WHAT IS CLAIMED IS:

1. A decoder, the decoder comprising circuitry configured to:

receive a bitstream comprising a coded current picture including a coded 128x128 coding tree unit, and signaling information, the signaling information including a sequence parameter set containing a flag indicating that geometric partitioning is enabled for the bitstream, first geometric partition index information enabling the decoder to determine for a first straight line partition boundary in the coding tree unit a first endpoint on a boundary of the coding tree unit and a second endpoint on the boundary of the coding tree unit, second geometric partition index information enabling the decoder to determine for a second straight line partition boundary in the coding tree unit a first endpoint on the boundary of the coding tree unit and a second endpoint on the first straight line partition boundary; and

decode the coded 128x128 coding tree unit using the first geometric partition index information and second geometric partition index information to reconstruct the coding tree unit, the reconstructed coding tree unit being partitioned into three non-rectangular regions by the first and second straight line partition boundaries.

2. The decoder of claim 1, further comprising:

an entropy decoder processor configured to receive the bitstream and decode the bitstream into quantized coefficients;

an inverse quantization and inverse transformation processor configured to process the quantized coefficients including performing an inverse discrete cosine according to the determined coding transformation type;

a deblocking filter;

a frame buffer; and

an intra prediction processor.

3. A method comprising:

receiving, by a decoder, a bitstream comprising a coded current picture including a coded 128x128 coding tree unit, and signaling information, the signaling information including a sequence parameter set containing a flag indicating that geometric partitioning is enabled for the bitstream, first geometric partition index information enabling the decoder to determine for a first straight line partition boundary in the coding tree unit a first endpoint on a boundary of the coding tree unit and a second endpoint on the boundary of the coding tree unit, second geometric

partition index information enabling the decoder to determine for a second straight line partition boundary in the coding tree unit a first endpoint on the boundary of the coding tree unit and a second endpoint on the first straight line partition boundary; and

decoding the current coded 128x128 coding tree unit using the first geometric partition index information and second geometric partition index information to reconstruct the coding tree unit, the reconstructed coding tree unit being partitioned into three non-rectangular regions by the first and second straight line partition boundaries.