OP5707

RCP/HIL FPGA-Based Real-Time Simulator

Introducing OPAL-RT's flagship real-time simulator : The OP5707

The OP5707 combines the power of a Xilinx® Virtex®-7 FPGA with up to 32 of the latest Intel® Xeon® processing cores to meet the requirements for the most demanding Hardware-in-the-Loop (HIL) and Rapid Control Prototyping (RCP) applications.

Based on the same platform as our best-selling OP5600, the OP5707 offers the same innovation with added performance and connectivity to meet top level requirements.

The OP5707 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 256 high-speed digital and analog I/O lines, 16 fiber optic SFP sockets, and an array of communication protocols.

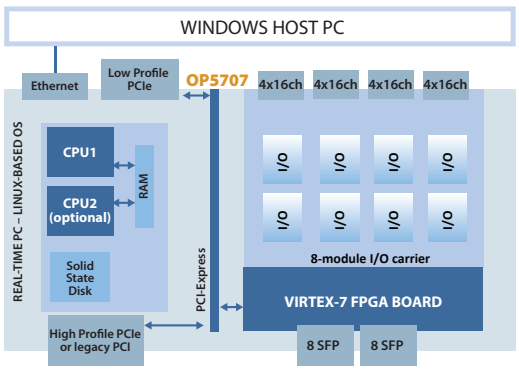
Expandability

Easily expand your simulation and I/O capacity using other OPAL-RT simulators and expansion units, through PCI Express with minimal latency.

PRODUCT HIGHLIGHTS

- Exceptional computing power available in a single chassis with Xilinx® Virtex®-7 FPGA and 4, 8, 16 or 32 Intel® Xeon® E5 processing cores.
- Onboard expansion slots accommodate up to 8 analog and digital I/O modules with signal conditioning to support a combination of up to 128 fast analog or 256 digital channels.
- Supports up to 16 SFP multi-mode fiber optic modules and LVDS/fiber optic synchronization for high-speed communication and synchronization between devices and expansion units.
- Extensive communication protocol support for various industries including: IEC61850, C37.118, DNP3, CAN Bus, ARINC-429 and more.
- Convenient RJ45 and mini-BNC monitoring connectors available at the front, with standard DB37 connectors at the back for simple HIL interfacing.

SIMULATOR ARCHITECTURE



GENERAL SPECIFICATIONS

CPU	Intel® Xeon® E5 series available with: • 4 Cores, 3.0 GHz • 8 Cores, 3.2 GHz • 2x8 Cores, 3.2 GHz • 2x16 Cores, 2.3 GHz
FPGA	Xilinx® Virtex®-7 FPGA, 485T
Software Compatibility	RT-LAB and HYPERSIM suites, RT-XSG support for custom FPGA applications
High speed communication	16 x SFP socket, 1 to 5Gbps, duplex multi-mode optical fiber 50/125 µm with support for Xilinx® Aurora (1-5Gbps)
Performance	96 3-phase buses by core FPGA: timer resolution of 5ns supports model time steps as low as 145ns using eHS
Dimensions & Weight	22.1 x 47.7 x 49.3cm (8.8" x 18.8" x 19.4") HxWxD, 17kg (37.5lbs)

I/O INTERFACES

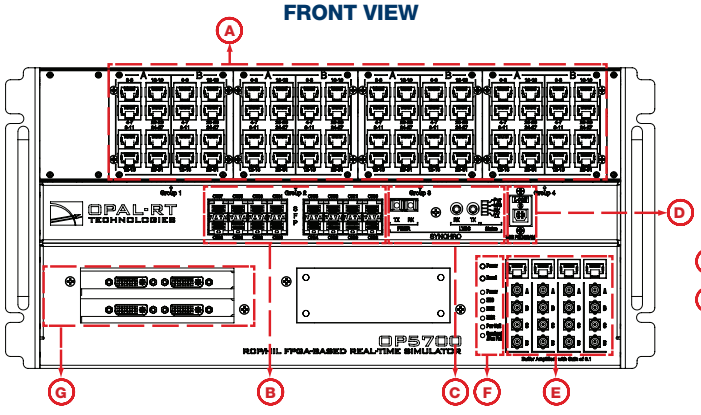
Standard signal conditioning modules*:

Digital output (OP5360-2)	32 channels, push-pull, 65 ns typical propagation delay, 5v to 30v, adjustable by user supplied external voltage, 50 mA max, short-circuit protected, galvanic isolation
Digital input (OP5353)	32 channels, 4v to 30v, 3.5mA min, 40 ns typical propagation delay, galvanic isolation
Analog input (OP5340)	16 channels, 16 bits, 400kS/s /ch simultaneous sampling, ±20V true differential input, 400 kOhms input impedance.
Analog output (OP5330)	16 channels, 16 bits, 1MS/s/ch simultaneous output, ±16V, 10 mA (20 mA with optional fast driver), short-circuit protected

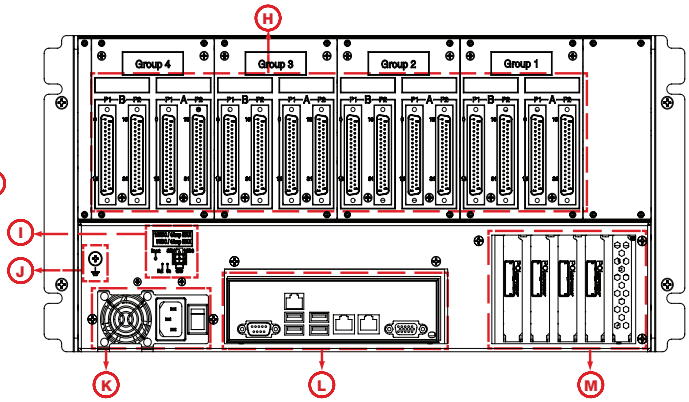
* Additional modules available, including TTL or LVDS Digital I/O, and high speed Analog Input/Output modules.

I/O AND CONNECTORS

FRONT VIEW



REAR VIEW



A & E. RJ45 to BNC monitoring interfaces

B. SFP sockets

C. Hardware synchronization connectors

D. USB port for JTAG programming

F. Standard computer connectors

G. Optional bays for high profile PCIe, or legacy PCI cards

H. DB37F I/O connectors

I. 5V/12V power connector

J. GND screw

K. Power plug and on/off switch

L. Computer connectors

M. Low-profile PCIe slots

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.

OPAL-RT TECHNOLOGIES

opal-rt.com