state	G	READY	N	M	P	C	A	B
IDLE	0	1	1011	1110				
IKDLE	1	1						
IDLE	0	0			11	0	0000	0000
MUL0								
SHIFT				111	10	0	0000	0000
MUL0						0	1011	
SHIFT				11	01	0	0101	1000
MUL0						0	1011	
SHIFT				1	00	0	1000	0100
MUL0						1	0000	
SHIFT					11	0	1001	1010
IDLE	1							

```
          1  0  1  1
          1  1  1  0
          0  0  0  0
       1  0  1  1
    1  0  1  1
 1  0  1  1

1  0  0  1  1  0  1  0
```

Control Circuit Design
ASM can be easily turned into a control circuit. We need inputs & outputs for the state & control signals inputs:

- G
- M_0
- Z: value of P = 0

Outputs:

- Int: trigger A ← 0 B←0
- Load: do a←A+N
- Shift_dec: do C||A||B….

Now we need to design circuit that implements the behavior of the ASM

- Two ways to do this

One Flip Flop per State

- Each pat of the ASM turns into circuit as follows

A signal in the circuit will track our position in the ASM
1=”I’m here”

The operations corresponding to control outputs
Conditions correspond to states signals
Example : the slower multiplier

Input C: I>0
Start
Output: init: I←M, P←O
Add: P←P+N, I←I-1