LAPP
Laboratoire d'Annecy de Physique des Particules

Create a library : Asterics HPC

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ESCAPE
cta cherenkov telescope array
cnrs
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Where to get the minimal examples ?

Minimal repository :
`https://lappweb.in2p3.fr/~paubert/ASTERICS_HPC/ressource/build/Correction/ExampleMinimal.tar.gz`

Correction :
`https://lappweb.in2p3.fr/~paubert/ASTERICS_HPC/ressource/build/Correction/Examples.tar.gz`

Minimal example

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AstericsHPC

asterics_hpc
macro cmake

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make plot_all

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2-Saxpy

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3-Reduction

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Aims of Asterics HPC library

- To provide :
  - The **rdtsc** function (to time functions)
  - The aligned allocation/deallocation functions (needed for optimisation)
    - Table
    - Matrix
  - Some **CMake** macros to run and plot all the results automatically
    - **runExample(target)** and **runPythonExample(target dependency)** :
      To run executables with **make run_all**
    - **plotPerf("plotName" target1 target2 ...)** :
      To plot and compare results from different targets with **make plot_all**
  - The results are created in **build/Examples/Performances**
- C++ library : **asterics_hpc**
- Python module : **astericshpc**

This will simplify all the following examples.

The ReaD Time Stamp Counter (rdtsc)

Ask the CPU the number of cycles since the program's begining

64 bits version :

```
extern long unsigned int rdtsc(void) {
»       long unsigned int a, d;
»       __asm__ volatile ("rdtsc" : "=a" (a), "=d" (d));
»       return (d<<32) | a;
}
```