

**Bid No. NIFFT/TEQIP/NS-IV/IL -1 /2007/**

**INVITATION FOR SEALED QUOTATION FOR SUPPLY, INSTALLATION AND TRAINING OF EQUIPMENT UNDER NATIONAL SHOPPING PROCEDURES FOR NATIONAL INSTITUTE OF FOUNDRY & FORGE TECHNOLOGY (NIFFT), RANCHI**

To,

\_\_\_\_\_  
\_\_\_\_\_

Dear Sir,

**Sub: Invitation for Sealed Quotations for Supply, Installation and Training of Equipment for National Institute of Foundry & Forge Technology (NIFFT), Hatia, Ranchi.**

1. You are invited to submit your most competitive sealed quotation for the subject as mentioned in ***Annexure-A***.
2. Government of India has received a credit from the International Development Association (IDA) in various currencies equivalent by credit no. 3718-IN under the Implementation of Technical Education Quality Improvement Program (TEQIP) and intends to apply part of the proceeds of this credit to eligible payments under the contract for which this invitation for quotation is issued. **National Institute of Foundry and Forge Technology, Ranchi is purchaser** and inviting the bids under National Shopping scheme.
3. In-Charge, Stores and Purchase, National Institute of Foundry and Forge Technology, Hatia, Ranchi now invites **sealed quotation** on behalf of NIFFT, Ranchi for the ***supply, installation and training of equipment as mentioned in Annexure-A***. Bids received by fax or e-mail will not be considered.
4. ***Bid Price:***
  - a) A bidder can quote for any item mentioned in different schedules and submit the bid security amount as applicable. However, there are certain items which are grouped (given in **21**) and if the bidder is interested then he can quote for these items combinedly. If the bid security amount is not attached with any item, then it will be treated as non-responsive.
  - b) **NIFFT in evaluation of a bid will take into account**, in addition to the bid price (Ex-factory/ex warehouse/off-the-shelf price of the goods offered from within India, such price to include all costs as well as duties and taxes paid or payable on components and raw material incorporated or to be incorporated in the goods, and Excise duty on the finished goods, if payable).

**NIFFT in evaluation of a bid will exclude and not take into account**, in the case of goods manufactured in India or goods of foreign origin already located in

India sales, and other similar taxes, which will be payable on the goods if a contract is awarded to the Bidder.

- c) The rates quoted by the bidder shall be fixed for the duration of the contract and shall not be subject to adjustment on any account.
  - d) **The prices should be quoted in Indian Rupees and should be FOR site failing which his bid would be rejected. Bidder must provide original brochures for the product quoted along with all Technical details.**
5. **NIFFT** reserves the right at the time of award of contract to increase or decrease 15 percent quantity of equipment originally specified in the requirement (round off to the next whole number) without any change in the unit price and other terms and condition.

#### ***Delivery and Installation***

6. The equipment should be delivered at National Institute of Foundry & Forge Technology, Hatia, Ranchi within **Eight Weeks** from the date of award of contract (including pre-shipment inspection if required).

The equipment should be installed within **Two Weeks** after delivery.

7. ***Each bidder shall submit only one quotation for one item and must mention the page no. on each page of quoted bid. The bidder must fill-up the enclosed Check-List attach at Appendix-B.***
8. The bidder may substitute alternative standards in technical specification, in its bid, provided that it demonstrates to **NIFFT's** satisfaction that the substitutions ensure substantial equivalence to those designated in the Technical specifications.
9. The bidder should intimate the requirement of site readiness like civil/electrical etc.

#### ***Validity of Quotation***

10. Quotation shall remain valid for a period of 90 days after the deadline date specified for submission.

#### ***Bid Security (E.M.D.)***

11. **Bidder must furnish as part of bid a Bid Security (EMD) as per mentioned in Appendix-A for individual Schedule, which should be in one of the following form:**

A bank guarantee or an irrevocable letter of credit issued by a nationalized/scheduled bank only located in India or a bank located abroad, in the form provided in the bidding documents (as per Annexure D) or another form acceptable to the Purchaser and valid for 90 days beyond the validity of the bid.

OR

A banker's cheque or demand draft in favour of "**NIFFT**" payable at Ranchi. ***Without appropriate Bid Security-[EMD] (as per Appendix-A) will be treated as NON-RESPONSIVE.***

Unsuccessful bidder's bid securities will be discharged/returned as promptly as possible but not later than 30 days after the expiration of the period of bid validity prescribed by the Purchaser.

The successful Bidder's bid security will be discharged upon the Bidder signing the Contract and after receiving of Performance Bank Guarantee.

### ***Evaluation of Quotation***

12. The quotation would be evaluated and compared, which determined to be substantially responsive i.e. which are properly signed; and conform to the terms and conditions, and specifications.

The quotations would be evaluated for all the items together.

### **Authorization Certificate**

13. In the case of the Bidder, offering to supply goods under the contract which the Bidder did not manufacture or otherwise produce, the Bidder has been duly authorized (as per authorization form in Annexure-F) by the goods' Manufacturer or producer to supply the goods in India.

### ***Award of contract***

14. **NIFFT** will award the contract to the bidder whose quotation has been determined to be substantially responsive and who has offered the lowest evaluated quotation price.

After award of contract the supplier has to give Performance Bank Guarantee within 15 days equivalent to 5% value valid for 12 months from the date of installation, failing which his contract would be cancelled.

Notwithstanding the above, **NIFFT** reserves the right to accept or reject any quotations and to cancel the bidding process and reject all quotations at any time prior to the award of contract.

The bidder whose bid is accepted will be notified of the award of contract by **NIFFT** prior to expiration of the quotation validity period. The terms of the accepted offer shall be incorporated in the purchase order.

### ***Liquidity Damages***

15. If the supplier fails to deliver any or all the Goods or to perform the Services within the period(s) specified in the Contract, the NIFFT shall, without prejudice to its other remedies under the Contract, deduct from the Contract Price, as liquidated damages, a sum equivalent to 1% per week of the Contract Price upto four weeks, after that Contract would be cancelled and performance guarantee would be forfeited.

***Payment Terms***

16. 80% payment would be made within 30 days after the delivery of the equipment at site and production of delivery certificate from the consignee.

Balance 20% payment would be made within 30 days after successful installation and training of the equipment at site and production of satisfactory certificate from the consignee.

17. **The equipment supplied should have one-year onsite warranty from the date of installation and supplier must provide the details of service provider through which he would be providing service free of cost during the warranty period.**

18. Consignee address, where the equipment are to be delivered and installed:

**Director,  
National Institute Foundry & Forge Technology  
Hatia, Ranchi - 834003 [Jharkhand], India**

- 19\*. You are requested to provide your offer in the sealed quotation addressed to **In-Charge, Stores and Purchase, National Institute of Foundry and Forge Technology, Hatia, Ranchi – 834003, Jharkhand, India, having statement in capital letters "QUOTATION FOR SCHEDULE-\_\_\_\_\_ AND DO NOT OPEN BEFORE 11.00 HRS. ON APRIL 20, 2007"**. Quotation received after the stipulated time will not be accepted and considered. Bidders are advised to send their sealed bid preferably by Courier or in person at above address. Purchaser will not be responsible for any postal delay.

**\* *Time & Date for receipt of sealed bid(s) and opening of bid for individual schedules are mentioned in Appendix-A.***

20. We look forward to receiving your quotations and thank you for your interest in this project.

21. A bidder can quote for following items combinedly:

- i. Item No. 1 to 8
- ii. Item No. 9 to 19
- iii. Item No. 25, 26, 27
- iv. Item No. 28, 29, 30

Rest of the items not in the group can be quoted by any bidder.

**In-Charge,  
Stores and Purchase,  
National Institute of Foundry and Forge Technology,  
Hatia, Ranchi – 834003, Jharkhand, India**

**Appendix – A**

**Schedule wise details for submission of Bid Security (EMD) amount and Date & Time for receipt of sealed bids and opening of bids.**

<b>Sl. No.</b>	<b>Schedule &amp; Bid No.</b>	<b>Bid Security [EMD] (in Rs.)</b>	<b>Receiving Time</b>	<b>Opening Time</b>
1.	Intel 8085 based microprocessor trainer Kits	1500.00	20/04/2007 up to 10.00 Hrs.	20/04/2007 On 11.00 Hrs.
2.	Intel 8086 based microprocessor Trainer kits	1900.00		
3.	ADC Interface module compatible to 8085 microprocessor kit	300.00		
4.	DAC for ADC and TEMPERATURE SENSOR	300.00		
5.	Logic Controller Interface	500.00		
6.	Stepper Motor Interface	400.00		
7.	ADC interface module compatible to 8086 Microprocessor based kit	300.00		
8.	Microcontroller Trainer	2000.00		
9.	DC Position Control	2160.00		
10.	Temperature Controller Trainer	1600.00		
11.	PID Controller	1600.00		
12.	Optical Transducer Trainer	1500.00		
13.	LVDT	1300.00		
14.	WHEAT STONE BRIDGE	1350.00		
15.	ANDERSON BRIDGE	900.00		
16.	SCHERING BRIDGE	900.00		
17.	Function Generator	720.00		
18.	LCR Meter	1400.00		
19.	DIGITAL SIGNAL PROCESSING TRAINER KIT	4800.00		
20.	DLP Projector	9000.00		
21.	Electronic White Board	15000.00		
22.	Visualizer	9000.00		
23.	DESKTOP PC	3300.00		
24.	UPS	960.00		
25.	Dual Desk	7500.00		
26.	Drawing table	6000.00		
27.	Stool	1000.00		
28.	Server: (i)	8000.00		
29.	Server: (ii)	7000.00		
30.	Personal Computer	15000.00		
31.	Digital Library Software	14000.00		
32.	Net-working items As per given in Specification.	2500.00		

## Detailed Specification for Items

### **1. Intel 8085 based microprocessor trainer Kits- 05 Nos.**

1. 8085 CPU that can be operated either from on board key board or from CRT terminal / Host computer through its Rs-232 interface.
2. Key board and serial monitor programs support the entry of user programs, editing and relocation; debug facilities like breakpoints and single stepping direct port Input / Output and full speed execution of user programs.
3. Text editor permits line oriented editing facilities for ASCII files and saving and loading of files using audio cassette.
4. 2- Pass Assembler can assemble any memory resident assembly language Program supports all the standard INTEL mnemonics.
5. 2-Pass Disassembler, Diassembler the object code into standard INTEL mnemonics, converts all branch and subroutine address into labels for easy reference.
6. Onboard EPROM Programmer features a 2 pair ZIF socket to program all standards PROMs 2716 through 27512 and EEPROM 2816K.
7. On board continuous parallel printer interface.
8. On board programmable Interrupt controller 8259A.
9. 32K bytes of CMOS static RAM with optional battery backup. Total on board memory can be expanded up to 64Kbytes.
10. Allows multiprocessor system design by supporting the HOLD and HLDA signals.
11. STD bus compatible signals available on the ribbon connector for easy system expansion.

#### ACCESSORIES ( OPTIONAL)

1. Power supply: +5V,3A  
                  +12V,250mA  
                  -12V,100mA  
                  + 30 V, 100A.
2. Interface modules for training purpose:  
Key board, elevator, Display, ADC with DAC, and Dual DAC,8 bit 16 channel ADC,12 bit 8 channel ADC, Logic controller, Traffic lights, tone generator, Stepper motor, Optoisolated, relay output.
  - 26 core ribbon cable connector set.
  - 50 core ribbon cable connector set.
  - Parallel printer cable.
  - Rs-232 Interface cable connector set.
  - Rechargeable Ni-Cd battery calls for battery back up of 32 KBRAM.

### **2. INTEL8086 Microprocessor Trainer Kits:-05 Nos**

1. 8086 based CPU operate on single +5V power supply either in stand alone mode using PC keyboard and LCD or with host PC through its Rs-232/RS-485 Interface in serial mode.
2. Works with 8086 CPU at a Frequency Of 8 MHz. Keyboard on serial monitor program supports the entry of user program. Editing and Debugging facilities like break point, single step and full sped execution of user program.
3. Built in on line Assembler, disassembler in both serial and stand alone modes.
4. Provision for on board memory of 1 Mbytes of which 640Kbytes of RAM has optional battery back up.
5. On board parallel printer port.
6. On board 8 bit DAC.
7. 48 I/O lines and three 16 bit programmable interval timers.
8. Support for eight internal interrupt sources.
9. Provision for system bus expansion through 50-pair ribbon cable connector.
10. Driver software for file up Load / Down load to /from host PC.

ACCESSORIES to be supplied:

1. Power supply : +5V@3A:
    - +12V@250mA
    - 12V@100mA
    - 30V @100mA
  2. PC Key board ( 104 Keys) and 20 X4LCD module for stand alone operation.
  3. EPROM Programmer
  4. Parallel printer cable.
  5. RS-485 Interface cable.
  6. 26 Core ribbon cable connector set.
  7. 50 Core ribbon cable connector set.
- ADC Interface Module

### **3. ADC Interface module compatible to 8085 microprocessor kit- 05 Nos**

1. 1. Analog device 12-bit, 10 user Sampling ADC.
2. 2. Built in sample and Amplifier.
3. 3. Input signal –unipolar(0-10V) or Bipolar( $\pm 10$  V or  $\pm 5$  V)
4. 4. Socket to be provided or 8 channels multiplexer ( ADC 508 or equivalent) can be added by the user if required.
5. 5. Necessary cables, power supply and software.

### **4. ADC interface module compatible to 8086 Microprocessor based kit-05 Nos**

1. 1. Analog device 16 bit, 10 $\mu$ Sec sampling ADC.
- 2.
3. 2. Built in sample and Amplifier.
4. 3. Input signal unipolar (0-10V) or Bipolar ( $\pm 10$ V  $\pm 5$ V).
5. 4. Socket to be provided for 16 channel Multiplexer that can be added by the user if required
6. 5. necessary cables ,power supply and software.

### **5. DAC forADC andTEMPERATURE SENSOR-05 Nos.**

1. 8 bit d/a converter and comparator
2. should control the input to the DAC through a port
3. simple temperature sensor simulator consisting of TTL monoshot
4. employ thermistor to convert like temperature to its equivalent digital code
5. necessary cables power supply and software.

### **6. LOGIC CONTROLLER INTERFACE—05 Nos**

1. 8 TTL buffered output and 8 ttl buffered input
2. for on /off led
3. necessary cables ,power supply and software

## **7. STEPPER MOTOR INTERFACE-05 Nos.**

1. Stepper Motor (+12V / +5V DC, 3 kg-cm torque)
2. Required software to control the operation of stepper motor.
3. ON/OFF control of the individual coil.

## **8. MICROCONTROLLER TRAINER—05 Nos**

1. 0N board keypad or CRT TERMINALS / HOST COMPUTER through its RS-232 interface
2. Keyboard and serial monitor programs support the entry of user programs ,editing and debugging facilities like break points (128k) single stepping and full speed execution of user programs
3. Line assembler and disassembler in serial mode
4. File upload /download from host system using optional driver software
5. On board audio cassetts interface to save and load programs using audio cassette recorder
6. Total on board memory is 128 k bytes of which 88k bytes memory has optional battery backup facility
7. On board parallel printer interface
8. 13 unconnected port lines brought out to the connector
9. Buffered bus signals are available through ribbon cable connector for easy system expansion

### **ACCESSORIES TO BE SUPPLIED**

1. +5V@3A:  
+12V@250mA  
-12V@100mA  
30V @100mA
2. Ni-Cd .batteries for power backup to RAM
3. INTERFACE MODULES FOR TRAINING PURPOSE:  
keyboard, elevator, display, ADC with DAC dual DAC,8BIT 16 CHANNEL ADC, logic controller, traffic lights, tone generator, stepper motor, opt isolated input, opto isolated output, relay output
4. parallel printer cable  
RS232 cable  
50 core Ribbon cable for bus expansion driver software for PC compatible system

## **9. DC Position Control-04 Nos.**

1. Position control of a 12 volt, 1amp. Dc gear motor (50 rpm)
2. Provision for positive and negative tacho-generator feedback. Tacho constant ; 2v/1000 rpm approx.
3. Calibrated dials for reference and o/p position; resolution 10 .
4. Servo-potentiometers with full 3600 rotation.
5. M – Processor based waveform capture/display card.
6. Built in 3½ digit DVM for signal measurements.
7. Built in step signal and IC regulated power supplies for electronic circuits.
8. Separate unit for motor in a see through cabinet.
9. 220 ± 10% ; 50hz mains operation.
10. Literature and patch cords included.
11. Essential accessories – a CRO.

## **10. Temperature Controller Trainer-05 Nos.**

1. Temperature control trainer
2. Control module with digital indicating controller
3. Communication –rs232
4. Temp. Transmitter—type head mounted two wire, input rtd pt- 100.
5. Transmitter-range 0-100deg c, output 4-20ma.
6. Heating control-proportional power controller (SSR),input 4-20ma,capacity 20 a.
7. Heat-type electrical 2 coil, capacity 3kw
8. Rotatometer 6-60lph

9. Process tank ss304, capacity 0.5lit, insulated.
10. Overall dimensions-400w x 400d x330h mm.
11. Optional software package.
12. Accessories: electrical 230v +/-ac, 50hz, 1 phase.
13. Water supply continuous clean and soft water supply@100lph
14. Computer IBM compatible with standard configuration.
15. Support table: 800w x 800d x750h in mm.

## **11 PID Controller-05 Nos.**

1. Simulated blocks – dead time (transportation lag) integrator, time constant, error detector and gain.
2. PID Controller (configurable as P, PI, PD and PID).
3. Proportional Band 5% to 50%; Gain 2-20; Integral time 10msec- 100msec; Derivative time 2-20msec.
4. Built in signal source.
5. Built in IC regulated power supply.
6. 220V  $\pm$  10%, 50Hz mains operation.
7. Detailed literature and patched cords included.
8. Essential accessory – a CRO.

## **12. Optical Transducer Trainer-05 Nos.**

1. Transducer: - (a) Photoconductive cell no.-4  
(b) Photovoltaic cell  
(c) Phototransistor  
(d) PIN Photodiode.
2. Light source:- Filament lamp.
3. Signal conditioning :- (a) Power amplifier  
(b) Current amplifier  
(c) DC amplifier  
(d) comparator  
(e) Electronic switch  
(f) Buffer
4. Input circuit :- Rotary and slide potentiometer.
5. Output circuit:- (a) Moving coil meter.  
(b) Relay ; (c) LED.
6. Interconnections :- 4mm banana sockets.
7. Power supply :- 230V  $\pm$  10% ; 50Hz.
8. Accessories :- Line cord, Manuals, Set of patch cords.

## **13. LVDT—05 Nos.**

1. LVDT
2. Range ;  $\pm$ 50mm or total 100mm (typical)  
Sensitivity: 25mV/cm  
Operating frequency: 5 kHz  $\pm$  5%
3. Displacement measurement on a mm scale with time motion control.
4. Carrier source (internal) : 5kHz  $\pm$  5% ; 1.5V(nominal).
5. Built in 3½ digits DVM for o/p reading.
6. IC based balanced demodulator circuit.
7. IC controlled internal power supplies.
8. 220V  $\pm$  10% ; 50Hz mains operation.
9. Essential accessory – a CRO.

## **14. Wheat Stone Bridge 05 Nos.**

1. Three configurations of Wheat Stone Bridge
2. Full Bridge, Half Bridge, Quarter Bridge Configuration
3. Onboard precision potentiometers to apply the resistance to unknown arms
4. Ultra stable transducer excitation voltage
5. In-built power supply
6. Test points are brought out for control & measurement
7. Works independently
8. User's Manual

## **15. Anderson Bridge 05 Nos.**

1. Anderson Bridge to determine Self-Inductance of a coil.
2. R-Three decade resistance dials having value from 1 ohm to 1K ohm.
3. r-Three decade resistance dials having value from 10 ohm to 10K ohm.
4. C1-Two fixed standard Capacitors having values 0.1 mfd and 0.2 mfd.
5. P=Q - Fixed standard values of 1K ohm each.
6. S-Single decade resistance dial having values from 0.1 ohm to 1 ohm.
7. L-Three unknown inductances are also provided.
8. In-built A.C. supply of frequency 1KHz, D.C. Supply of 3 volts and Galvanometer for DC balance are provided. Tuned amplifier for AC Null detection, 6 interconnection leads of 2mm for connections & comprehensive.
9. User's Manual will explain required results.

## **16 SCHERING BRIDGE 05 Nos.**

1. Schering Bridge to determine Capacitance of a Capacitor & also find out dissipation factor of the Capacitor.
2. R1-3 decade resistance dials having range x10, x100 and x1000 ohms.
3. R2-Three more decade resistance of same values as above.
4. C2-Two decade capacitance dials having x.001mfd, x.0001mfd.
5. C-Four unknown capacitors are provided.
6. C1-Standard capacitor .01mfd having negligible dissipation factor (loss free).
7. Inbuilt AC supply of frequency 1KHz, Tuned amplifier for AC Null detection, 6 interconnection leads of 2mm for connections are provided.
8. Comprehensive User's Manual will explain required results.

## **17 Function Generator -04 Nos.**

1. MAIN:

Frequency Range	0.3Hz ~ 3MHz (7 Ranges)
Amplitude	>10Vpp (into 50 load)
Impedance	50 ±10%
Attenuator	-20dB ± 1dB x 2
DC Offset	<-5V ~ >5V (into 50 load)
Duty control	80%; 20%; 80% to 1MHz continue variable
Display	6 digit LED display
Range Accuracy	±5%+1Hz(at 3 position) for GFG-8215A
2. SINE WAVE:

Distortion	≤1%, 0.3Hz ~ 200kHz
Flatness	<0.3dB, 0.3Hz ~ 300kHz; <0.5Db, 300kHz ~ 3MHz
3. (c). TRIANGLE WAVE:

Linear	≥98%, 0.3Hz ~ 100kHz; ≥95%, 100kHz ~ 3MHz
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4. SQUARE WAVE:

Symmetry	±2%, 0.3Hz ~ 100kHz
Rise or Fall Time	≤100nS at maximum output (into 50 load)

5. CMOS OUTPUT:
 

Level	4Vpp ± 1Vpp ~ 14.5Vpp ± 0.5Vpp adjustable
Rise or Fall Time	≤ 120nS
6. TTL OUTPUT:
 

Level	≥ 3Vpp
Fan out	20TTL Load
Rise or Fall time	≤ 25Ns
7. VCF:
 

Input Voltage	0V ~ 10V ± 1V (100:1)
Input Impedance	10k ± 10%
8. FREQUENCY COUNTER:
 

INT./EXT.	Switch selector
(Range	0.3Hz ~ 3MHz (5Hz ~ 150MHz EXT.)
Accuracy	Time base accuracy ± 1 Count
Time base	± 20ppm (230C ± 50C) after 30 minutes Warm up
Resolution	The maximum resolution is 10nHz and 0.1Hz for 100MHz
Input Impedance	1M // 150pF
Sensitivity	≤ 35mVrms(5Hz ~ 100MHz); ≤ 45mVrms(100MHz ~ 150MHz)
9. POWER SOURCE: AC115V/230V ± 15%, 50/60Hz
10. ACCESSORIES: Power cord x 1, Instruction manual x 1,

## **18. LCR Meter –05 Nos**

1. TEST FREQUENCY: 12Hz ~ 200kHz (504 steps)
2. BASIC ACCURACY: 0.1% for basic accuracy
3. TEST SIGNAL LEVELS: 5Mv ~ 1.275 (5mV/step)
4. DC BIAS:
 

Internal :	2V
External :	0 ~ 35V
5. DISPLAY RANGE:
 

Resistance	R	0.00001Ω ~ 99999kΩ
Capacitance	C	0.00001pF ~ 99999μF
Inductance	L	0.00001mH~ 99999H
Quality Factor	Q	0.0001 ~ 9999
Dissipation Factor	D	0.0001 ~ 9999
Impedance	Z	0.00001Ω ~ 99999kΩ
Phase Angle(Degree)	Θ	-180.000 ~ 180.000
6. TEST MODE: R/Q, C/D, C/R, L/Q, Z/Θ, L/R
7. EQUIVALENT CIRCUIT: Parallel or serial selectable
8. MEMORY: 127Memory blocks totally
9. AVERAGE: 1 to 255 times
10. DISPLAY: 240x128 dot matrix C.C.F.L back light LCD
11. INTERFACE(STANDARD): RS-232C
12. AC POWER SOURCE: 100V ~ 240V
13. LINE FREQUENCY: 50/60Hz
14. ACCESSORIES: Power cord x1, Instruction manual x1, LCR- 06Ax1
15. Option Fixture: LCR-05, LCR-07, LCR-08, LCR-09

## **19. Digital Signal Processing Trainer Kit -05 Nos**

### 1. DSP TRAINER KIT

- \* TMS 320C5X CPU with Crystal Oscillator of 40.00MHz
- \* Enhanced TMS320 architectural design for increased performance and versatility
- \* Modular architectural design for fast development of spin-off devices
- \* Advanced IC processing technology for increased performance
- \* Downward source-code compatibility with 'C1x and 'C2x DSPs for fast and easy performance upgrades
- \* Enhanced TMS320 instruction set for faster algorithms and for optimized high-level language operation
- \* New Static design techniques for minimizing power consumption and maximizing radiation hardness
- \* 64 KB RAM and 32 KB Monitor
- \* 14 Bit codec single channel, input/ output voice quality analog interface
- \* 1 single chip D/A and A/D conversion with 14 bits of dynamic range
- \* Variable sampling rate and filtering
- \* 2's complement data format
- \* Single 5V supply
- \* Serial port interface
- \* Terminal I/O port is RS 232 compatible
- \* 60 pin Bus containing address/data and control signal to connect experimental board and for future expansion
- \* Operating Temperature: +25 degree C
- \* Storage Temperature : -40 to +85 degree C
- \* Relative Humidity : 0 to 90% (non condensing)
- \* Dimensions: 4.050" (10,287cm) Width & 4.925" (12.510 cm) Length

#### **With Experimental Board having following features :**

- \* 3 seven segment display
- \* Onboard mike interface & speaker interface
- \* With keyboard interface and key pad 3 x 4 matrix
- \* Onboard DTMF generator

#### **With Main Board & Lab board, user can do following experiments :**

- \* Add two (64 bit signed) numbers and store result
- \* Multiply two (32 bit) numbers and store result
- \* Echo out an audio signal
- \* Add two numbers and store result
- \* Add "echo" to audio signal
- \* Generates a sinusoidal signal
- \* A-Law compandor
- \* Generate a pseudo random binary sequence
- \* 80 tap FIR low pass filter
- \* 10th order IIR filter
- \* Generate DTMF tones
- \* DTMF detection
- \* Speech ("vowel") recognition
- \* Data that corresponds to a 941Hz sinusoidal signal
- \* Data that corresponds to a 1477Hz sinusoidal signal

## **20. DLP Projector- 3 Nos.**

12. XGA Resolution: 1024 × 768 or above
13. Aspect Ratio: 4:3
14. Contrast Ratio: 2500:1 or above
15. Brightness: 2500 ANSI lumens or above
16. Input terminals for RGB × 2, DVI × 1, Video × 2, Audio × 2
17. Output terminals for RGB × 1, Audio × 2
18. Manual Focus adjustment and zoom lens
19. Full mouse remote control, High brightness laser pointer
20. Ceiling Mounting kit with minimum 15 m length VGA cables
21. Warranty: 3 years

## **21. Electronic White Board -3 Nos.**

1. Surface: Tough Formica surface for scratch resistance
2. Size: W 65" × H 40" minimum (Diagonal – 75" minimum)
3. Interactive mode operation without projection system having facilities for saving files in PC with Window 98/ XP Operating system
4. Wireless interface with PC
5. Resolution: Minimum 1000 lines per inch
6. Electronic pen for writing and dry electronic eraser pen for erasing
7. Should be upgradeable to connect interactive pads / panels
8. Warranty: 3 Years

## **22. Visualizer- 3 Nos.**

1. Equivalent to scanner or digital camera to capture images of documents (8.5" × 11"), 3-D objects or photographs and to project them or display them on a monitor
2. Should be compatible with PC (Window 98/ XP Operating system)
3. Effective pixels: 1024 × 768 minimum
4. Resolution: XGA output with 520 horizontal TV lines or more, 450 vertical TV lines or more
5. Facilities for remote control, white balancing and lens rotation
6. Warranty: 3 Years

## **23. DESKTOP PC – 3 Nos.**

1. Specification of Desktop PC:
2. Processor: Intel® Core 2 Duo Processor 3.4 GHz, 1066 MHz FSB
3. Chipset: Intel® 945G chipset
4. Cache Memory: 4 MB L2
5. Main Memory: 1GB DDR2 dual-channel 400Mhz
6. Hard Drive: 120GB serial ATA150 7200rpm
7. Controller Card: Integrated ultra ATA100 and serial ATA150 controllers
8. Floppy and/or IOMEGA Drive : 3.5" 1.44MB diskette drive
9. Optical Drive: 52X CD-RW/DVD combo drive
10. Expansion Slots: In 4-bay small form factor case: 1 PCI and 1 AGP  
In 6-bay mid-tower case: 3 PCI and 1 AGP
11. External Ports: (8) USB 2.0 (2 in front and 6 in back), (1) Serial, (1) Parallel, (2) PS/2, (1) RJ-45 Integrated LAN, (1) VGA, (1) Microphone, front audio ports
12. Monitor: 17" LCD Flat Panel Display
13. Video: Integrated Intel® Extreme Graphics 2 with up to 64MB dynamic video memory
14. Keyboard: 104+ Keyboard
15. Mouse: USB Optical Wheel Mouse and Gateway mouse pad
16. Sound System: Integrated Sound Blaster compatible audio
17. Speakers: 2-piece speaker solution
18. Network Adapter: Integrated Intel® 10/100/1000 Ethernet (Gigabit) adapter

19. Operating System: Microsoft® Windows® Vista (perpetual license)
20. AntiVirus Software: Norton AntiVirus (perpetual license)
21. Warranty: On site 3 years

## **24. UPS – 3 Nos.**

1. 1 KVA, SMF Battery 12 V, 26 AH or higher
2. Minimum 60 minutes battery back-up time
3. Warranty: 2 years on UPS and 1 year on battery

## **25. Dual Desk Size (Top + Bench)- 150 Nos. (Desk + Bench set)**

1. Top (Desk)
  - a. Length 54"
  - b. Width 15"
  - c. Thickness 1"
  - d. Material Teak wood with good plastic
  - e. Height 30"
  - f. Top Frame 25 × 25 × 5 mm L Frame
  - g. Shelf  $9" \times (3/4)"$  8" inches below from top  
*Width × Thickness*
  - h. Top frame all over with L frame
  - i. Bottom Support 39" × 54" with 25 × 25 × 5 mm L frame connected with benches
  
2. Bench
  - a. *Length × Width × Thickness* 54" × 12" × 1" with back support (Material (Material teak wood)

## **26. Drawing Table- 100 Nos.**

1. Material Teak with good polish
2. Size  $42" \times 30" \times 40" - 38\frac{1}{2}"$
3. Leg size  $2\frac{1}{2}" \times 2\frac{1}{2}"$  Square with leg support and board size  
drawer

## **27. Stool –100 Nos.**

1. Height 25" with four legs,  $1\frac{1}{2}" \times 1\frac{1}{2}"$  square
2. Top Elliptical  
Major Axis 12"  
Minor Axis 9"  
Thickness 1"
3. Material Teak wood

## **28. Server (i) 1 No.**

**Processor:** Intel Xeon 3.2 GHz or higher 350 G4  
Dual Processor capable with Dual CPUs  
**Processor Cache:** 2MB L2 cache  
**Chipset:** Intel 7520/server Works/equivalent or higher  
**Memory:** 4-GB PC 3200 DDR2 RAM with ECC Capabilities/ Equivalent  
**Disk Controller:** Integrated Dual channel ultra 320 SCSI  
Controller (15 k) on board  
**Display:** 17"SVGA colour  
**Hard Disk Drive:** Min 430 GB Ultra SCSI 320, 15k RPM  
Hot swappable HDD or higher with Raid Controller (0,1)  
**Network Interface:** Dual Gigabit NIC  
**Floppy Drive :** 1.44 MB FDD as per OEM  
**DVD/CDRW/DVD-CDRW combo:** DVD/CDRW combo  
Drive  
**Backup:** 20/40 GB DAT Drive  
**Power Supply & Fans:** Redundant power supply with  
Cooling fans  
**Keyboard & Mouse Standards:** Keyboard and mouse  
standard  
**OS Support:** MS Windows Server 2003 Enterprise,  
LINUX(Red Hat) etc

## **29. Server- (ii) 1 No.**

Hardware Specification	Intel Xeon 3.0 GHz 2MB L2 cache 800MHz FSB, Intel Based Server Chipset Motherboard 2 GB ECC DDR2 SDRAM 4* 146.8 GB Ultra 320 SCSI Hot Swapable 10K RPM HDD 10/100/1000 mbps Gigabit RAID 7K Controller 1.44 MB FDD Scroll Mouse 17" Colour Monitor 101 Key Board, CD/DVD RW
Warranty	3 years

## **30. Personal Computer, 15 Nos.**

**Type of CPU** : Intel Pentium IV Processor 640 with  
HT  
**CPU clock speed** : 3.2 GHz or higher, 800 MHz FSB  
**Chipset** : Intel 945 G or higher  
**Cache Memory** : 2 MB L2  
**Main Memory** : 1GB DDR RAM  
**System Disk size** : 80GB HDD serial ATA (7200rpm)  
**Diskette drive** : 3.5" FDD 1.44 MB  
**CD writer** : As per OEM supply  
**Display** : 17"SVGA colour  
**Graphics** : Integrated graphics  
**LAN** : Gigabit NIC  
**Keyboard & Mouse:** As per OEM  
**Operating System** : WinXP Professional (Only perpetual  
license required with media)  
**Anti Virus software:** E trust (only perpetual license with media)

### **31. Digital Library Software, 1 No.**

An ATM like GUI Administration, facility to create Categories and sub categories able to create the mirror image (ISO 9660) of digital data, CD/DVD contents and store in the Hard Disk, Content search, keywords search and metadata search facility. Facility to create users, allotting category rights and archive facility for selected users. Usage report facility for administrator, web interface and photo gallery facility, CD emulation for interactive CDS. Software should be independent of the Hardware Server Operating System – Linux. Client accessibility through any type of browser. In order to maintain the Networks, bidder has to provide one trained person to carry out operation, maintenance and upkeep of digital library system for three years.

### **32. Networking Items, 1 No.**

Sl. No.	Item	Description	Quantity	Estimated cost
1	Switch	Layer 2,10/100 Base Tx ports, 24 Fast Ethernet ports, Rack Mountable	2	.

#### Copper Component:

Sl.No.	Item	Description	Quantity	Estimated cost
1	UTP Cable	Enhanced Cat 5 Cable, 305m Box	2 box	
2	I/O	Information Outlet, Simplex with Surface Mount Box	30	
3	Patch panel	24 ports, RJ45	2	
4.	UTP Patch cord	3 ft for Rack End	30	
5.	UTP Patch cord	7 ft for User End	30	
6.	Comrack	Rack 6U	1	

#### Installation of Networking:

Sl.No.	Item	Description	Quantity
1	Laying of UTP cable (Including Ferruling of cables)	Laying of cable in PVC Channels/Conduits ( as required)	400 m*
2	Fixing of Surface mount box and Termination of I/O		30
3	Termination of Patch panel		2
4	Installation of 1”PVC conduit/double lock channel/Flexible pipe		400 m*

**Warranty:** Standard: 1 Year, Optional: 3 Years

**With descriptive manual specifying various steps in the form of lessons to follow to learn about DSP and its application with programs**

**CHECK - LIST**

***The bidder must fill-up the Check-List and enclose with the quoted bid.***

Sl. No.	Particulars	Please writes 'Yes' or 'No' in appropriate column with page Nos.	
		Yes	No
1	Have you mentioned page no. on each page of the quoted bid.		
2	Bid Security (EMD) of appropriate amount has been enclosed with the bid.		
3	Price has been quoted on F.O.R. basis i.e. upto the site mentioned in the bid document.		
4	Manufacturer's Authorization Certificate enclosed (as per Annexure-F) of Bid document if bidder quoted as Agent/Dealer.		
5	If Payment Terms i.e. 80% payment after receiving goods at site & 20% on Installation & Commissioning of goods are acceptable?		
6	If Delivery Period and Installation Period mentioned in the bid has been accepted by bidder. If not, please write clearly below the check-list alongwith reasons.		
7	If on-site warranty period of 12 months has been shown in the bid?		
8	Bid Form (Annexure-B)		
9	Price Schedule for Equipment (Annexure-C)		
10	Performance Statement Form (Annexure-E) showing performance of bidder for the last two/three years.		
12	Copies of original documents defining the constitution or legal status, place of registration and principal place of business of the Company or Firm or Partnership etc.		
13	Details of Closest Service Station/Centres and Information on Service Support facilities to be provided. (Annexure-G)		
	Have enclosed reports on financial standing of the bidder such as:		
14	- Balance Sheet, Auditor's Report and Banker's Certificate for the past three years		
15	- Sales-Tax Registration Form and recent Sales Tax Clearance Certificate.		
16	Have you signed at all the appropriate places in the bid?		
17	Have you checked that your bid is complete in all respect?		
18	Have you checked the Unit Rates and Total Rates as mentioned in the bid to avoid any computational errors?		
19	If Cover Envelope contains all the details of Bid Opening Date /		

Sl. No.	Particulars	Please writes 'Yes' or 'No' in appropriate column with page Nos.	
		Yes	No
	Time & Schedule for which the bidder has bid for easy identification.		
20	Have you enclosed the relevant copy of the Catalogue/ Leaflet/Brochure/Drawing in respect of Equipment quoted by your firm in the bid?		
21	Have you enclosed list of spare parts and consumables etc. to be supplied by Supplier free of cost during the warranty period? (if applicable with the product otherwise write Not Applicable)		
22	Have you shown the discount, if offered, below the total price?		
23	Have you prepared and enclosed in the bid a comparative statement in tabulation. (Point-by-point commentary of the technical specification from comparison point of view must be shown).		
24	Have you attached the site readiness requirement like civil/electrical etc.		

The above Check-List has duly been seen and signed below relevant documents are enclosed with bid and bid has been prepared based on the above points.

Date :

Signature of Authorized Signatory of Bidder Firm with Robber Stamp of Firm

**BID FORM**

Date : \_\_\_\_\_  
Credit/Loan No.: \_\_\_\_\_  
IFB No.: \_\_\_\_\_

TO: (Name and address of purchaser)

Gentlemen and/or Ladies:

Having examined the Bidding Documents including Addenda Nos. .... *[insert numbers]*, the receipt of which is hereby duly acknowledged, we the undersigned, offer to supply and deliver ..... *(Description of Goods and Services)* in conformity with the said bidding documents for the sum of ..... *(Total bid amount in words and figures)* or such other sums as may be ascertained in accordance with the Schedule of Prices attached herewith and made part of this bid.

We undertake, if our bid is accepted, to deliver the goods in accordance with the delivery schedule specified in the Schedule of Requirements.

If our bid is accepted, we will obtain the guarantee of a bank in a sum equivalent to .... Percent of the Contract price for the due performance of the Contract, in the form prescribed by the Purchaser.

We agree to abide by this bid for the Bid validity period specified in the bid document of the Bid Data Sheet and it shall remain binding upon us and may be accepted at any time before the expiration of that period.

Commissions or gratuities, if any, paid or to be paid by us to agents relating to this Bid, and to contract execution if we are awarded the contract, are listed below:

Amount	Rupees	Purpose of Commission or gratuity
Name and address of agent		

(if none, state "none")

Until a formal contract is prepared and executed, this bid, together with your written acceptance thereof and your notification of award, shall constitute a binding Contract between us.

We undertake that, in competing for (and, if the award is made to us, in executing) the above contract, we will strictly observe the laws against fraud and corruption in force in India namely "Prevention of Corruption Act 1988".

We understand that you are not bound to accept the lowest or any bid you may receive.

We clarify/confirm that we comply with the eligibility requirements as per ITB Clause 2 of the bidding documents.

Dated this ..... day of ..... 20....

\_\_\_\_\_  
*(Signature)*  
Duly authorized to sign Bid for and on behalf of \_\_\_\_\_  
*(in the capacity of)*

**PRICE SCHEDULE**

1	2	3	4	5					6	7	8
				Price for each Unit							
Schedule No.	Item Description with Model No.	Country of Origin	Quantity & Unit	Ex-factory Ex-Warehouse Ex-Showroom Off-the-shelf	Excise duty, if any	Packing & forwarding	Inland transportation, insurance and other local costs incidental to delivery	Incidental services as listed in Clause 8 of SCC except for annual maintenance charges which should be quoted separately	Col.	Col.	
				(a)	(b)	(c)	(d)	(e)	(a+b+c+d+e)	4 x 6	

Note:

- (a) In case of discrepancy between unit price and total price, the unit price shall prevail.
- (b) Charges for annual maintenance for 2 years after expiry of warranty period should be quoted separately in annexed price schedule.

Total bid price in Rs.

In words

Signature of Bidder

Name

Business address

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Place :

Date :

**BID SECURITY FORM**

Whereas .....<sup>1</sup> (hereinafter called "the Bidder") has submitted its bid dated ..... (*date of submission of bid*) for the supply of ..... (*name and/or description of the goods*) (hereinafter called "the Bid").

KNOW ALL PEOPLE by these presents that WE ..... (*name of bank*) of .....(name of country), having our registered office at ..... (*address of bank*) (hereinafter called the "Bank") are bound into ..... (*name of Purchaser*) (hereinafter called "the Purchaser") in the sum of \_\_\_\_\_ for which payment well truly to be made to the said Purchaser, the Bank binds itself, its successors, and assigns by these presents. Sealed with the Common Seal of the said Bank this \_\_\_\_\_ day of \_\_\_\_\_ 20 \_\_\_\_\_.

THE CONDITIONS of this obligation are:

1. If the Bidder
  - (a) withdraws its Bid during the period of bid validity specified by the Bidder on the Bid Form; or
  - (b) does not accept the correction of errors in accordance with the bid document; or
2. If the Bidder, having been notified of the acceptance of its bid by the Purchaser during the period of bid validity:
  - (a) fails or refuses to execute the Contract Form if required; or
  - (b) fails or refuses to furnish the performance security, in accordance with the Instruction to Bidders;

we undertake to pay the Purchaser up to the above amount upon receipt of its first written demand, without the Purchaser having to substantiate its demand, provided that in its demand the purchaser will note that the amount claimed by it is due to it, owing to the occurrence of one or both of the two conditions, specifying the occurred condition or conditions.

This guarantee will remain in force up to a total period as bid requirement. and any demand in respect thereof should reach the Bank not later than the above date.

\_\_\_\_\_  
(Complete address of Head/Regional Bank)

\_\_\_\_\_  
(Signature with seal of the issued Bank)

<sup>1</sup> \_\_\_\_\_  
Name of Bidder

**Proforma for Performance Statement (for a period of last two/three years)**

Bid No. \_\_\_\_\_ Date of opening \_\_\_\_\_ Time \_\_\_\_\_ Hours

Name of Firm \_\_\_\_\_

Order placed by (full address of Purchaser)	Order No. & date	Description and quantity of ordered equipment	Value of order	Date of Completion of delivery		Remarks indicating reasons for late delivery, if any	Has the equipment been satisfactorily functioning? (Attach a certificate from the Purchaser/ Commissioner)
				As per Contract	Actual		
1	2	3	4	5	6	7	8

Signature and seal of the Bidder \_\_\_\_\_  
 \_\_\_\_\_

**Note : Attach certified past orders copies for the item quoted.**

**MANUFACTURERS AUTHORIZATION FORM\***

No. \_\_\_\_\_

dated \_\_\_\_\_

To

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Dear Sir:

IFB No. \_\_\_\_\_

We \_\_\_\_\_ who are established and reputable manufacturers of \_\_\_\_\_ (*name and description of goods offered*) having factories at \_\_\_\_\_ (*address of factory*) do hereby authorize M/s \_\_\_\_\_ (*Name and address of Agent*) to submit a bid, and sign the contract with you for the goods manufactured by us against the bid's terms & conditions.

No company or firm or individual other than M/s \_\_\_\_\_ are authorized to bid, and conclude the contract in regard to this business against the specific as per bid document. (*This para should be deleted for those items where manufacturers sell the product through different stockists.*)

Yours faithfully,

(Name)

(Name of manufacturers)

**Note:** This letter of authority should be on the letterhead of the manufacturer and should be signed by a person competent and having the power of attorney to legally bind the manufacturer. It should be included by the Bidder in its bid.

\* Modify this format suitably in case where manufacturer's warranty and guarantee are not applicable for the items for which bids are invited.

**SERVICE SUPPORT DETAILS**

1. Nearest Service Station :  
(Name of City)
2. Complete Address :
3. Telephone No. :  
Fax No. :
4. Capability of the Service Station :
  1. Technical Manpower with details
  2. Others staff
5. Strategy of handling complaint :
6. Minimum period required for attending complaint :
7. Past Record (in respect of services provided - brief details) :