MA-3 Sound Middleware
Specification
for
SMAF API

Version 1.4.1

April 22, 2003

Yamaha Corporation

[Notes]
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Note:

For explanation of definition of functions, the following formats are defined for use.

Definition format	Meaning	Definition format	Meaning
UINT8	8 bits without code	SINT8	8 bits with code
UINT16	16 bits without code	SINT16	16 bits with code
UINT32	32 bits without code	SINT32	32 bits with code

Revision

Version	Date		Description
0.8	June 1, 2001		Initial edition
0.9	June 18, 2001		To be applicable to SMAF/MA-3
1.0	June 29, 2001		Change of function names and constant names
			To be applicable to new functions of SMAF/MA-3
1.1.0	July 11, 2001		Addition of mode 3 of MaSound_Load
1.1.1	September 20, 2001		Addition of the support event table of MaSound_Control
1.2.0	December 7, 2001		MaSound_Control parameter was added. (Load high speed correspondence)
1.2.1	December 10, 2001		Description of MaSound_Control parameter was added.
1.2.2	January 30, 2002		Clerical error was corrected.
			MaSound_Open function-mode was corrected.
1.2.3	February.27, 2002		The detailed addition for every MaSound_Control parameter.
			Clerical error correction.
1.2.4	March.27, 2002		Clerical error correction.
			The postscript of the timing of MaSound_Control which can be performed.
1.2.5	May.29, 2002		The description to argument open_mode of MaSound_Open was changed.
			The description about Contents code type of MaSound_Control (Get_ContentsData) was changed.
1.3.0	January 16, 2003	2	"MASMW_SET_REPEAT" was added to the control Reguration for MaSound API.
		2.1.7	Caution for playback control was added.
		2.1.7.6	The workable state of MaSound_Control (Acquisition of Reproduction time) was changed.
		2.1.7.16	MaSound_Control (designation of repeat count) was added.
			Caution for the playback control was added.
		2.1.9	The interpretation of Note event was added.to MaSound_Seek.
1.4.0	February 26, 2003	2.1.7.9	The acquisition of LED/Motor Synchonousinformation was added.
1.4.1	April 22, 2003	2.1.3	The clerical error of the explanation of MaSound_Load(mode-3) was corrected.
		2.1.7.10	The acquisition of Key Control status was added.

Contents

1   Introduction

This document defines API (Application Program Interface) for designation of SMAF and shows specifications for functions of Sound MiddleWare that installs the interface.

2 Regulations for MA Sound API

This chapter shows regulations for MaSound API that is used at reproduction of SMAF. The group of functions that are covered here is as follows.

Function name	Description
MaSound_Create	Registration of Stream Converter
MaSound_Load	Sequencer loading processing
MaSound_Open	Sequencer opening processing (Only 1 is possible simultaneously)
MaSound_Control	Setting control value
MaSound_Standby	Sequencer standby processing
MaSound_Seek	Sequencer seeking processing
MaSound_Start	Sequencer starting processing
MaSound_Pause	Sequencer pausing processing
MaSound_Restart	Sequencer restarting from pausing processing
MaSound_Stop	Sequencer stopping processing
MaSound_Close	Sequencer closing processing
MaSound_Unload	Sequencer unloading processing
MaSound_Delete	Deletion of Stream Converter registration

Moreover, the information in which setting/acquisition is possible at MaSound_Control of MaSound API are as follows.

Function name	Description
MASMW_SET_VOLUME	Setup of playback volume
MASMW_SET_SPEED	Setup of play speed
MASMW_SET_KEYCONTROL	Setup of the height of key
MASMW_GET_TIMEERROR	Acquisition of time difference
MASMW_GET_POSITION	Acquisition of playback position
MASMW_GET_LENGTH	Acquisition of music length (playback time)
MASMW_GET_STATE	Acquisition of processing state
MASMW_GET_CONTENTSDATA	Acquisition of contents information
MASMW_GET_PHRASELIST	Acquisition of phrase information
MASMW_SET_STARTPOINT	Setup of playback start point
MASMW_SET_ENDPOINT	Setup of playback end point
MASMW_GET_LOADINFO	Acquisition of the information for SMAF playback
MASMW_SET_LOADINFO	Setup of the information for SMAF playback
MASMW_SET_REPEAT	Designation of the repeat count

2.1 Definition of functions

2.1.1 MaSound_Create

SINT32 MaSound_Create (UINT8 srm_id);

Description

Registers and initializes SMAF Stream Converter.

Argument

srm_id   ID number of srm_id SMAF Stream Converter (MASMW_CNVID_MMF)

Returned value

Non-negative   Function ID of SMAF Stream Converter

Negative   Error code

MASMW_ERROR   (-1)

2.1.2 MaSound_Delete

SINT32 MaSound_Delete (SINT32 func_id);

Description

Deletes SMAF Stream Converter

Argument

func_id   Function ID of SMAF Stream Converter

Returned value

0   Successful

Negative   Error code

MASMW_ERROR   (-1)

2.1.3 MaSound_Load

SINT32 MaSound_Load (SINT8 func_id, UINT8 *file_ptr, UINT32 file_size, UINT8 mode, SINT32   (*func) (UINT8 id), void * ext_args);

Description		
	Check data to see if any problem exists and obtains information needed for reproduction.	
	Designation of mode allows designation of enable / disable of error check. Designation of only error check is also allowed. Only one data can be loaded at a time. Error check can be made during loading of other data. However, data that is subject only to error check cannot be opened.	

Argument		
	func_id	Function ID of SMAF Stream Converter.
	file_ptr	Pointer for SMAF data storage domain
	file_size	Byte size of SMAF data
	mode	Designates whether file data format check is performed or not.

		0:	No check is performed.
		1:	Check is performed.
		2:	Only check is performed. Since internal information is not acquired, it cannot be opened after this.
		3:	Internal information for acquiring contents information is acquired. Since internal variable for reproduction is not acquired, it cannot be opened after this.

In mode 0 through 2, it is possible to acquire contents information by using file id acquired by loading in mode 3 only when the following error code is returned.
- MASMW_ERROR_CHUNK
- MASMW_ERROR_CONTENTS_TYPE
- MASMW_ERROR_SHORT_LENGTH

	func	Call back function
	ext_args	NULL

Returned value		
	Non-negative	File id
	Negative	Error code
		MASMW_ERROR_ARGUMENT (-2)
		MASMW_ERROR_FILE (-16)
		MASMW_ERROR_CONTENTS_CLASS (-17)
		MASMW_ERROR_CONTENTS_TYPE (-18)
		MASMW_ERROR_CHUNK_SIZE (-19)
		MSSMW_ERROR_CHUNK (-20)
		MASMW_ERROR_SHORT_LENGTH (-22)

In MA-3 SMW, the error check of the following items is performed in MaSound_Load (funk_id = 1).

Table 1 Error check item List

Error Check Item	The normal value classified by Playing System SMAF Type			Mode
	MA-1	MA-2	MA-3	
File Chunk Position	File head			All mode
File Chunk Size	Under File Size or more 19			All mode
File Chunk ID	MMMD			All mode
CRC	Calculation value			Except 0
Contents Info Chunk Position	MMMD Body section head			All mode
Contents Info Chunk Size	Under MMMD Size or more 5			All mode
Contents Info Chunk ID	CNTI			All mode
Contents Class	Mounting dependence			All mode
Contents Type	Mounting dependence			Except 3
Sub Chunk Size	Total is under MMMD Size			All mode
Sub Chunk ID	MMMD Sub Chunk ID(*1)			All mode
Format Type	0x00		0x01 or 0x02	Except 3
Sequence Type	0x00			Except 3
Time Base	All values are in agreement by within the limits. (*2)			Except 3
Wave Type The 1st Byte	-	0x10 or 0x11	-	Except 3
Wave Type The 2nd Byte	-	0x00 ~ 0x0F	-	Except 3
SubChunk Size	Total is under MTR/ATR Size			Except 3
Sub Chunk ID	MTR/ATR Sub Chunk ID(*3)			Except 3
Existence of Sequence Data	It exists. (*4)			Except 3
Existence of Wave Data	-	It exists. (*5)	-	Except 3
The position relation of st,sp	0 <= st < sp <= Sequence Data Size			Except 3
Existence of tone information	It exists one or more.(*6)		-	Except 3
Event check	What has description in a specification (*7)			Except 3
Sequence Data Size	Include all events			Except 3
Music reproduction time	20[msec] is exceeded			Except 3

Notes [*1])Although CNTI.OPDA etc. is pointed out, suppose that it is normal except Sub Chunk ID of MTR and ATR.

Notes [*2])Within the limits points out 0x02, 0x03, 0x10, 0x11, 0x12, and 0x13.

Notes [*3])Sub Chunk of MTR are MspI.Mtsu,Mtsq,Mtsp. Sub Chunk of ATR are AspI,Astu,Atsq,Awa*.
   Don't exist except Sub Chunk of MTR and unknown Chunk in MTR, (Only in the case of MA-2, it searches) Sub Chunk of ATR and unknown Chunk in ATR.

Notes [*4])It is necessary to exist in both of MTR/ATR(Only in the case of MA-2, it refers to.)

Notes [*5])In the case of ATR exists, it is necessary to exist.

Notes [*6])One or more tone suitable for Playing System SMAF Type need to exist.

Notes [*7])Even if there is no description about what a Byte number of skip decides in a specification, it does not consider as an error.

2.1.4 MaSound_Unload

SINT32 MaSound_Unload (SINT32 func_id, SINT32 file_id, void * ext_args);

Description

Performs unloading processing of SMAF data.

However, what was Load(ed) by mode-2/3 is object outside.

Argument

func_id	Function ID of SMAF Stream Converter.	
file_id	File id	
ext_args	NULL	

Returned value

0	Successful	
Negative	Error code	
	MASMW_ERROR_ARGUMENT	(-2)

2.1.5 MaSound_Open

SINT32 MaSound_Open(SINT32 func_id, SINT32 file_id, UINT16 open_mode, void * ext_args);

Description

    Performs reservation of resources for reproducing SMAF data that is registered at Load.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
open_mode	Function mode

    This assignment should be fixed to "0".

open_mode	FM mode	CH	FM	WT(Stream)	RAM
0	4/2-OP	16	16/32	8(0)/7(1)/6(2)	8176 bytes

ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.6 MaSound_Close

SINT32 MaSound_Close (SINT32 func_id, SINT32 file_id, void * ext_args);

Description

    The resource acquired by Open processing is released.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7 MaSound_Control

SINT32 MaSound_Control (SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

    Selects functions relevant to reproduction and executes them.

Argument

    func_id   Function ID of SMAF Stream Converter.

    file_id   File id

    ctrl_num   Designates the contents of processing.   (Numbers that are not designated are not supported.)

0:	Changes reproduction volume (0 to 127). Default is 100.
1:	Designates reproduction speed (70 to 100 to 130). Default is 100.
2:	Designates mutual change of reproduction key (-12 to 0 to +12) Default is 0.
3:	Acquires difference between basic time setting and actual time.
4:	Acquires reproduction position (unit: ms).
5:	Acquires reproduction time (unit: ms).
6:	Acquisition of internal status
10:	Acquires designation data of contents information.
11:	Acquires SMAF Phrase List information.
12:	Change of a reproduction start position. A default is '0'.
13:	Sets SMAF reproduction end point.
15:	Acquires the LED synchronous setting information of SMAF.
16:	Acquires the VIB synchronous setting information of SMAF.
19:	Acquires the information for SMAF playback after Load.
20:	Sets the information for SMAF playback.
27:	Sets the repeat count.

    prm   Parameter needed for processing designated by ctrl_num.

    ext_args   NULL

Returned value

    Non-negative   Successful. When a value is returned, the value.

    Negative   Error code

        MASMW_ERROR   (-1)

        MASMW_ERROR_ARGUMENT   (-2)

Pay attention to the following point to perform the above playback control.

Change of playback volume	After this change, the setting is reflected to the interpreted sequence data. However, this setting is not reflected to the data that finished interpretation and stored into H/W buffer or S/W buffer. Therefore, it needs time which depended on data in this section to reflect the setting to playback.
Change of playback speed	Reflect the setting by the extension and shortening of Duration or Gate Time. Therefore, the waveform data which is replayed at a normal pace stops when it is set to quicken the playback speed for the data included Stream PCM tone generation.
Change of the relative change of playback key	For the same reason with the change of playback volume, it needs time for reflection from the setting. And because of the reflection of the setting is performed by adding the setting value to key number in data, when the bottom line does not fall within the range (0 – 114), it is rounded. Moreover, this setting is not reflected to the StreamPCM tone generation.

Description of the interface and a return value for every contents of processing is performed to below.

2.1.7.1 MaSound_Control(Change of reproduction volume)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Performs the change of reproduction volume

This setup is effective when the state of SMW is after OPENED.

However, be sure to perform MaSound_Start after MaSound_Seek is performed if it carries out at the time of READY.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ctrl_num	0
prm	Volume (0 ~ 127) A default is 100
ext_args	NULL

Returned value

0	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.2 MaSound_Control(Change of reproduction speed)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Reproduction speed is changed.

This setup is effective if the state of SMW is after OPENED.

Argument

func_id	Functin ID of SMAF Stream Converter.
file_id	File id
ctrl_num	1
prm	Reproduction speed (70 ~ 130) Default is 100
ext_args	NULL

Returned value

0	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.3MaSound_Control(Change of Relative change of a reproduction key)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

    Relative change of a reproduction key is set up.

    This setup is effective if the state of SMW is after OPENED.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ctrl_num	2
prm	Relative change of a reproduction key (-12 ~ 12) Default is 0.
ext_args	NULL

Returned value

0	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.4MaSound_Control(Acquisition of a reproduction time error)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

    A reproduction time error is acquired. (Unit: msec)

    This information acquisition is effective if the state of SMW is after OPENED.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ctrl_num	3
prm	NULL
ext_args	NULL

Returned value

Non-negative	Successful (Time error)
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.5 MaSound_Control(Acquisition of a reproduction position)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

A reproduction position is acquired. (Unit: msec)

Since a value acquirable with this parameter is not time absolutely from reproduction start but Relative time which accumulated Duration from a sequence data head, so cautions are needed for the handling of a value, if a change of reproduction speed etc. is made.

This information acquisition is effective if the state of SMW is after READY.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	4
prm	NULL
ext_args	NULL

Returned value

Non-negative	Successful (Reproduction possition)
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.6 MaSound_Control(Acquisition of Reproduction time)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Reproduction time is acquired. (Unit: msec)

This information acquisition is effective after the Loaded.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	5
prm	NULL
ext_args	NULL

Returned value

Non-negative	Successful (Reproduction time)
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.7 MaSound_Control(Acquisition of internal status)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

      Internel status (Processing advance situation) is acquired.

      This information acquisition is possible if the state of SMW is after IDLE.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	6
prm	NULL
ext_args	NULL

Returned value

Non-negative	Successful (Internel status)
	0:IDLE
	1:LOADED
	2:OPENED
	3:READY
	4:PLAYING
	5:PAUSE
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.8MaSound_Control(Acquisition of Contents Information)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Contents Information is acquired.

This information acquisition is possible in the stage in which Load succeeded.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	10
prm	The pointer to a contents information storing structure object
ext_args	NULL

Returned value

Non-negative	Successful (Acquisition information Byte number)
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)
	MASMW_ERROR_UNMATCHED_TAG(-21)

The member composition of Contents Information storing structure object is as follows.

Table 2 Member composition of a contents information storing structure object

Member composition		Mean(Purpose of use)
Type	Member Name	
UINT16	code	Contents Code Type (Specification of Character Code)
UINT8	tag[2]	Reference Information TAG
UINT8*	buf	The pointer into Information storing area
UINT32	size	Information storing area size (*1)

Notes [*1]) In the case of the size of the information to return is bigger than storing area, only a part for the size of a storing area is returned.

And contents code type which corresponds now is follow.

Table 3 character code which ia selected by contents code type

Contents code type	Character code classification	Language
0x00	Shift_JIS	Japanese
0x01	Latin-1	English. French and others
0x02	EUC-KR	Korean
0x23	UTF-8	Unicode
0xFF	Octet Stream	Binary value

2.1.7.9MaSound_Control(Acquisition of LED/Motor Synchronous information)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Acquires LED (Motor) Synchronous information. This information acquisition is possible in the stage in which Load (mode-0,1,2) succeeded. It becomes error when Load of mode-0,1,2 does not end correctly. The information to be acquired by this API is the information on whether the LED (Motor) Synchronous is set into sequence, and it is not the information on whether LED (Motor) lights up (operates).

* It depends on sequence whether LED lights up actually.

Argument

func_id	Function ID of SMAF Stream Converter.	
file_id	File id.	
ctrl_num	10	
prm	The pointer to Contents information storage structure (Refer to table 2).	
	This structure stores the following information.	

Member name	Storage information
code	Ignored.
tag[0]	At LED Synchronous information acquisition: 'L'
	At Motor Synchronous information acquisition: 'V'
tag[1]	At LED Synchronous information acquisition: 'D'
	At Motor Synchronous information acquisition: 'B'
buf	Pointer to buffer
size	Buffer size (*1)

ext_args   NULL

Returned value

Non-negative   Successful (always '1')

It can judge whether it is a sequence synchronization by the value of but[0].

'0': sequence asynchronous

'1': sequence synchronization

Negative   Error code.

MASMW_ERROR (-1)

MASMW_ERROR_ARGUMENT (-2)

Note [*1]) Be sure to set the value more than 1 to Buffer size. If 0 is set, it is processed as error.

2.1.7.10 MaSound_Control(Acquisition of Key control status)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Acquires Key control status. This information acquisition is possible in the stage in which

Load(mode-0,1,2) succeeded. It becomes error when Load of mode-0,1,2 does not end correctly.

The information to be acquired by this API is the information on whether the channel with an effective

Key control exists, and it is not the information on whether Key control is reflected in reproduction.

* It depends on sequence whether Key control is valid actually.

Argument

func_id	Function ID of SMAF Stream Converter.	
file_id	File id.	
ctrl_num	10	
prm	The pointer to the contents information storage structure (refer to table 2).	
	This structure stores the following information.	

Member name	Storage information
code	Ignored.
tag[0]	'K'
tag[1]	'C'
buf	Pointer to Buffer
size	Buffer size (*1)

ext_args   NULL

Returned value

Non-negative   Successful (always '1').

It can judge whether Key control is valid by the value of but[0].

'0': Key control is invalid.

'1': Key control is valid.

Negative   Error code.

MASMW_ERROR (-1)

MASMW_ERROR_ARGUMENT (-2)

Note [*1]) Be sure to set the value more than 1 to Buffer size. If 0 is set, it is processed as error.

2.1.7.11MaSound_Control (Acquisition of Phrase List Information)

SINT32 MaSound_Control (SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

      Contents are acquired.

      This information acquisition is effective when Load is successful.

      However, acquisition of information cannot be performed when it is Load of mode-3.

Argument

func_id	Function ID SMAF Stream Converter
file_id	File id
ctrl_num	11
prm	The pointer to an Phrase List information storing structure object
ext_args	NULL

Returned value

Non-negative	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)
	MASMW_ERROR_UNMATCHED_TAG(-21)

The member composition of Phrase List information storing structure object is as follows.

Table 3 The member composition of Phrase List Information storing structure object

Member composition		Mean (The purpose of use)
Type	Member Name	
UINT8	tag[2]	Reference Information TAG
UINT32	start	Start time (msec)
UINT32	stop	End time (msec)

2.1.7.12MaSound_Control (The change of reproduction start position)

SINT32 MaSound_Control (SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

Reproduction start position is changed. Default is '0' (Music head)

This setup is reflected also in loop reproduction and performs reproduction from a start position which also set up reproduction of the 2nd henceforth.

This setup is effective only when the state of SMW is OPENED.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	12
prm	Reproduction start position (Unit:msec)
ext_args	NULL

Returned value

Non-negative	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.13MaSound_Control(The change of reproduction end position)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

The Reproductionend position is changed.Default is reproduction time. (It becomes possible to acquire by acquisition of Reproduction time described previously.)

This setup is reflected also in loop reproduction and performs reproduction to an end position which also set up reproduction of the 2nd henceforth.

This setup is effective only when the state of SMW is OPENED.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	13
prm	Reproduction end position (Unit:msec)
ext_args	NULL

Returned value

Non-negative	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.14MaSound_Control (Acquisition of LED Synchronous information)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

    LED Synchronous information is acquired.

    This information acquisition is effective if the state of SMW is after OPENED.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	15
prm	NULL
ext_args	NULL

Returned value

Non-negative	Successful
	0:Asynchronous
	1:Sequence synchronization
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.15MaSound_Control (Acquisition of VIB Synchronous information)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

    VIB Synchronous information is acquired.

    This information acquisition is effective if the state of SMW is after OPENED.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	16
prm	NULL
ext_args	NULL

Returned value

Non-negative	Successful
	0:Asynchronous
	1:Sequence synchronization
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.16 MaSound_Control(Acquisition of reproductioninformation)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

The reproduction information is acquired.

This information acquisition is possible to perform after end of Load(mode-1/2)

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ctrl_num	19
prm	The pointer to an information storing (writing) area.
ext_args	NULL

Returned value

Non-negative	Successful
	0:An information for SMAF/MA-3 write-in success
	1:An information for SMAF/MA-1/2 write-in success
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.7.17 MaSound_Control(Information registration for reproduction)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

The information for reproduction is registered.

This information acquisition can be performed only if the state of SMW (*1) is IDLE.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id '0' is specified.
ctrl_num	20
prm	The pointer to an information storing (read-out) area.
ext_args	NULL

Returned value

Non-negative	Successful
	0:An information for SMAF/MA-3 read-out success
	1:An information for SMAF/MA-1/2 read-out success
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

Note [*1]) It is acquirable in above-mentioned "Acquisition of internal status".

Here, when ctrl_num uses 19: "Acquires the information for SMAF playback after Load (following : MASMW_GET_LOADINFO)", and 20: "Sets the information for SMAF playback (following : MASMW_SET_LOADINFO)" by the set, the Load time of SMAF/MA-3 data can be shortened. However, since cautions are required for the usage, it is described as below.

How to use "MASMW_GET_LOADINFO".
1. Perform error checking for the target SMAF/MA-3 data by Load of "mode-2".
2. When it is a success by judging the return value of Above Load, use "MASMW_GET_LOADINFO" and acquire information. (*1)
3. The return value of API has the following three kinds, and only when it is a success, it is applicable to shortening of next Load time.

The return value and its meaning of "MASMW_GET_LOADINFO" and "MASMW_SET_LOADINFO"

Return value	Meaning
Negative value	Error
0	Success
1	The Load objects (playback information) were SMAF/MA-1/2 data.

Note (*1): The size of playback information is required 128Byte. Set up the head pointer of the area of 128Btye to the 4th argument "prm" of API and call it. Since there is no function of a size check in this API, the operation when the size of a storage region is insufficient is not guaranteed.

How to use "MASMW_SET_LOADINFO".
1. Sets the condition of SMW to "IDLE".
2. Set the playback information acquired by "MASMW_GET_LOADINFO" using "MASMW_SET_LOADINFO". (*2)
3. The return value is as in the above-mentioned table. Only in a success, Load is accelerable.
4. Set up playback information using Load of "mode-0". (*3)
Note (*2): The data for playback and playback information need to be in agreement. The operation is not guaranteed when not being in agreement.
Note (*3): "MASMW_SET_LOADINFO" and Load (mode-0) always needs to use by the set. If Load(mode-1) is used, the High-speed Load cannot perform. And the SMAF data should not move between MASMW_GET_LOADINFO and Load(mode-0).

2.1.7.18MaSound_Control (Designation of repeat count)

SINT32 MaSound_Control(SINT32 func_id, SINT32 file_id, UINT8 ctrl_num, void *prm, void * ext_args);

Description

    Designate playback count.

    This setting is valid when the condition of SMW is Ready or Pause. And after setting, accords the repeat count designation of MaSound_Start priority over it. Moreover, this setting is initialized in the MaSound_Open processing (unregistered).

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id. '0' is specified.
ctrl_num	27
prm	Repeat count. 0–255 (0: infinitely)
ext_args	NULL

Returned value

Non-negative	Successful
Negative	Error code.
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.8 MaSound_Standby

SINT32 MaSound_Standby (SINT32 func_id, SINT32 file_id, void * ext_args);

Description

  Registration of a tone, setup of key control status, etc. are performed.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

Tone related information is performed in following order.

- Registration of Stream PCM wave data.
- Registration of MA-3 FM basic waveform.
- Registration of Tone parameter. (In the case of WT tone, MA-3 tone waveform registration is performed previously)

The following procedures perform initialization.

- A set up of Key control status.
- Channel mute setup.
- A channel panpot is initialized. (It is set as a center.)
- A set up of reproduction volume.

2.1.9 MaSound_Seek

SINT32 MaSound_Seek (SINT32 func_id, SINT32 file_id, UINT32 pos, UINT8 flag, void * ext_args);

Description

Reproduction start position is moved.

Specification of the reproduction start position by this specification is effective once, and in loop reproduction, 2nd henceforth serves as reproduction from the usual reproduction start position.

Because the note event before the playback start position is ignored, when the event which is generated tone at before and after the playback start position exists, that event is not generated tone.

Argument

func_id	Function ID of SMAF Stream Converter
file_id	File id
pos	Reproduction starting position (msec)
flag	Designates wait. This specification is disregarded.
ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

In this processing, information of control event to reproduction start position collections gathered. The information collected here is performed immediately after a reproduction start and it is reflected in reproduction after it.
Control event which is collected is as follows.

Table 4 Control event Collection Item

SMAF Type	Information Item	Initial value
-	Modulation	0x00(OFF)
-	Program number	0x00
MA-1/2	Bank number	0x00
MA-3	Bank number (MSB/LSB)	0x00/0x00(*1)
MA-1/2	The amount of octave shifts	0x04(Standard)
-	Channel volume	0x64
-	Panpot	0x40(Center)
MA-1/2	Expression	0x7F(Maximum)
MA-3	Expression (*2)	0x7F(Maximum)
MA-1/2	Pitch Bend (MSB/LSB)	0x00/0x00(Un-setting up.)
MA-3	Pitch Bend (MSB/LSB)	0x40/0x00
MA-1/2	Wave Volume	0x63
MA-3	Velocity (*2)	0x40
MA-3	Hold (*2)	0x00(OFF)
MA-3	RPN (MSB/LSB)(*2)	0x7F/0x7F
MA-3	Mono Mode on	0x00(OFF: Poly Mode)
MA-3	Master Volume	0x2D
MA-3	MA-3 Stream PCM pair	0xFF(With no pair specification)
MA-3	MA-3 stream PCM wave panpot	0xFF (follow to Channel panpot.)

Notes [*1]) Since 9channel is default and dram channel so 0x80/0x00 is initial value.
Notes [*2]) These items are initialized by detection of All reset controller.

2.1.10 MaSound_Start

SINT32 MaSound_Start (SINT32 func_id, SINT32 file_id, UINT16 play_mode, void * ext_args);

Description

    Performs start of reproduction.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id.
play_mode	Reproduction mode. Takes a value as described below.

0	Loop reproduction (endless)
1 to 255	Reproduction count
Other than the above	reserved

ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.11 MaSound_Stop

SINT32 MaSound_Stop (SINT32 func_id, SINT32 file_id, void * ext_args);

Description

    Performs stopping of reproduction.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.12 MaSound_Pause

SINT32 MaSound_Pause (SINT32 func_id, SINT32 file_id, void * ext_args);

Description

Performs pausing of reproduction.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)

2.1.13 MaSound_Restart

SINT32 MaSound_Restart (SINT32 func_id, SINT32 file_id, void * ext_args);

Description

Performs cancellation of pause.

Argument

func_id	Function ID of SMAF Stream Converter.
file_id	File id
ext_args	NULL

Returned value

0	Successful
Negative	Error code
	MASMW_ERROR (-1)
	MASMW_ERROR_ARGUMENT (-2)