JNTUH COLLEGE OF ENGINEERING HYDERABAD (Autonomous)
Kukatpally, Hyderabad, Telangana

Notification No: Advt.01/JNTUHCEH/R&D Projects/2019   Date: 20-11-2019

TENDER NOTIFICATION

Sealed Tenders are hereby invited from registered Manufacturers/suppliers for supply of HFSS 3D EMF Simulator, Zynq706 with FMCOM3/5, USRP platform board/waveGuru/Laksh SDR and Workstation. The last date for submission is **4.12.2019** before **4:00pm.** For specifications and other details visit **www.jntuhceh.ac.in.**

Sd/- PRINCIPAL

// Details of tender Items //

Sealed Tenders are hereby invited from reputed registered Manufacturers/suppliers by The Principal, JNTUH CEH, Kukatpally, Hyderabad for supply of the following items:-

Sl. No./ Item	Description	Tender Doc. Fee i Rs.	EMD in Rs.	Pre Bid Meeting	Pre-qualification Meeting
1.	HFSS 3D Electromagnetic Field Simulator Research package complete suite for RF and Wireless Design that should include the following or high end features (One Unit each): 1. Ansoft Designer (RF&SI) 2. HFSS 3. SIwave 4. Q3D Extractor 5. Optimetrics 6. ECAD Translators (Ansoft Links) 7. MCAD Translators That shall extract parasitic parameters (S, Y, Z), visualize 3D electromagnetic fields (near- and far-field) and generate Full-Wave SPICE models that link to circuit simulations. Features such as automatic adaptive meshing, versatile design entry and advanced high-performance computing technology are also required.	Rs.5000/	Rs.30,000/-	30.11.2019 @ 3.00 PM	7.12.2019 @ 10.00 AM
2.	Zynq-7000 series ZC702/706 with FMCOM3/5 antenna channels	Rs.5000/	Rs.30,000/-	30.11.2019 @ 3.00 PM	7.12.2019 @ 10.00 AM
3.	High end USRP platform board for	Rs.5000/	Rs.30,000/-	30.11.2019	7.12.2019 @

				@ 3.00 PM	10.00 AM
	4G/5G MIMO system with preloaded Linux OS, BSP and FPGA Firmware (Netlist)				
4.	A 2x2 MIMO RF TXVR board giving 4x4 MIMO configuration	Rs.5000/	Rs.30,000/-	30.11.2019 @ 3.00 PM	7.12.2019 @ 10.00 AM
5.	waveGuru/Laksh SDR (2x2 config)	Rs.5000/	Rs.30,000/-	30.11.2019 @ 3.00 PM	7.12.2019 @ 10.00 AM
6.	Workstation with monitor, keyboard and mouse:	Rs.5000/	Rs.10,000/-	30.11.2019 @ 3.00 PM	7.12.2019 @ 10.00 AM

Interested bidders can submit the Tender document for each item separately along with Demand Draft for **Rs. 5,000/-** (Rupees five thousand only) towards the cost of Tender document fee (non-refundable and cannot be exempted in any condition) in the name of "The PRINCIPAL, JNTUH CEH" from any nationalized bank, payable at Hyderabad. The tender form is non-transferable and should be purchased in the exclusive name of the party who has to actually submit the offer. Last date of submission of tender along with EMD as specified in the bid document is on **4.12.2019 before 4:00 pm**.

The Tender system is THREE-BID SYSTEM i.e. "Pre-qualification", "Technical and Financial" Bids.

The Principal reserves the right to defer the purchase of any item or all the items without any notice and without assigning any reason.

Sd/- PRINCIPAL

Detailed specifications list

2. Zynq-7000 series ZC702/706 with FMCOM3/5 antenna channels

Key Features must include
- Advanced memory interface with
    - 1GB DDR3 Component Memory
    - 1GB DDR3 SODIM Memory
- To Enable serial connectivity with PCIe Gen2x4, SFP+ and SMA Pairs, USB OTG, UART, IIC
- To Support embedded processing with Dual ARM Cortex-A9 core processors
- To Develop networking applications with 10-100-1000 Mbps Ethernet (RGMII)
- To Implement Video display applications with HDMI out
- To Expand I/O with the FPGA Mezzanine Card (FMC) interface

Configuration
- Onboard configuration circuitry
- 2X16MB Quad SPI Flash
- SDIO Card Interface (boot)
- PC4 and 20 pin JTAG ports

Memory
- DDR3 Component Memory 1GB (PS)
- DDR3 SODIM Memory 1GB (PL)
- 2X16MB Quad SPI Flash (config)
- IIC - 1 KB EEPROM

Communication & Networking
- PCIe Gen2x4
- SFP+ and SMA Pairs
- GigE RGMII Ethernet (PS)
- USB OTG 1 (PS) - Host USB
- IIC Bus Headers/HUB (PS)
- 1 CAN with Wake on CAN (PS)
- USB UART (PS)

Expansion Connectors
- 1st FMC LPC expansion port (34 LVDS Pairs on LA Bus, 1 GT)
- 2nd FMC HPC expansion port (34 LVDS Pairs on LA Bus, 8 GT – No HA or HB bus)
- Dual Pmod (8 I/O Shared with LED's)
- Single Pmod (4 I/O)
- IIC access to 8 I/O

Clocking
- 33MHz PS System Clock
- 200MHz PL Oscillator (Single-Ended Differential)
- SMA Connectors for external clock (Differential)
- GTX Reference Clock port with 2 SMA connectors
- OBSAI/CPRI – SFP+ Received clock
- EXT Config CLK

Control & I/O
- 2 User Push Buttons/Dip Switch, 2 User LEDs
- IIC access to GPIO
- SDIO (SD Card slot)
- 3 User Push Buttons, 2 User Switches, 8 User LEDs
- IIC access to 8 I/O
- IIC access to a WTClock

Power
- 12 V wall adaptor
- Current measurement capability of supplies

Analog
- AMS interface (Analog) System Monitor and also available for external sensor

2.1 Interfacing Card for SDR

AD FMC Comms 1 to 5 EBZ / AD9361/AD 9371 add-on modules
- A high performance, highly integrated RF transceiver that shall operate from 70 MHz to 6 GHz, and support bandwidths from less than 200 kHz to 56 MHz.
- To support dual AD9361/71 devices (for the creation of a 4x4 MIMO system).
- The board shall have to have both wideband channels covering the full 6 GHz range, as well as narrowband channels matched to 2.4GHz.
- The board shall also to contain dual ADG918 SPDT switches, combined with the Analog Devices supplied API software, to allow for a full digital and RF synchronization between the two AD9361/71s. The providing APIs also shall support full independent device configuration of the two AD9361s.
- The ability to connect the AD9361 to a RF test bench (vector signal analyzer, signal generator, etc.) and measure narrowband performance, as well as providing software and system engineers the ability to quickly prototype across the full 6 GHz operating range. Additionally to allow for both AD9361/71 devices to receive an on-board generated external LO signal, to provide improved RF performance.

<div align="center">****</div>

Detailed Specifications list

Tender Items: 3-5

Sl.No.	Description
1	High end USRP platform board for 4G/5G MIMO system with preloaded Linux OS, BSP and FPGA Firmware (Netlist)
2	A 2x2 MIMO RF TXVR board giving 4x4 MIMO configuration
3	waveGuru/Laksh SDR (2x2 config

3. High end USRP platform board for 4G/5G MIMO system with preloaded Linux OS, BSP and FPGA Firmware (Netlist):

TI TMS320TCI6638K2K processor, KintexUltrascale FPGA 520 I/O 1156FCBGA, 2GB (4Gb x 4) on board DDR3-1333, Interfaces & external connectors

4. A 2x2 MIMO RF TXVR board giving 4x4 MIMO configuration

5. waveGuru/Laksh SDR (2x2 config):

i. Software tunable across wide frequency range (70 MHz to 6.0 GHz) with a channel bandwidth of 200 kHz to 56 MHz, External Reference Clock source connectivity, Max input power 0dBm, ADC: Continuous time sigma-delta, 640MSPS, Digital Filters: 128 complex taps, decimation/ interpolation between 2 and 48, Gain: 0.25dB step size, 86dB range, DAC: 320MSPS, Max out power 10 dBm @2.4 GHz, Gain: 1dB step size, 80dB analog range, 30dB digital range (post ADC scaling), NF: 2.5dB @1GHz.
ii. GCC Compiler for Programming on ARM Side
iii. Support for GNU Radio Kit Content
    a. LE-LAKSH-101 Board
    b. Power Supply: 12V Adaptor
    c. Test codes for Transmit and receive of tones (demo program)
    d. Libraries, GNU experiments (All basic Modulation Schemes)
iv. Synthesizer:
v. RF Cables and RF Connectors: RF range

****

6. Workstation with monitor, keyboard and mouse:

- 3.6 GHz Intel Xeon W-2123 Quad-Core
- 16GB of 2666 MHz DDR4 RAM
- NVIDIA Quadro P4000 Graphics Card (8GB)/CUDA® enabled NVIDIA® GPU with compute capability 3.0 or higher
- 512GB 2.5" SATA SSD + 1TB 7200 rpm HDD

****