

The background of the slide is a photograph of a server room. It shows multiple rows of black server racks filled with electronic equipment. Numerous blue and black cables are plugged into the front of the racks. A prominent red cross-shaped warning symbol is visible on the front panel of several units. A red rectangular box is overlaid on the left side of the image, containing the title text.

Lab 3: Time Synchronization

SGT EE-472

Monday, March 10, 2025

PC – login instructions



During start-up, select the LABVIEW image. If the login below doesn't work, restart the computer.

Login credentials (other user):



User name: .\sgt

Password: EE-472smart

cRIO (compactRIO)

- Real-time embedded industrial controller from National Instruments
- LabVIEW

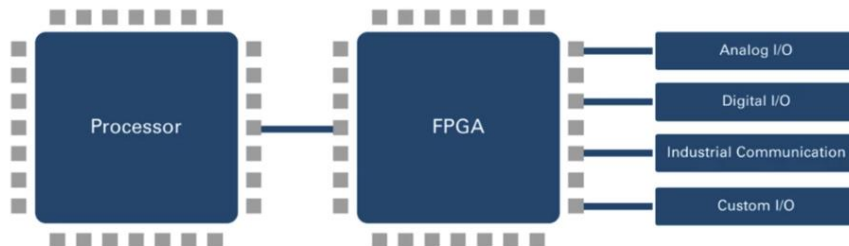


cRIO (compactRIO)

RT Processor

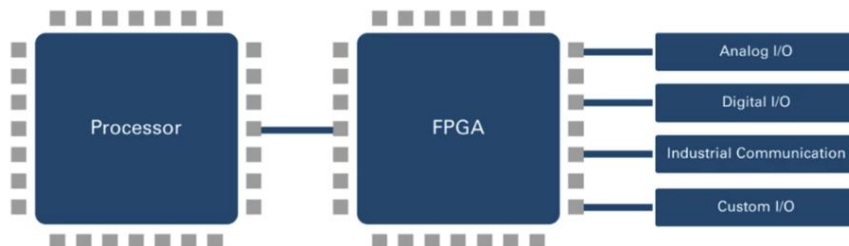
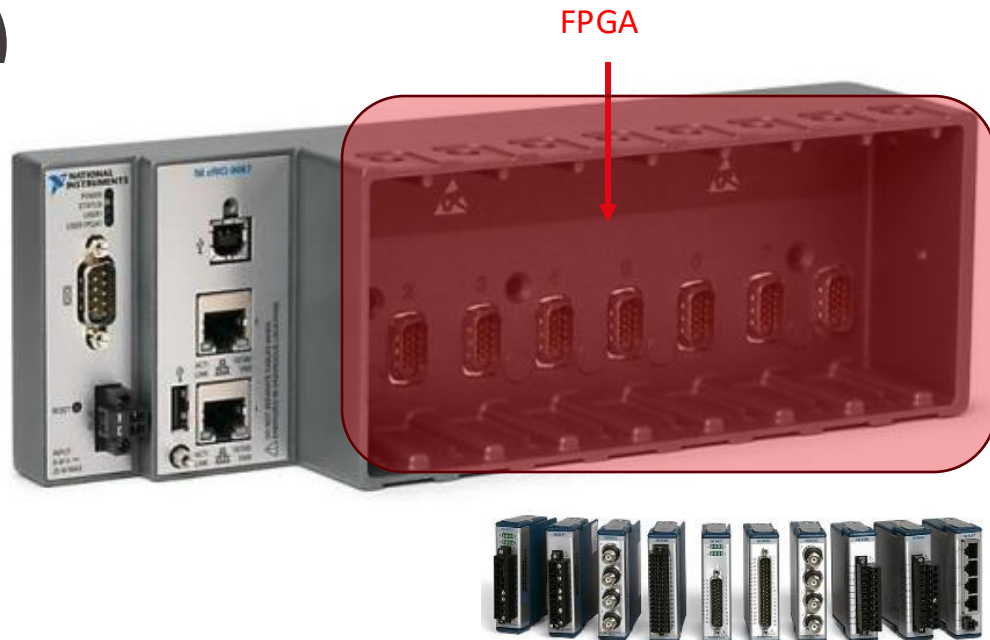


1. Real-time Processor
 - Running applications
 - Real-time analytics
 - Manipulate datasets
 - Signal processing
 - Data logging
2. FPGA (Field Programmable Gate Array)
3. Modular I/O



cRIO (compactRIO)

1. Real-time Processor
2. FPGA (Field Programmable Gate Array)
 - Reconfigurable FPGA
 - Reliable, fast, deterministic execution with high throughput
 - Custom timing, triggering and synchronization
3. Modular I/O

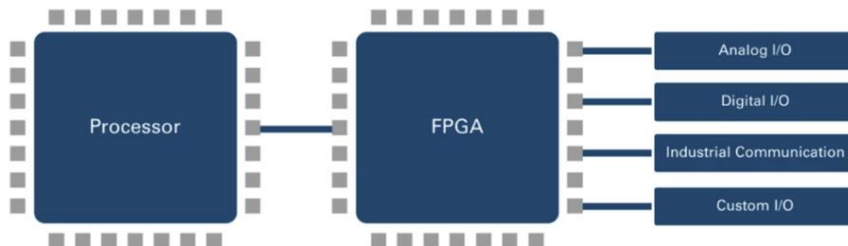


cRIO (compactRIO)

1. Real-time Processor
2. FPGA (Field Programmable Gate Array)
3. Modular I/O
 - Customizable inputs and outputs
 - Direct connection to FPGA for minimal latency



C Series I/O Modules



Working on the FPGA

- To halt the FPGA **do not use the red abort button**
 - This may improperly stop the FPGA and cause problems when you try to run it again.
 - Run the real-time (RT) VI to run the FPGA
 - Use the **stop button on the RT VI** to properly halt the program
- Do not change anything on the FPGA VI
 - Moving or modifying any element on the front panel or block diagram will require that you recompile the FPGA code which can take several minutes
 - If you change anything, it is faster to redownload the project from moodle
- Your cRIO can also be accessed from the **NI MAX application** (under remote systems)