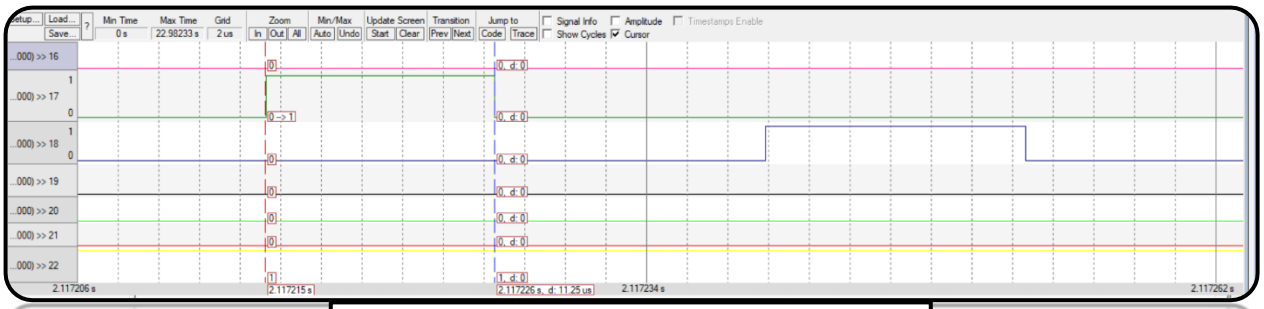
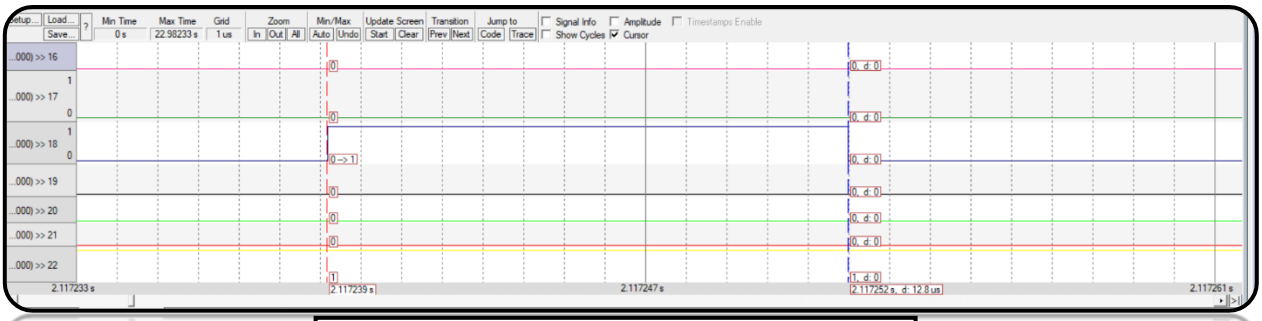
1. Analytical method.
   First calculating the hyper period,
   As mentioned in the videos that the hyper period will be the largest period of all the running tasks. So, meanwhile the hyper period all tasks will be executed several times or one time according the task's periodicity. So, the Hyper period here will be 100ms and all the tasks will be factors of it such as :10,50, and 20ms.

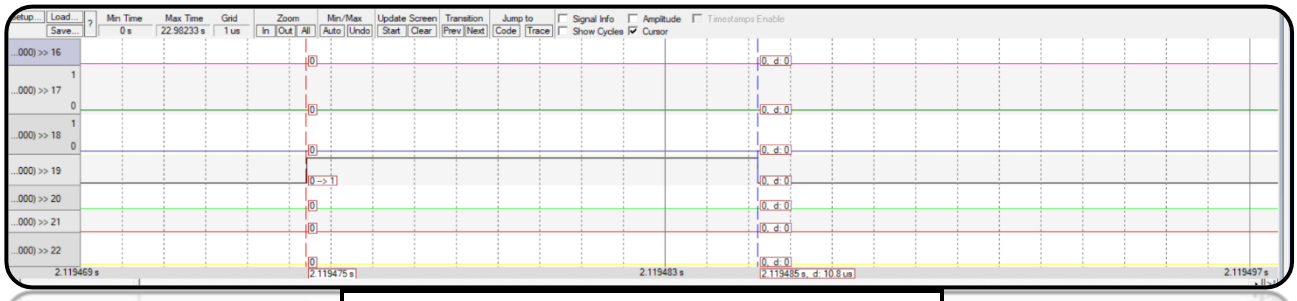
   Second calculating the CPU load,
   The below pictures will show the execution time of each task from the logic analyzer.



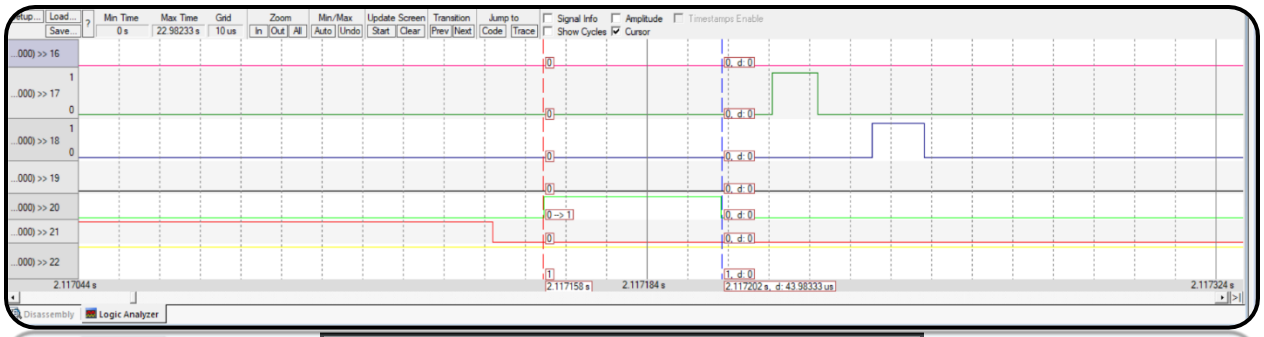
Task 1 execution time from the logic analyzer



Task 2 execution time from the logic analyzer



Task 3 execution time from the logic analyzer



Task 4 execution time from the logic analyzer

We could sum the figures above:

- Task_1 execution time = 12us
- Task_2 execution time =12us
- Task_3 execution time =10us
- Task_4 execution time =43us
- Task_5 execution time =5ms
- Task_6 execution time =12ms

$$CPU_{load} = \frac{total\ execution\ tasks\ time}{Hyper\ period}$$

CPU load= ((0.012*100)/50) +((0.012*100)/50) + ((0.043*100)/20) + ((5*100)/10) + ((12*100)/100) .

CPU Load= 63.85%

If we want to create a break down for each task it would be as follow:

Task1	< 1%
Task2	< 1%
Task3	< 1%
Task4	< 1%
Task5	=50.82%
Task6	=12.31%
Total	around 64 %

The same output will be displayed if the vTaskGetRunTimeStates() was used.

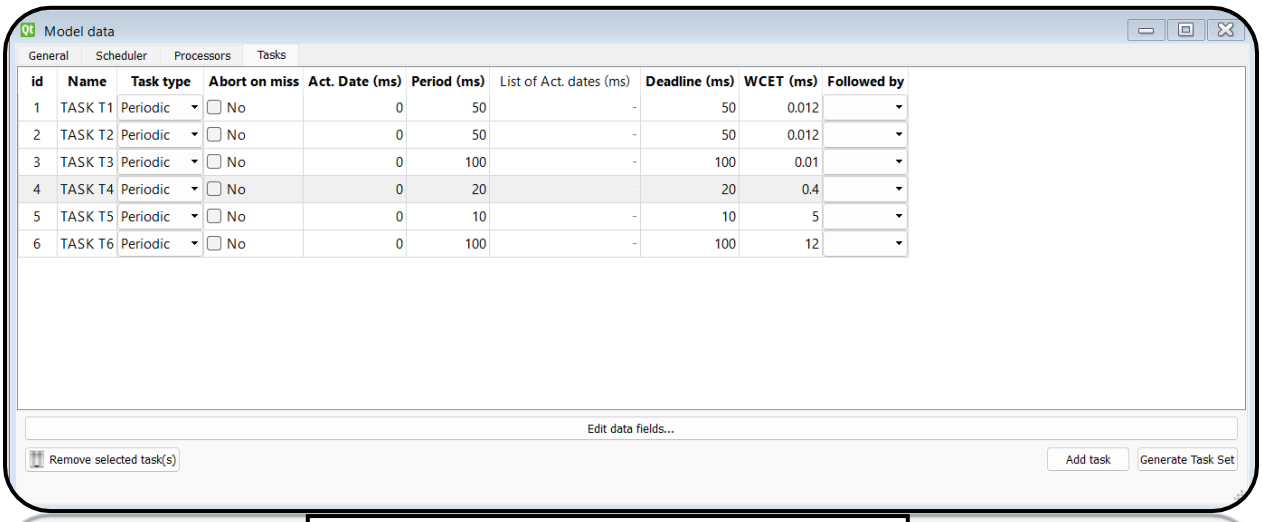
2.System schedulabilty assuming the monoatomic rate :

$$\sum \frac{C_i}{T_i} \leq n(2^{\frac{1}{n}} - 1)$$

$$\frac{0.012}{50}+\frac{0.012}{50}+\frac{0.043}{20}+\frac{5}{10}+\frac{12}{10}\leq(6*(2^{\frac{1}{6}}-1))$$

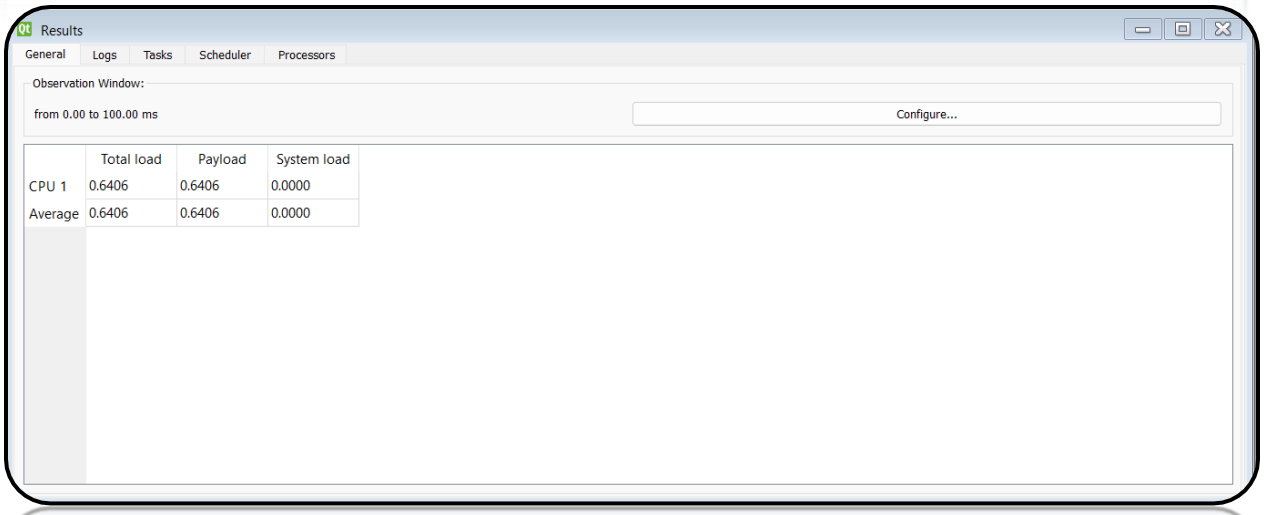
0.689<=0.73

3. Verifying the system schedulability using Simso



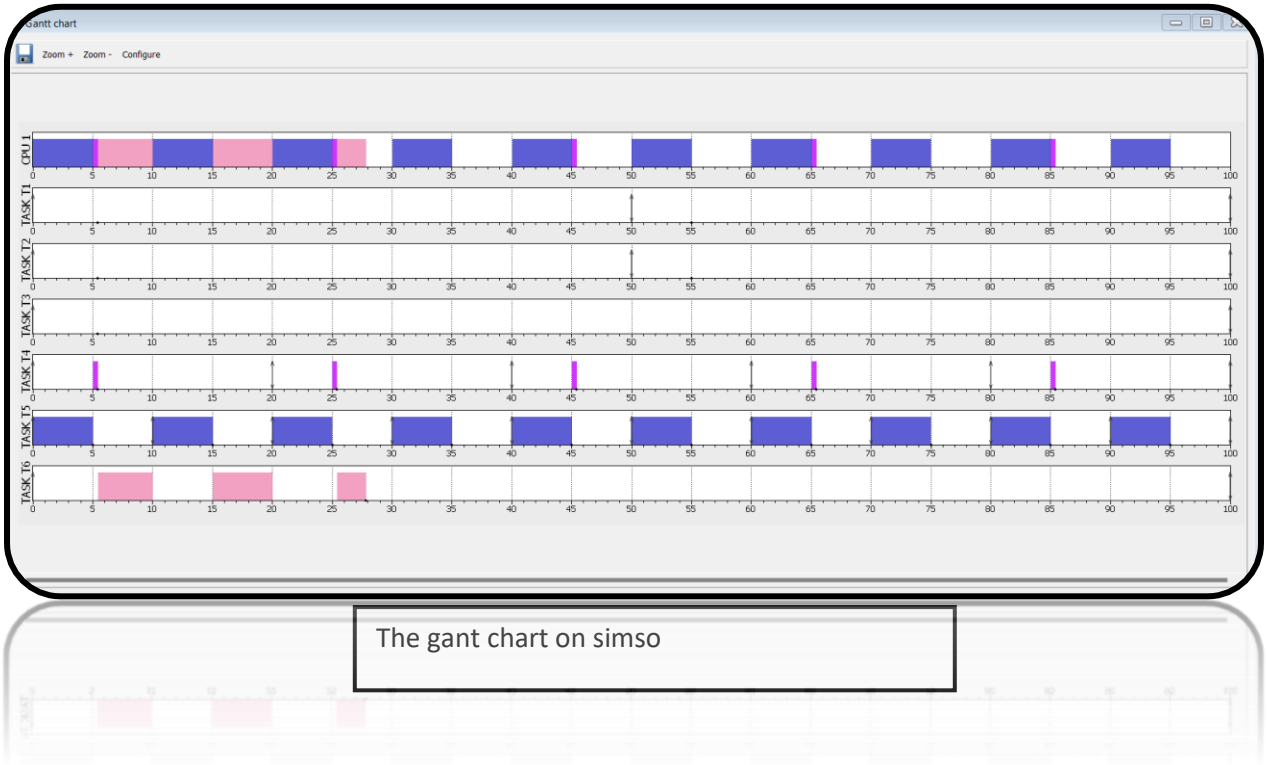
id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by
1	TASK T1	Periodic	No	0	50	-	50	0.012	
2	TASK T2	Periodic	No	0	50	-	50	0.012	
3	TASK T3	Periodic	No	0	100	-	100	0.01	
4	TASK T4	Periodic	No	0	20		20	0.4	
5	TASK T5	Periodic	No	0	10	-	10	5	
6	TASK T6	Periodic	No	0	100	-	100	12	

All the created tasks on simso tool



	Total load	Payload	System load
CPU 1	0.6406	0.6406	0.0000
Average	0.6406	0.6406	0.0000

The calculated CPU load on simso



The gant chart on simso