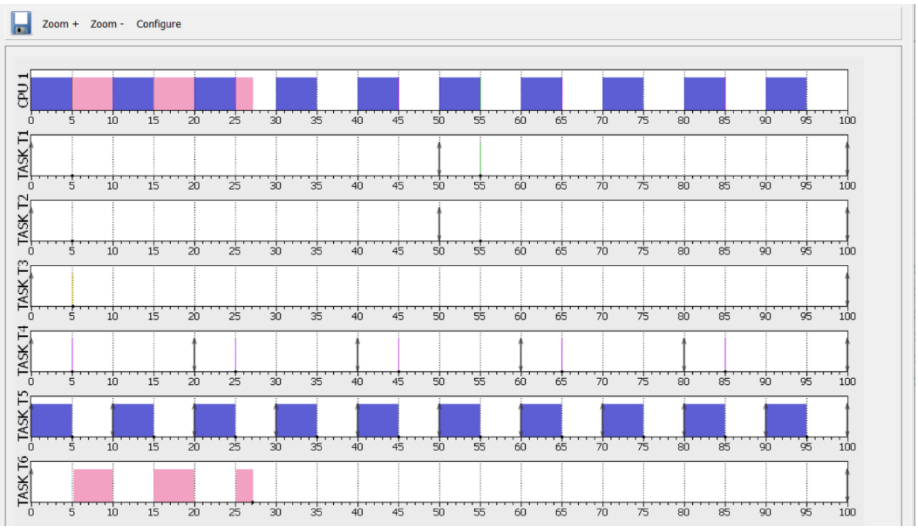
EDF Report

Simso:



Analysis:

1. CPU Load

T1 {P=10, E=5, D=10},

T2 {P=100, E=12, D=100}.

CPU Load= 62%

2. Time Demand

Equation: $$w_i(t) = e_i + \sum_{k=1}^{i-1} \left\lceil \frac{t}{p_k} \right\rceil e_k \quad for\ 0 < t \le p_i$$

W = Worst response time
E = Execution time
P = Periodicity
T = Time instance

Load 1 has an earlier deadline than Load 2 therefore it has a higher priority.

T1 {P=10, E=5, D=10}

T2 {P=100, E=12, D=100}.

Load 1:

W (1) = 5 + 0 = 5

W (20) = 5 + 0 = 5<10

W (20) < D then T1 is schedulable.

Load 2:

W (1) = 12 + (1/10) * 5 = 12.5

W (100) = 12 + (100/10) * 5 = 62<100

W (100) < D2 then T2 is schedulable.

3. System hyper-period:

There are two tasks with periods 10 & 100 respectively, LCM(100,10) is 100 therefore, the systems repeats each 100ms.

4.URM:

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

U = Total Utilization
C = Execution time
P = Periodicity
N = Number of tasks

T1 {P=10, E=5, D=10}

T2 {P=100, E=12, D=100}.

U= (5/10) + (12/100) = 0.62

URM = 2 * (2 ^ (1/2) -1) = 0.83

Since U<URM, therefore, the system is schedulable.