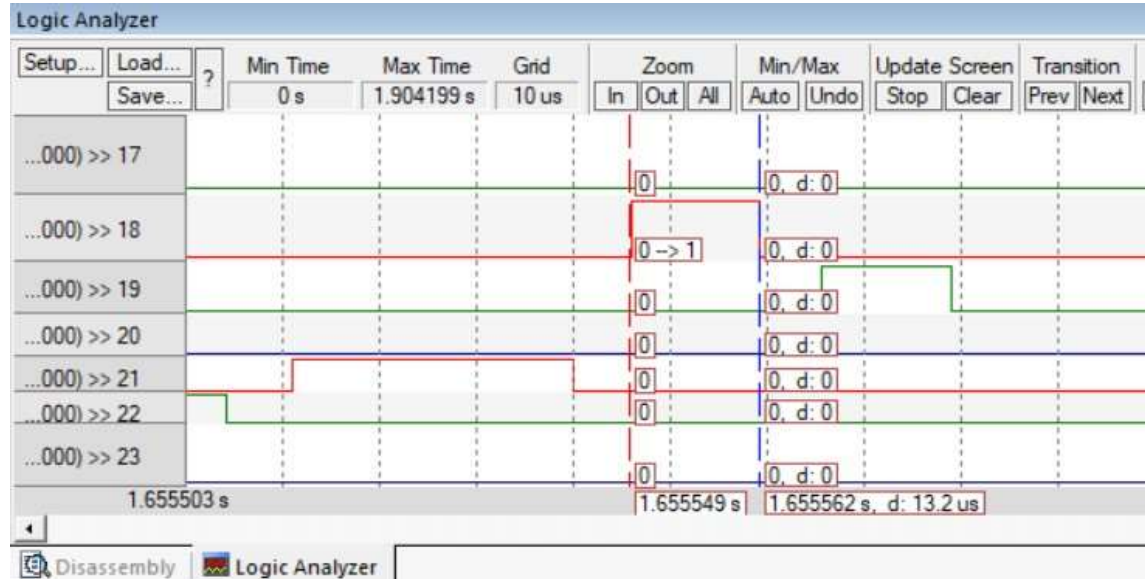


FreeRTOS EDF scheduler

➤ Execution time of each task

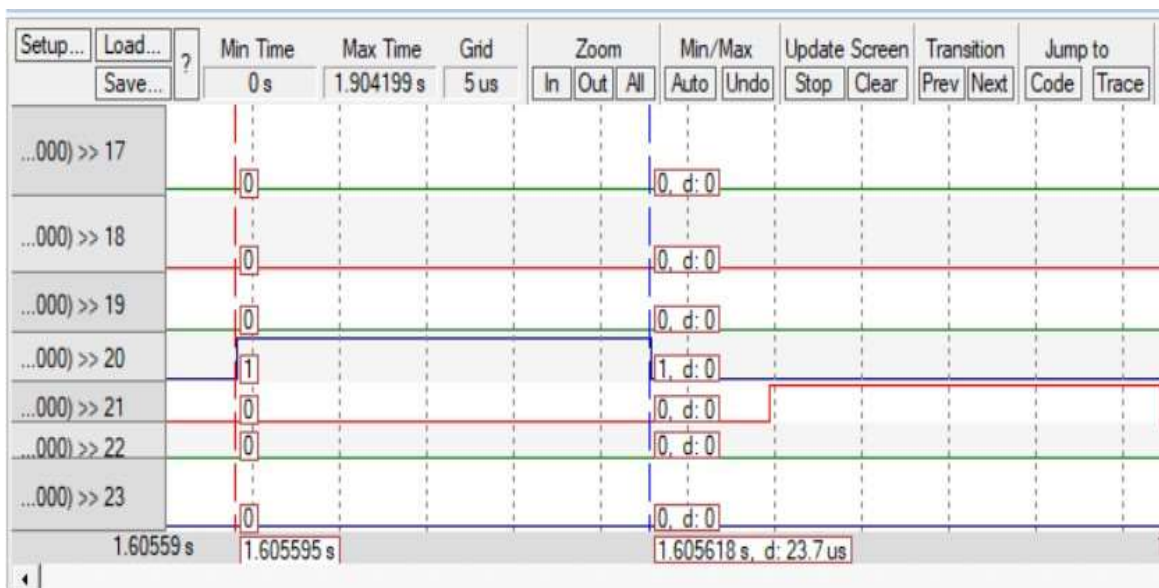
- **Button 1 and 2 monitor**

Both buttons share the same 13.2 us execution time



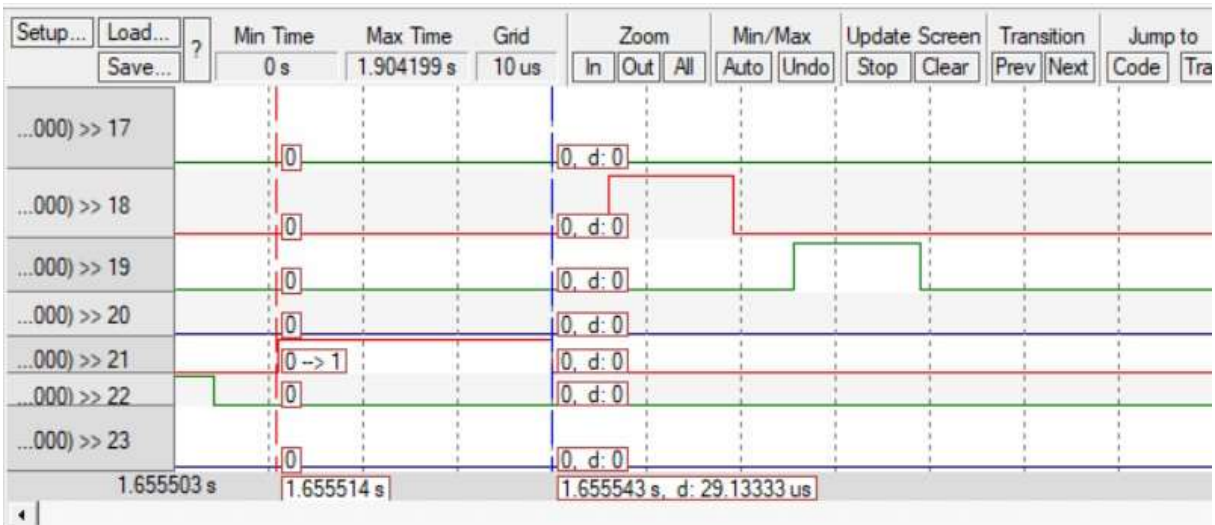
- **Periodic transmitter**

It has an execution time of about 24 us



- **UART receiver**

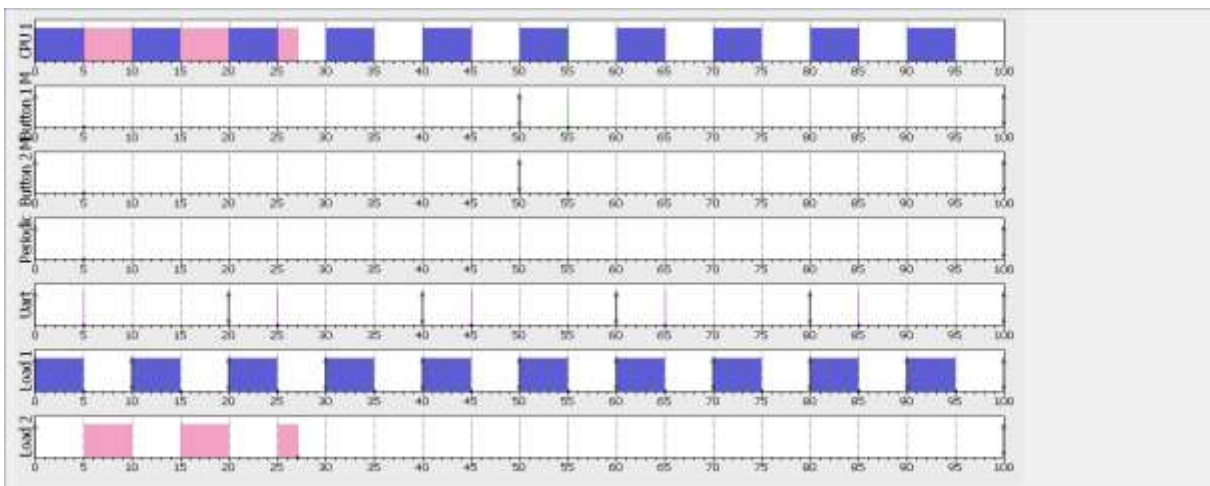
It has an execution time of about 24 us



As shown above; hyper period is 100ms.

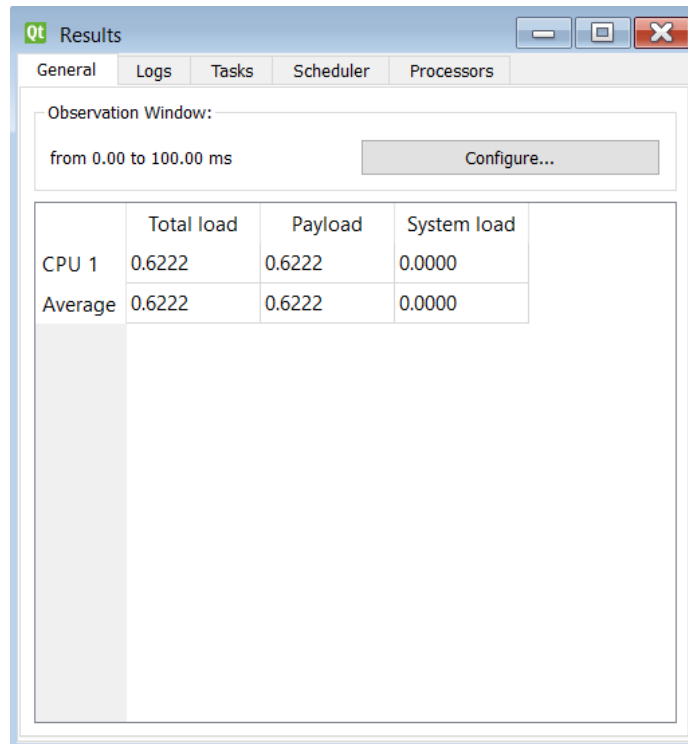
➤ SimSo

id	Name	Task type	Abort on miss	Act. Date (ms)	Period (ms)	List of Act. dates (ms)	Deadline (ms)	WCET (ms)	Followed by
1	Button 1 M	Periodic	<input checked="" type="checkbox"/> Yes	0	50	--	50	0.0132	
2	Button 2 M	Periodic	<input checked="" type="checkbox"/> Yes	0	50	--	50	0.0132	
3	Periodic	Periodic	<input checked="" type="checkbox"/> Yes	0	100	--	100	0.024	
4	Uart	Periodic	<input checked="" type="checkbox"/> Yes	0	20	--	20	0.029	
5	Load 1	Periodic	<input checked="" type="checkbox"/> Yes	0	10	--	10	5	
6	Load 2	Periodic	<input checked="" type="checkbox"/> Yes	0	100	--	100	12	



➤ CPU calculation in SimSo vs Keil

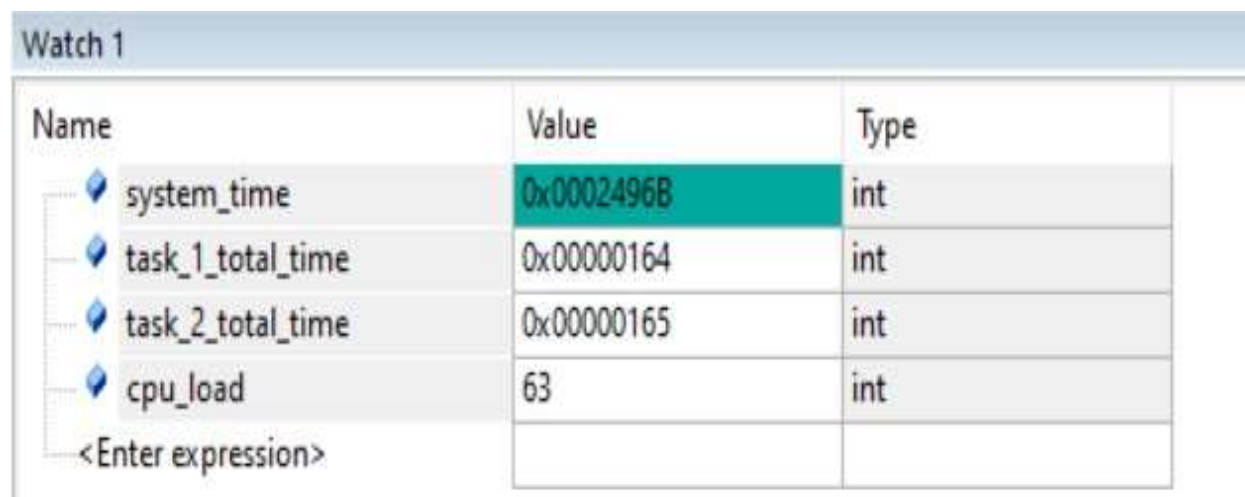
- **SimSo**



The image shows a Qt Results window with tabs for General, Logs, Tasks, Scheduler, and Processors. The 'General' tab is active, displaying an 'Observation Window' from 0.00 to 100.00 ms with a 'Configure...' button. Below this is a table with CPU load data.

	Total load	Payload	System load
CPU 1	0.6222	0.6222	0.0000
Average	0.6222	0.6222	0.0000

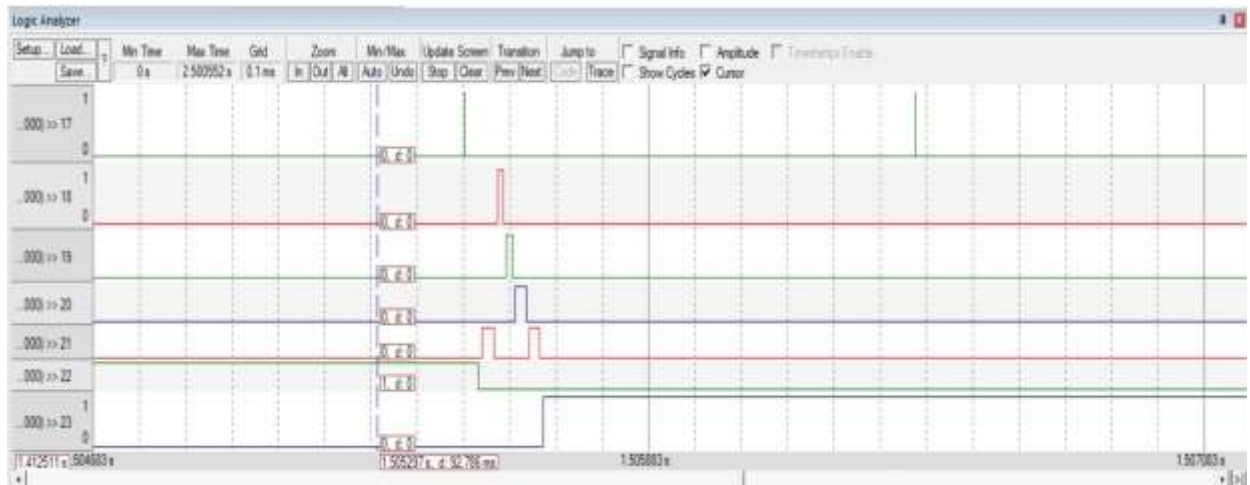
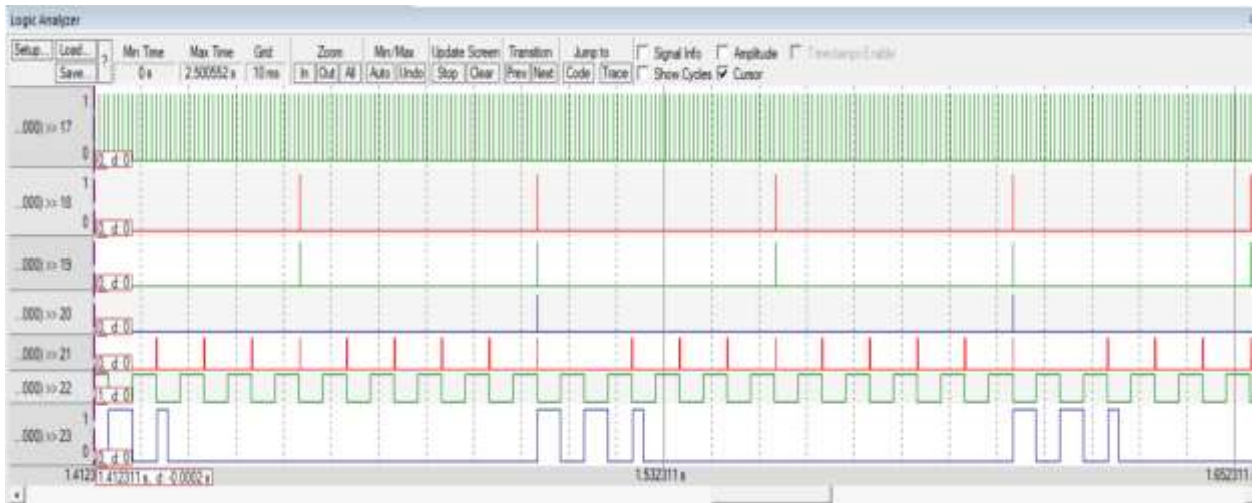
- **Keil**



The image shows a Keil Watch 1 window with a table of variables and their values. The 'system_time' variable is highlighted in green.

Name	Value	Type
system_time	0x0002496B	int
task_1_total_time	0x00000164	int
task_2_total_time	0x00000165	int
cpu_load	63	int
<Enter expression>		

➤ Keil logic analyzer



✚ As shown above; the tasks execute in order according to their periodicity starting by the function with the least periodicity which is the first load task in this case with a periodicity of 10, followed by the UART receiver function with 20ms, after that the 2 buttons functions with equal periodicities of 50ms, and finally the last 2 tasks are the periodic transmitter and load 2 with the least and equal periodicities of 100 ms.