MAPP Electronics Status September 2024

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System Overview

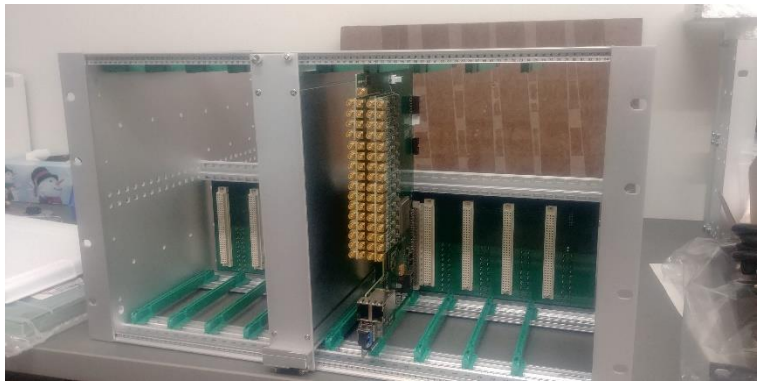
Hardware Requirements

	Ready	MAPP Required	Outrigger Required
PMT	400	400	80
Power supply and base	256	400	80
Amplifier	51	50	10
ADC	30	25	5
Motherboard	1	7	1*
Card cage and backplane	1	1	0*

* Increase by 1 if not shared with MAPP

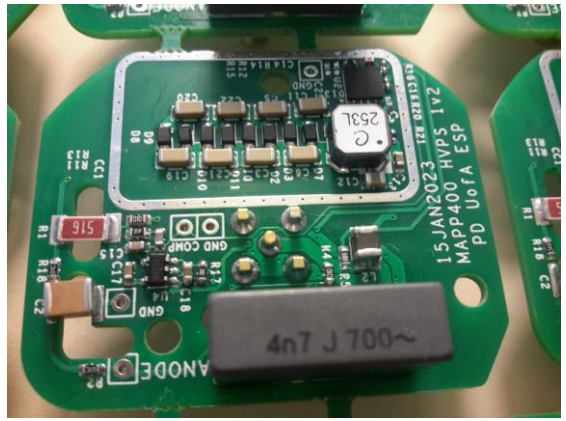
Racks and Cabling

- Rack, cabling, networking and power supplies installed
- DAQ subrack assembled at Alberta with backplane installed
- DAQ subrack to be installed in TS2

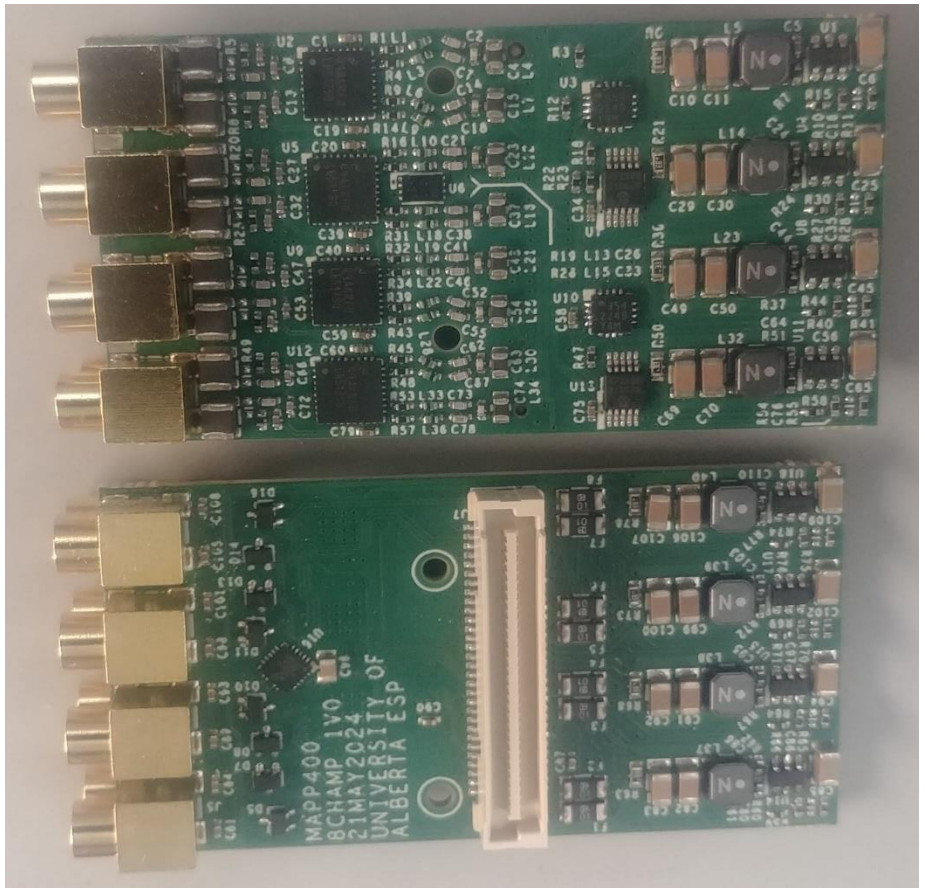


PMTs and HV Power supplies

- 217 of400 PMTs installed with bases
- 256 power supplies produced.
- No high voltage outside of PMT Housing
- Base design for outrigger needs modification for different PMTs

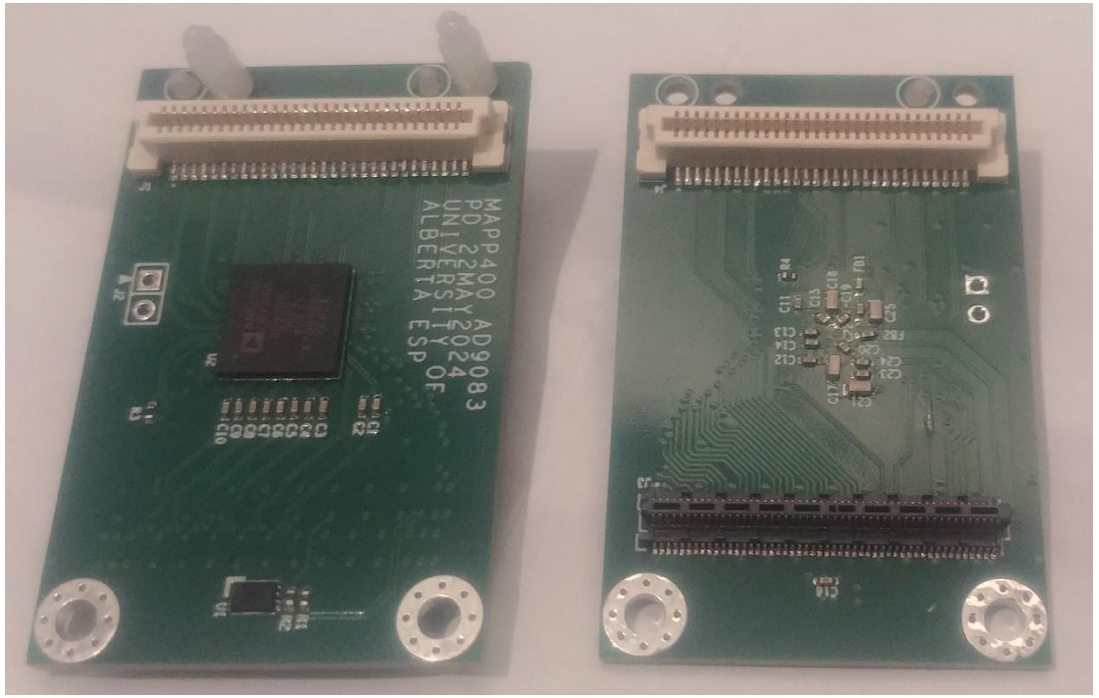


Analog front end/Amplifier



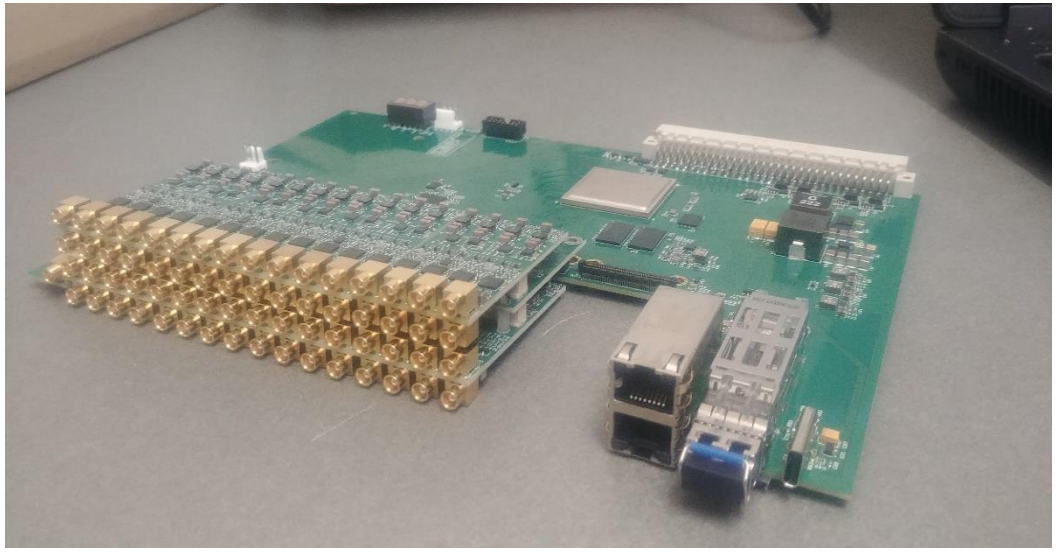
- 8 channels per board with programmable gain amplifier, filtering and bias supply
- 408 channels ready, enough for MAPP
- Extra channels for outrigger, spare and test setup still to be finished

ADC



- 16 channels per board
- 480 channels produced, enough for MAPP and outrigger
- Plan to produce a few more for spares before end of YETS

DAQ Motherboard



- 1 produced and used for software testing
- Additional 12 to be produced starting next week
- Embedded Linux now running, testing of ADCs ongoing
- Front panels need machining

Calibration LEDs & 1-wire

- LEDs already installed on scintillator
- Cable needs to be installed
- No integrated pulser produced yet but can use an external pulser trigged by DAQ
- 1wire temperature boards ready for installation

Schedule

On track to have 200 Channels running at end of TS2, remainder to be operational this winter

Tasks to complete before TS2

- Finish 3 more motherboards
- Machine front panels
- Complete software and testing
- Make 1-wire temperature cables
- Update Outrigger base/power supply design for outrigger so production can be started

Tasks to complete at TS2

- Install card cage in rack
- Wire up power supplies to rack
- Install DAQ modules
- Connect PMTs to DAQ modules (cables already installed*)
- Connect Ethernet to DAQ modules
- Install 1-wire temperature sensors