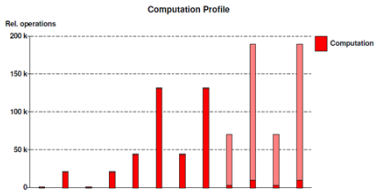
# Assignment 5

1. Profile your MP3 Decoder model in SCE
   - (continued from previous assignment)
   - Load your MP3 project in SCE
     - **`Project->Load "mp3.sce"`**
   - Load your design model into SCE
     - **`File->Import "testbench.sc"`**
     - **`Project->AddDesign`**
     - Right-click on **`testbench.sir`** in the project window, and **`Rename`** the model to **`Spec`**
   - Compile and simulate your model in SCE
     - **`Validation->Compile`**
     - **`Validation->Simulate`**
   - Profile your MP3 decoder in SCE
     - **`Validation->Profile`**



# Assignment 5

2. Analyze your Profiling Results
   - Use the graphical bar charts to compare the complexity of the behaviors in your MP3 decoder
     - In the hierarchy browser, select behaviors of interest (use CTRL-LeftClick to select/deselect)
     - **`RightClick->Graphs->Computation`**
   - Determine the most-critical behaviors that contribute the most computation operations
     - The goal is to find those behavioral blocks that make good choices for hardware accelleration
   - Deliverable 1:
     - Bar chart showing the selected behaviors in comparison to others
       - **`CriticalBlocks.pdf`**
     - Text file briefly (!) explaining your choice
       - **`CriticalBlocks.txt`**




Example Computation Profile (block names omitted)

# Assignment 5

3. Evaluate potential Processors for SW-only Implementation
   - Select DUT as **`Mad_decoder decoder`**
     - RightClick on **`decoder ->SetAsTop-Level`**
   - Consider an ARM7TDMI processor (50MHz)
     - **`Synthesis->Allocate PEs…`**
     - Add Processors, **`ARM_7TDMI`**
     - Choose default port configuration (i.e. 20000ps)
     - Choose 50 MHz (change it from default 100MHz)
     - Name the processor **`ARM7TDMI`**
   - Map the entire decoder on to the ARM7TDMI processor
     - **`Validation->Evaluate`**
     - **`Validation->Show Estimates`**
   - Determine the estimated execution time on the ARM7TDMI!



# Assignment 5

4. Evaluate alternative Processors for SW-only Implementation
   - Consider as alternative a LEON3 processor (50MHz)
     - **`Synthesis->Allocate PEs…`**
     - Add Processors, **`LEON3`**
     - Choose default port configuration (i.e. 20000ps)
     - Choose default clock frequency (i.e. 50 MHz)
     - Name the processor **`LEON3`**
   - Map the entire decoder on to the LEON3 processor
     - **`Validation->Evaluate`**
   - Determine the estimated execution time on the LEON3!
   - Deliverable 2:
     - Text file with the estimated execution times for the ARM7TDMI and LEON3 processors, and
     - Brief analysis whether or not each processor is expected fast enough for a SW-only implementation of the MP3 decoder
       - **`SWonly.txt`**
   - Due:
     - by Friday, Nov 5, 2010, at noon (email to **doemer@uci.edu,** "EECS222C HW5")