राष्ट्रीय प्रोद्योगिकी संस्थान दुर्गापुर
NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR
MAHATMA GANDHI AVENUE, DURGAPUR-713209
West Bengal, INDIA, www.nitdgp.ac.in
(An Autonomous Institution of the Govt. of India under MoE)
An Autonomous Institution of the Govt. of India under Ministry of Education (Shiksha Mantralaya)

Notice No.: NITD/Opal-RT/EE/02/2026-27/33

Date: 03-11-2026

Sub: - Notice Inviting Objections/Comments on Procurement of Opal-RT Real Time HIL Simulator with measurement box for Department of Electrical Engineering, NIT Durgapur.

1. A request has been received from Dr. Ashish Kumar Bhore, Assistant Professor, Electrical Engineering, NIT Durgapur for procurement of Opal-RT Real Time HIL Simulator with measurement box Under Proprietary Article.

2. The specification of the Equipment (Annexure-I), PAC Certificate from the department and certification from the supplier are attached herewith.

3. The above documents as mentioned in serial no. 2 are being uploaded in the public domain to submit objections, comments, if any from the manufacturer/supplier regarding Proprietary nature of the software within seven days giving the reference no. NITD/OH-35/EE/02/2026-27/33 Date: 03-11-2026. The comments/objections should be received by the FIC Procurement & Store, NIT Durgapur over email address: procurement@nitdgp.ac.in.

4. In case of No Objection Received within seven days, it will be presumed that any other vendor is having no comment or objection to offer and case will be decided on merit to finalize the purchase.

03/11/26

Gaurav Kumar
FIC Procurement & Store
NIT Durgapur

Encls: -

PAC Certificates by Indenter

PAC Certificate by Supplier

Technical Specification of the Software

Technical Specification

Sl. No	Specification	Qty
1.	**Opal-RT Real Time HIL Simulator** **1.Simulator Hardware: -** CPU Core: Intel ® Core™ I, 6-core, 4.1 GHz FPGA Core: AMD Kintex7 410T FPGA, 410000 logic cells. Analog input card (16 channel, 2MS/s, 16bits, 35mA, ± 16V or 8 channesl at 2 MS / s) Digital Input-Output card (64 High Range DIO Channel) (Digital out 50ma per channel 5-24V push-pill FET, (Digital in 0-30 V), RS422 Expansion Board 6 RX = 6 Digital IN or 6PWM IN or 2 Encoder IN 6 TX = 6 Digital OUT or 6 PWM OUT for 2 Encoder OUT DB9 Test loopback cable **Connectivity Ports & Cables:-** Ethernet Port (2) USB Port (2) PCIe Slot (2) **Simulator Software: -** OPAL-RT Linux 3.x OS with Real-Time Kernel, GCC Complier FPGA IP Digital I/O License - selectable 32 DIN and 32 DOUT (PWM/TSD/STATIC) 1xRT-LAB Host/Workstation License – Professional 4xRT-LAB Real-Time Target License – Professional 1xeHS 32- Real Time Power Electronic FPGA Solver. – Models Can included up to 48 switching devices, 32 electrical sources, 32 measurement, 16 nonlinear components and 2 machines **2.** Measurement Box with Sensors for HIL Applications. (Compatible & Controllable by Opal-RT Simulator) It consists of 8 high current and 8 high voltage probes with signal conditioning & cables. It can intake upto 600 V and give an output of 0-10v so that live voltage can be taken inside the simulator and provided to the model/controller logic being simulated inside the simulator hence facilitating Live voltages from DER Sources of the Microgrid to a simulated Controller / Plant Model	1

Annexure-V

NATIONAL INSTITUTE OF TECHNOLOGY DURGAPUR -713209

(An Institute of National Importance under Ministry of HRD, Govt. of India)

PROPRIETARY ARTICLE CERTIFICATE

Valid for the Current Financial Year

File Number and Date Reference		
1	Description of article	OPALRT RealTime HIL Simulator with measurement box
2	Forecast of quantity/annual requirement	1
3	Approximate estimated value for above quantity	6509470
4	Maker's name and Address	OPAL-RT Technologies PVT LTD, Banglore
5	Name(s) of authorized dealers /stockists	OPALRT Technologies (OEM)
6	I approved the above purchase on PAC basis and certify that : - - Note- Tick to retain only one out of (b), (c-1) or (c-2) whichever is applicable and cross out others. Please do confirm (a) by ticking it – without which PAC certificate will be invalid.	
6(a)	This is the only firm who is manufacturing/stocking this item. AND	✓
6(b)	A similar article is not manufactured/sold by any other firm, which could be used in lieu OR	✓
6(c- 1)	No other make/ brand will be suitable for following trangible reasons (like OEM/warranty spares) : OR	
6(c)	No other make/ brand will be suitable for following intangible reasons (if PAC was also iven in the last procurement cycle, please also bring out efforts made since then to locate more sources): OR	
7	Fund approval by IFC:	IFC order No..... dated.....

History of PAC purchases of this item for past three years may be given below

Name of the Supplier Order/Tender Reference & Date	Quantity Ordered	Basic Rate on Order (Rs.)	Adverse Performance Reported if Any

Recommended By:

Indenter / PI. 03/08/2026

Head
Department of Electrical Engineering
National Institute of Technology Durgapur
M.G. Avenue, Durgapur-713209, W. B. India.

Signature of Approving Authority (HOD / HoS).....

Designation of the Approving Authority with Seal.....

~~C13~~
C-6

OPAL·RT

OEM & Proprietary Article Certificate

To whom so ever it may concern

OP45605, OP4610, OP5705, OP5707, OP5020,OP5033, OP6000, OP7000, OP8662, OP4520 I/0 Expansion, OP4810-IO, OP8666, Controller Development Platform for CHIL, Modular Signal Conditioning Chassis with Voltage & Current Amplifier, Analog IO, Digital IO, RT-Lab, eHS FPGA Solver, Artemis, eMEGAsim, ePHASORsim, eFPGAsim, RT-XSG FPGA Blockset, RT-Lab drivers for IEC 61850 Goose, IEC 61850 Sample Value, IEC 60870-5-104, IEC 61850-9-2 Sample Value, DNP3, C37.118, MODBUS, etc. are proprietary products of Opal-RT Technologies Inc, Montreal, Canada. We are the Original Equipment Manufacturer (OEM) of all these products. Also, Opal-RT commercializes Hypersim Software from Hydro Quebec exclusively across the world & has the exclusive mandate to develop, upgrade and support it world-wide.

We hereby certify and confirm that all the above products/packages are solely manufactured by us & these are our proprietary items. The entire Indian sub-continent comprising of India, SriLanka, Bangladesh, Nepal & Bhutan are handled exclusively by our holding company in India at:-

OPAL-RT TECHNOLOGIES INDIA PRIVATE LIMITED
No. 1048, 4th B MAIN ROAD, 1st STAGE,
4th BLOCK, HBR LAYOUT, BENGALURU– 560043

In the Indian sub-continent, on behalf of Opal-RT Montreal office, Opal-RT India office will sell, hold all correspondences, do price negotiations, tender submissions, sub-vendor and partner approvals, bank guarantees, supply of items, govt compliances, etc. For any clarifications on these matters you may need, do not hesitate to contact

Mr. Girish Nanjundaiah
Managing Director
Opal-RT Technologies India Pvt. Ltd.

Please visit https://www.opal-rt.com/find-local-contact/ for absolute confirmation.

for OPAL-RT TECHNOLOGIES Inc.,

Jean Belanger
President & CEO
Opal-RT Technologies Inc.

OPAL-RT Technologies Inc.
1751, Richardson Suite, 1060, Montreal, Quebec, Canada- H3K 1G6
www.opal-rt.com

Opal-RT Simulator Proprietary Features

- Opal-RT Real Time Simulator has unique ability to perform high precision real time simulations on CPU with FPGA acceleration optimized for complex power system and hardware in loop testing.

- It has the unique capability of performing CPU + FPGA Co-simulation such that a single software model is simulated both on CPU & FPGA at the same time in different time steps to facilitate complex power electronics and power system simulations like Microgrid simulations etc.

- In Opal-RT Real Time Simulator the CPU simulation time step is any time step sized between 1 Mili Seconds to 10 Microseconds depending on the Model Complexity and the FPGA simulation time step is any step sized between 100 ns to 500 ns depending on the Model Complexity.

- Opal-RT Simulator has very efficient IO Channels . They have reconfigurable voltage ranges & fpga based control . AO channels have voltage range of ±5V, ±10V or ±16V (default value), AI channels have voltage range of ±20V . Further The digital IO's are specialized IO channels that can be configured as DI or DO ie have capability to perform both DIN &DO functionality hence giving much flexibility to the user. Digital IO's have Reconfigurable functionality for DIN/DO/ PWM/TSD/STATIC in banks of eight minimum.

- It has an Interactive User Interface ie the user can adjust parameters and set points and operate breakers and faults from a virtual operator's panel while the simulation is running ie it can change model parameters on the fly. This is very important for control system testing where the user needs to tune and adjust parameters and check the controller operation in response to different actions (ex. faults).

- It can do Automatic Core Allocation in cases of multi-core simulation & this helps in minimizing time and effort spent to allocate cores manually.

- OPAL-RT Real Time Simulator simulates models built in Matlab/Simulink software directly on the simulator hardware without converting them into c/c++/.exe/.dll files hence minimizing conversion errors and non-functionality of specialized library functions which occurs while converting Matlab / Simulink models into c/c++/.exe/.dll files for running them on Hardware. Also, Opal-RT Simulator allows the Matlab/Simulink models to interact with real world signals / external hardware through FPGA Controlled Analog /Digital I/O's . This helps in performing design validations quickly & accurately .

- Opal-RT Real Time Simulator has an FPGA programming environment interface for faster converter & Power Electronic Simulations hence eliminating complex VHDL Coding . Models developed in Matlab/Simulink for Power converter applications can run directly on the FPGA without VHDL coding.

- OPAL-RT Real Time Simulator is based on COTS Technology - Commercial- OFF- THE- Shelf technology ie hardware and software tools used for real time simulation are very flexible and provide intuitive implementation process hence allowing savings in designing and engineering efforts. OPAL-RT's COTS Technology provides the required and enhanced modelling, processing and I/O handling capabilities for a robust HIL simulation which is a critical requirement for development and testing of complex systems. Use of COTS technology ensures maximum long-term support, maintenance, expandability, and easy upgrade to future generations of computer technology thus ensuring that the systems doesn't become obsolete. and this is advantageous to industrial organizations universities and colleges.

Presence of all above unique features in Opal-RT Real Time Simulator makes it a proprietary product and a very desirable platform for Real Time Simulations and Hardware in loop testing for the Electrical Fraternity. Further to the best of our knowledge there is no other Real Time Simulation platform which possess all the above-mentioned features & capabilities.

Thanking you and Best Regards,
For OPAL-RT TECHNOLOGIES India Pvt. Ltd.

Gagan Deep Puri
Regional Head – Products & Services
+91-9818277887