

## History / Achievement

### 1994-1997

#### 1994

- [ Change to Laboratory Group System, Establishment of Science and Core Technology Laboratory Group ]
- Development of 1-Volt LSI Circuit Technology(MT-CMOS, 1V-MASH)
- Fabrication of Mono-electron Transistor Prototype using Si Quantum Wire formed on the SIMOX Substrate
- Verification of Tomonaga-Luttinger fluid in One-dimensional Quantum Thin Line
- Successful Holographic Video Record using Eu:Y2SiO5 Crystal
- Invention of the Binary Characteristic Image Recognition Method using Complemental Similarity Measure
- Development of Programmable Optical Frequency Filter
- Successful Build-up of Thin Film EMI Noise Filter

#### 1995

- Development of Electron Cyclotron Resonance (ECR) Sputtering Apparatus for Conductive Thin Films
- Fabrication of 0.25  $\mu\text{m}$  Bulk CMOS using Copper Interconnection
- Successful Fabrication of Large Scale Gate Array LSI using 0.25  $\mu\text{m}$  CMOS/SIMOX Technology



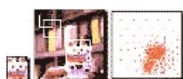
- Successful Detection of High Sensitivity Neurotransmitter
- Observation of Interference Effect of Superconducting Electric Current in Semiconductor
- Commercial use of F-WINC Optical Branch Module for Aurora System
- Development of Wavelength Division (De)Multiplexers using Arrayed Waveguide Gratings for Multiple Wavelength Optical Transmission
- Development of a 1.5  $\mu\text{m}$ -Band Fluoride Optical Fiber Amplifier

#### 1996

- [ Name Change from LSI Laboratories to System Electronics Laboratories ]
- Development of High Speed Data Transmission using High Speed Optical Interconnection
- Development of Hybrid Integrated WDM Optical Transceiver Module



- Development of Tera-bit scale Surface Reflection Controlled Optical Switch
- Successful Miniaturizing and High-density PLC Fiber-Optic System for Optic Access System
- Development of Broadband Amplifier for Optical Repeater
- Development of Probe-collection Tunneling Luminescence Microscopy
- Establishment of Unified Diffusion Model Making High Precision Si Device Process Simulation
- Experimental Verification of Fund Rule for Semiconductor Artificial Atom
- Suggestion of High Speed and High Definition Image Access (Active Access Method)



- Development of HiPIC Board for Image Recognition Processing
- Development of Law Discovery Algorithm RF5
- Development of Bilingual Aligned Corpus Construction System (BACCS)

#### 1997

- Development of 40 Gbit/s High-Speed ATM Switching LSI
- Publication of Goi-Taikei--- A Japanese Lexicon



- Development of Nanohole Material using Microscopic Structure-Batch Formation Technique
- Successful Observation of Neurotransmitter
- Successful Control of Single electron Tunnel by Microwave Optical Excitation
- Development of Silicon Single-electron Devices for Integration
- Successful Ultrafast Circuits using Resonance Tunneling Devices
- Development of X-ray Stepper for 100 nm scale LSI Light Exposure
- Development of Uni-Traveling Carrier Photo Diodes



- Development of Wideband Tellurite Optical Fiber Amplifier
- Development of Semiconductor-Array-Lattice Integrated Optical Devices
- Development of Wave Selector Hybrid Integrating Array Waveguide Lattice and SS-SOA Gate Switch
- Development of Optimal Scheduling using Genetic Algorithms
- Classification of Smiles Mechanism
- Development of Speech Dialogue System Noddy
- Succeeded in directly observing "Pauli's Principle"