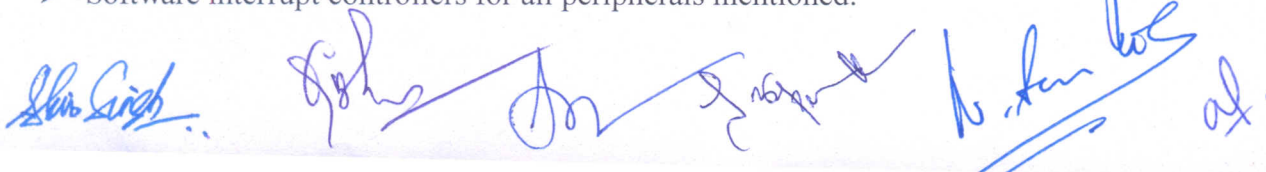# DEPARTMENT OF ELECTRICAL ENGINEERING, IIT DELHI

Date: 10/09/2012

Minutes of the meeting of the purchase committee to purchase "Real time controller board for Power Electronics & Motor Control applications" to decide specifications and NIQ:

Members Presented: Prof. G. Bhuvaneswari, Prof. Bhim Singh, Dr. S. Mishra, Dr. B. K. Panigrahi, Dr. A. R. Abhyankar and Dr. N. Senroy.

The following specifications were decided for the Real time controller board for Power Electronics & Motor Control applications to be purchased under project no. RP2341/MI00740.

➢ Power PC with 1 GHz CPU clock real time embedded controller workstation for Power Electronic and Motor Control applications.

➢ Real-time interface and programming using graphical language (block diagram) of MATLAB/Simulink software. The Simulink models should be converted into the corresponding code for target hardware implementation.

➢ Inbuilt Simulink library for graphically configuring all peripherals like PWMs, GPIOs, ADCs, DACs, incremental encoders and serial communication interfaces.

➢ High speed real-time data communication between host PC and target hardware with Graphical User Interface (GUI) software which should support for OS Windows XP (32- bit), Windows Vista (32-bit and 64-bit) and Windows7 (32-bit and 64-bit).

➢ High speed and accurate PWMs, GPIOs, ADCs, DACs, Serial interfaces and Incremental encoders with separate connector board and LEDs.

➢ 20-channels of 16-bit ADCs with input voltage range of ±10 V, over voltage protection of ±15 V and 800 ns conversion time.

➢ 8-channels of 16-bit DACs with output voltage range of ±10 V and 5 μs sampling time.

➢ 32-bit parallel digital input/output channels with TTL input/output levels.

➢ 4-General purpose timers of 32-bit with 30 ns resolution.

➢ 6-independent digital incremental encoder interface with TTL logic level and maximum count up to 110000 ppm.

➢ 1-channel analog incremental encoder interface maximum count up to 40000 ppm.

➢ 1-channel CAN Interface with ISO DIS 11898-2 CAN high-speed standard and maximum baud rate of 1000000bd.

➢ Single TL6C550C UART with PLL-driven UART for accurate baud rate selection, RS232/RS422 compatibility and maximum baud rate of 1000000bd.

➢ Slave DSP with 20 MHz clock frequency, 16 A/D channels, 10 PWMs, 4-capture inputs and 2- serial ports. All inputs and outputs should be TTL logic levels.

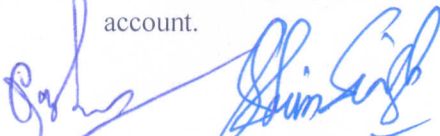➢ Software interrupt controllers for all peripherals mentioned.

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 **25/09/2012** upto **5:00 PM.**

Name	:	Dr. G. Bhuvaneswari
Address	:	Professor, Room No. II-102,
		Deptt. of Electrical Engineering,
		Indian Institute of Technology, Delhi
		Hauz Khas, New Delhi-110016 (India)

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 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.

(Principal Investigators)   **(Chairman, Purchase Committee)**

Purchase Committee Members:

Prof. G. Bhuvaneswari   Dr. B. K. Panigrahi

Prof. Bhim Singh   Dr. A. R. Abhyankar

Dr. S. Mishra   Dr. N. Senroy