

Multiprocessor task problems with dedicated processors and preemption

- **maximal polynomially solvable:**

$Pm|r_i; pmtn; fix_i|L_{max}$ Bianco et al. (1997) [1]

$P2|pmtn; fix_i|\sum C_i$ Cai et al. (1998) [2]

- **maximal pseudopolynomially solvable:**

- **minimal NP-hard:**

* $P|pmtn; fix_i|C_{max}$ Hoogeveen et al. (1994) [3], Kubale (1990) [4]

* $P2|chains; pmtn; fix_i|C_{max}$ Hoogeveen et al. (1994) [3]

* $P|pmtn; fix_i|\sum C_i$ Hoogeveen et al. (1994) [3]

* $P2|chains; pmtn; fix_i|\sum C_i$ Hoogeveen et al. (1994) [3]

* $P2|pmtn; fix_i|\sum w_i C_i$ Oguz & Qi (2006) [5]

- **minimal open:**

$P2|r_i; pmtn; fix_i|\sum C_i$

$P3|pmtn; fix_i|\sum C_i$

$P2|pmtn; fix_i|\sum U_i$

$P2|pmtn; fix_i|\sum T_i$

- **maximal open:**

$Pm|r_i; pmtn; fix_i|\sum w_i U_i$

$Pm|r_i; pmtn; fix_i|\sum T_i$

References

- [1] L. Bianco, J. Błażewicz, P. Dell’Olmo, and M. Drozdowski. Preemptive multiprocessor task scheduling with release times and time windows. *Ann. Oper. Res.*, 70:43–55, 1997.
- [2] X. Cai, C.-Y. Lee, and C.-L. Li. Minimizing total completion time in two-processor task systems with prespecified processor allocations. *Naval Res. Logist.*, 45(2):231–242, 1998.
- [3] J.A. Hoogeveen, S.L. van de Velde, and B. Veltman. Complexity of scheduling multiprocessor tasks with prespecified processor allocations. *Discrete Appl. Math.*, 55(3):259–272, 1994.
- [4] M. Kubale. Preemptive scheduling of two-processor tasks on dedicated processors. *Zeszyty Naukowe Politechnik: Śląskiej, Seria: Automatyka Z. 100*, 1082:145–153, 1990.
- [5] C. Oguz and X. Qi. Preemptive scheduling multiprocessor tasks to minimize total weighted completion time on two dedicated processors. In *Proc. 10th International Workshop on Project Management and Scheduling*, pages 270–274, Poznan, Poland, 2006.