Analytical methods

① hyper Period : 100

② CPU load:

$T_1 = 1,25\ us$; $T_2 = 1,23\ us$; $T_3 = 2,5\ us$

$T_4 = 1,6\ us$; $T_5 = 5\ ms$; $T_6 = 12\ ms$

$$CPU\ load = \frac{(T_1 * 2) + (T_2 * 2) + T_3 + (T_4 * 5) + (T_5 * 10) + T_6}{H} * 100$$

$$= 62\ \%$$

التاريخ: / / الموضوع: _____

Rate monotonic utilization = URM

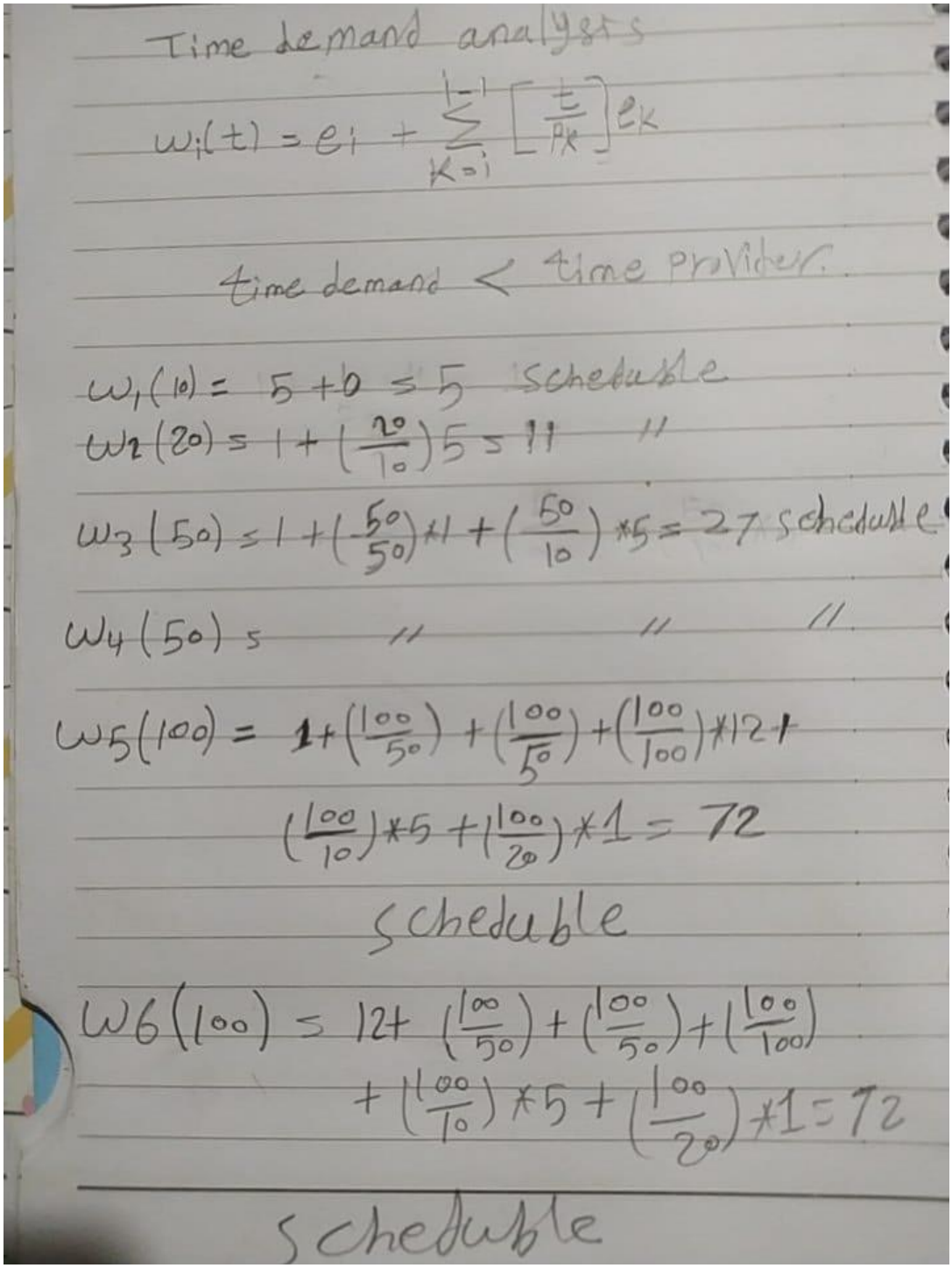
$$U = \sum_{i=1}^{n} \frac{C_i}{P_i} \leq n\left(2^{\frac{1}{n}} - 1\right)$$

$$U = \frac{1}{50} + \frac{1}{50} + \frac{1}{100} + \frac{1}{30} + \frac{5}{10} + \frac{12}{100} = 0.72$$

$$URM = 6 * \left(2^{\frac{1}{5}} - 1\right) = 0.73$$

$$U \leq URM$$

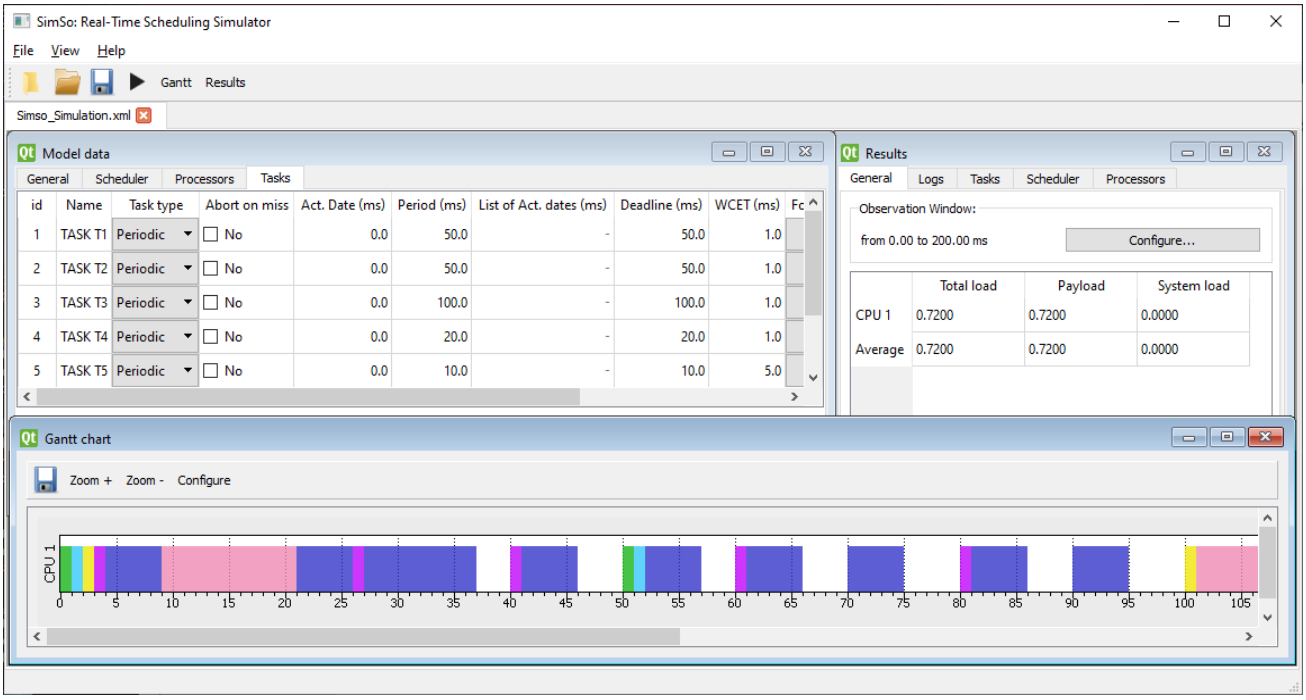
System guaranteed Schedable



No task misses the deadline

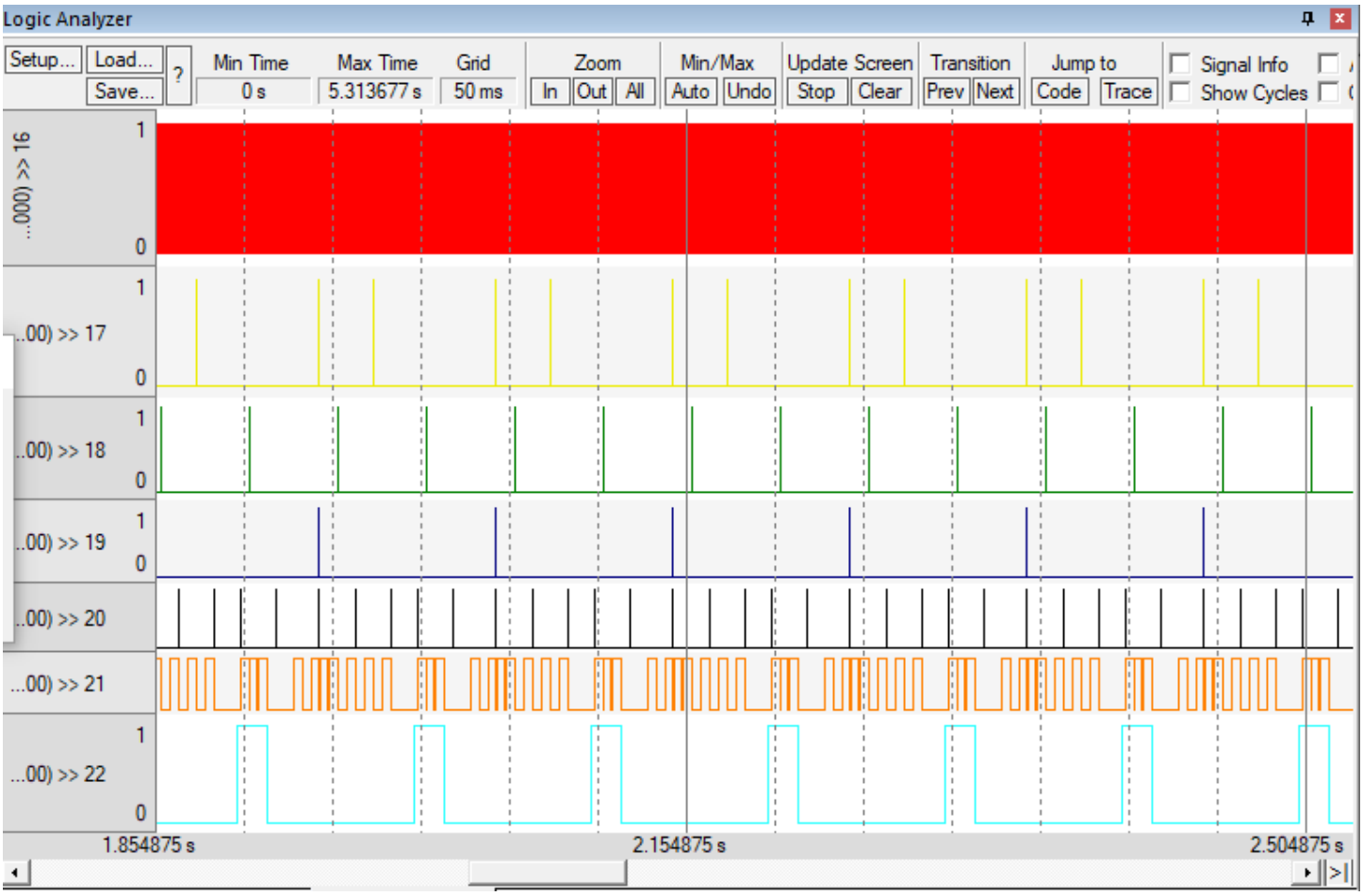
System is schedulable

Offline Simso:



Online Simulator:

Logic analyzer **Using trace macros and GPIOs**



Data watching using **timer 1 and trace macros**

Watch 1

Name	Value	Type
system_Time	0x0004DBD5	uint
CPU_load	72	uint
TASK_5_timeTotal	0x0002121A	uint
TASK_6_timeTotal	0x00016F44	uint
missA	0x00000001	uint
missB	0x00000000	uint
<Enter expression>		

UART #2

```
                        L
oad_2_   2984            9%
Periodi 2645             7%
Uart_Re 4738            14%
Button_ 7957            24%
 rt_Re  4738            14%


H
                          P
eriodi   2645            7%
Uart_Re 5061            14%
Load_2_ 2984             8%
Button_ 1228             3%
  rt_Re 4738            14%


H
```

Results indicate a successful implementation