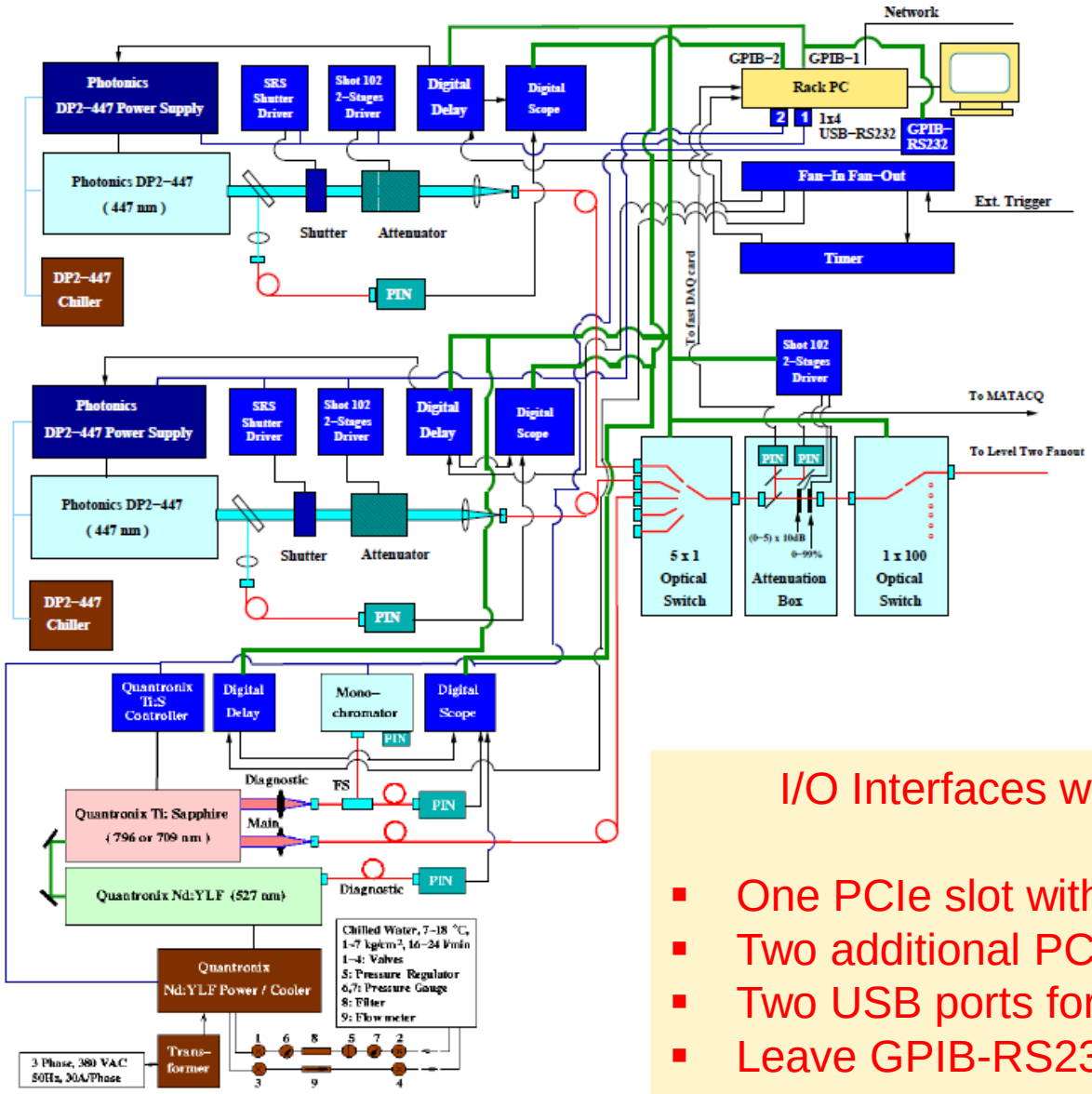
Plan for the ECAL Monitoring Laser System

The Caltech Laser Team

November, 2013

Plan for Three Lasers



Two DP2 Blues & One Quantronix IR

Three PCs used in 2012 for the slow and fast monitoring and the 1st DP2 will be replaced by one racked mounted standard PC supported by CMS.

I/O Interfaces with Quantronix IR added

- One PCIe slot with a convertor to PCI.
- Two additional PCIe slots for PCIe-GPIB.
- Two USB ports for two DP2 1 x 4 USB-RS232.
- Leave GPIB-RS232 unchanged for the IR.

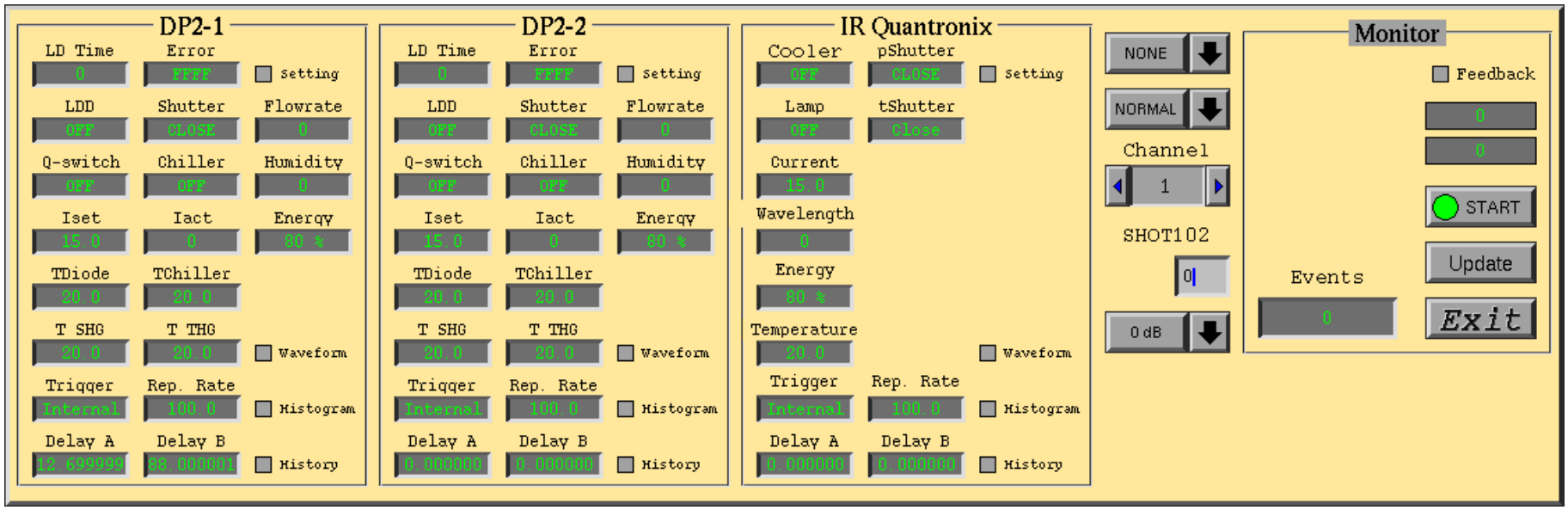
System Components & Controls

Existing desktop PC has 3 PCI slots

No	Instrument	Model	GPIB	RS232	USB	LAN	Existing Desktop PC	Rack-mount PC*	Comments and other options
1	Digital Scope	Agilent DSO 6052A	IEEE488.2: 500 kb/s	N/A	USBTMC-USB488: 3.5 Mb/s	100 Mbps LAN (TCP/IP): 1 Mb/s	PCI-GPIB-0	PCIe-GPIB-0	
2	Delay Unit	SRS DG535	IEEE488	N/A	N/A	N/A	PCI-GPIB-1	PCIe-GPIB-1	
3	Fast Shutter	SR470	IEEE488	Yes	N/A	Yes	USB-RS232	USB-RS232	Using 1x4 USB-RS232 converter
4	Optical Switch	DiCon GP700	IEEE488	Yes	N/A	N/A	PCI-GPIB-1	PCIe-GPIB-1	RS232 may be used with switching time compromised
5	Attenuation Controllers	OptoSigma Shot-102	IEEE488	Yes	N/A	N/A	PCI-GPIB-1 & USB-RS232	PCIe-GPIB-1 & USB-RS232	Using 1x4 USB-RS232 converter
6	DPSS Laser	Photonics DP2-447		Yes			USB-RS232	USB-RS232	Using 1x4 USB-RS232 converter
7	Fast Monitoring Digitizer	Agilent U1071A-001	N/A	N/A	N/A	N/A	PCI port	PCIe-PCI converter	PCIe-PCI converter to be tested.
11	YLF Power Supply	Quantronix 527DQ		Yes			PCI-GPIB-1, GPIB-RS232 (ICS 4896)	PCIe-GPIB-1, GPIB-RS232 (ICS 4896)	Option
12	Ti:S Laser	Quantronix Proteus		Yes			PCI-GPIB-1, GPIB-RS232 (ICS 4896)	PCIe-GPIB-1, GPIB-RS232 (ICS 4896)	Option

Rack-Mounted PC needs three PCIe slots

New Laser Software



- Redesign laser control software to control two DP2 + one IR laser
- Redesign GUI to display the laser information as much as possible
- Replace GPIB to RS232 with USB to RS232 for DP2 lasers
- Implement automatic alarm e-mail notice to a list
- Test control for one DP2 with a desk top PC at Caltech
- Test control for two DP2 + IR with a rack-mounted PC at CERN