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Implementing Large Multiplier Using Smaller ones

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Like Booth’s multiplication algorithm another method reduction of partial products is implementing higher multipliers by smaller ones. The larger multiplier blocks can be realized using smaller multiplier blocks. A  multiplier can be realized using four  multiplier blocks. This is based on the following equation

where  is the most significant halve of A,  is the most significant halve of X,  is the least significant halve of A and  is the least significant halve of X.

The partial products from the smaller multiplier blocks should be correctly arranged and accumulated by fast multi-operand adders. A scheme of implementing a 8 bit multiplier using four  multipliers is shown below in Figure 1.

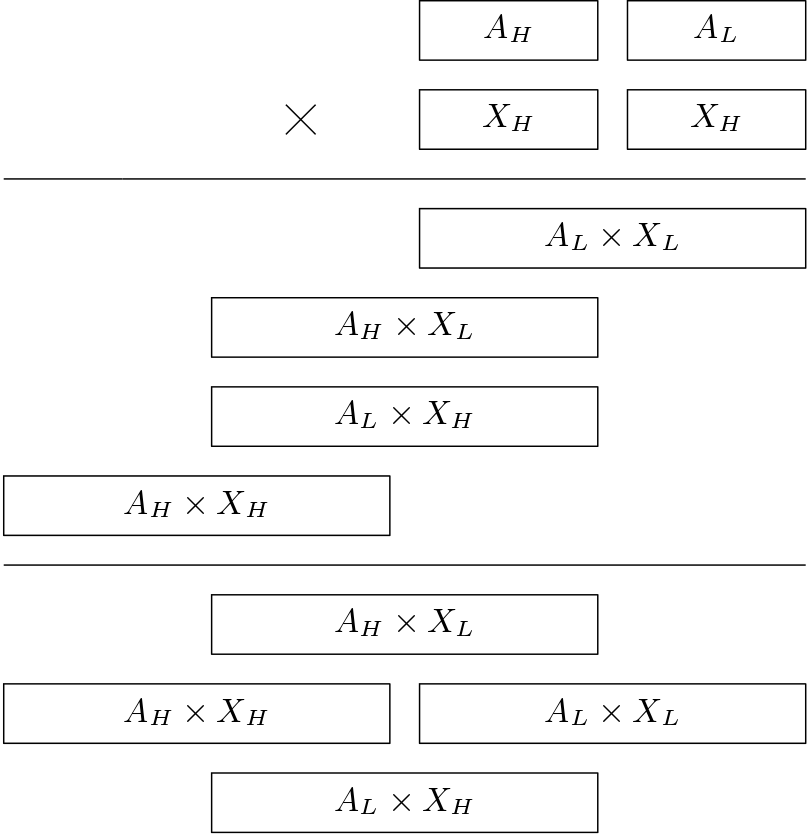


Figure 1: Implementation of 8-bit multiplier using two 4-bit multipliers

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