



DSP and FPGA Engineer

We are looking for a highly skilled Signal Processing & FPGA Developer to join our dynamic team in Luxembourg. You will play a crucial role in developing advanced space communication systems, ensuring compliance with aerospace standards, and delivering high-performance hardware for spacecraft and satellite missions.

Our small team in Luxembourg (~20 people) is dedicated to building reliable, high-performing, and cost-effective products for satellites, deep-space smallsats, and landers. We operate using a hybrid model, blending NewSpace's rapid development approach with a high degree of quality assurance to deliver robust, mission-critical systems.

You will be responsible for designing, implementing, and validating digital signal processing solutions and FPGA-based hardware that meet the highest aerospace standards.

Essential Characteristics

- Strong expertise in digital signal processing and FPGA design.
- Practical experience with MATLAB, Simulink, and HDL (VHDL/Verilog).
- Proficiency in implementing modulation/demodulation schemes (e.g., BPSK, QPSK, GMSK) and error-correction algorithms (e.g., Reed-Solomon, Turbo, Viterbi, LDPC, BCH).
- Familiarity with space communication standards such as ESA TT&C, CCSDS, and ECSS.
- Strong problem-solving skills and the ability to work on complex systems.
- Knowledge of aerospace hardware platforms such as Xilinx Zynq Ultrascale MPSoC, Microchip PolarFire SoC, ADRV9002, and AD9361.
- Positive, self-driven, and collaborative mindset.

Strongly Valued Characteristics

- Experience designing and implementing deep-space communication systems.
- Understanding of ESA and aerospace-grade hardware quality standards.
- Hands-on experience in testing and validation of hardware (e.g., TVAC, vibration, radiation).
- Advanced experience with automated HDL code generation, optimization, and FPGA performance tuning.
- Knowledge of signal recovery systems such as Automatic Gain Control (AGC), symbol timing recovery, and carrier tracking loops.
- Familiarity with software-defined radio (SDR) modem design for flight applications.
- Strong technical writing and documentation skills.
- Proficiency in advanced scripting or software development (e.g., Python, C++).

Key Responsibilities

- FPGA and DSP Development: Design and implement FPGA-based solutions, including modulation/demodulation, error correction, and high-throughput communication systems, adhering to aerospace standards.

- SDR Design and Development: Design and develop Software-Defined Radio (SDR) modems that comply with ESA TT&C deep-space transponder standards.
- FPGA Development: Create, optimize, and validate FPGA solutions using both manual and automated HDL techniques.
- Signal Processing Implementation: Implement DSP solutions, including modulation/demodulation, ranging methods, and tracking loops, ensuring compliance with CCSDS and ECSS standards.
- Testing and Validation: Verify DSP blocks against MATLAB and Simulink models and validate hardware on platforms such as Xilinx Zynq Ultrascale and Microchip PolarFire.
- Encoder/Decoder Deployment: Deploy and optimize encoding and decoding schemes (e.g., RS, Turbo, LDPC, BCH) and generate corresponding IP cores.
- Hardware Optimization: Optimize FPGA designs for resource utilization, latency reduction, and robust operation in aerospace environments.
- Advanced Algorithm Development: Implement communication algorithms (e.g., QPSK, CP, channel estimation) and real-time data exchange techniques (e.g., DMA, EDMA) for SDR platforms.
- Documentation and Support: Prepare technical documentation and provide support for ongoing production and testing of flight hardware.

What We Can Offer in Return

We offer the opportunity to work on innovative aerospace projects that will fly in space, contributing to cutting-edge technology for satellite and spacecraft missions. You will take on a pivotal role in a new, revenue-generating company with an aggressive development schedule featuring rapid hardware iterations. Additionally, you will have opportunities to learn from and collaborate on related avionics and communication projects.

Our team is based in Luxembourg, an international, welcoming, and vibrant country in the heart of Europe. We foster a flexible and collaborative working environment where you can grow professionally and make a tangible impact on space missions.

Duty Station

Belval, Luxembourg, with occasional travel required. Flexible working environment.

Contract Type

Full-time Luxembourg CDI.

We would usually expect candidates to have 2-5 years' experience in relevant fields. The role is open to candidates of any age, gender, orientation, that have or can get work authorization within the EU.

If you believe you are a good fit for this role, please apply through the link below:

[APPLY HERE](#)