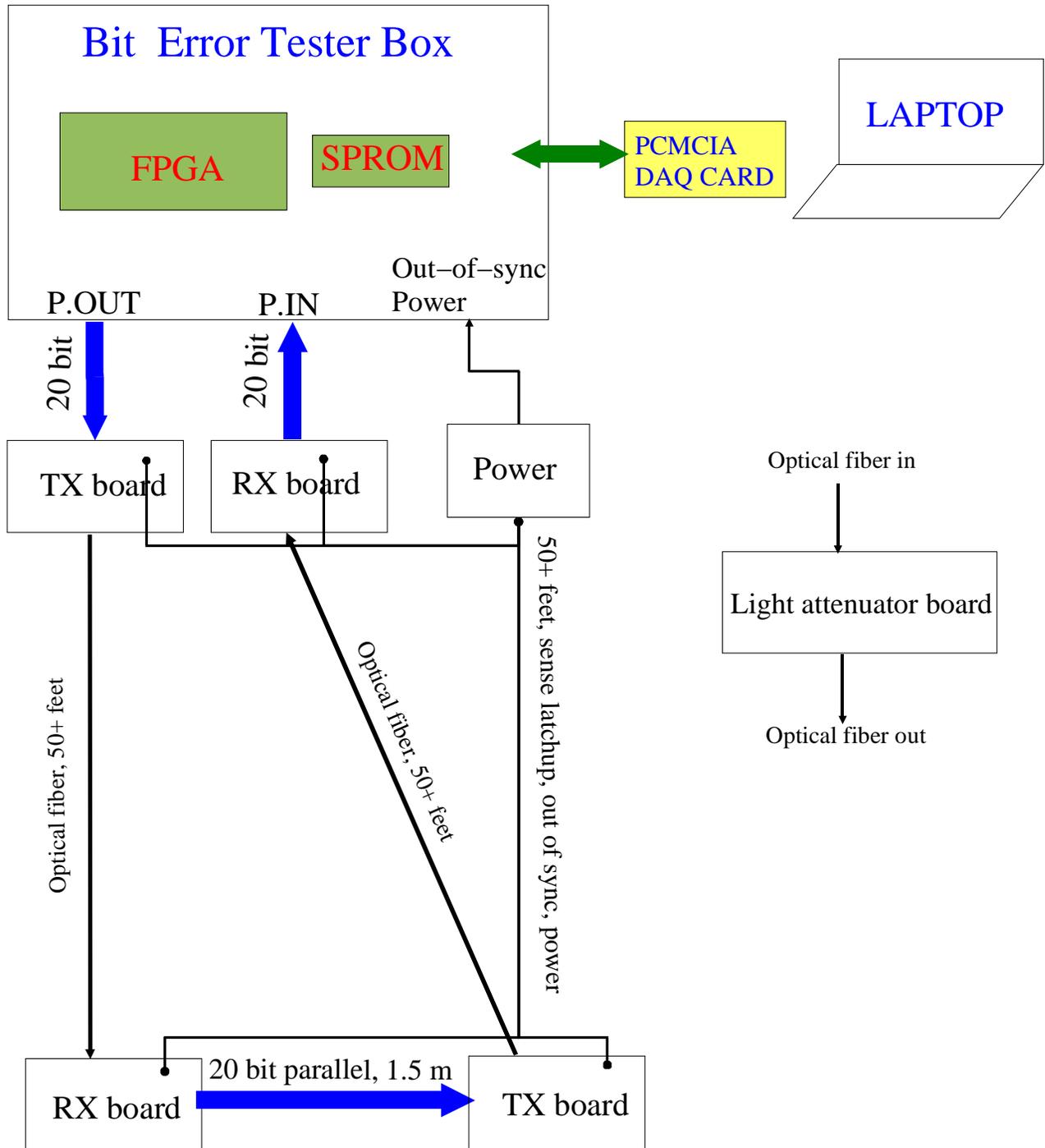


SEU TEST SETUP BLOCK DIAGRAM



Work Partition

UCI contact: Yong Li

BNL contact: Kurt Vetter

Board functionality

BNL duty: construct the following hardwares and provide the pin layout and power supply requirement to UCI.

TX board: HDMP 1022, take in 16/20 bit parallel input, serialize it and send out serial signal via optical fiber. **5 boards.**

RX board: HDMP 1024, take in serial signal from optical fiber, deserialize the signal into 16/20 bit parallel output. One additional pin to indicate **out of sync** of the G-links.
5 boards.

Optical fiber: 50+ feet length, **2 fibers.**

UCI duty: construct the following hardwares and program the FPGA and DAQ softwares.

Bit Error Test Box: generate pseudo random 16/20 bit words and send out in parallel; receive parallel input 16/20 bit words and the out-of-sync signal. Correlate words generated and received, generate error log information and send it out to DAQ computer if upset or link-down occurs.

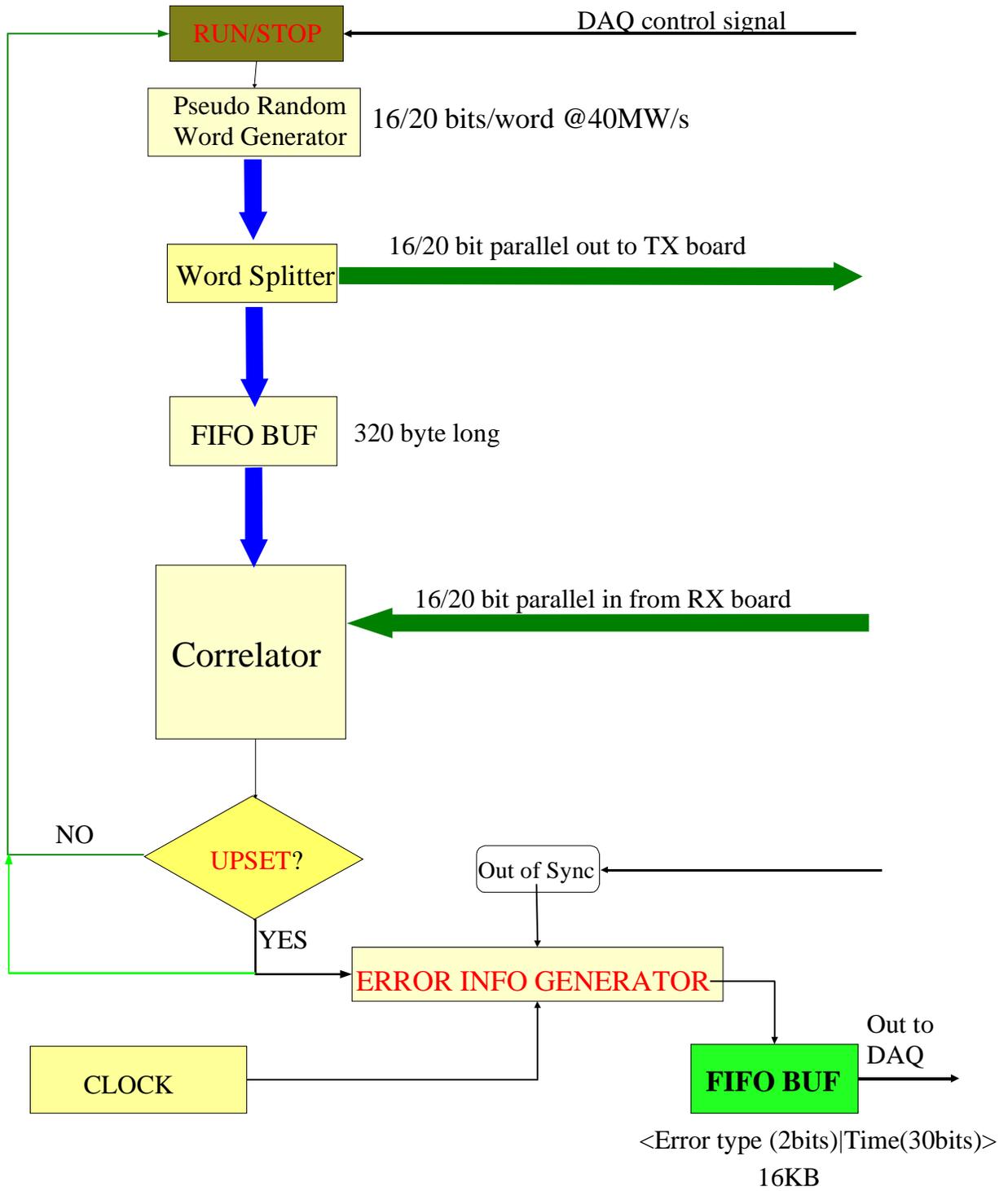
FPGA software: program running on the FPGA chip, implementation of the Bit Error Rate Test.

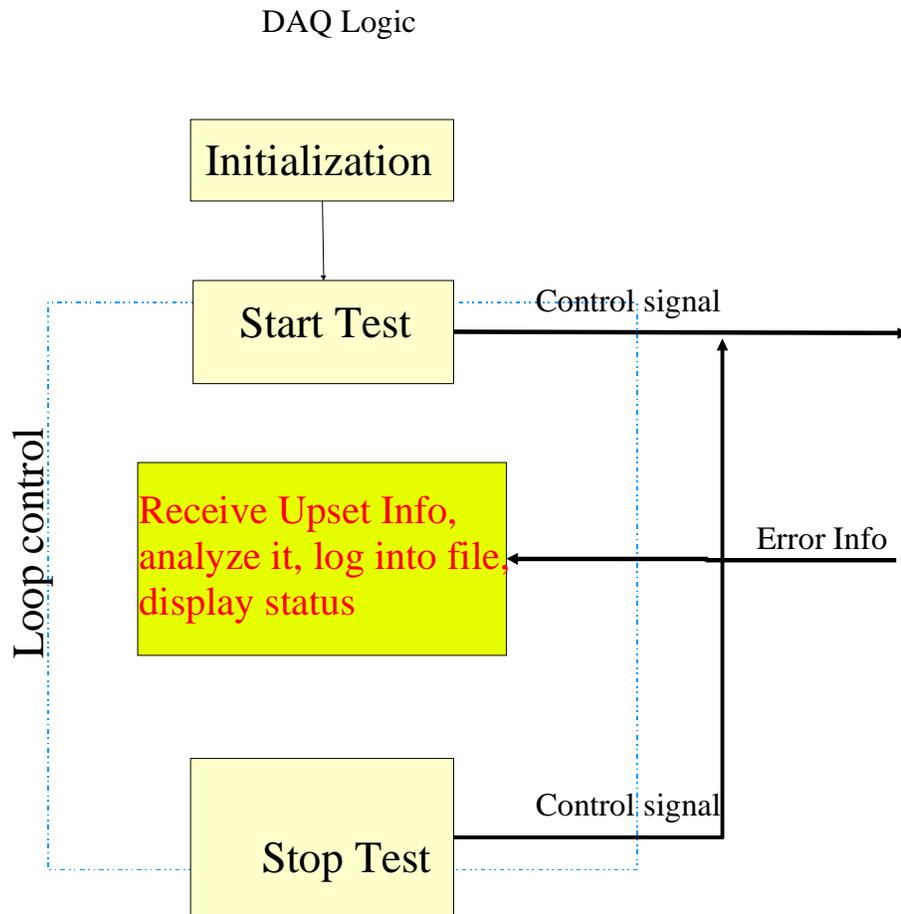
DAQ software: run on laptop, DAQ control, book keeping, status monitoring.

Power Supply board: provide power to all the boards, sense latching and detect out-of-sync, forward out-of sync to BERT.

Parallel ribbon cables:

Light Attenuator: reduce light power in fiber optics.





Error Info Data Format:<Header (1byte)|Error type (2 bits)|Time (30 bits)|Trailer (1 byte)>

Header: 10101010

Trailer: 11110000

Error Type: 00/single bit upset, 01/multiple bit upset, 10/link-down begin, 11/link-down end

Cost Estimate

Bit Error Test Box: \$1000
PCMCIA DAQ CARD: \$700 including cable
Laptop: \$1500
Ribon cables and connectors: \$300
TX board: ??
RX board: ??
Attenuator board: ??
Optical fibers: ??

Irradiation Test: 8 hours X \$400/hr @ Davis
8 hours x \$0/hr @ LANL
Accomodation: ??

Schedule

Hardware design complete by Sept. 1.
Board fabrication and construction by end of September.
Software ready and tested by end of September
Irradiation test at Davis in Mid October.
Test in LANL when time slot is available.