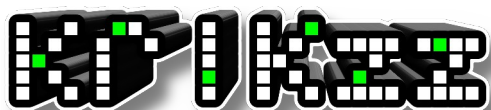
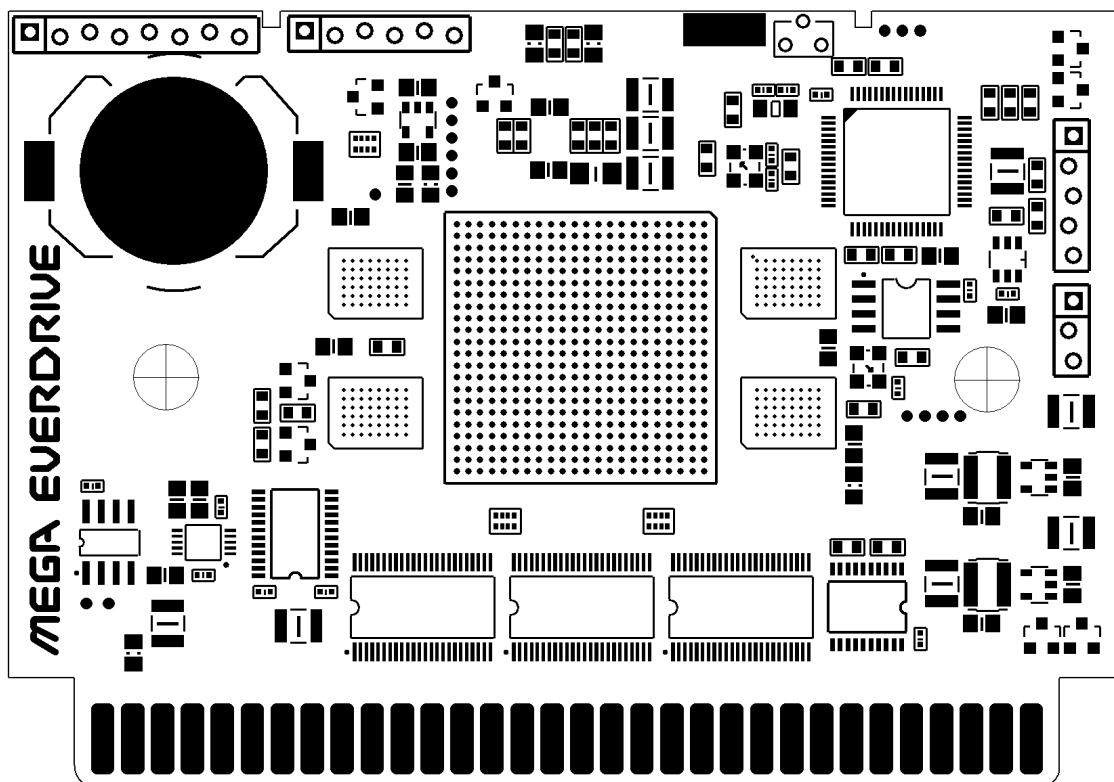


# MEGA EVERDRIVE PRO

## User Manual



[WWW.krikzz.com](http://WWW.krikzz.com)

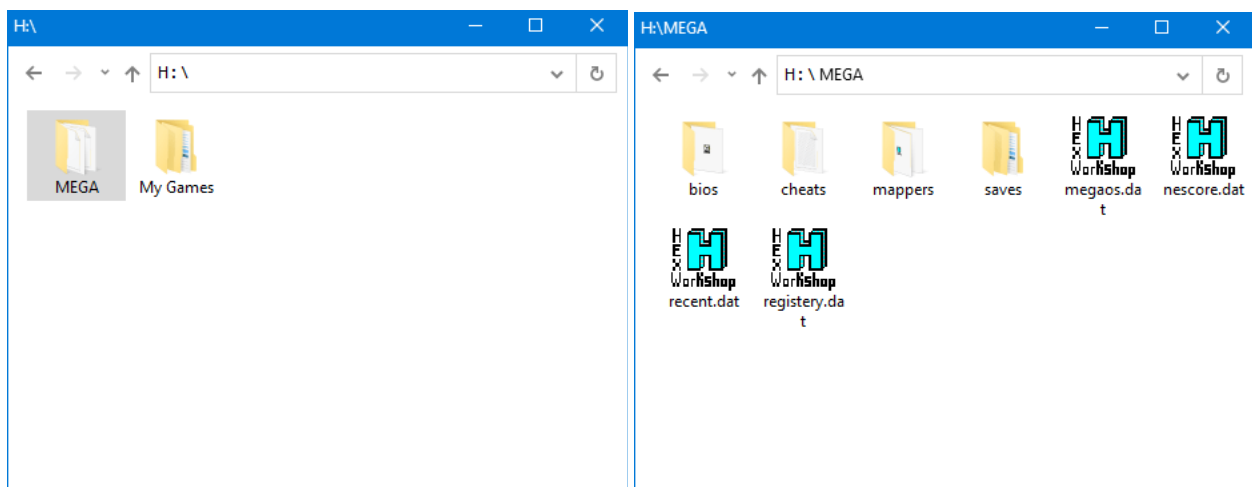
29.06.2022

## Features

- Cyclone IV FPGA
- 16MB PSRAM and 1MB SRAM memory
- High quality 6-layer PCB with hard gold surface finish
- Supported ROM formats: Genesis, 32X, Mega-CD, Master System, NES
- Ram cart for Mega-CD
- CD bios swap function turns off region locks for Mega-CD games
- Hardware MegaKey turns off region locks for Genesis games
- YM2413 core for Master System games
- SVP core support
- Pier Solar mapper support
- In-game menu. You can save game or return to system menu without physical reset
- In-game menu supported for Genesis and Master System modes
- EEPROM saves support
- Real time clock for logging date and time of saves
- ARM based 32bit I/O co-processor for SD and USB operations acceleration
- Up to 1024 files per folder or unlimited if file sorting is disabled
- Multi slot save states. 100 independent slots for save states
- Instant ROM loading
- USB port for development and system update without removing SD card
- Battery voltage monitoring. Battery can be replaced in time if it runs dry
- Game Genie cheats support
- IPS patches
- Custom menu themes support

## Initial setup

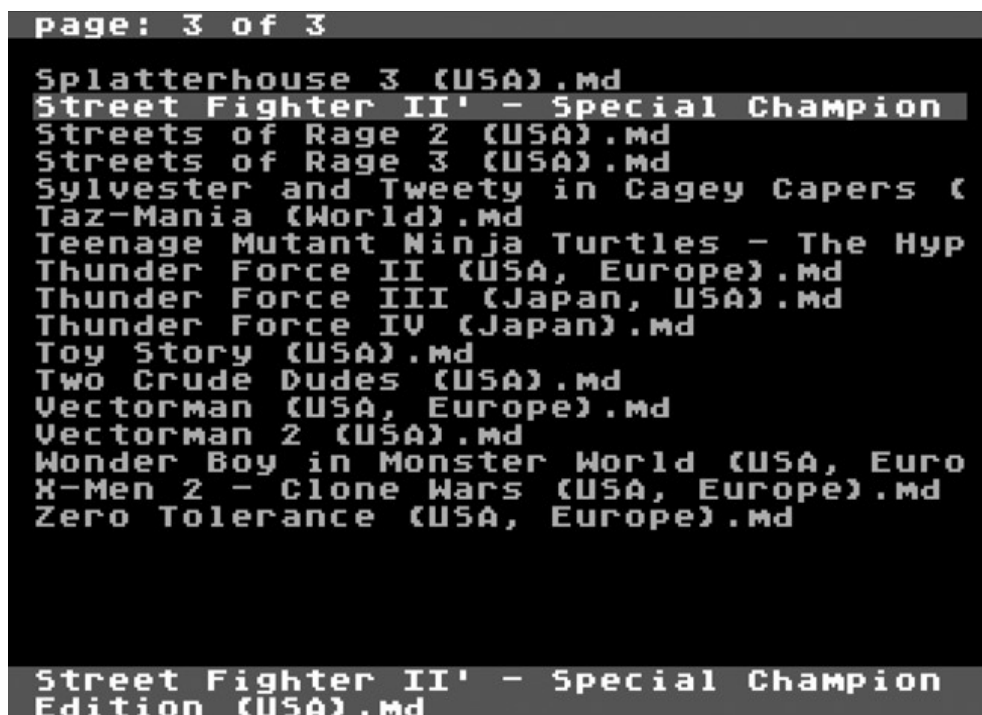
- Format the SD card
- Download MEGAOS-4.xx.zip from <http://krikzz.com>
- Unzip OS files to the SD card
- Copy ROM files to the SD card. ROM files should be located outside of system folder (MEGA)



## File Manager

- A – Open directory or file menu
- B – Back or Close
- C – Open main menu
- Start – Run last played game
- Left/Right – Switch page during file navigation

The upper bar shows the current page and total number of pages in the current folder.  
The bottom bar shows the full name of the selected file.



## File Menu

The file menu is used for manipulating files on the SD card. The menu content is different depending on the file type selected.

### Rom file menu

This menu is applied to gen, md, bin, smd, rom, 32x, iso, sms, sg, gg and nes file extensions.



### Start Game

The cartridge will be configured to play the selected game. Right after the configuration is completed the game will be executed. After reset or power cycle of the console the last selected game can be launched with the START button.

### Cheats

Edit cheat codes for the selected file.

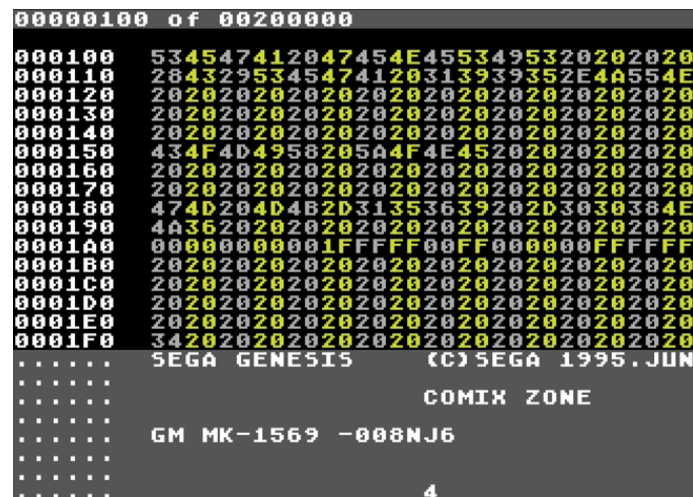
### Rom Info

Shows the ROM configuration including: mapper type, checksum, memory configuration, etc.



## Hex View

Opens the selected file in a hex viewer.



## Delete

Deletes file from disk.

## Text file menu

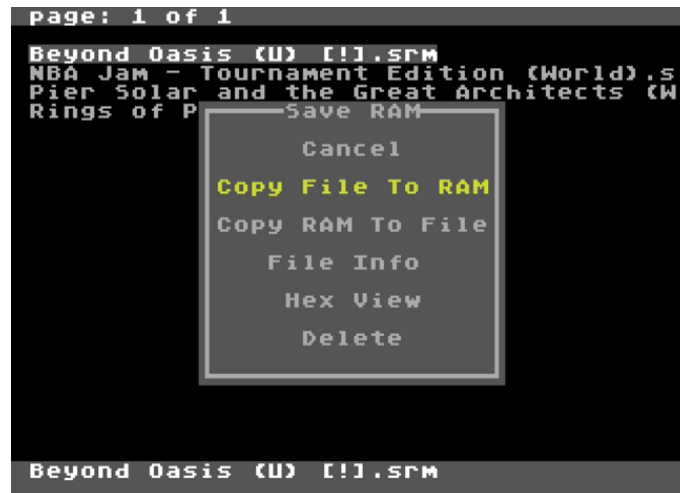
This menu is applied to \*.txt file extension.

It is used for loading cheats from text file. Loaded cheats will be applied to last selected game.



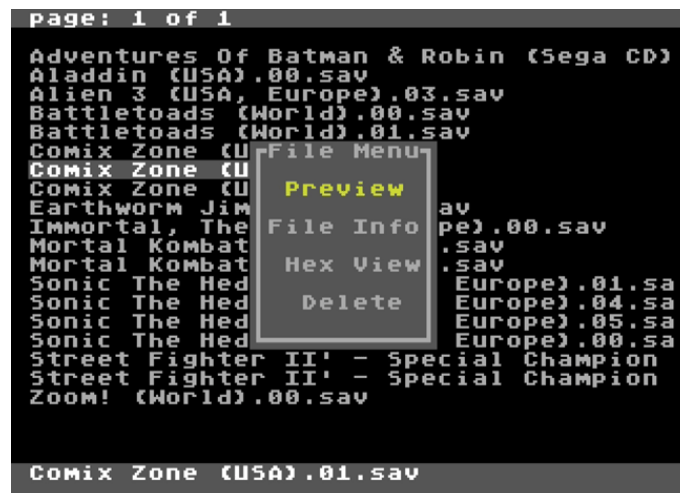
## Save-ram file menu

Allows to copy current save-ram content to a file, copy the file to save-ram, check file date and size, delete file.



## Save-state file menu

This menu supports preview for Genesis save state files. User can view the screenshot of the point where state was saved.



## Main Menu

Push C to open Main Menu.



## Options



### Options->In-Game Menu

Controls in-game menu and save state functions.

### Options->MegaKey

Bypass region locks. Turn it off for Mega-SG, the console will use its own region bypass functions.

### Options->Cheats

Switch on/off cheat functions.

### Options->SMS Bios

System may load SMS bios for Master System games, just like the original system. For using this function user should supply bios file. Expected file path: MEGA/bios/smsbios.sms  
SMS bios isn't required for Master System games.

## Options-> SMS YM2413

Audio enhancement for Master System games. Mostly was used by some japanese games.

## Options->Reset To Menu

ON: System will return back to the menu after reset.

OFF: Stay in game after reset.

## Options->Last Game Autoboot

At cold system start the menu will be skipped and the last played game will be launched automatically, just like the boot with regular cart. Hold C during system start to jump in the menu. Also return to the menu can be performed using reset or in-game menu if these functions are turned on.

## Options->Themes

This option controls GUI customization themes. Themes allow to set the image on background, change menu colors, font, etc. Use the megatheme tool to create your own themes:

<http://krikzz.com/pub/support/mega-everdrive/pro-series/megatheme/>

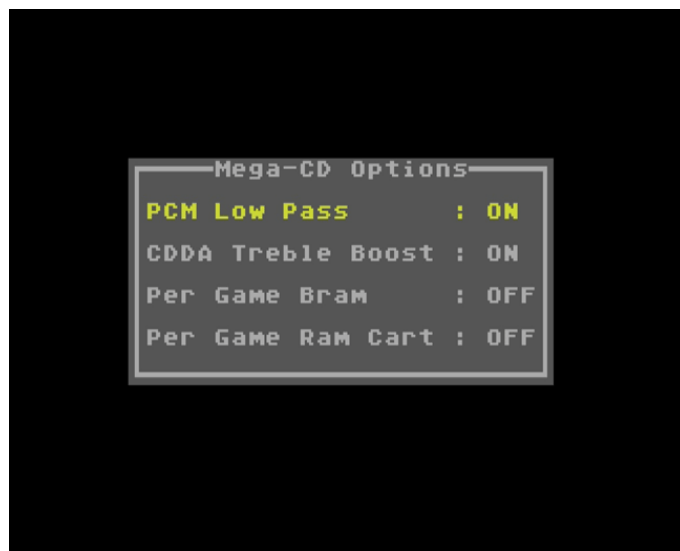
## Options->File Sorting

Controls file list sorting. Max amount of files per folder is 1024 if sorting is enabled or unlimited if disabled. Sorting may slow down while entering the folders with large amount of the files inside.

## Options->Warnings

OS checks system configuration and refuses to launch the game if current configuration isn't compatible with selected game. For example: attempt to launch 32X game without 32X addon. Turn off this function to try to launch it anyway. It is recommended to keep this option turned on.

## Options->Mega-CD options



### Mega-CD options->PCM Low Pass

Low Pass filter for the PCM channel. Turn it on for matching the original Mega-CD PCM audio.

### Mega-CD options->CDDA Treble Boost

High Pass filter for CDDA channel. Turn it on for matching the original Mega-CD CDDA audio.

### Mega-CD options->Per Game Bram

Each game will have its own bram copy.

## Mega-CD options->Per Game Ram Cart

Each game will have its own ram cart copy.

## Options->In-Game Combo



The controller hot-keys for In-Game menu and save state can be changed here. Two or more buttons can be used for the combo. Keep START to switch-off combo.

"Save Key" and "Load Key" are used for quick save/load in Genesis games. This type of saves skips in-game menu. The quick mode isn't available for SMS games.

"Menu SMD" is used for in-game menu in Genesis games.

"Menu SMS" is used for in-game menu in SMS games. For SMS menu combo can be used only B,C and D-pad arrows.

In-Game Menu option must be enabled for using any save state functions including quick saves.

## Options->RTC Setup

Sets system date and time. RTC is used for dating of created and modified files.

## Recently Played

Lists recently played games for fast access.



## Cheats

Edits cheat codes for the last played game. The bottom bar shows the name of the ROM that game codes will be applied to. Each game may have its own set of codes, they are saved in MEGA/gamedata folder as a text file and loaded automatically when game is played. The file name matches ROM name the codes are related to. Up to 16 codes can be applied at the same time. An alternative way to edit the codes for a certain game is to use file menu, just select the game in file manager. Cheats also can be loaded from a text file selected in file manager.

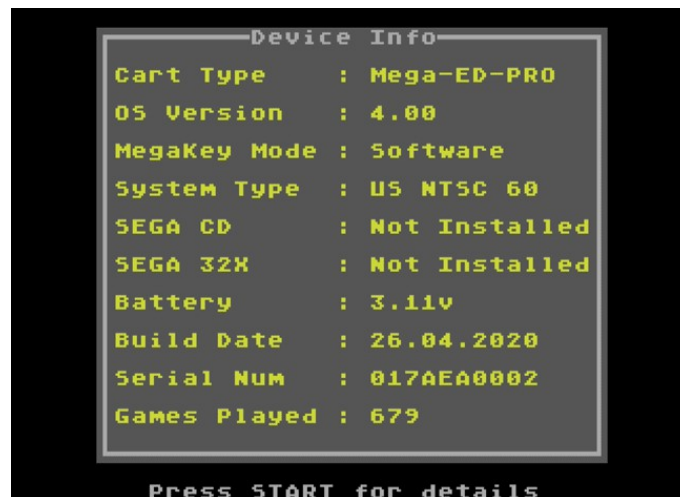


## Run Mega-CD

Runs external CD addon without cartridge removing. The ram cart function is activated for this mode.

## Device Info

Information about the system.



- MegaKey Mode: Hardware mode if possible, software otherwise
- SEGA CD: External Mega-CD addon status
- SEGA 32X: External 32X addon status
- Battery: On-board battery voltage monitoring
- Build Date: Cartridge manufacturing date
- Serial Num: Unique serial number
- Games Played: Played games counter

## Diagnostics

The diagnostics menu checks cartridge health. All tests should be passed successfully if everything is fine. MegaKey test will fail if the cartridge is used with 32x. Also MegaKey does not work with some modern clones, Mega-SG for example.

```
Mega EverDrive PRO diagnostics menu
-----
Testing ROM... OK
Testing SRM... OK
Testing BRM... OK
Testing SDC... OK
Testing RTC... OK
MegaKey... OK
Battery - 3.11 OK
UCC 5.0v - 4.67 OK
UCC 2.5v - 2.50 OK
UCC 1.2v - 1.20 OK
SD RD speed... 5019 KB/s
SD WR speed... 1343 KB/s
IO RD speed... 153 KB/s
IO WR speed... 137 KB/s
-----
Press any key
```

## In-Game menu

Allows to return to menu or save the game at any point. During game play hit Save-State combo on the controller to open In-Game menu. Push **C** for selected Save-state preview.

- **Save State:** Save game state. System snapshot will be immediately saved on SD card in MEGA/gamedata folder depends on game type
- **Load State:** Load game state
- **Slot:** Current slot. System supports up to 100 slots. The slot can be changed without selecting "Slot" item in menu, just hit LEFT/RIGHT no matter what menu item is selected
- **Cheats:** Cheat codes editing for the current game
- **Reset Game:** Reboot game
- **Exit Game:** Return to menu



## **Mega-CD core**

Cartridge has built-in Mega-CD core, it allows to play CD images without actual Mega-CD addon.

### **Supported formats**

Supported bin+cue, cue+wav and multi-bin images. Sometimes bin images can be stored as img or iso, they can be played without renaming. Each CD image should be stored in a separate folder, except multi disk games.

### **Multi disk images**

For using multi disk images they all should have the same name, but with the number of the disk in the end. When the game will require another disk system will swap it automatically. All bin/cue files should be located in the same folder.

### **Mode1/msu-md/MD+ games**

So-called mode1 allows cartridge based games to use CD hardware for the enhancement, usually for replacement the standard game music by CDDA tracks. To play such games the CD image and ROM file should be located in the same folder, cue file name should match the ROM name. MD+ games works in same way.

Example: game.md + game.cue

Rom Info menu will show "SMD+CD" game mapper if the CD image was recognized successfully.

### **CD bios**

Mega-CD core requires the original CD bios files. These files don't come with the cartridge software and user should supply them by himself. The specific bios file is required for each region, three files in total. One is for US images, another for Japanese and the last one for European region. Files should be stored in MEGA/bios/ folder. They should be named as follow: mcd-us.bin, mcd-jp.bin, mcd-eu.bin

## **CD bios loading function**

This function is related to the external Mega-CD and designed to play multi region CD images. Simply it can swap the internal CD bios to the file loaded from SD card. Just select required bios file in the file browser and launch it like any other game. Along with this function cartridge will activate the ram cart function for your Mega-CD.

## **IPS patcher**

The built-in auto patcher engine allows you to use IPS patches without using patching software. The ROM stays unchanged on the SD card but patched in cart RAM. Patch file should be located in the same folder with ROM file and ips file name should match to the ROM name.

## System folder structure

/MEGA	system root
/MEGA/bios	folder for storing Mega-CD and SMS bios files
/MEGA/bios/mcd-eu.bin	European CD bios
/MEGA/bios/mcd-jp.bin	Japanese CD bios
/MEGA/bios/mcd-us.bin	North American CD bios
/MEGA/bios/mcd-ex.bin	Bios dumped from external Mega-CD addon
/MEGA/bios/smsbios.sms	Master System bios
/MEGA/mappers	FPGA cores
/MEGA/gamedata	Saves, cheats, game configs
/MEGA/syscore	OS system core files
/MEGA/sys	OS system data
/MEGA/themes	Preinstalled GUI themes
/MEGA/edapp	Emulators and some other external applications
/MEGA/megaos.dat	OS core

## Limitations

- Always use ROMs which match the console region if possible. Using PAL ROMs on NTSC systems or visa versa may cause various glitches. It is especially important for MegaCD games. PAL ROMs were designed for European system, NTSC ROMs are for US and Japanese systems.
- Built-In CD core can not be used in pair with 32X because 32X locks part of address space required for Mega-CD.
- Built-In CD core registers conflict with external Mega-CD addon registers. Due this reason CD games executed from the cart may not work properly if external Mega-CD is installed. It is not recommended to leave external CD unit unpowered in attempt to solve this problem, this only will make things worse and may cause glitches even in regular Genesis or SMS games. Internal CD core can be executed in pair with external CD unit only if "warnings" option is turned off.
- There is no Mega-CD audio on Nomad and Genesis3 due the lack of audio inputs on cartridge port.
- SMS games do not work in pair with 32X due the SMS mode lock by the 32X hardware.
- SMS games do not work on Nomad and Genesis3 due the lack of SMS mode on these systems.
- In-game menu in SMS games does not work on One-chip Genesis because controllers state is invisible for cartridge on this system. One-chip ASIC was used mostly on Genesis3 and very late Genesis2 revision.
- Some SMS games may refuse to work if external Mega-CD is installed.
- 32X games require 32X addon to be installed.
- Hardware MegaKey does not work with Mega-SG or if 32X is installed.
- Genesis hardware wasn't designed for using such functions as save states, there is basically no way to save audio subsystem state. By this reason using save state function in some games may result glitches or even hangs. That's why this function is provided as is and it can not be improved to be fully stable. However few simple steps may help to reduce glitches rate:  
Do state saving during the pause when audio is muted.  
Do not load state created in the game level if you have not enter the level yet, from the title screen for example. In this case the game will have a chance to initialize audio driver properly before state will be loaded. Save state system completely ignores audio subsystem initialization.
- In-Game menu does not work for games which do not use v-blank handler.
- In-Game menu does not work if 32x addon is installed.
- NES core has limited compatibility. Due the Genesis hardware limitations there is no way to implement fully functional NES core. You may expect that simple games will work fine but games which intensely use mappers graphics hardware will be glitched. Limitation is mostly related to next factors:
  1. Intensive CHR content update. Bank switching during the frame, using bank switching for sprite update "on the fly" and so on. Bank switching for background animation in

some cases may work fine.

2. Manipulating with vertical scrolling settings during the frame.