Time Demand Analysis

P1: 50, P2: 50, P3: 100, P4: 20, P5: 10, P6: 100

E1:0.015, E2:0.015, E3:0.015, E4:0.0145, E5:5.061, E6:12.2

For task 5

$W(10) = 5.061 + 0 = 5.061ms$, Hence Task 5 is Schedulable.

For Task 4

$W(20) = 0.0145 + 2*5.061 = 10.1365ms$

Since $W(20) < P4$, Hence Task 4 is Schedulable

For Task 1 & 2

$W(50) = 0.015 + ([50/20] * 0.0145) + ([50/10] * 5.061) = 25.357ms$

Since $W(50) < P1$, Hence Task 1,2 are Schedulable

For Task 6

$W(100) = 12.2 + ([100/50] * 0.015) + ([100/100] * 0.015) + ([100/50] * 0.015)$
$+ ([100/20] * 0.0145) + ([100/10] * 5.061) = 25.372ms$

Since $W(100) < P6$, Hence Task 6 is Schedulable

For Task 3

$W(100) = 0.015 + ([100/50] * 0.015) + ([100/50] * 0.015) + ([100/20] * 0.0145)$
$+ ([100/10] * 5.061) = 13.1575ms$

Since $W(100) < P3$, Hence Task 3 is Schedulable

Hence: Total Execution Time:

$$2 * E1 + 2 * E2 + E3 + 4 * E4 + 10 * E5 + E6 = 62.945$$

Hyperperiod = LCM(P1, P2, P3, P4, P5, P6) = 100

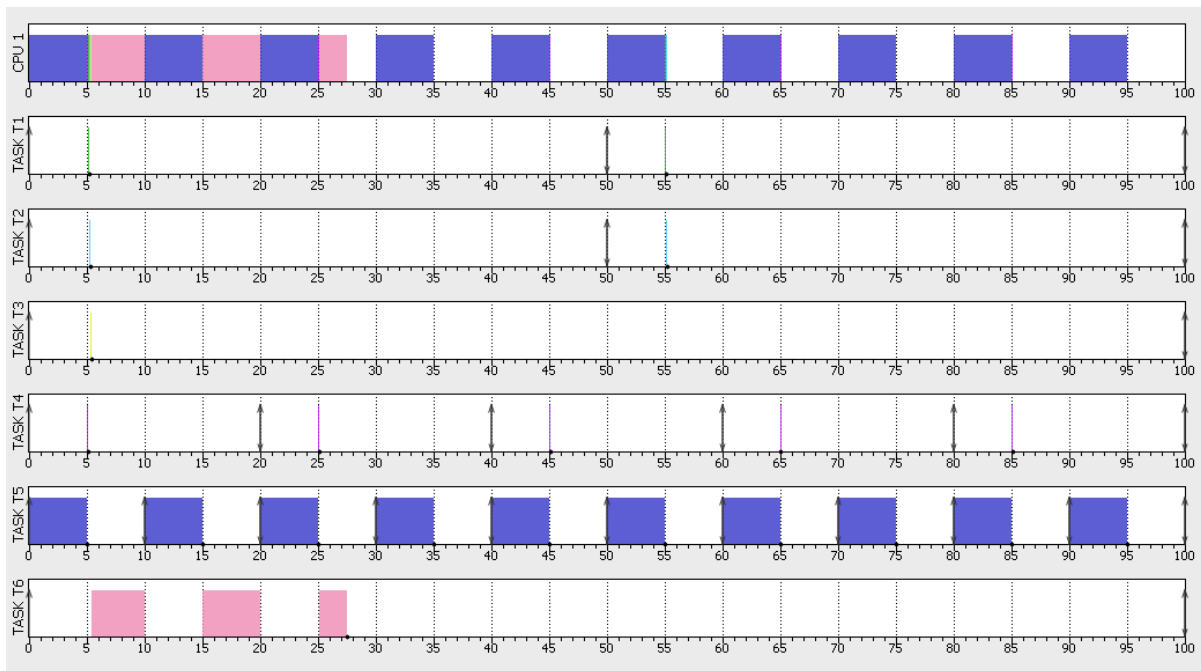CPU Load = (Total Execution Time / Hyper Period) * 100

CPU Load = 62.945%

URM = $n(2^{1/n} - 1) * 100\% = 73.48\%$

Since CPU_load < URM, Hence the system is schedulable

SIMSO RMS Simulation

Analyzer