NATIONAL CENTER FOR COMBUSTION RESEARCH AND DEVELOPMENT (NCCRD)
INDIAN INSTITUTE OF TECHNOLOGY MADRAS
CHENNAI – 600036, INDIA

Ref. No. ICS/11-12/013/DSTX/TSUN **Date: 20 Nov. 2014**

  Due date: 11 Dec. 2014

Item name: Data Acquisition System (1 no.)

1. Quotations are invited in duplicate for the items shown overleaf (in Annexure I). The quotations duly sealed and superscribed on the envelope with reference no. and due date, should be addressed to the undersigned so as to reach on or before the due date mentioned above.
2. The quotations should be valid for sixty days from the due date and the period of delivery required should also be clearly indicated.
3. The total cost of the equipment in terms of CIP Chennai should be clearly mentioned.
4. Terms of warranty and guarantee should be explicitly mentioned.
5. Packing and delivery charges, customs and clearance duty should be clearly stated.
6. Goods shall not be supplied without an official supply order.
7. Local firms : Quotations should be for free delivery to this institute. If quotations for ex-godown delivery charges should be indicated separately.
8. Firms outside Chennai: Quotations should be for F.O.R. Chennai. If F.O.R. consignor station, freight charges by passenger train / lorry transport must be indicated. If ex-godown, packing, forwarding and freight charges must be indicated.
9. The rate of sales / general taxes and the percentage of such other taxes legally leviable and intended to be claimed should be distinctly shown along with the price quoted. Where this is not done, no claim for sales / general taxes will be admitted at any stage and on any ground whatsoever. The taxes leviable should take into consideration that we are entitled to have Concessional Sales Tax (CST) applicable to non-government educational institutions run with no profit motive for which a concession sales tax certificate will be issued at the time of final settlement of the bill.
10. Payment : Specify the mode of payment and if advanced payment has to be made. Every attempt will be made to make payment within 30 days from the date of receipt of bill / acceptance of goods, whichever is later.
11. IIT Madras is exempt from payment of excise duty and is eligible for concessional rate of customs duty. Necessary certificate will be issued on demand.
12. IIT Madras has the right to accept the whole or any part of the tender or portion of the quantity offered or reject it in full without assigning any reason.
13. The sealed quotation may be sent to
    Prof. S. R. Chakravarthy
    NCCRD Office
    No. 201, Rarefied Gas Dynamics Lab (Behind Aerospace Engineering Dept.)
    Chennai – 600036
    (P) +91-44-22575025

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Annexure I

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Specification for DAQ

Eight (Minimum number) slot PXIe chassis, controller and PXIe modules as package to measure 30 thermocouple input, 40 differential voltages (±10 volts), 20 Digital input/output (DIO). Controller and modules all together may occupy three slots in the chassis; minimum of five unused slots should be there for future upgradation.

PXIe Chassis

1. The chassis should be PXI Express bus based with a minimum of 8 slots of 3U form factor. (One slot may be occupied by the controller).
2. Each slot should have a dedicated bandwidth of at least 1 GB/s.
3. The system bandwidth should be 7 GB/s or more.
4. Multi Chassis Support
5. Maximum total usable power of 420 W or higher. – This is required for providing enough power for exciting sensors/controlling motors, etc.

PXIe Controller

1. Controller should be capable of running a windows based OS.
2. Controller should have a processing capability equal or higher to intel i7.
3. The Controller should be PXI Express bus based with a bandwidth of up to 8 GB/s system and 4 GB/s slot bandwidth
4. 4 GB (1 x 4 GB DIMM) dual-channel 1600 MHz DDR3 RAM standard expandable up to 16 GB maximum
5. 2 Super Speed USB, 4 Hi-Speed USB, 2 Gigabit Ethernet, GPIB, serial, and other peripherals
6. Parallel Port (36pin) must be available on the controller (IEEE 1284). – The parallel port can be

PXI/PXIe modules
Module 1 – Thermocouple Input

1. Capable of handling minimum of 30 temperature measurement (thermocouple).
2. Built-in Cold Junction Compensation
3. At least 8 Cold Junction Compensation Channels
4. Open Thermocouple Detection (Software Selectable)
5. Sampling Rate of at least 90 Samples per second per channel

6. Atleast 0.3 deg C accuracy
7. 24 bit or more resolution is required. For higher accuracy and resolution in temperature measurement.
8. Support for J, K, T, E, N, B, R, S thermocouple types
9. Input Impedance – 20 MOhm

Module 2 – Analog I/O and Digital I/O

1. Should be capable of measuring at least 40 differential voltage channels.
2. Should be capable of handling minimum of 24 Digital I/O lines of which 8 are hardware timed up to 10 MHz.
3. The sampling rate should be at least 500 kS/s.
4. The resolution of the ADC should be at least 16 bit.
5. Four 32-bit counter/timers for PWM, encoder, frequency and event counting should be available on the same card.
6. At least 2 Analog Output channels need to be available with a sampling rate of 2.86 MS/s or higher with 16 bit resolution and a range of +10 V to -10 V.
7. Timing resolution of 10ns or better.
8. CMRR (DC to 60 Hz) of 100 dB or higher.
9. Input impedance of 10 GOhm or higher.
10. Settling time of 2 us or better.
11. One Analog Trigger to trigger the signal acquisition.
12. Timing accuracy 50 ppm.

Note
- Clarify any technical details before quoting by contacting us.
- Ensure the delivery within 4 to 5 weeks from the date of purchase order (PO).
- Describe your warranty terms clearly.

For any technical clarification please contact Ariff Magdoom. Phone: +919025134799; Email: ariffatmail@gmail.com -Or- P. John George. Phone: 044 22575026; Email: nccrdengr@pallava.iitm.ac.in