INDIAN INSTITUTE OF TECHNOLOGY KANPUR
Department of Mechanical Engineering

Enquiry No: Enq/IITK/ME/JB/02
Enquiry Date: 14/12/15
Last Date of Submission: 21/12/15

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

> Manoj Sharma
> 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 should have installed at least 5 compute clusters for 24 compute nodes or more in India during last five years and at least 1 HPC cluster of 6 nodes or more to be installed at IIT-Kanpur during last 1 year. Details of these previous installations must be provided. In addition, vendor should provide a guarantee for clustering and also for application software integration.

- Bidder should have implemented minimum 5 Nos of 10TF or more system in India during last 5 years of which one has to be from Govt research and defense segment. IR Copies to be provided along with the bid.

- The bidder should be financially sound to execute the order, its annual turnover of at least 10 Crores each in the last three financial years.

- International OEM with 5 entries in the top500 (www.top500.org) list latest by Nov 2015 release should only quote.

- Heat load per rack should be less than or equal to 12 kW. 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.

- We have standard 42U server rack of dimension 2006 mm × 598 mm × 1125 mm (H×W×D) with PDU in our Data Center. The cluster should be installed in this rack. If offered solution does not fit in this rack, the vendor should provide the rack compatible to the solution.

- Bidder should have valid VAT Registration in North Region. Bidder should provide proof for the same.

- OEM should have support center in India.

- 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 preferably 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.

- Bidder should have support center in North Region with at least 5 HPC support engineer on company pay roll for last 3 years and minimum 3 of them based out of North.

- 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.

- Quotations should be submitted in two parts:

  - Part-I (Technical) should contain all the technical details cum specifications of the offered solutions.
  - Part-II (Financial) should contain the prices of the offered solutions along with the commercial terms and conditions. The prices should be quoted separately for each item.

- Delivery period will be 8 weeks.
- IIT Kanpur is exempted from excise duty.
- IIT Kanpur is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%)

SPECIFICATIONS

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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) 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 ; System should support up to 8 hard disk drive
Ports	2x Gigabit Ethernet Port and1 x 40Gbps Intel Infiniband Port, 8 USB Ports, 1 VGA, 1 serial (9Pin), 2 x 10Gb with SFP+ , 4x 1Gb ports and 1 Dedicated 1G Service LAN for Management(IPMI 2.0 Compliant).
Slots	Total 4x 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.
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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. The OEM should have sales and support setup in India for last 7 Years
Driver and Firmware	Management software, Drivers and Firmware should be available for download even after server warranty period.
Compliance	ROHS, WEEE, CSAc/us, FCC Class A, CE Class A, CB

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, System should support up to 8 hard disk drive
Ports	2x Gigabit Ethernet Port and1 x 40Gbps Intel Infiniband Port, 8 USB Ports, 1 VGA, 1 serial(9Pin), 2 x 10Gb with SFP+ , 4x 1Gb ports and 1 Dedicated 1G Service LAN for Management(IPMI 2.0 Compliant).
Slots	Total 4x PCIe 3.0 slots
Power Supply	Redundant & hot plug power supply with Hot-Swappable fan.
Driver and Firmware	Management software, Drivers and Firmware should be available for download even after server warranty period.
Compliance	ROHS, WEEE, CSAc/us, FCC Class A, CE Class A, CB
Management Software	Management software should have below features as standard or if any license is required for below features should be provided. • System management tools should be from the same OEM. • Event Management, Threshold management, Asset Management, Performance Management. • Prefigures analysis, Automatic System Recovery and restart. • Monitoring and control power consumption • Raid Management, Storage management. • Update Management (Bios and Firmware), Online Diagnostics, •Power Consumption Monitoring, Power Consumption Control should be provided. •Power Consumption history can be pulled.
InfiniBand QDR Switch - 1	
	18 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	Proposed Cluster management tool should be commercially licensed and supported. It should support GUI and High Availability feature on master nodes. Necessary software and hardware related to the same to be provided. Authorization from software ISV to be provided. With 3 years Support From OEM directly.
Scheduler	Open Grid Engine
Libraries	All required open source library to be provided.
Services	Vendor should do cluster implementation and application integration to cluster and support the installation during warranty period. Vendor should also integrate the existing compilers at IIT kanpur for better performance.