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**Abstract:** One of the most efficient approaches to generate the side information (SI) in distributed video codecs is through motion compensated frame interpolation where the current frame is estimated based on past and future reference frames. However, this approach leads to significant spatial and temporal variations in the correlation noise between the source at the encoder and the SI at the decoder. In such scenario, it would be useful to design an architecture where the SI can be more robustly generated at the block level, avoiding the creation of SI frame regions with lower correlation, largely responsible for some coding efficiency losses. In this paper, a flexible framework to generate SI at the block level in two modes is presented: while the first mode corresponds to a motion compensated interpolation (MCI) technique, the second mode corresponds to a motion compensated quality enhancement (MCQE) technique where a low quality Intra block sent by the encoder is used to generate the SI by doing motion estimation with the help of the reference frames. The novel MCQE mode can be overall advantageous from the rate-distortion point of view, even if some rate has to be invested in the low quality Intra coding blocks, for blocks where the MCI produces SI with lower correlation. The overall solution is evaluated in terms of RD performance with improvements up to 2 dB, especially for high motion video sequences and long Group of Pictures (GOP) sizes.

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