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Project making EDF scheduler in freeRTOS

Frist analytical:

After collecting data [periodicity, deadline] from data given

And execution time which is highlighted by using GPIO and logic analyzer we can summarized in the table below.

Task	Periodicity ms	Execution ms	Deadline ms
Button1	50	0.047	50
Button2	50	0.047	50
Periodic	100	0.02	100
Sim1Load	10	5	10
Sim2Load	100	12	100
UART	20	0.0298	20

1: Hyper period

Hyper period (H) = LCM (Pi)

Where Pi is all task periodicities

In our case Hyper period **is equal 100 ms**

2: CPU Load

U = R/C

Where:

R = simple in the busy time

C = Hyper period = 100

U = utilization **= 62 %**

((2*0.047)+(2*0.047)+0.02+(5*10)+12+(0.0298*5))/100 % **= 62 %**

3: schedulability

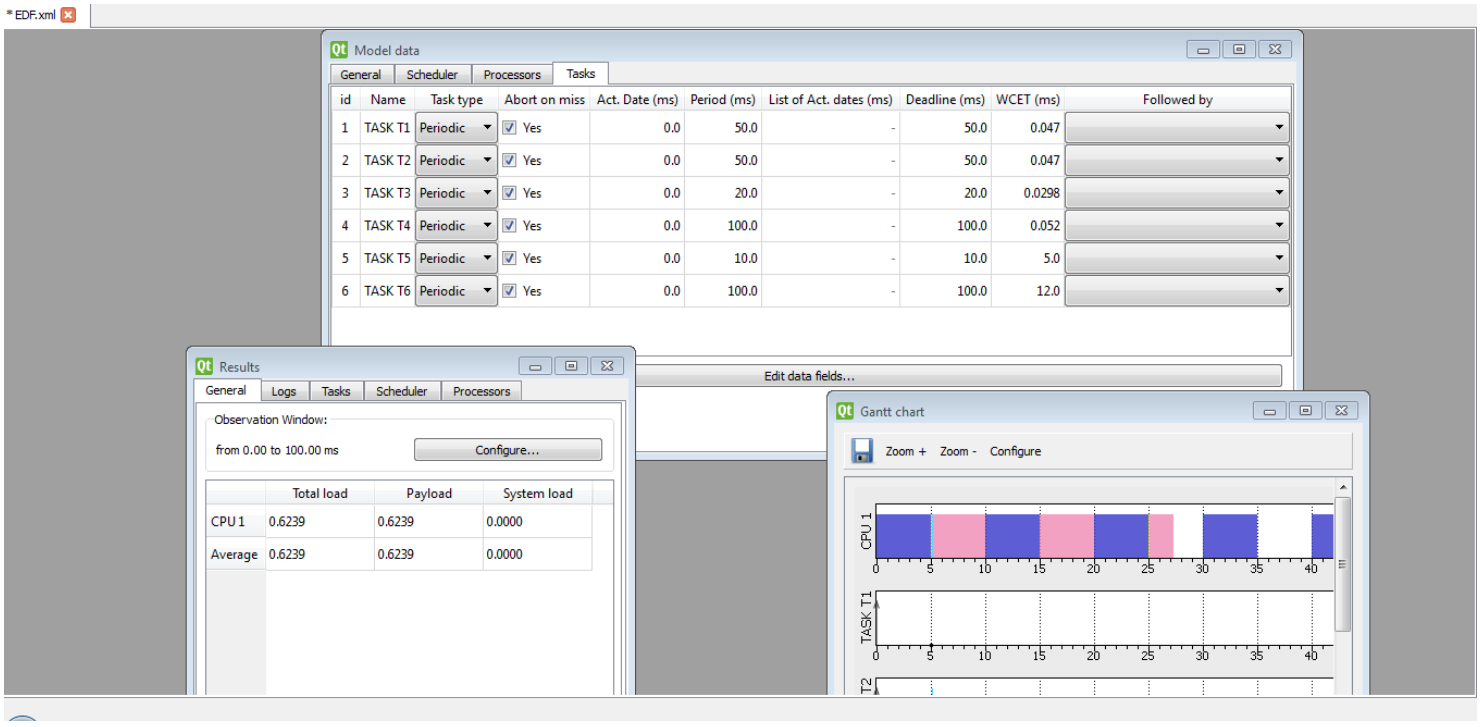
Theorem 3.1 *A task set of periodic tasks is schedulable by EDF if and only if:*

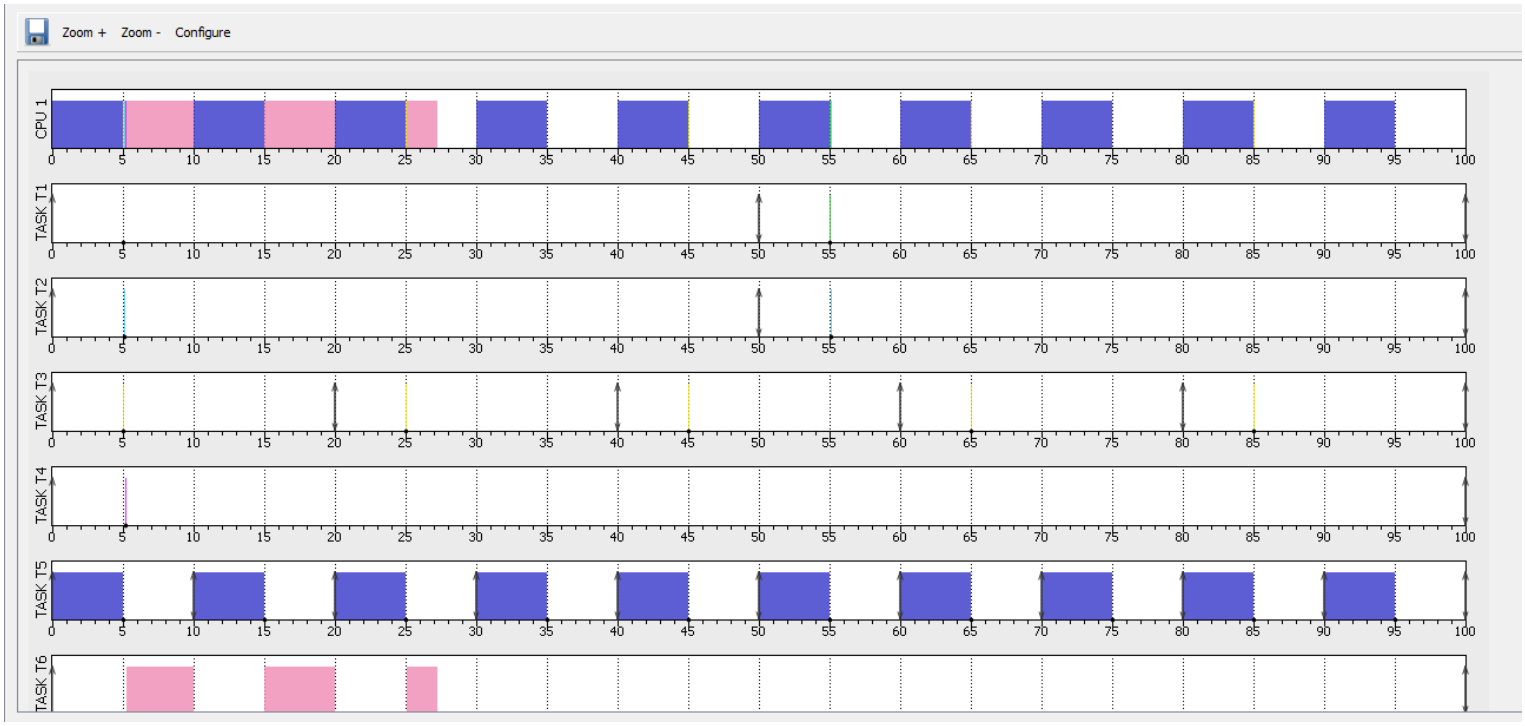
$$U = \sum_{i=1}^{N} \frac{Ci}{Ti} \leq \quad 1$$

U = 0.047/50 + 0.047/50 + 0.02/100 + 5/10 + 12/100 + .0298/20

= 0.623 < 1

Second offline (simso):





Third Runtime