

CCSDS-IDC 位平面编码的优化实现

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摘要: CCSDS-122.0-B-1 星载图像压缩标准所提供的压缩算法具有良好的压缩性能和较低实现复杂度.但是, 在硬件实现该标准时数据速率和存储资源之间存在制约关系, 为了既能达到较高的数据速率又能减少硬件资源, 本文提出了组内串行, 组间并行的扫描方式, 并仿真实现了改进后的软件系统.实验结果表明, 该扫描方式可以有效的降低硬件资源.

关键词: CCSDS; 小波变换; 位平面编码; 图像压缩

Optimal Implementation of Bit Plane Encoder for CCSDS-IDC

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Abstract: Recommended Standard CCSDS 122.0-B-1 provides a compression algorithm which has an advantage over providing a trade-off between the compression performance and the implement complexity. However, there exist restricting relations between the data rate and the storage resources while implemented on hardware. In order to reduce the hardware resources of the algorithm's implementation under low rate loss cost, in this paper we propose a novel scanning mode, which combines the serial and parallel bit plane scanning, and implement a software system based on the scanning mode. This scanning mode can reduce the hardware resources efficiently.

Key words: CCSDS; wavelet transform; bit plane encoding; image compression

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