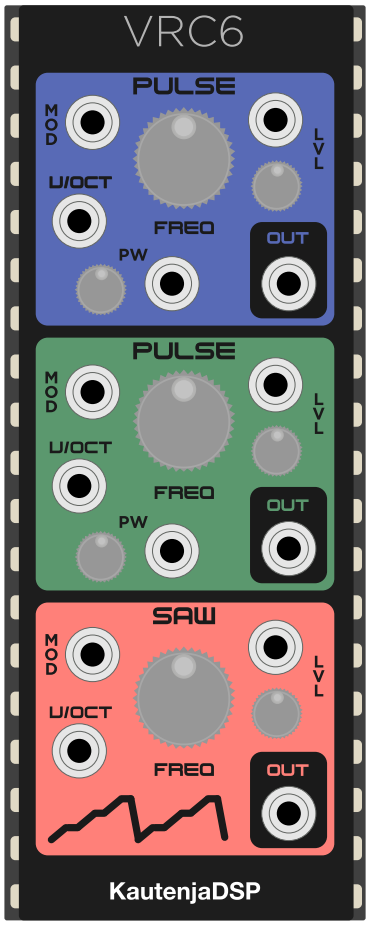
VRC6



KautenjaDSP

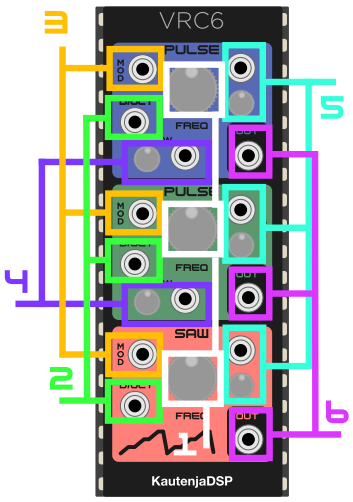
1 Overview

VRC6 is an emulation of the Konami VRC6 sound chip from the Nintendo Entertainment System (NES) for VCV Rack. The VRC6 chip contains two pulse wave generators, and a quantized saw wave generator.

VRC6 provides the key features of the VRC6 chip, namely,

- **Dual pulse wave generator:** Dual 8-bit pulse waves with eight duty cycles: 6.25%, 12.5%, 18.75%, 25%, 31.25%, 37.5%, 43.75%, and 50%;
- **Quantized saw wave generator:** Generate NES style saw wave with variable quantization;
- **Amplitude modulation:** Manual and CV control over the individual voice levels

2 Panel Layout



1. Coarse frequency control for the pulse1, pulse2, and saw waveform generators.
2. V/Octave inputs for pulse1, pulse2, and saw waveform generators.
3. linear CV frequency modulation for pulse1, pulse2, and saw generators.
4. Pulse width selector. Chooses between eight duty cycles: 6.25%, 12.5%, 18.75%, 25%, 31.25%, 37.5%, 43.75%, and 50%. CV control is discretized into $2V$ windows per stage.
5. Level control for pulse1, pulse2, and saw waveform generators. The knob controls base level from 0% to 100% and the CV applies a linear offset. When the saw reaches 68%, it overdrives and distorts based on a bug in the original VRC6.
6. Channel outputs, $\approx 10V_{pp}$.

References & Acknowledgments

Green, S. (2003). Nes_Snd_Emu. http://www.slack.net/~ant/libs/.