

**INDIAN INSTITUTE OF TECHNOLOGY KANPUR**  
Materials Science and Engineering

Enquiry NO: MSE/10/02/2017  
Enquiry Date: 10<sup>th</sup> February, 2017  
Revised on: 21<sup>st</sup> February, 2017  
Submission Date: 27<sup>th</sup> February, 2017 by 16:00Hrs

Formal quotations are invited for a HPC cluster. Terms and conditions, as well as technical specifications are mentioned below. **Technical and Commercial quote must be submitted separately in sealed envelopes.** Quotations should be sent at the following contact address on or before 27<sup>th</sup> February 2017, 16:00 Hrs.

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**Terms and conditions:**

- The vendor should have installed at least five HPC clusters/servers in central government organizations in India in last five years. Details of these previous installations must be provided. International OEM with at least 10 entry in top 500 organizations should only quote.
- OEM should have support center either directly or thru authorized legal distributor/service partner in Kanpur/Lucknow (preferably) or Delhi.
- In addition, vendor should provide a guarantee for application software (Intel compilers, FFTW, openMPI, LAMMPS, Quantum Espresso) integration.
- Installation and maintenance charges should be mentioned separately.
- **Vendors must provide pricing on a per node basis for compute nodes.** The number of compute nodes may increase or decrease based on the pricing. Failure to comply with this might lead to disqualification.
- The prices should be quoted separately for each item.
- Equivalent (or better) hardware/software can be allowed at the discretion of IIT. However, in such cases, the vendor must provide sufficient justification for the deviation from the specifications given here.
- Warranty period (**at least 3-year parts, 3-year labor, 3-year onsite support with next business day response**) should be mentioned.
- Quotations must be valid for at least 90 days.
- Delivery period should not be more than 8 weeks.

- Payment terms will be as per IIT Kanpur rules.
- The institute reserves the right of accepting or rejecting any quotations without assigning any reason thereof.
- Maximum educational discount should be offered and mentioned.
- The ordered quantity of items may increase/decrease as per the discretion of IIT Kanpur.
- The quoted prices can be in INR or in valid foreign currencies (e.g. US Dollar). For INR quotations, delivery should preferably be up to IITK. For foreign currency quotations rates must be for CIF New Delhi. Sales Tax, VAT and any other applicable charges should be mentioned.
- IIT Kanpur is exempted from excise duty.
- IIT Kanpur is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%).

### **Technical Specification:**

#### **ITEM 1**

Master node (Quantity - 1)	
Form Factor	1U/2U Rack Mountable. One chassis should contain one node only. (No Dense Architecture)
Motherboard	Dual Xeon compute module with <b>8x (or more)</b> DIMM slots, video, FDR IB, 10x SATA, Dual GbE, IMPI capable.
Processor	2 X Intel® Xeon® Processor E5-2630 v4 (10-Core, 2.2GHz, 25M L3 Cache, 8 GT/s Intel® QPI)
Chipset	Intel® C612 Chipset
RAM	4X16GB ECC Reg. DDR4 (2133 MHz); <b>expandable upto at least 256 GB</b>
RAID	SATA 3, 6Gbps with RAID 0/1/5/10
SSD	1 x 480 GB Data Center (SATA 3.0, 6 Gb/s interface) 2.5” solid state drive or better. (Intel make only and SSD Model to be specified).
HDD(s)	<b>4 x 2000GB (or more)</b> , 7200 RPM Enterprise SATA hot-pluggable HDDs.
Networking	On Board Intel® i350 (or equivalent) Dual port GbE LAN
Infiniband	1 x Single Port Mellanox ConnectX-3 FDR InfiniBand with QSFP interface
Management	Integrated IPMI 2.0 module, Integrated management controller providing iKVM and remote disk emulation.
Graphics	On-board graphics using server grade graphics controller.
I/O slots	1 (or more) PCI-E 3.0 (x16), 2 (or more) PCI-E 3.0 x8 slots, 2x RJ-45 Lan Port, 1x RJ-45 Dedicated IPMI Lan Port, 2x USB 3.0, 1 x VGA port, <b>1x Serial port (optional)</b> .
Power Supply	Minimum 2 x 700W, 1+1 redundant power supplies.

Fan	Redundant and hot swap.
OS	Compatible with RHEL/CentOS latest version.

## **ITEM 2**

Compute nodes (Quantity - 5)	
Form Factor	1U/2U Rack Mountable. One chassis should contain one node only. (No Dense Architecture)
Motherboard	Dual Xeon compute module <b>with 8x (or more)</b> DIMM slots, FDR IB, IMPI capable.
Processor	2 X Intel® Xeon® Processor E5-2650 v4 (12-Core, 2.2GHz, 30M L3 Cache, 9.6 GT/s Intel® QPI)
Chipset	Intel® C612 Chipset
RAM	4X16GB ECC Reg. DDR4 (2400 MHz); <b>expandable upto at least 256 GB</b>
SSD	1 x 240 GB Data Center (SATA 3.0, 6 Gb/s interface) 2.5” solid state drive or better. (Intel make only and SSD Model to be specified).
Networking	On Board Intel® i350 (or equivalent) Dual port GbE LAN
Infiniband	1 x Single Port Mellanox ConnectX-3 FDR InfiniBand with QSFP interface
Management	Integrated IPMI 2.0 module, Integrated management controller providing iKVM and remote disk emulation.
I/O slots	1 PCI-E 3.0 (x16), 1 (or more) PCI-E 3.0 x8 slots, 2x RJ-45 Lan Port, 1x RJ-45 Dedicated IPMI Lan Port, 2x USB 3.0, 1 x VGA port, <b>1x Serial port (optional)</b> .
Power Supply	Minimum 2 x 700W, 1+1 redundant power supplies.
Fan	Redundant and hot swap.
OS	Compatible with RHEL/CentOS latest version.

## **ITEM 3: Infiniband Switch – 1**

1. **12 (or more)** ports FDR Infiniband switch.
2. Compatibility with OFED (OpenFabric Infiniband stack), OpenSM and OpenMPI; should provide full quoted performance on open source software (Linux-OFED-OpenMPI)
3. 19” rack mountable.
4. All software/firmware/drivers should be supplied.
5. Appropriate length QSFP Cable to be supplied. Numbers and length should be specified in the quotation.

6. Official OEM support to be included for Infiniband Switch for all three years of warranty.

**ITEM 4: Ethernet switch – 1**

1. 24 Port or higher port 10/100/1000 Mbps Ethernet switch with auto sensing of link speed on all ports.
2. 19” rack mountable.
3. Appropriate length cables to be provided; numbers and length should be specified in the quotation.