

# Sega Chihiro

The **Sega Chihiro** is an arcade system board developed by **Sega** in collaboration with **Microsoft**, released in **2002**. It is based on the original Xbox hardware with doubled RAM (128 MB vs 64 MB) and additional arcade-specific boards for GD-ROM loading, JVS I/O, and VGA output. It was Sega's last arcade board derived from a home console. Notable games include *The House of the Dead III*, *OutRun 2*, *Virtua Cop 3*, *Ghost Squad*, and *Wangan Midnight Maximum Tune*.



## Quick reference

- **Emulator:** [xemu](#)
- **Folder:** /userdata/roms/chihiro
- **Accepted ROM formats:** .iso



Sega Chihiro emulation requires an **x86\_64** system. ARM devices (Raspberry Pi, Odroid, etc.) are not supported.



Only a handful of Chihiro games are currently playable through xemu. See the [game compatibility](#) section below.

## BIOS

The following BIOS files are required and must be placed in /userdata/bios/:

File	MD5	Description
mcp_x_1.0.bin	d49c52a4102f6df7bcf8d0617ac475ed	Xbox/Chihiro boot ROM (MCPX)
cerbios.bin	f23d7e00ae8fbf88908ed1f9165f35eb	Cerbios custom flash ROM



Unlike regular Xbox emulation which uses `Complex_4627.bin`, Chihiro requires **Cerbios** (`cerbios.bin`) as its flash ROM. Batocera handles this automatically.

## ROMs

Place your ROM files in:

/userdata/roms/chihiro/

ROMs must be in **XISO format** (.iso extension). These are Xbox-compatible patched versions of the original Chihiro GD-ROM disc images. Standard MAME ROM sets (.zip / .chd) are **not** used for this system.

## Game compatibility



Only a few Chihiro games have been converted to work with xemu. The following games are known to be supported in Batocera:

Game	Year	Input type	Status	Note
Ghost Squad	2004	lightgun	Playable	Light gun not supported in xemu. Only controller.
OutRun 2	2003	steering wheel / pedals	Playable	Steering wheel not supported in xemu. Only controller.
Virtua Cop 3	2003	lightgun	Playable	Light gun not supported in xemu. Only controller.

## Full Chihiro game library

The complete Chihiro arcade library includes the following titles. Most of these are **not yet playable** through xemu in Batocera.

### Lightgun games

Game	Year	Notes
The House of the Dead III	2002	2-player lightgun + reload button
Virtua Cop 3	2003	2-player lightgun + foot pedal (bullet time)
Ghost Squad	2004	2-player lightgun + weapon/mode switch buttons

### Racing games

Game	Year	Notes
Crazy Taxi High Roller	2003	Steering wheel + pedals
OutRun 2	2003	Steering wheel + pedals + gear shift
OutRun 2 Special Tours	2004	Steering wheel + pedals + gear shift
Wangan Midnight Maximum Tune	2004	Steering wheel + pedals + 6-speed shift (Namco)
Wangan Midnight Maximum Tune 2	2005	Steering wheel + pedals + 6-speed shift (Namco)

### Other games

Game	Year	Notes
Ollie King	2003	Skateboard controller
Sega Golf Club Network Pro Tour 2005	2004	Joystick + buttons, network game
Sega Club Golf 2006 Next Tours	2005	Joystick + buttons, network game
Quest of D	2004	Card reader + joystick, network RPG
Quest of D Ver. 3.02	2007	Card reader + joystick, network RPG
Quest of D The Battle Kingdom	2007	Card reader + joystick, network RPG
Sega Network Taisen Mahjong MJ 2	2005	Mahjong panel, network game
Sega Network Taisen Mahjong MJ 3	2006	Mahjong panel, network game
Sega Network Taisen Mahjong MJ 3 Evolution	2007	Mahjong panel, network game
Gundam Battle Operating Simulator	2005	Special cockpit controls (Banpresto)
Mobile Suit Gundam 0079 Card Builder	2005	Card reader + joystick (Banpresto)
Mobile Suit Gundam 0083 Card Builder	2007	Card reader + joystick (Banpresto)

## Emulators

### xemu

[xemu](#) is an open-source Xbox emulator that also supports Chihiro arcade hardware. It is the only emulator available for Chihiro in Batocera.

Batocera automatically applies Chihiro-specific settings when launching games from the Chihiro system:



- Memory is set to **128 MiB** (double the standard Xbox 64 MiB)
- Flash ROM is set to **Cerbios** instead of the standard Xbox flash
- Renderer is forced to **OpenGL** due to a known Vulkan bug with Chihiro games

### xemu configuration

ES setting name batocera.conf key	Description ⇒ ES option key value
<b>EMULATOR</b> chihiro.emulator	Emulator to use. ⇒ xemu (default)
<b>RENDERING RESOLUTION</b> chihiro.rendering_resolution	Internal rendering resolution multiplier. ⇒ 1x (default) through 10x
<b>SCALING MODE</b> chihiro.scaling_mode	How the image is scaled to fit the screen. ⇒ scale (default), center, stretch
<b>ASPECT RATIO</b> chihiro.aspect_ratio	Display aspect ratio. ⇒ native (default), 4:3, 16:9
<b>VSYNC</b> chihiro.vsync	Vertical sync. ⇒ on (default), off
<b>BIOS BOOT LOGO</b> chihiro.skip_bios	Show or skip the boot animation. ⇒ show (default), skip

## Controls

Chihiro games use a wide variety of input devices. Standard gamepad mapping works for most titles.

**Lightgun games** (House of the Dead III, Virtua Cop 3, Ghost Squad) require a compatible lightgun device (not supported yet). See the [lightgun setup guide](#) for configuration. Virtua Cop 3 additionally uses a **foot pedal** for the bullet time feature — this can be mapped to a button.

**Racing games** (OutRun 2, Crazy Taxi, Wangan Midnight) benefit from an **analog steering wheel and pedals** (not supported yet), but can also be played with an analog gamepad.

**Specialized controllers** (mahjong panels, card readers, skateboard controllers) used by some Chihiro games are difficult to emulate with standard input devices. Games requiring these controllers may not be fully playable.

## Hardware specifications

Component	Specification
Manufacturer	Sega / Microsoft
Year	2002
CPU	Intel Pentium III @ 733 MHz
GPU	NVIDIA NV2A (GeForce 3-class) @ 200 MHz
RAM	128 MB DDR (shared, 2× Xbox)
Extended RAM	Up to 512 MB or 1 GB (DIMM board)
Sound	MCPX AC'97 + Motorola DSP56362 coprocessor
Media	GD-ROM (loaded entirely into DIMM RAM)
Display	640×480 VGA @ 60 Hz
Polygon performance	125 million polygons/sec
I/O	JVS (Japan Video Standard)
Based on	Microsoft Xbox

### Board variants

- **Type 1** — Uses a removable NAOMI-style DIMM board. Less common.
- **Type 3** — Integrated DIMM board in a compact cube form factor, 512 MB or 1 GB RAM. Most common variant. Some early games (Crazy Taxi High Roller, House of the Dead III) are reportedly incompatible with Type 3 hardware.

Games are copied entirely from GD-ROM into DIMM RAM before execution, eliminating disc loading times during gameplay.

## Troubleshooting

### "BIOS file not found" error

Make sure both BIOS files are present in `/userdata/bios/`:

- `mcp_x_1.0.bin`
- `cerbios.bin`

You can verify BIOS files via the Batocera menu: *System Settings* → *Missing BIOS*.

## Game doesn't boot or shows black screen

- Verify your `.iso` file is a valid XISO-format image. Standard ISO-9660 images will not work.
- Ensure the file is a Chihiro-patched version, not a raw GD-ROM dump.
- Try toggling *BIOS Boot Logo* to skip in the per-game settings.

## Graphical glitches

Batocera forces OpenGL for Chihiro due to a known Vulkan bug. If you experience graphical issues, ensure no manual override is set in `batocera.conf`:

```
# Remove or comment out this line if present:  
# chihiro.gfxbackend=vulkan
```

## No sound

Audio emulation in xemu for Chihiro games may be incomplete. Some games may have missing or distorted audio. This is a known limitation of the emulator.

## Performance is poor

Chihiro emulation is demanding. Ensure you are running on an **x86\_64** system with:

- A modern multi-core CPU (Intel Core i5/i7 or AMD Ryzen recommended)
- A dedicated GPU with OpenGL 4.0+ support
- At least 4 GB system RAM

## Why can't I use MAME for Chihiro?

The MAME Chihiro driver (`chihiro.cpp`) has **preliminary** status for all games — no game is playable, sound is completely unemulated, and 3D rendering is non-functional. This is due to the extreme complexity of emulating the Xbox-derived hardware (NV2A GPU, MCPX APU, modified Xbox kernel). Batocera uses xemu instead, which provides significantly better compatibility through its Xbox-focused emulation approach.

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