

Kitakyushu Science and Research Park

Creating new environmental industries using SoC technology and nano-size sensor technology

Cluster Vision

This work is based on the knowledge foundation of Kitakyushu Science and Research Park (Kitakyushu Human techno Cluster) and has created new environmental industries using SoC technology and Micro-nano technologies that are friendly to people and the environment. Our aim is to create a technology innovation cluster to create new environmental industries that will lead the world of the 21st century.

In addition, the goal of this cluster is to unify and integrate knowledge in areas such as Kitakyushu, Fukuoka, and Iizuka, to accelerate the Silicon Sea Belt Fukuoka concept, and to establish a system LSI design and development cluster in the Asia region.

Project Overview

Short-medium term plan—promoting a semiconductor industry centering on system LSI technology.

We have worked on R&D of ultra-low power consumption, new memory, and computer-aided design technology, SiP, network processing, and image processing for LSIs as needed in mobile phones, digital electrical appliances, and automobiles.

To be a hub of LSI design, develop regional companies, and expand new business, we have cooperated with universities, institutes, and system LSI-related companies that are all located in the Kitakyushu Science and Research Park.

Medium-Long-term plan—creating new environmental industries by system LSI technology and nano-size sensor technology.

Our cluster is performing R & D on advanced nano-chemistry and analog technology and bio sensing technology to focus on an environment crucial to the future needs of society, where there is based on knowledge of foundation of Kitakyushu region and comes with system LSI technology.

We focused on dynamic technology innovation cluster to support development of an environment-related company and manufacturing company.

Expanding in the future— Forming a cluster with high-value-added manufacturing

Our aim is to form a high-value-added manufacturing cluster that is eco-friendly and people friendly utilizing research results of the knowledge cluster initiative of the Kitakyushu human technology cluster. Specifically, we are promoting advancement and international competitiveness of the materials industry, mechatronics industry, and automobile industry, all of which are the core industries of Kitakyushu, broadening areas for merging of those core industries with LSI, nanotechnology, and biotechnology, expanding their use in auto electronics and robotic systems, and, finally, aiming to develop a cycle of regional innovation that is continual and sustained.

Project Director
Takao Kageyama

Pioneering Environmental Technology with ECO & SoC

Colleagues have gradually gathered in the area of Kitakyushu Science and Research Park, inspired by the dream of Silicon Valley Kyushu near the Hibiki and Genkai Seas off the west coast of Japan. Semiconductor fabrication plants and industries related to semiconductor manufacturing are concentrating in Kyushu, so much so that Kyushu is sometimes called "Silicon Island." Within Kyushu, information industries with design capabilities are concentrating in the Kitakyushu / Fukuoka region, and a wide-area cluster is being formed. In Kitakyushu, the strength of the region is its concentration of technology relating to the environment (i.e. pollution control technology and environmental remediation technology). The Kitakyushu Human Technology Cluster is working on SoC technology and nano-size sensor technology to create new industries based on an environment of powerful new applications for semiconductors.

To build a base for commercialization, 150 patents have been filed so far, and there have already been some outstanding results, like establishment of ventures relating to biochips and SoC and creation of automated design tools and other products. In the future, we will accelerate our efforts to develop new industries through wide-ranging teamwork with firms in the region and by integrating basic technologies into systems, so we hope you too will join this group of colleagues who are making their dreams come true.

Takao Kageyama is a former executive chief engineer of the electron devices company at NEC Corporation, Tokyo, Japan

Cluster Headquarters

President.....Kenji Kitahashi (Mayor, the City of Kitakyushu)
 Project Director.....Takao Kageyama
 Chief Scientist.....Toyoki Kunitake (Vice President, the University of Kitakyushu)
 Deputy Chief Scientist...Satoshi Goto (Professor, Graduate School of Information, production and Systems, at Waseda University)
 Norikazu Nishino (Executive Director, Kyushu Institute of Technology; Professor, Graduate School of Life Science and System Engineering)
 Science and Technology Coordinators...Reiji Oda, Toshihiko Ohta

Core Organization

Kitakyushu Foundation for the Advancement of Industry, Science and Technology (FAIS: pronounced "face")

Participating Research Organizations (Bold: Core Research Organization)

Industry...Nippon Steel Chemical Co., Ltd, YASKAWA ELECTRIC CORPORATION, NEC Corporation, TOSHIBA Corporation, YAMAHA CORPORATION, System Fabrication Technologies, Inc., Shinnikka Environmental Engineering Co., Ltd, Asahi Technion Co., Ltd, TOTO LTD, Jedat Innovations Inc, STEM Biomethod Corporation, etc.
 Academia...**Kyushu Institute of Technology**, **The University of Kitakyushu**, **Waseda University**, **Kyushu University** and others

Main Results

1. Development of tools for digital / analog mixed LSI design

The University of Kitakyushu and Waseda University developed their technology "seeds" for digital / analog mixed LSI designs, and the collaboration with JEDAT INNOVATION Inc. has successively commercialized an advanced simulator, an automatic device-level placer, an analog compactor and a generator of pair transistors.

2. The establishment of STEM Biomethod Corporation, a new startup company in Kitakyushu.

A bio-high-tech company, STEM Biomethod Corporation, has been founded at the Venture Business Support Center of the Kitakyushu Science and Research Park in 2006. This company develops and sells unique bio-tech tools and devices using the technology seeds of the Kyushu Institute of Technology (micro liquid handling chips) and the University of Kitakyushu (spheroid/sohere/EB array chips).

3. Research on Technology to Lengthen the Life Span of Large Structures Using a Wireless Sensor Network

A research theme using the technology seeds of a multi-ministry project, "Research on Technology to Lengthen the Life Span of Large Structures Using a Wireless Sensor Network" jointly carried out by Waseda University and the Kyushu Institute of Technology has been selected as a Consortium R&D Project for Regional Revitalization of the Ministry of Economy, Trade and Industry. R & D on advanced safety and longer life spans of bridges, which has garnered attention in Japan, has been promoted by the region's industry, academia, and government.

Automatic device-level placer (AMPER)

Business Venture Support Center

Real Running

Sensor

Data analysis, Bridge Inspection

Bridge Inspection System

