



OPEN
BROADCAST SYSTEMS

Sub-frame latency in FFmpeg

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Decoding video 101

- Wait for frame to arrive on wire (1-frame delay)
- Decode it (1-frame delay)
 - Ignore complexities like b-frames, threads, field coding
- **With some cleverness can avoid nearly all of this**

Decode frame as it arrives on the wire

- Slices arrive at destination



- Complete frame is built



- Fix FFmpeg chunk decode

libavcodec/h264dec.c

Showing the top two matches Last indexed on 23 Jan

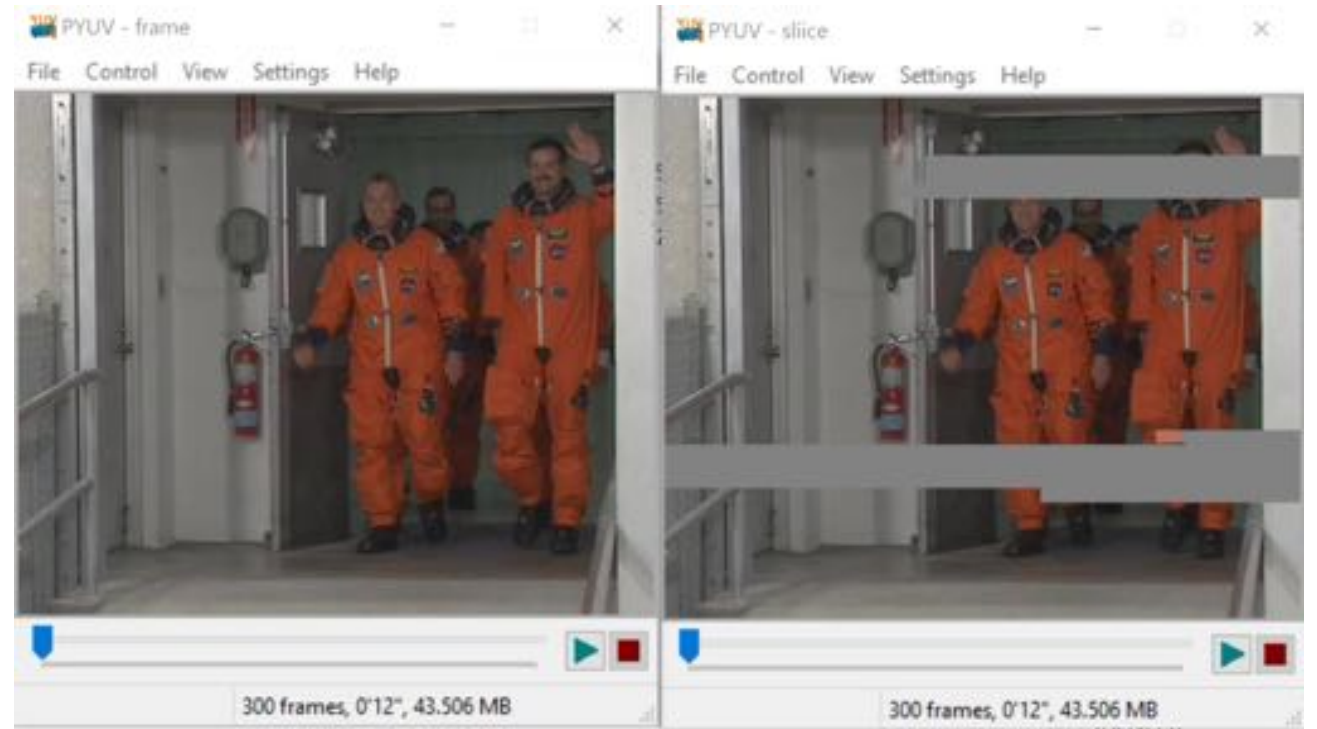
```
607 h->has_slice = 0;
608 h->nal_unit_type= 0;
609
610 if (!(avctx->flags2 & AV_CODEC_FLAG2_CHUNKS)) {
611     h->current_slice = 0;
612 }
613
1000 if (!(avctx->flags2 & AV_CODEC_FLAG2_CHUNKS) && (!h->cur_pic_ptr || !h->has_slice)) {
1001     if (avctx->skip_frame >= AVDISCARD_NONREF ||
```

Sub-frame latency decode

- Choose compression settings in H.264 to support parallel decoding
 - `deblock_flag=2` (no deblocking on slice edges)
 - 8 slices

Problems

- Got to use multiple threads to have fast throughput
- Slices are referenced before they have finished decoding
 - Fix code from 2010!



Result

- Can now render slice to the electronics as soon as it's ready to decode

[FFmpeg-devel,2/2] avcodec/h264: fix draw_horiz_band with slice threads

Submitted by James Darnley on Sept. 2, 2019, 2:28 p.m.

Details

Message ID 20190902142853.31171-3-jdarnley@obe.tv
State Now
Headers [show](#)

Commit Message

James Darnley

From: Kieran Kanha <kieran@obe.tv>

```
---  
libavcodec/h264_slice.c | 29 ++++++  
1 file changed, 23 insertions(+), 6 deletions(-)
```

End

- See this in action on our stand 7.A49
- **Quiz question:**
 - But there are other practical problems
 - We're hiring