

# **Micro Management in StarCraft 2**

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A report submitted for the course COMP3740

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Except where otherwise indicated, this report is my own original work.

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# Acknowledgments

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Many thanks to Dr. Penny Kyburz and Dr. Sabrina Caldwell



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# Abstract

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Replace the text here with your abstract.

This is an example of a  $\text{\LaTeX}$  report suitable for CS Projects. It has been adapted from a template ANU thesis and contains some examples of how to typeset code listings, figures and tables in a computer science context.



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# Introduction

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Put your introduction here. You could use `\fix{ABCDEFG.}` to leave your comments, see the box at the left side.

You have to  
rewrite your  
thesis!!!

## 1.1 Problem Statement

Describe the problem your project addresses.

## 1.2 Motivations

## 1.3 Project Scope

Describe the problem your project addresses.

## 1.4 Report Outline

How many chapters you have? You may have Chapter 2, Chapter 3, Chapter 4, Chapter 5, and Chapter 6.



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# Background and Related Work

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At the beginning of each chapter, please give the motivation and high-level picture of the chapter. You also have to introduce the sections in the chapter, e.g.

Section 2.1 gives background material necessary in order to read this report ,and related work is given in Section 2.2.

## 2.1 Background

## 2.2 Related work

You may reference other papers. For example: Generational garbage collection [???] is perhaps the single most important advance in garbage collection since the first collectors were developed in the early 1960s. (doi: "doi" should just be the doi part, not the full URL, and it will be made to link to dx.doi.org and resolve. shortname: gives an optional short name for a conference like PLDI '08.)

## 2.3 Summary

Summarize what you discussed in this chapter, and introduce the story of next chapter. Readers should roughly understand what your report talks about by only reading words at the beginning and the end (Summary) of each chapter.





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# Design and Implementation

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Same as the last chapter, give the motivation and the high-level picture of this chapter to readers, and introduce the sections in this chapter.

## 3.1 Smart Design

## 3.2 Summary

Same as the last chapter, summarize what you discussed in this chapter and be a bridge to next chapter.



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# Experimental Methodology

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## 4.1 Software platform

We use Jikes RVM, which we defined in a macro in `macros.tex`. We ran the `avrora` benchmark, which we're typesetting in sans-serif font to make it clear it's a name.

You can also use inline code, like a `&& b`. Notice how, unlike when using the `texttt` command, the `icode` macro also scales the x-height of the monospace font correctly.

## 4.2 Hardware platform

Table 4.1 shows how to include tables and Figure 4.1 shows how to include codes. Notice how we can also use the `cleveref` package to insert references like Table 4.1, by writing just `\cref{tab:machines}`.

We can also refer to specific lines of code in code listings. The bug in Figure 4.1(a) is on line 4. There is also a bug in Figure 4.1(b) on lines 4 to 6. To achieve these references we put `(*@ \label{line:bug} @*)` in the code – the `(*@ @*)` are escape delimiters that allow you to add LaTeX in the (otherwise verbatim) code file.

**Table 4.1:** Processors used in our evaluation. Note that the caption for a table is at the top. Also note that a really long comment that wraps over the line ends up left-justified.

Architecture	Pentium 4	Atom D510	Sandy Bridge
Model	P4D 820	Atom D510	Core i7-2600
Technology	90nm	45nm	32nm
Clock	2.8GHz	1.66GHz	3.4GHz
Cores $\times$ SMT	2 $\times$ 2	2 $\times$ 2	4 $\times$ 2
L2 Cache	1MB $\times$ 2	512KB $\times$ 2	256KB $\times$ 4
L3 Cache	none	none	8MB
Memory	1GB DDR2-400	2GB DDR2-800	4GB DDR3-1066

```
1  int main(void)
2  {
3      printf("Hello_World\n");
4      int a = *((volatile int *) 0); // uh-oh!
5      return 0;
6  }
```

(a) C

```
1  void main(String[] args)
2  {
3      System.out.println("Hello_World");
4      List<String> a = new ArrayList<String>();
5      a.add("foo");
6      List<Object> b = a; // This is a compile-time error
7  }
```

(b) Java

**Figure 4.1:** Hello world in Java and C. This short caption is centered.

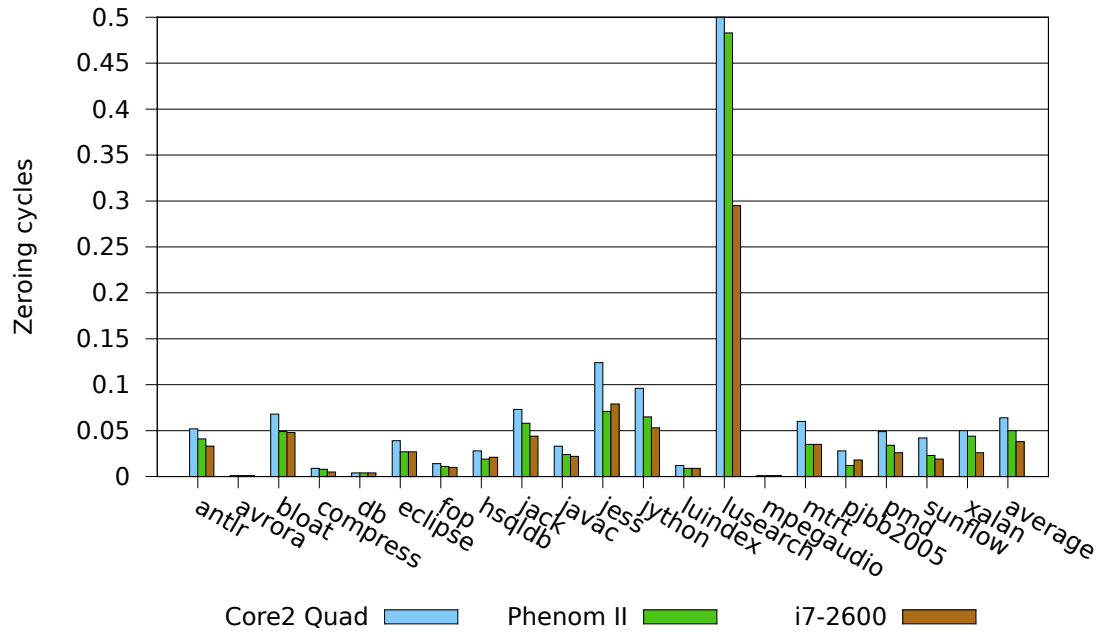
# Results

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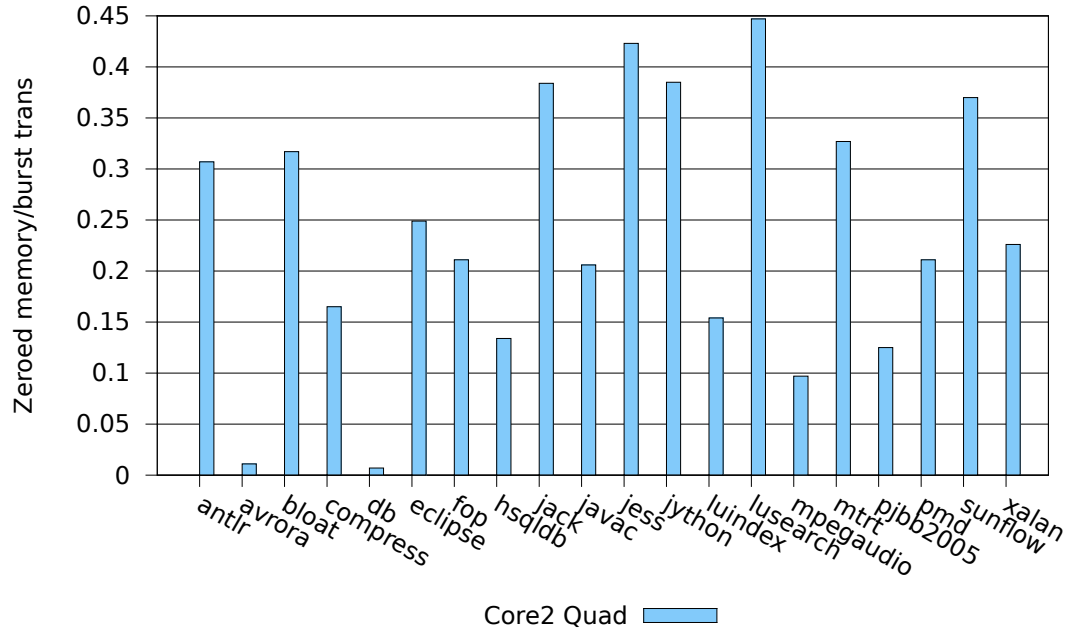
## 5.1 Direct Cost

Here is the example to show how to include a figure. Figure 5.1 includes two subfigures (Figure 5.1(a), and Figure 5.1(b));

## 5.2 Summary



(a) Fraction of cycles spent on zeroing



(b) BytesZeroed / BytesBurstTransactionsTransferred

**Figure 5.1:** The cost of zero initialization

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# Conclusion

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Summarize your work, state your main findings and discuss what you are going to do in the future in Section 6.1.

## 6.1 Future Work

Good luck.

