

# Selection Documentation

## Firmware Engineer

### Level 5 – 6

**\$105,013 - \$133,968 (Plus Superannuation)**

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ASIS is Australia's overseas secret intelligence collection agency. Its mission is to protect and promote Australia's vital interests through the provision of intelligence services as directed by the Government. Its work can involve collecting intelligence relating to national security, international relations and economic issues. It also contributes to Australia's coordinated national efforts against terrorism, proliferation of weapons of mass destruction, and trans-national issues such as people smuggling.

ASIS employs people in a wide range of roles, including technologists. These roles require dynamic team players who enjoy working with stakeholders, team members and individually on projects. ASIS is looking for people who will be able to meet tight deadlines and work to support ASIS priorities. Successful candidates will have excellent coordination, administration and technical skills, excellent verbal and written communication skills; and, strong stakeholder engagement and influencing skills. Relevant tertiary qualifications and demonstrable experience will be highly regarded.

ASIS is a diverse and inclusive workplace, where our people are empowered through authenticity and a sense of belonging to achieve their potential and contribute to a shared purpose and mission. We seek to reflect the community we serve, and welcome applications from Aboriginal and Torres Strait Islander peoples, women, people with a disability, neurodiverse, people from culturally and linguistically diverse backgrounds and those who identify as LGBTIQ+.

We offer a competitive salary package including 22 days annual leave, shutdown between Christmas and New Years Day, 15% employer superannuation contribution and generous paid maternity/paternity leave. Full and part time positions as well as flexible work hours can be negotiated.

These roles are **Canberra office-based** with successful applicant required to **obtain and maintain a Security Clearance**.

### **ROLE: Firmware Engineer (Level 5-6)**

ASIS is looking for firmware engineers with varying levels of experience who are driven and motivated by our unique problem set. These roles require dynamic team players who enjoy working with a diverse range of stakeholders and delivery teams as well as individually on a range of operational technology projects. ASIS technologists will be able to deliver outcomes and meet tight deadlines in demanding environments. Successful candidates will have the relevant technology skills, are strong verbal and written communicators and are comfortable with stakeholder engagement. Relevant tertiary qualifications and demonstrable experience will be highly regarded.

ASIS develops cutting edge embedded systems for use in diverse environments to the highest levels of reliability and security. As a core part of a team developing full stack solutions to a variety of problems, firmware engineers contribute their knowledge of designing and implementing software to be executed on microcontrollers. Firmware provides managed access to low-level hardware peripherals, fine grained power control and interfaces to higher level components. Familiarity with industry best practice tools, techniques and technologies for current and emerging embedded systems and an understanding of engineering analysis to determine the optimal solution are critical to the role of a firmware engineer. Opportunities for engagement with partners across Australia and the world, and ongoing professional development will enable currency and continuous evolution in the role.

We have positions open at APS Level 5 and Level 6. A candidate at Level 5 would be expected to have one to two years real-world experience and will be working under supervision. A Level 6 candidate would be expected to have more experience and operate with limited or no supervision within a core group of developers.

## **Key Responsibilities and Tasks**

The following is an overview of key responsibilities and tasks:

- Contribute to systems level design by analysing the impacts of firmware on system design.
- Analyse and develop build environments for controlled firmware builds.
- Prototype and demonstrate firmware designs on reference design hardware.
- Apply best practice configuration management and continuous integration processes.
- Engage with hardware design practitioners to develop hardware/firmware systems.
- Engage with higher level software practitioners to develop firmware/higher level software systems.
- Evaluate new tools and methodologies for improved firmware development.
- Understand current and emerging Instruction Set Architectures.
- Contribute to a development team.
- Contribute to engineering analysis from a firmware perspective.
- APS 5 - Design, implement and test firmware systems as part of a development team, under supervision.
- APS 6 - Design, implement and test firmware systems as part of a development team, under limited or no supervision.

## **Core Skills**

The following is an overview of skills required to succeed in the role (not all are needed):

- Experience with the ARM instruction set architecture including Thumb extensions.
- Experience with the C programming language including pointer usage.
- Familiarity with software development tools and their roles (editor, compiler, linker, debugger).
- Experience with bare-metal bring-up of embedded systems including memory management.
- Experience with RTOS or Real Time Executives and Inter Process Communication.
- Experience developing with register level hardware peripherals.
- Understanding of low power design techniques including power gating.
- Familiarity with the typical busses and interfaces used in embedded systems, including FPGA based interconnects.
- Experience with the use of debuggers to understand program flow and architecture.
- Experience with hardware test equipment to verify firmware operation.

## **Education, qualification and experience requirements**

The following education, qualifications and/or experience will be highly regarded (not all are needed):

- Bachelors degree in computer science/computer engineering/electronic engineering, or equivalent practical experience.
- Linux based GCC development toolchains for ARM targets
- Linux kernel development and cross compilation
- Understanding of advanced debugging techniques such as instruction level trace
- Integration with FPGA based peripherals
- Reverse engineering of ARM and MIPS based low level executable code
- An interest in continuing development, opportunities for Rust/RISC-V/MIPS

**We are dedicated to building a diverse and inclusive workforce, so if you are excited about this role but your past experience doesn't align perfectly, we encourage you to apply.**

## **Selection Criteria**

Candidates are not required to provide a separate written response to the ILS capabilities (below), however, candidates are encouraged to consider the capabilities in preparing their application, as each candidate will be assessed on their ability to demonstrate behaviours aligned to the capabilities for the position.

For more information on the ILS, tips on applying for jobs in the Public Service, go to the APSC website found at [www.apsc.gov.au](http://www.apsc.gov.au).

### **Supports Strategic Direction**

- Supports shared purpose and direction;
- Thinks strategically;
- Harnesses information and opportunities; and
- Shows judgment, intelligence and common sense.

### **Achieves Results**

- Identifies and uses resources wisely;
- Applies and builds professional expertise;
- Responds positively to change; and
- Takes responsibility for managing work projects to achieve results.

### **Supports Productive Working Relationships**

- Nurtures internal and external relationships;
- Listens to, understands and recognises the needs of others;
- Values individual differences and diversity; and
- Shares learning and supports others.

### **Displays Personal Drive and Integrity**

- Demonstrates public service professionalism and probity;
- Engages with risk and shows personal courage;
- Commits to action;
- Promotes and adopts a positive and balanced approach to work; and
- Demonstrates self-awareness and a commitment to personal development.

### **Communicates with Influence**

- Communicates clearly;
- Listens, understands and adapts to audience; and
- Negotiates confidently.

### **Job Specific Requirements**

- Demonstrated experience and education relevant to the role.

## HOW TO APPLY

Applicants will need to apply **ONLINE** via our website.

Applicants will be required to attach a resume and submit a maximum 800 word pitch outlining their relevant experience, skills and knowledge to perform the duties of the role.

Applicants are encouraged to consider the capabilities when preparing their application, as this will form the basis of selection assessment. For more information and tips on applying for jobs in the Public Service, search 'Joining the APS' at [www.apsc.gov.au](http://www.apsc.gov.au).

**After application submission, you may receive an SMS requesting you to complete online testing. Please ensure you complete this as your application will not be progressed otherwise.**

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**APPLICATIONS CLOSE: Refer to date on website**

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## ELIGIBILITY

Candidates must be Australian citizens.

The successful candidate will be required to obtain and maintain a security clearance.

## REASONABLE ADJUSTMENTS

All requests for reasonable adjustments will be considered and managed in consultation with you. We will continue to ask you if you require reasonable adjustments at each stage of the process. If you are successful in gaining employment, reasonable adjustments can also be made available to you in performing your role.

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## WHAT HAPPENS NEXT?

You may receive a SMS requesting you to complete online testing. Please ensure you complete this as your application will not be progressed otherwise.

Please do not tell anyone about your application with our organisation at this stage of the process as doing so may harm your suitability for employment with us.

A merit list will be established for candidates who are suitable and will remain valid for a period of 18 months.

We thank you for the time and effort you have put into your application; however, we are unfortunately unable to provide feedback to unsuccessful candidates.

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