

**Procurement of additional compute nodes to the existing High-Performance Computing Cluster**

**NOTICE INVITING DOMESTIC TENDER**



Department of Electronic Systems Engineering,  
Indian Institute of Science, Bangalore

November 10, 2025

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# 1. Bid Schedule

|   |                                           |                                                                                                                                                                                                                                                                                                                                                            |
|---|-------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1 | Tender No                                 | DESE/MSA/20/25-26                                                                                                                                                                                                                                                                                                                                          |
| 2 | Tender Date                               | 10.11.2025                                                                                                                                                                                                                                                                                                                                                 |
| 3 | Item Description                          | <b><u>Procurement of Additional compute nodes to the existing High-Performance Computing Cluster</u></b>                                                                                                                                                                                                                                                   |
|   | Tender Type                               | Two bid system<br>(i) Technical Bid (Part A)<br>(ii) Commercial Bid (Part B)                                                                                                                                                                                                                                                                               |
| 5 | Place of tender submission                | The Chairman,<br>Department of Electronic<br>Systems Engineering<br>Indian Institute of Science,<br>Bangalore – 560012                                                                                                                                                                                                                                     |
| 6 | Last Date & Time for submission of tender | 01.12.2025, 10 AM                                                                                                                                                                                                                                                                                                                                          |
| 7 | For further clarification                 | Prof. Mayank Shrivastava<br>Professor<br>Department of Electronic Systems Engineering,<br>Indian Institute of Science,<br>Bangalore, Karnataka 560012, India<br>Secretary (Ms. Rekha's) Contact: 9972525771<br>(On Behalf of Purchase Committee)<br>Email: <a href="mailto:msdlab.esec@iisc.ac.in">msdlab.esec@iisc.ac.in</a> (for tender related queries) |

## 2. Eligibility Criteria

This tender is issued for the procurement, installation, and commissioning of a High-Performance Computing (HPC) Cluster for the **UPGRADE** and expansion of compute capability of the existing cluster with 1024 core procured earlier.

The scope envisages supply of sixteen compute nodes, a GPU node, eight GPU adapters, a 48-port switch and a 42U Eurorack enclosure along with necessary connecting cables strictly as per the specification.

### **Prequalification criteria:**

1. The Bidder should belong to either class 1 or class 2 supplier distinguished by their “local content” as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter.
  - a. Class 1 supplier: Goods and services should have local content of equal to or more than 50%.
  - b. Class 2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.)
2. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to Class-1 supplier.
3. MSME can seek exemption to some qualification criteria. IISc follows GFR2017 for such details
4. The bidder should sign and submit the declaration for Acceptance of Terms and Conditions as per - Annexure 4.
5. To an extent possible, share itemized pricing for every item (this will allow us to add additional resources in the PO, such as RAM, HDD, etc., if the budget allows, before placing the order)
6. The Bidder must not be blacklisted/banned/suspended or have a record of any service-related dispute with any organization in India or elsewhere. A declaration to this effect has to be given as per Annexure 3.
7. Necessary training to operate the procured setup and required literature support should be provided without additional cost.
8. In principle onsite installation should be free of cost. The amount of time / day committed by the engineer during installation must be clearly stated.
9. Software upgrade, if any, must be free of cost for next 3 years.
10. The vendor must assure that there are no bugs and glitches with the integration. In case of glitches or bugs at the time of installation, vendor must fix the issues in less than three days from the start date.
11. In case of hardware/software issues or support, vendor should be able to provide required solution within three days.
12. All equipment must be well calibrated before and after installation.
13. Additional quote for an annual maintenance contract should be included for the next 5 years.
14. The vendor should have a good track record of delivering such equipment at universities/research institutions (please furnish the details).
15. Please provide list of customers who have procured your equipment in last 5 years.
16. The vendor should be able to repair and maintain the equipment, once it is installed in India. No travel claims must be made by vendor for servicing during the warrantee/guarantee period.
17. The system must be delivered at the earliest. The smallest lead time will be appreciated. Our expectation is shipment immediately after PO and full or part payment post installation.
18. On all systems the payment terms will be specified in the commercial proposal and is subject to negotiation.
19. The validity period of the quotation should be 90 days at least.
20. Please provide details of the number of trained personnel in India, who can service the machine.
21. Highlight the system/computer requirement to integrate the setup, if any other than specified in the specifications above.
22. The supplier will provide comprehensive support to the user for the software and instrument for a minimum period of 3 years.
23. Bidder shall have to submit audited accounts (Balance sheet profit and loss account) of last three financial years. Audited statements must be signed and stamped by a qualified chartered accountant.
24. Bidder must submit Income Tax return for last three financial assessment years.
25. Bidder must submit up to date sales tax or GST clearance certificate.

### **Vendor Eligibility Criteria:**

1. Sales Confirmation: The vendor company should provide comprehensive details regarding their **additional compute**

- nodes to an existing High-Performance Computing Cluster** in the last 5 years in India for multinational companies/PSUs/government organizations. The vendor should have sold the similar setup to at least 3 entities as depicted above in last 5 years in India. Furthermore, they must substantiate their claims by furnishing relevant supporting documents.
2. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.

### 3. Terms and Conditions

#### A) Submission of Tender:

1. All documentations in the tender should be in English.
2. Tender should be submitted in two envelopes (two bid system).
  - a. Technical Bid (Part-A) – Technical bid consisting of all technical details and check list for conformance to technical specifications.  
The technical proposal should contain a technical compliance table with 5 columns.
    - I. The first column must list the technical requirements, in the order that they are given in the technical requirement below.
    - II. The second column should provide specifications of the instrument against the requirement. Please provide quantitative responses wherever possible with technical details in annexure.
    - III. The third column should describe your compliance with a “Yes” or “No” only. Ensure that the entries in column 2 and column 3 are consistent.
    - IV. The fourth column should state the reasons/explanations/context for deviations, if any.
    - V. The fifth column can contain additional remarks from the OEM. You can use this opportunity to highlight technical features, qualify response of previous columns, or provide additional details.
    - VI. The quote must include all details of technical specifications of the equipment along with the commercial terms and conditions, the bill of materials, printed technical brochure and any other supporting document. Please provide discrete component prices as much as possible so that we may add or reduce component quantities. **Enclose a detailed compliance chart printed on your letterhead, along with the quote. Non-compliant bids will be grossly rejected.**
  - b. Commercial Bid (Part-B) – Indicating item wise price for the items mentioned in the technical bid, **as per the format of quotation provided in tender**, and other commercial terms and conditions.
3. The technical bid and price bid should each be placed in separate sealed covers, superscripting on both the envelopes the tender no. and the due date. Both these sealed covers are to be placed in a bigger cover which should also be sealed and duly superscripted with the Tender No, Tender Description & Due Date.
4. The SEALED COVER superscripting tender number / due date & should reach Chairperson Office, Materials Engineering, Indian Institute of Science, Bangalore – 560012, India on or before due date mentioned in the tender notice. In case due date happens to be holiday the tender will be accepted and opened on the next working day. If the quotation cover is not sealed, it will be rejected.  
  
All queries are to be addressed to the person identified in “Section 1 – Bid Schedule” of the tender notice.
5. The price must be quoted in INR (Indian Rupee). Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor. The quotations should be on FOR-IISc Bangalore basis in INR only.
6. The Institute reserves the right to accept or reject any bid and to annul the bidding process and reject all bids at any time prior to the award of contract, without thereby incurring any liability to the affected bidder or bidders or any obligation to inform the affected bidder or bidders.
7. Incomplete bids will be summarily rejected.

#### B) Cancellation of Tender:

Notwithstanding anything specified in this tender document, IISc Bangalore, in its sole discretion, unconditionally and without having to assign any reason, reserves the rights:

- a. To accept OR reject lowest tender or any other tender or all the tenders.
- b. To accept any tender in full or in part.
- c. To reject the tender, offer not confirming to the tender terms.

C) Validity of the Offer:

The offer shall be valid at least 90 Days from the date of opening of the commercial bid.

D) Evaluation of Offer:

1. The technical bid (Part A) will be opened first and evaluated.
2. Bidders meeting the required eligibility criteria as stated in Section 2 of this document shall only be considered for Commercial Bid (Part B) opening. Further, agencies not furnishing the documentary evidence as required will not be considered.
3. Pre-qualification of the bidders shall not imply final acceptance of the Commercial Bid. The agency may be rejected at any point during technical evaluation or during commercial evaluation. The decision in regard to acceptance and / or rejection of any offer in part or full shall be the sole discretion of IISc Bangalore, and decision in this regard shall be binding on the bidders.
4. The award of contract will be subject to acceptance of the terms and conditions stated in this tender.
5. Any offer which deviates from the vital conditions (as illustrated below) of the tender is liable to be rejected:
  - a. Non-submission of complete offers.
  - b. Receipt of bids after due date and time and or by email / fax (unless specified otherwise)
  - c. Receipt of bids in open conditions.
6. In case any BIDDER is silent on any clauses mentioned in these tender documents, IISc Bangalore shall consider that the BIDDER had accepted the clauses as of the tender and no further claim will be entertained. Further if the BIDDER is silent or does not give detail justification of their claim regarding those mentioned in technical specifications, IISc Bangalore reserves the full right to reject the tender due to non-compliance without any further discussion.
7. No revision in the terms and conditions quoted in the offer will be entertained after the last date and time fixed for receipt of tenders.
8. Lowest bid will be calculated based on the total price of all items tendered for Basic equipment along with accessories selected for installation, operation, preprocessing and post processing, optional items, recommended spares, warranty.

E) Pre-requisites:

The bidder will provide the prerequisite **additional compute nodes to the existing High-Performance Computing Cluster.**

F) Warranty:

The vendor should be able to repair and maintain the equipment, once it is installed in India. No travel claims must be made by vendor for servicing during the warranty/guarantee period. If the setup is found to be defective, it must be repaired or replaced at the cost of the bidder within 30 days of receiving written notification from IISc, Bangalore. In the event of any delay in the repair or replacement of the setup, the warranty period will be extended by a corresponding amount of time to account for the downtime.

G) Purchase Order:

1. The order will be placed on the bidder whose bid is accepted by IISc based on the terms & conditions mentioned in the tender document.
2. The quantity of the items in tender is only indicative. IISc, Bangalore reserves the right to increase /decrease the quantity of the items depending on the requirement.
3. If the quality of the software and service provided is not found satisfactory, IISc, Bangalore reserves the right to cancel or amend the contract.

H) Delivery, Installation and Training:

The bidder shall provide the lead time to delivery, installation and made functional at IISc, Bangalore from the date of receipt of purchase order. The setup should be delivered, installed and made functional **within 180 days** from the date of receipt of purchase order. The supply of the items will be considered as effected only on satisfactory installation and inspection of the system and inspection of all the items and features/capabilities tested by the IISc, Bangalore. After successful installation and inspection, the date of taking over of entire system by the IISc, Bangalore shall be taken as the start of the warranty period. No partial shipment is allowed. The bidder should also arrange for technical training to the local facility technologists and users.

I) Payment Terms:

100% payments will be released after completion of delivery and satisfactory installation subject to TDS as per rules. AMC cost (if ordered), after completion of warranty period) will be released on half - yearly basis at the end of each six months subject to satisfactory services. The AMC will be comprehensive. Price basis must be on FOR-IISc Bangalore basis only. As per GFR, no advance payment can be made to domestic vendors unless an equal amount of bank guarantee is provided.

J) Statutory Variation:

Any statutory increase in the taxes and duties subsequent to bidder's offer, if it takes place within the original contractual delivery date, will be borne by IISc Bangalore subject to the claim being supported by documentary evidence. However, if any decrease takes place the advantage will have to be passed onto IISc, Bangalore.

K) Disputes and Jurisdiction:

Any legal disputes arising out of any breach of contract pertaining to this tender shall be settled in the court of competent jurisdiction located within the city of Bangalore, India.

L) General:

1. All amendments, time extension, clarifications etc., within the period of submission of the tender will be communicated electronically. No extension in the bid due date/time shall be considered on account of delay in receipt of any document(s) by mail.
2. The bidder may furnish any additional information, which is necessary to establish capabilities to successfully complete the envisaged work. It is however, advised not to furnish superfluous information.
3. The bidder may visit the installation site before submission of tender, with prior intimation.
4. Any information furnished by the bidder found to be incorrect, either immediately or at a later date, would render the bidder liable to be debarred from tendering/taking up of work in IISc, Bangalore.

## 4. Technical Specifications

### 1. Introduction and Scope

Hardware supply:

- Sixteen Compute nodes
- One GPU node without GPU population
- Six GPU adapters with two additional GPU adapters as optional
- One 48 port Gigabit Ethernet switch
- One 42U 600mm x 1000mm euro-rack enclosure

Scope of Work: Supply, installation, testing, commissioning, and demonstration of a fully operational HPC cluster by supplying new compute nodes of to control the already existing cluster along with the current supply.

### 2. Technical Specifications

#### A. Hardware Specifications

| <b>Detailed technical specifications of 3<sup>rd</sup> generation Intel<br/>QTY = 16 Compute node (1024 cores)</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|--------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item                                                                                                               | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Processor                                                                                                          | 2 x Intel Xeon 6338 (24C/48T, 3.40GHz, 2.10GHz, 36MB, 165W)                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Chipset                                                                                                            | Intel C621 chipset dual socket mainboard having minimum of:<br>1. 16 x DIMM slots<br>2. 1 x M.2 storage slots<br>3. 5 x PCIe x16 Gen4.0 slots, 1 x PCIe x8 Gen4.0 slot<br>4. 8 x variable speed fan headers<br>5. 1 x VGA video output in D-15 analog connector<br>6. 14 x SATA 6Gb/s ports<br>7. 2 x 1GbE 1000Base-T network controller with RJ-45 ports<br>8. USB - Rear 2 x 2.0 and header - 3 x 3.2<br>9. 1 x Dedicated server management port supporting IPMI v2 and Redfish |
| Memory                                                                                                             | 512GB (16 x 32GB) DDR4 ECC registered memory running at 3200MHz                                                                                                                                                                                                                                                                                                                                                                                                                   |
| High Speed connect                                                                                                 | Mellanox 100Gb/s dual-port EDR adapter with 3M cable                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Operating System                                                                                                   | Rocky Linux 8 or above with open source HPC software                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Storage                                                                                                            | Storage subsystem as follows:<br>OS: 960GB M.2 NVMe                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Gigabit Network Port                                                                                               | 2 x 1GbE 1000Base-T                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| External Ports                                                                                                     | Rear ports : Minimum 2 x USB 3.2<br>Front ports : Minimum 2 x USB 3.2                                                                                                                                                                                                                                                                                                                                                                                                             |
| Internal Ports                                                                                                     | MiniSAS-HD ports                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| PCI Expansion Slots                                                                                                | Minimum 5 x Gen4.0 PCIe x16 slots, 1 x Gen4.0 PCIe x8 slot                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Form Factor / Chassis                                                                                              | 1x 2U rackmount chassis with appropriate cooling sub-system                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Power Supply                                                                                                       | 1 x 800W 80+ Platinum redundant power supply units                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Power Cable                                                                                                        | 6A 1.8M C13-C14 power cables                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

|          |                                                                                                                                                                                      |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Warranty | 3 years comprehensive part, labor, onsite NBD by OEM with hardware support for entire server. In case of hardware breakdown, service calls must be attended by OEM engineer directly |
|----------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

| <b>Detailed technical specifications of 3<sup>rd</sup> generation Intel GPU node QTY = 1</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|----------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Item                                                                                         | Description                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Processor                                                                                    | 2 x Intel Xeon 6338 (24C/48T, 3.40GHz, 2.10GHz, 36MB, 165W)                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Chipset                                                                                      | Intel C621 chipset dual socket mainboard having minimum of:<br>1. 16 x DIMM slots<br>2. 1 x M.2 storage slots<br>3. 5 x Gen4.0 x16 PCIe slots, 1 x Gen4.0 x8 slot<br>4. 8 x Variable speed fan headers<br>5. 1 x VGA video output in D-15 analog connector<br>6. 14 x SATA 6Gb/s ports<br>7. 2 x 1GbE 1000Base-T network controller with RJ-45 ports<br>8. USB - Rear 2 x 2.0 and header - 3 x 3.2<br>9. 1x Dedicated server management port supporting IPMI v2 and Redfish |
| Memory                                                                                       | 256GB (16 x 16GB) DDR4 ECC registered memory running at 3200MHz                                                                                                                                                                                                                                                                                                                                                                                                             |
| High Speed connect                                                                           | Mellanox 100Gb/s dual-port EDR adapter with 3M cable                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Operating System                                                                             | Rocky Linux 8 or above with open source HPC software                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Storage                                                                                      | Storage subsystem as follows:<br>OS: 960GB M.2 NVMe<br>Storage: 6 x 8TB enterprise SATA 7200RPM hard disk drives                                                                                                                                                                                                                                                                                                                                                            |
| Storage Controller                                                                           | 12Gb/s RAID controller with 4GB cache                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| GPU                                                                                          | System to support 8 x double-width blower type GPU adapters                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Gigabit Network Port                                                                         | 2 x 1GbE 1000Base-T network controller with RJ-45 ports                                                                                                                                                                                                                                                                                                                                                                                                                     |
| External Ports                                                                               | Rear ports : Minimum 2 x USB 3.2<br>Front ports : Minimum 2 x USB 3.2                                                                                                                                                                                                                                                                                                                                                                                                       |
| Internal Ports                                                                               | MiniSAS-HD ports                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| PCI Expansion Slots                                                                          | Minimum 5 x Gen4.0 PCIe x16 slots, 1 x Gen4.0 PCIe x8 slot                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Form Factor / Chassis                                                                        | 1x 4U Rack mount chassis with minimum to support 10 double width full height full length GPU cards,                                                                                                                                                                                                                                                                                                                                                                         |
| Power Supply                                                                                 | 1 x 2200W 80+ Platinum redundant power supply units in (3+1) mode                                                                                                                                                                                                                                                                                                                                                                                                           |
| Power Cable                                                                                  | 6A 1.8M C13-C14 power cables                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Warranty for workstation, KBD, Mouse, Monitor                                                | 3 years comprehensive part, labor, onsite NBD by OEM with hardware support for entire server. In case of hardware breakdown, service calls must be attended by OEM engineer directly                                                                                                                                                                                                                                                                                        |

| <b>Details of GPUs QTY = 6 for 1 GPU servers</b> |                                       |
|--------------------------------------------------|---------------------------------------|
| Item                                             | Description                           |
| GPU type 1                                       | Nvidia RTX 6000 Ada 48GB PCIe adapter |

| <b>Details of Ethernet switch QTY=1</b> |                                                             |
|-----------------------------------------|-------------------------------------------------------------|
| Item                                    | Description                                                 |
| Gigabit Ethernet Switch                 | 48 port managed Gigabit Ethernet switch with 4 uplink ports |

| Detailed technical specifications of 42U Server Rack QTY=1 |                                                                                                                              |
|------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------|
| Item                                                       | Description                                                                                                                  |
| Brand Name                                                 | Any standard Brand with Rack mount kit                                                                                       |
| Dimension                                                  | 42U - 600mm x 1000mm                                                                                                         |
| Front Door                                                 | Perforated MS Powder coted Single door with lock and handle                                                                  |
| Rear Door                                                  | Perforated MS Powder coted double door with lock and handle                                                                  |
| Side covers                                                | Plain Louvered side cover for left and right of the rack                                                                     |
| Mobility                                                   | The Rack will be on four Castor wheels to handle a total weight of 1.2Tonns. The front wheels should be provided with brakes |
| Leveling feet                                              | The Rack will be provided with adequate leveling feet to reduce constant weight on castor wheels.                            |
| PDU                                                        | The Rack will have vertical PDU to support 40 C14 outlets in 3 phase configuration with 4M of power cable without plug       |
| Warranty                                                   | Equivalent to the cluster warranty                                                                                           |

| Details of Optional GPUs QTY = 2 |                                       |
|----------------------------------|---------------------------------------|
| Item                             | Description                           |
| GPU type 1                       | Nvidia RTX 6000 Ada 48GB PCIe adapter |

## B. Software Requirements

### Current cluster:

Current cluster has one master node, 16 compute nodes and two GPU nodes in addition to a NAS storage solution. All connected on 1GbE and 100Gb/s EDR InfiniBand switches. The solution presently is distributed in two 42U racks with appropriate PDUs

The operating system on each compute node is Rocky Linux 8.6 with Slurm resource management and scheduling software.

Current cluster's specification: [https://iisc.ac.in/wp-content/uploads/2024/11/RFO\\_CPU-GPU.pdf](https://iisc.ac.in/wp-content/uploads/2024/11/RFO_CPU-GPU.pdf)

**Future addition:** The future addition and expanded version should continue to support the following:

### Operating System

- The operating system on the compute nodes should be same as existing OS with same version
- Purpose: Provides a stable, seamless and compatible environment for high-performance computing (HPC) applications, including cluster management tools

### Cluster Management and Job Scheduling Software

- OpenHPC: A comprehensive open-source cluster management toolkit that includes essential HPC components. OpenHPC is currently running on the master node and integration with this is essential
- SLURM/OpenPBS/SGE: Any open source Job submission engine
- Ganglia: For cluster monitoring, Ganglia - provides real-time monitoring and performance visualization, which is critical for managing a large cluster

### Networking and Communication Libraries

- MPI (Message Passing Interface):
  - OpenMPI or MPICH: Both are widely used open-source implementations of MPI. MPI is crucial for enabling inter-process communication across nodes, especially in parallel computing workloads.

- **OFED (OpenFabrics Enterprise Distribution):** Provides optimized InfiniBand drivers and libraries for high-speed networking. Essential for configuring the Mellanox 100Gbps EDR InfiniBand network.

### Storage and File Systems

- **NFS (Network File System):** For simpler file sharing, NFS can be used to mount shared directories across nodes. The home directories should be on this shared location

### GPU Software and Libraries

- **NVIDIA CUDA Toolkit:** Essential for running GPU-accelerated applications on the A6000 ADA GPUs. CUDA provides libraries and tools for deep learning, molecular dynamics, and other GPU-intensive applications
- **cuDNN:** NVIDIA's GPU-accelerated library for deep learning. This will be useful for applications like M3GNet
- **NCCL (NVIDIA Collective Communications Library):** Optimizes multi-GPU communication and is especially useful in multi-GPU setups like this one

### Scientific and Computational Libraries

- **MKL (Math Kernel Library):** Intel's optimized library for math and linear algebra functions, which accelerates scientific computations
- **OpenBLAS:** An open-source alternative to MKL for optimized linear algebra routines
- **FFTW:** A library for computing the discrete Fourier transform (DFT), useful in various scientific applications
- **HDF5:** A file format and set of tools for managing complex data, commonly used in scientific computing for data storage

### Additional Tools

- **Ansible:** Automates configuration and deployment across the cluster. Useful for managing and updating nodes simultaneously
- **Git:** Version control system, essential for managing software and code repositories across the cluster
- **Python (Anaconda Distribution):** Provides a comprehensive environment with scientific libraries (NumPy, SciPy, Pandas) that are widely used in research
- **JupyterHub:** Allows multiple users to run Jupyter notebooks in a shared environment, which can be helpful for research and analysis tasks on the cluster

## C. Installation, Commissioning, and Testing

- **Installation:** Vendor must perform racking, stacking, cabling, software installation, and full system integration. All cables for interconnecting the systems to cluster should be considered in the quote
- **Commissioning:** Complete system setup, configuration, and connectivity testing to ensure full functionality
- **Performance Testing:**
  - Benchmark tests on CPU, GPU, and network interconnect performance
  - Application-level performance tests for scientific libraries, MPI, and machine learning frameworks
- **Acceptance Criteria:** System must pass all specified performance benchmarks and demonstrate stability and efficiency in running target applications
- No additional cost for software and hardware installation, commissioning and performance testing
- If required, for whatsoever reason, the vendor must install all the hardware and software as stated above and present it in existing system

## D. Warranty and Support

- **Warranty:** Minimum 3 years onsite, next-business-day support on all components
- **Extended Maintenance:** Annual Maintenance Contract (AMC) option for two additional years post-warranty. Quote this as an optional item
- **Direct OEM Support:** OEM must provide direct support in case of any failure in service from the vendor

## E. Commercial Terms and Conditions

- **Pricing:** Provide detailed, itemized pricing, including per-node, per-GPU, and other specific components, wherever required
- **Condition:** All items and parts supplied must be brand new and procured directly from the OEMs or their authorized distributors

- **Detailed Specs:** Include detailed specifications for each hardware component (compute nodes, GPU node, GPU adapters, 48-port Ethernet switch, 42U euro-rack and 40KVA UPS)
- **Bid Evaluation:** Evaluation will be based on both technical compliance and commercial viability
- **Scalability Clause:** The option to add additional compute nodes or GPUs and at the same unit price
- **Payment Terms:** 90% payment upon delivery and 10% upon successful installation, testing, and acceptance
- **Delivery Timeline:** 4 weeks for delivery and an additional week for complete installation
- **Penalty for Delays:** A penalty of 0.5% per week with a cap of 10.0% will apply beyond the specified delivery timeline. This procurement is from a CSR fund and hence it's closure before March 1<sup>st</sup> 2026 is mandatory

#### F. Eligibility Criteria

- **Experience:** The vendor must have prior experience with atleast 20 HPC installations, with atleast 5 cluster of 4,096 cores. Atleast 5 installations at IISc with references to be provided. All installations must be listed with details of contact person and their official email IDs
- **Financial Requirements:** Minimum annual turnover of ₹8 Crores for the past three financial years. Audited balance sheets must be furnished
- **Local Presence:** Must have an established office at Bengaluru for a period not less than 5 years with proof of the same
- **Bidder Authorization:** Only bids from OEMs or authorized Indian distributors will be accepted. MSE OEM bidder will be given preference. In case of Indian brands, the OEM should enclose brand registration certificate along with the bid
- Non OEM bidders should produce MAF from the OEM along with the bid

#### G. Documentation and Compliance

- **Bids:** The tender is two-bid tender with Technical and Commercial bids to be submitted in two separate envelopes. The commercial bids of technically disqualified bidder will not be opened
- **Compliance Certificate:** Signed component level compliance matrix covering all technical specifications should be submitted in the technical bid
- **Reference Sites:** Provide references for three cluster installations completed in the past three years
- **OEM Authorization:** Bids from OEM authorized bidders will only be entertained. Manufacturer Authorization Form should be enclosed

#### H. Important Notes

- **Submission Guidelines:** Submit technical and commercial bids in separate sealed envelopes
- **Confidentiality:** Ensure confidentiality of all documents and information provided
- **Rights Reserved:** The issuing authority reserves the right to modify the specifications or quantity requirements

#### I. Additional Items (Must be added to compliance certificate as well):

1. Support: Please provide details of support provided within the warranty period
2. Shipping: The quote must be in FOR-IISc Bangalore.
3. Installation: Please list a set of acceptance tests for on-site (vendor) inspection and after installation at IISc Bangalore.
4. Other Options: Necessary spare parts should be quoted as an option.
5. Please include any other options currently available that can be added on in the future.
6. Training: Please state if training is required to operate this instrument, and if yes, please highlight the extent of training provided as part of this purchase and for how many days.

**All the above-mentioned technical specifications are highly desired. However, lower technical specifications may be considered if the above-mentioned specifications are found to be unsuitable in financial terms. The Institute reserves the right to go for lower specifications taking into consideration its technical preferences and financial constraints. Vendors are encouraged to highlight the advantages of their product over comparable products from the competitors.**

#### PI Terms and conditions (should be included in compliance certificate):

1. To an extent possible, share itemized pricing for every item (this will allow us to add additional resources in the PO, such as RAM, HDD, etc., if the budget allows, before placing the order)
2. Necessary training to operate the procured setup should be provided without additional cost

3. In principle onsite installation should be free of cost. The amount of time / day committed by the engineer during installation must be clearly stated
4. Software upgrade, if any, must be free of cost for next 3 years
5. The vendor must assure that there are no bugs and glitches with the integration. In case of glitches or bugs at the time of installation, vendor must fix the issues in less than three days from the start date
6. In case of hardware/software issues or support, vendor should be able to provide required solution within three days
7. Additional quote for an annual maintenance contract beyond the warranty period should be included for the next 5 years
8. The vendor should have a good track record of delivering such equipment at universities/research institutions (please furnish the details)
9. Please provide list of customers who have procured your equipment in last 5 years
10. The vendor should be able to repair and maintain the equipment, once it is installed. No travel claims must be made by vendor for servicing during the warrantee/guarantee period
11. The system must be delivered at the earliest. The smallest lead time will be appreciated. Our expectation is shipment within 4 weeks after PO and full or part payment post installation
12. On all systems the payment terms will be specified in the commercial proposal and is subject to negotiation
13. The validity period of the quotation should be 90 days atleast
14. Please provide details of the number of trained personnel, who can service the setup
15. See other Terms & Conditions, guidelines, eligibility criteria etc. in enclosed document in the next pages

## 5. Technical Bid

The technical bid should furnish all requirements of the tender along with all annexures in this section and submitted to

The Chairman,  
Department of Electronic Systems Engineering  
Indian Institute of Science, Bangalore – 560012

#### Annexure-1

##### Details of the Bidder

The bidder must provide the following mandatory information & attach supporting documents wherever mentioned:

##### Details of the Bidder

| Sl. No | Items                                                                                     | Details |
|--------|-------------------------------------------------------------------------------------------|---------|
| 1.     | Name of the Bidder                                                                        |         |
| 2.     | Nature of Bidder (Attach attested copy of Certificate of Incorporation/ Partnership Deed) |         |
| 3.     | Registration No/ Trade License, (attach attested copy)                                    |         |
| 4.     | Registered Office Address                                                                 |         |
| 5.     | Address for communication                                                                 |         |
| 6.     | Contact person- Name and Designation                                                      |         |
| 7.     | Telephone No                                                                              |         |
| 8.     | Email ID                                                                                  |         |
| 9.     | Website                                                                                   |         |
| 10.    | PAN No. (attach copy)                                                                     |         |
| 11.    | GST No. (attach copy)                                                                     |         |

Signature of the Bidder

Name  
Designation, Seal

Date:

Annexure-2

Declaration regarding experience

To,  
The Chairman,  
Department of Electronic  
Systems Engineering  
Indian Institute of Science,  
Bangalore – 560012

Ref: Tender No: XXXXXXXXXX

Dated: XXXXX

**Additional compute nodes to the existing High-Performance Computing Cluster**

Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company / firm has XXXXXX years of experience in supplying **Additional compute nodes to an existing High-Performance Computing Cluster**

(Signature of the Bidder)

Printed Name

Designation, Seal Date:

Annexure-3

Declaration regarding track  
record

To,  
The Chairman,  
Department of Electronic  
Systems Engineering  
Indian Institute of Science, Bangalore  
– 560012

Ref: Tender No: XXXXXXXX

Dated: XXXXX

**Additional compute nodes to the existing High-Performance Computing Cluster**

Dear Sir,

I've carefully gone through the Terms & Conditions contained in the above referred tender. I hereby declare that my company/firm is not currently debarred /blacklisted by any Government / Semi Government organizations / institutions in India or abroad. I further certify that I'm competent officer in my company / firm to make this declaration.

Or

I declare the following

| Sl.No | Country in which the company is Debarred /blacklisted / case is Pending | Blacklisted / debarred by Government / Semi Government/Organizations /Institutions | Reason | Since when and for how long |
|-------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|-----------------------------|
|-------|-------------------------------------------------------------------------|------------------------------------------------------------------------------------|--------|-----------------------------|

(NOTE: In case the company / firm was blacklisted previously, please provide the details regarding period for which the company / firm was blacklisted and the reason/s for the same).

Yours faithfully  
(Signature of the Bidder)

Name  
Designation, Seal

Date:

Annexure-4

Declaration for acceptance of terms and conditions

To,  
The Chairman,  
Department of Electronic  
Systems Engineering  
Indian Institute of Science, Bangalore – 560012

Ref: Tender No: XXXXXX

Dated: XXXX

**Additional compute nodes to the existing High-Performance Computing Cluster**

Dear Sir,

I've carefully gone through the Terms & Conditions as mentioned in the above referred tender document. I declare that all the provisions of this tender document are acceptable to my company. I further certify that I'm an authorized signatory of my company and am, therefore, competent to make this declaration.

Yours faithfully,

(Signature of the Bidder)

Name

Designation, Seal

Date:

#### Annexure-5

Details of items quoted:

|                                        |  |
|----------------------------------------|--|
| a. Company Name                        |  |
| b. Product Name                        |  |
| c. Part / Catalogue number             |  |
| d. Product description / main features |  |
| e. Detailed technical specifications   |  |
| f. Remarks                             |  |

Instructions to bidders:

1. Bidder should provide technical specifications of the quoted product/s in detail.
2. Bidder should attach product brochures along with technical bid.
3. Bidders should clearly indicate compliance or non-compliance of the technical specifications provided in the tender document.

## 6. Commercial bid

The commercial bid should be furnished with all requirements of the tender with supporting documents as mentioned under:

| S.No | Description                                                 | Cat. Number | Quantity | Unit Price | Sub total |
|------|-------------------------------------------------------------|-------------|----------|------------|-----------|
| 1.   | Essential items noted in the technical specification        |             |          |            |           |
| 1.a  | ... (details of essential items)                            |             |          |            |           |
| 1.b  | ...                                                         |             |          |            |           |
| 2.   | Optional items noted in the technical specification         |             |          |            |           |
| 2.a  | ... (details of Optional items)                             |             |          |            |           |
| 2.b  | ...                                                         |             |          |            |           |
| 3.   | Accessories for operation and installation                  |             |          |            |           |
| 4.   | All Consumables, spares and software to be supplied locally |             |          |            |           |
| 5.   | Warranty (1 year)                                           |             |          |            |           |
| 6.   | AMC 2 years beyond warranty                                 |             |          |            |           |

Any additional items

| S.No | Description | Cat. Number | Quantity | Unit Price | Sub total |
|------|-------------|-------------|----------|------------|-----------|
|      |             |             |          |            |           |

Addressed to

The Chairman,

Department of Electronic

Systems Engineering

Indian Institute of Science,

Bangalore – 560012

## 7. Checklist

**(This should be enclosed with technical bid- Part A)**

**The following items must be checked before the Bid is submitted:**

### 1. Sealed Envelope “A”: Technical Bid

1. Section 5- Technical Bid (each page signed by the authorized signatory and sealed) with the below annexures:
  - a. Annexure 1: Bidders details
  - b. Annexure 2: Declaration regarding experience
  - c. Annexure 3: Declaration regarding clean track record
  - d. Annexure 4: Declaration for acceptance of terms and conditions
  - e. Annexure 5: Details of items quoted
2. Copy of this tender document duly signed by the authorized signatory on every page and sealed.

### 2. Sealed Envelope “B”: Commercial Bid

#### Section 6: Commercial Bid

Your quotation must be submitted in two envelopes: Technical Bid (Envelope A) and Commercial Bid (Envelope B) super scribing on both the envelopes with Tender No. and due date and both of these in sealed covers and put in a bigger cover which should also be sealed and duly super scribed with Tender No., Tender description & Due Date.