

Multiplier (H.1)

20151130

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References

Some Figures from the following sites

[1] <http://pages.hmc.edu/harris/cmosvlsi/4e/index.html>

Weste & Harris Book Site

[2] en.wikipedia.org

[3] Digital Integrated Circuits : A Design Perspective,

Jan M. Rabaey,

(<http://bwracs.eecs.berkeley.edu/Classes/lcBook/>)

[4] Digital Electronics and Design with VHDL

Pedroni

Multiplication

□ Example:

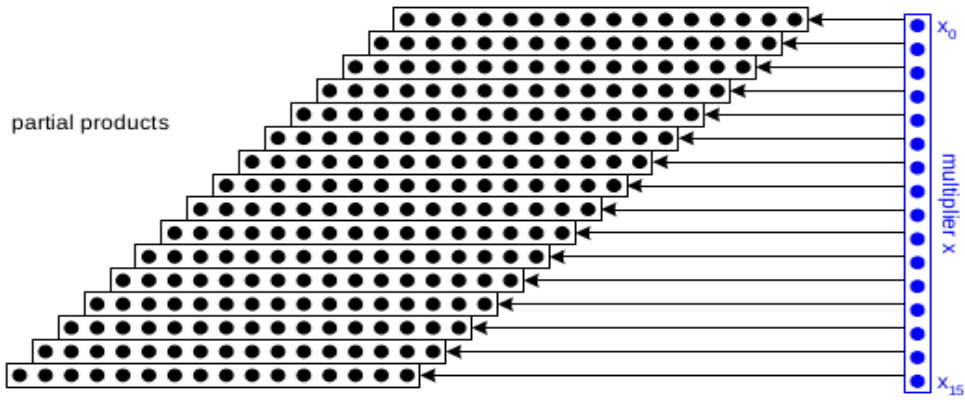
$$\begin{array}{r} 1100 : 12_{10} \\ \underline{0101 : 5_{10}} \\ \hline \end{array}$$

multiplicand
multiplier
partial products
product

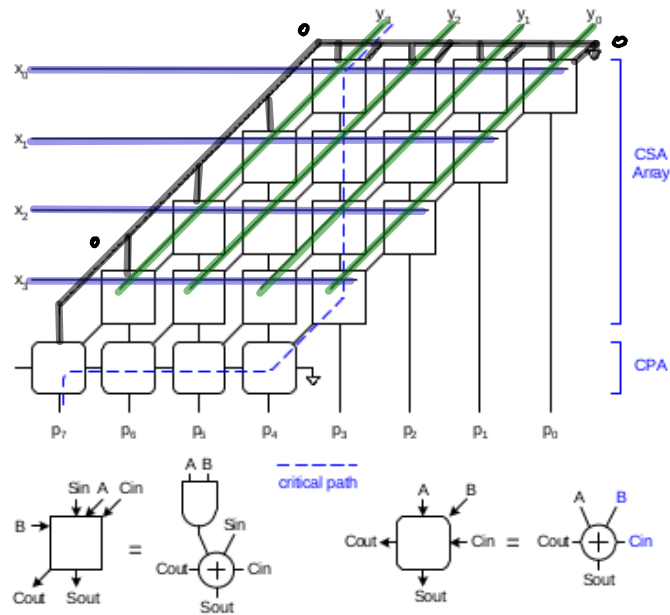
- M x N-bit multiplication
- Produce N M-bit partial products
 - Sum these to produce M+N-bit product

Dot Diagram

- Each dot represents a bit



Array Multiplier



Rectangular Array

- ❑ Squash array to fit rectangular floorplan

