

Alireza Zakeri

EMBEDDED SYSTEM DEVELOPER ENGINEER · HARDWARE DESIGNER ON FPGAs

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Summary

Qualified embedded system developer engineer with 4+ years experience specializing in HDL circuit design and real-time processor-based systems development. Familiar with customization of some OS types and hands-on many low-rate and high-rate protocols, processors, and microcontrollers programming. Eager to collaborate and work in a team, interested in devising a better problem-solving method for challenging tasks, and learning new technologies and tools if the need arises.

Skills

Hardware Development	Expert on Hardware Development by VHDL on Xilinx FPGAs (7 series and Ultra Scale). Familiar with Analog Devices ADCs, STM32, and Atmel microcontrollers and their peripherals configuration (UART, I2C, SPI, etc).
System Development	Development and customization of Linux kernel, U-Boot, RTOS and firmware on Xilinx and TI SoCs (Zynq, ZynqMP, Keyston I&II and Sitara). Familiar with Linux devicetree structure and development driver in kernel space
Softwares	Yocto Project, C, Git, MATLAB, CMake, SQLite, crosstool-NG
Personal Skills	Punctuality, Teamwork, Flexibility and Adaptability

Experience

Sina Innovative Communication Systems

Tehran, Iran

EXPERT EMBEDDED FIRMWARE DEVELOPER

May 2021 – Present

- Interfaces Development Based on Command Line Interface (CLI) and SNMP protocol for Optical Network Systems (as a team member)

Simorgh Intelligent Sky

Tehran, Iran

PROJECT CONSULTANT AND EXPERT EMBEDDED SYSTEM DEVELOPER

September 2020 – Present

- Implementation of GPS and GLONASS acquisition and tracking algorithms on Zynq7020 based on freeRTOS and Max2769 (25s sweep 32 satellite with 82 frequency)
- Antenna movement controller implementation on Zynq7020 based on embedded Linux, AD9361, LTC2174, and NT1066
- Optimization of mentioned algorithms in MATLAB by cooperation with the system designer to achieve the optimal solution, in order to implement on PL and PS parts of Zynq.

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Tehran, Iran

EXPERT EMBEDDED FIRMWARE AND HARDWARE DEVELOPER

September 2017 – May 2021

- Customization and configuration embedded linux for designed boards based on ZynqMP and K2H
- Linux driver customization and development based on device tree: KSZ9893 and Si5341
- Upgrade SATA2 to SATA3 HDL code based on 7 series Xilinx FPGAs with 470MB/s write rate
- SRIO (4x6Gb/s) and EMIF (16x200Mb/s) link Development between K2H and XCKU115 based on RTOS
- 10G link development on ZynqMP based on VPX protocols with almost 8Gb/s data rate
- Development si5341 configuration code on ZynqMP FSBL to solve Highspeed IPs' clock demands in PL
- Optimization and development of algorithms (MUSIC) on K2H by OpenCL (CBLAS and LAPACK libs)
- Configuration ADC ICs by STM32 and Atmel microcontrollers (AD9680)

Projects

Other projects:

- Design a target detector radar simulator on Matlab GUI based on Adaptive Pulse Compression Algorithms.
- Design and implementation of some adaptive pulse compression algorithms on Matlab and FPGAs (using Vivado HLS).
- Implementation of configuration and transfer data from ADC to PC by TCP protocol based on FPGA

Education

Iran University of Science and technology

Iran, Tehran

MASTER OF SCIENCE IN ELECTRONIC ENGINEERING

September 2012 — March 2015

- Master's thesis: An integrated ultra-wideband low-phase noise oscillator circuit design – GPA: 18.30/20.00

Shahid Beheshti University

Iran, Tehran

BACHELOR OF SCIENCE IN TELECOMMUNICATION ENGINEERING

September 2007 — September 2012

- Bachelor's thesis: Power management module design based on GSM network – GPA: 15.39/20.00