M.I.L.A PLATFORM PRODUCT LINE

APPLICATION FOR HPCM MISSIONS & FUTURE EVOLUTIONS

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THALES ALENIA SPACE OPEN

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M.I.L.A PLATFORM SOLUTION

/// M.I.L.A. is the European Thales Alenia Space platform solution which for high performance operational missions.

/// Benefits from Thales Alenia Space legacy

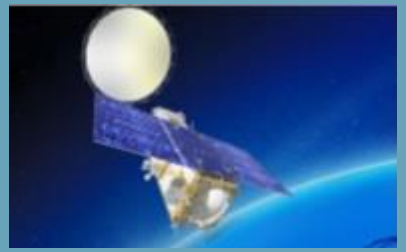
/// Competitive Platform solution with minimum instantiation costs based on tooled product line engineering approach for managing the variability of the Platform solution

/// Current Copernicus missions are based on this new platform solution: CHIME, ROSE-L and CIMR

CHIME

ROSE-L

CIMR



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M.I.L.A PLATFORM SOLUTION

/// Based on a building blocks approach to ensure flexibility and modularity for a wide range of missions

- Variability scheme at platform sub-system level based on alternative, scalable and optional features

/// Compliant to ESA operation requirement (O.I.R.D.)

/// Compliant to space law (LOS) and End of life passivation requirements

/// Available processing for third part application(s)

/// Ensure same operability to customers for whatever the payload (optical, radar, altimeter, …)

Development effort are concentrated on the mission-specific elements, the platform being implemented as a **commodity**

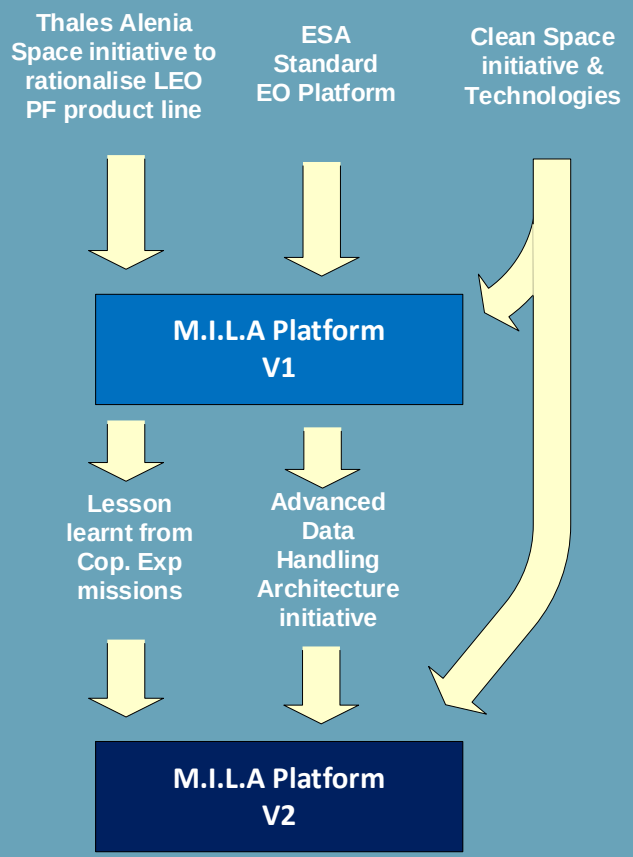
	M.I.L.A Platform
Payload mass	Up to 1.2 T
Payload Data Handling Transmission	• Up to 20Tbits EoL • X-Band or Ka-Band (Optical link optional) • CFDP (Class 1 & 2)
Lifetime	Up to 12.5 years
Avionics Data Handling System	• Multi-partition SW on Leon4FT GR740 SoC • Centralized GNSS and Star tracker processing • PUS-C • File Based Operation / CFDP Class (1 & 2) • Autonomous operations
Attitude Control System	• Sun pointing in Safe Mode through magnetic actuators or Gyrometers & Thrusters • High accuracy 3-axis pointing • Autonomous LEOP sequence • Optional autonomous controlled re-entry
Electrical Power System	Up to 6,5 kW Mono bus 28V Non-Regulated or Dual bus 50V Non-Reg & 28V Reg
Propulsion System	Chemical Uncontrolled or controlled re-entry Passivation
Telemetry, Tracking & Control	S Band or X Band Up to 2Mbps TC Uplink / TM Downlink

FUTURE EVOLUTION OF M.I.LA PF

An upgrade of the M.I.L.A PF Product line is planned to further improve the product especially for reaching Zero Debris Platform

/// Several axis of improvement are considered:

- Implementation of the Electric Propulsion building blocks
- Adaptation to the Advanced Data Handling Architecture (ADHA) standard
- Compatibility with selected demisable equipment's (tank, RW, MTQ, …)
- Compatibility with selected modular controlled re-entry solutions
- Extend current FDIR mechanisms and on-board management to improve the autonomy and the system resilience in-orbit.
- Optional interfaces with future On-Orbit Servicing operations



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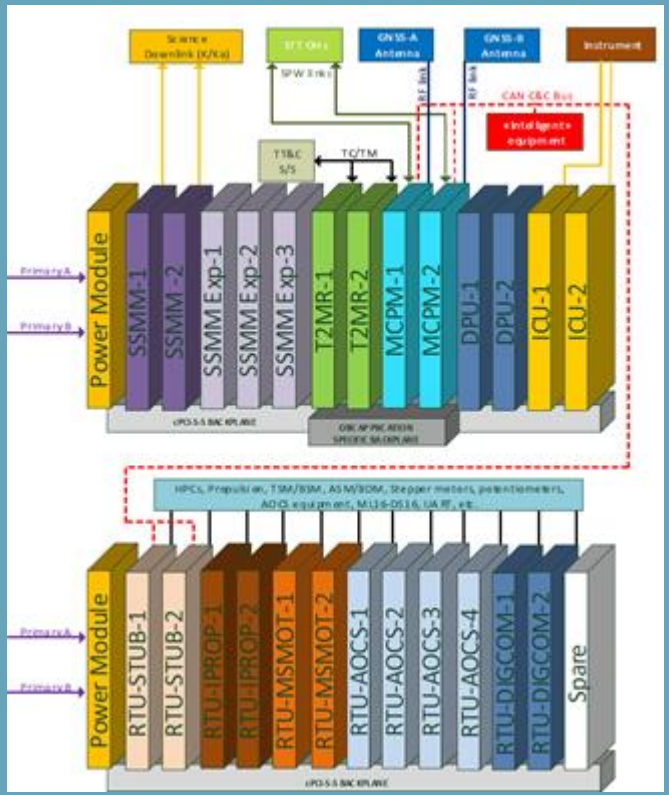
FUTURE EVOLUTION OF M.I.LA PF

Adoption of ADHA will boost the product's data processing performances while facilitating the integration of wider range of suppliers

/// The picture on the right describes a possible implementation of a MILA data handling system based on two ADHA units:

- Implementation with :
  - Racked mechanics (easy boards assembly/disassembly)
  - Full redundancy of modules and links on the backplane
  - Wide range of links on the backplane, to cover all Data Handling applications
- The former ADHA unit is a direct evolution of ADHA-U1 also including SSMM extension boards and ICU/DPU;
- The latter ADHA unit is much similar to classical Copernicus HPCM RIU/RTU but exploiting the ADHA interoperability.



Possible evolution of M.I.L.A. DHS based on ADHA units

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