

PROJECT PROPOSAL

**FOR
A RESEARCH PROJECT
ON**

**H.264 /MPEG-4 PART 10
“HIGH PROFILE”**

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A recently developed international video coding standard is H.264/MPEG-4 part 10. This new standard has significant improvement in coding efficiency and error robustness in comparison with previous standards such as MPEG-2, H.263, MPEG-4 part 2. This standard has four profiles, which are as follows:

- Baseline Profile
- Main Profile
- Extended Profile
- High Profile

The main focus of this research paper is going to be on the **High Profile of H.264** video coding standard.

The first section of the paper would give a brief history of the development of the H.264/MPEG-4 part 10 standard. The next section would describe the video coding algorithm employed, shown in figure [1]. Each block in the encoder and decoder are looked at individually.

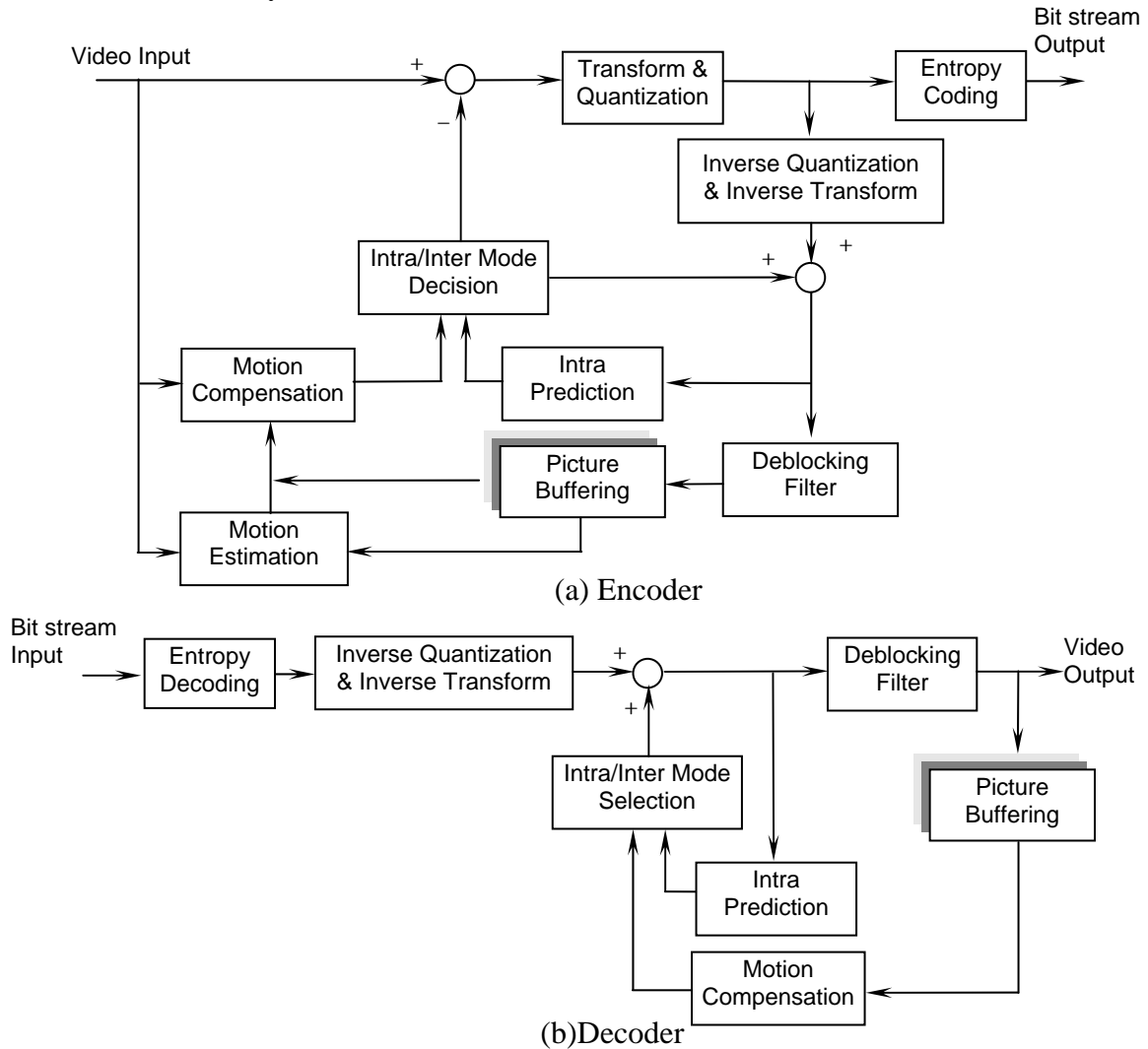


Figure.1 [1]

The parts of high profile such as B slice, weighted prediction, and adaptive transform block size and quantization scaling matrices would be discussed in the following section. After studying the technique thoroughly and evaluating the main parameters of H.264, the test data will be implemented using the JM-12(Joint Module) software and the results listed.

The next part of the paper would deal with comparison of high profile with baseline profile. Then there would be comparison between H.264/MPEG-4 part 10 and MPEG-2 .The main areas of focus in those comparisons would be parameters such as compression ratio, PSNR, encoding time etc...

The last couple of sections in the paper would list the various applications of H.264 coding technique for all the profiles. Also a couple of suggestions for future work are presented based on the conclusions that would be drawn by analyzing the standard.

Reference:

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- 3).G.J.Sullivan, P.Topiwala and A.Luthra”The H.264/AVC advanced video coding standard: Overview and introduction to the fidelity range extensions”, SPIE, vol.5558, pp 53-74, Aug 2004.
- 4).G.J.Sullivan,”The H.264/MPEG-4 AVC video coding standard and its deployment status”, SPIE/VCIP 2005, vol.5960, pp.709-719, Beijing, China, July 2005.
- 5). T. Wiegand, et al, “Overview of the H.264/AVC Video Coding Standard,” *IEEE Trans. CSVT*, Vol. 13, pp. 560-576, July 2003.
- 6). Y. W. Huang et al, "Analysis, fast algorithm, and VLSI architecture design for H.264/AVC intra frame coding", *IEEE Transactions on Circuits and Systems for Video Technology*, vol. 15, pp. 378-401, March 2005
- 7). ISO/IEC JTC1/SC29/WG11, “Report of the Formal Verification Tests on AVC (ISO/IEC14496-10 | ITU-T Rec. H.264)”, *MPEG2003/N6231*, Dec. 2003
- 8). H.264: International Telecommunication Union, “Recommendation ITU-T H.264: Advanced Video Coding for Generic Audiovisual Services,” *ITU-T*, 2003
- 9). D. Marpe, T. Wiegand and S. Gordon, “H.264/MPEG-4 AVC fidelity range extensions; tools, profiles, performance and application areas”, *IEEE ICIP 2005*, pp. Geneva, Italy, Sept. 2005.
- 10). Report of the Formal Verification Tests on AVC (ISO/IEC 14496-10 | ITU-T Rec. H.264).