

## EMSOFT 2008 report by Ryan Tseng

### 總結摘要:

EMSOFT 08 regular papers 共錄取 27 論文, 其中 Flash memory 相關者有 4 篇, 另外, EMSOFT 一起合辦的 OWSSPS 2008 Workshop 也有七篇, 總結來說, 論文是有具備前瞻性, 甚至是天馬行空, 獲得EMSOFT鼓勵

### 重點分析:

EMSOFT 今年的四篇, 兩篇屬於 Flash organization 偏硬體, 剩下兩篇都是談 FTL, 可以看出, FTL 可以著墨的地方。仔細分析 EMSOFT 的四篇 paper, 當中的 *MEMS-Based Storage Devices* ????, *Flash memory*????????????, *PRAM*???????? *non-volatile ram*?????

另外 OWSSPS 2008 Workshop 也有相當前瞻的論文提出, 特別是 "Study of Unified SCRAM Manager" 這篇提出 "Permanent Computing" 永久計算概念, 任何時候電源消失然後恢復, 所有先前中斷的計算幾乎就可以在不段一秒鐘時間內恢復計算, 所有的 state 都有效延續, 該計算把硬體與軟體都實做出來, 當中的軟體把 OS 中的 Memory Manager & File System 二合一設計, 很讓人印象深刻

### 與業界學者互動

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### Submission Plan for EMSOFT 2009

- 目前已經有兩個題目, 已經做到 Performance Measurement 階段了, 分別是
1. An Idea of Write-once Flash Translation Layer -- DAC 2009, due on Dec/19 2008
  2. Yet Another Flash Translation Layer -- EMSOFT 2009, due on April 2009  
以上兩篇時程非常充裕
  3. Fast Mount scheme for NAND type flash -- EMSOFT 2009  
時間依然有可能

### EMSOFT 08 regular papers

- *$\mu$ -FTL: A Efficient Flash Translation Layer Supporting Multiple Mapping Granularities*  
Yong-Goo Lee, Dawoon Jung, Dongwon Kang and Jin-Soo Kim
- *A PRAM and NAND Flash Hybrid Architecture for High-Performance Embedded Storage Subsystems*  
Jin Kyu Kim, Hyung Gyu Lee, Shinho Choi and Kyoung Il Bahng
- *Workload-Based Configuration of MEMS-Based Storage Devices for Mobile Systems*  
Mohammed G. Khatib, Ethan L. Miller and Pieter H. Hartel
- *LTFTL: Lightweight Time shift Flash Translation Layer for Flash Memory based Embedded Storage*  
Jongmoo Choi, Kyoungmoon Sun, Seungjae Baek, Donghee Lee, Sam Noh and Sang Lyul Min

OWSSPS 2008 Workshop papers

- [Web Browser Cache Management Techniques for Mobile Full Browsing on NAND-based Mobile Devices \(slides\)](#)  
Keonsoo Ha and Jihong Kim.
- [RT-P\\*: Practical Paging Strategy for Real-Time Code Execution of Media Player on NAND Flash Memory](#)  
Duhee Lee, Jong-Chan Kim, and Chang-Gun Lee.
- [Implementation Study of an Unified SCRAM Manager for Storage Class Random Access Memory \(slides\)](#)  
Seungjae Baek, Kyoungmoon Sun, Jongmoo Choi, Eunsam Kim, Donghee Lee, and Sam H. Noh.
- [Buffer-Aware Garbage Collection for NAND Flash Memory-Based Storage Systems \(slides\)](#)  
Sungjin Lee, Dongkun Shin, and Jihong Kim.
- [Cost and Performance Analysis of NAND Mapping Algorithms in Shared-bus Multi-chip Configuration \(slides\)](#)  
Jin Hyuk Kim, Sang Hyuk Jung, and Yong Ho Song.
- [The Effect of Absorbing Hot Write References on FTLs for Flash Storage Supporting High Data Integrity \(slides\)](#)  
Myoung Sub Shim, In Hwan Doh, Youngje Moon, Hyojeong Lee, Jongmoo Choi, Donghee Lee, and Sam H. Noh.
- [System Support for Byte-Addressable Non-Volatile Memory in Portable Storage \(slides\)](#)  
Frank Bellosa