

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Tasks set examples for different simulation intervals

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Department of Computer Science
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Study Project, 2017

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Outline I

- 1 Leung and Merrill (1980)
 - Interval Definition
 - Set 1
 - Set 2
- 2 Goossens and Devillers (1999)
 - Interval Definition
 - Set 1
 - Set 2
- 3 Goossens and Devillers (1997)
 - Interval Definition
 - Set 1

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Outline II

- Set 2
- 4 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 - Interval Definition
 - Set 1
 - Set 2
- 5 Cucu and Goossens (2006)
 - Interval Definition
 - Set 1
 - Set 2
- 6 Cucu-Grosjean and Goossens (2011)
 - Interval Definition

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Outline III

- Set 1
- Set 2
- 7 Cucu and Goossens (2007)
 - Interval Definition
 - Set 1
 - Set 2
- 8 Baro et al. (2012), Nélis et al. (2013)
 - Interval Definition
 - Set 1
 - Set 2
- 9 Baro et al. (2012)

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Outline IV

- Interval Definition
- Set 1
- Set 2

10 Goossens-Grolleau-Cucu (2016)

- Interval Definition
- Set 1
- Set 2

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Leung and Merrill (1980)

Interval Definition

Processor	1
Deadline	$D_i < T_i$
Dependency	Independent
Scheduling algorithm	Fixed-task priority
Simulation interval	$[0, O^{max} + 2H)$

Leung and Merrill (1980)

Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

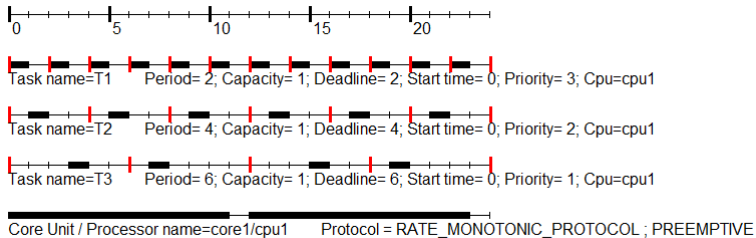
Interval Definition

Set 1

Set 2

Leung and Merrill (1980)

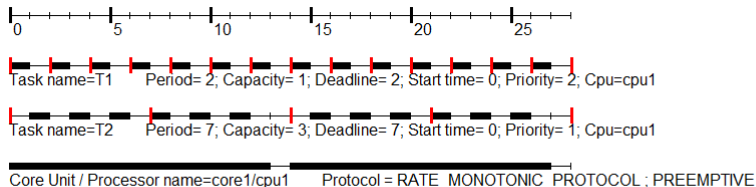
Set 1



- $H = 12$
- Simulation interval in $[0, 24)$

Leung and Merrill (1980)

Set 2



- $H = 14$
- Simulation interval in $[0, 28)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Goossens and Devillers (1999)

Interval Definition

Processor	1
Deadline	Arbitrary
Dependency	Independent
Scheduling algorithm	Fixed-job priority
Simulation interval	$[0, O^{max} + 2H)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

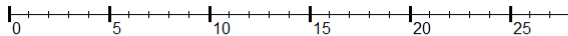
Interval Definition

Set 1

Set 2

Goossens and Devillers (1999)

Set 1



Task name=T1 Period= 2; Capacity= 1; Deadline= 2; Start time= 0; Priority= 2; Cpu=cpu1

Task name=T2 Period= 7; Capacity= 3; Deadline= 8; Start time= 0; Priority= 1; Cpu=cpu1

Core Unit / Processor name=core1/cpu1 Protocol = EARLIEST_DEADLINE_FIRST_PROTOCOL ; PREEMPTIVE

- $H = 14$
- Simulation interval in $[0, 28)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

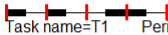
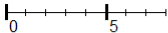
Interval Definition

Set 1

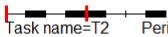
Set 2

Goossens and Devillers (1999)

Set 2



Task name=T1 Period= 2; Capacity= 1; Deadline= 2; Start time= 0; Priority= 2; Cpu=cpu1



Task name=T2 Period= 4; Capacity= 3; Deadline= 5; Start time= 0; Priority= 1; Cpu=cpu1



Core Unit / Processor name=core1/cpu1

Protocol = EARLIEST_DEADLINE_FIRST_PROTOCOL ; PREEMPTIVE

- $H = 4$
- Simulation interval in $[0, 8)$
- T_2 missed its deadline at $t=5$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Goossens and Devillers (1997)

Interval Definition

Processor	1
Deadline	$D_i < T_i$
Dependency	Independent
Scheduling algorithm	Fixed-job priority
Simulation interval	$[0, S_n + H)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

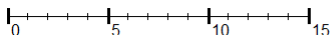
Interval Definition

Set 1

Set 2

Goossens and Devillers (1997)

Set 1



Task name=T1 Period= 2, Capacity= 1; Deadline= 2; Start time= 0; Priority= 2; Cpu=cpu1

Task name=T2 Period= 4, Capacity= 1; Deadline= 4; Start time= 2; Priority= 1; Cpu=cpu1

Task name=T3 Period= 6, Capacity= 1; Deadline= 6; Start time= 3; Priority= 1; Cpu=cpu1

Core Unit / Processor name=core1/cpu1 Protocol = EARLIEST_DEADLINE_FIRST_PROTOCOL ; PREEMPTIVE

- $H = 12$
- Simulation interval in $[0, 15)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Goossens and Devillers (1997)

Set 1

- $S_1 = 0$

$$S_2 = \max\left(2, 2 + \left\lceil \frac{-2}{4} \right\rceil 4\right) = 2$$

$$S_3 = \max\left(3, 3 + \left\lceil \frac{2-3}{6} \right\rceil 6\right) = 3$$

$$S_3 + H = 15$$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

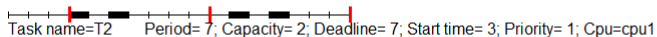
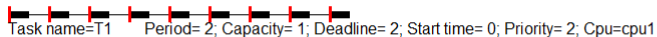
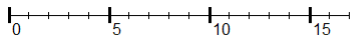
Interval Definition

Set 1

Set 2

Goossens and Devillers (1997)

Set 2



Core Unit / Processor name=core1/cpu1 Protocol = EARLIEST_DEADLINE_FIRST_PROTOCOL ; PREEMPTIVE

- $H = 14$
- Simulation interval in $[0, 17)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Goossens and Devillers (1997)

Set 2

- $S_1 = 0$

$$S_2 = \max\left(3, 3 + \left\lceil \frac{-3}{7} \right\rceil 7\right) = 3$$

$$S_2 + H = 17$$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Interval Definition

Processor	1
Deadline	$D_i < T_i$
Dependency	Mutual Exclusion, Simple precedence
Scheduling algorithm	Any work-conserving (<i>with idle task</i>)
Simulation interval	$[0, \theta_c + H)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

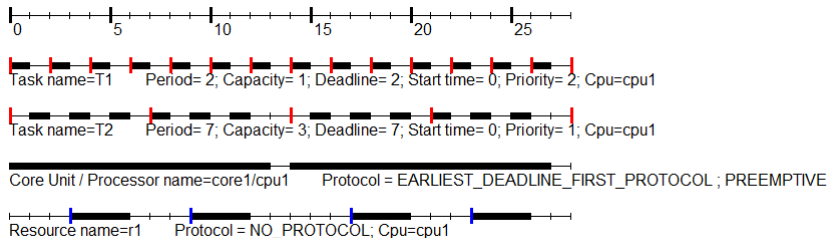
Interval Definition

Set 1

Set 2

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Set 1



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Set 1

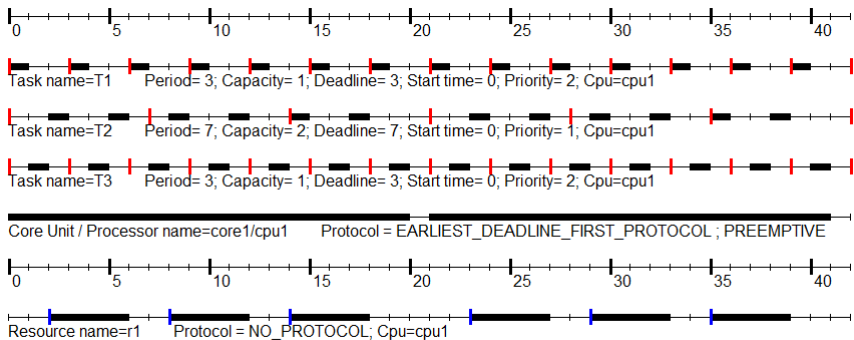
- $H = 14$
- T2 accesses to R1 during 2 u.t from it's 2nd to it's 3rd u.t
- Simulation interval in $[0, 28)$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Set 2



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Choquet-Geniet and Grolleau (2004), Bado et al. (2012) Set 2

- $H = 14$
- T2 accesses to R1 during 2 u.t from it's 1st to it's 2nd u.t
- Simulation interval in $[0, 42)$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Cucu and Goossens (2006)

Interval Definition

Processor	Uniform
Deadline	$D_i < T_i$
Dependency	Independent
Scheduling algorithm	Global fixed-task priority)
Simulation interval	$S_n + H$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
 Cucu-Grosjean and Goossens (2011)
 Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

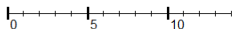
Interval Definition

Set 1

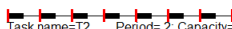
Set 2

Cucu and Goossens (2006)

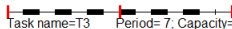
Set 1



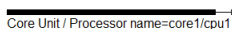
Task name=T1 Period= 2, Capacity= 1; Deadline= 2; Start time= 0; Priority= 2; Cpu=cpu1



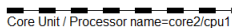
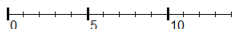
Task name=T2 Period= 2, Capacity= 1; Deadline= 2; Start time= 0; Priority= 3; Cpu=cpu1



Task name=T3 Period= 7, Capacity= 3; Deadline= 7; Start time= 0; Priority= 1; Cpu=cpu1



Core Unit / Processor name=core1/cpu1 Protocol = RATE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1 Protocol = RATE_MONOTONIC_PROTOCOL ; PREEMPTIVE

- $H = 14$, Simulation interval in $[0, 14)$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

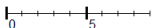
Interval Definition

Set 1

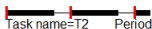
Set 2

Cucu and Goossens (2006)

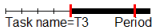
Set 2



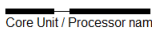
Task name=T1 Period= 4; Capacity= 1; Deadline= 4; Start time= 1; Priority= 1; Cpu=cpu1



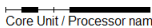
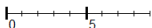
Task name=T2 Period= 4; Capacity= 3; Deadline= 4; Start time= 0; Priority= 2; Cpu=cpu1



Task name=T3 Period= 4; Capacity= 4; Deadline= 4; Start time= 4; Priority= 3; Cpu=cpu1



Core Unit / Processor name=core1/cpu1 Protocol = RATE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1 Protocol = RATE_MONOTONIC_PROTOCOL ; PREEMPTIVE

Cucu and Goossens (2006)

Set 2

- $H = 4$
- $S_3 = 4$

$$S_2 = \max\left(0, 0 + \left\lceil \frac{4}{4} \right\rceil 4\right) = 4$$

$$S_1 = \max\left(1, 1 + \left\lceil \frac{4-1}{4} \right\rceil 4\right) = 5$$

$$S_1 + H = 9$$

- Simulation interval in $[0, 9)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
 Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Cucu-Grosjean and Goossens (2011)

Interval Definition

Processor	Unrelated
Deadline	$D_i < T_i$
Dependency	Independent
Scheduling algorithm	Global fixed-task priority)
Simulation interval	$S_n + H$

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

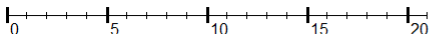
Interval Definition

Set 1

Set 2

Cucu-Grosjean and Goossens (2011)

Set 1

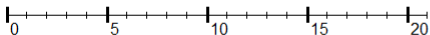


Task name=T1 Period= 2; Capacity= 1; Deadline= 2; Start time= 0; Priority= 2; Cpu=cpu1

Task name=T2 Period= 2; Capacity= 1; Deadline= 2; Start time= 5; Priority= 3; Cpu=cpu1

Task name=T3 Period= 7; Capacity= 3; Deadline= 7; Start time= 0; Priority= 1; Cpu=cpu1

Core Unit / Processor name=core1/cpu1 Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1 Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE

Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Cucu-Grosjean and Goossens (2011)

Set 1

- $H = 14$

- $S_2 = 5$

$$S_1 = \max\left(0, 0 + \left\lceil \frac{5}{2} \right\rceil 2\right) = 6$$

$$S_3 = \max\left(0, 0 + \left\lceil \frac{6}{7} \right\rceil 7\right) = 7$$

$$S_3 + H = 21$$

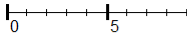
- Simulation interval in $[0, 21)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
 Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

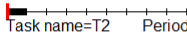
Interval Definition
 Set 1
 Set 2

Cucu-Grosjean and Goossens (2011)

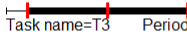
Set 2



Task name=T1 Period= 4; Capacity= 1; Deadline= 4; Start time= 1; Priority= 1; Cpu=cpu1

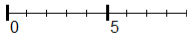


Task name=T2 Period= 4; Capacity= 3; Deadline= 4; Start time= 0; Priority= 2; Cpu=cpu1



Task name=T3 Period= 4; Capacity= 4; Deadline= 4; Start time= 1; Priority= 3; Cpu=cpu1

Core Unit / Processor name=core1/cpu1 Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1 Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE

Cucu-Grosjean and Goossens (2011)

Set 2

- $H = 4$
- $S_3 = 1$
- $S_2 = \max\left(0, 0 + \left\lceil \frac{1}{4} \right\rceil 4\right) = 4$
- $S_1 = \max\left(1, 1 + \left\lceil \frac{4-1}{4} \right\rceil 4\right) = 5$
- $S_1 + H = 9$
- Simulation interval in $[0, 9)$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Cucu and Goossens (2007)

Interval Definition

Processor	Identical
Deadline	Arbitrary
Dependency	Independent
Scheduling algorithm	Global fixed-task priority
Simulation interval	$[0, \hat{S}_n + H)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
 Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

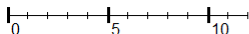
Interval Definition

Set 1

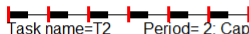
Set 2

Cucu and Goossens (2007)

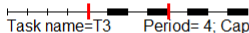
Set 1



Task name=T1 Period= 2; Capacity= 1; Deadline= 2; Start time= 2; Priority= 2; Cpu=cpu1



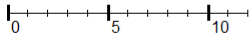
Task name=T2 Period= 2; Capacity= 1; Deadline= 2; Start time= 0; Priority= 3; Cpu=cpu1



Task name=T3 Period= 4; Capacity= 3; Deadline= 7; Start time= 4; Priority= 1; Cpu=cpu1

Core Unit / Processor name=core1/cpu1

Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1

Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE

Cucu and Goossens (2007)

Set 1

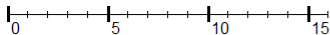
- $H = 4$
- Simulation interval in $[0, 12)$
- $\hat{S}_2 = 0$
$$\hat{S}_1 = \max\left(2, 2 + \left\lceil \frac{-2}{2} \right\rceil 2\right) + 2 = 4$$
$$\hat{S}_3 = \max(4, 4) + 4 = 8$$
$$\hat{S}_3 + H = 12$$
- Simulation interval in $[0, 12)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
 Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

Interval Definition
 Set 1
 Set 2

Cucu and Goossens (2007)

Set 2

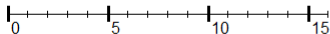


Task name=T1 Period= 4; Capacity= 1; Deadline= 4; Start time= 1; Priority= 2; Cpu=cpu1

Task name=T2 Period= 4; Capacity= 2; Deadline= 5; Start time= 0; Priority= 1; Cpu=cpu1

Task name=T3 Period= 4; Capacity= 4; Deadline= 4; Start time= 0; Priority= 3; Cpu=cpu1

Core Unit / Processor name=core1/cpu1 Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1 Protocol = DEADLINE_MONOTONIC_PROTOCOL ; PREEMPTIVE



Leung and Merrill (1980)

Goossens and Devillers (1999)

Goossens and Devillers (1997)

Choquet-Geniet and Grolleau (2004), Bado et al. (2012)

Cucu and Goossens (2006)

Cucu-Grosjean and Goossens (2011)

Cucu and Goossens (2007)

Baro et al. (2012), Nélis et al. (2013)

Baro et al. (2012)

Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Cucu and Goossens (2007)

Set 2

- $H = 4$

- $\hat{S}_3 = 0$

$$\hat{S}_1 = \max\left(1, 1 + \left\lceil \frac{-1}{4} \right\rceil 4\right) + 4 = 5$$

$$\hat{S}_2 = \max\left(0, 0 + \left\lceil \frac{5}{4} \right\rceil 4\right) + 4 = 12$$

$$\hat{S}_2 + H = 16$$

- Simulation interval in $[0, 16)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
 Cucu-Grosjean and Goossens (2011)
 Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Baro et al. (2012), Nélis et al. (2013)

Interval Definition

Processor	Identical
Deadline	$D_i < T_i$
Dependency	Independent
Scheduling algorithm	Any
Simulation interval	$[0, O^{max} + H \prod_{i=1}^n (C_i + 1))$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

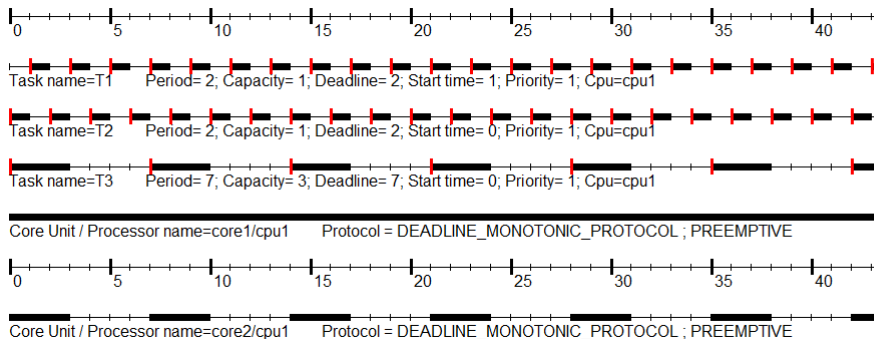
Interval Definition

Set 1

Set 2

Baro et al. (2012), Nélis et al. (2013)

Set 1



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Baro et al. (2012), Nélis et al. (2013)

Set 1

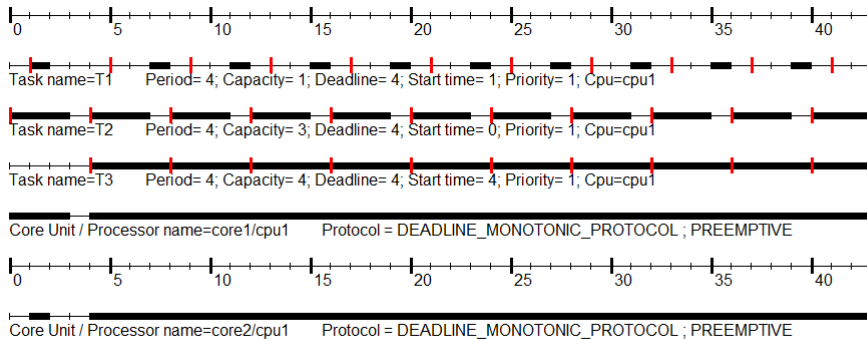
- $H = 14$, $O^{max} = 1$
- $1 + 14 \times (2 \times 2 \times 7)$
= 225
- Simulation interval in $[0, 225)$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Baro et al. (2012), Nélis et al. (2013)

Set 2



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Baro et al. (2012), Nélis et al. (2013)

Set 2

- $H = 4, O^{max} = 4$
- $4 + 4 \times 40$
= 164
- Simulation interval in $[0, 164)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
 Cucu-Grosjean and Goossens (2011)
 Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Baro et al. (2012)

Interval Definition

Processor	Identical
Deadline	$D_i < T_i$
Dependency	Simple precedence
Scheduling algorithm	Any
Simulation interval	$[0, O^{max} + H \prod_{i=1}^n (C_i + 1))$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

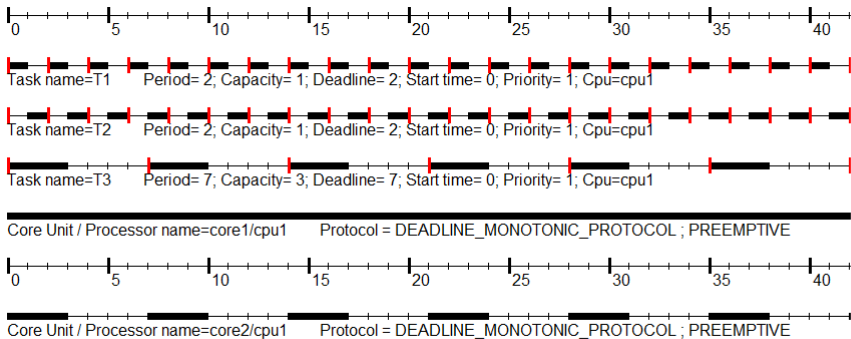
Interval Definition

Set 1

Set 2

Baro et al. (2012)

Set 1



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Baro et al. (2012)

Set 1

- $H = 14$, $O^{max} = 0$
- $4 \times (2 \times 2 \times 4)$
= 224
- Simulation interval in $[0, 224)$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

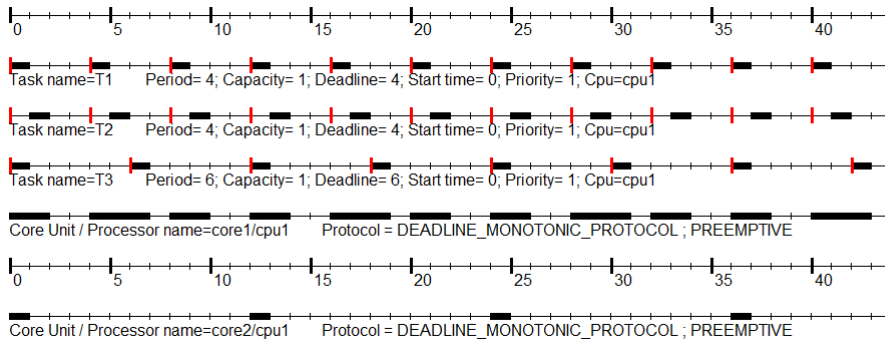
Interval Definition

Set 1

Set 2

Baro et al. (2012)

Set 2



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Baro et al. (2012)

Set 2

- $H = 12, O^{max} = 0$
- $12 \times 2^3 = 96$
- Simulation interval in $[0, 96)$

Leung and Merrill (1980)
 Goossens and Devillers (1999)
 Goossens and Devillers (1997)
 Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
 Cucu and Goossens (2006)
 Cucu-Grosjean and Goossens (2011)
 Cucu and Goossens (2007)
 Baro et al. (2012), Nélis et al. (2013)
 Baro et al. (2012)
 Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Goossens-Grolleau-Cucu (2016)

Interval Definition

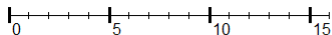
Processor	Identical
Deadline	$D_i < T_i$
Dependency	Simple precedence
Scheduling algorithm	Any
Simulation interval	$[0, H \prod_{i=1}^n ((O_i + D_i - T_i)_0 + 1))$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Goossens-Grolleau-Cucu (2016)

Set 1

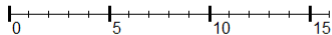


Task name=T1 Period= 2; Capacity= 1; Deadline= 2; Start time= 0; Priority= 1; Cpu=cpu1

Task name=T2 Period= 2; Capacity= 1; Deadline= 2; Start time= 0; Priority= 1; Cpu=cpu1

Task name=T3 Period= 4; Capacity= 3; Deadline= 7; Start time= 0; Priority= 1; Cpu=cpu1

Core Unit / Processor name=core1/cpu1 Protocol = EARLIEST_DEADLINE_FIRST_PROTOCOL ; PREEMPTIVE



Core Unit / Processor name=core2/cpu1 Protocol = EARLIEST_DEADLINE_FIRST_PROTOCOL ; PREEMPTIVE

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition

Set 1

Set 2

Goossens-Grolleau-Cucu (2016)

Set 1

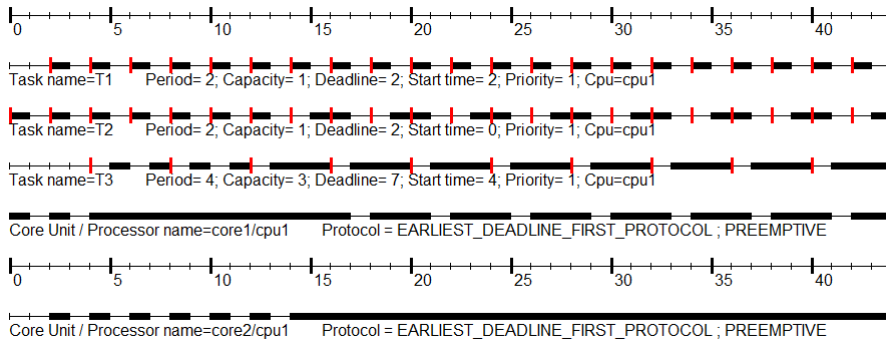
- $H = 4$,
- Simulation interval in $[0, 16)$

Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Goossens-Grolleau-Cucu (2016)

Set 2



Leung and Merrill (1980)
Goossens and Devillers (1999)
Goossens and Devillers (1997)
Choquet-Geniet and Grolleau (2004), Bado et al. (2012)
Cucu and Goossens (2006)
Cucu-Grosjean and Goossens (2011)
Cucu and Goossens (2007)
Baro et al. (2012), Nélis et al. (2013)
Baro et al. (2012)
Goossens-Grolleau-Cucu (2016)

Interval Definition
Set 1
Set 2

Goossens-Grolleau-Cucu (2016)

Set 2

- $H = 4$,
- $(3 \times 1 \times 8)^4$
= 96
- Simulation interval in $[0, 96)$