

## *Skill Profile*

### *Real-Time Technical Architect*

#### **Role**

To define software architectures for wireless user terminals and host-based development toolsets. This is a highly technical role for experts in real-time software design and development, combining the design authority role for a development team and hands-on coding, debug and analysis.

#### **Responsibilities**

- Definition of software architectures on real-time embedded, Windows and/or Linux-based platforms
- Hardware-software partitioning
- Requirements definition and management
- Interface definition and management
- RTOS kernel configuration and real-time operation
- Definition of process, thread and messaging architectures
- Device driver specifications and implementation
- Development methodologies and coding standards
- Specification of development languages and tools
- Definition of acceptance tests, system test plans, test methodologies and requirements
- Test equipment specification
- Debugging of detailed technical issues escalated on real-time operation issues
- Coaching and mentoring

#### **Essential Skills and Experience**

Experience in a minimum of five of the following fields:

- UML specification and design of real-time systems
- System-level programming on Windows and/or Linux for communications, control and/or test systems
- RTOS kernel design, operation and use in protected and non-protected environments
- Use of POSIX interfaces, facilities and services
- Characteristics and performance of common CPUs and DSPs
- Device driver design and implementation for bespoke hardware
- Design of Flash Filing Systems and boot-loaders
- Design and implementation of real-time communications over TCP/IP
- Protocol stack operation and use of peripherals and ports such as USB, Firewire and ISDN
- Use of JTAG emulators and BDM development tools
- Use of COTS backplanes and racks such as cPCI

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#### **Desirable Skills and Experience**

- Linux kernel building
- GNU Radio
- Experience of specialist wireless interfaces such as DigRF, OBSAI or CPRI
- Experience of hypervisors and virtualisation techniques in embedded systems
- IP standards and protocols
- Security ciphering and authentication techniques
- (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
- Digital hardware and/or RF transceiver system-level design
- Avionics peripheral buses such as Arinc 429 and Mil-Std-1553
- Mobile or fixed satellite communications
- Software engineering standards and development methodologies

#### **Qualifications**

Good university degree in Electronics Engineering, Physics, Maths or Computing.

#### **Personal Profile**

- Self-motivated and enthusiastic, able to drive activities forward 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
- Adaptable to new requirements and flexible to change
- Ability, confidence and assertiveness to function effectively within a team and fulfill the role of design authority
- Able to advise and communicate with senior management, with presentation skills and manner to match
- Awareness of commercial and technical issues on a programme, with an ability to perform trade-offs and impact analyses
- Able to operate under pressure and with tight deadlines