EDF Schedular

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# UDACITY

# PROJECT NO2

① System hyper period
will be 100msec the deadline of
Transmitter taske

② calculate cpu load during the hyper period

button 1	button 2	Transmitter	Reciever	Load1
2 Times	2 times	1 time	5 times	10 time

Load 2
1 time

$$So \left[(2 * 200 * 10^{-6}) + (2 * 200 * 10^{-6}) \right.$$

$$+ (1 * 0.275 * 10^{-3}) + (5 * 21.65 * 10^{-6})$$

$$\left. + (10 * 5 * 10^{-3}) + (1 * 12 * 10^{-3}) \right] \frac{o}{o} (100 * 10^{-3})$$

* 100

CoMuat $\boxed{}$ = 62.46%

⟶ The result as expected because
because after adding the Load tasks
the CPU_Load becoumg high
FROM 1% → 63%

3

Time demand Analysis

Load 1 Sh_e_ce

$W(10) = 5 + 0 < 10$ Load 1 schedulable

Receiver

$W(20)$ $5*2 + 21*10^{-6} = 10.000021 < 20$

~~IF~~ Button1

$W(50)$

$$5*5 + \frac{50}{20}*21*10^{-6} + \frac{50}{50}*200*10^{-6} = 25.00 < 50$$

Schedulable

Button2

$= 25.56 < 50$ schedulable

peridic tras mitter

$= 51.42 < 100$

Load2 _____ comment $\bar{U}$

$= 63.42 \angle 100$

The Full System is schedulable.

$\Rightarrow$ The result as expected and as calculated from Kiel

using URM

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

Comment 50
$\downarrow \bar{U}$

The Result equals to Kiel simulation and TimeDemand Analysis

$= \frac{20 \times 10^{-3}}{50} + \frac{20 \times 10^{-3}}{50} + \frac{0.274}{100} + \frac{22 \times 10^{-3}}{20}$

$+ \frac{5}{10} + \frac{12}{100}$

$= 0.62464$

$6(2^{1/6} - 1) = 0.73$
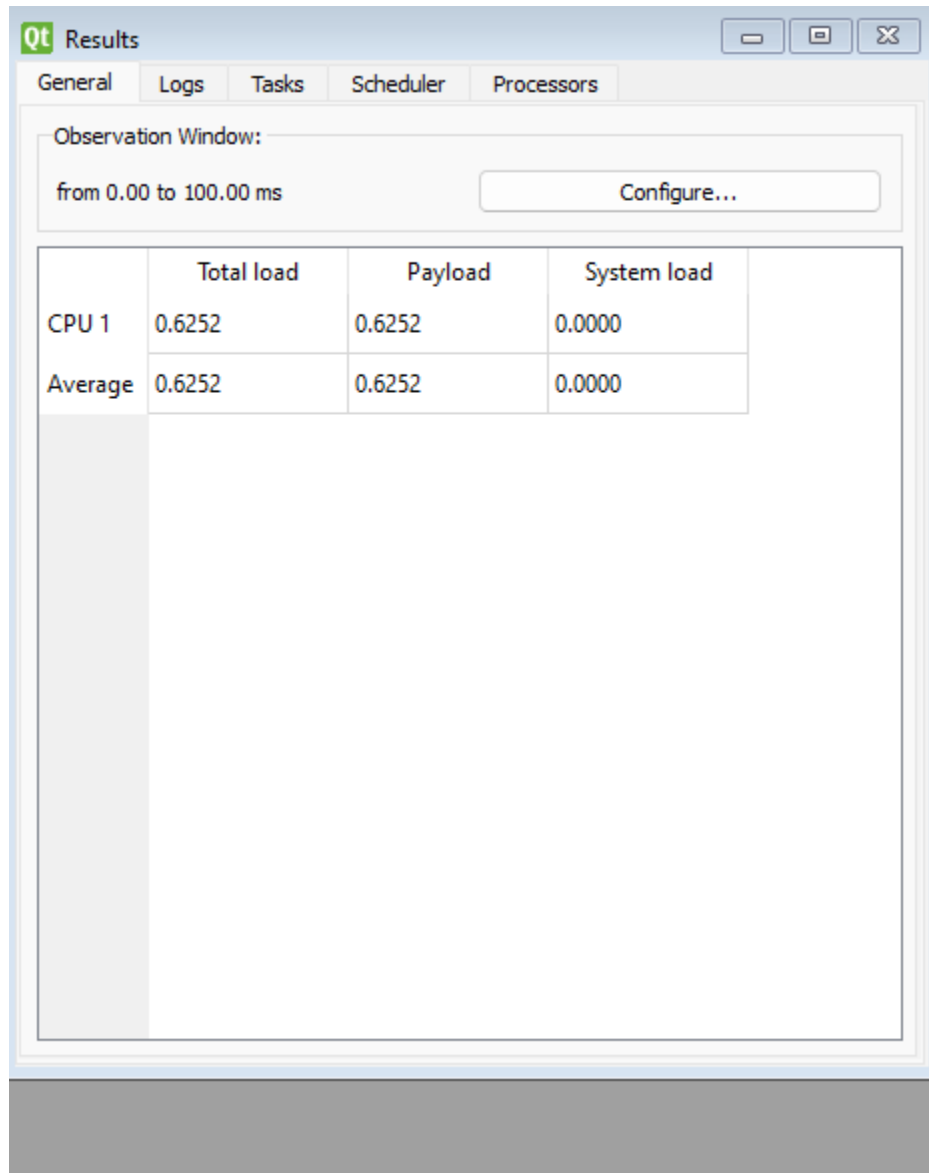
$0.62464 < 0.73$

System is Schedulable

SIMSO
ANALYZER
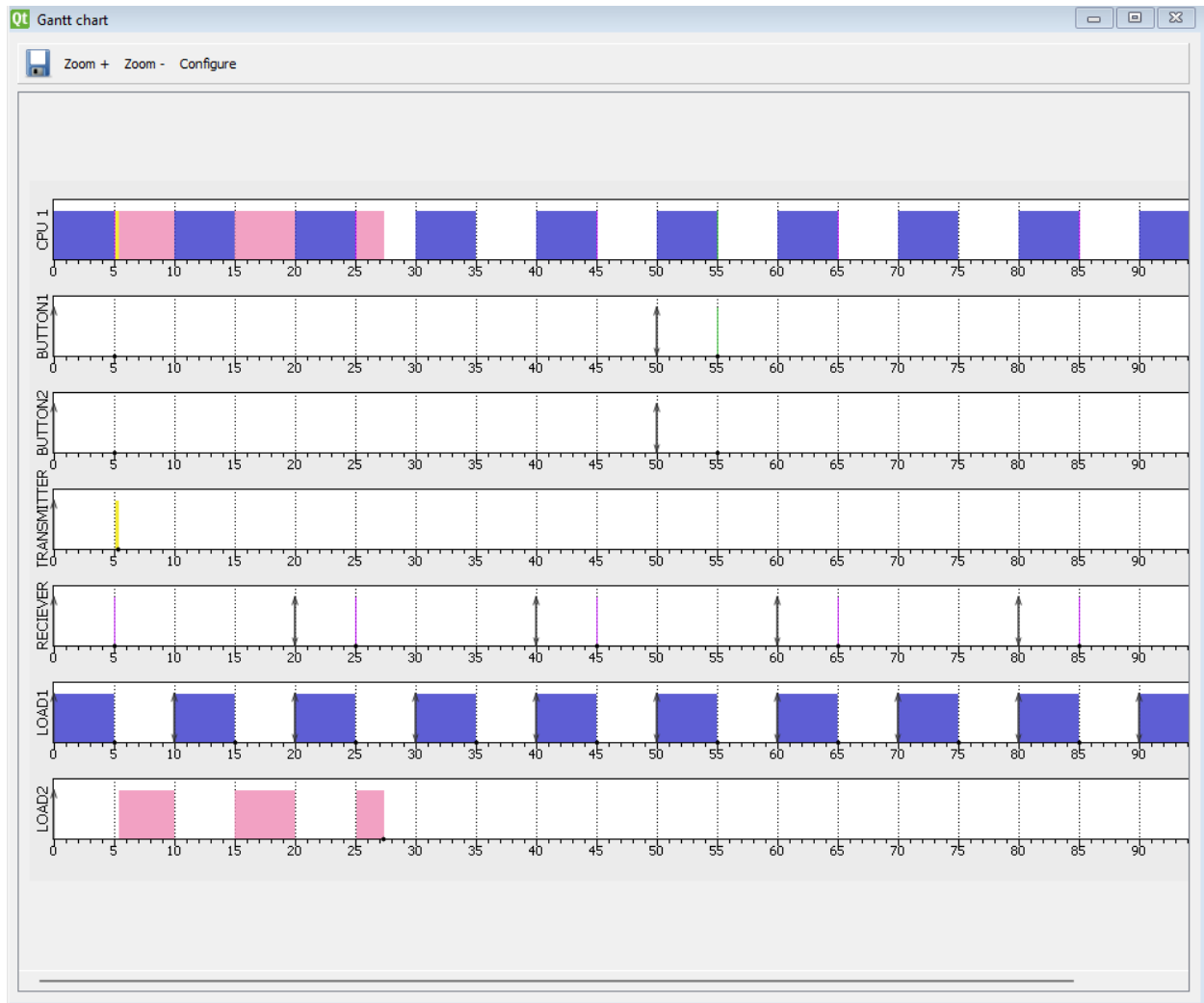
SIMSO _CPULOAD

Results

General | Logs | Tasks | Scheduler | Processors

Observation Window:

from 0.00 to 100.00 ms   Configure...

	Total load	Payload	System load
CPU 1	0.6252	0.6252	0.0000
Average	0.6252	0.6252	0.0000

KIEL LOGIC ANALYZER
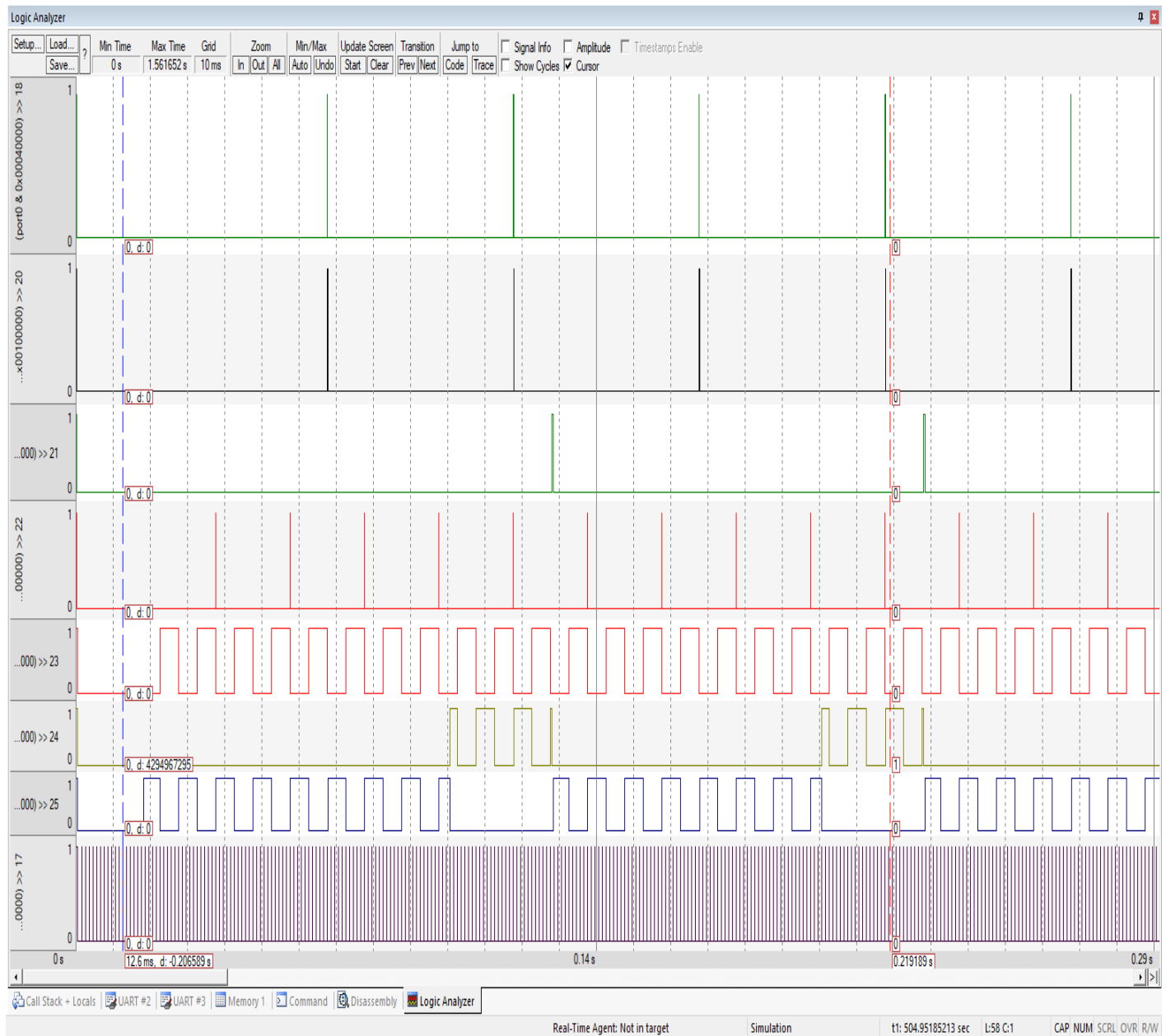
KIEL CPU_LOAD

Name	Value	Ty
Watch 1		📌
Cpu_load	56.3777084	flo
Tasks_Total_Time	15920657	flo
Task_IN_TIME	28239566	flo
Task_OUT_TIME	28239276	flo
<Enter expression>		