



Indian Institute of Science (IISc)
Bangalore - 560012

Supercomputer Education and Research Centre (SERC)
IISc

Notice Inviting Tender (NIT) under
Two-Cover Bid System

for

**Supply and Installation of Networking Equipment for a Data Center in
SERC
[Local Tender]**

**Enquiry or Tender No: [IISc/Purchase/SERC/2024/NetworkDataCenter/1](#)
Date: [October 1, 2024](#)**

Chair

Supercomputer Education and Research Centre (SERC)
Indian Institute of Science (IISc)
Bangalore – 560012, India
Email: tender.serc@iisc.ac.in

Contents

1. Preamble	2
2. Technical Details	2
2.1 Switches	2
2.2 Connectors	4
2.3 Warranty and Support	5
3. Bidder's Eligibility Criteria	5
4. Acceptance Criteria	5
5. Technical Details / BoQ Compliance Sheet (to be submitted with Technical Bid)	6
6. Organization of the Technical Bid	6
7. General Terms and Conditions.....	7
8. Technical Bid – Terms and Conditions	8
9. Commercial Bid – Terms and Conditions	8
10. Payment Terms	8
11. Important Dates	9
12. Annexure A - Undertaking.....	10
13. Annexure B – Certificate from Bidder related to Make in India Orders	11

1. Preamble

The Supercomputer Education and Research Centre (SERC) in Indian Institute of Science (IISc) is a leading supercomputing centre in the country, possessing state-of-the art computing facilities, catering to the ever-increasing demands of high performance computing for scientific and engineering research. The supercomputer systems in SERC are used for large-scale simulations in various scientific domains.

SERC is also building a data center for hosting clusters of different labs, departments, and programs of IISc. The IISc community should be able to access these clusters remotely from the confines and comforts of their lab and should be able to transfer large data to the clusters for job executions. To facilitate such accesses and transfers, SERC plans to purchase 4 Nos. of 10 Gbps switches along with connectors and support for the switches. This tender invites bids for the switches, connectors and support.

2. Technical Details

2.1 Switches

4 Nos. of 10 Gbps switches with configuration of each switch as follows.

Hardware and Architecture

1. The switch must have 48 x 1/10GBaseT ports **plus** 8 x 40/100G QSFP28 ports with support breakout to provide additional 16 number of 10/25/50G interfaces.
2. The switch must have total throughput of 2.16 Tbps and latency packet forwarding less than 3 Microseconds

3. The switch must support up to 250K MAC address, up to 250K IPv4 Prefix routes
4. The switch must have Max power draw of upto 460W.

L2 features

The switch must support the following.

1. 4K VLANs, 9216 Jumbo frame
2. MST, per-vlan RSTP, BPDU Guard, Loop Guard
3. port ACL with L2, L3 and L4 parameters
4. LLDP and LACP to bundle links and detect miscabling issues.
5. IEEE 802.1D,802.1Q,802.1w and 802.1s

L3 features

The switch must support the following.

1. Routing Protocols: OSPFv2 with multiple instances, OSPFv3, BGP, MP-BGP, IS-IS, and RIPv2
2. Graceful restart for BGP,OSPF v2 and v3 and ISIS
3. BFD inclusive of BFD for Lag links and Multi-hop BFD
4. Policy Based Routing (PBR) for IPv4 and IPv6, VRRP V4 and V6, Unicast Reverse path forwarding (urpf), and Inter-VRF route leaking
5. VXLAN+EVPN leaf-spine overlay technology supporting type-1 to type-5 routes
6. must have support for symmetric and asymmetric IRB
7. must support IPv4 and IPv6 clients in EVPN based overlay network
8. active-active EVPN multi-homing
9. IGMP v2/v3,PIM-SM / PIM-SSM, Anycast RP (RFC 4610), VRF Support for IP Multicast, Multicast Source Discovery Protocol (MSDP)and IP Multicast Multipath.

High availability

The switch must support the following.

1. In service software upgrade and live patching
2. maintenance mode/ Graceful insertion and removal (GIR) to isolate device from the network in order to perform debugging or an upgrade while gracefully steering traffic to peer nodes.
3. 1+1 redundant & hot-swappable Fans with support for both front-to-rear and rear-to-front airflow options
4. 1+1 redundant & hot-swappable power with support for both AC and DC power supply options.

Security

The switch must support the following.

1. Storm control and Control Plane protection (CoPP)
2. limiting number of mac address on a link
3. security-group based segmentation of hosts independent of the network constructs like VLAN, VRF and NVO.

Management

The switch must support the following.

1. secure Zero touch provisioning with options to provision Certificates artifacts on the device when it boots.
2. real time state streaming for advance monitoring from day 1
3. telnet, industry standard hierarchical CLI, SSHv2, HTTPS, SCP, SFTP, CLI task scheduler and configuration session.
4. NTP and IEEE 1588 PTP (Transparent Clock and Boundary Clock)

5. SNMP v1/2/3 and OpenConfig model over gRPC/Netconf
6. Digital Optical Monitoring (DOM)
7. real time data collection with sflow/netflow.

Automation & Visibility

1. The switch must support multi OEM hypervisor environment and should be able to sense movement of VM and configure network automatically
2. The switch must have OpenStack Neutron for ML2 integration with EVPN VXLAN control plane support.
3. The switch must support advanced mirroring features: Mirror to CPU, ACL filters and truncation on Mirror sessions, and tunneling of mirror packets to remote servers.
4. The switch must support measurement of the two-way metrics such as delay, jitter, packet loss rate between two network elements using Two-Way Active Measurement Protocol (TWAMP) as per RFC 5357
5. should have programmability and automation support with on board python, bash and docker containers.

QOS

The switch must support the following.

1. 8 queues per port
2. priority queue
3. Weighted Fair Queue or Weighted round robin or equivalent
4. WRED and DSCP for CPU generated traffic
5. ACL based classification for QoS
6. IEEE 802.1Qaz DCBX (Data Center Bridge Exchange), 802.1Qbb PFC (Priority-based Flow Control) and Explicit Congestion Notification (ECN)
7. rate limiting function like policing and shaping

Others

The switch must support the following.

1. The switch must be certified for NDcPP common criteria
2. The switch must have IPv6 ready logo certification
3. The switch must be 19" rack mountable preferably with 4-post rail mount kit provided for easy installation
4. Hardware replacement warranty and TAC support should be directly from the OEM. OEM email-id and India Contact support no. to be provided.

2.2 Connectors

S/No	Details	Numbers Required
1	40G AOC cable of 15 meters in length.	2
2	1310 nm, 10G-LR transceivers for WAN/peripheral connectivity. If required, a QSA or compatible adapter must be supplied for 10G transceiver connectivity.	4
3	40G DAC (copper) cable, 2 meters in length.	4

Note: Transceivers should be from same OEM as for the switch device.

2.3 Warranty and Support

1. The bidder must provide 5 years warranty for all the hardware and software components of the solution, from the date on which the solution is accepted. During the warranty period, the bidder must undertake comprehensive maintenance of all the equipment, hardware components, support, and accessories. The bidder must also perform periodic software upgrades, updates, and patches, as well as preventive maintenance.
2. In the event of failure of any of the sub-systems or components of the proposed solution, the bidder must ensure that defects are rectified, or the equipment is replaced with the necessary configuration free of cost within 24 hours from the time it was reported.
3. Failure to meet the above requirement will result in an extension of warranty services by 3 days for each day of delay during the warranty period.
4. The bidder must maintain a suitable stock of necessary spare equipment during the contract period.
5. Collection of faulty hardware from the site and provisioning of the replacement hardware during the warranty period on the site shall be the responsibility of the bidder.

3. Bidder's Eligibility Criteria

1. Should have supplied and installed 10 Gbps switches to at least two institutions/organizations in India during October 1, 2022 - September 30, 2024.
2. The bidder must have a proven record of maintaining and managing similar items.
3. Bidders should include necessary document for establishing points 1 and 2 above with necessary proof in terms POs and customer contact details
4. The bidder must comply with the provisions of Office Memorandum F/No/6/18/2019-PPD dated 23rd July 2020, issued by Public Procurement Division, Department of Expenditure, Ministry of Finance, GoI.
5. The solution offered must comply with the provisions of Public Procurement (Preference to Make in India) Order No P-45021/2/2017-PP (BE-II) dated 15th June 2017 (PPP MII Order) and further revised vide Order dated 28th May 2018, 29th May 2019, 04th June 2020 and 16th September 2020 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI. The minimum local content, the margin of purchase preference and the procedure for preference to Make in India for this tender are as per the mentioned Public Procurement (Preference to Make in India) Order.

4. Acceptance Criteria

1. The systems should be installed, commissioned and demonstrated for the components and parameters specified in the bid and P.O by the successful bidder, for the solution to be accepted.
2. It is to be noted that maximum of two weeks will be available (after Installation & Commissioning) to the bidder to conform to this acceptance test criterion set out.
3. Any delay in commissioning or conformance to the acceptance beyond the stipulated time will result in extending the warranty: Each day of delay would result in 3 additional days of warranty.
4. This penalty clause is only applicable for solutions which are considered as technically meeting the requirements, as evaluated by the technical committee. The clause cannot therefore be used as an argument to qualify any solution, which the technical committee considers as not meeting the requirements.

5. Technical Details / BoQ Compliance Sheet (to be submitted with Technical Bid)

Note: DO NOT MENTION THE PRICES IN THIS BoQ COMPLIANCE SHEET. THIS WILL LEAD TO AUTOMATIC DISQUALIFICATION OF THE BIDS.

SNo	Item Description	[Only answer YES/NO in this column. DO NOT MENTION THE PRICE]
1	4 Nos. 10 Gbps switches	
2	2 Nos. of 40G AOC cable of 15 meters in length.	
3	4 Nos. of 1310 nm, 10G-LR transceivers for WAN/peripheral connectivity. If required, a QSA or compatible adapter must be supplied for 10G transceiver connectivity.	
4	4 Nos. of 40G DAC (copper) cable, 2 meters in length.	
5	Warranty and Support for 5 years	

6. Organization of the Technical Bid

The technical bid should strictly be organized in the following sequence only.

Note: IISc reserves the right to disqualify any bid that does not provide all the required data and not following the organization given below.

1. A cover letter from the bidder. Among other things, the cover letter should certify that all the requirements of the tender are provided, and the offered solutions meet and comply with the technical and other specifications of the tender.
2. The bidder must not be blacklisted by any Central / State Govt. Organizations of India as on date of submission of the bids. A certificate or undertaking to this effect must be submitted.
3. Proofs for bidder's eligibility criteria as given in Section 3.
4. A copy of the masked Commercial bid has to be given in the technical offer (unpriced Bill of Material (BoM)).
5. Undertaking as per the format in **Annexure A**.
6. The copy of registration certificate or a declaration in compliance with the provisions stipulated in office memorandum F/No/6/18/2019-PPD dated 23 July 2020 issued by Public Procurement Division, Dept. of Expenditure, Ministry of Finance, GoI.
7. Certificates from bidder, as per format given in **Annexure B**, declaring the country of OEM, country of manufacture, location of local value addition and percentage of local contents for various items provided in the bid, and compliance with the provisions of Public Procurement (Preference to Make in India) order No. P-45021/2/2017-PP (BE-II) dated 15th June 2017 (PPP MII Order) and further revised vide Order dated 28th May 2018, 29th May 2019, 04th June 2020 and 16th September 2020 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI.

8. Technical details of the items required in the tender.
9. Terms and conditions of the offer.
10. A certificate agreeing to all the terms and conditions mentioned in the tender.
11. Appendix
 - a. Supporting technical materials including brochures.
 - b. Any other information or documents that the bidder/OEMs deem necessary.

7. General Terms and Conditions

1. Local tender purchase preference.
 - a. The Bidder should belong to either Class-1 or Class-2 suppliers distinguished by their “local content” as defined by recent edits to GFR. They should mention clearly which class they belong to in the cover letter. a) Class-1 supplier: Goods and services should have local content of equal to or more than 50%. b) Class-2 supplier: Goods and services should have local content of equal to or more than 20 % and less than 50%.
 - b. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor.
 - c. The quotations should be on FOR-IISc Bangalore basis in INR only.
 - d. Bidders offering imported products will fall under the category of non-local suppliers. They cannot claim themselves as Class-1 local suppliers/Class-2 local suppliers by claiming the services such as transportation, insurance, installation, commissioning, training, and other sales service support like AMC/CMC, etc., as local value addition.
 - e. Purchase preference as defined by the recent edits to GFR (within the “margin of purchase preference”) will be given to the Class-1 supplier.
 - f. MSMEs can seek an exemption to some qualification criteria. IISc follows GFR2017 for such details.
2. Offer must be submitted under TWO-BID system i.e., “Technical bid” and “Price (Financial) bid” as hard copies in two separate sealed envelopes. These two bids must be enclosed in a larger envelope superscribed as “Bid Submission for 10 Gbps Switches, connectors and support for SERC” within the stipulated period to the indicated mailing address. In addition, **soft copy of only the technical bid** must be sent by email to tender.serc@iisc.ac.in within the stipulated time.
3. The vendors may communicate to the committee through the email ID provided in the first page, which will be the official email for the purpose of this tender. However, the communications from the committee will be made only in pre-bid clarification meeting and through email including corrigendum and short fall requests. While the committee may consider the emails from the vendor, the committee will respond/communicate by email from only the official email ID when absolutely necessary. In all other circumstances, no responses or communications will be made by the committee via email or any other means.
4. Any clarifications required by the committee will be sought in shortfall requests via email. The shortfall requests will precisely point to the tender clauses that are not met by the technical bid. It is the bidder’s responsibility to address the shortfall by submitting an adequate and satisfactory shortfall response. No clarifications by email or any other means will be sought or given by the committee.
5. Delayed and/or incomplete tenders are liable to be rejected.
6. The Technical Bid and the Commercial Bid should be duly signed by the authorized representative of the bidder.
7. The bidders are requested to go through the Terms and Conditions detailed in this document, before filling out the tender. Agreeing to the terms and conditions of the tender document (by signing all pages of the copy of a tender document) is a mandatory requirement.
8. A tender, not complying with any of the above conditions is liable to be rejected.
9. IISc reserves the right to cancel the tender at any time without assigning any reason whatsoever.

8. Technical Bid – Terms and Conditions

1. The technical bid should contain all the information and should have the organization as given in Section 6. Bids without the specific information and organization as in Section 8 will be automatically disqualified.
2. No price information must be mentioned in the technical bid. Bids which include price information in the technical bids will be automatically disqualified.
3. Technical bids will be opened first. IISc may seek clarifications after opening of technical bids.
4. The technical evaluations will be made only based on the technical bids and the shortfall responses submitted by the bidder.

9. Commercial Bid – Terms and Conditions

1. Price bids of only technically qualified vendors will be considered. Commercial bid shall be opened for the technically qualified bidders after the technical evaluation.
2. The hardcopy commercial bid of the successful bidder, after the commercial bid opening stage, should contain among other things, unit prices, payment terms, warranty, installation, commissioning etc. as per requirements of IISc mentioned in the tender document. All such conditions must be in line with the tender. In case of any deviation or conditional offer, the bid may be treated as non-responsive and not be considered for evaluation. The Commercial bid should contain details of the prices for each one of the subsystems of the total offer clearly giving the rate and the quantity. Bundling of the prices is not acceptable.
3. This is a **local tender**. Quote should come only from Indian Original Equipment Manufacturer (OEM) or their Indian authorized distributor. Prices should be quoted only in INR (Indian Rupees) and will be with GST only. The order must be on FOR basis. No Custom Duty Exemption Certificate will be provided.
4. The component of tax, and any other statutory levies should be shown separately and not included in the total amount, to enable IISc to avail any exemption.
5. Proposals should contain the name and contact details, viz., phone, fax, and email of the designated person to whom all future communication will be addressed. The contact details should also be mentioned on the overall envelope.
6. Prices should be quoted in detail, for all the subsystems given in the Technical Specifications part of the tender. Further, bid and **price validity should be for three months** from the date of opening of the technical bids.
7. IISc will place the purchase order only on the successful bidder as per the decision of IISc. In this regard, decision of IISc will be final and binding.

10. Payment Terms

1. The total project cost will consist of Equipment supply and installation and comprehensive warranty and support for five years from the acceptance and successful installation as decided by IISc.
2. 100% payment shall be released by IISc against delivery, inspection, successful installation, commissioning, and acceptance of the equipment at IISc Bengaluru in good and functional condition and to the entire satisfaction of the Purchaser (IISc).
3. Payment will be subject to deduction of TDS as per rules / laws and any other deduction as per PO terms.
4. The total solution as per the agreed bill of materials must be supplied within 5 weeks after receiving a firm PO from IISc. The installation and acceptance must be completed within 3 days after supply of the equipment.
5. Liquidated Damage: As time is the essence for this procurement, hence the ordered materials are required to be delivered and installed in all respects within the stipulated period in the purchase

order failing which penalty for late delivery and installation will be imposed at the rate 1% of the total order value per week or part thereof for the delayed period subject to maximum of 10% of the total order value and this liquidated damage will be deducted during the payment of the invoice / bill of the supplier. Earliest / expected delivery period should be clearly indicated in the technical bid.

11. Important Dates

1. Release of tender: October 1, 2024.
2. Last date for sending queries: October 8, 2024, 5 PM IST. Queries may be sent to tender.serc@iisc.ac.in.
3. Release of corrigendum to the tender based on the queries, if necessary: October 11, 2024, 5 PM IST.
4. Start date for submission of the bid: October 14, 2024, 10 AM IST.
5. Last date for submission of the bid: October 22, 2024, 5PM IST.
 - a. Hard copy submission: The bid in the form of an envelope containing the hard copies of both the technical and commercial bids, in two sealed envelopes, should be submitted and reach the below-mentioned mailing address by the same date, 6 PM IST. Note that the hard copy of the technical bid should exactly match with the soft copy submitted.
 - b. Soft copy submission: **Soft copy of only the technical bid** must be sent by email to tender.serc@iisc.ac.in by the above-mentioned time. **No soft copy of commercial bid should be submitted.** Soft copy submission of commercial bid at any stage before the opening of the hard copy commercial bid will lead to disqualification of the bid.

Mailing address:

Chair
Supercomputer Education and Research Centre (SERC)
Indian Institute of Science (IISc)
Bangalore – 560012
India

12. Annexure A - Undertaking

Date:

To:
The Chair
Supercomputer Education and Research Centre
Indian Institute of Science
Bangalore – 560012, India

Subject: Undertaking as per GFR – 2017, Rule 170(iii)

Dear Sir,

We, the undersigned, offer to carry out the project including Products/items, components etc. as per tender at IISc, Bangalore, in response to your Tender No **IISc/Purchase/SERC/2024/NetworkDataCenter/1**. We are hereby submitting our proposal for the same, which includes Technical bid and the Financial Bid. As a part of the eligibility requirement stipulated in the said tender document, we hereby submit a declaration as given below:

1. We will not withdraw or amend or modify or impair or derogate the our bid partly or fully or any condition of it after tender opening, during the period of tender validity (six months from the date of opening of the technical bid),
2. In case, we are declared as successful bidder and an order is placed on us, we will submit the acceptance in writing within 7 days of placement of order on us.
3. In case of failure on our part to deliver/provide the item/installation/service as per the order's terms and conditions within the stipulated period, we are aware that we shall be declared as ineligible for the said tender and /or debarred from any future bidding process of IISc or any Government entity for a period of minimum one year.
4. The undersigned is authorized to sign this undertaking.

Yours sincerely,

Authorized Signatory:

Name and Title of Signatory:

e-mail:

Mobile No:

13. Annexure B – Certificate from Bidder related to Make in India Orders

To:

Prof. Sathish Vadhiyar
Department of Computational and Data Sciences (CDS)
Indian Institute of Science
Bangalore – 560012, India

We hereby certify that the goods being offered by us vide our proposal, comply with the provisions of Public Procurement (Preference to Make in India) Order No P-45021/2/2017-PP (BE-II), dated 15th June 2017 (PPP MII Order) and further revised vide Order dated 28th May 2018, 29th May 2019, 04th June 2020 and 16th September 2020 issued by Public Procurement Section, Department for Promotion of Industry and Internal Trade, Ministry of Commerce and Industry, GoI.

We hereby certify the details pertaining to goods offered by us, as given below:

SNo.	Item Description	Make & Model No.	Country of Origin of OEM	Country and Location of Manufacture of Item	Location in India at which local value addition is made, if any.	Percentage of Local Content
1	10 Gbps Switches					

Self-certification on Compliance to Make-in-India Order:

1. We hereby declare that

(Bidder Name) is a class 1/2 local supplier in accordance and manner as specified in Order No. P45021/2/2017-PP (BE-II) dated : 04th June 2020 and OM No. P-45021/102/2019-BE-II-Part(1) (E-50310) dated 04.03.2021 issued by DIPP, Ministry of Commerce and Industries, GoI.

2. We also certify that the turnkey solution offered meets the local content requirement for 'Class-I local supplier'/'Class-II local supplier' [tick one and strike out the other], as per the Public Procurement (Preference to Make in India) Order.

We also certify that, we are not from a country sharing land border with India as defined in order No. F/No/6/18/2019-PPD dated 23 July 2020 issued by Public Procurement Division, Dept. of Expenditure, Ministry of Finance, GoI and the goods offered by us comply with the provisions of said order.

For (Name of bidder)

Authorized Signatory
Name & Designation:
Mobile No: