

MasterBoy

Version 1.0 by Brunni, released on August 20, 2007

Introduction

MasterBoy is an emulator for PSP, emulating the following consoles :

- Nintendo Game Boy
- Nintendo Super Game Boy
- Nintendo Game Boy Color
- Sega Master System
- Sega Game Gear

As you see, it's divided in 2 parts : the « Sega » part and the « Nintendo » part. MasterBoy was done to bring some features that other emulators usually don't.

Credits

- Programming : Florian Brönnimann (aka **Brunni**)
- Backgrounds
 - Sega power and Sega glassy : **Japi**
 - Game Boy : **DJP**

If you get any problem, please visit the official MasterBoy web page : http://brunni.dev-fr.org/index.php?page=pspssoft_masterboy.

Thanks

Colorizing your games!

MasterBoy features the ability of colorizing your old GBC games. Please visit the [official MasterBoy web page](#). The documents are downloadable from here.



Usage

Just copy the MasterBoy folder in the PSP/GAME directory of your PSP like every other PSP app.

Then put your ROMs somewhere on your Memory Stick. You should regroup them in one folder, so that it's easier to find and play them. In the MasterBoy folder, by default there are two directories : **Roms SMS** and **Roms GBC**, you can use these folders by default to place your games.

Start MasterBoy. It will display a menu where **Load ROM** is the first selected option. Select it with the cross (X) button.

Load a ROM

When selecting **Load ROM** from the **File** menu, you will be brought to a list of the folders located in your ms0:/PSP/GAME directory. You can go to the parent folder by pressing the triangle button, or select a folder with up/down and cross.

When ROMs (*.gg, *.sms, *.bin, *.gb, *.gbc, *.sgb, *.cgb, *.zip) are available, they're displayed just after the folders. Press cross (X) to select one, the game will be loaded and started automatically.

My places (or how to manage your favorites files and folders)

It's probably not very good to navigate between folders everywhere on your memory stick, so you can simply add the folders you use to **My places**.

To add a file or folder, press **Start** when highlighting a folder or ROM, and select **Add to my places**. That's all. You can also see that there's a lot of other options for ROMs, I believe they are self explanatory ;-)

The files and folders added to **My places** will then be displayed when you select **Load ROM** and it will be easy for you to select the file you want. Should you want to browse the most recently used folder, just select the **Recent:** element at the bottom.

Note: If the most recently used folder is one of the **My places** folders, it won't appear.

Important: If you want to return to the old system, where only the last used folder is displayed, delete everything in your **My places** folder and the next time, **My places** will be disabled.

Accessing the menu

Once the game is started, you can still access the main menu by pressing **L** (this key can be remapped, btw). You can see a bunch of buttons, each representing a sub-menu: **File**, **Save states**, **Video**, **Sound**, **Music player**, **Control** and **Miscellaneous**. You can browse them by pressing left or right, or using the analog stick.

Here as well, move the cursor with up/down, select with cross and return to the previous sub-menu (or cancel) with circle. You can restore the default value for any option by pressing the square button.

Note: as most of the options are self-explanatory, I won't cover all of them here.

Save states

MasterBoy supports several states for each games. 10 of them are MasterBoy slots (backwards compatible with **RIN** in Game Boy mode, btw) and one is the RAM slot.

The RAM slot is only temporary, it's never written to the memory stick, and it will be erased once you turn your PSP off. Saving/loading from it is very fast and won't reduce your memstick lifetime.

Save state previews take time to display, that's voluntary. Instead of storing an image in the save state itself, MasterBoy uses the save data to generate an image in real time, which costs no memory but is a bit longer, so I wait a little less than 1 second before beginning to load.

Note: You can still import MMSPlus and SMSPlus save states, but you have to rename and move them. They are now named as save/**gamename**.svx.gz where **x** is the slot number, and before they were named **gamename**.sav. Also, **gamename**.sram is now named save/**gamename**.sav.gz. Yeah, it's all gzipped to take less space and be faster to write.

Video

There are 3 sub-menus:

Video > Render

Here, you can set some options regarding the render itself.

- **Scaling:** Sets the screen scale.
 - **1x** is the standard size - quite small. If you want better sharpness in this mode, disable smoothing.
 - **1.5x** and **2x** scale the image by a precise factor (which will nearly always crop it out of the borders, btw, but you may want it anyway).
 - **Fit** means scaled so that it fits the screen in height, but without changing the aspect ratio, so you'll see black borders leftwards and rightwards.
 - **Wide** is between "Fit" and "Fullscreen". It's usually the best as it's not crushed but still wide.
 - **Fullscreen** is stretched to take the entire screen.
- **Smoothing:** softens the render when scaled. Less sharp but you won't notice the pixilation effect.
- **Depth** (SMS / GG only): **8 bits** mode is **fast**, but doesn't allow for some effects, like gradients in the sky, especially used on the game gear, like in sonic blast for example (try the special

stage in 8 bits and then in 16 bits mode). However, **16 bits** mode is really **slow**, even if the recent additions make it suitable to be the default option. Only set to **8 bits** if speed is a problem for you.

- **Brightness:** there are three brightness modes:
 - **Normal** is the default mode (nothing changes)
 - **Bright & Fast** is a special mode which is designed to reduce the LCD response time and be played in sun light. It brightens the render and reduces the contrast. LCD response time is then really low, especially with dark tones, but contrast is lower.
 - **Invert** is not very useful. It inverts the colors.
- **Gamma** permits to set the LCD brightness curve, useful when you are playing in sun light or to get some special effects. Gamma doesn't reduce the contrast.
- **Color vibrance** is a special technique which allows you to select whether you want a more or less colored render, with a number between 0 (grayscale) to 255 (super-flashy) with 128 being the default (normal).
- **Left bar** (SMS only): allows you to remove the blank bar that appears to the left of the screen in a lot of games (especially those with an horizontal scrolling). The auto mode will automatically detect whether the game is currently using this bar or not and display consequently, so you should not have to bother about this anymore.
- **Sprite limit** (SMS / GG only): You can disable it if you're seeing sprites flickering too much. This limit is present on real hardware, so you may want to keep it for nostalgia purposes, but it has no real interest in itself.

Video > Synchronization

About frameskipping : Frameskip is designed to prevent slowdowns by reducing framerate when lagging. In MasterBoy, it is different from most existing emulators, you only have two values: frameskip and frameskip max. The actual frameskip value will always be between these two values.

- If you want auto mode, set frameskip to 0 and max frameskip to the maximum value you want.
- If you want fixed mode, set frameskip to any non-zero value (like 2). Set Max frameskip to an higher value (MasterBoy does this automatically)
- If you want no frameskip mode, set both frameskip and max frameskip to 0. The game will slowdown if it can't keep up a constant framerate.

Here are the available options:

- **Frameskip:** set the minimum frameskip. 0 means "all frames are displayed". 1 means "1 frame out of 2 is displayed", 2 means "1 frame out of 3 is displayed" and so on.
- **Max frameskip:** set the maximum frameskip. MasterBoy will use frameskip (varying between **frameskip** and **max frameskip**) to speed up by skipping the rendering in some cases when it detects slowdowns.

- **VSync:** Enables waiting for the end of the vertical retrace. If the display is updated while the vertical retrace is currently not finished, it will appear as teared. **Auto** disables it when it's slowing down, but enables it else (so it should be kept **Auto** by default).
- **Sync mode:** Set to loose to earn some speed. If your game is often slowing down (or frameskipping is rising very high), you will notice it being less responsive: set to **Tight** to correct this problem.

Video > Game Boy

- **Palette:** Select one palette to apply to standard Game Boy (monochrome) games. The proposed palettes are inspired of those available on the **Game Boy Color**. You can edit or add new palettes by editing the **palettes.ini** file.
- **Machine type:** you can force the game boy type. Note that selecting **Game Boy Advance** won't enable you to play GBA games, it's just that some GBC games like Zelda oracles detect the GBA and have special behavior on it.
- **Colorization:** Allows enabling custom colorization scripts if present.

Video > Misc

- **Country** (SMS only): You can select the country (PAL = europe / japan or NTSC = us / japan). This will affect how the game runs, and a restart is required.
- **Turbo skip:** set the number of frames that will be skipped for one rendered frame in turbo mode. The greater it is, the faster the game will run, but the less smooth it will be.
- **Show framerate:**
 - Set to CPU usage to see the CPU used time per frame. If it indicates 50% for example, that means only 50% CPU is used per frame, so you can reduce the CPU frequency to earn some battery time. If it indicates 120% for example, then that's too much and can reduce the speed/smoothness of your game.
 - Set to Framerate to display the actual framerate (frames per second) and speed of your game. It'll look like this: 38 fps (100%).

Sound

You can set some sound properties here.

- **Enabled:** master enable or disable the sound emulation. It runs faster when disabled.
- **Sample rate:** set to 44 kHz for the best sound quality. Set to 22 or 11 kHz for a performance improvement.
- **Output mode:** let Stereo (2 channels)
- **Volume boost:** allows to boost the output volume, which is quite weak by default. Remember that it's a volume boost, not reduction, so setting it to high (especially the +3

level) can make distortion. It is done by software so it can be slightly slower, but it's not really noticeable.

- **Sync mode:** **Direct** outputs music direct to the sound chip as it request it. **Buffered** renders it into a buffer and then sends it to the sound chip whenever needed. The **buffered** mode is slower and can produce a small “click” every 30 seconds or so, but it’s able to reproduce voices (it’s needed to do so because on SMS / GG voices are achieved by refilling a register very often, and if sound is only updated when needed, you won’t see the changes that happened in between; buffered updates every few microseconds though).
- **Turbo mode:** Choose whether you want to play or stop sound when entering in turbo mode. Setting to **Stop** gives better performance but you may get some glitches when the sound is turned on again.

Note: MasterBoy doesn't support YM2413 (FM) chip emulation, found in some Mark 3 and japanese Master System models.

Music player

The music player can play GYM and VGM files (used for genesis and master system). Though VGM files usually require very few CPU power to be emulated correctly, GYM files require a lot more, something like 180 MHz if played alone. With the menu running in parallel, It requires 200 MHz, else it may slow down. Set to default (222 MHz) to be comfortable when listening to music. Or reduce the sample rate. Sample rate has an huge impact on performance, and if you set it to 22 kHz, it will run at lower CPU frequencies like 133 MHz.

Musics have to be placed in a zip file, which is used as a playlist. You can select the playing mode (repeat, shuffle, etc.) from the music player menu.

You can bring up the audio pop-up, displaying the current track with select. Then, press **Select** to disable it or **R** to switch to next track, **L** to restart current track, **X** to pause it, etc. (read the instructions in the status bar at the bottom of the screen).

A sample file is included (music.zip).

About the battery indicator

MasterBoy displays the current battery state in the upper right corner of the screen. First is displayed the battery percentage, then the estimated autonomy (with current settings, processor speed, etc.) and the battery temperature. Then you've got a battery icon, which displays the current battery state. Battery colors mean the following:

- **Blue:** your battery is full
- **Turquoise:** your battery level is good
- **Green:** your battery level is still ok but you may want to recharge it
- **Yellow:** the battery level becomes low
- **Orange:** battery level is low, recharge it as soon as possible

- **Red:** the battery is nearly empty

Controls

This menu allows you to tweak the PSP keys. The redefine menu allows to set game keys and the shortcuts the access keys, like turbo mode, reset, state save, etc.

In redefine & shortcuts mode, you'll get a list of keys. Move the cursor to the one you'd like to change and press cross. Then a dialog will be opened, asking you to press the new assigned key.

Note: press square to restore the default value of a key.

Important: if you press multiple keys, for example say cross + square, they'll all be taken in account. For game keys, you'll have to press EITHER cross or square to activate the control, for shortcuts, you'll have to press ALL of them (cross and square at the same time) to activate it.

For shortcuts, you cannot define the same key combination for two different actions! If you do so, MasterBoy will warn you and will exchange the keys.

If you don't press any key for 3 seconds, the (none) key will be affected: that is, no key will allow accessing this element.

Controls > Analog configuration

This sub-menu allows you to tweak the analog joystick.

- Enable Analog to D-Pad to use it like the direction keys.
- Set stick threshold, the smaller it is, the finer it'll be. With a big value, like 100, you'll have to move the stick much more to activate a direction.
- Do a calibration for a better stick precision. Follow the on-screen instructions. If the calibration was successful, you should be able to set the stick threshold to something like 10 or even less.
- Set enable calibration to **Off** if you don't want to use the calibration parameters.

Note: If you set a too low threshold, the stick might be seem completely blocked, making the menu turn and turn forever. In this case, wait about 20 seconds without touching the stick, and a message will indicate you that the stick has automatically been disabled. You can re-enable it by setting

Analog to D-Pad to On.

Miscellaneous

These options are there because I didn't know where to put them :p

- PSP CPU clock: set the CPU clock to any value you want between 100 and 333 MHz. Some preset values are proposed in the menu, select Other to fine-customize the frequency. None

of the frequencies are dangerous for your PSP, but I'm not responsible for any damage that could happen.

- 222 MHz is a good compromise, it offers very good performance and good autonomy.
- 333 MHz reduces the autonomy but runs very fast.
- Usually, 166 MHz is enough for most games to run at 60 fps, except some SMS games like the Sonic series, and most Game Boy Color games which will require 222 MHz. The battery life improvement is not very big over 222 MHz anyway.
- Do not use a frequency that might reduce your gaming experience. The consumption difference below 222 MHz is very small and not worth a loss of framerate IMHO.
- **Z80 clock:** here you can set the Z80 clock, which is the main processor (and thus affects both SMS and GG). Setting to a high value will make the game run better, but requires more PSP power.
 - **Note:** rising the clock frequency value has an influence on digital sound, like voices or the SEGA logo, but the game runs without any problem. Setting a value lower than 100% will slowdown the game and can give unpredictable results, which can be quite ugly, like in Outrun. On Game Boy, some images and full motion videos will also appear badly if the clock is something else than 100%.
- 1) Some games like Sonic Chaos are very little playable at default CPU frequency, they slow down all the time. Set it to 130% or 150% and enjoy playing to it ;)
- 2) Also try it on some games that were crashing before, like the smurfs. You'll have to set it to 200% to play the Dam bonus stage, or 150% to play the bridge and swamp stages, else you'll get a black screen.

Misc > User Interface

Set options regarding the user interface.

- **Background:** set the background mode.
 - Background displays the standard background
 - In-game mode displays the in-game screen as the menu background. When no game is loaded, it displays the standard background. It'll also display a closing animation when you return to the game, allowing you to prepare to continue the game directly. Especially useful if you are in a complex action, like a car game, and you need to have some buttons always pressed.
- **Reload defaults:** allows you to restore default settings:
 - Your default config: config stored in the default.ini configuration file
 - System default config: MasterBoy built-in default configuration
 - This game config: default config saved for the running game

Script plugins

Allows you to create skins or special things (I don't personally know what :p).