

Algorithm Analysis: bigmul64 Informal Proof

I am unsure how to write a proof for this algorithm due to its simplicity, so I will try explaining informally.

- There are no variables other than the parameters and i .
- Within the for-loop, I iterate over a 32-bit segmentation of C , using the `uint32_t` value of $c[i]$ as the single-digit d value in `partialprod32`.
- Each iteration, the pointer to a is incremented by 1, which essentially adds each successive partial product into the next column.
- Since the only computations occurring in this loop are based on i , it is obvious that the loop invariant will not change depending on the iterations.

□

(P.S. I was unable to attend office hours last week, so in the future I will be sure to ask for help early on)