



Sega NAOMI

The Sega NAOMI (stands for “New Arcade Operation Machine Idea”) is a arcade developed by Sega. It was released in 1998. Designed to be the successor to the [Model 3](#), it uses similar architecture to that of the [Dreamcast](#). Because of this, emulation of NAOMI games is usually best done with a Dreamcast emulator (modifications have already been made to allow for this in Flycast, for instance). Features arcade games like Crazy Taxi, Dead or Alive 2 and Samba de Amigo.

Although “NAOMI” can refer to multiple different types of boards released by Sega during this time period, Batocera specifically refers to just the original NAOMI board released in 1998 when mentioning “NAOMI” (at least for now).

Due to the similarity between NAOMI and the Dreamcast, most games were also ported to the Dreamcast, and a few even getting ported to other consoles of the generation. It may be easier to attempt to emulate those than their arcade counterparts.

For those interested in the hardware aspect, [here's a cool article about it on Sega Retro](#).

This system scrapes metadata for the “naomi” and “arcade” groups and loads the naomi set from the currently selected theme, if available.



Quick reference

- **Accepted ROM formats:** .lst, .bin, .dat, .zip, .7z
- **Folder:** /userdata/roms/naomi

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BIOS

The BIOS is optional but I dunno you probably want to include it anyway.

MD5 checksum	Share file path	Description
eb4099aeb42ef089cfe94f8fe95e51f6	bios/naomi.zip	NAOMI MAME BIOS

Some games have optional extra BIOS files that can be used, but they aren't required to run them.

MD5 checksum	Share file path	Description
	hod2bios.zip	The House of the Dead 2 MAME BIOS
	f355dlx.zip	Ferrari F355 Challenge Deluxe MAME BIOS

MD5 checksum	Share file path	Description
	f355bios.zip	Ferrari F355 Challenge Twin/Deluxe MAME BIOS
	airlbios.zip	Airline Pilots Deluxe MAME BIOS

ROMs

Place your Sega NAOMI ROMs in `/userdata/roms/naomi`.

[User-friendly compatibility list for Flycast.](#)

If you're willing to search through code, [here's the list of all the expected ROM hashes.](#)

Some NAOMI boards use just ZIP ROMs to run, but most others use a ZIP in addition to an image (or **CHD**) file. In order to use ROMs that come with a image, the image must be placed in a subfolder with the same name as the game's ZIP file with the MAME ID as its filename. For example:

```
roms/  
└─ naomi/  
    └─ ikaruga/  
        └─ gdl-0010.chd  
    └─ ikaruga.zip
```

Emulators

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: `naomi.videomode`, `naomi.ratio`, `naomi.shader`, `naomi.smooth`, `naomi.integerscale`, `naomi.bezel`, `naomi.bezel_stretch`, `naomi.hud`, `naomi.bezel.tattoo`, `naomi.bezel.tattoo_corner`, `naomi.bezel.tattoo_file`, `naomi.bezel.resize_tattoo`, `naomi.ai_service_enabled`, `naomi.ai_target_lang`, `naomi.ai_service_url`, `naomi.ai_service_pause`, `naomi.integerscale`, `naomi.runahead`, `naomi.secdistance`, `naomi.video_frame_delay_auto`, `naomi.vrr_runloop_enable`, `naomi.video_threaded`

ES setting name batocera.conf_key	Description ⇒ ES option key_value
Settings that apply to all cores of this emulator	
GRAPHICS BACKEND naomi.gfxbackend	Choose your graphics rendering ⇒ OpenGL opengl, Vulkan vulkan.
AUDIO LATENCY naomi.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.
ALLOW ROTATION naomi.video_allow_rotate	Allow cores to set rotation. ⇒ On true, Off false.
CONTROLLER TO LIGHTGUN naomi.lightgun_map	Map controller inputs to lightgun inputs ⇒ On true, Off false.

libretro: Flycast

A fork of a fork of a fork... this is an identical version of standalone Flycast but inside of a libretro core. Makes use of RetroArch's features.

libretro: Flycast configuration

ES setting name batocera.conf_key	Description ⇒ ES option key_value
Settings that apply to all systems this core supports	
SYNCHRONOUS RENDERING global.reicast_synchronous_rendering	When threaded rendering is on (on by default), waits for the GPU to finish rendering the frame before dropping the current one. This can avoid certain emulation issues (flashing screens, glitchy video). Significant performance cost. Recommended "Off" for most games as they don't experience issues (or you have a weak machine), "On" if the game has these particular issues. ⇒ Off disabled, On enabled.
RENDERING RESOLUTION global.reicast_internal_resolution	Enhancement. Increases the rendering resolution. Makes 3D objects clearer. Significant performance cost. Use 640×480 for native. Absurdly high values can degrade image quality (pixels beginning to shimmer). ⇒ 640×480 640×480, 800×600 800×600, 960×720 960×720, 1024×768 1024×768, 1280×960 1280×960, 1440×1080 1440×1080, 1600×1200 1600×1200, 1920×1440 1920×1440, 2560×1920 2560×1920, 3200×2400 3200×2400, 3840×2880 3840×2880, 4480×3360 4480×3360, 5120×3840 5120×3840, 5760×4320 5760×4320, 6400×4800 6400×4800, 7040×5280 7040×5280, 7680×5760 7680×5760.

ES setting name batocera.conf_key	Description ⇒ ES option key_value
TEXTURE MIP-MAPPING (BLUR) global.reicast_mipmapping	Enables mip-mapping to smooth out textures on distant 3D objects based on distance and angle. Dreamcast games natively utilized mipmapping to get extra performance out of the hardware, but the extra bluriness from doing this is more apparent on modern, higher fidelity screens. Has a minimal performance cost. enabled should be used in conjunction with anisotropic filtering to mitigate bluriness. Some users may prefer the 'sharpness' of disabled better. ⇒ Off disabled, On enabled.
ANISOTROPIC FILTERING global.reicast_anisotropic_filtering	Enables anisotropic filtering to enhance perspective textures. Dramatically improves the clarity of textures on distant 3D objects when mip-mapping is turned on, especially at higher internal resolutions. Test Drive: Le Mans is the only Dreamcast game that natively utilizes this. Has a small performance cost. Generally safe to use 16x when mip-mapping is also enabled, leave on "Off" otherwise. ⇒ Off False, 2x 2, 4x 4, 8x 8, 16x 16.
TEXTURE UPSCALING (XBRZ) global.reicast_texupscale	Enhancement. Applies xBRZ upscaling to textures to improve their clarity. Improvements are subjective. ⇒ Off False, 2x 2x, 4x 4x, 6x 6x.
RENDER TO TEXTURE UPSCALING global.reicast_render_to_texture_upscaling	Enhancement. Some 3D games would capture the screen output and render it as a 2D texture (eg. pause menu in Crazy Taxi and Dead or Alive), being unaffected by reicast_internal_resolution. This setting multiplies the resolution of that capture. Example here . "Off" for native, "4x" for close-to 1080p rendering (only useful if also upscaling the internal resolution). ⇒ Off 1x, 2x 2x, 3x 3x, 4x 4x, 8x 8x.
FRAMESKIP global.reicast_frame_skipping	Skip frames to improve performance, at the cost of choppy motion. Higher values can cause motion sickness if used for extended periods. Should only be turned up on weak hardware and if immune to motion sickness. ⇒ Off disabled, 1 1, 2 2, 3 3, 4 4, 5 5, 6 6.

ES setting name batocera.conf_key	Description ⇒ ES option key_value
FORCE WINDOWS CE MODE global.reicast_force_wince	Some Dreamcast games (marked "Powered by Microsoft Windows CE" on the box, eg. Sega Rally 2) utilized the MMU Windows Compact Edition API on the Dreamcast to run. Batocera should automatically detect this but in case it doesn't you can manually override it here. Significant performance cost. ⇒ Off disabled, On enabled.
WIDESCREEN CHEAT (PRIORITY) global.reicast_widescreen_cheats	Enhancement. Flycast has a database of cheats that can enable widescreen support in certain games, rendering them in anamorphic widescreen without changing the internal resolution. Some games also natively support widescreen in their in-game options. A 16/9 ratio must be used and bezels must be disabled. ⇒ Off disabled, On enabled.
WIDESCREEN HACK global.reicast_widescreen_hack	Enhancement. Changes the internal resolution to a widescreen ratio (eg. 640×480 becomes 853×480). Somewhat glitchy. Some games also natively support widescreen in their in-game options. A 16/9 ratio must be used and bezels must be disabled. ⇒ Off disabled, On enabled.
CONTROLLER 1 TYPE global.controller1_dc	Chooses the controller plugged into port 1. ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4.
CONTROLLER 2 TYPE global.controller2_dc	Same as above for port 2. ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4.
CONTROLLER 3 TYPE global.controller3_dc	Same as above for port 3. ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4.
CONTROLLER 4 TYPE global.controller4_dc	Same as above for port 4. ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4.
Settings specific to atomiswave	
SCREEN ORIENTATION atomiswave.screen_rotation_atomiswave	Rotate screen for some arcade games ⇒ Horizontal horizontal, Vertical vertical.
Settings specific to naomi	
SCREEN ORIENTATION naomi.screen_rotation_naomi	Rotate screen for some arcade games ⇒ Horizontal horizontal, Vertical vertical.

All other settings can be configured from RetroArch's **Quick Menu** → **Options** ([H0TKEY] + ).

Flycast

[Flycast](#) is a fork of [Reicast](#) (which itself is a fork of nullDC). A highly compatible and accurate standalone Dreamcast emulator.

Flycast can also be used to run NAOMI arcade games due to being nearly identical hardware. Not all NAOMI games are [compatible](#) yet but most of them are.

Flycast configuration

Standardized features available to all cores of this emulator: `dreamcast.videomode`, `dreamcast.videomode`, `dreamcast.bezel`, `dreamcast.bezel_stretch`, `dreamcast.hud`, `dreamcast.bezel.tattoo`, `dreamcast.bezel.tattoo_corner`, `dreamcast.bezel.tattoo_file`, `dreamcast.bezel.resize_tattoo`

ES setting name batocera.conf_key	Description ⇒ ES option key_value
Settings that apply to all cores of this emulator	
SCREEN RATIO <code>naomi.flycast_ratio</code>	Choose which screen ratio you want to use. ⇒ Default False, Widescreen True.
RENDER RESOLUTION <code>naomi.flycast_render_resolution</code>	Choose which internal rendering resolution you want to use. ⇒ 320×240 (Half) 240, 640×480 (Native) 480, 960×720 (x1.5) 720, 1280×960 (x2) 960, 1600×1200 (x2.5) 1200, 1920×1440 (x3) 1440, 2560×1920 (x4) 1920, 2880×2160 (x4.5) 2160.
GRAPHICS API <code>naomi.flycast_renderer</code>	Choose your graphics renderer. ⇒ OpenGL (Default) 0, Vulkan 4.
ROTATE SCREEN 90 DEGREES <code>naomi.flycast_rotate</code>	Rotate the screen by 90 degrees. ⇒ Normal False, Rotate True.

All other configuration must be done via the `flycast-config` in the Applications folder ([F1] on the systems screen).

Demul

From their FAQ:

Demul is Sega's multi-system game console and automaton emulator, originally intended solely to emulate the Sega Dreamcast game console. Currently, the emulator also supports emulation of Sega Dreamcast-based slot machines: Naomi, Naomi 2 and Atomiswave . Support for Sega Model 3, Sega Hikaru, Sega Saturn is under development .

Demul configuration

Standardized features available to all cores of this emulator: `naomi.videomode`, `naomi.bezel`, `naomi.bezel_stretch`, `naomi.hud`, `naomi.bezel.tattoo`, `naomi.bezel.tattoo_corner`, `naomi.bezel.tattoo_file`, `naomi.bezel.resize_tattoo`

ES setting name <code>batocera.conf_key</code>	Description ⇒ ES option <code>key_value</code>
Settings that apply to all cores of this emulator	
GAME ASPECT RATIO <code>global.demulRatio</code>	⇒ Stretch 0, 4:3 (Default) 1, 16:9 2.
VSYNC <code>global.demulVSync</code>	Fix screen tearing. ⇒ Off 0, On 1.

Controls

How does this even work?

Here are the default Sega Naomi's controls shown on a [Batocera Retropad](#):



Troubleshooting

Further troubleshooting

For further troubleshooting, refer to the [generic support pages](#).

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