Abstract

This paper deals with a scheduling problem on Identical Parallel Machines where machines are subject to potentially costly failures. Failures can be avoided by an appropriate Preventive Maintenance (PM) planning. The preemption of production jobs is not allowed. The PM activities must be carried out by taking into consideration the production constraints. We assume that PM activities are performed after each job and they restore the machines to "as good as new" conditions. The objective is to find the best assignment of jobs on machines maximizing the system availability. We have proposed heuristics to deal with the problem. Experimental results are conducted to test the efficiency of our heuristics throughout 380 test problem instances.