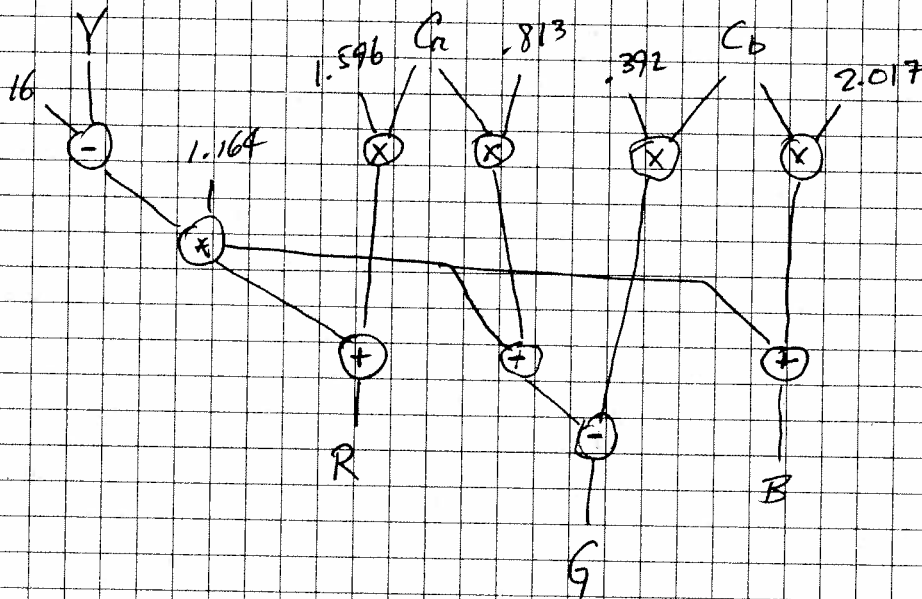


## Color Conversion Example

$$\begin{aligned} R &= 1.164(Y-16) + 1.596(C_r-128) \\ G &= 1.164(Y-16) + 0.813(C_r-128) - 0.392(C_b-128) \\ B &= 1.164(Y-16) + 2.017(C_b-128) \end{aligned}$$

### Dataflow Graph



How Fast is this circuit?

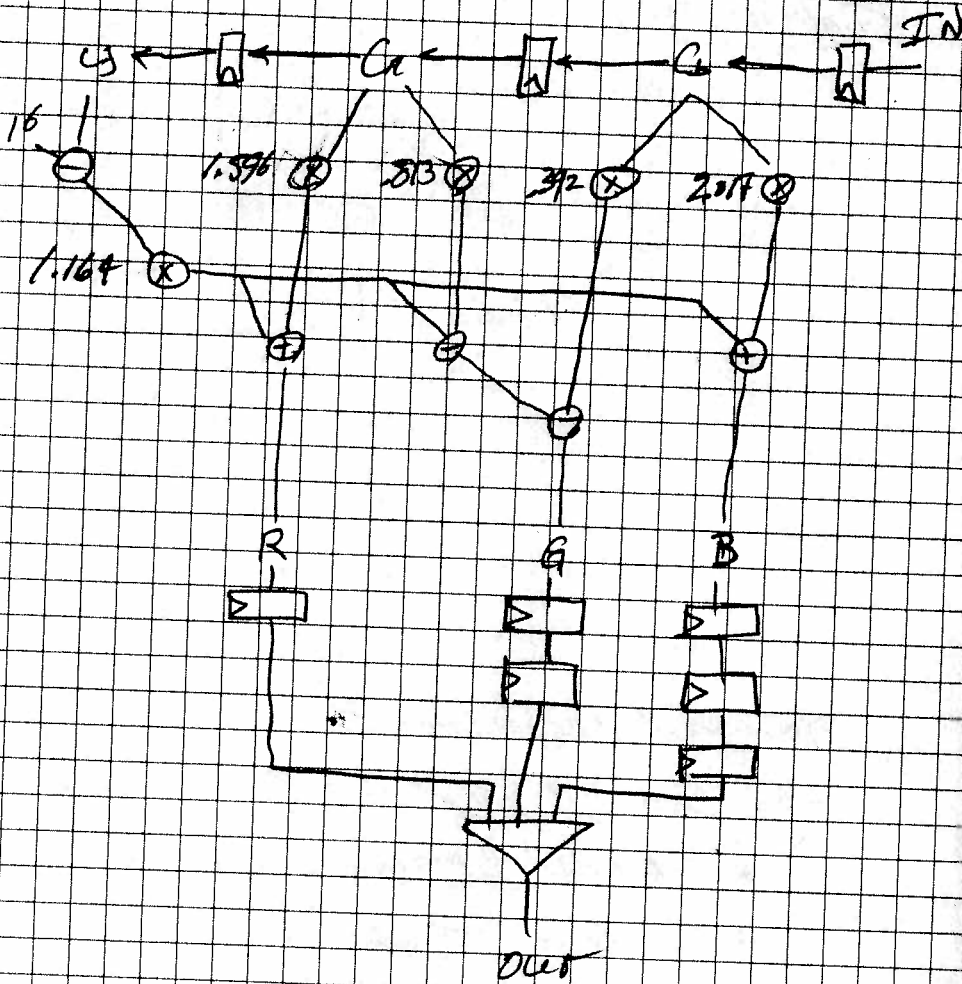
How can we speed it up? Pipelining!

- \* Increase LATENCY of circuit
- \* Increase THROUGHPUT.

# Color Conversion

What if values are serialized?

Y, C<sub>y</sub>, C<sub>b</sub>, Y, C<sub>y</sub>, C<sub>b</sub>, ...  
 ↓                      ↓  
 R, G, B, ...



Are we wasting resources?

1 computation / 3 clock cycles

5x, 5#-