

FP420

Low voltage supply

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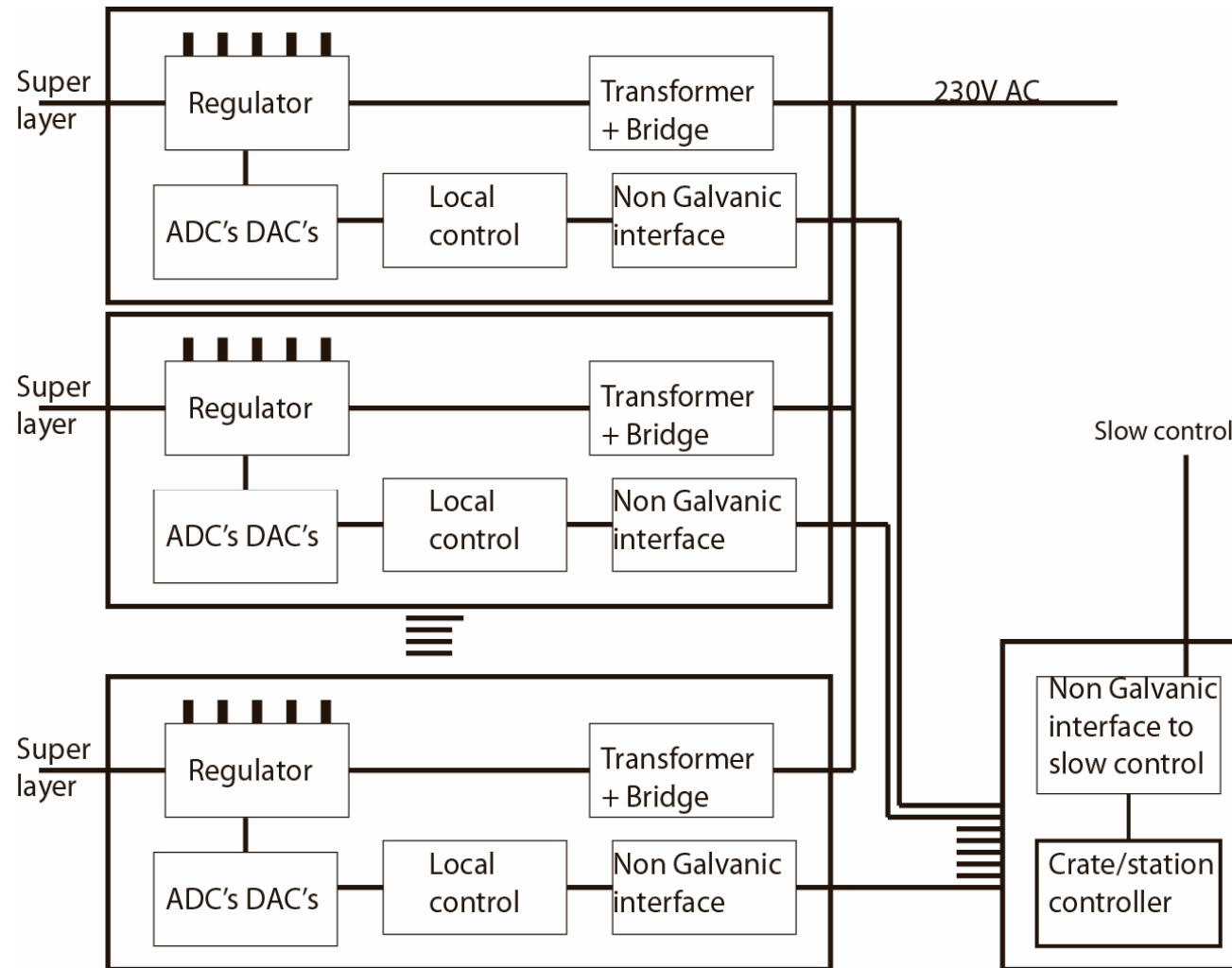
Location

- *If the LV electronics should stay within some 20m from the detectors, there are only two possible locations (ref Daniela Macina):*
 - *Below the new cryostat, where the radiation level is estimated at about **700 Gy per year** of running at full luminosity;*
 - *Below or near the adjacent magnets, where the radiation is much lower and estimated at about **15 Gy per year**, but where there are already other things.*

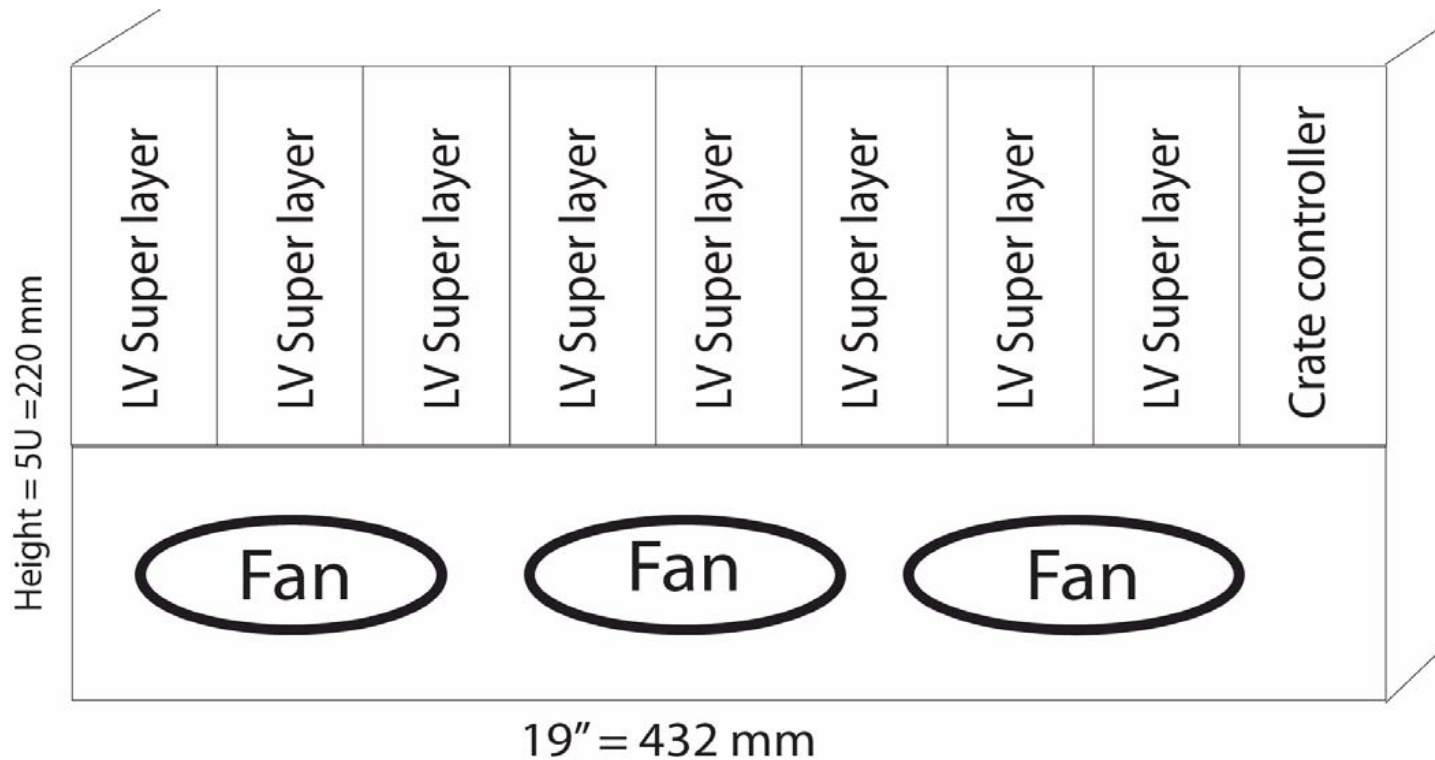
Functions for a superlayer supply

- Each superlayer will be LV supplied by a separate unit=> isolation
 - own ac-ac power transformer secondary winding
 - own AC-DC rectifier bridge
 - isolated digital communication interface
- Linear regulators for radiation hardness (LHC4913 STM tol 5kGy) (2.0V and 1.6V, 5W)
- Remote controlled fine adjustable offset and shutdown.
- Monitoring of the voltage, current and heatsink temperature

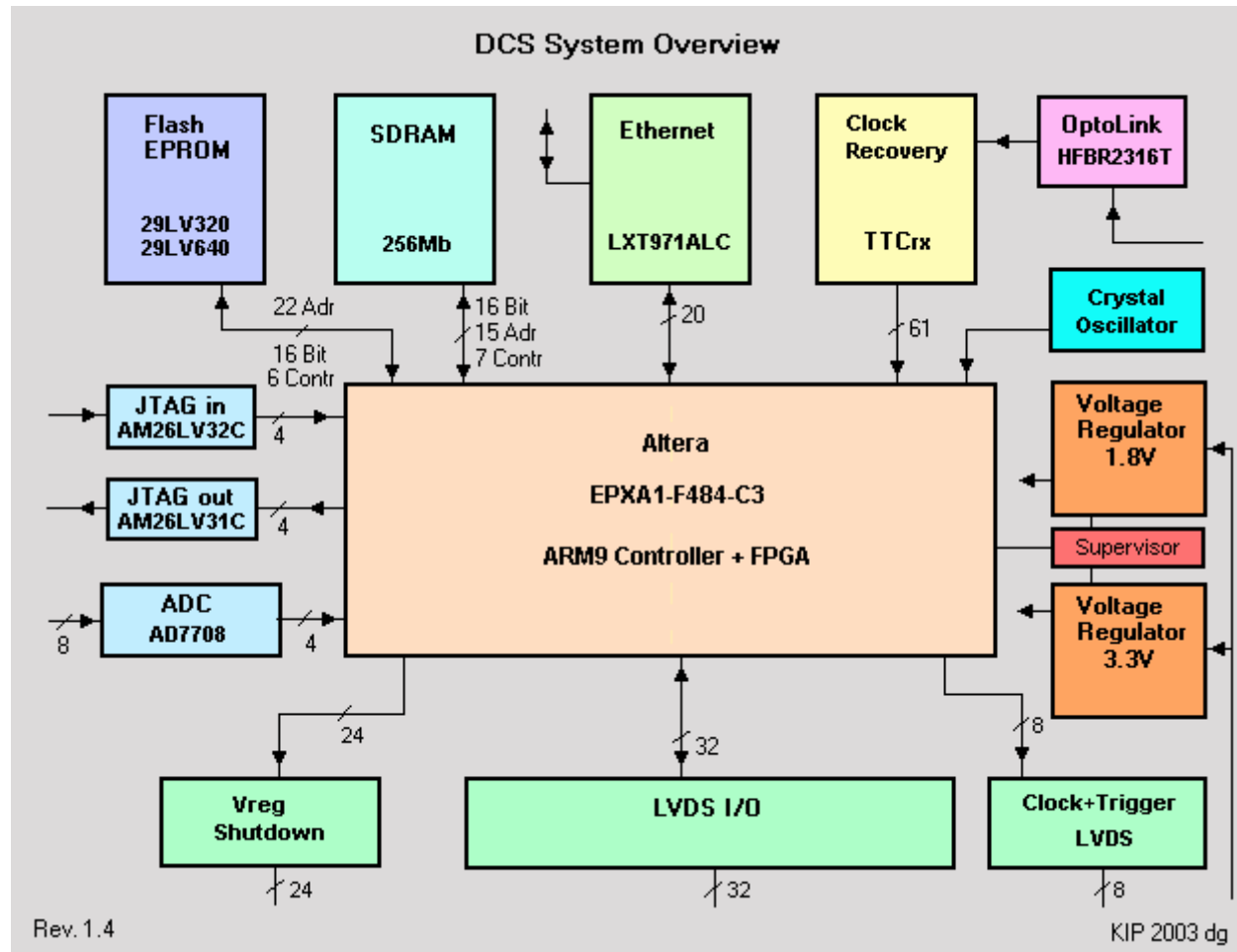
LV supply blockdiagram



LV Crate for 1 station, 8 superlayers



Alice DCS



Open issues

- Location of support electronics in tunnel
- Communication interface module in LV supply?
- Communication medium to slow control system: Fiber or copper?
- ...

Critical issues for support electronics

What is the infrastructure and environment in LHC:

- **Location of support electronics in the tunnel**
- **Radiation levels at these location**
- Suitable electronics to survive there
- Temperature range
- Data communication