

INDIAN ASSOCIATION FOR THE CULTIVATION OF SCIENCE

2A & 2B, Raja S.C. Mullick Road, Jadavpur, Kolkata-700032

NIT No. : IACS/SMCS/PBC/2023-24/44 Date: 22.12.2023

Sealed tender in two bids system (technical bid and price bid) is invited from bonafide, resourceful and eligible manufacturer/exclusive distributor/vendors for **High Performance Computing (HPC) Servers**.

Part-I (Technical Bid) of the tender should contain technical specifications in detail as well as commercial terms and conditions. Part-II (Price Bid) should clearly indicate group-wise price, if needed, as mentioned in the technical bid. The Technical Bid and Price Bid are to be submitted in separately sealed envelopes, distinctly marked accordingly and both to be put inside another envelope, that should be sealed and superscribed with tender notice no. and due date. The bidders may submit bids duly signed in their own letterheads. Please note, this tender notice pertains to procurement of goods through **Two Bid System (simultaneous receipt of separate technical and price/financial bids)**.

Completed tender bids should reach the office of the **Registrar, Indian Association for the Cultivation of Science (IACS), 2A & 2B Raja S. C. Mullick Road, Jadavpur, Kolkata-700032** on or before the scheduled date and time specified below:

Tender Notice No.	NIT No. IACS/ SMCS/PBC/2023-24/44 Date: 22.12.2023
Last date and time of submitting tender	15.01.2024, 17:00 hrs (Deadline)
Pre-bid meeting (date, time & place) to discuss technical specification	02.01.2024, 16:30 hrs at IACS, Kolkata (may be conducted through web conferencing)
Date and time of opening tender (Technical Bids)	16.01.2024, 15:00 hrs at IACS, Kolkata (may be conducted through web conferencing)
Place of opening tender	IACS, Kolkata
Date and time of opening of Price Bid	The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.
Contact: Prof. Partha Basuchowdhuri (OEM/vendors should contact Prof. Basuchowdhuri for links for all web based meetings and queries regarding the tender)	Email: partha.basuchowdhuri@iacs.res.in Tel.+91 33 2473 4971 [Ext 2372] Mobile No.: 9163883328

The technical bids will be opened first to judge/evaluate the technical specifications of the said instrument and thereafter the price bids of only technically qualified bidders will be opened.

Technical Bid Evaluation: The Technical Bids will be evaluated in the presence of the representatives of intending bidders who will be able to clarify technical aspects of their bids, if any, required by the Technical Evaluation Team.

Opening of price-bid: The Price Bids of the bidders qualifying the technical bid will only be opened, the date of which will be intimated to the short-listed bidders at their email addresses. The rest of the bids will be rejected.

Please note that IACS will not provide any accommodation or reimburse any expenses to any of the bidders for attending opening of technical bid. Quotations received incomplete or beyond the stipulated time will be summarily rejected.

Bidders should submit their past experience for supplying and successful installation of similar units to other research Institutes/Universities/other organizations in India and abroad. Please provide documentary proofs of such successful installation and supporting documents that the instruments are running successfully.

1. TECHNICAL BID

The technical bid should contain technical specifications and should be kept in a separate sealed envelope duly superscribed as “TECHNICAL BID” on the outer cover of the envelope as already detailed above. **It should be clearly mentioned on the envelope as "Supercomputing Facility".**

*******Important: Please note, the Technical Section lists two different options for HPC equipment with same unit specification but with different quantities. A vendor can either bid for one of the two options or both. However, for each option tender has to be submitted separately and the sealed envelope/s should distinctly indicate the option which the vendor is intending to bid for on the cover of the envelope. Please note purchase order will be placed for only one of the options with the L1 vendor.**

(a) Technical Specification for the items of Supercomputing Facility:

OPTION 1:

Item 1: AMD EPYC 9554 (Qty: 3)

Unit description:

Processor(s)	2 x Genoa 9554 64C/128T 3.1G 256M 360W SP5
RAM	768 GB DDR5-4800 ECC RDIMM
SSD	2 x 1.92TB NVMePCIe4.0X43DTLCU.2 15mm<2DWPD
Raid Controller	Hardware Raid Controller Supports Raid 0,1,5,6,50,60 With 8GB DDR4 onboard cache memory – 2666MHz
Chipset	System on Chip
NIC	2 x 1G Ethernet ports
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Exp Slot(s)	4 (Optional) PCI-E 5.0 x16 or x8 FH, 10.5"L slot(s), 4 (Optional) PCI-E 5.0 x8 FH, 10.5"L slot(s)
Chassis	2U form factor
P. Supply	1600W Redundant Power Supplies, Titanium level
Warranty	5 Years On Site

Item 2: NVIDIA A40 GPU Server (Qty: 1)

Unit description:

Processor(s)	2 x Intel® Xeon 4314 16C/32T 2.4G 24M 10.4GT 135W 4189 M1
RAM	256 GB DDR4-3200 ECC RDIMM
SSD	1.9TB NVMePCIeGen4 V6 M.2
GPU	NVIDIA A40 48GB GDDR6 PCIe 4.0 - Passive Cooling,
NIC	4 x 1 G Ethernet ports
Infiniband	ConnectX®-6 VPI adapter card kit, HDR IB (200Gb/s) single-port QSFP56 with Cable
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Expansion Slot(s)	1 internal PCI-E 4.0 x8 (in x16 slot, LP), 1 PCI-E 4.0 x16 (FH, 10.5"L), 1 PCI-E 4.0 x16 (LP), 5 PCI-E 4.0 x8 (FH, 10.5"L)
HDD Bays	22x 2.5" hot-swap hybrid NVMe/SATA/SAS drive bays + 2x2.5" hot-swap SATA/SAS drive bays
Chassis	2U rack-mountable with sliding rails
Power Supply	1600W Redundant Power Supplies, Titanium level
Warranty	5 Years On Site

Item 3: RTX A6000 GPU Server (Qty: 1)

Unit description:

Processor(s)	2 x Intel® Xeon 4314 16C/32T 2.4G 24M 10.4GT 135W 4189 M1
RAM	256 GB DDR4-3200 ECC RDIMM
SSD	1.9TB NVMePCIeGen4 V6 M.2
GPU	Quadro RTX A6000 48GB GDDR6 PCIe4.0
NIC	4 x 1 G Ethernet ports
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Expansion Slot(s)	1 internal PCI-E 4.0 x8 (in x16 slot, LP), 1 PCI-E 4.0 x16 (FH, 10.5"L), 1 PCI-E 4.0 x16 (LP), 5 PCI-E 4.0 x8 (FH, 10.5"L)
HDD Bays	22x 2.5" hot-swap hybrid NVMe/SATA/SAS drive bays + 2x2.5" hot-swap SATA/SAS drive bays
Chassis	2U rack-mountable with sliding rails,
Power Supply	1600W Redundant Power Supplies, Titanium level
Warranty	5 Years On Site

Item 4: High Memory Node (Qty: 2)

Unit description:

Processor	1 x Intel® Xeon 5315Y 8C/3.2G/140W
RAM	512 GB DDR4-3200 ECC RDIMM
SSD	1.9TB NVMePCIeGen4 V6 M.2
NIC	2 x 1G Ethernet ports
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Exp Slot(s)	1 PCI-E 4.0 x16 (FHHL) slot
Chassis	1U Rack-mountable with sliding rails,
P. Supply	Redundant Platinum 400W Power Supply
Warranty	5 Years On Site

Item 5: UPS and related accessories – as per specifications or better

#	Particulars	HSN/SAC	Type of Supply	Qty.
1	APC by Schneider Easy 3S 20kVA 3:3 UPS Model: E3SUPS20KH	85044090	GOODS	1 Nos
2	Exide 12v-42ah SMF Battery Model: EP 42-12	85072000	GOODS	32 Nos
3	Rack with DC Cable Set	73012090	GOODS	1 Nos
4	DC Circuit Breaker Set	85362020	GOODS	1 Nos
5	Start-Up Service 5X8 for (1) Easy UPS 3S 20kVA UPS	998739	SERVICE	1 Nos
Grand Total				36 Nos

OPTION 2:**Item 1: AMD EPYC 9554 (Qty: 6)**

Unit description:

Processor(s)	2 x Genoa 9554 64C/128T 3.1G 256M 360W SP5
RAM	768 GB DDR5-4800 ECC RDIMM
SSD	2 x 1.92TB NVMePCIe4.0X43DTLCU.2 15mm<2DWPD
Raid Controller	Hardware Raid Controller Supports Raid 0,1,5,6,50,60 With 8GB DDR4 onboard cache memory – 2666MHz
Chipset	System on Chip
NIC	2 x 1G Ethernet ports
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Exp Slot(s)	4 (Optional) PCI-E 5.0 x16 or x8 FH, 10.5"L slot(s), 4 (Optional) PCI-E 5.0 x8 FH, 10.5"L slot(s)

Chassis	2U form factor
P. Supply	1600W Redundant Power Supplies, Titanium level
Warranty	5 Years On Site

Item 2: NVIDIA A40 GPU Server (Qty: 2)

Unit description:

Processor(s)	2 x Intel® Xeon 4314 16C/32T 2.4G 24M 10.4GT 135W 4189 M1
RAM	256 GB DDR4-3200 ECC RDIMM
SSD	1.9TB NVMePCIeGen4 V6 M.2
GPU	NVIDIA A40 48GB GDDR6 PCIe 4.0 - Passive Cooling,
NIC	4 x 1 G Ethernet ports
Infiniband	ConnectX®-6 VPI adapter card kit, HDR IB (200Gb/s) single-port QSFP56 with Cable
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Expansion Slot(s)	1 internal PCI-E 4.0 x8 (in x16 slot, LP), 1 PCI-E 4.0 x16 (FH, 10.5"L), 1 PCI-E 4.0 x16 (LP), 5 PCI-E 4.0 x8 (FH, 10.5"L)
HDD Bays	22x 2.5" hot-swap hybrid NVMe/SATA/SAS drive bays + 2x2.5" hot-swap SATA/SAS drive bays
Chassis	2U rack-mountable with sliding rails
Power Supply	1600W Redundant Power Supplies, Titanium level
Warranty	5 Years On Site

Item 3: RTX A6000 GPU Server (Qty: 2)

Unit description:

Processor(s)	2 x Intel® Xeon 4314 16C/32T 2.4G 24M 10.4GT 135W 4189 M1
RAM	256 GB DDR4-3200 ECC RDIMM
SSD	1.9TB NVMePCIeGen4 V6 M.2
GPU	Quadro RTX A6000 48GB GDDR6 PCIe4.0
NIC	4 x 1 G Ethernet ports
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Expansion Slot(s)	1 internal PCI-E 4.0 x8 (in x16 slot, LP), 1 PCI-E 4.0 x16 (FH, 10.5"L), 1 PCI-E 4.0 x16 (LP), 5 PCI-E 4.0 x8 (FH, 10.5"L)
HDD Bays	22x 2.5" hot-swap hybrid NVMe/SATA/SAS drive bays + 2x2.5" hot-swap SATA/SAS drive bays
Chassis	2U rack-mountable with sliding rails,
Power Supply	1600W Redundant Power Supplies, Titanium level
Warranty	5 Years On Site

Item 4: High Memory Node (Qty: 4)

Unit description:

Processor	1 x Intel® Xeon 5315Y 8C/3.2G/140W
RAM	512 GB DDR4-3200 ECC RDIMM
SSD	1.9TB NVMePCIeGen4 V6 M.2
NIC	2 x 1G Ethernet ports
Graphics	Graphics using on board graphics controller
Management	On-board IPMI 2.0 with dedicated LAN and KVM over LAN support
Exp Slot(s)	1 PCI-E 4.0 x16 (FHHL) slot
Chassis	1U Rack-mountable with sliding rails,
P. Supply	Redundant Platinum 400W Power Supply
Warranty	5 Years On Site

Item 5: UPS and related accessories – as per specifications or better (Qty: 2)

#	Particulars	HSN/SAC	Type of Supply	Qty.
1	APC by Schneider Easy 3S 20kVA 3:3 UPS Model: E3SUPS20KH	85044090	GOODS	1 Nos
2	Exide 12v-42ah SMF Battery Model: EP 42-12	85072000	GOODS	32 Nos
3	Rack with DC Cable Set	73012090	GOODS	1 Nos
4	DC Circuit Breaker Set	85362020	GOODS	1 Nos
5	Start-Up Service 5X8 for (1) Easy UPS 3S 20kVA UPS	998739	SERVICE	1 Nos
Grand Total				36 Nos

(b) Operating System: Open-Source stable Linux distribution (latest CENTOS stable version).

Additional software requirements: Standard Fortran and C compilers and Python 2.7, 3.6 with NumPy, SciPy, mpi4py. PyTorch 2.1 with CUDA 12, PyTorch Geometric for GPU servers.

(d) Warranty: Comprehensive Three (3) years on-site OEM warranty for all components and parts and labor. The warranty period will commence from the date of certification of successful installation of the equipment. Bidder should offer complete Bill of Material along with OEM part nos. for all components. Servicing facility within India is mandatory.**(e) Installation and Commissioning:** Free of cost at IACS, Kolkata. The vendors are required to give an estimate of the time required for installation, fine-tuning of the cluster and hand- holding/training of the principal users in the technical bid. The vendor shall be responsible for setting up of the cluster using CENTOS Linux distribution or equivalent (to be provided by vendor).**Vendor & OEM Eligibility:**

(I) The bids must be submitted by OEMs or OEM supported vendor/s only with original authorization certificates from the OEMs. Vendors should have proven experience in setting up a HPCC of

minimum of one10 TFLOPS in the last three years in India and a minimum of 3 installations of at least 3 TFLOPS in the Eastern Region.¹ OEMS should have proven experience in setting up a HPCC of minimum 50 TFLOPS in the last three years in India and a minimum of 3 installations of at least 3 TFLOPS in the Eastern Region. A brief proof for such experience (copies of orders/installation certificate) should be included in the technical bid. Vendor must have experience in setting up HPCs and maintaining the same in DST institutes, MHRD institutions such as IITs and IISERs and Central Universities in the Eastern Region of India.

¹ If vendor cannot meet this criteria, vendor must state it in advance and provide adequate certificates from appropriate customers to establish that they have requisite expertise to install and maintain such equipment. The final call of eligibility would be taken by the Technical Committee. The Technical Committee may impose a higher performance security (as permissible under extant GFR) in such cases.

- (II) Each OEM can support a maximum of 2 Vendors. Vendors must provide authentic letters of authorization by OEM.
- (III) **Vendor must be registered with Government E-Marketplace. Proof of registration has to be provided.**
- (IV) **Vendor should be responsible along with OEM, in providing support (software and hardware) for the machine during the warranty period.** Hence the vendor should be the service provider and OEM would provide the parts. Vendor should provide proof that they have technical know-how to troubleshoot and provide proper service.
- (V) Vendor should preferably have service engineers stationed at Kolkata and respond to service calls within 24 hours of receiving a notice from IACS. Additionally, the vendor (service provider) should have an office in Kolkata. The vendor must provide contact details of service engineers and its office in Kolkata. Service call resolution including replacement of parts should occur within 5 business days of receiving the service call or email intimation.
- (VI) Vendor should have technical expertise of installing and maintaining MPI installations (OpenMPI and others).
- (VII) Vendor should have technical expertise of installing several versions of Python language and scientific packages including but not limited to NumPy, SciPy, mpi4py. Similarly, for GPU servers, expertise of installing CUDA and PyTorch is necessary.
- (VIII) It will be highly desirable if the vendor has proven capability to install some commonly used molecular dynamics packages like GAUSSIAN, MOLPRO, ORCA, VASP, NWCHEM, QCHEM, ADF, NAMD, GROMACS, LAMMPS. Vendor should have experience with parallelized version of codes on these servers.

Additional Requirements:

(i) Compliance List: The vendor must submit a table indicating the compliance of the features of the model of the components being quoted with those given in the indent. In case of non-compliance against a particular item, the vendor should justify that. A compliance table (see below) must be prepared and submitted along with the technical bid.

Sr. No	Tender specification As defined in Technical Bid Section	Your offered instrument specification	Extent of compliance

Tender will not be accepted if the technical compliance chart is NOT provided following the above format.

(ii) **Training:** Free training on operation, maintenance and troubleshooting of the whole HPCC Solution should be imparted to at least 2 persons for a period of one week at the site of installation.

(iii) **Post-sales service:** The vendor must submit the names of the service engineers employed by them who are competent to serve the HPCC installation along with their contact details in India.

****Please Note: The decision of the Technical Committee on technical competence and eligibility of any technical bid submitted by any vendor would be final and cannot be contested.**

2. PRICE BID

The financial bid indicating (item-wise) price for the item(s) mentioned in the technical bid should be kept in a separate sealed envelope duly super scribed as “PRICE BID” on the outer cover of the envelop as already detailed above. Price bids of only technically qualified bidders will be opened and they will be intimated the date and time of the opening of price bid at their e-mail ids. Rest of the bidders will stand rejected.

PRICE: Price to be quoted on CIF and Kolkata and FOB basis in Dollars or Euros

3. BID SECURITY

An Account payee Demand Draft of any of the Commercial Banks for Rs. 5,00,000 (Rupees Five Lakhs only) drawn in favour of “Indian Association for the Cultivation of Science (State Bank of India, Jadavpur University Branch, A/C No. 11079699211, IFSC: SBIN000093, MICR Code: 700002048)” is to be furnished by the bidders along with Technical Bid, except for Micro and Small Enterprises (MSEs) as defined in MSE Procurement Policy issued by Department of Micro, Small and Medium Enterprises (MSME) or vendors registered with the Central Purchase Organisation or the concerned Ministry or Department.

Alternatively, the bidder shall have the option to furnish EMD in the form of Fixed Deposit Receipt, Banker's Cheque or Bank Guarantee from any of the Commercial Banks. The Bid-Security should have at least 90 (ninety) days validity period beyond the final bid validity period.

In case of non-award of the work, the Bid Security money would be returned to the unsuccessful Bidders. Interest cannot be claimed against the deposited Bid-Security.

4. PERFORMANCE SECURITY

An Account Payee Demand Draft on any commercial bank of India or Bank Guarantee (BG) of any Commercial Bank preferably located at Kolkata of **10% of the order value** in the name of “**Indian Association for the Cultivation of Science**” is to be furnished by the successful bidder as Performance security. Performance security money should remain valid for a period of 60 days beyond the date of completion of all contractual obligations of the supplier including warranty obligations. Interest cannot be claimed against the deposited Performance Security. Bid security money or EMD will be refunded without any interest to the successful bidder on receipt of the Performance security money.

5. TERMS OF PAYMENT

Payment will be made through irrevocable Letter of Credit in two instalments. 90% of the money will be released on receipt of shipping documents (on sight as applicable to CIF). Remaining 10% will be **released after successful installation of the instrument and the receipt of the Performance Security Financial Instrument.**

6. GENERAL INSTRUCTIONS

1. Validity of tender: Tender submitted should remain valid for at least six months from the date of opening the tender. Validity beyond six months from the date of opening of the tender shall be lapsed by mutual consent.
2. **The tender should accompany a compliance chart.**
3. Incomplete and conditional tenders as well as tenders received after the due date will be summarily rejected without assigning any reasons thereof.
4. At any time prior to the bid due date, IACS may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder during pre-bid meeting, modify the bidding documents. The amendment(s) will be notified on the institute website. Prospective bidders are advised to occasionally visit the website (www.iacs.res.in/tender) for any amendment.
5. Installation/Demonstration/Application training at site: Installation & user training at IACS, free of cost by the supplier.

6. Service facility: In India, preferably Kolkata, supplier should mention their details of service setup and man powers who are responsible for after sales support. Response time should not exceed 48 hrs. If the vendor does not have a service setup at Kolkata they must provide a detailed plan of how they are going to take care of service and respond within 48 hours.

7. Every service issue has to be satisfactorily resolved within 4 Business Days.

8. The model number, make and a printed literature of the product should be submitted positively.

9. Proposed delivery schedule should be mentioned clearly.

10. Manufacturers / exclusive distributors / vendors should have history of supplying this type of instruments to this or other scientific organizations. Availability of a list in this regard would be preferred.

11. Authorized dealership certificate should be provided in case of principal manufacturing company is not quoting directly.

12. Guarantee certificate, users manuals etc. are to be handed over to the user after successful commissioning of the system.

13. In the event of date being declared a closed holiday for purchaser's office, the due date for submission of bids and opening of the technical bids will be the following working day at the appointed time.

14. In case of any dispute, the decision of IACS authority shall be final and binding on the bidders.

15. In case of any litigation the matter will be dealt within the jurisdiction of the High Court of Calcutta only

16. For any clarification regarding technical specifications, information etc., please send your queries to **Prof. Partha Basuchowdhuri** (partha.basuchowdhuri@iacs.res.in).

17. The authority of IACS reserves the right to reject any or all of the tenders received without assigning any reason thereof.

18. Decisions on Technical and Vendor Eligibility would be taken by the Technical Committee and would be considered final.

19. Any legal conflict arising from thus procurement process would fall under the jurisdiction of the Calcutta High Court.

Registrar, IACS

**Partha Basuchowdhuri
(Principal Investigator)**