

Product Development and Design Initiatives

Casio's greatest responsibility as a manufacturer is to create products that have never existed before, thereby contributing to social progress. Casio develops products that offer new value and create new cultural phenomena. Casio's product development concept is simple: going from "0" to "1."

Innovative product planning and advanced technical capability

In order to create products that have never existed before, Casio believes that both product planning ability driven by revolutionary ideas and superior technologies are needed. Employing flexible thinking that goes beyond conventional concepts, Casio carries out product development by discovering latent demand for things that everyone needs, though they may not have noticed it yet. In order to realize unique product planning and create competitive products that cannot be imitated by others, it is necessary to have a high level of technical capability, which can overcome various obstacles. Casio is always working to develop advanced technologies, and continues to explore new frontiers.

Highlight Casio's Digital Art Frame: Another Great Innovation



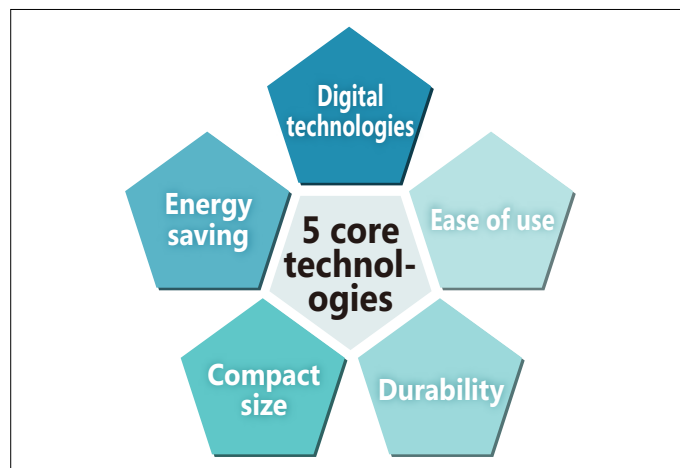
Digital Art Frame

Casio's revolutionary Digital Art Frame is scheduled for release in the fall of 2010. Going beyond conventional units, this new product utilizes image recognition and image processing technologies. Featuring a "snapshot-to-painting conversion" function, it can convert an image taken with a digital camera into an artistically stylized image that looks like an oil painting, watercolor, pastel or colored pencil drawing.

Moving images can also be integrated into the converted "artwork," right on the Digital Art Frame. These modified artworks can be displayed not only at home, but also uploaded to the Web. In addition to the enjoyment of viewing photos and interior decorating with a conventional digital photo frame, Casio's Digital Art Frame provides the added value and enjoyment of creating and showing original artwork images. This completely new digital imaging product provides true aesthetic value.

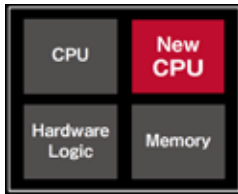
Core technologies for realizing new ideas

Casio creates products based on revolutionary ideas by constantly developing its five core technologies.



Digital technologies make the impossible possible

Casio's Exilim Engine 5.0 for digital cameras uses a multi-CPU design, in which two CPUs run in parallel, to achieve complex image processing in an instant. Using the latest image processing algorithms, the technology instantly analyzes photographic conditions, such as backlighting or a night scene, and performs the optimal processing. This results in beautiful images with reduced noise.



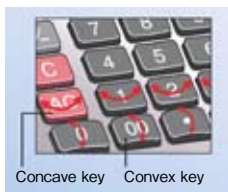
Smartly operating on little power

Casio has developed the industry's first all-band CMOS receiver LSI, which integrates the analog circuit that receives radio waves with the digital circuit that processes data. The LSI can be used for radio-controlled watches, enabling them to maintain operational stability with an ultra-low power level that is 1/1,000th of that required by ordinary communication devices. The technology has already been applied in Casio watches featuring Multiband 6 technology that can receive radio signals worldwide.



Easy for anyone to use

Casio's high-end calculator models have a special feature that ensures reliable key punching. The surfaces of the keys for 1 through 9 are concave, while the keys at the bottom such as "zero" have a gentle convex shape, making it easier to move the fingers across the keypad. Moreover, in order to enhance the sensation of a completed keystroke, a unique super-thin cushion has been incorporated beneath the keys. Even if the side of the key is hit, the input is still registered.

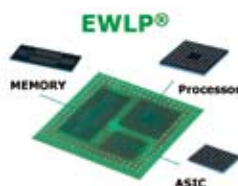


Compact, slim, lightweight

WLP^{*1} is a high performance, compact, highly reliable, low-cost, material-conserving semiconductor packaging technology. Applications of it are rapidly expanding, particularly for cellular phones. Casio has also developed a high-density packaging technology, EWLP^{*2} in which the chip itself is embedded in the printed circuit board, and is expanding the applications for this cutting-edge technology. Casio is also working to realize solderless packaging, in order to help protect the global environment.

*1 WLP (wafer level package): An LSI package that enables rerouting of copper traces, formation of electrode terminals, and encapsulation of chips in epoxy resin, all on an intact wafer.

*2 EWLP (embedded wafer level package): By embedding WLPs on a system circuit board, this packaging technology maintains the high performance of electronic devices while making them even more compact, slim, and lightweight.



A sense of security anywhere, anytime

The glass face, buttons, and back case of every G-Shock watch are all designed not to make direct contact with the ground if dropped. Further, the heart of the watch is protected from shocks by a design that keeps the internal module suspended in a hollow structure. Each electronic component is also protected by buffer materials. Casio takes other steps to enhance shock-resistance such as placing the radio-control antenna in a stack of amorphous membranes that are difficult to bend even when subjected to a shock and using its shock-resistant Tough Movement to drive the hands in analog G-Shock watches.



Digital design data shared on a network

Casio products are all designed in 3D using computer software, and are stored as digital data. These files are centrally managed along with circuit diagrams, component data, specifications, and production schedules, and are shared via network with production sites and logistics facilities. This system was established to enable Casio to flexibly adapt to changing conditions, such as changes in user needs and the economic environment.

By sharing this data throughout the company, Casio can ensure that circuits and parts that work the same way, even if used in different product areas, are standardized, achieving lower procurement costs and greater efficiency in assembly. If any problems arise in relation to quality or the environment, Casio can efficiently go through its past product lineup to determine if there is a need to replace a certain part, or can work across departmental lines to examine the total environmental impact, for instance, calculating the amount of designated chemical substances contained in products.

Design data is also used in the creation of catalogs and instruction manuals. Since design data can be used to create 3D diagrams and cross-section diagrams, there is no need to start drawing new diagrams from scratch. This accelerates the production process and keeps costs down.

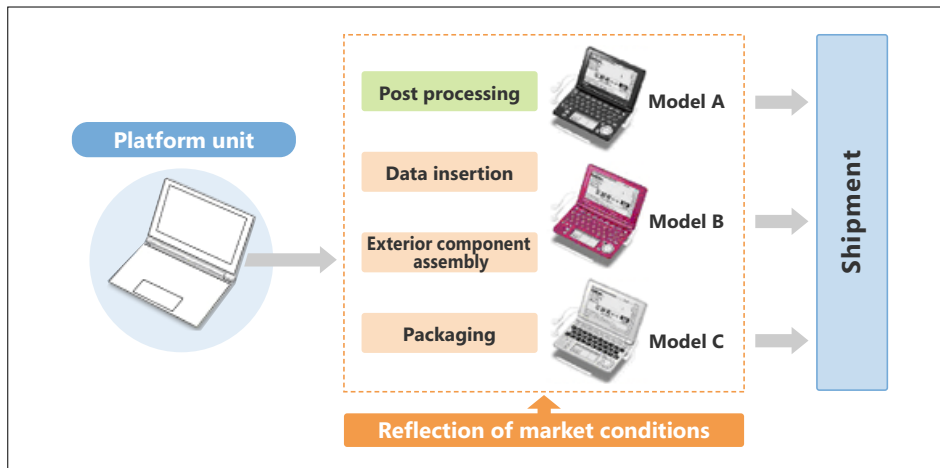


Platform design for flexible production

Casio's electronic dictionaries come in a variety of models and in a wide array of colors to meet the needs of today's diverse users. To efficiently produce product lineups that span a wide range of configurations, Casio integrates all the common parts of each product to create a single "platform unit." This allows Casio to keep costs down by ordering parts in large quantities, and to improve manufacturing efficiency by standardizing production processes.

Casio determines how many of each product to ship by looking at the market conditions immediately before shipment, inserting different types of content into the platform units, assembling the exterior, and then packaging the products. This allows Casio to supply only the number of models necessary in the shortest period of time.

■ Use of platform unit in electronic dictionary



Going beyond universal design to human-centered design

Casio works to develop products using human-centered design (HCD) in conformity with ISO 13407 processes, with the objective of improving product ease of use as part of the product's overall quality. In the HCD process, Casio seeks optimal ease of use by determining important issues from customer feedback and observation of product use in real-world situations. Through repeated evaluation and verification, Casio works to develop highly desirable products.

In fiscal 2010, Casio improved the ease of use of its business PDAs, employed for data collection as information terminals by distribution sites, or for customer service by retailers. For the development of the DT-5300, ease of use considerations were incorporated from an ergonomics standpoint, such as adopting a shape that is easy to carry and hold while working long hours, and keypad specifications to enable effortless operation at all sorts of work sites.



DT-5300 featuring universal design