삼성전자 메모리사업부 주요업무 분야

☐ **Hardware Design / Verification**

- DRAM(DDR/Mobile/Graphic), Flash memory(Nor/Nand), PRAM,

  Analog & Digital Circuit

- Memory Card Controller : RTL Coding, Synthesis, Static Timing Analysis,

  AMBA-based bus protocol & ARM-based SoC chip design, DFT Implementation

  SATA, SAS, PCIe, USB2.0/3.0, SD/MMC interface,

  ARM-based embedded SW development & HW validation,

  System Verilog Verification, FPGA Implementation & Verification,

  Signal Processing Algorithm Development for Memory & Storage System,

  Channel Codes(Error Detection/Correction Codes) Design & HW/FW IP Design

☐ **Software Design / Verification**

- System SW, Computer Architecture, Memory & Storage Algorithm Design,

  FTL, Flash Memory File System, Journaling File System Design, Linux file system(ext4),

  Virtual Memory Management, Cache Algorithm,

  Dynamic Memory Management Development,

  Application Processor, Multimedia Processor, Memory Card Controller F/W,

  Inter-Processor Communication Algorithm Design,

  Parallel Processing Algorithm for SMP/AMP multi-Processor,

  HW & SW Performance Trade-off, SW Engineering,

  Embedded System Test, Test Case Design, Dependability, Fault Tolerant System Test

  Embedded System Development Process, Performance Analysis, OS, I/O System,

  Storage System, Infra(Clear Case, Clear Quest, Test Automation Tool),

  Filesystem Failure Analysis

☐ **Device Process**

- Oxidation, Photo Resist, Photolithography, Etch, Diffusion, Cleaning, Thin Film,

Ion Impantation, CVD, Metallization, Device Isolation, Transistor, Capacitor, Dielectric, SiO2/SiON Gate Dielectrics, High-K/Metal Gate, Device Analysis

☐ **Manufacturing Technology**

- Yield Enhancement : Defect Reduction, Contamination Evaluation Technology, Particle Detection, Gas Impurity Evaluation Technology, Surface/Chemical Analysis Technology, Contamination Technology

- Metrology : Pattern Process Inspection, Critical Dimension Measurement
 Inspection & Metrology : Defect Inspection(Optic Inspection, E-beam Inspection), Optics System Design(Optical Microscopy, Ellipsometer, Interferometer, Laser Optics, Optic Design), Mechanical System Design(Stage Control, Vibration Simulation, System Noise Analysis), Advanced Metrology Technology(Scanning Electron Microscopy, X-ray System, Helium Ion Microscopy), Simulation Technology(Monte Carlo Simulation, RCWA&FDTD Simulation for light and electron)

☐ **Quality & Reliability Engineering for Semiconductor**

- Engineering Statistics & Quality : DOE(Design of Experiment), Sampling Methodology, Virtual Metrology, Multi-Stage SPC (Statistical Process Control), APC (Advanced Process Control) Multivariate Modeling & Analysis

- Data Mining : Clustering & Classification, Feature Extraction & Selection, Dimension Reduction

- Stochastic Modeling & Focasting : Scheduling, Queing

- Reliability Modeling & Availability : System, Software, Component Level

☐ **Reliability Technology for Semiconductor**

- Device Reliability(DRAM, Flash), Advanced Gate Stack Reliability,

- Novel Device Reliability(PCM, MRAM, etc),

- Device Characterization and Reliability Modeling,

- Design-In Reliability, Interconnect Reliability, Electro-migration, Stress-migration,

- BTS (Bias Temperature Stress), 3D interconnect, Thin Film Stress analysis,

- Novel Materials for Interconnects Circuit Reliability,

- Failure Analysis & Life Time Projection

- Package level reliability, Solder joint reliability, Board level reliability

삼성전자 메모리사업부 Solution 세부분야

☐ Computer Architecture

- Processor core architecture, GPGPU architecture, accelerators

- Memory hierarchy design, DRAM controller, cache coherence

- On-chip network, system interconnects

- System virtualization support

- I/O architecture and interfaces, storage architecture

- Software based computer system simulation methods

- FPGA based system prototyping and validation

- Performance and power modeling of circuits and systems

☐ Systems Architecture

- OS-level resouce management

- Distributed systems and resource management

- Virtualization

- Device drivers

- Storage subsystems and management, caching, tiering, deduplication

- RAID and other reliability enhancing methods

- Flash based systems

- Hybrid storage solutions

□ Big Data Systems and Applications

- Disk and memory based DB systems

- High-performance data appliances

- FPGA based data processing algorithms and systems

- Hadoop based data analytics

- Key-value store systems

- Hybrid storage based data processing algorithms

□ Coding Theory

- Error correction and detection for/across memory chips, memory modules and systems

- Error correction and detection for storage systems

- Novel coding techniques to reduce storage medium wearing

- Compression algorithms, pattern matching and detection

□ Embedded Systems

- Firmware development & system bring-up

- Hardware-software codesign

- FPGA based prototyping