

论文

基于多级信道化的超宽带搜索接收机设计与实现

王永明, 张尔扬, 王世练, 李长龙

国防科技大学电子科学与工程学院; 中国人民解放军94973部队

摘要:

针对大瞬时带宽和高频率分辨率的实时侦察需求, 联合采用模拟信道化和数字信道化技术完成了超宽带信号搜索接收机的设计与实现, 并重点讨论了数字信道化接收机的高速FPGA数字系统设计。数字设计中, 充分考虑了高速数据的可靠接收以及片内数字处理速度和资源的优化配置, 确保系统良好的性能。实现和测试结果表明接收机性能稳定, 能够完成大瞬时带宽内的无线电信号搜索任务。

关键词: 无线电侦察; 信道化接收机; 测频; 参数估计; FPGA实现

Design and Implementation of Ultra-Wideband Reconnaissance Receiver Based on Multistage Channelized Processing

WANG Yong-Ming, ZHANG Er-Yang, WANG Shi-Lian, LI Chang-Long

College of Electronic Science and Engineering, National Univ. of Defense Technology, Changsha; Unit 94973, PLA, Hangzhou 310021, China

Abstract:

Considering the real-time reconnaissance requirement of large instantaneous bandwidth and high frequency resolution, the design and implementation of an ultra wideband reconnaissance receiver is accomplished based on both analog and digital channelized technologies. The high speed FPGA design for digital channelized receiver is specially discussed. Reliable receiving of high speed data as well as the processing speed and resource optimizing inside the chip are sufficiently considered to insure the good performance of the digital system. Implementation and test results verify the stability of the receiver and its ability to fulfill the radio reconnaissance in large instantaneous bandwidth.

Keywords:

收稿日期 2009-03-02 修回日期 2009-04-28 网络版发布日期 2010-01-25

DOI:

基金项目:

通讯作者:

作者简介:

作者Email:

参考文献:

本刊中的类似文章

文章评论

扩展功能

本文信息

- ▶ Supporting info
- ▶ PDF(2051KB)
- ▶ [HTML全文]
- ▶ 参考文献[PDF]
- ▶ 参考文献

服务与反馈

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ 引用本文
- ▶ Email Alert
- ▶ 文章反馈
- ▶ 浏览反馈信息

本文关键词相关文章

- ▶ 无线电侦察; 信道化接收机; 测频; 参数估计; FPGA实现

本文作者相关文章

- ▶ 王永明
- ▶ 张尔扬
- ▶ 王世练
- ▶ 李长龙

PubMed

- ▶ Article by Wang, Y. M.
- ▶ Article by Zhang, E. Y.
- ▶ Article by Wang, S. L.
- ▶ Article by Li, C. L.

反 馈 人	<input type="text"/>	邮 箱 地 址	<input type="text"/>
反			

馈
标
题

验证码

9675