Sega NAOMI

The Sega NAOMI (stands for “New Arcade Operation Machine Idea”) is an arcade developed by Sega and 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

**Emulators**

libretro: Flycast

Flycast

**BIOS**

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

<table>
<thead>
<tr>
<th>MD5 checksum</th>
<th>Share file path</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>eb4099aeb42ef089cfe94f8fe95e51f6</td>
<td>bios/naomi.zip</td>
<td>NAOMI MAME BIOS</td>
</tr>
</tbody>
</table>

Some games have optional extra BIOS files that can be used, but they aren't required to run them.
<table>
<thead>
<tr>
<th>MD5 checksum</th>
<th>Share file path</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>hod2bios.zip</td>
<td></td>
<td>The House of the Dead 2 MAME BIOS</td>
</tr>
<tr>
<td>f355dlx.zip</td>
<td></td>
<td>Ferrari F355 Challenge Deluxe MAME BIOS</td>
</tr>
<tr>
<td>f355bios.zip</td>
<td></td>
<td>Ferrari F355 Challenge Twin/Deluxe MAME BIOS</td>
</tr>
<tr>
<td>airlbios.zip</td>
<td></td>
<td>Airline Pilots Deluxe MAME BIOS</td>
</tr>
</tbody>
</table>

### 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.smooth, naomi.shaders, naomi.pixel_perfect, naomi.decoration, naomi.game_translation

<table>
<thead>
<tr>
<th>ES setting name batocera.conf_key</th>
<th>Description ⇒ ES option key_value</th>
<th>Settings that apply to all cores of this emulator</th>
</tr>
</thead>
</table>

https://wiki.batocera.org/
ES setting name batocera.conf_key | Description ⇒ ES option key_value
--- | ---
GRAPHICS BACKEND naomi.gfxbackend | Choose your graphics rendering  
⇒ OpenGL opengl, Vulkan vulkan.

AUDI0 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.

THREADED VIDEO naomi.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: 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**

<table>
<thead>
<tr>
<th>ES setting name batocera.conf_key</th>
<th>Description ⇒ ES option key_value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Settings that apply to all systems this core supports</td>
<td></td>
</tr>
</tbody>
</table>
| SYNCHRONOUS RENDERING  
global.reicast_synchronous_rendering | Wait for the GPU to render frames instead of skipping  
⇒ Off disabled, On enabled. |
| VIDEO RESOLUTION  
global.reicast_internal_resolution | Improve the fidelity of 3D models (does not affect 2D sprites)  
⇒ 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, 8320×6480, 9040×6960, 9600×7200, 10240×8640, 10880×9040, 11520×9500, 12160×10000, 12800×10560, 13440×11120, 14080×11680, 14720×12240, 15360×12800. |
| TEXTURE MIP-MAPPING (BLUR)  
global.reicast_mipmapping | Smooths out textures on 3D objects  
⇒ Off disabled, On enabled. |
<table>
<thead>
<tr>
<th>ES setting name</th>
<th>Description ⇒ ES option key_value</th>
</tr>
</thead>
<tbody>
<tr>
<td>batocera.conf_key</td>
<td>ES option key_value</td>
</tr>
</tbody>
</table>
| **ANISOTROPIC FILTERING**
  global.reicast_anisotropic_filtering | Enhance the quality of distant perspective textures ⇒ Off False, 2x 2, 4x 4, 8x 8, 16x 16. |
| **TEXTURE UPSCALING (XBRZ)**
  global.reicast_texupscale | Upscaling 2D pixel art graphics (2D Games Only) ⇒ Off False, 2x 2x, 4x 4x, 6x 6x. |
| **RENDER TO TEXTURE UPSCALING**
  global.reicast_render_to_texture_upscaling | Upscaling textures resolution on 3D objects ⇒ Off 1x, 2x 2x, 3x 3x, 4x 4x, 8x 8x. |
| **FRAME SKIP**
  global.reicast_frame_skipping | Skip frames to improve performance (smoothness) ⇒ Off disabled, 1 1, 2 2, 3 3, 4 4, 5 5, 6 6. |
| **FORCE WINDOWS CE MODE**
  global.reicast_force_wince | Enable full MMU emulation for Windows CE games ⇒ Off disabled, On enabled. |
| **WIDESCREEN CHEAT (PRIORITY)**
  global.reicast_widescreen_cheats | You must use a 16/9 RATIO and disable BEZEL ⇒ Off disabled, On enabled. |
| **WIDESCREEN HACK**
  global.reicast_widescreen_hack | You must use a 16/9 RATIO and disable BEZEL ⇒ Off disabled, On enabled. |
| **CONTROLLER 1 TYPE**
  global.controller1_dc | Select Gamepad, Keyboard, Mouse or Light Gun ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4. |
| **CONTROLLER 2 TYPE**
  global.controller2_dc | Select Gamepad, Keyboard, Mouse or Light Gun ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4. |
| **CONTROLLER 3 TYPE**
  global.controller3_dc | Select Gamepad, Keyboard, Mouse or Light Gun ⇒ Gamepad 1, Keyboard 3, Mouse 2, Light Gun 4. |
| **CONTROLLER 4 TYPE**
  global.controller4_dc | Select Gamepad, Keyboard, Mouse or Light Gun ⇒ 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** |
ES setting name batocera.conf_key | Description ⇒ ES option key_value
---|---
SCREEN ORIENTATION naomi.screen_rotation_naomi | Rotate screen for some arcade games ⇒ Horizontal, vertical.

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

### 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: naomi.videomode, naomi.ratio

Flycast cannot be configured in EmulationStation; all other configuration must be done via the flycast-config in the Applications folder ([F1] on the systems screen).

### Controls

*How does this even work?*

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

![Controls](image)

### Troubleshooting

### Further troubleshooting

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