# Project-Oriented Scheduler for Cluster Systems

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**Abstract:** Parallel processing is the key to fulfill the high demands on computational resources in scientific computing. This has further pushed researches in High Performance Computing into the mainstream. Numerous powerful computer systems are then born. Especially, low-cost powerful clusters, which are set up by connecting many personal computers/workstations in a high speed network, were developed rapidly in the last decade. Batch scheduling systems for clusters are very important because they control the resource allocation in such a way that system utilization is optimal. However, most batch scheduling systems have essentially focused on maximizing the use of computing resources like processors, but not on improving quality of services. This paper presents a batch scheduling system called Project-Oriented Scheduler (POS), which schedules jobs from projects with different priorities. The higher priority level one project has, the longer service time it is assigned. Moreover, starvation is also excluded. POS has been evaluated using SimJava, a discrete event simulation library, and results show that POS improves not only the utility of the system but also satisfaction of the projects as compared with other scheduling strategies. POS has been implemented as a plugin scheduler to the Portable Batch System. The goal of POS is to meet the demand of some companies that have a lot of projects but limited resources.

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