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INDIAN INSTITUTE OF TECHNOLOGY JODHPUR

Request For Technical Information and Pro Forma Quotations

For Procurement of Realtime Controllers

1. Introduction

The Indian Institute of Technology Jodhpur (IIT Jodhpur) intends to procure **Realtime Controllers** for academic and research purposes.

Before initiating the formal procurement process, the Institute invites **Technical Information And Indicative Pro Forma Quotations** from eligible Original Equipment Manufacturers (OEMs) or their authorized representatives.

2. Purpose

The objectives are to:

- Obtain technical information from prospective OEMs/authorized representatives.
- Obtain indicative Pro forma quotations for estimating the procurement cost.

3. Disclaimer

This document is issued **only for obtaining technical information and indicative Pro Forma quotations.**

Submission of information under this proposal:

- shall **not** be treated as a financial bid;
- shall **not** constitute any commitment on the part of IIT Jodhpur to procure the equipment;
- shall **not** confer any right upon the participating firm for award of any future contract;
- shall **not** automatically qualify the responding firm for participation in any future tender.

The Institute reserves the right to modify the technical specifications, estimated cost, procurement methodology, or procurement timeline based on its requirements.

4. Equipment Details

Name of Equipment: **Realtime Controllers with one workstation associated with each unit to support interface software.**

- Quantity: **05 (Five)**
- Broad Functional Requirements (The essential functions or capabilities that the equipment should have, without mentioning a specific make, model, or brand):

Parameters	**Description**
Processor	• Real-time multicore processor: Minimum 4 processing cores, minimum 2 GHz clock frequency, with minimum 8 GB DDR4 RAM, or equivalent/higher performance • Host communication processor: Dedicated processor for host-system communication with minimum 512 MB DDR4 RAM, or equivalent/higher performance
FPGA	• High-performance Field Programmable Gate Array (FPGA), with a minimum operating/reference clock frequency of 125 MHz or higher
Communication interfaces	• Host interface: Minimum 1 × Gigabit Ethernet (1 GbE) interface for communication with the host computer, or equivalent/higher performance • Ethernet real-time I/O: Minimum 2 × high-speed, low-latency Ethernet interfaces, each supporting data rates up to 10 Gb/s, suitable for real-time data exchange, or equivalent/higher performance • USB: Minimum 1 × USB interface, USB 2.0 or higher, supporting data logging and external storage for real-time applications • CAN interface: Minimum 4 × CAN/CAN-FD communication channels, with enhanced signal integrity/noise immunity capability • LIN: Minimum 4 × LIN communication channels

	• Serial interface: Minimum 2 × configurable serial communication interfaces supporting RS-232, RS-422 and/or RS-485 • High-speed serial: Minimum 1 × FPGA-based multi-gigabit high-speed serial transceiver interface, suitable for high-speed data communication
Analog input	• Minimum 24 channels, minimum 16-bit resolution, sampling rate of at least 2 MS/s, input voltage range of at least ±10 V, with differential input capability, or equivalent/higher performance. • Minimum 6 channels, minimum 16-bit resolution, sampling rate of at least 5 MS/s, input voltage range of at least ±10 V, with differential input capability, or equivalent/higher performance. • Minimum 2 channels, minimum 16-bit resolution, sampling rate of at least 5 MS/s, input voltage range of at least ±10 V, with differential input capability and provision for load/burden resistance, or equivalent/higher performance.
Analog output	• Minimum 14 analog output channels, minimum 16-bit resolution, update/output rate of at least 2.5 MS/s, ground-referenced (single-ended) outputs, with an output voltage range of at least −10 V to +10 V (±10 V), or equivalent/higher performance. • Minimum 2 analog output channels, minimum 16-bit resolution, update/output rate of at least 5 MS/s, ground-referenced (single-ended) outputs, with an output voltage range of at least −10 V to +10 V (±10 V), or equivalent/higher performance.
Digital I/O	Minimum 48 bidirectional single-ended digital I/O channels supporting configurable input thresholds, input voltage levels up to 35 V, 3.3 V/5 V compatible outputs, and operation up to 20 MHz; and minimum 12 bidirectional differential digital I/O channels with configurable termination and operation up to 20 MHz. Minimum detectable/achievable pulse width of 25 ns or lower, or equivalent/higher performance.

Angular Processing Unit	Real-time angular position and rotational speed measurement/processing capability, supporting a speed measurement range of at least ±200,000 rpm, speed resolution of 0.103 rpm or better, and angular position resolution of approximately 0.011° or better, with minimum 15-bit resolution over 360° and 16-bit resolution over 720°, or equivalent/higher performance.
Electric Motor Control I/O Functionality	Functionality on digital I/O channels: • The system shall provide configurable high-speed digital I/O functionality suitable for real-time electric motor control and power-electronic applications, including PWM/PFM input/output, block-commutated PWM, space-vector PWM (SVPWM), Hall sensor/encoder interfaces, incremental and sine encoder interfaces, resolver interfaces, SSI/BiSS and EnDat position interfaces, digital pulse capture and generation, SENT communication, SPI and I²C interfaces, and programmable voltage/digital waveform generation, with multiple configurable channels, or equivalent/higher functionality and performance.
Sensor supply	• Integrated DC power supply outputs suitable for powering external sensors and peripheral devices, with 5 V and 12 V outputs and a minimum current capacity of 500 mA per output, or equivalent/higher capability.
Power supply & cooling	• Universal AC power input supporting 100–240 V AC, with maximum power consumption of approximately 280 W or lower/equivalent, and an integrated temperature-controlled active cooling system to ensure reliable operation under continuous real-time processing loads, or equivalent/higher capability.
Operating temperature range	0 °C … +50 °C (+32 °F … +122 °F) or high
Connectors	• The system shall provide suitable industry-standard connectors for analog and digital I/O, communication buses, Gigabit/high-speed Ethernet, sensor power supply, USB connectivity, and high-speed optical communication, including multi-pin D-

	Sub or equivalent I/O connectors, RJ45 or equivalent Ethernet connectors, banana-type or equivalent sensor supply connectors, USB interface, and SFP/QSFP or equivalent optical transceiver interfaces, with adequate quantities to support all specified I/O and communication functionalities.
Software	Real-Time Experimentation, Monitoring, and Data Acquisition Software
	Hardware I/O Configuration and Deployment Software

Technical Specifications of workstation to support interface software:

System	**Description**
Engineering Workstation to support interface software	OEM-recommended engineering workstation for configuration, operation, monitoring, data acquisition, control algorithm implementation, engineering analysis and report generation, equipped with a latest generation multi-core processor, minimum 32 GB RAM, minimum 1 TB SSD storage and suitable operating system compatible with all supplied software.

(The above requirements are indicative and may be revised after evaluation of the responses.)

5. Eligibility Criteria

Interested firms should:

- Be an Original Equipment Manufacturer (OEM) or an authorized distributor/dealer.
- Have experience in supplying similar equipment.
- Have adequate installation and after-sales service support in India.

6. Information/Documents to be Submitted

The interested firms shall submit the following (*Annexure-I*):

1. Company Profile.
2. Details of the OEM.
3. Product Brochure/Catalogue.
4. Detailed Technical Specifications.
5. Compliance with the Broad Functional Requirements.
6. List of previous users/clients with installation reports
7. Details of Warranty.
8. Details of After-Sales Service Support.
9. Authorization Letter from OEM (where applicable).
10. Any additional technical information relevant to the offered equipment.

7. Pro forma Quotation

- Interested firms are requested to submit a Pro forma Quotation (*Annexure-II*) along with their Request For Technical Information and Pro Forma Quotations response. Indicative **Pro Forma** quotation in Indian Rupees (INR), including the cost of the equipment, essential accessories, taxes, duties, freight, insurance, installation, commissioning, training, and any other associated charges. Wherever applicable, the Annual Maintenance Contract (AMC) and/or Comprehensive Maintenance Contract (CMC) charges and spare parts shall be quoted separately as additional charges.
- Expected delivery schedule and other relevant technical and commercial information.

Important Note:

- The **Pro Forma** quotation is required only for cost estimation and budget planning purposes.
- The prices quoted shall be indicative/non-binding.
- The Pro Forma quotation shall not be treated as a financial bid.
- Submission of a **Pro Forma** quotation shall not confer any right or preference in the subsequent procurement process.

8. Presentation/Demonstration

The Institute may invite for a technical presentation or product demonstration. The date and venue shall be communicated separately.

9. Submission :

Interested firms may submit their Proforma Quotations on or before the due date in sealed cover or through email (as applicable).

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The envelope/email should be superscribed as:
"Request For Technical Information and Pro forma Quotations for Procurement of _____"

8. Important Dates

Activity	**Date**
Publication	
Last Date for Submission	31 July 2026
Technical Presentation (if required)	To be informed
Clarification Meeting (if required)	To be informed

10. General Terms & Conditions

1. This **Request For Technical Information and Pro forma Quotations** is issued only for obtaining technical information and **Pro Forma** estimates.
2. The Institute reserves the right to accept or reject any or all responses without assigning any reason.
3. Submission of an **Request For Technical Information and Pro forma Quotations** does not create any contractual obligation.
4. The Institute may seek additional information, technical clarifications, demonstrations, or presentations from any participant.
5. The Institute may modify the technical requirements based on the responses received.
6. The final technical specifications may be prepared by the User Committee after evaluating all **Request For Technical Information and Pro forma Quotations** responses.
7. The subsequent procurement, if any, shall be carried out through an appropriate procurement method in accordance with the GFR 2017 and applicable procurement rules.
8. Participation in this **Request For Technical Information and Pro forma Quotations** does not automatically entitle any firm to participate in or receive any preference during the subsequent tender process.

11. Contact Details

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Annexure-I

Request For Technical Information and Pro forma Quotations Response Format

1. Name of the Firm:
2. Registered Address:
3. Name of OEM (if applicable):
4. Contact Person:
5. Email:
6. Phone:
7. Product Name and Model:
8. Brief Technical Description:
9. Compliance with Broad Functional Requirements:
10. List of previous users/clients with installation reports:
11. After-Sales Service Details:
12. Any Additional Features:
13. Remarks (if any).

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Annexure-II

Format for Pro forma Quotation

Sl. No.	Description	Amount (INR)
1	Indicative **Pro forma** quotation in Indian Rupees (INR), including the cost of the equipment, essential accessories, taxes, duties, freight, insurance, installation, commissioning, training, and any other associated charges.	

Warranty Period: _____

AMC/CMC Charges (after warranty): _____

Delivery Period: _____

Authorized Signatory
Name: _____

Designation: _____

Company Seal & Signature