

libshveu

Overview

libshveu is a library for controlling the SH-Mobile hardware video engine unit (VEU). The VEU supports colorspace conversion, rotation and scaling.

This library has been primarily developed and tested on the SH-MobileR2R (SH7724) device using the MS7724 development board.

Download

libshveu-1.7.2.tar.gz

This source archive contains:

- src/libshveu: the libshveu shared library
- src/tools: commandline tools

Source

The source archive is available via git, at github.com/pedwo/libshveu:

```
git clone git://github.com/pedwo/libshveu.git
```

libshveu

libshveu allows both synchronous and asynchronous access to the VEU. The synchronous API provides a one-shot function `shveu_operation()`. The synchronous API replaces this with a similar but non-blocking function, `shveu_start_locked()`, and a corresponding `shveu_wait()`.

- shveu-convert

shveu-convert is a commandline program for converting raw image or video files. It uses the SH-Mobile VEU to perform simultaneous colorspace conversion and either rotation or scaling on each input frame.

```
Usage: shveu-convert [options] [input-filename [output-filename]]
Convert raw image data using the SH-Mobile VEU.

If no output filename is specified, data is output to stdout.
Specify '-' to force output to be written to stdout.

If no input filename is specified, data is read from stdin.
Specify '-' to force input to be read from stdin.

Input options
-c, --input-colorspace (RGB565, NV12, YCbCr420, YCbCr422)
    Specify input colorspace
-s, --input-size       Set the input image size (qcif, cif, qvga, vga, d1)

Output options
-o filename, --output filename
    Specify output filename (default: stdout)
-C, --output-colorspace (RGB565, NV12, YCbCr420, YCbCr422)
    Specify output colorspace

Transform options
Note that the VEU does not support combined rotation and scaling.
-S, --output-size     Set the output image size (qcif, cif, qvga, vga, d1)
    [default is same as input size, ie. no rescaling]
-r, --rotate          Rotate the image 90 degrees clockwise

Miscellaneous options
-h, --help            Display this help and exit
-v, --version         Output version information and exit

File extensions are interpreted as follows unless otherwise specified:
.yuv   YCbCr420
.rgb   RGB565
```

- shveu-display

shveu-convert is a commandline program for displaying raw image or video files. It uses the SH-Mobile VEU to perform simultaneous colorspace conversion and scaling on each input frame. It allows the user to zoom in/out and pan the image.

```
Usage: shveu-display [options] [input-filename]
Processes raw image data using the SH-Mobile VEU and displays on screen.

If no input filename is specified, a simple image will be created.

Input options
-c, --input-colorspace (RGB565, NV12, YCbCr420, YCbCr422)
    Specify input colorspace
-s, --input-size       Set the input image size (qcif, cif, qvga, vga, d1, 720p)

Control keys
+/-                    Zoom in/out
Cursor keys           Pan
=                     Reset zoom and panning
q                     Quit

Miscellaneous options
-h, --help            Display this help and exit
-v, --version        Output version information and exit

File extensions are interpreted as follows unless otherwise specified:
.yuv    YCbCr420
.rgb    RGB565
```

Kernel configuration

libshveu uses the Linux kernel UIO support for the SH-Mobile VEU, which was added in 2.6.27.

The following kernel boot option reserves physically contiguous memory for VEU use:

```
memchunk.veu0=4m
```

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