Lab 06 - Ones and Twos Complement

In this lab, you’ve learned about how computers store and process numbers, specifically negative numbers. In addition, you have learned how to implement a full signed integer system with the Two's Complement number representation.

# Rubric

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| --- | --- | --- |
| **Item** | **Description** | **Value** |
| Summary Answers | Your writings about what you learned in this lab. | 25% |
| Question 1 | Your answers to the question | 25% |
| Question 2 | Your answers to the question | 25% |
| Question 3 | Your answers to the question | 25% |

# Lab Summary

In this lab we learned how to implement a one and twos compliment into vivado. We also learned how to subtract binary in vivado

# Lab Questions

## 1 - Explain the differences between our Half Adder from the last lab and the Half Subtractor from this lab.

It’s essentially the same concept, the elements that change are the borrow for when we use the complement of one of the elements since we are subtracting for half substract

## 2 - What about the end around carry of One’s Complement makes it hard to use and implement?

You have to do twice the work with around as opposed to twos complement which is cleaner and more efficient

## 3 - What is the edge case and problem with Two’s Complement number representation?

The two’s complement can cause an overflow when it tries to look for something out of range

# Code Submission

Upload a .zip of all your code or a public repository on GitHub.