

# Canon and Toshiba To Develop Next-Generation Flat-Screen Surface-Conduction Electron-Emitter Displays

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Canon Inc. and [Toshiba Corporation](#) announced today that the two companies have agreed to establish a joint venture in October 2004 for the development, production and marketing of next-generation flat-screen SED (Surface-conduction Electron-emitter Display) panels.

The SED, based on a new type of flat-panel display technology, was created through the merging of Canon's proprietary electron-emission and microfabrication technologies with Toshiba's cathode-ray-tube (CRT) technology and mass-production technologies for liquid crystal displays and semiconductors. Like conventional CRT televisions, the SED utilizes the collision of electrons with a phosphor-coated screen to emit light. Electron emitters, which correspond to an electron gun in a CRT television, are distributed in an amount equal to the number of pixels on the display. In addition to high brightness and high definition, the SED delivers exceptional overall image quality—fast video-response performance, high contrast, high gradation levels—and low power consumption.

Canon began research in the field of SED technology in 1986 and, in 1999, began joint development activities with Toshiba with the aim of commercializing an SED product. In light of the progress realized at this stage of the joint development process, Canon and Toshiba, deeming the timing appropriate, agreed upon the establishment of a joint venture. Plans for the new company call for the commercialization of SED panels

primarily for large-screen flat-panel televisions, with production scheduled to begin in 2005. Following the initial launch, a mass-production factory will be readied and production volume will be increased.

The flat-panel TV segment is expected to continue displaying growth within the television market. Additionally, the advent of digital Hi-Vision broadcasting and next-generation DVDs, along with digital cameras and video camcorders, is expected to fuel the spread of high-definition, high-quality next-generation content. Amid these developments, Canon and Toshiba aim to firmly establish SED technology as a new type of flat-panel display ideally suited for the display of next-generation high-definition, high-quality images.

### **About SED technology**

*The SED consists of a glass plate mounted with electron emitters and with pixels similar in number to those of a CRT electron gun. Positioned next to it is another glass plate coated with a fluorescent substance. Between the two glass plates is a vacuum. The key here is the extremely narrow slit (several nanometers wide) made from ultrafine-particle film. Application of voltage in this narrow slit creates a tunneling effect that causes the emission of electrons. Some of these electrons are accelerated by the voltage applied between the glass plates and collide with the fluorescent-coated glass plate, causing light to be emitted. Since it is a spontaneous light display similar to a CRT, it maintains levels of brightness and color performance, as well as a wide angle of visibility, also on a par with a CRT. Larger screens can also be produced by simply increasing the number of electron emitters in accordance with the required number of pixels. Unlike CRTs, SEDs do not need electronic-beam deflection. As a result, it is now possible to create wall-mounted large-screen TV displays that are only several centimeters thick.*

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