

TENDER SPECIFICATIONS

for

Microcontroller based Development Boards and Software: Quantity One (1) Set

1. **INTRODUCTION:** This tender document covers the detailed specifications and conditions for the supply of Microcontroller based Development Boards and Software, one set.
2. **SCOPE OF TENDER:** The scope of work through this tender shall include:
 - A. Supply of Microcontroller based development boards and software as a **1 SET** as given in para 3.
 - B. Installation and demonstration of development boards and MDK plus Software as per technical specifications given in para 5, (Table-1 to Table-4).
3. **SCOPE OF SUPPLY:** Microcontroller based development boards and software will include following items as **ONE (1) SET**.

S. No.	Particulars	Qty.
1	8051 Microcontroller based development board	5 Nos.
2	ARM processor based development board	2 Nos.
3	Analog to Digital Converter(ADC) evolution board	2 Nos.
4	Microcontroller Development Kit plus with debug adapter	1 No.

- Party should quote for one set of above items, partial quotation will be rejected.
4. **CRITERIA FOR BIDDER QUALIFICATION:**
 - A. Items are intended for use with system integration and continuous operation, hence only standard/catalogued item will be accepted.
 - B. The bidder shall fill the compliance sheet and submit with quotation. Quotation received without compliance sheet would be rejected.
 - C. The bidder shall give single offer for supply of one set of Microcontroller based development boards and software, partial incomplete quotation will be rejected.

5. **PRODUCT SPECIFICATIONS:****Table-1: 8051 Microcontroller based development board:**

1	Microcontroller	8-bit microcontroller C8051F340 OR Equivalent
	Peripherals	40 I/O ports, \geq 2UART, 4 general purpose 16-bit counter/timers, External memory interface
	Voltage supply input	2.7 V to 5.25 V
2	Connectors on board	Power connector, Analog I/O blocks, USB connector, RS232 connector, External crystal enable connector
3	Headers on board	Port 0,1,2,3,4, USB power or VDD power selection header
4	Interface on board	DEBUG interface
5	Accessories	AC (230 V/50Hz) to DC power adapter
		USB Debug Adapter (USB to Debug interface)
		USB cable
		Development board quick start guide
6	Compatibility	Silicon Labs C8051F340DK development kit or equivalent

Table-2: ARM processor based development board

1	Processor, GPU, DSP, MCU ,PRU	<ul style="list-style-type: none"> • Dual 1.5-GHz ARM® Cortex-A15 or better • 2D/3D graphics and video accelerators • 2× 700MHz C66 digital signal processors • 2× ARM Cortex-M4 microcontrollers • 4× 32-bit programmable real-time units
2	Memory/storage	<ul style="list-style-type: none"> • 2GB DDR3 RAM • 4GB 8-bit eMMC on-board flash storage
3	Connectivity	<ul style="list-style-type: none"> • 2× Gigabit Ethernet • 3× USB 3.0 ,1x USB 2.0 (High speed) • 1xSPI ,1x I2C, 1x CAN,1x eSATA,1x HDMI • microSD card slot, Stereo audio in and out • 20 pin CTI JTAG, Serial Debug header, 4×60-pin headers with PCIe, LCD, mSATA
4	Software/Hardware Compatibility	<ul style="list-style-type: none"> • Debian, Android,Ubuntu,Cloud9 IDE on Node.js • Fully compatible with BeagleBoard-X15 or equivalent.
5	Future Expansion	<ul style="list-style-type: none"> • Support for LCD, PCIe,& Camera ports via expansion boards

Table-3: Analog to Digital Converter(ADC) evolution board

1	ADC	AD9253 OR Equivalent	
2.	Sampling rate	125 MS/s or higher	
3	Input	No. of channel	4 Channel analog input, ~2 V p-p or higher
		impedance	50 Ω
		Max. input frequency	200 MHz or higher
4	Input drive	Transformer/Balun or Amplifier input drive	
5	Output	Serial LVDS output	
6	Reference voltage	Option for 1 V internal reference and external pin on board for external reference	
7	Clock	Internal	clocked through the transformer-coupled from the crystal oscillator (125 MHz or higher)
		External	external clock source to the SMA connector
8	Interface	SPI interface for setup and control	
9	LDO regulator	On-board LDO regulator needing a single external 6 V, 2 A dc supply	
10	Power adapter	Input	230 V, 50 Hz AC
		Output	6 V, 2A DC
11	Compatibility	Analog devices AD9253-125EBZ <i>or equivalent</i>	

Table-4: Microcontroller Development Kit Plus (MDK-Plus) with debug Adapter

1	ARM core components	μVision IDE with editor, Debugger and Pack Installer ARM C/C++ compiler: Compiler, Linker, Libraries, and Utilities
2	ARM Processor Support:	ARM Cortex-M0/M0+/M3/M4/M7 ARM Cortex-M23/M33 (non-secure only) ARM Cortex-M23/M33 (Secure and non-secure) ARM SecurCore ARM7, ARM9, ARM Cortex-R4
3	RTOS and middleware	CMSIS-RTOS RTS with fullsource code Middleware (IPv4 Network, USB Devices, File System, Graphics)

4	License Type	One No., Perpetual, FlexLM Floating License	
5	Compatible software	Windows 7/8/10	
6	Debug Adapter	Feature	Run control debug, Memory + Breakpoint Data Trace, Instruction trace
		Performance	JTAG Clock speed: 50MHz or higher Memory read/write: 2 MB/s or higher Trace Streaming: 500 Mb/s
		Analysis tools	Logic and Performance Analyzer Execution Profile, Code Coverage
		Compatibility	Keil ULINK pro or equivalent
7	Support and Maintenance	Free technical support, software maintenance and FREE upgrades for a period of at least 12 months.	
8	Software version	MDK-Plus version 5.24 or later	
9	Acceptance of the product shall be done when the license is installed on the machines, activated and functioning as per specifications		

- 6. WARRANTY:** The system should be supplied with a minimum warranty of one year from the date of commissioning and final acceptance at RRCAT.
- 7. ACCEPTANCE CRITERIA:**
- The material shall be delivered through store unit, installation, testing and successfully demonstration of working system at RRCAT.
 - Supplied item must be in original packing with date of manufacturing and batch no.

MANDATORY COMPLIANCE SHEET (MCS)

(To be filled in by the bidder & submitted along with the offer)

*Instruction-1 Table A.1 : The rightmost column should be filled in by the Bidder.**Instruction-2 Failure to submit a fully completed, duly signed and stamped questionnaire may result in the rejection of the offer.***Table A.1**

Item description of the specification sheet		Response of bidder for Compliance
1	Bidder Qualification	Quotation for all items as per para-3
		Standard item
		Printed data sheet of each offered product model
2	Warranty	No. of year of standard warranty of system
3	Offered item	Offered Item is standard Item from catalog only.
		If Yes Model/part no. for each part
	1	8051 Microcontroller based development board
	2	ARM processor based development board
	3	Analog to digital converter evolution board
	4	Microcontroller Development Kit plus with debug adapter

Additional remarks may also be put in the last column of the above table by the bidder, if they are necessary.

- **Please note that, with incomplete information the offer will get rejected.**

Name of the person signing this compliance sheet (Bidder):

Mr./Ms. _____

Signature

Bidder's company address:

M/s _____

Company Seal

RRCAT enquiry reference : DPS/IRPU/_____

Quotation no. : _____