FIRST STEPS TO VS1063 DIFFERENCES

"VLSI Solution Audio Decoders"

Project Code: Support.VS1063
Project Name: VS1063

Revision History

Rev.	Date	Author	Description
0.20	2011-10-06	POj	First version

Contents

1 Introduction

This document lists the visible differences that you need to take into account when applying the material in the "First Steps with VS1053" book for VS1063. The harware in VS1053 and VS1063 chips is fully compatible, but how the firmware uses it differs quite a lot. However, this document does not go into details of how the features of VS1063 are used.

2 Differences

2.1 VSIDE

You can not use VS1053 project templates directly with VS1063, because the ROM routines or variables are not in the same place. The next VSIDE release has examples for VS1063 also.

Also keep an eye on VSDSP Forum at `http://www.vsdsp-forum.com/` for discussion related to VS1063 and example VSIDE projects.

2.2 Emulator connection troubleshooting

VS1063 does not have MIDI, so there is no chance it will enter the real-time MIDI mode by accident. GPIO0 and GPIO1 can thus be in any state during reset and you can still connect to ROM monitor using vs3emu.

2.3 UART speed and InitHardware()

VS1063 does not set the `uartByteSpeed` variable in `InitHardware()`. If your code boots from SPI memory, you have to set `uartByteSpeed` before calling `InitHardware()`.

```
uartByteSpeed = 960; /*9600bps*/
InitHardware();
```

2.4 Music Player Framework

Internally the main decode loop is now cleaner than previously. The main decode loop of VS1063 is the following:

```
parametric_x.config1 = 0x0010; /*No implicit upsample -- VS1063 20110321*/
parametric_x.resync = 32767; /* enable resyncs */
layer123y.fr.header_change = 3;

{
    __y u_int32 newHead = 0;
    while (1) {
        if (CheckAudioFormats(newHead) != 0) {
            /* One of our codecs decoded something */
            newHead = 0; /* Decoded something, start again */
        }
        /* Skip a byte and try again. */
        StreamHeadShift(&newHead);
    }
}
```

2.5 Stream Buffer and FLAC

FLAC decoding uses a larger stream buffer than other decoders. This has to be taken into account when inserting data directly into the stream buffer.

The normal stream buffer is from X:0 to X:0x3ff, FLAC decoder extends it all the way upto X:0x17ff, and installs new SDI interrupt handler, and restores the default handler when exiting decoding.

2.6 Available Memory

The data RAM usage has changed between VS1053 and VS1063. When all decoders, encoders and features can be turned on, there is less Y memory than in VS1053. When audio decoders or encoders are not used, more memory is available.

The **X** and **Y** lines show which memory areas are used by the system. These include stream buffer, audio buffer, user areas, stack, and a lot of system variables. Memory used by the different decoders are show by **mpg, aac, wma, vorbis, flac** and **wav**.

codecs and **encoders** show common areas used by codec and encoder modes, respectively. Encoder mode also uses **evorb** or **emp3** when those encoders are used.

EarSpeaker and speedshifter are mutually exclusive, and they use the first part of the high Y memory starting at 0xe000.

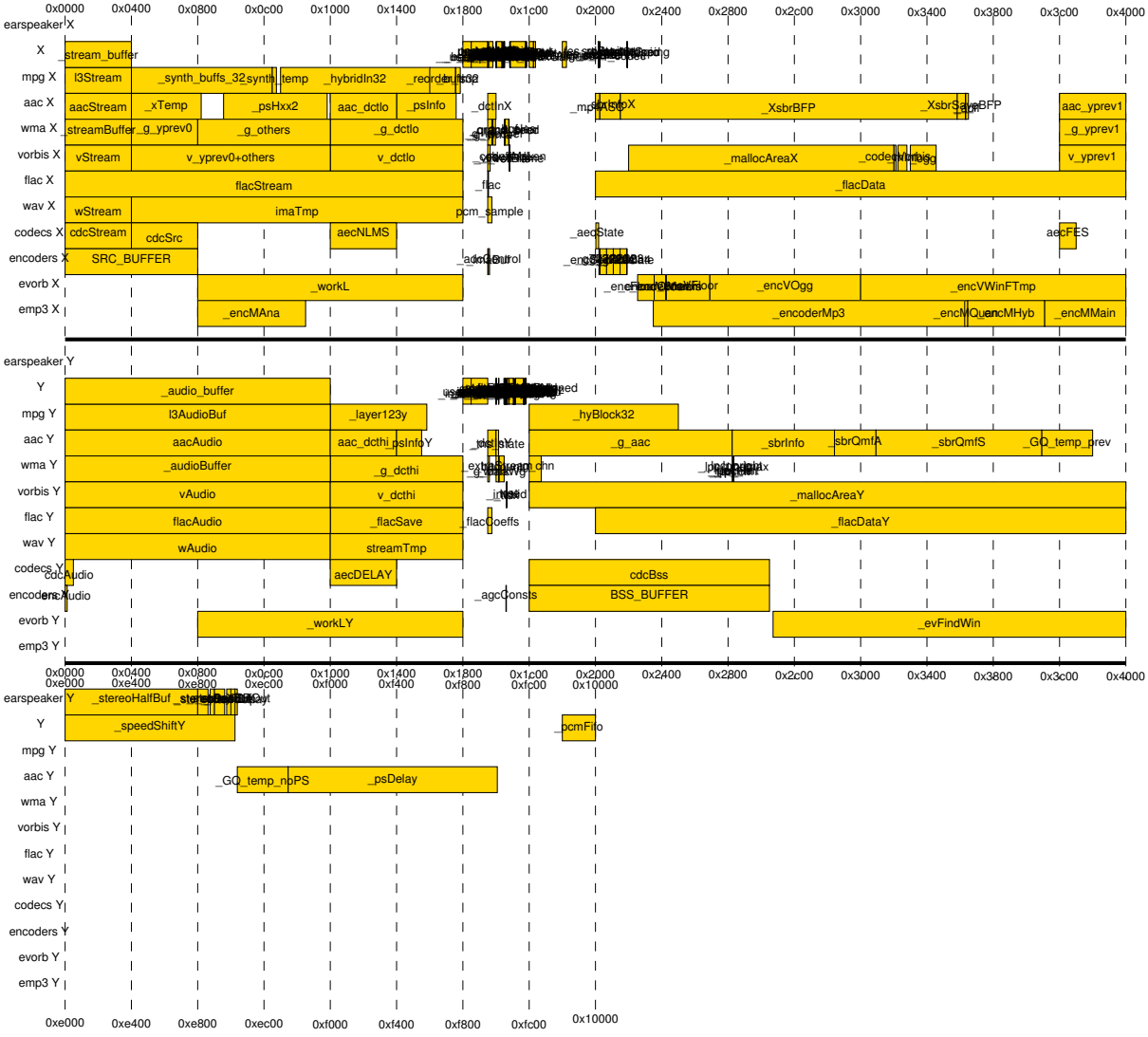

Figure 1: VS1063a RAM memory map