



## *Skill Profile Software Developer*

### **Role**

To design, code, test and debug C/C++ software for wireless user terminals and host-based development toolsets.

### **Responsibilities**

- Detailed design, coding, test and debug of software on real-time embedded and/or Windows/Linux-based platforms
- Requirements review, analysis and interpretation to code
- Module-level interface definition, integration and test
- Definition of class libraries
- RTOS configuration, operation and use
- Coding and use of peripheral ports and services
- Design and coding of interworking functions
- Implementation of real-time communications, messaging and buffering functions
- Use of static code analysers and coding reviews
- Use of software configuration control and build systems
- Documentation of software design and interfaces
- Definition of test requirements, procedures and scripts
- Test equipment specification and use
- Team leading (depending on role), involving team management, scheduling and progress monitoring

### **Essential Skills and Experience**

Experience in a minimum of five of the following fields:

- UML specification and design of real-time systems
- C/C++ embedded coding and test, incorporating asynchronous and re-entrant design principles
- RTOS operation and use on bespoke hardware
- Debugging of stack, heap and memory allocation issues
- MMU operation and performance optimisation
- System-level programming on Windows and/or Linux for communications, control and/or test systems
- Design of GUIs and use of user interface building tools
- Design and implementation of real-time communications over TCP/IP
- Protocol stack operation and use of peripherals and ports such as RS232, USB and ISDN
- Use of JTAG emulators and BDM development tools
- Use of real-time profiling tools for performance tuning



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### **Desirable Skills and Experience**

- Experience of hypervisors and virtualisation techniques in embedded systems
- Definition and management of configuration control and build systems
- Linux kernel building
- Use of POSIX interfaces, facilities and services
- GNU Radio
- IP standards and protocols
- Specification and coding of safety-critical systems using language subsets such as MISRA C and development methodologies such as the DO-178B avionics standard
- High integrity operating systems and standards such as Arinc 653
- Use of standards-based ASN.1, SDL and TTCN tools
- Use of COTS backplanes and racks such as cPCI
- Scripting and test automation using Perl, TCL/TcK, Python or Teraterm

### **Qualifications**

University degree in Electronics Engineering, Physics, Maths or Computing.

### **Personal Profile**

- Self-motivated and enthusiastic, able to follow through tasks thoroughly and with a focus on delivery to deadlines
- Continual desire to learn new technologies, tools and techniques
- Logical and methodical approach to task management and problem solving, with attention to detail in planning and execution
- Ability to clearly express status and issues to team leaders and project management
- Adaptable to new requirements and flexible to change
- Ability to function effectively within a team
- Ability to perform trade-offs and impact analyses of architectural design, coding and test decisions
- Ability to operate under pressure and with tight deadlines