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Energy-efficient multi-job scheduling model for cloud computing and its genetic algorithm.

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Summary: For the problem that the energy efficiency of the cloud computing data center is low, from the point of view of the energy efficiency of the servers, we propose a new energy-efficient multi-job scheduling model based on Google's massive data processing framework. To solve this model, we design a practical encoding and decoding method for the individuals and construct an overall energy efficiency function of the servers as the fitness value of each individual. Meanwhile, in order to accelerate the convergent speed of our algorithm and enhance its searching ability, a local search operator is introduced. Finally, the experiments show that the proposed algorithm is effective and efficient.

MSC:

90B35 Deterministic scheduling theory in operations research
90C59 Approximation methods and heuristics in mathematical programming

Software:

MapReduce

Full Text: DOI

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