INDIAN INSTITUTE OF TECHNOLOGY KANPUR
Department of Mechanical Engineering

Enquiry No: Enq/ME/JB/01
Enquiry Date: 03/07/2015
Last Date of Submission: 17/07/2015

Formal quotations are invited for HPC cluster. Sealed quotations have to reach in the following address by the last date & time as mentioned above:

> Dr. Jishnu Bhattacharya
> Department of Mechanical Engineering
> Indian Institute of Technology Kanpur
> Kanpur, 208016, India

Detailed specifications are given below. The following points may kindly be noted and technical compliance should be clearly stated in the quotation:

• Bidder should be OEM/Authorized Partner/service provider of the OEM and a Letter of Authorization from OEM for the same and specific to the tender should also be enclosed.

• The vendor/OEM should have installed at least 5 compute clusters for 12 compute nodes each in India during last five years. Details of these previous installations must be provided. In addition, vendor should provide a guarantee for clustering and also for application software integration.

• The vendor should give the power and cooling requirements for the cluster solution along with the proposal. Requirement for minimum cooling and power would be preferred

• Warranty period (minimum 3 years comprehensive on-site warranty on complete High Performance Computing stack) should be mentioned.

• The vendor is also required to maintain integration of licensed software (if any) with the cluster throughout the warranty period.

• The Unit Prices should be quoted for every component and the prices can be in INR or in valid foreign currencies (e.g. US Dollar). For INR quotations, delivery should be up to IIT K. For foreign currency quotations rates must be for CIF New Delhi. Sales Tax, VAT and any other applicable charges should be mentioned.

• Quantity may increase or decrease at the discretion of IIT.

• Installation and maintenance charges should be mentioned. This should not be bundled in product pricing.

• Vendors are required to quote per node cost for compute server.

• Terms and Conditions, and deviations should be clearly stated with the signature of the responsible person.

SPECIFICATIONS

Component	Specifications
Master Node - 1 nos.	
Form Factor	1U / 2 U Maximum, Rack Mount. One chassis should contain one node only. (No Dense Architecture)
Processor	2X Intel ® Xeon® Processor E5-2640 v3 (8C/20MB Cache, 2.60 GHz
RAM	64 GB DDR4 ECC 2133MHz memory (4*16GB) Scalable to 1536GB DDR4 ECC 2133MHz or higher with 24 dimm slots
DVD Drive	1 drive writer should be present
Storage	4 x 2 TB NLSAS/SATA HDD 7200 RPM, hot-plug drives with hardware RAID-0, -1, -10,5,6 ;
Ports	2x Gigabit Ethernet Port and1 x 40Gbps Intel Infiniband Port.
Slots	Total 3x PCIe 3.0 slots
Power Supply	Redundant & hot plug power supply with Hot-Swappable fan.
Management	Remote Management Port with IPMI 2.0 Support. It should provide the Integrated Lights-Out Manager (ILOM) or equivalent, Service processor with GUI etc. If any licence is required for this, the same should be included with 3 years support. Power consumption monitoring and control should be available. Power consumption history for 1 year to be available. Power consumption monitoring and control should be available. Power consumption history for 1 year to be available.
Certification	Server should be certified for RHEL / SUSE Linux
Warranty	3 Years Std OEM Warranty
Support	All the components of the Server should be from the same OEM. Detailed BOM of the server with OEM part code should be submitted.
Accessories	1x 18.5'' LCD monitor
	1x keyboard
	1x mouse

Compute Nodes - 12 nos.	
Form Factor	1U/2U Maximum, Rack Mount. One chassis should contain one node only. (No Dense Architecture)

Processor	2X Intel ® Xeon® Processor E5-2640 v3 (8C/20MB Cache, 2.60 GHz
RAM	64 GB DDR4 ECC 2133MHz memory (4*16GB) Scalable to 1536GB DDR4 ECC 2133MHz or higher with 24 dimm slots
Storage	1 x 1 TB HDD
Ports	2x Gigabit Ethernet Port and1 x 40Gbps Intel Infiniband Port.
Slots	Total 3x PCIe 3.0 slots
Power Supply	Redundant & hot plug power supply with Hot-Swappable fan.
Management	Remote Management Port with IPMI 2.0 Support. It should provide the Integrated Lights-Out Manager (ILOM) or equivalent, Service processor with GUI etc. If any license is required for this, the same should be included with 3 years support. Power consumption monitoring and control should be available. Power consumption history for 1 year to be available. Power consumption monitoring and control should be available. Power consumption history for 1 year to be available.
Certification	Server should be certified for RHEL / SUSE Linux.
Warranty	3 Years Std OEM Warranty
Support	All the components of the Server should be from the same OEM. Detailed BOM of the server with OEM part code should be submitted.
Infiniband QDR Switch - 1	
	36 ports 4x QDR Infiniband switch configured in 100% non-blocking Fat Tree Topology to support servers in solution
	Compatibility with OFED (OpenFabric Infiniband stack), OpenSM and OpenMPI; should provide full quoted performance on open source software (Linux-OFED-OpenMPI)
	19" rack mountable.
	All software/firmware/drivers should be supplied.
	Appropriate length QSFP Cable to be supplied. Numbers and length should be specified in the quotation.
	IB Cards and Switch should be of same Make and compatible.
Ethernet switch - 1	
	48 Port or higher port 10/100/1000 Mbps Ethernet switch with auto sensing of link speed on all ports
	19" rack mountable
	Appropriate length cables to be provided; numbers and length should be specified in the quotation
Software	
Operating System	Open source Linux Operating System
Cluster management tool	Cluster management tool should support GUI and High Availability feature. Necessary software and hardware related to the same to be provided.

Scheduler	Open Grid Engine or equivalent.
Libraries	All required open source library to be provided. Intel compilers will be provided by IIT-Kanpur and to be integrated by the vendor in the HPC cluster.
Services	Vendor should do cluster implementation and application integration to cluster and support the installation during warranty period.