

Cluster configurations

Head node: There should be one head node identical to the compute nodes and should have 12TB or more of disk space and should be NFS mounted on all nodes.

Compute nodes: Intel Xeon 8 core or higher, 2.6 GHz or higher, 1600 MHz Max Memory speed, or higher. 20 MB Cache or higher, Dual processor with capability to support at least 32 GB memory per node. Local disk: 500 GB or more. Total Number of cores: 256

Interconnects: Infiniband 4X QDR speed Interconnect Fabric and a Gigabit interconnect for managing the compute nodes

Memory : DDR3 8 GB DIMMS of 1600MHz or more, total 544 GB.

Software : Open source linux and clustering software

Installation : Installation of Hardware and Software to the satisfaction of the customer

High Performance Computing at IIT Madras, Chennai , India

IIT Madras plans to add a 256 core cluster to the HPC facilities to facilitate beginners of parallel computing.

This HPC activity will involve several faculty members, undergraduate students, M.Sc students and project staff. The faculty, students, and project staff will work closely with the OEM (of the equipment supplied) in application development and tuning, to make maximum use of the facilities created.

Some of the areas of research, that will be taken up under HPC activity, are computational biology, computational fluids dynamics, computational chemistry, wireless communication simulations, computational combustion, ocean hydrodynamics, multiphase / free surface flow - structure interaction, high performance CAD for VLSI design, climate modeling, computational material science.

Available physical resources in P.G. Senapathy Center for computing resources

- Sufficient UPS power and A/C are available
- One 42 U rack is also available

ELIGIBILITY : Only OEMs can participate in the bidding. Each OEM can partner with only one vendor and vice versa. Vendor should have significant experience in integrating the necessary hardware and cluster management software to build clusters of minimum 256 cores or more. Proof / contact details of the installation to be submitted along with the technical bid.

Parameters for technical qualification of the bid.

1. Maximum power requirement (at peak load) is to be specified by the vendor
2. Vendors should indicate the LINPACK maximum and sustained teraflop performance (Rmax and Rpeak) for the cluster and the sustained write performance for the file systems.
3. There should not be a single point of failure in entire solution including nodes, arrays, controllers, cards, disks, switches and power supplies.
4. Vendors should certify that following applications should run on the cluster: Abaqus, Fluent, Gambit, Gaussian, Nastran, Dytran, Marc,Ansys, icem-cfd, namd, lammgs, gromacs, amber,Accelerys, matlab.
5. Support: The vendors should guarantee that any technical faults of the cluster can be attended within 3 hours and that down time is never more than 24 hours. They should specify the local technical support available to meet this target and should specify a single point of contact.

6. All nodes should have 3 X PCI-E 3.0 (X16) slots for supporting 3 X GPU/MIC cards and all nodes should have adequate and necessary power supplies for supporting 3 cards (GPU/MIC)
7. Any third party involved in delivery, installation and maintenance, should be fully certified by the OEM.
8. Any other item mentioned in cluster configurations.

General conditions.

1. Acceptance test of the cluster will be carried out against all the tender specifications including the LINPACK maximum and sustained performance , agreed upon by the vendor in the PO.
2. Benchmarks for all the applications, provides by the vendor in the technical bid, should be demonstrated at the time of acceptance test.
3. Delivery time for the cluster, from the date of issue of the PO, should be indicated by the vendor.
4. Maximum allowed integration time for the cluster and storage will be 10 days from the date of delivery.
5. The period of warranty will be for four years from the date of acceptance.
6. IIT Madras is exempted from the payment of Excise Duty and eligible for concessional rate of Custom Duty. Necessary certificate will be issued on demand. IITM will make necessary arrangements for the clearance of imported goods at Airport/Seaport. Hence the price should not include the above charges.
7. Payment shall be made up to 90% of the equipment cost through LC and balance amount will be made upon satisfactory installation.
8. No advance payment will be made for indigenous purchase. 100% payment against delivery and installation in respect of computer systems for local purchase can be agreed to .
9. During warranty period the vendors will attend to any complaint such that the cluster is restored to operational condition within 24 hours and the full performance is restored within 72 hours.
10. Vendors to indicate the AMC value, for the fifth year onwards, for labor only, and for labor and parts. The vender awarded the P.O is expected to abide by this price if AMC is invoked.
11. Total power consumption, electrical requirements and air conditioning requirement of the cluster should be specified by the vendor.



**Indian Institute of
Technology Madras**

Chennai - 36

**Open Tender No.
BIO/SAN1/021/2013**

Sealed tenders in two-cover
system are invited from eligible
suppliers.

**Scope of Work
Supply of
Computer Cluster**

Eligibility criteria and Tender
documents may be downloaded
from

<http://tenders.iitm.ac.in/>
on or after 05.12.2013.

**SPECIAL OFFICER
(PROJECT PURCHASE)**

3.5 X 6 CM