# Purpose

The checker.h and checker.cpp files support comparing both performance times and correctness results over time and across platforms and versions of the software.

# User interface

The rome3d command line has the following switches

|  |  |
| --- | --- |
| -checker\_i | File to compare against. |
| -checker\_o | File to write for future comparisons. |
| -checker\_test | The string describing the test being measured.  This is used for the column name (see below). |
| -checker\_ftrace | File to write an ftrace to. |

The files are .csv files that are read and written as the Checker code is executed.

* 1. The rows are named in the first column
  2. The columns are named in the first row

The Checker code does not interpret the names.

## Rome3D Naming Conventions

### Column Naming Conventions

For our purposes, each column is a specific platform and s/w-version combination. By comparing columns, we can see performance progress and verify correct values are various times in the execution. For example, the column name KNLbU\_n4p4t8-Rel\_2016Jun19a might mean a KNL rev b running Unix using 4 mpi nodes, each with 4 processes, with 4 threads/process, running the Release code checked out early on 2016 Jun 19.

As a proposal, we are trying HW platform / OS platform / Rome3D Version / Variant / Test, chosen from the following list and its obvious extensions

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| HW Platforms | OS Platforms | Rome3D Versions | Variants | Test (mrcs etc.) |
| i7-2600 | W Windows | yyyymmdd.# | B Best known | pdh |
|  | L Linux |  | X Experiment |  |
|  |  |  |  |  |

E.g.: i7-2600/W/20161219.1/B/pdh

### Row Naming Conventions

For our purposes, each row is some important measurement – execution time or data value - in the execution over time. The same row in several columns is comparable and reflects variations in correctness or performance.

# Usage in Rome3D

# Implementation

# Unit testing

In the Visual Studio Solution, there is a CheckerTest project.