



# University of Agriculture, Faisalabad

## Bidding Documents

Tender No.104/2023

### **SPECIAL INSTRUCTIONS**

- No cutting, erasing is allowed in the Tender bid.
- Bid offered strictly in accordance with the bid document will only be accepted.
- Only typed bid will be accepted
- Call Deposit Receipt (CDR) will be preferred. However, Bank Guarantee may also be accepted in case of performance security. CDR and Bank Guarantee be deposited in the University relevant account and in that eventuality, the release of the requisite amount would be made in shape of crossed cheque after deductions of necessary taxes and bank charges
- All bidders and the representative visits the University of Agriculture, Faisalabad must ensure safety measures for COVID-19 as directed by the Govt. of Pakistan

**THIS IS FOR STRICT COMPLIANCE, FAILING WHICH THE  
RESPECTIVE BID SHALL STAND CANCELLED**

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## **Section I.**

# **Invitation for Bids**



## UNIVERSITY OF AGRICULTURE, FAISALABAD (TENDER NOTICE No.104/2023)

The prospective bidders having Income Tax, General Sales Tax, Provincial Sales Tax (if applicable) registered with relevant authority/department are invited to submit sealed tenders on the basis of Single Stage (two envelop procedure) for Supply, Installation, Configuration, Testing, Training of High-Performance Computing (HPC) Solution under project titled “**Piloting Precision Agriculture technologies in the Selected Agro-Ecological Zones of Punjab**” at University of Agriculture, Faisalabad.

|                                                                                                                                                            |                   |                       |                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------|-----------------------|---------------------------------|
| <b>Date of Receiving and Opening</b>                                                                                                                       | <b>13.10.2023</b> | <b>Receiving Time</b> | <b>10:30 a.m.</b>               |
|                                                                                                                                                            |                   | <b>Opening Time</b>   | <b>11:00 a.m.</b>               |
|                                                                                                                                                            |                   | <b>Bid Security</b>   | <b>2% of the Estimated Cost</b> |
|                                                                                                                                                            |                   | <b>Tender Fee</b>     | <b>Rs.500/-</b>                 |
|                                                                                                                                                            |                   |                       | <b>(Free, if Download)</b>      |
| <b>* Link for free Download:</b> <a href="http://uaf.edu.pk/directorates/dpiv/dpiv_tenders.html">http://uaf.edu.pk/directorates/dpiv/dpiv_tenders.html</a> |                   |                       |                                 |

1. The prospective bidder may download the bidding document carrying all details free of cost at the \*link mentioned above or may have bidding document from the **Directorate of Procurement & Inventory Control (DPIC), University of Agriculture, Faisalabad (UAF)** subject to production of deposit receipt of Rs. 500/- in the University Income Account (No.11-9/NBP, UAF Branch). The bidders shall drop the bids in the Tender Box or sent through Courier as per schedule. The bids will be opened at **DPIC** as per date & time mentioned above.

2. The UAF will not be responsible for any cost or expense incurred by the bidder in connection with the preparation or delivery of bids. In case of official holiday on the day of submission, the next day will be treated as closing date.

**Note:** The bid must be dropped in the Tender Box available in Director Room and not to be handed over to any person of the Directorate if the bid is sent by in person or through post, the same instructions be passed on to the Courier.

**DIRECTOR (DPIC)**  
**(For & On behalf of the Committee)**  
Phone#041-9200898, 9200161  
**Extn.3503/3504/3505/3506/3507**  
E.Mail: [dpic@uaf.edu.pk](mailto:dpic@uaf.edu.pk)  
[store\\_officer@uaf.edu.pk](mailto:store_officer@uaf.edu.pk)

Section II.

**Instructions to Bidders**

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**Instructions to Bidders**

**A. Introduction**

- |                                       |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|---------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>1. Source of Funds</b>             | University of Agriculture, Faisalabad.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <b>2. Eligible Bidders</b>            | <p>2.1 The invitation for Bids is opened to all supplier having trade relations with Pakistan and registration for National Tax Number &amp; Sales Tax Number with Federal Board of Revenue</p> <p>2.2 Bidders should not be associated, or have been associated in the past, directly or indirectly, with a firm or any of its affiliates which have been engaged by the Purchaser to provide consulting services for the preparation of the design, specifications, and other documents to be used for the procurement of the goods to be purchased under this Invitation for Bids.</p> <p>2.3 Only Government owned enterprises may participate, only if they are legally allowed.</p> <p>2.4 bidders shall not be under a declaration of ineligibility in accordance with ITB 36.1&amp;37 by any Government organization. The bidder shall provide affidavit to this effect.</p> |
| <b>3. Eligible Goods and Services</b> | <p>3.1 All goods and related services to be supplied under the contract shall have their origin in eligible source countries, and all expenditures made under the contract will be limited to such goods and services.</p> <p>3.2 For purposes of this clause, “origin” means the place where the goods are mined, grown, or produced, or the place from which the related services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially-recognized product results that is substantially different in basic characteristics or in purpose or utility from its components.</p> <p>3.3 The origin of goods and services is distinct from the nationality of the Bidder.</p>                                                                                                                      |
| <b>4. Cost of Bidding</b>             | <p>4.1 The Bidder shall bear all costs associated with the preparation and submission of its bid, and the Purchaser named in the bid date sheet, hereinafter referred to as “the purchaser” will in no case be responsible or liable for those costs, regardless of the conduct or outcome of the bidding process.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |

**B. The Bidding Documents**

5. **Content of Bidding Documents**

5.1

The goods required, bidding procedures, and contract terms are prescribed in the bidding documents. In addition to the Invitation for Bids, the bidding documents include:

(a) Instructions to Bidders (ITB)

(b) Bid Data Sheet

(c) General Conditions of Contract (GCC)

(d) Special Conditions of Contract (SCC)

(e) Schedule of Requirements

(f) Technical Specifications

(g) Bid Form and Price Schedules

(h) Manufacturer’s Authorization Form

(i) Integrity pact.

(j) Mechanism of Blacklisting and Deregistration

5.2

The Bidder is expected to examine all instructions, forms, terms, and specifications in the bidding documents. Failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at the Bidder’s risk and may result in the rejection of its bid.
6. **Clarification of Bidding Documents**

6.1

A prospective Bidder requiring any clarification of the bidding documents may notify the Purchaser in writing at the Purchaser’s address indicated in the **Bid Data Sheet**. The Purchaser will respond in writing to any request for clarification of the bidding documents which it receives prior to the deadline for the submission of bids prescribed in ITB Clause 19.1. Written copies of the Purchaser’s response (including an explanation of the query but without identifying the source of inquiry) will be sent to all prospective bidders that have received the bidding documents.
7. **Amendment of Bidding Documents**

7.1

At any time prior to the deadline for submission of bids, the Purchaser, for any reason, whether at its own initiative or in response to a clarification requested by a prospective Bidder, may modify the bidding documents by amendment.

7.2

All prospective bidders that have received the bidding documents will be notified of the amendment in writing and will be binding on them.

7.3

In order to allow prospective bidders reasonable time in which to take the amendment into account in preparing their bids, the Purchaser, at its discretion, may extend the deadline for the submission of bids.



C. Preparation of Bids

8. Language of Bid

8.1

The bid prepared by the Bidder, as well as all correspondence and documents relating to the bid exchanged by the Bidder and the Purchaser shall be written in English. Supporting documents and printed literature furnished by the Bidder may be in another language provided they are accompanied by an accurate translation of the relevant passages in the language specified above, in which case, for purposes of interpretation of the Bid, the translation shall govern.
9. Documents Constituting the Bid

9.1

The bid prepared by the Bidder shall comprise the following components:

(a)

a Bid Form and a Price Schedule completed in accordance with ITB Clauses 10, 11, and 12;

(b)

documentary evidence established in accordance with ITB Clause 13 that the Bidder is eligible to bid and is qualified to perform the contract if its bid is accepted;

(c)

documentary evidence established in accordance with ITB Clause 14 that the goods and ancillary services to be supplied by the Bidder are eligible goods and services and conform to the bidding documents; and

(d)

bid security furnished in accordance with ITB Clause 15.
10. Bid Form

10.1

The Bidder shall complete the Bid Form and the appropriate Price Schedule furnished in the bidding documents, indicating the goods to be supplied, a brief description of the goods, their country of origin, quantity, and prices.

10.2

Bidders tendering for engineering goods produced in Pakistan shall be accorded a price preference in rupees up to a specific percentage (in proportion to the value addition) of the lowest quoted landed cost of an item of foreign origin with similar specifications as mentioned in the tenders:

•

Provided that-

(a)

The saving in foreign exchange is not less than the amount of price preference: and

(b)

It is ensured that in each case of such preference, the total import requirements for producing the supplies tendered for locally manufactured items has been duly indicated by the bidders.

•

Price preference shall be allowed as under:-

(a)

Having minimum of twenty percent value addition through indigenous manufacturing price preference shall fifteen percent;

(b)

Having over twenty percent and up to thirty percent value addition through indigenous manufacturing, price preference shall be twenty percent, and

(c) Having over thirty percent value addition through indigenous manufacturing, price preference shall be twenty five percent.

- For the purpose of granting a margin of domestic preference bids will be classified into following groups.

**Group.A.** Bids offering engineering goods produced in Pakistan.

**Group.B.** Bids offering good of foreign origin to be imported by the purchaser through the supplier's Local (Pakistan) Agent.

**Group.C.** Bids offering good of foreign origin to be imported by the purchaser directly.

## 11. Bid Prices

11.1 The Bidder shall indicate on the appropriate Price Schedule the unit prices (where applicable) and total bid price of the goods it proposes to supply under the contract.

11.2 Prices indicated on the Price Schedule shall be entered separately in the following manner or specified otherwise in the Bid Data Sheet:-

a). for goods offered from within Pakistan;

the price shall be quoted on FOR UAF basis. (FOR means the price of goods quoted by the bidder shall be inclusive of all costs, expenses, charges, duties and taxes etc. whatsoever incidental to their delivery, installation and commissioning as the case may be at UAF site).

b) for goods offered from abroad by the LOCAL AGENT:

the price shall be quoted Cost and Freight (CFR), Carriage Paid to (Duty Paid) (CPT) Karachi seaport or Lahore/Faisalabad airport Pakistan, as the case may be. The bidder shall also add all cost expenses, charges, duties and taxes etc. whatsoever expect customs, incidental to delivery installation/commissioning of goods from the port of destination to UAF site. The bidder, in quoting the price, shall be free to use transportation in abroad except transit and means of transport through/of Israel. The LC at sight, as on Usance basis and Advance Payment will be governed as per following:-

### i. LC AT SIGHT

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR **within fortnight** in favor of Director (DPIC) as security equal to 100% amount of the goods to initiate the LC at sight.

### ii. LC ON USANCE BASIS

In case the bidder, is unable to provide CDR in favor of Director (DPIC) as security equal to 100% amount of the goods to be imported, may chose this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note **within fortnight** to initiate the LC on usance basis (minimum usance period 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading).

### iii. ADVANCE PAYMENT

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR **within fortnight** in favor of Director (DPIC) as security equal to 100% amount of the goods to be imported to proceed for advance payment to the exporter. However, this option will be had where the value of the goods to be imported is up to US \$ 10,000 or varied in accordance with the instructions of the State Bank of Pakistan and Pakistan Customs issued from time to time and remittance will also be made accordingly.

**iv. OPEN ACCOUNT**

In case the bidder has not opted for import through LC (at sight or Usance basis or advance payment) may opt this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. However, remittance will be made maximum up to six months from the date of filing of Goods Declaration (GD) form or otherwise as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

**v. CONTRACT / COLLECTION**

In case the bidder has not opted the options referred to “i to iv” above and may opt for this option. The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. The minimum period for remittance will be 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading. However, remittance will be made as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

**vi. INCIDENTAL CHARGES FOR IMPORT OF GOODS:**

All charges (Inside/outside Pakistan) like insurance, LC/bank and clearance of consignment from port/custom authorities will be borne by the bidder.

**vii. RELEASE OF CDR**

In case of LC at sight and advance payment to exporter, the CDR equal to 100% amount of the shipment as security will be released by Director (DPIC) after receiving of satisfactory inspection/installation/commissioning report from convener tender committee concerned.

**viii. INITIATION OF REMITTANCE TO THE EXPORTER**

In case of LC on usance basis, import on Open Account and Contract / Collection basis, the Director (DPIC) will initiate remittance through the concern bank to the exporter after receiving the satisfactory inspection/installation/commissioning report from the purchaser or the convener tender committee as the case may be.

**DELIVERY PERIOD**

After receiving the transmitted LC (at sight OR Usance Basis) OR swift acknowledgment against advance payment / proof of advance payment OR supply order on “Open Account” or “Contract / Collection” basis, the local supplier is responsible to provide complete set of shipping documents [i.e. Airway Bill/Seaway Bill/Bill of Lading, Commercial Invoice, Packing List, Country of Origin Certificate and any other document(s) related to shipment (if required) along with detail of bidder’s clearing agent for issuance of authority letter for clearance of consignment from port / custom authorities] ***within 6 weeks from the date of opening of LC (at sight or usance basis), advance payment and date of supply order for import of goods on “Open Account” or “Contract / Collection” basis. Moreover, after***

*clearance of consignment by bidder from port / custom authorities, will deliver the consignment to the purchaser along with complete set of post shipment documents within 05 days from the date of Authority Letter.* After expiry of the requisite period, firm will require to apply for extension in delivery period. However, after due scrutiny the Committee may extend the delivery period with liquidated damages as per applicable rate if the delay is on part of the bidder or without liquidated damages if the delay is on the part of the procuring agency or due to “force majeure”.

**NOTE:**

In case of late submission of Proforma Invoice, shipping documents and delivery of goods, difference of exchange rate on higher side as well as liquidated damages shall be recovered out of belongings of the bidders @ 0.67% of the value of the goods up to maximum 10% of the value of goods.

- 11.3 The terms CFR, CPT, etc., shall be governed by the rules prescribed in the current edition of *Incoterms* published by the International Chamber of Commerce, Paris or otherwise specified in the Bid Data Sheet and SCC
- 11.4 The Bidder’s separation of price components in accordance with ITB Clause 11.2 above will be solely for the purpose of facilitating the comparison of bids by the Purchaser and will not in any way limit the Purchaser’s right to contract on any of the terms offered.
- 11.5 Prices quoted by the Bidder shall be fixed during the Bidder’s performance of the contract and not subject to variation on any account, unless otherwise specified in the Bid Data Sheet. A bid submitted with an adjustable price quotation will be treated as non-responsive and will be rejected, pursuant to ITB Clause 24. If, however, in accordance with the Bid Data Sheet, prices quoted by the Bidder shall be subject to adjustment during the performance of the contract, a bid submitted with a fixed price quotation will not be rejected, but the price adjustment would be treated as zero.

**12. Bid Currencies**

- 12.1 Prices shall be quoted in the following currencies:
  - (a) For goods and services that the Bidder will supply from within the Purchaser Country, the prices shall be quoted in Pak Rupees, unless otherwise specified in the **Bid Data Sheet**.
  - (b) For goods and services that the Bidder will supply from outside the Purchaser Country, the prices shall be quoted in any currency. However the payment will only be made by the purchaser in pak rupees in case of ITB clause 11.2 (b) and SCC.

**13. Documents Establishing Bidder’s Eligibility and Qualification**

- 13.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, documents establishing the Bidder’s eligibility to bid and its qualifications to perform the contract if its bid is accepted.
- 13.2 The documentary evidence of the Bidder’s eligibility to bid shall establish to the Purchaser’s satisfaction that the Bidder, at the time of submission of its bid, is from an eligible country as defined under ITB Clause 2.
- 13.3 The documentary evidence of the Bidder’s qualifications to perform the contract if its bid is accepted shall establish to the Purchaser’s satisfaction:

- (a) that, in the case of a Bidder offering to supply goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized by the goods’ Manufacturer or producer to supply the goods in the Purchaser Country;
- (b) that the Bidder has the financial, technical, and production capability necessary to perform the contract;
- (c) that, in the case of a Bidder not doing business within the Purchaser Country, the Bidder is or will be (if awarded the contract) represented by an Agent in that country equipped and able to carry out the Supplier’s maintenance, repair, and spare parts-stocking obligations prescribed in the Conditions of Contract and/or Technical Specifications; and
- (d) that the Bidder meets the qualification criteria listed in the **Bid Data Sheet**.

**14. Documents Establishing Goods’ Eligibility and Conformity to Bidding Documents**

- 14.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, documents establishing the eligibility and conformity to the bidding documents of all goods and services which the Bidder proposes to supply under the contract.
- 14.2 The documentary evidence of the eligibility of the goods and services shall consist of a statement in the Price Schedule of the country of origin of the goods and services offered which shall be confirmed by a certificate of origin issued at the time of shipment.
- 14.3 The documentary evidence of conformity of the goods and services to the bidding documents may be in the form of literature, drawings, and data, and shall consist of:
  - (a) a detailed description of the essential technical and performance characteristics of the goods;
  - (b) a list giving full particulars, including available sources and current prices of spare parts, special tools, etc., necessary for the proper and continuing functioning of the goods for a period to be specified in the **Bid Data Sheet**, following commencement of the use of the goods by the Purchaser; and
  - (c) an item-by-item commentary on the Purchaser’s Technical Specifications 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.
- 14.4 For purposes of the commentary to be furnished pursuant to ITB Clause 14.3(c) above, the Bidder shall note that standards for workmanship, material, and equipment, as well as references to brand names or catalogue numbers designated by the Purchaser in its Technical Specifications, are intended to be descriptive only and not restrictive. The Bidder may substitute alternative standards, brand names, and/or catalogue numbers in its bid, provided that it demonstrates to the Purchaser’s satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical Specifications.

**15. Bid Security**

- 15.1 Pursuant to ITB Clause 9, the Bidder shall furnish, as part of its bid, a bid security @ 2% of the Estimated Cost or in the amount specified otherwise in the **Bid Data Sheet**.

- 15.2 The bid security is required to protect the Purchaser against the risk of Bidder's conduct which would warrant the security's forfeiture, pursuant to ITB Clause 15.7.
- 15.3 The bid security shall be denominated in the currency of the bid or in another freely convertible currency, and shall be in one of the following forms:
- (a) Call deposit receipt (CDR).
- 15.4 Any bid not secured in accordance with ITB Clauses 15.1 and 15.3 will be rejected by the Purchaser as nonresponsive, pursuant to ITB Clause 24.
- 15.5 Unsuccessful bidders' bid securities will be discharged or returned as promptly as possible but not later than thirty (30) days after the expiration of the period of bid validity prescribed by the Purchaser pursuant to ITB Clause 16.
- 15.6 The successful Bidder's bid security will be discharged upon the Bidder signing the contract, pursuant to ITB Clause 34, and furnishing the performance security, pursuant to ITB Clause 35.
- 15.7 The bid security may be forfeited:
- (a) if a Bidder:
    - (i) withdraws its bid during the period of bid validity specified by the Bidder on the Bid Form, or
    - (ii) does not accept the correction of errors pursuant to ITB Clause 24.2; or
  - (b) in the case of a successful Bidder, if the Bidder fails:
    - (i) to sign the contract in accordance with ITB Clause 34; or
    - (ii) to furnish performance security in accordance with ITB Clause 35.

**16. Period of  
Validity of  
Bids**

- 16.1 Bids shall remain valid for the period specified in the **Bid Data Sheet** after the deadline date of bid submission prescribed by the Purchaser, pursuant to ITB Clause 19. A bid valid for a shorter period shall be rejected by the Purchaser as nonresponsive.
- 16.2 In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity. The request and the responses thereto shall be made in writing. The bid security provided under ITB Clause 15 shall also be suitably extended. A Bidder may refuse the request without forfeiting its bid security. A Bidder granting the request will not be required nor permitted to modify its bid.

**17. Format and  
Signing of  
Bid**

- 17.1 The Bidder shall prepare an original bid indicated in the **Bid Data Sheet**, clearly marking each "TECHNICAL BID" and "FINANCIAL BID," as appropriate. In the event of any discrepancy between them, the original shall govern.
- 17.2 The original bid shall be typed and signed by the Bidder or a person or persons duly authorized to bind the Bidder to the contract. All pages of the bid, except for unamended printed

literature, shall be initialed by the person or persons signing the bid.

- 17.3 Any interlineations, erasures, or overwriting shall be valid only if they are initialed by the person or persons signing the bid.
- 17.4 The Bidder shall furnish information as described in the Form of Bid on commissions or gratuities, if any, paid or to be paid to agents relating to this Bid, and to contract execution if the Bidder is awarded the contract.

**D. Submission of Bids**

**18. Sealing and Marking of Bids**

- 18.1 The Bidder shall seal the Technical and Financial Bid in separate envelopes, duly marking the envelopes as “TECHNICAL” and “FINANCIAL.” The envelopes shall then be sealed in an outer envelope.
- 18.2 The inner and outer envelopes shall:
  - (a) be addressed to the Purchaser at the address given in the **Bid Data Sheet**; and
  - (b) bear the Project name indicated in the Bid Data Sheet, the Invitation for Bids (IFB) title and number indicated in the Bid Data Sheet, and a statement: “DO NOT OPEN BEFORE,” to be completed with the time and the date specified in the **Bid Data Sheet**, pursuant to ITB Clause 22.1.
- 18.3 The inner envelopes shall also indicate the name and address of the Bidder to enable the bid to be returned unopened in case it is declared “late.”
- 18.4 If the outer envelope is not sealed and marked as required by ITB Clause 18.2, the Purchaser will assume no responsibility for the bid’s misplacement or premature opening.

**19. Deadline for Submission of Bids**

- 19.1 Bids must be received by the Purchaser at the address specified under ITB Clause 18.2 (a) not later than the time and date specified in the **Bid Data Sheet**.
- 19.2 The Purchaser may, at its discretion, extend this deadline for the submission of bids by amending the bidding documents in accordance with ITB Clause 7, in which case all rights and obligations of the Purchaser and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.

**20. Late Bids**

- 20.1 Any bid received by the Purchaser after the deadline for submission of bids prescribed by the Purchaser pursuant to ITB Clause 19 will be rejected and returned unopened to the Bidder.

**21. Modification and Withdrawal of Bids**

- 21.1 The Bidder may modify or withdraw its bid after the bid’s submission, provided that written notice of the modification, including substitution or withdrawal of the bids, is received by the Purchaser prior to the deadline prescribed for submission of bids.
- 21.2 The Bidder’s modification or withdrawal notice shall be prepared, sealed, marked, and dispatched in accordance with the provisions of ITB Clause 18. A withdrawal notice may also be sent by fax, but followed by a signed confirmation copy, postmarked not later than the deadline for submission of bids.

- 21.3 No bid may be modified after the deadline for submission of bids.
- 21.4 No bid may be withdrawn in the interval between the deadline for submission of bids and the expiration of the period of bid validity specified by the Bidder on the Bid Form. Withdrawal of a bid during this interval may result in the Bidder’s forfeiture of its bid security, pursuant to the ITB Clause 15.7.

E. Opening and Evaluation of Bids

22. Opening of Bids by the Purchaser

- 22.1 The Purchaser will open all bids in the presence of bidders’ representatives who choose to attend, at the time, on the date, and at the place specified in the **Bid Data Sheet**. The bidders’ representatives who are present shall sign a register evidencing their attendance.
- 22.2 The bidders’ names, bid modifications or withdrawals, bid prices, discounts, and the presence or absence of requisite bid security and such other details as the Purchaser, at its discretion, may consider appropriate, will be announced at the opening. No bid shall be rejected at bid opening, except for late bids, which shall be returned unopened to the Bidder pursuant to ITB Clause 20.
- 22.3 Bids (and modifications sent pursuant to ITB Clause 21.2) that are not opened and read out at bid opening shall not be considered further for evaluation, irrespective of the circumstances.
- 22.4 The Purchaser will prepare minutes of the bid opening.

23. Clarification of Bids

- 23.1 During evaluation of the bids, the Purchaser may, at its discretion, ask the Bidder for a clarification of its bid. The request for clarification and the response shall be in writing, and no change in the prices or substance of the bid shall be sought, offered, or permitted.

24. Preliminary Examination

- 24.1 The Purchaser will examine the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order.
- 24.2 Arithmetical errors will be rectified on the following basis. If there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail, and the total price shall be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If the Supplier does not accept the correction of the errors, its bid will be rejected, and its bid security may be forfeited.
- 24.3 The Purchaser may waive any minor informality, nonconformity, or irregularity in a bid which does not constitute a material deviation, provided such waiver does not prejudice or affect the relative ranking of any Bidder.
- 24.4 Prior to the detailed evaluation, pursuant to ITB Clause 26, the Purchaser will determine the substantial responsiveness of each bid to the bidding documents. For purposes of these Clauses, a substantially responsive bid is one which conforms to all the terms and conditions of the bidding documents without material



deviations. Deviations from, or objections or reservations to critical provisions, **such as** those concerning Bid Security (ITB Clause 15), Applicable Law (GCC Clause 31), and Taxes and Duties (GCC Clause 33), will be deemed to be a material deviation. The Purchaser's determination of a bid's responsiveness is to be based on the contents of the bid itself without recourse to extrinsic evidence.

- 24.5 If a bid is not substantially responsive, it will be rejected by the Purchaser and may not subsequently be made responsive by the Bidder by correction of the nonconformity.

- 25. Conversion  
to Single  
Currency**

25.1 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 either:

(a) Purchaser Country at the selling exchange rate established for similar transactions by the State Bank of Pakistan and National Bank of Pakistan or specified otherwise;

25.2 The currency selected for converting bid prices to a common base for the purpose of evaluation is Pak Rupees to be converted as per rate of the bank shown in ITB 25.1 (a) on the date of opening of the financial bid or specified otherwise in the **Bid Data Sheet.**

**26. Evaluation  
and  
Comparison  
of Bids**

26.1 The Purchaser will evaluate and compare the bids which have been determined to be substantially responsive, pursuant to ITB Clause 24.

26.2 The Purchaser's evaluation of a bid will take into account, in addition to the bid price quoted in accordance with ITB Clause 11.2, one or more of the following factors as specified in the **Bid Data Sheet**, and quantified in ITB Clause 26.3:

- (a) delivery schedule offered in the bid;
- (b) deviations in payment schedule from that specified in the Special Conditions of Contract;
- (c) the cost of components, mandatory spare parts, and service;
- (d) the availability in the Purchaser's country of spare parts and after-sales services for the equipment offered in the bid;
- (e) the projected operating and maintenance costs during the life of the equipment;
- (f) the performance and productivity of the equipment offered; and/or
- (g) other specific criteria indicated in the **Bid Data Sheet** and/or in the Technical Specifications.

26.3 For factors retained in the Bid Data Sheet pursuant to ITB 26.2, one or more of the following quantification methods will be applied, as detailed in the Bid Data Sheet:

- (a) *Delivery schedule.*
  - (i) The goods covered under this invitation are required to be delivered (shipped) within an acceptable range of weeks specified in the Schedule of Requirement. No credit will be given to earlier deliveries, and bids offering delivery beyond this range will be treated as nonresponsive. Within this acceptable range, an adjustment per week, as specified in the **Bid Data Sheet**, will be added for evaluation to the bid price of bids offering deliveries later than the earliest delivery period specified in the Schedule of Requirements.
- (b) *Deviation in payment schedule.*
  - (i) The SCC stipulates the payment schedule offered by the Purchaser. If a bid deviates from the schedule it will be considered as non-responsive bid.
- (c) *Cost of spare parts.*
  - (i) The list of items and quantities of major assemblies, components, and selected spare parts, likely to be required during the initial period of operation shall be specified by the bidder. The total cost of these items, at the unit prices quoted in each bid, will be added to the bid price.

**or**

- (ii) The bidder will draw up a list of high-usage and high-value items of components and spare parts, along with estimated quantities of usage in the initial period of operation. The total cost of these items and quantities

will be computed from spare parts unit prices submitted by the Bidder and added to the bid price.

- (d) *Spare parts and after sales service facilities in the Purchaser's country.*

The cost to the Purchaser of establishing the minimum service facilities and parts inventories, if outlined in the **Bid Data Sheet** or elsewhere in the bidding documents, if quoted separately, shall be added to the bid price.

- (e) *Operating and maintenance costs.*

Since the operating and maintenance costs of the goods under procurement form a major part of the life cycle cost of the equipment, these costs will be evaluated in accordance with the criteria specified in the **Bid Data Sheet** or in the Technical Specifications.

- (f) *Performance and productivity of the equipment.*

- (i) Goods offered shall have a minimum productivity specified under the relevant provision in the Technical Specifications to be considered responsive. Evaluation shall be based on the cost per unit of the actual productivity of goods offered in the bid or otherwise specified in the **Bid Data Sheet** or in the Technical Specifications.

- (g) *Specific additional criteria*

Other specific additional criteria to be considered in the evaluation and the evaluation method shall be detailed in the **Bid Data Sheet** and/or the Technical Specifications.

#### 26.4. **Delivery Schedule.**

As mentioned in Bid Data Sheet.

**27. Domestic Preference**

- 27.1 If the **Bid Data Sheet** so specifies, the Purchaser will grant a margin of preference to goods manufactured in the Purchaser’s country for the purpose of bid comparison, in accordance with the procedures outlined in subsequent paragraphs, provided the Bidder shall have established to the satisfaction of the Purchaser that its bid complies with the criteria specified in ITB Clause 10.2 (a):
- 27.2 The Purchaser will first review the bids to confirm the appropriateness of, and to modify as necessary, the bid group classification to which bidders assigned their bids in preparing their Bid Forms and Price Schedules, pursuant to ITB Clauses 10 and 11.
- 27.3 All evaluated bids in each group will then be compared among themselves to determine the lowest evaluated bid of each group. The lowest evaluated bid of each group will next be compared with the lowest evaluated bids of the other groups. If this comparison results in a bid from Group A or Group B being the lowest, it will be selected for contract award.
- 27.4 If, as a result of the preceding comparison, the lowest evaluated bid is from Group C, all Group C bids will then be further compared with the lowest evaluated bid from Group A, after adding to the evaluated bid price of the imported goods offered in each Group C bid, for the purpose of this further comparison only:
- (a) the amount of customs duties and other import taxes that a nonexempt importer would have to pay for the importation of goods offered in each Group C bid;

If the Group A bid in the further comparison is the lowest, it will be selected for award. If not, the lowest evaluated bid from Group C, as determined from the comparison under ITB Clause 27.3 above, will be selected for award.

**28. Contacting the Purchaser**

- 28.1 From the time of bid opening to the time of contract award, if any bidder wishes to contact the Purchaser on any matter related to the bid, it should do so in writing.
- 28.2 Any effort by a Bidder to influence the Purchaser in its decisions on bid evaluation, bid comparison, or contract award may result in the rejection of the Bidder’s bid.

**F. Award of Contract**

**29. Post-qualification**

- 29.1 In the absence of prequalification, 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, in accordance with the criteria listed in ITB Clause 13.3.
- 29.2 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, pursuant to ITB Clause

|                                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                                                                         | <p>13.3, as well as such other information as the Purchaser deems necessary and appropriate.</p> <p>29.3 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, in which event the Purchaser will proceed to the next lowest evaluated bid to make a similar determination of that Bidder’s capabilities to perform satisfactorily.</p> |
| <p><b>30. Award Criteria</b></p>                                        | <p>30.1 Subject to ITB Clause 32, the Purchaser will 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.</p>                                                                                                                     |
| <p><b>31. Purchaser’s Right to Vary Quantities at Time of Award</b></p> | <p>31.1 The Purchaser reserves the right at the time of contract award to increase or decrease, as per requirement, the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions.</p>                                                                                                                                                                      |

- |                                                                   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|-------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>32. Purchaser's Right to Accept Bid and to Reject All Bids</b> | 32.1 The Purchaser reserves the right to accept bid and to annul the bidding process and reject all bids at any time prior to contract award, without thereby incurring any liability to the affected Bidder or bidders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| <b>33. Notification of Award</b>                                  | <p>33.1 Prior to the expiration of the period of bid validity, the Purchaser will notify/inform the successful and unsuccessful Bidder in writing by letter or by Fax/ e-mail, or telephonically, that its bid has been accepted and unaccepted as the case may by.</p> <p>33.2 The notification of award will constitute the formation of the Contract.</p> <p>33.3 Upon the successful Bidder's furnishing of the performance security pursuant to ITB Clause 35, the Purchaser will discharge bid security to each unsuccessful Bidder on his written request, pursuant to ITB Clause 15.</p> <p>33.4 If, after notification of award, a Bidder wishes to ascertain the grounds on which its bid was not selected, it should address its request to the Purchaser. The Purchaser will promptly respond in writing to the unsuccessful Bidder.</p>                                                                                                                                    |
| <b>34. Signing of Contract</b>                                    | 34.1 After 10 days from the announcement of evaluation report, the Purchaser will send supply order or Formal Contract as the case may be to successful bidder. In case of formal contract, the successful bidder will send back the contract to the purchaser duly signed within 7 days from the issuance date. Failing which the Purchaser reserves the right under ITB Clause 15.7.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>35. Performance Security</b>                                   | <p>35.1 Within Seven (07) days from the issuance of acceptance letter from the Purchaser, the successful Bidder shall furnish the performance security in shape of any bank instrument as desired in Page # 1 of Bidding Document. In case the amount of bid security is equal or greater than the value of the goods to be supplied then the bidder shall not require furnishing the performance security separately and the bid security will be retained to meet the requirement of performance security.</p> <p>35.2 Failure of the successful Bidder to comply with the requirement of ITB Clause 35.1 shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for new bids. <b><u>The purchaser can also purchase at risk and cost of the 1<sup>st</sup> lowest bidder (from 2<sup>nd</sup> lowest bidder or from market).</u></b></p> |
| <b>36. Corrupt or Fraudulent Practices</b>                        | <p>36.1 The purchaser as well as Bidders/Suppliers/Contractors should observe the highest standard of ethics during the procurement and execution of such contracts. In pursuance of this policy, the PPRA Govt. of the Punjab;</p> <p>(a) the terms set forth below as follows:</p> <p>(i) "corrupt practice" means the offering, giving, receiving or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution; and</p> <p>(ii) "fraudulent practice" means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Purchaser, and includes collusive practice among Bidders (prior to or after bid submission) designed to</p>                                                                                                                                                                                                       |

establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition;

- (b) The purchaser will reject a proposal for award if it determines that the Bidder recommended for award has engaged in corrupt or fraudulent practices in competing for the contract in question;
- (c) The Purchaser will declare a firm ineligible, either indefinitely or for a stated period of time, to be awarded a University Contract if it at any time determines that the firm has engaged in corrupt or fraudulent practices in competing for, or in executing, a University Contract.

36.2 Furthermore, Bidders shall be aware of the provision stated in Clauses 5.4 and 24.1 of the General Conditions of Contract.

### 37. Blacklisting

(1) A procuring agency may, for a specified period debar a bidder or contractor from participating in any public procurement process of the procuring agency, if the bidder or contractor has:

- (a) acted in a manner detrimental to the public interest or good practices;
- (b) consistently failed to perform his obligation under the contract;
- (c) not performed the contract up to the mark; or
- (d) indulged in any corrupt practice

2. If a procuring agency debars a bidder or contractor under sub-rule (1), the procuring agency;

- (a) shall forward the decision to the Authority for publication on the website of the Authority; and
- (b) may request the Authority to debar the bidder or contractor for procurement of all procuring agencies.

(3) The Managing Director PPRA, Punjab may debar a bidder or contractor of any procuring agency from participating in any public procurement process of all or some of the procuring agencies for such period as the Managing Director may determine.

(4) Any person aggrieved by a declaration made under rule 20 or a decision under sub-rule (1) of this rule may, within thirty days from the date of the publication of the information on the website of the Authority, file a representation before the Managing Director and the Managing Director may pass such order on the representation as he may deem fit.

(5) Any person or procuring agency aggrieved by an order under sub-rule (3) or (4) may, within thirty days of the order, file a representation before the Chairperson and the Chairperson may pass such order on the representation as it may deem appropriate.

(6) The mechanism or process for barring a bidder or contractor from participating in procurement process of a procuring agency, procuring agencies and a representation under this rule is specified in the Appendix-1



**Appendix - I**

Subject: **MECHANISM OF BLACKLISTING**

**BLACKLISTING MECHANISM OR PROCESS**

1. The procuring agency may, on information received from any resource, issue show cause notice to a bidder or contractor.
2. The show cause notice shall contain:
  - (a) precise allegation, against the bidder or contractor;
  - (b) the maximum period for which the procuring agency proposes to debar the bidder or contractor from participating in any public procurement of the procuring agency; and
  - (c) the statement, if needed, about the intention of the procuring agency to make a request to the Authority for debarring the bidder or contractor from participating in public procurements of all the procuring agencies.
3. The procuring agency shall give minimum of seven days to the bidder or contractor for submission of written reply of the show cause notice.
4. In case, the bidder or contractor fails to submit written reply within the requisite time, the procuring agency may issue notice for personal hearing to the bidder or contractor/ authorize representative of the bidder or contractor and the procuring agency shall decide the matter on the basis of available record and personal hearing, if availed.
5. In case the bidder or contractor submits written reply of the show cause notice, the procuring agency may decide to file the matter or direct issuance of a notice to the bidder or contractor for personal hearing.
6. The procuring agency shall give minimum of seven days to the bidder or contractor for appearance before the specified officer of the procuring agency for personal hearing.
7. The procuring agency shall decide the matter on the basis of the available record and personal hearing of the bidder or contractor, if availed.
8. The procuring agency shall decide the matter within fifteen days from the date of personal hearing unless the personal hearing is adjourned to a next date and in such an eventuality, the period of personal hearing shall be reckoned from the last date of personal hearing.
9. The procuring agency shall communicate to the bidder or contractor the order of debarring the bidder or contractor from participating in any public procurement with a statement that the bidder or contractor may, within thirty days, prefer a representation against the order before the Managing Director of the Authority.
10. The procuring agency shall, as soon as possible, communicate the order of blacklisting to the Authority with the request to upload the information on its website.
11. If the procuring agency wants the Authority to debar the bidder or contractor from participating in any public procurement of all procuring agencies, the procuring agency shall specify reasons for such dispensation.

12. The Authority shall immediately publish the information and decision of blacklisting on its website.

13. In case of request of a procuring agency under para 11 or representation of any aggrieved person under rule 21 of UAF Procurement Rules 2014, the Managing Director shall issue a notice for personal hearing to the parties and call for record of proceedings of blacklisting. The parties may file written statements and documents in support of their contentions.

14. In case of representation of any aggrieved person or procuring agency under rule 21 of UAF Procurement Rules 2014, the Chairperson shall issue a notice for personal hearing to the parties and may call for the record of the proceedings. The parties may file written statements and documents in support of their contentions.

15. In every order of blacklisting under rule 21 of UAF Procurement Rules 2014, the procuring agency shall record reasons of blacklisting and also reasons for short, long or medium period of blacklisting.

16. The Authority shall upload all the decisions under rule 21 of UAF Procurement Rules 2014, available with it, on its website. But the name of a bidder or contractor shall immediately be removed from the list of blacklisted persons on expiry of period of blacklisting or order of the competent authority to that effect, whichever is earlier.

17. An effort shall be made for electronic communication of all the notices and other documents pursuant to this mechanism or process.

37.1           The bidder shall provide undertaking that the firm not blacklisted by any of Provincial or Federal Government Department, Agency, Organization or autonomous body or private Sector Organization anywhere in Pakistan.

## **Section III.**

# **Bid Data Sheet**

## Bid Data Sheet

The following specific data for the goods to be procured shall complement, supplement, or amend the provisions in the Instructions to Bidders (ITB). Whenever there is a conflict, the provisions herein shall prevail over those in ITB.

| <b>A-Introduction</b>                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>ITB 2.1</b>                         | The invitation for Bids is opened to all suppliers having registration for National Tax Number & Sales Tax Number with Federal Board of Revenue.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>ITB2.3</b>                          | Government owned enterprises may participate, only if they are legally allowed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>ITB 2.4</b>                         | In addition to the contents of ITB 2.4 the bidder shall not be blacklisted by any organization of the Government of the Punjab as well as Federal Government. The bidder shall provide affidavit to this effect.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| <b>B- Bidding Documents</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>ITB 5.1(h)</b>                      | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>ITB 6.1</b>                         | <p>Purchaser's address: Prof. Dr. Muhammad Asif Kamran, Faculty of Social Sciences THROUGH</p> <p style="color: red;">Directorate of Procurement &amp; Inventory Control (DPIC)<br/>University of Agriculture, Faisalabad<br/>Phone No. 041-9200898</p> <p style="color: red;"><b><u>FOR TECHNICAL RESPONSE:</u></b></p> <ol style="list-style-type: none"> <li>1. Prof. Dr. Muhammad Asif Kamran, Faculty of Social Sciences</li> <li>2. Dr. Saqib Ali, Assistant Professor, Department of Computer Science</li> <li>3. Mr. Kashif Akram, Network Administrative</li> </ol>                                                                                                                                                                                                                                                                              |
| <b>C-Preparation of Bid</b>            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <b>ITB 8.1</b>                         | Language of the bid. <b>“English”</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| <b>ITB 11.2</b>                        | <p>Prices on F.O.R basis or in US\$ (if the prices are quote in US\$, the same will be converted into Pak Rupees by multiplying selling rate of exchange notify by the State Bank or National Bank of Pakistan on the day of financial opening). This rates will be sealed upto the limit after converting into Pak Rupees and payment will be made in Pak rupees accordingly.</p> <p><b>NOTE:</b></p> <ol style="list-style-type: none"> <li><u>1.</u> It's mandatory for bidders to share component wise pricing of solution. University may increase / decrease quantities of required components at the time of supply order issuance.</li> <li><u>2.</u> Bidder shall have to submit separate and independent “technical as well as financial” proposal against turnkey basis HPC solution. Partial bidding of components is not allowed.</li> </ol> |
| <b>ITB 11.2 (c)</b><br><b>ITB 11.3</b> | Not applicable                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>ITB 13.3 (d)</b>                    | <p>Qualification requirements attached with Technical Bid:-</p> <ol style="list-style-type: none"> <li>1. <b>Company /Bidder Profile:</b> <ol style="list-style-type: none"> <li>a. At-least five years of company / firm / registration / incorporation under the laws of Pakistan on the date of bid (s) opening. Registration with FBR regarding</li> </ol> </li> </ol>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |

|                            |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|                            | <p>Sales Tax / Income Tax and Provincial Revenue Authority if required (attached certificates or active taxpayer report)</p> <p>b. Name of owner/proprietor</p> <p>c. Copy of CNIC</p> <p>d. Copy of Valid Professional Tax certificate/payment receipt or previous year certificate</p> <p>e. Submission of undertaking that the firm not blacklisted by any of Provincial or Federal Government Department, Agency, Organization or autonomous body or private Sector Organization anywhere in Pakistan. The firm is also not with litigation with UAF. In case of blacklisted or litigation, the firm is not eligible to apply for this tender.</p> <p>f. The bidder completed at-least two projects of quoted brand in Pakistan (prospective bidder should provide project completion certificate from the client or supply order).</p> <p>g. Proposed brand for computer nodes, login/admin nodes, cluster management nodes and storage shall have at-least 10 years of presence in the International market with proven R&amp;D portfolio (attach report).</p> <p>h. Prospective bidder shall have status of partners with principal / manufacturer or dealership (attach certificate of firm's partnership or dealership from the principal).</p> <p>i. Prospective bidder shall have to submit authority letter from the principal / manufacturer to participate in tender and have to submit letter from Principal about engagement of his team (i.e. Principal) during commissioning of HPC solution (Commissioning of HPC solution will be made by the principal).</p> <p>j. Sound financial position of the bidder (cash available equal to 20% of the estimated value as per bank statement) not earlier than the last week of the closing date of receipt of the tender or two (02) times sale volume of quoted value as per Income tax returns of the firm of last financial year (attach bank statement or income tax returns)</p> <p>k. Prospective bidder shall have at-least two certified engineers related to quoted solution (resume with certificates to be attached with bidding document).</p> <p>l. Financial evaluation of bids will be made on total evaluated lowest cost of offered solution.</p> |
| <b>ITB 15.1</b>            | <p><u>Amount of bid security:</u></p> <p>2% of the Estimated Cost in shape of Call Deposit Receipt (CDR) in favour of Director (DPIC), UAF to be attached with the technical Bid. However, if attached with financial bid, please mention CDR No., Date and Bank Name</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>ITB 16.1</b>            | Bid validity period: 60 Days                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| <b>ITB 17.1</b>            | Bid: Single Stage (two envelop procedure)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>D-Submission of Bid</b> |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <b>ITB 18.2 (a)</b>        | Address for bid submission. Directorate of Procurement & Inventory Control (DPIC), University of Agriculture, Faisalabad (UAF)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| <b>ITB 18.2 (b)</b>        | Tender Notice No. 104/2023                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

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|-----------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------|-----|-----------------------------------------|-----|------------------------------|-----|
| <b>ITB 19.1</b>                         | Deadline for bid submission: <b>13.10.2023</b>                                                                                                                                                                                                                                                                                                                                                      |                        |     |                                         |     |                              |     |
| <b>E-Bid Evaluation</b>                 |                                                                                                                                                                                                                                                                                                                                                                                                     |                        |     |                                         |     |                              |     |
| <b>ITB 25.1(a)</b>                      | State Bank or a Commercial Bank to be read as State Bank of Pakistan and National Bank of Pakistan                                                                                                                                                                                                                                                                                                  |                        |     |                                         |     |                              |     |
| <b>ITB 25.2</b>                         | The common base currency is PAK Rupee to be converted as per rate of the bank shown in ITB 25.1(a) of the bid data sheet on the date of opening of the financial bid.                                                                                                                                                                                                                               |                        |     |                                         |     |                              |     |
| <b>ITB 26.3 (a)(i)</b>                  | The SCC stipulates the payment schedule offered by the purchaser. If a bid deviates from the schedule then it will be considered as non-responsive.                                                                                                                                                                                                                                                 |                        |     |                                         |     |                              |     |
| <b>ITB 26.3 (c)</b>                     | The bidder will provide the cost of spare parts required to be replaced during whole life of the goods after the expiry of warranty period.                                                                                                                                                                                                                                                         |                        |     |                                         |     |                              |     |
| <b>ITB 26.3 (e)</b>                     | The bidder will provide :- <table border="0" style="width: 100%; margin-top: 5px;"> <tr> <td style="padding-right: 20px;">i) Cost of consumables</td><td style="text-align: right;">N/A</td></tr> <tr> <td>ii) Unit of energy consumption per hour</td><td style="text-align: right;">N/A</td></tr> <tr> <td>iii) Life cycle of the goods</td><td style="text-align: right;">N/A</td></tr> </table> | i) Cost of consumables | N/A | ii) Unit of energy consumption per hour | N/A | iii) Life cycle of the goods | N/A |
| i) Cost of consumables                  | N/A                                                                                                                                                                                                                                                                                                                                                                                                 |                        |     |                                         |     |                              |     |
| ii) Unit of energy consumption per hour | N/A                                                                                                                                                                                                                                                                                                                                                                                                 |                        |     |                                         |     |                              |     |
| iii) Life cycle of the goods            | N/A                                                                                                                                                                                                                                                                                                                                                                                                 |                        |     |                                         |     |                              |     |
| <b>ITB 26.3 (f)</b>                     | Performance and productivity of Articles.<br>As per Technical Specification                                                                                                                                                                                                                                                                                                                         |                        |     |                                         |     |                              |     |
| <b>ITB 26.3 (g)</b>                     | As per specification.                                                                                                                                                                                                                                                                                                                                                                               |                        |     |                                         |     |                              |     |
| <b>ITB 27</b>                           | As per ITB clause 10.2 prior to the award of procurement contract                                                                                                                                                                                                                                                                                                                                   |                        |     |                                         |     |                              |     |
| <b>ITB 33</b>                           | Subject to PPRA Rule 2014/UAF Procurement Rule 2014, the bidder with the lowest evaluated bid, if not in conflict with any other law, shall be awarded the procurement contract within the original or extended bid validity period after 10 days of announcement of the evaluation report.                                                                                                         |                        |     |                                         |     |                              |     |

## **Section IV.**

### **General Conditions of Contract**

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## General Conditions of Contract

### 1. Definitions

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

- (a) “The Contract” means the agreement entered into between the Purchaser and the Supplier, as recorded in the Contract Form signed by the parties, or the supply order issued by the purchaser to the supplier, as the case may be, including all attachments and appendices thereto and all documents incorporated by reference therein.
- (b) “The Contract Price” means the price payable to the Supplier under the Contract for the full and proper performance of its contractual obligations.
- (c) “The Goods” means all of the equipment, machinery, and/or other materials which the Supplier is required to supply to the Purchaser under the Contract.
- (d) “The Services” means those 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 such obligations of the Supplier covered under the Contract.
- (e) “GCC” means the General Conditions of Contract contained in this section.
- (f) “SCC” means the Special Conditions of Contract.
- (g) “The Purchaser” means the organization purchasing the Goods, as mentioned in Bid Data Sheet.
- (h) “The Purchaser’s country” is **Pakistan**.
- (i) “The Supplier” means the individual or firm supplying the Goods and Services under this Contract and **named in Supply Order**.
- (j) “The University” means the **University of Agriculture, Faisalabad**.
- (k) “The Project Site,” where applicable, means the place or places **named in Bid Data Sheet and technical specifications**
- (l) “Day” means calendar day.

- |                                                                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|----------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>2. Application</b>                                                                  | 2.1 These General Conditions shall apply to the extent that they are not superseded by provisions of other parts of the Contract.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| <b>3. Country of Origin</b>                                                            | <p>3.1 All Goods and Services supplied under the Contract shall have their origin in the countries as elaborated in the <b>Technical Specifications</b>.</p> <p>3.2 For purposes of this Clause, “origin” means the place where the Goods were mined, grown, or produced, or from which the Services are supplied. Goods are produced when, through manufacturing, processing, or substantial and major assembly of components, a commercially recognized new product results that is substantially different in basic characteristics or in purpose or utility from its components.</p> <p>3.3 The origin of Goods and Services is distinct from the nationality of the Supplier.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| <b>4. Standards</b>                                                                    | 4.1 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 standards appropriate to the Goods’ country of origin. Such standards shall be the latest issued by the concerned institution.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <b>5. Use of Contract Documents and Information; Inspection and Audit by Purchaser</b> | <p>5.1 The Supplier shall not, without the Purchaser’s prior written consent, disclose the Contract, or any provision thereof, or any specification, plan, drawing, pattern, sample, or information furnished by or on behalf of the Purchaser in connection therewith, to any person other than a person employed by the Supplier in the performance of the Contract. Disclosure to any such employed person shall be made in confidence and shall extend only so far as may be necessary for purposes of such performance.</p> <p>5.2 The Supplier shall not, without the Purchaser’s prior written consent, make use of any document or information enumerated in GCC Clause 5.1 except for purposes of performing the Contract.</p> <p>5.3 Any document, other than the Contract itself, enumerated in GCC Clause 5.1 shall remain the property of the Purchaser and shall be returned (all copies) to the Purchaser on completion of the Supplier’s performance under the Contract if so required by the Purchaser.</p> <p>5.4 The Supplier shall permit the Purchaser to inspect the Supplier’s accounts and records relating to the performance of the Supplier and to have them audited by auditors appointed by the Purchaser, if so required by the Purchaser.</p> |

- 6. Patent Rights**      6.1 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 the Purchaser's country.
- 7. Performance Security**      7.1 Within Seven (07) days from the issuance of acceptance letter from the Purchaser, the successful Bidder shall furnish the performance security in shape of CDR at the discretion of the Purchaser in the amount **specified in SCC**. In case the amount of bid security is equal or greater than the value of the goods to be supplied then the bidder shall not require furnishing the performance security separately, it will be retained or deducted from the bidder's claim on bidder's choice.
- 7.2 The proceeds of the performance security shall be payable to the Purchaser as compensation for any loss resulting from the Supplier's failure to complete its obligations under the Contract.
- 7.3 The performance security shall be denominated in the currency of the Contract, or in a freely convertible currency acceptable to the Purchaser and shall be in one of the following forms:
- (a) CDR issued by a reputable bank located in the Purchaser's country or abroad, acceptable to the Purchaser, in the form provided in the bidding documents or another form acceptable to the Purchaser.
- 7.4 The performance security will be discharged by the Purchaser and returned to the Supplier not later than thirty (30) days following the date of completion of the Supplier's performance obligations under the Contract, including any warranty obligations, unless otherwise **specified in SCC**.
- 8. Inspections and Tests**      8.1 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. **SCC** and the Technical Specifications shall specify what inspections and tests the Purchaser requires and where they are to be conducted. The Purchaser shall notify the Supplier in writing, in a timely manner, of the identity of any representatives retained for these purposes.
- 8.2 The inspections and tests may be conducted on the premises of the Supplier or its subcontractor(s), at point of delivery, and/or at the Goods' final destination. If conducted on the premises of the Supplier or its subcontractor(s), all reasonable facilities and assistance, including access to drawings and production data, shall be furnished to the inspectors at no charge to the Purchaser.

- 8.3 Should any inspected or tested Goods fail to conform to the Specifications, the Purchaser may reject the Goods, and the Supplier shall either replace the rejected Goods or make alterations necessary to meet specification requirements free of cost to the Purchaser. **If the vendor fail to replace or alter the goods as tendered specifications within stipulated period given by Enduser then the goods may be purchased at risk and cost of the first lowest bidder (from 2<sup>nd</sup> lowest bidder or from market).**
- 8.4 The Purchaser's right to inspect, test and, where necessary, reject the Goods after the Goods' arrival in the Purchaser's country shall in no way be limited or waived by reason of the Goods having previously been inspected, tested, and passed by the Purchaser or its representative prior to the Goods' shipment from the country of origin.
- 8.5 Nothing in GCC Clause 8 shall in any way release the Supplier from any warranty or other obligations under this Contract.

## 9. Packing

- 9.1 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. The packing shall be sufficient to withstand, without limitation, rough handling during transit and exposure to extreme temperatures, salt and precipitation during transit, and open storage. Packing case size and weights shall take into consideration, where appropriate, the remoteness of the Goods' final destination and the absence of heavy handling facilities at all points in transit.
- 9.2 The packing, marking, and documentation within and outside the packages shall comply strictly with such special requirements as shall be expressly provided for in the Contract, including additional requirements, if any, specified in SCC, and in any subsequent instructions ordered by the Purchaser.

## 10. Delivery and Documents

- 10.1 Delivery of the Goods shall be made by the Supplier in accordance with the terms specified in the Schedule of Requirements. The details of shipping and/or other documents to be furnished by the Supplier are specified in SCC.
- 10.2 For purposes of the Contract, "CFR," "CPT", the terms used to describe the obligations of the parties shall have the meanings assigned to them by the current edition of *Incoterms* published by the International Chamber of Commerce, Paris.
- 10.3 Documents to be submitted by the Supplier are **specified in SCC**.

**11. Insurance**

- 11.1 The Goods supplied under the Contract shall be fully insured in a freely convertible currency against loss or damage incidental to manufacture or acquisition, transportation, storage, and delivery in the manner **specified in the SCC**.
- 11.2 Where delivery of the Goods is required by the Purchaser on a CFR or CPT basis, the Purchaser shall arrange and pay for cargo insurance, naming the supplier as beneficiary.

**12. Transportation**

- 12.1 Where the Supplier is required under Contract to deliver the Goods FOB, transport of the Goods, up to and including the point of putting the Goods on board the vessel at the specified port of loading, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price. Where the Supplier is required under the Contract to deliver the Goods FCA, transport of the Goods and delivery into the custody of the carrier at the place named by the Purchaser or other agreed point shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- 12.2 Where the Supplier is required under Contract to deliver the Goods CFR or CPT, transport of the Goods to the port of destination or such other named place of destination in the Purchaser's country, as shall be specified in the Contract, shall be arranged and paid for by the Supplier, and the cost thereof shall be included in the Contract Price.
- 12.3 Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within the Purchaser's country, defined as the Project Site, transport to such place of destination in the Purchaser's country, including insurance and storage, as shall be specified in the Contract, shall be arranged by the Supplier, and related costs shall be included in the Contract Price.
- 12.4 Where the Supplier is required under Contract to deliver the Goods CFR or CPT, no restriction shall be placed on the choice of carrier. Where the Supplier is required under Contract (a) to deliver the Goods FOB or FCA, and (b) to arrange on behalf and at the expense of the Purchaser for international transportation on specified carriers or on national flag carriers of the Purchaser's country, the Supplier may arrange for such transportation on alternative carriers if the specified or national flag carriers are not available to transport the Goods within the period(s) specified in the Contract.

**13. Incidental Services**

13.1 The Supplier may be required to provide any or all of the following services, including additional services, if any, **specified in SCC:**

- (a) performance or supervision of on-site assembly and/or start-up of the supplied Goods;
- (b) furnishing of tools required for assembly and/or maintenance of the supplied Goods;
- (c) furnishing of a detailed operations and maintenance manual for each appropriate unit of the supplied Goods;
- (d) 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; and
- (e) training of the Purchaser's personnel, at the Supplier's plant and/or on-site, in assembly, start-up, operation, maintenance, and/or repair of the supplied Goods.

13.2 Prices charged by the Supplier for incidental services, if not included in the Contract Price for the Goods, shall be agreed upon in advance by the parties and shall not exceed the prevailing rates charged to other parties by the Supplier for similar services.

**14. Spare Parts**

14.1 As **specified in SCC**, 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:

- (a) such spare parts as the Purchaser may elect to purchase from the Supplier, provided that this election shall not relieve the Supplier of any warranty obligations under the Contract; and
- (b) in the event of termination of production of the spare parts:
  - (i) advance notification to the Purchaser of the pending termination, in sufficient time to permit the Purchaser to procure needed requirements; and
  - (ii) following such termination, furnishing at no cost to the Purchaser, the blueprints, drawings, and specifications of the spare parts, if requested.

**15. Warranty**

15.1 The Supplier warrants that the Goods supplied under the 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.

15.2 This warranty shall remain valid for twelve (12) 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, or for eighteen (18) months after the date of shipment from the port or place of loading in the source country, whichever period concludes earlier, unless **specified otherwise in SCC**.

15.3 The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty.

15.4 Upon receipt of such notice, the Supplier shall, within the period specified in notice or in SCC and with all reasonable speed, repair or replace the defective Goods or parts thereof, without costs to the Purchaser.

15.5 If the Supplier, having been notified, fails to remedy the defect(s) within the period specified in the notice or in SCC, the Purchaser may proceed to take such remedial action as may be necessary, at the Supplier's risk and expense and without prejudice to any other rights which the Purchaser may have against the Supplier under the Contract.

## 16. Payment

16.1 The method and conditions of payment to be made to the Supplier under this Contract shall be **specified in SCC**.

16.2 The Supplier's request(s) for payment shall be made to the Purchaser in writing, accompanied by an invoice describing, as appropriate, the Goods delivered and Services performed, and by documents submitted pursuant to GCC Clause 10, and upon fulfillment of other obligations stipulated in the Contract.

16.3 Payments shall be made promptly by the Purchaser, **but in no case later than thirty (30) days** after submission of an invoice or claim by the Supplier.

16.4 The currency or currencies in which payment is made to the Supplier under this Contract shall be **specified in SCC** subject to the following general principle: payment will be made in the currency or currencies in which the payment has been requested in the Supplier's bid.

- 16.5 All payments shall be made in the currency or currencies specified in the SCC pursuant to GCC 16.4.
- 17. Prices** 17.1 Prices charged by the Supplier for Goods delivered and Services performed under the Contract shall not vary from the prices quoted by the Supplier in its bid, with the exception of any price adjustments **authorized in SCC** or in the Purchaser's request for bid validity extension, as the case may be.
- 18. Change Orders** 18.1 The Purchaser may at any time, by a written order given to the Supplier pursuant to GCC Clause 32, make changes within the general scope of the Contract in any one or more of the following:
- (a) drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
  - (b) the method of shipment or packing;
  - (c) the place of delivery; and/or
  - (d) the Services to be provided by the Supplier.
- 18.2 If any such change causes an increase or decrease in the cost of, or the time required for, the Supplier's performance of any provisions under the Contract, an equitable adjustment shall be made in the Contract Price or delivery schedule, or both, and the Contract shall accordingly be amended. Any claims by the Supplier for adjustment under this clause must be asserted within thirty (30) days from the date of the Supplier's receipt of the Purchaser's change order.
- 19. Contract Amendments** 19.1 Subject to GCC Clause 18, no variation in or modification of the terms of the Contract shall be made except by written amendment signed by the parties.
- 20. Assignment** 20.1 The Supplier shall not assign, in whole or in part, its obligations to perform under this Contract, except with the Purchaser's prior written consent.
- 21. Subcontracts** 21.1 The Supplier shall notify the Purchaser in writing of all subcontracts awarded under this Contract if not already specified in the bid. Such notification, in the original bid or later, shall not relieve the Supplier from any liability or obligation under the Contract.
- 21.2 Subcontracts must comply with the provisions of GCC Clause 3.



**22. Delays in the Supplier's Performance**

22.1 Delivery of the Goods and performance of Services shall be made by the Supplier in accordance with the time schedule prescribed by the Purchaser in the Schedule of Requirements.

22.2 If at any time during performance of the Contract, the Supplier or its subcontractor(s) should encounter conditions impeding timely delivery of the Goods and performance of Services, the Supplier shall promptly notify the Director (DPIC) in writing of the fact of the delay, its likely duration and its cause(s). As soon as practicable after receipt of the Supplier's notice, the Director (DPIC) shall evaluate the situation and may at its discretion extend the Supplier's time for performance, with or without liquidated damages, in which case the extension shall be ratified by the parties by amendment of Contract.

22.3 Except as provided under GCC Clause 25, a delay by the Supplier in the performance of its delivery obligations shall render the Supplier liable to the imposition of liquidated damages pursuant to GCC Clause 23, unless an extension of time is agreed upon pursuant to GCC Clause 22.2 without the application of liquidated damages.

**23. Liquidated Damages**

23.1 Subject to GCC Clause 25, 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 liquidated damages, 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 Clause 24.

**24. Termination for Default**

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

- (a) if the Supplier fails to deliver any or all of the Goods within the period(s) specified in the Contract, or within any extension thereof granted by the Purchaser pursuant to GCC Clause 22; or
- (b) if the Supplier fails to perform any other obligation(s) under the Contract.
- (c) if the Supplier, in the judgment of the Purchaser, has engaged in corrupt or fraudulent practices in competing for or in executing the Contract.

For the purpose of this clause:

“corrupt practice” means the offering, giving, receiving, or soliciting of anything of value to influence the action of a public official in the procurement process or in contract execution.

“fraudulent practice” means a misrepresentation of facts in order to influence a procurement process or the execution of a contract to the detriment of the Borrower, and includes collusive practice among Bidders (prior to or after bid submission) designed to establish bid prices at artificial non-competitive levels and to deprive the Purchaser of the benefits of free and open competition.

24.2 In the event the Purchaser terminates the Contract in whole or in part, pursuant to GCC Clause 24.1, the Purchaser may procure, upon such terms and in such manner as it deems appropriate, Goods or Services similar to those undelivered, and the Supplier shall be liable to the Purchaser for any excess costs for such similar Goods or Services. However, the Supplier shall continue performance of the Contract to the extent not terminated.

## **25. Force Majeure**

25.1 Notwithstanding the provisions of GCC Clauses 22, 23, and 24, 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.

25.2 For purposes of this clause, “Force Majeure” means an event beyond the control of the Supplier and not involving the Supplier’s fault or negligence and not foreseeable. Such events may include, but are not restricted to, acts of the Purchaser in its sovereign capacity, wars or revolutions, fires, floods, epidemics, quarantine restrictions, and freight embargoes.

25.3 If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such condition and the cause thereof. Unless otherwise directed by the Purchaser in writing, the Supplier shall continue to perform its obligations under the Contract as far as is reasonably practical, and shall seek all reasonable alternative means for performance not prevented by the Force Majeure event.

## **26. Termination for Insolvency**

26.1 The Purchaser may at any time terminate the Contract by giving written notice to the Supplier if the Supplier becomes bankrupt or otherwise insolvent. In this event, termination will be without compensation to the Supplier, provided that such termination will not prejudice or affect any right of action or remedy which has accrued or will accrue thereafter to the Purchaser.

**27. Termination  
for  
Convenience**

- 27.1 The Purchaser, by written notice sent to the Supplier, may terminate the Contract, in whole or in part, at any time for its convenience. The notice of termination shall specify that termination is for the Purchaser's convenience, the extent to which performance of the Supplier under the Contract is terminated, and the date upon which such termination becomes effective.
- 27.2 The Goods that are complete and ready for shipment within thirty (30) days after the Supplier's receipt of notice of termination shall be accepted by the Purchaser at the Contract terms and prices. For the remaining Goods, the Purchaser may elect:
- (a) to have any portion completed and delivered at the Contract terms and prices; and/or
  - (b) to cancel the remainder and pay to the Supplier an agreed amount for partially completed Goods and Services and for materials and parts previously procured by the Supplier.

**28. Settlement of  
Disputes**

- 28.1 If any dispute or difference of any kind whatsoever shall arise between the Purchaser and the Supplier in connection with or arising out of the Contract, the parties shall make every effort to resolve amicably such dispute or difference by mutual consultation.
- 28.2 If the parties have failed to resolve their dispute or difference by such mutual consultation, then either the Purchaser or the Supplier may give notice to the other party of its intention to commence arbitration, as hereinafter provided, as to the matter in dispute, and no arbitration in respect of this matter may be commenced unless such notice is given.
- 28.2.1 Any dispute or difference in respect of which a notice of intention to commence arbitration has been given in accordance with this Clause shall be finally settled by arbitration. Arbitration may be commenced prior to or after delivery of the Goods under the Contract.
- 28.2.2 Arbitration proceedings shall be conducted in accordance with the rules of procedure **specified in the SCC.**
- 28.3 Notwithstanding any reference to arbitration herein,
- (a) the parties shall continue to perform their respective obligations under the Contract unless they otherwise agree; and

- (b) the Purchaser shall pay the Supplier any monies due the Supplier.
- 29. Limitation of Liability**
- 29.1 Except in cases of criminal negligence or willful misconduct, and in the case of infringement pursuant to Clause 6,
- (a) the Supplier shall not be liable to the Purchaser, whether in contract, tort, or otherwise, for any indirect or consequential loss or damage, loss of use, loss of production, or loss of profits or interest costs, provided that this exclusion shall not apply to any obligation of the Supplier to pay liquidated damages to the Purchaser and
- (b) the aggregate liability of the Supplier to the Purchaser, whether under the Contract, in tort or otherwise, shall not exceed the total Contract Price, provided that this limitation shall not apply to the cost of repairing or replacing defective equipment.
- 30. Governing Language**
- 30.1 The Contract shall be written in the language **specified in SCC**. Subject to GCC Clause 31, the version of the Contract written in the specified language shall govern its interpretation. All correspondence and other documents pertaining to the Contract which are exchanged by the parties shall be written in the same language.
- 31. Applicable Law**
- 31.1 The Contract shall be interpreted in accordance with the laws of the Purchaser's country, unless otherwise **specified in SCC**.
- 32. Notices**
- 32.1 Any notice given by one party to the other pursuant to this Contract shall be sent to the other party in writing or facsimile and confirmed in writing to the other party's address **specified in SCC**.
- 32.2 A notice shall be effective when delivered or on the notice's effective date, whichever is later.
- 33. Taxes and Duties**
- 33.1 A foreign Supplier shall be entirely responsible for all taxes, stamp duties, license fees, and other such levies imposed outside the Purchaser's country and purchaser's country as **specified in SCC**.
- 33.2 A local Supplier shall be entirely responsible for all taxes, duties, license fees, etc., incurred until delivery of the contracted Goods to the Purchaser.

## **Section V.**

### Special Conditions of Contract

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## SPECIAL CONDITIONS OF CONTRACT

The following Special Conditions of Contract shall supplement the General Conditions of Contract. Whenever there is a conflict, the provisions herein shall prevail over those in the General Conditions of Contract. The corresponding clause number of the GCC is indicated in parentheses.

### 1. **Performance Security (GCC Clause 7)**

GCC 7.1—

- A. For goods offered from within Pakistan and abroad by the local agent by Pakistan:

the successful Bidder shall furnish the performance security @ 10% for the warranty period of three year of the value of Supply Order or Contract in shape of CDR in favour of Director (DPIC), UAF within Seven (07) days from the issuance of acceptance and 10% performance security letters from the Purchaser for permanent equipment. In case the amount of bid security is equal or greater than the value of the performance security, then the bidder shall not require to furnish the performance security separately.

- B. 2% CDR in favour of Director (DPIC) already received in lieu of earnest money in case of general type/consumable good(s) will be retained by the office for 3 months from the day of supply of the respective good(s) or fully consumed whichever is earlier.

- C. Failure of the successful bidder to comply with the above requirement shall constitute sufficient grounds for the annulment of the award and forfeiture of the bid security, in which event the Purchaser may make the award to the next lowest evaluated Bidder or call for new bids. **The purchaser can also purchase at risk and cost of the 1<sup>st</sup> lowest bidder (from 2<sup>nd</sup> lowest bidder or from market).**

### 2. **Inspection and Tests (GCC Clause 8)**

- GCC 8.1- i. Successful bidder shall submit separate cost as part of financial proposal for three University officials pre-shipment inspection of hardware at factory site. However, pre-shipment will be optional and committee will decide before issuance of supply order about it. All charges (visa charges, conveyance from UAF to manufacturer factory site charges, hotel charges at site, meal etc. & also return from factory to UAF. Inspection cost DA) shall be part of pre-shipment proposal.
- ii. Principal shall provide following trainings to University staff: -
- iii. Administrator level training for University staff with operational manuals to handle front and back-end operations of HPC.
- iv. User level trainings with operational manuals to execute day-to-day jobs.

3. The representative of the firm(s) shall present the Authority Letter from the respective firm in the tender opening meetings with them, failing which he will not allowed to sit in the said meeting

### 4. **Warranty (GCC Clause 15)**

GCC15.2&15.4: 3 years (24 x 7) comprehensive warranty and support of quoted products.

### 5. **Bid Prices (11.2 ITB)**

- a). **for goods offered from within Pakistan;**

the price shall be quoted on FOR UAF basis. (FOR means the price of goods quoted by the bidder shall be inclusive of all costs, expenses, charges, duties and taxes etc. whatsoever incidental to their delivery, installation and commissioning as the case may be at UAF site).

- b) **If the firm quoted the rates on CFR/CPT basis, the firm is bound to quote the FOR prices also**

c) **for goods offered from abroad by the LOCAL AGENT:**

the price shall be quoted Cost and Freight (CFR), Carriage Paid to (Duty Paid) (CPT) Karachi seaport or Lahore/Faisalabad airport Pakistan, as the case may be. The bidder shall also add all cost expenses, charges, duties, GST and other taxes to be paid at any stage within and outside Pakistan whatsoever incidental to delivery installation/commissioning of goods from the port of destination to UAF site. The bidder, in quoting the price, shall be free to use transportation in abroad except transit and means of transport through/of Israel. The LC at sight, as on Usance basis and Advance Payment will be governed as per following: -

i. **LC AT SIGHT**

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR as security equal to 100% amount of the goods **within fortnight** in favor of Director (DPIC) to initiate the LC at sight.

ii. **LC ON USANCE BASISs**

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order and CDR as security equal to 100% amount of the goods to be imported and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note **within fortnight** to initiate the LC on usance basis (minimum usance period 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading).

iii. **ADVANCE PAYMENT**

The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order along with Insurance / Cover Note and CDR as security equal to 100% amount of the goods **within fortnight** in favor of Director (DPIC) to be imported to proceed for advance payment to the exporter. However, this option will be had where the value of the goods to be imported is up to US \$ 10,000 or varied in accordance with the instructions of the State Bank of Pakistan and Pakistan Customs issued from time to time and remittance will also be made accordingly.

iv. **OPEN ACCOUNT**

In case the bidder has not opted for import through LC (at sight or Usance basis or advance payment) may opt this option and shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. However, remittance will be made maximum up to six months from the date of filing of Goods Declaration (GD) form or otherwise as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

v. **CONTRACT / COLLECTION**

In case the bidder has not opted the options referred to “i to iv” above and may opt for this option. The bidder shall provide Performa Invoice of principal on CPT/CFR basis as per supply order **within fortnight**. The minimum period for remittance will be 60 days from the date of Airway Bill **OR** 90 days from the date of Bill of Lading. However, remittance will be made as per Foreign Exchange Manual of State Bank of Pakistan and Pakistan Customs or instruction issued in this regard from time to time.

vi. **INCIDENTAL CHARGES FOR IMPORT OF GOODS:**

All charges (Inside/outside Pakistan) like insurance taxes, duties etc., LC/bank and clearance of consignment from port/custom authorities will be borne by the bidder.

vii. **RELEASE OF CDR**

In case of LC at sight, Usance basis and advance payment to exporter, the CDR equal to 100% amount of the shipment as security will be released by Director (DPIC) after receiving of satisfactory inspection/installation/ commissioning report from convener tender committee concerned.

viii. **INITIATION OF REMITTANCE TO THE EXPORTER**

In case of LC on usance basis, import on Open Account and Contract / Collection basis, the Director (DPIC) will initiate remittance through the concern bank to the exporter after receiving the satisfactory inspection/installation/commissioning report from the purchaser or the convener tender committee as the case may be.



**DELIVERY PERIOD**

After receiving the transmitted LC (at sight OR Usance Basis) OR swift acknowledgment against advance payment / proof of advance payment OR supply order on “Open Account” or “Contract / Collection” basis, the local supplier is responsible to provide complete set of shipping documents [i.e. Airway Bill/Seaway Bill/Bill of Lading, Commercial Invoice, Packing List, Country of Origin Certificate and any other document(s) related to shipment (if required) along with detail of bidder’s clearing agent for issuance of authority letter for clearance of consignment from port / custom authorities] ***within 12s weeks from the date of opening of LC (at sight or usance basis), advance payment and date of supply order for import of goods on “Open Account” or “Contract / Collection” basis. Moreover, after clearance of consignment by bidder from port / custom authorities, will deliver the consignment to the purchaser along with complete set of post shipment documents within 05 days from the date of Authority Letter.*** After expiry of the requisite period, firm will require to apply for extension in delivery period. However, after due scrutiny the Committee may extend the delivery period with liquidated damages as per applicable rate if the delay is on part of the bidder or without liquidated damages if the delay is on the part of the procuring agency or due to “force majeure”.

**NOTE:s**

- i.

In case of late submission of Proforma Invoice, shipping documents and delivery of goods, liquidated damages shall be recovered out of belongings of the bidders @ 0.67% of the value of the goods up to maximum 10% of the value of goods.
- ii.

In case of C&F/CPT exchange rate of NBP shall be freezed on the date of financial opening. The differential amount on higher side shall be deposited into concerned project account or University Account. If the rate on higher side of vice-versa, the UAF will pay the difference amount to vendor out of project / UAF account.
6.

**Payment (GCC Clause 16):** Payment will be made after successful supply, installation, configuration, customization, testing and training etc of HPC solution.
7.

**Prices (GCC Clause 17)**  
GCC17.1: The successful bidder(s) shall provide the price reasonability certificate to the effect that the rates quoted are reasonable in accordance with the market. If it is found at any stage, the quoted rates are higher than the market ones or the item(s) have been provided to any other Institute/Department etc at less rates than the quoted ones. The firm undertakes to refund the difference amount to the purchaser on demand.
8.

**Change Orders (GCC Clause 18)**  
Not applicable
9.

**Liquidated Damages (GCC Clause 23)**  
GCC 23.1—Applicable rate:  
The liquidated damages, if imposed, will be recovered at the rate of upto0.67% of the value of goods supplied/installed/commission late per day or a part of a period exceeding the original delivery period, subject to the provision that the total liquidated damages thus imposed will not exceed 10% of the total value of the goods delivered/installed/commission late.

**10. Settlement of Disputes (GCC Clause 28)**

The settlement of dispute will be settled in accordance with mechanism for redresal of grievances and settlement of dispute as specified below:-

Complaints of bidder/contractor shall be disposed/settled by a committee and arbitration prior to the entry into force and after into force of procurement contract respectively. Accordingly, grievances committee with powers and terms of reference and method of arbitration are as under:-

**A. Grievances Committee:**

The committee comprises the following to address the complaints of the bidders prior to entry into force of the procurement contract:-

- i.

The Treasurer

(Convener)
- ii.

Prof. Dr. Muhammad Asif Kamran,  
Faculty of Social Sciences

(Member)

- iii. Resident Auditor or the Technical Expert(s) not below the rank of Assistant Professor (Member)
- iv. The Director (DPIC) (Secretary)

Any bidder feeling aggrieved by any act of the procuring agency after the submission of his bid may lodge a written complaint concerning his grievances not later than 10 days after the announcement of the bid evaluation report under rule 37 of the UAF Procurement Rules 2014.

The committee shall address the complaints of bidders that may occur prior to the entry into force of the procurement contract. The committee shall investigate and decide upon the complaint within fifteen days of the receipt of the complaint. Mere fact of lodging of a complaint shall not warrant suspension of the procurement process.

Any bidder not satisfied with the decision of the committee may lodge an appeal in the relevant court of jurisdiction.

#### **B. Arbitration:**

After coming into force of the procurement contract, all matters of dispute or difference except regarding rejection of goods by the Inspector under GCC clause 8 (Standard Bidding Document) or cancellation of the contract by the Purchaser, under GCC Clause 24 and 27 (Standard Bidding Document) arising out of the agreement between the parties thereto, the settlement of which is not otherwise specially provided for in contract agreement, shall be referred to arbitration as under:-

##### **(a) Foreign Currency Contracts (CFR/CPT, etc.) made directly with Foreign Principal / Manufacturer**

- i. The dispute shall be referred for adjudication to two arbitrators one to be nominated by each party, who before entering upon the reference shall appoint an umpire by mutual agreement, and if they do not agree, a judge of the Superior Court will be requested to appoint the umpire. The arbitration proceedings shall be held in Pakistan and under Pakistan Law.
- ii. The venue of arbitration shall be the place from which the contract is issued or such other places as the Purchaser at his discretion may determine.
- iii. Arbitration award so given will be firm and final.

##### **(b) Indigenous (FOR) contracts**

The settlement of dispute, if not otherwise especially provided for in the contract shall be referred for the decision of Vice Chancellor, University of Agriculture, Faisalabad. His decision shall be final and binding on both the parties. The work under the contract shall if reasonably possible continue, under the proceedings before the Vice Chancellor and no account of such proceeding unless they are subject of the dispute.

Note:

- The arbitration award shall be recorded in writing.
- CFR/CPT, etc., contracts made through local agents would be dealt under sub para-B (b) above.

##### **(c) Prior Notice for arbitration:**

If the supplier intends to go for arbitration, he shall have to give 30 days notice in writing informing the purchaser of his intention to refer to the points of differences or dispute of arbitration. He shall have to define clearly the point of difference and or dispute in his notice.

#### **C. Court Jurisdiction**

Only the Courts at Faisalabad shall have exclusive jurisdiction to adjudicate upon any “lis” brought by either of the parties in relation to the contract.’

##### **11. Applicable Law (GCC Clause 31)**

GCC 31.1—UAF Procurement Rules 2014 and Laws governing in Pakistan

##### **12. Notices (GCC Clause 32)**

GCC 32.1: The Supplier shall provide address for notice purposes:

##### **13. Taxes and Duties (GCC Clause 33)**

##### **14. Stamp Act**

In accordance with the Stamp Act 1899 amended from time to time.

Section VI.

Schedule of Requirements

**Schedule of Requirements**

| Number | Description | Quantity | Delivery schedule:                                                                                                                                                                                                          |
|--------|-------------|----------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|        |             |          | <div><div>i.</div><div>Supply within 90 days</div></div> <div><div>ii.</div><div>Commissioning period 30 days after delivery of HPC Solution</div></div> <div><div>iii.</div><div>Estimated Cost: 225.0 Million</div></div> |

**Technical detail available in Technical Specification Section -VII**

Section VII.

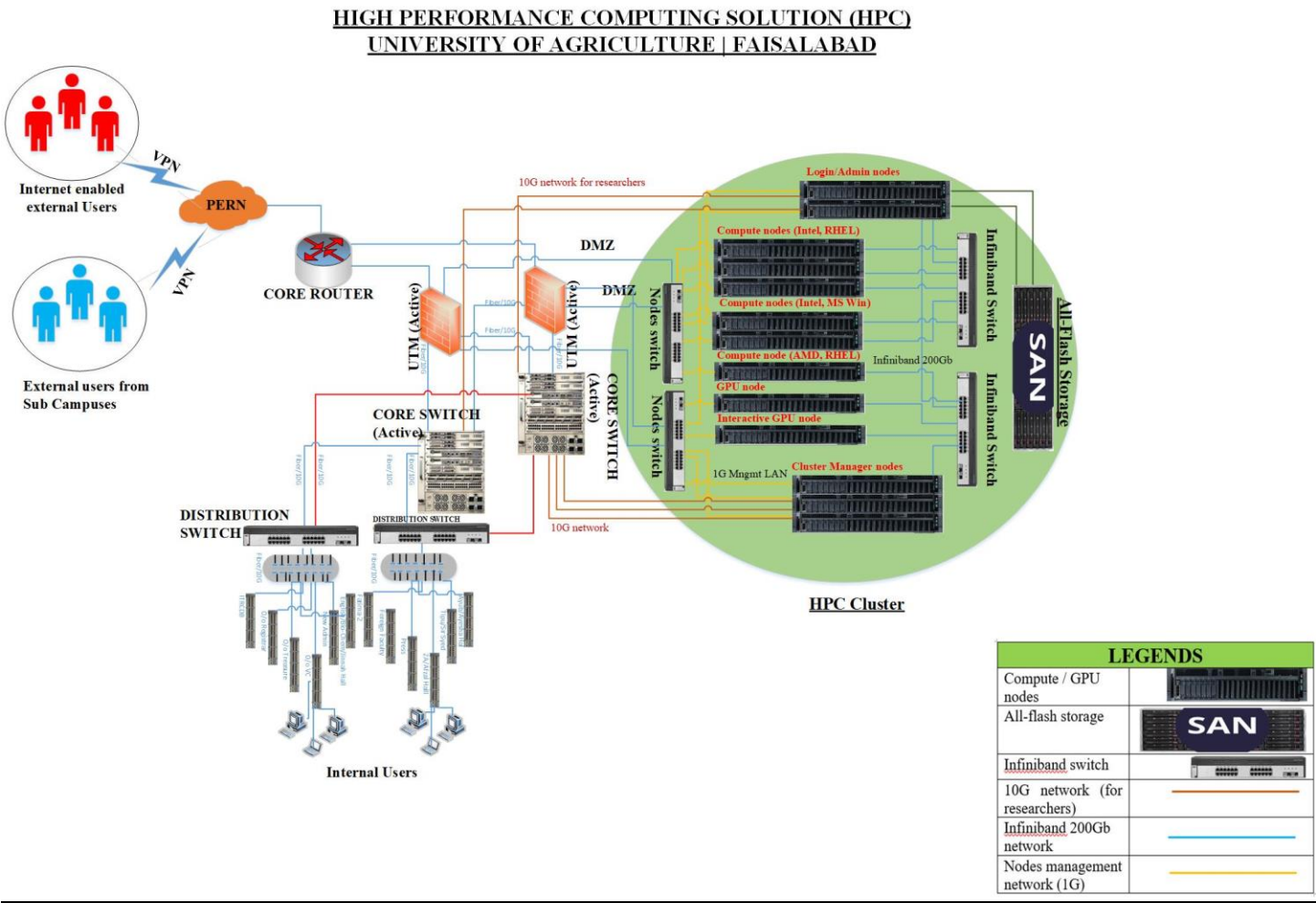
Technical Specifications

**TECHNICAL SPECIFICATIONS**

The bidder shall quote the goods along with the serial number mentioned below against each and provide soft copy in MS Word Sheet without price. The quoted goods shall have point to point commentary.

**SUPPLY, INSTALLATION, CONFIGURATION, TESTING,  
TRAINING OF HIGH PERFORMANCE COMPUTING (HPC)  
SOLUTION****AT****UNIVERSITY OF AGRICULTURE, FAISALABAD**

HIGH LEVEL DESIGN



TECHNICAL SPECIFICATIONS OF TURNKEY BASIS HIGH PERFORMANCE COMPUTING SOLUTION

| S. # | LOGIN / ADMIN NODES |                                                                                                                                                                                                                                                                                                                                                                                                           | Qty |
|------|---------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 01   | Processor           | 2 x Intel Xeon-Gold 6430 2.1GHz 32-core                                                                                                                                                                                                                                                                                                                                                                   | 02  |
|      | Chipset             | Intel C741 Chipset                                                                                                                                                                                                                                                                                                                                                                                        |     |
|      | Memory              | Installed memory: 8 x 32GB Dual Rank x8 DDR5-4800<br>Support 32DIMM slots.                                                                                                                                                                                                                                                                                                                                |     |
|      | Bus Slots           | Node shall support up-to eight PCI-Express 5.0 x16 slots.<br>Additional two x8 or higher PCIe 5.0 slots                                                                                                                                                                                                                                                                                                   |     |
|      | HDD Bays            | Installed drives: 2 x 1.92TB SAS 24G Read Intensive SFF SSDs<br>Node shall support up-to 30 SFF SAS/SATA/SSD/NVMe                                                                                                                                                                                                                                                                                         |     |
|      | Controller          | Node shall support one of the below controllers, must support Mixed Mode which combines RAID and HBA mode operation simultaneously :<br><br>- Embedded / PCIe based x16 RAID controller with 8GB Flash backed write cache, supporting RAID 0, 1, 5, 6, 10, 50, 60.<br>- Must support mix-and-match SAS, SATA, and NVMe drives to the same controller. Controller must support 6G SATA, 12G SAS, 16G NVMe. |     |
|      | Networking          | 1Gb 4-port network adaptors<br>1 x 10Gb 2-port Ethernet adaptor with 10G transceivers<br>1 x InfiniBand HDR/Ethernet 200Gb 1-port QSFP56<br>1 x 2-port 32Gb FC HBA with OM4 5m FC cables                                                                                                                                                                                                                  |     |
|      | Interfaces          | Serial - 1 (Optional), USB support with Up to 5 total. 1GbE dedicated management port                                                                                                                                                                                                                                                                                                                     |     |
|      | Power Supply        | Hot plug redundant low halogen power supplies                                                                                                                                                                                                                                                                                                                                                             |     |
|      | Fans                | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                            |     |

|  |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
|--|--------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Industry Standard Compliance                     | ACPI 6.3 Compliant. PCIe 5.0 Compliant. WOL Support. Microsoft Logo certifications. PXE Support. Energy Star. SMBIOS 3.2. UEFI 2.7. Redfish API. IPMI 2.0. Secure Digital 4.0. Advanced Encryption Standard (AES). Triple Data Encrytion Standard (3DES). SNMP v3. TLS 1.2. DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP). Active Directory v1.0. ASHRAE A3/A4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|  | System Security                                  | UEFI Secure Boot and Secure Start support. Tamper-free updates - components digitally signed and verified. Immutable Silicon Root of Trust. Ability to rollback firmware. FIPS 140-2 validation. Secure erase of NAND/User data. Common Criteria certification. TPM (Trusted Platform Module) 1.2 option. Configurable for PCI DSS compliance. TPM (Trusted Platform Module) 2.0 option. Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser. Bezel Locking Kit option. Support for Commercial National Security Algorithms (CNSA). Chassis Intrusion detection option. Secure Recovery - recover critical firmware to known good state on detection of compromised firmware.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Softwares                                        | RHEL 2-socket. Red Hat High availability 2-socket. Altair PBS Professional (workload Manager).                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Provisioning                                     | <ul style="list-style-type: none"><li>Should support tool to provision server using RESTful API to discover and deploy servers at scale.</li><li>Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|  | Firmware security                                | <ul style="list-style-type: none"><li>For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing nodes from booting up unless the firmware matches the fingerprint.</li><li>Shall maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Shall store factory recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
|  | Embedded Remote Management and firmware security | <ul style="list-style-type: none"><li>System remote management shall support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. Shall be capable of offering upgrade of software and patches from a remote client using Media/image/folder. Shall support server power capping and historical reporting and shall support for multifactor authentication.</li><li>Node shall have dedicated 1Gbps remote management port</li><li>Node should have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware.</li><li>Node should support agentless management using the out-of-band remote management port.</li><li>The node should support monitoring and recording changes in the node hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>Two factor Authentication.</li><li>Local or Directory-based user accounts with Role based access control.</li><li>Remote console sharing up-to 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support.</li><li>Shall provide support for AES and 3DES on browser.</li><li>Shall provide remote firmware update functionality.</li><li>Shall provide support for Java free graphical remote console.</li><li>Shall support managing multiple servers as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>Shall support RESTful API integration.</li><li>System shall support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li><li>Node shall have security dashboard, displaying the status of important security features, the overall security status for the system, and the current configuration for the security state and node configuration lock features.</li></ul> |
|  | Warranty and Support                             | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |

| S. # | INTEL WITH REDHAT ENTERPRISE LINUX BASED COMPUTE NODES |                                             | Qty |
|------|--------------------------------------------------------|---------------------------------------------|-----|
| 02   | Processor                                              | 2 x Intel Xeon-Platinum 8480 2.0GHz 56-core | 03  |
|      | Chipset                                                | Intel C741 Chipset                          |     |



|  |                                                  |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
|--|--------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  | Memory                                           | Installed memory: 8 x 64GB Dual Rank x4 DDR5-4800<br>Support 32DIMM slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|  | Bus Slots                                        | Node shall support up-to three PCI-Express 5.0 x16 slots.<br>Additional two x8 or higher PCIe 5.0 slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
|  | HDD Bays                                         | Installed drives: 2 x 960GB SAS 24G Read Intensive SFF SSDs<br>Support up-to 10 SFF SAS/SATA/SSD/NVMe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Controller                                       | Node shall support one of the below controllers, must support Mixed Mode which combines RAID and HBA mode operation simultaneously:<br>- Embedded / PCIe based x16 RAID controller with 8GB Flash backed write cache, supporting RAID 0, 1, 5, 6, 10, 50, 60.<br>- Must support mix-and-match SAS, SATA, and NVMe drives to the same controller. Controller must support 6G SATA, 12G SAS, 16G NVMe.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Networking                                       | 1Gb 4-port network adaptors<br>1 x InfiniBand HDR/Ethernet 200Gb 1-port QSFP56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|  | Interfaces                                       | Serial - 1 (Optional), USB support with up to 5 total. 1GbE dedicated management port                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
|  | Power Supply                                     | Hot plug redundant low halogen power supplies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|  | Fans                                             | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|  | Industry Standard Compliance                     | ACPI 6.4 Compliant, PCIe 5.0 Compliant, WOL Support, Microsoft Logo certifications, PXE Support, Energy Star, SMBIOS 3.4, UEFI 2.7, Redfish API, IPMI 2.0, Secure Digital 4.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP v3, TLS 1.2, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), Active Directory v1.0, ASHRAE A3/A4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
|  | System Security                                  | UEFI Secure Boot and Secure Start support, Immutable Silicon Root of Trust, FIPS 140-2 validation, Common Criteria certification, Configurable for PCI DSS compliance<br>Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Support for Commercial National Security Algorithms (CNSA), Smart card (PIV/CAC) and Kerberos based 2-factor Authentication, Tamper-free updates - components digitally signed and verified, Secure Recovery - recover critical firmware to known good state on detection of compromised firmware, Ability to rollback firmware, Secure erase of NAND/User data, TPM (Trusted Platform Module) 2.0, Bezel Locking Kit option, Chassis Intrusion detection option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|  | Softwares                                        | RHEL 2-socket, Altair PBS Professional (workload Manager)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Provisioning                                     | <ul style="list-style-type: none"><li>Should support tool to provision server using RESTful API to discover and deploy servers at scale.</li><li>Provision one to many nodes using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Firmware security                                | <ul style="list-style-type: none"><li>For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable.</li><li>Should maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
|  | Embedded Remote Management and firmware security | <ul style="list-style-type: none"><li>System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</li><li>Node shall have dedicated 1Gbps remote management port.</li><li>Node shall have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware.</li><li>Node shall support agentless management using the out-of-band remote management port.</li><li>The node shall support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>Two factor Authentication.</li><li>Local or Directory-based user accounts with Role based access control.</li><li>Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a node's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support .Should provide support for AES and 3DES on browser.</li></ul> |

|  |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|--|----------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                      | <p>Should provide remote firmware update functionality. Shall provide support for Java free graphical remote console.</p> <ul style="list-style-type: none"><li>• Should support managing multiple servers as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>• Shall support RESTful API integration.</li><li>• System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li><li>• Node shall have security dashboard: displaying the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features.</li></ul> |  |
|  | Warranty and Support | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |

| S. # | INTEL WITH MICROSOFT WINDOWS BASED COMPUTE NODES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      | Qty |
|------|--------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 03   | Processor                                        | 2 x Intel Xeon-Platinum 8480 2.0GHz 56-core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 02  |
|      | Chipset                                          | Intel C741 Chipset                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |
|      | Memory                                           | Installed memory: 8 x 64GB Dual Rank x4 DDR5-4800<br>Support 32DIMM slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |
|      | Bus Slots                                        | Node shall support up-to three PCI-Express 5.0 x16 slots.<br>Additional two x8 or higher PCIe 5.0 slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|      | HDD Bays                                         | Installed drives: 2 x 960GB SAS 24G Read Intensive SFF SSDs<br>Support up-to 10 SFF SAS/SATA/SSD/NVMe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |
|      | Controller                                       | Node shall support one of the below controllers, must support Mixed Mode which combines RAID and HBA mode operation simultaneously:<br>- Embedded / PCIe based x16 RAID controller with 8GB Flash backed write cache, supporting RAID 0, 1, 5, 6, 10, 50, 60.<br>- Must support mix-and-match SAS, SATA, and NVMe drives to the same controller. Controller must support 6G SATA, 12G SAS, 16G NVMe.                                                                                                                                                                                                                                                                                                                                 |     |
|      | Networking                                       | 1Gb 4-port network adaptors<br>1 x InfiniBand HDR/Ethernet 200Gb 1-port QSFP56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|      | Interfaces                                       | Serial - 1 (Optional), USB support with up to 5 total. 1GbE dedicated management port                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |
|      | Power Supply                                     | Hot plug redundant low halogen power supplies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|      | Fans                                             | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|      | Industry Standard Compliance                     | ACPI 6.4 Compliant, PCIe 5.0 Compliant, WOL Support, Microsoft Logo certifications, PXE Support, Energy Star, SMBIOS 3.4, UEFI 2.7, Redfish API, IPMI 2.0, Secure Digital 4.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP v3, TLS 1.2, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), Active Directory v1.0, ASHRAE A3/A4.                                                                                                                                                                                                                                                                                                                        |     |
|      | System Security                                  | UEFI Secure Boot and Secure Start support, Immutable Silicon Root of Trust, FIPS 140-2 validation, Common Criteria certification, Configurable for PCI DSS compliance<br>Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Support for Commercial National Security Algorithms (CNSA), Smart card (PIV/CAC) and Kerberos based 2-factor Authentication, Tamper-free updates - components digitally signed and verified, Secure Recovery - recover critical firmware to known good state on detection of compromised firmware, Ability to rollback firmware, Secure erase of NAND/User data, TPM (Trusted Platform Module) 2.0, Bezel Locking Kit option, Chassis Intrusion detection option. |     |
|      | Softwares                                        | Microsoft Windows Server 2022 Std, Altair PBS Professional (workload Manager)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|      | Provisioning                                     | <ul style="list-style-type: none"><li>• Should support tool to provision server using RESTful API to discover and deploy servers at scale.</li><li>• Provision one to many nodes using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|      | Firmware security                                | <ul style="list-style-type: none"><li>• For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable.</li><li>• Should maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                                                                        |     |

|  |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |  |
|--|---------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <b>Embedded Remote Management and firmware security</b> | <ul style="list-style-type: none"><li>• System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</li><li>• Node shall have dedicated 1Gbps remote management port.</li><li>• Node shall have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware.</li><li>• Node shall support agentless management using the out-of-band remote management port.</li><li>• The node shall support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>• Two factor Authentication.</li><li>• Local or Directory-based user accounts with Role based access control.</li><li>• Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a node's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support .Should provide support for AES and 3DES on browser. Should provide remote firmware update functionality. Shall provide support for Java free graphical remote console.</li><li>• Should support managing multiple servers as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>• Shall support RESTful API integration.</li><li>• System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li><li>• Node shall have security dashboard: displaying the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features.</li></ul> |  |
|  | <b>Warranty and Support</b>                             | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |

| S. # | AMD WITH REDHAT ENTERPRISE LINUX BASED COMPUTE NODE |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Qty |
|------|-----------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 04   | Processor                                           | 2 x AMD EPYC 9534 2.45GHz 64-core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     | 01  |
|      | Memory                                              | Installed memory: 8 x 64GB Dual Rank x4 DDR5-4800<br>Support 24DIMM slots                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|      | Bus Slots                                           | Node shall support up-to two PCI-Express 5.0 x16 slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |
|      | HDD Bays                                            | Installed drives: 2 x 960GB SAS 24G Read Intensive SFF SSDs<br>Support upto 10 SFF SAS/SATA/SSD/NVMe                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |
|      | Controller                                          | Node shall support one of the below controllers, must support Mixed Mode which combines RAID and HBA mode operation simultaneously:<br>- Embedded / PCIe based x16 RAID controller with 8GB Flash backed write cache, supporting RAID 0, 1, 5, 6, 10, 50, 60.<br>- Must support mix-and-match SAS, SATA, and NVMe drives to the same controller. Controller must support 6G SATA, 12G SAS, 16G NVMe.                                                                                                                                  |     |
|      | Networking                                          | 1Gb 4-port network adaptors<br>1 x InfiniBand HDR/Ethernet 200Gb 1-port QSFP56                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|      | Interfaces                                          | Serial - 1 (Optional), USB support with up to 5 total.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |     |
|      | Power Supply                                        | Hot plug redundant low halogen power supplies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|      | Fans                                                | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|      | Industry Standard Compliance                        | ACPI 6.1 Compliant, PCIe 4.0 Compliant, WOL Support, Microsoft Logo certifications, Support for Microsoft Secure Code, PXE Support, Energy Star, SMBIOS 3.1, UEFI 2.7, Redfish API, IPMI 2.0, Secure Digital 2.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP v3, TLS 1.2, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), One Button Secure Erase, Active Directory v1.0, ASHRAE A3/A4, UEFI Class 3 (Unified Extensible Firmware Interface Forum). |     |

|  |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|--|---------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <b>System Security</b>                                  | UEFI Secure Boot and Secure Start support, Immutable Silicon Root of Trust, FIPS 140-3 validation, Common Criteria certification, Configurable for PCI DSS compliance, Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Support for Commercial National Security Algorithms (CNSA), Tamper-free updates - components digitally signed and verified, Secure Recovery - recover critical firmware to known good state on detection of compromised firmware, Ability to rollback firmware, Secure erase of NAND/User data, TPM (Trusted Platform Module) 2.0, Bezel Locking Kit option, Chassis Intrusion detection option.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |
|  | <b>Softwares</b>                                        | RHEL 2-socket, Altair PBS Professional (workload Manager)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |  |
|  | <b>Provisioning</b>                                     | <ul style="list-style-type: none"><li>Should support tool to provision server using RESTful API to discover and deploy servers at scale.</li><li>Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|  | <b>Firmware security</b>                                | <ul style="list-style-type: none"><li>For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable</li><li>Shall maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |  |
|  | <b>Embedded Remote Management and firmware security</b> | <ul style="list-style-type: none"><li>System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</li><li>Node shall have dedicated 1Gbps remote management port.</li><li>Node shall have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware</li><li>Node shall support agentless management using the out-of-band remote management port</li><li>The node should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>Two factor Authentication</li><li>Local or Directory-based user accounts with Role based access control</li><li>Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support. Should provide support for AES and 3DES on browser. Shall provide remote firmware update functionality. Shall provide support for Java free graphical remote console.</li><li>Shall support managing multiple nodes as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>Shall support RESTful API integration.</li><li>Node shall support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li><li>Node should have security dashboard, displaying the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features.</li></ul> |  |
|  | <b>Warranty and Support</b>                             | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |  |

| S. # | GPU NODE         |                                                                                                         | Qty |
|------|------------------|---------------------------------------------------------------------------------------------------------|-----|
| 05   | <b>Processor</b> | 2 x Intel Xeon-Gold 6430 2.1GHz 32-core                                                                 | 01  |
|      | <b>Chipset</b>   | Intel C741 Chipset                                                                                      |     |
|      | <b>Memory</b>    | Support 32DIMM slots.<br>Installed: 16 x 32GB Dual Rank x8 DDR5-4800                                    |     |
|      | <b>Bus Slots</b> | Support up-to eight PCI-Express 5.0 x16 slots.<br>Additional two x8 or higher PCIe 5.0 slots            |     |
|      | <b>HDD Bays</b>  | Support up-to 30 SFF SAS/SATA/SSD/NVMe<br>Installed storage: 2 x 3.84TB SAS 24G Read Intensive SFF SSDs |     |

|  |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |  |
|--|---------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <b>Controller</b>                                       | Node shall support one of the below controllers, must support Mixed Mode which combines RAID and HBA mode operation simultaneously: <ul style="list-style-type: none"><li>- Embedded / PCIe based x16 RAID controller with 8GB Flash backed write cache, supporting RAID 0, 1, 5, 6, 10, 50, 60.</li><li>- Must support mix-and-match SAS, SATA, and NVMe drives to the same controller. Controller must support 6G SATA, 12G SAS, 16G NVMe.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|  | <b>Networking</b>                                       | 1Gb 4-port network adaptors<br>1 x InfiniBand HDR/Ethernet 200Gb 1-port QSFP56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|  | <b>Interfaces</b>                                       | Serial - 1 (Optional), USB support with up-to 5 total. 1GbE dedicated management port.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |  |
|  | <b>GPU</b>                                              | 2 x NVIDIA A100 80GB PCIe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|  | <b>Power Supply</b>                                     | Hot plug redundant low halogen power supplies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|  | <b>Fans</b>                                             | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |
|  | <b>Industry Standard Compliance</b>                     | ACPI 6.3 Compliant, PCIe 5.0 Compliant, WOL Support, Microsoft Logo certifications, PXE Support, Energy Star, SMBIOS 3.2, UEFI 2.7, Redfish API, IPMI 2.0, Secure Digital 4.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP v3, TLS 1.2, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), Active Directory v1.0, ASHRAE A3/A4.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |  |
|  | <b>System Security</b>                                  | UEFI Secure Boot and Secure Start support, Tamper-free updates - components digitally signed and verified, Immutable Silicon Root of Trust, Ability to rollback firmware, FIPS 140-2 validation, Secure erase of NAND/User data, Common Criteria certification, TPM (Trusted Platform Module) 1.2 option, Configurable for PCI DSS compliance, TPM (Trusted Platform Module) 2.0 option, Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Bezel Locking Kit option, Support for Commercial National Security Algorithms (CNSA), Chassis Intrusion detection option, Secure Recovery - recover critical firmware to known good state on detection of compromised firmware.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |  |
|  | <b>Softwares</b>                                        | RHEL 2-socket, Altair PBS Professional (workload Manager)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |  |
|  | <b>Provisioning</b>                                     | <ul style="list-style-type: none"><li>• Should support tool to provision server using RESTful API to discover and deploy nodes at scale.</li><li>• Provision one to many nodes using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|  | <b>Firmware security</b>                                | <ul style="list-style-type: none"><li>• For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable.</li><li>• Shall maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|  | <b>Embedded Remote Management and firmware security</b> | <ul style="list-style-type: none"><li>• System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</li><li>• Node shall have dedicated 1Gbps remote management port.</li><li>• Node shall have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware</li><li>• Node shall support agentless management using the out-of-band remote management port</li><li>• The node should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>• Two factor Authentication</li><li>• Local or Directory-based user accounts with Role based access control</li><li>• Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support. Should provide support for AES and 3DES on browser. Shall provide remote firmware update functionality. Shall provide support for Java free graphical remote console.</li><li>• Shall support managing multiple nodes as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>• Shall support RESTful API integration.</li><li>• Node shall support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li></ul> |  |

|  |                             |                                                                                                                                                                                                                                                                                     |  |
|--|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                             | <ul style="list-style-type: none"><li>Node should have security dashboard, displaying the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features.</li></ul> |  |
|  | <b>Warranty and Support</b> | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                   |  |

| S.<br># | INTERACTIVE GPU NODE                             |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | Qty |
|---------|--------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 06      | Processor                                        | 2 x Intel Xeon-Gold 6338 2.0GHz 32-core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | 01  |
|         | Memory                                           | Support 32DIMM slots.<br>Installed: 16 x 16GB Dual Rank x8 DDR4-3200                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |     |
|         | HDD Bays                                         | Installed HDDs: 2 x 1.92TB SAS 12G Read Intensive SFF SSDs                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |     |
|         | Controller                                       | Node shall support one of the below controllers, must support Mixed Mode which combines RAID and HBA mode operation simultaneously:<br>- PCIe 4.0 based x8 RAID controller with 4GB Flash backed write cache, supporting RAID 0, 1, 1 TP, 10, 10 TP, 5, 6, 50, 60 with 16 SAS/SATA/NVME lanes supporting up to 16 direct-connected storage devices (SAS/SATA/NVMe).<br>- Controller must support 6G SATA, 6G/12G/24G SAS, Gen 3/Gen4 NVMe. Storage controller shall support Secure encryption/data at rest Encryption.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|         | Networking                                       | 1Gb 4-port network adaptors<br>1 x InfiniBand HDR/Ethernet 200Gb 1-port QSFP56                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |
|         | Interfaces                                       | Serial - 1 (Optional), USB 3.0 support with up to 5 total                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |
|         | GPU                                              | 1 x NVIDIA A40 48GB PCIe                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |
|         | Bus slots                                        | Shall support up-to eight PCI-Express 4.0 slots, at-least two x16 PCIe slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |     |
|         | Power Supply                                     | Hot plug redundant low halogen power supplies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |
|         | Fans                                             | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |     |
|         | Industry Standard Compliance                     | ACPI 6.3 Compliant, PCIe 4.0 Compliant, WOL Support, Microsoft Logo certifications, PXE Support, USB 3.0 Compliant, Energy Star, SMBIOS 3.2, Redfish API, IPMI 2.0, Secure Digital 4.0, TPM 1.20 and 2.0 Support, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP v3, TLS 1.2, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), Active Directory v1.0, ASHRAE A3/A4, UEFI (Unified Extensible Firmware Interface Forum) 2.6.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |
|         | System Security                                  | UEFI Secure Boot and Secure Start support, Tamper-free updates – components digitally signed and verified, Immutable Silicon Root of Trust, Ability to rollback firmware, FIPS 140-2 validation, Secure erase of NAND/User data, Common Criteria certification, TPM (Trusted Platform Module) 1.2 option, Configurable for PCI DSS compliance, TPM (Trusted Platform Module) 2.0 option, Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Bezel Locking Kit option, Support for Commercial National Security Algorithms (CNSA), Chassis Intrusion detection option, Secure Recovery – recover critical firmware to known good state on detection of compromised firmware.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |
|         | Softwares                                        | RHEL 2-socket, Altair PBS Professional (workload Manager)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |
|         | Provisioning                                     | <ul style="list-style-type: none"><li>Should support tool to provision server using RESTful API to discover and deploy servers at scale.</li><li>Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |     |
|         | Firmware security                                | <ul style="list-style-type: none"><li>For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing servers from booting up unless the firmware matches the fingerprint. This feature should be immutable.</li><li>Shall maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |     |
|         | Embedded Remote Management and firmware security | <ul style="list-style-type: none"><li>System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</li><li>Node shall have dedicated 1Gbps remote management port.</li><li>Node shall have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware</li><li>Node shall support agentless management using the out-of-band remote management port</li><li>The node should support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>Two factor Authentication</li><li>Local or Directory-based user accounts with Role based access control</li><li>Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for</li></ul> |     |

|  |                      |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|--|----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  |                      | <p>replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support. Should provide support for AES and 3DES on browser. Shall provide remote firmware update functionality. Shall provide support for Java free graphical remote console.</p> <ul style="list-style-type: none"><li>• Shall support managing multiple nodes as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>• Shall support RESTful API integration.</li><li>• Node shall support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li><li>• Node should have security dashboard, displaying the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features.</li></ul> |  |
|  | Warranty and Support | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |  |

| S.# | CLUSTER MANAGER NODES        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            | Qty |
|-----|------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 07  | Processor                    | 1 x AMD EPYC 9254 2.9GHz 24-core                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           | 03  |
|     | Memory                       | Support 12DIMM slots.<br>Installed: 8 x 32GB Dual Rank x8 DDR5-4800                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|     | HDD Bays                     | Installed HDDs: 4 x 4TB SATA 6G 7.2K LFF drives                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
|     | Controller                   | Embedded / PCIe based RAID controller with 4GB Flash backed write cache supporting RAID 0, 1, 5, 6, 10, 50, 60<br>Must support mix-and-match SAS, SATA, and NVMe drives to the same controller. Controller must support 6G SATA, 12G SAS, 16G NVMe.                                                                                                                                                                                                                                                                                                                                                                                                                        |     |
|     | Networking                   | 1Gb 4-port network adaptors<br>1 x 10/25Gb 2-port Ethernet adaptor with 10G transceivers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |
|     | Interfaces                   | Serial - 1 (Optional), USB 3.2 Gen1 support with up to 5 total.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |     |
|     | Bus slots                    | Node shall support up-to two PCI-Express 5.0 x16 slots.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |     |
|     | Power Supply                 | Hot plug redundant low halogen power supplies.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|     | Fans                         | Redundant hot-plug system fans                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|     | Industry Standard Compliance | ACPI 6.1 Compliant, PCIe 5.0 Compliant, WOL Support, Microsoft Logo certifications, PXE Support, VGA/Display Port, USB 3.2 Gen1 Compliant, USB 2.0 Compliant, Energy Star, SMBIOS 3.1, UEFI 2.7, UEFI Class 3, Redfish API, IPMI 2.0, Secure Digital 2.0, Advanced Encryption Standard (AES), Triple Data Encryption Standard (3DES), SNMP v3, TLS 1.2, DMTF Systems Management Architecture for Server Hardware Command Line Protocol (SMASH CLP), Active Directory v1.0, ASHRAE A3/A4, UEFI.                                                                                                                                                                             |     |
|     | System Security              | UEFI Secure Boot and Secure Start support, Immutable Silicon Root of Trust, FIPS 140-3 validation, Common Criteria certification, Configurable for PCI DSS compliance, Advanced Encryption Standard (AES) and Triple Data Encryption Standard (3DES) on browser, Support for Commercial National Security Algorithms (CNSA), Tamper-free updates - components digitally signed and verified, Secure Recovery - recover critical firmware to a known good state on detection of compromised firmware, Ability to rollback firmware, Secure erase of NAND/User data, TPM (Trusted Platform Module) 2.0 option, Bezel Locking Kit option, Chassis Intrusion detection option. |     |
|     | Softwares                    | RHEL 2-socket, Red Hat Resilient Storage 2-socket                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |     |
|     | Provisioning                 | <ul style="list-style-type: none"><li>• Should support tool to provision server using RESTful API to discover and deploy servers at scale.</li><li>• Provision one to many servers using own scripts to discover and deploy with Scripting Tool (STK) for Windows and Linux or Scripting Tools for Windows PowerShell.</li></ul>                                                                                                                                                                                                                                                                                                                                           |     |
|     | Firmware security            | <ul style="list-style-type: none"><li>• For firmware security, system should support remote management chip creating a fingerprint in the silicon, preventing nodes from booting up unless the firmware matches the fingerprint. This feature should be immutable.</li><li>• Should maintain repository for firmware and drivers recipes to aid rollback or patching of compromised firmware. Should also store Factory Recovery recipe preloaded to rollback to factory tested secured firmware.</li></ul>                                                                                                                                                                |     |



|  |                                                         |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|--|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <b>Embedded Remote Management and firmware security</b> | <ul style="list-style-type: none"><li>• System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</li><li>• Node shall have dedicated 1Gbps remote management port</li><li>• Node shall have storage space earmarked to be used as a repository for firmware, drivers and software components. The components can be organized in to install sets and can be used to rollback/patch faulty firmware.</li><li>• Node shall support agentless management using the out-of-band remote management port.</li><li>• The node shall support monitoring and recording changes in the server hardware and system configuration. It assists in diagnosing problems and delivering rapid resolution when system failures occur.</li><li>• Two factor Authentication.</li><li>• Local or Directory-based user accounts with Role based access control.</li><li>• Remote console sharing upto 6 users simultaneously during pre-OS and OS runtime operation, Console replay - Console Replay captures and stores for replay the console video during a server's last major fault or boot sequence. Microsoft Terminal Services Integration, 128 bit SSL encryption and Secure Shell Version 2 support. Shall provide support for AES and 3DES on browser. Shall provide remote firmware update functionality. Shall provide support for Java free graphical remote console.</li><li>• Shall support managing multiple servers as one via Group Power Control, Group Power Capping, Group Firmware Update, Group Configuration, Group Virtual Media and Encrypted Virtual Media, Group License Activation.</li><li>• Shall support RESTful API integration.</li><li>• System should support embedded remote support to transmit hardware events directly to OEM or an authorized partner for automated phone home support.</li><li>• Node shall have security dashboard, displaying the status of important security features, the Overall Security Status for the system, and the current configuration for the Security State and Server Configuration Lock features.</li></ul> |  |
|  | <b>Warranty and Support</b>                             | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |  |

| S. # | CLUSTER MANAGEMENT SOFTWARE |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |  |
|------|-----------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
| 08   | <b>General</b>              | <ul style="list-style-type: none"><li>• Comprehensive cluster system management infrastructure, capable for provision, manage and monitor clusters of any scale, in additional to giving administrators the ability to optimize resource delivery for target applications. The infrastructure includes node and system management software with perpetual license for the proposed system.</li><li>• Proposed solution includes commercial level technical support for the proposed system management software during the warranty and maintenance period.</li><li>• The cluster management system shall support both on-premises as well as hybrid HPC deployments.</li><li>• The system shall adopt scale-out architecture supports a cluster containing thousands of nodes.</li><li>• The system shall provide pre-defined and custom dashboards for monitoring the system.</li><li>• Bidder should describe the resiliency, reliability, and availability mechanisms and capabilities of the system including<ul style="list-style-type: none"><li>→ Any condition or event that can potentially cause a job interrupt.</li><li>→ Single points of failure (hardware or software), and the potential effect on running applications and system availability.</li><li>→ A system-level mechanism to collect failure data for each kind of component.</li></ul></li><li>• The system should have automated tools or facilities for monitoring and analyzing the utilization of all core components of the proposed HPC hardware (including nodes and storage).</li><li>• Prospective bidder shall have to submit cost of software solution including licenses required to manage all nodes within a cluster, which will be managed through cluster manager nodes in high available mode.</li><li>• The software shall support both command line interface (CLI) and Graphical User Interface (GUI). The GUI shall allow access to all compute node consoles from a single screen.</li><li>• The system should provide flexible image management and software updates to accommodate a wide range of requirements. The image management system should supports a secure software image repository with version control ability.</li><li>• The bidder should provide and maintain the disk storage capacity for the on-line retention of system, application and other related data including system audit trails/logs, system performance and statistical data, etc.</li><li>• The software should provide intelligent tool for real-time anomaly detection on interface hardware such as CPU, GPU, DIMM, node power, CDU, RDHx, DLC, ARCS.</li></ul> |  |

|  |                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|--|------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
|  |                        | <ul style="list-style-type: none"><li>The system should provide software APIs that can be used for monitoring or managing the system.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
|  | Hardware MGMT          | <ul style="list-style-type: none"><li>The system should support inventory management and alerts for detecting hardware changes.</li><li>The system should send alerts in response to certain system conditions or issues that occur in the system. HPCs System Admins can setup automatic responses to alerts based on thresholds and/or selected metrics. The alerts should be at least sent to the CLI or GUI console and by email.</li><li>The installed SW including the BIOS on the cluster nodes can be compared and flagged for any inconsistencies.</li><li>System management commands should be able to broadcast to all or selected cluster nodes for administrative operations.</li></ul>                                                                                                                                                                                     |
|  | Power MGMT and cooling | <ul style="list-style-type: none"><li>The system should provide power consumption statistics and apply power per user, per group, and per job basis.</li><li>The system should provide power management features including power capping and power resource management for jobs.</li><li>The system should provide topology and/or protocol-aware power on/off feature allows controlled start/stop and isolation of incidents.</li><li>The power management should provide accurate measurement and prediction of power usages for better capacity planning.</li><li>The power management should be integrated with the proposed GPU.</li><li>The system should be able to monitor and manage the PDU and cooling hardware (CDU, and DLC) in the proposed system. The software should provide intelligent tool for real-time anomaly detection on interface cooling hardware.</li></ul> |
|  | Health check           | <ul style="list-style-type: none"><li>The system shall provide cluster health monitoring and management features. These features should be integrated with workload management and allow the health check performed before and/or after running the jobs.</li><li>The system should provide a health dashboard aggregating alert and severity information of the proposed system.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
|  | Warranty and Support   | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |

| S. # | STORAGE NODE (ALL-FLASH)              |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | Qty |
|------|---------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 09   | Operating System & Clustering Support | <ul style="list-style-type: none"><li>The storage array shall support industry-leading Operating System platforms including MS Windows 2016 / 2019 / 2022, VMware and Linux. Offered Storage shall support all above operating systems in clustering.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                         | 01  |
|      | Capacity & Scalability                | <ul style="list-style-type: none"><li>The Storage Array shall be offered with 100TB usable capacity with Raid-6 on All SSD drives. SSD drive size should not be more than 4TB.</li><li>For effective power saving, Storage subsystem shall be supplied with 2.5" small form factor SFF drives; however storage subsystem shall also support LFF drives with the addition of required disk enclosures.</li><li>Storage shall be scalable to minimum of 240 number of SAS SFF drives.</li></ul>                                                                                                                                                                                                           |     |
|      | Front-end Ports & Back-end Ports      | <ul style="list-style-type: none"><li>Storage system shall be supplied with 2 x 16Gb FC ports per controller. Offered storage system shall support 12G SAS Back-end connectivity.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |     |
|      | Architecture                          | <ul style="list-style-type: none"><li>The storage array should support dual, redundant, hot-pluggable, active-active array controllers for high performance and reliability.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |     |
|      | No Single point of Failure            | <ul style="list-style-type: none"><li>Offered Storage Array shall be configurable in a No Single Point of configuration including Array Controller card, Cache memory, FAN, Power supply etc.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |     |
|      | Disk Drive Support                    | <ul style="list-style-type: none"><li>Storage system shall support Enterprise SAS spinning drives, SSD and near line SAS / 7.2K RPM drives.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |     |
|      | Cache                                 | <ul style="list-style-type: none"><li>Offered Storage Array shall be given with minimum of 12GB cache per controller in a single unit.</li><li>Cache shall be backed up in case of power failure for indefinite time either using batteries or capacitors or any other equivalent technology.</li><li>Offered Storage shall also have optional support for Flash cache using SSD / Flash drives. Offered storage shall support at-least 8TB Flash Cache and shall be configured with at-least dual 1.92GB SSD drives for Flash Cache.</li><li>Offered Flash cache shall be tuned for random read operations and shall remain activated even at less than 70% of random average read workload.</li></ul> |     |
|      | Raid Support                          | <ul style="list-style-type: none"><li>Offered Storage Subsystem shall support Raid 1, 10, 5 and Raid 6.</li><li>All Raid sets shall support thin provisioning. Vendor shall offer the license of thin provisioning for complete supported capacity of the array.</li><li>Thin provisioning shall be supported with offered Flash Cache.</li><li>Raid processing shall be offloaded to a dedicated ASIC instead of CPU. In case vendor is not supporting it then vendor shall ensure that additional 12GB cache per controller is configured to offset the raid processing workload.</li></ul>                                                                                                           |     |

|  |                                             |                                                                                                                                                                                                                                                                                                                                                                                                               |  |
|--|---------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--|
|  | <b>Point in time and clone copy</b>         | <ul style="list-style-type: none"><li>Storage array shall be configured with array based Snapshot and clone functionality and shall be configured for minimum of 512 snapshot licenses.</li><li>Offered Storage array shall support at-least 512 point in time copies (Snapshots) and 128 volume / Clone copies</li></ul>                                                                                     |  |
|  | <b>Replication</b>                          | <ul style="list-style-type: none"><li>Storage subsystem shall support storage based replication to DR location. License for maximum supported capacity of the array shall be offered.</li><li>Offered storage subsystem shall support replication to multiple storage array of the same family in fan-out mode. At least 1:4 mode shall be supported.</li></ul>                                               |  |
|  | <b>Virtualization and Thin provisioning</b> | <ul style="list-style-type: none"><li>Storage shall be offered and configured with virtualization capability so that a given volume can be striped across all spindles of given drive type within a given disk pool. Disk pool shall support all listed raid sets of Raid 1, Raid 10, Raid 5 and Raid 6.</li><li>Offered Storage shall be offered and configured with Thin Provisioning capability.</li></ul> |  |
|  | <b>Data Tiering</b>                         | <ul style="list-style-type: none"><li>Storage shall also be configured for Sub-LUN Data tiering in real time fashion across different type of drives within a given pool like SSD, SAS, NL-SAS etc. License shall be configured for maximum supported capacity of the array.</li></ul>                                                                                                                        |  |
|  | <b>Global and dedicated Hot Spare</b>       | <ul style="list-style-type: none"><li>Storage Array shall support Global hot Spare for offered Disk drives.</li><li>At-least 2 Global hot spare drive shall be configured for every 30 drives.</li><li>Offered storage array shall have the support for distributed hot spare.</li></ul>                                                                                                                      |  |
|  | <b>Logical Volume &amp; Performance</b>     | <ul style="list-style-type: none"><li>Storage Subsystem shall support minimum of 512 Logical Units. Storage Array shall also support creation of more than 120TB volume at controller level.</li><li>Storage shall have inbuilt performance management software. Configuration Dashboard shall show overall IOPS and MB/sec performance.</li></ul>                                                            |  |
|  | <b>Load Balancing &amp; Muti-path</b>       | <ul style="list-style-type: none"><li>Multi-path and load balancing software shall be provided, if vendor does not support MPIO functionality of Operating system.</li></ul>                                                                                                                                                                                                                                  |  |
|  | <b>Performance</b>                          | <ul style="list-style-type: none"><li>Storage must have performance of more than 140,000 with 70/30 R/W ration using appropriate drives at 8k block size (datasheet to be provided as part of solution).</li></ul>                                                                                                                                                                                            |  |
|  | <b>Array Integration</b>                    | <ul style="list-style-type: none"><li>Offered storage array shall have plug-in for VMware VCenter, Microsoft System center as well as vStorage APIs (VAAI) for array integration.</li></ul>                                                                                                                                                                                                                   |  |
|  | <b>Warranty and Support</b>                 | 3 years 24 x 7 comprehensive warranty and support                                                                                                                                                                                                                                                                                                                                                             |  |

| S. # | BRANDED EQUIPMENT RACK                                  |                                                                                                                                                                                                                                                                                                                                                                    | Qty |
|------|---------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----|
| 10   | <b>Equipment racks (Branded with console, KVM, PDU)</b> | 42U 800mmx1200mm G2 Enterprise Pallet Rack. G2 Rack 42U 1200mm Side Panel Kit. 2 x Basic Modular 7.3kVA/60309 3-wire 32A/230V Outlets (6) C19/1U Horizontal INTL PDU. 8 x Basic 7.3kVA/60309 3-wire 32A/230V Outlets (20) C13/Vertical INTL PDU. Rack Cable Management Combo Kit. 2 x 1U 10-pack Black Universal Filler Panel. Console with KVM and allied cables. | 02  |

| S. # | NETWORK MANAGEMENT SWITCHES |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Qty           |
|------|-----------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------|
| 11   | Management Switches         | Lite Layer 3 Switch with 4 x 10G uplinks, 48 x 1G Rj45 ports (Auto-MDIX), 4 x 10G SFP+ ports, Forwarding performance: atleast 112 Mpps, Switching Capacity: at-least 176 Gbps, Vlans support: 2000, Mac address table size - 32,000, Support for 802.1ab - LLDP, Support for Dual stack - IPv4 and IPv6, Support for SNMPv1/2/3, Support for 802.3x, Support for STP/RSTP/MSTP/RPVST+, Support for DHCP Server, Support for Static IP Routing + RIP + OSPFv2 (Access), Support for Static IPv6 Routing + RIPng + OSPFv3 (Access), Support for access control lists, Support for 802.1x - Per user ACL and dynamic VLAN assignment, Support for Multiple IEEE 802.1x users per port, Support for MAC Based authentication, Support for Port Security, Support for Port mirroring, Support for Source port filtering, Support for GVRP / MVRP, Support for Voice Vlan, Support for 802.3az, Support for Telnet / SSHv2, | 02            |
|      |                             | 10G SFP transceivers                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | As per actual |
|      |                             | Cat-6 patch cords (3 meter)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |               |
|      |                             | Warranty and Support                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 3 years       |

| S. # | Infiniband HDR SWITCHES |                                                                                         | Qty |
|------|-------------------------|-----------------------------------------------------------------------------------------|-----|
| 12   | <b>HDR Switches</b>     | InfiniBand HDR 40-port QSFP56 managed switch, 40 QSFP56 ports internally managed switch | 02  |

|  |                      |                                                                                |               |
|--|----------------------|--------------------------------------------------------------------------------|---------------|
|  |                      | Serial Cable (DB9 to RJ-45),                                                   | Per switch    |
|  |                      | InfiniBand HDR 200Gb QSFP56 to QSFP56 1m Direct Attach Copper Cables           | As per actual |
|  |                      | InfiniBand HDR 200Gb QSFP56 to QSFP56 2m Direct Attach Copper Cable            |               |
|  |                      | InfiniBand HDR 200Gb QSFP56 to QSFP56 3m Active Optical Cable                  |               |
|  |                      | InfiniBand HDR 200Gb QSFP56 to 2xQSFP56 2m Splitter Direct Attach Copper Cable |               |
|  |                      | 2 (1+1) Power Supplies                                                         | Per switch    |
|  |                      | 6 (N+1) Fan units                                                              |               |
|  |                      | Sliding rail rackmount kit                                                     |               |
|  | Warranty and Support | 3 years 24 x 7 warranty and support                                            |               |

**MANDATORY TERM & CONDITIONS**

| S#       | EVALUATION PARAMETER        | MANDATORY REQUIREMENTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
|----------|-----------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <u>1</u> | Bidders relevant experience | <ul style="list-style-type: none"><li>Proposed solution including computer nodes, login/admin nodes, cluster management nodes with its software and storage shall be of the same brand.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| <u>2</u> | Bidders responsibility      | <ul style="list-style-type: none"><li>Prospective bidder shall quote ALL components of required solution and share part numbers with make/model of quoted product. Partial bidding of components will lead to rejection of bid.</li><li>Prospective bidder shall be responsible for delivery of HPC solution; however, installation, configuration, integration, testing and training will be made by the Principal as per University requirements.</li><li>Provision of application softwares required by the end-users (i.e. C++, Java, ArcGIS, R, OpenCV, Erdas Imagine, ENVI, Pix4D, QGIS, MATLAB/Python, MODFLOW, Crop Models and etc) will be the responsibility of University; however successful bidder will provide computing environment to end-user to install his/her required application softwares and associated libraries to successfully execute day-to-day tasks.</li><li>Successful bidder will be responsible to integrate quoted solution with existing power and network infrastructure of the data centre of UAF</li></ul> |
| <u>3</u> | Warranty and support        | 3 years (24 x 7) comprehensive warranty and support of quoted products.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <u>4</u> | Training                    | Principal shall provide following trainings to University staff: -<br>1. Administrator level training for University staff with operational manuals to handle front and back-end operations of HPC.<br>2. User level trainings with operational manuals to execute day-to-day jobs.<br>3. Scope of both trainings will be mutually drafted and executed                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                           |
| <u>5</u> | Price mechanism             | 1. It’s mandatory for bidders to share component wise pricing of solution. University may increase / decrease quantities of required components at the time of supply order issuance.<br>2. Bidder shall have to submit separate and independent “technical as well as financial” proposal against turnkey basis HPC solution. Partial bidding of components is not allowed.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| <u>6</u> | Pre-shipment inspection     | <ul style="list-style-type: none"><li>Successful bidder shall submit separate cost as part of financial proposal for three University officials pre-shipment inspection of hardware at factory site. However, pre-shipment will be optional and committee will decide before issuance of supply order about it.</li><li>All charges (visa charges, conveyance from UAF to manufacturer factory site charges, hotel charges at site, meal etc. &amp; also return from factory to UAF. Inspection cost DA) shall be part of pre-shipment proposal.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| <u>7</u> | Payment                     | <ul style="list-style-type: none"><li>Payment will be made after successful supply, installation, configuration, customization, testing and training etc of HPC solution.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| <u>8</u> | Part wise evaluation        | <ul style="list-style-type: none"><li>Financial evaluation of bids will be made on total evaluated lowest cost of offered solution.</li></ul>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |

Section VIII.

**Sample Forms**

**Sample Forms**

|    |                                                       |       |
|----|-------------------------------------------------------|-------|
| 1. | Bid Form and Price Schedules .....                    | 70,71 |
| 2. | Manufacturer’s/Distrbutor's/Dealer's Certificate Form | 72    |

1. Bid Form and Price Schedules

To:

Date: \_\_\_\_\_

Tender No. \_\_\_\_\_

Prof. Dr. Muhammad Asif Kamran,  
Faculty of Social Sciences,  
University of Agriculture,  
Faisalabad.

Gentlemen and/or Ladies:

Having examined the bidding documents including Tender No.104/2023, the receipt of which is hereby duly acknowledged, we, the undersigned, offer to supply and deliver *[description of goods and services]*in conformity with the said bidding documents for the sum of *[total bid amount in words and figures]*or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this Bid. We understand that failure to furnish all information required by the bidding documents or to submit a bid not substantially responsive to the bidding documents in every respect will be at our risk and may result in the rejection of its bid.

If our bid is accepted, we undertake to provide a performance security in the form, in the amounts, and within the times specified in the bidding documents and to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements. Failure to which, the Purchaser reserve the right to take action as per provisions of the bidding documents.

We agree to abide by this Bid for the Bid Validity Period specified in Clause 16.1 of the Bid Data Sheet and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

| Name and address<br>of agent | Amount and<br>Currency | Purpose of<br>Commission or<br>gratuity |
|------------------------------|------------------------|-----------------------------------------|
| _____                        | _____                  | _____                                   |
| _____                        | _____                  | _____                                   |
| _____                        | _____                  | _____                                   |
| (if none, state “none”)      |                        |                                         |

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

We certify/confirm that we comply with all requirements as per ITB Clause 2 of the bidding documents.

Dated this \_\_\_\_\_ day of \_\_\_\_\_ 20\_\_\_\_\_.

\_\_\_\_\_

[signature]

\_\_\_\_\_

[in the capacity of]

Duly authorized to sign Bid for and on behalf of \_\_\_\_\_

### Price Schedule for Goods Offered from within the Purchaser's Country

Name of Bidder \_\_\_\_\_.Tender Number \_\_\_\_\_.Page \_ of \_\_\_\_.

| 1    | 2           | 3                 | 4        | 5                         |
|------|-------------|-------------------|----------|---------------------------|
| Item | Description | Country of origin | Quantity | Price including all Taxes |
|      |             |                   |          |                           |

Signature of Bidder \_\_\_\_\_

*Note:* In case of discrepancy between unit price and total, the unit price shall prevail.



**Manufacturer’s/Distributor’s/Dealer’s Certificate Form**

[See Clause 13.3 (a) of the Instructions to Bidders.]

To: *[name of the Purchaser]*

WHEREAS *[name of the Manufacturer/Distributor/Dealer]* who are established and reputable Manufacturer/Distributor/Dealer of *[name and/or description of the goods]* having factories/Warehouse/trading house at *[address of factory]*

do hereby authorize *[name and address of Agent]* to submit a bid, and subsequently negotiate and sign the Contract with you against Tender No. *[reference of the Invitation to Bid]* for the above goods manufactured by us.

We hereby extend our full guarantee and warranty as per Clause 15 of the General Conditions of Contract for the goods offered for supply by the above firm against this Invitation for Bids.

---

*[signature for and on behalf of Manufacturer]*

*Note:* This letter of authority should be on the letterhead of the Manufacturer/Distributor/Dealer 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 bid.