

Design Methodologies of Transaction-Safe Cluster Allocations in TFAT File System for Embedded Storage Devices

Keshava Munegowda
Principal Software Engineer
EMC Corporation
Bangalore, INDIA
keshava.gowda@gmail.com

Veera Manikandan Raju
Senior Member Technical Staff
Texas Instruments
Bangalore, INDIA

Dr. G T Raju
Professor and Head
Department of Computer Science and Engineering
RNS Institute of Technology
Bangalore, INDIA

Manjunath TN
Associate Professor
Department of Information Science and Eng.....
Acharya Institute of Technology
Bangalore, INDIA

Abstract:

The File Allocation Table (FAT) file system is widely used file system in tablet personal computers, mobile phones, digital cameras and other embedded devices for data storage and multi-media applications such as video imaging, audio/video playback and recording. The FAT file system is not power fail-safe. This means that, the uncontrolled power loss or abrupt removal of storage device from computer/embedded system causes the file system corruption. The TFAT (Transaction safe FAT) file system is an extension of FAT file system to provide power fail-safe feature to the FAT file system. This paper explores the design methodologies of cluster allocation algorithms of TFAT file system by conducting various combinations of file system operations in Windows CE (Compact Embedded) 6.0 Operating System (OS). This paper also records the performance bench-marking of TFAT file system in comparison with FAT File system.

Keywords

Cluster
FAT
File system
Flash Memory
MMC
Micro SD
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TFAT
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Win CE