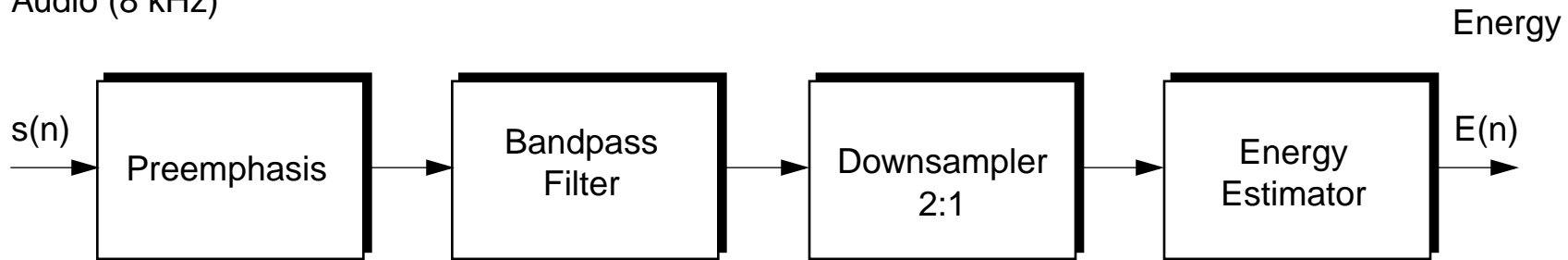


Audio (8 kHz)



Preemphasis:

$$H(z) = 1 - 0.95z^{-1}$$

Bandpass Filter:

$$f_l = 500 \text{ Hz} \quad f_h = 1000 \text{ Hz} \quad \text{Passband Gain} = 1 \quad \text{Stopband Attenuation} = 60 \text{ dB}$$

Downsampler:

Convert the sample frequency from 8 kHz to 4 kHz

Energy:

Produce a short-term estimate of the energy that adapts to changes in the signal, much like a VU meter (Hint: think of an IIR filter).