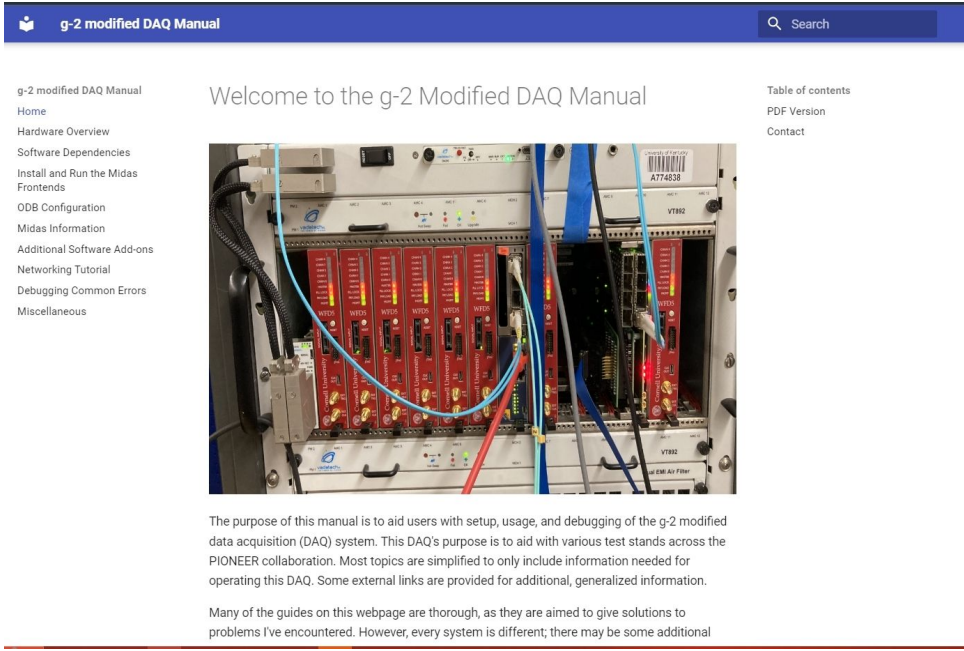
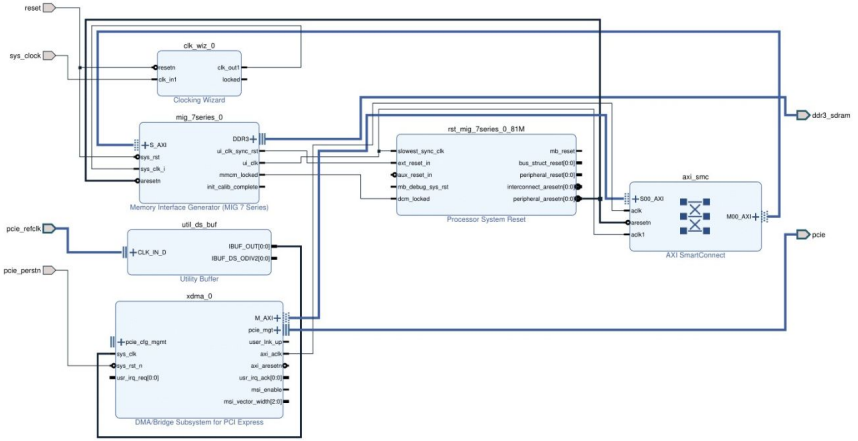
g-2 modified DAQ updates

- Manual created for DAQ usage hosted on github
  - Living document
- Meinberg card no longer needed
  - “Master” triggers replaced by FC7 internal trigger count
- Current rate limitations at UKY:
  - ~ 10kHz event rate
  - ~ 120 MB/s uncompressed data rate
  - Other programs can cause slowdown on some system
- CentOS7 reached EOL June 2024
  - Migrate to ALMA9 Linux when possible

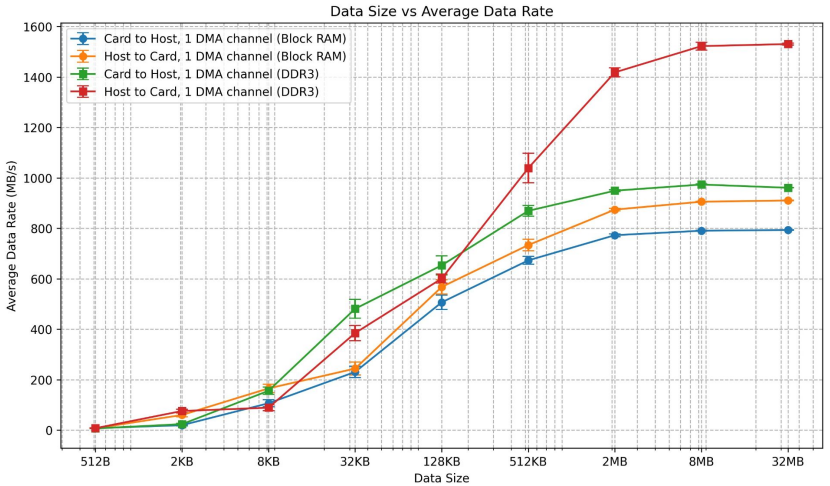


PIONEER DAQ Updates

- Improvements in transfer speed with RAM change (Block RAM → DDR3)

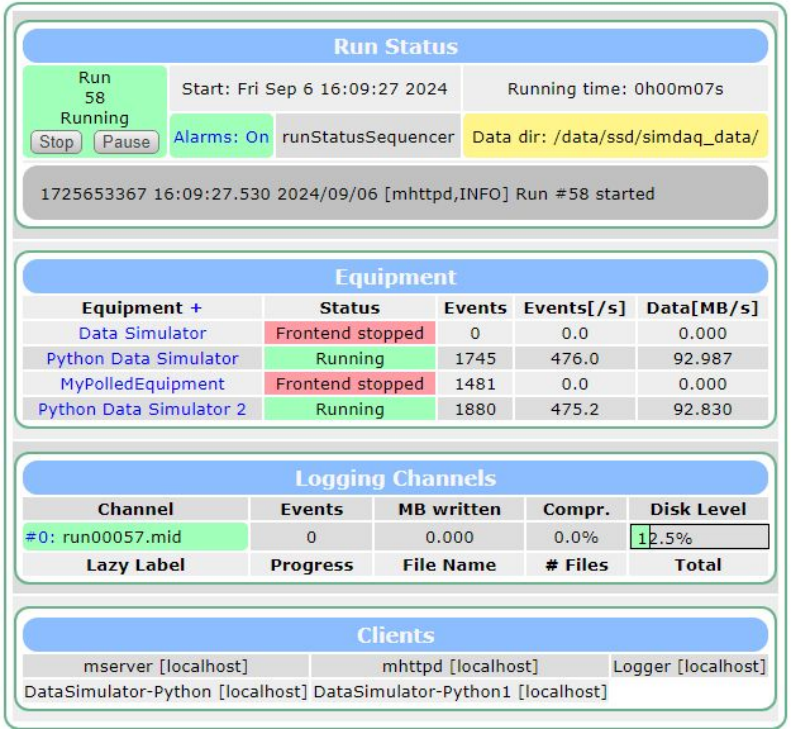


- Working on C++ library for reading and writing via PCIe DMA
  - Will work for Xilinx XDMA IP core
  - May need adapting for PIONEER electronics



Nalu Scientific HDSoC chip DAQ (NaluDAQ)

- ATAR readout uses Nalu Scientific HDSoC chip
  - Have python package for readout already made
  - Examples here
- Integrate into midas with a python frontend
- Rate tested python frontends
  - Max data rate ~90MB/s (per frontend, not concurrent with max event rate)
  - Max event rate ~10kHz (per frontend, not concurrent with max data rate)



Run Status

Run 58 Running Stop Pause	Start: Fri Sep 6 16:09:27 2024		Running time: 0h00m07s
	Alarms: On	runStatusSequencer	Data dir: /data/ssd/simdaq_data/

1725653367 16:09:27.530 2024/09/06 [mhttpd,INFO] Run #58 started

Equipment

Equipment +	Status	Events	Events[/s]	Data[MB/s]
Data Simulator	Frontend stopped	0	0.0	0.000
Python Data Simulator	Running	1745	476.0	92.987
MyPolledEquipment	Frontend stopped	1481	0.0	0.000
Python Data Simulator 2	Running	1880	475.2	92.830

Logging Channels

Channel	Events	MB written	Compr.	Disk Level
#0: run00057.mid	0	0.000	0.0%	12.5%
Lazy Label	**Progress**	**File Name**	**# Files**	**Total**

Clients

mserver [localhost] | mhttpd [localhost] | Logger [localhost]
DataSimulator-Python [localhost] DataSimulator-Python1 [localhost]