ECE 5354/6354 Fall 2016 HW 12 due 11/29

Problem 1. MPEG-1 Encode the emboldened MB in the "current picture" shown below using the MPEG-1 standard. The MB is the start of a new slice, so begin the encoding with a slice_start_code. Find a best match to the MB in the previous I-picture and the next P-picture shown below. Find the match with motion vectors that are a multiple of 8. Use forward_f_code=2, backward_f-code=2, full_pel_forward=1, full_pel_backward=1, quantizer_scale=1.

Y-blocks of the previous I-picture.
All chroma pixels=128

$$
\begin{bmatrix}
[100] & [10] & [100] & [100] & [100] & [0] & [100] & [100] \\
[0] & [100] & [100] & [100] & [0] & [100] & [100] & [100] \\
[100] & [5] & [100] & [100] & [10] & [0] & [100] & [100] \\
[0] & [100] & [100] & [10] & [100] & [100] & [100] & [100] \\
[100] & [20] & [100] & [100] & [100] & [0] & [100] & [100] \\
[0] & [100] & [100] & [100] & [0] & [100] & [100] & [100] \\
[100] & [100] & [100] & [100] & [100] & [100] & [100] & [15] \\
[100] & [100] & [100] & [100] & [100] & [100] & [10] & [100]
\end{bmatrix}
$$

Y-blocks of the current B-picture.
All chroma pixels=128

$$
\begin{bmatrix}
[100] & [99] & [100] & [100] & [100] & [99] & [100] & [100] \\
[12] & [100] & [100] & [100] & [99] & [100] & [100] & [100] \\
[100] & [23] & [100] & [100] & [10] & [102] & [100] & [100] \\
[112] & [100] & [100] & [10] & [100] & [100] & [100] & [100] \\
[100] & [20] & [100] & [100] & \mathbf{[90]} & \mathbf{[9]} & [100] & [100] \\
[0] & [100] & [100] & [100] & \mathbf{[15]} & \mathbf{[100]} & [100] & [100] \\
[100] & [100] & [100] & [100] & [100] & [100] & [100] & [15] \\
[100] & [100] & [100] & [100] & [100] & [100] & [10] & [100]
\end{bmatrix}
$$

Y-blocks of the next P-picture.
All chroma pixels=128

$$
\begin{bmatrix}
[100] & [0] & [200] & [200] & [100] & [0] & [200] & [200] \\
[0] & [100] & [200] & [200] & [0] & [100] & [200] & [200] \\
[100] & [0] & [100] & [20] & [100] & [0] & [200] & [200] \\
[0] & [100] & [10] & [100] & [0] & [100] & [200] & [200] \\
[100] & [0] & [200] & [200] & [100] & [0] & [200] & [200] \\
[0] & [100] & [200] & [200] & [0] & [100] & [200] & [200] \\
[100] & [0] & [200] & [200] & [100] & [0] & [200] & [200] \\
[0] & [100] & [200] & [200] & [0] & [100] & [200] & [200]
\end{bmatrix}
$$