

For this new ALU, a carry lookahead model was selected for the new adder. The carry lookahead adder was chosen because it is significantly faster (though not by much at this level) than the ripple carry adder. Admittedly, with other adders, more space could be saved and the design could be downsized, but in the end we chose speed over space. The ALU is faster than the decoder. This is mainly due to the fact that the decoder depends upon input from the end of the ALU's path. Information could be retrieved from the ALU much faster than from the decoder's output to the 7-segment display. Overall, the design uses 89 luts, which according to search material responds to 23 slices and 12 CLB's. As stated earlier, the design could be made more efficient by using a slower adder. It is hard to say which part of the design is truly "bigger" as the ALU and decoder use nearly the same number of LUTs, differing only by a few. By that measure alone, the decoder is slightly bigger.