

Hera mission

Planetary Defence Conference 2023

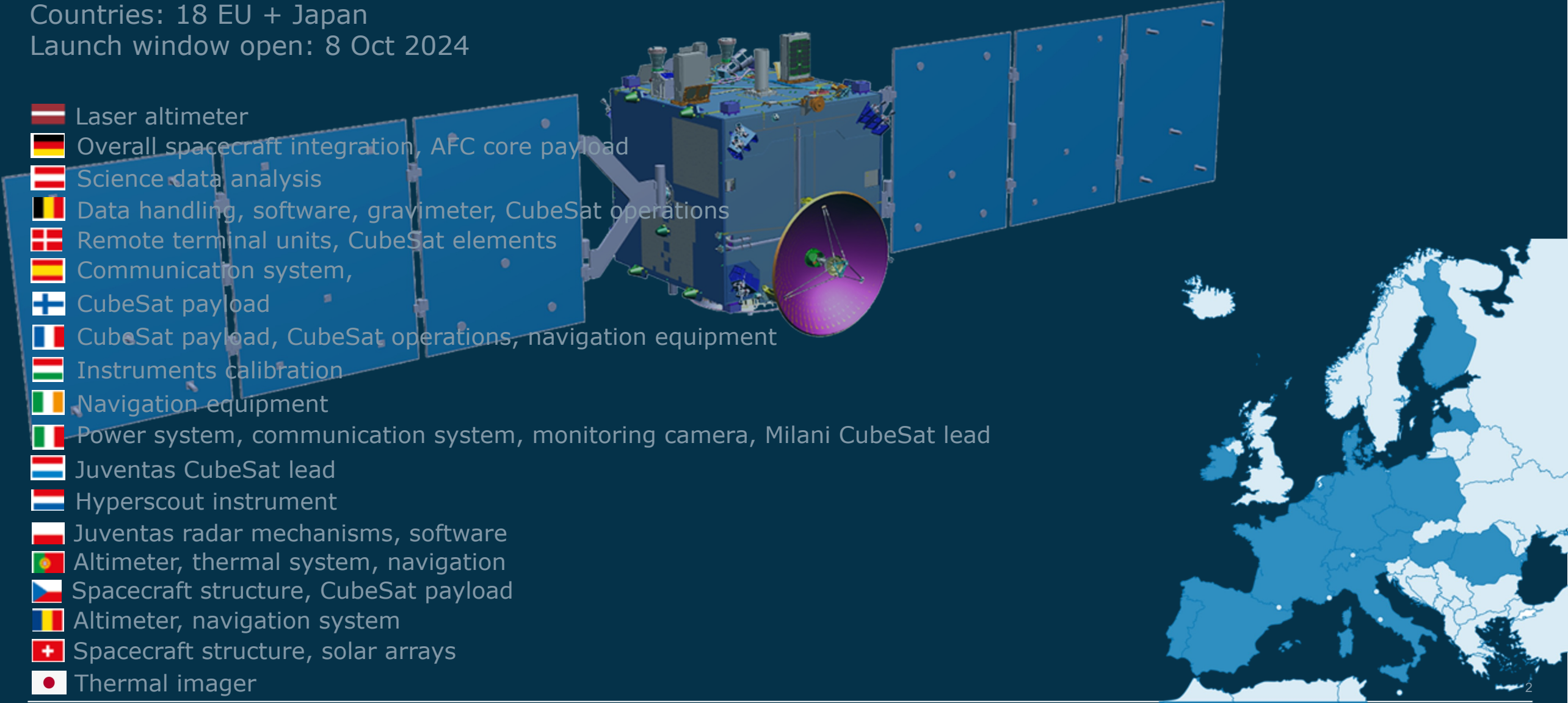
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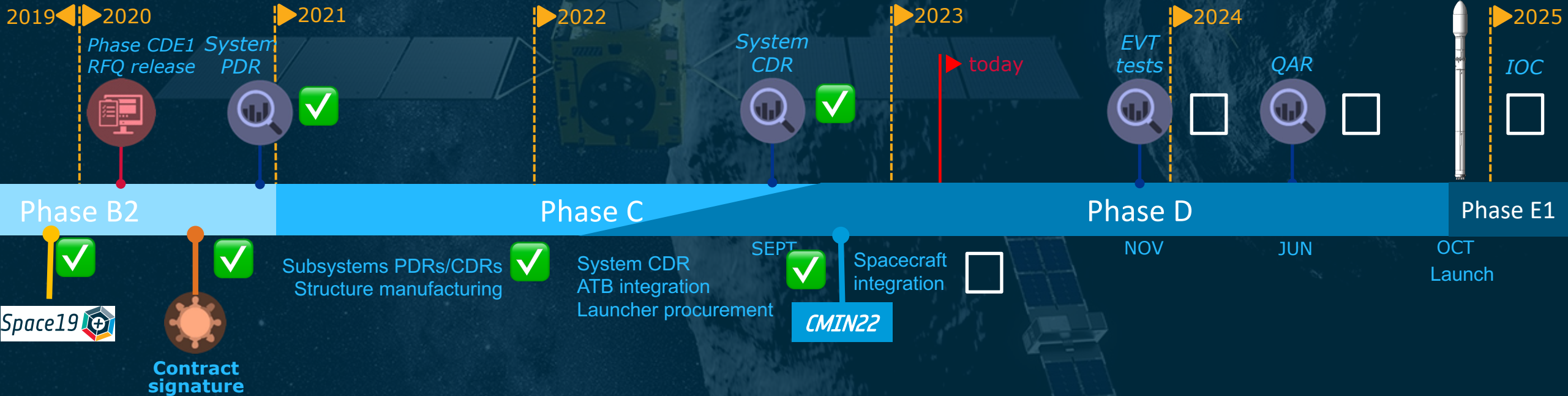
Hera spacecraft

Countries: 18 EU + Japan
Launch window open: 8 Oct 2024

- Laser altimeter
- Overall spacecraft integration, AFC core payload
- Science data analysis
- Data handling, software, gravimeter, CubeSat operations
- Remote terminal units, CubeSat elements
- Communication system,
- CubeSat payload
- CubeSat payload, CubeSat operations, navigation equipment
- Instruments calibration
- Navigation equipment
- Power system, communication system, monitoring camera, Milani CubeSat lead
- Juventas CubeSat lead
- Hyperscout instrument
- Juventas radar mechanisms, software
- Altimeter, thermal system, navigation
- Spacecraft structure, CubeSat payload
- Altimeter, navigation system
- Spacecraft structure, solar arrays
- Thermal imager

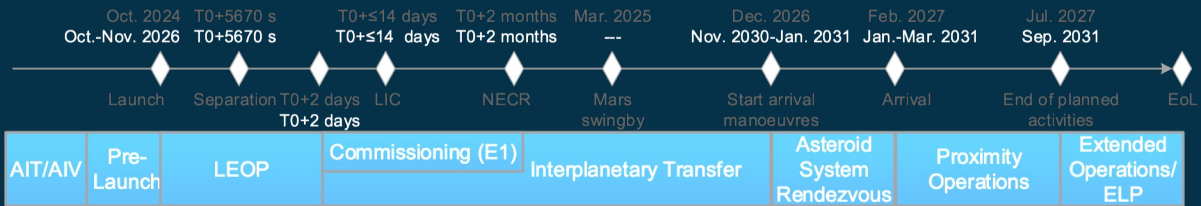
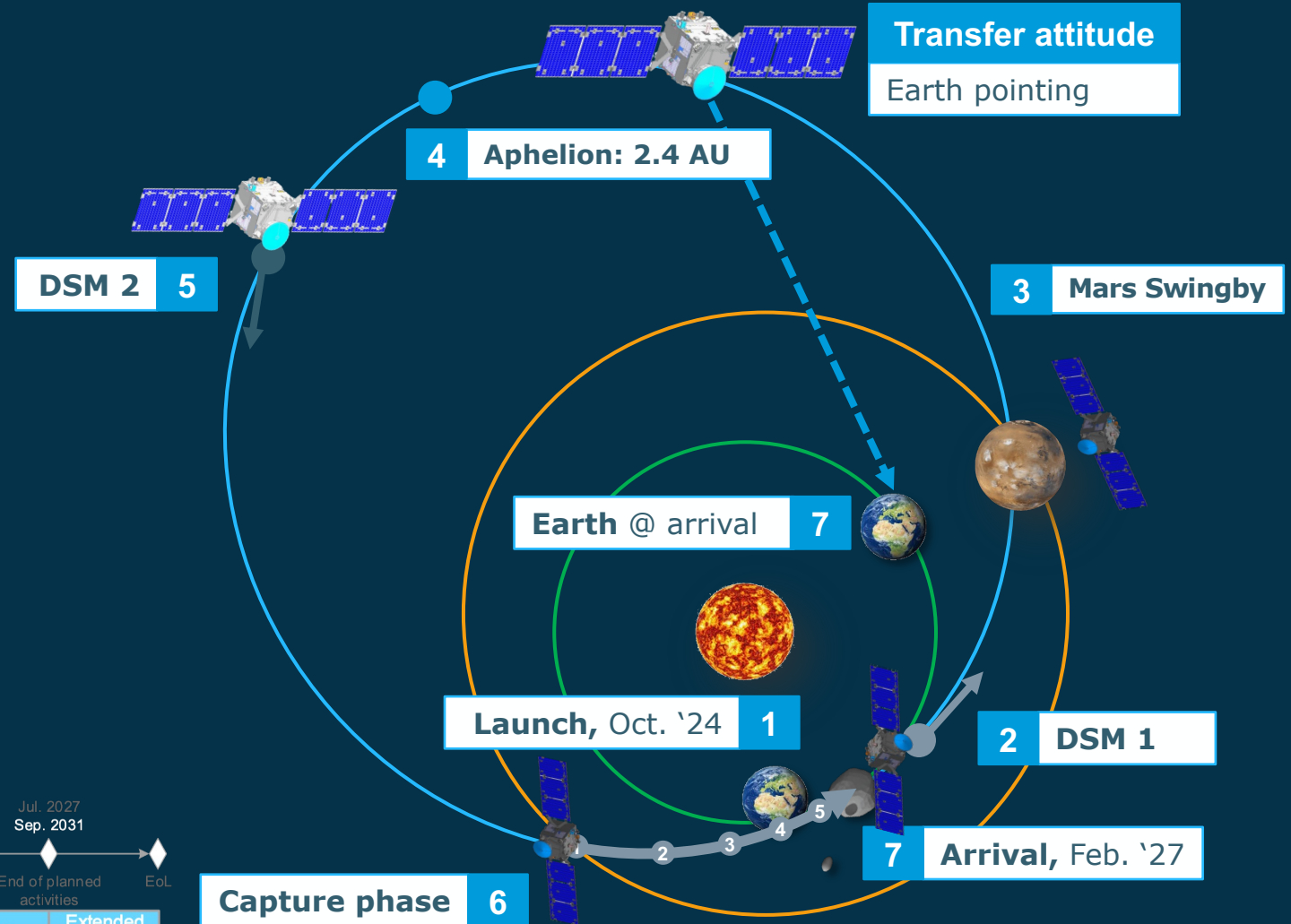


Hera mission

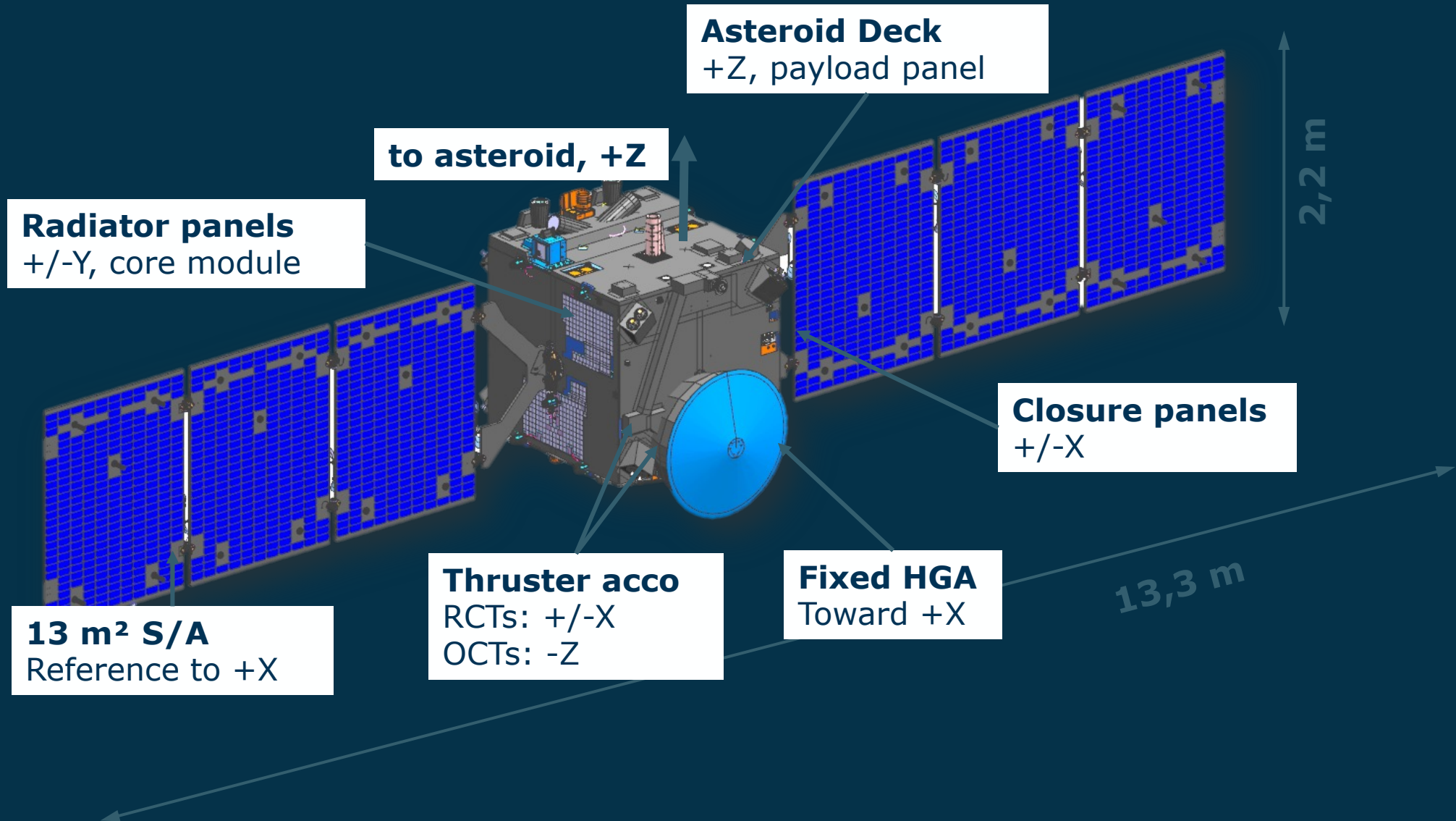


Mission overview

Launch mass	1214 kg (2024 launch) 1229 kg (2026 launch)
Power	826 W max. in steady state
Structure	Central tube primary structure Modular concept
Propulsion	Bi-propellant system 8N + 8R 10 N RCTs 3N + 3R 10 N OCTs
GNC	3-axis stabilized gyro-stellar ADCS Autonomous guidance using camera and laser
COMMS	X-band, fixed HGA (1.1 m), 2 x LGA
Data Handling	1 x dual-core OBC, 2 x RTU, 1 x MMU



Spacecraft overview



Payload overview

HyperScout
Multispectral imager

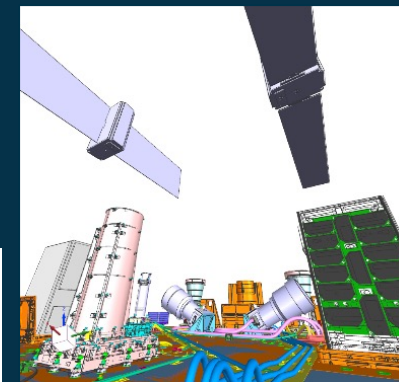
AFC – Asteroid Framing Camera
Redundant visible cameras used for both GNC and science purposes, FOV: 5.5°x5.5°

TIRI
Thermal InfraRed (8-14 μm) with filter wheel

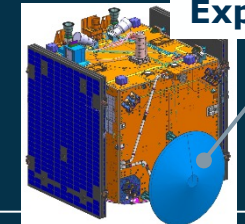
Milani CubeSat
Multispectral imager
Retroreflectors
Dust analyzer
Radio-science

Juventas CubeSat
Radar, Gravimeter, Radio-science

SMC
Monitoring
Camera



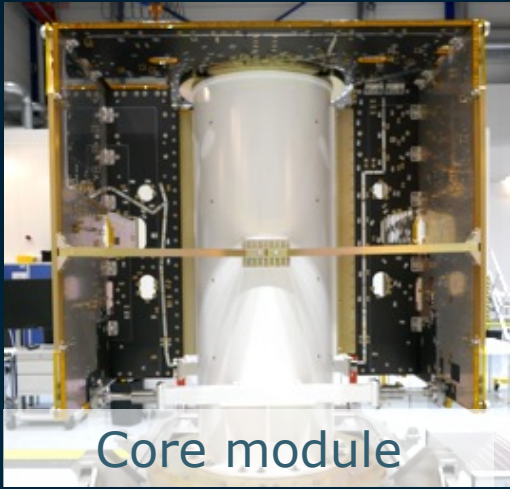
**Radio
Science
Experiment**



PALT – Planetary Altimeter
Laser-range finder for science & GNC



Hera integration flow



Core module



Propulsion module

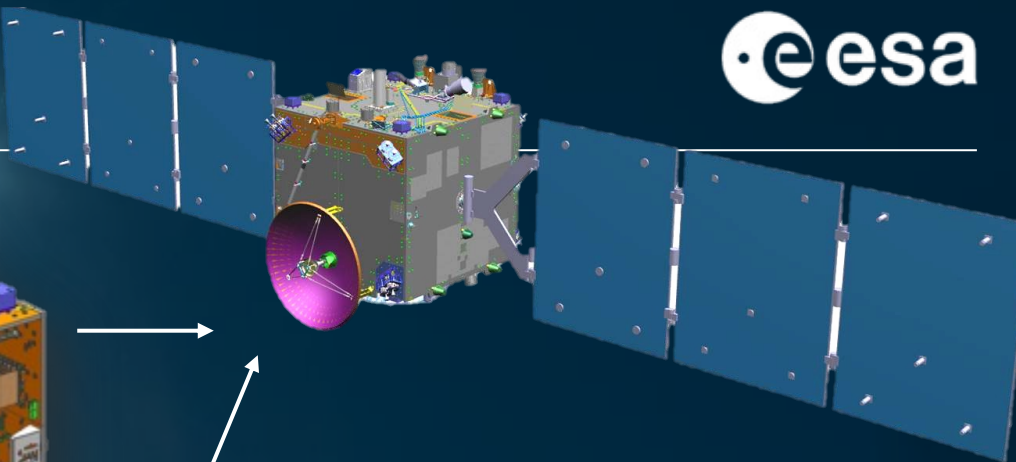
Integration ongoing at OHB



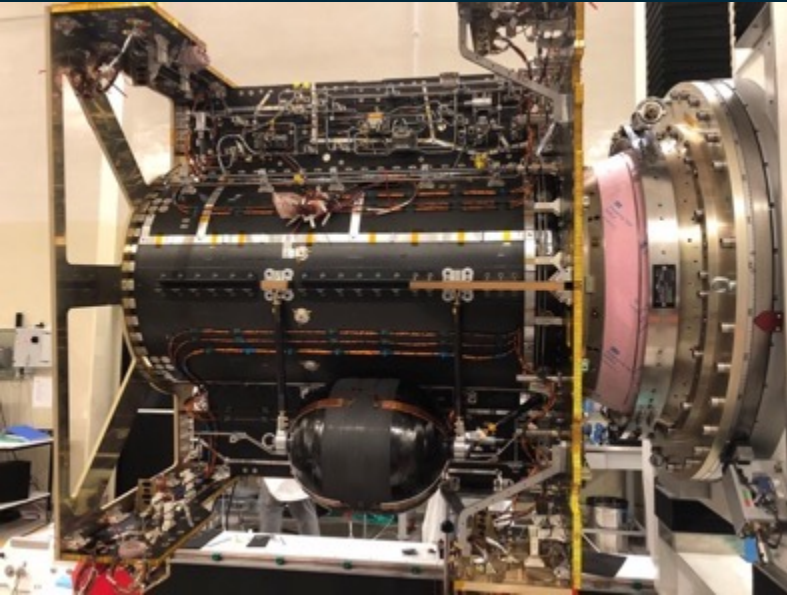
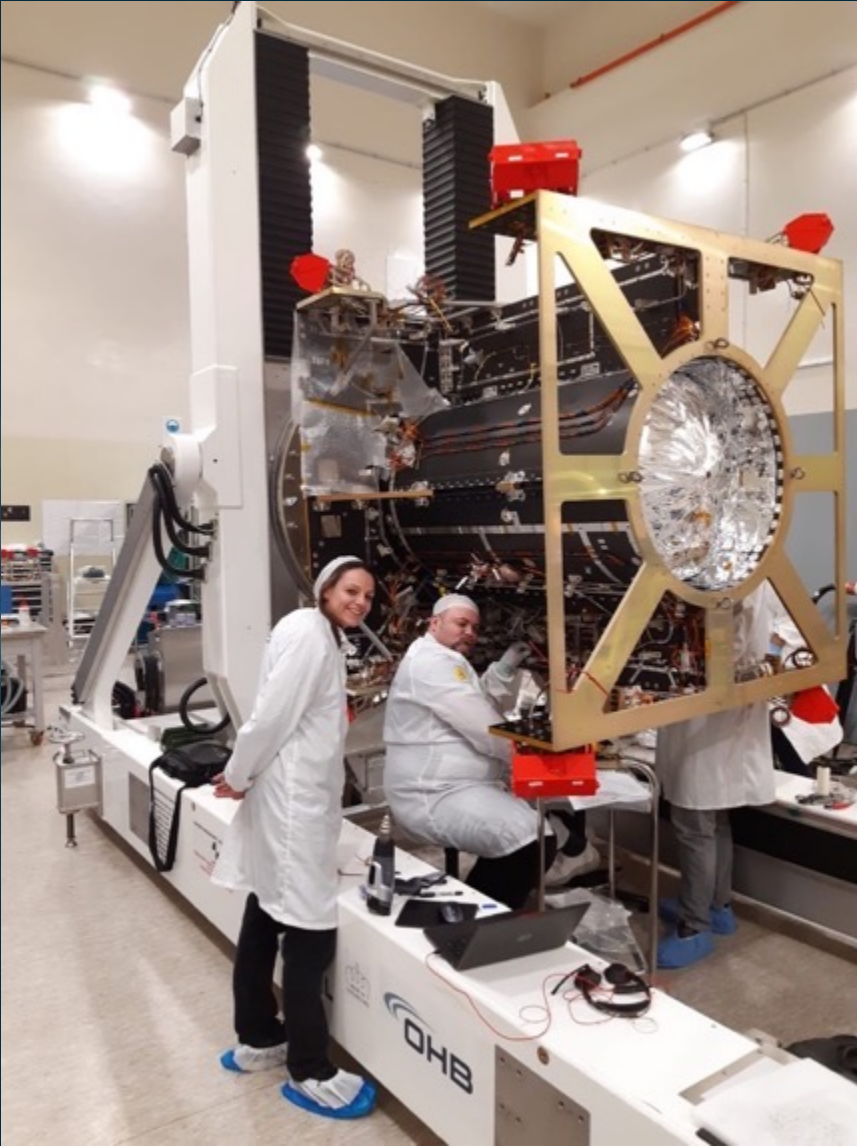
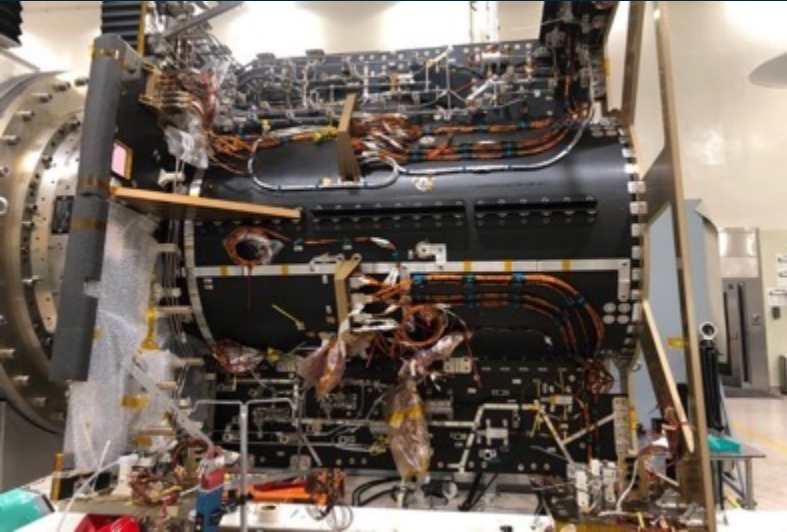
Integration ongoing at AVIO



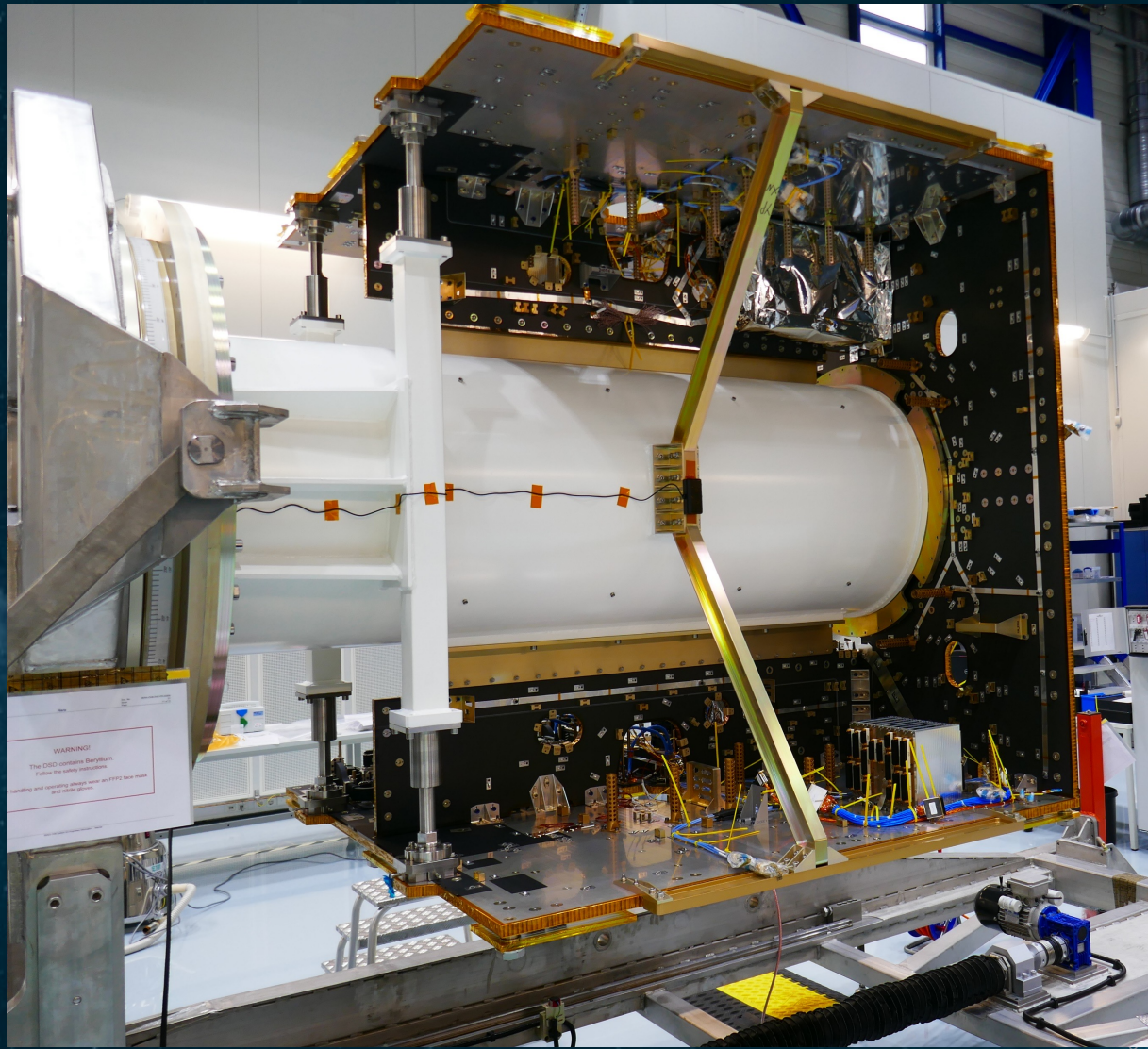
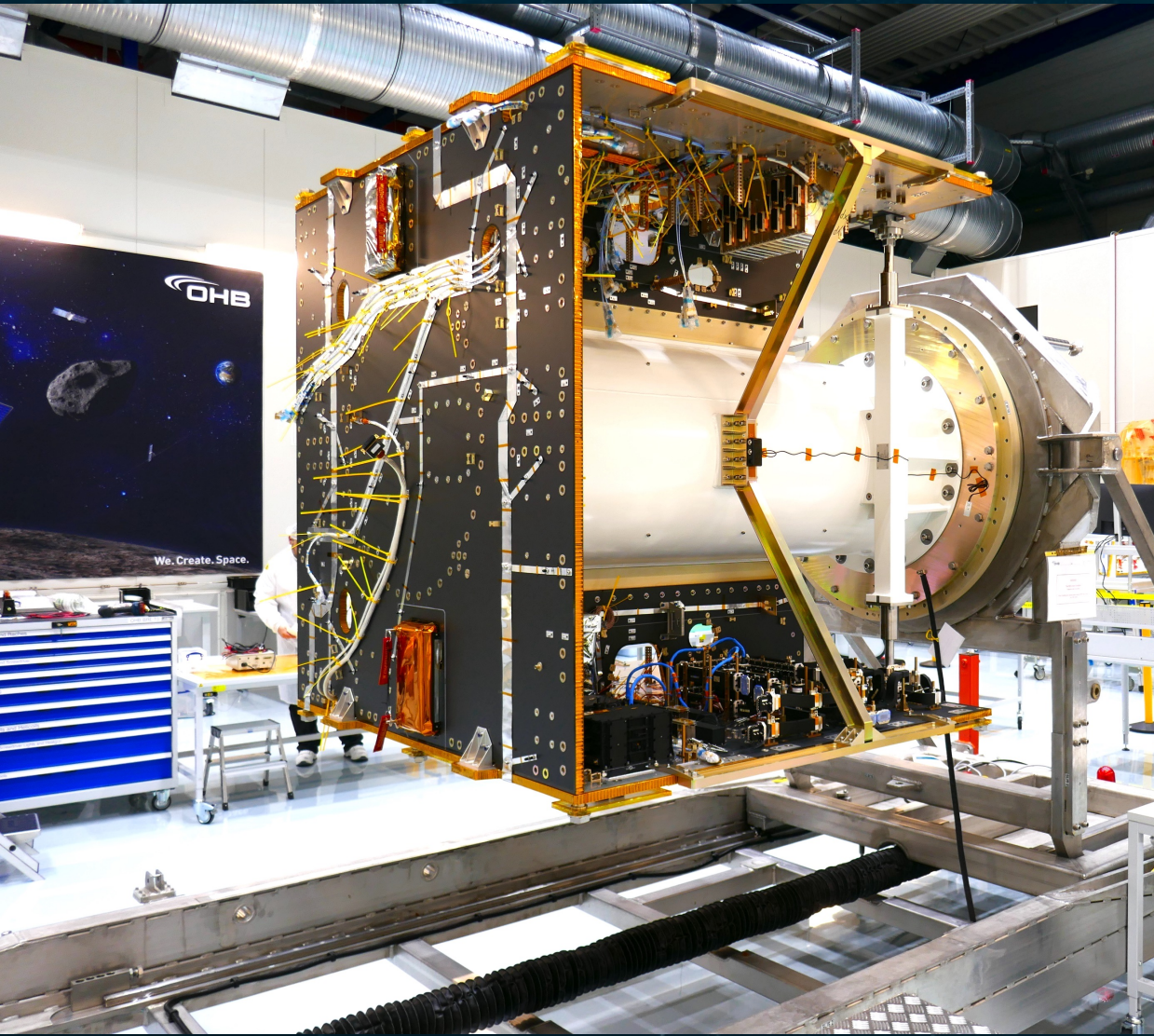
Spacecraft ATB at OHB



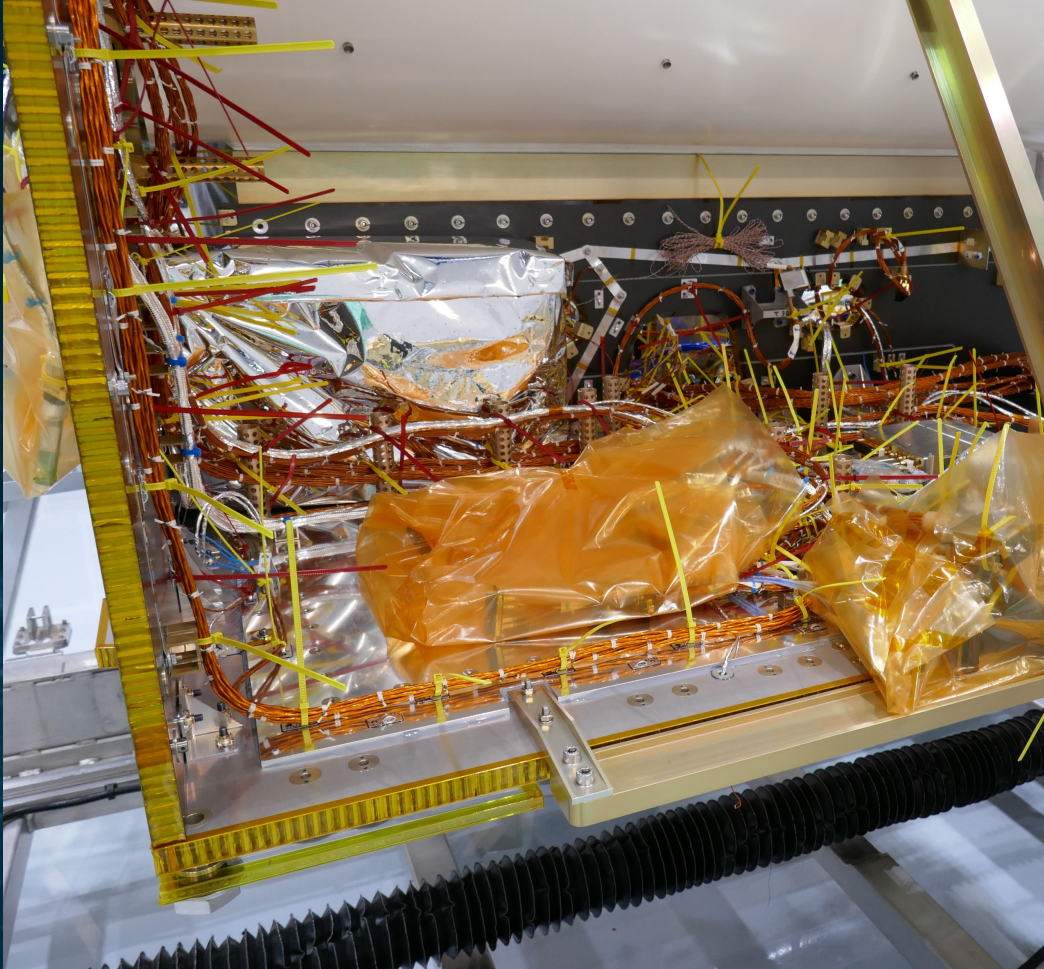
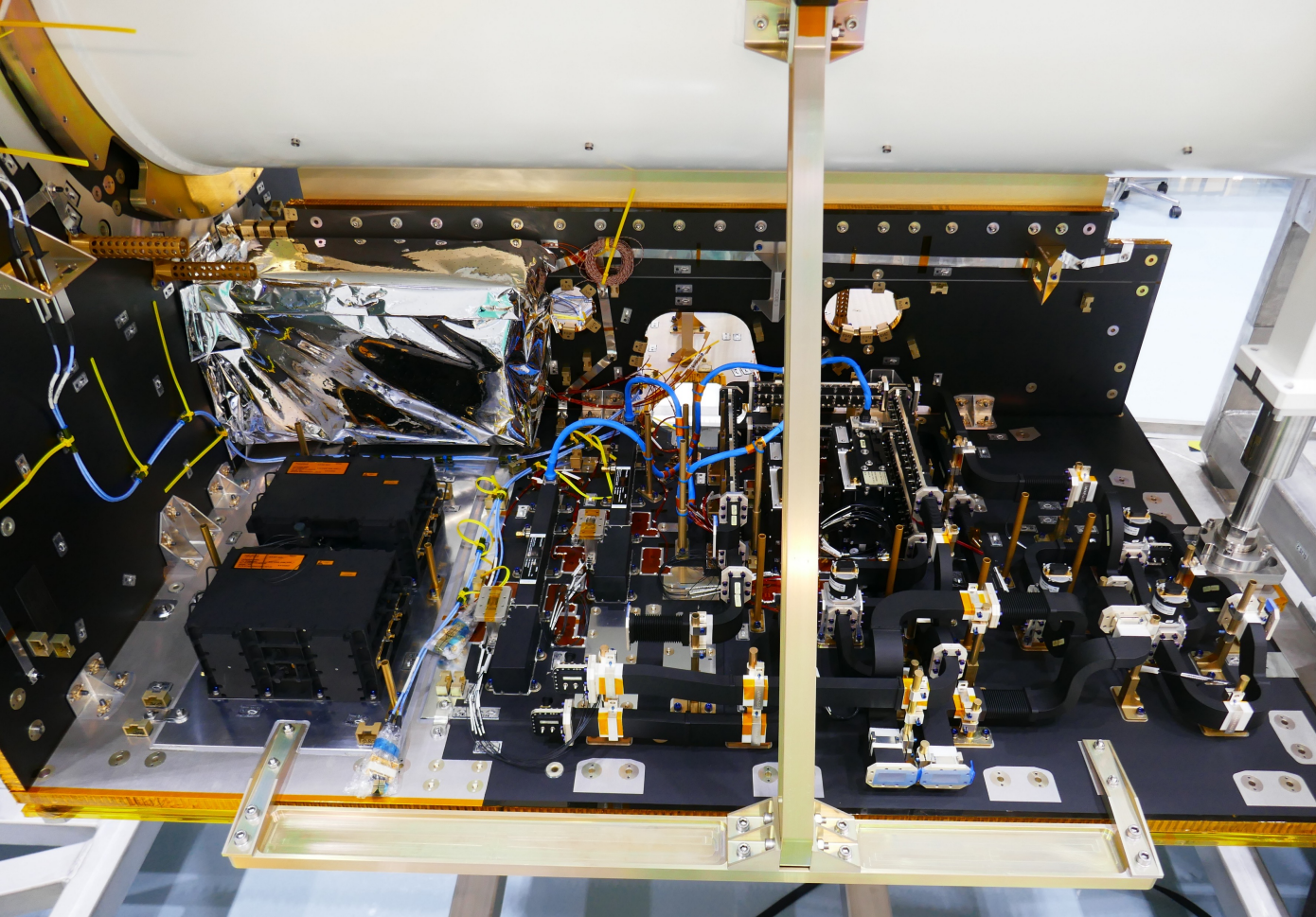
Propulsion module (AVIO)



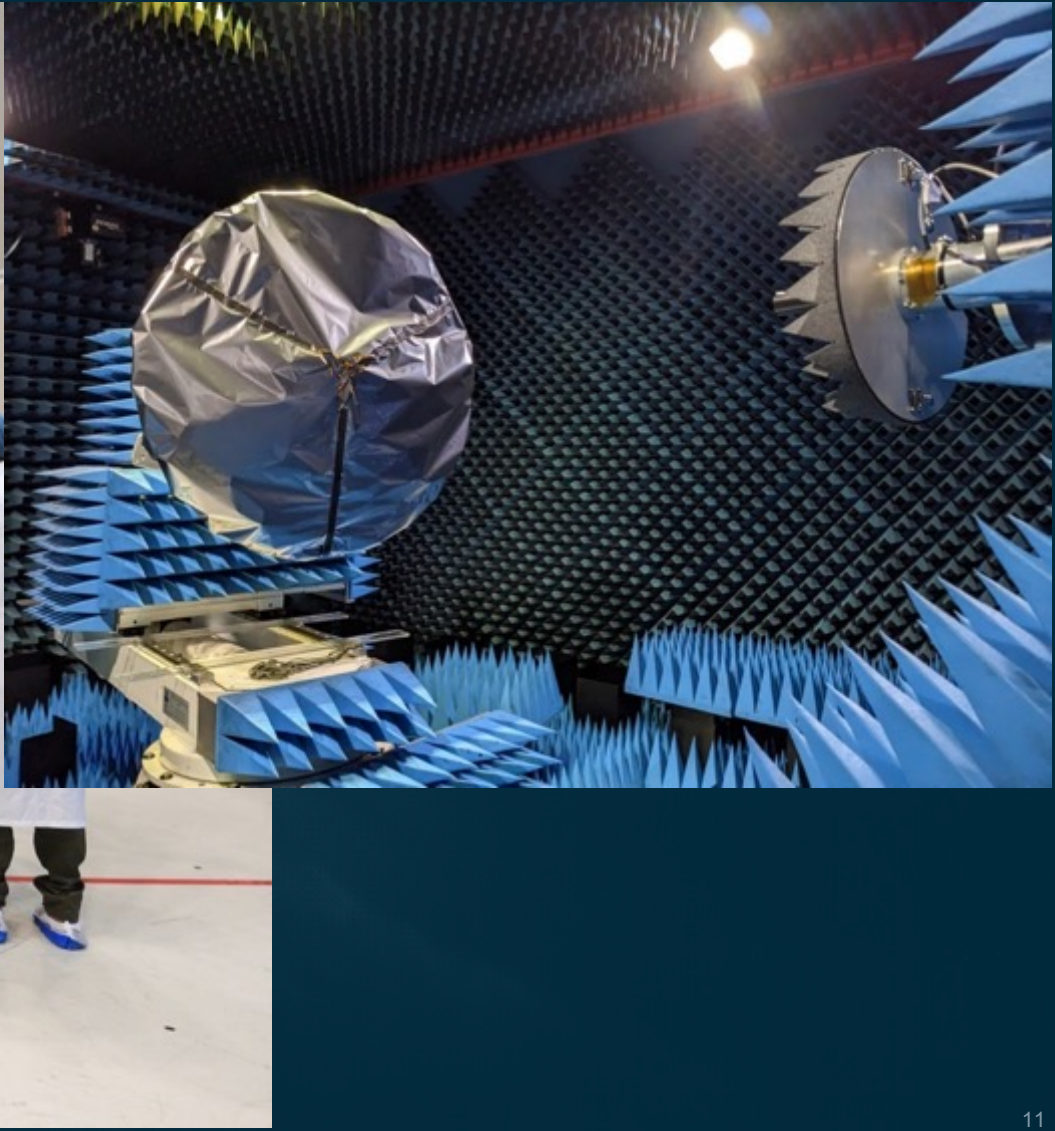
Core module (OHB)



Core module (OHB)



HGA qual



Payload status

AFC

- Both flight units qualified and delivered to OHB for integration.

Milani

- rEM fully tested with Hera spacecraft ATB, propulsion qualification completed
- Structural & thermal model and EM under assembly ongoing
- FM integration KO in June 2023

Juventas

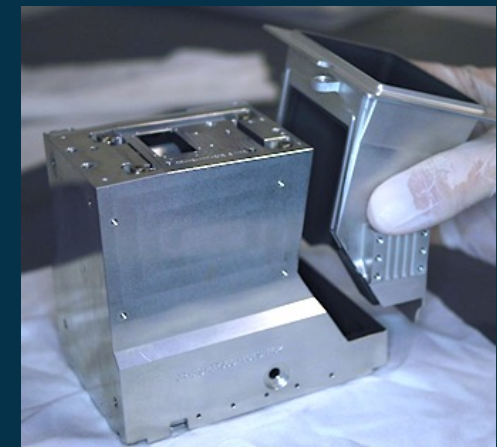
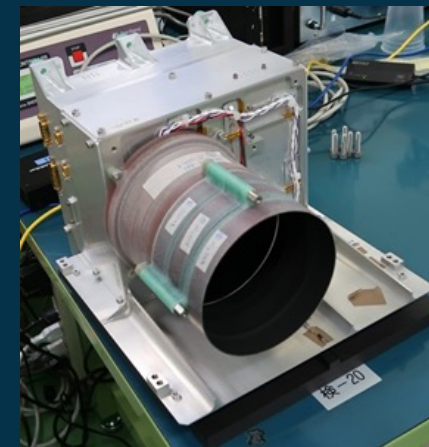
- rEM tested with Hera, propulsion qualification ongoing
- Structural & thermal assembly ongoing
- FM integration KO in July 2023, payload FMs under integration

TIRI

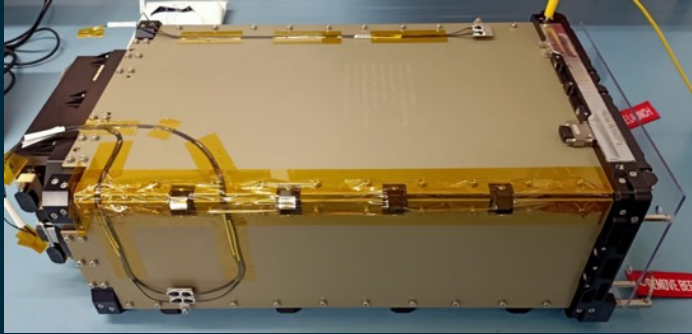
- EQM EMC tests completed, vibration and TVAC to be performed
- FM integration started

Hyperscout-H

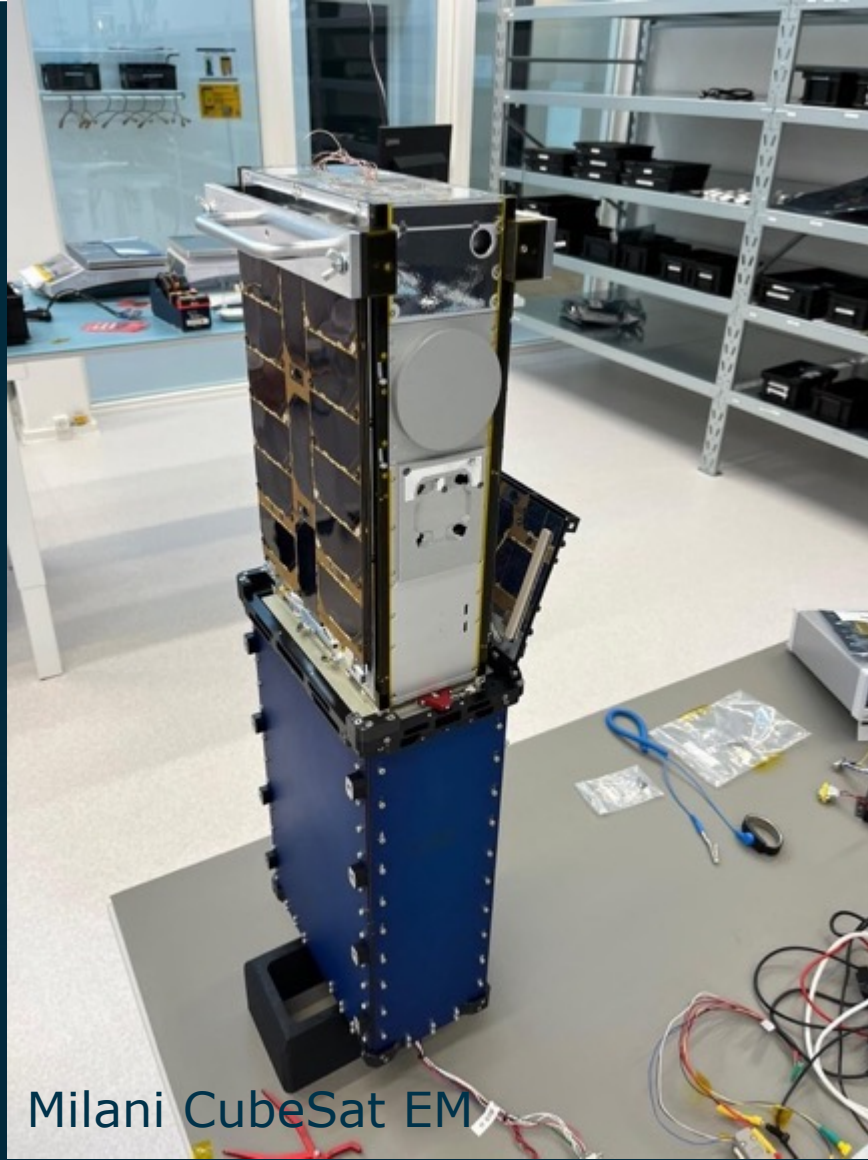
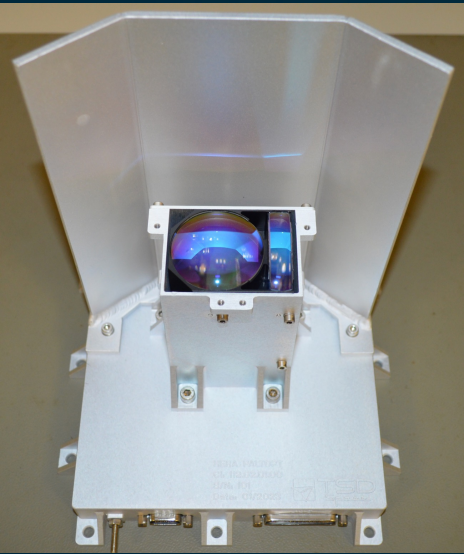
- PFM integrated, qualification tests starting next week
- Engineering model completed, software debugging ongoing



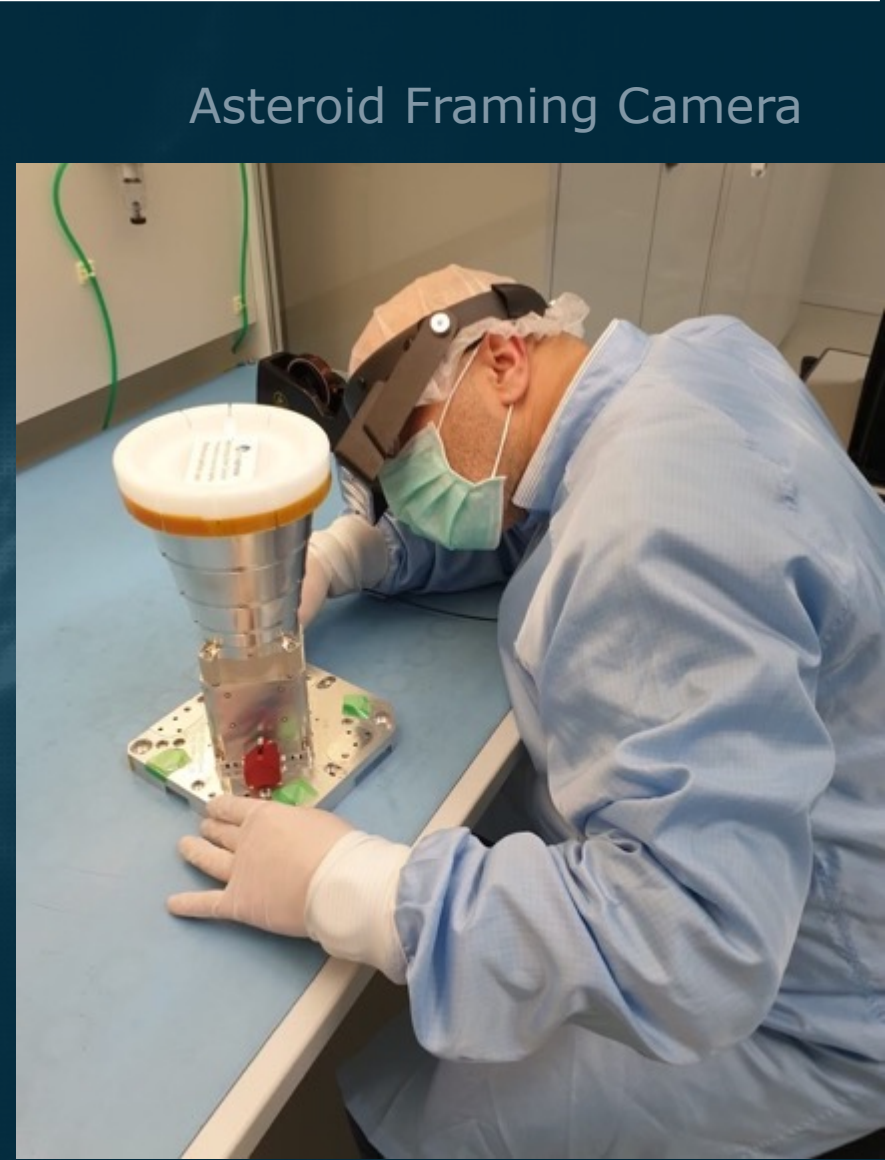
Payload



CubeSat deployer



Milani CubeSat EM



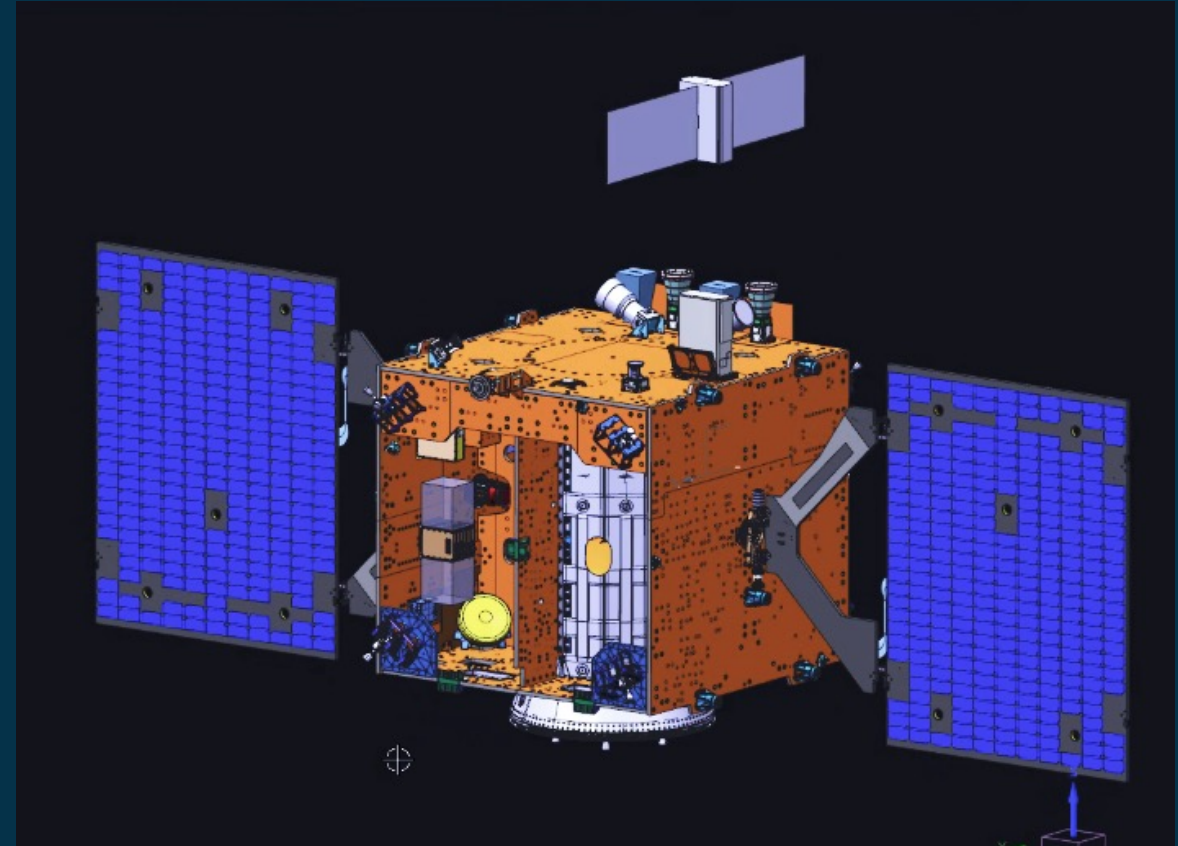
Asteroid Framing Camera

- All payloads delivered (including CubeSats)
- Propulsion module completed by AVIO and delivered to OHB
- Core module integrated at OHB
- Spacecraft PFM integration completion
- Ground Segment Implementation Readiness Review
- Mechanical and TVAC environmental test campaign at ESTEC
- CMOC PDR and KO implementation phase
- Launch contract signed with Space-X
- Payload operations plan by Hera Investigation Team



Comet Interceptor

Implementation contract signed with OHB-Italy



RAMSES

Phase A / B proposal under preparation by OHB System