African Regional School in

High Performance Computing on Linux Clusters

17 - 28 January 2005

KNUST, Kumasi, Ghana

Following the previous successful editions (2002 in Trieste and 2003 in Merida, Venezuela), a two-week School in "High Performance Computing on Linux Clusters" will be held at Kwame University of Science and Technology (KNUST), Kumasi, Ghana from 17 to 28 January 2005 as an African Regional Activity. The School will be directed by Stefano Cozzini (INFM, Democritos, Italy), Prof. Francis K.A. Allotey (Institute of Mathematical Sciences, Accra) and Prof. Kwesi Andam (Vice Chancellor, KNUST) with Prof. Allotey, Prof. E.A Jackson (KNUST, Kumasi), Philip Okyere (KNUST, Kumasi), Shiloh Osae (GAEC, Acrra, Ghana) and Philip Fosu Okyere (Siemens AG, Munich) as the local organizers.

PURPOSE AND NATURE

The availability of high-speed networks and increasingly powerful commodity microprocessors are making the usage of clusters (or networks of computers) an appealing vehicle for cost-effective parallel computing. Clusters, built using commodity-off-the-shelf (COTS) hardware components, as well as free, or commonly used, software, are playing a major role in redefining the concept of high performance computing. The School aims at providing the skills needed to benefit from this generation of HPC solutions, giving a basic knowledge of programming, administering and tuning, as well as building Linux-based clusters.

The programme will consist of the following topics:

- **Introduction to HPC and Linux O.S.**
- **Design and Building Linux Clusters**
- **Hardware solution for Linux Clusters (CPU and networks)**
- **Parallel programming techniques**
- **Beowulf and openMosix paradigms for Linux Clusters**
- **Optimization and profiling techniques for PC-based clusters**
- **System Management of a Linux Cluster**
- **Parallel file systems and I/O issues**

These lectures will be complemented by hands-on lab sessions where participants, grouped in small teams, will build their own cluster from scratch. During the School these clusters will be assembled, configured, tested and benchmarked.

A background in high performance computing and in the Linux operating system would be very desirable.
Students and young scientists **from African countries only** that are members of the UN, UNESCO or IAEA can attend the School. As the School will be conducted in English, participants should have an adequate working knowledge of that language. Due to the number of PCs available, the total number of participants is limited.

As a rule, travel and subsistence expenses of the participants are borne by their home institutions. However, limited funds are available for some applicants, to be selected by the organizers. As scarcity of funds allows travel to be granted only in a few exceptional cases, every effort should be made by candidates to secure support for their fare (or at least half-fare) from their home country. Such financial support is available only to those attending the entire activity.
There is no registration fee for attending the School.

The **Application Form** is obtainable from the ICTP WWW server: **http://agenda.ictp.trieste.it/smr.php?1640** (which will be constantly up-dated) or from the activity Secretariat. It should be completed and returned before **15 September 2004** to:

Regional School in HPC on Linux Clusters
(smr1640 - c/o Suzie Radosic)
the Abdus Salam International Centre for Theoretical Physics
Strada Costiera 11, 34014 Trieste, Italy
or
smr1640@ictp.trieste.it (please save and send file attachments in RTF format)

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DIRECTORS

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LOCAL ORGANIZERS

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DEADLINE

For requesting participation is

15 September 2004