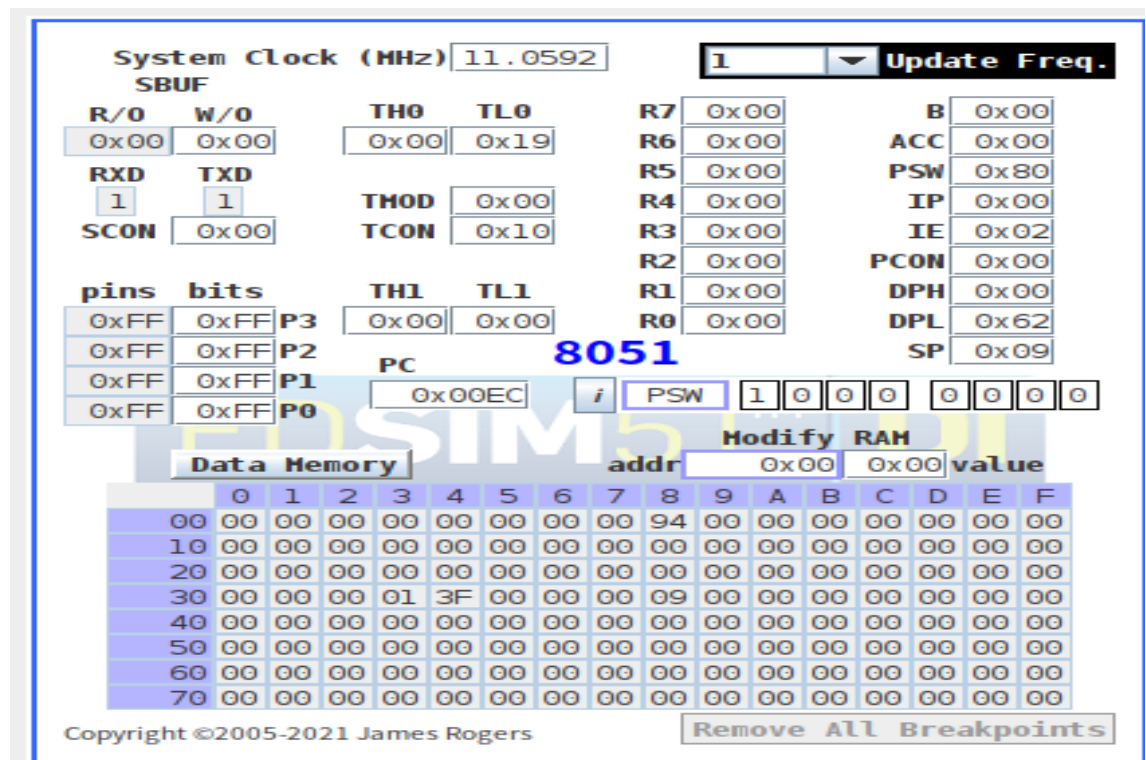


# checkpoint2

October 2021

- 1 Question 1: Take one screenshot before each ThreadCreate call. Explain how the stack changes.



- 1 . The origin SP is save in TempSP (38H) and change SP to 3FH (Thread0 stack)
- 2 .Push DPL DPH (Thread0's initial address) in Thread0 stack

and Initialize ACC , B , DPL ,DPH ,PSW value and push those in Thread0 stack,such that SP is point to 46H

3. Restore Original SP from TempSP and Save Thread0SP in the 34H

The screenshot shows the 8051 simulator interface with the following details:

- System Clock (MHz):** 11.0592
- Update Freq.:** 1
- Registers:**
  - R7: 0x00, R6: 0x01, R5: 0x00, R4: 0x00, R3: 0x00, R2: 0x00, R1: 0x00, R0: 0x00
  - B: 0x00, ACC: 0x01, PSW: 0x81, IP: 0x00, IE: 0x02, PCON: 0x00, DPH: 0x00, DPL: 0x14, SP: 0x4F
- TH0: 0x04, TL0: 0x0B, TH0D: 0x00, TCON: 0x10**
- pins bits:** P3: 0xFF, P2: 0xFF, P1: 0xFF, P0: 0xFF
- PC: 0x0105**
- PSW: 100000001**
- Data Memory:**

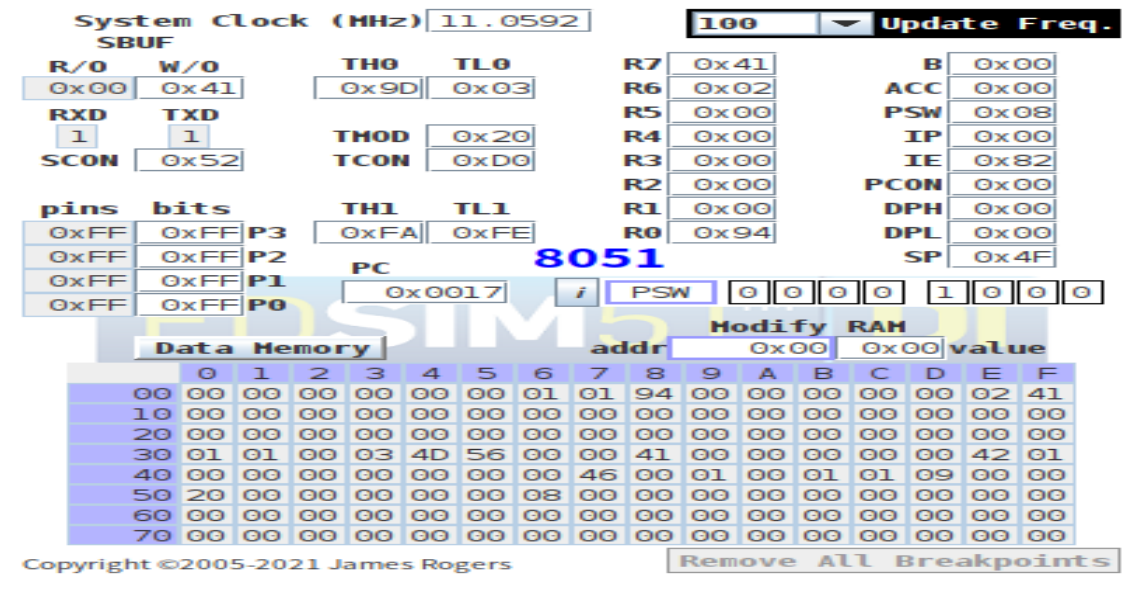
addr	0	1	2	3	4	5	6	7	8	9	A	B	C	D	E	F
00	00	00	00	00	00	00	01	00	94	00	00	00	00	00	00	00
10	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
20	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
30	01	00	00	03	46	4F	00	00	41	00	00	00	00	00	20	00
40	70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
50	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
60	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00
70	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00	00

1 . The origin SP is save in TempSP (38H) and change SP to 4FH (Thread1 stack)

2 .Push DPL DPH (Thread1's initial address) in Thread1 stack and Initialize ACC , B , DPL ,DPH ,PSW value and push those in Thread1 stack,such that SP is point to 56H

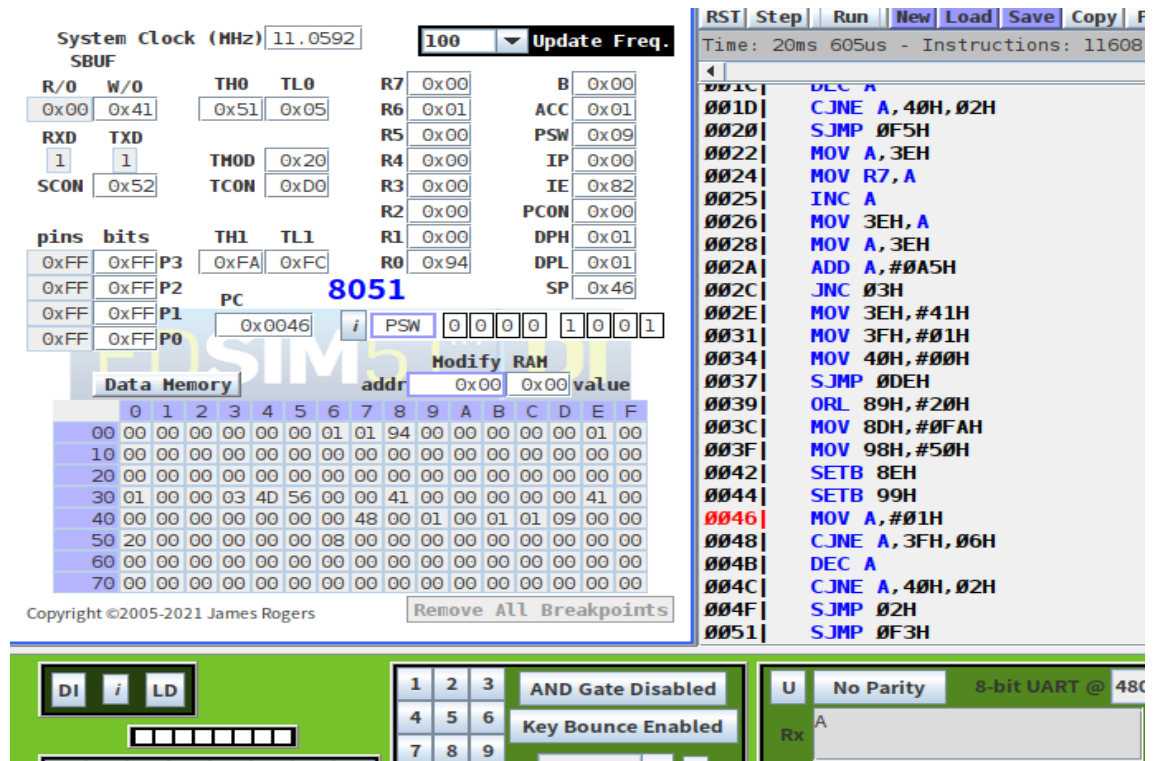
3. Restore Original SP from TempSP and Save Thread1SP in the 35H

- 2 Question 2: Take one screenshot when the Producer is running. How do you know?



1. It's PC is 0x0017 or 0x0019 can know Producer is running
2. After Producer execute the value of 3EH will increase

### 3 Question 3: Take one screenshot when the Consumer is running. How do you know?



1. It's PC is repeat with 46H 48H 51H, then we can know Consumer is running
2. After it execute will print the new word in uart

### 4 Question 4 : How can you tell that the interrupt is triggering on a regular basis?

The PC switch with Producer's address (17H 19H) and Consumer's address (46H 48H 51H) on a regular basis, so we can know interrupt is triggering on a regular basis