When highly compressed MPEG images are decoded, tile-like artifacts appear in the image, which is called blocking effects. Conventional post-processing methods use low-pass filtering to reduce the blocking effects, also losing image details in the high-pass band. This paper proposes a new blocking effects reduction algorithm that does not lose high frequency image details. The new algorithm, called CBE (Continuous Block Edge) algorithm, adjusts the levels of the pixels such that the block edges look continuous. The computational complexity of CBE algorithm is only about 4 additions per pixel, making it very simple to implement. The simulation results show that the CBE algorithm is very effective at reducing noticeable block edges.