

CHPC Student Cluster Competition

Your assignment is to design a small cluster to the **value of \$25,000.00** and present your design to the judging panel. In your design you must **specify hardware and software for an operational cluster and describe how it functions**. The design must be based on servers and interconnects from Dell. **You must use the prices you find on the www.dell.com/en-us website, in USD.**

The primary purpose of your HPC cluster is to run **one** of the following codes as **efficiently as possible**:

- SWIFT: <http://swift.dur.ac.uk/>
- NAMD: <http://www.ks.uiuc.edu/Research/namd/>
- FENiCS: <https://fenicsproject.org/>

You are **not given a choice** regarding the application selection. Your team will be told which application to optimize for on **Wednesday**. For now you should investigate the codes above to understand their unique hardware and software requirements. You are **required to submit** a brief (half a page) report on your findings.

In addition, other considerations that you should take into account for your design are:

- Accelerators
- Ease of use
- Efficiency
- Performance
- Power consumption
- Reliability

The **10 minute slide presentation** by the **whole team** must include your design decisions and the features of your cluster, including: cost, hardware, software, configuration and operation. **Each member of the team is required to present** even though you will be assessed as a team.

After the presentation the judging panel will have an opportunity to ask questions to each member of your team. **All members of your team can be questioned** about any part of the cluster, so make sure you are fully familiar with the design.

Along with your slide presentation you must **submit a short technical brief** on your cluster which lists the specification and cost of each of the components in the design. The brief must **provide references** to the locations where you found the prices and specifications of the hardware.

Your team leader must email the team's presentation slides and technical brief to dmacleod@csir.co.za by **18:00 on Friday in PDF format**

Presentations begin at 8:00 on Saturday in the lecture venue. The order of the presentations will be drawn randomly.

Good Luck!

