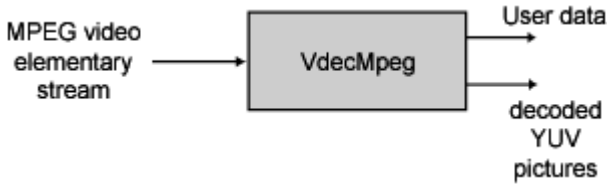
VdecMpeg

MPEG video decoder

Introduction

MPEG-1 and MPEG-2 Video Decoder, a TSSA Software library for decoding MPEG video elementary bitstreams on TriMedia processors with a VLD HW accelerator.

Semiconductors



Key features

- Decodes MPEG-1 and MPEG-2 video elementary streams at all resolutions and bitrates (CPU power permitting)
- Output of user data on separate TSSA output pin
- Generates proper presentation time stamps
- Performs simple, optional error concealment
- Suppports trick modes, i.e. decoding of I-frame only, or I- and P-frames
- Optional output for user data from sequence headers, GOP headers, and Picture headers
- Support for MPEG stills decoding
- Supports YUV420 Semiplanar format
- Supports graceful degradation

General Information

Description

The MPEG-1/2 video decoder library is capable of decoding all MPEG-1 video elementary streams and MPEG-2 streams with 4:2:0 sampling. Typically MPEG-2 main profile @ main level streams are supported. However, with higher clock frequencies, also HD streams could be decoded.

VdecMpeg accepts video elementary streams at its input side and outputs decoded YUV images, along with a structure required to render the images properly. This structure contains pixel aspect ratio information, as well as 3:2 pull down information. The second output can be used to stream out user data that is multiplexed into the elementary stream. This data could contain VBI information for example.

VdecMpeg assigns presentation time stamps to the outgoing YUV packets. These time stamps are derived from PTSs received at the input side.

VdecMpeg also supports trick modes in which it supports only I-frames, or I- and P-frames.

Applications

- DVD Players
- Digital Video Recording Systems
- STB

Documentation

A detailed document describing the API and the internal behaviour of the component is available.

PHILIPS

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Technical Information

Memory Usage

Static Memory	269 KBytes
Dynamic Memory	512 KBytes

Note that additional memory is required for buffering of input and output data. Typically four frame buffers are required for the video output connection.

Performance

Measurements have been performed on a 3:2 CPU to SDRAM speed ratio.

VdecMpeg requires typically 100 to 120 MIPS on average to decode MPEG-2 MP@ML streams. Peaks, however, can be much higher, reaching upto 170 MIPS. For MPEG-1 decoding, typically 30 MIPS on average are required, with peak reaching upto 40 MIPS.

MPEG-2 stream MP@ML, 9.8 Mbps (720x576, 25 fps or (720x576, 30 fps)	Avg: 116 Pk : 187
MPEG-2 stream MP@ML, 4 Mbps, (352x288)	Avg. 114 Pk : 142
MPEG-1 stream, CBP, 1.5 Mbps, (352x288, 25 fps) or (352x240, 30 fps)	Avg : 30 Pk : 40

Other Information

Supported Processors	PNX 1500
Patent/License Issues	Manufacturer of end product to pay license fees to MPEG consortium
Built with Compiler Version	tmcc version 7.0.1 of TCS4.5

Example Programs

This library is shipped with multiple example programs:

- exolMpegPS can be used to play back MPEG program streams from a file

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