

This electronic album was made for the SNES and you can buy it as a cartridge

German musician Remute has made and released music on a variety of old mediums, but his newest effort marks a quirky milestone: *The Cult Of Remute* is claimed to be the first music album made entirely for the Super Nintendo's sound chip and released on an SNES cartridge.

Creating within severe restraints is nothing new for Remute. In the past, he's released music on a floppy disk and programmed an album using the sound chip for '90s game console Sega Genesis. But he tells *The Verge* that creating this new album with the SNES's limitations was more difficult than previous projects because of the system's "merciless" filesize limit.

Where the Sega Genesis' main sound chip is a fully fledged FM synthesizer that can be controlled in a pretty straightforward manner, the SNES is built with an entirely self-contained audio subsystem. It has a sound chip that acts like a sampler, reading a game's code and then telling an eight-channel, 16-bit processor chip what sounds to play and how to play them. While it can technically do a lot, like produce stereo sound and allow people to load in sound effects and instruments of their choosing, there's a punishing constraint: the SNES only dedicated 64KB to audio RAM, dramatically limiting the samples and effects that can be loaded in for each track.

In a video, The Nerdwriter breaks down just how small that is. A typical three-minute MP3 song might be about 6MB large. That's about 100 times larger than what the SNES can handle.

Video game composers had to get creative to make stuff fit, with one whittling down the samples he used to single cycles of waveforms.

Remute had the same challenge: "Compress as many sounds as possible into 64k and make a cool song and translate a complex vision into very little code." He says he recorded sounds from vintage Roland gear along with vocals to generate source material and used some clever processing to utilize the "filesize limit up to the last byte." Every song was programmed using the open-source audio module tracker OpenMPT and then manually "translated" into the SNES's .SPC sound playback format with the command line tool SNESMOD. Essentially, the final product isn't rendered audio. Each song is a file that contains all of the song's tiny samples and the instructions on how the console should play them, keeping the album's total size around 500kb.

Only one track is currently available to preview from the album, but it shows off how much Remute was able to sonically accomplish and have the console's chip run playback in real time. The heavily processed, '80s-like vocals and a poppy, bouncing bass line show off the SNES's 16-bit glory.

Remute says he thinks the lack of SNES albums is due to things like the extreme filesize cap and the lack of a dedicated software with an accessible interface. "All these limitations felt kind of medieval," he says, "but still futuristic as so far no one has attempted to program a full album for an SNES cartridge."

The Cult Of Remute can be ordered now on Bandcamp for €35.99 (\$40.19) and will be released on March 29th. The album will ship on or around March 31st and come on a custom-made PCB board. Additionally, Remute says there will be a "slick player GUI" along with some additional eye candy by SNES programmer Molive. The cartridge will run region-free on both NTSC and PAL versions and on Japanese Super Famicom versions of the

SNES console.

<https://www.theverge.com/2020/1/3/21046582/remute-german-techno-pop-musician-first-plug-play-snes-cartridge-album>