

## INVITATION FOR TENDER FOR SUPPLY OF EQUIPMENT

Sealed tender offers are invited in two separate sealed covers (Technical and Commercial offers) from eligible manufacturers/suppliers or their direct Indian agents for the supply of the following equipment.

**Name of the equipment or item**

### **High Performance Computing Cluster**

Please send offers, ALONG WITH DESCRIPTIVE CATALOGUE/ BROCHURE. The validity of the bid should be at least four months (120 days) or more from the date of the opening of this tender. Please ensure that your quotation reaches not later than **23.10.2017 at 15:00 Hrs** at the following address:

**Dr. Shubha Verma,  
Associate Professor,  
Department of Civil Engineering  
Indian Institute of Technology Kharagpur – 721 302, West Bengal, India**

Earnest money of **Rs. 10,000/-** is to be deposited in the form of Account payee Demand Draft in favour of IIT Kharagpur, payable at Kharagpur, India. Any bid which is not accompanied with an EMD shall be summarily rejected. Earnest money deposited will be forfeited if the tenderer withdraws or amends its tender or impairs or derogates from the tender in any respect within the period of validity of its tender. No interest will be paid on the earnest money of the unsuccessful bidders.

Tender Reference	<b>IIT/SRIC/CE/SCE/SV/ 2017-18/EQ-1, Dated: 21.09.2017</b>
Price of Tender Document	<b>NIL</b>
Last Date and Time for submitting the tender document	<b>23.10.2017 at 15:00 Hrs (Indian time)</b>
Time and Date of Opening of Technical Bids	<b>23.10.2017 at 16:00 Hrs (Indian time)</b>
Place of Opening Tender	<b>Department of Civil Engineering, Indian Institute of Technology Kharagpur – 721 302, West Bengal, India</b>
Address of Communication	<b>As stated above</b>
Contact Telephone Numbers	<b>+91- 3222 - 281794; +91- 9647036745 (cell)</b>
E-mail	<b>shubha@civil.iitkgp.ernet.in</b>

**DETAILED TECHNICAL SPECIFICATIONS FOR**  
**High Performance Computing Cluster**

**A. Master Node**

Sl. No	Parameters	Required Hardware Specification
<b>Master Node : Quantity 1</b>		
1	<b>Processor</b>	2 x Intel Xeon E5-2698 v4 series , 2.2 Ghz, 50MB Smart Cache, 9.6 GT/s QPI, 20Cores/40T
2	<b>Memory</b>	256GB ECC DDR4 2400MHz LRDIMM
3	<b>Chipset</b>	Latest OEM Chipset supporting and optimized for the above.
4	<b>Graphics controller</b>	Integrated Graphics with at least 20MB Video Memory or higher.
5	<b>Internal Storage</b>	4x4 TB SAS-3 12.0 Gbits/s
6	<b>HDD Bays</b>	8 or more hot-swap HDD bays supporting SAS,SATA,Near-line SAS, SSD drives
7	<b>RAID Bays</b>	RAID card supporting RAID 0,1,5,6 with RAID controller of 1GBNV cache
8	<b>I/O Ports</b>	1 x VGA port, 4 x Gigabit Ethernet Port
9	<b>Network Controller</b>	1 x Infiniband FDR Adapter at 50 GB/s or higher rate
10	<b>Expansion Slots(RAM and PCIe)</b>	Free PCIe 3.0 slots and DDR4 DIMM slots for future upgradation
11	<b>USB Ports 3.0 or 3.1</b>	Atleast 2 external and 2 internal
12	<b>DVD Writer</b>	Internal DVD Writer 16x
13	<b>Power Supply</b>	2 x Redundant Power Supply 800Watt each
14	<b>Mount Type</b>	1U Rack mountable with sliding Rail kit
15	<b>Warranty</b>	5 years onsite comprehensive warranty. Support to be directly managed by the OEM

## B. Compute Node

Sl. No.	Parameters	Required hardware specification for each Node
<b>Computer Nodes : Quantity 6</b>		
1	<b>Processor</b>	2 x Intel Xeon E5-2698 v4 series , 2.2 Ghz, 50MB Smart Cache, 9.6 GT/s QPI, 20Cores/40T
2	<b>Memory</b>	256GB ECC DDR4 2400MHz LRDIMM
3	<b>Chipset</b>	Latest OEM Chipset supporting and optimized for the above.
4	<b>Internal Storage</b>	2x1 TB SATA Hot-plug Hard Drive
5	<b>HDD Bays</b>	8 or more hot-swap HDD bays supporting SAS,SATA,Near-line SAS, SSD drives
6	<b>RAID Bays</b>	RAID 0,1,5,6 support
7	<b>I/O Ports</b>	1 x single-port FDR Infiniband Adapter, 4 x Gigabit Ethernet port
8	<b>Network Controller</b>	1 x Infiniband FDR Adapter at 50 GB/s or higher rate
9	<b>Free Slots(RAM and PCIe)</b>	Free PCIe 3.0 slots and DDR4 DIMM slots for future upgradation
10	<b>Power Supply</b>	2 x Redundant Power Supply 800 watt
11	<b>Mount Type</b>	1U Rack mountable with sliding Rail kit
12	<b>Warranty</b>	5 years onsite comprehensive warranty. Support to be directly managed by the OEM

**Instruction: Please also quote separately for each node so that scaling of nodes could be decided depending on budget available.**

## C. Other Supporting Hardware

Sl. No.	Parameters	Required Specifications
<b>Primary Interconnect: Infiniband Switch</b> <b>Quantity: 1</b>		
1	<b>Infiniband Switch</b>	1 x 32-Port FDR QSFP Infiniband Switch( above 50 Gb/s) with required number of FDR cables
<b>Secondary Interconnect: Ethernet Switch</b> <b>Quantity: 2</b>		
2	<b>Gigabit Ethernet Switch</b>	1 x 24-Port Gigabit Ethernet Switch with required number of cables to connect all nodes.
<b>HPC Server Rack</b> <b>Quantity: 1</b>		
3	Rack	24U server Rack with required accessories. The rack should be capable to hold the servers and switches, Console with keyboard and track point to monitor all the servers in the solution.
4	Cooling	It should have proper cooling fan and proper ventilation of air .
5	Power	Redundant Power Supply
<b>Instruction: Please also quote separately for a Smart Rack having its air conditioning system which could be put in a normal working Laboratory.</b>  <b>Console</b> <b>Quantity: 1 each</b>		
6	Monitor	22 inch LED
7	Keyboard	Multimedia USB 3.0
8	Mouse	USB

**INSTRUCTIONS:**

1. Please provide quotation per computing node
2. Please provide a separate quotation for a Smart Rack in addition to a standard Rack.

**TERMS & CONDITIONS**

**A. Supplier Capability**

Sl. No.	Supplier capability
1	OEM (Manufactures) should have at least 15HPC installation in latest listing of Top 500 supercomputer list.
2	The bidder(system integrator) should have installed and implemented 5 HPC within the last three years with a minimum size of 5 nodes each along with infiniband. The PO's and installation reports of those installations should be furnished.
3	The bidder(system Integrator) should submit the authorization letter from OEM's. OEM should authorize only one bidder & the bidder also bid only one OEM product.
4	The bidder(system Integrator) should have technical expertise in implementing cluster, which includes installation configuration, maintenance and customization as per requirement. The details of the engineers should be furnished together with the technical bid.
5	Documentary evidnece is required for al the above
6	OEM authrorization letter must be submitted for Hardware and Software products quoted.

**B. Cluster Management and Monitor Softwares**

Sl. No.	Cluster Management and Monitor Softwares
1	Must support the following Operating systems:- Microsoft Windows Server , Red Hat Enterprise Linux (RHEL), SUSE Linux Enterprise Server (SLES), Canonical Ubuntu, Oracle Linux, Vmware, Citrix XenServer,

	Oracle Solaris
2	Linux based cluster manager.
3	The cluster management stack with web based monitoring for all cluster nodes.
4	Cluster manager with provisioning, monitoring and reporting capabilities.
5	Support package and Image based provisioning.
6	Intuitive web interface to manage and customize the cluster.
7	Customizing networks and compute node profiles through GUI.
8	Customizing compute nodes to max, upto changing kernel parameter.
9	Able to Push configuration changes and updates to the compute nodes without reinstalling and rebooting.
10	GUI display of cluster Hardware & Software configuration.
11	Secure and Authorized access to cluster resources.
12	The following softwares should be integrated in the system. Opensource compilers viz. gcc, g++, gfortran, python etc. Intel compilers viz. C++ and FORTRAN etc. Open source software viz. MPI, OpenMP etc.
13	The system must be able to support <b>Intel Parallel Studio XE Cluster Edition</b> for Linux

### C. Insatallation, Warranty & Training

Sl. No.	<b>INSTALLATION , WARRANTY &amp; TRAINING</b>
1	The server and all its components should be verified and recommended by the motherboard manufacturer by means of compatibility list.
2	The part number/model numbers of the memory and HDD should be provided.
3	The compute nodes should be dense rack form factor designed for cluster solution and should be in the lowest foorprint and lowest power consumption.
4	The bidder to ensure that the hardware and software components are compatible with each other, and provide necessary cables/wires and any other accessories necessary for connecting the supplied components. Bidder must install the complete system interconnecting all the components above.
5	Each chassis should be fully populated with all the necessary accessories like high efficiency PWM fans, management hardware if any etc.
6	Server with less power consumption and less carbon footprint will be preferred. Please specify maximum power consumption.
7	Each of the compute server nodes must be individually serviceable without interrupting and shutting down other server nodes.
8	All the above items should carry three years onsite warranty. Additional option for

	warranty extension should also be provided.
9	The warranty period will commence from the date of certification of successful installation of the equipment.
10	Proper admin and user training on the cluster usage and administration must be provided by the vendor/supplier free of cost.

## GENERAL TERMS & CONDITIONS

PLEASE SPECIFICALLY INDICATE THE FOLLOWING POINTS IN YOUR QUOTATIONS AND COMPLY THE TERMS AS MENTIONED HEREUNDER:-

1. TENDERS ARE INVITED COMPLYING THE REQUIREMENT FOR TENDER AS DETAILED IN THE TENDER SPECIFICATION TO BE SUBMITTED IN THE COMPANY'S / FIRM'S LETTERHEAD NEATLY PRINTED / TYPED DULY SIGNED BY AUTHORIZED PERSON WITH THE SEAL OF THE BIDDERS. ALL ENVELOPS CONTAINING THE TENDER SHOULD BE PROPERLY SEALED. SEPARATE ENVELOPS SHOULD BE USED FOR TECHNICAL AND PRICE BID AND INDICATION TO THEIR EFFECT MAY PLEASE BE SUPERSCRIBED ON THE ENVELOP.

### **THE FOLLOWING DOCUMENTS ARE REQUIRED FROM THE INDIAN AGENTS OF FOREIGN FIRMS:**

1.1 FOREIGN PRINCIPAL'S PROFORMA INVOICE INDICATING THE COMMISSION PAYABLE TO THE INDIAN AGENT AND NATURE OF AFTER SALES SERVICE TO BE RENDERED BY THE INDIAN AGENT.

1.2 COPY OF THE AGENCY AGREEMENT WITH THE FOREIGN PRINCIPAL INDICATING THE NATURE OF AFTER SALES SERVICES, PRECISE RELATIONSHIP BETWEEN THEM AND THEIR MUTUAL INTEREST IN THE BUSINESS.

1.3 PLEASE ENCLOSE THE DOCUMENT(S) RELATED TO THE ENLISTMENT OF THE INDIAN AGENT WITH DIRECTOR GENERAL OF SUPPLIES & DISPOSALS (DGS & R) UNDER THE COMPULSORY REGISTRATION SCHEME OF MINISTRY OF FINANCE.

2. TECHNICAL CATALOGUE/LEAFLET SHOULD BE ENCLOSED WITHOUT FAIL. PROVIDE COMPLIANCE STATEMENT WITH RESPECT TO THE TECHNICAL SPECIFICATIONS MENTIONED ABOVE.
3. PLEASE CONFIRM WHETHER YOU ARE AUTHORISED TO QUOTE ON BEHALF OF YOUR PRINCIPALS AND IF SO, PLEASE ENCLOSE A COPY OF SUCH AUTHORISATION WITH YOUR QUOTATION.
4. **PRICE BIDS FOR FOREIGN FIRMS:** PRICES ARE TO BE QUOTED ON 'EX-WORKS' DULY PACKED OR ON "FCA/FOB" INTERNATIONAL PORT" BASIS AND ALSO INCLUDING AGENCY COMMISSION PAYABLE TO YOUR INDIAN AGENTS, IF ANY SHOWING CLEARLY THE FOLLOWING BREAK UP:-

- I) EX-WORKS PRICE
- II) PACKING & FORWARDING
- III) FREIGHT
- IV) ANY OTHER RELEVANT EXPENSES.
- V) TAXES PAYABLE BY THE INSTITUTE

INSURANCE WILL BE PAID BY OUR INSTITUTE SEPARATELY AND SHOULD NOT FORM PART OF THE QUOTED PRICE.

**PRICE BIDS FOR INDIAN FIRMS:** PRICES ARE TO BE QUOTED ON F.O.R., IIT KHARAGPUR, ON DOOR DELIVERY BASIS CLEARLY SHOWING THE BREAK UP.

5. **PERIOD OF VALIDITY:** BIDS SHALL REMAIN VALID FOR ACCEPTANCE FOR A PERIOD OF 120 DAYS FROM THE DATE OF OPENING.
6. INDIAN AGENTS ADDRESS AND PERCENTAGE OF AGENCY COMMISSION INCLUDED IN ABOVE F.O.B./EX-WORKS PRICE. (THIS WILL BE PAID TO THE INDIAN AGENTS IN INDIAN RUPEES ONLY AND NOT IN FE). PLEASE ENCLOSE COPY OF AGENCY AGREEMENT ENTERED INTO WITH YOUR



PRINCIPALS INDICATING THE NATURE OF AFTER SALES SERVICES OF INDIAN AGENTS, PRECISE RELATIONSHIP & MUTUAL INTEREST IN THE BUSINESS.

7. **MEASUREMENTS/WEIGHT:** NETT/GROSS OF THE CONSIGNMENT. IN CASE OF AN ORDER, YOU SHALL USE AIR WORTHY PACKAGE (AS APPLICABLE) DULY CERTIFIED WITH DOCUMENTS – PLYTO – SANITARY CERTIFICATE (AS PER QUARANTINE ORDER 2003).
8. **SCOPE OF SUPPLY:** SHOULD INCLUDE FREE INSTALLATION AND COMMISSIONING
9. **PAYMENT TERMS FOR FOREIGN FIRMS**

**The offer will be made on a single currency and only one PO will be issued for the entire scope of the supply.**

- A) 90% PAYMENT THROUGH SIGHTDRAFT/FORIGN DEMAND DRAFT/LC (EXCEPTIONAL CASES)/SWIFT TELE TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER AND CONDITION AND 10% AFTER SUCCESSFUL INSTALLATION & COMMISSIONING.
- B) BANK CHARGES ON LC/SD (WITHIN INDIA APPLICANT ACCOUNT AND OUTSIDE INDIA TO BENEFICIARY ACCOUNT).

**PAYMENT TERMS FOR INDIAN FIRMS**

A) 100% PAYMENT THROUGH CROSSED ACCOUNT PAYEE CHEQUE / ELECTRONIC TRANSFER AFTER RECEIPT OF STORE IN GOOD ORDER & CONDITION AND SUCCESSFUL INSTALLATION & COMMISSIONING.

B) ENSURE MENTIONING

i) BANK DETAILS OF THE BENEFICIARY, GST NO. AND PAN NUMBER

ii) FULL NAME AND ADDRESS OF THE BENEFICIARY ON WHOM ORDER HAS TO BE PLACED

10. WHETHER ANY EXPORT LICENCE IS REQUIRED FROM YOUR GOVERNMENT, IF SO, PLEASE CONFIRM WITH DETAILS.
11. COUNTRY OF ORIGIN OF THE GOODS IS TO BE MENTIONED.
12. THE INSTITUTE SHALL PROVIDE THE CONCESSIONAL CUSTOMS DUTY AND EXCISE DUTY EXEMPTION CERTIFICATE AS PER GOVT. NOTIFICATION NO. 51/96 CUSTOMS DATED: 23.07.1996 AND CENTRAL EXCISE DUTY EXEMPTION IN TERMS OF GOVT. NOTIFICATION NO. 10/97 – CENTRAL EXCISE DATED: 01.03.1997 AS AMENDED FROM TIME TO TIME.
13. **LIQUIDATED DAMAGES:** THE STORES SHOULD BE DELIVERED / DISPATCHED TO DESTINATION AND READY FOR OPERATION NOT LATER THAN THE DELIVERY DATE SPECIFIED. IF THE SUPPLIER FAILS TO DELIVER ANY OR ALL THE STORES OR PERFORM THE SERVICE BY THE SPECIFIED DATE, LIQUIDATED DAMAGES AT 1% PER MONTH OR PART THEREOF IN RESPECT OF THE VALUE OF STORES WILL BE DEDUCTED FROM THE CONTRACT PRICE SUBJECT TO A MAXIMUM OF 5%. ALTERNATIVELY, THE ORDER WILL BE CANCELLED AND THE UNDELIVERED STORES PURCHASED FROM ELSEWHERE AT THE RISK AND EXPENSE OF SUPPLIER.
14. **PATENT RIGHTS:** THE SUPPLIER SHALL INDEMNIFY THE PURCHASE AGAINST ALL THIRD PARTY CLAIMS OF INFRINGEMENT OF PATENT, TRADEMARK OR INDUSTRIAL DESIGN RIGHTS ARISING FROM USE OF THE GOODS OR ANY PART THEREOF IN INDIA.

15. ONLY THOSE BIDDERS WHO'S BIDS HAVE BEEN TECHNICALLY FOUND ACCEPTABLE WILL ONLY BE INVITED FOR PARTICIPATION IN THE PRICE BID.
16. THOSE BIDDERS WHO DO NOT RECEIVE ANY COMMUNICATION FOR PARTICIPATION IN PRICE BID OPENING MEETING MAY PRESUME THAT THEIR BID HAS NOT BEEN ACCEPTED BY THE INSTITUTE.
17. CONDITIONAL OFFER WILL NOT BE ACCEPTED.
18. LATE TENDERS I.E. TENDER RECEIVED AFTER THE DUE DATE AND TIME OF SUBMISSION AS MENTIONED ABOVE SHALL NOT BE ACCEPTED.
19. BIDDERS TO ENCLOSE THE FOLLOWING DOCUMENTS:-

A) CURRENT INCOME TAX AND SALES TAX CLEARANCE CERTIFICATES (GST No.), AND PAN NO.

B) BANKER'S SOLVENCY CERTIFICATE

C) SUMMARY OF AUDITED STATEMENT OF ACCOUNTS FOR THE LAST THREE YEARS TO BE ENCLOSED AND FINANCIAL HIGHLIGHTS AND THE KEY PERFORMANCE DURING THE LAST THREE QUARTERS TO BE ENCLOSED AS PER FORMAT:-

COMPANY'S KEY PERFORMANCE

DESCRIPTION	JAN. TO MARCH	APRIL TO JUNE	JULY TO SEPT.
GROSS REVENUE			
PROFIT BEFORE TAX			
PROFIT AFTER TAX			
RETURN ON INVESTED			
CAPITAL (ROIC)			

D) CUSTOMER SATISFACTION CERTIFICATE FROM ONE SUCH ORGANIZATION IS TO BE ATTACHED WITH THE TECHNICAL BID AND PRICE BID.

E) NAME AND ADDRESS OF MINIMUM THREE CLIENTS TO WHOM SUCH EQUIPMENT HAVE BEEN SUPPLIED SHOULD BE MENTIONED.

20. **WARRANTY / GUARANTEE:** THIS COMPREHENSIVE WARRANTY / GUARANTEE SHALL REMAIN VALID FOR **60 MONTHS** AFTER THE GOODS (OR ANY PORTION THEREOF AS THE CASE MAY BE) HAVE BEEN DELIVERED AND COMMISSIONED TO THE FINAL DESTINATION.

21. THE INSTITUTE DOES NOT BIND ITSELF TO OFFER ANY EXPLANATION TO THOSE BIDDERS WHO'S TECHNICAL BID HAS NOT BEEN FOUND ACCEPTABLE BY THE EVALUATION COMMITTEE OF THE INSTITUTE.

22. ALL TENDERS (UNLESS OTHERWISE SPECIFIED) ARE TO BE SUBMITTED / HANDED OVER TO **Dr. Shubha Verma, Associate Professor, Department of Civil Engineering, INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR - 721 302** AND ACKNOWLEDGEMENT TO BE OBTAINED.

## **IMPORTANT**

1. IIT Kharagpur authority may accept or reject any or all the bids in part or in full without assigning any reason and does not bind itself to accept the lowest bid. The Institute at its discretion may change the quantity / upgrade the criteria / drop any item or part thereof at any time before placing the Purchase Order.
2. Promptly make arrangements for repair and / or replacement of any damaged item (s) irrespective of settlement of claim.
3. In case of any dispute, the decision of the Institute authority shall be final and binding on the bidders.
4. For any query pertaining to this bid document correspondence may be addressed to **Dr. Shubha Verma, Associate Professor, Department of Civil Engineering, INDIAN INSTITUTE OF TECHNOLOGY, KHARAGPUR - 721 302**, at the address mentioned above.

### **LAST DATE FOR SUBMISSION OF SEALED BIDS: 23.10.2017**

- 1) Please Note that the Institute remains closed during Saturdays & Sundays and all specified government holidays.
  - 2) Fax, e-mail Tender will not be accepted.
  - 3) The General Terms and Conditions as stated above relate to supply of stores / equipment /assets etc. and for specific service other terms and conditions of the Institute will apply.
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