

VS1033C WMA RESYNC PATCH

VSMPG “VLSI Solution Audio Decoder”

Project Code:
Project Name: VSMPG

Revision History			
Rev.	Date	Author	Description
1.1	2007-02-20	PO	Added AAC DRC disable.
0.6	2007-11-17	PO	Fix to WMA noise.
0.5	2007-11-16	PO	Initial version.

1 VS1033C WMA Resync Patch

VS1033c supports WMA v2-v9: 5kbps - 320kbps files. Because of the file-format nature of WMA and data-stream nature of VS1033c, random-access for rewind and fast-forward features must be done in the controller. The VS1033c firmware allows you to specify that a resynchronization should be performed when errors are found in the data stream.

With this resynchronization mode (`parametric_x.resync = 32767`) rewind and fast forward can be implemented easily. However, sometimes the resynchronization routine detects ASF packet headers from inside the data areas, causing garbled audio for a while. It is also possible that erroneous packet or padding sizes cause the decoder to expect so much data that the file ends before audio is heard.

This WMA Resync patch adds more validity tests for the ASF packet headers and thus discards most of the wrong resynchronization points. When re-synchronization is needed, the patch also automatically switches to broadcast mode, where the file size information is ignored. This way the file will play to the end even when you have performed a rewind or A-B-repeat operation.

The resynchronization code that VS1033c has for AAC works quite well, but sometimes the dynamic range control (DRC) can be erroneously set causing distorted audio, and does not get reset by the resynchronization code. DRC is seldom used, so this patch also corrects the AAC resync problem by always disabling DRC.

The WMA Resync patch can be used simultaneously with these VS1033c patches: Spectrum Analyzer, Treble patch, MPEG2.0 Layer 2 Patch. It can not be used simultaneously with the pitch shifter.

When you upload the code, it will be ready for action automatically. A hardware or software reset de-activates the patch.

Chip	File	IRAM Location	Features
VS1033C	wmaresync-tab.c	0x2c0 .. 0x329 0x21c .. 0x22e	Resync and broadcast patch AAC DRC disable patch

When you want to make a seek in the WMA (or AAC) file:

1. Set parametric_x.resync to 32767. You can also do this before starting decoding.

```
WriteMp3Reg(SCI_WRAMADDR, 0x1969);  
WriteMp3Reg(SCI_WRAM, 0x7fff);
```

2. Send 2050 zeros.
3. Start sending data from another location in the file.

You can take advantage of the WMA bytes per second information in SCI_HDAT0 to determine a good skip amount.

The mode register bit SCIMB_OUT_OF_WAV can be used to end decoding in the middle.

If you use software or hardware reset, remember to reload all patch codes.