भारतसरकार/Government of India
अंतरिक्षविभाग/Department of Space
यू.आर. रावउपग्रहकेंद्र/U.R.RAO SATELLITE CENTRE
एच.ए.एल. एयरपोर्टरोड, विमानापुराडाक/HAL Airport Road, Vimanapura Post,
बेंगलूरु/BENGALURU – 560 017

Ref No.: **URSC/PUR/ISFA2025-0-66362/EoI/2025-26** **22.01.2026**

यू.आर.एस.सी को अंतरिक्ष इलेक्ट्रॉनिकी पैकेजिंग हेतु उच्च सांद्रता अंतरसंपर्क (एच डी आई) पी सी बी यों के संविरचन तथा आपूर्ति हेतु इच्छा की अभिव्यक्ति(ई ओ आई) का आमंत्रण

Invitation for Expression of Interest [EoI]

For fabrication and Supply of High Density Interconnect (HDI) PCBs for space electronic packaging to URSC.

यू.आर.राव उपग्रह केंद्र (यू.आर.एस.सी), (पूर्व में इसरो उपग्रह केन्द्र के रूप में जाना जाता था) सभी भारतीय उपग्रहों की अभिकल्पना,विकास, संविरचन तथा परीक्षण के लिए भारत सरकार के अंतरिक्ष विभाग के तहत भारतीय अंतरिक्ष अनुसंधान संगठन (इसरो) का अग्रणी केंद्र है। यू.आर.राव उपग्रह केंद्र (यू.आर.एस.सी), बेंगलूरु के लिए **अंतरिक्ष इलेक्ट्रॉनिकी पैकेजिंग हेतु उच्च सांद्रता अंतरसंपर्क (एच डी आई) पी सी बी यों के संविरचन तथा आपूर्ति कार्य करने हेतु उद्योग भागीदारों को वर्तमान में यू.आर.एस.सी आमंत्रित करता है।**

U.R. Rao Satellite Centre [URSC] (Formerly known as ISRO Satellite Centre), of Indian Space Research Organization [ISRO] under Department of Space, Government of India is responsible for Design, Development, Fabrication and Testing of all Indian made Satellites. URSC is currently inviting Industry Partners to carry out the **fabrication and Supply of High Density Interconnect (HDI) PCBs for space electronic packaging to U. R. Rao Satellite Centre, Bengaluru.**

यू.आर.एस.सी, अंतरिक्ष उपयोग हेतु उच्चा-सांद्रता अंतरसंपर्क (एच डी आई) पी सी बी यों के समग्र उत्पादन तथा आपूर्ति को उद्योग द्वारा स्वतंत्र रूप से कराने की इच्छा रखता है।

URSC is interested to enable the industry to carry out independently the end to end manufacturing and supply of High-Density Interconnect (HDI) PCBs for space application.

केवल उन भारतीय उद्योगों से इच्छा की अभिव्यक्ति आमंत्रित करने का प्रस्ताव है जिनके पास अंतरसंपर्क (एच डी आई) पी सी बी यों के उत्पादन करने हेतु पर्याप्त ज्ञान, अनुभव तथा अवसंरचना है।

The proposal is to invite Expression of Interest exclusively from Indian industries having sufficient know-how, experience and infrastructure to carry out manufacturing of High-Density Interconnect (HDI) PCBs for space application.

ई ओ ई दस्तावेजों को हमारे वेबसाइट www.isro.gov.in से डाऊनलोड किया जा सकता है।

EOI documents can be downloaded from our website www.isro.gov.in

ई ओ आई का मूल्यांकन बोलीकर्ताओं के अनुभव, कार्यक्षेत्र की जानकारी, सुविधा अवसंरचना, प्रस्तावित कार्यप्रणाली एवं कार्य योजना, कुशल जनशक्ति और उद्योग की वित्तीय सुदृढता के आधार पर किया जाएगा।
The EOI will be evaluated on the basis of bidder’s experience, its understanding of scope of services, facility infrastructure, proposed methodology and work plan, skilled manpower and the financial strength of the industry.

यू.आर.एस.सी आवश्यकता पड़ने पर ई.ओ.आई. की प्रक्रिया रद्द करने या अतिरिक्त सूचनाएँ/ब्यौरे मांगने के लिए इसे पुन: जारी करने का अधिकार रखता है।
URSC reserves the right to cancel/re-issue the process of EOI if the necessity so arises or to seek further information/details.

किसी भी प्रकार की भ्रष्ट या कपटपूर्ण गतिविधियों में लिप्त पाई गईं कंपनियों/फर्मों को निविदा प्रक्रिया में भाग लेने से रोक दिया जाएगा और उनके ई ओ आई दस्तावेज़ पर विचार नहीं किया जाएगा।
Companies/Firms, if found to have indulged in any corrupt or fraudulent practices, will be debarred taking part in the Tendering process and their EOI Document will not be taken up for consideration.

इच्छा की अभिव्यक्ति के साथ-साथ आपूर्तिकर्ताओं/फर्मों को निम्नलिखित जानकारी भी विस्तार से प्रस्तुत करनी चाहिए:
Along with “Expression of Interest” Suppliers/ Firm[s]should furnish the following information also in detail:

1. कंपनियों का पंजीकृत पता के साथ, फोन, फैक्स, ई मेल, वेब आदि।
   Registered address of the Companies with Phone, Fax, Email, Web etc.
2. कंपनी/संगठन की स्थिति (स्वामित्व/साझेदारी/निजी/सार्वजनिक लिमिटेड आदि) के साथ मालिक, भागीदारों, निदेशक मंडल आदि के नाम और पता।
   Company/Organization Status (Proprietary/Partnership/Private/Public Ltd. etc.) with Name and Address of Proprietor, Partners, Board of Directors, etc.
3. सहयोगी: (ए) भारतीय (बी) विदेशी।
   Associates: (a) Indian (b) Foreign.
4. पिछले 3 वर्षों के दौरान प्रमुख ग्राहकों के पूर्ण पता और उनके संपर्क व्यक्ति की सूची।
   List of Major Customers during the last 3 Years with full address and their Contact Persons.
5. स्वामित्व वाली/उपलब्ध अवसंरचना सुविधाओं का विवरण।
   Details of Infrastructure Facilities owned / available.
6. कंपनी के प्रमुख शेयरधारकों के नाम और पते तथा उनकी शेयर पूंजी का प्रतिशत।
   Names and addresses of the major Shareholders of the Company and the percentage of their share capital.
7. नवीनतम वार्षिक रिपोर्ट की प्रति के साथ पिछले 3 वित्तीय वर्षों के लिए पूंजी और कारोबार।
   Capital and Turnover for the preceding 3 Financial Years with copy of latest Annual Report.
8. उपलब्ध वित्तीय क्षमता /क्रेडिट सुविधाएं।
   Financial Capacity/Credit facilities available.
9. बैंकरों का नाम, पता व खाता विवरण।
   Name and Address of Bankers.
10. व्यापार संघ जिससे उद्योग जुड़ा/ जुड़े हैं।
    Trade Association to which Industry/ies belong to.
11. संस्था/बिक्री/ सेवा कर पंजीकरण संख्या।
    Establishment/Sales/Service Tax Registration Number.
12. व्यापार का प्रकार।
    Nature of Business

13. बैंकरों द्वारा जारी फर्म की सॉल्वेंसी/वित्तीय क्षमता।
Solvency/Financial capacity of the Firm issued by their Bankers.
14. उद्योगों की अन्य कोई प्रासंगिक जानकारियाँ।
Any other information the industry/ies consider relevant.
15. सामर्थ्य और कमियों के क्षेत्रों को स्पष्टतः प्रकट करते हुए कंपनी/कंपनियों के प्रोफाइल
The Profile of the Company/ies clearly bringing out the areas of Strength and Weaknesses.
16. ई ओ आई में भाग लेने के लिए तकनीकी और संगठनात्मक सामर्थ्य का स्व-मूल्यांकन।
Self-Assessment Technical and Organizational Competence to take part in the EOI.
17. ई ओ आई में उल्लिखित प्रत्युत्तर प्रपत्र
Response forms as mentioned in the EoI

ईओआई प्रतिक्रिया को पूरा करना /Completion of the EOI Response:

a. ईओआई दस्तावेजों के सभी अनुदेशों: निबंधन और शर्तों: प्रपत्रों: आवश्यकताओं और अन्य सूचनाओं का सावधानीपूर्वक अध्ययन करने की कंपनी/ फर्म को सलाह दी जाती है। ईओआई दस्तावेजों का सावधानीपूर्वक अध्ययन और जांच के बाद इसके निहितार्थों को पूरी तरह समझ कर ईओआई प्रस्तुत करना पडेगा।
The Company/Firms are advised to study all the instructions; Terms and Conditions; Forms; Requirements and other information in the EOI documents carefully. The submission of EOI shall be deemed to have been done after a careful study and examination of the EOI documents with full understanding of its implications.

b. इस ई ओ आई का जवाब सभी मामलों में पूर्ण और संपूर्ण होना चाहिए। ई ओ आई दस्तावेज द्वारा आवश्यक सभी जानकारी प्रस्तुत करने में विफलता या ईओआई दस्तावेजों के हर पहलू के प्रति पर्याप्त रूप से उत्तरदायी न होने वाला प्रस्ताव प्रस्तुत करना, कंपनी/फर्म के जोखिम पर होगा और इसके परिणामस्वरूप दस्तावेज को अस्वीकार किया जा सकता है।
The response to this EOI should be full and complete in all respect. Failure to furnish all the information required by the EOI document or submission of proposal not substantially responsive to the EOI documents to every aspect will be at the risk of the Company/Firms and may result in rejection of the document.

c. प्रस्तुत किए गए ईओआई के सभी पृष्ठों पर क्रमांक होनी चाहिए और अधिकृत हस्ताक्षरकर्ता द्वारा हस्ताक्षरित होना चाहिए।
All the pages of the EOI submitted must be numbered and signed by the authorized signatory.

d. ई ओ आई के संबंध में प्रचार करना सख्त वर्जित है और एजेंसी द्वारा प्रस्तुत किए गए ऐसे प्रचारित ईओआई को अस्वीकार किया जा सकता है।
Canvassing in connection with the EOI be strictly prohibited and such canvassed EOI submitted by the Agency are liable to be rejected.

उपरोक्त सभी जानकारी के साथ इच्छा की अभिव्यक्ति नीचे दिए गए पते पर, उपरोक्त संदर्भ संख्या का उल्लेख करते हुए, नियत तिथि और समय तक पहुंच जानी चाहिए।
“Expression of Interest” with all the above information shall reach the address given below, quoting the above Reference Number on or before the due date & time.

वरिष्ठ प्रधान, क्रय व भंडार/Sr. Head, Purchase & Stores
यू आर राव उपग्रह केंद्र/U R Rao Satellite Centre
एचएएल एयरपोर्ट रोड/HAL Airport Road
विमानपुरा पोस्ट, बेंगलुरु / Vimanapura Post, Bengaluru-560 017
कर्नाटक, भारत/Karnataka, India

कृपया ई ओ आई बैठक संख्या का उल्लेख करते हुए अपने स्पष्टीकरण pso_e@ursc.gov.in मेल पर भेजें। ई ओ आई से संबंधित सभी पूछताछ का उत्तर पूर्व -ई ओ आई बैठक में दिया जाएगा।पूर्व ई ओ आई बैठक में भाग लेने हेतु अनुरोध 02.02.2026 14:00 बजे IST या उससे पहले यहाँ उल्लिखित ई-मेल पर पहुँच जाना चाहिए। तथापि ई ओ आई का जवाब (हार्डकॉपी) केवल ऊपर उल्लिखित डाक पते पर ही भेजा जाएगा। ई मेल व फैक्स कोटेशन स्वीकार्य नहीं हैं। नियत तिथि और समय के बाद प्राप्त कोटेशन स्वीकार्य नहीं हैं।
Please address your clarifications quoting the EOI number to E-mail: pso_e@ursc.gov.in. All queries related to EOI will be addressed in the Pre-EOI meeting. Request for participation in Pre-EoI meeting shall reach on or before 02.02.2026 14:00 IST to the Email mentioned herein. However, response to EOI (hardcopy) shall be sent to above mentioned postal address only). E-mail & Fax quotations are not acceptable. Quotation received after due date & time are not acceptable.

स्पष्टीकरण प्रस्तुत करने की अंतिम तिथि Last date of submission of clarification	:	22.01.2026 10:00 Hrs IST.
प्री-ईओआई बैठक (सम्मेलन कक्ष, स्वागत कक्ष, यू आर एस सी में) Pre-EOI meeting (at Conference Hall, Reception, URSC)	:	07.02.2026 13:30 Hrs IST.
ईओआई प्रस्तुत करने की अंतिम तिथि Last date for submission of EOI	:	**22.02.2026 13:00 Hrs IST.**
ई ओ आई की खुलने की तिथि Opening date of EOI	:	**22.02.2026 14:00 Hrs IST.**

उपरोक्त सभी जानकारी के साथ इच्छा की अभिव्यक्ति **22.01.2026 @ 13:00** बजे **IST** तक या उससे पहले उपरोक्त संदर्भ संख्या का उल्लेख करते हुए, नीचे अधोहस्ताक्षरी को पहुँच जानी चाहिए। यह प्रस्ताव पूर्व-ईओआई अर्हता के रूप में आरंभ किया गया है। यूआरएससी बिना कोई कारण बताए सभी या किसी भी ऐसी इच्छा की अभिव्यक्ति को स्वीकार या अस्वीकार करने का अधिकार सुरक्षित रखता है।
“Expression of Interest” with all the above information shall reach the undersigned, Quoting above Reference Number on or before **22.01.2026 13:00 IST**. This proposal is initiated as a Pre-EOI Qualification. URSC reserves the right to accept or reject all or any such “Expression of Interest” without assigning any reasons what so ever.

Sd/-

वक्रय व भंडार ,प्रधान . /Sr. Head, Purchase & Stores

INVITING EXPRESSION OF INTEREST [EoI]

FOR FABRICATION AND SUPPLY OF HIGH-DENSITY INTERCONNECT (HDI) PCBs

THROUGH INDIAN PCB MANUFACTURER

1. EoI Objective:

1.1 URSC invites the Expression of Interest [EoI] from Indian PCB manufacturer who are capable to fabricate and supply High Density Interconnect (HDI) PCBs for space electronic packaging to U. R. Rao Satellite Centre, Bengaluru.

1.2 Vendors having sufficient know-how, experience and infrastructure to carry out manufacturing of HDI PCBs shall submit the Expression of Interest [EoI].

1.3 The purpose of this EoI is to invite proposals from potential vendors who are interested in fabrication and supply of High-Density Interconnect (HDI) PCBs for space application.

1.4 Capable Vendors will be selected after evaluation of vendor's response, compliance & capability assessment by URSC from the list of vendors submitting the EoI.

2. Vendor Selection:

2.1 Vendors are requested to review the document thoroughly and comply the fabrication feasibility point to point in accordance with the specifications as indicated in annexure-1.

2.2 Vendor Selection will be based on the assessment of the vendor with respect to the vendor's capability & infrastructure.

2.3 URSC team will conduct on-site visit to assess the vendor's capability & infrastructure.

3. General information on vendor development for the fabrication and supply of HDI PCBs:

The vendor development for the fabrication and supply of space grade HDI PCBs at URSC will be carried out in phased manner.

Following are the phases involved:

- ✓ Phase-1: Inviting Expression of Interest (EoI) from Vendors
- ✓ Phase-2: On-site visit to assess the vendor's capability & infrastructure
- ✓ Phase-3: Selection of suitable vendors
- ✓ Phase-4: Shortlisted vendors from EoI should mandatorily require to undergo formal qualification procedure as defined by SRQA/URSC (limited tender mode on EoI suitable vendors, single part bid basis through EGPS).
- ✓ Phase-5: Establishment of Rate contract with qualified vendors for fabrication and supply of HDI PCBs for space electronic packages (limited tender mode on qualified vendors, single part bid basis through EGPS).

Annexure-1

Item details, Technical Specification and General specifications

1. Item Details:

S/N	Item Name	Vendor response
1	**PCB Fabrication, Type-1**, 8 Layer HDI PCB with one level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
2	**PCB Fabrication, Type-1**, 8 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
3	**PCB Fabrication, Type-1**, 10 Layer HDI PCB with one level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
4	**PCB Fabrication, Type-1**, 10 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
5	**PCB Fabrication, Type-1**, 12 Layer HDI PCB with one level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
6	**PCB Fabrication, Type-1**, 12 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
7	**PCB Fabrication, Type-1**, 14 Layer HDI PCB with one level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
8	**PCB Fabrication, Type-1**, 14 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	

S/N	Item Name	Vendor response
9	**PCB Fabrication, Type-1**, 16 Layer HDI PCB with one level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
10	**PCB Fabrication, Type-1**, 16 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: Panasonic - MEG-6	
11	**PCB Fabrication, Type-2**, 8 Layer HDI PCB with one levels of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
12	**PCB Fabrication, Type-2**, 8 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
13	**PCB Fabrication, Type-2**, 10 Layer HDI PCB with one levels of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
14	**PCB Fabrication, Type-2**, 10 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
15	**PCB Fabrication, Type-2**, 12 Layer HDI PCB with one levels of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
16	**PCB Fabrication, Type-2**, 12 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
17	**PCB Fabrication, Type-2**, 14 Layer HDI PCB with one levels of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	

S/N	Item Name	Vendor response
18	**PCB Fabrication, Type-2**, 14 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
19	**PCB Fabrication, Type-2**, 16 Layer HDI PCB with one levels of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	
20	**PCB Fabrication, Type-2**, 16 Layer HDI PCB with two level of micro-blind via connected to the core at single side / both sides with or without buried via. Substrate: ITEQ-IT180A	

2. Technical specifications:

S/N	Specification	Description	Vendor Response
1.	Mandatory infrastructure at vendor facility	Vendor must mandatorily have the following infrastructure/ facilities at their premises. Supporting list shall be attached along with the quote CAM Facility: The vendor should have adequate CAM software to handle HDI features. **a.** Fine line photolithography facility: Vendor should have direct imaging systems for photolithography (Without using Photo-tool), Acid and Alkaline Etching system for realization of fine line circuits. **b.** MLB Fabrication facility: The vendor should have Vacuum lamination Press, Precision multilayer registration system, Automatic optical inspection system and Black/Brown oxide coating system for the fabrication of high count HDI PCBs. **c.** Drilling Facility: Vendor should have dual (CO2 and UV) Laser drilling system for the generation of microvias, an X-ray-assisted tooling system and a High-speed CNC drilling and routing system for the generation of high aspect ratio vias. **d.** Metallization Facility: The vendor should have advanced plasma system, automatic electroless and electroplating systems to metalize blind vias and high aspect ratio vias. **e.** Via filling facility: Vendor should have vacuum assisted vertical Via plugging System, surface grinding system and copper via filling system to	

<table>
<tr><th>S/N</th><th>Specification</th><th colspan="3">Description</th><th>Vendor Response</th></tr>
<tr><td></td><td></td><td colspan="3">fill micro blind via with resin/copper and buried via with resin suitable for HDI technology.
f. SMOBC and HASL facility: The vendor should have solder mask spray coating and tack drying system, along with Hot air solder levelling system.
g. Other surface finish availability: ENIG
h. Storage Facility and mechanism for critical raw materials (Laminates, Prepregs, Solder-mask ink, Hole-plugging material, etc.)
i. Test Facility: The vendor should have Ionic contamination tester, BBT tester and Microsection facility for quality assurance including HATS tester.
Note: Any other test facility available shall be mentioned.</td><td></td></tr>
<tr><td>2.</td><td>Substrate</td><td colspan="3">Vendor should be capable of fabricating HDI PCB (Item Sl. No. 1 to Sl. No. 20) consisting of two levels of micro-blind vias connected to the core on both sides using following substrate
Type-1: Panasonic MEG-6
Type-2: ITEQ-IT180A
Note: A Vendors can attempt the qualification exercise using either one or both types of substrates.</td><td></td></tr>
<tr><td>3.</td><td>Applicable Documents</td><td colspan="3">Acceptance criteria for HDI PCBs will be as per ECSS-Q-ST-70-60-C (specifications and tolerances) and ISRO-PAX-304, ISSUE-2 (test specifications and requirements for multilayer printed circuit boards).
Note: In the case of any contradictory in the terms of test specification and specification tolerances of ECSS-Q-ST-70-60-C, ISRO PAX-304, ISSUE-2 and indent spec will supersede.</td><td></td></tr>
<tr><td>4.</td><td>HDI Construction Type</td><td colspan="3">[1 + N + 1] 16 Layers – HDI, with 2 levels of micro via (stacked and staggered), buried via and control impedance.</td><td></td></tr>
<tr><td>5.</td><td>No of Layers</td><td colspan="3">8 to 16</td><td></td></tr>
<tr><td>6.</td><td>Lamination Cycles</td><td colspan="3">02 (1 Core Lamination & 1 Sequential Build Up)</td><td></td></tr>
<tr><td>7.</td><td>Drilling Operations</td><td colspan="3">Laser & Mechanical</td><td></td></tr>
<tr><td>8.</td><td>Blind via levels</td><td colspan="3">02 (L1 - L2 & L2 - L3; L16 - L15 & L15 - L14) (stacked and staggered).</td><td></td></tr>
<tr><td rowspan="3">9.</td><td rowspan="3">Via construction</td><td>Via</td><td>Pad Diameter (Capture/Landing)</td><td>Drill Diameter</td><td></td></tr>
<tr><td>Blind Via (Outer layer to penultimate layer)</td><td>18</td><td>06</td><td rowspan="2"></td></tr>
<tr><td>Blind Via: (On core)</td><td>18</td><td>06</td></tr>
</table>

S/N	**Specification**	**Description**			**Vendor Response**
		Buried Via (Minimum dimension):	20	08	
		Minimum PTH: (Through-via)	24	08	
10.	Minimum dielectric thickness	75 Microns ±10 Microns			
11.	Copper thickness in the inner layers (Core))	30 microns ±3 Microns & 15 microns ±2 Microns			
12.	Minimum trace width / spacing in the inner layers (Core}	Trace width- ✓ 3.5 mil for 30 microns copper thickness ✓ 3.5 mil for 17 microns copper thickness Trace spacing- ✓ 4 mil for 30 microns copper thickness ✓ 3.5 mil for 17 microns copper thickness			
13.	Outer layer basic copper thickness (Minimum)	9 Microns ±2 Microns			
14.	Total minimum copper thickness in the external layers	50 microns ±5 Microns			
15.	Total minimum copper thickness in the penultimate layers	50 microns±5 Microns			
16.	Minimum trace width outer layers & penultimate layers)	4 mil			
17.	Minimum spacing outer Layers & penultimate layers)	5 mil			
18.	Minimum annular ring inner layers	25 microns			
19.	Minimum annular ring outer layers non solderable pad	50 microns			
20.	Minimum annular ring outer layer solderable pad	130 microns			
21.	Soldermask Dam	3 mil			
22.	Via fill– Buried and through via	Non-conductive epoxy resin meeting aerospace material standards			
23.	Via fill- blind vias	Nonconductive epoxy resin / Copper			
24.	Maximum PCB thickness	2.4 mm ±10%			

S/N	**Specification**	**Description**	**Vendor Response**
25.	Copper thickness in via	35 microns±10 Microns	
26.	Solder mask clearance	Solder mask residue on solderable pad is not allowed	

3. General specifications:

S/N	**Spec**	**Description**	**Vendor Response**
1.	Scope	1.1 The scope of this EoI is to invite proposals from potential vendors who are interested in fabrication and supply of High-Density Interconnect (HDI) PCBs for space application. 1.2 Capable Vendors will be selected after evaluation of vendor’s response, compliance & capability assessment by URSC from the list of vendors submitting the EoI. 1.3 Vendor should agree for audit of their infrastructure facility to access their capabilities for realization of HDI PCBs. 1.4 Shortlisted vendors from EoI should mandatorily require to undergo formal qualification procedure as defined by SRQA/URSC (limited tender mode on EoI suitable vendors, single part bid basis through EGPS). 1.5 Establishment of Rate contract with qualified vendors for fabrication and supply of HDI PCBs for space electronic packages (limited tender mode on qualified vendors, single part bid basis through EGPS).	
2.	Qualification Criteria:	2.1 The number of vendors selected for qualification will be limited to 2 numbers (technically suitable L1 and L2) considering the project manifest and PCB requirements. 2.2 Vendor Qualification will be carried out using 16 Layer HDI PCB (Item Sl. No. 10 & Sl. No. 20)	

S/N	Spec	Description	Vendor Response
		consisting of two levels of micro-blind vias connected to the core on both sides. 2.3 The vendor may attempt qualification for one or both types of substrates indicated in technical specification Sl No.-2. 2.4 No. of PCBs required for qualification: 9 Nos. of each substrate type. 2.5 The vendor must supply the PCBs required for the qualification within 6 months from the date of release of Purchase Order (for qualification). 2.6 If any PCB fails during qualification test, the vendor shall replace it within 45 days. 2.7 The qualification tests will be carried out by URSC. 2.8 During the qualification phase, feedback will be provided to the vendor for process improvement (if any). 2.9 If a vendor fails to complete the qualification exercise within 15 months due to reason attributed to their process / product quality or delivery schedule, vendor will not be considered for awarding the work orders for supplying onboard HDI PCBs. 2.10 Supply Order P.O. will be awarded to the qualified vendor(s)only for the qualified substrate(s). 2.11 There will be no free issue of material (FIM). It is vendor’s responsibility to procure all the raw materials, chemistries (as applicable) and consumables required for the fabrication of HDI PCBs. 2.12 After EoI evaluation, a tender enquiry will be placed on selected vendors through limited tender mode, single part bid basis via EGPS for the supply of qualification PCBs (9 numbers for each substrate type)	

S/N	Spec	Description	Vendor Response
3.	Developmental charges:	3.1 30% (L1 rate for Item Sl. No. 10 & Sl. No. 20) of total cost of 9 HDI QUAL PCBs for each substrate type will be paid to the vendor(s) as developmental charge after receiving of first set of 9 HDI QUAL PCBs. 3.2 Remaining 70% payment for the HDI qualification PCBs (9 numbers for each substrate type) will be made to the vendor(s) after successful qualification. 3.3 If vendor fails to qualify, remaining 70% of total cost of 9 PCBs for each substrate type will not be paid to the vendor(s).	

Annexure-2

Vendor Details Form

1. Name & Address of the Vendor:

2. Website of the vendor if any:

3. Year of Establishment:

4. Is the company Start-up / MSME:

5. Vendor: Manufacturer/Supplier

6. Plant Area:

7. PCB Type (MLB with layer count) Manufactured:

8. Manufacturer's capability: Continuous/Limited

9. Details of the Infrastructure (List of Major Production & Testing Equipment's)

10. List of major Customers:

11. List of Aerospace & Defence Customers (if any):

12. Provide PID (as applicable)

13. Quality Management System Certification details if any (ISO/AS Standard):

14. Lab Environment / Cleanliness level (if available):

Note: Provide Documentary Proof as supporting documents & third-party certificate, is desirable.

Signature:

Name of the authorized signatory for the company:

Date:

Place: