

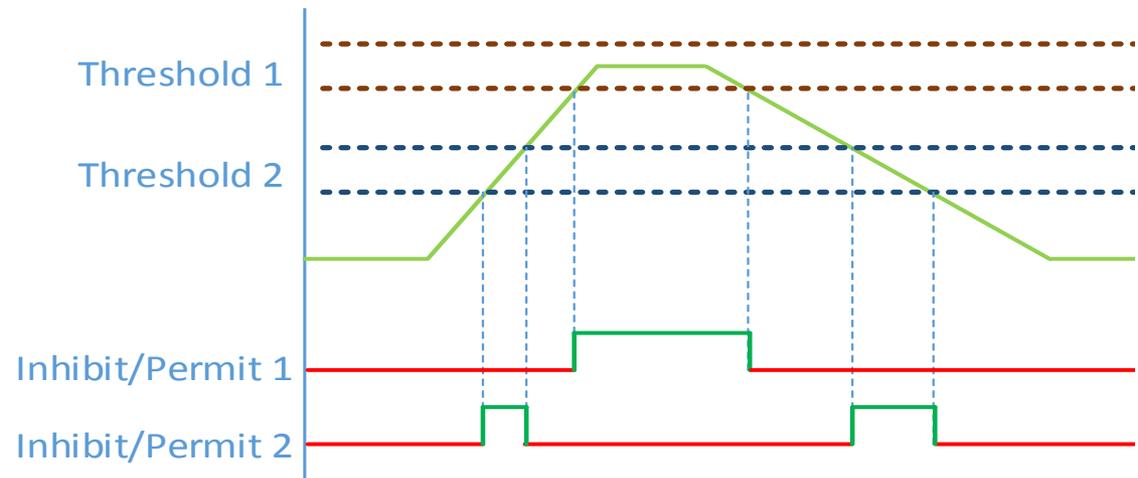
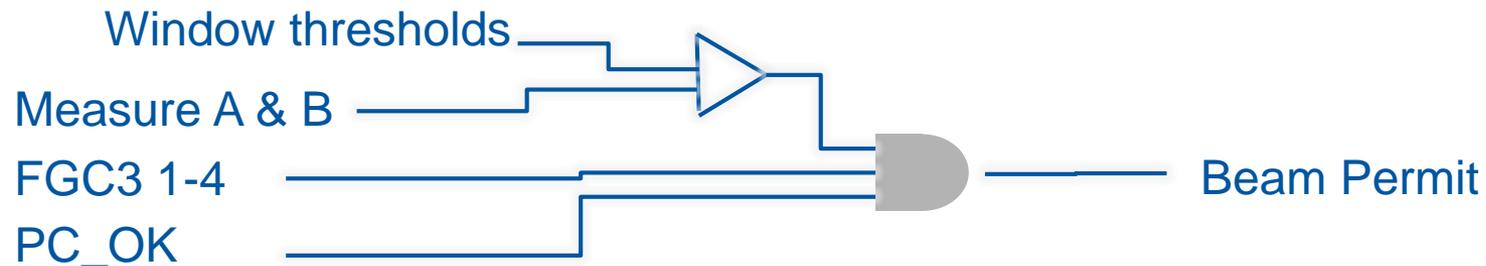


Special MPP LINAC4 Machine Protection Power converters

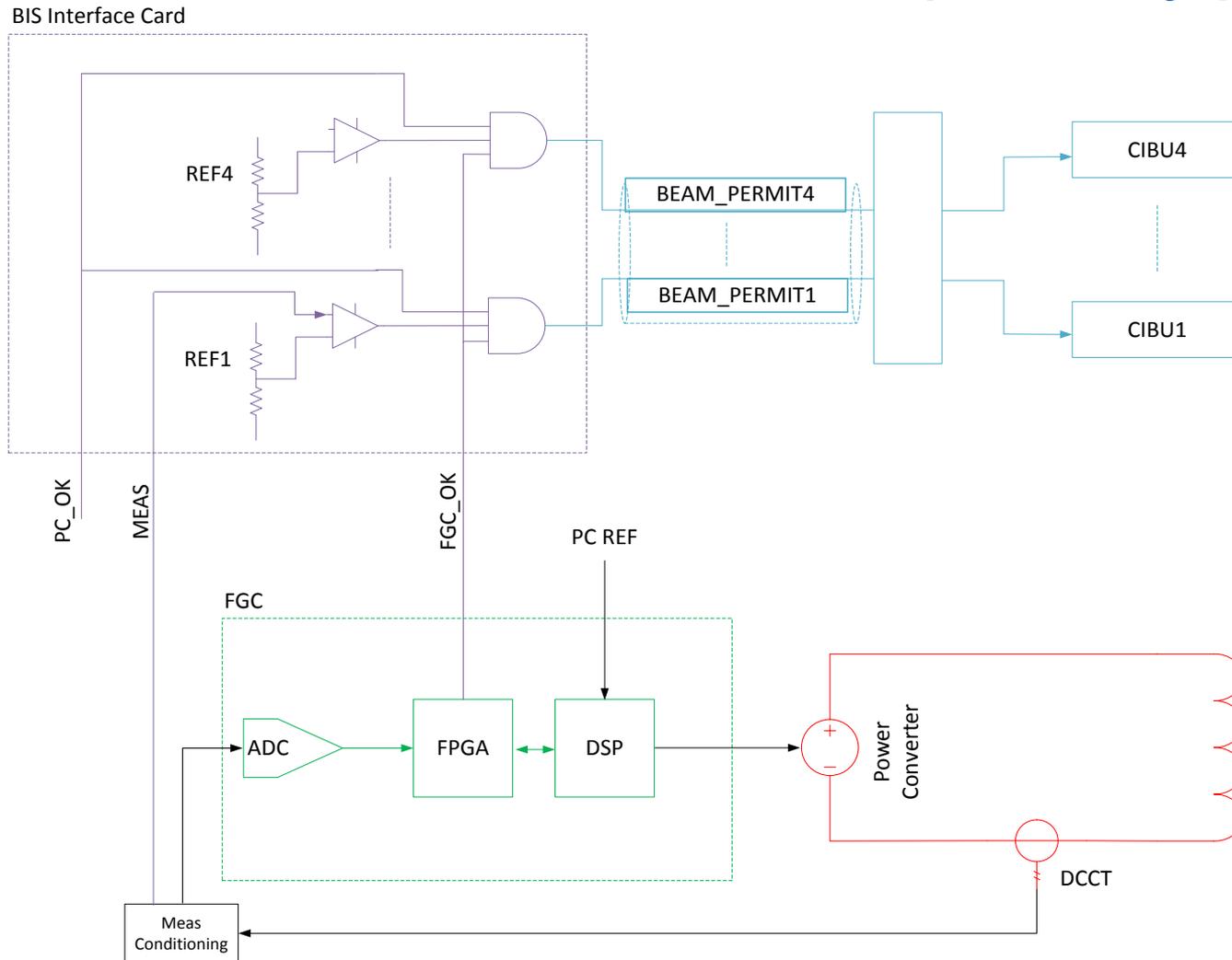
Friday 29 July 2016

PC BIS Interface principle

(threshold settings are local)



System architecture (today)



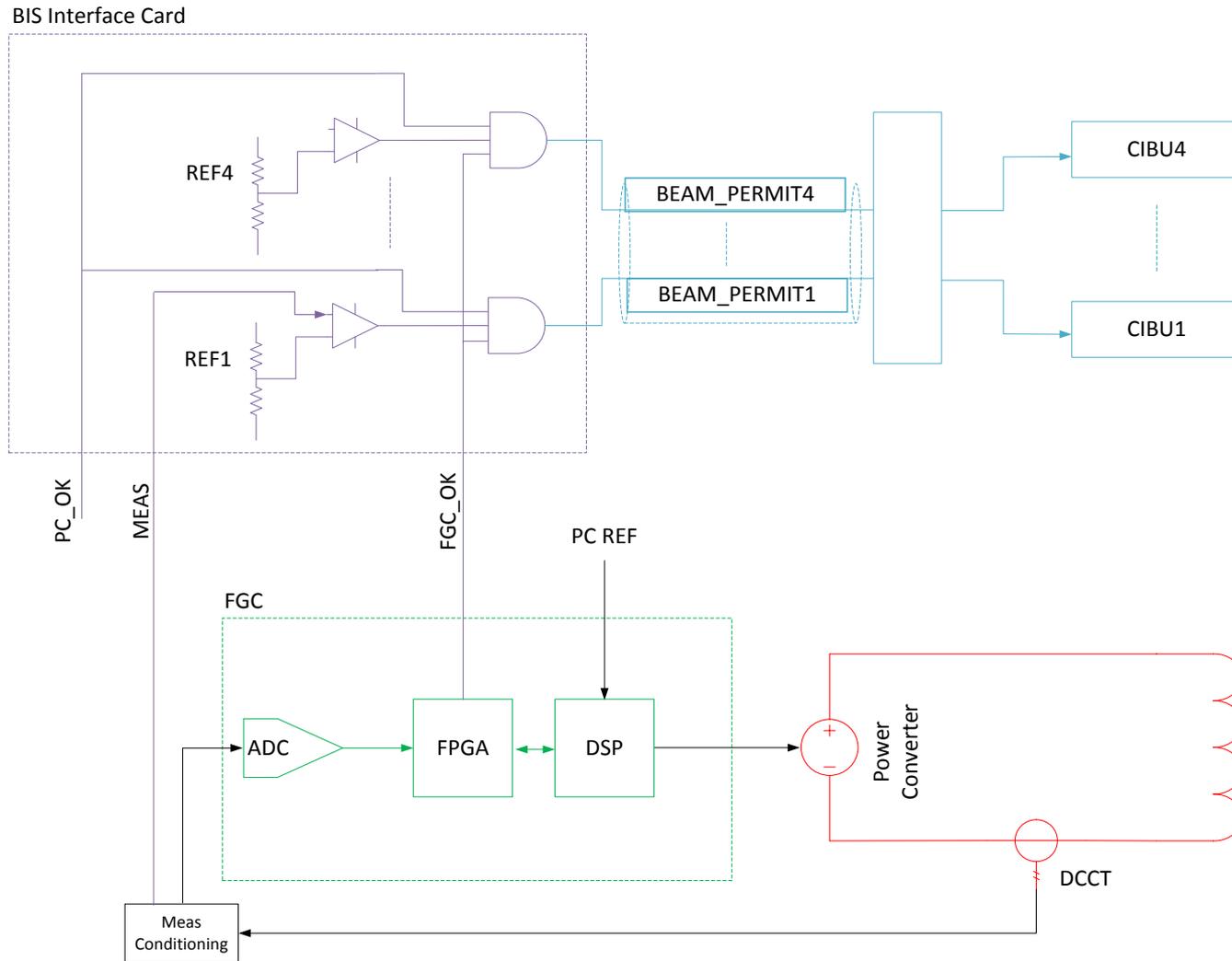
PC BIS Interfaces for 160MeV

BIS Name	Power Converter	Notes	Status
Source HV	L4L.NFH.011 L4L.NFH.012 L4L.NFH.013	Definitive FGC3 controls not yet ready. The signal from each of the systems are connected in series.	NOK
AQN L4L QUADS	RQF.351 RQD.361 RQF.371	The signal from each of the systems are connected in series.	OK
AQN L4T.MBH_DUMP	L4T.RBH.021	Converter commissioned. BIS interface not yet installed.	IN WORK
AQN L4T.MBH_L4T	L4T.RBH.021	Converter commissioned. BIS interface not yet installed.	IN WORK

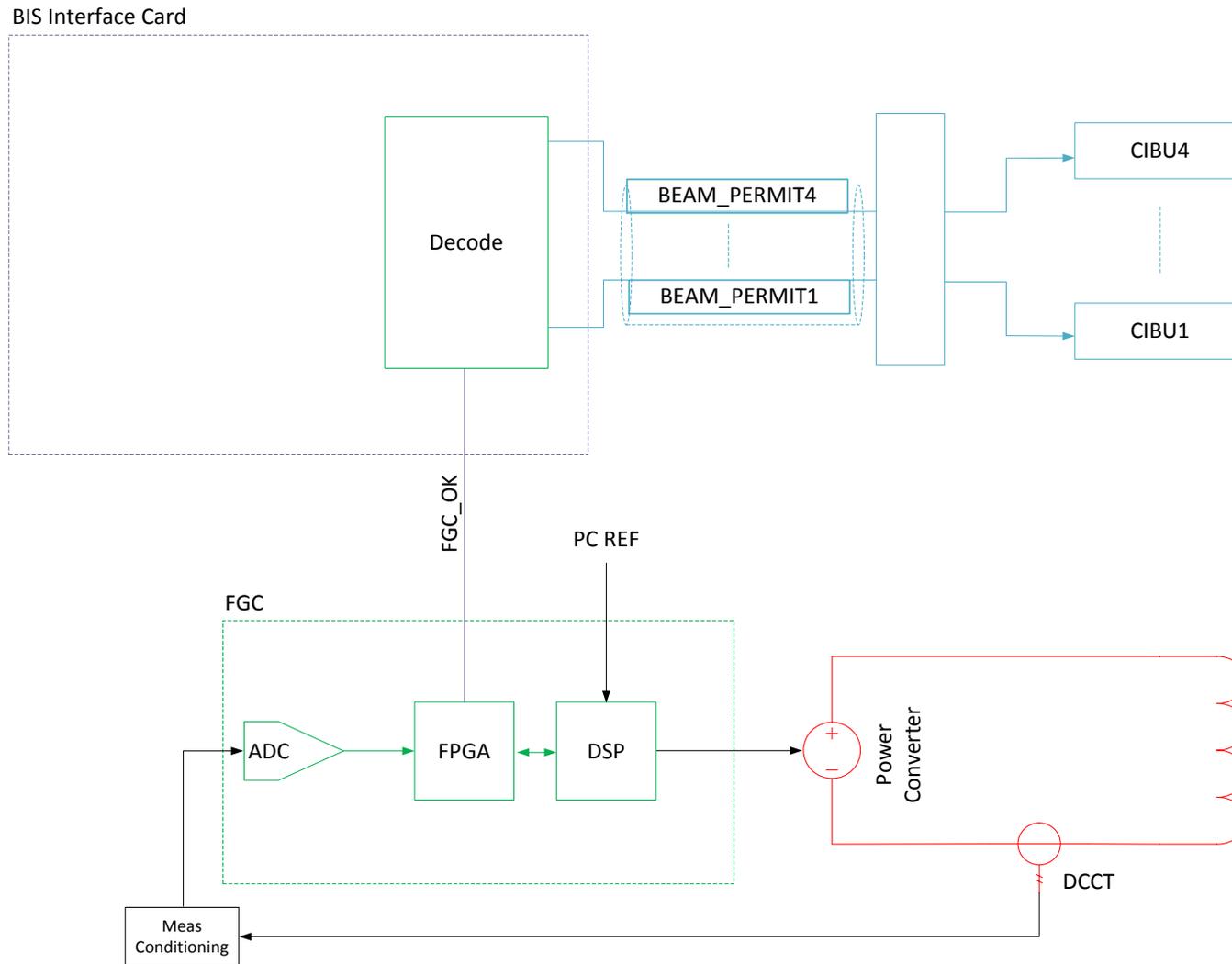
Thresholds

BIS Name	Power Converter	Definitive threshold	Actual threshold
Source HV	L4L.NFH.011 L4L.NFH.012 L4L.NFH.013	Vref ($\pm 5\%$ of Vnom) {eg 50kV \pm 2.5kV}	Not active
AQN L4L QUADS	RQF.351 RQD.361 RQF.371	Iref ($\pm 5\%$ of Inom) {eg 150A \pm 10A}	[20A – 200A]
AQN L4T.MBH_DUMP	L4T.RBH.021	0A ($\pm 0.5\%$ of Inom)	0A \pm 18A
AQN L4T.MBH_L4T	L4T.RBH.021	Iref ($\pm 0.5\%$ of Inom) {eg 590A \pm 4.5A}	590A \pm 18A

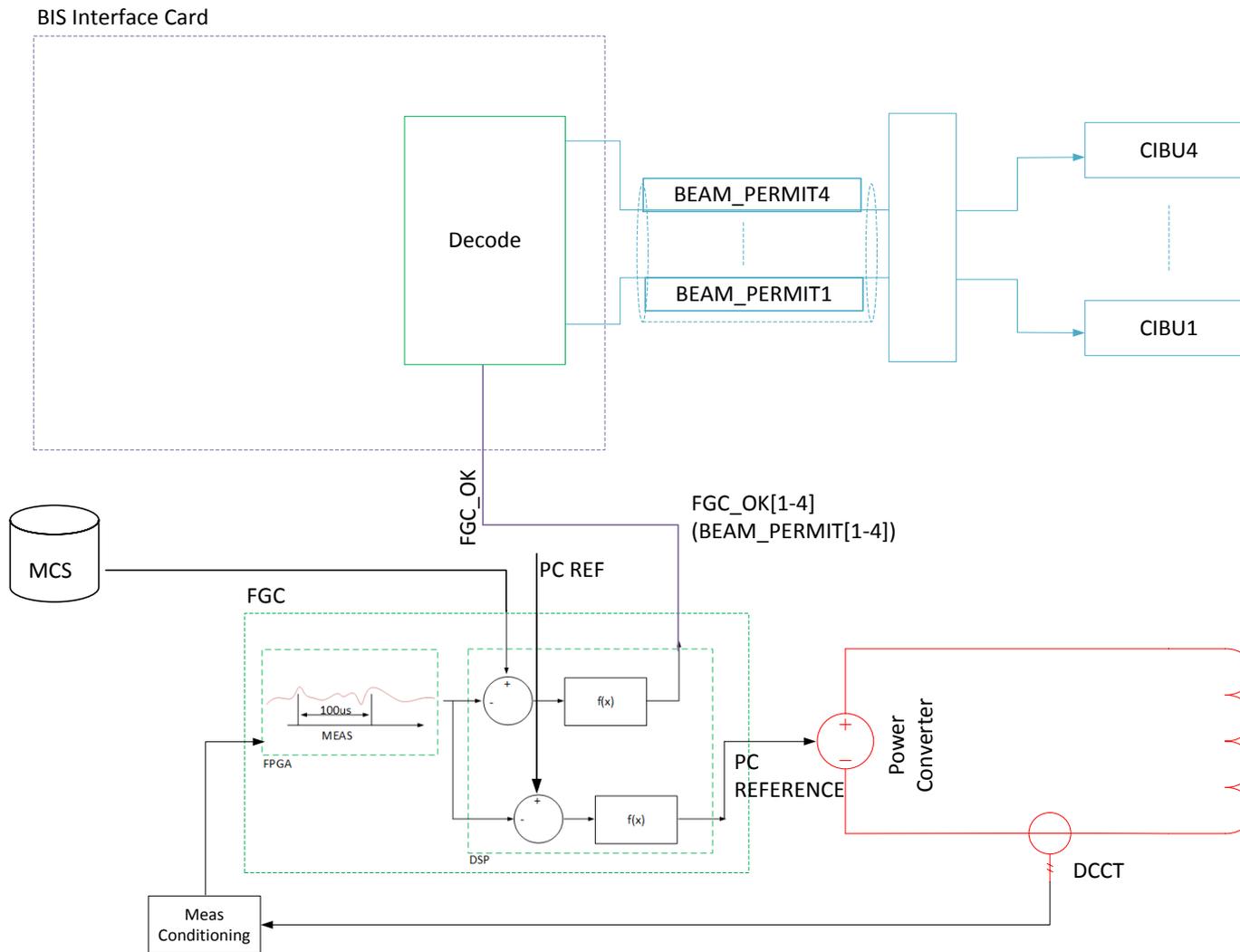
System architecture (today)



System architecture (future)



System architecture (future)



Conclusion

- BIS interfaces for Quads already commissioned
- BIS interfaces for L4T.RBH will be commissioned in Aug/Sept
- Source HV with FGC control will not be available until 2017
- Beam Permit implementation will evolve in the future
 - Fully software based FGC3 implementation
- Definitive thresholds still need to be clearly defined and validated



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