

ELiTeBUS™ 1000 - NASA RSDO Rapid III On-Ramp 3

ELiTeBUS™ 1000 has been built on the PROTEUS platform, that served various radar, altimetry, optical & astronomy missions including CNES-ESA & 3 NASA missions : JASON 1/2/3 – CALIPSO – SMOS – COROT.

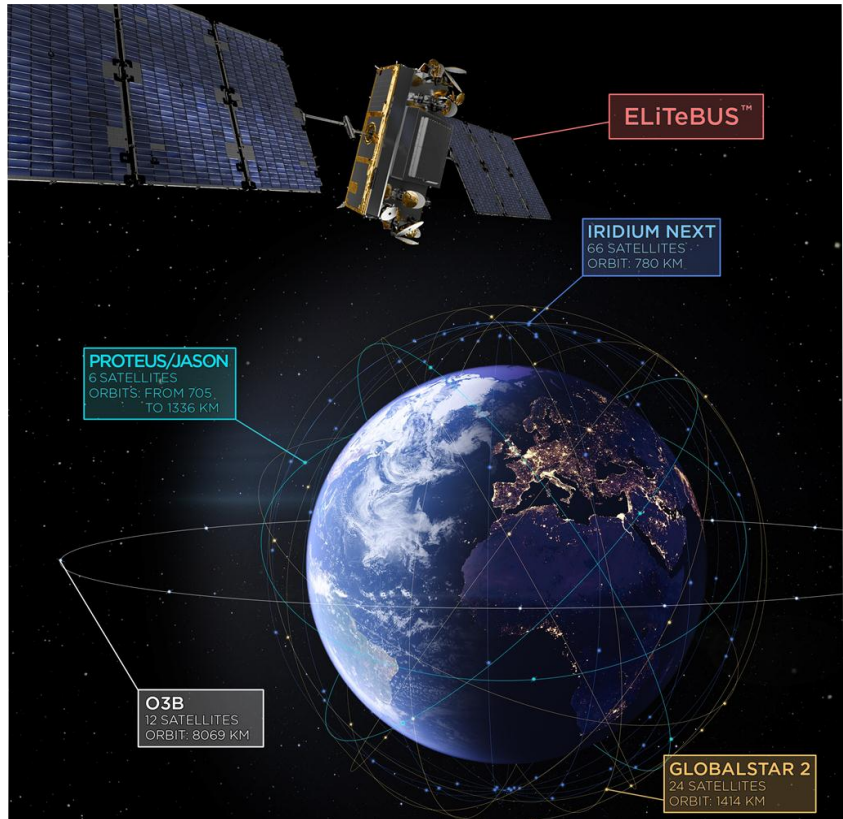
It benefits from the merging of Proteus concepts and performance, with design for production demonstrated on Globalstar 1 & 2, O3B and Iridium NEXT

Lifetime : 7 to 12 years according to radiation environment

Bus reliability : > 0.9 @ 12 years

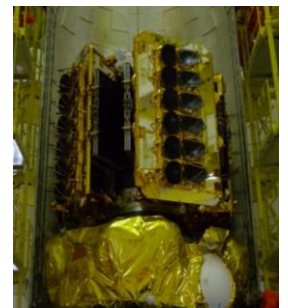
Payload capability :

- Maximum mass : 350 Kg
- Average power :
 - LEO : 1000 W
 - MEO : 1500 W
- Bus Pointing performances :
 - Accuracy : 55 arcsec
 - Stability : 10 arcsec/sec
 - Roll slew rate : 70°/min
 - Pointing Knowledge : 22 arcsec



Orbital domains :

- LEO :
 - 400 – 1000 Km inclinations below 40°
 - 400 – 1400 Km inclinations above 40°
- MEO :
 - 7500 – 25000 Km any inclination



Launcher compatibility:

- Vega : 1 satellite
- Soyuz : up to 5 satellites
- Falcon 9 / 9H : up to 10 satellites
- Atlas V 521/531: up to 12 satellites

Existing dispensers:

- Falcon 9
- Soyuz

Maximum launch mass : 860 Kg

Payload Volume under Launcher fairing :

- On bus deck : 2 to 4 m³
- Inside bus : 0.5 m³

High Power supply:

- Unregulated 28V power bus
- 2 axes Solar Array – max 2.7 kW
- 126 Ah battery capacity

Flexible ground to satellite link and buffer according to the payload need:

- High rate downlink
- Mass memory
- Adaptable frequency band

State of the art avionic architecture:

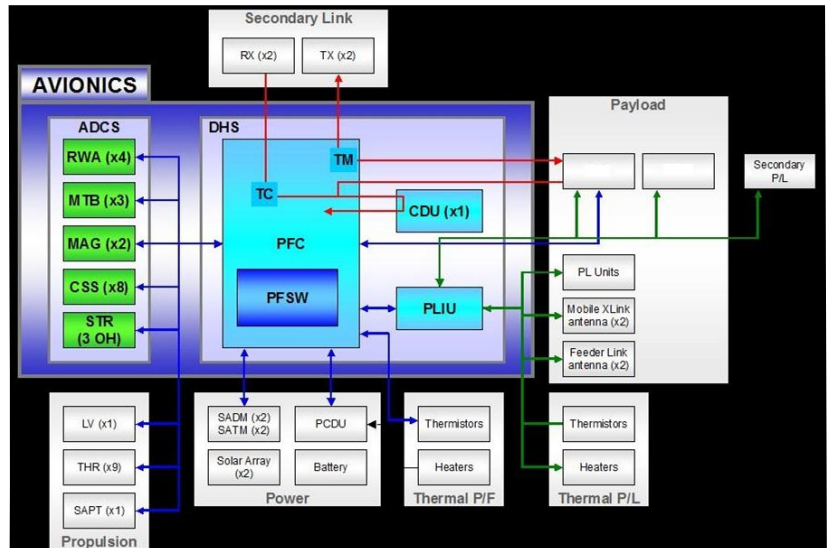
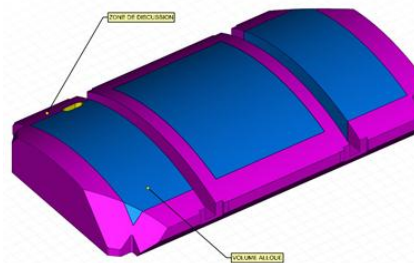
- Large processing resources around LEON 3 processor – 40 Mips
- Space Wire and 1553 data bus
- Star Tracker based AOCS
- 3-axes Reaction Wheel control



Soyuz



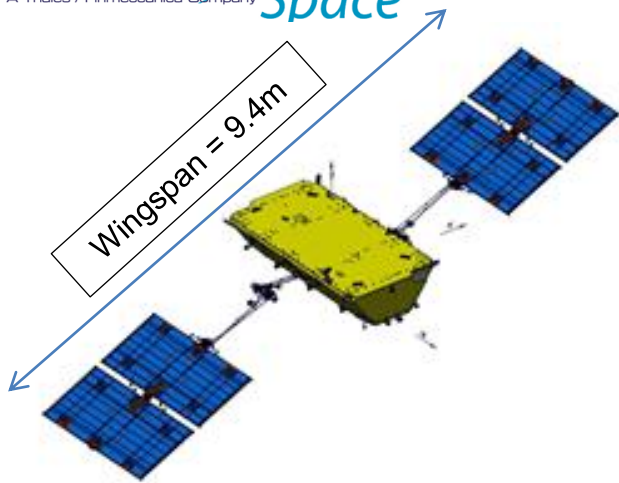
Falcon 9



MTB : Magneto Torquer Bar
MAG : Magnetometer
CSS : Coarse Sun Sensor
SADM : Solar Array Drive Mechanism
SATM : Solar Array Tilt Mechanism

RWA : Reaction Wheels
STR : Star Trackers
PFC : Platform Computer
PFSW : Platform Software
PCDU : Power Conditioning and Distribution Unit

CDU : Command Deciphering Unit
PLIU : Payload Interface Unit
SAPT : Pressure Transducer
LV : Latch Valves
THR : Thruster



The ELiTeBUS™1000 overall configuration offers wide clearances for platform sensors and large deck for payload accommodation.

Structure :

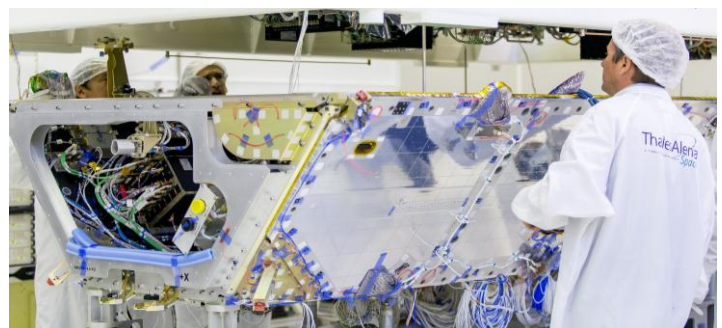
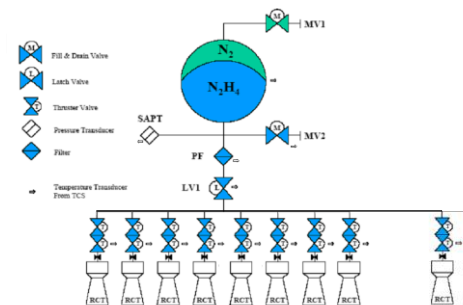
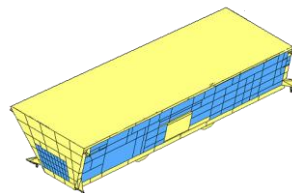
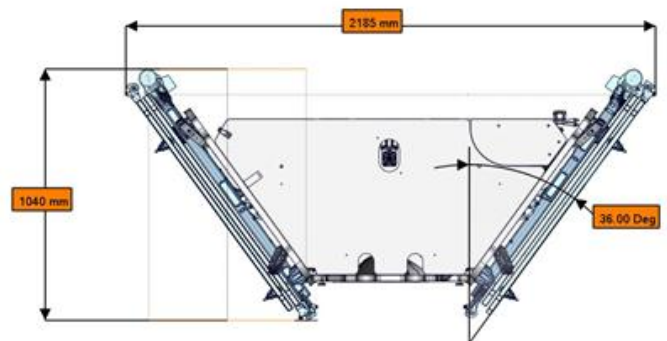
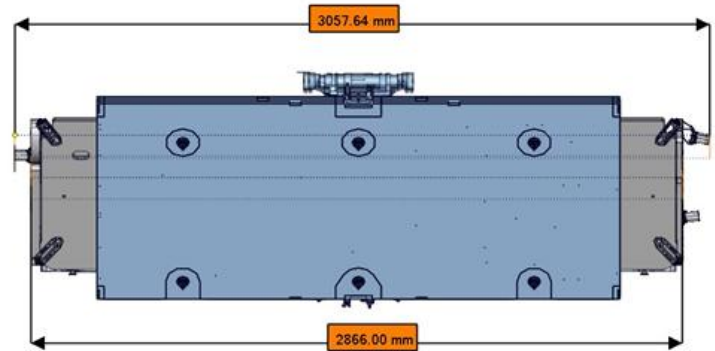
The all-aluminum structure is made of panels attached to a tubular frame holding thanks to corner fittings. The frame also supports the brackets hosting the launcher interface locks. The shape of the structure is optimized for compatibility with the widest range of launch vehicle fairings, with a central dispenser and 3, 4 or 5 satellites around it (possibly on several floors). All panels are made of honeycomb sandwich.

Propulsion :

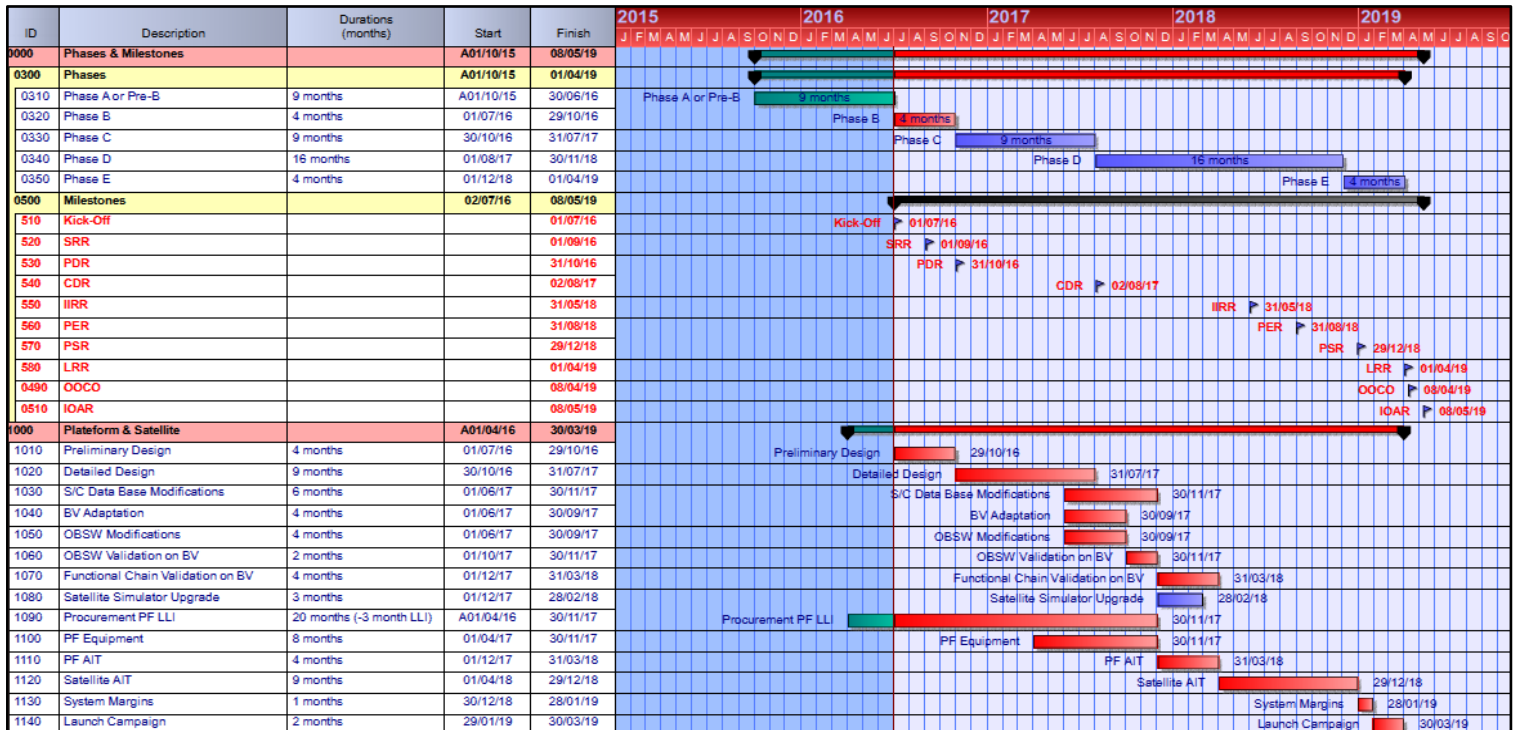
The propulsion is built around a standard hydrazine concept. 164 Kg hydrazine tank provides necessary delta-V required for orbit injection, mission and deorbiting. 9 catalyst thrusters of 1N ensure velocity augmentation.

Thermal Control :

Thermal control is ensured through passive and active means. SSM Radiators enable high rejection capability using heat pipes. Heaters provide temperature control in cold conditions. Passive means such as MLI and paints are used to control temperature gradients to ensure optimal conditions for platform and payload. Thermal design is guaranteed through accurate modeling of in orbit conditions.

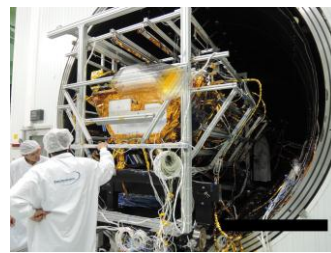
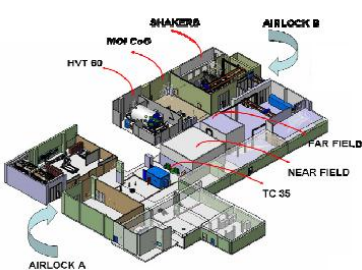


The ELiTeBUS™ 1000 standard delivery schedule is 30 months On Ground delivery starting at B-phase. A 9 months A-phase is recommended to appropriately freeze the satellite specifications.



Test facilities located in both Cannes (France) and Rome (Italy) address all environmental test activities related to space products :

- Mechanical tests : Vibrations, shocks, Acoustics and MOI / CoG measurements
- Radiated tests in anechoic chamber
- Solar Array deployment tests
- Thermal tests under vacuum and at ambient pressure



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