

1-bit enhanced ALU

You can design the following 1-bit enhanced ALU that supports subtraction, set and overflow flags. After finishing your design, save the full circuit as ALU1Enhanced.vhd

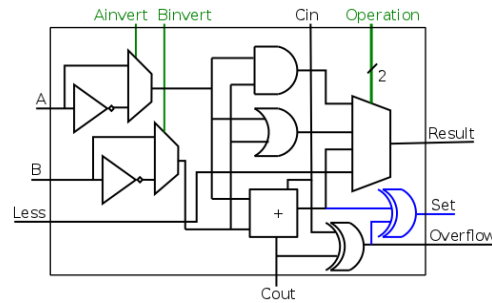


Figure 1: 1-bit Enhanced ALU

Recall that we intend to develop a 32-bit MIPS ALU. The circuit is the same for all bits but the external wiring is different for the most significant ALU (ALU0) and least significant ALU (ALU31). Your 32-bit version will have the MS ALU and LS ALU.

32-bit enhanced ALU

Implement a 32-bit version of the MIPS ALU as given in the following figure. You can save your complete circuit as ALU32bitEnhanced.vhd

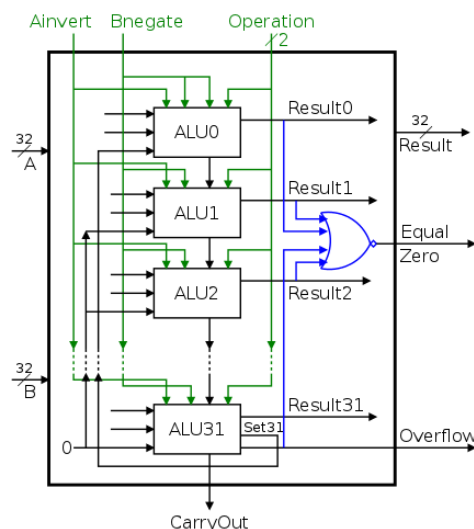


Figure 2: 32-bit enhanced ALU