S1C31 Manual errata

ITEM: Limitations of Setting Values When Using Playback Pitch Conversion			
Object manuals	Document codes	Items	Pages
S1C31D41 Technical Manual	414190501	1.1 Features	1-1

（Error）

Table 1.1.1   Features

HW processor (HWP)	
Sound play function	
Sound algorithm	EPSON high quality and high compression algorithm (EOV: EPSON Original Sound Format)
Playback channels	2 channels with mixing supported (e.g. Ch.0: voice, Ch.1: BGM)
Sampling frequency	15.625 kHz
Bitrate	16/24 kbps
Playback speed conversion	75% to 125%, 5% steps (when used alone) 85% to 115%, 5% steps (when used in combination with playback pitch conversion) ∗ Available only in Ch.0
Playback pitch conversion	75% to 125%, 5% steps (when used alone) 90% to 110%, 5% steps (when used in combination with playback pitch conversion) ∗ Available only in Ch.0
Sound output	Speaker output and buzzer output
Other	Voice/audio playback using an electromagnetic or piezoelectric buzzer
	Tone generator function

（Correct）

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Playback pitch conversion	~~75% to 125%, 5% steps (when used alone)~~ 90% to 110%, 5% steps ~~(when used in combination with playback pitch conversion)~~ ∗ Available only in Ch.0 **, not available with mixing.**
Sound output	Speaker output and buzzer output
Other	Voice/audio playback using an electromagnetic or piezoelectric buzzer
	Tone generator function

Object manuals	Document codes	Items	Pages
S1C31D41 Technical Manual	414190501	22.1 Overview	22-1

（Error）

Playback pitch conversion (channel 0)

-When using the pitch conversion function alone, playback pitch can be converted from 75% to 125% in 5% steps.

-When using in combination with the speed conversion function, playback pitch can be converted from 90% to 110% in 5% steps.

Table 22.1.1　HWP Channel Configuration of S1C31D41

Item		S1C31D41
Sound Play function	EOV play	Sampling frequency: 15.625 kHz Bitrate:　　　　　16/24 kbps
	Sound channel	2 channels
	Speed conversion	75% to 125% (5% steps)　　＊ Channel 0 only
	Pitch conversion	75% to 125% (5% steps)　　＊ Channel 0 only
	Simultaneous speed and pitch conversion	Speed: 85% to 115% (5% steps) Pitch:　90% to 110% (5% steps) ＊ Channel 0 only
	Sound output circuit	SDAC2
	Gapless play	Available
	Buzzer output	Available
Memory Check function		Available

（Correct）

Playback pitch conversion (channel 0)

~~-When using the pitch conversion function alone, playback pitch can be converted from 75% to 125% in 5% steps.~~

~~-When using in combination with the speed conversion function,~~ playback pitch can be converted from 90% to 110% in 5% steps.

Table 22.1.1　HWP Channel Configuration of S1C31D41

Item		S1C31D41
Sound Play function	EOV play	Sampling frequency: 15.625 kHz Bitrate:　　　　　16/24 kbps
	Sound channel	2 channels
	Speed conversion	75% to 125% (5% steps)　　＊ Channel 0 only
	Pitch conversion	~~75% to 125% (5% steps)~~　　＊ Channel 0 only **90% to 110% (5% steps)**　　**not available with mixing**
	Simultaneous speed and pitch conversion	Speed: 85% to 115% (5% steps) Pitch:　90% to 110% (5% steps) ＊ Channel 0 only　　**not available with mixing**
	Sound output circuit	SDAC2
	Gapless play	Available
	Buzzer output	Available
Memory Check function		Available

Object manuals	Document codes	Items	Pages
S1C31D41 Technical Manual	414190501	22.4.1 Sound Play Function	22-8

（Error）

Ch.0 (voice) output start procedure

8. Confirm that the STATE_0.STATE[15:0] bits = 0x0001 (sp_state_idle).

9. Confirm that the STATUS.READY bit = 1.　　　　　　　　　(Command acceptable)

10. Configure the following sound play register bits:
    - Set the COMMAND_0.COMMAND[7:0] bits to 0x01.　　　　(Select Sound Start command)
    - SENTENCE_0.SENTENCE_NO[15:0] bits　　　　　　　　(Specify sentence number)
    - VOLUME_0.VOLUME[15:0] bits　　　　　　　　　　　(Specify volume level)
    - REPEAT_0.REPEAT[15:0] bits　　　　　　　　　　　(Specify repeat count)
    - SPEED_0.SPEED[15:0] bits　　　　　　　　　　　　(Specify playback speed)
    - PITCH_0.PITCH[15:0] bits　　　　　　　　　　　　(Specify playback pitch)

（Correct）

Ch.0 (voice) output start procedure

8. Confirm that the STATE_0.STATE[15:0] bits = 0x0001 (sp_state_idle).

9. Confirm that the STATUS.READY bit = 1.　　　　　　　　　(Command acceptable)

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    - Set the COMMAND_0.COMMAND[7:0] bits to 0x01.　　　　(Select Sound Start command)
    - SENTENCE_0.SENTENCE_NO[15:0] bits　　　　　　　　(Specify sentence number)
    - VOLUME_0.VOLUME[15:0] bits　　　　　　　　　　　(Specify volume level)
    - REPEAT_0.REPEAT[15:0] bits　　　　　　　　　　　(Specify repeat count)
    - SPEED_0.SPEED[15:0] bits　　　　　　　　　　　　(Specify playback speed)
    - **Set the** PITCH_0.PITCH[15:0] bits **to 0x00.**　　　(Specify playback pitch)
      　　　　　　　　　　　　　　　　　　(Disable playback pitch conversion)

Object manuals	Document codes	Items	Pages
S1C31D41 Technical Manual	414190501	22.6.1 Sound Play Function Registers	22-23

（Error）

Bits 15-0 PITCH[15:0]

These bits specify the playback pitch (or musical interval).

When converting the pitch in combination with speed conversion, the pitch setting value should be specified within the range shown in Table 22.6.1.8.

When converting the pitch alone without speed conversion, the SPEED_0.SPEED[15:0] bits should be set to 0x00 and the pitch setting value should be specified within the range shown in Table 22.6.1.9.

Table 22.6.1.9 Pitch Setting (SPEED_0.SPEED[15:0] bits = 0x00)

PITCH_0.PITCH[15:0] bits	Pitch	
0x7d	125%	High
0x78	120%	↑
0x73	115%	
0x6e	110%	
0x69	105%	
0x64	100%	Standard pitch
0x5f	95%	
0x5a	90%	
0x55	85%	
0x50	80%	↓
0x4b	75%	Low
Other	Setting prohibited	

Table 22.6.1.10 6.1.10 Setting Values to Convert Speed and Pitch Simultaneously

			PITCH_0.PITCH[15:0] bits											
			0x7d	0x78	0x73	0x6e	0x69	0x64	0x5f	0x5a	0x55	0x50	0x4b	0x00
			125%	120%	115%	110%	105%	100%	95%	90%	85%	80%	75%	–
SPEED_0. SPEED[15:0] bits	0x7d	125%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x78	120%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x73	115%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x6e	110%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x69	105%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x64	100%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x5f	95%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x5a	90%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x55	85%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x50	80%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x4b	75%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x00	–	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

（Correct）

Bits 15-0 PITCH[15:0]

These bits specify the playback pitch (or musical interval).

~~When converting the pitch in combination with speed conversion,~~ the pitch setting value should be specified within the range shown in Table 22.6.1.8.

When converting the pitch alone without speed conversion, the SPEED_0.SPEED[15:0] bits should be set to 0x64 ~~0x00 and the pitch setting value should be specified within the range shown in Table 22.6.1.9~~.

Also, pitch conversion can only be used with Ch.0 stand-alone playback. Please note that it cannot be used in conjunction with mixing.

~~**Table 22.6.1.9　Pitch Setting (SPEED_0.SPEED[15:0] bits = 0x00)**~~

PITCH_0.PITCH[15:0] bits	Pitch	
0x7d	125%	High
0x78	120%	↑
0x73	115%	
0x6e		
0x69		DELETED
0x64		Standard pitch
0x5f		
0x5a		
0x55	85%	
0x50	80%	↓
0x4b	75%	Low
Other	Setting prohibited	

Table 22.6.1.10　~~6.1.10~~ Setting Values to Convert Speed and Pitch Simultaneously

			PITCH_0.PITCH[15:0] bits											
			0x7d	0x78	0x73	0x6e	0x69	0x64	0x5f	0x5a	0x55	0x50	0x4b	0x00
			125%	120%	115%	110%	105%	100%	95%	90%	85%	80%	75%	–
	0x7d	125%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x78	120%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x73	115%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x6e	110%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
SPEED_0.	0x69	105%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
SPEED[15:0]	0x64	100%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
bits	0x5f	95%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x5a	90%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x55	85%	–	–	–	✓	✓	✓	✓	✓	–	–	–	✓
	0x50	80%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x4b	75%	–	–	–	–	–	–	–	–	–	–	–	✓
	0x00	–	–	–	–	–	–	–	–	–	–	–	–	✓