

计算机开发与应用

多核并行计算技术在景象匹配仿真中的应用

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摘要:

随着计算机技术向多处理器以及多核的架构发展, 以OpenMP和线程构建模块 (thread building blocking, TBB) 为代表的多核处理器并行计算平台的应用得到重视。对多核并行计算技术在建模仿真领域的应用进行了初步探讨, 以景象匹配仿真计算为例, 基于OpenMP和TBB并行计算平台构建了一个景象匹配评估平台, 对不同的景象匹配算法效率进行评估。对多核并行计算技术及其在景象匹配仿真算法中的应用进行了详细介绍, 并通过仿真实验验证多核并行计算技术能够大大提高景象匹配评估平台的运行效率, 从而有效地支持对导弹真实景象匹配制导系统相关算法进行验证和研究。

关键词: 多核 并行计算 景象匹配 建模仿真

Application of multi core parallel computing technology in scene matching simulation

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Abstract:

Computer technology is developing towards multi processor architecture and multi core architecture. More and more focus is put on applications of multi-core parallel computing platform, such as OpenMP and thread building blocking (TBB). Application of multi core parallel computing technology in modeling and simulation (M&S) area is concerned. A scene matching evaluation platform that helps to evaluate efficiency of different algorithms is implemented based on OpenMP and TBB. The multi-core parallel computing technology and its application in scene matching algorithms are introduced in detail. Simulation results shows that the multi-core parallel computing technology can greatly improve the simulation efficiency and effectively support verification and study of scene matching algorithms in real missile guidance systems.

Keywords: multi-core parallel computing scene matching modeling and simulation

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