Domestic Tender Notice for Supply, Installation, and Commissioning of High-Performance Computing Nodes

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Dear Sir/Ma'am,

The Department of Organic Chemistry, IISc Bangalore wishes to purchase 6 high-performance computing (HPC) nodes with overall 288 compute cores. The detailed specifications are provided below. The vendors are requested to submit their bids in two parts: Technical bid and Commercial bid in separate sealed covers. The technical bid should not include the price. Both bids should finally be put into one envelope, and marked as 'Bid for High-Performance Computing Nodes for Dr. Garima Jindal (Organic Chemistry)'.

1. Date of Tender Opening: **2nd June 2023**
2. Last Date for Submission of queries via email to gjindal@iisc.ac.in: **5th June 2023**
3. Last Date and Time for Submission of Tender: **June 23rd, 2023, 5:00 pm**
4. The bids should be addressed to: The Chairperson, Department of Organic Chemistry, Indian Institute of Science, Bengaluru-560012, Karnataka, India
5. The sealed envelopes to be sent to: Dr. Garima Jindal, Department of Organic Chemistry, Indian Institute of Science, Bengaluru-560012, Karnataka, India
6. Validity of quotation: 12 weeks from the last date of tender submission

Technical Specifications

The essential requirement is of 288 compute cores. The architecture should be scalable. The maximum scalability should be at least 1000 cores for the compute cluster. Vendor should inform about the maximum storage and compute cores possible for expansion in the architecture.

Compute Node (Quantity: 6)

Processor	2 x AMD EPYC 74F3 (24C48T, 3.2 GHz base clock speed, 256MB L3 cache, 240W)
Form factor	Rack mount server 1U form
Motherboard	Dual socket type; model should be specified
Memory	256 GB per node; All populated DIMMs should be equally populated with 16GB or 32GB DDR4 3200 MHz ECC Chips in a balanced configuration
HDD	1 TB PCIe NVMe drives
Expansion Slots	2 PCIe 3.0*16; should be capable of supporting infiniband/intel omni path
IPMI	Standard IPMI with both web and command line interface (CLI) is required
NIC	2 * 10 Gbps LAN ports
Warranty	Min. 3 years
RPS	The entire solution should have redundant power supplies at least platinum level (94%). Power consumption of the nodes should be provided

Mode of Utilization of the purchased nodes:

1. The proposed cluster will be added to an existing cluster, which is Intel-based and has a master node (also Intel-based). This master node is intended to be the master node for the new nodes, too. Job queues on a Torque+Maui scheduling system will be used to submit jobs to the new & old nodes. Jobs will run either on the new nodes or on the old nodes. No intermixing of jobs on AMD & Intel nodes is intended. This applies to any parallel jobs as well.
2. The vendor is responsible for installing the new nodes into an existing rack based on smart-row cooling system from Vertiv.
3. On the nodes, we shall install CentOS 7.4, which is the OS on the existing cluster. The user space (RAIDed on the master node) and software directories will be mounted via NFS on the new nodes (in the same manner as currently being used on the existing nodes). In the interest of best performance on the new nodes, production codes may be compiled specifically for the AMD machines, if needed, and the job scripts may be directed to use the executables so obtained on the new nodes.
4. The existing cluster is still under warranty. So, the use of the nodes in fashion given above should not in any way adversely affect the warranty of either the existing nodes or the new nodes, regardless of the supplier.
5. All required accessories including cables for connectivity must be quoted. Any installation and delivery costs should be quoted separately. C13-C14 type connectors at both ends should be provided.
6. Open source cluster management and monitoring software such as Rocks and Ganglia should be installed. The relevant binaries/source code will be provided, and the compilers

to be used (gcc/gfortran or other commercial ones) should be specified at the time of installation.

7. The vendor is responsible for installing quantum softwares such as Gaussian16 and molecular dynamics packages (Amber, Gromacs, ChemShell).

8. The bidders must quote the price of an individual node with the above-mentioned AMD processor. Depending on the budget availability, IISc can increase the number of nodes. The price of the single AMD processor should not be more than

Terms and Conditions

1. All vendors must be registered with the Indian Institute of Science, Bangalore.

2. All prices should be quoted in INR inclusive of all taxes. They should also be inclusive of the delivery of the items to the site as well as the installation at the site. All the applicable taxes should be specified separately.

3. IISc has the right to

4. A minimum of three years' on-site parts and labour warranty is required. During the warranty period, vendor will have to undertake comprehensive maintenance of the entire hardware, hardware components, equipment, software support and accessories supplied by the vendor at the place of installation of the equipment. The defects, if any, during the guarantee/warranty period are to be rectified free of charge by arranging free replacement wherever necessary. It should be completed within 2 working days for individual server and next working day for central components like power supply, networking and storage after the intimation of fault.

5. A letter of commitment for three years with respect to hardware support from the OEM and software support from the OEM should be enclosed in the cover for Technical bid. Offers will be rejected if they are not accompanied by the letter from OEM.

6. Non-disclosure of various technical specifications listed above may lead to disqualification.

7. Both the hardware and software components should be from an original equipment manufacturer (OEM). In case the tenderer is an Authorized Partner or Service Provider a valid Agency-ship/Dealership Certificate to quote on behalf of OEM should also be enclosed along with the technical bid. **A document in support of this must be enclosed.**

8. The bidder must provide three references and purchase order copies where they have carried out installations of at least 20 Tflops at research institutions in India. The Purchase Committee shall independently obtain inputs from the provided referees.

9. The bid should be valid for at least 90 days from the last date of submission of the bids.

10. The bidder should have installation/service center base in Bangalore for such units. Kindly provide details of Karnataka Registration and Office Address.

11. A Technical & Purchase Committee shall deliberate on the bids shortly after the submission. The date of this meeting shall be made known to the bidders in sufficient advance. The decision of the Committee will be deemed final.

12. If a bidder wins the order, the payment for the product shall be made to the winning bidder only after delivery, set-up, and satisfactory verification of the product components. No

partial payment is possible. Any component errors detected at the time of the OS installation should be promptly rectified, and the warranty period should be correspondingly extended.

13. IISc will have the right to impose a penalty of 1% of PO value per week for delay under any of the following conditions:
    - Delay in delivery of hardware beyond scheduled delivery period.
    - Delay in successful installations/commissioning of system beyond scheduled period
    - Delay in fulfilling the Storage Benchmark as stipulated in Technical section.
    - Any delay in node warranty servicing beyond 2 days will incur a penalty of 0.5% of the total cost per day of delay.
    - The maximum penalty for non-performance will be 5% of the total cost. On reaching this limit in any year, the bidder will be considered in breach of the contract. The penalty will not apply if the delay is caused by IISc.

14. The competent authority reserves the right to reject the tender without assigning any reasons thereof.

15. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.

16. With respect to this tender, the rules laid out by the Government of India in order No.P-45021/2/2017-PP (BE-II) issued by the Public Procurement Section, Department of Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, dated 04 th June 2020, will be followed. As per this order, the government has defined a 'Class-I local supplier' as "a supplier or service provider, whose goods, services or works offered for procurement, has local content equal to or more than 50%". A 'Class-II local supplier' is "a supplier or service provider, whose goods, services or works offered for procurement, has local content more than 20% but less than 50%". Only 'Class-I' and 'Class-II' local suppliers are eligible to participate in this open domestic tender. Any 'Non-local supplier', i.e., "a supplier or service provider, whose goods, services or works offered for procurement, has local content less than 20%" is ineligible to participate in this tender.

With regards,

Dr. Garima Jindal