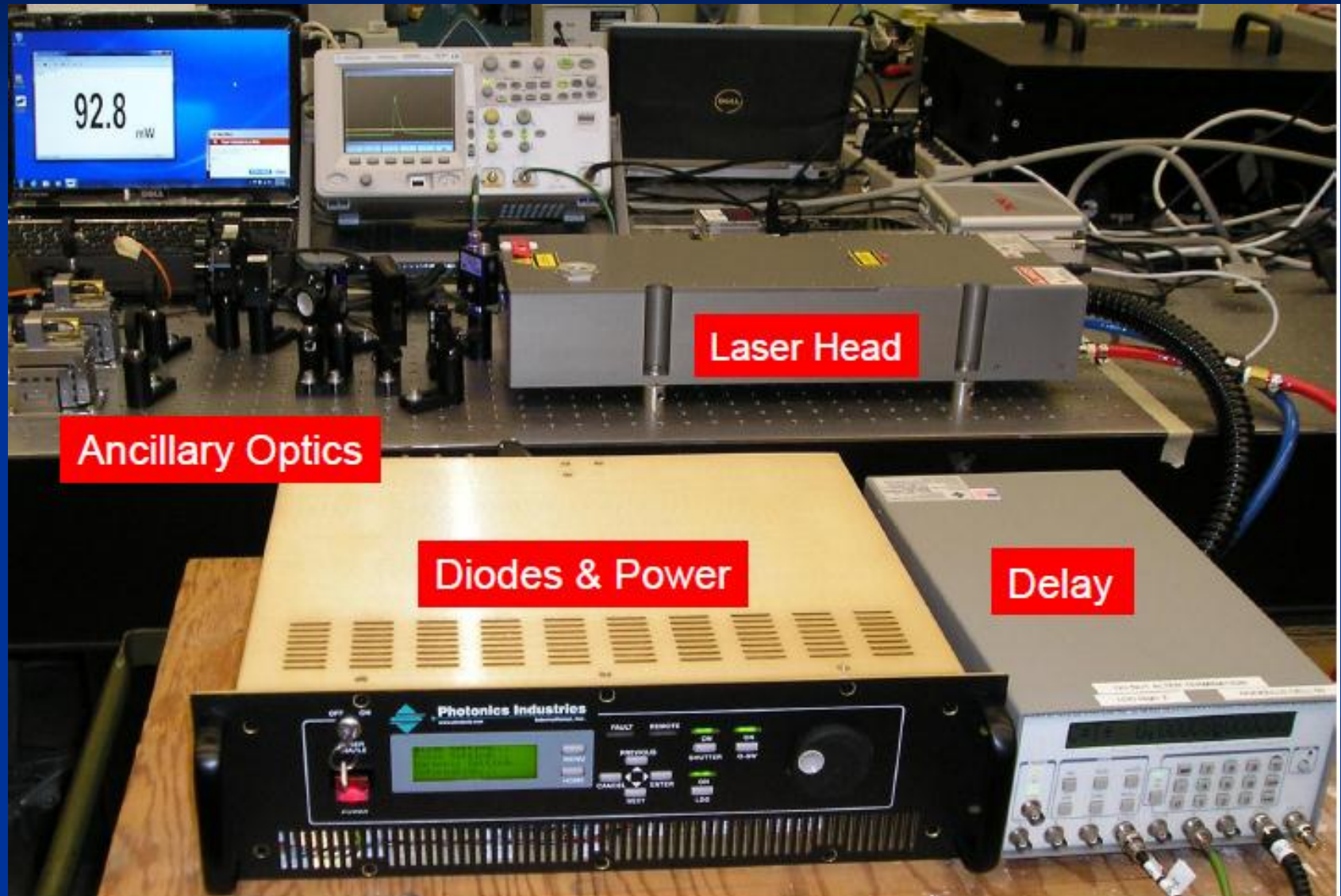


Integration of DP2-447 into the ECAL DAQ

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DP2-447 Laser System



DP2-447 Control Software

- ✓ A PC controls and monitors DP2-447 operation through its RS-232 interface.
- ✓ Its DG535/DSO for trigger/slow monitor communicates with the PC through GPIB
- ✓ Its shutter and attenuator communicates with the PC through RS-232.
- ✓ Its spectrometer communicates with the PC through USB.
- ✓ This stand-alone system was implemented at Caltech about two weeks ago.

Current Communication Protocol between the Laser DAQ and XDAQ Laser Supervisor

- ✓ The communication is based on TCP/IP.
- ✓ XDAQ laser supervisor sends a command file to the laser DAQ:
 - ✓ COMMAND TYPE (int) 1: set laser parameters
 - ✓ WAVELENGTH (int) 0: 440 nm 1: 495 nm 2: 709 nm 3: 796 nm
 - 0: 440 nm (ch#1 or 2)
 - 1: green (ch#4)
 - 2: DP2-447 (ch#5)
 - 3: 796 nm (ch# 3)
 - ✓ ATTENUATOR (int) 1 – 99 % of laser power
 - ✓ SWITCH CHANNEL (int) 1 – 80
 - ✓ CHECK-SUM (int) Bitwise inversion of the sum of preceding 4 data

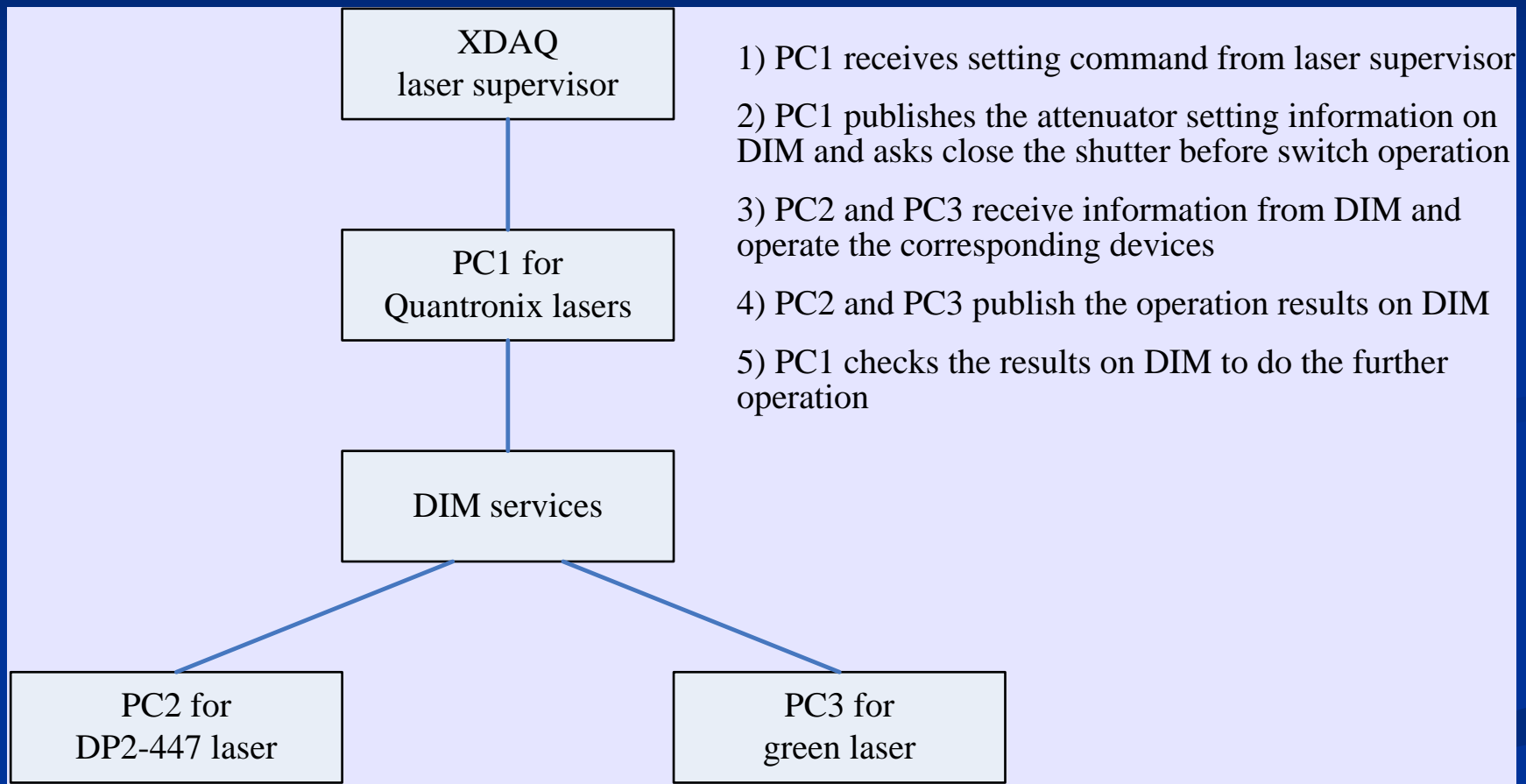
Published Laser Information on DIM to DCS

- The status of three Quantronix lasers are already published on DIM.
 - Switch Channel position
 - Pumping current
 - Shutter open/close
 - Wavelength
 - Attenuator position
 - Delay settings for DG535
 -

Principles for DP2-447 Integration

- Current laser DAQ for Quantronix lasers disturbed at a minimum level.
- DP2-447 functions as a stand-alone system which may be moved away from laser barracks if needed.
- Communication between DP2-447 with the PC running laser DAQ through Ethernet.

Proposal for Integrating DP2-447 and Saclay Green



Saclay green can stay as it is without communicating with PC1

Other Considerations

- Switches are protected by shutters, so there is no laser pulses allowed into switches unless selected. Will update slow shutters (1 sec) to fast ones (ms).
- Individual attenuators for each laser are set to equalize the laser pulse intensity sent to switches, so that no operation of the attenuators between switches is needed.

Summary

- A standalone DAQ is ready for DP2-447.
- The communication between PCs is via DIM service. PC1 will communicate with the laser supervisor and publishes setting information on DIM.
- After commission stand-alone DP2-447 this week the next step is to integrate DP2-447 into the current system. A time slot, either in the weekend or early next week, is needed to replace PC1 and test communication.