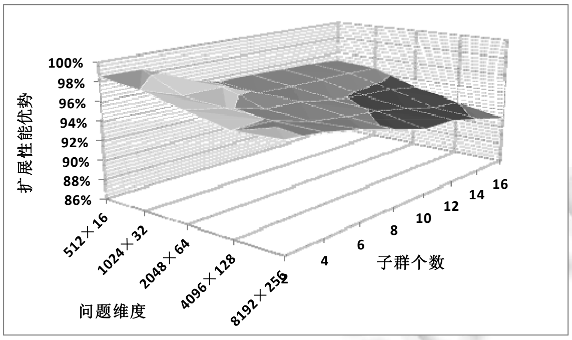
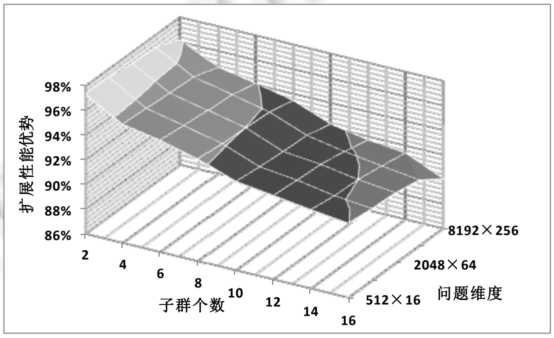
均衡的方式分配数据和任务.

4.3 可扩展性

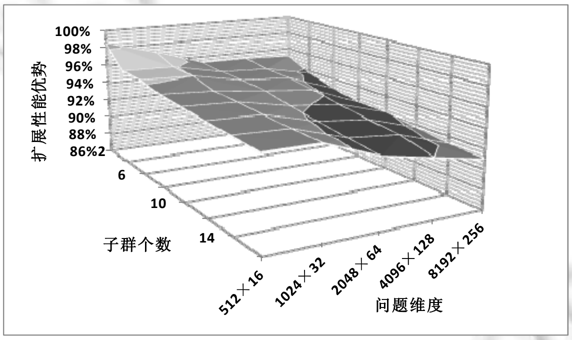
实验首先依从文献[25],将调度算法运行的总体时间阈值定为 90s;然后,针对每维的一致性、半一致性和不一致性实例,采用不同的子群个数([2,16])进行实验,直到调度算法运行到时间阈值.这里,任务调度时间的标准化是采用 n 个子群实现时间与一个子群实现时间的比率.图 5 显示出相关实验结果.



(a)



(b)



(c)

Fig.5 Improvements of MCMC over the algorithms summarized for scalability analysis and parallel performance

图 5 不同算法可扩展及并行方面性能比较

图 5 表明:随着云调度问题维数的增加,算法 MCMC 求得的任务调度时间明显下降,时间性能优势明显.这主要是因为 MCMC 包含种群和智能的双重协同进化过程,可实现种群加速收敛及个体多样性保持.

5 结 论

本文对融合能效感知的云调度进行研究,有效降低数据密集应用的通信开销、兼顾提供者和消费者双方的利益,并保证系统双层负载均衡性.随着新应用(数据密集应用、计算密集应用)、新环境(计算网格、云计算)和新性能指标(能效)的出现,分布式计算资源管理核心技术之异构调度研究具有重大的理论和应用价值.

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王静莲(1979－),女,山东莱州人,博士,讲师,主要研究领域为并行与高性能计算,绿色计算.

刘弘(1955－),女,博士,教授,博士生导师,主要研究领域为人工智能,多目标全局优化算法.

龚斌(1964－),男,博士,教授,博士生导师,主要研究领域为高性能计算,机群计算.

李少辉(1978－),男,讲师,主要研究领域为绿色计算,多目标全局优化算法.