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```
User@MSI MINGW64 ~/Desktop/OS/checkpoint2
$ ls
Makefile      preemptive.h      preemptive.rst    testpreempt.c    testpreempt.lst  testpreempt.rel
preemptive.asm preemptive.lst    preemptive.sym    testpreempt.hex  testpreempt.map  testpreempt.rst
preemptive.c  preemptive.rel    testpreempt.asm  testpreempt.lk   testpreempt.mem  testpreempt.sym

User@MSI MINGW64 ~/Desktop/OS/checkpoint2
$ make clean
rm *.hex *.ihx *.lnk *.lst *.map *.mem *.rel *.rst *.sym *.asm
rm: cannot remove '*.ihx': No such file or directory
rm: cannot remove '*.lnk': No such file or directory
make: *** [Makefile:25: clean] Error 1

User@MSI MINGW64 ~/Desktop/OS/checkpoint2
$ ls
Makefile      preemptive.c      preemptive.h      testpreempt.c    testpreempt.lk
User@MSI MINGW64 ~/Desktop/OS/checkpoint2
$ make
sdcc -c testpreempt.c
testpreempt.c:62: warning 158: overflow in implicit constant conversion
sdcc -c preemptive.c
preemptive.c:210: warning 85: in function ThreadCreate unreferenced function argument : 'fp'
sdcc -o testpreempt.hex testpreempt.rel preemptive.rel

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$ ls
Makefile      preemptive.h      preemptive.rst    testpreempt.c    testpreempt.lst  testpreempt.rel
preemptive.asm preemptive.lst    preemptive.sym    testpreempt.hex  testpreempt.map  testpreempt.rst
preemptive.c  preemptive.rel    testpreempt.asm  testpreempt.lk   testpreempt.mem  testpreempt.sym
```

Before calling ThreadCreate(main):

The screenshot shows the EdSim51DI v2.1.32 interface. The System Clock is set to 11.0528 MHz. The 8051 register window shows the PC at 0x00B3 and the PSW at 0x0000. The Data Memory window shows the value 0x00 at address 0x00. The instruction window shows the following assembly code:

```
00089| RET
0008A| LJMP 01F7H
0008D| RETI
0008E| MOV 09H, #00H
00091| MOV 0A8H, #82H
00094| SETB 8CH
00096| MOV 34H, #00H
00099| MOV 37H, #00H
0009C| MOV A, #0FCH
0009E| ADD A, 37H
000A0| JC 0EH
000A2| MOV A, 37H
000A4| ADD A, #30H
000A6| MOV R0, A
000A7| MOV 0R0, #00H
000A9| MOV A, 37H
000AB| INC A
000AC| MOV 37H, A
000AE| SJMP 0ECH
000B0| MOV DPTR, #0074H
000B3* LCALL 00CBH
```

The hardware panel at the bottom shows the following components:

- DI / LD buttons
- AND Gate Disabled
- Key Bounce Disabled
- Standard keyboard layout
- UART configuration: No Parity, 8-bit UART @ 4800 Baud
- Rx Reset and Tx Send buttons
- 0.0V output DAC
- Scope
- 8051 register window (PC: 0x00B3, PSW: 0x0000)
- Data Memory window (0x00 at 0x00)
- ADC input (0.0V) and output (11111111)
- Motor Sensor
- Display-select input
- AND Gate Output (D)
- ADC INTR
- Motor Control Bit

Before calling ThreadCreate(Produder):

The screenshot shows the EdSim51DI v2.1.32 interface. The System Clock is set to 11.0528 MHz. The 8051 register window shows the PC at 0x007D and the PSW at 0x0000. The Data Memory window shows the value 0x00 at address 0x00. The instruction window shows the following assembly code:

```
0007D* LCALL 00CBH
00080| LJMP 0046H
00083| LJMP 008EH
00086| RET
00087| RET
00088| RET
00089| RET
0008A| LJMP 01F7H
0008D| RETI
0008E| MOV 09H, #00H
00091| MOV 0A8H, #82H
00094| SETB 8CH
00096| MOV 34H, #00H
00099| MOV 37H, #00H
0009C| MOV A, #0FCH
0009E| ADD A, 37H
000A0| JC 0EH
000A2| MOV A, 37H
000A4| ADD A, #30H
000A6| MOV R0, A
000A7| MOV 0R0, #00H
```

The hardware panel at the bottom shows the following components:

- DI / LD buttons
- AND Gate Disabled
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- Standard keyboard layout
- UART configuration: No Parity, 8-bit UART @ 4800 Baud
- Rx Reset and Tx Send buttons
- 0.0V output DAC
- Scope
- 8051 register window (PC: 0x007D, PSW: 0x0000)
- Data Memory window (0x00 at 0x00)
- ADC input (0.0V) and output (11111111)
- Motor Sensor
- Display-select input
- AND Gate Output (D)
- ADC INTR
- Motor Control Bit

The screenshot displays the EdSim51DI - Version 2.12 software interface, which is used for simulating the 8051 microcontroller. The interface is divided into several main sections:

- Top Window (Assembly Editor):**
 - System Clock (MHz):** 11.0529
 - Update Freq:** 1000
 - Timer:** 66ns 330us - Instructions: 36252
 - Assembly Code:**

```

RST Step Run New Load Save Copy Paste
0040 MOV A, 3AH
0042 JNZ 0D3H
0044 SJMP 0FAH
0046 ORL 89H, #20H
0049 MOV 8DH, #0FAH
004C MOV 98H, #50H
004F SETB 88H
0051 SETB 0AFH
0053 MOV A, #01H
0055 CJNE A, 3AH, 02H
0058 SJMP 0F9H
005A MOV R7, #01H
005C JBC 0AFH, 02H
005F MOV R7, #00H
0061 CLR 0AFH
0063 MOV 99H, 39H
0066 MOV 3AH, #01H
0069 SETB 0AFH
006B MOV A, R7
006C RRC A
006D MOV 0AFH, C

```
 - Register File:**
 - R0: 0x00, R1: 0x31, R2: 0x00, R3: 0x00, R4: 0x00, R5: 0x00, R6: 0x00, R7: 0x00
 - PSW: 0x88, DPH: 0x00, DPL: 0x00, SP: 0x4F
 - PC: 0x0040
 - Data Memory:**

addr	0x00	0x00	value
0	0	1	0
1	0	1	0
2	0	1	0
3	0	1	0
4	0	1	0
5	0	1	0
6	0	1	0
7	0	1	0
8	0	1	0
9	0	1	0
A	0	1	0
B	0	1	0
C	0	1	0
D	0	1	0
E	0	1	0
F	0	1	0
- Bottom Window (Hardware Simulation):**
 - Keyboard:** A numeric keypad with buttons for digits 0-9, letters A-D, and function keys like 'AND Gate Disabled', 'Key Bounce Disabled', and 'Standard'.
 - DAC:** A 0.0V output scope showing a square wave.
 - 7-segment Display:** Displays the number '8888'.
 - ADC:** A 0.0V input scope showing a square wave.

Value in address 0x35 is 1, means that thread 1 is currently running. So Producer is running.

Since the thread switching process is triggered by the interrupt, if it is not triggering on a regular basis, then the characters couldn't be outputted successfully.