From: Shawn Zhong <szhong@broadcom.com>
Sent: Tuesday, September 10, 2002 9:06 PM
To: 'Yoichi Yagasaki'; 'jvt-experts@mail. imtc. org'
Subject: [jvt-experts] Level constraints/limits on the number of MVs and block sizes

Yagasaki-san and other experts,

It is very nice that we now have the HD test sequences available to the JVT community (See Jens Rainer Ohm 's message "New HD test sequences") We are ready to do more formal discussions and tests in the level constraints AHG.

I would like to share with you the test conditions we used to find a proper limit for the number of MVs for every two MBs, just to encourage a formal definition of the common test conditions among the AHG.

Purpose: to collect the statistics of the number of MVs per 2MBs in
HD AVC encoding (as defined in JVT-D134) Video Sequence Specs: 1280x720, 60fps, 600 frames (football sequence with fast motion, zoom-in/pan)

1. RD-optimization on
2. I-P-B structure: IBPBPBP... (more Bs usually requires larger search range).
3. Number of reference pictures: 3
4. Motion estimation Search Range: +/- 100H, +/- 100V.
5. No restrictions on the number of MVs allowed.
6. 1/4-pel ME
7. CABAC for entropy coding
8. QP Values are set such that the output quality is very high, i.e. HD-like quality. (for the sports sequence we used before, the average coding bitrate is around 6 Mb/s).

Check: the number of MVs for every two consecutive MBs.
(For the sports sequence we used, less than 1 pair of MBs per picture has more than 16 MVs).

A reasonable limits on the MVs would not hurt the coding efficiency nor the coding quality.

HD encoding is very time consuming. A few carefully defined encoding configurations will save a lot of experiment time and enable us to finish the required tests before the Geneva meeting.

Could you please drive this effort?

Thank you very much.

Best regards,

Shawn

-----Original Message-----
From: Yoichi Yagasaki [mailto:yagasaki@av.crl.sony.co.jp]

Nokia Exhibit 2125
Amazon.com, Inc., et al. v. Nokia Technologies OY
IPR2024-00572, U.S. Patent No. 7,724,818
Page 1 of 3

Sent: Tuesday, August 27, 2002 5:22 PM
To: jvt-experts@mail. imtc. org
Subject: [jvt-experts] Re: Level limits on the number of MVs and block sizes

Dear Sheng Zhong-san,

Thank you for posting the following e-mail.

>Dear experts,
>
>In the Klagenfurt meeting, a few people(JVT-D134 and D064) have pointed
>out the importance of limiting the number of MVs for levels supporting
>HD and limiting the block sizes for bi-predictive MBs. It has been
>found (in D134)that such a limit as at most 16 MVs for every two
>consecutive MBs would not affect HD video coding quality.
>This limit reduces the worst case DRAM request cycles greatly. Without
>such a limit, it is virtually impossible to build a reasonable
>compliant hardware HD AVC decoder.
>
>It was agreed in the breakout meeting that this limit should be adopted.
>And the JVT
>planery meeting asked for more testing and crosschecking.
>
>Notice that, the other limit, on the block size for bi-predictive MBs,
>is in the FCD text in TableA-1.
>
>We are doing more experiments on this. I am asking if some other
>experts are investigating or would like to join us to investigate this
>too? I suggest we report the results to the reflector or an AHG such as
>the MC analysis AHG.

As you suggested, I would like to do more experiments on MC abalysis AHG.

I have discussed with Lowell-san(ad hoc co-chairs) for preparation of AHG, and have started to collect appropriate HD sequences for such a test, and try to solve copyright issues.

I think we can provide HD sequences for standardization purpose soon.
I appreciate your participation in this ad hoc.
We like to discuss coding conditions, too.

Best Regards,

Yoichi Yagasaki

==========
Digital System Developping Laboratory FAX : +81-3-5435-3891
Silicon & Software Architecture Center TEL :
+81-3-5435-3669
SONY Corp.

Nokia Exhibit 2125
Amazon.com, Inc., et al. v. Nokia Technologies OY
IPR2024-00572, U.S. Patent No. 7,724,818
Page 2 of 3

==========

The use of the jvt-experts list is intended only for the video coding standardization work conducted by the Joint Video Team (JVT) of ISO/IEC
JTC1/SC29/WG11 (MPEG) and ITU-T SG16 Q.6 (VCEG).

You are currently subscribed to jvt-experts as: szhong@broadcom.com To unsubscribe send a blank email to %%email.unsub%%

The use of the jvt-experts list is intended only for the video coding standardization work conducted by the Joint Video Team (JVT) of ISO/IEC JTC1/SC29/WG11 (MPEG) and ITU-T SG16 Q.6 (VCEG).

You are currently subscribed to jvt-experts as: suehring@hhi.de To unsubscribe send a blank email to leave-jvt-experts-12909W@mail.imtc.org

Nokia Exhibit 2125
Amazon.com, Inc., et al. v. Nokia Technologies OY
IPR2024-00572, U.S. Patent No. 7,724,818
Page 3 of 3