The OP4200 RCP system offers Rapid Control Prototyping (RCP), data acquisition and I/O expansion capabilities in a desktop-friendly package combined with RT-LAB software. Create more advanced FPGA RCP applications by adding the RT-XSG toolbox for FPGA real-time simulation.

- Flexible connectivity including CAN bus and SFP optical interfacing to meet various industry needs
- High precision PWM capture and generation, and other timed signals (Encoder, Resolver, Hall Effect)

Quickly move from your MATLAB/Simulink® designed control systems into real time with RT-LAB, our platform to perform your innovative industrial and research RCP tests and validation.

Combustion engine control, robotics, battery management system emulation, Uninterruptible Power Supply (UPS) control, motor drive controller, microgrid agent control, classroom experiments, workshops and more.
### Hardware

**OP4200 Simulator**
- ARM® Cortex® A9 CPU - 2 cores - 1 GHz, Xilinx Zynq® FPGA Kintex™7 125K LUT
- Connectivity - Ethernet port 10/100/1000 Mbps (RJ45), RS232 (DB9), USB2.0, 5-Gbit/s high-speed fiber optic link (2x SFP)
- Digital Input | 32 channels, 4.5V to 50V, 40 ns typical propagation delay
- Digital Output | 32 channels, 5V to 30V, 65 ns typical propagation delay
- Analog Input | 16 channels, 16 bits, 500 kS/s, +/-20V, adjustable range
- Analog Output | 16 channels, 16 bits, 1 MS/s, +/-16V
- Analog Input | 16 channels, 16 bits, 2 MS/s, +/-20V
- Timed Generation and Measurement Firmware | Selectable 32 timed digital inputs and 32 timed digital outputs

### Software

**RT-LAB | Real-time Simulation Software**
**RT-XSG | RT-XSG toolbox for FPGA real-time simulation**

### Communication Protocols

**CAN Bus interface board**

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**Key Performance Specs**

- Outer Control Loop Frequency (CPU): < 10 kHz
- Fast control loop Frequency (FPGA): < 1 MHz (option)
- Advanced PWM generation: up to 200 kHz, resolution 5 ns

### Typical Use Case

**RCP Process**

### System Configuration

**Baseline**

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### Optional

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Bundle No: OP42BDL-RCP-SPS