	Second generation
Released	January 1977
Introductory price	US$149 (equivalent to $791.64 in 2025)
Discontinued	1978
Units sold	53,000-64,000[1]
CPU	RCA 1802 microprocessor, 1.78 MHz
Memory	512 bytes (normally used as 256 bytes display RAM + 256 bytes program RAM)
Removable storage	ROM cartridge
Display	64x32, monochrome graphics
Graphics	RCA CDP1861 "Pixie"
Controller input	Ten-button keypads

Development

RCA engineer Joseph Weisbecker began building his own personal computer at home in the late 1960s, and encouraged the company to sell small computers. RCA introduced the Studio II video game console—using Weisbecker's COSMAC 1802 CPU—in January 1977.[5]

Joyce Weisbecker, the daughter of the console's designer, learned how to program her father's homemade home computer as a child. After graduating from high school in 1976, she used her familiarity with the architecture to create *School House I* and *Speedway/Tag* for the Studio II, becoming the first woman to develop a commercial video game.[5]

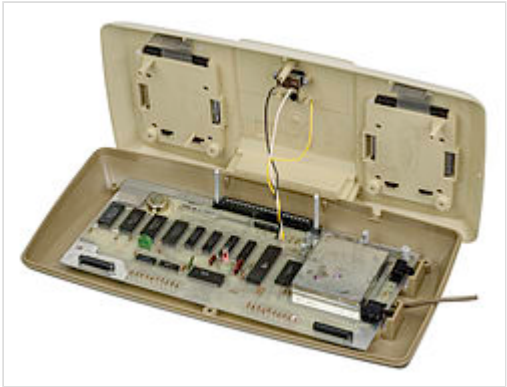
Market loss

The Studio II sold poorly. An internal sales document put RCA's own sales estimate for the console between 53,000 and 64,000 units sold between February 15, 1977, and January 31, 1978.[1] It was released after the superior Fairchild Channel F, and the very successful Atari 2600 also appeared in 1977. RCA announced the console's discontinuation in February 1978[5] because of low

Christmas sales. While losses were not disclosed, the company laid off 120 workers at its plant that produced the system in North Carolina. Some analysts blamed the fact the RCA Studio II's games were in black and white, and could not compete with systems offering color.[6] The remaining inventory was purchased in 1978 by Radio Shack and was sold for $59.95 which included the game unit, the Blackjack game cartridge, the Tennis/Squash game cartridge, and a random third cartridge out of the inventory they acquired. [7]

Technical specifications

- RCA 1802 microprocessor, 1.78 MHz
- 2 KB ROM (includes the five built-in games)
- 512 bytes RAM
- RCA CDP1861 "Pixie" video chip, 64x32, monochrome graphics[8]



The RCA Studio II used mostly RCA-built chips.

List of games

Built-in games

- *Addition*
- *Bowling*
- *Doodle*
- *Freeway*
- *Patterns*[8]

Like the Atari 5200, the RCA Studio II uses one cable to carry both video and power for the console.

Released cartridges

1. 18V400|TV Arcade I: Space War
2. 18V401|TV Arcade II: Fun with Numbers
3. 18V402|TV Arcade III: Tennis/Squash
4. 18V403|TV Arcade IV: Baseball
5. 18V404|TV Arcade Series: Speedway/Tag
6. 18V405|TV Arcade Series: Gunfighter/Moonship Battle
7. 18V500|TV School House I
8. 18V501|TV School House II: Math Fun
9. 18V600|TV Casino I: Blackjack
10. 18V601|TV Casino Series: TV Bingo (*very limited release; only 3 copies are known to exist as of 1/7/2018*)
11. 18V700|TV Mystic Series: Biorhythm

Cartridges released on the MPT-02 clones (France/Australia)

1. MG-200 Grand Pack (Doodle, Patterns, Blackjack and Bowling)
2. MG-201 Bingo
3. MG-202 Concentration Match
4. MG-203 Star Wars

5. MG-204 Math Fun (School House II)
6. MG-205 Pinball
7. MG-206 Biorhythm
8. MG-207 Tennis/Squash
9. MG-208 Fun with Numbers
10. MG-209 Computer Quiz (School House I)
11. MG-210 Baseball
12. MG-211 Speedway/Tag
13. MG-212 Spacewar Intercept
14. MG-213 Gun Fight/Moon ship 15. MG-214 {Rumored} Racer

Cartridges released on the Visicom COM-100 clone (Japan)

1. CAS-110 Arithmetic drill (Math Fun & Fun with Numbers)
2. CAS-130 Sports fan (Baseball & Sumo Wrestling)
3. CAS-140 Gambler I (Blackjack)
4. CAS-141 Gambler II (Slot Machine and Dice)
5. CAS-160 Space Command (Space War)
6. CAS-190 Inspiration (Bagua, Blood typing and Astrology)

Other

1. M1200-05 Star Wars (Sheen M1200)
2. M1200-07 Pinball (Sheen M1200) or Flipper (German Clone)

Legacy

The Studio II was followed by the Studio III which can also display color and uses the RCA CDP-1802 microprocessor.[9][10][11] A Studio IV was planned but not created.[9]

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- Emma 02 (http://www.emma02.hobby-site.com) including RCA Studio II Emulator
- Studio II Owners Manual (https://digital.hagley.org/LMSS_246409_875_11_01)

Coleco Gemini

The **Coleco Gemini** is an Atari 2600 clone manufactured by Coleco Industries, Inc. in 1983.[2][3]. It is incompatible with Expansion Module #1, which allows for playing Atari 2600 games on a ColecoVision.

Coleco Gemini

The Coleco Gemini

Manufacturer	Coleco Industries, Inc.
Type	Home video game console
Generation	Second generation
Released	1983
Media	ROM cartridge
CPU	MOS 6507 @ 1.19 MHz
Memory	RAM: 128 bytes
Display	160x200, 128 Colors [1]
Controller input	Combination joystick/paddle controller
Related	Atari 2600

Technical specifications

- Processor: 8-bit 6507
- CPU speed: 1.19 MHz
- RAM: 128 bytes
- Resolution: 160x200, 128 colors[1]

History

In 1982, Coleco released Expansion Module #1 for its ColecoVision video game system. With a custom-made clone of the Atari 2600 TIA chip and off-the-shelf components, the module enabled the ColecoVision to be compatible with Atari 2600 software. Later that year, Atari, Inc. sued Coleco for patent infringement,[4] and the companies wound up settling out of court, with Coleco becoming a licensee of Atari's patents.[5][6]

Gemini vs. 2600

The main difference between the Coleco Gemini and the Atari 2600 is the controller design. The Coleco Gemini controllers (dubbed the 'Dual Command') featured an 8-way joystick and a 270-degree paddle on the same controller (the joystick was at the top of the controller, and the paddle was at the bottom of the controller). To play paddle games on the 2600, a Y-connector could be used to connect a joystick and paddles to the controller jack at the same time, rather than physically swapping controllers.[7]

The internals of the Gemini

The Gemini was more compact than the large faux-woodgrain or gloss black-trimmed consoles sold by Atari at the time. The Gemini also had a different game included with the system. Atari was including its 1982 version of *Pac-Man*[8] along with *Combat* (1977). The Gemini initially came bundled with Coleco's 1982 port of *Donkey*

Kong,[9] but at some point also included *Carnival*, *Mouse Trap* and *Front Line*. Sears also offered a version of the Gemini with both *Donkey Kong* and *Mouse Trap* included as separate cartridges.[10]

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External links

- vidgame.net (https://web.archive.org/web/20080123142939/http://www.vidgame.net/COLECO/GEMINI.html) (archived version of page)
- Video review and tour of the console (https://www.youtube.com/watch?v=NZr_se2nmVw)

Magnavox Odyssey 2

The **Magnavox Odyssey 2** (stylized as **Magnavox Odyssey²**), also known as **Philips Odyssey 2**, is a home video game console of the second generation that was released in 1978. It was sold in Europe as the **Philips Videopac G7000**, in Brazil and Peru as the **Philips Odyssey** and in Japan as **Odyssey2** (オデッセイ2 *odessei2*). The Odyssey 2 was one of the five major home consoles prior to the 1983 video game market crash, along with Atari 2600, Atari 5200, Intellivision and ColecoVision.

In the early 1970s, Magnavox pioneered the home video game industry by successfully bringing the first home console to market, the Odyssey, which was quickly followed by a number of later models, each with a few technological improvements (*see Magnavox Odyssey series*). In 1978, Magnavox, now a subsidiary of North American Philips, decided to release an all-new successor, Odyssey 2.

In 2009, the video game website IGN named the Odyssey 2 the 21st greatest video game console, out of its list of 25.[6]

Magnavox Odyssey 2

Shown with two wired joysticks

Also known as	Philips Odyssey 2 (US) Philips Videopac G7000 (EU) Philips Odyssey (Brazil/Peru[1]) Odyssey2 (Japan)
Developer	Magnavox Philips
Manufacturer	Magnavox Philips
Product family	Magnavox Odyssey series Philips Odyssey series
Type	Home video game console
Generation	Second generation
Released	NA: September 1978 EU: December 1978[2][3] JP: September 1982[2] BR: May 1983[4]
Lifespan	1978–1984
Introductory price	US$179 (equivalent to $883.58 in 2025)
Discontinued	20 March 1984[2]
Units sold	2 million[5]
CPU	Intel 8048

Design

The original Odyssey had a number of removable circuit cards that switched between the built-in games. With the Odyssey 2, each game could be a unique experience, with its own foreground graphics, gameplay, scoring, and music (some Odyssey 2 games were later re-released for the G7400 with added background and updated foreground graphics that the Odyssey 2 was not capable of displaying). The potential was enormous, as an unlimited number of games could be individually purchased; a game player could purchase a library of video games tailored to their own interest. Unlike any other system at that time, the Odyssey 2 included a full alphanumeric membrane keyboard, which was to be used for educational games, selecting options, or

programming (Magnavox released a cartridge called *Computer Intro!* with the intent of teaching simple computer programming).

The Odyssey 2 used the standard joystick design of the 1970s and early 1980s: the original console had a moderately sized silver controller, held in one hand, with a square housing for its eight-direction stick that was manipulated with the other hand. Later releases had a similar black controller, with an 8-pointed star-shaped housing for its eight-direction joystick. In the upper corner of the joystick was a single 'Action' button, silver on the original controllers and red on the black controllers. The games, graphics and packaging were designed by Ron Bradford and Steve Lehner.[7]

Memory	192 bytes RAM (64 in the CPU, 128 external), 1024 bytes ROM in the CPU
Removable storage	ROM cartridge
Display	Intel 8244
Graphics	160×200 pixels, 16 colors (4-bit RGBI)
Controller input	Joysticks
Predecessor	Magnavox Odyssey/Philips Odyssey 2100
Successor	Philips Videopac+ G7400

The Videopac G7200, unlike Videopac G7000, had a 9" (23 cm) black & white display built in.

During the time of Odyssey 2's manufacturing, some came with controllers that could be plugged and unplugged from the back of the unit via their DB9 connector, while others had their controllers hardwired into the rear of the base unit itself.

One of the strongest points of the system was its speech synthesis unit, which was released as an add-on for speech, music, and sound effects enhancement. The area that the Odyssey 2 may be best remembered for was its pioneering fusion of board and video games: *The Master Strategy Series*. The first game released was *Quest for the Rings!*, with gameplay somewhat similar to *Dungeons & Dragons*, and a storyline reminiscent of J. R. R. Tolkien's *The Lord of the Rings*. Later, two other games were released in this series, *Conquest of the World* and *The Great Wall Street Fortune Hunt*, each with its own gameboard.

Its graphics and few color choices, compared to its biggest competitors at the time—the Atari 2600, Mattel's Intellivision and the Bally Astrocade—were its "weakest point".[8] Of these systems, the Odyssey 2 was listed by Jeff Rovin as being the third in total of sales, and one of the seven major video game suppliers.

Market life

United States

The console sold moderately well in the U.S. Prior to the nationwide release of the Mattel Intellivision in 1980, the console video game market was dominated by the competition between the Odyssey 2 and Atari 2600.[9] It remained one of the three primary consoles from 1980 to mid-1982, though a distant third behind the Atari 2600 and Mattel Intellivision.

To sell would-be customers on its resemblance to a home computer, the Odyssey 2 was marketed with phrases such as "The Ultimate Computer Video Game System", "Sync-Sound Action", "True-Reality Synthesization", "On-Screen Digital Readouts" and "a serious educational tool" on the packaging for the console and its game cartridges. All games, aside from Showdown in 2100 AD, produced by Magnavox/Philips ended with an exclamation point, such as *K.C. Munchkin!* and *Killer Bees!*.[10]

No third-party game appeared for the Odyssey 2 in the United States until Imagic's *Demon Attack* in 1983.[11] The lack of third-party support kept the number of new games very limited, but the success of the Philips Videopac G7000 overseas led to two other companies producing games for it: Parker Brothers released *Popeye*, *Frogger*, *Q*bert* and *Super Cobra*, while Imagic also released *Atlantis*.

Europe


European models had no power button, and black action buttons.

In Europe, the Odyssey 2 did very well on the market. The console was most widely known as the **Philips Videopac G7000**, or just the **Videopac**, although branded variants were released in some areas of Europe under the names **Philips Videopac C52**, **Radiola Jet 25**, **Schneider 7000**, and **Siera G7000**. Philips used their own name rather than Magnavox's for European marketing. A rare model, the **Philips Videopac G7200**, was only released in Europe; it had a built-in black-and-white monitor. Videopac game cartridges are mostly compatible with American Odyssey 2 units, although some games have color differences and a few are completely incompatible, such as Frogger on the European console, being unable to show the second half of the playing field, and Chess on the American model, as the extra hardware module could not work with the console. A number of additional games were released in Europe that never came out in the U.S.

Brazil

In Brazil, the console was released simply as **Philips Odyssey** (since the original Odyssey had had only a limited release by a local company, Planil Comércio, under license[12]). The Odyssey 2 became much more popular in Brazil than it ever was in the U.S.;[13] tournaments were even held for popular games like *K.C.'s Krazy Chase!* (*Come-Come!* in Brazil). Titles of games were translated into Portuguese, sometimes creating a new story, like *Pick-axe Pete!*, that became *Didi na Mina Encantada!* (Didi in the Enchanted Mine) referring to Renato Aragão's comedy character, and was one of the most famous Odyssey games in Brazil.

Japan

The Odyssey 2 was released in Japan in December 1982 by Kōton Trading Toitarii Enterprise (コートン・トレーディング・トイタリー・エンタープライズ, a division of DINGU company) under the name **オデッセイ2** (*odessei2*). "Japanese" versions of the Odyssey 2 and its games consisted of the American boxes with katakana stickers on them and cheaply printed black-and-white Japanese

manuals. The initial price for the console was ¥49,800, which is approximately US$200 (equivalent to about $670 in 2025). It was apparently not very successful; Japanese Odyssey 2 items are now very difficult to find.

Games

Technical specifications

- CPU
  - Intel 8048 8-bit microcontroller running at 5.37 MHz (NTSC) or 5.91 MHz (PAL)
- Memory:
  - CPU-internal RAM: 64 bytes
  - CPU-external RAM: 128 bytes
  - Audio/video RAM: 128 bytes
  - BIOS ROM: 1024 bytes
- Video:
  - Intel 8244 (NTSC) or 8245 (PAL) custom IC
  - 160×200 resolution (NTSC)
  - 16-color fixed palette (8 basic colors - black, blue, green, cyan, red, magenta, yellow and white - with a half-brightness variation (4-bit RGBI)); sprites may only use 8 of these colors
  - 4 8×8 single-color user-defined sprites; each sprite's color may be set independently
  - 12 8×8 single-color characters; must be one of the 64 shapes built into the ROM BIOS; can be freely positioned like sprites, but cannot overlap each other; each character's color may be set independently
  - 4 quad characters; groups of four characters displayed in a row
  - 9×8 background grid; dots, lines, or solid blocks
- Audio:
  - Intel 8244/8245 custom IC
  - mono
  - 24-bit shift register, clockable at 2 frequencies
  - noise generator
  - NOTE: There is only one 8244/8245 chip in the system, which performs both audio and video functions.
- Input:
  - Two 8-way, one-button, digital joysticks. In the first production runs of the Magnavox Odyssey and the Philips 7000, these were removable and replaceable; in later models, they were permanently attached to the console.
  - QWERTY-layout membrane keyboard
- Output:
  - RF Audio/Video connector
  - Péritel/SCART connector (France only *Videopac C52*)
- Media:
  - ROM cartridges, typically 2 KB, 4 KB, or 8 KB in size.

- Expansion modules:
  - The Voice: provides speech synthesis and enhanced sound effects. Unlike Intellivoice, games compatible with The Voice did not require it; Danny Goodman of *Creative Computing Video & Arcade Games* predicted "that eliminates any incentive to buy the $100 voice module".[14]
  - Chess Module: the Odyssey 2 did not have enough memory and computing power for a decent implementation of chess on its own, so the C7010 chess module contained a secondary NSC800 CPU[15] with its own extra memory to run the chess program Gambiet 80[16]
  - Videopac+/Jopac-compatible only, Microsoft Basic. The rare *C7420 Home Computer Module*, made available in 1983 by Philips, was a costly extension for the newer Videopac+ and Jopac consoles only. It went with a thick A4 manual, and required an optional external tape recorder to save the programs. This module was the sole valuable justification of the presence of a so-called keyboard, which was supposedly designed to look like a hybrid educational toy, as read in header lines describing earlier this family of pluri-purpose consoles, even in the TV commercials that echoed the slogan written on these brand-new machines: "Video Computer". Unfortunately, this late niche concept, even limited to learning game code contrary to the more professional packaging, could not resist at all the already overwhelming market of the real 8-bit home computers, where the Atari 400 shared the same look in 1979, surprisingly. [The latter was advertised itself: « The affordable home computer that's easy to use even for people who've never used a computer before ».] This expensive module is not to be confused with the cheap cartridge #9: *Computer Intro!*)

Videopac with chess module

Emulation

An open source Odyssey 2 console emulator called *O2EM* is available for Windows, Linux, and as part of OpenEmu, Mac OS X.

See also

- Magnavox Odyssey Series
- Magnavox Odyssey
- Philips Videopac + G7400

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External links

- Ed Averett (https://kcmunchkin.com/about/) – Programmer of 24 game titles for the Odyssey 2.
- The Odyssey2 Homepage! (http://www.the-nextlevel.com/odyssey2/) – William Cassidy's Odyssey 2 site.
- Dan Boris's Odyssey 2 Tech Page (http://www.atarihq.com/danb/o2.shtml) – technical documents on the Odyssey 2's hardware by the author of O2EM
- Video Game Console Library entry (http://www.videogameconsolelibrary.com/pg70-odyssey2.htm) on the Magnavox Odyssey2 / Philips Videopac
- The Dot Eaters article (https://thedoteaters.com/?p=5870) on the history of the Odyssey 2 ("Taking a Journey With the Odyssey^2". 9 December 2013.)
- Inside the Magnavox Odyssey^2 (https://www.hardwaresecrets.com/inside-the-magnavox-odyssey2/) (By Gabriel Torres – 30 April 2012. 8-page feature.)

Intellivision

The **Intellivision** (a portmanteau of "intelligent television") is a home video game console released by Mattel Electronics in 1979. It distinguished itself from competitors with more realistic sports and strategic games.[17] By 1981, Mattel Electronics had close to 20% of the domestic video game market, selling more than 3.75 million consoles and 20 million cartridges through 1983.[12][13][14][15][16] At its peak, Mattel Electronics had about 1,800 employees in several countries, including 110 videogame developers.[15] In 1984, Mattel sold its video game assets to a former Mattel Electronics executive and investors, eventually becoming INTV Corporation. Game development ran from 1978 to 1990, when the Intellivision was discontinued.

In 2009, IGN ranked the Intellivision No. 14 on their list of the greatest video game consoles of all time.[18]

Intellivision

First model Intellivision (1979)

Manufacturer	Mattel Electronics (1979–1984) INTV Corporation (1984–1990)
Type	Home video game console
Generation	Second
Released	NA: 1979[2][3][4][5] UK: Sometime in 1979-1981[1] ZA: 1982 DE: 1982 FRA: 1982[6] JP: 1982[7] BR: 1983[8]
Lifespan	1979—1990
Introductory price	US$275[9] 1,220 CA$385 £199[1] DM499 ₣2000[10] ¥49,800[7]
Discontinued	1990[3][4][5][11]
Units sold	> 3.75 million (1980–83)[12][13][14][15]
Media	ROM cartridge
CPU	GI CP1610
Memory	1K RAM, 6K ROM

History

The Intellivision was developed at Mattel in Hawthorne, California.[5] By 1969, multiple research and development groups came together as the Preliminary Design department on the third floor of the head office. Mattel had a history with technology R&D as design engineer Jack Ryan, who joined the company in 1955 from Raytheon, led a group of engineers, chemists, and sculptors. With a large budget they were expected to be forward thinking, dubbed the blue-sky group.[19]

Early design concepts

In 1975, mechanical engineer Richard Chang, a director under Ryan, contacted MOS Technology for a demonstration of their new 6502 microprocessor in a video game application. MOS arranged for their client Glenn Hightower of APh Technological Consulting and teacher at CalTech University to do the demonstration.[20]

Shortly after, Dave James, an industrial engineer under Chang, wrote a memo dated January 26, 1976, documenting two product concepts. First, a microprocessor programmed video system with "plug-in" ROM modules or cassettes, and a list of applications that include war games, gambling games, strategy and board games, video Etch-a-Sketch, driving simulator, pinball; and football with 10 player a side, defense/offense patterns and floating field background. Second, calculator based games. With Mattel executives skeptical, Chang's group moved forward with handheld electronic games enlisting Hightower's help with a prototype.[20]

Display	Standard TV, 159×96 resolution, 16 color palette
Graphics	Standard Television Interface Chip (STIC)
Sound	GI AY-3-8914 (three-channels, one noise generator)
Online services	PlayCable
Best-selling game	*Las Vegas Poker & Blackjack* 1.939 million *Major League Baseball* 1.085 million[16][4][3] (as of June 1983)

Mattel hired Michael Katz as Marketing Manager for New Product Categories in 1975, Katz asked Chang to prototype a calculator sized electronic game for 1976. In Fall 1976, Mattel hired Ed Krakauer as Vice President of New Business Development, who hired Jeff Rochlis as Director of New Business Development.[20] In an October 1977 newspaper article, Rochlis was quoted saying, "Basically these things are fore-runners of the home computer. There's a logical transition involved. One way to get into the home-computer market is to sell games."[21]

Choosing a platform

In April 1977, David Chandler, with a doctoral degree in Electrical Engineering, a career in Aerospace, also having prototyped an early word processor as well as an arcade video game, joined Prelimanary Design under Chang. Chandler shared Chang's vision for a video game system with rich graphics and long-lasting gameplay to distinguish itself from its competitors and took over responsibility for its engineering. Prior to Chandler's arrival, Chang's group had already met with National Semiconductor about their new video display controller that would be paired with an Intel 8080 CPU.[22] Chandler negotiated better pricing for a simpler design.[23] At the Consumer Electronics Show in June 1977, Chandler saw two more video driver chipsets. One from MOS Technology lacked moving objects (sprites) which would make it difficult to program sports games. The other from General Instrument (GI), listed as the Gimini programmable set in the GI 1977 catalog.[24] The GI chipset lacked programmable graphics and Mattel worked with GI to implement changes. GI published an updated chipset in its 1978 catalog.[25] Mattel initially chose National Semiconductor, who wanted to postpone the project, forcing Mattel to turn to GI. Mattel corporate management reacted by putting a halt to video game development for several months. On November 9, 1977, Mattel, GI, and Magnavox (their initial contract manufacturer) met to plan contracts and production.[22]

Around this same time, the previous slow sales of Mattel Electronics branded handheld electronic games reversed and began to be a hit product. Management responded by spinning off the designs to the newly formed Mattel Electronics division, with separate marketing, finance, and engineering. In September, Krakauer made Rochlis its president. Chang became director of its new Design and Development department, responsible for Intellivision software.[20] Chandler, became director of Product Engineering led a team engineering the hardware, including the hand controllers.[5] In 1978, David Rolfe of APh developed the onboard executive control software named Exec, and with a group of Caltech summer student employees programmed the first

Intellivision games. Hal Finney of APh contributed sound and music processing routines to the Exec. Graphics were designed by a group of artists at Mattel led by Dave James.[26] James also creating detailed game proposal documents.[27]

During June 1978 CES, Mattel privately showed a prototype to retailers, leading to a Christmas release. Delays at GI pushed that into 1979. Magnavox backed out as manufacturer, replaced with Sylvania. Chandler considered replacing the GI chipset and working with Texas Instruments and their new TMS9918 video processor. The TI chip had more moving objects but half the number on a horizontal line compared with the GI STIC, it also lacked hardware scrolling that the GI STIC provides. Further, the TI chip requires more RAM and software already developed would have to be reworked.[22]

Master Component

The Intellivision was introduced at the 1979 Las Vegas CES in January as a modular home computer with the Master Component priced at US$165 and a soon-to-follow Keyboard Component also at $165 (equivalent to $730 in 2025).[28] At Chicago CES in June, prices were revised to $250 for each component. A shortage of key chips from manufacturer General Instrument resulted in a limited number of Intellivision Master Components produced that year. In Fall 1979, Sylvania marketed its own branded Intellivision at $280 in its GTE stores at Philadelphia, Baltimore, and Washington, D.C.[2] On December 3, Mattel delivered consoles to the Gottschalks department store chain headquartered in Fresno, California, with a suggested list price of $275.[23][29] The Intellivision was also listed in the nationally distributed JCPenney Christmas 1979 catalog along with seven cartridges.[30] By April 1980, markets expanded to Los Angeles, New York, and Chicago.[2] It was in stores nationwide by mid-1980 with the pack-in game *Las Vegas Poker & Blackjack* and a library of ten cartridges.

By September 1980, there was internal debate about the effectiveness of marketing the Intellivision as a home computer and the direction of Mattel Electronics questioned. Krakauer and Rochlis resigned, and Josh Denham became the new president of Mattel Electronics. The Keyboard Component was no longer promoted in advertising.[31] A series of advertisements starring George Plimpton used side-by-side game comparisons to demonstrate the superior graphics and sound of Intellivision over the Atari 2600.[29] One slogan called Intellivision "the closest thing to the real thing". One such example compared golf games; where the 2600's games had a blip sound and cruder graphics, the Intellivision featured a realistic swing sound and striking of the ball and a more 3D look. In 1980, Mattel sold out its 190,000 stock of Intellivision Master Components, along with one million cartridges.[12] In 1981, more than one million Intellivision consoles were sold, more than five times the amount of the previous year.[13] Mattel Electronics became a subsidiary and relocated to another building to accommodate their growth.[5] In 1982, they sold 1.8 million Intellivisions.[14]

The Intellivision Master Component was branded and distributed by various companies. Before Mattel shifted manufacturing to Hong Kong, Mattel Intellivision consoles were manufactured by GTE Sylvania.[23] *GTE Sylvania* Intellivision consoles were produced along with Mattel's, differing only by the brand name. The Sears Super Video Arcade,[29] manufactured by Mattel in Hong Kong, has a restyled beige top cover and detachable controllers. Its default title screen lacks the "Mattel Electronics" captioning. In 1982, Radio Shack marketed the Tandyvision One,[32][33] similar to the

original console but with the gold plates replaced with more wood trim. In Japan, Intellivision consoles were branded for Bandai in 1982,[34] and in Brazil there were Digimed and Digiplay consoles manufactured by Sharp in 1983.

Super Video Arcade

Software

Inside every Intellivision console is 4K of ROM containing the Exec software. It provides two benefits: reusable code that can effectively make a 4K cartridge an 8K game and a software framework for new programmers to develop games more easily and quickly. It also allows other programmers to more easily review and continue another's project. Under the supervision of David Rolfe at APh, and with graphics from Mattel artist Dave James, APh was able to quickly create the Intellivision launch game library using mostly summer students.[35] The drawback is that to be flexible and handle many different types of games, the Exec runs less efficiently than a dedicated program. Intellivision games that leverage the Exec run at a 20 Hz frame rate instead of the 60 Hz frame rate for which the Intellivision was designed. Using the Exec framework is optional, but almost all Intellivision games released by Mattel Electronics use it and thus run at 20 Hz. The limited ROM space in the early years of Intellivision game releases also means there is no space for a computer player, so many early multiplayer games require two human players.

Initially, all Intellivision games were programmed by an outside firm, APh Technological Consulting,[29] with 19 cartridges produced before Christmas 1980. Once the Intellivision project became successful, software development was brought in-house. Mattel formed its own software development group and began hiring programmers. The original five members of that Intellivision team were Mike Minkoff, Rick Levine, John Sohl, Don Daglow, and manager Gabriel Baum. Levine and Minkoff, a long-time Mattel Toys veteran, both transferred from the hand-held Mattel game engineering team. During 1981, Mattel hired programmers as fast as possible. Early in 1982 Mattel Electronics relocated from Mattel headquarters to an unused industrial building. Offices were renovated as new staff moved in. To keep these programmers from being hired away by rival Atari, their identities and work location was kept a closely guarded secret. In public, the programmers were referred to collectively as the Blue Sky Rangers.

Most of the early games are based on traditional real-world concepts such as sports, with an emphasis on realism and depth of play within the technology of the time. The Intellivision was not marketed as a toy; as such, games such as *Sea Battle* and *B-17 Bomber* are not made in the pick-up-and-play format like arcade games. Reading the instructions is often a prerequisite. Every cartridge produced by Mattel Electronics includes two plastic controller overlays to help navigate the 12-button keypad, although not every game uses it. Game series, or networks, are *Major League Sports*, *Action*, *Strategy*, *Gaming*, *Children's Learning*, and later *Space Action* and *Arcade*. The network concept was dropped in 1983, as was the convenient gatefold-style box for storing the cartridge, instructions, and overlays.

Starting in 1981, programmers looking for credit and royalties on sales began leaving both APh and Mattel Electronics to create Intellivision cartridges for third-party publishers. They helped form Imagic in 1981, and in 1982 others joined Activision and Atari. Cheshire Engineering was formed by a few senior APh programmers including David Rolfe, author of the Exec, and Tom Loughry, creator of one of the most popular Intellivision games, *Advanced Dungeons and Dragons*.[36]

Cheshire created Intellivision games for Activision. Third-party developers Activision, Imagic, and Coleco started producing Intellivision cartridges in 1982, and Atari, Parker Brothers, Sega, and Interphase followed in 1983. The third-party developers, not having legal access to Exec knowledge, often bypassed the Exec framework to create smooth 30 Hz and 60 Hz Intellivision games such as *The Dreadnaught Factor*. Cheaper ROM prices also allowed for progressively larger games as 8K, 12K, and 16K cartridges became common. The first Mattel Electronics Intellivision game to run at 60 Hz was *Masters of the Universe* in 1983.[37] Marketing dubbed the term "Super Graphics" on the game's packaging and marketing.

Mattel Electronics had a competitive advantage in its team of experienced and talented programmers. As competitors often depended on licensing well known trademarks to sell video games, Mattel focused on original ideas. Don Daglow was a key early programmer at Mattel and became director of Intellivision game development. Daglow created *Utopia*, a precursor to the sim genre and, with Eddie Dombrower, the ground-breaking sports simulation *World Series Major League Baseball*. Daglow was also involved with the popular Intellivision games *Tron Deadly Discs* and *Shark! Shark!*.[38][39] After Mattel Electronics closed in 1984, its programmers continued to make significant contributions to the videogame industry. Don Daglow and Eddie Dombrower went on to Electronic Arts to create *Earl Weaver Baseball*, and Don Daglow founded Stormfront Studios. Bill Fisher, Steve Roney, and Mike Breen founded Quicksilver Software, and David Warhol founded Realtime Associates.[35]

Keyboard Component

The Intellivision was designed as a modular home computer; so, from the beginning, its packaging, promotional materials, and television commercials promised the addition of a forthcoming accessory called the Keyboard Component. The Master Component was packaged as a stand-alone video game system to which the Keyboard Component could be added, providing the computer keyboard and tape drive. Not meant to be a hobbyist or business computer, the Intellivision home computer was meant to run pre-programmed software and bring "data flow" (Videotex) into the home.[23]

The Keyboard Component was code-named the Blue Whale, also known as the Intelliputer.[40]

The Keyboard Component adds an 8-bit 6502 processor, making the Intellivision a dual-processor computer. It has 16K 10-bit shared RAM that can load and execute both Intellivision CP1610 and 6502 program code from tape, which is a large amount as typical contemporary cartridges are 4K. The cassettes have two tracks of digital data and two tracks of analog audio, completely controlled by the computer. Two tracks are read-only for the software, and two tracks are for user data. The tape drive is block addressed with high speed indexing. A high resolution 40×24 monochrome text display can overlay regular Intellivision graphics. There is a microphone port and two expansion ports for peripherals and RAM.[41] The Microsoft BASIC programming cartridge uses one of these ports. Expanded memory cartridges support 1,000 pages of 8 KB each. A third pass-through cartridge port is for regular Intellivision cartridges. It uses the Intellivision's power supply.

David Rolfe of APh wrote a control program for the Keyboard Component called PicSe (Picture Sequencer) specifically for the development of multimedia applications. PicSe synchronizes the graphics and analog audio while concurrently saving or loading tape data.[42] Productivity software for home finances, personal improvement, and self education were planned. Subject experts were consulted and their voices recorded and used in the software. Only two applications using the PicSe system were released on cassette tape: *Conversational French* and *Jack Lalanne's Physical Conditioning*. Cassettes in development include *Super Football*, *Spelling Challenge*, *Chartcraft Stock Analysis*, and *Jeanne Dixon Astrology*.[43]

Programs written in BASIC do not have access to Intellivision graphics and were sold at a lower price. Five BASIC applications were released on tape: *Family Budgeting*, *Geography Challenge*, and *Crosswords I, II, and III*.

The Keyboard Component was an ambitious piece of engineering for its time, and it was repeatedly delayed as engineers tried to reduce manufacturing costs. In August 1979, a breadboard form of the Component was successfully entered into the Sears Market Research Program. In December 1979, Mattel had production design working units but decided on a significant internal design change to consolidate circuit boards. In September 1980, it was test marketed in Fresno, California, but without software, except for the BASIC programming cartridge. In late 1981, design changes were finally implemented and the Keyboard Component was released at $600 (equivalent to $2,120 in 2025)[5] in Seattle and New Orleans only.[23] Customers who complained in writing could buy a Keyboard Component directly from Mattel. The printer, a rebadged Alphacom Sprinter 40,[44] was only available by mail order.

The Keyboard Component's repeated delays became so notorious around Mattel headquarters that comedian Jay Leno, when performing at Mattel's 1981 Christmas party, got his biggest response of the evening with the line: "You know what the three big lies are, don't you? 'The check is in the mail', 'I'll still respect you in the morning', and 'The keyboard will be out in spring.'"[40]

Complaints from consumers who had chosen to buy the Intellivision specifically on the promise of a "coming soon" personal-computer upgrade eventually caught the attention of the Federal Trade Commission (FTC), who started investigating Mattel Electronics for fraud and false advertising. Mattel explained to the FTC that the Keyboard Component was a failed product, avoiding fines.[45] Mattel subsequently cancelled the product in August 1982, and offered to buy back all of the existing Keyboard Components from customers. Mattel provided a full refund, but customers without a receipt received $550 for the Keyboard Component, $60 for the BASIC cartridge, and $30 for each cassette software.[46] Any customer who opted to keep the products was required to sign a waiver with the understanding that no more software would be written for the system and absolving Mattel of any future responsibility for technical support.[47] They were also compensated with $1,000 worth of Mattel Electronics products.[46]

Though approximately 4,000 Keyboard Components were manufactured, it is not clear how many of them were sold and they are rare. Many of the units were dismantled for parts. Others were used by Mattel Electronics programmers as part of their development system. A Keyboard Component could be interfaced with an Intellivision development system in place of the hand-built Magus board RAM cartridge. Data transfer to the Keyboard Component RAM is done serially and is slower than the Magus board parallel interface.[40]

The keyboard component debacle was ranked as No. 11 on *GameSpy*'s "25 dumbest moments in gaming".[48]

Entertainment Computer System (ECS)

Entertainment Computer System with Keyboard and Power Supply

In mid-1981, Mattel's upper management was becoming concerned that the Keyboard Component group would never be able to produce a sellable product. As a result, Design and Development set up a competing engineering team whose stated mission was to produce an inexpensive add-on called the "Basic Development System", or BDS, to be sold as an educational device to introduce kids to the concepts of computer programming.

The rival BDS engineering group eventually came up with a much less expensive alternative. Originally dubbed the "Lucky", from LUCKI: Low User-Cost Keyboard Interface, it lacked many of the sophisticated features envisioned for the original Keyboard Component. Gone, for example, was the 16K (8MB max) of RAM, the secondary CPU, and high resolution text; instead, the ECS offered a mere 2KB RAM expansion, a built-in BASIC that was marginally functional, plus a much-simplified cassette and printer interface. Ultimately, this fulfilled the original promise of turning the Intellivision into a computer, making it possible to write programs and store them to tape as well as interfacing with a printer. It even offered, via an additional sound chip (AY-3-8917) inside the ECS module and an optional 49-key music synthesizer keyboard, the possibility of turning the Intellivision into a multi-voice synthesizer which could be used to play or learn music.

In the fall of 1982, the LUCKI, now renamed the Entertainment Computer System (ECS), was presented at the annual sales meeting, officially ending the ill-fated keyboard component project. A new advertising campaign was aired in time for the 1982 Christmas season, and the ECS itself was shown to the public at the January 1983 Consumer Electronics Show (CES) in Las Vegas. However, it would not see release until late December as the *Intellivision Computer Module*.[49]

Prior to release, an internal shake-up at the top levels of Mattel Electronics' management had caused the company's focus to shift away from hardware add-ons in favor of software, and the ECS received very little in terms of furthering the marketing push. Further hardware developments, including a planned Program Expander that would have added another 16K of RAM and a more intricate, fully featured Extended-BASIC to the system, were halted. In the end, six games were released for the ECS; a few more were completed but not released.

The ECS Computer Module also offered four player game-play with the optional addition of two extra hand controllers. Four player games were in development when Mattel Electronics closed in 1984. *World Cup Soccer* was later completed and released in 1985 by Dextel in Europe and then INTV Corporation in North America. The documentation does not mention it but when the ECS Computer Adapter is used, *World Cup Soccer* can be played with one to four players, or two players cooperatively against the computer.

Intellivoice

The Intellivoice add-on

In 1982, Mattel introduced the Intellivoice Voice Synthesis Module, a speech synthesizer for compatible cartridges. The Intellivoice was novel in two respects: human sounding male and female voices with distinct accents, and speech-supporting games designed with speech as an integral part of the gameplay.

Like the Intellivision chipset, the Intellivoice chipset was developed by General Instrument. The SP0256-012 orator chip has 2KB ROM inside and is used to store the speech for numerical digits, some common words, and the phrase "Mattel Electronics presents". Speech can also be processed from the Intellivoice's SP650 buffer chip, stored and loaded from cartridge memory. That buffer chip has its own I/O and the Intellivoice has a 30-pin expansion port under a removable top plate. Mattel Electronics planned to use that connector for wireless hand controllers.[50]

Mattel Electronics built a state of the art voice processing lab to produce the phrases used in Intellivoice games. However, the amount of speech that could be compressed into an 8K or 12K cartridge and still leave room for a game was limited. Intellivoice cartridges *Space Spartans* and *B-17 Bomber* did sell about 300,000 copies each, priced a few dollars more than regular Intellivision cartridges. However, at $79, the Intellivoice did not sell as well as Mattel expected; Intellivoices were later offered free with the purchase of a Master Component.[47] In August 1983, the Intellivoice system was quietly phased out. A children's title called *Magic Carousel* and foreign-language versions of *Space Spartans* were completed but shelved. Additional games *Woody Woodpecker* and *Space Shuttle* went unfinished with the voice recordings unused.

Four Intellivoice games were released: *Space Spartans*, *B-17 Bomber*, *Bomb Squad*, and *Tron: Solar Sailer*.

A fifth game, *Intellivision World Series Major League Baseball*, developed as part of the Entertainment Computer System series, also supports the Intellivoice if both the ECS and Intellivoice are connected concurrently. Unlike the Intellivoice-specific games, however, *World Series Major League Baseball* is also playable without the Intellivoice module (but not without the ECS).

Intellivision II

In the spring of 1983, Mattel introduced the *Intellivision II*, a cheaper, more compact redesign of the original, that was designed to be less expensive to manufacture and service, with updated styling. It also had longer controller cords.[51] The Intellivision II was initially released without a pack-in game but was later packaged with *BurgerTime* in the United States and *Lock 'n' Chase* in Canada. In 1984, the Digiplay Intellivision II was introduced in Brazil.[8] Brazil was the only country outside North America to have the redesigned Intellivision II.

Using an external AC Adapter (16.2V AC), consolidating some ICs, and taking advantage of relaxed FCC emission standards, the Intellivision II has a significantly smaller footprint than the original. The controllers, now detachable, have a different feel, with plastic rather than rubber side buttons

and a flat membrane keypad. Users of the original Intellivision missed the ability to find keypad buttons by the tactile feel of the original controller bubble keypad.

The Intellivision II redesign was much smaller and cheaper to manufacture than the original.

One functional difference was the addition of a video input to the cartridge port, added specifically to support the System Changer, an accessory also released in 1983 by Mattel that played Atari 2600 cartridges through the Intellivision. The Intellivision hand controllers could be used to play Atari 2600 games. The System Changer also had two controller ports compatible with Atari joysticks. The original Intellivision required a hardware modification, a service provided by Mattel, to work with the *System Changer*. Otherwise the Intellivision II was promoted to be compatible with the original.

It was discovered that a few Coleco Intellivision games did not work on the Intellivision II. Mattel secretly changed the Exec internal ROM program in an attempt to lock out third-party games.[52] A few of Coleco's early games were affected but the 3rd party developers quickly figured out how to get around it. Mattel's own *Electric Company Word Fun*, however, will not run on the Intellivision II due to this change. In an unrelated issue but also due to Exec changes, Super Pro Football experiences a minor glitch where the quarterback does not appear until after the ball is hiked. There were also some minor changes to the sound chip (AY-3-8914A/AY-3-8916) affecting sound effects in some games.[53][54] Programmers at Mattel discovered the audio differences and avoided the problem in future games.[55]

Decade

As early as 1981, Dave Chandler's group began designing what would have been Mattel's next-generation console, codenamed *Decade* and now referred to as the *Intellivision IV*.[56] It would have been based on the 32-bit MC68000 processor and a 16-bit custom designed advanced graphic interface chip. Specifications called for dual-display support, 240×192 bitmap resolution, 16 programmable 12-bit colors (4096 colors), antialiasing, 40×24 tiled graphics modes, four colors per tile (16 with shading), text layer and independent scrolling, 16 multicolored 16×16 sprites per scan-line, 32 level hardware sprite scaling. Line interrupts for reprogramming sprite and color registers would allow for many more sprites and colors on screen at the same time.[57] It was intended as a machine that could lead Mattel Electronics into the 1990s; however, on August 4, 1983, most hardware people at Mattel Electronics were laid off.

Intellivision III

Also in 1981, Mattel Electronics executives indicated to APh, interest in a successor system for 1983. Although planned for some time, APh redirected staff efforts on the Intellivision III hardware around summer 1982.[58] Based on a faster CP1610 for backward compatibility, APh developed an updated graphics STIC chip with 4x the resolution, more sprites, and more colors. Mattel Electronics programmers developing the EXEC software. When Mattel Electronics cancelled the project in mid-1983,[59] Toshiba was laying out the new graphics chip, consoles

expected to be in production by Christmas, cartridges to be ready by January 1984, according to Glenn Hightower of APh.[58] A Mattel document titled Target Specification Intellivision III has the following.[60]

- CPU: CP1610-2 at 3.56 MHz (2x original CPU speed)
  - separate 16-bit data bus and address bus
  - multiplexed data/address mode for backward compatibility with existing cartridges
- Graphics: STIC 1B
  - tiled graphics, 20 cards by 24 rows
    - 2-color 16×8 pixel cards for a resolution of 320×192
    - 4-color 8×8 pixel cards for a resolution of 160×192
  - 40 x 24 alphanumerics
  - 16 programmable colors
    - color palette selectable per card
    - 12-bit RGB definition for 4096 possible colors
  - 8 sprites per scanline
    - reusable on different scanlines
    - 16 pixels wide in 1 color, 8 pixels wide in 3 colors
    - up-to 255 lines high
    - overlap detect of individual colors
  - fine pixel horizontal and vertical scrolling (backward compatible)
  - single data bus allows graphics ROM/RAM storage on cartridges
  - STIC 1 backwards-compatible mode
- RAM: 4K words, 16-bit, DRAM (upgradable to 65K words)
- five channel sound with improved frequency range (backward-compatible)
- integrated Intellivoice

Competition and market crash

According to the company's 1982 Form 10-K, Mattel had almost 20% of the domestic video-game market. Mattel Electronics provided 25% of revenue and 50% of operating income in fiscal 1982.[13] Although the Atari 2600 had more third-party development, *Creative Computing Video & Arcade Games* reported after visiting the summer 1982 Consumer Electronics Show that "the momentum is tremendous". Activision and Imagic began releasing games for the Intellivision, as did hardware rival Coleco. Mattel created "M Network" branded games for Atari's system.[61] The company's advertisement budget increased to over $20 million for the year. In its October 1982 stockholders' report Mattel announced that *Electronics* had, so far that year, posted a nearly $100 million profit on nearly $500 million sales; a threefold increase over October 1981.[16][15]

However, the same report predicted a loss for the upcoming quarter. Hiring still continued, as did the company's optimism that the investment in software and hardware development would pay off. The *M Network* brand expanded to personal computers. An office in Taiwan was opened to handle Apple II programming.[62] The original five-person Mattel game development team had grown to 110 people under new vice president Baum, while Daglow led Intellivision development and top engineer Minkoff directed all work on all other platforms. In February 1983, Mattel Electronics

opened an office in the south of France to provide European input to Intellivision games and develop games for the ColecoVision.[35][63] At its peak Mattel Electronics employed 1800 people.[15]

Amid the flurry of new hardware and software development, there was trouble for the Intellivision. New game systems (ColecoVision and Atari 5200) introduced in 1982 took advantage of falling RAM prices to offer graphics closer to arcade quality. In 1983, the price of home computers, particularly the Commodore 64, came down drastically to compete with video game system sales. The market became flooded with hardware and software, and retailers were ill-equipped to cope. In spring 1983, hiring at Mattel Electronics came to a halt.

At the June 1983 Consumer Electronics Show in Chicago, Mattel Electronics had the opportunity to show off all their new products. The response was underwhelming. Several people in top management positions were replaced due to massive losses. On July 12, 1983, Mattel Electronics President Josh Denham was replaced with outsider Mack Morris. Morris brought in former Mattel Electronics president and marketing director Jeff Rochlis as a consultant and all projects were under review. The Intellivision III was cancelled and then all new hardware development was stopped when 660 jobs were cut on August 4.[15] The price of the Intellivision II (which launched at $150 earlier that year) was lowered to $69, and Mattel Electronics was to be a software company.[5] However, by October 1983, Electronics' losses were over $280 million for the year and one third of the programming staff were laid off.[16][15] Another third were gone by November, and, on January 20, 1984, the remaining programming staff were laid off.[64] The Taiwan and French offices continued a little while longer due to contract and legal obligations. On February 4, 1984, Mattel sold the Intellivision business for $20 million. In 1983, 750,000 Intellivision Master Components were sold, compared to 1.8 million in 1982.[15][14]

INTV Corporation (1984–1990)

INTV Corp produced their own Intellivision, the INTV System III, after buying the rights from Mattel following the market crash.

Former Mattel Electronics Senior Vice President of Marketing, Terrence Valeski, understood that although losses were huge, the demand for video games increased in 1983.[65] Valeski found investors and purchased the rights to Intellivision, the games, and inventory from Mattel.[15] A new company, Intellivision Inc, was formed and by the end of 1984 Valeski bought out the other investors and changed the name to INTV Corporation. They continued to supply the large toy stores and sold games through direct mail order. At first they sold the existing inventory of games and Intellivision II systems. When the inventory of games sold out they produced more, but without the Mattel name or unnecessary licenses on the printed materials. To lower costs, the boxes, instructions, and overlays were produced at lower quality compared to Mattel.

In France, the Mattel Electronics office found investors and became **Nice Ideas** in April 1984. They continued to work on Intellivision, Colecovision, and other computer games. They produced Intellivision *World Cup Soccer* and *Championship Tennis*, both released in 1985 by European publisher Dextel.[63]

In 1985, INTV Corporation introduced the *INTV System III*, also branded as the *Intellivision Super Pro System*, using the same design as the original Intellivision model but in black and silver. That same year INTV Corp introduced two new games that were completed at Mattel but not released: *Thunder Castle* and *World Championship Baseball*. With their early success INTV Corp decided to produce new games and in 1986 introduced *Super Pro Football*, an update of Mattel *NFL Football*. INTV Corp continued a relationship that Mattel had with Data East and produced all new cartridges such as *Commando* in 1987 and *Body Slam Wrestling* in 1988. Also in 1987, INTV Corp released *Dig Dug*, purchased from Atari where the game was completed but not released in 1984. They also got into producing next-generation games with the production of *Monster Truck Rally* for Nintendo Entertainment System (NES) in 1991, also released as *Stadium Mud Buggies* for Intellivision in 1989.[65]

Licensing agreements with Nintendo and Sega required INTV Corporation to discontinue the Intellivision in 1990. INTV Corporation did publish 21 new Intellivision cartridges bringing the Intellivision library to a total of 124 cartridges plus one compilation cartridge.

Tutorvision

In 1989, INTV Corp and World Book Encyclopedia entered into an agreement to manufacture an educational video game system called Tutorvision.[66] It is a modified Intellivision, the case molded in light beige with gold and blue trim.[67] The Exec ROM expanded, system RAM increased to 1.75K, and graphics RAM increased to 2KB.[68] That is enough graphics RAM to define unique graphic tiles for the entire screen.

Games were designed by World Book, *J. Hakansson Associates*, and programmed by Realtime Associates. Sixteen games were in production, plus one Canadian variation. However, the cartridges and the Tutorvision were never released; instead World Book and INTV Corporation sued each other. In 1990, INTV Corporation filed for bankruptcy protection and closed in 1991.

An unknown number of later Intellivision SuperPro systems have Tutorvision hardware inside. A subset of these units contain the full Tutorvision EXEC and can play Tutorvision games.[68] [65]

Hardware specifications

Master Component

Intellivision, Super Video Arcade, Tandyvision One, Intellivision II, INTV System III, Super Pro System

- General Instrument CP1610 16-bit microprocessor CPU
  - 1 microsecond cycle time, 2 MHz 2-phase clock[69] (1.117 μs and 1.7897725 MHz NTSC)
  - 16-bit multiplexed data/address bus
- 1456 bytes of RAM (SRAM):
  - 240 × 8-bit scratchpad memory
  - 352 × 16-bit (704 bytes) system memory, General Instrument RA-3-9600 dual-ported, bridges CPU and STIC buses, 240 words used for graphics
  - 512 × 8-bit graphics RAM

- 7168 bytes of ROM:
  - 4096 × 10-bit (5120 bytes) executive ROM (4352 x 10-bit Intellivision II)
  - 2048 × 8-bit graphics ROM (344 bytes used by Exec program)
- Standard Television Interface Chip (STIC): General Instrument AY-3-8900/AY-3-8900-1[70][71][72]
  - operates at 4 MHz or 3.579545 MHz (NTSC)
  - 14-bit multiplexed data/address bus shared with CPU
  - 20×12 tiled playfield, tiles are 8×8 pixels for a resolution of 159×96 (right pixel not displayed)
    - 16 color palette, two colors per tile
    - *Foreground/Background* mode; all 16 colors available for background and colors 1–8 available for foreground per tile; grom cards limited to the first 64
    - *Color Stack* mode; all 16 colors available for foreground per tile; background colour from a four colour rotating stack of any four colors, all 277 grom and gram cards available
    - *Colored Squares* mode[73] allows each tile to have four different colored 4×4 blocks (e.g. *Snafu*); first seven colors available for foreground blocks; background colour from the color stack
  - 8 sprites (all visible on the same scanline). Hardware supports the following features per-sprite:
    - coordinate addressable off screen for smooth edge entries and exits
    - Size selection: 8×16 or 8 pixels wide by 8 half-pixels high
    - Stretching: horizontal (1× or 2×) and vertical (1×, 2×, 4× or 8×)
    - Mirroring: horizontal and vertical
    - Collision detection: sprite to sprite, sprite to background, and sprite to screen border
    - Priority: selects whether sprite appears in front of or behind background.
  - fine horizontal and vertical pixel scrolling
  - all STIC attributes and GRAM re-programmable at VBLANK, 60 times a second
- Three-channel sound, with one noise generator, audio chip: General Instrument AY-3-8914 (AY-3-8914A/AY-3-8916 Intellivision II)
- Connections:
  - 44-pin cartridge/expansion port
    - 64K addressable (approx 50K available), more with memory bank switching
    - typical cartridges: 4K, 6K, 8K, 12K, 16K, 24K (10-bit ROMs)
  - 2 x 9-pin controller connectors
    - *inline pin connectors internally accessible on original Intellivision and INTV systems*
    - *DE-9 connectors externally accessible on Super Video Arcade and Intellivision II*
  - RF/RCA audio/video connector; RGB/scart/péritel in France
  - Intellivision II only: external power adapter 16.7Vac 1amp or 16.2Vac 955mA

Game controller

The Intellivision controller features:

- 12-button numeric keypad (0–9, *clear*, and *enter*)
- Four side-located action buttons (two for left handed players, two for right handed players)

    - *top two side buttons are electronically the same, giving three distinct buttons*
- A directional pad, capable of detecting 16 directions of movement
- Plastic overlays that slide into place as an extra layer on the keypad to show game-specific key functions

The directional pad was called a "control disc" and marketed as having the "functionality of both a joystick and a paddle".[74] The controller was ranked the fourth worst video game controller by IGN editor Craig Harris.[75]

The original Intellivision controller with no overlay inserted

Peripherals

- Keyboard Component *(limited availability)*
    - 6502 CPU, 16K × 10-bit DRAM, 40×24 text overlay, tape-drive, microphone input, two expansion ports
- PlayCable *(availability through cable TV provider 1981–1983)*
    - *Mattel and General Instrument joint venture, manufactured by GI/Jerrold*
    - 8K x 10bit RAM[76]
- Intellivoice Voice Synthesis Module
    - General Instrument SP0256-012
- Computer Module *(includes the following)*
    - Computer Adapter
        - 2K x 8-bit SRAM, 12K ECS Exec/BASIC ROM, memory expansion port (discontinued)
        - AY-3-8917 sound generator
        - two DE-9 hand controller connectors
        - audio tape recorder data storage interface, two 3.5mm mono jacks and one 2.5mm jack for optional tape control
        - auxiliary jack for a serial printer connection (Mattel Aquarius compatible), 3.5mm stereo jack that is RS-232C compatible, where tip is data transmit, ring is DSR/DCD, sleeve is ground, 1200 baud, 8 data bits, 2 stop bits, and no parity[77]
        - external power adapter 10Vac 1amp
    - Computer Keyboard
- Music Synthesizer *(requires Computer Adapter)*
    - 49 key piano keyboard
- System Changer
    - Atari 2600 compatible cartridge slot
    - two DE-9 Atari 2600 compatible controller connectors
- Videoplexer (from Compro Electronics)
    - cartridge switching accessory with eight cartridge slots

Games

Reception

A July 1980 article in Video magazine said "Now, arcade addicts can revel in the most sophisticated games this side of the complex simulations designed for high-level computers right in their own livingrooms.", "It may not be perfect but it's certainly the best unit offered so far to players of electronic video games.", "Those used to joysticks will have to endure a short period of adjustment, but even finicky players will be forced to agree that the company has developed a truly elegant solution to the controller problem."[17]

Ken Uston published *Ken Uston's Guide to Buying and Beating the Home Video Games* in 1982 as a guide to potential buyers of console systems/cartridges, as well as a brief strategy guide to numerous cartridge games then in existence. He described Intellivision as "the most mechanically reliable of the systems... The controller (used during "many hours of experimentation") worked with perfect consistency. The unit never had overheating problems, nor were loose wires or other connections encountered." However, Uston rated the controls and control system as "below average" and the worst of the consoles he tested (including Atari 2600, Magnavox Odyssey², Astrovision, and Fairchild Channel F).[78]

Jeff Rovin lists *Intellivision* as one of the seven major suppliers of videogames in 1982 and mentions it as "the unchallenged king of graphics", but says the controllers can be "difficult to operate", mentions the fact that if a controller breaks the entire unit must be shipped off for repairs (since they did not detach at first), and explains that the overlays "are sometimes so stubborn as to tempt one's patience" .[79]

A 1996 article in *Next Generation* said the Intellivision "had greater graphics power than the dominant Atari 2600. It was slower than the 2600 and had less software available, but it was known for its superior sports titles."[80] A year later, *Electronic Gaming Monthly* assessed the Intellivision in an overview of older gaming consoles, remarking that the controllers "were as comfortable as they were practical. The unique disk-shaped directional pad provided unprecedented control for the time, and the numeric keypad opened up new options previously unavailable in console gaming." They praised the breadth of the software library but said there was a lack of genuinely stand-out games.[51]

Legacy

Intellivision Lives!

Intellivision games became readily available again when Keith Robinson and Stephen Roney, both former Intellivision programmers at Mattel Electronics, obtained exclusive rights to the Intellivision and games in 1997.[81] That year they formed a new company, Intellivision Productions, and made *Intellivision for PC Volume 1* available as a free download. Intellivision games could be played on a modern computer for the first time. That download includes three Intellivision games and an MS-DOS Intellivision emulator that plays original game code. It was

followed by *Volume 2* and another three games including *Deep Pockets Super Pro Pool & Billiards*; a game completed in 1990 but never released until this download in 1997. In 2000, the *Intellipack 3* download was available with another four Intellivision games and emulators for Windows or Macintosh.[82]

Intellivision Productions released *Intellivision Lives!* and *Intellivision Rocks* on compact disc in 1998 and 2001. These compilation CDs play the original game code through emulators for MS-DOS, Windows, and Macintosh computers. Together they have over 100 Intellivision games including never before released *King of the Mountain, Takeover, Robot Rubble*, *League of Light*, and others. Intellivision Rocks includes Intellivision games made by Activision and Imagic. Some games could not be included due to licensing, others simply used different titles to avoid trademarked names. The CDs are also a resource for development history, box art, hidden features, programmer biographies, video interviews, and original commercials.[16]

Also in 1997, Intellivision Productions announced they would sell development tools allowing customers to program their own Intellivision games. They were to provide documentation, PC compatible cross-assemblers, and the *Magus II* PC Intellivision cartridge interface. Unfortunately, the project was cancelled but they did provide copies of "Your Friend the EXEC", the programmers guide to the Intellivision Executive control software.[83] By 2000 Intellivision hobbyists ultimately created their own development tools,[84] including Intellivision memory cartridges.

In 2005, Intellivision Productions announced that new Intellivision cartridges were to be produced. "Deep Pockets and Illusions will be the first two releases in a series of new cartridges for the Intellivision. The printed circuit boards, the cartridge casings, the boxes are all being custom manufactured for this special series."[85] *Illusions* was completed at Mattel Electronics' French office in 1983 but never released. *Deep Pockets Super Pro Pool & Billiards* was programmed for INTV Corporation in 1990 and only released as a ROM file in 1998. However, no cartridges were produced. Previously, in 2000, Intellivision Productions did release new cartridges for the Atari 2600 and Colecovision.[86] *Sea Battle* and *Swordfight* were Atari 2600 games created by Mattel Electronics in the early 1980s but not previously released. *Steamroller* (Colecovision) was developed for Activision in 1984 and not previously released.[87]

Licensing Intellivision Games

Also in 1999, Activision released *A Collection of Intellivision Classic Games* for PlayStation. Also known as *Intellivision Classics*, it has 30 emulated Intellivision games as well as video interviews of some of the original programmers. All of the games were licensed from Intellivision Productions and none of the Activision or Imagic Intellivision games were included.[88] In 2003, Crave Entertainment released a PlayStation 2 version of Intellivision Lives! followed by versions for the Xbox and GameCube in 2004. In 2010, Virtual Play Games released Intellivision Lives! for the Nintendo DS including one never before released game, *Blow Out*. In 2008 Microsoft made Intellivision Lives! an available download on the Xbox Live Marketplace as an Xbox Original and playable on the Xbox 360.

In 2003, the Intellivision 25 and Intellivision 10 direct-to-TV systems were released by Techno Source Ltd. These are an all-in-one single controller design that plugs directly into a television. One includes 25 games the other ten.[89] These Intellivision games were not emulated but rewritten for the native processor (Famiclone-based hardware) and adapted to a contemporary

controller. As such they look and play differently than Intellivision. In 2005 they were updated for two-player play as the Intellivision X2 with 15 games.[90] They were commercially very successful altogether selling about 4 million units by end of 2006.[5]

Several licensed Intellivision games became available to Windows computers through the GameTap subscription gaming service in 2005 including *Astrosmash, Buzz Bombers, Hover Force, Night Stalker, Pinball, Shark! Shark!, Skiing and Snafu*.[85] Installation of the GameTap Player software was required to access the emulator and games. The VH1 Online Arcade made nine Intellivision games available in 2007.[91] Using a Shockwave emulator these Intellivision games could be played directly through a web browser with Shockwave Player. In 2010, VH1 Classic and MTV Networks released 6 Intellivision games to iOS.[92] Intellivision games were first adapted to mobile phones and published by THQ Wireless in 2001.[93] On March 24, 2010, Microsoft launched the Game Room service for Xbox Live and Games for Windows Live. This service includes support for Intellivision games and allows players to compete for high scores via online leaderboards.[94] At the 2011 Consumer Electronics Show, Microsoft announced a version of Game Room for Windows Phone,[95] promising a catalog of 44 Intellivision games. AtGames and its Direct2Drive digital store has Windows compatible Intellivision compilations available for download purchase.[96]

Intellivision Flashback

The number of Intellivision games that can be played effectively with contemporary game controllers is limited. On October 1, 2014, AtGames Digital Media, Inc., under license from Intellivision Productions, Inc., released the Intellivision Flashback classic game console. It is a miniature sized Intellivision console with two original sized Intellivision controllers. While adapters have been available to interface original Intellivision controllers to personal computers, the Intellivision Flashback includes two new Intellivision controllers identical in layout and function to the originals. It comes with 60 (61 at Dollar General) emulated Intellivision games built into ROM and a sample set of plastic overlays for 10 games. The Advanced Dungeons & Dragons games were included as *Crown of Kings* and *Minotaur*. As with many of the other Intellivision compilations, no games requiring third-party licensing were included.[97]


Intellivision Flashback

Intellivision Entertainment

In May 2018, Tommy Tallarico announced that he acquired the rights to the Intellivision brand and games with plans to launch a new home video game console, the Intellivision Amico. A new company, Intellivision Entertainment, was formed with Tallarico serving as president.[98] Intellivision Productions has been renamed Blue Sky Rangers Inc. and their video game intellectual property has been transferred to Intellivision Entertainment.[99]

In 2021 Blaze Entertainment released a collection of twelve emulated Intellivision games for the Evercade systems. They released a second collection of twelve emulated Intellivision games in 2022.

Intellivision Sprint

On May 23, 2024, Atari SA announced the acquisition of the Intellivision brand and library from Intellivision Entertainment. The deal did not include the unreleased Intellivision Amico console nor the Intellivision Entertainment company itself, both of which would be renamed. However, that company would secure a licensing deal with Atari to continue to release newer versions of Intellivision titles for the Amico.[100][101]

Atari announced the Intellivision Sprint for pre-orders in October 2025, and shipping on December 5, 2025, for $150. As a retro console based on the original Intellivision design, the Intellivision Sprint will include 45 games from the original Intellivision. It will include two controllers based on the original design of the Intellivision, though both will be wireless and charged by USB ports on the console. Overlays for each of the built in games will be included. The console also supports HDMI video output and USB-A connections.[102]

Innovations

- Intellivision was the first 16-bit game console, as it has a 16-bit microprocessor with 16-bit registers, 16-bit RAM, and a 16-bit data bus.
- The first home console and one of the first video games to use a tile-based playfield. It allowed for the display of detailed graphics and colour with very little RAM.
- The Intellivision was also the first system to feature downloadable games with PlayCable in 1981.
- Intellivision was the first game console to provide real-time human voices in the middle of gameplay, courtesy of the Intellivoice module.[103]
- The first game controller with a directional thumb pad.[104]
- The Intellivision was also the first game console or home computer to offer a musical synthesizer keyboard.
- Intellivision was also the first console to have a complete built-in character font. While Odyssey² had a limited character font (uppercase alphabet, numerals, and some other characters), Intellivision's system font had complete upper- and lowercase alphabets, numerals, and almost all of the punctuation and symbols found on standard computer keyboards.
- *Utopia* (1982) is credited as the game that spawned the construction and management simulation genre.
- *World Series Major League Baseball* (1983) is considered to be the first sports simulation video game with a number of innovations: multiple views of a 3D calculated virtual play-field, statistical based game-play using real historical baseball player statistics, manager player substitutions, play-by-play speech, and save games or lineups to tape storage.

See also

- Entertainment Computer System
- *Intellivision Lives!*
- Intellivoice

- List of Intellivision games
- PlayCable
- TV POWWW (interactive TV game show that used Intellivision)

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Bandai Super Vision 8000

The **Bandai Super Vision 8000**, also known as the **TV Jack 8000**,[2] is a home video game console released by Bandai in 1979 belonging to the second generation. The console can be directly connected to a TV.

This console was the last of the Bandai TV Jack console series but was completely different from the other consoles of the series. The Super Vision 8000 had a central CPU. The other consoles belonged to the first generation: they didn't feature a microprocessor, and were based on custom codeless state machine computers consisting of discrete logic circuits comprising each element of the game itself (Pong-style console).

Technical specifications

- CPU: 8-bit NEC D780C-1 (Z80 clone), running at 3.58 MHz[3]
- Resolution: 256 pixel x 192 with 2 Colors (32 x 16 character mode using built-in 8x12 font), 128 x 192 Bitmap Mode with 2 Colors, 128 x 96 Bitmap Mode with 4 Colors
- Memory: 1KB RAM, 3KB VRAM
- VDG: Ami S68047 (Motorola 6847 clone)
- Audio: General Instrument AY-3-8910, three channel sound, with one noise generator
- Introductory price: 59,800 Yen (Japan)[4][5]

Games

All seven games released for the console were developed by Bandai Electronics and released in 1979.[6]

List of games

- Missile Vader
- Space Fire
- Othello
- Gun Professional
- PacPacBird

Bandai Super Vision 8000

Manufacturer	Bandai
Type	Home video game console
Generation	Second generation
Released	December 1979[1]
Introductory price	59,800 Yen (Japan)
Discontinued	1982
Media	ROM cartridge
CPU	NEC D780C-1 @ 3.58 MHz
Display	TV, 256x192

- Submarine
- Beam Galaxian

Graphics	Ami S68047 (Motorola 6847 clone)
Sound	AY-3-8910
Predecessor	Bandai TV Jack 5000
Successor	Bandai Arcadia

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6. "Console Living Room: Bandai Super Vision 8000 : Free Software : Free Download, Borrow and Streaming : Internet Archive" (https://archive.org/details/sv8000_library). *archive.org*. Retrieved 2023-03-26.

External links

- The Video Game Console Library (http://www.videogameconsolelibrary.com/pg70-super_vision.htm). You can view some images of the console
- **ซีรี่ย์จีนพากย์ไทย** (https://web.archive.org/web/20231202122020/https://www.baan-series.org/category/%E0%B8%8B%E0%B8%B5%E0%B8%A3%E0%B8%B5%E0%B9%88%E0%B8%A2%E0%B9%8C%E0%B8%88%E0%B8%B5%E0%B8%99/%E0%B8%8B%E0%B8%B5%E0%B8%A3%E0%B8%B5%E0%B9%88%E0%B8%A2%E0%B9%8C%E0%B8%88%E0%B8%B5%E0%B8%99-%E0%B8%9E%E0%B8%B2%E0%B8%81%E0%B8%A2%E0%B9%8C%E0%B9%84%E0%B8%97%E0%B8%A2)
- Box shot (https://encrypted-tbn1.google.com/images?q=tbn:ANd9GcT_KaF8-lMD_NBqujHbhmf1ngUuAtS4B97EUjXgMxCVYehXGv3fNw)
- Super Vision 8000 games (https://archive.org/details/sv8000_library) playable for free in the browser at the Internet Archive *Console Living Room*

Coleco

Coleco Industries, Inc. (/kəˈliːkoʊ/ *kə-LEE-koh*) was an American company founded in 1932 by Maurice Greenberg as **The Connecticut Leather Company**.[3][4] The name "COLECO" is an abbreviation derived from the company's original name. It was a successful toy company in the 1980s, mass-producing versions of Cabbage Patch Kids dolls and its video game consoles, the Coleco Telstar dedicated consoles and ColecoVision.[5][6][7] While the company ceased operations in 1988 as a result of bankruptcy, the Coleco brand was revived in 2005, and remains active to this day.

Coleco Industries, Inc.

The abandoned Coleco building in Amsterdam, New York

Formerly	The Connecticut Leather Company
Industry	Toys Video games
Founded	1932
Founder	Maurice Greenberg
Defunct	1988
Fate	Closed, properties sold
Headquarters	West Hartford, Connecticut, U.S.
Key people	Leonard Greenberg Arnold Greenberg[1]
Products	Leather goods Toys Above ground swimming pools Video games Consumer electronics[2] Coleco Telstar series ColecoVision Coleco ADAM Coleco Gemini Cabbage Patch Kids

Overview

1932: origins as The Connecticut Leather Company

Coleco Industries, Inc. began in 1932 as The Connecticut Leather Company. The business supplied leather and "shoe findings" (the supplies and paraphernalia of a shoe repair shop) to shoe repairers.[8] In 1938, the company began selling rubber footwear. During World War II demand for the company's supplies increased and by the end of the war, the company was larger and had expanded into new and used shoe machinery, hat cleaning equipment and marble shoeshine stands.

1950s: leather diversification

By the early 1950s, and thanks to Maurice Greenberg's son, Leonard Greenberg, the company had diversified further and was making leather lacing and leathercraft kits. In 1954, at the New York Toy Fair, their leather moccasin kit was selected as a Child Guidance Prestige Toy, and Connecticut Leather Company decided to commit to the toy business. In 1956, Leonard read about the emerging

technology of vacuum formed plastic; the company adopted this and it became increasingly successful, producing a wide variety of plastic toys and wading pools.

1961: Coleco Industries, Inc.

In 1961, the leather and shoe findings portion of the business was sold,[9] and Connecticut Leather Company became Coleco Industries, Inc, An abbreviation of "**Co**nnecticut **Le**ather **Co**mpany". On January 9, 1962, Coleco went public, offering 120,000 shares of stock at $5.00 a share.[10]

1960s: acquisitions

In 1963, the company acquired the Kestral Corporation of Springfield, Massachusetts, a manufacturer of inflatable vinyl pools and toys. This led to Coleco becoming the largest manufacturer of above-ground swimming pools in the world.

In 1966, Leonard persuaded his brother Arnold Greenberg to join the company. Further acquisitions included Playtime Products (1966) and Eagle Toys of Canada (1968). By the end of the 1960s, Coleco operated ten manufacturing facilities and occupied a new corporate headquarters in Hartford, Connecticut.

1970s: financial difficulties and further diversification

Coleco experienced financial difficulty during the 1970s, even though sales had grown to $48.6 million in 1971. In 1972, Coleco entered the snowmobile market through acquisition. Lower than expected snowfall that year and market conditions led to very reduced sales and poor profits.

Dozens of companies rushed to introduce game systems after the release of Atari's successful *Pong* console and the company entered the video game console business with the Telstar. Nearly all of the new game systems were based on General Instrument's AY-3-8500 integrated circuit. General Instrument had underestimated demand, resulting in severe shortages. However, Coleco was one of the first to place an order and therefore one of the few companies to receive the full order. Though dedicated game consoles did not last long on the market, their early order enabled Coleco to break even.

Late 1970s: handheld electronic games

Coleco continued to perform well in electronics. The company transitioned into handheld electronic games, a market popularized by Mattel. An early success was *Electronic Quarterback*. Coleco produced two popular lines of games, the "head to head" series of two player sports games (*Football*, *Baseball*, *Basketball*, *Soccer*, *Hockey*, *Boxing*) and the Mini-Arcade series of licensed video arcade titles such as *Donkey Kong* and *Ms. Pac-Man*. A third line of educational handhelds was also produced and included the Electronic Learning Machine, *Lil Genius*, *Digits*, and a trivia game called *Quiz Wiz*.[11] Launched in 1982, their first four tabletop Mini-Arcades, for *Pac-Man*, *Galaxian*, *Donkey Kong*, and *Frogger*, sold approximately three million units within a year.[12] Among these, 1.5 million units were sold for *Pac-Man* alone.[13][14] In 1983, it released three more Mini-Arcades: *Ms. Pac-Man*, *Donkey Kong Junior*, and *Zaxxon*.[12]

Coleco returned to the video game console market in 1982 with the launch of the ColecoVision.[15] The system was quite popular and more powerful than the Atari 2600,[16] and came bundled with a copy of *Donkey Kong*.[17] The console sold 560,000 units in 1982. Coleco also hedged its bet on

video games by introducing a line of ROM cartridges for the Atari 2600 and Intellivision, selling six million cartridges for both systems, along with two million sold for the ColecoVision for a total of eight million cartridges sold in 1982. It also introduced the Coleco Gemini, a clone of the popular Atari 2600, which came bundled with a copy of *Donkey Kong*.[18]

The ColecoVision video game console

When the video game business began to implode in 1983, it seemed clear that video game consoles were being supplanted by home computers. Bob Greenberg, son of Leonard Greenberg and nephew of Arnold Greenberg, left Microsoft where he had been working as a program developer at the time to assist in Coleco's entry into this market. Coleco's strategy was to introduce the Coleco Adam home computer, both as a stand-alone system and as an expansion module to the ColecoVision. The effort failed, in part because Adams were often unreliable due to being released with critical bugs,[19] and in part because the computer's release coincided with the home computer industry crashing.[15] Coleco withdrew from electronics early in 1985.[2]

1983: Cabbage Patch Kids

In 1983, Coleco released the Cabbage Patch Kids series of dolls which were wildly successful.[20] In the same year, Dr. Seuss signed a deal with Coleco to design a line of toys, including home video games based on his characters. Flush with success, Coleco purchased Leisure Dynamics (manufacturer of the board games *Aggravation* and *Perfection*) and beleaguered Selchow and Righter, manufacturers of *Scrabble*, *Parcheesi*, and *Trivial Pursuit*, in 1986.[21][22] Sales of Selchow & Righter games had plummeted, leaving them with warehouses full of unsold games. The purchase price for Selchow & Righter was $75 million. That same year, Coleco introduced an ALF plush, based on the furry alien character who had his own television series at the time, as well as a talking version and a cassette-playing "Storytelling ALF" doll.[23]

1988: bankruptcy and sale

The combination of the purchase of Selchow & Righter, the disastrous Adam computer, and the public's waning infatuation with Cabbage Patch Dolls all contributed to Coleco's financial decline. In 1988, the company filed for Chapter 11 bankruptcy.[24]

The reorganized Coleco sold off all of its North American assets and outsourced thousands of jobs to foreign countries, closing plants in Amsterdam, New York and other cities.[25]

In 1988, Canada-based SLM Action Sports Inc. purchased Coleco's swimming pool and snow goods divisions.[26]

In 1989, Hasbro purchased most of Coleco's remaining product lines.[27]

Brand

Coleco as a brand name has been owned by several entities since it was created in 1961 by Coleco Industries, Inc.

In 2005, River West Brands, now Dormitus Brands, a Chicago-based brand revitalization company, re-introduced the Coleco brand to the marketplace. In late 2006, the company introduced the Coleco Sonic, a handheld system containing twenty Master System and Game Gear games, including two from the *Sonic the Hedgehog* series.[28][29] In 2014, River West Brands established the subsidiary Coleco Holdings for their Coleco-branded projects.

In December 2015, Coleco Holdings announced the development of the Coleco Chameleon, a new cartridge-based video game system; in actuality, a re-branding of the controversial Retro VGS console, whose Indiegogo campaign failed to secure funding when it ended in early November 2015, with only $63,546 raised of its $1.95 million goal.[30] In the press release, it was established that the system would be able to play new and classic games in the 8, 16, and 32-bit styles. The release for the system was announced to be sometime in early 2016, with a demonstration at Toy Fair New York in February.[31] However, some critics suggested that the prototype fell short of its developmental goals and was nothing more than the motherboard of a Super NES model SNS-101 inside an Atari Jaguar case. Later mock images of a prototype posted by AtariAge showed the device utilizing a CCTV capture card in place of a motherboard.[32][33] After Retro VGS failed to produce a fully working prototype, Coleco Holdings pulled out of involvement with Retro VGS, terminating the project.[34]

See also

- *Sectaurs*
- *Starcom: The U.S. Space Force*

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External links

- Coleco Holdings (https://coleco.com/) Current owner of the trademark
- Article at The Dot Eaters (https://thedoteaters.com/?bitstory=colecovision) - A history of Coleco and the ColecoVision products.
- www.colecomuseum.com (https://web.archive.org/web/20170915033704/http://colecomuseum.com/) - Dedicated to Coleco collectibles.
- ColecoVision Zone (https://www.colecovisionzone.com/) - Comprehensive archive of photos and documents.

ColecoVision

The **ColecoVision** is a second-generation home video game console developed by Coleco and launched in North America in August 1982. It was released later in July 1983 in Europe by CBS Electronics as the **CBS ColecoVision**.

The console offered a closer experience to more powerful arcade video games compared to competitors such as the Atari 2600 and Intellivision. The initial catalog of twelve games on ROM cartridge included the first home version of Nintendo's *Donkey Kong* as the pack-in game. Approximately 136 games were published for the ColecoVision between 1982 and 1984,[2] including Sega's *Zaxxon* and some ports of lesser-known arcade games that found a larger audience on the console, such as *Lady Bug*, *Cosmic Avenger*, and *Venture*.

Coleco released a series of hardware add-ons and special controllers to expand the capabilities of the console. "Expansion Module #1" allowed the system to play Atari 2600 cartridges. "Expansion Module #3", released some time later, converted the system into the Adam home computer, using the ColecoVision hardware primarily as a display system and handling joysticks. The resulting system ran all ColecoVision games as well as new software for the Adam.

The ColecoVision was discontinued in 1985, when Coleco withdrew from the video game market. Coleco had already contemplated shifting focus to their successful Cabbage Patch Kids toy line after the costly failure of their Adam computer.[3]

ColecoVision

Manufacturer	Coleco
Type	Home video game console
Generation	Second
Released	NA: August 1982 EU: July 1983
Discontinued	August 1985
Units sold	> 2 million (1982–83)[1]
Media	ROM cartridge
CPU	Zilog Z80A @ 3.58 MHz
Memory	1 KB scratchpad RAM 16 KB video RAM 8 KB ROM
Storage	8/16/24/32 KB
Graphics	TMS9928A (NTSC) TMS9929A (PAL)
Sound	SN76489
Controller input	Joystick + numeric keypad Roller Controller Driving Controller Super Action Controller
Best-selling game	*Donkey Kong* (pack-in)
Predecessor	Coleco Telstar series (1978)

Development

Coleco entered the video game market in 1976 during the dedicated-game home console period with their line of Telstar consoles. When that market became oversaturated over the next few years, the company nearly went bankrupt, but

found a successful product through handheld electronic games, with products that beat out those of the current market leader, Mattel. The company also developed a line of miniaturized tabletop arcade video games with licensed rights from arcade game makers including Sega, Bally, Midway, and Nintendo. Coleco was able to survive on sales of their electronic games through to 1982, but that market itself began to wane, and Coleco president Arnold Greenberg was still interested in producing a home video game console.[4]

According to Eric Bromley, who led the engineering for the ColecoVision, Greenberg had wanted to get into the programmable home console market with arcade-quality games, but the cost of components had been a limiting factor. As early as 1979, Bromley had drawn out specifications for a system using a Texas Instruments video and a General Instrument audio chip, but could not get the go-ahead due to the cost of RAM. Around 1981, Bromley saw an article in *The Wall Street Journal* that asserted the price of RAM had fallen and, after working the cost numbers, Bromley found the system cost fell within their cost margins. Within ten minutes of reporting this to Greenberg, they had established the working name "ColecoVision" for the console as they began a more thorough design—a name which the marketing department never was able to surpass.[5]

Coleco recognized that licensed conversion of arcade games had worked for Atari in selling the Atari VCS, so they had approached Nintendo around 1981 for potential access to their arcade titles. Bromley described a tense set of meetings with Nintendo's president Hiroshi Yamauchi under typical Japanese customs where he sought to negotiate for game rights, though Yamauchi only offered seemingly obscure titles. After a meal with Yamauchi during one day, Bromley excused himself to the restroom and happened upon one of the first *Donkey Kong* cabinets, which had yet to be released to Western countries. Knowing this game would likely be a hit, Bromley arranged a meeting the following day with Yamauchi and requested the exclusive rights to *Donkey Kong*; Yamauchi offered them if only they could provide $200,000 upfront by that day and gave them $2 per unit sold. Greenberg agreed, though as in Japanese custom, Bromley did not have a formal contract from Nintendo on his return. By the time of that year's Consumer Electronics Show, which Yamauchi was attending, Bromley found out from Yamauchi's daughter and translator that he had apparently given the rights to Atari. With Yamauchi's daughter's help, Bromley was able to commit Yamauchi to sign a formal contract to affirm the rights to Coleco.[5] Coleco's announcement that they would bundle *Donkey Kong* with the console was initially met with surprise and skepticism, with journalists and retailers questioning why they would give away their most anticipated home video game with the console.[6]

Release

The ColecoVision was released in August 1982.[7] By Christmas 1982, Coleco had sold more than 500,000 units,[8][9] in part on the strength of *Donkey Kong* as the bundled game.[10] ColecoVision's main competitor was the less commercially successful Atari 5200.[11][12][13] Sales quickly passed 1 million in early 1983.[14]

The ColecoVision was distributed by CBS Electronics outside of North America and was branded the CBS ColecoVision. In Europe, the console was released in July 1983, nearly one year after the North American release.[15] Sega Enterprises attempted a Japanese version of the console, but it was retooled into the SG-1000 before release.[16]

By the beginning of 1984, quarterly sales of the ColecoVision had dramatically decreased.[17] In January 1985, Coleco discontinued the Adam, which was a home computer expansion for ColecoVision. By mid-1985, Coleco planned to withdraw from the video game market,[18][19] and the ColecoVision was officially discontinued by October.[20] Total sales are uncertain, but were ultimately in excess of 2 million consoles,[21][22][23][24] with the console continuing to sell modestly up until its discontinuation.[25]

ColecoVision cartridges

In 1983, Spectravideo announced the SV-603 ColecoVision Video Game Adapter for its SV-318 computer. The company stated that the $70 product allowed users to "enjoy the entire library of exciting ColecoVision video-game cartridges".[26]

Hardware

ColecoVision is based around the Zilog Z80 CPU and a variant of the Texas Instruments TMS9918 video chip that was introduced in 1979.

On NTSC ColecoVision consoles, all first-party cartridges and most third-party software titles feature a 12.7 second pause before presenting the game select screen.[27] CBS Electronics reduced this pause in the BIOS to 3.3 seconds for their PAL and SECAM ColecoVision consoles.[28]

The ColecoVision Hand Controller has a number pad that can be fitted with overlays.

Expansion Modules and accessories

From its introduction, Coleco highlighted the ColecoVision's hardware expandability by featuring the *Expansion Module Interface* on the front of the unit. These hardware expansion modules and accessories were sold separately.

Atari 2600 expansion

Expansion Module #1 made the ColecoVision compatible with Atari 2600 cartridges and controllers.[27] It leveraged the fact that the 2600 used largely off-the-shelf components and was effectively a complete set of 2600 electronics, including a reverse-engineered equivalent of the 2600's sole custom chip, the TIA. The ColecoVision console did not translate or process the game code on the 2600 cartridges; it only provided power and clock input to, and audio/video output from, the expansion module, which was otherwise entirely self-contained and could be considered the first Atari 2600 clone console. This gave the ColecoVision the largest software library of any console of its day. The expansion module


Expansion Module #1 allows the ColecoVision to play any Atari 2600 game.

prompted legal action from Atari. Coleco and Atari settled out of court, with Coleco becoming licensed under Atari's patents. The royalty-based license also applied to Coleco's Gemini game system, a stand-alone clone of the 2600.[29]

Expansion Module #2 is a steering wheel for racing games.

Driving controller

Expansion Module #2 is a driving controller (steering wheel / gas pedal) that comes packaged with the cartridge *Turbo*. The gas pedal is a simple on/off switch.[30] Although Coleco called the driving controller an expansion module, it actually plugs into the controller port, not the *Expansion Module Interface*.[31] The driving controller is also compatible with the cartridges *Destructor*, *Bump 'n' Jump*, *Pitstop*, and *The Dukes of Hazzard*.

Adam computer expansion

Expansion Module #3 converts the ColecoVision into the Adam computer, complete with keyboard, digital data pack (DDP) cassette drive, 64 KB RAM, and printer.

Roller Controller

The *Roller Controller* is a trackball that comes packaged with the cartridge *Slither*, a conversion of the arcade game.[32][33] The roller controller uses a special power connector that is not compatible with Expansion Module #3 (the Adam computer). Coleco mailed an adapter to owners of both units who complained.[34] The other cartridge programmed to use the roller controller is *Victory*. A joystick mode switch on the roller controller allows it to be used with all cartridges, including *WarGames*, *Omega Race*, and Atarisoft's *Centipede*.

Super Action Controller

The *Super Action Controller Set*, available in September 1983, is a set of two handheld joystick controllers packaged with the cartridge *Super Action Baseball*. Each controller has a ball-top joystick, four finger-triggered action buttons, a 12-button numeric keypad, and a "speed roller".[35][36] The cartridges *Super Action Football*, *Rocky*, *Super Action Boxing*, and a conversion of the arcade game *Front Line* are also designed to be used with the *Super Action Controller*.

Super Action Controller

Unreleased

Expansion Module #3 was originally planned to be the Super Game Module. It was advertised for an August 1983 release but was ultimately cancelled and replaced with the Adam computer expansion. The Super Game Module added a tape drive known as the Exatron Stringy Floppy with 128 KB capacity, and additional RAM, said to be 30 KB,[37] to load and execute programs from tape. Games could be distributed on tiny tapes, called *wafers*, and be much larger than the 16 KB or 32 KB ROM cartridges of the day. *Super Donkey Kong*, with all screens and animations, *Super*

Donkey Kong Jr, and *Super Smurf Rescue* were demonstrated with the Super Game Module. The Adam computer expansion with its 256 KB tape drive and 64 KB RAM fulfilled the specifications promised by the Super Game Module.[38][39]

Games

Legacy

Masayuki Uemura, head of Famicom development, stated that the ColecoVision set the bar that influenced how he approached the creation of the Famicom.[40] During the creation of the Nintendo Entertainment System, Takao Sawano, chief manager of the project, brought a ColecoVision home to his family, who were impressed by the system's capability to produce smooth graphics, which contrasted with the flickering commonly seen on Atari 2600 games.


ColecoVision Flashback

In 1986, Bit Corporation produced a ColecoVision clone called the Dina, which was sold in the United States by Telegames as the Telegames Personal Arcade.[41]

IGN named the ColecoVision their 12th-best video-game console out of their list of 25, citing "its incredible accuracy in bringing current-generation arcade hits home".[42]

In 1996, the first homebrew ColecoVision game was released: a *Tetris* clone titled *Kevtris*.[43][44][45]

In 1997, Telegames released *Personal Arcade Vol. 1*, a collection of ColecoVision games for Microsoft Windows,[46] and a 1998 follow-up, *Colecovision Hits Volume One*.[47]

In 2012, Opcode Games released their own Super Game Module expansion, which increases RAM from 1 KB to 32 KB and adds four additional sound channels.[48] This expansion brings the ColecoVision close to the MSX architecture standard, allowing MSX software to be more easily ported.

In 2014, AtGames began producing the ColecoVision Flashback console that includes 60 games, but not the original pack-in game, *Donkey Kong*.[49]

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External links

- The History of ColecoVision Game System (https://www.lifewire.com/history-of-colecovision-729731)
- ColecoVision Zone (http://www.colecovisionzone.com/) - comprehensive archive of photos and documents.

MAX Machine

MAX Machine (or simply MAX), also known as **Ultimax** in the United States and Canada and **VC-10** in Germany,[1] is a home computer designed and sold by Commodore International in Japan, beginning in November of 1982,[2] a cousin to the popular Commodore 64, also sharing a lot of components with the C64.[3][4] The Commodore 64 manual mentions the machine by name, suggesting that Commodore intended to sell the machine internationally; however, it is unclear whether the machine was ever actually sold outside Japan. When it was officially presented, in Tokyo, for the first time, it was named Commodore VICKIE.[5]

MAX Machine

Also known as	Ultimax, VC-10
Type	Console / home computer
Released	1982
Introductory price	US$200 (equivalent to $670 in 2025)
Discontinued	1982
Operating system	none - optional MAX BASIC (Cartridge)
CPU	6510 @ 1.02 MHz
Memory	2 KB, 0.5 KB color RAM
Graphics	VIC-II 6566 (320 x 200, 16 colors, sprites, raster interrupt)
Sound	SID 6581 (3x Osc, 4x Wave, Filter, ADSR, Ring)
Predecessor	VIC-20
Successor	Commodore 64

The unit has a membrane keyboard and 2 KB of RAM internally and 0.5 KB of color RAM (1024 × 4 bits). Display is output to a television set. It uses the same chipset and 6510 CPU as the Commodore 64, the same SID sound chip, and a MOS Technology 6566 graphics chip, a version of the VIC-II that powers the C64 graphics for the MAX' static RAM. A tape drive could be connected for storage, but each cartridge had to implement its own cassette driver and protocol routines, so the tape could only be used by 2 of 24 released programs. The MAX also lacks the serial and user ports necessary to connect a disk drive, printer, or modem.[6] The lack of any built-in operating system, not even a simple bootstrap OS, combined with the fact that all the software released for the platform are video games (besides a scaled down cartridge-based BASIC with no disk, modem, or printer support) positions the Max as a video game console rather than a home computer, despite sharing much of the Commodore 64's chipset. The MAX's 2KB of RAM also indicates it was intended as a games machine and not a personal computer. Even the Commodore PET, released five years earlier in 1977, had a minimum of 4KB RAM, and rapidly 8KB became the minimum. Even the VIC-20, heavily criticized for its minimal RAM, shipped with 5KB of RAM.

Software is loaded from plug-in cartridges - turning on the MAX with no cartridge inserted yielded only a blank screen. Its ROM cartridge architecture was compatible with that of the C64, so that MAX cartridges will work in the C64.[7] The MAX compatibility mode in C64 was later frequently used for "freezer" cartridges (such as the Action Replay), as a convenient way to take control of the currently running program.[8][6]

It was intended to sell for around US$200. Although the MAX had better graphics and sound capability, Commodore's own VIC-20, which sold for around the same amount, was much more expandable, had a much larger software library, and had a better keyboard—all of which made it more attractive to consumers. The MAX never sold well and was quickly discontinued.

MAX Machine, accessories, and retail packaging

MAX Machine software

MAX Machine software list was limited, with a few game ports of popular arcade games.[9][10]

Commodore MAX BASIC manual and cartridge for Commodore MAX Machine

Title	Year	Developer
Omega Race	1982	Commodore Japan
Wizard of Wor	1982	Commodore Japan
Kick Man	1982	Midway Games
Avenger	1983	Commodore Japan
Jupiter Lander	1982	HAL Laboratory
Super Alien (Heiankyo Alien)	1982	Commodore Japan
Radar Rat Race	1982	Commodore Japan
Road Race (Night Driver)	1982	HAL Laboratory
Mole Attack	1982	HAL Laboratory
Clowns	1982	Commodore Japan
Money Wars	1982	HAL Laboratory
Poker		
Gorf	1983	Commodore Japan
Billiards	1983	HAL Laboratory
Pinball Spectacular (Bomb Bee)	1983	HAL Laboratory
Bowling (3511)	1983	HAL Laboratory
Slalom (3512)[11]	1983	HAL Laboratory
Le Mans	1982	HAL Laboratory
Sea Wolf	1982	Commodore Japan
Mini Basic I (limited instructions, no tape support)		
Max Basic (compliant with CBM BASIC V2.0 and can use tapes)		
Music Composer	1982	Andy Finkel
Music Machine	1982	Commodore Japan
Speed Math and Bingo Math	1982	
Visible Solar System	1982	Commodore Japan

See also

- Commodore 64 Games System

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Vectrex

The **Vectrex** is a vector display-based home video game console, the only one ever designed and released for the home market, that was developed by Smith Engineering and manufactured and sold by General Consumer Electronics. It was first released for the North American market in October 1982 and then Europe and Japan in 1983. Originally produced by General Consumer Electronics, it was later licensed to Milton Bradley after they acquired the company. Bandai released the system in Japan under the name *Kōsokusen* (光速船), meaning **Lightspeed Ship**.

The Vectrex, in contrast to other video game systems at the time, did not need to be hooked up to a television set; it had an integrated (vertically oriented) monochrome CRT monitor. A detachable wired control pad could be folded into the lower base of the console. Games came with translucent color overlays to place over the screen. Optional peripherals include a pair of 3D goggles known as the "3D Imager" and a light pen for drawing directly on the screen. The *Asteroids*-inspired *Mine Storm* was built into the system.

The console was conceived by John Ross, of Smith Engineering, in late 1980 as a handheld called the "Mini Arcade". As development progressed, it morphed into a tabletop system that was manufactured by General Consumer Electronics. Strong initial sales caused General Consumer Electronics to be acquired by Milton Bradley. However, sales of the Vectrex soon stalled amid the video game crash of 1983, and the system was discontinued in early 1984.

Despite its commercial failure, the Vectrex was praised for its software library, unique graphical capabilities, and built-in monitor. Several publications lauded it as one of the best consoles available at the time. The Vectrex was the first console to have a 3D-based peripheral.[1] A color

Vectrex

A Vectrex and its controller

Developer	Smith Engineering
Manufacturer	General Consumer Electronics (1982–83) Milton Bradley Company (1983–84)
Type	Home video game console
Generation	Second generation
Released	NA: October 1982 EU: 1983 JP: 1983
Introductory price	US$199 (equivalent to $660 in 2025)
Discontinued	February 1984
Media	ROM cartridge
CPU	Motorola MC68A09 @ 1.5 MHz
Memory	1 KB
Display	9-inch cathode-ray tube (CRT)

handheld version of the Vectrex was conceived in the late 1980s, but was shelved because of its manufacturing cost and the success of the Nintendo Game Boy.

Graphics	Vector-based
Sound	AY-3-8912
Controller input	2 controller ports
Weight	6.8kg (15lbs)

History

The Vectrex was conceived by John Ross of Smith Engineering.[2] He, Mike Purvis, Tom Sloper, and Steve Marking had gone to Electro-Mavin, a surplus warehouse in Los Angeles. They found a 1-inch cathode-ray tube (CRT) and wondered if a small electronic game could be made of it. A demonstration of a vector-drawing cathode-ray tube display was made by connecting the deflection yoke in a standard television to the channels of a stereo amplifier fed with music program material. An auxiliary yoke was used to keep the raster television's horizontal fly-back high-voltage system running. The demo led to a system originally conceived as a handheld called the Mini Arcade but, as Smith Engineering shopped the idea around to developers, it evolved into a tabletop with nine-inch screen.[2]

The system was licensed to General Consumer Electronics in 1981. After a brief hardware and software development period, the Vectrex was unveiled on 7 June 1982 at the Summer Consumer Electronics Show in Chicago.[2] It was publicly released in seven select introductory markets in October at a retail price of US$199 before being distributed nationally in the first quarter of 1983.[3][4] The launch sales were strong enough that Milton Bradley bought out General Consumer Electronics in early 1983.[2]

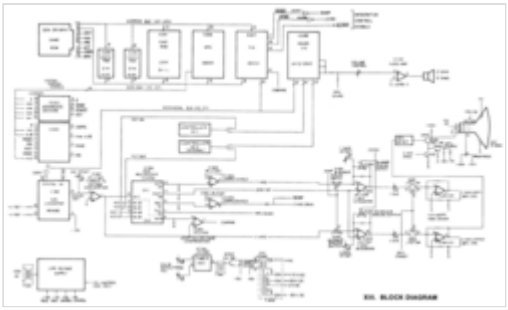
European release Vectrex with *Star Ship* game and overlay

Milton Bradley's greater resources allowed the Vectrex to be released in parts of Europe by mid-1983 and, through a co-branding agreement with Bandai, in Japan as well.[2] However, the North American video game crash of 1983 turned Milton Bradley's support of the Vectrex into a costly mistake, even despite reducing its price by 25% and then later 50% in desperation to sell units. In February 1984, after losing $31.6 million on the Vectrex, Milton Bradley announced the discontinuation of the console and cancelled development of new games. The company's entire inventory of consoles and accessories was sold off to mass-market discount houses, where they were liquidated at a fraction of the console's introductory price. By May 1984, Milton Bradley merged with Hasbro and after-market support ended.[2][5]

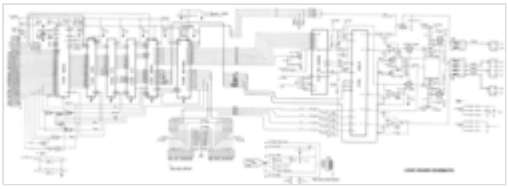
Prior to the Vectrex's discontinuation, a successor console with a color screen had been planned.[6] After the rights reverted to Smith Engineering, the company made plans to revive the Vectrex as a handheld, but the imminent arrival of Nintendo's Game Boy put an end to those plans.[2] In the mid-1990s, Jay Smith, then head of Smith Engineering, allowed new hardware and software development on a fee- and royalty-free basis. Smith has also allowed duplication of the original Vectrex software on a not-for-profit basis to allow Vectrex owners to obtain the original titles at low cost or for free.[7]

Design and technical specifications

The Vectrex's CPU is a Motorola 68A09 clocked at 1.5 MHz, with 1 KB of RAM (two 4-bit 2114 chips) and 8 KB ROM (one 8-bit 2363 chip). It also uses a MOS Technology 6522 versatile interface adapter (VIA). Games are stored on ROM cartridges that are 32 KB in size. Controller inputs and audio are provided by a General Instrument AY-3-8912 sound chip.[8] Sound is played through a 3-inch electrodynamic paper cone speaker.



Block Diagram



Logic Board Schematic

The computer and vector generator were designed by Gerry Karr. The computer runs the game's computer code, watches the user's inputs, runs the sound generator, and controls the vector generator to make the screen drawings. The vector generator is an all-analog design using two integrators: X and Y. The computer sets the integration rates using a digital-to-analog converter. The computer controls the integration time by momentarily closing electronic analog switches within the operational-amplifier based integrator circuits. Voltage ramps are produced that the monitor uses to steer the electron beam over the face of the phosphor screen of the cathode-ray tube. Another signal is generated that controls the brightness of the line.

The cathode-ray tube is a Samsung model 240RB40 monochrome unit measuring 9 × 11 inches, displaying a picture of 240 mm diagonal; it is an off-the-shelf picture tube manufactured for small black/white television sets. The brightness of the CRT is controlled using a circular knob on the back of the display. A vector CRT display such as the one in the Vectrex does not require a special tube, and differs from standard raster-based television sets only in the control circuits. Rather than use sawtooth waves to direct the internal electron beam in a raster pattern, computer-controlled integrators feed linear amplifiers to drive the deflection yoke. This yoke has similar, if not identical inductances, unlike a TV deflection yoke. The yoke uses a standard TV core. The high-voltage transformer also uses a standard core and bobbin. There is special circuitry to turn off the electron beam if the vector generator stops or fails. This prevents burning of the screen's phosphors. This design is a great deal smaller than the electronics found in the free-standing, full-sized *Asteroids* arcade machine.

During development, the possibility of using the MOS Technology 6502 processor was considered, but later its performance was considered insufficient.[9]

Early units have a very audible "buzzing" from the built-in speaker that reacts to the graphics generated on screen. This is due to improper production grounding of signal lines of the low-level audio circuitry, and was eventually resolved in later production models. A "ground loop" had been created by a grounding strap added in production to meet U.S. Federal Communications Commission signal radiation requirements. This idiosyncrasy has become a familiar characteristic of the machine.

Peripherals

3-D Imager


Vectrex 3-D Imager

The 3-D Imager, invented by John Ross, turns the 2-D black-and-white images drawn by the Vectrex into a color 3-D experience.[10][11] The imager works by spinning a disk in front of the viewer's eyes. The disk is black for 180 degrees and in some cases has 60 degree wedges of transparent red, green, and blue filters. The user looks through this to the Vectrex screen. The Vectrex synchronizes the rotation of the disk to the software frame rate as it draws 6 screens: with the right eye covered: the left eye red image, then green, and then the blue image is drawn, and then, while the left eye is covered by the black 180-degree sector: the right eye red, green, and then the blue image is drawn. Only one eye will see the Vectrex screen and its 3 associated images (or colors) at any one time while the other will be blocked by the 180-degree mask. The prototype was made in the plastic casework of a Viewmaster. The disc spins freely and is driven by a motor. The Vectrex software generates its own frame-rate and compares it to an index signal from the glasses once per revolution. Score is kept of how many wheel rotations are early compared to the software frame rate, and how many are late. The software tries to keep these two trends equal by adjusting the power being delivered to the motor that spins the filter and mask wheel. Pulse Width Modulation (PWM) is used to control the motor speed: the ratio of the "on" time versus the "off" time of a rapid stream of power pulses to the motor. In this way the software synchronizes the rotation of the wheel to the software's frame rate, or drawing time, for the combined and repeating group of up to 6 evolving images.

A single object that does not lie on the plane of the monitor (*i.e.*, in front of or into the monitor) is drawn at least twice to provide information for each eye. The distance between the duplicate images and the angles from which they are drawn will determine where the object will appear to "be" in 3-D space. The 3-D illusion is also enhanced by adjusting the brightness of the object (dimming objects in the background). Spinning the disk at a high enough speed will fool the viewer's eyes/brain into thinking that the multiple images it is seeing are two different views of the same object due to the persistence of vision. This creates the impression of 3-D and color.

The same 3-D effect is in fact possible with raster or film-projection images, and the shutter glasses used in some 3-D theaters and virtual reality theme park rides work on the same principle. The same technology is used by the 1995 Nintendo's 3D Headset console Virtual Boy[12]

Light pen

The light pen allows the user to "draw", to create images and to indicate, on the screen. It has a photo-detector that can see the bright spot of the vector-drawing display monitor when it goes by under the light pen's position where it is being held to the screen. The photo-detector feeds internal pulse-catching circuits that tell the Vectrex and its software of the event. The prototype was made in the plastic casework of a Marks-A-Lot felt-tipped marker pen. The Vectrex draws a

spider-web-like search-pattern to track the pen's location. The software changes the pattern size as the pen changes motions and velocity in an attempt keep a continuous lock on the pen's position. The Vectrex light pen was invented by John Ross.

Screen overlays

Games came supplied with color overlay sheets to compensate for the limitations of the screen.

In order to enhance the display visuals of the Vectrex, every commercially released game included its own unique translucent plastic screen overlay that accompanied the cartridge (a concept first seen with the Magnavox Odyssey, as well as some early arcade machines).[13] Instead of physically touching the CRT screen, four tabs on the Vectrex console securely held them in place in front of it, with a small gap between the actual screen and the overlay. Made up of one to three colors for the play field area, these overlays simulate simple color graphics (on an otherwise black and white screen), helped reduced glare, flicker and gave the appearance of a flat screen. They also allowed changes in brightness intensity of vector graphics to be more visually distinctive. In some cases game designers created pseudo color cycling effects, for a sense of movement, by using alternating colored patterns. In addition to players' score areas, some overlays also contained additional artwork and patterns, to add to the game's play field. Across the bottom of each overlay are game-specific joystick and button functions as a guide for the player. Each overlay also displayed the title and logo of each game, along with a colored border or design, to add cosmetic flair to the Vectrex (much like an arcade machine with its marquee or side art). Overlays were not required, but added to the experience in terms of the visual look of game graphics and the overall display appearance of the console.

Software

Some of the Vectrex's library consisted of ports of arcade hits, most of them brought to the console through a licensing deal with Cinematronics.[2]

The liquor company Old Mr. Boston gave out a limited number of customized *Clean Sweep* cartridges, with a Mr. Boston sticker on the box. The overlay was the regular *Clean Sweep* overlay with the Mr. Boston name, logo, and copyright info running up either side. The game itself had custom text, and the player controlled a top hat rather than a vacuum.[14] *Clean Sweep* was written by Richard Moszkowski.[15]

Reception

Byte in 1982 called Vectrex "one of the greatest game machines we have seen this year ... [Vectrex] is a good bet to score big with the consumer". The magazine praised the screen, stating that "it almost has to be seen to be believed; imagine playing games at home (or in the office) using vector graphics with three-dimensional rotation and zoom", and noted that "It is unusual and refreshing

to see a product appearing on the market with its software ready to run".[16] David H. Ahl stated in *Creative Computing Video & Arcade Games* in 1983 that "Vector graphics really do make a difference, and the strong line-up of games helps immensely".[17]

Legacy

Since late 1995, there has been a Usenet community of hobbyists writing games for ParaJVE, a Vectrex emulator.[6] Its emulation is also a compound of MESS[18][19][20][21][22] (included in MAME,[23] so RetroArch too via libretro[24]), DVE,[25] lr-vex,[26] Vecx, with a Wii version called VectrexWii.[27] Schematics for a "Vectrex Multicart" cartridge is available, allowing several games to be packed on one cartridge.[28] There are also several people[29] manufacturing and selling newly made games, some complete as cartridges with packing and overlays in the style of the original commercially released games, others with varying degrees of packaging. New hardware has also been developed for the Vectrex in recent years, including a light pen that addressed the limitation of the original version by including buttons that replace the second controller required on the original version, and a daughterboard that addresses the well-known buzz in the system's audio (bypassing the original audio circuitry on the power board in favor of a module installed elsewhere within the cabinet).[30]

Rebirth

On May 21, 2025, @VectrexOn (https://x.com/VectrexOn), the official handle of Vectrex on X (formerly Twitter), published a post presenting a new logo created by David Oghia. On July 8, Oghia announced a new project titled *Vectrex Mini* and began discussing it with the community on the "Vectrex fans unite!" Facebook group.[31] The first prototypes of the Vectrex Mini were subsequently presented at several international events, first at Gamescom in Cologne, Germany, then Play Expo in Blackpool (UK), the Portland Retro Gaming Expo (PRGE - US), Paris Games Week (France), and Crash Live Expo in Kenilworth (UK).

The project officially launched on Kickstarter on November 3, 2025, and concluded on December 2, 2025, raising $1,301,353 from 5,583 backers. The Vectrex Mini is a modern half-scale reinterpretation of the original 1982 console, featuring a 5-inch AMOLED screen instead of the original CRT display.

As of 2026, the Vectrex Mini remains in active development, with delivery scheduled for September 2026.

See also

- Microvision
- C1 Famicom TV
- Sharp Nintendo Television
- List of commercial failures in video gaming
- List of Vectrex games

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External links

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- Vectrex.co.uk (http://www.vectrex.co.uk) Vectrex fan site with news, highscores, reviews, manuals, patents, datasheets, and other docs
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- Spike's Big Vectrex Page (https://vectrex.atarihq.com) Vectrex portal, recent games/projects/news, information archive