

From: Yoichi Yagasaki <yagasaki@av.crl.sony.co.jp>
Sent: Wednesday, September 11, 2002 5:42 AM
To: 'jvt-experts@mail. imtc. org'
Cc: Lowell Winger; yagasaki@av.crl.sony.co.jp
Subject: [jvt-experts] Re: [sony-jvt] Re: Level constraints/limits on the number of M V's and block size

Hello Shawn Zhong-san and Gary-san,

Thank you for comments.

>Hi Yagasaki-san,
>
>Thanks a lot for your comments.
>
>Regarding the search range(SR) limit of +/-39, I am afraid it is too
>small for HD sequences unless there is only small motion. Actually it
>is easy to modify the reference S/W to increase the SR.

That's good.

I agree to have wider search range, however we need proper value for saving simulation time.

We should make trial encoding and find the appropriate value.

>Regarding to HD test sequences, I think we should consolidate with the
>existing ones (some of these are very good materials)in
>ftp.tnt.uni-hannover.de to establish a formal source. Is it possible to
>put all HD sequences together?

I need to maintain distribution list for the sequences from copyright issues.
I am not sure I can put the 4 HD sequences for the Hannover site.
I appreciate if you contact me for 4 HD sequences.

On the other hand, I have no problem to add more HD sequences for our test.
(We need to choose appropriate ones, since more sequences means more simulation time.)

The 4 HD sequences are selected from large number of sequences.
First I have selected less noise and clean sequences with fine texture and various motion.

Then I encoded more than 20 sequences and pick up 4 sequences.
So we have less chance to waste our time for encoding inappropriate sequences.

For your information, the followings are trial encoding results.
Coding conditions are
I/P QP=28, B QP=30
IBBPBBPBBPBBPBBP(N=15, M=3)
Frame structure
CABAC

1/4 pixel MC
Search Range +/-32

fireworks
SNRY: 32.7 SNRCb: 34.3 SNRCr: 34.1 Bitrate: 80754[kbps]

kayak
SNRY: 33.6 40.6 41.1 49893[kbps]

flamingo
SNRY: 34.6 38.4 38.5 34727[kbps]

mountain
SNRY: 35.2 39.3 42.2 13717[kbps]

As you can see, the first 3 sequences are difficult, since they have fine texture and various motion. The last `mountain` is relatively easy, but it has fine texture.

So I add this sequence.

For adding more HD sequences, I hope someone perform trial encoding for those sequences and choose ones which has appropriate characteristics.

Best Regards,

Yoichi Yagasaki

>Best regards,

>

>Shawn

>

>

>-----Original Message-----

>From: Yoichi Yagasaki [mailto:yagasaki@av.crl.sony.co.jp]

>Sent: Tuesday, September 10, 2002 6:14 PM

>To: Shawn Zhong; 'jvt-experts@mail. imtc. org'; Lowell Winger

>Cc: yagasaki@av.crl.sony.co.jp

>Subject: [jvt-experts] Re: Level constraints/limits on the number of
>MVs and block sizes

>

>

>Hello Shawn Zhong-san,

>

>Thank you for e-mail.

>

>I would like to start detail discussion for our tests.

>

>Now we have two test items at this moment. One is your proposal, and

>the other is proposal from Lowell-san.

>

>I would like to share proposed test conditions.

>
>So this is our limit.
>
>The second comment is about HD sequences.
>
>I have encoded number of HD sequences and have selected sequences which
>have fine texture and motion. They are 'fireworks', 'kayak',
>'flamingo', 'mountain'. They are 1920x1080x30 Interlaced, shoot by CCD
>camera and uncompressed.
>
>Test sequences are key for our test to make correct decisions.
>So I really encourage ad hoc members to use these sequences.
>These are available from me by DVD-R or might be available by ftp.
>
>Please contact me for those HD sequences.
>
>Remark: I have cleared copyright issues for this JVT standardized
>purpose only.
>So Please not to use them for other purpose, like trade show or
>papers/journals and etc.
>
>Other test condition are relatively similar.
>So I hope we can finalize detail test conditions and start test very soon.
>
>Best Regards,
>
>Yoichi Yagasaki
>
>
>>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]
>>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
>>
>>
>>
>>=====

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>>standardization work conducted by the Joint Video Team (JVT) of
>>ISO/IEC
>>JTC1/SC29/WG11 (MPEG) and ITU-T SG16 Q.6 (VCEG).
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