

# Cache Revive: Exploiting Volatility of STT-RAM Caches for Enhanced Performance in CMPs.

Anonymous MICRO submission

Paper ID 761

## Abstract

*Emerging memory technologies such as STT-RAM, PCRAM and resistive RAM are being explored as potential replacements to existing on-chip caches or main memories for future multi-core architectures. This is due to the many attractive features these memory technologies possess: high density, low leakage, and non-volatility. However, the latency and energy overhead associated with the write operations of these emerging memories has become a major obstacle in their adoption. Previous works have proposed various circuit and architectural level solutions*

## 1. Introduction

## 2. Motivation

The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here.

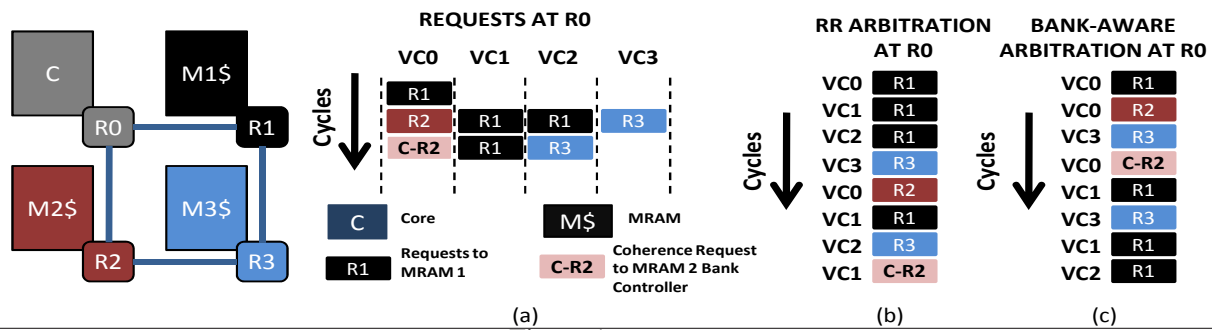


Figure 1. Caption.

[illegible]

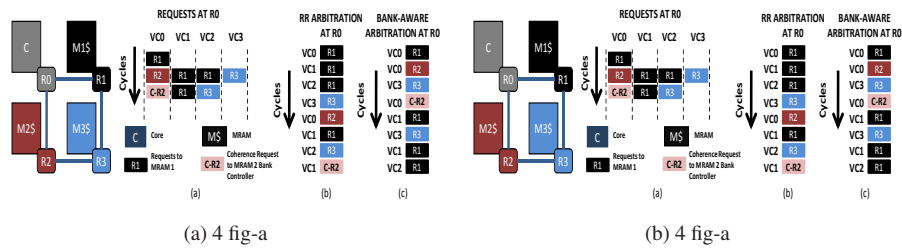


Figure 2. Caption.

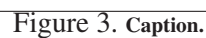
Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here.

The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a

feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. referring Fig 2 here.

The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO

0216  
0217  
0218  
0219  
0220  
0221  
0222  
0223  
0224  
0225  
0226  
0227  
0228  
0229  
0230  
0231  
0232  
0233  
0234  
0235  
0236  
0237  
0238  
0239  
0240  
0241  
0242  
0243  
0244  
0245  
0246  
0247  
0248  
0249  
0250  
0251  
0252  
0253  
0254  
0255  
0256  
0257  
0258  
0259  
0260  
0261  
0262  
0263  
0264  
0265  
0266  
0267  
0268  
0269



5

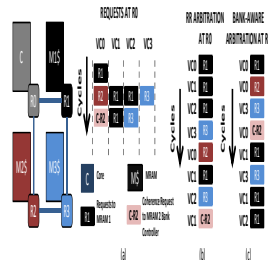


Figure 4. Caption.

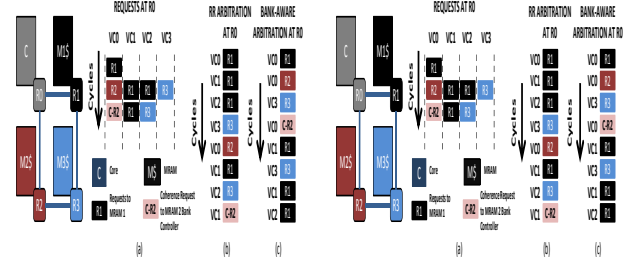


Figure 5. Caption.

Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. referring Fig 3 here.

The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length.

referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. The ABSTRACT is to be in fully-justified italicized text. Use the word “Abstract” as the title, in 14-point Times, boldface type, centered relative to the column, initially capitalized. The abstract is to be in 12-point, single-spaced type. Leave two blank lines after the Abstract, then begin the main text. Look at previous MICRO abstracts to get a feel for style and length. referring Fig 1 here. referring Fig 4 and Fig. 5 here.

### **3. STT-RAM Design**

### **4. Architecting Volatile STT-RAM**

### **5. Experimental Evaluation**

### **6. Results**

### **7. Related Work**

### **8. Conclusions**

Sample bibliography [1]”.

## References

[1] Authors. Frobnication tutorial, 2011. Supplied as additional material `tr.pdf`. 7