OP2 Bank Format

From ModdingWiki
Jump to navigation Jump to search

The **OP2 Bank Format** is an instrument bank format used by the DMX sound library developed by Paul Radek of Digital Expressions, Inc. The 128 melodic and 47 percussion instrument limit was most likely chosen so that a single OP2 file could store all the instruments for a General MIDI song. This bank has support for two-voice instruments to provide support for pseudo four-operator instruments. File of this format usually has `GENMIDI` name without extension as embedded WAD resource, but also can have `.OP2` extension.

OP2 Bank Format	
Format type	Musical Instrument
Hardware	OPL, MIDI
Number of instruments	175
Instruments named?	Yes, 31 char
Games	Chex Quest Chex Quest 2 Doom Doom 2 Heretic Hexen Raptor Strife

Contents

File format

Data type	Name	Description
char[8]	magic	`#OPL_II#` signature, doesn't null terminated
BYTE[175][36]	instrument	Set of 175 instrument entry
char[175][32]	names	Instrument names per every instrument entry, must be null terminated

Instrument

Each bank contains 128 melodic and 47 percussion instruments.

Data type	Name	OPL base register	Description
UINT16LE	flags	N/A	Instrument flags: 0x01 - fixed pitch, 0x02 - delayed vibrato (unused), 0x04 - Double-voice mode
UINT8	fineTune	N/A	Second voice detune level

UINT8	noteNum	N/A	Percussion note number (between 0 and 128)
			First voice
UINT8	iModChar1	0x20	Modulator characteristic (Mult, KSR, EG, VIB and AM flags)
UINT8	iModAttack1	0x60	Modulator attack/decay level
UINT8	iModSustain1	0x80	Modulator sustain/release level
UINT8	iModWaveSel1	0xE0	Modulator wave select
UINT8	iModScale1	0x40	Modulator key scaling (first two bits)
UINT8	iModLevel1	0x40	Modulator output level (last six bits)
UINT8	iFeedback1	0xC0	Feedback/connection
UINT8	iCarChar1	0x23	Carrier characteristic (Mult, KSR, EG, VIB and AM flags)
UINT8	iCarAttack1	0x63	Carrier attack/decay level
UINT8	iCarSustain1	0x83	Carrier sustain/release level
UINT8	iCarWaveSel1	0xE3	Carrier wave select
UINT8	iCarScale1	0x43	Carrier key scaling (first two bits)
UINT8	iCarLevel1	0x43	Carrier output level (last six bits)
UINT8	reserved1	N/A	Unused byte
INT16LE	noteOffset1	N/A	MIDI note offset for a first voice
			Second voice
UINT8	iModChar2	0x20	Modulator characteristic (Mult, KSR, EG, VIB and AM flags)
UINT8	iModAttack2	0x60	Modulator attack/decay level
UINT8	iModSustain2	0x80	Modulator sustain/release level
UINT8	iModWaveSel2	0xE0	Modulator wave select
UINT8	iModScale2	0x40	Modulator key scaling (first two bits)
UINT8	iModLevel2	0x40	Modulator output level (last six bits)
UINT8	iFeedback2	0xC0	Feedback/connection
UINT8	iCarChar2	0x23	Carrier characteristic (Mult, KSR, EG, VIB and AM flags)
UINT8	iCarAttack2	0x63	Carrier attack/decay level
UINT8	iCarSustain2	0x83	Carrier sustain/release level
UINT8	iCarWaveSel2	0xE3	Carrier wave select
UINT8	iCarScale2	0x43	Carrier key scaling (first two bits)
UINT8	iCarLevel2	0x43	Carrier output level (last six bits)
UINT8	reserved2	N/A	Unused byte
INT16LE	noteOffset2	N/A	MIDI note offset for a second voice

Instrument names

After 175'th instrument is folowing an array of 32-byte null-terminated instrument names

Fine tune

Fine tune value is an index offset of frequencies table. 128 is a center, i.e. don't detune. Formula of index offset is: `(fine_tune / 2) - 64`. Each unit of fine tune field is approximately equal to 1/0.015625 of tone.

Percussion instruments

Percussion instruments are in range between 35 (Bass drum 1) and 81 (Open Triangle) MIDI indeces.

Tools

The following tools are able to work with files in this format.

Name	Platform	Play?	Create new?	Modify?	Convert/export to other?	Import from other?	Access hidden data?	Edit metadata?	Notes
IMF Creator	Windows	Yes	Yes	Yes	Yes; .op2	Yes; many	Yes; delayed vibrato	Yes	Utility by Adam Biser to create IMF music. Also includes OP2 bank editor.
OPL3 Bank Editor	Linux, Windows, macOS	Yes	Yes	Yes	Yes; many	Yes; many	No	Yes	

Retrieved from 'https://moddingwiki.shikadi.net/w/index.php?title=OP2_Bank_Format&oldid=9138'
Categories:

- All file formats
- All instrument formats
- OPL instruments
- MIDI instruments
- Chex Quest
- Chex Quest 2
- Doom
- Doom 2
- Heretic
- Hexen
- Raptor
- Strife

Navigation menu

Personal tools

- Log in
- Request account

Namespaces

- Page
- Discussion

Variants

Views

- Read
- View source
- View history

More

Search

Search ModdingWiki Search Go

Navigation

- Main Page

Games

- By title
- By company
- By genre
- Modded
- Cheats

Modding

- Programs
- Tutorials
- Community portal

Programming

- File formats

Help needed

- Known info to be added
- More info needed
- Unmoddable games
- Images needed
- Pages with TODOs

Wiki

- Editing guidelines
- Recent changes
- Random page
- Help

Tools

- What links here
- Related changes
- Special pages
- Printable version

- Permanent link
- Page information
- Browse properties

- This page was last modified on 16 August 2020, at 14:33.

- Privacy policy
- About ModdingWiki
- Disclaimers

-