Enquiry No: IITK/ME/mkdas/2016/01 **May 04, 2016**

Quotations invited

Sealed quotations are invited for the purchase of an **HPC cluster** with the specification outlined below. **Technical as well as the commercial quotations must be sent separately in sealed envelopes**. Quotations may be sent by post/courier to the above mentioned address. The details of the requirement are mentioned below.

- Opening date: 1000hrs, May 04, 2016
- Closing date: 1700hrs, May 23, 2016

Installation and Warranty

1. **Installation and integration of all supplied hardware and software shall be done by the vendor.**

2. **The supplied hardware should have 5 years comprehensive onsite warranty (24 x 7 call logging) from OEM directly.**

3. The vendor shall conduct acceptance test of the supplied solution at the installation site and demonstrate the functionalities as per specifications including benchmark results.

4. The 5-year warranty support is also for all supplied software including OS, compilers, system software, application software, HPC stack, etc. The support includes all patches, bug-fixes and upgrades.

5. If unresolved issues are pending, warranty duration would be extended till satisfactory resolution of issues without any extra cost to IIT Kanpur.

Terms and Conditions

1. **The bidder must be either OEM of HPC who is willing to undertake total scope of work OR an authorized system integrator (SI)/dealer/distributer of the OEM of HPC.**

2. **The tenderes must enclose authorization certificates specific to this enquiry from each of the OEMs whose equipment forms part of the offered HPC solution.**

3. **The OEM Submitting the proposal should be in the Top 500 list since last 3 years, they should have 5 or more clusters Installed in India out of which at least one cluster should be minimum of 25 TeraFlop rating. Details of these installations must be provided.**

4. **The OEM must have min 01 HPC installations within India in the Top Indian Supercomputing sites maintained by the IISc, Bangalore. Details of these installations must be provided.**

5. **The Quoted OEM should be in Leaders Quadrant of Gartner Report.**

6. **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.**

7. **The price details of each hardware & software item (Unit price) must be provided separately.**

8. 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 tenders are liable to be rejected.

9. Bidder must submit Power and Cooling arrangements required for the proposed solution or any other additional hardware/software for proposed solution if require. Partial response to this tender will be summarily rejected.

10. The systems offered must be latest products from the manufacturers. Obsolete/ retired/ on the verge of obsolescence systems/ subsystems must not be offered. Products going end-of-life in 12 months from last date of tender must not be quoted.

11. **All equipment must be compatible with Indian electrical standards and codes. Engineering documentation on the weights of all major and minor components must be submitted as per physical sizes.**

12. Bidder should have atleast 1 years of proven experience in installation and managing HPC setups.

13. The bidder/OEM should also have 2 years experience of annual maintenance for HPC infrastructure projects.

14. The firm/company should be ISO 9001 certified (Maintenance & System Integration). Please attach a copy of the certificate.

15. **Server OEM should have direct support center in Kanpur/Lucknow/Delhi.**

16. Software and optional hardware items which will be supplied free and which will be charged for, should be indicated separately. Restrictions on software usage, if any, should also be indicated.

17. Complete technical information of the solution (hardware, software, network, etc) must be provided for each item separately to ensure that the equipment offered is in conformity with the specifications.

18. The vendor must submit technical compliance report for all the specifications. It should contain for each specification the compliance status, remarks, supporting document reference stating the compliance clearly.

19. At the time of installation, if it is found that some additional hardware or software items are required to meet the operational requirement of the configuration, but not included in the vendor's original list of deliverables, the vendor shall supply such items to ensure the completeness of the configuration at no extra cost to IIT Kanpur.

20. The bidder should have at least 10 cr turnovers last 3 years. Details of the same needs to be attached in technical bid.

21. **Incomplete and ambiguous tenders are liable to be rejected.**

22. **Entire solution to be implemented within 8 weeks after purchase order released, Delay in delivery will have penalty of 2% of order value per week.**

23. Heat load of per rack should be 12KW maximum. Details of heat load and power consumption including cooling requirement for the above system in the rack should be provided.

24. IIT Kanpur is exempted from excise duty.

25. IIT Kanpur is exempted for partial custom duty (CD applicable to IIT Kanpur is 5.15%).

26. **Quotations must be valid till July 30, 2016.**

27. **Provide separate quotations for different configurations.**

Specifications of the HPC Cluster:

1. **Master Node: (1 quantity)**

Model	
Processors	Intel Xeon E5-2630 v3/ E5-2620 v4 , 20MB Cache, 8GT/s QPI, Turbo upto 3.2 Ghz, 8Core/16Thread
Chipset	Intel® C610 Series Chipset/ Latest OEM chipset supporting an optimized for the above processor
Memory	RAM (min): 64 GB GB DDR-4 ECC 2133 MHz or higher RDIMM RAM - provision for upgradation
Hard Disk Drives	24TB (raw)- 7.2K RPM SATA 6Gbps Hot-plug Hard Drive - provision for upgradation
Optical Drive	Internal DVD-ROM drive
I/O slots	Atleast 3 x PCIe 3.0
RAID levels	Support for RAID 0, 1, 5, 6 , 10 ; with RAID controller with 1 GB NV Cache
Network Interface	Atleast 4 Gigabit ports
Graphics controller	Integrated Graphics with atleast 16MB Video Memory
Server Mgmt.	OEM embedded controller with dedicated management port with IPMI 2.0 compliance and Server Management Tool from same OEM
Infiniband Port	FDR Infiniband ports
Ports	Atleast 4 USB 2.0 ports(2 each on rear and front, 1 internal), graphics
Power supplies	Redundant efficient Power Supply to sustain above configuration.
Cooling	Hot plug and redundant fans
Industry standard support	User-selectable power cap (subsystems throttle to maintain the specified power cap), ACPI Compliant, PCI compliant, PXE and WOL Support, IPv4 and IPv6 support
Industry standard certifications	The quoted server models should have the following Certifications: Microsoft Windows Server, Microsoft® Windows® HPC Server, Novell SUSE Linux Enterprise Server, Red Hat Enterprise Linux, Microsoft® Windows Server® Hyper-V, VMware® ESXi Version

	The server OEM must be ISO-14001
Form factor	2U/1U Rack form factor with sliding rails to fit into industry standard 19" Server Rack
Warranty	5years onsite warranty (24 x 7 call logging) by OEM

2. **<u>Compute node:</u> (Quantity: minimum 10 OR higher)***

* Please quote for addition units

Model	
Processors	2 X Intel Xeon E5-2670 v3 / E5-2650 v4, 30MB Cache, 9.6GT/s QPI, Turbo upto 3.1 Ghz, 12Core/24Thread
Chipset	Intel® C610 Series Chipset /Latest OEM chipset supporting an optimized for the above processor
Memory	RAM (min): 96 GB DDR-4 ECC 2133 MHz or higher RDIMM RAM -- provision for upgradation
Hard Disk Drives	1TB 7.2K RPM SATA 6Gbps Hot-plug Hard Drive - provision for upgradation
I/O slots	Atleast Two PCIe 3.0 slots
Network Interface	Atleast 4 Gigabit ports
Graphics controller	Integrated Graphics with atleast 16MB Video Memory
Server Mgmt.	OEM embedded controller with dedicated management port with IPMI 2.0 compliance and Server Management Tool from same OEM
Infiniband Port	FDR Infiniband ports
Ports	Atleast 4 USB 2.0 ports(2 each on rear and front, 1 internal), graphics (DB-15)
Power supplies	Redundant efficient Power Supply to sustain above configuration.
Cooling	Hot plug and redundant fans
Industry standard support	User-selectable power cap (subsystems throttle to maintain the specified power cap), ACPI Compliant, PCI compliant, PXE and WOL Support, IPv4 and IPv6 support
Industry standard certifications	**The quoted server models should have the following Certifications:** Microsoft Windows Server, Microsoft® Windows® HPC Server, Novell SUSE Linux Enterprise Server, Red Hat Enterprise Linux, Microsoft® Windows Server® Hyper-V, VMware® ESXi Version
	The server OEM must be ISO-14001
Form factor	1U Rack form factor with sliding rails to fit into industry standard 19" Server Rack
Warranty	5 years onsite warranty (24 x 7 call logging) by OEM

3. **Cluster Interconnect:** Infiniband FDR (56 Gbps) compatible with OFED and open MPI (upto 18 port capable Switch)

4. **Cluster Interconnect Gigabit:** The compute nodes and master node must also be connected through gigabit NIC with managed switches for OS provisioning and management purpose.

5. **Software:**
   a) Cluster monitoring and management software
   b) Compilers: PGI (**PGI Accelerator CDK for Linux, 5-user, Academic License**), GNU compilers, Free compilers, MPI, MKL; node level deployment tools etc. Open domain free software, if any must be specified.
   c) Job Scheduler: Torque/PBS/SGE with support
   d) Operating system:

S.No	Description
1	Red Hat Enterprise Linux Server for HPC Head Node, Standard (1-2 sockets)(Up to 1 guest), 3years
2	Red Hat Enterprise Linux Server for HPC Compute Node, Self-support (1-2 sockets) (Up to 1 guest), 3years

Kindly mention "Computer/solar: IITK/ME/mkdas/2016/01" on sealed envelope carrying quotations and additional literature including technical details. The envelope, duly sealed, should reach the following address on or before May 23, 2016. Any questions, technical or otherwise, should be directed to the undersigned via e-mail only.

Malay K. Das
Associate Professor
Department of Mechanical Engineering
Indian Institute of Technology Kanpur
Kanpur UP 208016, India

Phone: +915122597359
Fax: +915122597408
E-mail: ***mkdas@iitk.ac.in***