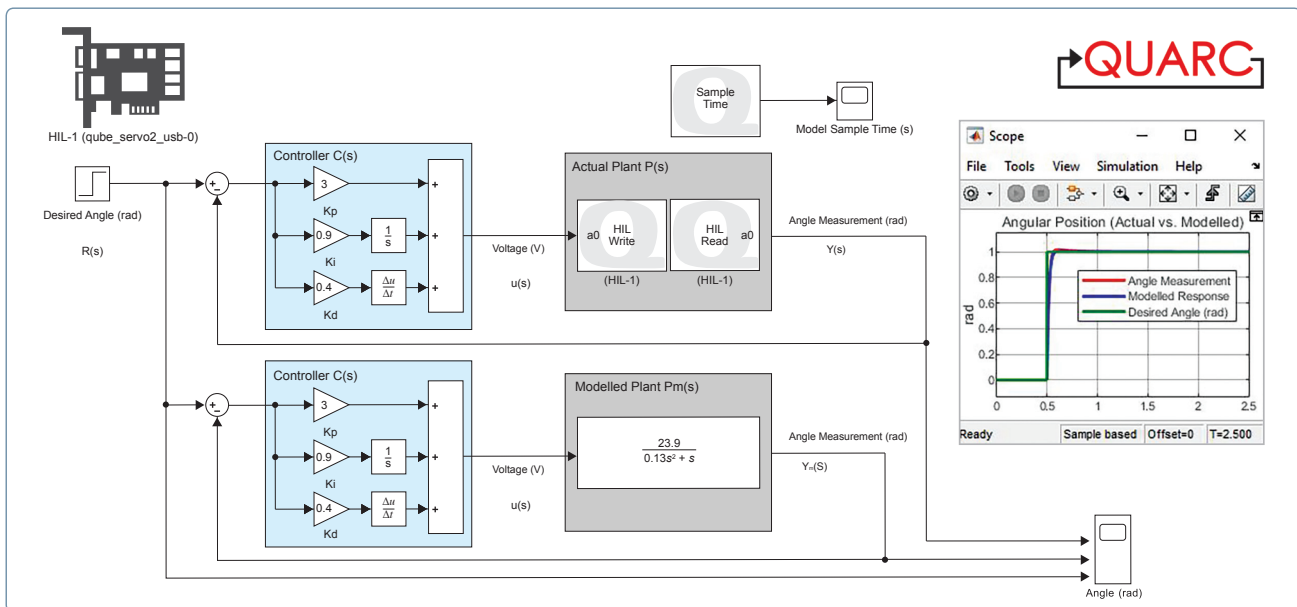


# QUARC™

QUARC is the most efficient way to design, develop, deploy and validate real-time applications on hardware using Simulink®

Thousands of academic institutions worldwide use QUARC to accelerate their teaching and research activities. With QUARC, educators don't need to worry about interfacing to hardware or deterministic performance. They can use the intuitive graphical interface of Simulink to give students a systematic understanding of the design of mechatronics, robotics, and control systems and let them interact with these systems in real time. The customizable QUARC-based curriculum included with all Quanser teaching products helps students bridge the gap between theoretical models and algorithms, and the real world.

For researchers, QUARC offers the performance they need to characterize and validate algorithms in simulation and on hardware. QUARC makes developing algorithms fast and reliable, thanks to an extensive set of research-grade libraries for communications, multi-threaded execution, image and video processing, and more. With QUARC, researchers can deploy their algorithms to a wide variety of local and remote platforms with the push of a button, without having to worry about languages or cross-compilers. QUARC quite simply lets you focus on your research while it takes care of the rest.



### QUARC HOST

Simulink Development Environment (SDE)

- > Open Architecture
- > Graphical Development Environment
- > Rapid Control Prototyping
- > Software Interfacing

### QUARC TARGETS

- > Multiple/Concurrent/Remote
- > Real-Time Performance
- > Real-Time Communication
- > Hardware Integration
- > Robotics and Autonomous Applications

# LICENSING OPTIONS



## QUARC Essentials

Take full advantage of Quanser's course resources to rapidly deploy an experiential teaching lab.

- Enables the complete range of Quanser teaching products and course resources
- Support for the Simulink graphical development environment using external mode to enable real-time execution, parameter tuning, and data monitoring in Windows
- Quanser hardware-in-the-loop (HIL) API for fast and easy access to a wide variety of hardware devices from data acquisition cards and cameras, to user interface devices including joysticks and haptic wands
- Direct interface to a variety of FLIR cameras for image processing
- Extensive library of utilities for rapid control prototyping
- Support for the NI myRIO and NI ELVIS III embedded platforms

## QUARC Integration

The easiest way to communicate in real-time between any distribution of applications, at any rate, using any protocol.

- All features and capabilities of QUARC Essentials
- Real-time persistent and deterministic communications
- Support for data I/O using TCP/IP, UDP, shared memory, serial, SPI, I<sup>2</sup>C
- Execution options for communications include synchronous/asynchronous, blocking and non-blocking

## QUARC Autonomous

Seamless application prototyping for autonomous multi-platform, multi-agent research.

- All features and capabilities of QUARC Integration
- Support for autonomous systems including Quanser QBot 2e mobile robot and QDrone quadrotor
- Directly access localization data from NaturalPoint OptiTrack and Vicon camera systems
- Dynamically reconfigure your code to provide flexible operating modes
- Optimized application library for autonomous vehicles including reference frame operations, image processing, and video compression and transmission

## QUARC Robotics

Rapid control prototyping for advanced robotics research.

- All features and capabilities of QUARC Integration
- Hardware support for Quanser Joint Control Robots and haptic devices
- Interact with your software using the 3D Systems Phantom and Force Dimension haptic devices
- Optimized application library for robotics including reference frame operations, kinematics, image processing, and video compression and transmission

## QUARC Complete

Catalyze ambitious engineering solutions, from transformational labs to prolific research.

- All features and capabilities of all licensing options
- Jump-start ambitious teaching labs and showcase spaces
- Accelerate research from complex robotics and unmanned systems applications, to emerging fields including IoT and cyber-physical systems

### About Quanser:

For 30 years, Quanser has been the world leader in education and research for real-time control design and implementation. We specialize in outfitting engineering control laboratories to help universities captivate the brightest minds, motivate them to success and produce graduates with industry-relevant skills. Universities worldwide implement Quanser's open architecture control solutions, industry-relevant curriculum and cutting-edge work stations to teach Introductory, Intermediate or Advanced controls to students in Electrical, Mechanical, Mechatronics, Robotics, Aerospace, Civil, and various other engineering disciplines.