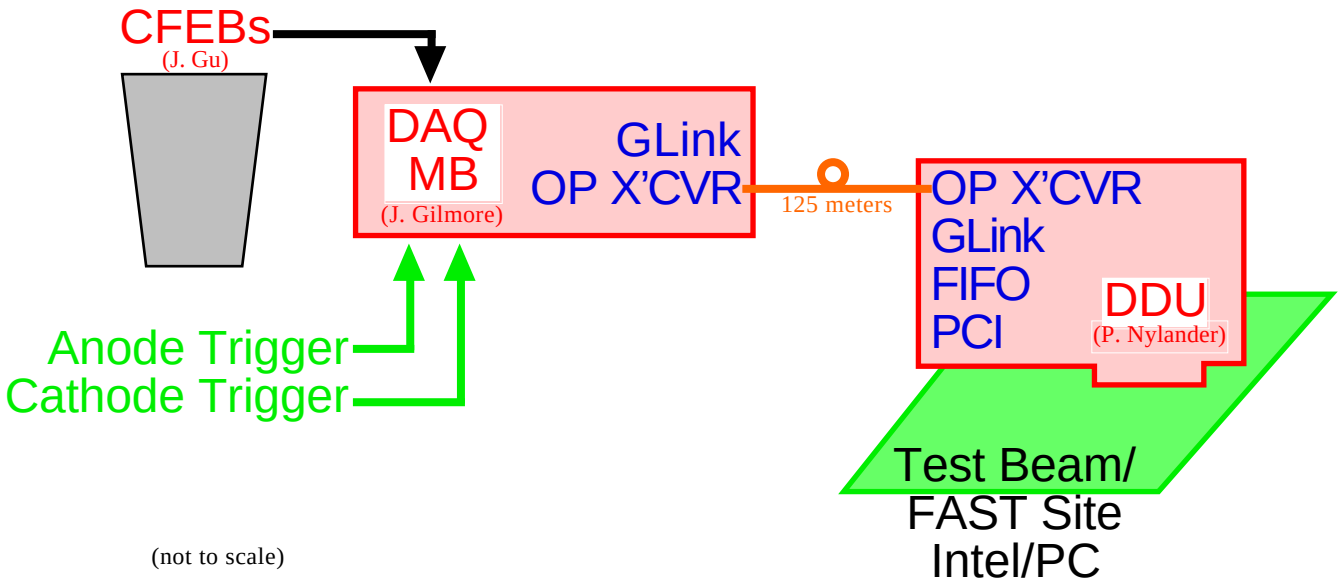
The CMS EMU CSC DDU from OSU

...and other three letter words

Who are we?

- **Paul Nylander -- HW Design & SW Implementation**
- **Dan Herman -- HW Engineering**
- **etc. (OSU CMS Group & OSU Electronics Shop)**

Status of Summer Test Beam Readout Hardware



(not to scale)

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" DDU Features "

- **75 MHz X 16-bit PLL Optical Link (HP GLink, HP Optical Transceiver)**
- **Supplies 75 MHz clock to DAQ-MB via PLL Optical System**
- **16-bit X 64 kWord RXFIFO (at 75 MHz) (word = 16-bit)**
- **AMCC S5933 PCI Interface (32 bits, 33 MHz)**
  - **Automatic "Alternate Word" Filling (16 to 32 Bits)**
  - **32-bit X 8 Word FIFO**
  - **Allows 66 MWord/s burst for 16 - 20 words (word = 16-bits)**
- **Low level (word-by-word) error checking built into GLink**
- **Linux PCI Driver code based on A. Cisterino's AMCC S5933 code**
- **Invisible bridge between DAQ MB and PCI**

" DDU Not Yet Implemented "

- **No Bunch Crossing Counter**
- **No High Level Error Checking (BX, Header Counts, etc.)**
- **No data processing**
- **After initial 16-20 Word burst, double-word rate is at most 16 MHz**

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DDU Hardware Status Summary

- **Test Beam DDU version 1 (prototype) is under testing**
  - **Performing well with HP X'CVR @ up to 65 MHz**
- **Version 2 ready in 6 - 8 weeks**
  - **no new features**
  - **will work at full 75 MHz**
- **Full version (with all "features") still on drawing board**

DDU Device Driver Status

- **Currently uses standard AMCC V ID/DID -- hope it is unique**
- **Currently supports one card**
- **Burst capable, although burst writes have timing problems (ok - they aren't used for data gathering)**
- **Needs to be integrated into DAQ software**

Contact Me -- I'd love to hear from you: nylander@mps.ohio-state.edu