**F-Zero MSU-1 patch (bsnes, higan and sd2snes support)**

Patch created by Conn, Special Thanks to Colines and kurrono

The f-zero\_msu.ips includes the possibility to hear cd-quality audio. **Note:** bsnes /snes9x plays smc/sfc, headered and non-headered roms, while later versions won’t. So I recommend this emulator as it is most user-friendly. Only flaw is that it has no spc-fallback (like higan) so you need a complete pcm-set.

**Imprtant note: this patch works only on F-Zero NON-headered US A version (dunno whether other languages are compatible as well. If you do not know what a header is, or how to remove it (there are several tools), check http://forum.romulation.net/index.php?topic=17597.0**

**Ususally \*.smc is with header, \*.sfc without. Most roms found in the Internet have no header, so no worries.**

**PCM:s**

<https://www.zeldix.net/t1447-f-zero>

**Snes9x 1.55 (ff) and Bsnes tutorial:**

Bsnes until 0.68 play wav files which do not loop. Bsnes 0.69 and later versions support pcm files that can loop, so this is the music format and emulator of your choice since it is super easy:

- apply f-zero\_msu.ips to your **non-headered US** rom of f-zero

- (apply optional\_extended\_music.ips if wished)

- rename your rom to f-zero\_msu1.sfc

-make a new folder (msu or whatever)

- copy the bsnes v.70 (all files) into this folder

- copy the  patched f-zero\_msu1.sfc into this folder

- copy f-zero\_msu1.msu and f-zero\_msu1.xml into this folder (part of the zip file)

- Use the PCM:s povided by Colines (link above) or convert all wav files the game has into pcm and copy them into this folder (check WAVtoPCM\_looping\_tutorial.docx (part of this zip archieve)). The track list is at the end of this doc.

Then play the rom in bsnes 0.70 and enjoy!

**Sd2snes tutorial:**

Actually this works the same way as bsnes: make a custom folder in the main directory called 'MSU”. In this folder, you'll need to have your patched f-zero \_msu1.sfc. In this same directory, you'll need the " f-zero \_msu1.msu" file. f-zero \_msu1.xml' is not needed. Copy also all your pcm files (with the similar names as your msu and sfc file (e.g., f-zero\_msu1-1.pcm )) into this folder and enjoy! Also keep in mind that the audio volume changed in firmware 0.1.7, and it this patch is thus incompatible with prior version.

**Firmware v0.1.7 ff:** choose Configuration-> Chip Options and set the msu1 boost to +12dBFS

**Important note:**

Problems with saving is a known issue with MSU-1 enhanced games on the SD2SNES.The game **saves only** with this technique your progress: In order to save permanently, you'll need to save after you made progress, with either (1) pressing **L+R+Select+X** or (2) press and hold the reset button on your console long enough so that it resets to the SD2SNES main menu.

Step-by-step with video by Mattroid

1. Rename your **non-headered US** version of F-Zero to f-zero\_msu1.smc
2. Open f-zero\_msu1.zip and apply f-zero\_msu.ips to your ROM file using a tool such as [Lunar IPS](http://www.romhacking.net/utilities/240/) (for Win) or [MultiPatch](http://projects.sappharad.com/tools/multipatch.html) (for Mac).
3. (apply optional\_extended\_music.ips if wished)
4. Firmware 0.1.7 and later be sure you adjusted Configuration-> Chip Options and set the msu1 boost to +12dBFS
5. Put your patched ROM on your SD card in a folder someplace (I named mine 'MSU fzero')
6. Also put the f-zero\_msu1.msu into this folder
7. Place the pcm:s by Colines into this folder (or create your own ones)

**Higan:**

- apply f-zero\_msu.ips to your **non-headered US** version of F-Zero

- (apply optional\_extended\_music.ips if wished)

- rename your rom to f-zero\_msu1.smc

- import this game in higan

- go into the folder %USERPROFILE%\Emulation\Super Famicom\f-zero\_msu1.sfc in Windows Explorer

- overwrite the existing manifest.bml with (until higan v0.95) or just copy (higan v0.96 and later) the manifest.bml from the patch package into this folder

- also copy f-zero\_msu1.msu from the patch package into this folder

- copy all pcm tracks by Colines into this folder (or create your own ones)

**pcm theme list**

MSU DECIMAL         |   HEX  
--------------------|-------------------------  
f-zero\_msu1-1.pcm   |   01 - Start  
f-zero\_msu1-2.pcm   |   02 - Zoom  
f-zero\_msu1-3.pcm   |   03 - Lost Life  
f-zero\_msu1-4.pcm   |   04 - Opening Theme  
f-zero\_msu1-5.pcm   |   05 - Select Time Theme  
f-zero\_msu1-6.pcm   |   06 - Big Blue  
f-zero\_msu1-7.pcm   |   07 - Ending Theme  
f-zero\_msu1-8.pcm   |   08 - Red Canyon I  
f-zero\_msu1-9.pcm   |   09 - Fire Field  
f-zero\_msu1-10.pcm  |   0A - Silence  
f-zero\_msu1-11.pcm  |   0B - White Land I  
f-zero\_msu1-12.pcm  |   0C - White Land II  
f-zero\_msu1-13.pcm  |   0D - Port Town I  
f-zero\_msu1-14.pcm  |   0E - Mute City I  
f-zero\_msu1-15.pcm  |   0F - Sand Ocean

f-zero\_msu1-16.pcm  |   10 - Death Wind I  
f-zero\_msu1-17.pcm  |   11 - Mute City II

f-zero\_msu1-18.pcm  |   12 - Port Town II

f-zero\_msu1-19.pcm  |   13 - Mute City III

f-zero\_msu1-20.pcm  |   14 - Death Wind II

f-zero\_msu1-21.pcm  |   15 - Red Canyon II

Green: normal

Red: optional\_extended\_music.ips applied to have a theme for every level