

Scope of Work

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I. SCOPE OF SOLICITATION

This scope of work details the requirements to purchase a real-time simulation computer for running dynamic models of test hardware located at Clemson University's Wind Turbine Drivetrain Testing Facility.

One computer is required. This computer will be a key element of the facility's real-time simulation laboratory. The computer will be responsible for executing real-time models of multi-body mechanical systems, hydraulic systems, and electrical systems. In addition to being part of a simulation laboratory, the real-time simulation computer may be used to interface with actual test bench hardware. The computer will be used for both operational and research activities.

Clemson University requests that the computer outlined in this scope to be delivered on or before July 1, 2014.

II. INSTRUCTIONS TO OFFERORS

Regardless of specific requirements below or in this document, Offerors are required to submit their proposal electronically through the Clemson University online bidding system. To do so you must login (registering first) at <https://sciquest.ionwave.net/prod/default.aspx?company=Clemson>, and follow specific instructions for this solicitation. You should register several days in advance of the bid closing date so you can be approved and login in time to submit a response.

1. INFORMATION FOR OFFERORS TO SUBMIT - In addition to information requested elsewhere in this solicitation, Offerors should submit the following information for purposes of evaluation:
 - a. The successful Offeror shall provide satisfactory evidence of all required insurance coverage and licenses PRIOR TO PERFORMANCE

III. SCOPE OF WORK / SPECIFICATIONS

Requirements for the enclosures

A quantity of one (1) computer is required and must meet or exceed the following criteria:

1. The computer shall run a real-time operating system to ensure deterministic execution of the real-time models.
2. The system shall come with software capable of integrating real-time models from various sources and coordinating their execution.
3. The supplier shall provide documentation of past success running Simpack multi-body models in real-time to substantiate status as a qualified vendor for the computer system requested in this document. Include a listing of prior customers who may be contacted as references by Clemson University.
4. Provide technical solution for incorporating a Clemson owned PMC-5565PIORC-210000W01 Reflective Memory node card into the computer. Clemson is currently in possession of said card and would like to use this card as part of the simulator rather than have to purchase an additional reflective memory card.
5. The computer shall have a multifunction analog I/O card with 16-Bit resolution, 32 single ended/16 differential Channels A/D; 4 Channels D/A, and 16-Bit DIO. This card should have a PCI form factor. Matching cable and breakout board shall be included.
6. The computer shall have a rack mount enclosure form factor.
7. The computer shall have a 2.9 GHz Xeon 8-Core CPU with 20 MB cache.
8. The computer shall have 16 GB of 1866 MHz RAM.
9. The computer shall have dual gigabit ethernet ports.
10. The computer shall have 1 serial port, 2 USB ports, 3 PCIe slots, 3 PCI slots, and 10 SATA ports.
11. The computer shall have support for dual monitors.
12. The computer shall have a 250 GB 7.2K SATA drive, non-RAID configuration.
13. The computer shall have a USB keyboard and optical mouse.
14. The computer shall have an 800W redundant power supply.
15. The computer shall have a DVD±R/RW SATA Drive.
16. The computer shall have a Real-Time Clock & Interrupt Module in a PCIe form factor.
17. Provide for shipping of the final product to the Clemson University Wind Turbine Drivetrain Test Facility located in North Charleston, SC.
18. The computer shall have the capability to run three simultaneous EtherCAT slaves and make simulation output available on all three EtherCAT busses.
19. The computer shall have a standard Ethernet port for connecting to the internet.
20. The system shall come with user manuals in PDF format.
21. The supplier shall offer a yearly maintenance program where software updates are available and the system is returned to the factory if needed.

The requested computer is labeled as Real-Time Simulator in Figure 1. This figure is meant to clarify the I/O requirements by showing communication pathways between various laboratory and test bench components.

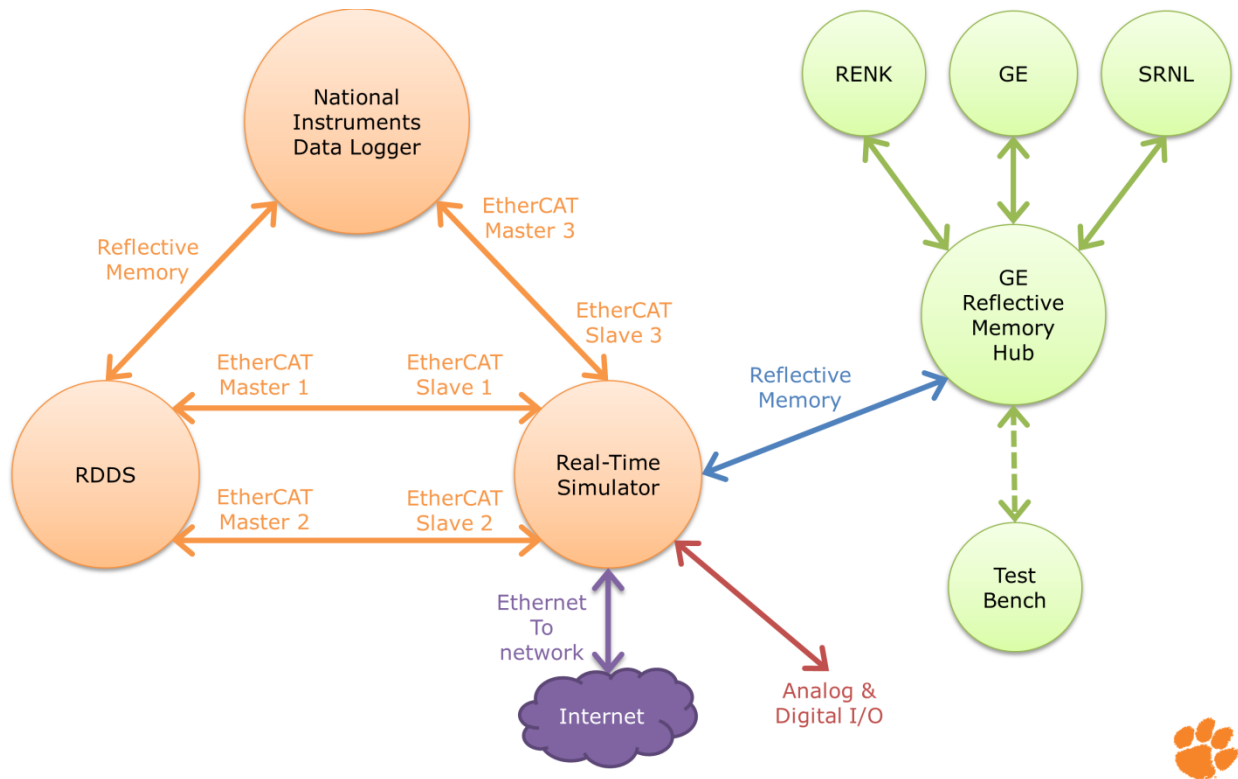


Figure 1. Communications diagram. The orange elements make up the simulation laboratory. The green elements represent elements of the physical test benches. The orange arrows identify communication pathways between elements of the simulation laboratory and the blue arrows shows how the Real-Time Simulator may interface with the actual test bench equipment.