

JB Kun's WonderWitch FAQ 1.0

Disclaimer

The purpose of this document is to make WonderWitch information accessible to non japanese readers. It is based on official FAQ available at <http://WonderWitch.qute.co.jp/WonderWitchFAQ.html>. It is not a literal translation but the result of my own WonderWitch experience and contributions to various forums. It is intended to be comprehensive and correct but I couldn't be considered responsible for any damage caused directly or indirectly by wrong information. Fell free to send me suggestions and corrections by e-mail at jbkun@free.fr. Please be lenient as english is not my mother tongue. The latest version of this document and other wonderwitch stuff are available at <http://jbkun.free.fr/wonderwitch/>. This FAQ has been translated from English to French by Requiem.

What is WonderWitch ?

WonderWitch is a personal development kit for Bandai WonderSwan. It is an official product developed by Qute Corp. It is meant to give hobby programmers an opportunity to create their own games and release them on Internet. Basically, it consists in a dedicated cartridge which content can be loaded from a PC through a cable.

WonderWitch Player is a version that only allows to play games. The full development kit provides a C compiler (and even two of them). Other programming languages could be used but C is the only one fully supported. It allows to take advantage of assembler includes in terms of performance and compactness of code. WonderWitch is not specially designed for beginners even if WonderWitch library gives an easy access to WonderSwan hardware.

What is WonderSwan ?

You should already know it if you read this. WonderSwan is a handheld console produced by Bandai to compete with Nintendo's Gameboy.

Three different iterations came out in Japan from 1999 to 2002 :

- WonderSwan, original model featuring a B&W screen,
- WonderSwan Color, having color capabilities and more RAM,
- SwanCrystal, introducing a TFT LCD screen.



WonderSwan



WonderSwan Color



SwanCrystal

Hardware specifications are slightly the same from one model to another :

- Nec VM30MZ 16 bits CPU running at 3.072 Mhz (Intel 80186 compatible),
- total RAM capacity (including VRAM) of 16 KB, 64KB on WonderSwan Color & SwanCrystal,
- 8 grey scales out of 16 displayable, 241 colors out of 4096 on WonderSwan Color & SwanCrystal,
- screen resolution of 224 x 144 pixels, 2 scroll planes, a maximum of 128 sprites of 8x8 pixels,
- 4 audio channels with capability of playing samples.

Is WonderWitch able to play commercial games or PD ROMS ?

No. Due to its technical specifications and memory limitations, WonderWitch does not allow to play commercial games nor public domain ROMS. However, homebrew games may be converted from C/ASM sources to be compilable using WonderWitch tools.

Is there any emulator available ?

WonderSwan emulators (such as Cygne, WSCamp and Oswan) cannot run WonderWitch programs. In fact, WonderWitch cartridge BIOS must be emulated. There is no emulator publicly released by Bandai. The only WonderWitch emulator available is MiracleMage. It works fine but, unfortunately, only supports B&W mode.

What is the difference between WonderWitch and WonderWitch Player ?

WonderWitch Player is a run-time version of WonderWitch allowing to run WonderWitch programs but not to compile them. The main difference with the full package is that software CD-ROM does not feature C compiler nor development library.

What is included in package ?

WonderWitch kit is composed of :

- a cartridge similar to a standard game pack,
- a PC to WonderSwan communication cable,
- a CD-ROM providing transfer and development software,
- a manual which details features and development library specifications.



WonderWitch



Extra cartridge

Cartridge

The cartridge gathers a flashable ROM BIOS of 512KB, 384 KB of SRAM (program area for games and gamedata) and 64Kb of DRAM (working area for savedata). The BIOS gives access to hardware features through built-in routines fully supported by WonderWitch library. A specific operating system, called FreyaOS, handles file management, interaction with user and communication facilities to download and upload data. WonderWitch programs will only play on this dedicated cartridge. It can be used (and was even sold) independently.

PC to WonderSwan cable

The cable links PC's DB9 connector to Wonderswan communication port. An extension cable (DB9 male to female port) is also provided. The communication between PC and WonderSwan is made through a standard RS-232C serial interface (at 9600 or 38400 Kb/s). FreyaOS uses standard XMODEM protocol to transfer files from PC to WonderSwan. It also provides a remote access to WonderSwan using Telnet.

Software CD-ROM

The “Magical CD-ROM” provides Windows software. Most of programs are command line tools that can be run under DOS (some of them come in both 16bits and 32bits versions). The CD-ROM contains :

- TransMagic transfer program,
- TeraTerm Pro 2.3, terminal emulator,
- WonderWitch library (binaries),
- includes and makefiles for C,
- LSI C-86 compiler (a popular japanese compiler),
- Turbo C 2.01 compiler and IDE (back from the eighties),
- WonderWitch binary converter,
- BMP file converter (with sources),
- WAV file converter (with sources),
- documentation (C tutorial, ASM86 FAQ...),
- sample source codes...

Manual

The “Magical Book” for WonderWitch eventually comes with an additional update describing color extensions.

What are system requirements ?

Officially, WonderWitch requires a PC compatible with following characteristics :

- OS: Windows 98, NT 4.0 or 2000,
- CPU: Pentium 133 Mhz or above,
- RAM: 32 MB or above,
- CD-ROM drive,
- RS232C serial port (DSUB9 male connector),
- At least 20MB of free disk space.

Can WonderWitch run under DOS, Linux or MacOS ?

Pratically, most of software can be run under DOS. It's the case for line command tools and C compilers. TransMagic is a Windows application but file transfer can be operated through a standard terminal emulator using XMODEM transfer protocol. Emulators like DOSEMU may allow to run DOS based utilities while a native terminal can be used to transfer files.

Is there any software updates available ?

WonderWitch is discontinued. However, if you buy a used WonderWitch it may come with original software that can be updated. Last update available for download is file WWUpdate20020713.zip. It can be downloaded after a free registration (requiring a valid product number) on WonderWitch support site.

What can I expect from WonderWitch ?

Some WonderWitch games do reach professional quality. Two of them have been published by Qute after winning WWGP. WonderWitch Grand Prix was an annual programming contest organised by Bandai from 2001 to 2003. First prize was nothing less but the opportunity to have his game released!

Judgement Silversword won WWGP 2001. It's a frenetic shoot them up playable in vertical position..



Dicing Knight won WWGP 2002. It's a - Zelda like - action/adventure game.



These two games were released as standard cartridges. They are slightly upgraded versions of the two WWGP winners. Judgement Silversword Rebirth Edition was released on February 5th 2004 (priced 4800 Yens) while Dicing Knight was released on May 31st 2004 (priced 4200 Yens).



Judgement Silverword Rebirth Edition



Dicing Knight

These are the two last games released for WonderSwan. Since then, M-KAI has released a sequel to Judgement Silversword available for downloading since October 27th 2004 : Cardinal Sins.



Where can I find a WonderWitch ?

WonderWitch is now discontinued. A last batch of WonderWitch and accessories has been sold during september 2004 at <http://webshop.qute.co.jp/>. You may find around the web used WonderWitch for sale on eBay, Yahoo Auctions (Japan) or even on some reseller website. WonderWitch becomes hard to find.

How much does WonderWitch cost ?

WonderWitch was originally priced 17640 Yens (8190 Yens for WonderWitch Player). You may have to pay the same price for a used WonderWitch.

Does a free alternative to WonderWitch exist ?

WSSIM is a free implementation of WonderWitch library for PC. It allows to test programs without the need of an emulator but is limited to implemented functions. Borland Turbo C 2.01 freely available at <http://bdn.borland.com/museum/> can be used to generate DOS binaries.

WWLIB (for Without Wonderwitch Library) was designed by Orion_ to produce standard ROM files from WonderWitch program sources. It is still incomplete but provides basic graphic routines.

Is WonderMagic able to play WonderWitch programs ?

No. WonderMagic is a backup unit that can store and play back ROMS (commercial or public domain). But it won't allow to play WonderWitch games as it lacks WonderWitch cartridge BIOS. This product is not licensed and really hard to find. Let me know how to put my hands on it (for programming purposes).



Cartridge



Backup unit (front)



Backup unit (back)

Where can I learn more about WonderSwan and WonderWitch ?

Japanese

- <http://wonderwitch.qute.co.jp/> Qute Corp's Wonderwitch official website.
- <http://www.swan.channel.or.jp/wonderwitch/> Bandai's Wonderwitch official page.
- <http://www.wonderwitch.com> unofficial WonderWitch page, complete site.
- <http://www.geocities.co.jp/SiliconValley-Bay/8572/> M-KAI's shell, Judgement Silversword author.
- <http://www.murasame.com/> home of Dicing Knight's author.

English

- <http://www.bandai-asia.com/wonderswan/> Bandai's remaining WonderSwan website.
- <http://cygne.emuunlim.com/> Cygne homepage provides a essential technical documentation.
- <http://www.pocketdomain.net/development.php> game reviews and developer resources.

French

- <http://jbkun.free.fr/wonderwitch/> my own website hosting WonderWitch resources.
- <http://www.wonderpocket.fr.st/> a nice fan site about WonderSwan and NeoGeo Pocket.
- <http://www.yaronet.com> forums are a good place to discuss console development.