

**REQUEST FOR PROPOSAL (RFP)**

**FOR**

**Design, Fabrication and Testing of  
DMD Chipset Board**

**PUBLIC TENDER NOTICE NO: RFT/IND/195/21-22**

**INDIAN INSTITUTE OF ASTROPHYSICS  
KORAMANGALA, BENGALURU - 560 034.**

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## **1. LIST OF ABBREVIATIONS**

AD	Applicable Document
BOM	Bill of Material
IIA	Indian Institute of Astrophysics
RD	Reference Document
REV	Revision
RFP	Request for Proposal
SOW	Statement of Work
DMD	Digital Micro Mirror Device
INSIST	Indian Spectroscopic and Imaging Space Telescope

## 2. BACKGROUND INFORMATION

The Indian Spectroscopic and Imaging Space Telescope is a UV-optical 1m class telescope expected to produce high-quality imaging and moderate resolution spectra of astronomical sources. INSIST is in the pre-project phase where a few critical sub-systems are being demonstrated.

In the proposed design, it is planned to use a Digital Micromirror Device (DMD) in its spectrograph for sampling light coming from astronomical sources of interest in the spectrographs light path. The role of DMD here is similar to slit mask used in the conventional spectrographs.

This request is for submission of bids for Design, Fabrication and Testing of DMD Chipset Card.

## 3. SUBMISSION OF THE BIDS

Bids are invited from contractors interested in this work. Each contractor is required to submit separate technical and price bids.

The guidelines for submission of online bids, including the details of documents required in this document.

### 3.1 PLANNED SCHEDULE FOR RELEASE OF PO

Date of this RFP	$T_0$
Pre-bid meetings	$T_0 + 14$ days
Last date for receiving Online Bids through CPP Portal	$T_0 + 30$ days
Opening of Technical Bids on CPP Portal	$T_0 + 31$ days
Opening of Price Bids on CPP Portal	$T_0 + 40$ days
Award of PO	$T_0 + 45$ days

## 3.2 CONTACTS

### A. TECHNICAL CLARIFICATIONS:

Requests for additional information, technical clarification etc. shall be addressed to:

**Mr. Amit Kumar**

Engineer - E

Indian Institute of Astrophysics

Koramangala, Bengaluru-560 034

([amits@iiap.res.in](mailto:amits@iiap.res.in))

**Dr. Prasanna Deshmukh**

Engineer - C

Indian Institute of Astrophysics

Koramangala, Bengaluru-560 034

([prasanna@iiap.res.in](mailto:prasanna@iiap.res.in))

**Mr. DVS Phanindra**

Engineer – C (Instrumentation)

Indian Institute of Astrophysics

Koramangala, Bengaluru-560 034

([phanindra@iiap.res.in](mailto:phanindra@iiap.res.in))

### B. ADMINISTRATIVE CLARIFICATIONS:

Requests for additional information and clarification regarding administrative matters etc. shall be addressed to either of the following contacts:

**Shri K.P.Vishnu Vardhan,**

Stores and Purchase Officer

Indian Institute of Astrophysics

Koramangala, Bengaluru-560 034

([vishnu.vardhan@iiap.res.in](mailto:vishnu.vardhan@iiap.res.in))

## **4. STATEMENT OF WORK**

### **4.1 OVERVIEW**

This SOW is for the Design, Fabrication and Testing of DMD Chipset Board, meeting requirements given in [AD1].

**Quantity required is 1 No.**

### **4.2 APPLICABLE AND REFERENCE DOCUMENTS**

#### **4.2.1 Applicable Documents**

Applicable Documents are those that apply directly to the work being performed.

#### **AD1: Requirements of INSIST DMD Chipset Board\_V0.2**

(Document attached with RFP)

#### **4.2.2 Reference Documents**

Applicable Documents are those that do not apply directly to the work being performed. These documents are for information only.

**RD1 DLPC410 DMD Digital Controller datasheet (Rev. G)**

**RD2 DLP010A\_SCH**

**RD3 DLPA200 DMD Micromirror Driver datasheet (Rev. E)**

**RD4 UG1066\_VCU108\_Evaluation Board\_User\_Guide**

**RD5 DLPR410 Configuration PROM datasheet (Rev. G)**

(Documents attached with RFP)

### **4.3 VARIATION IN THE WORK**

There may be some changes in the requirements that are provided as part of this RFP, and the requirements released with the Purchase Order for the Work. All such changes will be recorded and provided to the Contractor. Changes if any, will be relatively minor and IIA's expectation is that they will not incur any change in cost. If desired by a contractor, these changes can be more fully described at the kick-off meeting.

IIA, if required may vary the Work scope, or duration of this work from time to time. In that event, IIA shall notify Contractor of IIA's requirements to negotiate a Variation of the Work, if necessary.

Contractor shall make efforts to accommodate minor changes to the Work without any additional cost implications. Major changes, if any, with respect to work and corresponding increase in price must be pre-approved by the committee, which consist of IIA and Contractor personnel.

Any agreed Variation shall be in the form of an amendment to the purchase order from IIA.

### **4.4 DESCRIPTION OF WORK TO BE PERFORMED**

Contractor shall perform the following tasks as a part of this contract:

- (a) Review and understand Applicable and Reference Documents
- (b) Procurement of all the necessary material and components.
- (c) Design of schematic and PCB Layout of DMD Chipset Board
- (d) Fabrication of DMD Chipset Board
- (e) Inspection of DMD Chipset Board
- (f) Assembly of DMD Chipset Board
- (g) Functionality test firmware development of DMD Chipset Board
- (h) Testing of DMD Chipset Board
- (i) Packing and Shipment of DMD Chipset Board

### **4.5 MEETINGS & REVIEWS**

The Contractor shall participate in the following meetings with IIA. The meetings may be via telephone, video, or in person.

#### **a) Kick-off Meeting**

The kick-off meeting shall be held in order for:

- i. Contractor to introduce its team and team structure which will be working on this project. Identify single point of contact at Contractor and IIA.
- ii. IIA to introduce its team.

- iii. IIA shall make available to Contractor the final requirements (Applicable documents).
- iv. Comments/clarifications on requirements by Contractor.
- v. Discussion on Schedule.

**b) Pre-Build meeting**

The Pre-Build meeting shall be held in order for,

- i. IIA and Contractor shall discuss action items from the Kick-off meeting.
- ii. IIA shall finalise decision on any changes to the requirements or component/material substitutions proposed by Contractor.
- iii. IIA and Contractor shall discuss Contractor's proposed detailed schedule, and agree on any modifications that shall be made by Contractor.
- iv. Contractors Plan of material/component procurement
- v. After this meeting Contractor shall start the detailed design of the DMD Chipset Board.

**c) Design Review**

The design review meeting shall be held in order for,

- a. Contractor to present design of the DMD Chipset Board which should consist minimum of:
  - i. Schematic
  - ii. PCB layout
- b. Status of material/component procurement
- c. After successful Design review, Contractor shall proceed with fabrication.

**b) Fabrication and Test Review**

The fabrication and Test review meeting shall be held in order for,

- a. Review fabricated and assembled boards,
- b. Review Test Plan and reports for functionality.
- c. Conformance check with requirements.
- d. Submit all the deliverable documents to IIA.



**c) Pre-ship Review**

Based on the outcome of Fabrication and Test review along with the submitted deliverable documents, the contractor will give clearance to pack and ship the final boards to IIA.

**d) Final Acceptance**

On receipt of material at IIA, "On Arrival Inspection" will be conducted. Functionality test conducted at the Contractor's facility will be repeated at IIA in presence of Contractor's representative. Outcome of this review will be the acceptance of the DMD Chipset board and final payment clearance.

IIA or Contractor may convene any other meetings as required, during the course of this contract.

**4.6 PLANNED SCHEDULE**

Meetings and deliverables shall be per the following Work schedule. All dates are from the Effective Date of the Purchase Order (T<sub>1</sub>). This schedule may be modified during contract negotiations or at the Pre-Build meeting. Once finalised contractor is required to meet the schedule strictly.

<b>Phase</b>	<b>Description</b>	<b>Completion Date, from T<sub>1</sub></b>
1	Kick-Off Meeting	Week 2
2	Submission of Design and Implementation plan along with detailed Work Schedule	Week 3
3	Pre-Build Meeting	Week 4
4	Design Review	Week 8
4	Fabrication and Test Review	Week 20
5	Submission of deliverable documents	Week 21
6	Pre-ship Review Meeting	Week 22
7	Shipment of boards along with documentation.	Week 23
8	On arrival Inspection and Final Acceptance.	Week 24

## 4.7 DELIVERABLES BY THE CONTRACTOR

4.7.1 The Contractor shall deliver the following (during different stages of the work), as per [AD1].

	Kick Off	Pre Build	Design Review	Fabrication and Test Review	Pre-ship Review Meeting
Detailed Schedule	✓				
Material Procurement & Traceability data.		✓		✓	
Contractor Test Plan			✓		
Functionality test report.				✓	
Final BOM,					✓
Final Schematics,					✓
Final Gerber files,					✓
Final code files.					✓
Certificates of Compliance (for all purchased components)					✓
One Fabricated and Tested Board.					✓

**Note:** IIA can request some documents at any stage as and when the document is available or generated at the contractor's place. Contractor should keep up-to-date documentation during the entire work duration. Contractor shall provide any additional information requested by IIA during the warranty period (1 year) after the completion of work.

#### 4.8 DELIVERY LOCATION

Hardware Delivery location:

The Director,  
Indian Institute of Astrophysics,  
2nd Block, Koramangala,  
Bengaluru 560034, India.

Documentation Softcopies: by electronic delivery to

[amits@iiap.res.in](mailto:amits@iiap.res.in)

[prasanna@iiap.res.in](mailto:prasanna@iiap.res.in)

[phanindra@iiap.res.in](mailto:phanindra@iiap.res.in)

#### 4.9 TECHNICAL INFORMATION:

Technical Bid should consist minimum of ( in addition to other regular documents as per IIA norms):

- I. Technical compliance as per RFP
- II. Profile of the company
- III. Prior experience in executing similar technically challenging projects.
- IV. Details of the expected resources, or data to be provided by IIA for undertaking the project to the successful bidder.
- V. Detailed time schedule for the project.

#### 4.10 COMMERCIAL INFORMATION:

- I. The costing template should include

1	Bought Out Part
2	Design
3	Fabrication
4	Testing
<b>Total</b>	

- II. After completion of the Technical Evaluation, the Price bid of all technically qualified bidders will be opened from the e-procurement process by the Evaluation committee, and the final contractor selection will be made based on the lowest price offered (L1). The L1 cost shall be based on **Total cost quoted**.
- III. The evaluation committee may hold commercial discussion with Bidders to select the Contractor or Contractors.