

Project: Part #3 for ECE 152

ALU

Must be submitted electronically by 10:00AM on Monday, Feb 25

In this part of the project, you will build an ALU that implements all of the arithmetic and logic functions of the Duke 152/16. Figure 1 illustrates the ALU, including the exact signal names that you must use in your design (to facilitate testing). For ALU operations that take a single input (i.e., rotates), assume that the input arrives on `aluInputA`. ALU otypes are as specified in Table 1. Rotation amounts are unsigned 3-bit integers. If the operation is a subtraction, then (a) the output `isEqual=true` iff `aluInputA==aluInputB`, and (b) the output `isLessThan=true` iff `aluInputA < aluInputB` (this is a *signed* comparison). If the operation is not a subtraction, then `isEqual` and `isLessThan` are “Don’t Care” outputs.

Submit this assignment in the same way in which you submitted Project Parts #1 and #2. You must name your high-level .bdf file `alu.bdf`. There are no other file naming restrictions.

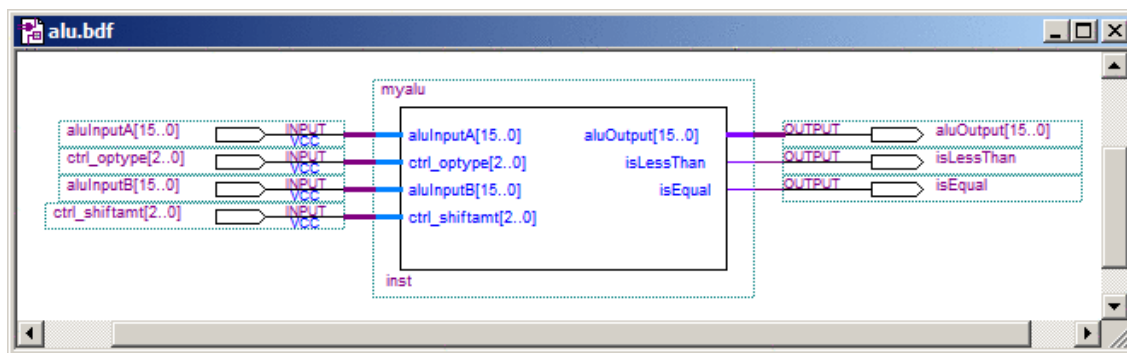


FIGURE 1. Illustration of ALU

TABLE 1. Ootype Codes

optype	ctrl_optype
add	001
sub	011
and	100
xor	101
rotr	110
rotr	111

You may re-submit as often as you like, but a re-submission will overwrite whatever you've previously submitted for this assignment. I will grade whatever has been submitted before 10:00AM on Monday, February 25.