Kitakyushu Human Technology Cluster

Kitakyushu Science and Research Park (Fiscal Year 2002-2006)

Life Sciences IT Environment Nanotech/Materials

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

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 Techneion 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

Project Overview

Our aim is to formulate the Kitakyushu Human Technology Cluster, an innovative technology cluster that can create an environment for the development of new world-class industries in the 21st century. This cluster is formed by taking advantage of the knowledge-base of the Kitakyushu Science and Research Park and the industrial power of the region, which is based on the concentration of production technologies that have been developed and improved in the Kitakyushu region to date, and carrying out world-class technology development that is both people- and environment-friendly, and is based on micro- and nano-technologies as system LSI technologies, as well as their applications.

Specifically, we are actively promoting research and development on mobile phones and digital home appliances, low power LSI technologies required for automobiles, new non-volatile memories, reconfigurable systems, SiP, network platforms, and image processing and are working on the formation of a hub for LSI design and development and the promotion of regional businesses. New programs are also being developed in cooperation with universities/research institutes located in the Kitakyushu Science and Research Park, and major semiconductor manufacturers and related regional businesses.

With a focus on the ever-important "environment" as a social need for the future, we worked on the development of nano-chemistry and analog technologies that promote the expansion of the knowledge-base in the Kitakyushu region and the basic technologies for environment/biosensing that merge system LSI technologies.

In the future, the project will promote research and development in information, nano-, bio-, environment, and energy technologies, in addition to integrated areas, as well as promoting technological advancement in cutting-edge and growth industrial areas (materials, robotics and mechatronics, environment and energy, semiconductors, telecommunications, car electronics, other), and the development of new spheres and different integrated fields, thereby creating a "high value added manufacturing cluster" that can continuously create the technology to develop next generation industries that are both people- and environmentally-friendly.

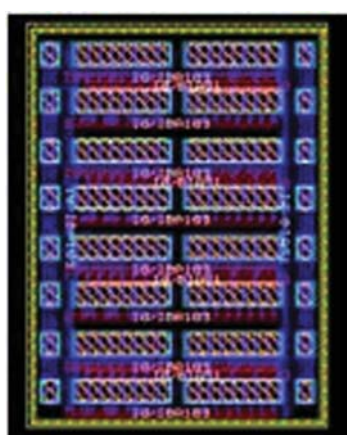
Main Results

1. Development of the Knowledge Cluster Initiative (second stage)

Based on the output from the Knowledge Cluster Initiative (first stage) from three universities in the Kitakyushu Science and Research Park (The University of Kitakyushu, Kyushu Institute of Technology, and Waseda University), the project is expanding integrated areas such as system LSI and nano-technology, as well as bio-technology, and is developing approaches to expand applied areas to car electronics and robotic systems during the Knowledge Cluster Initiative (second stage).

2. Commercialization of Analog Semiconductor Design Automation Tools

Utilizing technology seeds developed by Associate Professor Shigetoshi Nakatake and others at the University of Kitakyushu pursuant to participation in research involving the theme of *Analog/Digital Mixed Loading LSI Design Environment,* automatic element arrangement, compaction, automatic device creation and similar functionality has been developed. A collaborative research institution (Jedat Inc.) has used this technology in providing an interactive high-speed automatic component arrangement tool, *Amper,* and has repeatedly sought to commercialize tools like *Grana* that carry out analog compaction while maintaining wiring restrictions.



Analog compaction tool (Grana)