NATIONAL SUPERCOMPUTING MISSION
INFRASTRUCTURE | APPLICATIONS | R&D | HRD

Indian Institute of Science

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EoI Document No: IISC/MPPLAB/EOI/2021/1

IISc invites Expression of Interest from Technology Partners for setting up of High Productivity Computing System (HPC system) under MPPLAB program

Prospective Vendors may download the EoI Document from www.iisc.ac.in / https://cps.iisc.ac.in Vendors are advised to submit duly filled proposals as per the instructions given in this EoI Document.

EOI Schedule

EOI No: IISc/MPPLAB/EOI/2021/1

Name of the Institute	Indian Institute of Science, Bangalore 560012
Postal Address for submitting hard copy of proposals	Chair, Robert Bosch Centre for Cyber-Physical Systems, C V Raman Ave, Mathikere, Indian Institute of Science, Bangalore 560012
Email address for submitting soft copy	office.cps@iisc.ac.in
Place of Supply, Installation of HPC system and further development activities	Indian Institute of Science, (IISc) CV Raman Ave, Mathikere Bengaluru, Karnataka 560012
Date of Release of EOI	6th January, 2021
Date of Pre-proposal Meeting	13 January, 2021 @ 5-6pm.
Place of Pre-proposal Meeting	Online. Please contact office.cps@iisc.ac.in for link
Last date of submission of proposals	28 January 2021, 1700 Hrs
Date of opening of Technical proposals	29 January 2021
Place of opening of technical proposals	IISc.

1. *Instructions for proposal Submission*

   The vendors are required to submit hardcopies of their bids to the address indicated above, with a soft copy via email to office.cps@iisc.ac.in .

2. *Assistance to Vendors:*

   Any query relating to this process may be directed to office.cps@iisc.ac.in

Note: For the purpose of this EoI document**,** respondent, responder, vendor, bidder refers to any Principal OEM/their Indian subsidiary who will be a prospective technology partner in the MPPLAB program. Similarly, proposal, bid/tender document refers to the response submitted by Principal OEM/their Indian subsidiary to participate in the EoI.

SECTION I: INSTRUCTIONS TO BIDDERS (ITB)

1. Preamble:

This Expression of Interest (EoI) is intended for soliciting responses from Indian/Domestic Original Equipment Manufacturers (OEM) of Highly Specialized Machines (HSM) for Mission-Critical Computing systems or their Indian subsidiaries for participation in the MPPLab program. Response to this EoI notice shall constitute an application for consideration of participation in prototyping an exploratory proof-of-concept High Productivity Computing (HPC) system based on a unique Unified Architecture. Prospective responders may download a soft copy of this document from the IISc website (https://iisc.ac.in). The prospective responders are advised to carefully go through the instructions provided at `Instructions for response submission' and submit duly filled responses as per the schedule given in this EoI Invitation Document. Failure to provide complete information as sought here in this invitation or when solicited later during its processing, shall lead to rejection of the submitted application.

2. Introduction:

2.1. **The MPPLab Program:**

"MPPLab" stands for **M**athematical **P**rogramming (in) **P**arallel **Lab**oratory. This is a geographically distributed, "virtual laboratory" of Govt. of India, to create a **"Unified Architecture (UA)"** Supercomputer to support mathematically oriented High Productivity Computing and its multiple applications in the form of open source, shared library in the same spirit and philosophy as "creative commons" initiative by MIT. Unified Architecture based High Productivity Computing is not the same as the conventionally understood High Performance Computing paradigm, but, a more evolved concept of the HPC.

MPPLab is targeted at HPC software developers, who are interested in making ab-initio implementation of new advanced mathematical algorithms. One of the primary purposes of MPPLab is to enhance **programmer productivity,** when creating new parallel software packages in a wide range of applications mentioned below and facilitate testing of such packages on BIGDATA problems. It shall support **computationally assisted scientific discovery**. Another purpose is to provide an HPC platform for **real-time control applications of economic significance** and facilitate efficient utilization of resources in large systems.

In short, it is a technology to improve efficiency of both people and machines. In case of people, it is meant to assist those engaged in creative processes involving natural intelligence, such as conceptualizing and implementing new software packages or in scientific research and discovery. In case of mechanical/electronic systems, it is meant to improve efficiency of processes involving Artificial Intelligence and optimization of telecommunication, transportation, manufacturing etc.

2.2. **Applications:**

Application spectrum of interest includes the following:

- Advancement of fundamental sciences
- Scientific, Engineering and Economic applications of interest to social well-being
- Applications to main pillars of economy including Telecom, Banking, Financial sector, Transportation, Next generation Advanced Manufacturing, Cyber Physical Systems etc.

2.3. **Unified Architecture (UA) in MPPLab:**

Unified Architecture (UA) is a highly modular and growable platform designed to be suitable for both

- conventional Batch-mode applications and
- Applications requiring fast, Real-time response and control using mission-critical highly reliable hardware with very high MTBF (mean time between failure)

UA is aimed at providing both in one and the same integrated HPC system

3. *Purpose of Inviting This Expression of Interest:*

A public funded pilot project for constructing a small working prototype of the Unified Architecture based High Productivity System with one sample application related to telecom traffic engineering has been started under the **MPPLab** program.

This notice is issued as an invitation to OEMs of Highly Specialized Machines (HSM) for Mission-Critical Computing systems or their Indian subsidiaries, to participate in custom design and development of a proof-of-concept prototype **MPPLab** system based on the Unified Architecture of High Productivity System (UA-HPC) explained above.

*Please note that **MPPLab** is not an equipment intensive program, rather it is a knowledge and expertise intensive program. This **EoI** Invitation is not about procurement of goods from standard catalogue of equipment supplies, instead, it is about participation in prototyping of a unique exploratory proof-of-concept High Productivity Computing system based on the Unified Architecture explained earlier using advanced high productivity computing technologies available from the participating OEMs.*

4. *Objectives of This Expression of Interest*

4.1. To identity and evaluate suitable innovations, advanced technologies, components, sub-systems and systems for putting together an optimal Unified Architecture High Productivity Computing (UA-HPC) system as described above.

4.2. To assess technical capability of OEMs with regard to the evaluated innovations, advanced technologies, components, sub-systems and systems in meeting the minimum requirements for **MPPLab** program, as set out in this **EoI** Invitation. OEMs demonstrating the requisite technical capability to deliver an efficient working prototype implementation of the novel UA-HPC architecture shall be qualified as being eligible for participation in the planned RFP for the program.

5. *Methodology to be followed for assessment of suitability of OEMs*

a) Legal/Commercial Requirements.

These are detailed in Section 14, item: 14.1 to 14.3.

b) **Required Technological Capabilities.**

These are defined in Section 14, item: 14.4 to 14.7, and the scoring scheme for their evaluation is given in Annexure F.

c) **Verifiability of Technological Capabilities.**

All technological capabilities described by the respondent must be publicly verifiable. Examples of verifiable capabilities include but are not limited to the following.

a) Publication in recognized scientific journals and conferences.
b) Technologies productized in the past by the respondent.
c) Systems deployed at external customer site.

d) **Need for Vendor Diversity.**

India is a vast country with a very wide spread current state of development across different regions. One solution does not always fit all. It is unlikely that one vendor can supply all the technological needs. Even when there is more than one equally qualified vendor, having diversity of suppliers is preferred in public interest. Buyer and Govt. of India reserve the right to give appropriate consideration for vendor diversity in public interest, in the final selection, all other things being equal.

e) **Need for Speed.**

Given the rapid advances in technology and rapidly rising public expectations in Indian society, it is imperative to emphasize the need for speed when evaluating the technology partners for projects of public interest. Therefore, a respondent who is able to document any technological capability in the form of actual prior supported deployment at an external customer site will score higher than a respondent who may claim to have the capability but is unable to document the evidence of prior external supported deployment. Buyer and Govt. of India can consider accepting the project delays inherent in first such deployment only if no respondent is able to show evidence of prior external deployment of such technology.

IISc reserves the right to decide on technology partners based on the overall view that emerges after considering the following factors. Results of transparent scoring of all respondents as defined in this document.

- Need for achieving vendor diversity.
- Need for speed in projects of public interest.
- Priority of public interest over vendor interest.

6. *Contact information:*

Office,
Robert Bosch Centre for Cyber-Physical Systems
Indian Institute of Science
SID Entrepreneurship Building,
Bangalore Karnataka, INDIA
Tel No.: +91-20–2360-0644, E-mail: office.cps@iisc.ac.in

7. *Preparation of Proposals:*

The proposals containing following documents in pdf format, are required to be submitted via hard copy and an soft copy is to be emailed.

a. Covering letter, as per **Annexure – A.**

b. Authority letter, as per **Annexure – B.**

c. Demand Draft towards tender fee of Rs. 2000/- (Rupees Two Thousand Only) (Non-refundable / Non-Exempted) drawn in favour of IISc payable at Bangalore.

d. Undertaking from the vendor towards Earnest Money Deposit (EMD), as per format given in **Annexure – C.**

e. A copy of Certificate of Incorporation, Partnership Deed / Memorandum and Articles of Association / any other equivalent document showing date and place of incorporation, as applicable, in support of eligibility criteria at para 4.2, Section – II of this document.

f. Copies of PAN and GST registration certificates, as applicable.

g. Copies of documents in support of eligibility requirements stipulated in Section – II.

h. The copies of balance sheets **OR** the certificate from a Chartered Accountant certifying the annual sales turnover of the bidder for the last 3 financial years.

i. In case the proposal is being submitted by the Indian subsidiary, the undertaking from the parent organization, as per format given in **Annexure – D.**

j. Certificate from vendor, as per format given in **Annexure – E,** towards compliance with the Office Memorandum: F/No/6/18/2019-PPD dated 23rd July, 2020, issued by Public Procurement Division, Department of Expenditure, Ministry of Finance, GoI

k. Other documents necessary in support of eligibility criteria, product catalogues, brochures etc.

Note: IISc reserves the right to reject the proposal if any of the above listed document/s is not submitted.

8. Pre-proposal Meeting:

In case of any doubts and/ or queries pertaining to technical solution, specifications terms and conditions of the EOI, prospective vendor may send their queries in writing through e-mail. (Refer point 3 mentioned above for contact details). The queries, requests for clarifications etc. must be sent at least two days prior to the date of pre-proposal meeting. The vendors are requested to go through the entire EoI document thoroughly, before raising any query. The pre-proposal meeting will be held online, as given in schedule, to address the queries raised by the vendors. IISc will try to sort out the queries during the meeting, as far as possible. The replies to queries would be made available on IISc's web site in due course of time. All the queries, doubts, clarifications etc. must be submitted in xls format as given below:

Name of the bidder:				
Sr. No.	Section / Page No	Clause Reference	Query	IISc Response

9. Last Date of submission/ uploading:

The proposals, complete in all respect should be submitted on or before the date given in EOI schedule. It may please be noted that the originals of Demand Drafts, Bank Guarantees etc must be submitted on or before last date of submission of proposals. IISc shall not be responsible for any postal delays or any other reason, for on-receipt of the tender fees/ EMD etc. in the specified time and resulting in disqualification / rejection of the bid.

10. Opening of proposals:

The proposals will be opened on the date given in EoI schedule at:

Indian Institute of Science (IISc)
Robert Bosch Centre for Cyber Physical Systems,
SID Entrepreneurship Building,
Bangalore,Karnataka, INDIA.
Tel No.: +91-80–23600644.
E-mail: office.cps@iisc.ac.in

The representatives (maximum two) of vendors are welcome to attend the opening of the technical proposals via online link.

11. Amendment to Bidding Documents

At any time prior to the deadline for the submission of bids, Buyer may, for any reason, whether on its own initiative or in response to the clarification request by a prospective bidder, modify the bid document.

The amendments to the tender documents, if any, shall be notified by release of Corrigendum Notice on https://iisc.ac.in against this tender. The amendments/ modifications will be binding on the bidders.

Buyer at its discretion may extend the deadline for the submission of bids if it thinks necessary to do so or if the bid document undergoes changes during the bidding period, in order to give prospective bidders time to take into consideration the amendments while preparing their bids.

12. Corrections in Proposals

Vendor should avoid, as far as possible, corrections, overwriting, erasures or postscripts in the proposal documents. In case however, any corrections, overwriting, erasures or postscripts have to be made in the proposal, they should be supported by dated signatures of the same authorized person signing the proposal documents. However, vendor shall not be entitled to amend/add/delete/correct the clauses mentioned in the entire EoI document.

13. Validity Period

The proposals shall be valid for minimum 120 days from the date of submission. Any proposal valid for a shorter period shall stand rejected.

Buyer may ask for the vendor's consent to extend the period of validity. Such request and the response shall be made in writing only. The vendor is free not to accept such request. A vendor agreeing to the request for extension will not be permitted to modify their proposal.

(End of Section - I)

Section II: General Conditions of Contract (GCC)

14. Eligibility Criteria:

Responder must pass each of the following (14.1 to 14.7) criteria individually:

14.1. Only the Principal Manufacturers (OEMs) of High Productivity Computing (HPC) Systems or their Indian subsidiaries can submit the proposals.

14.2. The vendor must be a legal entity incorporated/established under appropriate Law.

14.3. The responder shall submit a certificate in the prescribed format (Annexure-A) that it is not blacklisted by any government organization as on last date of submission of response to the EoI Invitation. The respondent 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.

14.4. **Test for expertise in Research**.

Required Backing of Strong R&D Laboratory in Physical Research is detailed below.

14.5. **Test for expertise in Software Systems.**

Requirements of R&D Expertise in high-level Software Systems as detailed below.

14.6. **Test for expertise in Hardware Systems.**

Requirements of Expertise in Hardware, Software co-design of Systems as detailed below.

14.7. **Sustainability Test**

Requirement of sustained customer retention from scientific and economic domains and track record of sustained performance

Details of Criteria 14.4 to 14.7, are described below from item 14.8 onwards.

Scoring and passing scheme for each of above criteria 14.4 to 14.7 are described in Annexure F

14.8. **Further details of Criteria 14.4 - Backing of Strong R&D Laboratory in Physical Research**

MPPLab is a highly innovative fundamental R&D program for serving High Productivity Computing needs of a wide spectrum of applications. Therefore, in order to provide customized implementations, when no pre-defined technologies/components/sub-systems/systems might meet the complex and evolving needs of the **MPPLab** program, the responder should have the strong backing of an in-house R&D laboratory supporting the following basic research areas in physical sciences and technology: Solid state physics and devices, material science, new electronic materials, nano-structures, optics, opto-electronics etc. Expertise and in-house experience in these areas is important for **MPPLab**, as simulations in these areas are in the intended application spectrum of **MPPLab**.

The responder needs to demonstrate evidence of adequate expertise in each of the five areas mentioned below, in the order listed, beginning with "solid-state physics" as the foundational area, by listing a minimum 20 (or at most 25) publications in widely circulated and internationally recognized scientific journals or conferences.

a) Solid-state physics

b) Solid-state electron devices

c) Material science and new electronic materials

d) nano-structures for electronics

e) Optics and Opto-electronics

14.9. Further details of Criteria 14.5 - Requirements of R&D Expertise in high-level Software

a. R&D in High Productivity Languages

The responder must have prior in-house experience in:

Definition, design and implementation of own High Productivity programming languages for scientific computing. Some examples of such languages are Fortress, X10, Chapel, Coarray Fortran etc.

b. R&D in Compilers

The responder must have in-house experience in design and implementation of its own compilers for modern Fortran and other compatible parallel processing languages that were actually productized.

c. R&D in Mathematics Libraries

Responders must have in-house experience in design and implementation of their own Math Libraries for sequential and vectorized/parallel operations that were actually productized. Simply re-packaging of designs from third parties or open source software stacks such as GNU alone, would not count as in-house expertise.

d. PGAS:

Expertise in High level frameworks or tools for parallel programming based on partitioned global address space (PGAS) paradigm.

e. Run-time performance of interpreted or compiled languages:

Speeding up run-time performance of popular languages such as Python, Julia on HPC systems.

14.10. Further details of Criteria 14.6-Requirements of Expertise in Hardware, Software co-design of Systems

a. Symmetric Multi-Processor System Design

Responder should be in business of supplying large HSMs having at least 16-socket SMPs for Mission Critical applications. Responder should have in-house experience and ability of prototyping larger (at least 64-socket or more sockets) HSMs.

b. Processor Design

Responder must have in-house experience in design of general-purpose CPUs, vector processors etc. that were actually productized in the past.

c. Hardware system design

The responder must have in-house experience in:

Design of ASICs motherboards, backplanes, silicon photonics, hardware synthesis, VHDL etc.

d. Wafer-Scale Integrated Systems

In-house experience in integration Wafer-Scale Integrated Systems in complete HPC systems and deployment of the integrated solution at customer site.

e. Operating Systems & Networking Software for HPC

Track record of substantial contribution to open-source eco-system such as Linux, networking software for HPC. Responder must have in-house experience in building large single- image HPC systems.

f. Operating Systems Software for Telecom

Track record of substantial contribution to Open-source Networking Application Platform (ONAP).

14.11. Further details of Criteria 14.7- Sustainability Test

India is a rapidly developing nation aspiring to reach well-developed status as soon as possible. HPC technology has an important role to play in this transformation. **MPPLab** includes a wide spectrum of applications spanning scientific, social and economic needs, which keep growing and becoming more and more demanding. Therefore, it is important for the Responders to have proven track record of sustained performance and the ability to evolve their technology offering as per dynamically changing customer needs and retain the customer. The following points of eligibility criteria are intended to assess sustainability:

a. Sustained Customer Retention

The Responder to this **EoI** invitation must be able to provide documentary evidence of customers in each of the application domains mentioned below, categorized as **Scientific domains** and **Economic domains**, who are their customers since last five years and who continue to remain their customers presently for support and upgrades. The relevant application domains are:

Scientific Domains:

1. Pure or Fundamental Scientific Research
2. Applied Scientific Research
3. Science in service of society (e.g. weather forecasting etc.)

Economic Domains:

1. Telecom
2. Financial sector (Banking, Stock exchanges, market regulators etc.)
3. Transportation (Railways or Airlines, aircraft manufacturers etc.)
4. Manufacturing

As **MPPLab** is similar in spirit to programs of custom designed HPC systems in the US, Europe and Japan, for purposes of clarity, the term 'customer' includes businesses, government laboratories, academic institutions or any not-for-profit organizations pursuing 'science for society' objectives within India or globally.

b. Track Record of Sustained Performance

This will be assessed in terms of high-ranked systems in top500 list as defined below.

A system developed and reported in http://www.top500.org by responders to this **EoI** will be considered to be **High-Ranked System,** if it achieved ranking which is equal to or better than the best rank ever achieved by any HPC system deployed in India.

Methodology for assessing sustainability.

Respondent should document maximum of 25 items as evidence in support of sustainability. An item is either a "sustained customer" or a "high-ranked system" as defined earlier. Items shown must satisfy "diversity constraints", i.e. not too few items of any kind. The details of scoring scheme given annexure F.

Note: *The responder shall provide sufficient documentary evidence in support of fulfilment of minimum eligibility criteria as mentioned above. Buyer reserves the right to reject any response not fulfilling the eligibility criteria.*

15. Evaluation of Proposals

The technical proposals will be evaluated in following process.

15.1. The proposals will be examined based on essential eligibility criteria stipulated in section 14 described under Section II.

15.2. The bidders complying with essential criteria stipulated at section 14 above and as detailed in Annexure F, will only qualify for subsequent processing, as explained in below.

15.3. The duly constituted EoI Evaluation Committee (EEC) shall evaluate the proposals. The EEC shall be empowered to take appropriate decisions on minor deviations, if any.

15.4. The responders may be invited by EEC for technical presentation/discussion as a part of evaluation process.

15.5. Merely shortlisting does not entitle the vendor for selection and/or placement of order.

16. Activities Expected from Selected Responders Subsequent to This EoI

IISc reserves the right to invite techno-commercial proposals (RFP) from the vendors qualifying the EoI stage. IISc also reserves the right to invite techno- commercial proposals through an open RFP if deemed necessary.

The brief scope of supply of material and services/expertise etc. of the RFP broadly covers following:

1. Construction, Validation and Demonstration of a test-bed System containing a specified base system and subsequent supply and re-installation of the base system along with associated software.
2. RFP will give detailed specification and configuration of a HSM base system containing mission-critical SMP capability, appropriate interconnect, storage and ability to accept multiple accelerators of specified types. It will also contain list of required software, list of benchmarks to be demonstrated and number of experts to be deployed with specified skills to assist the users throughout the three-year duration of MPPLAB program.
3. The successful vendor will be required to create a test-bed using the specified base system in their laboratory and make it available for further joint exploration and evaluation of suitability of the system for achieving goals of the MPPLAB program as well as training as described in item 4 to 7 below.
4. The successful vendor will familiarise the users in availing various advanced features and facilities in the system and train them to extract enhanced performance from the system, porting and tuning various library components and exploratory applications, downloading, configuring and tuning various open-source software etc. The vendor may be required to carry on development/enhancement activities pertaining to their hardware, firmware, middleware, higher-level software to enhance overall performance of the combined system of accelerators, base systems and MPPLAB libraries to meet the advanced objectives of MPPLAB program. The successful vendor will demonstrate combined operation of base system with each one of the specified accelerators, and run the specified benchmarks. User training includes effective use of each of the specified accelerators. In other words, the technology partner is expected to act like an expert coach to the team MPPLAB, deploying their all-round deep experience and expertise in High Productivity Computing from experience in processor design to high-level software, as defined in the eligibility criteria. In this validation and demonstration of test-bed program, the technology partner should help MPPLAB program in diagnosing any plausible reasons for any observed inefficiency in interoperability of HSM based system, attached accelerator(s), entire software stack including firmware, operating system, middleware,

libraries and higher-level software applying their entire spectrum of expertise as defined in the knowledge-intensive criteria assessed in the eligibility test.

5. The successful vendor will assist the user in measuring specified system parameters pertaining to performance of hardware, firmware, middleware and software. This is to be done both for base system and combined operation of base system and each of the accelerators.

   Items 1-5 above describe the mandatory portion of the test-bed program. Maximum time limit for completion of the mandatory portion will be specified in the RFP.

6. The scope of the test-bed program may be extended by mutual agreement between buyer and vendor. Extended scope may contain the following items:

   a. Assessing the combined system performance using additional accelerators or software components not in the list given in test-bed RFP.

   b. Show-casing the system to prospective customers or early adapters, selected by mutual agreement.

   c. Experts from vendor side and users will collaborate to optimise and tune various benchmarks, libraries components and applications by mutual agreement.

   d. Any extension of time for completion of test-bed beyond the limit specified in test-bed RFP.

   e. Use of beta versions of any hardware or software components during test-bed program.

   f. Any other extension of scope by mutual agreement.

7. Subsequent to completion of test-bed program, the team of experts deployed by the technology partner is expected to continue activities as described above at buyer site.

Award of test-bed contract implies commitment on the part of the buyer to purchase the specified base system including all specified hardware and software components but no commitment to purchase any of the accelerators.

At the conclusion of test-bed program, vendor will relocate the base system to buyer's premises. The information, knowledge and experience gained during test-bed programme will be used to define the detailed specification and configurations of one or more accelerators explored and demonstrated in test-bed programme, and associated software. Buyer reserves the right to procure the identified items by following appropriate methodology for such procurement.

At the conclusion of test-bed programme, Buyer reserves the right to request for the expansion of the team of experts to be deployed by the vendor on user premises on mutual agreement.

Bidders in tender/RFP who win the procurement orders may opt to supply the material directly or through their authorised representatives / authorized System Integrators (SI). However, the responsibility of providing necessary technical expertise, design, development and operational support and training, as stipulated in this document, shall rest solely with the OEM or its Indian subsidiary responding to this EoI.

MPPLab is a 'science for society' program in public interest. All procurements for this program will be made through competitive RFP subsequent to this EoI shall intend to meet overall objectives of the program in public interest. To resolve any unforeseen conflict/contradiction between bidder interest and public interest, the interest of public at large shall prevail.

17. Purchaser's Right to amend / cancel

17.1. IISc reserves the right to amend the eligibility criteria, commercial terms & conditions, Scope of Supply, technical specifications etc.

17.2. IISc reserves the right to cancel the entire or partially the EoI process without assigning any reasons thereof.

17.3. IISc reserves the right to reject the proposal submitted by any of the vendors, without assigning reasons therefor.

17.4. For placing the supply order, the Lowest Price System (LCS) will be followed.

18. Corrupt or Fraudulent Practices

18.1. It is expected that the participants who wish to bid for this project have highest standards of ethics.

18.2. IISc will reject the proposal if it determines that the vendor recommended for award has engaged in corrupt or fraudulent practices while competing for this contract;

18.3. IISc may declare a vendor ineligible, either indefinitely or for a stated duration, to be awarded a contract if it at any time determines that the vendor has engaged in corrupt and fraudulent practices during the award / execution of contract.

19. Arbitration:

In case any dispute arises between the IISC and successful bidder with respect to this EOI, including its interpretation, implementation or alleged material breach of any of its provisions both the Parties hereto shall endeavour to settle such dispute amicably. If the Parties fail to bring about an amicable settlement within a period of 30 (thirty) days, dispute shall be referred to the sole arbitrator mutually appointed by both the parties. If the sole arbitrator is not appointed mutually by both the parties then the District Court Bangalore shall have exclusive jurisdiction for appointment of sole arbitrator through court. Arbitration proceedings shall be conducted in accordance with the provisions of the Arbitration and Conciliation Act, 1996 and Rules made there under, or any legislative amendment or modification made thereto. The venue of the arbitration shall be Bangalore. The language of arbitration shall be English. The common cost of the arbitration proceedings shall initially be borne equally by the Parties and finally by the Party against whom the award is passed. Any other costs or expenses incurred by a Party in relation to the arbitration proceedings shall

ultimately be borne by the Party as the arbitrator may decide. Courts in Bangalore only shall have the exclusive jurisdiction to try, entertain and decide the matters which are not covered under the Arbitration and conciliation Act

20. *Interpretation of the clauses in the Tender Document / Contract Document*

In case of any ambiguity/ dispute in the interpretation of any of the clauses in this Tender Document, the interpretation of the clauses by Director, IISc shall be final and binding on all parties.

21. *Jurisdiction:*

The disputes, legal matters, court matters, if any shall be subject to Bangalore jurisdiction only

(End of Section- II)

ANNEXURE A – COVERING LETTER

Date:

To:

Chairperson,
Robert Bosch Centre for Cyber-Physical Systems
Indian Institute of Science (IISC)
SID Building, Mathikere, C V Raman Ave,
Bangalore - 560012 Karnataka, INDIA

Subject: Response to EoI for setting up of High Productivity Computing System (HPC system) under MPPLAB program.

Dear Sir,

We, the undersigned, would like to be considered as technology partner, in response to your EoI No **IISC/MPPLAB/EOI/2021/1**. We are hereby submitting our proposal for same.

We hereby declare that all the information and statements made in this proposal are true and we accept that any misinterpretation contained in it, may lead to our disqualification.

We hereby certify that my/ our firm has not been disqualified and / or blacklisted by any Office/ Department/ Undertaking of the State Government / Central Govt. of India, PSU/ Autonomous Body of Government of India, at the time of submission of this proposal.

We agree to abide by all the terms and conditions of the EOI document, including corrigenda. We would hold the terms of our proposal valid for 120 days as stipulated in the EOI document.

We understand you are not bound to accept any Proposal you receive.

The undersigned is authorized to sign this bid document. The authority letter to this effect is enclosed.

Yours sincerely,

Authorized Signatory:
Name and Title of Signatory:
e-mail:
Mobile No:

ANNEXURE B – AUTHORITY LETTER

Date:

To:

Chairperson,
Robert Bosch Centre for Cyber-Physical Systems
Indian Institute of Science (IISC)
SID Building, Mathikere, C V Raman Ave,
Bangalore - 560012 Karnataka, INDIA

Subject: Authority Letter

Reference: EoI No **IISc/MPPLAB/EOI/2021/1**

Dear Sir,

We, M/s _____ (Name of the bidder) having registered office at _____ (address of the bidder) herewith submit our bid against the said tender document.

Mr./Ms. _____ (Name and designation of the signatory), whose signature is appended below, is authorized to sign and submit the bid documents on our behalf against said EOI

Specimen Signature:

The undersigned is authorised to issue such authorisation on behalf of us.

For M/s _____ (Name of the bidder)

Signature and company seal

Name
Designation
Email
Mobile No.

ANNEXURE C – UNDERTAKING

Date:

To:

Chairperson,
Robert Bosch Centre for Cyber-Physical Systems
Indian Institute of Science (IISC)
SID Building, Mathikere, C V Raman Ave,
Bangalore - 560012 Karnataka, INDIA

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

Dear Sir,

We, the undersigned, offer to carry out the `Turn-key' project including **Products/items, components/ Services etc.** as per EOI at IISC, Bangalore, in response to your EOI No IISc/MPPLAB/EOI/2021/1. We are hereby submitting our proposal for same through hardcopy and a soft copy via email to office.cps@iisc.ac.in. As a part of eligibility requirement stipulated in said EOI document, we hereby submit a declaration in lieu of Earnest Money Deposit (EMD), as given below:

1. Our bid shall remain valid for 120 days from the date of submission and that we will not withdraw or modify our bid during the validity period,
2. In case, we are declared as successful vendor we agree to submit our financial proposal for offering the required items and/services.
3. In case, we are declared as successful vendor and an order is placed on us, we undertake, to submit a Performance Security of 3 % of the order value, as per terms stipulated in the EOI.
4. In case of failure on our part to comply with any of the above said requirements, we are aware that we shall be declared as un-eligible for said EOI and /or debarred from any **future bidding process of IISC &** Other Govt. Institutes **for a period of minimum one year.**
5. The undersigned is authorized to sign this undertaking.

Yours sincerely,

Authorized Signatory:

Name and Title of Signatory:
e-mail:
Mobile No:

ANNEXURE D – UNDERTAKING BY PRINCIPAL MANUFACTURER/OEM

(To be submitted if subsidiary company is the bidder)

Date:

Chairperson,
Robert Bosch Centre for Cyber-Physical Systems
Indian Institute of Science (IISC)
SID Building, Mathikere, C V Raman Ave,
Bangalore - 560012 Karnataka, INDIA

Subject: Undertaking by Principal Manufacturer towards EoI no. IISc/MPPLAB/2020/3xx

Dear Sir,

We, M/s _____ *(Name of the manufacturer)* having registered office at _____ *(address of the manufacturer)* by virtue of being manufacturer for _____ *(Name of the product/s)*, hereby certify that M/s _____ *(Name of the bidder)* having their office at _____ *(Address of bidder)* is our 100 % subsidiary company in India. They are authorised to quote and offer our range of products as listed below:

1. HSM (Highly Specialized Machine), Software,Training
2. (HPC Storage and archival system)
3. (HPC interconnects)

We undertake to provide technical & other support to M/s (Name of vendor) fulfilling the requirements as stipulated in EOI above, towards the components to be supplied and installed at IISC, Bangalore by M/s. (Name of vendor).

We also certify that the products offered are not nearing end-of-life / end-of-support five years down the line from the date of bidding.

The undersigned is authorised to issue this certificate on behalf of M/s _____ *(Name of the manufacturer).*

For M/s _____ *(Name of the manufacturer)*

Signature & company seal

Name
Designation
Email
Mobile No.

Annexure – E:

Date:

Chairperson,
Robert Bosch Centre for Cyber-Physical Systems
Indian Institute of Science (IISC)
SID Building, Mathikere, C V Raman Ave,
Bangalore - 560012 Karnataka, INDIA

Subject: Undertaking

This has reference to the Office Memorandum: F/No/6/18/2019-PPD dated 23rd July, 2020, issued by Public Procurement Division, Department of Expenditure, Ministry of Finance, GoI.

We have read the clause regarding restrictions on procurement from a bidder of a country which shares a land border with India.

We certify that,

a. M/s (Name of vendor) is not from such a country

   *OR

b. M/s (Name of vendor) is from such a country and has been registered with the competent authority. The copy of said registration certificate is enclosed.

I hereby certify that we fulfil all requirements in this regard and are eligible to be considered.

For (Name of Vendor)

Authorised Signatory

Name & Designation

Seal

* Strike which is not applicable.

Annexure F – Scoring Scheme

Scoring Scheme for criteria 14.4 to 14.7.

Scoring scheme for 14.4:

Each valid publication shall fetch 1 mark. To establish adequacy of expertise in any area, 20 marks are needed in that area.

Not adequate expertise 14.8.a : 0 Marks
Adequate expertise in 14.8.a only : 20 Marks
Adequate expertise in 14.8.a and 14.8.b : 40 Marks
Adequate expertise in 14.8.a, 14.8.b and 14.8.c : 60 Marks
Adequate expertise in 14.8.a, 14.8.b, 14.8.c and 14.8.d : 80 Marks
Adequate expertise in 14.8.a, 14.8.b, 14.8.c, 14.8.d and 14.8.e : 100 Marks
Passing score for 14.4 is 60 out of 100.

Scoring scheme for 14.5:

14.9.a is an essential criteria. Responder failing this fails in criteria 14.5

14.9.b has maximum marks 30

No expertise : 0 Marks
Expertise in verifiable design only : 15 Marks
Expertise in productized implementation based on own design : 30 Marks.

14.9.c has maximum marks 30

No expertise : 0 Marks
Expertise in verifiable design only : 15 Marks
Expertise in productized implementation based on own design : 30 Marks.

14.9.d has maximum marks 20

No expertise : 0 Marks
Expertise in verifiable published exploratory implementation : 10 Marks
Released Productized implementation : 20 Marks

14.9.e has maximum marks 20

No Language : 0 Marks
One Language : 10 Marks
Two Language : 20 Marks

Passing score for 14.5 is 60 out of 100.

Scoring scheme for 14.6:

14.10.a and 14.10.b are essential criteria. Responder failing either fails in criteria 14.6
For the expertise listed from items 14.10.c to 14.10.f, respondent scores 25 marks for each of the expertise possessed from that list.

No expertise from 14.10.c	: 0 Marks
Expertise in only 14.10.c	: 25 Marks
Expertise in 14.10.c and 14.10.d	: 50 Marks
Expertise in 14.10.c, 14.10.d and 14.10.e	: 75 Marks
Expertise in 14.10.c, 14.10.d, 14.10.e and 14.10.f	: 100 Marks

Passing score for 14.6 is 60 out of 100.

Scoring scheme for 14.7:

Role of 14.11.a and 14.11.b in deciding the eligibility criteria to assess sustainability is defined below.

1. Sustainability score = 4 points/item for maximum of 25 items to give maximum 100 points.
2. An item is either a “sustained customer” or a “high-ranked system” as defined earlier.
3. Items shown must satisfy certain “diversity constraints”, i.e., not too few items of any one kind.
4. Diversity rules for all round performance:
    a. Not more than 40 points and not less than 10 points from any one of the three categories – “customers in scientific domain”, “customers in economic domain”, or “high-ranked systems”
    b. Not more than 2 items from any one of seven application domains
    c. Not more than 2 items from any one year in “high-ranked” category, e.g. if vendor shows 8 items of this type they must be drawn from 4 different years to show sustainability.
5. Passing score for 14.7 is 60 out of 100.

The purpose of this vendor evaluation exercise through the above scoring mechanism is to seek the most suitable technology partners to achieve the goals of MPPLAB project.

(End of Document)