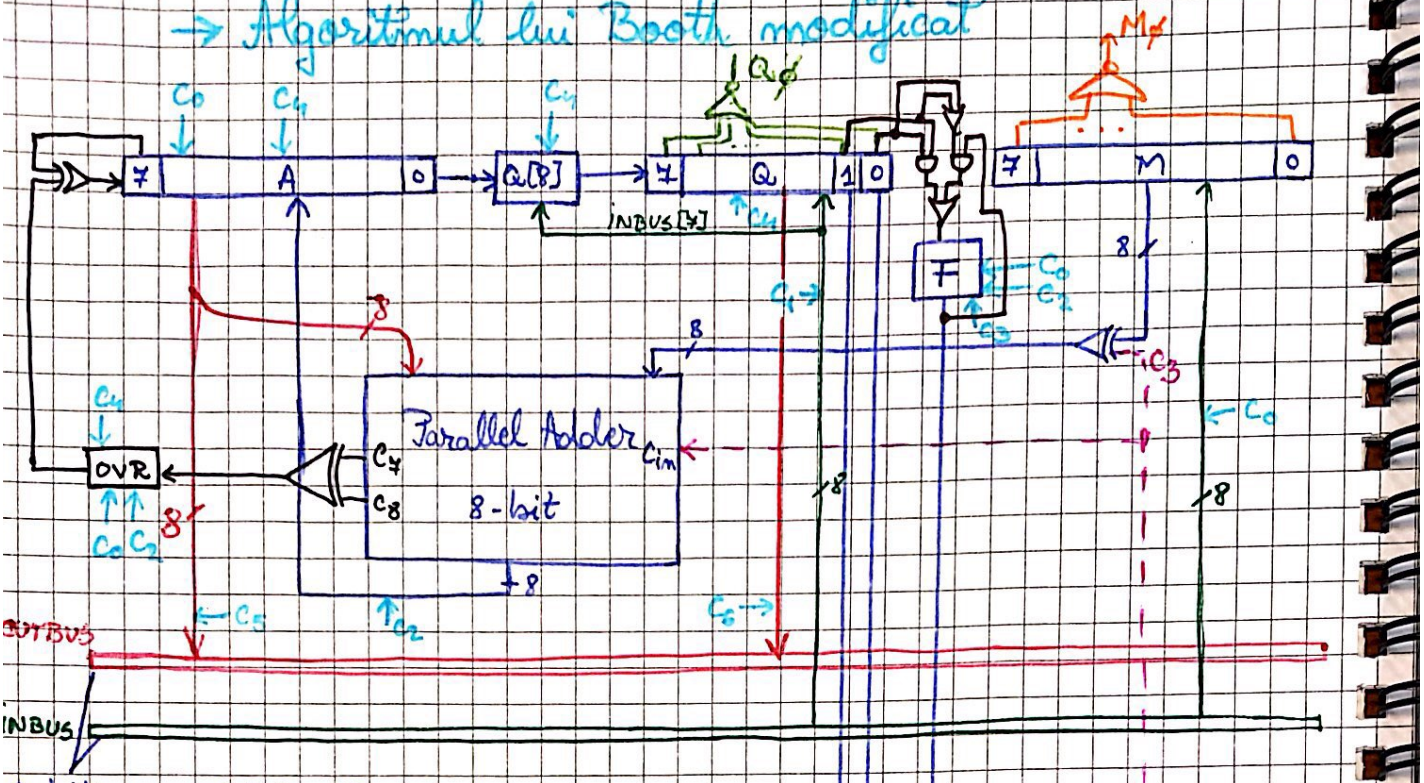
CURS 2

5.03.2019

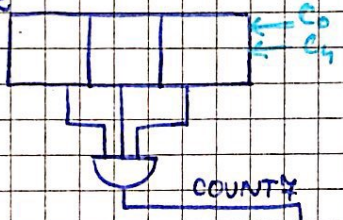
1.1. Introducere

→ Algoritmul lui Booth modificat

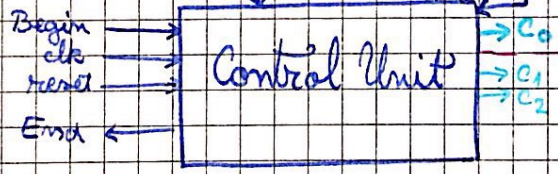


8-bit Data Buses

COUNTER

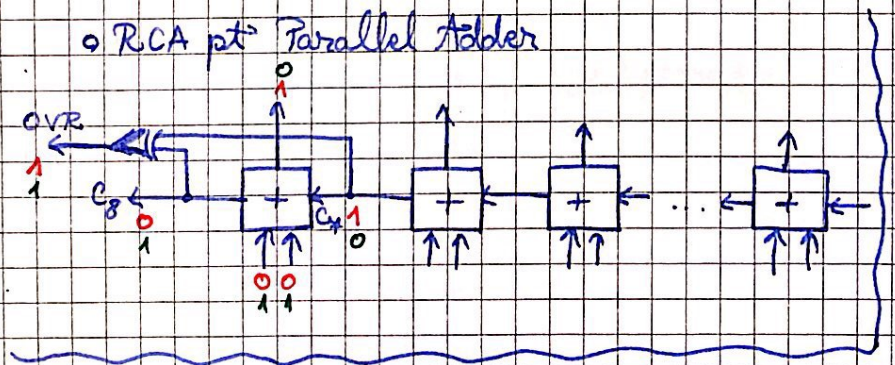


External Control Signals

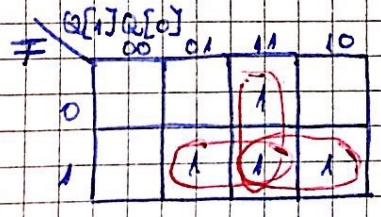


Internal Control Signals

○ RCA pt Parallel Adder



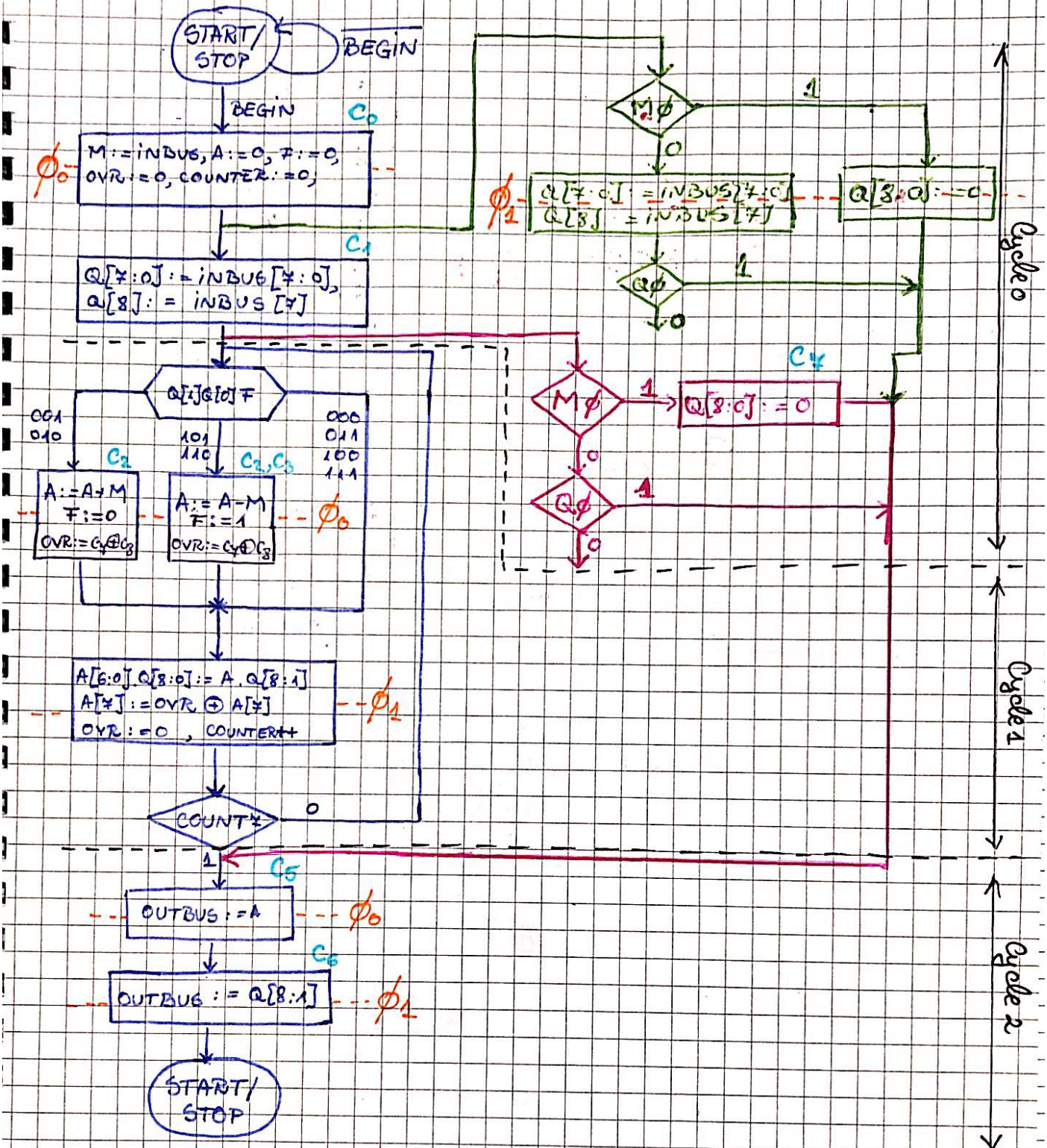
Q[1]	Q[0]	F	F'	OP
0	0	0	0	0
0	0	1	0	1
0	1	0	0	1
0	1	1	1	0
1	0	0	0	0
1	0	1	1	$\bar{1}$
1	1	0	1	$\bar{1}$
1	1	1	1	0



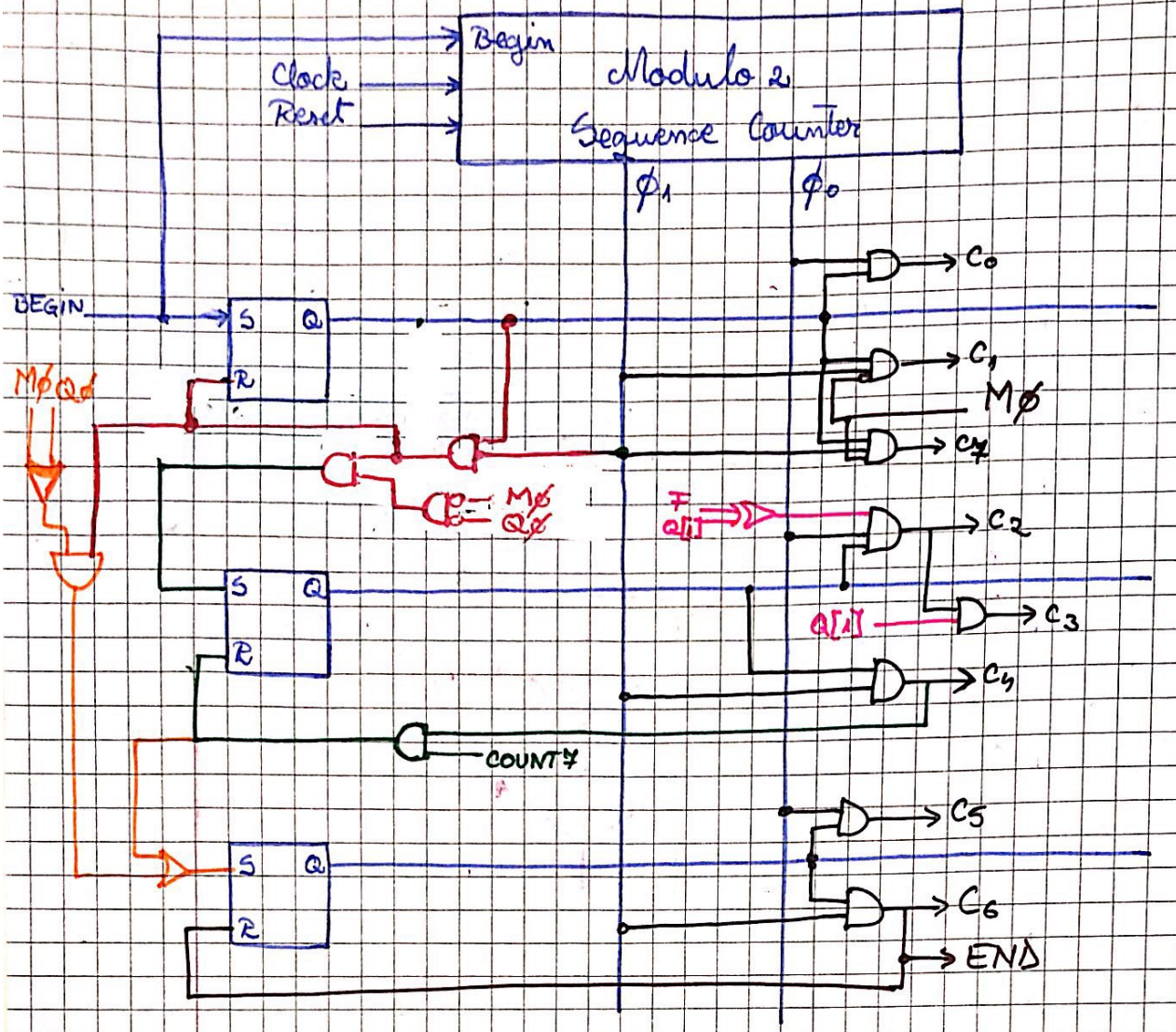
$\Rightarrow F' = Q_1 Q_0 + F(Q_0 + Q_1)$

- Q_ϕ este 1 dacă $Q_0 = 0$
- M_ϕ este 1 dacă $M = 0$

} Toate procesele aleg la început să evităm înmulțirea cu 0



Se poate implementa [illegible] sau [illegible], [illegible] e mai eficient



1.2. Speeding up: higher radix

Radix-4 step i with weight 2^i

b_{i+1}	b_i^0	b_{i-1}^0	07
0	0	0	0
0	0	1	+A
0	1	0	+A
0	1	1	+2A
1	0	0	-2A
1	0	1	-A
1	1	0	-A
1	1	1	0

$A \times 0 \times 2^i + A \times 0 \times 2^{i-1} = 0 \times 1 \times 2^i$

$+A \times 2^i + 0 \times A \times 2^{i+1} = +A \times 2^i$

$-A \times 2^i + A \times 2^{i+1} = A \times 2^i$

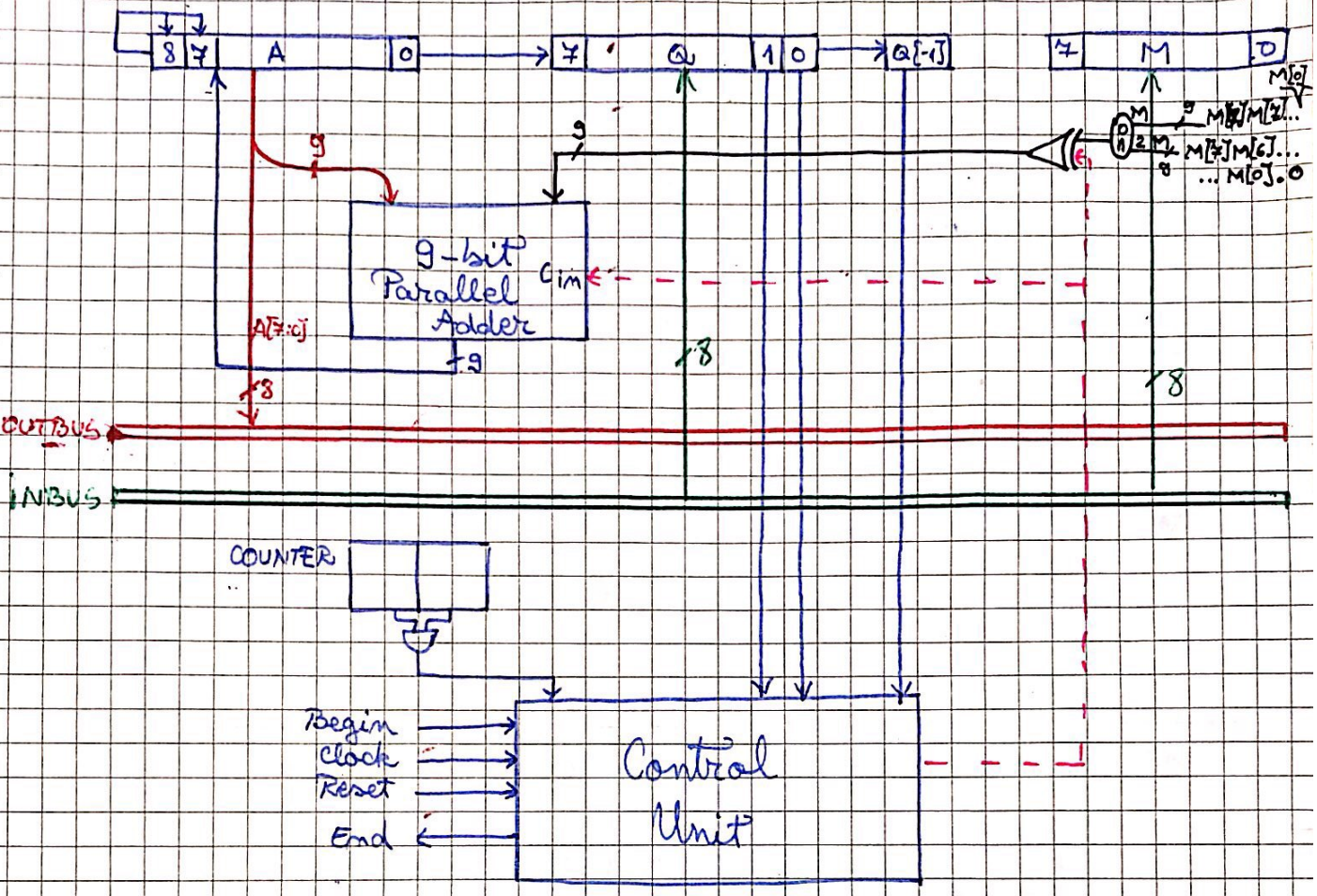
$0 + A \times 2^{i+1} = +2A \times 2^i$

$0 - A \times 2^{i+1} = -2A \times 2^i$

$+A \times 2^i - A \times 2^{i+1} = -A \times 2^i$

$-A \times 2^i + 0 = -A \times 2^i$

• Ca să salvăm clocki, trb. să putem face shiftări duble =>
=> A pe 9 biți.



LAB 2

- M = 13 = 0 1101 SM
- Q = 7 = 0 111 SM

Dorim să facem înmulțirea în Radix-2 pt Booth modificat