

ERO On-Board Computer and Data Handling Systems Engineer

Job Req ID: 12465

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Vacancy in the Directorate of Technology, Engineering and Quality.

ESA is an equal opportunity employer, committed to achieving diversity within the workforce and creating an inclusive working environment. For this purpose, we welcome applications from all qualified candidates irrespective of gender, sexual orientation, ethnicity, beliefs, age, disability or other characteristics. Applications from women are encouraged.

This post is classified A2-A4 on the Coordinated Organisations' salary scale.

Location

ESTEC, Noordwijk, The Netherlands

Description

ERO On-Board Computer and Data Handling Engineer in the On-Board Computer and Data Handling Section, Data Systems, Microelectronics and Component Technology Division, Electrical Department, Directorate of Technology, Engineering and Quality.

The On-Board Computer & Data Handling Section provides support to ESA projects and carries out technology research (R&D) on turnkey on-board HW Data Handling solutions with the emphasis on:

- platform and payload data handling architectures and their building blocks (equipment/units, modules and key components);
- units such as on-board computers, mass memories, remote terminals, instrument control units*;
- digital and analogue signal-processing electronics for payload/platform control functions;
- payload data handling plus front-end acquisition and processing chain electronics*;
- on-board data transfer interfaces, buses and associated protocols (high and low speed);
- platform data handling functions related to security, data authentication, encryption, compression, machine learning and artificial intelligence;
- use of microelectronics devices.

*except for RF payloads.

You will be assigned as integrated support to the position of On-Board Computer and Data Handling Systems Engineer in the Earth Return Orbiter (ERO) Project, Human and Robotic Exploration Projects Department, Directorate of Human and Robotic Exploration. The Earth Return Orbiter (ERO) is one of the three flight elements of the Mars Sample Return (MSR) Campaign, conducted in cooperation with NASA. The Capture, Containment and Return System (CCRS) and the UHF Transceiver Payload are NASA CFIs for the ERO project.

Training and familiarisation with the parent Department's remit, processes and procedures will be provided at the start of this assignment.

Duties

You will report directly to the ERO System Engineering Team Leader and be responsible for the definition, implementation and procurement of the ERO spacecraft data handling subsystem as well as for the on-board software.

This responsibility specifically includes procurement of the platform software and will require managing any software and data handling interfaces with the NASA-provided CCRS and UHF Transceiver Payloads.

In particular, you will, within the programme guidelines and constraints as defined by the Project Leader:

- Coordinate the overall architecture for the ERO data handling subsystem with a view to its compliance with data handling and software system requirements. Autonomy and FDIR aspects will be handled in coordination with the ERO Principal Systems Engineer and the Spacecraft Operations Manager; establish the related budgets and define the interfaces between all the mission hardware and software elements;
- Define, analyse, monitor and control the procurement, development and verification of the data handling subsystem equipment (two on-board computers, remote interface unit, propulsion interface unit), on-board software and firmware, including the maintenance programme for maintainable on-board software;
- Analyse and define the data and control interfaces together with the protocols between all on-board units and the spacecraft/ground links;
- Monitor the development and verification of CCRS on-board software to ensure adherence to programmatic commitments, quality and compatibility with the rest of the space segment;
- Participate in the definition and close monitoring of the AIV programme for the verification of the avionics and on-board software systems, and participate in related anomaly investigations, such that problems are identified and solutions implemented;
- Participate in the definition of the flight operations constraints and mission operations related to the data handling subsystem and on-board software systems, liaising with ESOC as required;
- Support the LEOP and in-orbit commissioning of the subsystems under your responsibility;
- Participate in ERO project reviews and tender evaluations;
- Contribute to the risk management processes at system and spacecraft level;
- Provide support to NASA reviews where your experience and technical knowledge can be brought to bear;
- Identify and coordinate the required D/TEC and D/OPS support related to the above tasks;
- Provide support for other Department activities where your experience can be brought to bear.

In the execution of these tasks, you will interface directly with the relevant counterparts in the industrial teams and, within the ERO Project, directly with the Spacecraft Development Team, the System Engineering Team, the Product Assurance Team and the Project Control Team. You will moreover be responsible for identifying and coordinating the engineering support provided by D/TEC and D/OPS by:

- defining and communicating clear tasks and objectives for the analysis and technical activities of the overall data handling and SW system;
- promoting an effective work environment by encouraging cooperation and collaboration within the team and with the various project interfaces.

Finally, you will participate in periodic meetings with the parent Section, contributing to the transfer of technical knowledge and lessons learned across the Agency.

Technical competencies

General background and specific experience in the technical domains covered by the position

Hands-on hardware experience

Experience in the development and verification of space hardware

Project support experience in a relevant domain

Spacecraft systems knowledge

Environmental testing for space hardware

Experience in the management and monitoring of industrial activities

Behavioural competencies

Result Orientation

Operational Efficiency

Fostering Cooperation

Relationship Management

Continuous Improvement

Forward Thinking

Education

A Master's degree in electronics, electrical engineering, networks, telecommunications or a related field is required.

Additional requirements

- Project experience on complex spacecraft, in particular in phases C/D/E1, with E1/Operations being essential;
- Experience with TT&C and GNC;
- Experience with software verification;
- Demonstrated ability to lead industry;
- Experience and understanding of safety criticality for hardware as well as software is an asset;
- Demonstrated experience of leading the FMEA for avionics and FDIR;
- Solid understanding of Software Product Assurance;
- Solid understanding of security aspects such as authentication, encryption and general security best practice;
- Demonstrated ability to work with external partners in a non-hostile proactive way.

Other information

For behavioural competencies expected from ESA staff in general, please refer to the [ESA Competency Framework](#).

The working languages of the Agency are English and French. A good knowledge of one of these is required. Knowledge of another Member State language would be an asset.

The Agency may require applicants to undergo selection tests.

The closing date for applications is 29 August 2021.

At the Agency we value diversity and we welcome people with disabilities. Whenever possible, we seek to accommodate individuals with disabilities by providing the necessary support at the workplace. The Human Resources Department can also provide assistance during the recruitment process. If you would like to discuss this further please contact us at contact.human.resources@esa.int.

Please note that applications are only considered from nationals of one of the following States: Austria, Belgium, the Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Ireland, Italy, Luxembourg, the Netherlands, Norway, Poland, Portugal, Romania, Spain, Sweden, Switzerland, the United Kingdom and Canada, Latvia, Lithuania and Slovenia.

According to the ESA Convention the recruitment of staff must take into account an adequate distribution of posts among nationals of the ESA Member States. When short-listing for an interview, priority will first be given to internal candidates and secondly to external candidates from under-represented Member States.
(<https://esamultimedia.esa.int/docs/careers/NationalityTargets.pdf>)

In accordance with the European Space Agency's security procedures and as part of the selection process, successful candidates will be required to undergo basic screening before appointment.

Recruitment will normally be at the first grade in the band (A2); however, if the candidate selected has little or no experience, the position may be filled at A1 level.