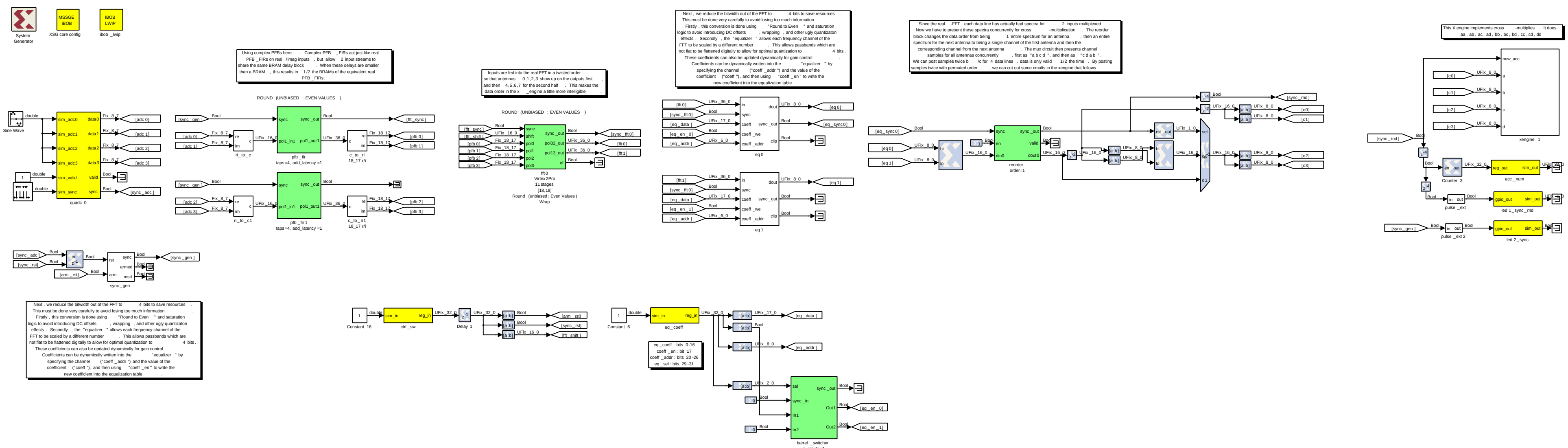

Next , we reduce the bitwidth out of the FFT to 4 bits to save resources . This must be done very carefully to avoid losing too much information . Firstly , this conversion is done using "Round to Even " and saturation logic to avoid introducing DC offsets , wrapping , and other ugly quantizaton effects . Secondly , the "equalizer " allows each frequency channel of the FFT to be scaled by a different number . This allows passbands which are not flat to be flattened digitally to allow for optimal quantization to 4 bits . These coefficients can also be updated dynamically for gain control . Coefficients can be dynamically written into the "equalizer " by specifying the channel ("coeff _addr "), and the value of the coefficient ("coeff "), and then using "coeff _en " to write the new coefficient into the equalization table .