INDIAN INSTITUTE OF SCIENCE EDUCATION AND RESEARCH THIRUVANANTHAPURAM [IISERTVM]

Advt. No. IISER/P&S/EOI/2/14   4th November 2014

NOTICE INVITING EXPRESSION OF INTEREST (EOI)

Expression of Interest (EOI) is invited for HPC Cluster from reputed Original Equipment Manufacturers (OEM) or their dealers/ distributors for the supply, installation, commissioning and hand-over of a High Performance Computing (HPC) cluster for the institute.

In the following, OEM is defined to be the entity which manufactures compute and master nodes.

Section A: Outline of Intended HPC Platform & Environment:

1. It should be an x86 architecture, latest, advanced CPU-based cluster.
2. The computing nodes should be rack-based servers.
3. The computing platform is expected to deliver a peak performance of around 100 TFLOPS.
4. Operating system, Job scheduler, Resource Management can be based on Open Source softwares. The OS can be based on any flavour of Linux or Unix.
5. A storage environment of 500 TB capacity in a parallel file system with RAID support upto RAID level 6 (performance of 2GB/s for WRITE) is required. An automatic data backup solution such as a tape backup with robotic arm and at least two drives is also required.
6. In the configuration of the cluster, the RAM per core can be taken to be 4 GB. However, a fraction of compute nodes can host a higher quantum of RAM, say, 8 GB per core.
7. Interconnect should be Infiniband FDR (56 Gbps) non-blocking architecture (or equivalent, or better in terms of specifications) established through a single switch.
8. The entire solution is expected to possess fail-safe, redundant features for operational reliability of computers and of data safety. Redundancy in interconnect is not essential.
9. The HPC solution should have a maximum power consumption rating of 20 kW per rack.

Section B: Terms and Conditions

1. The OEM should have had a presence in the TOP500 Supercomputer list (http://www.top500.org) continuously in all the lists of the years 2012, 2013 and 2014.
2. The OEM should have had at least one entry in the Top Supercomputers-India list (http://topsupercomputers-india.iisc.ernet.in) maintained by SERC, IISc, Bangalore between July 2012 (eighth list) up to June 2014 (twelth list).
3. The OEM should have installed at least one supercomputer of 10 TFLOPS (peak) capability (contribution from CPU) in India. This should have had Infiniband (or equivalent or better) interconnect, along with PFS with an end-to-end sustained I/O throughput of at least 2 Gbps.
4. One OEM should submit only one proposal. The proposal may

contain multiple options for different specifications. However, at least one of the options should meet the criteria specified here.

5. The proposal can be submitted either by themselves or through an Authorised Partner. In the latter, a certificate of authorisation by the OEM needs to be provided.

6. The OEM should undertake to provide comprehensive service and support throughout the life period (six years from the date of installation) of the computer, either by themselves or through their Authorised Partner. They must demonstrate in the EoI, the establishment and availability of procedures/facilities to replace any faulty hardware items within a period of 48 hours of logging of complaint from IISER Thiruvananthapuram.

7. The OEM should be willing to use a computer rack specified by IISER Thiruvananthapuram which best fits into the cooling solution implemented in its datacentre.

8. The timely and satisfactory installation of the HPC Cluster with testing all the components, benchmarking etc done either by themselves or through their Authorised Partner will be the responsibility of the OEM.

9. The EoI proposals will be evaluated and only those OEMs who qualify will receive the tender documents. IISER Thiruvananthapuram reserves the right to come up with a tender document which can have desirable elements from any EoI proposal.

10. Decision of the IISER Thiruvananthapuram committee in this regard will be final and binding on all parties.

At this stage, provide

(a) itemized documentation(s) in support of your Interest, as expected from criteria listed in Section B (Items 1-4 and Item 6) listed above

(b) a brief description of your solution

Node	Details
Processor Model Number	
Number of Sockets per node	
Number of Cores per socket	
RAM per core	
Chipset Model Number	
Number of PCI slots	
Number of nodes per RU	
Number of Master Nodes & Number of Compute Nodes	

Other	Details
Floor footprint of rack	
Model number of the master and compute nodes	
Number of Master nodes required & Form Factor	
Number of Compute nodes required & Form Factor	
Period and nature of hardware and software warranty that comes along with the product	

i. Provide arithmetic calculations to demonstrate that the proposed solution meets our TFLOPS requirement.
ii. Details of software (operating system, compilers, numerical libraries, scheduler, resource manager, parallel file system).
iii. Detailed network diagram showing the IB interconnect, and how it serves the storage as well. Also, show the Gigabit network diagram etc.
iv. Detailed description of PFS based storage (including number and product details of different kinds of servers, storage boxes, disk characteristics (SATA/SAS/..; RPM), capacities, specifications etc.).
v. Provide arithmetic calculations to demonstrate the I/O throughput.

(c) Provide a list of Indian HPC customers with a brief description of what was supplied to them by the OEM. Provide a certificate from atleast two of them to certify your competence in the installation of Parallel File System (PFS) of magnitude greater than 10 TB and Infiniband (or equivalent or better) interconnect (See Annexure-A for format). In case the OEM and the bidder are separate entities, then each of the entities should furnish the certificates from the two customers separately. That is the OEM should submit two annexure-A documents (customer testimonial for their part of the solution) and bidder should also submit two annexure-A documents (customer testimonial for their part of the solution).

TERMS & CONDITIONS:

1. **EOI shall contain profile of the company, details of the product and other necessary inputs.**
2. **List of Institutions in India (with contact name, email id and telephone of the end users) where similar equipments are supplied by those who respond to this EOI.**
3. **EOI shall be sent to the Deputy Registrar (Purchase & Stores), IISERTVM at the above address in sealed cover/packets superscribing Adv.No. IISER/P&S/EOI/2/14 and name of the Equipment and the due date (28ᵗʰ November 2014 - 3PM).**
4. **A Pre-bid meeting has been fixed on 17ᵗʰ November 2014@ 2 PM. If you have any queries please send it to purchasestores@iisertvm.ac.in which would reach us on or before 13ᵗʰ November 2014.**

REGISTRAR
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