



Special Feature:

Towards the Realization of Visions for 2012

Sharp formulated two new visions for its 2012 centennial anniversary:
“Realize a true ubiquitous network society with our world’s best
LCDs” and “Contribute to society by environment- and health-
related business with energy-saving and energy-creating
equipment as the core.”

This special feature introduces the 21st century manufacturing complex and
the strategic businesses at the heart of these visions.

All companies in the “21st century manufacturing complex” will work together as one in a fresh new style of manufacturing



Conceptual diagram of the “21st century manufacturing complex”

Sharp is pushing ahead with the construction of the “21st century manufacturing complex” in the coastal area of Sakai City, Osaka Prefecture that will produce energy-saving LCD panels and energy-creating solar cells, aiming to begin production by March 2010. The complex will also incorporate relevant infrastructure and facilities, as well as material and other manufacturers, thereby driving advanced manufacturing as one virtual company that operates as if it were the single plant of a single company.

At the LCD panel plant, Sharp engineers will work closely with their counterparts at leading material and other manufacturers to share knowledge and expertise, and create the world's best LCD panels for TVs from image quality, performance and cost perspectives.

The solar cell plant will manufacture thin-film solar cells based on the same thin-film technology used in the production of TFT LCD panels. Shared infrastructure within the complex, including gas facilities, can provide for improved investment efficiency.

Sharp aims to ensure it is an environmentally advanced

complex through the introduction of LED lighting, the use of waste heat from the plants, and the installation of photovoltaic power generation systems.

Overview of the “21st Century Manufacturing Complex”

Location: Sakaihama District of Sakai City, Osaka Prefecture
Site area: Approx. 1.27 million m²
Participating companies (as of April 2008; no particular order):
<Glass substrates> Corning Japan K.K./ASAHI GLASS CO., LTD.
<Color filters> Dai Nippon Printing Co., Ltd./TOPPAN PRINTING CO., LTD.
<Chemical supply/recycling> NAGASE & CO., LTD.
<Ultrapure water supply/wastewater treatment> Kurita Water Industries Ltd.
<Bulk gas supply> Daido Air Products Electronics, Inc.
<Bulk and electronics material gas supply> TAIYO NIPPON SANSO CORPORATION
<Liquid hydrogen supply> Iwatani Corporation
<Gas supply> OSAKA GAS CO., LTD.
<Energy supply> Kanden Energy Solution Company Incorporated
<Power supply> The Kansai Electric Power Co., Inc.
<Logistics> NIPPON EXPRESS CO., LTD.
<Reclaimed water supply> Kobelco Eco-Solutions Co., Ltd.

LCD panel plant

Glass substrate size: 2,850mm x 3,050mm (10th generation)
Input capacity: 72,000 substrates per month (initial capacity at start of operations: 36,000 substrates per month)
Amount of investment: Approx. ¥380.0 billion (including land acquisition costs for the entire complex)
Main products: LCD panels for large-screen TVs in the 40-, 50- and 60-inch classes

Solar cell plant

Plant scale: 1,000MW per year
Initial production capacity: 480MW per year
Glass substrate size: 1,000mm x 1,400mm
Amount of investment: Approx. ¥72.0 billion
Production item: Thin-film solar cells

Leveraging unique cutting-edge technology to create top quality, cost-competitive LCD panels for TVs



10G glass substrate employed at the new LCD panel plant

The new LCD panel plant being built in Sakai City, Osaka will be the first in the world to use 10th generation (10G) glass substrates, ensuring highly efficient production of large-size LCD panels in the 40-inch class and above, where demand is expected to increase.

Once this new plant starts operations, along with the Kameyama No. 1 Plant utilising sixth generation (6G) glass substrates and the Kameyama No. 2 Plant employing eighth generation (8G) glass substrates, Sharp will be able to efficiently produce a wide range of LCD panel sizes for TVs.



The new LCD panel plant currently under construction (as of July 2008)



The Kameyama Plant employs 6G and 8G glass substrates

This will enable us to make LCD panels with overwhelming cost benefits and further boost the competitiveness of AQUOS. Additionally, with increased production capacity, we can realize a stable supply of LCDs that facilitates fully-fledged sales to other leading TV manufacturers based on strategic partnerships.

As part of our efforts, Sharp agreed to form an alliance with Toshiba Corporation in LCD and semiconductor businesses. We also concluded a non-binding memorandum of intent with Sony Corporation to create a joint venture, by splitting out from Sharp the LCD panel plant under construction in Sakai City.



Sharp President Katayama shakes hands with Toshiba President Nishida (right) at the press conference



Sharp President Katayama and Sony President Chubachi (left) shake hands at the press conference

Proposing new lifestyles with next-generation LCD TVs incorporating leading-edge technology



Sharp has devised innovative designs for new LCD TVs (prototype) that will revolutionize living spaces — folding screen style (left) and wall-mounted style (right)

The integration of broadcasting infrastructure is expected to progress around the world for Next Generation Network (NGN) focused on broadband communications, mobile communications and home networks. Televisions will shift from being mere devices that display signals delivered from broadcasting stations and increase in importance as “windows of information” in the home. As a result, they will need to offer even higher expression and bring a more refined sense of quality to interior décor.

In response, Sharp announced in August 2007 a prototype LCD TV with a thickness of 20mm (main display section) that far surpasses existing models in terms of image quality, thin-profile design and environmental performance. Sharp aims to bring further innovation to LCD TVs going forward. Along with seeking to enhance basic display performance, we are promoting the joint development of acoustic systems for LCD TVs with Pioneer Corporation, our business and capital alliance partner. We will also strive to strengthen network technology and interface with a view to increasing infrastructure sophistication and content diversification. Through these initiatives, we will

enhance the expression and operability of LCD TVs as well as bring further refinement to interior décor.

Sharp will be creating LCD TVs that will completely transform living spaces and become the driving force behind the digital video culture of the 21st century.



With AQUOS R Series TVs, viewers can enjoy the Internet on a large screen in high definition and with high image quality



Sharp President Katayama shakes hands with Pioneer President Sudo (right) at the press conference

Technological innovations in unique devices facilitate the birth of new mobile equipment



Mobile phone for SOFTBANK MOBILE Corp.



Wireless PDA for T-Mobile USA



Ultra mobile PC for WILLCOM, Inc.

A true ubiquitous network society where people worldwide can access a network anytime and anywhere is close at hand. To help realize this, further advancements are required in LCDs, the key device responsible for information propagation, and in electronic devices, such as camera modules, for mobile equipment.

Sharp boasts a variety of one-of-a-kind LCD technology, such as System LCDs, and going forward, we will work toward greater technological innovation to increase the performance of our LCDs, as well as make them slimmer, lighter and consume less power.

In addition, Sharp will further strengthen development of unique devices, including high-resolution camera modules, and small, thin tuner modules for "One Seg" terrestrial digital broadcast reception, while striving to create advanced, user-friendly mobile equipment that improves upon and integrates technology accumulated over many years in TVs, mobile phones, PDAs and personal computers.

Devices Supporting Ubiquitous Products



Small- and medium-size LCD



Camera module



CCD



Tuner module for
"One Seg" reception



Laser diode



LED module

Contributing to environmental preservation through increased use of energy-creating solar cells



Photovoltaic power generation systems installed at an elementary school in California

Tackling global warming and energy problems are global common challenges. As such, expectations are increasing worldwide for photovoltaic power generation as it harnesses natural energy from the sun's rays and does not discharge CO₂, one of the causes of global warming, during operation. Demand for these systems is therefore rapidly rising.

Amid these circumstances, Sharp will strengthen production of thin-film solar cells in addition to the conventional crystalline type with the intention of making solar cells into the next pillar of business after LCDs.

Crystalline solar cells have higher conversion efficiency than thin-film solar cells, and are appropriate for use in residences with limited installation area. Thin-film solar cells, on the other hand, are characterized by lower reduction of conversion efficiency at high temperature, compared to the crystalline type, and as a result, demand is expected to expand in warm regions in such fields as large electricity-generating systems.

Sharp will work to develop business for both types in order to supply solar cells that best fit the needs of respective regions, and to expand use of photovoltaic power generation around the world.



Crystalline solar cells

Features: High conversion efficiency, suitable for places with limited installation area



Thin-film solar cells

Features: Low reduction of conversion efficiency at high temperatures



Thin-film solar cells installed at a company in Germany



Thin-film see-through solar cells installed at the Kameyama No. 2 Plant (left: external appearance, right: view from inside)

To increase the use of thin-film solar cells, Sharp seeks to further enhance conversion efficiency by making use of unique technologies amassed over many years.

Sharp developed thin-film solar cells with a triple-junction structure that includes one more amorphous silicon layer than the conventional tandem-type structure (amorphous silicon and microcrystalline silicon) through utilization of production equipment (plasma CVD equipment) incorporating our unique know-how. Through this, we have made effective use of light energy at a wide range of wavelengths and realized higher conversion efficiency.

On a production front, we are planning to increase annual production capacity of thin-film solar cells at the Katsuragi Plant from 15MW to 160MW in October 2008. At the “21st century manufacturing complex” in Sakai City, Osaka, we are planning to build a new plant for thin-film solar cells that will enable us to expand annual production capacity to 1,000MW.

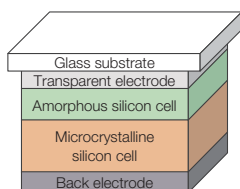
We aim to start production by March 2010, beginning with a production capacity of 480MW as the first phase.

The cutting-edge plasma CVD equipment developed jointly with Tokyo Electron Limited will be installed at the new plant. Large glass substrate size of 1,000 x 1,400mm coupled with unique know-how will considerably boost production efficiency and further cut costs. Sharp plans to create a global production system for thin-film solar cells, using this new plant as a model when deploying other plants overseas.

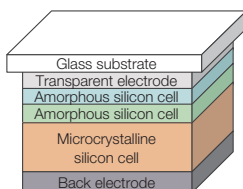
In addition, Sharp is promoting the development of new technology aimed at further expanding the solar cell business, notably concentrator photovoltaic power systems that apply compound semiconductor technology and dye-sensitized solar cells that use organic materials. We are also working on the development of storage batteries that store power generated by solar cells.

Structure of Thin-Film Solar Cells (Image)

Tandem thin-film solar cell

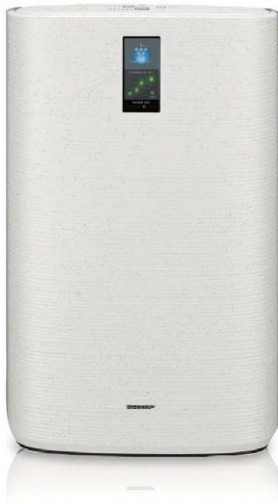


Triple-junction thin-film solar cell



Concentrator photovoltaic power systems (image)

Creating high-value-added products made with environment- and health-related technology



Air purifier equipped with Plasmacluster Ion technology



Air conditioner incorporating Plasmacluster Ion technology



Superheated steam oven
HEALSIO

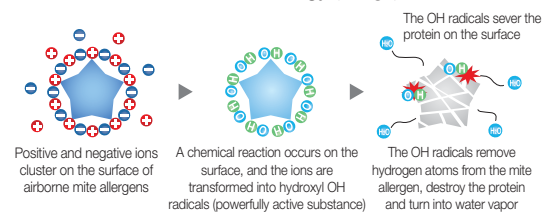
Plasmacluster Ion Technology

Plasmacluster Ion technology is a unique technology equipped in Sharp air purifiers, air conditioners and other products that purifies the air by removing airborne mold, viruses and allergens (mite feces and bodies). The technology is being increasingly employed in other areas as well, and has now been used in the products of over 20 different companies, including shower-toilets and car air conditioners. The total shipment volume of Plasmacluster Ion generating units, incorporated in products made by Sharp as well as those of other companies, amounted to 18 million worldwide at the end of March 2008. Going forward, Sharp will expand the range of products featuring this technology based on the concept of "fill every space with Plasmacluster Ions." We also aim to expand application to medical facilities and public transportation.

Superheated Steam Oven

Sharp's superheated steam oven HEALSIO is the first oven for home use to cook food using superheated steam technology. The health benefits gained from

Working Mechanism to Suppress Airborne Mite Allergens with Plasmacluster Ion Technology (Image)



- **Test Method:** Mite allergens are dispersed into the air of a 1m³ chamber and Plasmacluster Ions are released into the space from a Plasmacluster Ion generating unit, and the behavior of the allergens measured.
- **Eradication Method:** Plasmacluster Ions are released into the air.
- **Testing & Verification Organization:** Graduate School of Advanced Sciences of Matter, Hiroshima University

■ Efficacy of Plasmacluster Ions Proven in Japan and Overseas (As of July 2008)

Japan	•Ishikawa Health Service Association (Airborne mold)	Canada	•Asthma Society of Canada (Airborne allergens)
	•The Kitasato Institute	Germany	•University of Lübeck (Airborne mold)
	•The Kitasato Institute Medical Center Hospital Research Center for Medical Environment (Airborne viruses)		•Aachen University of Applied Sciences Professor Gerhard Artmann (Biochemical research into pathogen removal mechanism)
U.S.A.	•Kitasato Research Center of Environmental Sciences (Airborne viruses)	China	•Shanghai Municipal Center for Disease Control and Prevention (Natural airborne bacteria)
	•Graduate School of Advanced Sciences of Matter, Hiroshima University (Airborne allergens)	Korea	•Seoul University (Airborne viruses)
	•Harvard School of Public Health Dr. Melvin W. First, Professor Emeritus (Airborne bacteria)	U.K.	•Retroscreen Virology, Ltd. (Airborne viruses)

using HEALSIO, including fat removal, salt reduction and nutrient retention, have been highly praised, making it a hit in Japan. In the future, Sharp will strengthen global expansion of HEALSIO, beginning with North America and including Asia, Oceania, Europe and China, while working to expand products incorporating this technology by making the engine more advanced.

LED Lighting

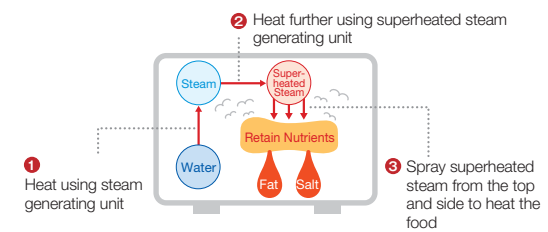
LED lighting is not only energy efficient and long lasting, it boasts other features such as flicker-free illumination, is mercury-free, and does not emit infrared or ultraviolet rays. Application is therefore expected in a wide range of fields. Sharp is expanding the use of solar-LED street lights incorporating LEDs with outstanding environmental performance and powered by natural energy from the sun's rays, as viable forms of outside illumination for the 21st century. Aiming to expand LED business, we will continue with the spiral deployment of products and devices that we excel in, and strengthen applied products by pushing ahead with the development of environmentally friendly lighting using LEDs.

Copiers/Printers

Sharp has expanded its line-up of digital MFPs featuring Mycrostoner with high environmental performance. This uniquely developed toner suppresses toner consumption, while delivering high-resolution, high-quality printed output. Efforts to ensure energy-saving design in our MFPs include suppressing standby power consumption in facsimile mode to under 1W* to reduce environmental burden. Moving ahead, besides working to further improve environmental performance, we will make aggressive strides in strengthening information security, one of our core strengths, and propose document solutions that enhance business efficiency in the office.

* In facsimile standby mode with the power off

Schematic Illustration of the Superheated Steam Function



With this mechanism, food is cooked using superheated steam, obtained by heating ordinary steam at 100°C to a higher temperature of up to 340°C. This causes a portion of the fat and salt contained in meat, fish and fried foods to drop away, while low-oxygen cooking makes it possible to retain vitamin C and polyphenols, which are easily destroyed by oxygen.



Solar-LED street light with outstanding environmental performance



Digital full-color MFP with eco-friendly features such as Mycrostoner