Real-Time Operating System Project

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Subject: Implementing EDF Scheduler Report

scheduler using:

1. using analytical methods:

Task	Periodicity	Execution Time	Repeat in hyper.
Button 1	50	30 us	2
Button 2	50	30 us	2
Periodic Transmitter	100	95 us	1
UART	25	35 us	5
Load 1	15	5 ms	9
Load 2	100	15 ms	1

1. Hyperperiod = 100

2. CPU Load

   =[(30u*2)+(30u*2)+(95u*1)+(35u*5)+(5m*9)+(15m*1) / 100m]

   * 100% = 49%

3. System Schedulability =

Using Rate Monotonic Utilization Bound

$U \leq n[\ 2\ \hat{}(1/n) - 1]$

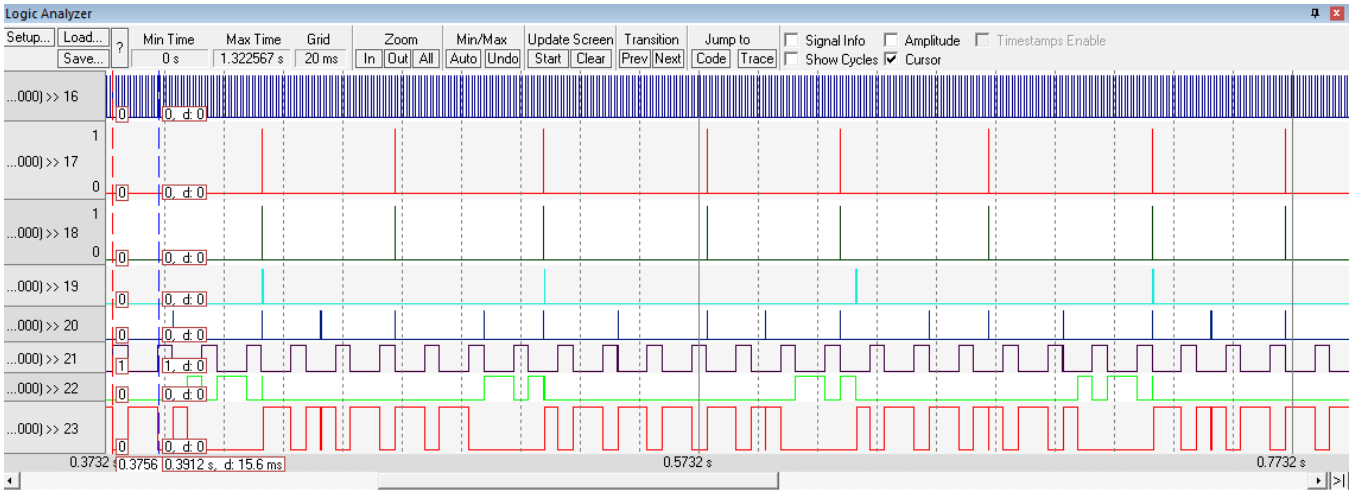
U = 0.493 && Urm = 0.734

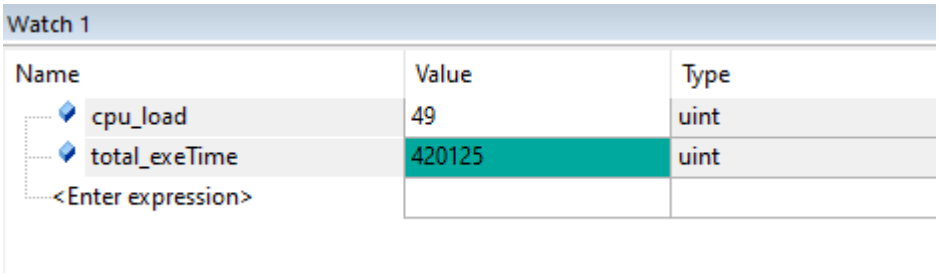
Therefore U < Urm

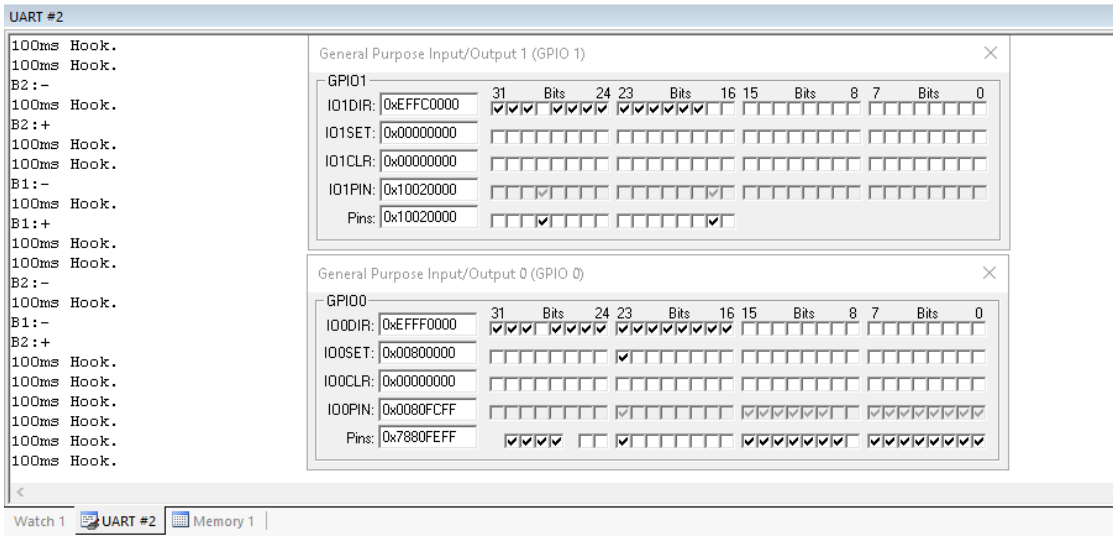
--> The system is (Schedulable)

((System is Schedulable))

2. Keil :


Logic Analyzer
Setup...
Load...
Save...
Min Time
Max Time
Grid
0 s
1.322567 s
20 ms
Zoom
In
Out
All
Min/Max
Auto
Undo
Update Screen
Start
Clear
Transition
Prev
Next
Jump to
Code
Trace
Signal Info
Show Cycles
Amplitude
Cursor
Timestamps Enable
...000] >> 16
...000] >> 17
...000] >> 18
...000] >> 19
...000] >> 20
...000] >> 21
...000] >> 22
...000] >> 23
0, d: 0
1, d: 0
0.3732 s
0.3756
0.3912 s, d: 15.6 ms
0.5732 s
0.7732 s


Watch 1
Name
Value
Type
cpu_load
49
uint
total_exeTime
420125
uint
<Enter expression>


UART #2
100ms Hook.
B2:-
B2:+
B1:-
B1:+
General Purpose Input/Output 1 (GPIO 1)
GPIO1
IO1DIR: 0xEFFC0000
IO1SET: 0x00000000
IO1CLR: 0x00000000
IO1PIN: 0x10020000
Pins: 0x10020000
General Purpose Input/Output 0 (GPIO 0)
GPIO0
IO0DIR: 0xEFFF0000
IO0SET: 0x00800000
IO0CLR: 0x00000000
IO0PIN: 0x0080FCFF
Pins: 0x7880FEFF
Bits
Watch 1
UART #2
Memory 1