

I implemented the changes stated in the thesis,

And modified the missing changes such as

Inorder for the EDF scheduler to work correctly, you still need to implement some changes that are not mentioned in the thesis:

"1. In the `prvIdleTask` function:

Modify the idle task to keep it always the farrest deadline"

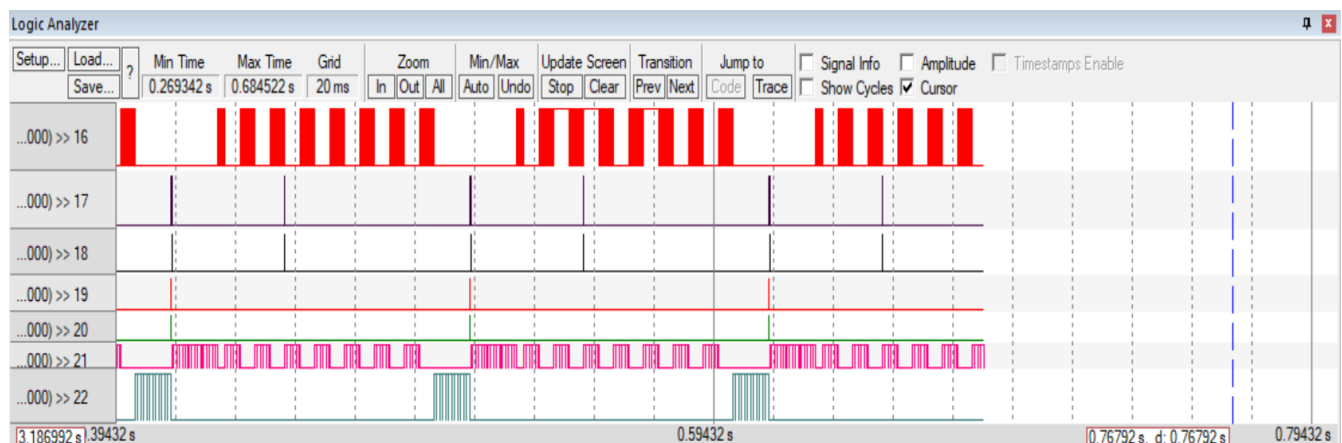
"2. In the `xTaskIncrementTick` function:

In every tick increment, calculate the new task deadline and insert it in the correct position in the EDF ready list"

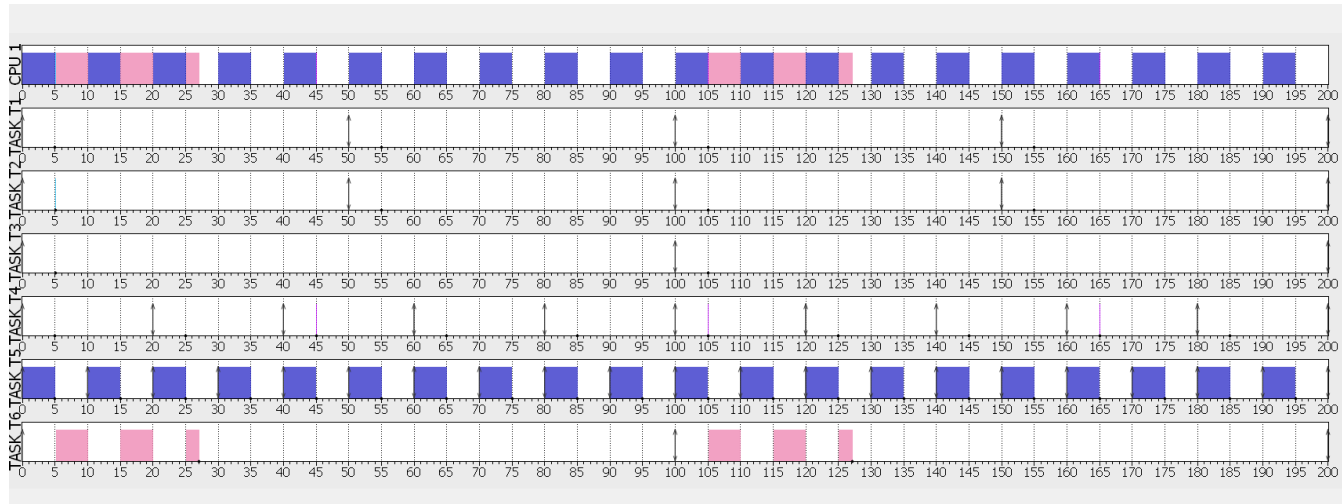
"3. In the `xTaskIncrementTick` function:

Make sure that as soon as a new task is available in the EDF ready list, a context switching should take place. Modify preemption way as any task with sooner deadline must preempt task with larger deadline instead of priority"

Here is a screenshot of all tasks running



All tasks meet their deadline ,from the pattern we see the **hyperperiod=100**.



id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by
1	TASK T1	Periodic	<input checked="" type="checkbox"/> Yes	0	50	-	50	0.013	
2	TASK T2	Periodic	<input checked="" type="checkbox"/> Yes	0	50	-	50	0.013	
3	TASK T3	Periodic	<input checked="" type="checkbox"/> Yes	0	100	-	100	.0174	
4	TASK T4	Periodic	<input checked="" type="checkbox"/> Yes	0	20	-	20	.023	
5	TASK T5	Periodic	<input checked="" type="checkbox"/> Yes	0	10	-	10	5	
6	TASK T6	Periodic	<input checked="" type="checkbox"/> Yes	0	100	-	100	12	

CPU load = execution time /period

$$=(.013/50)*2 +(0.0174/100)+(0.023/20)+(5/10)+(12/100) = \mathbf{0.626}$$

URM

$$U \leq n*(2^{1/n} - 1)$$

$$6* (2^{1/6} -1)= 0.73 > 0.626 \text{ system schedulable}$$

Time demand analysis

$$W(10) = 5 + 0 = 5 < 10 \text{ feasible}$$

$$W(20) = 0.023 + 5*2 = 10.023 < 20 \text{ feasible}$$

$$W(50) = 0.013 + 5*5 +0.023*3+0.013 = 25.095 < 50 \text{ feasible}$$

$$W(100) = 12 + 5*10+0.023*5+2*(0.013*2)+0.0174 = 62.18 < 100 \text{ feasible}$$

As well as all tasks were feasible then system is schedulable