

ASSIGNMENT 3(simulation)

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Course Title: [Development of Real-Time System](#)

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Simulation assignment:

Input the tasks T1(2, 0.5), T2(3, 1.2), T3(6, 0.5) and the RM scheduler into the SimSo simulator

Qt Model data

General Scheduler Processors Tasks

Scheduler: simso.schedulers.P_RM

Scheduler Path: [] Open

Overhead schedule (cycles): 0

Overhead on activate (cycles): 0

Overhead on terminate (cycles): 0

Edit extra fields...

Qt Model data

General Scheduler Processors Tasks

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	2	-	2	0.5	[]
2	TASK T2	Periodic	<input checked="" type="checkbox"/> Yes	0	3	-	3	1.2	[]
3	TASK T3	Periodic	<input checked="" type="checkbox"/> Yes	0	6	-	6	0.5	[]

Edit data fields...

Remove selected task(s) Add task Generate Task Set



Qt Results

General Logs Tasks Scheduler Processors

General TASK T1 TASK T2 TASK T3

Computation time:

Task	min	avg	max	std dev	occupancy
TASK T1	0.500	0.500	0.500	0.000	0.250
TASK T2	1.200	1.200	1.200	0.000	0.406
TASK T3	0.500	0.500	0.500	0.000	0.085

	Total load	Payload	System load
CPU 1	0.7410	0.7410	0.0000
Average	0.7410	0.7410	0.0000

1)What is the utilization factor of the system and what is the value for $U_{rm}(3)$?

$$U = (0.5/2) + (1.2/3) + (0.5/6) = (0.25 + 0.4 + 0.0829)$$

$$U = 0.7410$$

$$U_{rm}(3) = 3 \cdot (2^{1/3} - 1) = 0.779$$

$U < U_{rm}$, hence the system is feasible.

2)What is the minimum/maximum/average response time of all tasks?

Response time of tasks:

$$T_1 = 0.5\text{ms}$$

$$T_2 = 1.7\text{ms}$$

$$T_3 = 2.7\text{ms}$$

3)Is any task missing the deadline? Which task? Where?

None of the tasks missed the deadline.