

工程与应用

多目标检测并行处理软件的设计

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收稿日期 2008-9-27 修回日期 2008-11-24 网络版发布日期 2010-4-1 接受日期

摘要 在水下目标检测和跟踪系统中, 多目标检测算法起着重要的作用, AIC算法是最具代表性的方法。为了满足目标检测对高速实时并行处理技术的要求, 针对水下阵列信号处理的实际应用, 采用有效的并行算法和并行结构来减少运算量, 设计并研制了一种基于4片ADSP-TS101S的多处理器并行实时处理系统。经过对算法的运算时间和目标检测的性能进行分析, 表明该系统提高了处理效率, 解决了阵列信号处理中大运算量的高速实时处理的问题, 具有良好的目标检测性能和实时处理能力, 满足工程实际需求。

关键词 [AIC算法](#) [ADSP-TS101S](#) [实时处理](#) [并行结构](#)

分类号 [TN911.7](#)

Design of parallel processing software on multi-target detection

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Abstract

The algorithm of AIC is the most representative method of multi-target detection. It plays an important role in underwater target detection and tracking system. In order to satisfy the requirement of target detection to the high-speed, real-time processing, parallel technique, and aiming at the practical application of underwater array signal processing, adopting effective parallel architecture and method for data processing are used to reduce operation count, this is the platform of parallel real-time processing system, which is composed of 4 ADSP-TS101S. Through analyzing the waste time and performance of target detection, the system can improve processing efficiency, and the key problems of huge data, high-speed, real-time processing for array signal processing is solved, has the good performance of target detection and the good capability in real-time processing, so as to satisfy the engineering technique requirement.

Key words [AIC](#) [ADSP-TS101S](#) [real-time processing](#) [parallel architecture](#)

DOI: 10.3778/j.issn.1002-8331.2010.10.070

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