OP4610 XG
RCP/HIL FPGA-Based Real-Time Simulator

OPAL-RT TECHNOLOGIES

XG series

Introducing OPAL-RT's mid-range real-time simulator: The OP4610XG

The OP4610XG is OPAL-RT's new compact mid-range simulator in its XG series and the successor of the popular OP4510.

OPAL-RT is taking real-time simulation to another level with the new XG series. The new OPAL-RT operating system, OPAL-RTLinux 3, combined with latest CPU technologies and our unique toolboxes, allow engineers to benefit from an unmatched performance to simulate, test, integrate and validate innovative products and solutions.

The OP4610XG delivers:

Power and Performance
Benefit from parallel processing to perform high-fidelity real-time electromagnetic transient (EMT) simulation of large and complex systems and an FPGA for high-frequency power electronics applications.

Connectivity
Connect your devices and systems without limitation, using up to 128 high-speed digital and analog I/O lines, 4 fiber-optic SFP sockets, and an array of communication protocols.

Expandability
Easily expand your simulation and I/O capacity using other OPAL-RT simulators and expansion units, PCI express of high speed SFP link with minimal latency.

PRODUCT HIGHLIGHTS

- Affordable powerful mid-range simulator.

- A lot of computing power available in a single chassis with Xilinx® Kintex®-7 FPGA and AMD Ryzen™, 6 cores at 3.8 GHz CPU.

- Onboard expansion slots accommodate up to 4 analog and digital I/O modules with signal conditioning to support a combination of up to 64 fast analog or 128 digital channels.

- Supports up to 4 SFP multi-mode fiber-optic modules and LVDS/fiber-optic synchronization for high-speed communication and synchronization between devices and expansion units.

- 2 PCIe expansion slots for adding communication cards.

- Extensive communication protocol support for various industries including IEC61850, C37.118, DNP3, CAN Bus, MODBUS, EtherCAT, and more.

SIMULATOR ARCHITECTURE
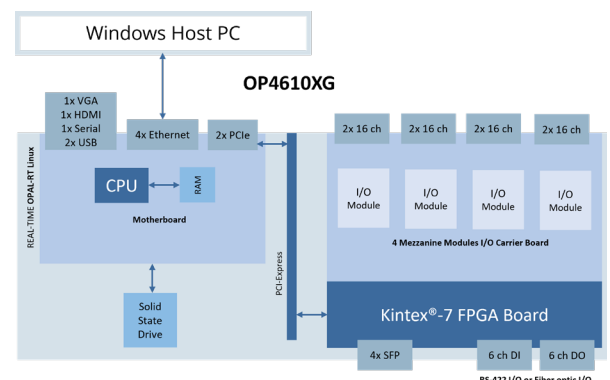
GENERAL SPECIFICATIONS

Computer	AMD Ryzen™ 6 cores, 3.8 GHz or equivalent, 16 GB RAM, 250 GB SSD
FPGA	Xilinx® Kintex®-7 410T
Software Platform Compatibility	RT-LAB and HYPERSIM
Toolbox Compatibility	ARTEMiS, eHS, ePHASORSIM, Orchestra, RT-XSG
High speed communication	4x SFP socket, 1 to 5 Gbits/s optical fiber
Dimensions & Weight	3U, rackmount, 48.3 (W) x 28.0 (D) x 14 cm (H) (19" x 11" x 5.5"), 6.4 Kg (14 lbs.) approx.

I/O INTERFACES

Default I/O module configuration suggested*

|	
32 Digital I/O (OP5369)	32 channels high range digital input output, Digital out: 50 mA per channel, 5-24 V push-pull FET, Digital in: 0-30 V, DIO selectable per group of 8 channels, 32 static digital.
2x 16 Analog Output (OP5330-3)	16 channels analog output, 1 MS/s (16 channels) or 2 MS/s (8 channels), 16-bit resolution, 15 mA, ±16 V
16 Analog Input (OP5342)	16 channels analog input, 2 MS/s, 16-bit resolution, 500 ns, ±20 V

* Other I/O modules and configurations are available. For compatible I/O modules, search "OP5300 Hardware Platforms Compatibility" in OPAL-RT's Documentation Hub at https://opal-rt.atlassian.net/wiki/spaces/PODLP/overview
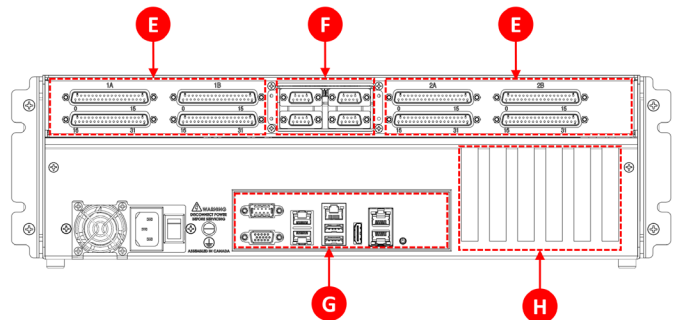
I/O AND CONNECTORS

FRONT VIEW
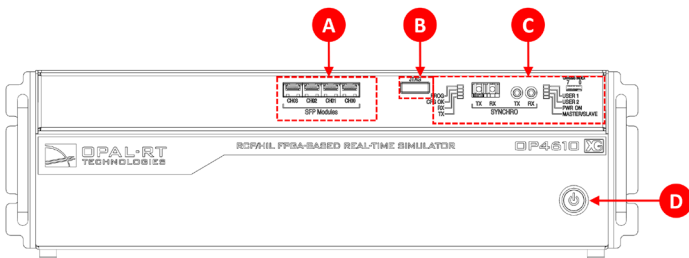
REAR VIEW

A. Small Form Factor (SFP) 5Gbits/s optical interface modules connectors
B. JTAG connector (for OPAL-RT technicians' use)
C. Synchronization connectors and status LEDs
D. Power button with integrated LED indicator

E. DB37 connectors for digital and analog inputs and outputs
F. RS422 differential inputs/outputs or fiber optic and synchronization connectors
G. Standard micro ATX computer connectors: 1 VGA port, 1 serial port, 2 USB 3.2 gen2 ports, HDMI port, 4 network ports (2x 10GbE, 2x 1GbE)
H. 2 PCIe free slot available for optional I/O card: Active/passive expansion PCIe (copper or optical fiber) to connect OPAL-RT expansion I/O chassis, CAN Bus protocol board, GPS time synchronization IEEE 1588 (RJ45 or SFP connectors) or dual-port RJ45 Gigabit Ethernet.

VISIT THE PRODUCT WEB PAGE

READ THE PRODUCT USER MANUAL

ABOUT OPAL-RT TECHNOLOGIES

OPAL-RT is the world leader in the development of PC/FPGA Based Real-Time Digital Simulator, Hardware-In-the-Loop (HIL) testing equipment and Rapid Control Prototyping (RCP) systems to design, test and optimize control and protection systems used in power grids, power electronics, motor drives, automotive industry, trains, aircraft and various industries, as well as R&D centers and universities.

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