



INDIAN INSTITUTE OF TECHNOLOGY BOMBAY
MATERIALS MANAGEMENT DIVISION
Powai, Mumbai - 400076

Technical Specification :

High-Performance Compute cluster solution (Computing nodes)

Tenders are invited for a High-Performance Compute cluster solution at the Department of Chemistry, Indian Institute Technology Bombay, Mumbai. The proposed designs should adhere to the specifications given below :

The overall cluster design should include the following computing nodes of the specified configuration. Detailed specifications are as given below :

1. Computing Nodes (Quantity 1) – Large RAM and Large HDD node

Processors	Dual Intel Xeon Scalable 6252 with at least 16 cores per CPU socket and 3 GHz Clock frequency
Memory	768 GB , 2933 MHz, Perfectly balanced memory configuration
HDD	1 x 8 TB per NLSAS disks with a minimum of 7.2k rpm.
Network	2 x Dual Port 1Gbps Ethernet network adaptor and one management port
Power supply	Redundant Power supply and redundant hot-plug fans and appropriate number of properly configured power distribution units (PDUs)
Port	Minimum USB 2.0
OS	Linux {CentOs} HPC version (64 Bit)
Type	Rack-mountable (1U or better) enclosures with a maximum of 12 kVA power input per rack
Warranty	5 years of warranty on all supplied hardware directly by OEM
Internal HDD	5TB of a usable internal file system to be provided for this node with SAS or SSDs. The overall storage system should be able to deliver 1Gbps of aggregate throughput (80% read & 20% write). This 5TB is internal HDD will be used for internal scratch exclusively for this node. The 5 TB storage should be mounted natively to the server as a single LUN as EXT4 / EXT3 file system. The disks should be configured with a RAID 6 adapter with 8 GB cache to ensure protection against failure of 2 disks simultaneously.

2. Computing Nodes (Quantity 4) – Regular Nodes

Processors	Dual Intel Xeon Scalable 6252 with atleast 16 cores per CPU socket and 3 GHz Clock frequency.
Memory	384 GB , 2933 MHz, Perfectly balanced memory configuration
HDD	1 x600 GB per NLSAS disks with a minimum of 10krpm.
Network	2 x Dual Port 1Gbps Ethernet network adaptor and one management port(for PFS it is 10 Gbps).
Power supply	Redundant Power supply and redundant hot-plug fans and appropriate number of properly configured power distribution units (PDUs)
Port	Minimum USB 2.0
OS	Linux {CentOs} HPC version (64 Bit)
Type	Rack-mountable (1U or better) enclosures with a maximum of 12 kVA power input per rack
Warranty	5 years of warranty on all supplied hardware directly by OEM

3. Accessories

- Make Hitech/Server OEM- 2m Green Cat6 Cable required numbers(2 per no. min.)

Installation terms and conditions:

Successful vendors/OEM needs to install the procured nodes to the existing HPC cluster in the group (Bill of Material for the existing cluster is available on request). The existing cluster has a master node and 32 compute nodes of specification mentioned in option 2 above along with 15 TB of parallel file system (GlusterFS installation). The additional nodes procured will be installed on top of this cluster sharing the 15TB of PFS already available. For option 1, the 5TB additional HDD will act as a standalone scratch only for that node. Since Rack space for the nodes are in place, no additional racks are solicited. The vendors/OEMs also should ensure that the software installation is smooth for both the new and the old nodes .i.e. proper functioning of the entire cluster including the existing components are the responsibility of the Vendors/OEMs. **Solution offered thus should be comprehensive and turnkey.**

Terms & Conditions:

1. Bidder can quote both in INR & DOLLAR. Taxes, duties, etc to be clearly mentioned. For the compute nodes (specification 2 above), it is mandatory to provide **per node price(separately for item I and II)** along with the as per the above specifications. We have the right to increase or decrease the number nodes required as per our requirement at the opening stage of the tender.

2. Complete installation and commission of the HPC Cluster Computer system to be done by the bidder. The quotations should be submitted with a clear Scope of Work.
3. Bidders should be Reputed OEMs or Authorized Partners. If Bidder is the Authorized Partner/SI; they should submit valid Manufacturer Authorization Letter in their quotation for this specific bid.
4. The OEM should have an India office operation and service centre of their own in the country. Documentary proof for the same to be submitted.
5. All hardware and software should be quoted with 5 years warranty (24 X 7 with 4-6 hrs telephonic response). Undertaking from OEM of 5 years comprehensive onsite warranty.
6. Details of the Power and Cooling requirements for the proposed systems should be submitted. Power socket details should be provided.
7. A detailed compliance sheet has to be submitted in accordance with the above specifications. Any deviations have to be highlighted and details to be mentioned.
8. The quotation should also consist of all the necessary data-sheets and brochures.
9. Any deviations from the above points the bidder will be disqualified and their bids will not be considered.

Eligibility Criteria of Bidders

- (i) Bidder should be OEM/Authorized Partner /service provider of the OEM and a Letter of Authorization from OEM on the same and specific to the tender should be enclosed. The OEM/bidder should be ISO 9001 certified (Maintenance & System Integration). Please attach a copy of the certificate.
- (ii) The bidder shall provide the Registration number of the firm along with the LST/ CST/ WCT No. and the PAN Number allotted by the concerned authorities.
- (iii) The bidder must have experience of executing similar orders of HPC in India. The bidder must enclose documentary evidence of supplying and integrating minimum of 3 orders of HPC cluster of their own or of an OEM within the last 3 financial years for any organization. Bidder should also have experience in Gluster FS file system in past.
- (iv) An undertaking from the OEM is required stating that they would facilitate the bidder on a regular basis (Every 3 months) with technology/product updates and extend support for the warranty as well.

- (v) The Quoted OEM (direct or via bidder) should have at least 10entry in the latest www.top500.org (**Bidder may selected according, no need to mention it separately**) and the vendors should be experience in installing such clusters in the past.

Warranty and support

- a) The vendor should provide complete turnkey solution.
- b) The vendor shall be responsible for round-the-clock operation and services for five years from date of start of operation and shall provide an undertaking for the same at the time of submitting the tender.
- c) All equipment / components should carry an onsite warranty of five years.
- d) The installation should be done by certified and trained engineers followed by comprehensive user training.