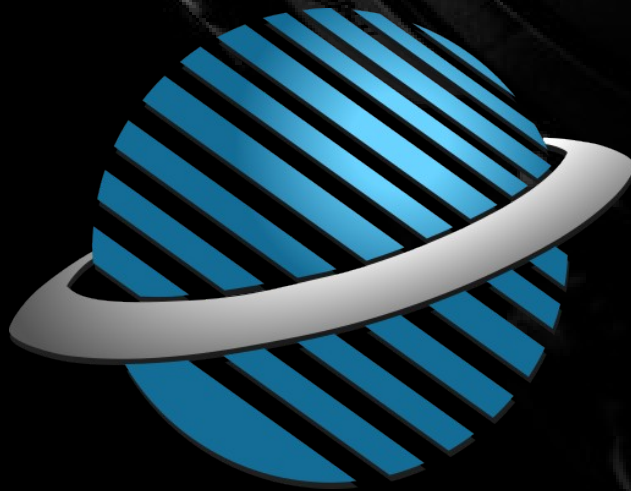


SRL – Saturn Ring Library

SRL (Saturn Ring Library) is a library meant to make home brew development for the Sega Saturn easier.



SRL – Context

- Sega Saturn is a 32Bit game console developed by Sega , released in japan in 1994, and in Europe and North America in 1995.



SRL – Context

- Sega Saturn is a machine with a interesting architecture, that is a challenge to program for (that is kind of the point to try to develop for it) :
 - Main CPU's
 - Two Hitachi SH-2 CPU's @ 28,5 MHz
 - 2Mb RAM (1Mb LWRAM + 1Mb HWRAM)
 - CD ROM subsystem
 - Hitachi SH-1 + 512Kb RAM
 - SCSP-DSP (Digital Signal Processor)
 - Sound Subsystem
 - Motorola 68EC000 + 512Kb RAM
 - Video Subsystem
 - VDP 1 + (x2) Frame buffers with 256Kb + VRAM 512Kb
 - VDP2 + 512 VRAM

SRL – Context

- However this architecture makes the console hard to develop for, specially from a home brew perspective:
 - Hard to use 2 CPU's effectively :
 - Both can access the same memory, but not at the same time.
 - 3D graphics are not “standard” :
 - The hardware does not use triangles , but instead it uses quads , refereed in leaked documentation as “distorted sprites”.
 - This has an impact on how to make 3D models that are optimized for the saturn

SRL – Context

- And to program for the sega saturn, there are currently the following alternatives :
 - [Libyaul](#) – a open source SDK written in C
 - [JoEngine](#) – a open source 2D / 3D engine , built on top of SGL
 - [SRL](#) – a open source SGL wrapper written in C++
 - SGL / SBL – Sega closed source libraries

SRL - Description

- SRL is a wrapper , written in C++23 , that sits on top of SGL. SRL is open source.
- The main goal is to simplify the development process on the SEGA Saturn.
- The library includes a class to deal with fixed point math, as efficiently as possible on the Sega Saturn hardware, via the [SaturnMathPP](#) library, as well as classes to access resources such as the VDP1 and VDP2.

SRL – Feature Set

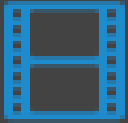
- Has full support for TGA image format (including RLE compression) for loading textures/sprites.
- Mesh and SmoothMesh classes simplify the process of handling 3D model draw calls. With the NYA exporter it's never been easier to draw a 3D scene on the Saturn.
- Sega Saturn optimized math routines and types via [SaturnMathPP](#).
- CDDA playback with volume and 3 band analyzer.
- Builds BIN/CUE images with embedded CDDA tracks.
- VDP2 wrapper functions make it fast and easy to set up NBG and RGB layers with tilemap and bitmap data. A custom CRAM manager allows for easier management of 16, 64, 128, and 256 color palettes.
- Custom memory allocation with support for allocating in LWRAM and with ability to automatically determine size of the available dynamic memory.

SRL – Getting Started

- Go to <https://github.com/ReyeMe/SaturnRingLib/releases> and download the latest release.
- On windows run the “setup_compiler.bat”.
- Check the samples on “\SaturnRingLib\Samples”
 - There are helper scripts to compile and run the examples
- Copy a sample to the “SaturnRingLib\Projetcs” folder
- Profit !

SRL – Where to get support

- There is a [discord](#) where the sega saturn homebrew
- There are also the segaXtreme forums at <https://segaxtreme.net/>
- And you can also join us at [Scene.pt discord server](#) (psst we have a [#code](#) channel), create something with SRL and share it at the [Inercia 2025 Digital Art and Music festival](#) !



Inércia 2025 will be on 6th to 7th of December in Almada, Portugal