



**ELECTRONICS CORPORATION OF INDIA LTD**  
**(A Government of India Enterprise)**  
Communication Systems Group, ECIL(PO), Hyderabad –500 062

Cover page to the tender document

Name of Organization	Electronics Corporation of India Limited, Hyderabad – 500 062 {A.P.}		
Type of Organization	Public Sector Undertaking	Ministry: Department of Atomic Energy	
Tender Ref. No:	ECIL/CNSG/09-4383PT		
Tender Title:	Supply of SW Tools & Hardware for Digital Waveform Generation		
Product Category	Electronic equipment		
Sub Category:	Electronic equipment		
Tender Value	EMD: Rs. 1,50,000/-	Document cost: Rs.1000/-	
Tender type:	Buy		
Location:	Hyderabad {A.P.}		
Publication date on website	09.02.2012		
Last date for submission of bids	29.02.2012 up to 4:00 PM		
Opening date of Part I	01.03.2012 at 2.00 PM		
Description of item:	Sl.No.	Item Description	Quantity
	01	Supply of SW Tools & Hardware for Digital Waveform Generation	1 Set
Pre-Qualification	As per specifications given in the tender		
Tender Document	<a href="#">View Tender Document *</a>		
Bid Document	<a href="#">View Price Bid Document *</a>		
Technical Document	<a href="#">View Technical Document *</a>		
Sector:	Electronics		
State:	Andhra Pradesh		
For further Information Contact: SDGM - Materials			
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Tender No: ECIL/CNSG/ 09- 4383PT

Date: 09.02.2012

### **Tender Document**

#### **1. Invitation to Tender:**

Electronics Corporation of India Limited, Communication Systems Group invites "Two Part Bid" for "Supply of SW Tools & Hardware for Digital Waveform Generation" as per details given below.

#### **2. Important Dates**

Due date for submission of 2 Part Bids: **29.02.2012 up to 4.00PM.**

Techno-commercial bid (Part 1) will be opened on **01.03.2012 at 2.00PM.** Interested vendors may be present with prior permission.

After evaluation of the techno-commercial bids, qualified list of vendors will be finalized.

Price bid (Part 2) of the qualified vendors will be opened at a later date, which will be communicated to the qualified vendors.

#### **3. Manner and method of submission of offers:**

All pages of the tender shall be numbered and typed on the Letter Head of the Vendor and be duly signed and stamped by Company's authorized Signatory. Hand written quotation will be summarily rejected. Corrections if any shall be duly authenticated with signature and seal of the Company.

The quotation in prescribed form to this invitation shall be submitted in Two Parts and in different sealed envelopes super scribing Tender Number with due date.

Part-I (Technical Bid). It shall comprise of two sections namely Technical Section and Commercial Section and both sections shall be submitted along with Tender Fee and EMD in a single sealed envelope. This bid shall not contain any price details.

Part-II (Price bid): It shall comprise of commercial terms and price details and shall be submitted in a sealed separate envelope.

The above two sealed envelopes of Part I & Part II shall be put in a single sealed envelope and submitted to the attention of Senior Deputy General Manager- Materials.

#### **4. Cost of Tender Documents:**

Tender fee of Rs. 1,000/- is to be remitted along with the techno-commercial bid in the form of a crossed Bank Draft favoring "Electronics Corporation of India Limited" from a nationalized bank payable at Hyderabad. The cost of tender document is non- refundable.



### **5. Earnest Money Deposit (EMD):**

Earnest money deposit of Rs. 1,50,000/- shall be submitted along with the techno-commercial bid in the form of a Demand Draft favoring “Electronics Corporation of India Limited” or a Bank Guarantee valid for a period of six months drawn from a nationalized bank payable at Hyderabad. The EMD deposited by unsuccessful bidders will be refunded without interest after finalization of the order. The EMD of the successful bidder will be appropriated towards Security Deposit. The bids will not be considered in the absence of payment towards the cost of tender documents and EMD.

### **6. Security Deposit (SD):**

The successful bidder will be required to remit a Security Deposit equivalent to 10% of the Purchase Order value exclusive of taxes and duties etc. after adjusting the EMD amount already remitted. SD is to be remitted along with the order acceptance in the form of a crossed bank draft favoring “Electronics Corporation of India Limited” or a bank guarantee from a nationalized bank payable at Hyderabad. The security deposit will be forfeited in the event of failure to execute the Purchase Order. The security deposit will be refunded without interest after the purchase order is successfully executed to the satisfaction of the Purchaser.

### **7. Items tendered for:**

Sl.No	Item description	Qty.
01	Supply of SW Tools & Hardware for Digital Waveform Generation. (Scope & Details are given in the Technical document)	1 Set

Intending bidders who have not yet registered with ECIL are also requested to download “Suppliers Registration Form” from web site [www.ecil.co.in/tenders](http://www.ecil.co.in/tenders), fill it up and send the same along with the Bids.



## **GENERAL TERMS AND CONDITIONS**

This tender and any order resulting from this tender shall be governed by the following terms and conditions of contract and the supplier quoting against this tender shall be deemed to have read and understood the same. In case counter terms & conditions of business have been offered by the supplier, ECIL shall not be deemed to be governed by those unless specific written acceptance thereof has been obtained from ECIL.

1. **Terms of Prices:** Quotations shall be submitted on FOR Hyderabad or FOR destination basis including transit insurance. In case of Ex-works / Ex-go down / FOR dispatching station the approximate packing, forwarding and freight shall be indicated by the supplier. Hyderabad suppliers shall arrange free delivery at our stores.
2. **Validity of quote:** The quotation shall remain valid for a minimum period of 90 days from tender opening date.
3. **Performance Bank Guarantee:** Vendor shall submit a Performance Bank Guarantee for 10% of purchase order value covering standard free warranty period of 1 year from the date of acceptance of goods by ECIL.
4. **Payment terms:** Payments for materials and services will be made within 60 days from the date of acceptance of goods and services on pro-rata basis by ECIL.
5. **Insurance:** The supplier shall insure goods for all transit risks if the payment term is FOR Hyderabad or FOR destination unless otherwise stated specifically by the supplier in their quotation. The supplier shall insure goods for all risks till acceptance of goods by end user.
6. **Liquidated Damages:** Delivery time is the essence of the contract. In the event of any delay in supply beyond the agreed delivery schedule, liquidated damages will be recovered @ 0.5% per week of delay or part thereof subject to a maximum of 5% of the value of the order.
7. **Force Majeure:** If the execution of the purchase order is delayed beyond the period stipulated in the purchase order as a result of outbreak of hostilities, declaration of an embargo or blockage or fire, flood, acts of nature or any other contingency beyond the supplier's control due to act of God, then ECIL may allow such additional time by extending the delivery period as justified by the circumstances of the case and its decision in this regard shall be final. Power failure will not be considered as a Force Majeure condition.
8. **Risk purchase:** In case of failure to deliver the goods within the delivery date stipulated in the purchase order unless prior extension of delivery period is obtained, ECIL will be at liberty to obtain such items as necessary from other source and / or cancel the order and in either case ECIL reserves the right to recover from the supplier the additional amount spent plus 10% to cover incidental expenses.
9. **Dispute Resolution:** Any dispute arising out of purchase order or interpretation of any clause or terms and conditions hereof shall be settled through conciliation by both ECIL



and the supplier, under the specific provisions of Arbitration and Conciliation Act 1996. Only courts in Ranga Reddy District, State of Andhra Pradesh, India, have exclusive jurisdiction over this order.

- 10. Right to Reject:** The purchaser reserves the right to reject any or all offers wholly or in part without assigning any reason.
- 11. Short Closure:** ECIL has the right to short close the tender even after evaluating the quotations without assigning any reason.
- 12. Bank details:** The supplier shall give along with the quotation name of their Banker, Bank Account Number and also Income Tax Permanent Account Number (PAN).
- 13. Jurisdiction:** All disputes arising in connection with executing the purchase order will be subject to jurisdiction of the Courts in Hyderabad and Secunderabad only.



### **General criteria for acceptance of tenders**

1. **Technical Specifications:** Vendor shall comply with the technical specifications given in the technical document. The commercial offer of the vendor who satisfies the technical requirement only will be opened --Complied / Not complied
2. **Experience:** Vendor shall provide details with documentary evidence the experience in supply of Similar Systems --- Complied / Not complied
3. **Warranty:** 1-year free warranty and support for additional 2 years to be provided against all manufacturing defects and software updates. -----Complied / Not complied
4. Foreign Vendors shall have a branch office in India / Indian Partners / Representatives for rendering support services -- Complied / Not complied
5. **Facilities:** Details of factory, assembly and testing facility shall be furnished. A committee of ECIL may visit to verify the facilities of the vendors for execution of our orders if any.
6. **Service Center:** Details of service center locations / Engineers working.
7. **Acceptance of tenders:** No tender will be accepted after due date. ECIL will not be responsible for postal / courier delay or lost in transit if any.

**Note:** Vendor shall provide documentary proof to prove his adherence to the qualifying criteria where ever necessary. Claims without support documents will not be considered.



## TENDER SUBMISSION FORMAT (PRICE BID DOCUMENT)

Tender No.: ECIL: CNSG:09-4383PT

Date: 09.02.2012

### I. Vendor Particulars:

Name and address of the bidder	
Telephone, fax and e-mail	
Name and designation of the Officer representing Vendor	

### II. Items Tendered for:

Sl.No	Item description	Qty.	Rate	Value
01	Supply of SW Tools & Hardware for Digital Waveform Generation	1 Set		
02	Software porting and Hardware Integration charges	1 Lot		
03	Training for 4 persons: 7 working days	1 Lot		
04	Extended Warranty for 2 years after completion of free standard warranty period of 1 year.	1 Lot		

### III. Terms and Conditions:

1	Terms of price	
2	Payment terms (please refer General Terms and Conditions of this tender)	
3	Rate of Excise duty, Sales Tax, Service Tax and any other taxes and duties applicable. (In case the Vendor imports any item directly Customs duty exemptions will not be provided by ECIL)  Note: Vendor shall specifically mention applicability of all taxes and duties. In the absence of specific confirmation of taxes and duties, the quotation is liable to be rejected.	
4	Tendered items are required immediately. Vendors are requested to quote earliest possible delivery schedule.	
5	Standard Warranty (Minimum 1 year from the date of installation)	
6	Estimated Packing & Forwarding Charges	
7	Validity of Quotation (Minimum 90 days)	
8	DD No. & Date for Cost of Tender Documents.	
9	DD No. & Date for EMD.	
10	CST Registration Number	
11	TIN Number.	



12	Income Tax PAN Number.	
13	ISO-9000 Certificate or any other certificate	
14	SSI/NSI Registration Number, if applicable.	
15	Any other relevant information	

Note: The vendor shall submit offer in the above format only. Against each instructions mentioned below the Vendor shall give a comment Complied (√) or Not complied (X).

**Instructions:**

- a. No Columns shall be left blank in the format.
- b. Incomplete forms, counter-offer and deviation from the terms and conditions will be summarily rejected.
- c. Photostat copies of quote/offer will not be accepted. Only originals received within the time limit only will be accepted.
- d. The vendor shall submit the certificate of Registration under Micro, Small and Medium enterprises development act, 2006, in case of applicability.
- e. The offer shall meet point wise compliance to all the points of tender document. Wherever non-compliance is there, suitable explanation needs to be provided.
- f. Technical proposal need not be restricted to be the user requirements as given above. Any additional features may be added in the proposal to make it a professional package.
- g. Technical proposal may be as detailed as possible with functional block diagrams where ever applicable.
- h. Foreign Vendors shall offer bids through Indian Partners / Representatives.

**Special Instructions:**

- a. Software tools / applications supplied should be compatible with SCA compliant Radio Managers (PC based GUI Tools to manage and configure the radio)
- b. Only a complete integrated working system in 3U form factor chassis from a single vendor with sufficient documentation for usage is accepted.
- c. Detailed Technical data sheet of each hardware/software module/tool shall be sent as part of the quotation
- d. A detailed document regarding the complete workable system architecture consisting of hardware/software elements shall be sent as part of quotation. The document must indicate clearly the information flow through hardware and software elements/modules
- e. The configuration offered shall be compact in integration of different processing elements to maximize speed, minimize power consumption and enhance resource sharing.
- f. The system offered shall have a combination of LEDs, Ethernet and serial interface connections from the front panel.



- g. The Hardware offered may have better specifications but must satisfy the above requirements including integrating the RTOS onto the Hardware Platform described in the technical document.
- h. The system shall support for Built-In Test, diagnostics including loop-back tests and libraries for writing custom BIT routines.
- i. The Vendor shall demonstrate at ECIL, the features and capabilities of the System offered during the technical evaluation.



Tender No.: ECIL: CNSG: 09-4383PT

Date: 09.02.2012

## Technical Document

### **Tools and Hardware requirement for development of Digital Base band and IF Waveforms**

#### **1. Introduction:**

Electronics Corporation of India would like to develop the application software for Digital Base band and IF Waveforms as per Software Communication Architecture Version 2.2.2. We invite bids from Potential solution providers to offer a comprehensive integrated system comprising both hardware and software along with necessary tools.

#### **2. Features and details of the System to be offered:**

- a. Fully configured development system ready for waveform application development and porting
- b. Integrated development System comprising Baseband, IF and other external data interfaces
- c. Shall include baseband processing engine, Baseband to IF transition modules.
- d. Availability of Variable / user programmable IF selection for future requirements
- e. Supports SCA Core Framework, Tools
- f. Built in option to port and support ORB ( object request broker- used to develop platform independent waveform applications)- CORBA support
- g. POSIX conformant operating system (as per SCA v2.2.2)
- h. TCP/IP Stack
- i. POSIX compliant Embedded RTOS
- j. Chassis with small form factor along with built in power supply and air-cooling
- k. Support for various interfaces including RS232, JTAG, Gigabit Ethernet
- l. Hardware support to port Frequency Hopping Waveform applications –min 800hops/sec
- m. Board Support Packages
- n. Support for DSP development kit
- o. Support for FPGA core tools



### **3. The Integrated package offered shall include broadly the following module(s) & SW Tools**

- a. Baseband Processing Module(s)
- b. IF processing Module(s)
- c. POSIX standard Embedded RTOS and supporting Integrated Development Environment
- d. SCA core framework tools
- e. Software Tools for Developing waveforms compatible to SCAv2.2.2
- f. ORB Express RT for C++

All the modules / software mentioned above must be compatible with each of the other Hardware module / software tools and shall support SCAv2.2.2 based application development.

### **4. Description of Hardware & Software components**

#### **4.1 Basic Hardware:**

- a. General Purpose Processor such as Power PC with Minimum 256 MB SDRAM and 64 MB Flash Memory.
- b. FPGA(s) of standard brands like Xilinx for baseband & IF signal processing.
- c. User programmable FPGA(s) for Baseband signal Processing and IF data processing.
- d. DSP node.
- e. LED indicators to monitor DSP, GPP, FPGA and user programmable FPGA
- f. 3U form factor chassis with supporting interfaces with built in Power supply and air cooling.
- g. 2-ADC of min 14-bit resolution with suitable sampling rate and supported hardware to process data and FH signals of min 800 hops/sec.
- h. 2-DAC of min 14-bit resolution with suitable sampling rate and supported hardware to process data and FH signals of min 800 hops/sec
- i. Standard 70MHz IF interface with variable bandwidth option, user programmable IF option preferred
- j. Min. 2 ADC and min 2 DAC suitable for reading RSSI / driving AGC and other monitor / control applications if any.
- k. Internal Reference Oscillator for programmable sampling clock with connector provision for 10MHz External reference.
- l. 10/100/1000Mb Ethernet interface
- m. RS-232/422 serial port interface
- n. JTAG interface



- o. XMC / PMC site support
- p. High-Speed Data XMC VITA 42.0 interface for high-speed, low latency data transfer
- q. User I/O GPIO lines between External connector and user programmable FPGA
- r. High speed serial links
- s. Cable kit as applicable, to integrate various hardware modules
- t. BSP, SDK (Software Development Kit), system examples for RTOS and for the above hardware.

#### **4.2. Software package:**

- a. POSIX standard Embedded Real Time Operating System (RTOS).
- b. Complete Integrated Development Environment (IDE) including debugger, debug server, Simulation tools, program builder, editor, run time error checking, code coverage analyzer, Event analyzer, C/C++ compiler tool chain, graphic architectural design tool supporting above RTOS.
- c. Reference BSPs along with BSP development guide(s)
- d. POSIX standard APIs (Application Program Interface)
- e. SCA Core Framework and Software Suite comprising of
  - (i) Platform independent, Eclipse-based development environment to create, validate and debug components and applications.
  - (ii) Component Development Libraries to provide a set of generic functions which simplifies code generation to create SCA components.
  - (iii) Run-time monitoring tool to install and control applications as well as visualizing deployment strategies.
  - (iv) Core Framework supporting the largest combination of operating systems, object request brokers and processors that can enable the developer to port and test the code developed on one hardware platform onto the other
- f. ORB Express RT for C++ and latest updates.
- g. Latest updates for all software tools as applicable.