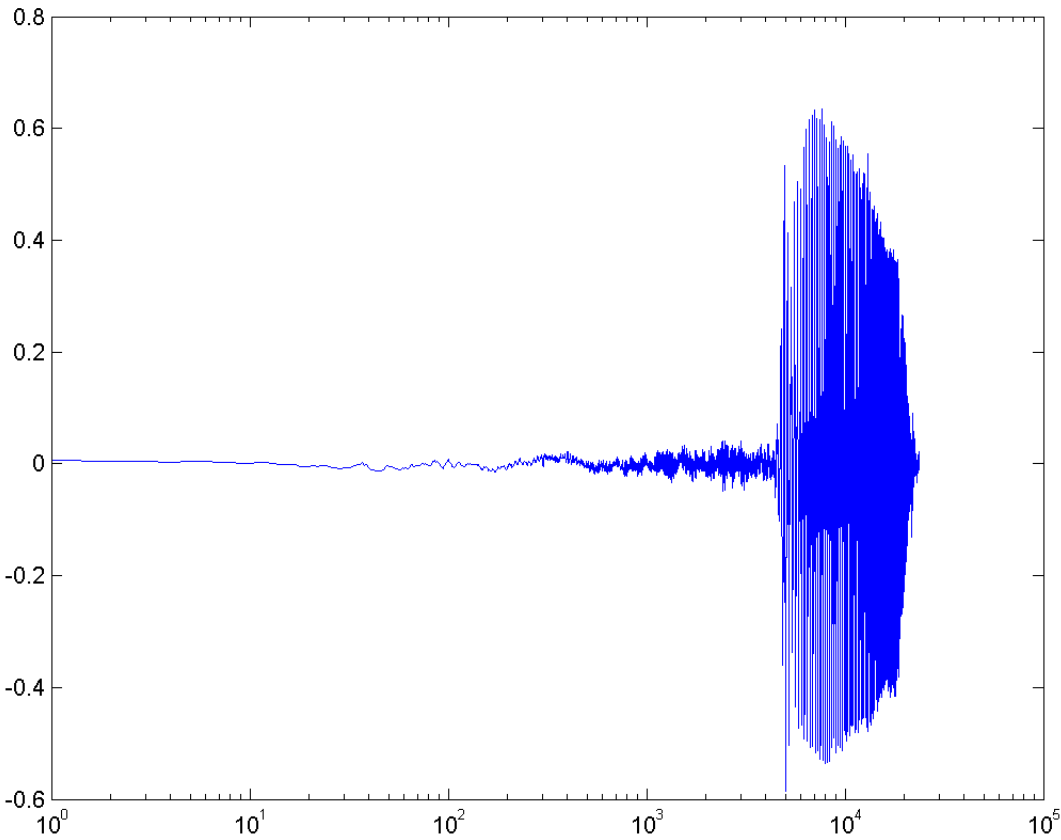
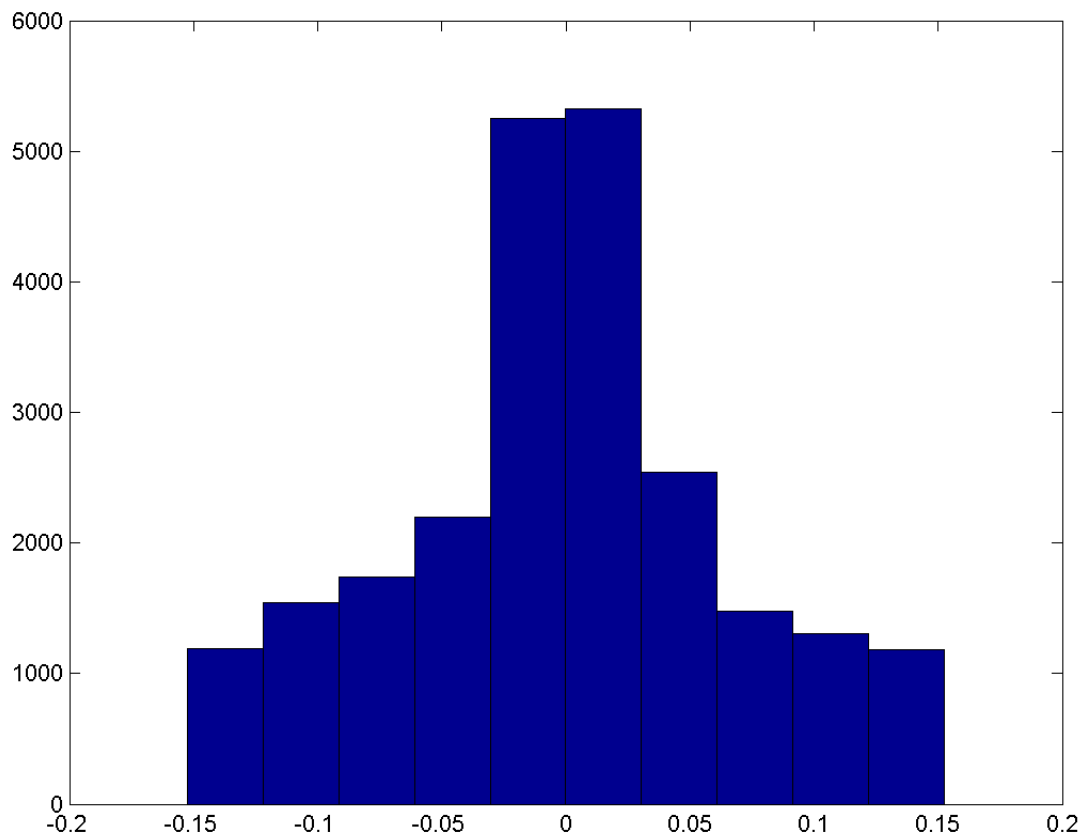


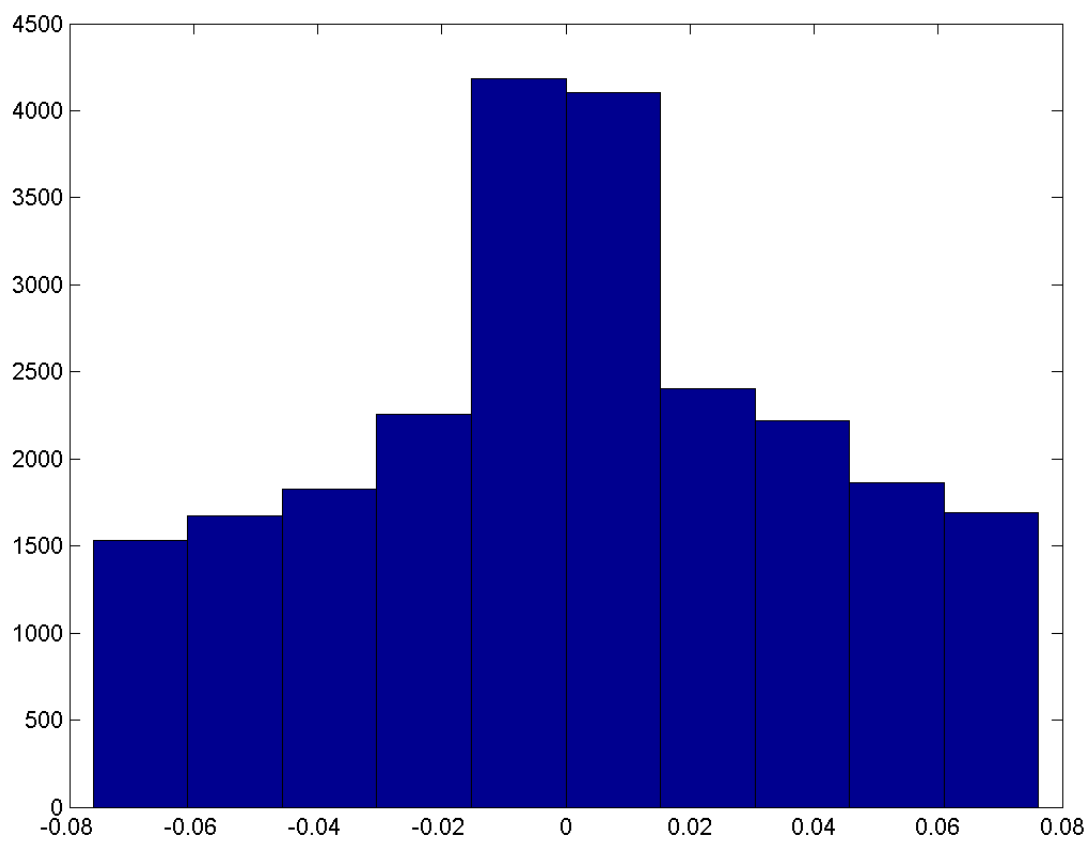
Log Magnitude Spectrum of Speech Signal



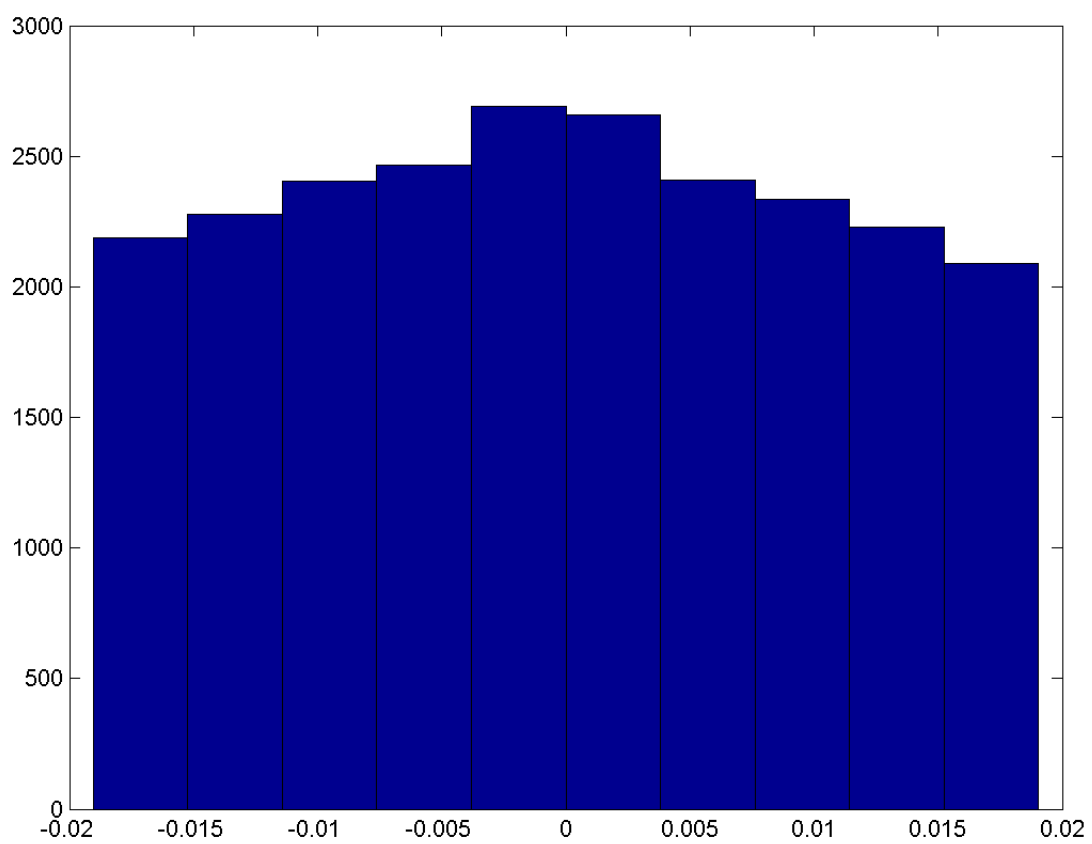
PDF of 2 bit quantizer



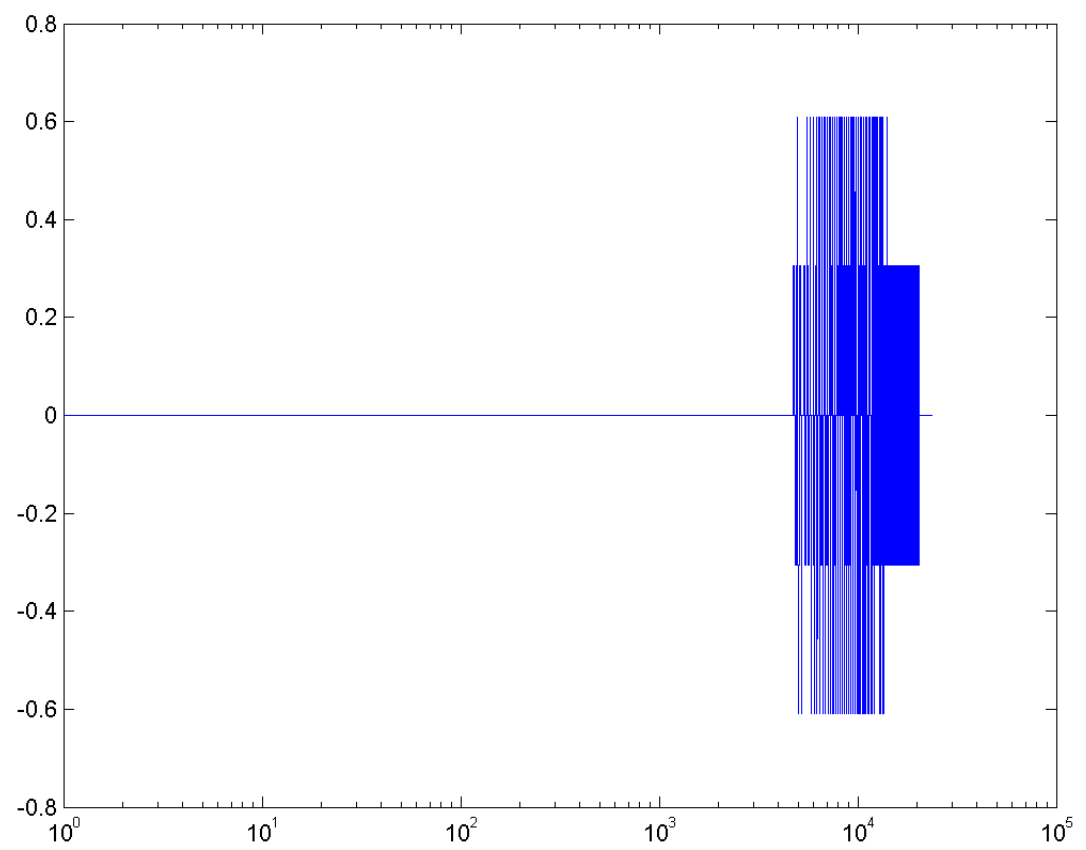
PDF of 3 bit quantizer



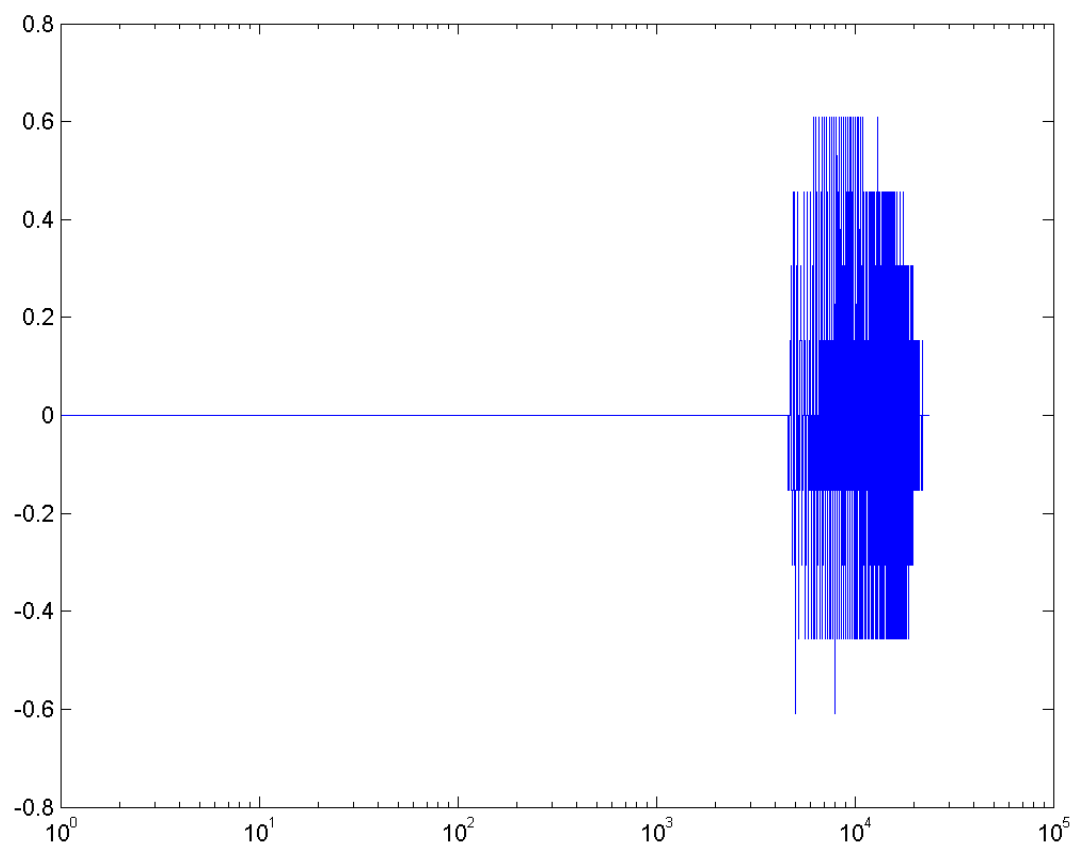
PDF of 5 bit quantizer



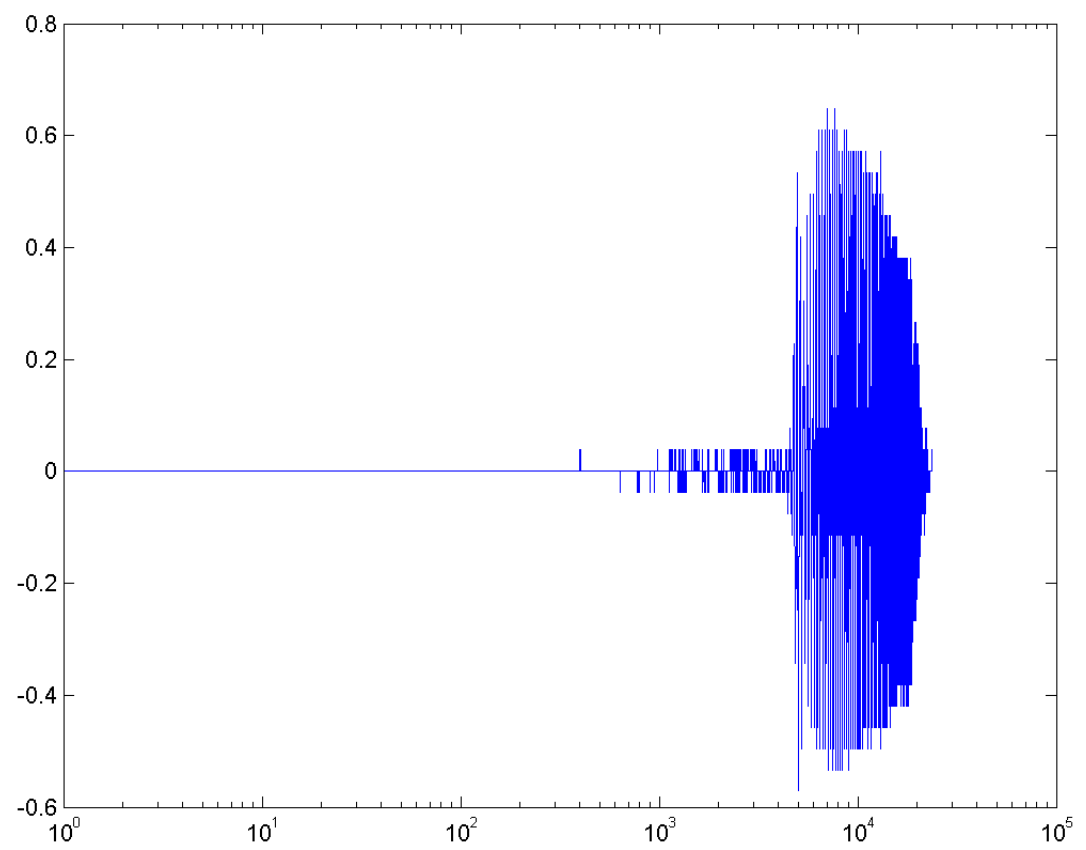
Quantized Signal for 2 bit quantizer



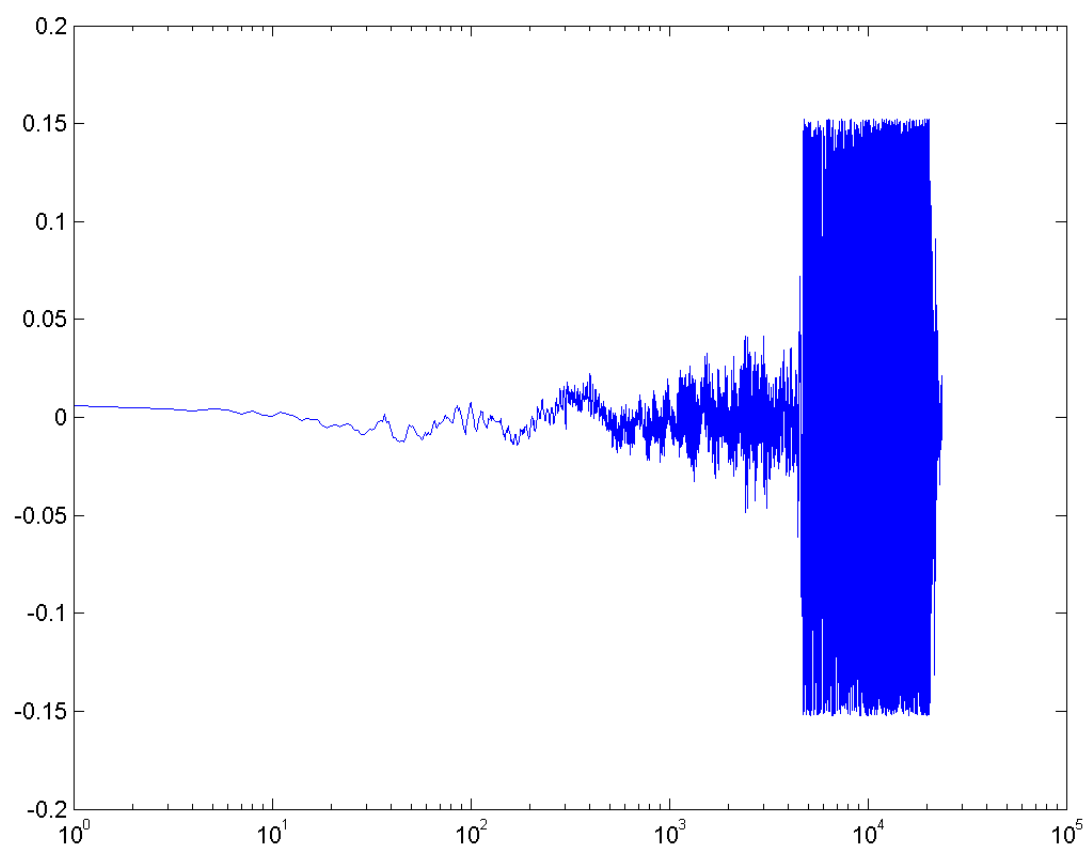
Quantized Signal for 3 bit quantizer



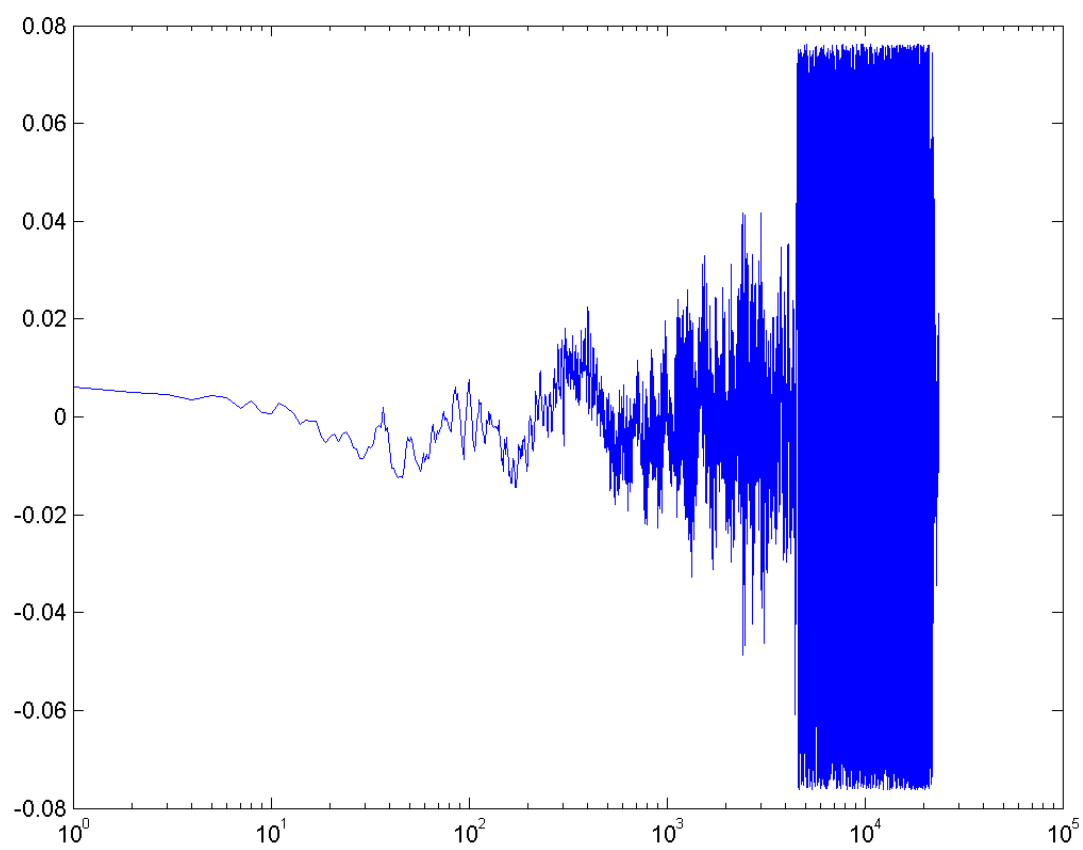
Quantized Signal for 5 bit quantizer



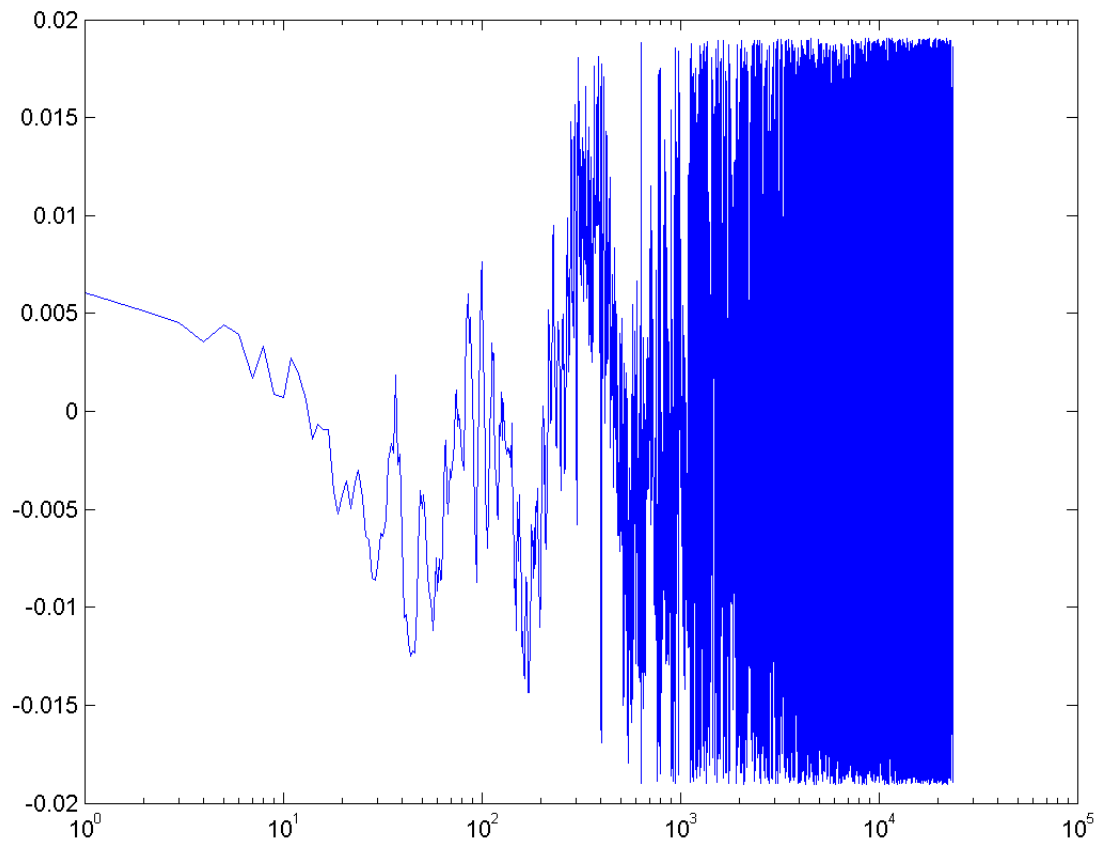
Error for 2 bit Quantizer



Error for 3 bit Quantizer



Error for 5 bit Quantizer



Observations:

1. We observe that the amount of error increases as number of bits (or levels of quantization increases), delta decreases and hence each signal value is quantized to a value closer to it's original.
2. Error decreases as number of bits of representation increases and the signal value is closer to its original- is more accurate.
3. This is reflected the in the error plots (in log magnitude and time). The maximum value of error goes from 0.2 (for 2 bit) to 0.02 (for 5 bit) and from 6000(2 bit) to 2500 (5 bit).
4. The quantized signal has 4 sharp levels in a 2 bit quantizer while there's more gradation in different values for 5 bit quantization.