

Formative years

Alignment of Roadmaps

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Technical Domains

- Signal and Image Processing
- On-Boards Electronics (Digital)
- On-Board Payload Data Processing – MM
- On-Board Data Systems
 - OBCs – RTUs – Interfaces

In full coordination with AOCS and SW domains (SAVOIR)

“Formative” colleagues





Evolution – Roadmaps alignment

Space Classic – New Space – Space Next ...

- 90's: *Ad-Hoc solutions dominating*, often spun in from defence domain, *Radiation Hardness & Hi-Rel* as a requirement e.g. Mil-STD-1553b – MIL-STD-1750A – OBDH Bus – RS422 – many ASICs
- 2000's: *Rationalisation – Normalisation – Standardisation – Radiation Tolerance* - CCSDS - PSS to ECSS - SPARC – SpaceWire Networks – CAN – Ethernet/TTP – IPCores and still 1553B and RS-422 – Autonomy – Simulations – MBSE - Standardisation of interfaces at Electrical & Protocol, Board and Backplane/Unit levels
- Today: *Innovation boost* More CPUs, multi-core - ubiquitous Microcontrollers, COTS - FPGAs everywhere, SpaceFibre, Ethernet, RISC-V, In-Orbit reconfigurability and maintenance, AI



Future Outline

Today: Constellations - Mass production
In-Orbit Servicing - Orbits maintenance -
Digital Twins - AI ...

Epilogue - Alignment



Working together with mutual trust
Sharing technical insights
Industry and ESA working together

*Feeling honoured to have
been invited to this celebration
by Frontgrade Gaisler's team*

Merci Sandi !