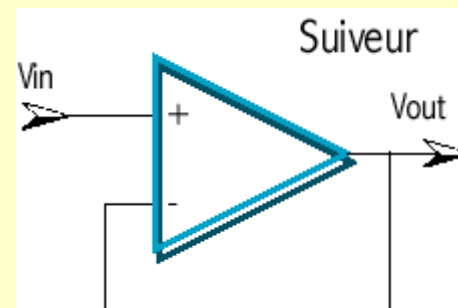
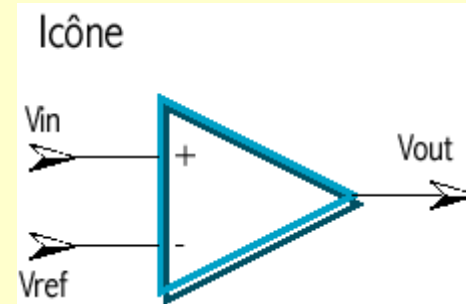
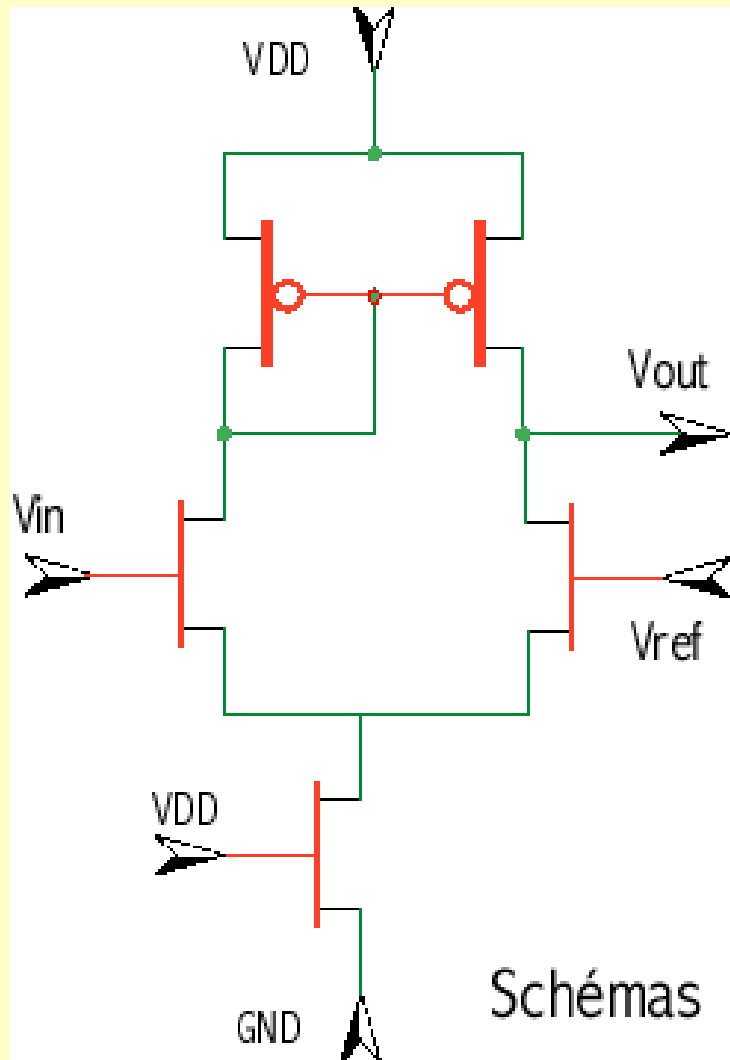
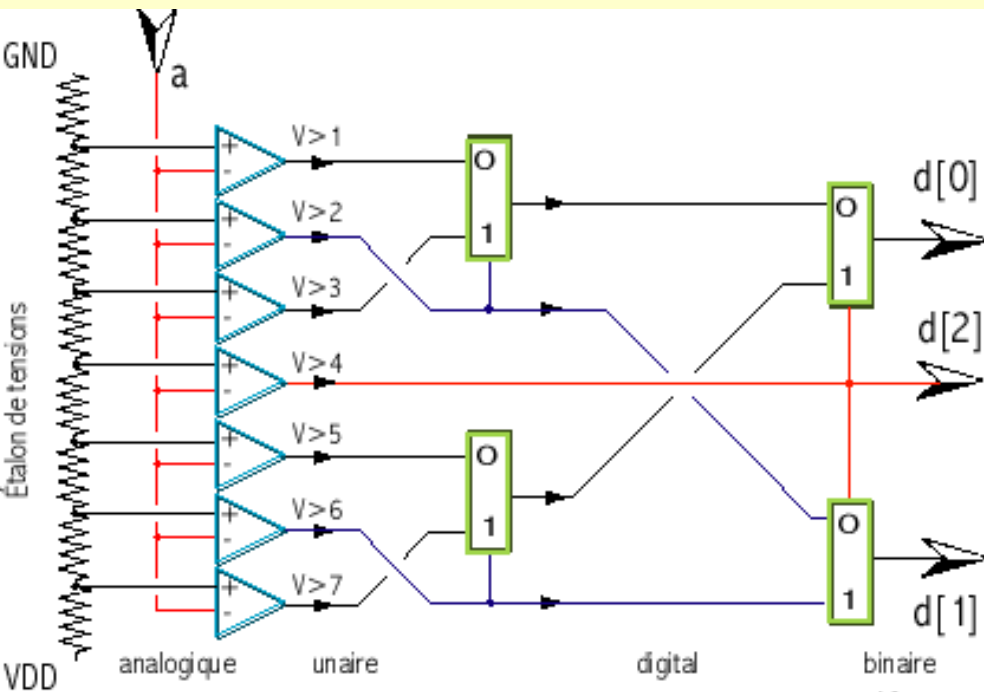


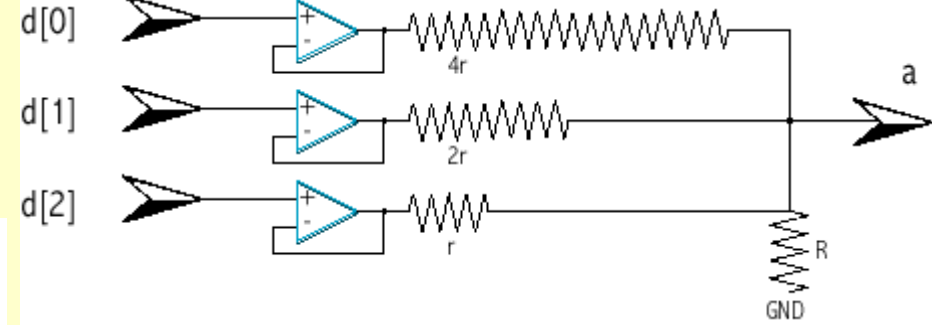
Differential Amplifier



D/A Converter

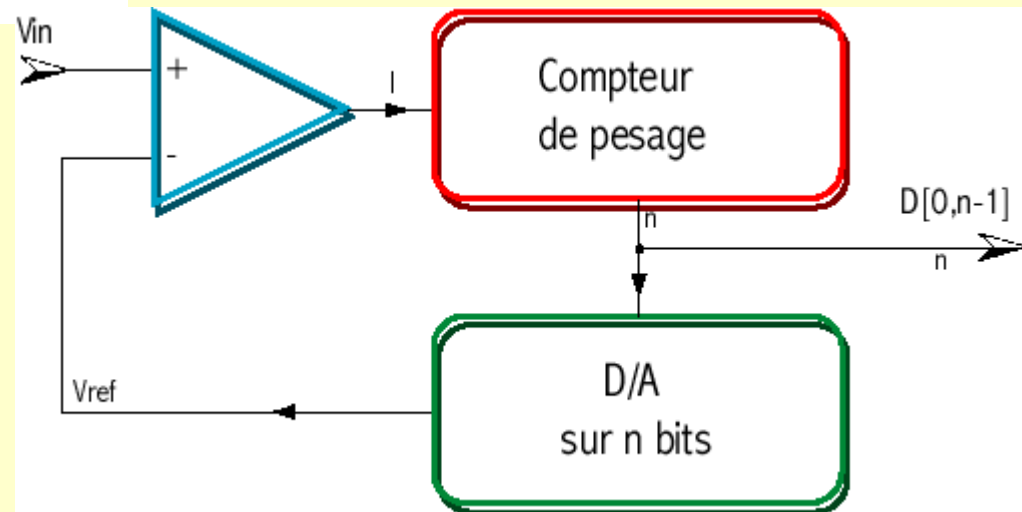


Parallel

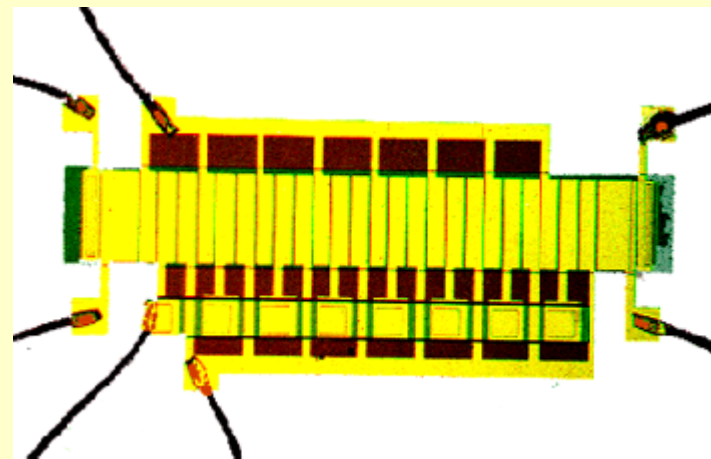


A/D Converter

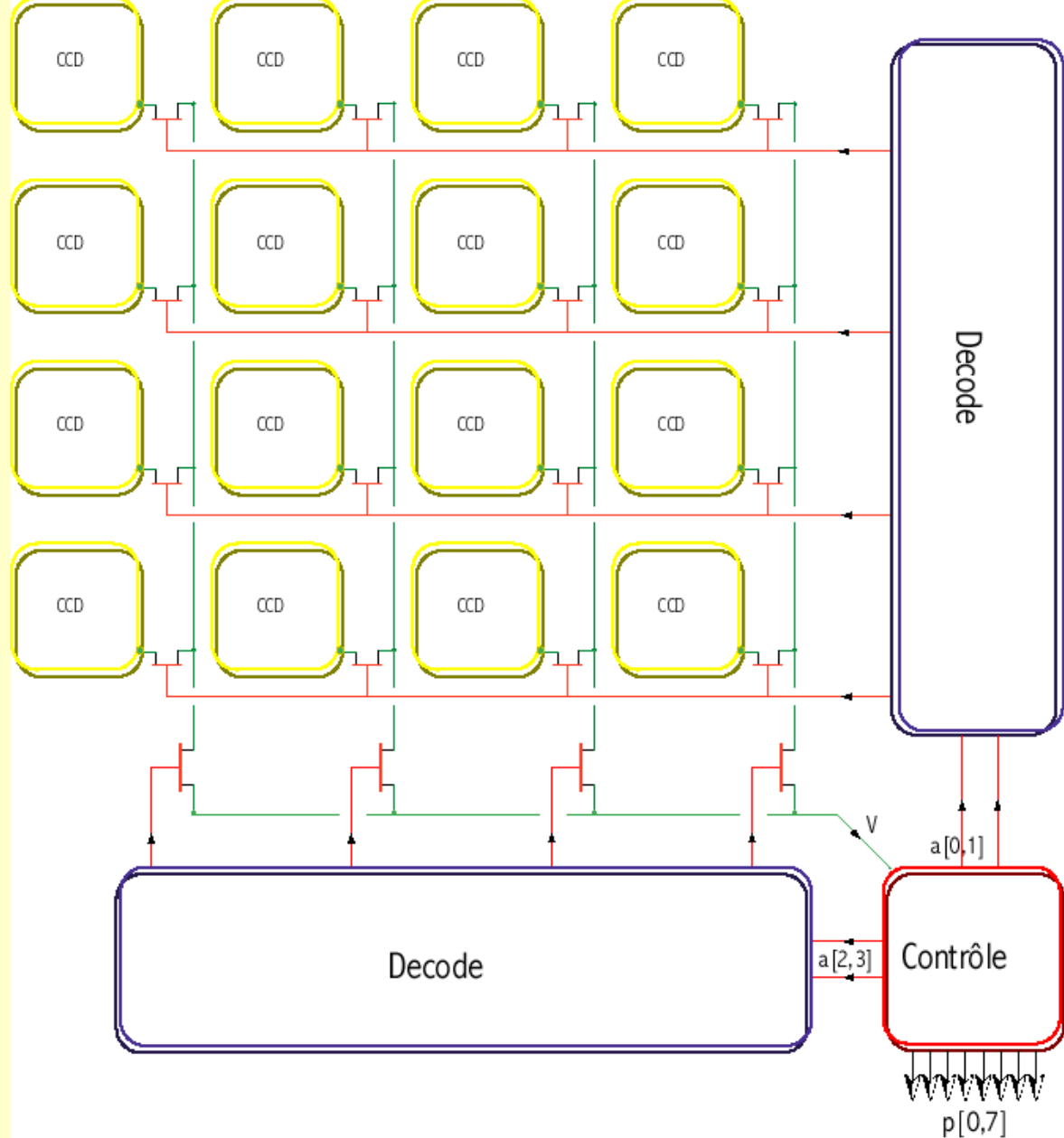
Serial



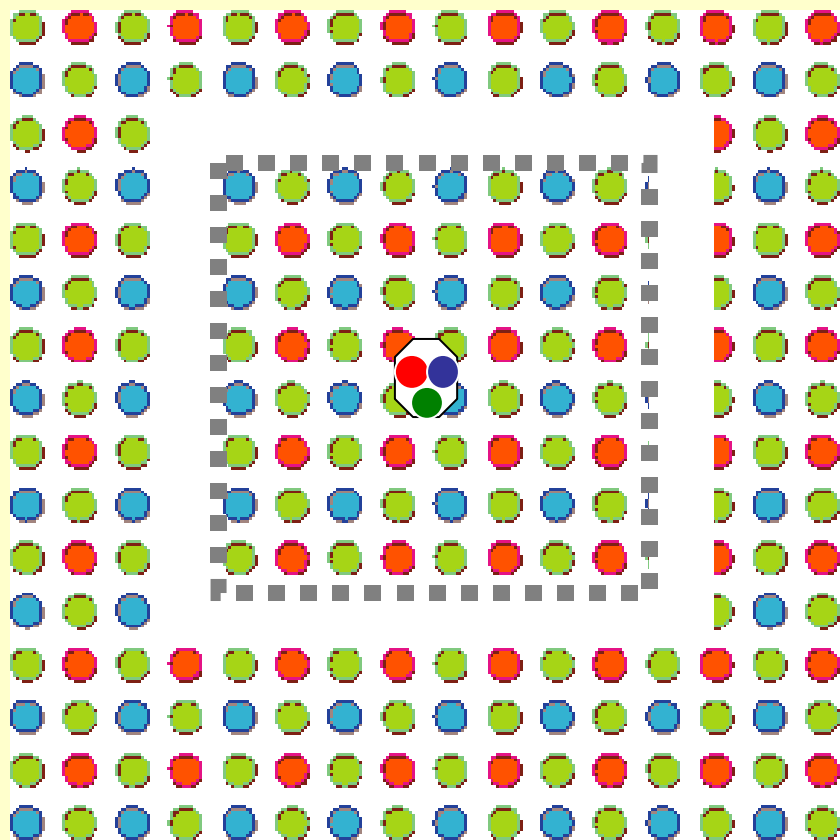
CCD: photons to electrons



First CCD (Bell Labs 1970)



Color CCD



Pixel Interpolation
from an 8x8 sliding window

$$L[i, j] = \sum_{0 \leq i, j < 8} c_{i, j}^{L, p} p[i, j]$$

$$C^r[i, j] = \sum_{0 \leq i, j < 8} c_{i, j}^{R, p} p[i, j]$$

$$C^b[i, j] = \sum_{0 \leq i, j < 8} c_{i, j}^{B, p} p[i, j]$$

... is expensive:

192 mul-add/pel

~ 1KB coefficient table