



**SATYENDRA NATH BOSE NATIONAL CENTRE FOR BASIC SCIENCES**

[Funded by the Department of Science & Technology, Government of India]

BLOCK JD, SECTOR III, SALT LAKE, KOLKATA- 700 098

PHONE: +91-(0) 33-2335 5706-08, 2335 3057/61, 2335 0312/1313

FAX: +91-(0) 33-2335 9176/3477/1364

EMAIL: santosh@bose.res.in

Ref. SNB/ENQ/TSD/HPC-II/14-15/065/WP

16.04.2015

Dear Sir,

Sealed quotations is hereby invited for the following items in two parts (Technical and Commercial bids). One large envelope containing two smaller envelopes containing Part A: Technical Bid and Part B: Commercial Bid need to be submitted separately – Two smaller envelopes should be super-scribed "**Technical Bid**" / "**Commercial Bid**" as the case may be.

| Sl. No. | PARTICULARS   | Qty     |
|---------|---|---------|
| 01.     | High Performance Server<br>[See reverse for detailed technical specification] | 02 nos. |

Note: Attached herewith "Annexure-I (Scope of Work), Annexure-II (as check list) and Annexure-III (as Tender Terms & Conditions).

❖ **Annexure I** ⇒ Scope of Work ❖ **Annexure II** ⇒ is to be duly filled in by the bidder and should be submitted with the Technical Bid only. Offer received without any of the relevant information / certificate / document asked as per Annexure-I from sl. no.01 to 18, may not be considered for further evaluation. ❖ **Annexure III** ⇒ should also be submitted with the technical bid duly sealed and signed as an acceptance of all tender terms & conditions mentioned therein. ❖ The Centre reserves the right to accept or reject offer of the tenderer. ❖ The Centre's decision shall be final and binding on the tenderer. Attached documents should be duly marked.

**Technical bid** ⇒ should contain complete technical information literature/working manual of the quoted item, & authorization certificate of the manufacturer. **Price Bid** ⇒ In case of imported item CIF/CIP Kolkata airport price should be mentioned and for indigenous item FOR price up to S. N. Bose Centre may be quoted.

**Note:**

- 1) The quoted price should be inclusive of delivery & installation charges.
- 2) An Earnest Money Deposit (EMD) of Rs.20,000/- (Rupees Twenty thousand only) should be submitted and enclosed with the "**Technical Bid**" in form of Demand Draft in favour of "S. N. Bose National Centre for Basic Sciences", payable at Kolkata. Bid without EMD will not be considered and shall be rejected.
- 3) Minimum three (3) years onsite replacement warranty is to be provided by the Bidder.
- 4) Our Payment term is subject to after delivery & installation only.
- 5) Delivery period should be mentioned in the quotation.
- 6) Validity of quotation should be for 90 days from the date of submission.
- 7) Our ref. no. should be mentioned on top of the quotation envelope.
- 8) Quotation for the above item should reach this office by **29<sup>th</sup> April' 2015**.

Thanking you,  
Yours faithfully,

S. K. Singh  
AR (Purchase)

Technical Specification for HPC:-

| Sl. No. | Details of items with all specification   | Qty. Reqd. |
|---------|---|------------|
| 1)      | <p>High Performance server with the following configuration:</p> <ul style="list-style-type: none"> <li>(a) Processor - 2 x Intel® Xeon® processor Haswell 12C E5-2680V3 2.5G 30M 9.6GT/s QPI</li> <li>(b) Memrory - 96 GB DDR4-2133 ECC RDIMM Expandable Upto 1TB ECC DDR4-2133MHz; 16x DIMM sockets</li> <li>(c) Storage - 2x 1TB SATA 7.2 K RPM HDD (RAID 1)</li> <li>(d) RAID Support - RAID 0/1/5/10</li> <li>(e) Optical Drive – DVD-RW Drive</li> <li>(f) LAN - 2 x Gigabit Ethernet onboard with suitable cable(s)</li> <li>(g) Infiniband - Single port IB (FDR, 56Gbps) w/ QSFP connector with cables</li> <li>(h) Graphics – Onboard</li> <li>(i) Management port - IPMI 2.0 compliant with dedicated port. Should supports KVM over LAN.</li> <li>(j) Expansion Slots – Minimum 2 PCI-E 3.0 x16 and 2 PCI-E 3.0 x8</li> <li>(k) Power Supply - 700W or more Redundant Power Supplies</li> <li>(l) Operating System - CentOS Enterprise Linux Version 6 or 7 (64bit)</li> <li>(m) Chassis - 2U Rack Mountable chassis with sliding railkits.</li> <li>(n) Warranty - 3-year Parts, 3-year labour, 3-year on site Supports</li> </ul> | 1          |
| 2)      | <p>Infiniband Switch - Mellanox SX 6015SwitchX-2 based FDR InfiniBand 1U unmanaged Switch, 18 QSFP+ ports, Redundant Power Supply (AC), along with Rack mounting Rail Kit</p>   | 1          |
| 3)      | <p>Infiniband Card – Single port FDR IB CARD (56Gb/s) and Cable</p>   | 4 Sets     |
| 4)      | <p>Additional Cost</p> <p><b>* Scope of work attached in Annexure-I</b></p>   |            |



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### **Scope of Work**

- (a) Supply of Hardware.
- (b) CentOS version 6 or 7 (64bit) Operating System has to be installed in the High Performance Server(s).
- (c) CentOS version 6 or 7 (64bit) Operating System has to be installed afresh in five nos. existing old High Performance Servers.
- (d) New Infiniband Cards has to be installed and configured in the existing old High Performance Servers.
- (e) All (New and Old) High Performance Servers has to be mounted on an existing rack.
- (f) All (New and Old) High Performance Servers has to be connected with an existing KVM switch.
- (g) DHCP, NFS and all other necessary configuration has to be done for submitting jobs from a master node made out of an existing old High Performance Server. Hard Disks has to be RAIDed as required. All necessary drivers has to be installed and configured properly.
- (h) MAUI Scheduler and TORQUE Resource Manager has to be installed and configured in the High Performance Server working as Master Node and TORQUE Resource Manager has to be installed and configured in the Servers working as Compute Nodes for submitting jobs from a master node made out of an existing old High Performance Server.
- (i) Queuing system has to be configured as per requirement.
- (j) Quota has to be implemented in Home Directories as per requirement.
- (k) Following compilers has to be installed : GNU and Intel C/C++/Fortran Compiler
- (l) Following Software Tools has to be installed: MPI, OpenMPI, SHMEM, Intel MPI, Intel MKL and other Libraries and Development kits
- (m) Following Additional Softwares has to be installed and configured: BLAS, LAPACK, ScaLAPACK, FFTW (GNU and Intel)
- (n) The following softwares has to be compiled optimally and application benchmarks should be run and submitted.
  - (a) VASP
  - (b) LAMMPS
- (o) HPC Challenge Benchmarks consisting of HPL, STREAM, RandomAccess, PTRANS, FFTE, DGEMM and b\_eff Latency/Bandwidth has to be conducted
  - (a) With Hyperthreading and Turbo Mode turned off
  - (b) With Turbo Mode turned on

and the best performance and efficiency should reported.

☞ Please submit this with tender document duly sealed and signed as an acceptance of the above mentioned terms & conditions.

\_\_\_\_\_  
Seal, Signature of bidder with date



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- The following form should be submitted with the technical bid duly filled and signed.
- **Relevant documents must be enclosed with the technical bid as per Sl. no. 01 to 18.**

| S/N | PARTICULARS  | Yes/No | REMARKS |
|-----|--|--------|---------|
| 01  | Technical bid & Price bid duly sealed & signed enclosed in separate envelopes as instructed.   |        |         |
| 02  | <u>Contents of Technical bid</u><br>a) Technical details as per specification enclosed with technical bid ⇨<br>b) Technical Compliance Statement to be prepared in a separate sheet (and any deviation should be mentioned specifically) ⇨<br>c) Literature/Manual of the offered item ⇨<br>d) Current Authorization Certificate from the Principal Manufacturer ⇨<br>e) Name, address, email & ph. no. of users in India. (Preferably Research laboratories) ⇨<br>f) Copy of P.O. and installation certificate with the same specification from at least one user ⇨ |        |         |
| 03  | Delivery charges on F.O.R basis up to S. N. Bose Centre, Kolkata for indigenous items with detailed break-up of cost   |        |         |
| 04  | All applicable tax (VAT/CST/Sales/Service tax) should be mentioned   |        |         |
| 05  | Whether the price quoted is without excise duty, as the centre is fully exempted from payment of excise duty   |        |         |
| 06  | Copy of Trade License, VAT, PAN, Service Tax Registration no. enclosed with the technical bid.   |        |         |
| 07  | Installation charges (if any) should be mentioned in the quotation separately  |        |         |
| 08  | Warranty from the date of installation to be mentioned   |        |         |
| 09  | Payment after installation of material at site   |        |         |
| 10  | Payment mode should be mentioned   |        |         |
| 11  | Delivery/installation time from the date of PO to be mentioned   |        |         |
| 12  | Enquiry no. should be mentioned on top of all quotation envelopes  |        |         |
| 13  | Validity of Quotation should not be less than 90 days from the date of submission  |        |         |
| 14  | Maintenance procedure of the offered item to be mentioned  |        |         |
| 15  | Contact details of after sales service centres in Kolkata to be mentioned  |        |         |
| 16  | Bank details of the beneficiary to be mentioned  |        |         |
| 17  | In case of any defect found after receipt of material or in case of any deviation from the specifications or in case of any operational defect found during the warranty period, any part or the entire material is to be replaced by the supplier at no extra cost to the Centre.   |        |         |
| 18  | Whether your company has been blacklisted by any Central/State Govt. organization.   |        |         |

**Note:** Offer received without any of the relevant information / certificate / document asked in the above sl. nos. 01 to 18 may not be considered. The Centre reserves the right to accept or reject offer of the tenderer. The Centre's decision shall be final and binding on the tenderer. Attached documents should be duly marked.

Seal, Signature of bidder with date