

## **Minutes of the meeting held at Computer Centre on April 20, 2012, on formation of an HPC Research Group at IIT Kanpur**

List of people attended the meeting: Amalendu Chandra, Sanjay Mittal, Sanjeev K. Aggarwal, Mahendra K. Verma, Jayant K. Singh, R. Sankararamakrishnan, S. Manogaran, Madhav Ranganathan, Nisanth Nair, Rakesh Kumar, Raj Pala, Deepak Gupta, S.P. Rath, Praveer Dutt, Ashwani K. Thakur, Brajesh Pande, K.S. Singh

List of people who could not attend the meeting but informed Convener of the Meeting (Amalendu Chandra) through e-mail before the meeting that they would like to be included in the HPC Group: K. Muralidhar, Bhaskar Dasgupta, Arun Saha, Anandh Subramanian, Ratish Kumar, S.N. Tripathi, Goutam Deo

The Convener of the Meeting first made a brief presentation on the need for a formal HPC Research Group, current usage of HPC facility, HPC-related infrastructural installations in recent times and also on ongoing work at the Computer Centre on the new Data Centre (See the Annexure). He proposed the following points for discussion at the end of his presentation:

1. Members and convener of the Group if it is generally decided to form such a Group.
2. Immediate work to be done by the Group: a) Proposal for second phase of the DST HPC project, (b) An HPC proposal for submission to the Institute.
3. Discuss the possible links between HPC activities to the new Research Complex. This requires coordination of the HPC Group with DORD and IRDC of the Institute.

The following two points were also proposed to be added for discussion by some of the members:

4. Sharing of expertise among HPC researchers (including students)
5. Academic program in the area of HPC at IIT Kanpur

Subsequently, long discussions took place on the above mentioned points, a summary of which is given below.

1. It was decided to form an HPC Research Group. The list of members include all who were present at the meeting and also those who could not come to the meeting but expressed their desire to participate in such a Group (see the list given above). Amalendu Chandra agreed to act as the Convener of the Group for a period of one year.
2. Sanjay Mittal, PI of the ongoing HPC Project, agreed to coordinate the work on preparation of the second phase of the proposal for submission to DST after July 2012. He would also coordinate the work on the second proposal for submission to the Institute at the same time. All members of the Group are expected to provide materials and other logistical support to him for preparation of these proposals.

3. The item on linking HPC activities with the new Research Complex will be placed again for discussion in the Group in one of its future meetings. This item could not be discussed in details in the present meeting due to lack of time.

4. On the matter of sharing of expertise among researchers, the members were informed that already an e-mail based forum exists where HPC account holders can shoot an e-mail to [hpc@lists.iitk.ac.in](mailto:hpc@lists.iitk.ac.in) for any hpc-related queries. In addition to this, the members suggested to have (i) a wiki based discussion forum (ii) monthly seminar on HPC and (iii) poster presentation by students at the end of every semester, (iii) regular workshops by students on coding.

5. The members appreciated the importance of having academic programs in HPC at IIT Kanpur. Several possibilities were discussed: (i) academic programs at masters and doctorate levels, (ii) minor in HPC at undergraduate level, (iii) creation of an IDP on HPC, (iv) summer/winter schools and short courses on HPC. The members felt that having an academic program at undergraduate/graduate levels can be considered as a long-term goal since that will require approvals at several forums of the Institute including Senate, The short courses and winter/summer schools on HPC can be conducted without much difficulty. In addition, it was also noted that many departments already offer a sizeable number of courses in the broad area of HPC in regular academic semesters which our HPC students at masters and doctorate levels can be encouraged to attend.

The Convener informed the members that he would formally inform DORD about the formation of the HPC Research Group very soon. He also appealed to all members to actively contribute to take the current HPC initiative to its next phase.

The meeting ended with thanks to the Convener.

A. Chandra

## **Annexure**

**Presentation made by Amalendu Chandra, Head CC, at the Meeting on  
Formatioin of an HPC Research Group held on April 20, 2012**

**Welcome to the meeting on formation of  
an HPC Research Group at IITK**

# Why HPC Research Group?

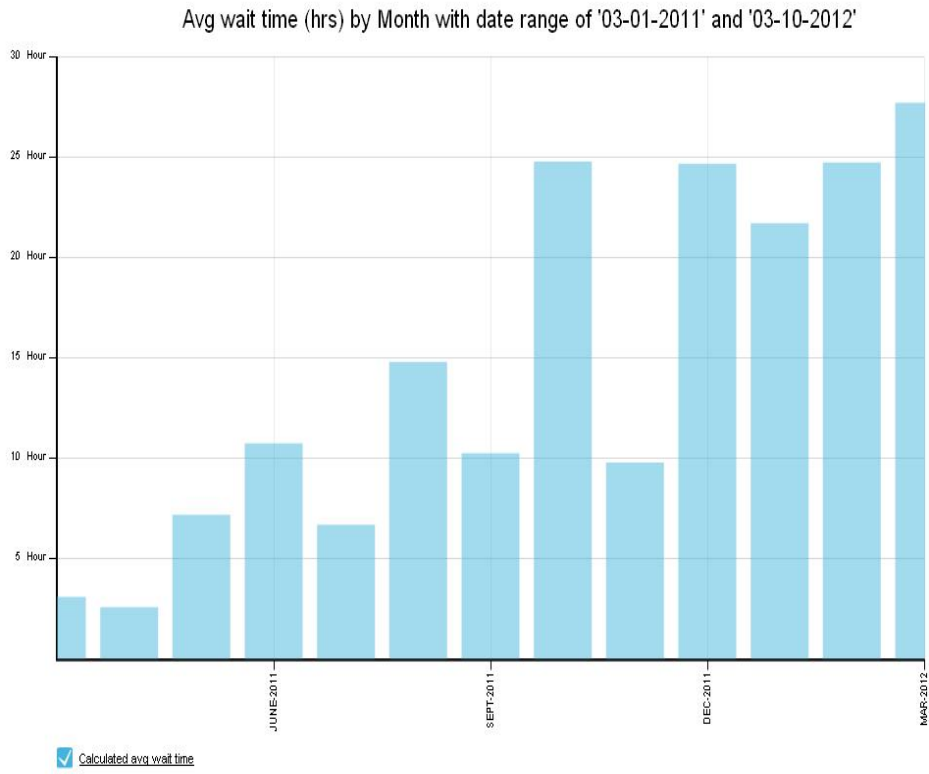
- A large number of faculty members are involved in research in the area of HPC
- An informal group consisting of about 10-15 faculty members already exists
- Presence of a formal HPC Group would lead to better coordination at Institute level and also with outside agencies
- Such a Group is also required to take the current HPC initiative to its next level

## Current HPC Facility at Computer Centre

An HPC Cluster with about 375 nodes  
(3000 cores) with high speed interconnect.  
Purchased in 2010 with support from DST  
and IITK)



## Current usage of the HPC cluster





## **Other HPC-related installations that took place in recent times**

**New UPS**

**New Electrical Transformer**

**New DG Sets**

**New Control Panels**

**New Electrical Cables**



## **Work in Progress at CC (Data Centre)**

- Chiller Plants and Precision Airconditioning Systems for three new server rooms
- Fire Safety (including automatic Fire Suppression) Systems
- Access Control System
- Building Management System

**Data Centre will be operational in about 4 months**

**Backbone of Campus Network is being upgraded to 10 Gbps from 1 Gbps**

# Road Ahead

- Look for resources to upgrade the existing HPC facility
- Second phase of the current HPC project
- New HPC projects
- CC may be able to spend some money on upgrading HPC in 2012-13 (may be around 2 crores) but that's not enough.

## **Agenda items of today's meeting on formation of an HPC Group**

1. Members and Convener of the Group
2. Immediate work:
  - a) Proposal for the second phase of the DST HPC project
  - b) An HPC proposal for submission to the Institute.
3. HPC activities < ---- > New Research Complex (coordination with DORD and IRDC).
4. Any other items