

= WonderSwan =

The WonderSwan ( ??????? , Wand?Suwan ) is a handheld game console released in Japan by Bandai . It was developed by Gunpei Yokoi 's company Koto Laboratory and Bandai . Released in 1999 in the fifth generation of video game consoles , the WonderSwan and its two later models , the WonderSwan Color and SwanCrystal were officially supported until being discontinued by Bandai in 2003 . During its lifespan , no variation of the WonderSwan was released outside Japan .

Powered by a 16 @-@ bit central processing unit , the WonderSwan took advantage of a low price point and long battery life in comparison to its competition , Nintendo 's Game Boy Color and SNK 's Neo Geo Pocket Color . Later improvements took advantage of quality upgrades to the handheld 's screen and added color . The WonderSwan is playable both vertically and horizontally , and features a unique library of games , including numerous first @-@ party titles based on licensed anime properties , as well as significant third @-@ party support from Square , Namco , and Taito . Overall , the WonderSwan in all its variations combined to sell an estimated 3 @.@ 5 million units and managed to obtain as much as 8 % of the Japanese handheld video game console market before being marginalized by Nintendo 's Game Boy Advance . Retrospective feedback praises the potential of the WonderSwan despite its low sales and its brief time holding its own against Nintendo in the marketplace .

= = History = =

Founded in 1950 by Naoharu Yamashina , Bandai was originally a manufacturer of toy cars and plastic models , but became a major player in the toy industry through the licensing of popular anime characters beginning with Tetsuwan Atomu in 1963 . In the 1970s , Bandai manufactured both LCD games based on television programs and dedicated consoles . In 1982 , the company released the Intellivision in Japan , and in 1985 it became one of the first third @-@ party licensees on the Family Computer . The company 's greatest success in electronic games , however , was the Tamagotchi virtual pet first released in 1996 . Despite plans for Bandai to merge with Sega to form Sega Bandai Ltd. in 1997 , the merger was called off suddenly . Bandai 's board of directors decided to oppose the merger less than a week after approving it , and Sega in turn decided to accept Bandai 's actions at an emergency board meeting later that day . Bandai president Makoto Yamashina took responsibility for failing to gain the support of his company for the merger . As a result , Bandai entered the market without outside support .

Engineer Gunpei Yokoi was known for creating the Game Boy handheld system at Nintendo . After the failure of the Virtual Boy , however , he left the company in 1996 in order to create his own engineering firm , Koto Laboratory . It was then that Bandai approached Yokoi to create the WonderSwan to compete with the Game Boy . Yokoi was involved in development of the new handheld , but died in 1997 in a car accident before it was released .

The WonderSwan was officially unveiled in Tokyo on October 8 , 1998 . Bandai chose the name of the system to highlight its aesthetics and technical capabilities because the swan is recognized as an elegant bird with powerful legs to help it swim . The company promised a 30 @-@ hour battery life , a low retail price , and a launch lineup of roughly fifty games .

The WonderSwan launched on March 4 , 1999 and was available in nine casing colors : Pearl White , Skeleton Green , Silver Metallic , Skeleton Red , Blue Metallic , Skeleton Blue , Skeleton Black , Camou?age , and Gold . Three limited edition two @-@ tone models were also released in Frozen Mint , Sherbet Melon and Soda Blue . These colors were chosen through an online poll at Bandai ? s website , with the metallic models and Pearl White discontinued on July 22 to make room for the special tone models . Despite Nintendo 's release of the Game Boy Color five months before , Bandai remained confident that the WonderSwan and its monochromatic screen would perform well because the original black @-@ and @-@ white Game Boy had previously been more successful than its color @-@ screen competitors , the Sega Game Gear and Atari Lynx , on the basis of its battery life and the quality of its game library . With a retail price JP ¥ 4 @,@ 800 , the WonderSwan was also cheaper than its competition . In 2000 , Bandai signed an agreement with

Mattel to bring the handheld to North America , but ultimately decided against a Western release . The exact reason for this is unknown , but the crowded handheld video game console market has been suggested as a factor .

Later that year , Bandai announced the WonderSwan Color ( ?????????? , Wand?Suwan Kar? ) which would incorporate a color screen while retaining backward compatibility with the original WonderSwan . It was released on December 9 , 2000 in Japan and was available in Pearl Blue , Pearl Pink , Crystal Black , Crystal Blue , and Crystal Orange . The launch was a moderate success , with the system selling 270 @, @ 632 units in under a month after its release . Before the WonderSwan Color could be released , however , Nintendo announced the Game Boy Advance , which featured superior hardware . The WonderSwan Color still retailed at a lower price point at ¥ 6 @, @ 800 compared to the Advance at ¥ 9 @, @ 800 , but despite peaking at 8 % of the handheld market share in Japan , the WonderSwan 's sales never recovered after the Game Boy Advance reached store shelves in March 2001 .

A redesign of the WonderSwan Color , titled SwanCrystal ( ?????????? , SuwanKurisutaru ) , was released in Japan on July 12 , 2002 for ¥ 7 @, @ 800 , ¥ 1 @, @ 000 less than the Game Boy Advance . Once again , Bandai held a poll on its website to determine casing colors and released the system in Blue Violet , Wine Red , Crystal Blue , and Crystal Black . Despite its low price and an improved LCD screen , the SwanCrystal was unable to compete , so Bandai announced the discontinuation of the WonderSwan line in 2003 due to low demand and backed out of producing video game hardware altogether . In all , the handheld sold 3 @. @ 5 million units , of which 1 @. @ 55 million were of the original WonderSwan and at least 1 @. @ 1 million were of the WonderSwan Color .

= = Technical specifications = =

The main CPU of the WonderSwan is a 16 @- @ bit NEC V20 . The original model 's screen is capable of displaying up to eight shades of gray , in contrast to the four displayed by the WonderSwan 's main competitor , the Game Boy . Similar to the Atari Lynx , the handheld has an extra set of buttons allowing the console to be played at different angles ; for the WonderSwan , these buttons were used to allow gamers to play games in both portrait and landscape orientations . The WonderSwan series are all powered by a single AA battery , with the original monochrome version having a battery life of 40 hours . Also included in the handheld was built @- @ in memory allowing players to save games without using passwords . Its LCD screen is 2 @. @ 49 inches ( 6 @. @ 3 cm ) and displays at a resolution of 224 x 144 . Its sound capabilities consist of four PCM channels , each of which can play 32 @- @ sample , 4 @- @ bit sounds at selectable volume and pitch levels .

Several features and accessories were developed for the WonderSwan . The WonderWitch was an official software development kit aimed at amateur programmers that was released by Qute Corporation . It sold at a cost of ¥ 11 @, @ 800 and allows for games to be developed in the C programming language . An adapter was created to connect headphones to the handheld , as the WonderSwan lacks a headphone port . A remote @- @ controlled robot known as the WonderBorg can be operated through the unit . In addition , the handheld can be connected to a Sony PocketStation through a device known as the WonderWave , although this functionality was rarely exploited . The WonderWave can also be used as a wireless way to play two player game between WonderSwans . The WonderSwan and its later models were also capable of connecting to the Internet via a mobile phone network .

The physical measurements of the WonderSwan Color are 12 @. @ 8 by 7 @. @ 43 by 24 @. @ 3 centimetres ( 5 @. @ 04 in × 2 @. @ 93 in × 9 @. @ 57 in ) , slightly larger than the original WonderSwan , and it weighs 3 @. @ 38 ounces ( 96 g ) . Its CPU is a 3 @. @ 072 MHz NEC V20 , and it includes 512 Kbit of RAM , which is shared between the video RAM and the work RAM . The screen on the WonderSwan Color can display up to 241 colors out of a palette of 4096 , and up to 28 sprites per line . It offers backward compatibility with all previous WonderSwan titles . Its LCD screen is also larger than that of the original WonderSwan , measuring 2 @. @ 9 inches ( 7 @. @ 4

cm ) . The SwanCrystal improves upon the design of the WonderSwan Color through the use of a TFT LCD monitor , which has a superior response time to the FSTN monitor used in the former system . This helped to reduce motion blur in the handheld 's graphics . The unit 's case was also redesigned to be more durable . Its approximate battery life is 15 hours .

= = Game library = =

Koto Laboratories claims that the WonderSwan sold 10 million game cartridges in all . In developing games for the WonderSwan , Bandai leveraged the assistance of several developers . Banpresto ? part @-@ owned by Bandai at the time ? added support by way of anime licenses and licensed titles , while Namco and Capcom also developed titles for the handheld . Squaresoft contributed remakes of Final Fantasy , Final Fantasy II , and Final Fantasy IV which later also came to the Game Boy Advance . Taito contributed well @-@ received ports such as Space Invaders and Densha de Go ! . Bandai augmented these releases with titles of its own , including exclusive titles in the Digimon and Gundam franchises . To compete with Tetris , Gunpei Yokoi developed a puzzle game for the system ultimately named Gunpey in his honor . A sequel known as Gunpey EX was a launch title for the WonderSwan Color . Certain games produced through the WonderWitch kit , such as Judgment Silversword , have also been noted as excellent titles .

Support for the WonderSwan has been considered underwhelming . Although some well known third @-@ party developers supported the console , most publishers continued to exclusively support Nintendo 's handhelds . The departure of Squaresoft as a developer and its return to Nintendo has been cited as a factor in the WonderSwan 's diminishing sales in later years . After the discontinuation of the WonderSwan in 2003 , several developers ported WonderSwan games to the Game Boy Advance .

= = Emulation = =

Two popular WonderSwan emulators are Cygne and the later Oshwan . Multiple system emulator software such as Higan and Mednafen also include WonderSwan emulation .

= = Reception = =

Selling 3 @.@ 5 million units , the WonderSwan only picked up 8 % of the marketshare in Japan and was ultimately outperformed by Nintendo 's Game Boy Advance . Due to its brightly colored screen and deep game library , the Game Boy Advance ensured Nintendo would have a near @-@ monopoly on the handheld console market in Japan until the release of the PlayStation Portable by Sony in 2004 .

Retrospective feedback to the handheld praises its accomplishments , but defines it as a " niche " handheld that appeals to only certain gamers . Jeremy Parish considers the WonderSwan the ultimate expression of Gunpei Yokoi 's design philosophy and notes its modest impact on the market , but blames Bandai for its lack of success , stating , " While WonderSwan ultimately will be remembered as a highly localized blip in the history of handheld games , as a platform it genuinely held its own ... the system 's obscurity resulted more from poor timing and Bandai 's strangely meek strategy , not from any inherent flaws in the design of the machine itself . " Parish also goes on to hypothesize on the lack of a WonderSwan release in North America , stating , " given how hard it was to find Neo Geo Pocket systems and games at U.S. retail , it 's hard to imagine they were clamoring for yet another niche portable from Japan . " Retro Gamer 's Kim Wild criticizes some aspects of the handheld , including its lack of a headphone and AC port , as well as its poor control scheme for left @-@ handed individuals and inability to play multiplayer link games with the headphone adapter connected . Wild offers some praise for the handheld , however , stating " what [ Bandai ] managed with the WonderSwan was impressive given the competition . The low price even today makes it more than worthy of consideration . "