



Role Profile: FPGA Engineer

Vacancy Description

Amiosec is an exciting and growing UK technology company with innovation, agility and state of the art technology at its core. We work in partnerships with UK government customers and commercial providers to deliver research, technology and products in the communications security sector.

We are looking for a FPGA Engineer with at least 3 years of experience to join our team and support the continued growth of the business. The role will have a focus on the development of high-performance FPGA functionality (primarily written in VHDL), with an emphasis on high-speed network communications, cyber security, and cryptography. Responsibilities will include conception, design, development, integration, testing and debugging of complex FPGA solutions integrated into wider embedded systems-of-interest.

Due to the nature of our work, all candidates will be required to obtain and maintain an appropriate UK security clearance.

Typical Activities

| Subject Area | Activities |
|--------------------------------------|---|
| FPGA Design & Development | <ul style="list-style-type: none"> • Design and development of FPGA solutions, implementing networking protocols, cryptographic primitives, etc. in line with the technical competencies listed below. • Simulation and verification of developed solutions using appropriate and efficient techniques. • Integration, build, deployment, debug and testing of solutions within larger embedded systems. |
| Technology Research | <ul style="list-style-type: none"> • Evaluating latest technologies (e.g. future FPGA devices and platforms, languages, etc.). |
| Tool Evaluation | <ul style="list-style-type: none"> • Investigation of emerging FPGA toolchains and workflows (e.g. accelerated development, simulation, test, verification, automation, etc.). |
| Planning and Estimation | <ul style="list-style-type: none"> • Task breakdown, sizing, progress reporting. • Development/contribution to technical proposals. |
| Team Activities | <ul style="list-style-type: none"> • Involvement in Agile Scrum ceremonies and design sessions. |



Technical Competencies

| Subject Area | Competency |
|--------------------------------------|---|
| Language/Workflow Experience | <ul style="list-style-type: none"> • High-performance FPGA design (use of high-speed serial transceivers, high-throughput data processing and manipulation, etc.). • VHDL for synthesis and simulation (knowledge of Verilog may be useful but not essential). • Integration of 3rd party IP cores. • Verification of complex FPGA designs using appropriate techniques (self-checking testbenches, BFMs, OVM/UVM, etc.). • Physical design (timing closure, floor-planning, etc.) for FPGAs. |
| Tools & Build Systems | <ul style="list-style-type: none"> • FPGA vendor toolchains (Intel Quartus / Xilinx Vivado). • Modelsim/Questa simulator. • Build, deployment and testing via continuous integration systems. |
| Development Targets | <ul style="list-style-type: none"> • Xilinx / Intel FPGA and SoC devices within bespoke embedded platforms. • Off-the-shelf FPGA development and evaluation platforms. |
| Integration, Test & Debug | <ul style="list-style-type: none"> • Hands-on integration of FPGA sub-systems within complex wider systems-of-interest. • Sub-system and system level testing and debug. • Familiarity with appropriate tools and techniques (lab test equipment, ChipScope / SignalTap, etc.). |
| Networks and Protocols | <ul style="list-style-type: none"> • Network communications protocols (Ethernet, IP, TCP, UDP, ARP, etc.). • Network analysis and debugging tools (e.g. traffic generation and manipulation). |
| Development Tools | <ul style="list-style-type: none"> • Requirements management. • Design capture (UML, etc.). • Source control (including workflows – Git and GitLab). |



Core Competencies

| Subject Area | Competency |
|-----------------------|---|
| Approach | <ul style="list-style-type: none"> • Enthusiasm for technology and desire to understand it, work with it and develop innovative solutions. |
| Working Style | <ul style="list-style-type: none"> • Ability to work individually or as a member of a multi-discipline team; • Self-motivated; • Ability to capture and articulate requirements and design ideas; • Willingness to be flexible and embrace new technologies/techniques; • Good time management skills, ownership of own deliverables; • Tenacious problem solving skills. |
| Customer Focus | <ul style="list-style-type: none"> • Excellent communication skills (including generation of written content); • Ability to investigate and understand customer needs. |
| Innovation | <ul style="list-style-type: none"> • Ability to foster and develop innovative ideas; • Lead/contribute to improvements in products and ways of working. |

