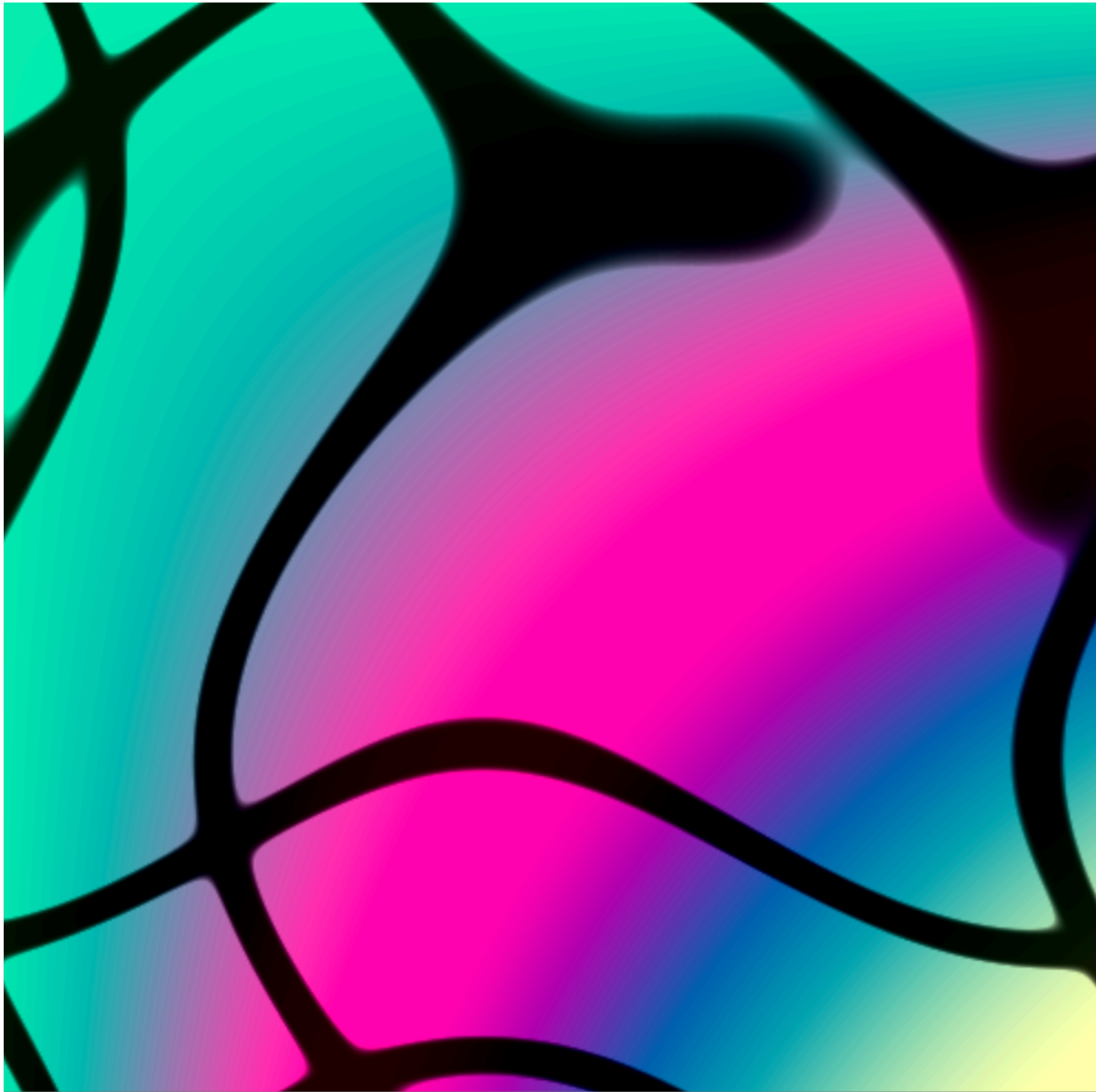




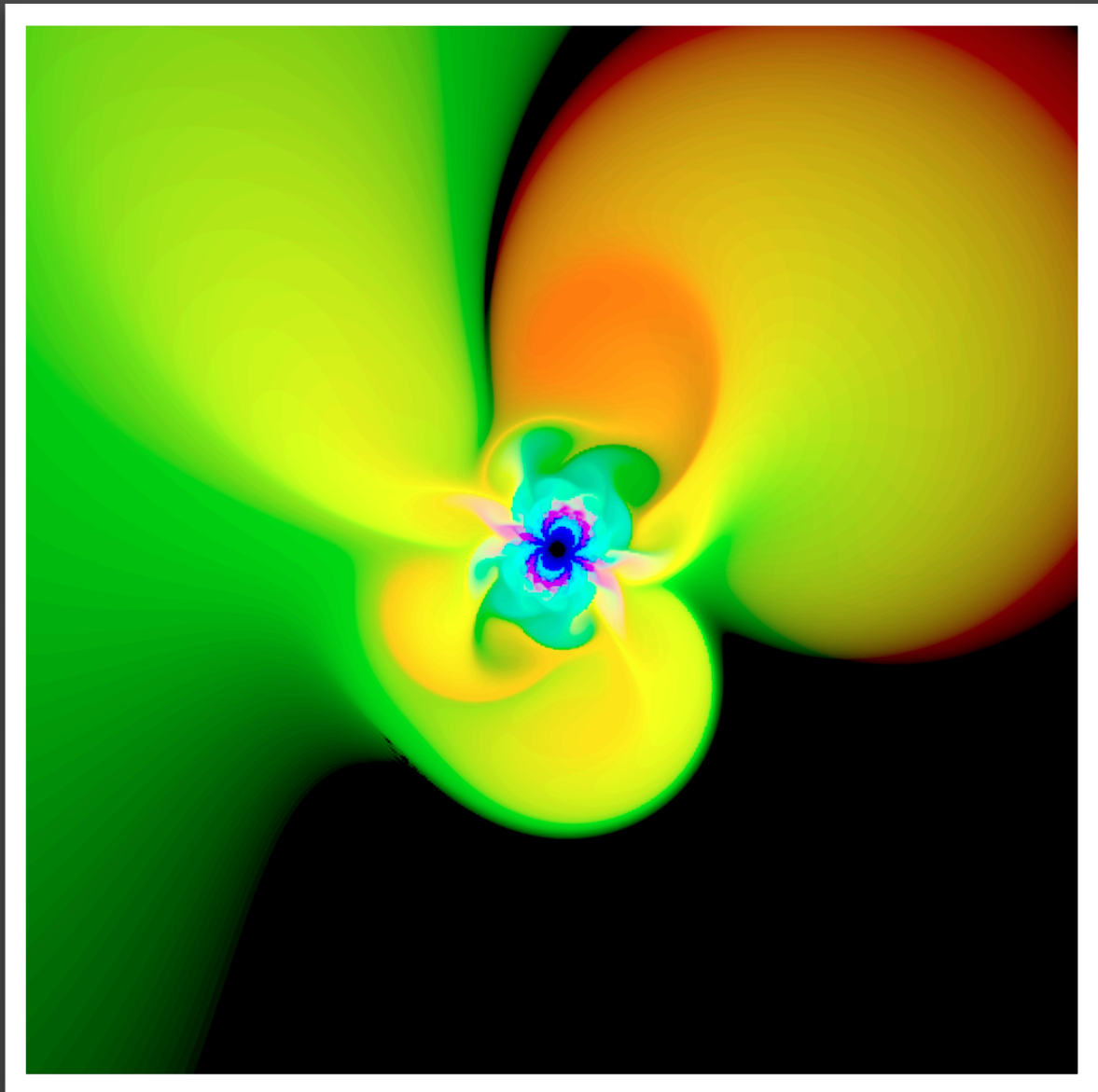
JAX LABORATORY
JAX AudioVisualizer
(App with AudioUnit)



JAX AudioVisualizer

JAX AudioVisualizer is a new audio visualization tool in form of a special app extension, namely: AudioUnit (AUv3). It is available as super universal release on iOS, iPadOS, visionOS and macOS with a single purchase.

The AudioUnit is embedded into their own host application, which allows to use the visualizer as a standalone app.



Metal Performance Shaders

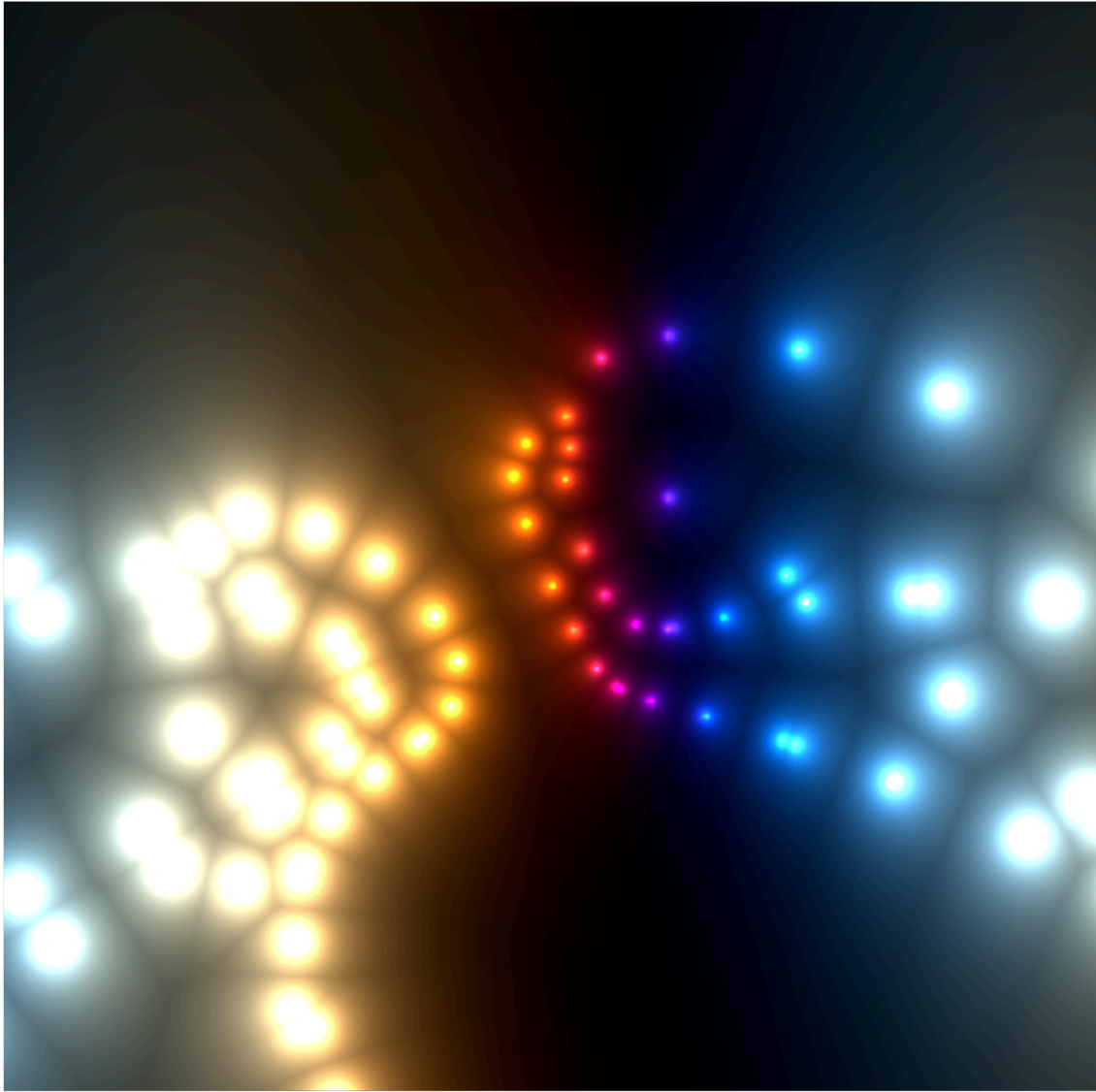
AudioVisualizer's graphics core is consequently based on Apple's high fidelity performance shaders using the native Metal framework, which is integral part of all Apple's latest operating systems. Metal shaders are highly optimized for mobile devices and deliver excellent performance with low CPU/GPU utilisation.

Metal works always best with newer devices from Apple.

AudioUnit (AUv3)

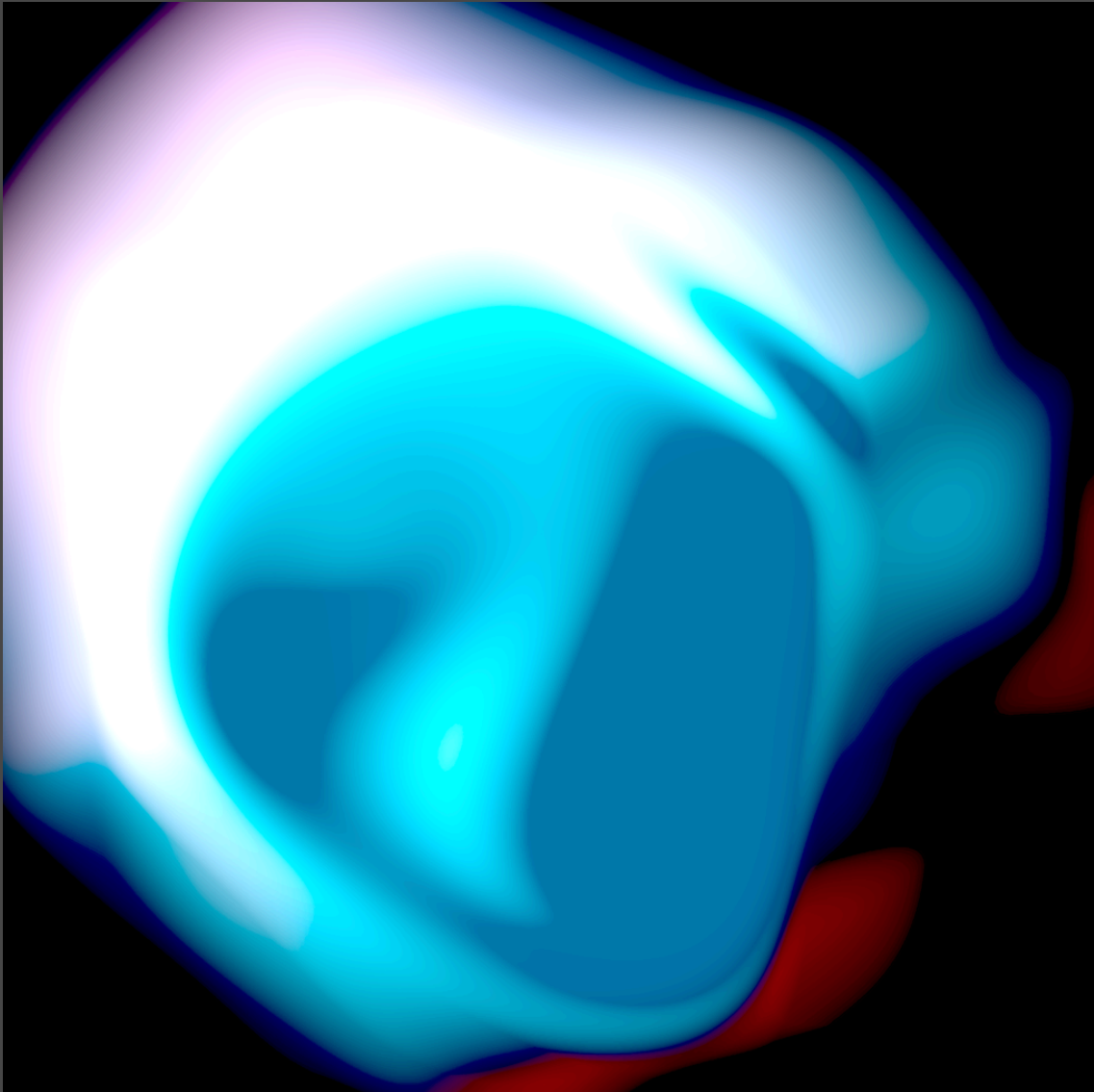
JAX AudioVisualizer is implemented as a classic audio effect unit (with MIDI support) but does not alter the audio stream (except optionally fading in and out the audio volume with one of the automation parameters), just analyzing and passing audio thru unchanged. It can be inserted anywhere, prior the main effect processing or after. In music apps this usually would be after the final mastering stage.

The audio signal will be analyzed inside the core CPU audio kernel and certain frequency components and signal followers calculated and extracted from the realtime audio.



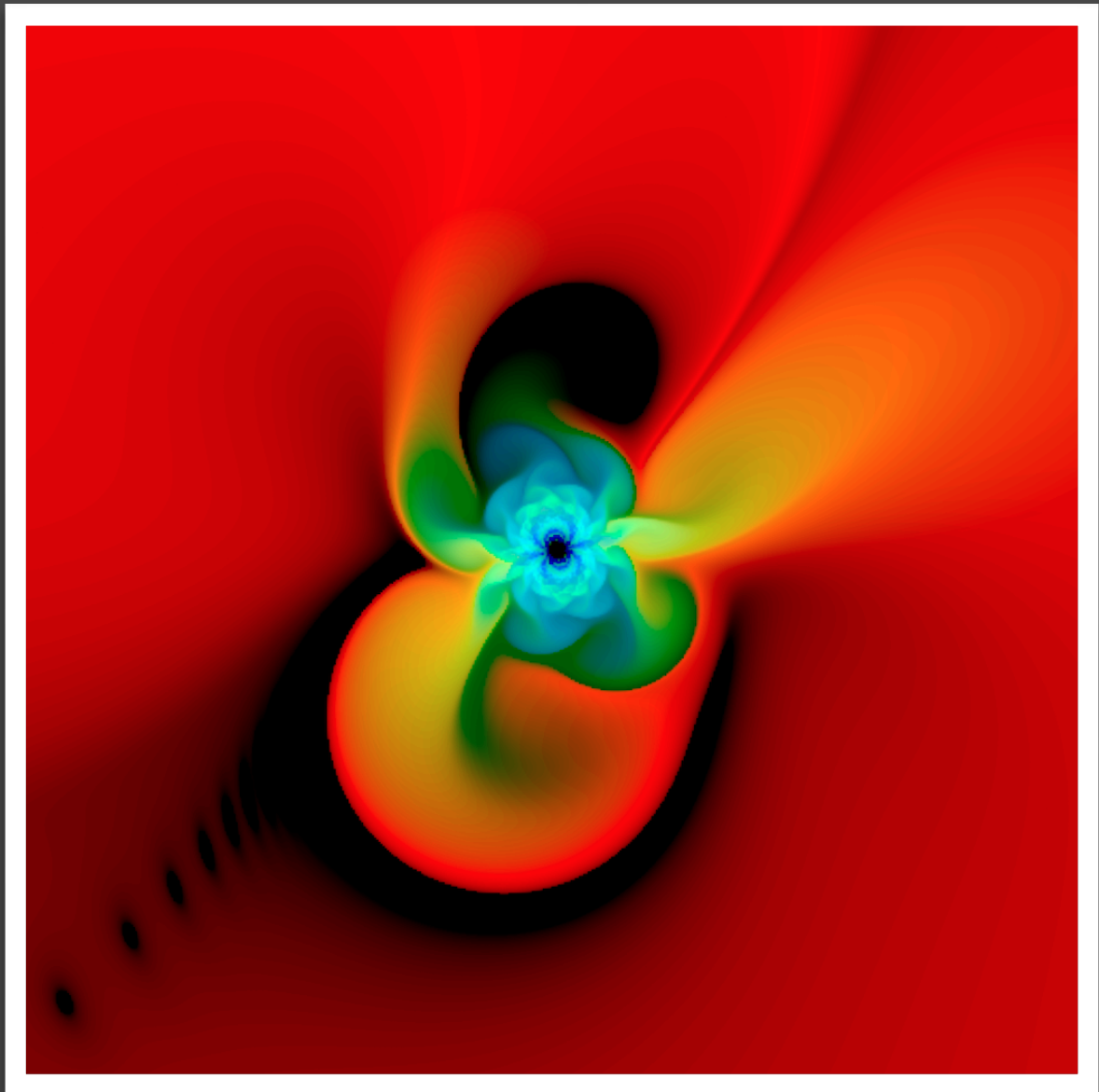
Sound Driven Shaders

Then, the shaders will be feed with synchronized data for adapting to their shader algorithms in various ways but this time completely inside the GPU. So the performance-heavy drawing parts will happen inside the graphic chips and not alter the audio performance. So the CPU meter will show extremely low values.



Internal shader textures are sized moderately, for keeping inside app extensions restrictive memory limitations on mobile devices.

There are loads of different style, high quality preset shaders available, which can be selected via a parameter and (later) the integrated preset browser.



Dozens of automation parameters can be used for realtime modification of the visuals. The shaders are all optimized for supporting the sound driver.

Popular Screen Ratios

The size of the screen can be adjusted for certain popular display ratios, as 1:1, 4:3, 3:4, 16:9 and 9:16.

The window of the audio unit is freely sizable and moveable if the host supports it.

Frame rate is adjusted to 60Hz at optimum and depends on the general processing speed of the system. Older systems may slow down the frame rate with certain shaders.

The audio unit is thought for host applications, which can host and handle MIDI enabled audio effect units in AUv3 format with own graphical user interface. Mainly music application hosts will suite.



The embedding app acts as a distribution envelope and provides some sound files for testing. By installing the app, the visualizer is available to all supporting apps in the system. The standalone app also is able to load user selected sound files, which are natively supported by Apple's operating systems.

With the operating system's inbuilt screen recording mechanisms, the visual output of the AudioVisualizer unit can be mixed with the audio stream in realtime



and exported to performance videos. Or the unit can just be seen as a tool for enjoyment, while working and listening to music.

Parameter Automation

A complex parameter interface is exposed to the host application and large amount of functions can be automated this way.

With a host application, that supports automation tracks, the visualizer can be completely automated, including switching and widely modifying the shaders in realtime.

User Artwork

The latest addition is the support of artwork overlays, namely pictures with alpha transparency (at best) and in *.png or *.jpg format. Only PNG format is featuring alpha transparency.

The user can freely design (with external graphics editors) and then load such artwork overlays on top of the running shaders and also blend in and out the artwork images dynamically with a special parameter.

We recommend to switch the unit explicitly off and unload, if visual output is not required for saving memory.

JAX AudioVisualizer is available for one-time-payment lifetime access and not as subscription and we hope users will honor this.

INCLUDED SHADERS

Currently the following shaders are implemented:

- 00 (Black Screen)
- 01 Amoeba
- 02 Puzzle
- 03 Interner
- 04 Twister
- 05 Flower
- 06 Angel
- 07 Transwarp
- 08 Rays
- 09 (Simplex)
- 10 (Spiral)
- 11 (Chroma)
- 12 (Triangles)
- 13 (Quantuum)
- 14 (Ripples)
- 15 (Colors)
- 16 (Zerebra)

AUTROMATION PARAMETERS

Currently the following automation parameters are implemented:

Global Parameters

- (id 0) Reserved
- (id 1) Sound Driver Bypass
- (id 2) Shader Active
- (id 3) Follower Intensity
- (id 4) Sound Gain
- (id 5) Artwork Blend
- (id 6) Rotate X
- (id 7) Rotate Y
- (id 8) Rotate Z
- (id 9) Screen Ratio
 - 1:1 quadratic (small)
 - 1:1 quadratic (large)
 - 4:3 landscape
 - 3:4 portrait
 - 16:9 landscape
 - 9:16 portrait

Shader Parameters

- (id 10) Switch Shader Type
 - (see list above)
- (id 11ff) Parameter 1-16
- (subject of changes)
 - Speed
 - Saturation
 - Contrast
 - Brightness
 - ...

Assigned MIDI Controllers

(This preview manual is subject of changes.)

