DSF File Format Specification

Version 1.01

Contents

Sony Corporation

I. File Extension

The extension of this format is "dsf" which stands for "dsd stream file".

II.Format Structure

DSF file is made of 4 chunks. DSD chunk, fmt chunk, data chunk and metadata chunk.

([Annotation?] means that there is an annotation which explains detail.)

4 byte	'D' , 'S' , 'D', ' ' (includes 1 space)	DSD chunk header	
8 byte	Size of this chunk	byte	28
8 byte	Total file size	byte	
8 byte	Pointer to Metadata chunk	byte	If Metadata doesn't exist, set 0. If the file has ID3v2 tag, then set the pointer to it. ID3v2 tag should be located in the end of the file.
4 byte	'f' , 'm' , 't' , ' ' (includes 1 space)	fmt chunk header	
8 byte	Size of this chunk	byte	Usually 52bytes
4 byte	Format version		Version of this file format. 1
4 byte	Format ID		0 : DSD raw
4 bytes	Channel Type		1: mono 2:stereo 3:3 channels 4: quad 5: 4 channels 6: 5 channels 7: 5.1 channels [Annotation 1]
4 byte	Channel num		1: mono 2: stereo … 6: 6 channels
4 byte	Sampling frequency	Hz	2822400, 5644800
4 byte	Bits per sample	bit	1, 8

8 byte	Sample count		[Annotation 2]
4 bytes	Block size per channel	Byte	4096 [Annotation 3]
4 bytes	Reserved		Fill Zero
4 byte	'd' , 'a' , 't' , 'a'	data chunk header	
8 byte	Size of this chunk	Bytes	Equal to n(see next line) + 12
n byte	sample data		Data is set as LSB(Least Significant Bit) first. [Annotation 4]
m byte	Metadata chunk		ID3v2

Numerical data (ex. Size of this chunk, Channel Type) should be stored as "LSB(Least Significant Byte) first" in the file.

[Annotation1] DSF Interleaved format

・2-CHANNELS STEREO

  1 : Front Left   2 : Front Right

・3-CHANNELS

  1 : Front Left   2 : Front Right   3 : Center

・QUAD

  1 : Front Left   2 : Front Right   3 : Back Left   4 : Back Right

・4-CHANNELS

  1 : Front Left   2 : Front Right   3 : Center   4 : Low Frequency

・5-CHANNELS

  1 : Front Left   2 : Front Right   3 : Center   4 : Back Left   5 : Back Right

・5.1-CHANNELS

  1 : Front Left   2 : Front Right   3 : Center   4 : Low Frequency   5 : Back Left   6 : Back Right

[Annotation2]

Sample count is the num per 1 channel.

Ex) n second data: Sample count would be Sampling frequency * n

[Annotation3]

Block size per channel is fixed, so please fill ZERO(0x00) for unused sample data area in the block.

[Annotation4]

For example, if dsd stream data is 0x00, 0x01, 0x02, 0x03, 0x04….., then this is the sample data in data chunk.

If "Bits per sample" is equal to 1, then store the data as LSB(Least Significant Bit) first.

0x00, 0x80, 0x40, 0xC0, 0x20, ….

(00000000, 10000000, 01000000, 11000000, 00100000, ….)

If "Bits per sample" is equal to 8, then store the data as MSB(Most Significant Bit) first.

0x00, 0x01, 0x02, 0x03, 0x04…..

(00000000, 00000001, 00000010, 00000011, 00000100, ….)

III.   Contact

If you have any question, send e-mail (in English) to dsd-format-info@sony.co.jp .

However, we will not guarantee that we provide support or answer your inquiry.

Change history:

[11, Nov, 2005   V1.0 → V1.1]

* Add "Numerical data should be stored as "LSB first" " in [II Format Structure].

* Change a description in [Annotation1].

* Add "0x00" in [Annotation3].

* Add "If "Bits per sample" is equal to 8 …" in [Annotation4].

* Change a description in [III Contact].

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