



Area and Speed estimation

- Following is one example of area and speed estimation from structural level SystemC code.
 - Used a script to create a **gate library** containing elements of all different bit widths, based on **templates**.
 - Each gate SC_MODULE had area and delay values encoded.
 - Each gate SC_MODULE has embedded code to print area, calculate propagation delay, and display min and max integer values.
 - Power estimation – Think of active power (Arithmetic Unit) and leakage power (Cache).
 - Using following equation to calculate the active power
$$P_{\text{active}} = 1/2 \cdot SF \cdot C_{\text{switch-den}} \cdot \text{Area} \cdot V^2 \cdot \text{freq}$$
 - Assume active power occupied 80% total power
 - $P_{\text{total}} = P_{\text{active}}/0.8$