



# hardware ECS interfaces for the "Silicon Tracker"

- Current setup
- Answers to questions



# Current setup

- SPECS for on-detector I2C: 48 Specs slaves (TID 15 krad), few SPECS masters
- No ELMBs
- CCPCs on TELL1s (ca. 100)
- WIENER MARATON for LV
- CAEN HV, no ISEG



1. Which of the existing interfaces will you require to be maintained for the upgrade ?

- SPECS: unlikely (requires qualification for 15 krad x10 → testing @600 krad)
- CCPCs: likely (TELL40)
- WIENER LV: likely
- CAEN HV: depending on detector technology



2. For the existing interfaces, do you have enough units to cover your requirements?

- SPECS: no (radiation issue)
- CCPCs: unknown, TELL40 count vs. TELL1 count?
- WIENER LV: unknown, depending on detector layout
- CAEN HV: unknown, depending on detector layout



3. What new interfaces will you require?
4. Please present how you will use the new interface(s) and the number of interfaces you will use.

- Only new interface (to current knowledge): GBT  
(please integrate SPI option, in addition to I2C)
- GBT used for slow control (replaces SPECS), clock and trigger  
(few analogue channels for environmental monitoring required)
- Assumed to be rad-hard up to 1 Mrad (on-detector)
- Number of interface depending on detector layout (unknown)...



5. How much configuration data will you download to the detector hardware?

- Depending on FE chip and therefore... unknown.
- Current setup: 20 bytes per 128 channels  
270k channels for whole ST → 42 kbyte
- Could be 10x more configuration data...
- ... but could be similar/same for large parts of detector