DAQ and Slow Control preparation for LIME

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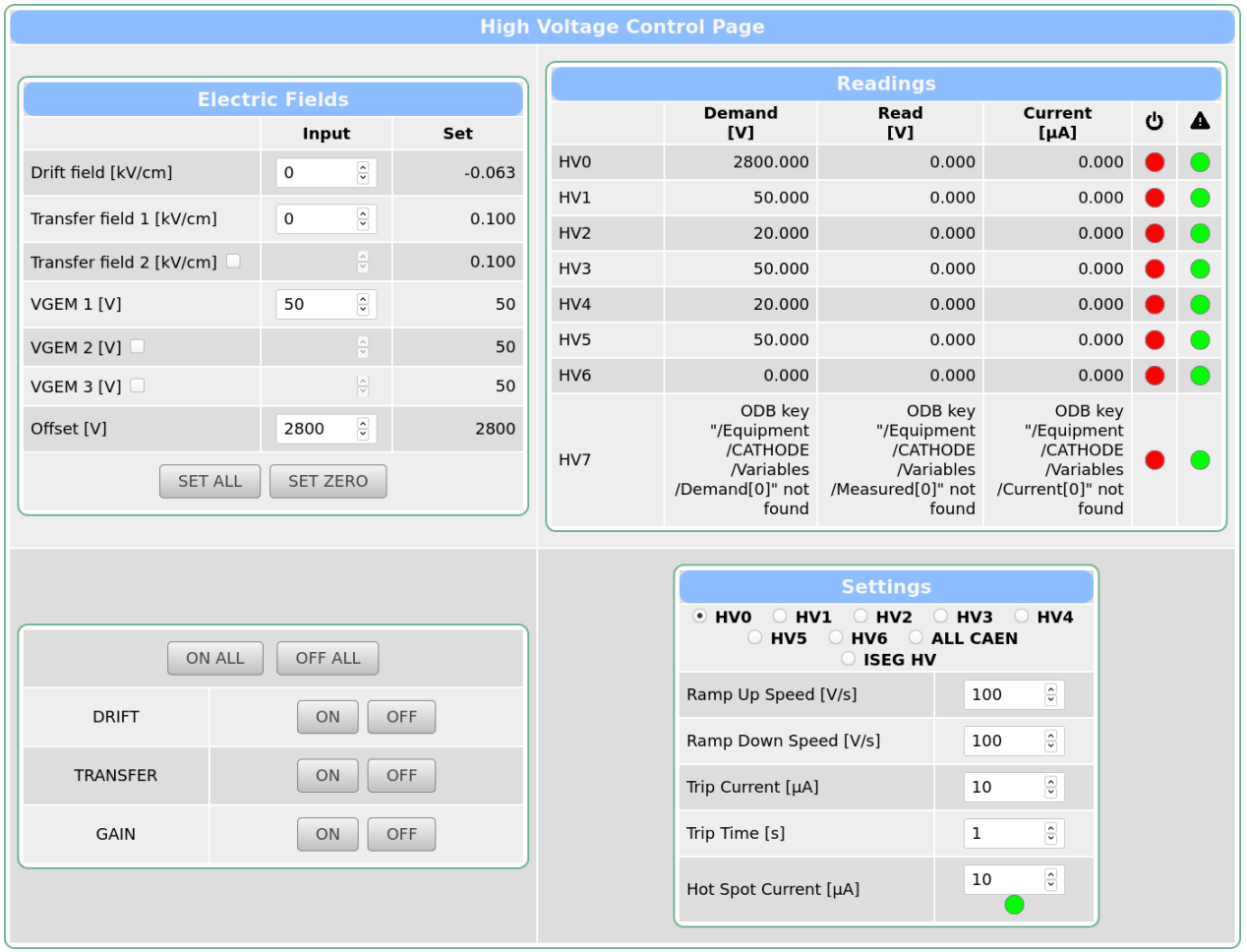
Software Status (I)

- DAQ for 2 digitizers + photo camera has been implemented:
  - CAEN V1742: fast digitizer (up to 5 GS/s) with short waveforms (1024 samples) for PMTs
  - CAEN V1720: “slow” digitizer (250 MS/s) with long waveforms (up to ms) for GEM signals (adequate for slow amplifiers)
- Debugging completed with V1761 instead of V1720 waiting for procurement
  - same behavior from the software point of view
- Dumping of run information (run log) into MySQL DB have been implemented and tested
  - details of DB structure and variables to be stored to be defined with use
- Large dead time due to the very slow rolling shutter of the ORCA Fusion (180 ms to fully expose the chip):
  - radical change of the DAQ sequence to be considered

Software Status (II)

- HV handling through MIDAS implemented and debugged
  - extensive use needed in order to completely test all the features

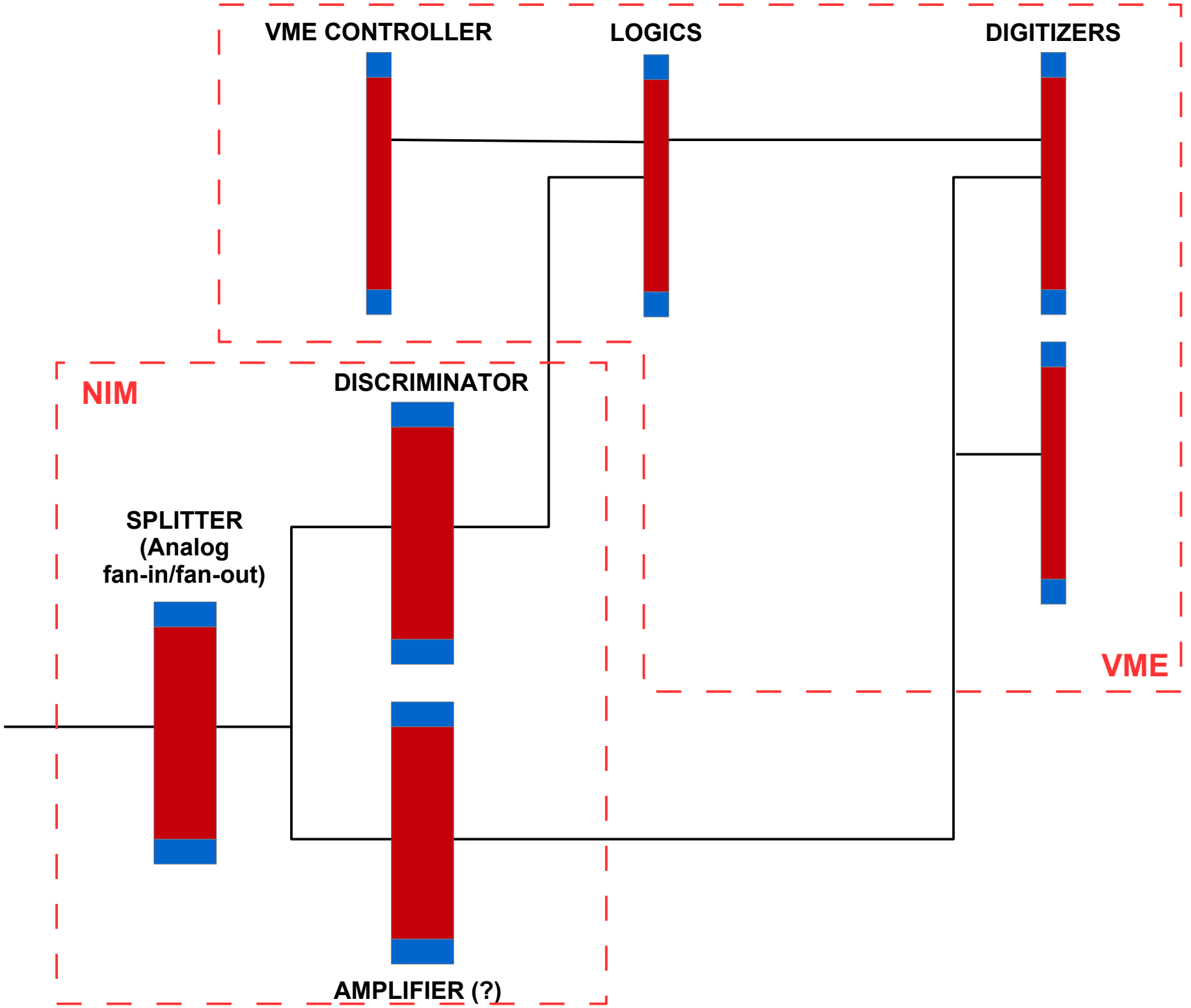


Hardware Status (I)

- For LIME-underground we plan to have a DAQ system based on USB for the camera + NIM and VME modules for analog signals:
  - Splitting, discrimination and amplification (if needed) on NIM
  - Logic, digitization and control signals on VME
- Considering boards we already own and others we are currently buying, we will have one full system underground and at least 1 spare for each board either at LNF, GSSI or Rome
- Along with additional boards that we already own or we can recycle from other groups, we should be able to maintain functionally equivalent systems at least at GSSI and Rome/LNF:
  - lower number of digitization channels and some difference in board models

Hardware Status (I)

- Order sent for MIDAS-specific electronics for slow control of environmental conditions, readout of filter pressure gauges, etc.
  - delivery expected in a few weeks
  - integration in MIDAS should be very easy


VME CONTROLLER
LOGICS
DIGITIZERS
NIM
DISCRIMINATOR
SPLITTER
(Analog
fan-in/fan-out)
VME
AMPLIFIER (?)

Catalogue of modules

Model	Standard	Function	Spare	Alternatives
N625	NIM	Analog fan-in/fan-out	Rome	GSSI (LeCroy), LNF (N978)
N840	NIM	Discriminator	Rome	GSSI (N???), LNF (LeCroy)
V1718 V3718	VME	Controller	LNF (0/1), GSSI (1), Rome (1/0 + 1)	-
V976	VME	Logic	LNF (1), GSSI (1), Rome (1)	-
V1742	VME	Fast digitizer	GSSI (1), LNF/Rome (1)	Rome (V1761, 2ch)
V1720	VME	Slow digitizer	LNF/Rome (1)	-

RED: non exclusive availability