

## JOB TITLE

Firmware Engineer – Multi-Purpose Instruction Sets for Lean Processing

## SHORT DESCRIPTION

The Swedish brand of microprocessors, Imsys, is promoting its lean processing solutions for Machine Learning and Digital Signal Processing. It is an exciting time at Imsys as we develop innovative products based on our proven processor technology. We are looking forward to welcoming talented firmware engineers to our team. Our firmware implements high-level ISAs and highly optimized soft-reconfigurable application-specific operations with Imsys lean solutions. This is a unique opportunity for you to contribute to the design and implementation of game-changing products built on state-of-the-art technologies like ONNX, LLVM, Eclipse, and the Imsys lean processor core. Do not hesitate to check out more details if you are willing to undertake a wide array of challenges in developing the Imsys instruction set architecture and firmware implementation.

## POST

As a firmware engineer at Imsys, you work on high-impact projects with tight schedule. You have a fine understanding of digital hardware and programming close to the metal. You possess communication and problem-solving skills to actively contribute to tasks related to the Imsys firmware throughout its lifecycle. You develop state-of-the-art software in C and assembly. Moreover, you find it fun to reach deeper into the processor core: control minute details of the processor's workings by microcode. Still, you discuss details of higher level software development and analyze requirements of system software and applications. Being a responsible member of the Imsys team exercises your capability to plan your tasks and deliver results within estimated boundaries.

Imsys is a Swedish semiconductor SME designing processors and software ecosystem supporting them. The Imsys lean processor solutions provide a flexible, low-cost, and energy-efficient platform thanks to a microprogrammable microarchitecture implemented in the hardware core. The company has a history as supplier of networked embedded platforms with specialized features and participant of international research projects in collaboration with several industrial and academic partners. We do all this with a small group of talents built around a core of software engineers, data scientists, hardware engineers, and experienced managers. The next generation Imsys lean processor and software ecosystem enables establishing the company in the market of machine learning and signal processing solutions.

As an Imsys firmware engineer, you are in the forefront of providing a great experience to our customers through defining high-performance instruction sets and implementing effective firmware features. Your work affects the performance of every piece of the Imsys software platform and applications. The main line of current activities target developing an LLVM-based instruction set and firmware implementation of accelerator features for compute-intensive machine learning and signal processing applications. Continuous interaction among different development departments make it possible to improve our products. You can learn about and influence the development of the Imsys lean processor architecture and our software solutions. We believe that being open and informed about new ideas and the state-of-the-art in our field are key ingredients of success, thus you may contribute to customer applications and research projects by implementing dedicated firmware features beyond everyday product development.

You can join our small but energetic team in the north of Stockholm area. We provide you with flexible working hours and competitive salary. Our office also offers you a stimulating environment with an interdisciplinary group of experts as well as the possibility to work on industrially relevant applications and be part of a special story of an SME challenging the status quo of the semiconductor industry.

You should join the Imsys team as firmware engineer if

- You are ready to contribute to the design and development of the Imsys lean firmware implementation,
- You have interest in learning about computer architectures that are different from the mainstream,
- You are keen to understand what is beyond the usual bare metal,
- You want to contribute to the development of actual applications and experiment with unusual low-level solutions,
- You find it inspiring to become master over the inner workings of a processor core.

Feel free to contact Jan-Erik Lennefalk, COO, at +46 702 51 91 92 or [jan-erik.lennefalk@imsystech.com](mailto:jan-erik.lennefalk@imsystech.com) with general questions about the company and Dávid Juhász, software architect, at +46 735 88 21 59 or [david.juhasz@imsystech.com](mailto:david.juhasz@imsystech.com) with your inquiries about this job and our technology.

If you find our offer interesting, make sure we hear from you today. Your application is expected in email as your CV and a brief cover letter including references sent to [david.juhasz@imsystech.com](mailto:david.juhasz@imsystech.com). We follow up on received applications and reply to you within one week's time. Being a selected candidate, you will be invited to an interview and provided with a decision after a quick evaluation process.

## REQUIREMENTS

Expected education:

- MSc in Electrical Engineering or Software Engineering

Necessary knowledge/experience:

- 5+ years of Embedded Software/Firmware Development
- Assembly and bare-metal programming
- Understanding digital electronics
- Using schematics and component datasheets

Nice to have knowledge/experience:

- Computer architectures
- Digital signal processing
- Machine learning
- Safety-critical and real-time systems
- Communication protocols
- MATLAB/Simulink
- VHDL/Verilog