



DOON UNIVERSITY

Corrigendum to Tender notice for establishment of HPC cluster (DU/2018/Projects/UK SENR/1

Dated : 15-06-2018)

With reference to the aforesaid tender notice, the competent authority has decided to invite e-tenders once again. The last date for bidding is **5-Sep-2018, 2:00 PM**. The financial bid of those bidders shall be opened who fulfill the technical criteria.

Following clarifications on the HPC specifications (Annexure-I) should be noted while bidding

Master Node/Compute Node/High-memory Compute Nodes :

S.No.	Component	Specification
2.	Form Factor	Rack Mount Server 1U or 2U (no dense form factor)

4. A minimum of 50 TB storage with Lustre parallel File System

S. No.	Component	Specification
14.		Disk storage subsystem should be able to support 1024 or upto 4096 LUNS/VOLUMES/VVOLUMES per system and size of each LUN / VOLUMES/VVOLUMES support should be at least 128TB
16.	Energy Saving Feature	Disk storage subsystem should be provided with energy saving features to schedule the stop of the rotation of disk when not in use.
18.	Quality of Service (QoS)	Disk storage subsystem shall have a feature to limit I/O requests from a server to prevent impact on the other server load. Doon University needs a system which has capability to balance/restrict the I/O traffic under heavy load (in rare circumstances, due to malware or any other reason) from one server/user, so that the other servers are not impacted and avoid system crash. Any equivalent solution (even with any software) which can help to limit/restrict/balance I/O operations is acceptable.



DOON UNIVERSITY, DEHRADUN

1. NOTICE INVITING E-TENDER (NIET) for HPC cluster (Tender Notice No. – DU/2018/Projects/UK_SENR/1 (Dated 15-06-2018) (Re-tender notice on 24-Aug-2018)

DOON UNIVERSITY, Dehradun, Uttarakhand India invites *e-tender* offers in two bid form (Technical and Financial) from manufacturer (or their 'authorised' dealers by submitting letters/certificates, in original, from the manufacturers that they have been authorized to quote in response to *this* NIET) for the supply, installation, and successful commissioning of the HPC cluster at DOON UNIVERSITY, Dehradun. The detailed technical specifications of the material (HPC cluster) to be procured under this tender are given separately in *Annexure-I*.

The bidders, who have submitted bids against previous e-tender notice, also have to submit the bid again. Their submitted EMD draft would remain valid; however, they've to submit the e-tender fee again.

GENERAL CONDITIONS:

1. The tender documents containing detailed specifications of items, terms and conditions, etc. (bid document) are available online on Uttarakhand Govt e-portal <http://uktenders.gov.in> from 30-07-2018.
2. E tender fee Rs. 1000/- + GST (18%) (non-refundable) shall be submitted in form of demand Draft in favour of DOON UNIVERSITY, Dehradun payable at Dehradun. The tender documents information can also be downloaded from our website: www.doonuniversity.org. However, the demand draft towards the cost of tender document as prescribed above will have to be enclosed along with the scanned copy of tender document while submitting the same after submission of online tender documents. In case the offer is not accompanied with the valid demand draft for the cost of the tender document as detailed above, the tender will be summarily rejected.
3. Earnest money Rs 100,000/- shall be in form of Demand Draft in favour of DOON UNIVERSITY, Dehradun payable at Dehradun.
4. The bidder is required to submit the bid documents on line. The bidder shall also attach the scanned copy of DD for tender fee and scanned copy of earnest money online.
5. Last date for submission of the tender online is **5-Sep-2018** (1400 hrs).
6. Technical bid of tender will be opened on **5-Sep-2018** at 16.00 hrs. In case the date of opening is declared a holiday on any account, then the date shall be substituted by the next working day.
7. Tender should be addressed to the Registrar, DOON UNIVERSITY, Dehradun 248001 (U.K.), indicating on the top of the envelope: **Supply of HPC cluster Tender no. DU/2018/Projects/UK_SENR/1 Dated 15-June-2018**
8. The cost of imported instruments is to be quoted preferably in foreign currency by the principals of the Indian Agency, while the cost of indigenous instruments is to be quoted in Indian Rupees by the Indian agency/manufacturer.

9. The DOON UNIVERSITY, Dehradun reserves the right to either cancel the tender or reject any or all the tenders without assigning any reason thereof.
10. The DOON UNIVERSITY, Dehradun reserves the right to increase or decrease the quantity of components of the item under this tender.
11. All other conditions relevant to tender process can be seen in Instructions to Bidders (ITB) given in bidding documents.
12. Tenders complete in all respects should be submitted online before the stipulated date and time. .

For further details, log on to <http://uktenders.gov.in/nicgep/app>

IMPORTANT DATES & TIME

- Issue of tender bid
- **Last Date & Time For Submission: 5-Sep-2018** (1400 hrs)
- **Date/Time of Opening of Bids: 5-Sep-2018** (16.00 Hrs.)

NOTE:

Please fill & enclose the Checklist for Bid/tender submission as provided below (Performa I)

Performa I : CHECKLIST FOR BID/TENDER SUBMISSION

The following check-list must be filled in and submitted with the bid document:

<i>Tender submission checklist</i>	Tick (√) appropriately
<i>1. The techno commercial unpriced bid form duly filled is attached.</i>	
<i>2. A copy of the last audited balance sheet of your firm is attached.</i>	
<i>3. The details of the income tax clearance certificate, proof of GST registration certificate are attached.</i>	
<i>4. The copies of relevant work orders from Govt. Deptt/PSUs and Central Autonomous Bodies are attached.</i>	
<i>5. EMD: EMD has been submitted asked for</i>	
<i>6. The schedule of requirement indicating the make offered without indicating the pricing components along with the techno-commercial unpriced bid is enclosed.</i>	
<i>7. The bids both techno commercial unpriced and priced bid separately for each tender have been submitted.</i>	
<i>8. The statement of deviations from financial terms and conditions, if any, has been enclosed.</i>	
<i>Price Bid:</i>	

9. The priced bid form is signed and attached.	
10. The schedule of requirements duly priced has been attached.	

Signature with Date and seal of company stamp

Technical Bid (to be submitted with “Bid Form I: Techno commercial unpriced bid”) :

The **Technical Bid** prepared by the Bidder shall include the following without indicating the price in the Bid Form I.

	Tick (√) appropriately	Supporting Documents
<i>1 OEM has been featured in the top 500 supercomputer sites (available at www.top500.org) with at least 10 installations by the January 2018 (Latest) list & At least five installations in each list published since last three years.</i>		<i>print-out from the appropriate web link.</i>
<i>2 OEM have supplied and installed at least 2 HPC system over 100 TFlops (RPeak) in India</i>		<i>Copy of successful delivery/installation certificate</i>
<i>3 OEM have supplied and installed at least 1 PFS Storage system over 300 TB usable in India.</i>		<i>Copy of successful delivery/installation certificate</i>
<i>4 OEM shall provide factory integration of the entire HPC cluster including appropriately documented factory testing before delivery.</i>		<i>A copy of previous documented factory testing</i>
<i>5 The bidder has experienced and skilled service personnel to support open source OS/ software’s like RedHat Enterprise Linux, CentOS, Intel MPI/mpich2, fftw, Intel FORTRAN & C/C++, AMBER, GROMACS, NAMD, BLAST, HMMER, LAMMPS, VASP, Quantum ESPRESSO, VMD.TINKER etc.</i>		<i>Certificate from bidders HR Department for the qualified employees employed by the company.</i>
<i>6 Installation of the equipment to be done by respective OEM only. Entire support has to be only by respective OEM directly.</i>		<i>Copy of undertaking</i>

7 <i>The OEM is a registered company in India and should have been in operation in India for a period of at least 10 years as on date of Tender.</i>		<i>Copy of the Certificate of Incorporation / registration should be enclosed.</i>
8 <i>Bidder is OEM/Authorized Partner/service provider of the OEM. In case the tenderer is an Authorized Partner or Service Provider, a valid Agency-ship/Dealership</i>		<i>Certificate (MAF specific to this tender) should be given by OEM to quote on behalf of OEM should also be enclosed along with the technical bid.</i>
9 <i>Bid Security/EMD as specified in the NIET</i>		<i>EMD Rs 100,000/- shall be in form of Demand Draft in favour of DOON UNIVERSITY, Dehradun payable at Dehradun</i>
10 <i>Tender Form fee in form of demand draft or copy of receipt</i>		
11 <i>T&C Deviation Statement Form</i>		<i>As specified in Form 5 of this document</i>
12 <i>Technical Specification Compliance Form;</i>		<i>Compliance to Technical specification as specified in Annexure-I of this document and Form 6</i>
13 <i>Manufacturer's Authorization Form</i>		<i>As specified in Form 4 of this document</i>
14 <i>Documentary evidence establishing that the bidder is eligible to bid and is qualified to perform the contract if its bid is accepted as per qualification requirements/criteria.</i>		<ul style="list-style-type: none"> <i>a. Income Tax clearance certificate and PAN No.</i> <i>b. Copy of last audited balance sheet.</i> <i>c. Proof of having turnover more than 2.5 crore in previous year.</i> <i>d. Copy of Valid GST registration certificate.</i> <i>e. Copy of relevant purchase orders executed during last two years for Govt. Deptts., PSUs & Central Autonomous bodies.</i> <i>f. Proof of manufacturing Unit, dealership certificate/general order suppliers .</i> <i>g. Statement of deviations</i>

		<i>from financial terms & conditions, if any.</i>
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2. INSTRUCTION TO BIDDERS (ITB)

A. INTRODUCTION

1. Eligible Bidders: This Invitation for Bids is open to all manufacturers or their dealers specifically authorized by the manufacturers to quote on their behalf for this tender as per manufacturer's authorization form and Indian agents of foreign principals, if any.
2. Cost of Bidding: The Bidder shall bear all costs associated with the preparation and submission of its bid, and "the Purchaser", will in no case be responsible or liable for these costs, regardless of the conduct or outcome of the bidding process.

B. THE BIDDING DOCUMENTS

3 Cost of Bid Document: The tender documents containing detailed specifications of items, terms and conditions, etc. can be downloaded from Utrakhnad procurement portal, <http://uktenders.gov.in> or website DOON UNIVERSITY, Dehradun, on non-refundable payment of Rs. **Mentioned on first page** against instruments plus 18% of GST, for each category in the form of crossed Demand Draft/pay order/ cash deposition in favour of DOON UNIVERSITY, Dehradun, up to 5 Sep 2018 by 14.00.

However, the demand draft towards the cost of tender document as prescribed above will have to be enclosed along with the tender document while submitting the same. In case the offer is not accompanied with the valid demand draft for the cost of the tender document as detailed above, the tender will be summarily rejected.

4 Contents of Bid Document

The goods required, bidding procedures and contract terms are prescribed in this Bid Document which includes the following:

1. Notice Inviting Tender (NIT)
2. Instructions to Bidder (ITB)
3. General Conditions of Contract and Restrictions(GCC&R)
4. Forms (Bid Form I, Manufacturer's Authorisation Form II, Bidder's Performance Statement Form III, Service Support Details IV, Deviation Statement Form (ITB, GCC, SCC) V, Technical Compliance Statement Form 6, Performance Security Form 7, Qualification Requirements 8)IV
5. Technical Specifications V

The Bidder is expected to examine all instructions, forms, terms (ITB/GCC/SCC etc.), and specifications in the bid documents. Failure to furnish all information required by the bid documents or submission of a bid not substantially responsive shall result in rejection of the bid.

5 Amendments to Bid Document

- At any time prior to the deadline for submission of bids, the Purchaser may, for any reason, whether at its own initiative or in response to a clarification requested by a prospective bidder, modify the Bid Document by informed amendment. Such amendments shall form an integral part of bid documents and it shall amount to an amendment of relevant clauses of the Bid Document, including deadline for submission of bids.

C. PREPARATION OF BIDS

6 Language of Bid: The Bid prepared by the Bidder and all correspondence and documents relating to the bid exchanged by the bidder and the purchaser shall be written in English language.

7 Documents Comprising the Bid

The bid is required to be submitted in **two parts**. One part is the **Technical Bid** and the other part is the **Financial/Price Bid**.

- The **Technical Bid** prepared by the Bidder shall include the components mentioned in the Technical Bid above without indicating the price in the Bid Form. The Technical Bid shall be submitted with “Bid Form 1 : Techno-commercial unpriced bid”.
- **The Price /Financial Bid** shall comprise the technical bid with price of the equipment indicated in the bid form. Conditional Bids will not be accepted

NOTE:THE TWO BIDS (BOTH TECHNO COMMERCIAL UNPRICED BID) ALONG WITH EARNEST MONEY DEPOSIT (EMD) AND THE PRICED BID SHOULD BE SUBMITTED SEPARATELY FOR EACH TENDER's Instruments.

8 Bid Prices

The Bidder shall indicate the unit price and total bid prices of the goods/equipment proposed to be supplied under the order and enclose it with the bid.

8.1 Prices indicated shall be entered separately in the following manner

For Indigenous Equipments:

- (i) The price of the good, quoted (ex-works, ex-factory, ex-showroom, as applicable), including all duties and sales and other taxes already paid or payable
- (ii) **Taxes:** University is registered with Department of Scientific & Industrial Research (DSIR) for availing custom duty and GST payment exemption as PFRI. **Hence GST, if any, should be shown separately.** Please mention the applicable taxes (GST) clearly. However, being R&D Organization Concessional Sales Tax Forms if any can be issued, if it is applicable in your State from where the material is being supplied. If there is no explicit mention of taxes in your offer then quoted price will be deemed inclusive of such taxes. **No other charges except those mentioned clearly in the quotation shall be paid.**
- (iii) Rates should be quoted FOR at DOON UNIVERSITY, Dehradun inclusive of packing, forwarding, installation and commissioning charges etc.

For Imported Equipments:

(i) The price of the goods/ equipment, quoted FOB/FCA port of shipment. Please note that all FCA orders will be on FCA (International Carrier) INCOTERMS 2000 basis and as such Export Packing, Loading Charges, Inland Freight etc. in the shipper country will have to be paid by the Supplier. Items as per the purchase order are to be duly cleared by supplier for export in shipping country.

(ii) The price of goods/equipment may also be quoted separately on CIF/CIP New Delhi.

(iii) University is registered with Department of Scientific & Industrial Research (DSIR) for availing custom duty and central excise duty payment exemption as PFRI, **hence GST and Customs Duty, if any, should be shown separately.**

(iv) Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non - responsive and rejected.

9. Bid Currencies

Prices shall be quoted in Indian Rupees only. In case of direct import the prices may be indicated in the foreign currency. The University may, at its discretion, arrive at approximate Rupee equivalent on the basis of **exchange rate on the date of opening of price bid.**

10. Documents Establishing Goods'/Equipment Eligibility and Conformity to Bid Document

The documentary evidence of the goods and services eligibility shall consist of a statement on the country of origin of the goods and services offered which shall be confirmed by a certificate of origin at the time of shipment.

Specifications are basic essence of the equipment. It must be ensured that the offers are strictly as per our specifications. At the same time it must also be kept in mind that **merely copying our specifications in their quotation shall not make firms eligible for consideration.** The documentary evidence of conformity of the equipments and services to the Bid Document may be in the form of original literature, drawings and data, and shall consist of:

(i) A detailed description of the essential technical and performance characteristics of the equipments;

(ii) A list giving full particulars, including available sources and current prices, of spare parts, special tools, accessories etc., necessary for the proper and continuing functioning of the equipments for a period of **two years**, following commencement of the use of the goods by the Purchaser;

11. Bid Security

The Bidder shall furnish, as part of its bid, a bid security mentioned in Notice Inviting Tender.

12. Period of Validity of Bids

- Bids shall remain valid for 180 days after the date of bid opening prescribed by the Purchaser. A bid valid for a shorter period may be rejected by the Purchaser as non-responsive.
- In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity.

13. Format and Signing of Bid: The Bidder shall submit the bids in a single envelopes. The original and all copies of the bid shall be typed and shall be signed and stamped

(company seal) by the Bidder or a person or persons duly authorized to bind the Bidder to the Contract.

D. SUBMISSION OF BIDS

14. Sealing and Marking of Bids: The bidder shall seal the Technical Bid and the Price/Financial bid in two separate envelopes duly marked as “Technical Bid” and “Price/Financial Bid” respectively.

15. Deadline for Submission of Bids: 5-Sep-2018 (1400 hrs)

16. Late Bids: will be rejected and/or returned to the Bidder.

E. OPENING AND EVALUATION OF BIDS

17 Opening of Bids by the Purchaser: The Purchaser will open all Technical Bids, in the presence of Bidders' representatives who choose to attend, as per the schedule given in invitation to bids. **First the Technical Bid will be opened and on the basis of technical evaluation,** the Price bid will be opened only after fulfilling the requirement of technical bid.

18 Clarification of Bids: To assist in the examination, evaluation and comparison of bids, the Purchaser may, at its discretion ask the bidder for any clarification(s) of its bid.

19 Preliminary Examination: The Purchaser will examine the bids to determine whether they are complete, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Arithmetical errors in the priced bids will be rectified on the following basis. Bidder must have compliance to pre bid technical competence listed in tender document as in performa II.

20 Conversions to Single Currency: To facilitate evaluation and comparison, the Purchaser will convert all bid prices expressed in the amounts in various currencies in which the bid prices are payable to Indian Rupees at the selling exchange rate established by any bank in India as notified in the Newspapers/banks website on the **date of Price/Financial Bid opening.**

21 Evaluation & Comparison of Bids

The bids which have been found to be responsive the evaluation & comparison shall be made as under:

(i) Indigenous Offers

The final landing cost of each item after all discounts, freight, forwarding, insurance, taxes etc. shall be the basis of evaluation. The quotations would be evaluated separately for each item.

(ii) Imported Offers

The FOB/FCA price shall be the basis of evaluation for each item.

(iii) Imported Vs. Indigenous Offers

The final landing cost of each item taking into account, freight, forwarding, insurance, taxes etc. (CIF/CIP with customs clearance charges, Bank/LC charges, transportation upto DOON UNIVERSITY, Dehradun as per available records with DOON UNIVERSITY, Dehradun for imported goods) shall be the basis of evaluation. Conditional tenders/discounts etc. shall not be accepted.

22 Contacting the Purchaser: No Bidder shall contact or attempt to contact the Purchaser or anyone related to the Purchaser on any matter relating to its bid, from the time of the bid opening to the time the Contract is awarded. Any effort by a Bidder to influence the Purchaser in its

decisions on bid evaluation, bid comparison or contract award may result in rejection of the Bidder's bid.

23 Post Qualifications: In the absence of pre-qualification, the Purchaser will determine to its satisfaction whether the Bidder that is selected as having submitted the lowest evaluated responsive bid is qualified to perform the contract satisfactorily. The determination will take into account the Bidder's financial, technical and production capabilities. It will be based upon an examination of the documentary evidence of the Bidder's qualifications submitted by the Bidder, as well as such other information as the Purchaser deems necessary and appropriate. An affirmative determination will be a prerequisite for award of the contract to the Bidder. A negative determination will result in rejection of the Bidder's bid.

24 Award Criteria: The Purchaser shall award the contract to the successful Bidder whose bid has been determined to be substantially responsive and has been determined to be the lowest evaluated bid, provided further that the Bidder is determined to be qualified to perform the contract satisfactorily.

25 Purchaser's Right to Vary Quantities at Time of Award: The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.

26 Purchaser's Right To Accept Any Bid And To Reject Any Or All Bids: The Purchaser reserves the right to accept or reject any bid, and to annul the bidding process and reject all bids at any time prior to award of Contract, without thereby incurring any liability to the affected Bidder or bidders or any obligation to inform the affected Bidder or bidders of the grounds for the Purchaser's action.

27 Notification of Award: Prior to the expiration of the period of bid validity, the Purchaser will notify the successful bidder in writing by registered letter or e mail/fax that the bid has been accepted by way of a Purchase Order. Upon the successful Bidder's furnishing of performance security, the Purchaser will promptly notify each unsuccessful Bidder and will discharge its bid security.

2. GENERAL CONDITIONS OF CONTRACT AND RESTRICTIONS (GCC&R)

1. Definitions

1.1 In this Contract, the following terms shall be interpreted as indicated:

- (i) "The Goods" means all the equipment, machinery, and/or other materials, which the Supplier is required to supply to the Purchaser under the Contract;
- (ii) "Services" means services ancillary to the supply of the Goods, such as transportation and insurance, and any other incidental services, such as installation, commissioning, provision of technical assistance, training and other obligations of the Supplier covered under the Contract;
- (iii) "GCC" mean the General Conditions of Contract contained in this section.
- (iv) "SCC" means the Special Conditions of Contract.
- (v) "The Purchaser" means the organization purchasing the Goods i.e DOON UNIVERSITY, Dehradun.
- (vi) "The Purchaser's country" is "India".
- (vii) "The Supplier" means the individual or firm supplying the Goods and Services under this Contract.

2 Application: These General Conditions shall apply to the extent that they are not superseded by provisions in other parts of the Contract.

3 Standards: The Goods supplied under this Contract shall conform to the standards mentioned in the

Technical Specifications, and, when no applicable standard is mentioned, to the authoritative standard appropriate to the Goods' country of origin and such standards shall be the latest issued by the concerned institution.

4 Patent Rights: The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.

5 Submission of the bids: All bids complete in every respect must reach this office within the last date and time of receipt of bid.

6 Performance Security: The Supplier shall furnish Performance Security to the Purchaser for an amount of 10% of the contract value, valid upto 60 days after the date of completion of performance obligations including warranty obligations.

7 Inspections and Tests: The Purchaser or its representative shall have the right to inspect and/or to test the Goods to confirm their conformity to the Contract specifications at no extra cost to the Purchaser.

8 Packing: The Supplier shall provide such packing of the Goods as is required to prevent their damage or deterioration during transit to their final destination as indicated in the Contract.

9 Delivery and Documents: Delivery of the goods should be made within a maximum of 08 weeks from the date of placement of purchase order.

10 Insurance: The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner specified in SCC.

11 Incidental Services: The supplier may be required to provide any or all of the following services,

(i) Performance or supervision of the on-site assembly and/or start-up of the supplied Goods;

(ii) Furnishing of tools required for assembly and/or maintenance of the supplied Goods;

(iii) Furnishing of detailed operations and maintenance manual for each appropriate unit of supplied Goods;

(iv) Performance or supervision or maintenance and/or repair of the supplied Goods, for a period of time agreed by the parties, provided that this service shall not relieve the Supplier of any warranty obligations under this Contract

12 Spare Parts: The Supplier may be required to provide any or all of the following materials, notifications, and information pertaining to spare parts manufactured or distributed by the Supplier:

(i) Such spare parts as the Purchaser may elect to purchase from the Supplier, providing that this election shall not relieve the Supplier of any warranty obligations under the Contract;

(ii) In the event of termination of production of the spare parts:

(iii) Advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings and specifications of the spare parts, if requested.

13 Warranty: 13.1 The Supplier warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use

of the supplied Goods in the conditions prevailing in the country of final destination. **The warranty should be comprehensive and on site.**

13.2 This warranty shall remain valid for 24 months after the Goods or any portion thereof as the case may be, have been delivered to and accepted at the final destination indicated in the Contract.

13.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately within in 02 days arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. The period for correction of defects in the warranty period is 07 days. If the supplier having been notified fails to remedy the defects within 07 days, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.

14 Payment: The Payment shall be made by the Purchaser against delivery, inspection, successful installation, commissioning and acceptance of the equipment at DOON UNIVERSITY Dehradun in good condition and to the entire satisfaction of the Purchaser and on production of unconditional performance bank guarantee as specified in GCC.

15 Assignment: The Supplier shall not assign, in whole or in part, its obligations to perform under the Contract, except with the Purchaser's prior written consent.

16 Penalty: Subject to GCC, if the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage specified in SCC of the delivered price of the delayed Goods or unperformed Services for each week or part thereof of delay until actual delivery or performance, up to a maximum deduction of the Percentage specified in SCC. Once the maximum is reached, the Purchaser may consider termination of the Contract pursuant to GCC.

17 Terminations for Default

17.1 The Purchaser may, without prejudice to any other remedy for breach of contract, by written notice of default sent to the Supplier, terminate the Contract in whole or part:

(i) If the Supplier fails to deliver any or all of the Goods within the period(s) specified in the order, or within any extension thereof granted by the Purchaser; or

(ii) If the Supplier fails to perform any other obligation(s) under the Contract.

(iii) If the Supplier, in the judgment of the Purchaser has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

18 Termination for Insolvency: The Purchaser may at any time terminate the Contract by giving written notice to the Supplier, if the Supplier becomes bankrupt or otherwise insolvent.

19 Force Majeure: Notwithstanding the provisions of GCC, the Supplier shall not be liable for forfeiture of its performance security, liquidated damages or termination for default, if and to the extent that, its delay in performance or other failure to perform its obligations under the Contract is the result of an event of Force Majeure.

20 Resolution of Disputes: 20.1The Purchaser and the supplier shall make every effort to resolve amicably by direct informal negotiation any disagreement or dispute arising between them under or in connection with the Contract.

20.2 If, the Purchaser and the Supplier have been unable to resolve amicably a Contract dispute, either party may require that the dispute be referred for resolution to the formal mechanisms specified in the SCC. These mechanisms may include, but are not limited to, conciliation

mediated by a third party, adjudication in an agreed national or international forum, and national or international arbitration.

20.3 In case of Dispute or difference arising between the Purchaser and a supplier relating to any matter arising out of or connected with this agreement, such disputes or difference shall be settled in accordance with the Arbitration and Conciliation Act, 1996.

21 Applicable Law: The contract shall be governed by the Law of Contract for the time being in force. The place of jurisdiction would be Dehradun (Uttarakhand) INDIA.

22. Manuals and Drawings: Before the goods and equipments are taken over by the Purchaser, the Supplier shall supply operation and maintenance manuals. These shall be in such details as will enable the Purchaser to operate, maintain, adjust and repair all parts of the works as stated in the specifications. The Manuals shall be in the ruling language (English). Unless and otherwise agreed, the goods equipment shall not be considered to be completed for the purposes of taking over until such manuals and drawing have been supplied to the Purchaser.

23. Insurance (GCC Clause 10): For delivery of goods at the purchaser's premises, the insurance shall be obtained by the Supplier in an amount equal to 110% of the value of the goods from supplier place to final destination at DOON UNIVERSITY Dehradun on "All Risks" basis including War Risks and Strikes.

24. Incidental services (GCC clause 11): The incidental services also include: Furnishing of 01 set of detailed operations & maintenance manual.

25. Warranty, free maintenance service & specific requirements(GCC Clause 13): Warranty period shall be **36 months** from date of acceptance, installation and testing of Goods. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the contract. **The warranty should be comprehensive on site.**

- The Company should give the undertaking that the necessary components, spares, consumables or any other item required for the proper working of the equipment would be supplied for at least 10 years from the date of installation of the equipment.
- We would also like to run samples on quoted machine at the place of your choice to

26. Penalty Clause (GCC Clause 16): For delays: The applicable rate is 1% per week and the maximum deduction is 10% of the contract price.

27. Supplier Integrity : The Supplier is responsible for and obliged to conduct all contracted activities in accordance with the Contract using state of the art methods and economic principles and exercising all means available to achieve the performance specified in the contract.

28. Training:(all charges inclusive): The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment as per specifications.

29. Additional information's and support:

1. Provide a list of prominent academic institutions/universities (IITs, Central University), including government owned companies (ONGC etc) where particular equipment has been supplied with Certificates from these academic institutions regarding the quality of equipment supplied and after Sales Service.
2. The quotation should clearly specify the details of after Sales Service – whether it will be provided from Delhi or Dehradun and Terms and Conditions.
3. Indicate your Terms & Conditions for Annual Maintenance Contract, if required for a sophisticated equipment

4. Provision for three years onsite warranty and technical support on supplied equipments.
5. Ten years performance warranty by bidder, (that the system should be supportive by the vendors for next 10 years after installation with judicial affidavit)
6. If desired companies/ bidders have to arrange complete demonstration of quoted instruments and analysis of samples in our campus. One year's consumables and spares along with standards to be quoted by company
8. *Quoting merely the lowest price does not confer any right to any bidder for award of supply order. The University's Purchase Committee, reserves the right to select the equipment any bid under the grounds of specification compliance, technologically advanced quality, proven performance track record, brand reputation, service backup support, additional warranty, offer of additional/special features, compatibility with existing system, training, etc.*

30. REQUIREMENTS for a Bidder

1 The Bidder should be a manufacturer or their dealer specifically authorized by the manufacturer to quote on their behalf for this tender as per manufacturer authorization form and Indian agents of foreign principals, if any who must have designed, manufactured, tested and supplied the equipment(s) similar to the type specified in the "Technical Specification". Such equipments must be of the most recent series/models incorporating the latest improvements in design. The models should be in successful operation for at least one year as on date of Bid Opening.

2 The bidder should have supplied at least two such system/equipment to any prominent institutes (IITs, Central University/Institutions)/PSUs/Autonomous bodies etc. The details should be incorporated in the performance statement form along with documentary evidence. If the instruments will be supplied first time in India then proof of supplying to some reputed Academic or R & D organizations in developed countries should be provided with the technical Bid. Bidder must have compliance to pre bid technical competence listed in tender document as in performa II.

3 If required, the bidder may be asked and should be willing to arrange demonstration of the equipment offered, free of charge at on a mutually agreeable place and date prior to opening of priced bids to ascertain their conformity with tendered specifications.

4 Details of service support facilities that would be provided after the warranty period should be submitted in the Service Support Details Form.

5 That, in the case of a Bidder not doing business in India, the Bidder is/or will be (if successful) represented by an Agent in India who shall be equipped and able to carry out the Supplier's maintenance, repairs and spare parts, stocking obligations prescribed by the conditions of the contract.

6 That the Bidder will assume total responsibility for the fault-free operation of equipment, application software, if any, and maintenance during the warranty period and provide necessary maintenance services for five years after end of warranty period if required.

7. Bidders who meet the criteria given above are subject to be disqualified, if they have made untrue or false representation in the forms, statements and attachments submitted in proof of the qualification requirements or have a record of poor performance, not properly completing the contract, inordinate delays in completion or financial failure, etc.

8. Any additional bid participation criteria / eligibility conditions etc. mentioned in the Technical Specifications sheet will also form part of the Qualification Requirements along-with those mentioned in this chapter.

Bid Form I: Techno commercial unpriced Bid
(On the letter head of the firm submitting the bid)
Tender No.....

To
The _____

Dear Sir,

1. I/We hereby offer to supply the items as listed in the schedule to this tender hereto/portion thereof as you may specify in the acceptance of Tender at the price given in the said Schedule and agree to hold this offer open for a period of 180 days from the date of opening of the tender. I/we shall be bound by a communication of acceptance issued by you.
2. I/We have understood the Instruction to bidders and Conditions of Contract in the form as enclosed with the invitation to the tender and have thoroughly examined the specifications quoted in the Schedule hereto and am/are fully aware of the nature of the goods required and my/our offer is to supply the goods strictly in accordance with the specifications and requirements.
3. A crossed Bank Draft in favors of the DOON University for Rs.
.....(Rupees.....only) as Earnest Money is enclosed. The Draft is drawn on.....Bank payable at Dehradun
4. The following have been added to form part of this tender
 - (a) Samples/ Brochures with detailed specification number of parts of items quoted for, as per instructions provided in the schedule of requirement.
 - (b) Schedule of requirements, quoting the make only duly signed and stamped.(without indicating price)
 - (c) **Technical bid** as mentioned in the tender document.
 - (d) Any other enclosure. (Please give details)
5. We undertake to execute all orders which have been placed to meet emergent requirements on priority basis.
6. Certified that the bidder is (if required):
A sole proprietorship firm and the person signing the bid document is the sole proprietor/constituted attorney of the sole proprietor,
Or
A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney.
Or
A company and the person signing the document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariably be duly attested by the person authorized to sign the bid document).

7. We do hereby undertake, that, until a formal notification of award, this bid, together with your written acceptance thereof shall constitute a binding contract between us.

Telephone: _____

FAX _____

E-mail _____

Company

seal

Yours faithfully,

Signature of bidder)

Dated this day of _

Address:.....

Bid Form II: (Priced Bid)

(On the letter head of the firm submitting the bid document)

To
The _____

Ref: Tender No Dated-----
Sir,

Having examined the bidding documents and having submitted the techno commercial unpriced bid for the same, we, the undersigned, hereby submit the priced bid for supply of goods and services as per the schedule of requirements and in conformity with the said bidding documents.

We hereby offer to supply the Goods/Services at the prices and rates mentioned in the enclosed schedule of requirement.

We do hereby undertake that, in the event of acceptance of our bid, the supply of Goods/Services shall be made as stipulated in the schedule of requirement and that we shall perform all the incidental services.

The prices quoted are inclusive of all charges net F.O.R University. We enclose herewith the complete Financial Bid as required by you. This includes:
Price Schedule as per schedule of requirement.
Statement of deviations from financial terms and conditions.

We agree to abide by our offer for a period of 90 days from the date fixed for opening of the bid documents and that we shall remain bound by a communication of acceptance within that time.

We have carefully read and understood the terms and conditions of the bid document and we do hereby undertake to supply as per these terms and conditions. The Financial Deviations are only those mentioned in the statement of deviations from financial terms and conditions.

Certified that the bidder is:

A sole proprietorship firm and the person signing the bid document is the sole proprietor/
constituted attorney of sole proprietor,

Or

A partnership firm, and the person signing the bid document is a partner of the firm and he has authority to refer to arbitration disputes concerning the business of the partnership by virtue of the partnership agreement/by virtue of general power of attorney,

Or

A company and the person signing the bid document is the constituted attorney.

(NOTE: Delete whatever is not applicable. All corrections/deletions should invariably be duly attested by the person authorised to sign the bid document.)

We do hereby undertake, that, until a formal notification of award, this bid, together with your written acceptance thereof, shall constitute a binding contract between us.

Telephone: _____

FAX _____

E-mail _____

Company seal

Yours faithfully,

Signature of bidder)

Dated this day of _

Address:.....

Bid Form III

The Registrar

DOON UNIVERSITY Dehradun , 248001 (UK.) India

Sir,

Having examined the bidding document the receipt of which is hereby duly acknowledged, we the undersigned offer to supply and deliver _____ (Description of equipments) in conformity with the said bidding documents for a sum or such other sums as may be ascertained from the bid.

We undertake that if our bid is accepted to deliver the goods in accordance with the delivery schedule specified. If our bid is accepted we will obtain the guarantee of the bank as specified in SCC for the due performance of the contract, in the form prescribed by your goodself.

We agree to abide by this bid for requisite period of time after the date fixed for bid opening as per the instructions to the bidders and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award shall constitute a binding contract between us.

Commissioning and gratuities, if any, paid or to be paid by us to the agents relating to this bid, and to contract executions if we are awarded the contract, are listed below:

Name and address Of agent	Amount in Rupees	Purpose of Commission
------------------------------	------------------	-----------------------

(if none, state "none")

We understand that you are not bound to accept the lowest or any bid you may receive.

Dated this _____ day of _____ 20_____

Signature _____

In the capacity of _____

Duly authorized to sign the bid for and on behalf of _____

**MANUFACTURERS' AUTHORIZATION FORM -
Form 4**

No. Dated _____

**The Registrar,
DOON UNIVERSITY Dehradun,
248001 (U.A.) India**

Dear Sir:

We -----who are established and reputable manufacturers of having factories at -----(*address of factory*) do hereby authorize M/s (*Name and address of Agent*) to submit a bid, negotiate and receive the order from you against your tender enquiry.

No company or firm or individual other than -----M/s is authorized to bid, and conclude the contract in regard to this business.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract and Clause of the Special Conditions of Contract for the goods and services offered by the above firm.

Yours faithfully,
(Name)
(Name of
manufacturers)

Note: This letter of authority should be on the **letterhead of the manufacturer** and should be signed by a person competent and having the power of attorney to bind the manufacturer. It should be included by the Bidder in its techno-commercial unpriced bid.

**DEVIATION STATEMENT FORM (ITB, GCC) -
Form 5**

The following are the particulars of deviations (ITB, GCC Clauses) from therequirements of the tender document and specifications:

S.No	Clause	Deviation	Remarks (including Justification)

Place:

Date:

Signature and seal of the Manufacturer/Bidder

NOTE:

Where there is no deviation, the statement should be returned duly signed with an endorsement indicating “No Deviations”.

TECHNICAL COMPLIANCE STATEMENT FORM

An item-by-item commentary on the Purchaser's Technical Specifications (as specified in **Annexure-I**) demonstrating substantial responsiveness of the goods and services to those specifications or a statement of deviations and exceptions to the provisions of the Technical Specifications.

ITEM NAME:			
S.No	Tender Specification	Bidders Specification	Deviation if any

(Technical literature/brochures/manuals should be attached along-with this format)

Please note:

1. Compliance/Deviation statement comparing the specifications of the quoted model to the required specifications. This statement should also give the page number(s) of the technical literature where the relevant specification is mentioned.
 2. Bids must have supporting documents (technical literature or copies of relevant pages from the service manual or factory test data) for all the points noted above, failure regarding which may result in rejection of bid.
-

PERFORMANCE SECURITY FORM

**The Registrar,
DOON UNIVERSITY Dehradun,
248001 (UA.) India**

WHEREAS (Name of Supplier) Hereinafter called "the Supplier" has undertaken, in pursuance of Contract no.....dated,..... 200... to supply.....(Description of Goods and Services) hereinafter called "the Contract".

AND WHEREAS it has been stipulated by you in the said Contract that the Supplier shall furnish you with a Bank Guarantee by a recognized bank for the sum specified therein as security for compliance with the Supplier's performance obligations in accordance with the Contract.

AND WHEREAS we have agreed to give the Supplier a Guarantee:

THEREFORE WE hereby affirm that we are Guarantors and responsible to you, on behalf of the Supplier, up to a total of (Amount of the Guarantee in Words and Figures) and we undertake to pay you, upon your first written demand declaring the Supplier to be in default under the Contract and without cavil or argument, any sum or sums within the limit of (Amount of Guarantee) as aforesaid, without your needing to prove or to show grounds or reasons for your demand or the sum specified therein.

This guarantee is valid until theday of.....20.....

Signature and Seal of Guarantors
(Complete Address/Contact Details with Tel./Fax/email etc)

Date

List of Bid Documents and Requirements for Bidders attached Form 8

1. List of prominent institute/ University where instruments have been supplied.
 2. Name of University/ Institute with contact no of concern person where particular model has been installed.
 3. Performance certificate from University
 4. Certificate of Total turnover of the Company as required
 5. Audited statement of account for the last 3 years
 6. Certificates
-

FORMAT OF BANK GUARANTEE FORM -

Form 9

1.This guarantee should be furnished by a Nationalised Bank / scheduled Bank, authorised by RBI to issue a Bank Guarantee.

2. This bank guarantee should be furnished on stamp paper of Rs. 100/-

3. The stamp paper should have been purchased in the Name of the Bank executing the Guarantee.

4. In the case of foreign bidder the B.G may be furnished by an international reputed bank acceptable to the PURCHASER countersigned by any Nationalised / Scheduled Bank in India authorised by Reserve Bank of India.

DATE BANK
GUARANTEE NO:
Ref :.....

To
Doon University
Dehradun

Dear Sirs,

In accordance with your 'Invitation to Bid" under your Tender No:.....
M/S:..... herein after called the Contractor/supplier,
with the following Directors on their Board of Directors / partners of the firm.

1..... 2.....
3..... 4.....

agrees for the contract/supplies. As an irrevocable Bank Guarantee for an amount of Rs.....(in words and figures) valid for days from is required to be submitted by the Contractor/Supplier which amount is liable to be forfeited by the purchaser in the event of 1) the withdrawal or revision of the offer by the Bidder as a condition within the validity period. (2) non-acceptance of the Letter of Intent / purchase order by the bidder when issued within the validity period. (3) failure to furnish the valid contract performance guarantee by the bidder within one month from the receipt of the purchase order and (4) on the happening of any contingencies mentioned in the bid documents such as

We, the Bank at..... having our Head office at(Local address) Guarantee and undertake to pay immediately on first demand by DOON University the amount of..... (in figure and words) without any reservation., protest, demur and recourse. Any such demand made by the Purchaser shall be conclusive and binding on the Bank irrespective of any dispute or difference raised by the purchaser.

The guarantee shall be irrevocable and shall remain valid up to
..... (This date should be 6 months after execution of the

order). If any further extension of this guarantee is required the same shall be extended to such required period (not exceeding one year) on receiving instruction from M/s.....on whose behalf this guarantee is issued.

In witness whereof the Bank, through its authorised officer has set its hand and stamp on this day of at
witness (Signature)

WITNESS

(signature).....

Name in (Block letters)

Designation

(Staff Code No.).....

(Bank's common Seal)

Official address:

Attorney as per power of Attorney No.

Date :



DOON UNIVERSITY, DEHRADUN

Specifications for HPC Cluster Doon University, Dehradun

(should be read with corrigendum notice dated 24-Aug-2018)

We would like to setup 4 nodes Cluster. The overall cluster design should consist of

1. A single master node
2. 2 compute nodes of the specified configuration.
3. 2 high-memory nodes as detailed below
4. Proposals should include a minimum of 50 TB usable storage PFS solution with the Specifications as given below

Total number of nodes :

Please quote for the following :

1 (Master node) + 2 (compute nodes) + 2 (high-memory Compute node)

Detailed specifications are as given below.

1. Master node (Qty. 1)

S. No.	Component	Specification
1.	Make/Model Name	The system should be quoted with BOM and partcodes. All the partcodes should be from the same OEM
2.	Form Factor	Rack Mount Server 1U
3.	Processor	Intel Xeon Gold 6140 series processors or equivalent each with 18 Cores or more with base clock speed 2.30 GHz or higher
4.	No. of processors	2 Sockets populated
5.	Chipset	Intel C624 chipset family

6.	Memory	96 GB DDR4 Registered ECC , 12 x 8 GB DIMM in balanced configuration as recommended by Intel
7.	Memory Features and scalability	Advanced ECC/Chipkill, SDDC (Chipkill™), Rank sparing, Memory Mirroring support, memory scrubbing support, 24 DIMM slots
8.	HDD	1 x 1.8 TB 10K SAS 12 G , should support 8 x 2.5" disks
9.	RAID Controller	Hardware Raid controller supporting - RAID Levels 0, 1, 10, 5, 50
10.	ODD	Internal BLUERAY RW
11.	Communication	4 x 1 Gbit/s ethernet ports, 1 x 100 Gbps OPA/EDR
12.	Expansion	4 PCIe 3.0 slots, at least 2 PCIe 3.0 x16 slots
13.	Graphics	Standard server graphics
14.	Other Communication Ports	4 x USB, 1 x VGA, 1 x serial port, 1 x 1 GbE dedicated management port
15.	Management	OEM Server Management Suite, Integrated remote management controller with dedicated 1GbE port, should support graphical console redirection and remote media redirection.
16.	OS	Latest CentOS/ self support RHEL
17.	Power Supply	Redundant HotSwap platinum power supply
18.	Noise level	According to ISO 7779 and ISO 9296
19.	Fans	Redundant HotSwap Fans
20.	Warranty	3 years OEM comprehensive onsite warranty with Next Business day recovery. The OEM should have direct Service setup in India.
21.	Global Compliance	CE, CSA, FCC, RoHS

2. Compute Nodes (Qty 2)

S. No.	Component	Specification
1.	Make/Model Name	The system should be quoted with BOM and partcodes. All the partcodes should be from the same OEM
2.	Form Factor	Rack Mount Server 1U
3.	Processor	Intel Xeon Gold 6140 series processors or equivalent each with 18 Cores or more with base clock speed 2.30 GHz or higher
4.	No. of processors	2 Sockets populated
5.	Chipset	Intel C624 chipset family

6.	Memory	96 GB DDR4 Registered ECC , 12 x 8 GB DIMM in balanced configuration as recommended by Intel
7.	Memory Features and scalability	Advanced ECC/Chipkill, SDDC (Chipkill™), Rank sparing, Memory Mirroring support, memory scrubbing support, 24 DIMM slots
8.	HDD	1 x 1.2 TB 10K SAS 12 G , should support 8 x 2.5" disks
9.	RAID Controller	Hardware Raid controller supporting - RAID Levels 0, 1, 10, 5, 50
10.	Communication	4 x 1 Gbit/s ethernet ports, 1 x 100 Gbps OPA/EDR
11.	Expansion	4 PCIe 3.0 slots, at least 2 PCIe 3.0 x16 slots
12.	Graphics	Standard server graphics
13.	Other Communication Ports	4 x USB, 1 x VGA, 1 x serial port, 1 x 1 GbE dedicated management port
14.	Management	OEM Server Management Suite, Integrated remote management controller with dedicated 1GbE port, should support graphical console redirection and remote media redirection.
15.	OS	Latest CentOS/ self support RHEL
16.	Power Supply	Redundant HotSwap platinum power supply
17.	Noise level	According to ISO 7779 and ISO 9296
18.	Fans	Redundant HotSwap Fans
19.	Warranty	3 years OEM comprehensive onsite warranty with Next Business day recovery. The OEM should have direct Service setup in India.
20.	Global Compliance	CE, CSA, FCC, RoHS

3. Compute Nodes - High Memory (Qty 02)

S. No.	Component	Specification
1.	Make/Model Name	The system should be quoted with BOM and partcodes. All the partcodes should be from the same OEM
2.	Form Factor	Rack Mount Server 1U
3.	Processor	Intel Xeon Gold 6140 series processors or equivalent each with 18 Cores or more with base clock speed 2.30 GHz or higher
4.	No. of processors	2 Sockets populated
5.	Chipset	Intel C624 chipset family
6.	Memory	192 GB DDR4 Registered ECC , 12 x 16 GB DIMM in balanced configuration as recommended by Intel
7.	Memory Features and scalability	Advanced ECC/Chipkill, SDDC (Chipkill™), Rank sparing, Memory Mirroring support, memory scrubbing support, 24 DIMM slots
8.	HDD	1 x 1.2 TB 10K SAS 12 G , should support 8 x 2.5" disks

9.	RAID Controller	Hardware Raid controller supporting - RAID Levels 0, 1, 10, 5, 50
10.	Communication	4 x 1 Gbit/s ethernet ports, 1 x 100 Gbps OPA/EDR
11.	Expansion	4 PCIe 3.0 slots, at least 2 PCIe 3.0 x16 slots
12.	Graphics	Standard server graphics
13.	Other Communication Ports	4 x USB, 1 x VGA, 1 x serial port, 1 x 1 GbE dedicated management port
14.	Management	OEM Server Management Suite, Integrated remote management controller with dedicated 1GbE port, should support graphical console redirection and remote media redirection.
15.	OS	Latest CentOS/ self support RHEL
16.	Power Supply	Redundant HotSwap platinum power supply
17.	Noise level	According to ISO 7779 and ISO 9296
18.	Fans	Redundant HotSwap Fans
19.	Warranty	3 years OEM comprehensive onsite warranty with Next Business day recovery. The OEM should have direct Service setup in India.
20.	Global Compliance	CE, CSA, FCC, RoHS

4. A minimum of 50 TB storage with Lustre parallel File System

S. No.	Component	Specification
1.	Parallel File System	<p>The storage system shall be integrated with cluster through the storage (I/O nodes MDS & OSS) nodes using native Infiniband / OPA environment and Lustre Parallel File System (PFS). The implementation should be done uniformly across the controller pairs with no single point of failure. Vendors must submit IOR/ IOZ one benchmark output to justify performance claims and whole solution must be designed in no single point of failure. Usable 50 TB (or more) capacity with hardware RAID-6 (8+2) using NLSAS disks with 2TB maximum individual capacity. Write throughput of 1.8 GBps performance on Parallel File system is required. Additional 3 TB usable capacity on SAS 12 G 10K disks with hardware RAID-10 required for Metadata space. Disks storage should support SAS, NLSAS, SSD disks in same storage. The Useable Capacity will be measured at RHEL Client using df Command. IOR benchmark should be submitted along with bid by storage OEM. Lustre parallel file system responsibility should be owned by storage OEM. Storage & server should be preferably from same OEM to avoid any performance challenge. No software RAID based or JBOD based system are allowed. System quoted with servers having Internal disks will not be accepted.</p> <p>Disk storage system should have the following minimum</p>

		configuration. Minimum 2 x I/O nodes in active - active HA with each having specifications similar to compute nodes except for below: Processor - 2 x Intel Xeon Silver 4110 8C 2.10 GHz, Memory - 64 GB , 2 x 16 Gbps Fc ports. Warranty - 5 years comprehensive warranty with NBD recovery.
2.	Number of Controllers	The disk storage subsystem should be configured with dual controllers in Active - Active mode.
3.	Host Interface support	Disk storage subsystem should support FC 8 /16 Gbps, iSCSI 1 / 10 Gbps and SAS 12 Gbps interfaces and should support mix of host interface on controllers directly
4.		Disk storage subsystem should be configured with 4 X 16 Gbps FC ports per controller.
5.	Number of Host Interface	Disk storage subsystem should be able to connect upto 1024 hosts
6.	Backend bandwidth	Disk storage subsystem should be configured with dual SAS 3.0 (4 Lanes x 12 Gbits) backend ports
7.	Cache memory	Disk storage subsystem should be provided with atleast 16GB cache across the controllers
8.	Disk support	Disk storage subsystem should support NL SAS, SAS and SSD disk drives and should be able to support mix of drives in same disk enclosure.
9.	Disk Type	Disk storage subsystem should support both 3.5 Inch and 2.5 Inch drive form factor
10.	Capacity	Disk storage subsystem should support minimum 140 Drives
11.		Disk storage subsystem should be quoted with 50 TB usable space with NL-SAS 2TB or lower disk with Lustre PFS
12.		Disk storage subsystem should be able to upgrade with Data in place to next tier model in future for higher capacity and performance
13.	Data Protection	Disk storage subsystem should support hardware RAID 0,1,1+0,5,5+0,6 and should have disk failure detection and replacement features automatically within the box.
14.		Disk storage subsystem should be able to support upto 4096 LUNS/VOLUMES/VVOLUMES per system and size of each LUN support should be at least 128TB
15.	Virtualization	Disk storage subsystem should be able to support features like Thin Provisioning, Storage Tiering (Sub LUN data movement based on policy)
16.	Energy Saving Feature	Disk storage subsystem should be provided with energy saving features to schedule the stop the rotation of disk when not in use.
17.	Data Security	Disk storage subsystem should be able to support 128Bit ASE encryption either at hardware level or software level
18.	Quality of Service	Disk storage subsystem shall have a feature to limit I/O requests from a server to prevent impact on the other server load. Doon University needs a system which has capability to balance/restrict

		the I/O traffic under heavy load (in rare circumstances due to malware or any other reason) from one server/user, so that the other servers are not impacted and avoid system crash. Any equivalent solution (even with any software) which can help to limit/restrict/balance I/O operations is acceptable.
19.	Storage Management	Disk storage subsystem should be provided with System management tools Web GUI, CLI,SNMP,SMI-S,IPV6, Email notification, wake on LAN
20.	Warranty	3 years OEM comprehensive onsite warranty with Next Business day recovery. The OEM should have direct Service setup in India.

5. Interconnect

Component	Specification
Interconnect	1 x 24 Ports Mellanox IB/Intel OPA switch with required cables for high speed interconnect.
	1 x 24 ports 1 Gbps swiwtch for management network with required cables, IPMI ports should also be connected
	3 years OEM comprehensive onsite warranty

6. Softwares

HPC cluster manager software features	cluster deployment & management, should be open source
	Support and maintenance and upgrade
Compiler	Intel suite of compilers including Fortran77, Fortran90, C, C++, Python, MPI, MKL, BLAS, LAPACK, OPENMP, MVAPICH2, OPEN-MPI, FFTW/OPEN-FFT, compatible for cluster environment, for three years. Perpetual site licenses.
	Intel® MPI Library (for 5 years), MVAPICH2 and Open-MPI.
	Necessary software (fully supported) to monitor and manage InfiniBand and Gigabit ethernet networks.

7. Job Scheduler

- Job scheduler should be compatible to application, with all features
- Integrated workload management solution with web based job submission
- Bidder should integrate user applications with batch submission script to facilitate seamless usage of the HPC system.
- Any jobs submitted without using job scheduler should be killed automatically.

- Preemptive and backfill scheduling support
- Application integration support
- Live reconfiguration capability
- Support for SLA/equivalent based resource utilization
- GPU Aware scheduling
- Intuitive web interface to submit and monitor jobs
- workload cum resource manager with policy-aware,
- resource-aware and topology-aware scheduling
- Advance reservation support
- Support of job submission through CLI, Web-services and APIs

8. Operating System

Operating System	Open source 64 bit Linux (CentOS or RHEL) latest stable version compatible with cluster environment and all necessary tools and libraries for management and software development for all the compute nodes, master nodes. The operating system should be installed properly in all the servers/nodes.
	Local yum repository to be configured with CentOS or RHEL and EPEL repos.

9. Benchmarks :

The following benchmarks are to be submitted for the proposed HPC system on the proposed configuration or closest available configuration at the time of the bid. Vendor will have to reproduce the submitted benchmark results on site after installation

- LINPACK benchmark for peak performance.
- WRF-CHEM performance for the codes and the data as provided by Doon University

10. OPTIONALS :

- (i) Additional warranty of 2 years after completion of 3 years warranty on the products :
 - (a) Master node (Qty 1)
 - (b) Compute Nodes (Qty 2)
 - (c) High memory node (Qty 2)
 - (d) PFS storage system

- (ii) **UPS :** 1 x 10 KVA UPS with minimum 20 min power backup with 3 years comprehensive onsite warranty including 2 years battery warranty