discoDSP OPL User Manual

Overview

The discoDSP OPL is an advanced virtual synthesizer that emulates the Yamaha YM3812 sound chip, also known as OPL2. This manual provides an extensive guide to using the OPL plugin, detailing its features, configurations, and technical aspects.

Features

- **FM and Additive Synthesis**: Utilizes two-operator frequency modulation for rich and complex sound generation.

- **Waveforms**: Eight selectable waveforms per oscillator.

- **ADSR Envelope**: Adjustable attack, decay, sustain, and release parameters for amplitude control.

- **Channels**: 9 voices.

- **SBI File Support**: Import instrument presets by dragging and dropping SBI files into the plugin window.

Technical Specifications

- **Chip**: Yamaha YM3812 (OPL2) emulation.

- **Polyphony**: 9 melodic voices or 6 percussive voices.

- **Oscillators**: Two per channel.

- **Waveforms**: Sine, Half Sine, Abs Sine, Quarter Sine, Alternating Sine, Camel Sine, Square, and Logarithmic Sawtooth.

- **Envelope**: ADSR (Attack, Decay, Sustain, Release).

Internal Operation

The internal operation of the OPL2 is entirely digital, with each FM tone generated by a digital oscillator using direct digital synthesis. The chip uses look-up tables for calculating exponents and log-sine functions, avoiding multipliers by using log-transformed signals, which reduces computational complexity.

Our OPL synth emulates the Yamaha YM3812 (OPL2) with the new 16x oversampling introduced since release 2.4 for alias-free sound.

Loading SBI Files

1. **Drag and Drop**: Simply drag and drop SBI files into the plugin window to load presets.

2. **File Management**: Manage your presets through the file browser within the plugin.

Channel Configuration

Each channel in the OPL plugin consists of two oscillators, typically configured as a carrier and a modulator:

1. **Carrier**: Generates the main sound.

2. **Modulator**: Modulates the frequency of the carrier, adding complexity to the sound.

Percussion Mode

The OPL emulator supports a percussion mode, utilizing specific operator settings and waveforms for different percussion sounds:

- **Bass Drum**: Uses two slots for FM synthesis.

- **Snare Drum**

- **Tom-Tom**

- **Cymbal**

- **Hi-Hat**

References

- – Yamaha OPL Series: [Wikipedia](#)
- – OPL2 Technical Specifications: Yamaha YM3812 Datasheet.
- – Overview of Features: [MIDIbox Forum](#)
- – Sound Blaster Compatibility: [Wikipedia](#)

For more detailed information and advanced usage, please refer to additional documentation and tutorials available online.

Credit and Licensing

The OPL plugin is based on software developed by Bruce Sutherland and distributed under the GNU General Public License (GPL). We have incorporated his technology into our software in compliance with the terms and conditions specified.