Posting Title

<mark>Video Systems Engineer</mark>

Job Function

Qualcomm video group develops video and computer vision solutions on all Qualcomm Snapdragon application processors. The scope of systems team includes video algorithms and IP architecture for video compression, visual signal processing and analytics.

The selected candidate, along with his/her colleagues and other team members, will have responsibilities in one or more of the following areas:

- Develop video codec algorithms for a broad range of applications including mobile, automotive, VR/AR and IoT
- Define system and video hardware IP level architecture, analyze and optimize design for optimal performance and power efficiency
- Modeling of video algorithms & architecture, including data flow, task partition, interface, and systems interoperation
- Work on DSP or GPU optimization of video processing algorithms
- Collaborate with systems, software, hardware teams at various stages of chipset life in design/validation/commercialization.

Minimum Qualifications

Relevant knowledge and experience required in one or more of the following areas:

- Video coding standards including VVC, AV1, HEVC, AVC
- Hands on experience in video codec implementation with in-depth understanding of algorithms such as motion estimation, mode decision and rate control
- Proficiency in C/C++ coding and debugging
- Working Knowledge of embedded systems and architectures

Preferred Qualifications

Experience in video hardware algorithm and understanding of microarchitecture

- Experience in visual quality trade-offs and assessments for video use-cases
- DSP/GPU optimization and multi-thread programming
- Working Knowledge of Commercial Software development and SDLC processes.
- Experience with Video Pre & Post Processing Algorithms such as denoising, scaling is a plus

Educational Requirements

Required: Bachelor's/Master's, Computer Science and/or Electrical Engineering

Preferred: Doctorate Computer Science and/or Electrical Engineering or Master's with recent work experience in the relevant area

Posting Title

<mark>Video Design verification Engineer:</mark>

- Job Description
  As a Verification Engineer, you will be responsible for understanding the expected functionality of multimedia designs, specifically video encoder/decoder and hardware IP and subsystem. You will work with the architects of these multimedia systems, as well as multimedia ASIC designers and SW engineers to plan and execute verification and validation of multimedia subsystems for integration into SoCs for mobile applications.

  Minimum Qualifications * Bachelor's/Master's degree in Science, Engineering, or related field.

- Additional Job Description
  Preferred Qualifications
    - Test planning, problem solving, debug, Verification of Multi-media hardware Strong working knowledge of HVLs: System Verilog, OO programming. Verilog , C/C++, Tcl/Perl/python/shell-scripting
    - Experience with OVM/UVM methodology.
    - Strong working experience in coverage driven constraint random verification.
    - Experience in developing the Models for verification & synthesizable models for emulation in Verilog/SV
    - Experience in formal verification is plus
    - Experience in building simulation acceleration environment is plus
    - Prior experience in multi-media HW accelerator verification of Video Codec & Video codec knowledge H.264/MPEG/HEVC/VPx/AV1/VVC

Posting Title

<mark>Video Hardware Engineer</mark>

The Multimedia Video HW Design team at Qualcomm works on the design and development of complex IP Cores that can support cutting-edge Video CODEC Standards. We are looking for strong ASIC Design Engineers who appreciate challenging work and would be responsible for:

- Implementation of Video CODEC standards such as H.264, H.265, H.266, VP9 and AV1.
- Cross-team collaboration between Hardware/Systems/Firmware to gather requirements, formulate specifications and develop the IP Cores.
- Development of Micro-Architecture and RTL design that meets required performance and is optimized for Area and Power.
- Providing support to DV teams for test-planning and BFM development.
- Debugging and root causing bugs caught during simulation/emulation and recommend/provide fixes.
- Reviewing reports for Linting, RTL Synthesis, CLP, CDC, and DV Coverage.
- Writing and maintaining thorough Design documents.
- Providing support for post-silicon debug.
- Effective communication across teams, multitasking and well-planned execution of the tasks.

Principal duties and responsibilities of this role include:

- Design micro-architecture and its RTL implementation using Verilog / SystemVerilog HDL
- Design and Implementation targeting power, performance, area, and timing goals.
- Work with Design Verification team for functional/gate level verification and code coverage.

Work on tools such as Linting, Power Artist, CDC and LEC, for checking design quality.

Minimum Qualifications

Education:

Bachelors - Computer Engineering, Bachelors - Electrical Engineering

Work Experience:

- BS + 7 year / MS + 5 year of relevant industry experience.
- Capable of performing principal duties and responsibilities.

Preferred Qualifications

Education:

Masters/Doctorate - Computer Engineering, Masters - Electrical Engineering

Work Experience:

- 6+ years of industry experience ASIC or Logic Design, verification, or relevant work experience.
- 6+ years of industry experience with Verilog, SystemVerilog.
- 2+ years of recent experience with C/C++, Python/Perl.

- Experience covering Micro-architecture, RTL Design, Design timing/area/power optimizations, RTL synthesis.
- Some experience with Design Verification and Post-silicon debug.
- Experience with low-power and high throughput/performance RTL design.
- Experience with image/video compression and pixel processing.
- Knowledge of video standards like H.264, HEVC, AV1, or VVC.
- Familiarity with computer vision or machine learning algorithms and implementation.
- 2+ years of experience with leading a design block.
- Experience working in a multi-disciplinary, global team focused on advanced, high volume applications.

Posting Title

<mark>Video Encoder System Engineer</mark>

Job Function

Develop video analysis/encoder features and firmware control code for video codecs including H.264, HEVC, AV-1 and VVC.

Job Overview

Qualcomm's video group provides video and computer vision solutions on all Qualcomm Snapdragon Mobile processors. The team's scope includes the design, development and commercialization of video and computer vision firmware. The selected candidate, along with his/her colleagues, will have responsibilities in one or more of the following areas:

(1) Develop new video analysis and encoder features to improve the overall video encoder quality
(2) Perform video quality evaluation and competitive analysis
(3) Develop and optimize for an embedded firmware environment
(4) Maintain bit-exactness between the firmware image and the simulation model
(5) Perform nightly firmware regression testing and initial debugging for test failures

Minimum Qualifications

Overall, the candidate needs to be experienced in the areas of video encoders and real-time embedded firmware/software development. More specifically, the selected candidate should:

(1) Good understanding of video compression and familiarity with video codecs like AVC (H.264), HEVC (H.265), AV-1, VVC
(2) Good video algorithms development including scene analysis, motion estimation, block shape/mode decision and rate control
(3) Have good knowledge of real-time operating systems and data structures

Preferred Qualifications

Experience required in following areas but not limited to

(1) Experience using machine learning techniques for image and video analysis
(2) Good software development and debugging skills in C and C++, embedded development and MIPS optimization experience
(3) Good analytical and written communication skills

Keywords

Video coding, video encoder, scene analysis, rate control, real-time systems, embedded systems, C, C++

Educational Requirements

Required: Bachelor's, Computer Engineering and/or Computer Science and/or Electrical Engineering

Preferred: Master's or Ph.D., Computer Engineering and/or Computer Science and/or Electrical Engineering

Posting Title

<mark>Video Firmware Engineer</mark>

Job Function

Develop, test and release firmware control code for video codecs including H.264, HEVC, VP9, AV1D, and VVC.

Job Overview

Qualcomm's video group provides video and computer vision solutions on all Qualcomm Snapdragon Mobile processors. The team's scope includes the design, development and commercialization of video and computer vision firmware. The selected candidate, along with his/her colleagues, will have responsibilities in one or more of the following areas:

(6) New video encoding and decoding feature development
(7) Test development for new video encoding and decoding features
(8) Regular image maintenance and release as well as pre-image release testing
(9) Nightly regression testing & initial debugging for test failures
(10)   Conformance & performance measurement

Minimum Qualifications

Overall, the candidate needs to be experienced in the areas of real-time embedded firmware/software development. More specifically, the selected candidate should:

(4) Have a background in at least 2 of the following areas:
    a. Embedded firmware/software development
    b. ARM/DSP processor architecture
    c. Development tools and processes as well as scripts to setup regression
    d. Software development and debugging skills in C and C++
(5) Have good knowledge of real-time operating systems and data structures

Preferred Qualifications

(1) Some experience in MIPS optimization is strongly desired
(2) A good understanding of video encoding and decoding and familiarity with video standards including H.264, HEVC, AV-1, and VVC.
(3) Good analytical skills and good written communication skills are desired

Keywords

Video coding, firmware, real-time systems, embedded systems, C, C++

Educational Requirements

Required: Bachelor's, Computer Engineering and/or Computer Science and/or Electrical Engineering

Preferred: Master's, Computer Engineering and/or Computer Science and/or Electrical Engineering