MIDI Exclusive Data Format

DPS-V55(M)

Ver 1.0

October 16, 1998

Introduction ----------

These materials are described about the data format to control DPS-V55 from the outside machine through MIDI interface.

A data form is based on the MIDI format. Moreover, the data begin in the following data header, and they are finished by end of exclusive.

	Data	Contents
Header	F0	System Exclusive Status
	4C	Sony ID
	0*	Global Channel (* = 0 – F)
	24	DPS-V55 Product ID
	??	Commands
	??	Data (The number of byte varies in the command)
Footer	F7	End of Exclusive

Note : 1. A global channel in the above table is the same as the MIDI channel.

2. Only when a MIDI channel is the same, a machine on the receiving side receives data.

3. When DPS-V55 is set on OMNI on, it can be received on all MIDI channels.

4. DPS-V55 can receive MIDI data only in the "Play Mode".

5. DPS-V55 can't do key operation until F7 comes when the above data format (four bytes of the beginning) is received.

This is to prevent inconsistency with DPS-V55 and the transmitting side.

DPS-V55 returned to the normal condition automatically in the case of F7 doesn't come for two seconds without MIDI input .

Contents ----------

1. Control Data Outline

MIDI exclusive data is divided into the following control data group.

1. Bulk data group
2. Parameter control group
3. Memory jump group

Furthermore, these are divided by each of the data transfer and the data request.

1. Data transfer
   (1) Transfer to DPS-V55 from the outside machine.
   (2) Output MIDI data corresponding to the data request from the outside machine.
2. Data request
   (1) The outside machine requires necessary data toward DPS-V55.
   (When DPS-V55 receives this requests, DPS-V55 transmits data based on the format of the above data transfer from the MIDI output.)

Note: (1) After this, a part to show data value with the number in the table is used as it is.
(2) "**" means value of "00 – 7f" with MSB=0.
(3) "0*" is used when 8-bits data are transferred as two 4-bits data.
(4) "ss" means Ascii code.

2. Control Data

2 – 1. Bulk Data Group

It is used when a user memory and a system parameter are transferred to the inside and outside. The data are received and transferred in 1 memory or 1 system data unit. When more than one data are sent, 1 memory or 1 system data are received and transferred repeatedly.

(1) Bulk Data Transfer (Transfer / Receive)

-- The format to transfer or receive user memory.
-- DPS-V55 transmits data by the following format when bulk-dump transmitting operation is done with DPS-V55 or DPS-V55 receive bulk-dump request.
-- When data on the following format are received from the outside MIDI machine and so on, DPS-V55 stores data in the inside user memory.

Data	Name	Comments
10	Command	
0*	Bank Number	Refer to Term dictionary
**	Memory Number	01 – 100 (01 hex – 64 hex)
??	Bulk Data	96 byte data, Refer to materials of end

(2) Bulk Data Requests (Receive)

-- The outside machine transmits a message to DPS-V55 when it wants to know the inside user data of DPS-V55.
-- When this message is received, DPS-V55 transmits data by using the above bulk-data transfer to the outside

Data	Name	Comments
11	Command	
0*	Bank Number	Refer to Term dictionary
**	Memory Number	01 – 100 (01 hex – 64 hex)

(3) System Data Transfer (Transfer / Receive)

-- Format to transfer and receive system data.

-- DPS-V55 transmits data by the following format when system data transmitting operation is done with DPS-V55 or DPS-V55 receive system data request.

-- When data on the following format are received from the outside MIDI machine and so on, DPS-V55 stores data in the inside system memory

Data	Name	Command
12	Command	
??	System data	256 byte data, Refer to materials of end

(4) System Data Requests (Receive)

-- The outside machine transmits a message to DPS-V55 when it wants to know the inside system data of DPS-V55.

-- When this message is received, DPS-V55 transmits data by using the above system data transfer to the outside.

Data	Name	Comments
13	Command	

2 – 2. Parameter Control Group

The parameter which can be changed in the editing mode is handled. Therefore, a user memory isn't changed because a controlled thing is only work area of the DPS-V55 inside.

Note: Even while data are transmitted in this mode, the message of "Transferring…" isn't indicated on the display.

(1) Parameter Transfer Commands (Transfer / Receive)

-- This format is used for transferring effect parameter individually.

-- All parameter is used as 16 bits data.

Data	Name	Comments
20	Command	
0*	Block Number	Refer to term dictionary
**	Parameter Number	Refer to term dictionary
0*	value *	D15 – 12
0*	value *	D11 -- 8
0*	value *	D9 – 4
0*	value *	D3 – 0

Caution: The value must not exceed an establishment range.

(2) Parameter Value Requests (Receive)

-- The outside machine transmits a message to DPS-V55 when it wants to know the inside parameter value of DPS-V55.

-- When this message is received, DPS-V55 transmits data by using the above parameter transfer command to the outside.

Data	Name	Comments
21	Command	
0*	Block Number	Refer to term dictionary
**	Parameter Number	Refer to term dictionary

2 – 3. Memory Jump Group

-- It is possible to jump memory directly without depending on MIDI program change table.

Note: Even while data are transmitted in this mode, the message of "Transferring…" isn't indicated on the display.

(1) Direct Program Jump (Receive)

-- A program change is done by specifying bank number and a memory number directly.

Data	Name	Comments
30	Command	
0*	Bank Number	Refer to term dictionary
**	Memory NUmber	01 (=01 hex) – 100 (=64 hex)

3. Materials

3 – 1. Exclusive Command Chart

Command	Next data number	Functions
Bulk Data Group		
10	98	Bulk data transfer
11	2	Bulk data request
12	129	System data transfer
13	--	System data request
Parameter Control Group		
20	--	Transfer parameter value
21	--	Request parameter value of the effect blocks
Memory Jump Group		
30	--	Jump to program number without program change table

3 – 2. Contents of Bulk Data

-- Inside memory structure (84 byte/memory)

-- Though the number of memory bulk data is 96 bytes, it is 48 bytes per internal memory. This is the way of dividing it into a lower four bits with an upper four bits and transmitting a message.

The following is an explanation about 48 bytes. When data is transferred through MIDI, each one byte data are divided into four bits two times respectively, and they are transferred.

Address	Contents	<MSB>			Bit Structure				<LSB>
000(H)	Reserved	0	0	0	0	0	0	0	0
001(H)	Name 0	D7	D6	D5	D4	D3	D2	D1	D0
002(H)	Name 1	D7	D6	D5	D4	D3	D2	D1	D0
:	:	:	:	:	:	:	:	:	:
00B(H)	Name 10	D7	D6	D5	D4	D3	D2	D1	D0
00C(H)	Name 11	D7	D6	D5	D4	D3	D2	D1	D0
00D(H)	Fx A Type, On/Off	0	OnOff	TYP5	TYP4	TYP3	TYP2	TYP1	TYP0
00E(H)	Fx B Type, On/Off	0	OnOff	TYP5	TYP4	TYP3	TYP2	TYP1	TYP0
00F(H)	Structure/Level	STRUCT	LVL6	LVL5	LVL4	LVL3	LVL2	LVL1	LVL0
010(H)	Fx A Parameter 0(L)	D7	D6	D5	D4	D3	D2	D1	D0
011(H)	Fx A Parameter 0(H)	D15	D14	D13	D12	D11	D10	D9	D8
012(H)	Fx A Parameter 1(L)	D7	D6	D5	D4	D3	D2	D1	D0
013(H)	Fx A Parameter 1(H)	D15	D14	D13	D12	D11	D10	D9	D8
014(H)	Fx A Parameter 2(L)	D7	D6	D5	D4	D3	D2	D1	D0
015(H)	Fx A Parameter 2(H)	D15	D14	D13	D12	D11	D10	D9	D8
:	:	:	:	:	:	:	:	:	:
01E(H)	Fx A Parameter 7(L)	D7	D6	D5	D4	D3	D2	D1	D0
01F(H)	Fx A Parameter 7(H)	D15	D14	D13	D12	D11	D10	D9	D8
020(H)	Fx B Parameter 0(L)	D7	D6	D5	D4	D3	D2	D1	D0
021(H)	Fx B Parameter 0(H)	D15	D14	D13	D12	D11	D10	D9	D8
022(H)	Fx B Parameter 1(L)	D7	D6	D5	D4	D3	D2	D1	D0
023(H)	Fx B Parameter 1(H)	D15	D14	D13	D12	D11	D10	D9	D8
024(H)	Fx B Parameter 2(L)	D7	D6	D5	D4	D3	D2	D1	D0
025(H)	Fx B Parameter 2(H)	D15	D14	D13	D12	D11	D10	D9	D8
:	:	:	:	:	:	:	:	:	:
02E(H)	Fx B Parameter 7(L)	D7	D6	D5	D4	D3	D2	D1	D0
02F(H)	Fx B Parameter 7(H)	D15	D14	D13	D12	D11	D10	D9	D8

OnOff : Effect On/Off (On = 1, Off = 0) / TYP5-0 : Effect Type 1 -- 45 (01 hex -- 2d hex)

STRUCT : Structure (Serial = 1, Parallel = 0) / LVL6-0 : Master Level 0 – 100 (00hex -- 64hex)

3 – 3. Contents of System Data

Structure (256 byte)

Address	Contents	<MSB>	Bit Structure						<LSB>
000(H)	System Setting 1	0	BYP	OUT	OMNI	CH3	CH2	CH1	CH0
001(H)	System Setting 2	0	0	0	0	0	TAP2	TAP1	TAP0
002(H)	Program Table #000 Bank	0	0	0	0	0	0	B1	B0
003(H)	Program Table #000 Memory	0	D6	D5	D4	D3	D2	D1	D0
004(H)	Program Table #001 Bank	0	0	0	0	0	0	B1	B0
005(H)	Program Table #001 Memory	0	D6	D5	D4	D3	D2	D1	D0
006(H)	Program Table #002 Bank	0	0	0	0	0	0	B1	B0
007(H)	Program Table #002 Memory	0	D6	D5	D4	D3	D2	D1	D0
008(H)	Program Table #003 Bank	0	0	0	0	0	0	B1	B0
009(H)	Program Table #003 Memory	0	D6	D5	D4	D3	D2	D1	D0
00a(H)	Program Table #004 Bank	0	0	0	0	0	0	B1	B0
00b(H)	Program Table #004 Memory	0	D6	D5	D4	D3	D2	D1	D0
00c(H)	Program Table #005 Bank	0	0	0	0	0	0	B1	B0
:	:								
0fe(H)	Program Table #126 Bank	0	0	0	0	0	0	B1	B0
0ff(H)	Program Table #126 Memory	0	D6	D5	D4	D3	D2	D1	D0
100(H)	Program Table #127 Bank	0	0	0	0	0	0	B1	B0
101(H)	Program Table #127 Memory	0	D6	D5	D4	D3	D2	D1	D0

-- BYP = Bypass Mode : Bypass = 0, Muting = 1

-- OUT = Out/Thru Mode : Out = 0, Thru = 1

-- OMNI = OMNI Mode : On = 0, Off = 1

-- CH0-3 = MIDI Channel : Channel is shown by four bits.

-- TAP0-1 = Tap Mode : x1/4 = 0, x1/3 = 1, x1/2 = 2, x1 = 3, x2 = 4, x3 = 5

-- Program Change Table #??? Ban : Bank number of program change number.

-- Program Change Table #??? Memory : Memory number of program change number.

3 – 4. Term Dictionary

1) Effect number (Refer to effect chart)

-- The number of the effect type

2) Parameter number

-- The number of the each effect and the parameter of other blocks

3) Bank number

-- The inside value which a system uses toward Preset/user memory. Refer to the following table.

Bank number	Perset number
0	001 – 100 (Preset-1, ROM area)
1	101 – 200 (Preset-2, ROM area)
2	201 – 300 (User-1, RAM area)
3	301 – 400 (User-2, RAM area)

4) Block number

-- The number of the block

Block number	Parameter number (hex)	Contents
0	0 -- 7	Parameter 1 to 8 in the effect-A
1	0 -- 7	Parameter 1 to 8 in the effect-B
2	0	Structure (parallel=0000, serial=0001)
	1	Type of effect-A (0001 -- 002d hex)
	2	On/off of effect-A (off=0000, on=0001)
	3	Type of effect-B (000a – 002d hex)
	4	On/off of effect-B (off=0000、on=0001)
	5	Master level (0000 -- 0064 hex)
	6 -- 11	Program name (00**)

3 – 5. Effect Chart

No.	Effect No.(hex)	Effect Name
4 Channel Effect Blocks (Only one can be used)		
01	01	Plate Reverb 1
02	02	Hall Reverb 1
03	03	Room Reverb 1
04	04	3 Dimension 1
05	05	Deca Chorus
06	06	Ensemble
07	07	Rotary Speaker
08	08	Vocoder
09	09	Doppler
2 Channel Effect Blocks (Two can be used at the same time)		
10	0a	Plate Reverb 2
11	0b	Hall Reverb 2
12	0c	Room Reverb 2
13	0d	3 Dimension 2
14	0e	Early Reflection
15	0f	Stereo Delay
16	10	Ping Pong Delay
17	11	Stereo Pitch Shifter
18	12	Reverse Shifter
19	13	Stereo Chorus
20	14	Stereo Flanger
21	15	Stereo Phaser
22	16	Stereo Panner
23	17	Haas Panner
24	18	Driver
25	19	3 Band Equalizer
26	1a	Amp Simulator
27	1b	Limiter
28	1c	Compressor
29	1d	Exciter
30	1e	Gate
31	1f	Tremolo
32	20	Vibrate
33	21	Wah
34	22	Pitch Roller
35	23	Vocal Canceler
36	24	Freeze
Mono-Pair Effect Blocks (Two can be used at the same time)		
37	25	Reverb / Delay
38	26	Reverb / Chorus
39	27	Chorus / Delay
40	28	Chorus / Chorus
41	29	Chorus / Pitch
42	2a	Pitch / Pitch
43	2b	Pitch / Delay
44	2c	EQ / EQ
45	2d	Compressor / Compressor

MIDI Implementation Chart

MULTI-EFFECT PROCESSOR DPS-V55 / DPS-V55M Mar.01, 1998
Version 1.0

Function		Transmitted	Recognized	Remarks
Basic Channel	Default Changed	X X	1 – 16 1 – 16	Memorized
Mode	Default Messages Altered	X X ********	OMNI on/off X X	Memorized
Note Number :	True Vice	********	X X	
Velocity	Note on Note off	X X	X X	
After Touch	Key's Ch's	X X	X X	
Pitch Bend		X	X	
Control Change	0-31, 64-120	X	O	07H(= Main Volume) *1,3 04H *2,3
Prog Change :	True#	X ********	O 0 – 127	*3
System Exclusive		O	O	*3
Common	: Song Pos : Song Sel : True	X X X	X X X	
System Real Time	: Clock : Commands	X X	X X	
Aux Messages	: Local ON/OFF : All Notes OFF : Active Sense : Rest	X X X X	X X X X	
Notes		*1 : Used as master level control. *2 : Used as input from TAP key. *3 : It can be received on the play mode only.		

Mode 1: OMNI ON, POLY Mode 2: OMNI ON, MONO O : YES
Mode 3: OMNI OFF, POLY Mode 4: OMNI OFF, MONO X : NO

<History>

Sep.25	1998	Version 1.0	Temporary edition issue
Oct.16	1998	Version 1.0	Formal condition edition issue