

## Analytical Verification

Hyperperiod:

$$\text{hyperperiod} = LCM(10,20,50,50,100,100) = 100$$

Utilization Bound:

$$U = \sum_{i=1}^n \frac{C_i}{P_i} \leq n(2^{\frac{1}{n}} - 1)$$

$$n(2^{\frac{1}{n}} - 1) = 6(2^{\frac{1}{6}} - 1) = 0.734$$

$$\sum_{i=1}^n \frac{C_i}{P_i} = \frac{5}{10} + \frac{12}{100} + \frac{0.03}{50} + \frac{0.03}{50} + \frac{0.03}{20} + \frac{0.03}{100} = 0.623 < 0.734$$

The CPU load is 62.3% and from the URM method the system is schedulable.

## Time Demand Analysis:

$$w_i(t) = e_i + \sum_{k=1}^{i-1} \left\lceil \frac{t}{p_k} \right\rceil e_k$$

	A	B	C	D	E	F	G	H	I	J	K
1	t	w		t	w		t	w		t	w
2	1	12.5		26	25		51	37.5		76	50
3	2	13		27	25.5		52	38		77	50.5
4	3	13.5		28	26		53	38.5		78	51
5	4	14		29	26.5		54	39		79	51.5
6	5	14.5		30	27		55	39.5		80	52
7	6	15		31	27.5		56	40		81	52.5
8	7	15.5		32	28		57	40.5		82	53
9	8	16		33	28.5		58	41		83	53.5
10	9	16.5		34	29		59	41.5		84	54
11	10	17		35	29.5		60	42		85	54.5
12	11	17.5		36	30		61	42.5		86	55
13	12	18		37	30.5		62	43		87	55.5
14	13	18.5		38	31		63	43.5		88	56
15	14	19		39	31.5		64	44		89	56.5
16	15	19.5		40	32		65	44.5		90	57
17	16	20		41	32.5		66	45		91	57.5
18	17	20.5		42	33		67	45.5		92	58
19	18	21		43	33.5		68	46		93	58.5
20	19	21.5		44	34		69	46.5		94	59
21	20	22		45	34.5		70	47		95	59.5
22	21	22.5		46	35		71	47.5		96	60
23	22	23		47	35.5		72	48		97	60.5
24	23	23.5		48	36		73	48.5		98	61
25	24	24		49	36.5		74	49		99	61.5
26	25	24.5		50	37		75	49.5		100	62

Since  $w(t) < D$  at all values of  $t$ , the system is schedulable.

# Verification using Simso Simulation

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 type="checkbox"/> No	0	50	-	50	0.03	
2	TASK T2	Periodic	<input type="checkbox"/> No	0	50	-	50	0.03	
3	TASK T3	Periodic	<input type="checkbox"/> No	0	100	-	100	0.03	
4	TASK T4	Periodic	<input type="checkbox"/> No	0	20	-	20	0.03	
5	TASK T5	Periodic	<input type="checkbox"/> No	0	10	-	10	5	
6	TASK T6	Periodic	<input type="checkbox"/> No	0	100	-	100	12	

Edit data fields...

Remove selected task(s)

Add task

Generate Task Set

Results

General

Logs

Tasks

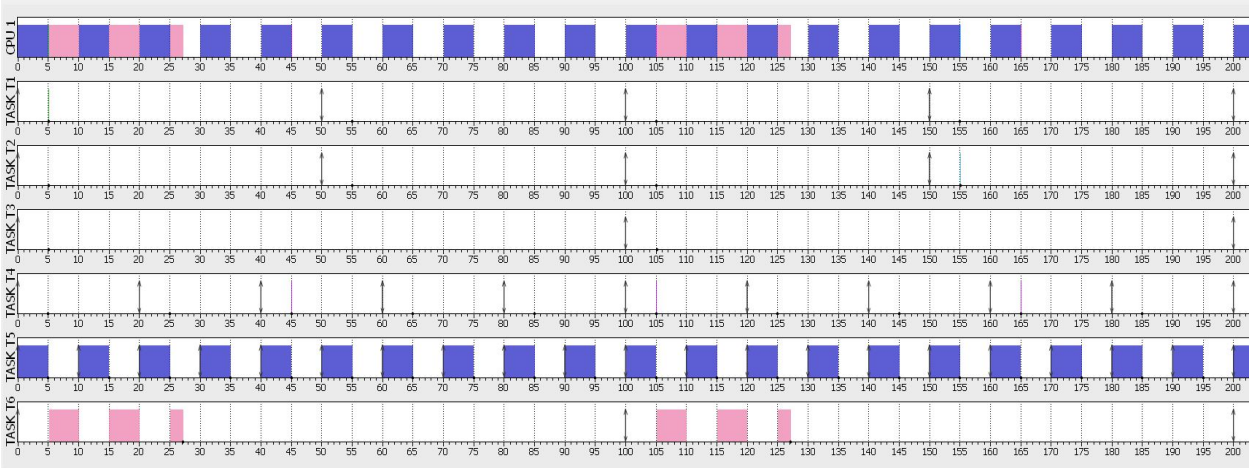
Scheduler

Processors

Observation Window:  
from 0.00 to 1000.00 ms  

Configure...

	Total load	Payload	System load
CPU 1	0.6230	0.6230	0.0000
Average	0.6230	0.6230	0.0000



## Verification using Keil Simulation

Watch 1		
Name	Value	Type
xReadyTasksListEDF	0x40000324 &xReadyT...	struct xLIST
pxDelayedTaskList	0x40000338 &xDelaye...	struct xLIST *
task_1_exec_us	16	int
task_2_exec_us	16	int
task_3_exec_us	16	int
task_4_exec_us	16	int
task_5_exec_us	4983	int
cpu_load	62	int
system_time	490931	int
<Enter expression>		

