

BUS Architecture

SPACETEQ EVOLUTION

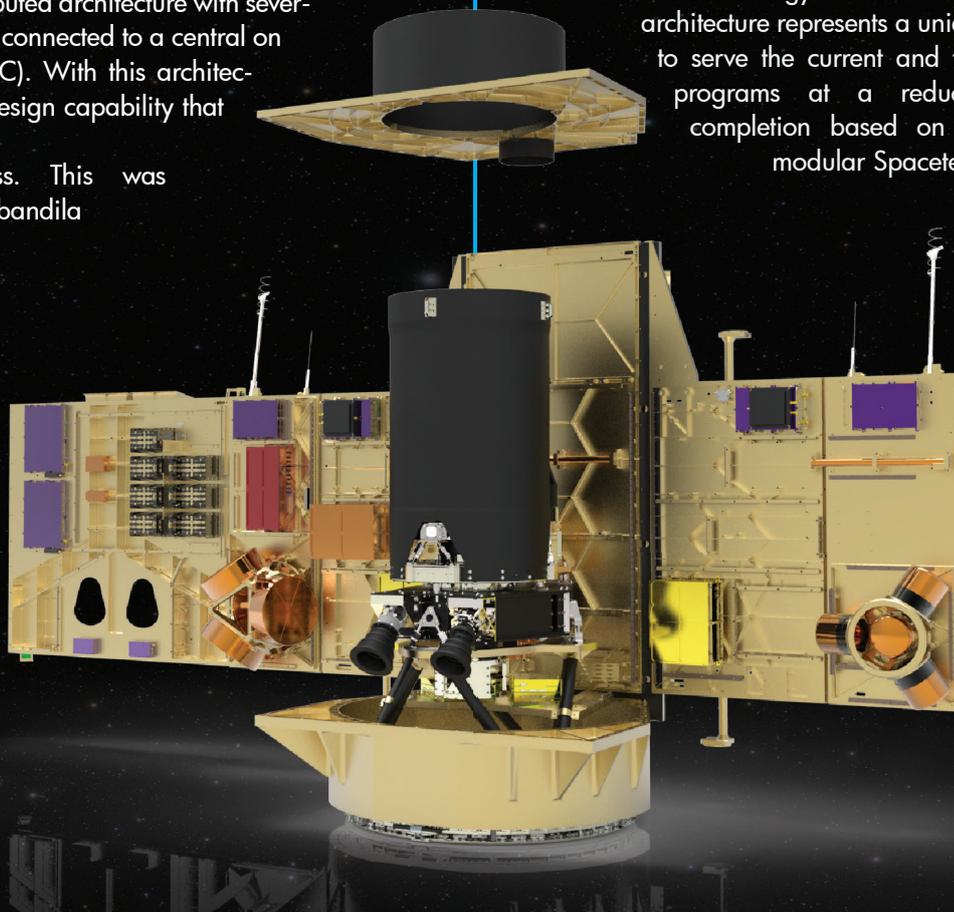
Developing technology requires an in-depth understanding of the specific field of interest. For satellite engineering this field does not only encompass general engineering, but also includes the complexities associated with the space environment. Spaceteq engineers have over many years been afforded several satellite projects which presented several “lessons learned” opportunities with associated hardware flight heritage. This has allowed engineers the opportunity to gain the necessary experience and knowhow to further technology growth in the field of space. This has been demonstrated through the evolution of the satellite architecture which today leads the technology field on the African continent.

The outdated centralised Can-bus based architecture used on SunSat and O1 has seen two major development changes that have revolutionised the way satellites are built today. The centralised architecture was morphed into a distributed architecture with several major components connected to a central on board computer (OBC). With this architecture came modular design capability that greatly improved the development process. This was implemented on Sumbandila as well as O2.

EO-SAT1 architecture

From this technology base further development has improved with lessons learned and the EO-SAT1 architecture today represents a vertical distributed architecture that not only retains the modularity in design but also allows for non-sequential integration and testing. This next generation architecture now leads the technology base for satellite design in South Africa and has sparked vast interest in the SA space industry who now stand to benefit through collaborative opportunities to offer this technology to their international partners.

This technology readiness and flexible architecture represents a unique capability to serve the current and future satellite programs at a reduced cost to completion based on the reusable modular Spaceteq technology.

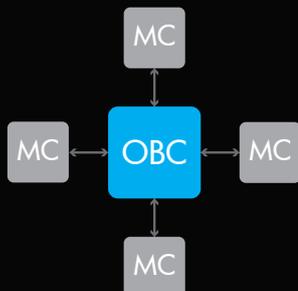
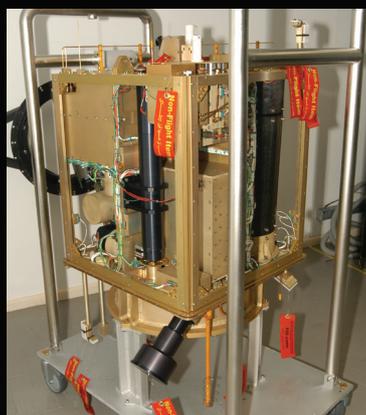


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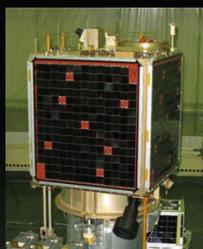
SPACETEQ EVOLUTION

1st GENERATION BUS ARCHITECTURE

- CENTRALIZED ARCHITECTURE
- SERIAL INTEGRATION



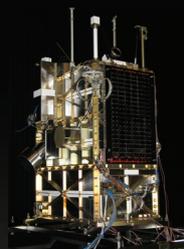
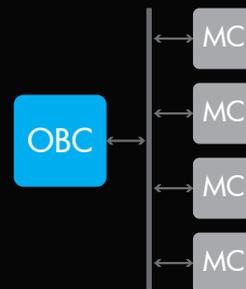
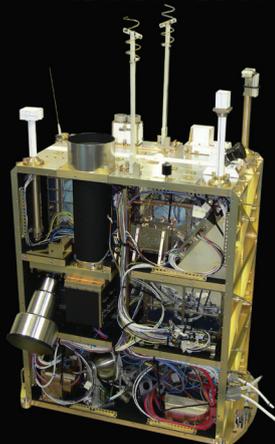
SUNSAT



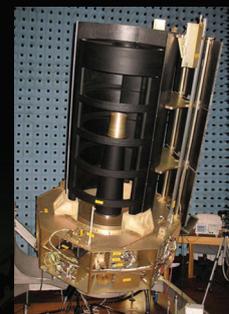
O1

2nd GENERATION BUS ARCHITECTURE

- DISTRIBUTED ARCHITECTURE
- SERIAL INTEGRATION



SUMBANDILA



O2

3rd GENERATION BUS ARCHITECTURE

- DISTRIBUTED ARCHITECTURE
- VERTICAL INTEGRATION
- DEDICATED STQ PROTOCOLS
- STANDARDIZED EMBEDDED LIBRARIES



DISTRIBUTED ARCHITECTURE

- CAN BUS STANDARD FOR TELEMETRY AND COMMAND INTERFACES
- IMPROVED HARDWARE
- MODULAR
- FLEXIBLE
- SCALABLE
- ROBUST



EO-SAT FAMILY