

## **Training Opportunity for Portuguese Trainees**

| <ul> <li>Onboard computers</li> <li>Oncourse of the Unit missions:</li> <li>The Software Systems division has the responsibility in domain of software engineerin 0TUhttp://www.esa.int/Our_Activities/Space_Engineering/Software_SystemsU0T In particular the division covers verification and validation techniques for checking mission-critical software, software technology for flight as well as ground systems, real-time software embedded in spacecraft systems and payloads; ground facilities software, including electrical ground support equipment, testbenches, databases and simulation and modelling tools;</li> <li>The division is supporting all ESA satellite projects in the above domains.</li> <li>The Flight Software Systems Section offer a training opportunity:</li> <li>Overview of the field of activity proposed:</li> <li>Most computers used onboard todays spacecraft are traditionally initiated through a Bootloader function which resides in each computer. The Bootloader executes basic tests of various logical functions as well as memory before loading and starting application sw. The Bootloader provides a highly critical function and might jeopardise the spacemission if not correctly executed. The SpaceWire protocol, Mttp://www.spacewire.esa.int which is becoming more frequently used onboard has a dedicated low level protocol, RMAP, Remote Memory Access Protocol, which enables capability to remotely load memory and thereby bypass or override a Bootloader. The objective of the training opportunity is to evaluate the capability of RMAP to support implementation of Bootloader functions identifying the mandatory functions needed (anayse RMAP capability as well as limitations in general as well as dedicated target processor LEON3FT or alternative processor</li> <li>Outline and define a number of Bootloader strategies utilising RMAP especially considering functionality, aperformance and robustness</li> <li>Implement and test a selection of the defined strategies as use cases</li> <li< th=""><th>Reference</th><th>Title</th><th><b>Duty Station</b></th></li<></ul> | Reference  | Title   | <b>Duty Station</b>  |
|---|--|---|--|
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Applicants must be fluent in English, the working languages of the Agency.