



**OFFICE OF THE REGISTRAR
DIBRUGARH UNIVERSITY**
Dibrugarh | PIN - 786 004 | Assam

No: DU/RP/PMC/2020/2013

Date: 12/03/2020

-: Notice Inviting Quotation:-

Sealed quotations are invited from authorized/reputed/experienced firm for the supply, installation and commissioning of **High Performance Computing system (HPC System)** at the Department of Physics, D.U. in accordance with the specifications and quantity provided at the Annexure – I. The quotations will be received by the undersigned on or before 27/03/2020 upto 4:00 pm.

Terms and Conditions:-

1. No separate tender paper will be issued from the Office. Quotation should be submitted on the Supplier's Letter Pad accompanied with all relevant supporting documents.
2. The bidder must submit their quotation in 2 (two) bids system viz. Technical Bid and Financial bid. The financial bid shall be considered for evaluation only after successful submissiveness of the Technical bid.
3. The University reserves its right to accept or reject any or all the quotations without assigning any reason thereof.
4. The quantity and requirements of the materials may be varied at the time of placing the formal supply/work/service order.
5. Payment shall be made after successful supply, installation, commission and completion of the job.
6. The quotations are to be addressed to "**The Registrar, Dibrugarh University, Dibrugarh – 786 004**". The sealed envelopes must be super scribed with the respective NIQ Notice number, material or service or annexure number, corresponding to the NIQ. The bidder must also indicate their contact details in terms of Contact no, email ID etc on the face of envelope.
7. The bidder must clearly indicate information, in terms of Duties & taxes, freight & transportation charges, installation charges (if any), warranty terms (if applicable) etc. Details of GST registration, PAN etc are also required to be incorporated on the respective bid documents.
8. The bidders have to submit 02% EMD of the total bid value along with the bids.
9. The University shall retain 10% (if required) of the total bill value as security deposit for 1 year.
10. The shortlisted firm must physically visit and inspect the site of installation prior to the supply of materials.


Registrar
Dibrugarh University

Copy to:

1. The Dy. Registrar (F&A), D.U. for information
2. Notice Boards
3. The Programmer, D.U. = for publishing on the D.U. website
4. Office File


Registrar
Dibrugarh University

Annexure – I

Title of the Project: DST-FIST Level – 1

Under the guidance of Dr. Pankaj Dutta, Associate Professor, Department of Physics, D.U.

Technical Specification

1.Master Node

QTY:01

| Parameter | Minimum required features |
|-----------------------------|--|
| Make & Model: | |
| Processors | 2 x Intel Xeon Silver 4214, 2.2 GHz, 16.5 M Cache, HT, 12C/24T 85W or better |
| Chipset | Latest OEM chipset supporting an optimized for the above processor |
| Memory | 24 Dimm Slots, 64 GB DDR4 Advanced ECC memory and upgradable to 512 GB DDR4, 2400MHz RAM or higher |
| Hard Disk Drives | 5 x 2.4 TB (Total 12TB raw capacity) SAS 7.2 KRPM, 12Gbps 2.5In Hot-plug Drive |
| HDD bays | HDD bays supporting SAS, SATA, SSD drives (Maximum HDD Support : 8 x 2.5" HDD) |
| I/O slots | Minimum 6 x PCI-Express 3.0 slots |
| RAID levels | Integrated RAID Controller, 1GB Cache, Support for RAID 0,1; support for RAID 5 |
| Network Interface | 1 x On-Board LOM 1GBE (Dual Port) & 1 x Dual Port 10G Base-T card |
| Graphics controller | Integrated Graphics with at least 16MB Video Memory |
| Server Management | OEM embedded controller and Server Management Tool from same OEM |
| Remote Management | System remote management should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive |
| Ports | Min 3 USB ports |
| Power supplies | Redundant Platinum rated Power Supply (at least 800 Watts each) to sustain above configuration. |
| Cooling | Hot plug and redundant fans (Non Cabled) |
| Certification | The server OEM must be ISO-14001 The Server manufacturer should be enlisted within top 3 manufacturer as per the Latest IDC report Q1, 2019 |
| Operating Systems supported | Microsoft Windows Server, Novell SUSE Linux Enterprise Server, Red Hat Enterprise Linux, VMware, FCC, UL, ROHS |
| Warranty: | 5 years onsite warranty with Back to Back support from OEM |



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2. Compute Node

| Item | Minimum required features |
|---|---|
| A) Compute Nodes chassis Specifications | |
| Make & Model: | |
| Chassis | Vendor should offer a Server chassis / enclosure based solution which can hold dense servers (Pure CPU and GPU based compute nodes) on an average of 2U per Server, capable of getting mounted in a standard 19" 42U Rack (max depth of 1000mm). Each of the Server nodes should be individually serviceable, without shutting down the other Server nodes. |
| Redundant Power Supplies | The entire solution should be offered with redundant power supplies at enclosure level. |
| Redundant Fans | The chassis / enclosure should be configured with redundant fans |
| GPU/Accelerators | The chassis should be able to support 2 compute nodes with GPUs or 4 Compute Nodes without GPU. The Chassis should be able to support combination of both GPU and compute nodes |
| Zoning disks | The chassis should have capability to assign disks flexibly against each node using zoning capabilities. For instance, if the chassis can support say 24 SFF disks and 4 compute nodes, then the chassis should have capability to distribute more than 6 disks in some of the nodes, subject to a total of 24 disks across 4 nodes. |
| Certification | The Server manufacturer should be enlisted within top 3 manufacturer as per the Latest IDC report Q1, 2019 |
| B) Compute Server Specifications (Qty :- 4 Numbers of 2 Socket Server) | |
| Make & Model: | |
| CPU | 2 x Intel Xeon Silver 4216, 2.1 GHz, 22 M Cache, HT, 16C/32T 100W or better |
| Chipset | Intel C622 Series Chipset or better |
| Memory Requirement | 64 GB to be configured using 2666 MHz RDIMMs. Adequate DIMMs to be configured to populate all memory channels in a balanced manner. Compute node should be scalable to 16 DIMMs. |
| Memory Scalability | Should be capable of scaling up to 512 GB Memory. |
| Memory protection | Advanced ECC |
| Hard Disk | 2 x 2.4TB 7.2K RPM SAS Drives |
| Networking | 2 x 1Gbps ports with PXE boot capability & 1 x Dual Port 10G Base-T card |
| Management Port | 1Gbps Remote Management Port |
| PCI-Express 3.0 slots | The compute node should have capability to be configured with at least 2 no's of PCIe -Gen3 (x8/16) low profile IO slots |
| OS Support | Should support RHEL6.x / SLES 11 or higher |
| Warranty | 5 Years Warranty on chassis & Servers |



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3. 12 port 10G Switch

QTY:01

| Parameter | Minimum required features |
|--|---|
| Make & Model: | |
| Physical Interface | Twelve 1000/10000 Mbps RJ45 ports and additional 4 x 10 Gigabit SFP+ fiber |
| Memory | 512 MB flash; Packet buffer size: 2 MB, 1 GB SDRAM |
| Performance | 100 Mb Latency : < 5 μ s, 1000 Mb Latency : < 5 μ s, 10 Gbps Latency : < 1.5 μ s |
| Throughput | Minimum 230 Mpps (64-byte packets) |
| Routing/Switching capacity | Minimum 320 Gbps |
| MAC address table size | Min 16384 entries |
| Network Protocol and Standards | IEEE 802.3u 100BASE-TX, IEEE 802.3ab 1000BASE-T, IEEE 802.3z 1000BASE-X, IEEE802.3ae 10GBase Ethernet, IEEE802.3an 10GBase-T |
| Reliability,Performance, Troubleshooting | Port mirroring both on Ingress and egress traffic, Jumbo frame support, DoS Prevention |
| Traffic Management | Auto Negotiation of speed and duplex modes, 801.2x Flow Control ,DHCP Client, Dynamic MAC address management, Port-based and IEEE801.2p-based QoS, QoS based on ToS (Type-of-Service), Link Aggregation |
| Multicast Efficiency | IGMP snooping, v1, v2 and v3, IGMP Snooping querier (6 and 24 port models only), Blocking of unknown multicast traffic, Act as static multicast router port |
| Environmental Specifications | Operating Temperature:32 to 113F (0c to 45c) |
| Operating Humidity | 90% Maximum relative humidity, non-condensing, |
| Switch Management | Firmware Upgrade thru Plus Utility (TFTP) |
| | System password protection, SNMP,HTTPS |
| Certification | UL, FCC , Switch OEM should be present in the latest Gartner report for data center networking. |
| Warranty Support | 3 Years onsite Comprehensive |

4. 24 port 1G switch

QTY:01

| Parameter | Minimum required features |
|---------------|----------------------------------|
| Make & Model: | |
| Switch | 24 port managed 1 Gigabit Switch |



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5. KVM Switch

QTY:01

| Sl.No | Minimum required features |
|--------------------------|---|
| Make & Model: | |
| 1 | Minimum of 16 ports |
| 2 | Connect computers via PS/2 and/or USB. |
| 3 | Supports Windows, Linux, Mac OS9/OSX, Sun Microsystems. |
| 4 | On-Screen-Display (OSD) & Cascade Chain functions. |
| 5 | OSD with intuitive menus for quick and effective navigation. |
| 6 | Advanced user profiles and configurable OSD hot key combinations |
| 7 | Multilingual OSD: English, France, German, Spanish, Italian, Russian, Simplified Chinese, Japanese |
| 8 | Support resolution up to 1920 x 1080 |
| 9 | From a single console. Cascaded units do not need special configuration. |
| 10 | Hot-pluggable: all devices connected to KVM can be added or removed at any time without shutting down the devices. |
| 11 | Auto Scan video for effortless monitoring |
| 12 | Easily switch between connected devices with: Hardware Push Button, Hot-Keys on PS/2 and/or USB keyboard with OSD menu. |
| 13 | Hotkey combination: Scroll-lock, Cap-lock, Num-lock, Alt, Ctrl & Win |
| 14 | Multi lingual on screen display menu |
| 15 | Supports LED display for PC and/or server status monitoring. |
| 16 | Enable/disable beeper during channel switching. |
| 17 | Rack mountable in 19" rack (1U). |
| 18 | Shock : 10G acceleration (11ms duration) |
| 19 | Operating temperature : 0 to 55°C degree , Storage temperature : -5 to 60°C degree |
| 20 | Operating humidity : 90%, non-condensing, Storage humidity : 90%, non-condensing |
| 21 | DC power options available : 12V / 24V / 48V / 110 ~ 125V |
| 22 | Power consumption: Max. 24W |
| 23 | All connecting cable to nodes (min8) should be provided. |
| 24 | Safety approval : CUL, FCC & CE certified, 3 Years onsite Comprehensive |

6. Rack Mountable Console

QTY: 01

| | |
|----------------------|--|
| Rack Console: | Form factor 1 U - 19" Rack Mountable Console (with keyboard & mouse attached to the monitor), Native resolution 1440 x 900, Brightness (cd/m ²) 300, Contrast 1000: 1, Environment Operating temperature: Storage temperature : -20 to 60°C degree, Safety FCC, UL, CE & ROHS certified 3 Years onsite Comprehensive Warranty. |
|----------------------|--|



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6. 10KVA UPS with 60 minutes backup time

QTY:01

| SI No | Parameter | Minimum required features |
|--------------------------|--|---|
| Make & Model: | | |
| 1 | Configuration | 10 KVA/9 KW @ 0.9 p.f. On-Line UPS with Inbuilt Isolation Transformer. UPS must support common battery bank in redundant configuration with another UPS of same type and rating. |
| 2 | AC Input Voltage Range | 160-280V AC, 1 Phase |
| 3 | Surge Protection Device | Device: UPS should have 1 Phase, Type 2 surge arrester (40kA) according to EN 61643-11. It should provide Lightning Protection (according to IEC 1312-1 and EN 62305) through equi-potential bonding and eliminate transient overvoltage, originating during atmospheric discharges or switching processes |
| | Auto Phase Sequence Correction | UPS must have inbuilt auto phase sequence correction facility, i.e. UPS must continue to operate in mains during phase reversal and should not trip or transfer to battery or bypass mode |
| 4 | Input Frequency | 50Hz \pm 10% (Suitable for Generators), AC Output Voltage: 230 V AC, 1-phase \pm 1% (Sine Wave Output), |
| 5 | Output Frequency | 50 Hz \pm 0.05 Hz, |
| 7 | Overload Capacity | 125% for 10 minutes, 150% for 60 seconds |
| 9 | Crest Factor | Better than or equal to 4:1 |
| 10 | Isolation Transformer | UPS output should be fully isolated by double conversion and inbuilt isolation transformer within the UPS cabinet itself. External transformer shall not be considered |
| 11 | Indications & Audible Alarms | Mains On, Inverter On, Overload, Load On Mains, Load On Battery, Battery Low |
| 12 | Digital Metering | LCD display for measurement of AC Voltage, Battery voltage, Battery Current, Load Current, Output frequency. |
| 13 | Battery Back-up & Other Details | The system must be capable of providing requisite battery back-up time of 1 hour (60 minutes) 1 using 12V, VRLA Sealed Maintenance Free Batteries Required VAH: 11700 VAH for 1 hour battery backup, |
| 14 | Certification | <ul style="list-style-type: none"> • BIS Certificate for Quoted Model • CE Certification (confirming to IEC 62040-1 & IEC 62040-2 Standards) • ISO 9001, ISO 14001, OHSAS 18001, ISO 27001 certified. • RoHS Compliance Copies of the above certifications should be submitted with the technical Bid (compulsory). |
| 15 | After Sales Support & Manufacturer's Credibility | <ul style="list-style-type: none"> • UPS OEM Should have their own service Centres in Assam • UPS OEM should have a dedicated Toll Free No. for service call logging & resolution (no. to be provided) • UPS OEM should not have been blacklisted or debarred from business from any government |
| 16 | Warranty | 2 Years onsite warranty |



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6. 42U rack

QTY:01

| Sl No | Minimum required features |
|--------------------------|---|
| Make & Model: | |
| 1 | 42U Rack Frame/600/1000/Steel/NRS1/ Casters Type 2, Levelers, 19" Adoptr kit/Loops, Glass Door/ Metal Door/42U/800/NRS1, Side Panels/1000/42U/ Vented |
| 2 | 1Ph, 32A, Zero U Vertical PD@ 12 X IRP 5/15A, 16A MCB X 2, Rating 7.3KVA |
| 3 | Horz. Cable Organizer/1U/Loop |
| 4 | Shelf/1000 |
| 4 | Shelf/Key Board/19" Rty/1000 |
| 5 | Mounting Hardware-CR (Pack of 20) |
| 6 | ITE / Server Rack Air Circulation module/Tower Mount/360CFM |

| | |
|------------------------------------|--|
| Cluster Management Software | Cluster Management (Open source) QTY-01 FORTRAN Compiler for the cluster MPI libraries, OPEN MPI libraries and other parallel Libraries. |
| Installation | Installation & configuration of Hardware ,OS,ClusterQTY -01 Management Software & Application Softwares |



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