The Unofficial Analogue **Mega Sg** Jailbreak Supplement

Covering Jailbreak Firmware v7.3

Sega Genesis/Mega Drive Core Jailbreak

New Menu Options

Cores

Allows you to load the supported system cores and the froms for those systems ROMs located on the SD card. The jailbreak will save and load in games supporting battery-backed SRAM. You can and should use subdirectories to sort your ROMs. Use the latest No-Intro ROM set for maximum compatibility.

When you see the File Browser, press Start to enter the Menu which allows you to change the Settings for that core. To exit out of a Core, press B until you get to the first page of your SD card's root directory, then press B again to see a warning message. Press A to exit the core and return to the Core selection page. One more press of B will return you to the Top Menu.

Unlike the NES or the SNES, the Sega Genesis/Mega Drive really does not have much use for custom mappers or special chips. Sega Genesis/Mega Drive do use a wider variety of non-volatile memory for game saving. The jailbreak supports SRAM (most games), FeRAM (Sonic the Hedgehog 3), Parallel EEPROM (Barkley Shut Up and Jam 2 & Unnecessary Roughness '95) and Serial EEPROM. All save files except for EEPROM will be 128KB in size, regardless of the actual amount of SRAM the cartridge used. The Genesis cartridge header does not indicate how much SRAM is used, so by designating a large amount of SRAM, no game should fail to save. EEPROM saves will be double the size of the actual EEPROM used due to the way the Mega Sg simulates EEPROM.

Serial EEPROMs are detected with a hash table, so if you modify the games and they do not change the save type, then you won't be able to save games. All known Serial EEPROM games are supported.

Mega Man/Rockman was only officially released in cartridge form for the PAL regions and Japan. In the U.S., it was only available via the Sega Channel. The official cartridges always came with EEPROM, regardless of region. There are hacks which will eliminate the region check for the game as well as adding SRAM support. Mega Man suffers from no issues being run in 60Hz and I would recommend running it at that speed.

The Sega MegaNet games also indicate that they are EEPROM games, but they do not save via this method or any other. Translated ROMs may not show the message.

The jailbreak supports the Super Street Fighter 2 Turbo mapper (also used by the Overdrive 2 demo) and the Pier Solar mapper (which also uses Serial EEPROM). Pier Solar will run with cartridge audio but will not run with the Enhanced Audio CD when a Sega CD is connected to the Mega Sg at this time. It does not support Hardball '95, which has an impassable SRAM check screen. Use a [f]ixed ROM to play the game without saving. Sonic & Knuckles + Sonic 2 requires a [f]ixed ROM. The one that works in the Mega EverDrive will work here.

The jailbreak will also not run the following unfixed ROMs:

Realtec Mapper
Earth Defense
Funny World & Balloon Boy
Whac-a-Critter

Super Fighter Team Mapper
Beggar Prince
Star Odyssey
Legend of Wukong

Some Unlicensed games from Taiwan have copy protection or a custom mapper scheme that is not implemented in the jailbreak firmware. Your mileage may vary.

The jailbreak will not run Virtua Racing 2 because it uses the Sega Virtual Processor (SVP) chip, nor will it run 32x ROMs.

While the first 4MB of addressing space is dedicated to cartridges in the Genesis/Mega Drive, certain demos and hacks can load themselves above the 4MB area without a memory mapper ("loading flat") if there is no Sega CD or 32x connected to the console. The jailbreak supports ROMs which load themselves in this manner up to 10MB in size. This allows a demo like Bad Apple (without being split into multiple ROMs) and hacks like Ultimate Mortal Kombat Trilogy to work with the Mega Sg. If you have issues, you must disconnect your Sega CD from the Mega Sg or an original Genesis for these large ROMs to work.

At this time, all features of the Mega EverDrives are supported except as follows :

Loading SMS BIOS (X7)
In-Game Menu/Save States (v1)M
Mega Key (Use Region options in Settings – System – Hardware for the same effect)

The Mega EverDrive will load Master System and SG-1000 games but not Game Gear games unless the use Master System mode.

The 32x will not work with the Mega Sg at all at this time, even if you feed it a composite sync signal from an original console.

Settings – System – Menu Options

Prompt when saving RAM – This allows you to choose whether to save the backup memory to a file. You will see the prompt after you start a game in the file browser and go to the menu.

Save warning message – This will bring up a message warning you that, when you enter start a Core, to enter the menu to save a game which utilizes backup memory.

High-rez File Browser – The File Browser will show 60 columns of text and numbers per line. If unchecked, the File Browser will show 30 columns of text and numbers per line. If a file name is too long to be displayed fully on one line of the File Brower, the name will scroll to the left so you can read the whole file name. While this option has little obvious utility with HDMI output, text at 60 characters per line can be extremely hard to read when output via composite video. 30 characters per line text is not an issue, even with composite. This option could be much more useful when the Analogue DAC is released.

Settings – Core Options

The Sega/Mega CD uses different BIOSes for each region and these BIOSes enforce region locking. With the Replace CD BIOS option, you can get games from any region working with the Mega Sg regardless of the region of the Sega/Mega CD. This option will run in conjunction with the Auto Detect Region setting if that is enabled, so loading a European BIOS will set the Mega Sg to PAL Domestic mode. The BIOS should be within a directory named BIOS in the root of your SD card, that is where the file browser defaults to look for BIOSes for all Cores. However, you may run into incompatibilities when using Model 1 BIOSes on Model 2 Sega CDs or vice versa.

Sega Master System Core Jailbreak

You should setup your SD card to store Master System & SG-1000 ROMs in a /SMS directory so that Mega Sg will automatically navigate to it when this core is loaded. You are not sandboxed into these directories and may freely navigate the SD card's file system. You should put all your BIOSes for every system supported into the /BIOS directory.

The Master System Core can load regular ROMs as well as SG-1000 ROMs and should be used to load a few Game Gear ROMs. It supports no mapper ROMs, the standard Sega Mapper, the Codemasters Mapper and the Korean Mapper. If an SMS game is larger than 48KB, then the Sega Mapper will be assumed unless you change the filename extension of the ROM to .SCM for Codemasters' games (all of them) and .SKR for certain Korean games.

Codemasters released the following games for the Master System and will need the .SCM extension :

Cosmic Spacehead
Dinobasher - Starring Bignose the Caveman (Proto)
The Excellent Dizzy Collection (Proto)
Fantastic Dizzy
Micro Machines

The following games require the Korean mapper .SKR extension :

Dallyeora Pigu Wang (Korea) (Unl)
Jang Pung II (Korea) (Unl)
Jang Pung 3 (Korea) (Unl)
Samgukji 3 (Korea) (Unl)

The following Game Gear releases use the Master System video mode, load them with the Master System core :

Castle of Illusion - Starring Mickey Mouse
Cave Dude (Proto)
Chase H.Q.
The Excellent Dizzy Collection
Fantastic Dizzy
Jang Pung II/Street Battle (Unl)
Olympic Gold
Out Run Europa
Predator 2
Prince of Persia
Rastan Saga
R.C. Grand Prix
Street Hero (Unl)
Super Kick Off

Super Tetris (Unl)
WWF WrestleMania Steel Cage Challenge

MSX Ports larger than 48KB will not work, they use unusual mappers. They include Korean ports like the following :

Cyborg Z (Korea)
F-1 Spirit - The Way to Formula-1 (Korea) (Unl) (Pirate)
Knightmare II - The Maze of Galious (Korea)
Nemesis (Korea)
Nemesis 2 (Korea)
Penguin Adventure (Korea) (Unl) (Pirate)
Street Master (Korea) (Unl)
Super Boy 3
Wonsiin (Korea) (Pirate)

SG-1000 Issues

The SG-1000 game Terebi Oekaki requires a drawing tablet to be connected, so it will not work. Any games requiring the keyboard from the SC-3000 or the SF-7000 disk drive will also not work. Any Taiwan game requiring the Taiwan memory mapper (mostly MSX ports) will not work. Known games which use this mapper are :

Bomberman Special (DahJee)
Goonies, The
King's Valley
Knightmare
Legend of Kage, The
Pippols
Rally-X (DahJee)
Road Fighter (Jumbo)
Star Soldier
Tank Battalion
TwinBee
Yie Ar Kung-Fu II

Other issues :

Janggun-ui Adeul (uses Sega mapper variant so sprite flipping will show glitches, load Street Hero later Prototype for Game Gear instead)
4 PAK All Action (Australia) (Unl) (uses unsupported mapper)
Hi-Com 3-in-1s and 8-in-1s (use Korean multi-cart mapper)

New Core Options

Core Options - BIOS

The system can boot all the official BIOSes except the USA Store Display Unit BIOS at this time. It is recommended to not load a BIOS when loading SG-1000 games, the US/European BIOSes won't recognize them as valid games because

Some BIOSes came with built-in games which play if no cartridge is inserted. You can get all the games to play by fooling the BIOS into thinking there is no game present in the cartridge port. The best way to do this is to create a dummy ROM 8KB in size containing all 00s and another dummy ROM 8KB in size containing all FFs. One or the other will get the built-in game or the demo working.

Sega Game Gear Core Jailbreak

There will be Game Gear cartridge adapter available to purchase separately from Analogue's website. The cartridge adapter should support the EverDrive-GG but do not expect it to support the now useless TV Tuner. Majesco's officially licensed by Sega Game Gears do not either. The Gear-to-Gear Cable is not supported, so games that use two-player mode will not be playable in that mode.

Video

The Game Gear supports only one resolution, 160x144. Unlike the Game Boy, which shares the same resolution, the Game Gear's pixels are not square on its original screens. This is due to the passive color matrix of the LCD display used on the Game Gear, which consists of side-by-side vertical strips of red, green and blue filters over the liquid crystal layer to determine a pixel's color. Thus the pixels are wider than they are tall on an official Game Gear screen. The pixel aspect ratio of an original Game Gear screen is approximately 1.3:1. Using a 9x/7x scale, 1440x1008, will get you close to proper pixel aspect ratio.

The Game Gear is compatible with Master System games but supports more colors, 4096 with its native games. Certain Game Gear cartridges run in Master System compatibility mode, which requires use of the Master System's 256x192 resolution and 64-color palette. The Game Gear screen will interpolate the resolution to its 160x144 display, but the Mega Sg does not support this form of interpolation and games will not display correctly.

1. 480p Options

Minimum/Maximum Width (Horizontal Pixels) : 320/640

Horizontal Presets (at 2.0x Vertical) :
320 (2x), 346 (4:3 for 16:10), 374 (Square Pixels), 480 (3x), 640 (4x)

Horizontal Presets (at 2.5x Vertical) :
320 (2x), 360 (1:1), 390 (4:3 for 16:9), 433 (4:3 for 16:10), 467 (Square Pixels), 480 (3x), 640 (4x)

Horizontal Presets (at 3.0x Vertical) :
320 (2x), 432 (1:1), 468 (4:3 for 16:9), 480 (3x), 520 (4:3 for 16:10), 561 (Square Pixels), 640 (4x)

Horizontal Presets (at 480) :
320 (2x), 480 (1:1), 520 (4:3 for 16:9), 577 (4:3 for 16:10), 624 (Square Pixels), 640 (4x)

Minimum/Maximum Height (Vertical Pixels) : 288/480
Vertical Presets : 288 (2.0x), 360 (2.5x), 432 (3.0x), 480
Horizontal Position : 0-128
Vertical Position : 0-64

2. 720p Options

Minimum/Maximum Width (Horizontal Pixels) : 480/1280

Horizontal Presets (at 3.0x Vertical) :
480 (3x), 561 (Square Pixels), 624 (4:3 for 16:9), 640 (4x), 693 (4:3 for 16:10), 800 (5x), 960 (6x), 1120 (7x), 1280 (8x)

Horizontal Presets (at 3.5x Vertical) :
480 (3x), 504 (1:1), 640 (4x), 655 (Square Pixels), 728 (4:3 for 16:9), 800 (5x), 808 (4:3 for 16:10), 960 (6x), 1120 (7x), 1280 (8x)

Horizontal Presets (at 4.0x Vertical) :
480 (3x), 576 (1:1), 640 (4x), 748 (Square Pixels), 800 (5x), 832 (4:3 for 16:9), 924 (4:3 for 16:10), 960 (6x), 1120 (7x), 1280 (8x)

Horizontal Presets (at 4.5x Vertical) :
480 (3x), 640 (4x), 648 (1:1), 800 (5x), 842 (Square Pixels), 936 (4:3 for 16:9), 960 (6x), 1040 (4:3 for 16:10), 1120 (7x), 1280 (8x)

Horizontal Presets (at 5.0x Vertical) :
480 (3x), 640 (4x), 720 (1:1), 800 (5x), 935 (Square Pixels), 960 (6x), 1040 (4:3 for 16:9), 1120 (7x), 1155 (4:3 for 16:10), 1280 (8x)

Minimum/Maximum Height (Vertical Pixels) : 432/720
Vertical Presets : 432 (3.0x), 504 (3.5x), 576 (4.0x), 648 (4.5x), 720 (5.0x)
Horizontal Position : 0-128
Vertical Position : 0-64

3. 1080p Options

Minimum/Maximum Width (Horizontal Pixels) : 800/1920

Horizontal Presets (at 5.0x Vertical) :
800 (5x), 935 (Square Pixels), 960 (6x), 1040 (4:3 for 16:9), 1120 (7x), 1155 (4:3 for 16:10), 1280 (8x), 1440 (9x), 1600 (10x), 1760 (11x), 1920 (12x)

Horizontal Presets (at 5.5x Vertical) :
800 (5x), 960 (6x), 1029 (Square Pixels), 1120 (7x), 1144 (4:3 for 16:9), 1271 (4:3 for 16:10), 1280 (8x), 1440 (9x), 1600 (10x), 1760 (11x), 1920 (12x)

Horizontal Presets (at 6.0x Vertical) :
800 (5x), 864 (1:1), 960 (6x), 1120 (7x), 1123 (Square Pixels), 1248 (4:3 for 16:9), 1386 (4:3 for 16:10), 1280 (8x), 1440 (9x), 1600 (10x), 1760 (11x), 1920 (12x)

Horizontal Presets (at 6.5x Vertical) :
800 (5x), 936 (1:1), 960 (6x), 1120 (7x), 1216 (Square Pixels), 1280 (8x), 1352 (4:3 for 16:9), 1440 (9x), 1502 (4:3 for 16:10), 1600 (10x), 1760 (11x), 1920 (12x)

Horizontal Presets (at 7.0x Vertical) :
800 (5x), 960 (6x), 1008 (1:1), 1120 (7x), 1280 (8x), 1310 (Square Pixels), 1440 (9x), 1456 (4:3 for 16:9), 1600 (10x), 1617 (4:3 for 16:10), 1760 (11x), 1920 (12x)

Horizontal Presets (at 7.5x Vertical) :
800 (5x), 960 (6x), 1080 (1:1), 1120 (7x), 1280 (8x), 1404 (Square Pixels), 1440 (9x), 1560 (4:3 for 16:9), 1600 (10x), 1733 (4:3 for 16:10), 1760 (11x), 1920 (12x)

Minimum/Maximum Height (Vertical Pixels) : 720/1080
Vertical Presets : 720 (5.0x), 792 (5.5x), 864 (6.0x), 936 (6.5x), 1008 (7.0x), 1080 (7.5x)
Horizontal Position : 0-128
Vertical Position : 0-64

Any Game Gear game using Master System compatibility mode must be loaded via the Master System Core to allow a proper video display. This allows them to display in 256x192/224 resolution but limits them to the Master System's 64 color palette. The Game Gear screen scales these graphics to its 160x144 screen. These games are as follows :

Castle of Illusion - Starring Mickey Mouse
Cave Dude (Proto)
Chase H.Q.
The Excellent Dizzy Collection
Fantastic Dizzy
Jang Pung II/Street Battle (Unl)
Olympic Gold
Out Run Europa
Predator 2
Prince of Persia
Rastan Saga
R.C. Grand Prix
Street Hero (Unl)
Super Kick Off
Super Tetris (Unl)
WWF WrestleMania Steel Cage Challenge

You can run correctly also run these games via a Master EverDrive, Mega EverDrive or EverDrive-MD.

If you would like to know how the Game Gear scales Master System graphics and get an idea why it really does not work well with anything other than the original display (and even that is debatable), then look here : http://www.smspower.org/forums/9562-GameGearSMSModeVideoScaling

Audio

The Game Gear relies solely on PSG for audio, but unlike its home console cousins, the Game Gear supports stereo output for its PSG. Each of the four channels can be assigned to output to the left channel and/or the right channel. The Game Gear controls volume by channel and the Mega Sg enhances this by allowing left and right outputs to have independent volume level adjustments with the Channel Level option. The Game Gear also has no ability to do anything beyond hard left-center-right panning, so the Channel Panning allows for less extreme panning.

The Game Gear will allow stereo audio input to be passed through the cartridge port, but the only device known to use this functionality is the TV Tuner.

The default Channel Level is 60 for all sliders and the default Channel Panning is -84 for all L sliders and 84 for all R sliders. Default Cartridge Audio is 90.

Controls

The Game Gear used a D-pad, two buttons and a start button. They are mapped as follows to a Genesis/Mega Drive pad :

A or C = Button 1
B = Button 2
Start = Start

The Passthrough Mode option is disabled for this Core.

Jailbreak

The Game Gear jailbreak can load Game Gear ROMs. It supports the no Mapper ROMs, the Standard Sega Mapper, the Codemasters Mapper and the Korean Mapper. If a Game Gear game is larger than 48KB, then the Sega Mapper will be assumed. You must rename Codemasters' games to use the .GCM extension for them to work properly. There may be some Korean games which require their extension to be renamed to .GKR to work properly.

Codemasters released the following games for the Game Gear and require the .GCM extension :

CJ Elephant Fugitive
Cosmic Spacehead
(Archer MacLean's) Dropzone
Ernie Els Golf
The Excellent Dizzy Collection
Fantastic Dizzy
(S.S. Lucifer) Man Overboard!
Micro Machines
Micro Machines 2: Turbo Tournament

Pete Sampras Tennis

The jailbreak will not play any games that use EEPROM for saving properly at this time, they will refuse to load. The following games are the only known games to use EEPROM :

Hyper Pro Yakyuu '92
Majors Pro Baseball, The
Pro Yakyuu GG League
World Series Baseball
World Series Baseball '95 (including prototypes)

Street Battle requires its extension to be renamed to .SKR, not .GKR, to work. Its Korean version, Jang Pung II, does not work regardless of its extension. Play the Master System version instead. The earlier Street Hero Prototype uses a mapper variant and will not work, run the later version instead.

Core Options

BIOS

There were three variations of the Game Gear produced. The original Sega-produced units have no BIOS and load every game. Later Sega-produced units have a BIOS which will check for the license code in the ROM and will load nothing if the code is not present. The Majesco-produced units have a BIOS which shows a blue screen displaying the text “Produced by or under License from Sega Enterprises Ltd.” The text will remain frozen on the screen if the license code in the ROM is not present.

While a BIOS is not needed to run any Game Gear game, the Game Gear core can boot the Majesco BIOS and should be able to boot the textless BIOS if it is ever dumped.

System

Hardware

Allows you to select between USA/Export and Japan/Domestic regions. Check Japan if you are having issues with getting a Japanese game to run, otherwise leave it at USA/Export and vice versa. There is no such thing as a PAL-speed Game Gear, PAL territories use the USA option.

ColecoVision Core Jailbreak

Included with this jailbreak is support for the ColecoVision. Here are the

Video

The ColecoVision only supports a 256x192 resolution with 16 colors. The F18A mod, which supports higher resolutions, more colors in homebrew games coded to support the mod's features and eliminates sprite flicker, is not supported. Only two or three homebrew games are known to support F18A features at this time, but they will run within the Coleco's ordinary video limitations.

See the Master System section in the Official Reference Manual for information on the scaling and cropping choices available for the ColecoVision Core.

Audio

The ColecoVision only supported the original TI SN76489 PSG sound chip until the introduction of the Super Game Module in 2012. The Super Game Module is an upgrade which plugs into the ColecoVision's Expansion Port and adds more RAM and an additional three channel AY-3-8910 PSG sound chip. Many homebrew games, 52 at the time of this writing, released in 2012 and later require the Super Game Module to run.

The default Channel Level is 60 for all sliders and the default Channel Panning is -32 for Square 1 and SGM 1, 32 for Square 2 and SGM 2, and 0 for Square 3, Noise and SGM 3. The original ColecoVision, whether or not it is upgraded with an SGM, was a mono-only console. Cartridge audio is omitted from this Core, the ColecoVision cannot not transmit audio via its cartridge connector.

Controls

Although the Mega Sg uses 9-pin controller ports, ColecoVision controllers use a slightly different pin-assignment and are not supported. The Passthrough Mode option is removed for this Core as a result.

The ColecoVision uses a hand controller consisting of an eight-way joystick, two fire buttons and a 12-key "telephone-style" keypad. The joystick is mapped to the D-pad of a Genesis controller as follows :

A = Left Side Fire
B = Right Side Fire

In order to support the keypad buttons, directional and button combinations are used with a Six Button Genesis controller. Here are the combinations :

Y + Up = 0

Y + Right = 1
Y + Down = 2
Y + Left = 3
Z + Up = 4
Z + Right = 5
Z + Down = 6
Z + Left = 7
Y + Z + Up = 8
Y + Z + Down = 9
X = #
C = *
Start = 1 (duplicated for starting an easier game in games with a difficulty selection option)
Mode = 3 (duplicated for starting a harder game in games with a difficulty selection option)

The clockwise nature of the button assignments was intended to help people remember the combinations.

Game Issues

Games requiring the use of Expansion Module #2 (steering wheel) or the Roller Controller (trackball) will not be playable. Those games supporting the extra features of the Super Action Controller (a controller with two extra fire buttons) will not support them on Mega Sg.

Expansion Module #2 games

Bump'n Jump (Optional)
Burn Rubber (Optional)
Destructor (Required)
Dukes of Hazzard, The (Required)
Fall Guy, The (Proto) (Required)
Pitstop (Optional)
Turbo (Required)

Roller Controller games

Centipede (Optional)
Mindwalls (Optional)
Omega Race (Optional)
Slither (Required)
Victory (Optional)
WarGames (Optional)

Super Action Controller games

Front Line (Required)
Rocky: Super Action Boxing (Required)
Spy Hunter (Optional)

Star Trek: Strategic Operations Simulator (Optional)
Super Action Baseball (Required)
Super Action Football (Required)
Super Action Football (Soccer) (Required)

The homebrew game Juno First shows garbled graphics.

Jailbreak

Standard ROMs up to 32KB are supported as well as the Mega-Cart mapper which allows games up to 512KB. If a game is larger than 32KB, the Mega-Cart mapper will be assumed.

Two homebrew/reproduction games, The Black Onyx and Boxxle use EEPROM for saving, 256 bytes and 32KB, respectively. Rename their extensions to .ce0 and .ce1, respectively to get them working.

Core Options

BIOS

ColecoVision games will not work without a BIOS, and this menu lets you choose one to use. Three BIOSes are known to exist, the official Coleco BIOS, the hacked BIOS with the ten second boot delay removed, and the Bit-Corp Dina 2-in-1 BIOS. One variant of the hacked BIOS has a different font and some games may look incorrect when using this BIOS. The Dina BIOS contains a built-in game called Meteoric Shower which plays when you turn the system on and there is no cartridge inserted into the console. As the Mega Sg does not simulate that state, you should just play the standalone Meteoric Shower, it is identical to the built-in game.

Use SGM

Enables the Super Game Module upgrade.

System

Hardware

Allows you to set the system mode to USA/NTSC or PAL. There are few, if any PAL-only ColecoVision games.