

# Modular General Purpose RTU supporting advanced low speed and medium speed serial busses

Giorgio Magistrati

09/05/2017

# CONTRACT DETAILS



**Budget + Program:** 800k GSTP

**Planned Duration:** 18 months

**Actual Duration:** 56 months

**T.O.:** Giorgio Magistrati

**Technical Support:** Mariel Triggianese (TEC-EP)

## **SCOPE OF THE WORK:**

The objective of this activity is to design, develop and qualify (EQM level) a Modular RTU.

From the ESA/IPC(2010)52 Paris, 16 June 2010 : *“By applying in an extensive way ECSS compliant interfaces (ECSS-E-ST-50-12C, ECSS-E-ST-50-13C, ECSS-E-ST-50-14C, draft ECSS-E-ST-50-15C, ECSS-E-ST-50-51C, ECSS-E-ST-50-52C) instead of the proprietary ones that are often used today, the opportunity is open for equipment suppliers willing to develop modular and upgradeable RTU/RIU units than can be used across different missions. This is exactly in line with the building block approach and philosophy.*

*Modularity and upgradeability are the key characteristics of the proposed unit to be developed; the unit has to be conceived as an assembly of different modules/slices with standardized mechanical and internal electrical interfaces...”*

**Starting Year:** 2012



# Modular RTU

Contractor(s): CRI SA			ESA Budget:	800 k€
			GSTP G521-001ED	
TRL	Initial: 4	Current: 6	YoC: 2017	TO: G.Magistrati(TEC-EDD)

**Background and justification:** The SAVOIR/SAG identified the modular RTU as a high priority building block. This is one of the key avionics building blocks as the provided functionality is required by the majority of ESA missions

**Objective(s):** By applying in an extensive way ECSS compliant interfaces (ECSS-E-ST-50-12C, ECSS-E-ST-50-13C, ECSS-E-ST-50-14C, draft ECSS-E-ST-50-15C, ECSS-E-ST-50-51C, ECSS-E-ST-50-52C) instead of the proprietary ones that are often used today, the opportunity is open for equipment suppliers willing to develop modular and upgradeable RTU/RIU units than can be used across different missions. This is exactly in line with the building block approach and philosophy.

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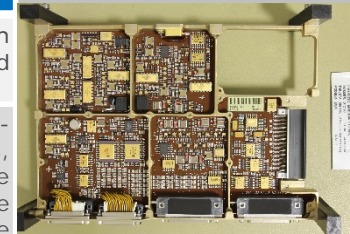
### **Achievements and status:**

An EQM has been developed and validated. FR in June/July 2017. EQM Test completed!. The EQM will be used as EM of the Proba3 IEU and it has been used to qualify the design of the IEU of Proba3. EQM campaign concluded and the unit is going to be delivered to Proba3.

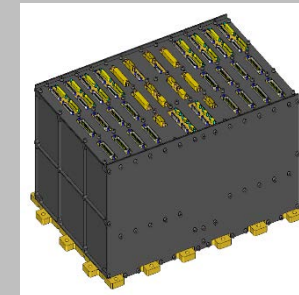
**Benefits:** The RTU is generally applicable to all spacecraft avionics systems. CRS has developed a modular design of a RTU/RIU in a reduced form factor wrt their current products.

**Next steps:** Production of FMS for Proba-3. in term of R&D develop a new control board based on a uC

Target  
TRL: 9  
Date:  
2019



Modular RTU: Digital I/O module



Modular RTU