We are carrying out cutting-edge research and development in fields ranging from IT services to computing and telecommunications systems, as well as in supporting fields such as electronic devices and materials technologies.

Major Accomplishments in Fiscal 2004

UHF-band electronic tag technology for a broad range of service applications

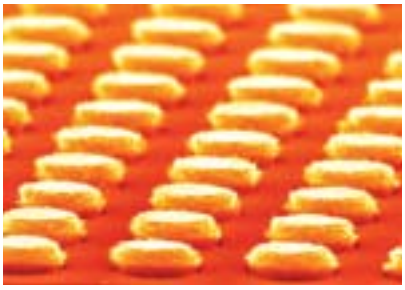
Our UHF-band*1 electronic tag technology has promising uses in a variety of different business applications, including inventory management and production monitoring. Not only does the technology enable tagged goods to be identified from a greater distance than with frequency bands used to date, but together with our proprietary security technology and newly developed tag antenna that offers outstanding communication performance even with goods that contain metals or liquids, it can be used for an even wider range of service applications.

Technology for improved data reception quality in next-generation mobile phones

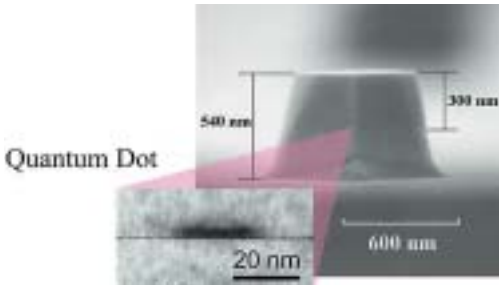
This technology leverages improvements we have made in data reception quality to enable the high-speed download of music, video and other content via next-generation mobile phones. By efficiently reducing interference caused by the reflection of base station signals off buildings and other objects, we are helping to make mobile phone use more versatile and convenient.

Ultra high-speed, high-density CMOS technology for next-generation 65nm LSI devices

Our multilayer wiring technology for next-generation 65nm LSI devices will enable significant improvements in speed and power consumption compared with the cutting-edge 90nm devices in volume production today. The use of a combination of copper and nano clustering silica, a highly durable, low-k insulating material also developed by Fujitsu, proved instrumental in making these ultra-high-speed, high-density LSI devices possible.



The adoption of carbon nanotubes in place of copper in circuitry could significantly boost electrical current density and heat conduction.



Ultra-secure encrypted transmission is now one step closer after our success in emitting a single photon, a world first.

■ **Single-photon emitter for ultra-secure quantum encryption of data transmission*2**

We achieved successful emission of a single photon in the 1.3-micron data transmission wavelength, a world first and key technological step toward achieving bona fide quantum-encrypted data transmission, seen as the ultimate encryption method for data transmission security. This accomplishment has also paved the way for the realization of data transmission speeds more than 400 times faster than those possible with conventional methods.

Direction in Fiscal 2005

In tandem with an R&D program that harnesses our comprehensive capabilities to respond to present market needs, we will pursue research designed to unlock future business opportunities.

■ **Creating new solutions leveraging our technology value chain**

We will pursue R&D to create high-value-added solutions that leverage and combine our wide array of cutting-edge technologies in IT services, computers, networks, electronic devices and other areas.

■ **R&D in new and novel fields to support future businesses**

To support future business development, we will pursue research in new and novel fields, including intelligent transport systems technology, 45nm-generation semiconductor technology, and nanotechnology.

■ **Promoting joint research to expand technological and product possibilities**

We will aggressively pursue joint research with universities, research institutes and corporations worldwide.

Key Research Themes in Fiscal 2005

We will focus on the following research themes to help usher in the ubiquitous networking era:

- **Next-generation server, storage and networking technologies;**
- **Ubiquitous computing and devices;**
- **Technologies to ensure the reliability and security of IT systems; and,**
- **High-end CMOS transistor technology*3 for 45nm-generation devices.**

*1 UHF-band refers to radio wave frequencies between 952 ~ 954MHz.

*2 This technology was developed together with the University of Tokyo's Research Center for Advanced Science and Technology as part of an IT program sponsored by Japan's Ministry of Education, Culture, Sports, Science and Technology. Semiconductor crystals used in this research were developed in collaboration with the Nanomaterials Laboratories of Japan's National Institute for Materials Science.

*3 CMOS transistor technology: A semiconductor circuit processing technology that realizes advanced, high-density chips with low energy consumption.