



2018 Internship – Memory Solutions Lab – Samsung Semiconductor

- 1) [Enterprise SSD Firmware Engineer \(Intern\)](#) San Jose, CA
- 2) [Memory System Accelerator Architect \(Intern\)](#) San Jose, CA
- 3) [Memory System Architect \(Intern\)](#) San Jose, CA
- 4) [Performance Architect \(Intern\)](#) San Jose, CA
- 5) [Data Analytics Engineer \(Intern\)](#) San Jose, CA
- 6) [Storage Software Engineer \(Intern\)](#) San Jose, CA
- 7) [Systems Software Engineer \(Intern\)](#) San Jose, CA
- 8) [System Hardware Engineer \(Intern\)](#) San Jose, CA
- 9) [GPU Engineer \(Intern\)](#) San Jose, CA
- 10) [FPGA Engineer \(Intern\)](#) San Jose, CA
- 11) [Compiler Engineer \(Intern\)](#) San Jose, CA
- 12) [Software Engineer - Storage Software \(Intern\)](#) San Diego, CA

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for exceptional software talent to join our team in San Jose, CA for the summer of 2018. The Memory Solutions Labs (MSL) is part of Samsung's Memory Business Unit, the industry's technology and volume leader in DRAM, NAND Flash, SRAM memory. MSL's vision is to solve key problems & optimize architecture solutions for Cloud & Data center environments. We are an integral part of Samsung's strong R&D focus & lab innovation engine. We work closely with development teams to bring feature innovation to product roadmaps.

Instructions:

Apply to the various positions using the links in the attached positions. Also see:

<http://www.samsung.com/us/samsungsemiconductor/careers/>





Enterprise SSD Firmware Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for exceptional software talent to join our team in San Jose, CA for the summer of 2018. We are currently looking for firmware/software engineers to join our rapidly growing effort to develop the next generation of enterprise solid-state flash technologies. Our core development focus is the host interface firmware layer that sits at the intersection of system software and flash management firmware. This key host interface firmware technology drives Samsung's breakthrough V-NAND technology and enables our customer to power performance-oriented, demanding enterprise-class applications including hyperscale data centers, big data processing and software-defined virtualized storage arrays and infrastructures.

Responsibilities

- Triage and root cause system, driver and device interoperability issues
- Development of high performance firmware and software for cutting-edge enterprise SSD products.
- Debug, optimize & validate SSD firmware on embedded multi-core architectures
- Support customer qualification and adoption of SSD products
- Learn operations of cutting-edge SSD, system-level operation and test tool suites
- Write debug software; work with real-time systems and hardware debugging
- Analyze NVMe or SAS protocol & debug utilities; write API for interpretation of data
- Learn simulation environment and develop test cases for actual product development
- Research and document main issues and feature gaps by testing existing products and system configurations
- Gain expertise with SSD test automation environment
- Work with technical lead to present reports to group detailing project work

Education/

- Pursuing a MS or PhD in Computer Science, Computer Engineering or software-focused Electrical Engineering (or BS degree with equivalent experience).

Experience

- Knowledge of storage systems and familiarity with flash devices
- Comfortable in lab environment & interacting with teams; good communication skills
- Proficiency with revision control tools and processes, including Subversion, Bazaar, or Git and knowledge of C/C++ development for embedded systems, including storage devices and other embedded platforms is desirable.
- Experience with one or more of the following storage related technologies: NAND Flash/FTL, Fibre Channel, NVM Express (NVMe), SAS, SATA, SCSI, SSD, PCI Express (PCIe), eMMC or UFS is desirable
- Experience with ARM or equivalent embedded multi-core microprocessor architectures & experience with JTAG/ICE debuggers & protocol analyzers is desirable
- Scripting experience in one of Python/Perl/JavaScript is desirable
- Familiarity and experience with modern agile software development methodologies and practices is desirable.

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Memory System Accelerator Architect (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for a Memory System Architect (Intern) to join our team in San Jose, CA for the summer of 2018. The Memory System Architect Intern will contribute memory and storage system research in the System Architecture Lab. He or she will join a team of experts in researching and developing innovative memory and storage system solutions that utilize existing and emerging technologies to add substantial value to server systems. The ideal candidate must have a strong understanding of computer architecture, memory and storage system, and operating system.

Responsibilities

- Contribute technical path finding of computation acceleration architecture in memory system.
- Contribute technical path finding of novel memory and storage architecture
- Contribute memory and storage system performance modeling, and sever workloads characterization.
- Define component level requirement of memory and/or storage components.
- Work with team members to guide implementation and prototyping efforts.
- Create new and useful IP, publish at conferences, and generate whitepapers.

Background/

- MS or PhD in Computer Architecture, Electrical Engineering, Computer Science or related field.

Experience

- Deep understanding of memory and storage architecture trade-offs and GPU architecture.
- Good understanding of machine learning application and related software/hardware architecture.
- Experience in memory/storage subsystem performance modeling.
- Experience in memory system design or storage system design will be great plus.
- Track record of innovation and creativity in problem solving.

Skills

- Must be highly motivated with excellent verbal and written communication skills.
- Research and development experience with modeling, performance analysis, simulation tool development.
- Strong background in C/C++ programming
- Comfortable working in a multinational environment and understands how to leverage cultural diversity.
- Good technical spark and inherent technical curiosity.

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Memory System Architect (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for a Memory System Architect (Intern) to join our team in San Jose, CA for the summer of 2018. The Memory System Architect Intern will contribute memory and storage system research in the System Architecture Lab. He or she will join a team of experts in researching and developing innovative memory and storage system solutions that utilize existing and emerging technologies to add substantial value to server systems. The ideal candidate must have a strong understanding of computer architecture, memory and storage system, and operating system.

Responsibilities

- Contribute technical path finding of novel memory and storage architecture using emerging memory technology.
- Contribute memory and storage system performance modeling, and server workloads characterization.
- Define component level requirement of memory and/or storage components.
- Work with team members to guide implementation and prototyping efforts.
- Create new and useful IP, publish at conferences, and generate white papers.

Background/

- Pursuing a MS or PhD in Computer Architecture, Electrical Engineering, Computer Science or related field.

Experience

- Deep understanding of memory and storage architecture trade-offs in terms of performance and energy efficiency.
- Experience in memory/storage subsystem performance modeling.
- Good knowledge of data centers, and typical applications.
- Experience in memory system design or storage system design will be great plus.
- Track record of innovation and creativity in problem solving.

Skills

- Must be highly motivated with excellent verbal & written communication skills.
- Research and development experience with modeling, performance analysis, simulation tool development.
- Strong background in C/C++ programming
- Comfortable working in a multinational environment and understands how to leverage cultural diversity.
- Good technical spark and inherent technical curiosity.

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Performance Architect (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for a Performance Architect Intern to join our team in San Jose, CA for the summer of 2018. The Intern will be a key technical contributor in the System Architecture Lab. He or she will join a team of experts in researching and developing innovative solutions that utilize existing and emerging technologies to add substantial value to server systems. The ideal candidate must have a strong understanding of server systems – including memory and storage systems – as well as how to effectively model the performance trade-offs involved.

- Responsibilities**
- Research architectural trade-offs of server architectures, especially as related to the memory hierarchy and storage systems.
 - Propose changes to memory and storage systems to support new technologies that improve power or performance.
 - Define performance analysis methodology. Select commercially available tools or develop internal simulators as appropriate. Build out infrastructure, including models and test suites.
 - Create new and useful IP, publish at conferences, and generate whitepapers and specification documents.

- Education/ Experience**
- Enrolled in MS or PhD Programs in Computer Architecture, Computer Science, Electrical Engineering, or related field.
 - Experience in system architecture and performance analysis
 - Good understanding of computer architecture: server systems, data centers, processors, memory hierarchy, memory subsystems, storage, I/O, networking.
 - Project or relevant experience in storage and flash technologies.
 - Understanding of typical server applications and benchmarks (web and applications servers, storage tier, big data, no-SQL and relational databases, map-reduce, memcached, HPC, SPEC, PARSEC, etc.)
 - Solid understand of Linux/Windows performance analysis tools & methods.
 - Direct experience building and deploying Linux kernel components.
 - Track record of innovation and creativity in problem solving
 - Good understanding of hardware architectures - CPU, Memory and interconnects
 - Experience with FPGA desirable

- Skills**
- Research and development experience with modeling, performance analysis, simulation tool development
 - Ability to characterize, analyze and fix performance issues across hardware, firmware and software
 - Strong background in C/C++ programming and Java
 - Proficient in Python or other data analysis tools (R/Matlab, etc.)
 - Highly motivated with excellent verbal & written communication skills.
 - Ability to work successfully with cross-functional teams, including communicating across organizational boundaries and geographies.
 - Comfortable working in a multinational environment and understands how to leverage cultural diversity.

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Data Analytics Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory and Storage technologies. We are currently looking for Data Analytics Engineer (Intern) to join our team in San Jose, CA for the summer of 2018. The Data Engineer Intern will contribute to memory and storage system research in the Memory Solutions Lab. He or she will join a team of experts in researching and developing innovative memory and storage system solutions that utilize existing and emerging technologies to add substantial value to storage systems. The ideal candidate must have a strong understanding of storage technologies including file systems, Linux I/O Stack, Linux performance profiling and computer architecture.

Responsibilities

- Implement software and design machine learning models using existing big data/AI frameworks to analyze collected server telemetry data for various predictions and insights
- Propose possible approaches and methods to solve complex analytics problems related to storage workloads and management
- Analyze large sets of collected server telemetry data, create machine learning models and generate verifiable results
- Work with team members to contribute towards prototyping efforts.
- Create new and useful IP, publish at conferences, and generate whitepapers.

Background/

Experience

- Pursuing an MS or PhD in Computer Science, Computer Engineering or related field, with focus on data modeling and data science.
- Good knowledge of popular Big Data frameworks
- Research and development experience with Spark, Hadoop, NoSQL Databases, and Kafka
- Experience with deploying and debugging applications across server clusters
- Prior experience with performance analysis and optimization will be a big plus.
- Track record of innovation and creativity in problem solving.

Skills

- Must be highly motivated with excellent verbal and written communication skills.
- Strong background in C/C++/Python/Java/Scala.
- Comfortable working in a multinational environment and understands how to leverage cultural diversity.
- Inherent technical curiosity

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Storage Software Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. The Memory Solutions Labs (MSL) is part of Samsung's Memory Business Unit, the industry's technology and volume leader in DRAM, NAND Flash, SRAM memory. We are an integral part of Samsung's strong R&D focus & lab innovation engine. We work closely with development teams to bring feature innovation to product roadmaps.

We are currently looking for a Software Engineer (Intern) to join our team in San Jose, CA for the summer of 2018. The intern will collaborate with a team of experts in researching and developing innovative solutions in the Enterprise, Cloud & Data Center environments. The ideal candidate must have a strong understanding of computer architecture and storage systems.

Responsibilities

- Acquire in depth understanding of open source storage software stacks and applications & research on I/O latencies and performance bottlenecks
- Propose optimizations, improvements, prototypes and new architecture(s)
- Create new and useful IP, publish at conferences, and generate whitepapers

Education/

- Pursuing a M.S. or PhD program in Computer Architecture, Computer Science, Electrical Engineering, or a related field

Experience

- The ideal candidate will have many of the following software research & development experience and skills:
 - Linux kernel, user-mode and Open-source development
 - Excellent in C/C++, Python
 - Sound understanding of I/O flows, performance analysis, methods & tools
 - Relevant experience with variety of file systems, drivers & storage stack(s)
 - Some general knowledge of object oriented and/or structured design
 - Exposure to distributed computing environments
 - Exposure to embedded development (ARM/FPGA) will be a plus

Skills

- Top-notch problem solving skills
- Demonstrated ability to write good "social" code
- Sound knowledge of storage and network technologies and best practices – SCSI, NVMe, RAID, EC, TCP/IP, RDMA, iSCSI, NVMe-oF, SAN, NAS, block, file, object
- Excellent collaborative skills including written and verbal communication
- Ability to work effectively with cross-functional teams and understand how to leverage cultural diversity

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Systems Software Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for exceptional software talent to join our team in San Jose, CA for the summer of 2018. The Memory Solutions Labs (MSL) is part of Samsung's Memory Business Unit, the industry's technology and volume leader in DRAM, NAND Flash, SRAM memory. MSL's vision is to solve key problems & optimize architecture solutions for Cloud & Data center environments. We are an integral part of Samsung's strong R&D focus & lab innovation engine. We work closely with development teams to bring feature innovation to product roadmaps. We are currently looking for a Software Engineering Intern to join our team of Engineers in San Jose, CA. The Candidate will be part of Memory Solutions Lab, which is responsible for the design and development of enterprise, data-center and cloud storage software, including hardware/software enterprise-class scale-out storage solutions.

Responsibilities

- Work with engineering team to quickly digest our designs/architectures and contribute to optimizations, improvements, prototypes and fixes
- Acquire in depth understanding of open source storage software stacks and develop resource utilization models and benchmarking tools
- Research improvements in existing OS-es, kernels, networking or datapath IO/ storage stacks and distributed applications like key-value/NoSQL/object datastores and try to implement them as well
- Create new and useful IP, publish at conferences, and generate whitepapers
- Interns are further encouraged and empowered to drive their own development projects—ask questions, design solutions, and own the results

Education/

- M.S. or PhD candidacy in computer science or equivalent

Experience

- The ideal candidate will have many of the following software development experience and skills:
- Must Have:
 - Basic understanding of how the Linux kernel/OS works (system calls, glibc, basic IO path, networking etc.)
 - Ability to program in C/C++/Go/Python
- Good To Have:
 - Experience with storage & system performance benchmarking tools.
 - Experience with scale-out storage stacks, OpenStack, VMware, etc.
 - Experience with any file systems (Ceph, GlusterFS, XFS, ext4 etc.), block drivers, & associated storage stacks.
 - Experience with applications like Cassandra, Memcached, Redis, RocksDB, Apache Mahout, Spark, Mesos etc.

Skills

- Good problem solving skills
- Passion and deep interest in systems research and systems programming
- Demonstrated ability to write good code
- Open mind and willingness to learn from peers

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System Hardware Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. The Memory Solutions Labs (MSL) is part of Samsung's Memory Business Unit, the industry's technology and volume leader in DRAM, NAND Flash, SRAM memory. We are an integral part of Samsung's strong R&D focus & lab innovation engine. We work closely with development teams to bring feature innovation to product roadmaps.

We are currently looking for a Hardware Engineering Intern to join our team in San Jose, CA for the summer of 2018, and work on leveraging the latest FPGA technologies for near-storage acceleration. The intern will collaborate with a team of experts in researching and developing innovative solutions in the Enterprise, Cloud & Data Center environments. The ideal candidate must have a strong understanding of computer architecture and storage systems, as well as how to effectively model the performance trade-offs involved. The candidate should also have previous experience with FPGA design and bring-up.

Responsibilities

- Research applications for near storage acceleration architectures
- Work with FPGA platforms and system software to enable new near storage acceleration applications
- Research architectural trade-offs of server architectures, especially as related to the memory hierarchy and storage systems
- Model and simulate the server system to provide concrete data supporting proposed technologies
- Create new and useful IP, publish at conferences, and generate whitepapers

Education/ Experience

- M.S. or PhD candidacy in computer science or equivalent
- Experience in system architecture and performance analysis
- Good understanding of computer architecture: server systems, data centers, processors, memory hierarchy, memory subsystems, storage, I/O, networking
- Hardware development experience or relevant courses
- Project or relevant experience in storage and flash technologies
- Direct experience working with FPGA platforms and tools
- Direct experience building and deploying Linux kernel components
- Track record of innovation and creativity in problem solving

Skills

- Good problem solving skills
- Passion and deep interest in systems research and systems programming
- Research and development experience with modeling and performance analysis
- Previous experience in FPGA bring-up and hardware design
- Strong background in C/C++ programming
- Excellent collaborative skills, including verbal and written communication
- Must be highly motivated with open mind and willingness to learn from peers
- Ability to work effectively with cross-functional teams and understand how to leverage cultural diversity

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GPU Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory and Storage technologies. We are currently looking for a GPU Engineer (Intern) to join our team in San Jose, CA starting in the summer of 2018. The GPU Engineer Intern will contribute memory and storage system research in the Memory Solutions Lab. He or she will join a team of experts in researching and developing innovative memory and storage system solutions that utilize existing and emerging technologies to add substantial value to storage systems. The ideal candidate must have a strong understanding of computer architecture, storage systems, or DL (Deep Learning).

Responsibilities

- Implement a customized GPU platform.
- Compare the performances in different approaches for heterogeneous computing.
- Analyze performance bottleneck and propose new architecture.
- Work with team members to contribute towards prototyping efforts.
- Create new and useful IP, publish at conferences, and generate whitepapers.

Background/

- Pursuing an MS or PhD in Computer Science, Computer Engineering or related field, with focus on distributed system.

Experience

- Good knowledge of CUDA programming.
- Research and development experience with Tensorflow or Caffe.
- Prior experience with performance analysis and optimization will be a big plus.
- Track record of innovation and creativity in problem solving.

Skills

- Must be highly motivated with excellent verbal and written communication skills.
- Strong background in C/C++/Java/Scala.
- Comfortable working in a multinational environment and understands how to leverage cultural diversity.
- Inherent technical curiosity

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FPGA Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory and Storage technologies. We are currently looking for a FPGA Engineer (Intern) to join our team in San Jose, CA. The FPGA Intern will contribute memory and storage system research in the Memory Solutions Lab. He or she will join a team of experts in researching and developing innovative memory and storage system solutions that utilize existing and emerging technologies to add substantial value to storage systems. The ideal candidate must have a strong understanding of key-value store, file I/O, and simulation as well as good understanding of computer architecture and storage systems.

Responsibilities

- Implement proof-of-concept of proximity computing
- Compare the performances with different architectural options.
- Analyze performance bottleneck and propose new architecture and storage systems.
- Work with team members to contribute towards prototyping efforts.
- Create new and useful IP, publish at conferences, and generate white papers.

Background/ Experience

- Pursuing an MS or PhD in Computer Science, Computer Engineering or related field, with focus on Storage or Computer Architecture.
- Good knowledge of FPGA RLT programming.
- Research and development experience with high-level systems like OS, database, machine learning
- Prior experience with performance analysis and optimization will be a big plus.
- Track record of innovation and creativity in problem solving.

Skills

- Must be highly motivated with excellent verbal and written communication skills.
- Understanding of image recognition.
- Strong background in C/C++ programming.
- Comfortable working in a multinational environment and understands how to leverage cultural diversity.
- Inherent technical curiosity

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Compiler Engineer (Intern)

Samsung Semiconductor, Inc. is a world leader in Memory and Storage technologies. We are currently looking for a Compiler Engineer (Intern) to join our team in San Jose, CA. The System Software Engineer Intern will contribute memory and storage system research in the Memory Solutions Lab. He or she will join a team of experts in researching and developing innovative memory and storage system solutions that utilize existing and emerging technologies to add substantial value to storage systems. The ideal candidate must have a strong understanding of LLVM.

Responsibilities

- Implement a compiler for data-centric platform.
- Analyze performance and find root causes of inefficiency.
- Work with team members to contribute towards prototyping efforts.
- Create new and useful IP, publish at conferences, and generate white papers.

Background/

Experience

- Pursuing an MS or PhD in Computer Science, Computer Engineering or related field, with focus on Computer Architecture and Systems.
- Good knowledge of LLVM in general.
- Research and development experience.
- Prior experience with performance analysis and optimization will be a big plus.
- Track record of innovation and creativity in problem solving.

Skills

- Must be highly motivated with excellent verbal and written communication skills.
- Strong background in C/C++ programming.
- Comfortable working in a multinational environment and understands how to leverage cultural diversity.
- Inherent technical curiosity

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Software Engineer Intern – Storage software

Samsung Semiconductor, Inc. is a world leader in Memory, System LSI and LCD technologies. We are currently looking for an exceptional PhD candidate to join our team for an Internship in San Diego, CA for the summer of 2018. The intern will focus on the development of novel applications that make excellent use of the latest storage technologies. This is a hands-on development position that includes rapid prototyping, advanced algorithms, and developing proofs of concept while working closely with senior staff. Interns in our program can expect to learn software development best practices and will come away with skills and knowledge that will help propel their careers forward for years to come.

Responsibilities

- Develop novel intellectual property and/or publications.
- Prepare a novel presentation for our annual Intern Exhibition.
- Work collaboratively with engineers and assist with bi-directional knowledge transfer.
- Learn and apply software engineering best practices.
- Create prototypes and proofs of concept that demonstrate advanced concepts.

Education/

- Currently pursuing a Ph.D. in computer science or computer engineering.

Experience

- Interns are encouraged and empowered to drive their own development projects.

Skills

- Excellent C/C++ skills
- Excellent problem solving skills
- Excellent verbal and written communication skills
- Some expertise in storage technologies (e.g., files and block interfaces, solid state devices, SCSI protocols)
- Ability to work independently

Preferred Qualifications:

- Some knowledge of software development best practices
- Some general knowledge of object oriented and/or structured design
- Some knowledge of other programming languages and/or paradigms (Python, ML, Prolog, Clisp, Erlang, Logo, etc.)

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