

बसु बिज्ञान मन्दिर

# **BOSE INSTITUTE**

P-1/12, C.I.T. Scheme VII-M, Kolkata 700 054

# **BIDDING DOCUMENTS**

For Tender Notice No.

BI-K/E-TEND/16/2016-17

To be addressed to:

<u>The Sr. Prof. & Incharge, Registrar's Office,</u> Bose Institute, Centenary Building, P-1/12, CIT Scheme - VII -M Kolkata - 700054 (INDIA)



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# **INVITATION TO BIDS**

Director, Bose Institute, Kolkata, West Bengal, India invites *online* offers from foreign/Indian manufacturers or their Authorized Dealers for the supply, installation and commissioning of the following equipments:

Sl. No.	Name of the items	Qty.	Bid security (EMD)
1.	PCIe40 board	1	28000.00

• Details of specifications are enclosed in Annexure - I

Sl.	Particulars	Date & Time
No.		
1.	Date of uploading of NIT & other documents (Online)	02.11.2016
	(Publishing date)	
2.	Documents download start date (Online)	03.11.2016 at 10:00 hrs.
3.	Clarification Start date (Offline)	03.11.2016 at 11.00 hrs.
	Queries to be sent to the mail id	
	bipurchase@jcbose.ac.in )	
4.	Clarification End date (Offline)	07.11.2016 at 12:00 hrs.
5.	Amendment (if any) (On line)	08.11.2016 at 17:00 hrs.
6.	Bid submission start date (On line)	09.11.2016 at 10:00 hrs.
7.	Documents download end date (Online)	22.11.2016 upto 12:00 hrs.
8.	Bid Submission closing (On line)	22.11.2016 at 17:00 hrs.
9.	Last Date of submission of Earnest Money Deposit	23.11.2016 within 14:00 hrs.
	Including the technical brochure, if any (Off line)	
10.	Bid opening date for Technical Proposals (Online)	24.11.2016 at 15:00 hrs.
11.	Date of uploading list for Technically Qualified Bidder	To be notified later
	(online)	
11.	Date of uploading the final list of Technically Qualified	To be notified later
	Bidder (online) after disposal of appeals, if any.	
13.	Date for opening of Financial Proposal (Online)	To be notified later



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## SECTION - A

#### **INSTRUCTION TO BIDDERS**

- A. General guidance for e-Tendering : Instructions / Guidelines for electronic submission of the tenders have been annexed for assisting the vendors to participate in e-Tendering.
- 1. **Registration of Vendors :** Any vendor willing to take part in the process of e-Tendering will have to enrol and get registered in the Central Public Procurement (CPP) Portal, NIC, GOI through logging on to <a href="http://eprocure.gov.in/eprocure/app">http://eprocure.gov.in/eprocure/app</a> and the vendor is to click on the link for e-Tendering site as given on the above.
- 2. Digital Signature certificate (DSC) : Each vendor is required to obtain a Class-II or Class-III Digital Signature Certificate (DSC) for submission of tenders as applicable from the approved service provider of the National Informatics Centre (NIC) on payment of requisite amount. Details are available at the Web Site stated in Clause A.1. above. DSC is given as a USB e-Token.
- 3. The foreign bidders can directly submit their bid through the e-procurement by obtaining their DSC applicable from NIC, India.
- 4. The vendor can search & download N.I.T. & Tender Document(s) electronically from computer once they log on to the website mentioned in Clause A.1. using the Digital Signature Certificate. This is the only mode of collection of Tender Documents.
- 5. Submission of Tenders: Tenders are to be submitted through online as stated in Clause A.1. in two folders at a time for each bid, one in Technical Proposal & the other is Financial Proposal before the prescribed date & time using the Digital Signature Certificate (DSC). The documents are to be uploaded should be virus scanned copy duly Digitally Signed. The documents will get encrypted (transformed into non readable formats).
- 5. A. **Technical Proposal:** The Technical proposal should contain scanned copies of the following in two covers (folders).
  - (a) Statutory Cover containing the following documents :
    - (i) NIT (Download the NIT & upload the same using digital signature)
    - (ii) Registration Certificate for enrolment with the Central Purchase Organization (e.g. DGS&D) for quoting on behalf of the foreign principals.
    - (iii) Bidders' Information Form
    - (iv) Bid Form
    - (v) Techno-Commercial Bid Form
    - (vi) Manufacturer's Authorization Form
    - (vii) Bidder's Performance Statement Form
    - (viii) Service Support Details Form
    - (ix) Technical Compliance Statement Form
    - (x) Bid Security Form



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- (b) <u>Non-statutory Cover</u> containing the following documents : <u>For indigenous quotes</u> the bidder has to upload requisite registration / tax certificate like VAT, TAN, PAN, Trade License, CIN etc.
- Note: Please note that for cases where quotes are in currency after than INR is the Indian agent, who quotes on behalf of foreign principal do not possess the Registration Certificate as mentioned in 5.A. (a) (ii) their bids will not be considered.
- Note : Failure to submit any of the above mentioned documents (listed under 5(a) & (b) may render the bid liable to be summarily rejected for both statutory and non-statutory cover.

#### 5.B. Financial Proposal :

- a. The financial bid should contain the Bill of Quantities (BOQ) corresponding to this tender, which is available on the tender webpage as an MS-Excel file.
- b. This file must be downloaded and opened with MS-Excel. The rate being quoted by the bidder must be entered in the space marked for this purpose in the file. Quoted rate will be encrypted under BOQ. In case quoting any rate in Tender Form, the tender is liable to be summarily rejected.
- c. All fields in the BOQ file other than those allocated for the name of the bidder and the rate(s) being quoted are non-editable.
- d. The BOQ file must be saved after this and should be uploaded using digital signature.
- e. OPTIONAL ITEMS/Additional Warranty Charge beyond Standard warranty period and training charges (if any) must be separately quoted and uploaded as PDF file.
- In the BOQ <u>quoted in foreign currency</u> (click to select currency) fill up the applicable column and ignore the other (i.e. 'Ex-works', 'Discount (if any)', 'Freight', 'Insurance', 'other taxes (if applicable), 'Installation & commissioning charges (if applicable)' and ignore the other column.
- In the BOQ <u>quoted in INR</u> (click to select currency) fill up the applicable column and ignore the other (i.e. 'Basic Rate', 'Discount (if any)', 'Excise duty', 'Sales Tax', 'Other taxes (if applicable)', 'Installation & Commissioning charges (if applicable)' and ignore the other.
- 6. Earnest Money Deposit :
  - (a). Demand Draft / Bankers Cheque / Bank Guarantee towards Earnest Money (EMD) as prescribed in the N.I.T. should in favour of "Bose Institute, Kolkata" payable at Kolkata.
  - (b). Demand Draft / Bankers Cheque / Bank Guarantee towards Earnest Money (EMD) as prescribed in the N.I.T. against each of the instruments in favour of "Bose Institute, Kolkata" payable at Kolkata (original hard copy) and submitted to the Purchase Section (Import) of the Centenary Building, P-1/12, CIT Scheme VII-M, Kolkata 700054.



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#### THE ABOVE STATED STATUTORY / NON-STATUTORY DOCUMENTS SHOULD BE ARRANGED IN THE FOLLOWING MANNER

Click the check boxes beside the necessary documents in the My Document list and then click the tab " Submit Non Statutory Documents' to send the selected documents to Non-Statutory folder.

Next Click the tab "Click to Encrypt and upload" and then clik the "Technical" Folder to upload the Technical Documents.

N.B.: Failure of submission of any of the above mentioned documents as stated in Sl. No. A.5.(a). and Sl. No. A.5.(b). And 6 (a) & (b) will render the tenderer liable to be rejected for both statutory & non statutory cover.



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- 1. Tender Evaluation Committee (TEC) : Evaluation Committee constituted as per Order of the competent authority of Bose Institute, Kolkata.
- Opening & evaluation of tender : If any vendor is exempted from payment of EMD, copy of 2. relevant Government Order needs to be furnished and uploaded in the portal as PDF file.
- 3. Opening of Technical Proposal: Technical proposals will be opened either by the Sr. Prof. & Incharge, Registrar's Office / Assistant Registrar / Accounts Officer / Audit & Finance Officer, Bose Institute, Kolkata or their authorized representatives electronically from the website using their Digital Signature Certificates (DSC).
- 4. Intending tenderers may remain present if they so desire
- Cover (folder) for Statutory Documents (Ref. Sl. No. A.5.(a).) will be opened first and if found 5. in order, cover (folder) for Non-Statutory Documents (Ref. Sl. No. A.5.(b).) will be opened. If there is any deficiency in the Statutory Documents the bid will summarily be rejected.
- Decrypted (transformed into readable formats) documents of the non-statutory cover will be 6. downloaded & handed over to the Tender Evaluation Committee.
- 7. Pursuant to scrutiny & decision of the Tender Evaluation Committee, the summary list of eligible tenderers will be uploaded in the web portals.
- During evaluation the committee may summon of the tenderers & seek clarification / 8. information or additional documents or original hard copy of any of the documents already submitted & if these are not produced within the stipulated time frame, their proposals will be liable for rejection.
- Financial Proposal : 9.
  - The vendor is to quote the rate online in the space marked for quoting rate in the BOQ. a). For optional items as mentioned in the specifications may be quoted separately in the additional sheet as enclosed in the Financial Cover.
  - Only downloaded copies of the above documents are to be uploaded virus scanned & b). Digitally Signed by the vendor.
  - Penalty for suppression / distortion of facts: c).

If any tenderer fails to produce the original hard copies of the documents on demand of the Tender Evaluation Committee within a specified time frame or if any deviation is detected in the hard copies from the uploaded soft copies, it may be treated as submission of false documents by the tenderer and action may be referred to the appropriate authority for prosecution as per relevant IT Act.

- (d). Rejection of Bid: Director, Bose Institute reserves the right to accept or reject any Bid and to cancel the Bidding processes and reject all Bids at any time prior to the award of Contract without thereby incurring any liability to the affected Bidder or Bidders or any obligation to inform the affected Bidder or Bidders of the ground for Institute's action. Award of Contract :
- (e).

The Bidder whose Bid has been accepted finally (both technical and financial), will be informed by the Institute authority for award of contract.

The notification of award will constitute the formation of the Contract.



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GENERAL INSTRUCTIONS
• The bids would be opened in the presence of the bidders who wish to attend the Bid- opening. However, the representative should bring with them a letter of authority from the corresponding bidders, without which, they are not permitted to attend the bid opening.
• The acceptance of the quotation will rest with the competent authority of Bose Institute, Kolkata who does not bind himself to accept the lowest quotation and reserves the right to himself to reject, or partially accept any or all the quotations .
• The offer shall be valid for ninety days from the date of opening of the quotations. No revision in price will be allowed after opening the quotation.
Unsolicited / conditional / in complete / unsigned digitally tenders shall not be considered.
• Prices are required to be quoted in units. When quotations are given in terms of other units, relationship between two sets of units should be furnished. Quantity discounts, if any should also be indicated. The items should be quoted indicating the serial nos.
• To assess in the examination / evaluation, comparison and post qualification of the bids, 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 bids shall be sought, offered or permitted. Any clarification submitted by the bidder in respect of its bid which is not in response to a request by the purchaser shall not be considered.
• Either the Indian Agent on behalf of the Foreign principal or the Foreign principal can bid directly in a tender but not both. However, the offer of the Indian Agent should also accompany the authorisation letter from their principal. To maintain sanctity of tendering system, one Indian Agent can not represent two different Foreign principals in one tender.
• Please indicate the agents in India, their address, the details of service rendered by them & the percentage of commission payable to them. In normal courses agency commission is not allowed.
Two or more vendors cannot submit bid quoting the rates on behalf of same OEM.
• The Institute is registered with Department of Scientific & Industrial Research, Govt. of India and thus is exempted from Customs/Central Excise duty vide notification no. 10/97 dated 01.3.1997 and 16/2007 dated 01.03.2007. The present details of registration are no. 11/106/1988-TU-V dt. 31.3.2018.
The mode of dispatch of the items must be mentioned clearly in the quotation.
• In case the products are available on DGS&D rate contract, please quote on DGS&D rate contract rates attaching a copy of the RATE CONTRACT.
Samples, if called for, shall be submitted free of charge and or no obligation basis.
• The offered delivery period shall have to be strictly adhered to in case an order is placed.



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# SECTION B

#### **TERMS & CONDITIONS**

## 1. <u>Price</u>:

- Bidders are requested to give their final and best offer. <u>Techno-Commercial</u> Discussions will be held with the Lowest Bidder only, if necessary.
- Vendors, who do not accept our standard commercial terms are liable to be ignored. A categorical confirmation of acceptance of all our terms and conditions in toto will have to be observed which enable speedy processing of the offers.
- Pre-conditioned, incomplete offers, not in line with the terms and conditions of the tender documents, are liable to be rejected.

#### a. For Foreign Quotation :

- The price of the goods, quoted FOB/FCA port of shipment should include Export Packing, Loading Charges, Inland Freight, carriage etc. in the shipper country to be paid by the Supplier.
- The price for transportation / carriage and insurance and other costs incidental to delivery of the goods upto the port of despatch (CIF/CIP).
- Prices quoted by the bidder shall remain fixed during the entire period of contract and shall not be subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non responsive and rejected.
- 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. Conditional offers indicating changes to price quoted due to price increase / decrease by the principal firm, market fluctuations, foreign exchange fluctuations etc. shall make the bid liable to be cancelled.
- b. For Indigenous Quotation :
  - The price of the goods, quoted (ex-works / ex-factory / ex-showroom / exwarehouse, or off-the-shelf, as applicable), including all duties and sales and other taxes already paid or payable.
  - The amount payable on account of Excise Duty and other applicable taxes (VAT/CST/Service) should be mentioned clearly. If there is no explicit mention of taxes in your offer then quoted price will be deemed inclusive of such taxes. No other charges except those mentioned clearly in the quotation will be paid.



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• Rates should be quoted FOR, Bose Institute, Kolkata inclusive of packing, forwarding, installation and documentation & commissioning charges etc. If ex-works prices are quoted then packing, forwarding, documentation, freight and insurance charges must be clearly mentioned separately. Vague terms like "packing, forwarding, transportation etc. extra" without mentioning the specific amount/percentage of these charges will NOT be accepted. Such offers shall be treated as incomplete and rejected. Where there is no mention of packing, forwarding, installation and commissioning, freight, documentation, insurance charges, such offers shall be summarily rejected as incomplete.

#### 2. Period of validity of Bids :

- Bids shall remain valid at least for <u>90 days</u> after the date of bid opening prescribed by the Purchaser.
- In exceptional circumstances, the Purchaser may solicit the Bidder's consent to an extension of the period of validity.
- 3. **Bid Currencies :** Prices shall be quoted in Indian Rupees or in freely convertible foreign currency wherever possible for comparison.
- 4. Purchaser's Right to vary Quantities at the Time of Award : The Purchaser reserves the right at the time of Contract award to increase or decrease the quantity of goods and services originally specified in the Schedule of Requirements without any change in unit price or other terms and conditions. However, the Purchaser reserves the right to call the lowest firm for negotiation in case of increase in quantity.
- 5. Order acceptance : The successful bidder should submit acceptance of the Purchase Order immediately but not later than 30 days in any case from the date of issue of the Purchase Order failing which it shall be presumed that the vendor is not interested and his bid security is liable to be forfeited.
- 6. **Patent Rights :** The Supplier shall indemnify the Purchaser against all third-party claims of infringement of patent, trademark or industrial design rights arising from use of the Goods or any part thereof in India.
- 7. Insurance : The Goods supplied under the Contract shall be fully insured in Indian Rupees against loss or damage incidental to manufacture or acquisition, transportation, storage and delivery in the manner
- 8. Transportation : Where the Supplier is required under the Contract to transport the Goods to a specified place of destination within India defined as Project site, transport to such place of destination in India including insurance, as shall be specified in the Contract, shall be arranged by the Supplier, and the related cost shall be included in the Contract Price.



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#### 9. Change Orders :

- The Purchaser may at any time, by written notice given to the Supplier make changes within the general scope of the Contract in any one or more of the following:
  - Drawings, designs, or specifications, where Goods to be furnished under the Contract are to be specifically manufactured for the Purchaser;
  - The method of shipping or packing;
  - The place of delivery; and/or
  - The Services to be provided by the Supplier.
  - The delivery schedule
  - 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 fifteen (15) days from the date of the Supplier's receipt of the Purchaser's change order.

#### 10. Penalty:

- If the Supplier fails to deliver any or all of the Goods or to perform the Services within the period(s) specified in the Contract, the Purchaser shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as penalty, a sum equivalent to the percentage 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. Once the maximum is reached, the Purchaser may consider termination of the Contract.
- The applicable rate is 0.5% per week and the maximum deduction is 5% of the contract price.
- **11. Applicable Law :** The Contract shall be interpreted in accordance with the laws of the Union of India and all disputes shall be subject to place of jurisdiction at Kolkata.
- 12. Right to Use Defective Goods : If after delivery, acceptance and installation and within the guarantee and warranty period, the operation or use of the goods proves to be unsatisfactory, the Purchaser shall have the right to continue to operate or use such goods until rectifications of defects, errors or omissions by repair or by partial or complete replacement is made without interfering with the Purchaser's operation.
- 13. <u>Payment</u>:

Payments shall be made promptly by the Purchaser normally after submission of the invoice or claim by the Supplier.

#### a. For Foreign Payment :

In case of imports, payments are usually made through Letter of Credit (LC) / wire transfer / FDD wherever applicable. The LC will be opened for 100% value but the payment shall be released partly after despatch and partly after installation & commissioning. 90% of payment will be released on



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shipping documents and remaining 10% on successful installation and commissioning with submission of Performance Bank Guarantee of 10% of the order value. In case of Purchase Order value equivalent to INR 5 Lakh and above, 10% Performance Bank Guarantee (PBG) should be submitted before establishment of the LC/release of the payment.

• Agency commission, if any shall be paid in Indian Rupees after satisfactory installation & commissioning of the goods at the destination at the exchange rate prevailing on the date of negotiation of LC documents, subject to DGS&D registration for restricted items. Tax at source deduction is applicable to the Agency Commission paid to the Indian Agent as per the prevailing rates and rules.

#### b. For Indigenous Payment :

• The general conditions of payment for any indigenous items are 100% payment after successful installation & commissioning of the equipment. In case the equipment does not need any installation & commissioning the period shall be reckoned from the date of delivery & inspection. In case of Purchase Order value equivalent to INR 5 Lakh and above, 10% Performance Bank Guarantee (PBG) should be submitted before release of the payment.

#### 14. **Delivery**:

- a. For Foreign Consignment :
  - Delivery of the consignment(s) should be made within a maximum of <u>8 weeks from the</u> <u>date of placement of purchase order unless otherwise specified so</u>. Within 24 hours of shipment, the supplier shall notify the purchaser and the insurance company by cable/telex/fax/e mail the full details of the shipment including contract number, railway receipt number/ AWB etc and date, description of goods, quantity, name of the consignee, invoice etc. The supplier shall mail the following documents to the purchaser with a copy to the insurance company :
    - 4 Copies of the Supplier invoice showing contract number, goods' description, quantity, unit price, total amount;
    - Acknowledgment of receipt of goods from the consignee(s) by the transporter;
    - Insurance Certificate if applicable;
    - Manufacturer's/Supplier's warranty certificate;
    - Inspection Certificate issued by the nominated inspection agency, if any, and the Supplier's factory inspection report;
    - Certificate of Origin; and
    - Two copies of the packing list identifying the contents of each package.
  - The above documents should be received by the Purchaser before arrival of the consignment(s) (except where the Goods have been delivered directly to the Consignee with all documents) and, if not received, the Supplier will be responsible for any consequent expenses.



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b. For Indigenous Consignment :

The delivery of the consignment(s) should be made within 4-6 weeks from the issue of the Purchase Order, unless otherwise specified.

- 15. Bank Charges : For Foreign Procurement : The bank charges inside India to the applicant account and outside India to the beneficiary account.
- 16. Installation : Installation should be Free of Cost and should be completed within maximum 07-10 days after delivery of the consignment.
- 17. Warranty:
  - The Supplier shall warrants that the Goods supplied under this Contract are new, unused, of the most recent or current models and that they incorporate all recent improvements in design and materials unless provided otherwise in the Contract. The Supplier shall further warrants that all Goods supplied under this Contract shall have no defect arising from design, materials or workmanship (except when the design and/or material is required by the Purchaser's Specifications) or from any act or omission of the Supplier, that may develop under normal use of the supplied Goods in the conditions prevailing in the country of final destination. The warranty should be comprehensive and on site.
  - This warranty shall remain valid at least for 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 18 months after the date of shipment whichever period concludes earlier
  - The Purchaser shall promptly notify the Supplier in writing of any claims arising under this warranty. Upon receipt of such notice, the Supplier shall immediately, within a reasonable period, arrange to repair or replace the defective goods or parts thereof free of cost at the ultimate destination. The Supplier shall take over the replaced parts/goods at the time of their replacement. No claim whatsoever shall lie on the Purchaser for the replaced parts/goods thereafter. In case any component has to be imported the same shall be done on DDU Kolkata basis and the purchaser shall provide the customs duty exemption certificate. If the supplier having been notified fails to remedy the defects within a reasonable period, the purchaser may proceed to take such remedial action as may be necessary, at the supplier's risk and expenses and without prejudice to any other rights, which the purchaser may have against the supplier under the contract.
  - Warranty period shall be 12 months from date of acceptance of Goods. The Supplier shall, in addition, comply with the performance and/or consumption guarantees specified under the contract. If for reasons attributable to the Supplier, these guarantees are not attained in whole or in part, the Supplier shall at its discretion make such changes, modifications, and/or additions to the Goods or any part thereof as may be necessary in order to attain the contractual guarantees specified in the Contract at its own cost and expense and to carry out further performance tests. The warranty should be comprehensive on site.
  - If a different period of warranty has been specified in the 'Technical Specifications' shall stand modified to that extent.
  - The necessary warranty certificate in this effect should be furnished along with the consignment.



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- 18. **Training :** The Supplier is required to train the designated Purchaser's technical and end user personnel to enable them to effectively operate the total equipment.
- 19. Supporting Equipment : If equipment will require indigenous supporting instruments/accessories (computer, printer, online UPS etc.) at the time of the installation, the same should be quoted in separate quotation.
- 20. Service Facility : Supplier should mention about the possible service set up in India and how capable they are to provide after sales service.
- 21. Force Majeure :
  - 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.
  - If a Force Majeure situation arises, the Supplier shall promptly notify the Purchaser in writing of such conditions 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.
- 22. Director, Bose Institute reserves the right to accept or reject any or all tenders either in part or in full. The reasons for rejecting the tender of a prospective bidder will be disclosed only when enquiries are made.



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Annexure- I

# Technical Specifications for PCIe40 board

# PCB Fabrication, Component Procurement, Component Assembly & Testing, Test Firmware Design and On Site Integrated Testing and Supply of PCI express based PCB prototype

#### 1) PCB FABRICATION SPECIFICATIONS:

- Overall PCB dimensions: 241.3 x 111.15 mm
- PCI Express card according to PCI Express Card Electromechanical Specification Revision 3.0
- 14 layers low loss material (Er< 3.7 at 5 GHz, Df< 0.012 at 5 GHz
- High temperature material TUC 872 LK or ISOLA 408 HR only
- Maximum overall thickness of 1.57 mm +/- 10%
- 18/35/70 μm copper
- 50/100 μm core &prepreg
- 0.09 mm min. trace width and clearance
- Solid pad finish (gold plating) and long storage provision
- Differential controlled impedance 85 and 100 Ohms
- Full & blind vias, 5 drill groups (1-2, 2-3, 12-13, 13-14, 2-13), vias in pads
- Laser via drilling
- CIS IPC A 600 class 2 or class 3 compliance
- Type : PCB HDI ML14 1.5+12+1.5, 2x lamination + 2x plating (2x drill+4x laser)
- Technology : Stacked μvia 2 levels, μvia on buried via POVF, μvia in pad VIP
- IPC 2221B : Performance class 2 is required, Producibility level C is mainly used
- Thickness 1.57 mm +/-10% tolerance level B for PCIe connector
- IPC 4101 D FR4.0 /129 or FR4.0 /126 with middle loss and low Dk
- Soldermasks 2 photo-imageable SMOBC, registration 50μ (60μ for BGA lands)
- Finish Selective ENIG + Hard gold electro-deposition on PCI connector
- Electrical Test 100%, 10 mA /10 ohms in continuity and 40V /10 Mohms in isolation
- Assembly panel Array 241 x 121.15 mm (1 unit 241 x 111.15 mm) +/-0.15 mm level C
- IPC 2226 type 3: Level A for laser drill at capture/target lands, Level C for the laser μvia land sizes
- Via considerations: Skip PTH via as the non-functional lands are dynamically removed by the CAD operator
- Manufacture allowance: 150µ AABUS (Hole to copper 200µ), format 18" x 24", pin-lam process is recommended
- Annular ring (tear drops): Level C for PTH L1/L14, buried via L2/L13 AABUS (450µ land mini) IPC class 2 is required
- PTH Via ratio: L1/L14 : drill 5.3:1 ratio level A
- Buried via ratio:  $L^2/L^{13}$ : drill 7:1 ratio level B, as the Drill bit = 200 $\mu$  the re-sharping is not allowed
- Buried Via protection: Type 7 as resin filled and capped is used for the POVF (Plating Over Via Fill) process
- Via &µvia Resin filler: Type :HITACHI GEA 679F(R)/TAYO THP 100DX1VF(HV), Vacuum process is recommended



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# Annexure- I

- Blind laser µvia: 150µ, L1/L2 & L14/L13, µvia ratio 0.55:1 level B, Copper filled VIP for SMD
- Buried laser μvia: 150μ L2/L3 & L13/L12 μvia ratio 0.68:1 level B, Resin filled and capped μvias
- Electrical test of the PCB before assembly

## 2) BILL OF MATERIALS:

BOM for 1 board	
Manufacturer part number	Quantity for one board
93LC46B-I/SN	1
830S21AMI-01LF	1
SN65LVDS1D	1
MOLEX 74441-0010	1
TE CONNECTIVITY / AMP 1489669-1	1
ATMEGA128L-8MU	1
HARWIN M20-9990246	4
LUMBERG KRM 02	1
25AA128-I/SN	1
CDCE62005RGZT	1
CDCLVD110ARHBT	1
CDCLVD1208RHDT	1
HARWIN M40-4011046	1
HARWIN M40-3011046	2
TSW-101-05-F-D-LL	1
x16 PCIeEdge Connector	1
LG L29K-F2J1-24	14
SML-311YTT86K	4
DS90LV047ATM	1

DS90LV804TSQ/NOPB	2
EN6347QI	1
EPCQL1024F24IN	1
FDMC8878	8
FDV305N	1
FT245BL	1
ISL6115AIBZ	2
APTF1616SEEZGQBDC	6
LT1389BCS8-1.25#PBF	1
LT3009EDC#TRMPBF	1
LT3082EST#PBF	2
LTC2418CGN#PBF	1
LTC2924CGN#PBF	2
LTC2990CMS#PBF	4
LTC4352CMS#PBF	2
LTC4357CMS8#PBF	2
LTC4365CTS8#TRMPBF	3
5M160ZE64C5N	1
MAX13042EETD+T	6
MAX1619MEE+	1
MAX3378EEUD+	1
5M2210ZF256C5N	1
MC74HC1G32DTT1G	1
MC74VHC1G08DTT1G	2
MOLEX - 39-30-0080	1
USB2066-05-RBHM-15-STB-00-00-A	1
MMBD1205	1
MMBT3904	4
459110015	4
504189-1870	1
ТОРАЅ FXO-HC730-40.0789	1
Q3805CA100005	1

Q3805CA100003	1
X1G0039510002 SG-210SEH 100 MHZ L	1
X1G0039510001 SG-210SEH 125 MHZ L	1
Q33310F700033	1
PC28F00AG18FE	2
PCA9515BDGKR	2
901-144-8RFX	4
PEX 8747-CA80FBC G	1
PINTEST-A	32
ALPS – SKHHAKA010	2
9C-6.000MAAJ-T	1
10AX115, 624 I/O FPGA in production grade	1
SC18IS602BIPW	1
Si5315A-C-GM	1
SI53154-A01AGM	1
SI5338B-B-GM	2
SI7106DN-T1-E3	2
M20-9990246	2
MCDHN-04F-T-V	3
MCDHN-08F-T-V	1
EG2207	1
TPD2EUSB30ADRTR	1
TCA9517DGKR	7
6651290-3	1
7M-40.000MAAJ-T	1
AFBR-811vx3Z	4
AFBR-821vx3Z	4
HI1612X560R-10	1
BLM15HD102SN1D	8
WURTH ELEKTRONIK 74279221601	1
WURTH ELEKTRONIK 742792609	1
BRC2012T4R7MD	16

ISC1812ES100K	1
744773047	2
MI0805K400R-10	1
MC0201X104K6R3CT	169
MC0201X103K6R3CT	21
MC0402X224K6R3CT	32
GRM155R71C104KA88D	248
C1005X5R1A475M050BC	36
MC0402X105K100CT	57
MC0402X224K6R3CT	70
GRM1555C1H102JA01D	9
C0402C472K5RACTU	31
GRM155R71C103KA01D	29
MC0402N270J500CT	2
0402ZC333KAT2A	1
04023D104KAT2A	12
C0402C222K5RACTU	8
C0402C223K5RACTU	7
0402 package 0 OHM	6
MCMT15N100F100CT	1
04025C471JAT2A	6
С0402С225М9РАСТИ	2
GRM155R61A474KE15D	5
0402YD473KAT2A	6
06036D106MAT2A	9
C0603C224K3RACTU	1
C1608X7R1A225K080AC	2
GRM188R61A226ME15D	18
GRM21BR60J476ME15L	1
160R15X106KV4E	1
GRM31CR60J476ME19L	13
GRM31CR60J107ME39L	1

GRM31CR71A475KA01L	1
GRM31CR61A226ME19L	1
GRM31CR71A106KA01L	1
250R18X106KV4E	1
GRM31CR61E226KE15L	1
T495B106K020ATE1K0	4
T520V337M2R5ATE009	33
T491D476K020AT	3
TAJD107K020RNJ	4
T520V477M2R5ATE009	4
T520D337M006ATE015	2
100X14X474MV4T	20
160X14X224MV4T	6
6R3X14W104MV4T	25
160X14W473MV4T	38
250X14W223MV4T	5
101X14W472MV4T	4
500X14W103MV4T	4
MC00625W0402110K	134
CRCW04024K22FKED	2
ERJ2RKF27R0X	23
MCWR04X3301FTL	11
CRCW040224R9FKED	49
MC00625W0402115K	16
MC00625W04021100R	24
MC00625W040211K8	10
MC00625W040211K	26
RC0402JR-070RL	43
MC00625W040212K7	1
CPF0402B200RE1	3
CRCW04024K70FKEDHP	2
CRCW0402348RFKED	16

CRG0402F3K0	28
CRCW04025M49FKED	1
CRCW0402100KFKEDHP	1
CPF0402B200KE1	2
RC0402JR-070RL	43
MC00625W040214K02	1
CRG0402F20R	2
CPF0402B19K1E1	1
CPF0402B60K4E1	4
CRG0402F20K	2
MCMR04X300 JTL	6
CRCW040239R0FKEDHP	8
MC00625W0402149R9	4
MC 0.0625W	6
MC00625W0402160R4	6
MC00625W040211K3	1
CRG0402F1K5	1
ERJ2RKF1433X	1
MC00625W0402133K	4
MC00625W04021150K	1
MC00625W04021390K	1
CPF0402B49K9E1	2
CRCW0402249KFKED	1
CPF0402B2K55E1	1
CPF0402B2K26E1	2
CPF0402B2K8E1	1
MC00625W04021300R	1
MC00625W0402130K	1
CRCW0402332KFKED	1
CRCW0402499KFKED	1
CRCW0402619KFKED	1
MCMR04X5101FTL	1

CRCW04022M80FKED	1
RCWE0402R510FKEA	18
CRCW0402470RFKEDHP	1
CRCW04022K00FKED	5
MC0063W06030R	14
RESISTANCE 0603	10
MULTICOMP MCMR08X49R9FTL	1
ERJP14F20R0U	1
WSL20103L000FEA18	6
WSL25122L000FEA18	2
SENSE_PAD	24

#### 3) COMPONENT ASSEMBLY & TESTING:

- Assembly defects of less than 250 ppm
- The assembly must be ROHS compliant
- Appropriate stencil thickness and clearances must be selected by the EMS engineering
- For the placement of the components: Most components are SMD parts. Exceptions are the SFP+ cage (press-fit), the FPGA heat sink (snap-on) and optical patch-cords between minipods and face plate.
- Unused and spare components shall be kept in a moisture-controlled environment, and re-baked if used beyond the IC manufacturer storage recommendation time.
- Reflow or vapour phase soldering
- Particular care shall be put in solder paste choice to minimize corrosion and other undesired long term effects
- BGA control (3D/XRays) and visual control are required.
- Visual inspection of the assembled board
- FPGA radiography
- JTAG test of the assembled card
- Power-On tests of the assembled board and verification of the status LEDs

## 4) TEST FIRMWARE DESIGN, AND ON SITE INTEGRATED TESTING WITHDOCUMENTATION:

- Installation of the card into a PC and execution of a test design. This shall include the programming of the FPGA with firmware and the installation of SFP+ transceiver, minipod modules and optical patch cords, and graphical analysis on the PC side
- Optical interface testing including S parameter analysis, eye diagram analysis, and jitter analysis
- BERT must be performed on the optical interfaces by using a high sampling rate scope or through a FPGA based BERT generator& checker. BER must be <= 10<sup>-12</sup>
- Tests must be performed for acquiring data through the high speed optical links (4.8 Gbps/link) and sent to a DAQ unit through PCI Express Generation 3 X8 or X16 interface. Data must be analyzed at the DAQ end to verify the integrity of the complete chain
- I2C based read and write programming for configuring all interfaces connected to the FPGA must be tested
- Each of the interfaces on the board must be tested
- All the tests and test results must be documented by the vendor
- \*Oscilloscope and other cables and accessories required for testing will be provided by us. Testing and system block diagram will be provided by us

#### Mandatory Pre-requisites & Requirements: -

 The vendor shall have a proven experience in the field(s) of manufacturing and testing of complex electronic modules based on high performance FPGAs and multi-Gb/s fibre optic interfaces.
On site deployment of 1 technical engineer for minimum of 15 days to carry out the integrated tests is mandatory.

3) Strict compliance to the specification(s) provided is mandatory and a detail technical compliance sheet must be attached with the bid.

4) The PCB production and assembly must be carried out solely in India only.

5) The firm producing and assembling the PCB must be certified ISO 9001:2008 certified in the field of production and support of electronic modules, or be able to demonstrate compliance with an equivalent certification or shall be willing to establish an equivalent Quality Assurance procedure.

6) PCB production must be compliant to IPC A 600 and test certificate of compliance to this standard must be provided.

7) The EMS must be performed according to CIS IPC A 610 class 2 or class 3 standard.

8) Rework of the component assembly if any must comply to IPC A 7711 standard.

9) Vendor must perform functional and integrated sign off testing on site after the boards are assembled 10) Firmware required for the testing must be provided by the vendor.

11) Vendor must be able to provide a minimum of 3 years post supply warranty and maintenance of the product without any additional cost.

12) Subcontracting is not permitted.

13) The vendor shall be responsible for proper use of the components provided and any defects in the components or PCB.

14) Component must be procured from authorized channels only and must be guaranteed to be genuine. Necessary authorization needs to be submitted without which the offers will be rejected.

#### **Acceptance Criteria:**

1) Fully assembled PCB with satisfactory completion of testing, certification, and quality as mentioned in section 4 (TEST FIRM WARE D ESIG N, AND ONSITE INTEGRATED TESTING WITH DOCUM ENTATION)

2) PCIe TLP's LCRC and sequence number checks must pass at the receiver end

3) Data transfer at data rates specified in section 4 must be loss less

4) Installation of the card into a PC and execution of a test design. This shall include the programming of the FPGA with the Gigabit Transceiver firmware and the installation of SFP+ transceiver, minipod modules and optical patch

cords, and graphical analysis on the PC side.

5) Optical interface testing including eye diagram analysis and jitter analysis

6) BERT must be performed on the optical interfaces by using a high sampling rate scope or through a FPGA based BERT generator

7) Tests must be performed for acquiring data through the high speed optical links (4.8 Gbps/link) and sent to a DAQ unit through PCI Express Generation 3 X8 or X16 interface. Data must be analyzed at the DAQ end to verify the integrity of the complete chain

8) I2C based read and write programming for configuring all interfaces connected to the FPGA must be tested

9) Each of the interfaces on the board must be tested

10) All the tests and test results must be documented by the vendor

11) Testing of optical link interface communication for Passive optical networks at 9.6Gbps

Warranty : As per clause no 17 of NIT.



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#### **Bidder Information Form**

[The Bidder shall fill in this Form in accordance with the instructions indicated below. No alterations to its format shall be permitted and no substitutions shall be accepted. This should be done of the letter head of the firm]

Date: [insert date of Bid Submission] Tender No.: [insert number for Invitation for bids]

- 1. Bidder's Legal Name [insert Bidder's legal name]
- 2. In case of JV, legal name of each party: [insert legal name of each party in JV]
- 3. Bidder's actual or intended Country of Registration: [insert actual or intended Country of Registration]
- 4. Bidder's Year of Registration: [insert Bidder's year of registration]
- 5. Bidder's Legal Address in Country of Registration: [insert Bidder's legal address in country of registration]
- 6. Bidder's Authorized Representative Information

Name: [insert Authorized Representative's name] Address: [insert Authorized Representative's Address] Telephone/Fax numbers: [insert Authorized Representative's telephone/fax numbers] Email Address: [insert Authorized Representative's email address]

7. Attached are copies of original documents of: [check the box(es) of the attached original documents]

Signature of the Bidder Name Business Address



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# **BID FORM**

(to be submitted on the official letterhead of the bidder)

The Director, Bose Institute, P-1/12, CIT Scheme-VII/M, Kolkata - 700054 (W.B.) India

Sir,

Having examined the bidding documents the receipt of which is hereby duly acknowledged, I/We agree to furnish required supplies/services in conformity with the Techno-Commercial Bid or such portions thereof at the prices given in the Price Bid on receipt of order for the same.

I/We agree to hold this offer open until \_\_\_\_\_\_and to supply, install and commission the equipment and complete the whole of the work and hand over to the purchaser within the period of \_\_\_\_\_\_ weeks, from the date of receipt of intimation from you regarding acceptance of this tender/receipt of supply order.

I/We agree to submit the bank guarantee as specified in the form prescribed by your goodself for the due performance of the contract, if our bid is accepted.

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

) Signature of Bidder

(

With Office Stamp

Name & Address

Telephone No.:

FAX No.:

E-mail address:

Name & Designation of the Contact Person:



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# TECHNO-COMMERCIAL BID FORM

1.	Tender reference No	:	
2.	Due date of bid submission	:	
3.	Main Item Model No.	:	
4.	Life Expectancy of the Equipment (in years)	:	
5.	Warranty Period (in years)	:	
6.	Delivery Period of the Equipment	:	
7.	Details of Bank Guarantee enclosed as Bid Security :	:	
	Name of the Bank	:	
	Branch	:	
	Address with Phone, FAX & E-mail Nos.	:	
	Amount Rs.	:	
	Valid Upto	:	
8.	Country of the Origin of the Equipment	:	
9.	Bid currency	:	
10.	Schedule of Requirements :	:	

Contd.....



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1.	Whether agreeing to all the terms and conditions including payment terms as mentioned in the bidding documents			
2.	Port of Shipment			
3.	Approximate Shipment Weight (chargeable weight) in Kg. of the packed consignment			
4.	Approximate Dimensions/ Volume of the packed consignment			
Note :	:			
1.	Adhering to the format given above is a pre-requisite for considering your bid.			
2.	All columns must be filled up.			
3.	Separate list should be attached where required in the same format giving details of each item.			
4.	Please indicate applicability.			
I/we certify that I/We have completely read and understood and agree to all the terms & conditions given in ITB.				

With Office Stamp

( ) Signature of Bidder

Name & Address



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#### MANUFACTURERS' AUTHORIZATION FORM

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

Dated \_\_\_\_\_

The Director, Bose Institute, P-1/12, CIT Scheme-VII/M, Kolkata - 700054 (W.B.) India

Dear Sir:

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

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

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

Yours faithfully,

(Name)

(Name of manufacturers)

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



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## BIDDER'S PERFORMANCE STATEMENT FORM (For a Period of Last 3 Years)

Name of the Firm.....

Order placed by (full address with Tel. No., Fax No. & e-mail address of purchaser)	Date	Description and quantity of ordered equipment	Date of completion of delivery as per Contract/ Actual	Remarks indicating reasons for late delivery, if any	Has the equipment been installed satisfactory? (Attach a certificate from the purchaser/ Consignee)

Place :

Signature :

Date :

Office stamp



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# SERVICE SUPPORT DETAILS FORM

Sl. No.	Nature of training imparted	List of similar type equipments serviced in the past 3 years	Address, Telephone Nos., Fax and e mail address of the firm located in Kolkata, if any	Value of minimum stock of consumable spares held at all times.

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :



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#### TECHNCAL COMPLIANCE STATEMENT FORM

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.

ITEM N	AME		
Sl.No.	Tender Specifications	Bidder's Specifications	Deviation/ Remarks, if any Including justification

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

#### Please note:

- 1. Compliance/Deviation statement comparing the specifications of the quoted model to the required specifications. This statement should also give the page number(s) of the technical literature where the relevant specification is mentioned.
- 2. Bids must have supporting documents (technical literature or copies of relevant pages from the service manual or factory test data) for all the points noted above, failure regarding which may result in rejection of bid.
- 3. In case the bidder furnishes wrong or false information wilfully in the technical compliance chart, such action shall be viewed strictly and the bidders may be blacklisted.
- 4. Where there is no deviation, the statement should be returned duly signed with an endorsement indicating "No Deviations".

Signature and Seal of the manufacturer/Bidder.....

Place :

Date :



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## **BID SECURITY FORM**

(To be executed by a scheduled Bank in India on non-judicial stamp paper)

To The Director, Bose Institute, P-1/12, CIT Scheme-VII/M, Kolkata - 700054 (W.B.) India

Dear Sir,

Whereas (Name and address of Bidder) (hereinafter called "the Bidder") in
response to your Tender Notification No dated is submitting its bid for the
supply of (Name and/or description of the goods) (Hereinafter called "the
Bid").
KNOW ALL PEOPLE by these presents that WE (Name of bank) of
(Name of country), having our registered office at (Address of bank) (Hereinafter called
"the Bank"), are bound unto <i>Director</i> , Bose Institute, Kolkata, INDIA (Hereinafter called "the
Purchaser") for the sum of (Amount of the Guarantee in Words and Figures)
for which payment well and truly to be made to the said Purchaser, the Bank binds itself, its
successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this day
of 20

THE CONDITIONS of this obligation are:

- 1. If the Bidder withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
- 2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity:

contd.....



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- 3. Fails or refuses to execute the Contract Form if required; or
- 4. Fails or refuses to furnish the performance security, in accordance with the Instruction to Bidders.
- 5. This guarantee is valid up to .....(six months from date).

We undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the Purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to and including forty-five (45) days after the period of the bid validity, and any demand in respect thereof should reach the Bank not later than the above date.

Date:

Signature.....

Place:

Seal of Bankers

(Complete Address/Contact Details with Tel./Fax/email etc)

Witness: 1. ....

2. ....