

## 1. Producer running &amp; semaphore changes

According to .map file, the address of \_Producer is 0014, so I set a breakpoint there. Red block corresponds to the variable initialization  $ch='A'$ , and blue block is the assembly code of SemaphoreWaitBody and decrease Semaphore 'empty' ( $addr = 22H$ ) by 1

Version 2.1.32 &amp; Dynamic Interface x | testpreempt.hex

The screenshot displays the Proteus IDE interface for the testpreempt.hex file. The assembly code is shown in the center, with a breakpoint set at address 0014. The code includes variable initialization and semaphore management logic. The hardware components, including the DAC, UART, and ADC, are visible at the bottom of the interface.

## 2. Consumer running & semaphore changes

According to .map file, the address of \_Consumer is 005B, so I set a breakpoint there. Red block corresponds to the initialization of TMOD, TH1..., and blue block is the assembly code of SemaphoreWaitBody and decrease Semaphore 'full'(addr = 21H) by 1

Version 2.1.32 & Dynamic Interface x | testpreempt.hex

## 3. Typescript

```
daneil@MS-DanielNB:/mnt/d/Profile/Daniel/OneDrive/桌面/OS Project/Checkpoint 3$ make clean
rm *.hex *.ihx *.lnk *.lst *.map *.mem *.rel *.rst *.sym
rm: cannot remove '*.ihx': No such file or directory
rm: cannot remove '*.lnk': No such file or directory
make: *** [Makefile:25: clean] Error 1
daneil@MS-DanielNB:/mnt/d/Profile/Daniel/OneDrive/桌面/OS Project/Checkpoint 3$ make
sdcc -c testpreempt.c
testpreempt.c:38: warning 158: overflow in implicit constant conversion
sdcc -c preemptive.c
preemptive.c:82: warning 85: in function ThreadCreate unreferenced function argument : 'fp'
sdcc -o testpreempt.hex testpreempt.rel preemptive.rel
```