

# ENCE464 - Cachegrind

Cachegrind is a tool from the Valgrind suite of tools. It provides insight into how a program is performing with respect to both instruction and data caches. This can be used to diagnose the “hot-spots” when performing optimisations.

## OVERVIEW

- Check out the example code from <https://eng-git.canterbury.ac.nz/are111/ence464-cachegrind-lab>
- Read & make sure you understand what it is doing
- Use the ‘`valgrind --tool=cachegrind ./cache_example`’ command to see the caching behaviour of the good & bad implementation
  - This will produce a file called ‘`cachegrind.out.XXXX`’ where XXXX is the PID of the program.

## TODO

- Use `cg_annotate` to determine which function is performing poorly.
  - Use the ‘`--auto=yes`’ argument to determine what individual lines of code are doing
- Run `kcachegrind` to see a graphical interpretation of the output

## FURTHER READING

- `cg_annotate` and `cachegrind` are documented as part of Valgrind: <https://valgrind.org/docs/manual/cg-manual.html>
- KCachegrind has very good documentation available from <https://kcachegrind.github.io>