

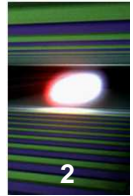


Rack space estimate for SPB expt. hutch

This update: 9.3.2012

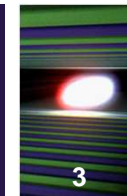
Input: T.Haas, C.Youngman, A.Mancuso, A.Aquila, N.Coppola,
...

Aim and scope

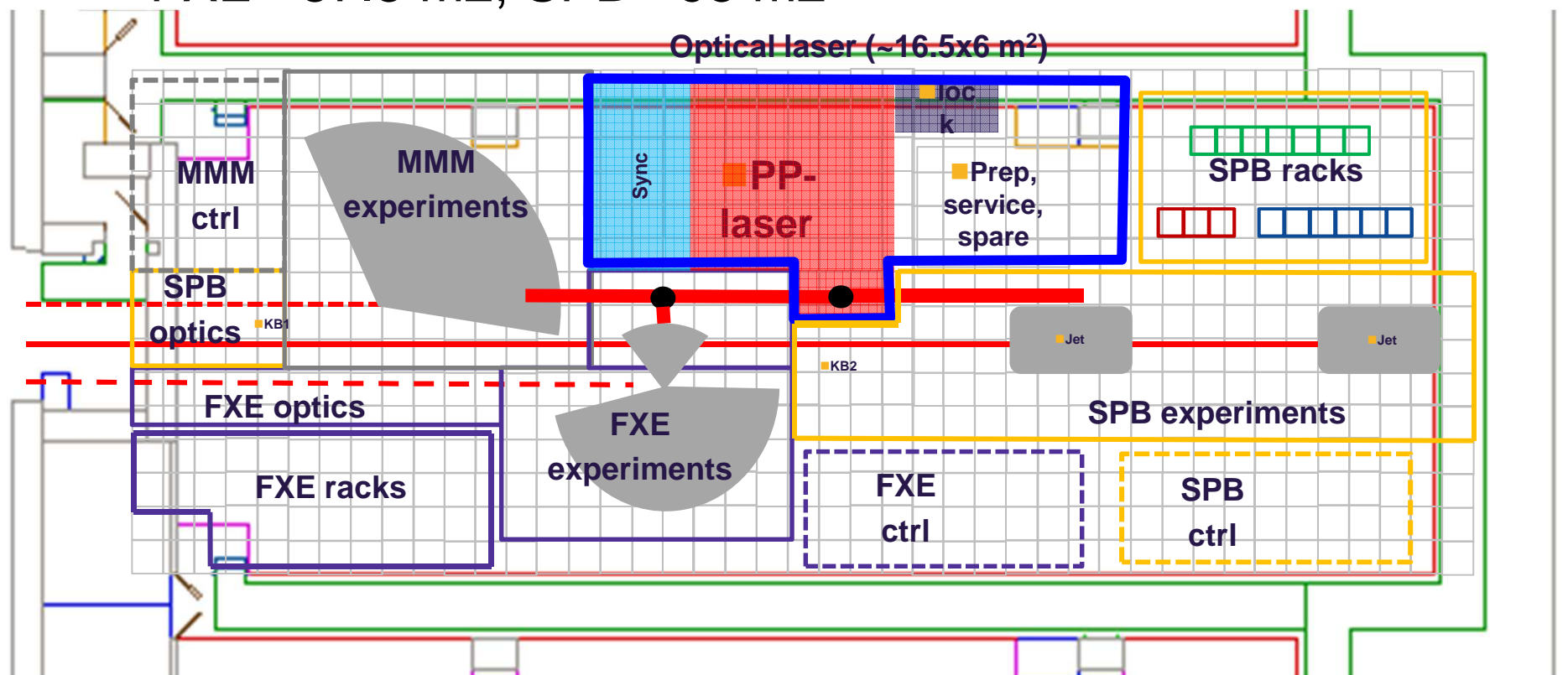


- Meeting SPB, DAQ and TC 21.2.2012 rack positioning meeting
- Update of rack count requirements
 - Detector definition now: 1Mpxl SPB + 4Mpxl SFX
 - Current rack count ~16:
 - → 3 Beckhoff racks (min. connection lengths ~10m)
 - → 7 DAQ, sample environment, racks (~15m)
 - → 6 cooling racks (~5m?)
 - Crude power estimate 79kW
 - Some input missing, but use for 1st order planning
- Result of meeting floor plan next slide
 - 1st order missing: safety factors, long term view, split SPB optics...

Conceptual floor plan for SASE 1 instruments



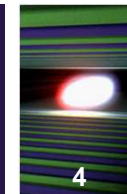
- Tobias and Niko: work in progress, MMM= 80-90 m², FXE= 87.5 m², SPB= 95 m²



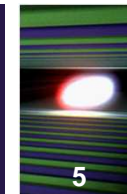
- Some numbers (boxes 1x1 m²)

- Total SASE 1 floor space: ~43x15 m² (2 x 1.4 m separation of incoming x-ray beams)
- Control: 4x6m², Electronics: 4x2 m², optics: beam 50 cm from wall, 0.1 m x-ray wall t.)

Spare slides



PowerBrige crate: FastADC, VETO...



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Issues and comments:

- Use of VETO source and VETO user names should be discontinued as links are bi-directional, new name = VETO line(?)
- How many VETO lines is are available on the backplane 8 or 4? 7 are used in the schematic.
- A limit to the number of Fast ADC systems is set by the amount of data which can be transported to the CPU and out through its 10GE link
- Contingency for VETOs and numbers of systems
- Direction of airflow in the racks

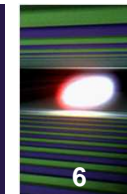
	Spare VETO source	-	
8 x VETO sources	8 x APD (e.g. Struck + RTM)	-	
2 x VETO sources	2 x FBD (e.g. Struck + RTM)	-	
2 x VETO sources	2 x FBD (e.g. Struck + RTM)	VETO unit (is this contingency?)	6 x in/out SFP
2 x VETO sources	2 x FBD (e.g. Struck + RTM)	VETO unit	6 x in/out SFP
2 x VETO sources	2 x BPM (e.g. Struck + RTM)	X2 timing unit	<div>External in/out:</div> <ul style="list-style-type: none"> - 2 x 2D detectors - 1 x eTOF - 1 x spectrometer
2 x VETO sources	2 x BPM (e.g. Struck + RTM)	CPU and Disk	
2 x VETO sources	2 x BPM (e.g. Struck + RTM)	MCH	

20 VETO sources

SLOT with RTM

SLOT without RTM

PowerBridge crate: Digitizers



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Issues:

- Spectrometer – what is this going to be? Does the detector group know about our requirements?
- Bi-directional VETO is required (in for frame rejection)
- Need a frame rejection discussion summary sent after each train = what is the protocol defined in the VETO note !!!
- Direction of airflow in the racks
- Digitizers, depending on accuracy and GS/s can have multiple input channels = less space, but more data.

1 x VETO sources + 1 x 10 Gbps for data streaming

1 x VETO sources + 1 x 10 Gbps for data streaming

-	-
-	-
-	-
-	-
-	-
Spectrometer	X2 timing unit
Spectrometer	CPU and Disk
SP Devices (1 eTOF)	MCH



2(?) VETO
sources



SLOT with RTM



SLOT without RTM