

DEPARTMENT OF ELECTRICAL ENGINEERING, IIT DELHI

Due Date: 01/02/2013

**NIQ for the purchase of
“Real-time controller board for Power Electronics & Motor Control applications”**

Sealed quotation are invited (in two bids: **Technical, Commercial** separately) for the purchase of **“Real-Time controller board for Power Electronics & Motor Control applications”**. Complete technical information should be provided along with the Technical bid. Please refer to the Terms and Conditions for details on how and when to submit Technical and Financial bids.

The **“Real-Time controller board for Power Electronics & Motor Control applications”** must satisfy the following specifications:

1. Real-Time controller board with processor speed of 250 MHz CPU clock.
2. Real-time interface and programming using graphical language compatible to MATLAB/Simulink software. The Simulink models should be converted into the corresponding code for target hardware implementation.
3. Built-in Simulink library for graphically configuring all peripherals like PWMs, GPIOs, ADCs, DACs, incremental encoders and serial communication interfaces.
4. High speed real-time data communication between host PC and target hardware with Graphical User Interface (GUI) software which should support for Windows XP (32-bit), Windows Vista (32-bit and 64-bit) and Windows7 (32-bit and 64-bit) operating system.
5. 8-channels of (16-bit or 12 Bit) ADCs with input voltage range of ± 10 V, over voltage protection of ± 15 V and 800 ns conversion time.
6. 8-channels of 16-bit DACs with output voltage range of ± 10 V and max settling time of 5 μ s.
7. 20-bit parallel digital input/output channels with TTL input/output levels.
8. 4-General purpose timers of 32-bit with 30 ns resolution.
9. 2-Channel digital incremental encoder interface with TTL logic level with 24 bit resolution.
10. 4-Capture units with TTL logic level.
11. 3-Phase PWM outputs, 1-Phase PWM outputs.
12. Serial Interface: 1-Serial UART, RS232/RS422 (Baud rate: 115.2 kBaud) / RS485 compatibility (Baud rate: 1 MBaud).
13. Software interrupts controllers for all peripherals.
14. Slave Digital Signal Processor should have a clock speed of 20 MHz.

TERMS & CONDITIONS

1. Please submit the TECHNICAL and FINANCIAL bids in separate sealed envelopes. Mark the two envelopes clearly as “Technical Bid” and Financial Bid”. Both the sealed envelopes should be sent in a single sealed envelope, with clearly marked as “Real time controller board for Power Electronics &

Motor Control applications". The quote should reach the following address on or before **01st February 2013, 5:00 PM.**

Name : Dr. Amit Kumar Jain

Address : Assistant Professor, Room No. II-303,
Department of Electrical Engineering,
Indian Institute of Technology Delhi
Hauz Khas, New Delhi-110016 (India)
Email : amitjain@ee.iitd.ac.in

2. Please quote prices at FOB/ CIF New Delhi, inclusive of installation charges.
3. Quote should be in Indian Rupees as well as US Dollars and to be valid for at least three months.
4. Attach all the technical literature and a list of similar installations done in India.
5. A minimum of three years comprehensive onsite warranty, also exclude warranty for three years.
6. Mention if you can provide any technical support like training of IIT Delhi personnel at IIT Delhi or in your factory and providing a technical person for operation of the machine for the initial period of 2 years. Kindly mention about this in technical bid.
7. If the quote is being submitted by the representative of the Principals/manufactures themselves, a valid Agency ship/Dealership Certificate authorizing the agent to quote to IIT Delhi on behalf of the Principals should be enclosed.
8. The Institute reserves the rights to accept/reject any/all quotations without assigning any reasons thereof.
9. Complete set of manuals for the operation and servicing of equipment should be given. All circuit diagrams, other mechanical and electrical schematics must be provided to Main unit, sub systems and accessories.
10. Delivery as early as possible in weeks on receipt of PO.
11. Clearly specify the installation requirements – such as space, power, frequency, environment (Temperature and humidity) etc.
12. If the items quoted are proprietary in nature, please enclose proprietary certificate from the principals stating "Certified that ----- is a proprietary item of M/s ----- and no other manufacture make these items".
13. If the bidder is Indian agent, the agency certificate should be enclosed.
14. Please produce compliance certificate for the specification.
15. Please ensure that the Indian agent has been enlisted with the Department of Expenditure, evidence may please be attached.
16. All bank charges payable in India are to buyer's account and bank charges in seller's country to seller's account.
17. **Compliance sheet** and checklist of technical specifications must be supplied along with the quotation.

Compliance Sheet

<u>Specifications</u>	Yes or No	If 'Yes', mention the range
1) Real-Time controller board with processor speed of 250 MHz CPU clock.		
2) Real-time interface and programming using graphical language compatible to MATLAB/Simulink software. The Simulink models should be converted into the corresponding code for target hardware implementation.		
3) Built-in Simulink library for graphically configuring all peripherals like PWMs, GPIOs, ADCs, DACs, incremental encoders and serial communication interfaces.		
4) High speed real-time data communication between host PC and target hardware with Graphical User Interface (GUI) software which should support for Windows XP (32-bit), Windows Vista (32-bit and 64-bit) and Windows7 (32-bit and 64-bit) operating system.		
5) 8-channels of (16-bit or 12 Bit) ADCs with input voltage range of ± 10 V, over voltage protection of ± 15 V and 800 ns conversion time.		
6) 8-channels of 16-bit DACs with output voltage range of ± 10 V and max settling time of 5 μ s.		
7) 20-bit parallel digital input/output channels with TTL input/output levels.		
8) 4-General purpose timers of 32-bit with 30 ns resolution.		
9) 2-Channel digital incremental encoder interface with TTL logic level with 24 bit resolution.		
10) 4-Capture units with TTL logic level.		
11) 3-Phase PWM outputs, 1-Phase PWM outputs.		
12) Serial Interface: 1-Serial UART, RS232/RS422 (Baud rate: 115.2 kBaud) / RS485 compatibility (Baud rate: 1 MBaud).		
13) Software interrupts controllers for all peripherals.		
14) Slave DSP should have a clock speed of 20 MHz.		