Sega Master System

The Sega Master System (a.k.a. Master System II/Gam*Boy/Aladdin Boy/Comboy) is a home videogame console developed by Sega. It was released in 1985 in Japan, and then 1986 in North America. It retailed for $199 USD ($501 in 2021). It had a Zilog Z80A at 4 MHz with 8KB of RAM and 16KB of VRAM. It featured a Yamaha YM2602B VDP GPU.

Originally, it was just a remodelled version of the Sega Mark III, intended to be released outside of Japan (which all the SG-1000 were exclusively released in up until this point).

The Master System II, a cheaper model of the Master System, was released four years later in North America, Australasia and Europe.

It's very likely you've never heard of this system, despite Sega's infamy in the fourth generation. The Mastery System was competing against the NES, shortly after the videogame crash of '86, so it was already on rocky ground. To top that off, Nintendo's licensing policies required platform exclusivity, so many games could *not* be ported to the Master System, even if the developers wanted to. In North America, it couldn't even be compared to the NES's significant market share, however it had great success in other markets including Europe, Brazil, South Korea and Australia. In fact, the PAL library of the Master System is considered more diversified than the others, due to having more backports of later Genesis/Megadrive games and a longer lifespand in general.

In particular, Brazilian toy and electronics manufacturer Tectoy distributed created multiple licensed variants of the Master System beginning in 1989, four years before Nintendo would start distributing the NES in Brazil. Due to its earlier release and cheap manufacturing price, it had great continued success in the region. Tectoy would continue to manufacture the Master System and “plug and play” variants of it in Brazil long after its lifespan, even competing against systems like the PlayStation 4. Technically, it has been the longest “lived” console in all of history, but that may depend on your specifications of what “lifespan” is.

The Master System's hardware design would later be miniaturized and repurposed for the portable Game Gear system. For this reason, the Game Gear featured many ports of Master System games, however games for the Master System were not directly compatible with the Game Gear (an adapter exists, but with issues). Tectoy would port some games made specifically for the Game Gear back to the Master System for its Brazilian market.

This system scrapes metadata for the “mastersystem” group and loads the `mastersystem` set from the currently selected theme, if available.

Quick reference

- **Emulator:** RetroArch
- **Cores available:** libretro: GenesisPlusGX, libretro: Picodrive

- **Folder:** `/userdata/roms/mastersystem`
- **Accepted ROM formats:** `.bin`, `.sms`, `.zip`, `.7z`

BIOS

No Sega Master System emulator in Batocera needs a BIOS file to run.

ROMs

Place your Sega Master System ROMs in `/userdata/roms/mastersystem`.

Emulators

Due to the Master System's similarities to the Game Gear, most Master System emulators are also Game Gear emulators. Most Master System emulators were initially designed as Megadrive/Genesis emulators, and so they include all three systems.

RetroArch

RetroArch (formerly SSNES), is a ubiquitous frontend that can run multiple “cores”, which are essentially the emulators themselves. The most common cores use the libretro API, so that's why cores run in RetroArch in Batocera are referred to as “libretro: (core name)”. RetroArch aims to unify the feature set of all libretro cores and offer a universal, familiar interface independent of platform.

RetroArch configuration

RetroArch offers a **Quick Menu** accessed by pressing `[HOTKEY]` +  which can be used to alter various things like RetroArch and core options, and controller mapping. Most RetroArch related settings can be altered from Batocera's EmulationStation.

Standardized features available to all libretro cores: `mastersystem.videomode`, `mastersystem.ratio`, `mastersystem.smooth`, `mastersystem.shaders`, `mastersystem.pixel_perfect`, `mastersystem.decoration`, `mastersystem.game_translation`

ES setting name `batocera.conf_key`	**Description ⇒ ES option `key_value`**
Settings that apply to all cores of this emulator	
GRAPHICS BACKEND `mastersystem.gfxbackend`	Choose your graphics rendering ⇒ OpenGL `opengl`, Vulkan `vulkan`.
AUDIO LATENCY `mastersystem.audio_latency`	Audio latency in milliseconds, turn it up if you hear crackles ⇒ 256 256, 192 192, 128 128, 64 64, 32 32, 16 16, 8 8.

ES setting name batocera.conf_key	Description ⇒ ES option key_value
THREADED VIDEO mastersystem.video_threaded	Improves performance at the cost of latency and more video stuttering. Use only if full speed cannot be obtained otherwise. ⇒ On true, Off false.

libretro: GenesisPlusGX

A good all-around emulator. It can run Sega Genesis/Megadrive, Sega Master System, Sega/Mega CD and Game Gear games, but lacks 32X and Pico support.

libretro: GenesisPlusGX configuration

ES setting name batocera.conf_key	Description ⇒ ES option key_value
Settings that apply to all systems this core supports	
REDUCE SPRITE FLICKERING global.gpgx_no_sprite_limit	Reduce sprite flickering when enabled ⇒ Off disabled, On enabled.
Settings specific to megadrive	
NTSC FILTER megadrive.gpgx_blargg_filter_md	Enable blargg NTSC video filters ⇒ Off False, Composite (color bleeding + artifacts) composite, SVideo (color bleeding only) svideo, RGB (crisp image) rgb.
SHOW LIGHTGUN CROSSHAIR megadrive.gun_cursor_md	Shows crosshairs for Menacer and Justifiers devices ⇒ Off disabled, On enabled.
CONTROLLER 1 TYPE megadrive.controller1_md	Select 3 or 6 button controller, mouse or Multitap ⇒ Joypad Auto 1, Joypad 3 Button 257, Joypad 6 Button 513, Joypad 3 Button + 4-WayPlay 1025, Joypad 6 Button + 4-WayPlay 1281, Joypad 3 Button + Teamplayer 1537, Joypad 6 Button + Teamplayer 1793, Mouse 2.
CONTROLLER 2 TYPE megadrive.controller2_md	Select controller, Multitap, mouse or Gun ⇒ Joypad Auto 1, Joypad 3 Button 257, Joypad 6 Button 513, Joypad 3 Button + 4-WayPlay 1025, Joypad 6 Button + 4-WayPlay 1281, Joypad 3 Button + Teamplayer 1537, Joypad 6 Button + Teamplayer 1793, Mouse 2, Menacer Light Gun 516, Konami Justifiers 772.
Settings specific to mastersystem	
NTSC FILTER mastersystem.gpgx_blargg_filter_ms	Enable blargg NTSC video filters ⇒ Off False, Composite (color bleeding + artifacts) composite, SVideo (color bleeding only) svideo, RGB (crisp image) rgb.

ES setting name `batocera.conf_key`	**Description ⇒ ES option** `key_value`
FM CHIP (YM2413) `mastersystem.ym2413`	Enhanced sound output support for compatible games ⇒ Autodetect `automatic`, Off `disabled`, On (forced) `enabled`.
SHOW LIGHTGUN CROSSHAIR `mastersystem.gun_cursor_ms`	Shows crosshairs for Light Phaser device ⇒ Off `disabled`, On `enabled`.
CONTROLLER 1 TYPE `mastersystem.controller1_ms`	Select 2 button controller, Lightgun or Multitap ⇒ Joypad 2 Button `769`, Joypad 2 Button + Master Tap `2049`, Light Phaser `260`, Paddle Control `261`.
CONTROLLER 2 TYPE `mastersystem.controller2_ms`	Select 2 button controller, Lightgun or Multitap ⇒ Joypad 2 Button `769`, Joypad 2 Button + Master Tap `2049`, Light Phaser `260`, Paddle Control `261`.
Settings specific to gamegear	
LCD GHOSTING FILTER `gamegear.lcd_filter`	Simulate LCD ghosting effects ⇒ Off `disabled`, On `enabled`.
EXTENDED SCREEN `gamegear.gg_extra`	Extend the game screen area like on a Master System ⇒ Off `disabled`, On `enabled`.

libretro: Picodrive

A lighter emulator which although not as accurate as GenesisPlusGX, can be run on much weaker hardware. This should be the default for devices such as the Raspberry Pi Zero and other sub-1GHz CPUs. Currently the only cross-architecture option for 32X and Pico games.

libretro: Picodrive configuration

ES setting name `batocera.conf_key`	**Description ⇒ ES option** `key_value`
Settings that apply to all systems this core supports	
REDUCE SPRITE FLICKERING `global.picodrive_sprlim`	Reduce sprite flickering when enabled ⇒ Off `disabled`, On `enabled`.
CROP OVERSCAN `global.picodrive_cropoverscan`	Crops out video edge hidden under bezel of analog TV ⇒ Off `disabled`, On `enabled`.
CONTROLLER 1 TYPE `global.picodrive_controller1`	Select 3 or 6 button controller ⇒ Joypad 3 Button `3 button pad`, Joypad 6 Button `6 button pad`.
CONTROLLER 2 TYPE `global.picodrive_controller2`	Select 3 or 6 button controller ⇒ Joypad 3 Button `3 button pad`, Joypad 6 Button `6 button pad`.

Known game emulation issues with Picodrive

- **Gauntlet** - The HUD lags behind when the screen is scrolling.
- **Golden Axe Warrior** - The game uses a save system, which doesn't work and results in visual glitches in the save and load menus. It crashes when trying to load a game.
- **Phantasy Star** - The game uses a save system, which doesn't work and results in visual glitches in the save and load menus. It crashes when trying to load a game.
- **Wonder Boy in Monster Land** - Won't get past the title screen.
- **Ys - the vanished Omens** - The game uses a save system, which doesn't work and results in the start of the game being completely unplayable.

Controls

The Master System featured multiple controllers such as the regular rectangular two-button controllers, the Light Phaser (a lightgun) and a paddle controller.

The original controller labelled the `[1]` button as `[START]`, so if a game requests you to press the `[START]` button it's actually referring to `[1]`. Some controllers also used Roman numerals instead (I, II).

Here are the default Sega Master System's controls shown on a Batocera Retropad:

You might recall that there wasn't a `[PAUSE]` button on the original Master System controller, and you'd be right. The `[PAUSE]` button is in reference to the button on the console itself.

Troubleshooting

Further troubleshooting

For further troubleshooting, refer to the generic support pages.

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