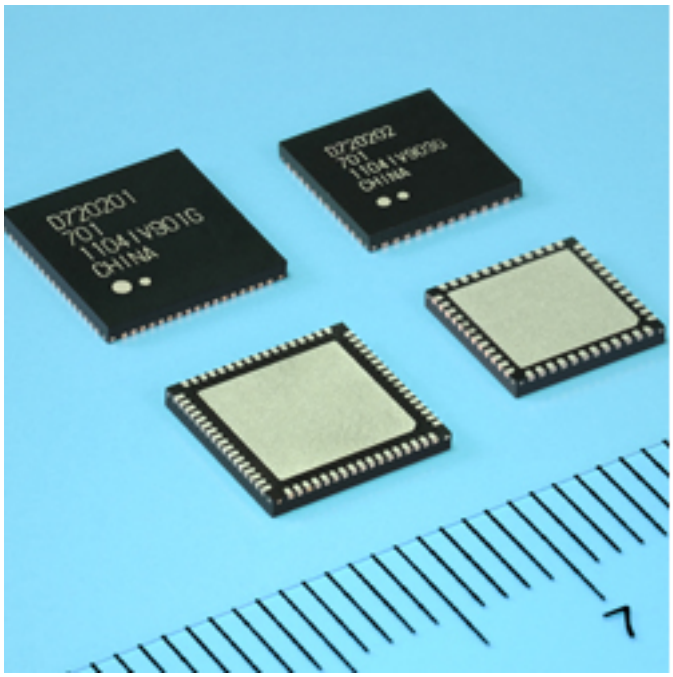
USB 3.0 Host Controllers Contribute to Longer Battery Life in Mobile Devices



Renesas Electronics Corporation today announced the availability of its two new SuperSpeed Universal Serial Bus (USB 3.0) xHCI host controllers (part numbers ?PD720201 and ?PD720202) for electronic devices such as PCs and digital TVs that feature faster, effective data transfer speeds and reduced power consumption in low-power mode.

The ?PD720201 and ?PD720202 controllers make it easier for system designers to build electronic devices combining high-speed data transfer, compact size and extended battery life. In addition, Renesas Electronics device drivers with a proven track record for Microsoft Windows®, and device drivers with Linux® support, are available for the ?PD720201 and ?PD720202 host controllers at no cost.

USB has achieved widespread adoption worldwide as an interface standard for connecting peripheral devices such as mouses and external hard disks to PCs and other digital electronic products. In recent years, the increasing data size of video content and the emergence of recording media with larger capacities have boosted demand for high-speed interfaces. As a result, USB 3.0, which boosts tenfold the earlier transfer speed of 480 megabits per second (Mbps), has appeared.

USB 3.0 has been widely adopted into an increasing number of PCs and peripheral devices such as external hard disks and USB flash memory drives. With the recent emergence of solid-state-drive (SSD) products offering faster read and write access than conventional hard disks and chipsets supporting the PCI Express® Generation 2 high-speed internal bus for PCs, the groundwork is in place to enable the high-speed performance potential of USB 3.0 to be used to its fullest. Against this

background, there is strong market demand for host controller products offering faster, effective data transfer speeds with peripheral devices, reduced standby power consumption for better battery life in mobile devices such as tablet PCs and netbooks, and compact package size to enable the use of smaller printed wiring boards.

The host controllers add a new four-port product to the Renesas Electronics USB 3.0 product lineup and deliver even faster transfer speeds, better power efficiency and more compact size than the company's previous versions of USB 3.0 host controllers.

Key features of the new ?PD720201 and ?PD720202 USB 3.0 host controllers:

(1) Industry-leading high data transfer speed

Improvements to the data transfer processing circuit provide an increase in the effective data write speed of more than 40 percent from Renesas Electronics' existing host controller products for peripheral devices such as USB 3.0 hard disks. This, combined with excellent read performance, results in an industry-leading high data transfer speed.

(2) Industry-leading low power consumption

In addition to a technology implemented on existing products that reduces power consumption when the peripheral device is in the unconnected state, circuit improvements have been made to effectively suppress current leakage when in low-power mode. This has reduced power consumption in low-power mode to 4.5 milliwatt (mW), a reduction of 90 percent compared with Renesas Electronics' existing products. This results in power consumption among the lowest in the industry, reduced standby power usage in laptop PCs and other mobile devices, and extended battery life.

(3) Compact QFN package and firmware download function for smaller mounting area

The ?PD720201 and the ?PD720202 devices are equipped in an 8 millimeter (mm) square quad flat non-lead (QFN) package and a 7mm square QFN package, respectively, which is a reduction in package size of approximately 50 percent from Renesas Electronics' existing products.

In addition, the company's existing host controllers use firmware stored in external serial flash ROM. The ?PD720201 and ?PD720202 devices now have a function that makes use of improvements to the PCI Express interface to allow downloading of firmware from the system software, such as the basic input/output system (BIOS). The ability to download the firmware from the system software eliminates the need for external serial flash ROM. This reduces the number of components required for incorporating a USB 3.0 function and enables a smaller mounting area.

“In addition to contributing to faster data transfer processing in PCs and digital consumer electronics, Renesas Electronics’ ?PD720201 and ?PD720202 host controllers help extend battery life by dramatically reducing the power consumption,” said Yukihiko Matsuda, associate general manager, Industry & Network Business Division, Renesas Electronics Corporation. “As a core member of the USB-IF, we will continue to provide robust lineups of USB 3.0 products to accelerate the adoption of USB 3.0 in compact mobile devices.”

Renesas Electronics will exhibit and demonstrate the ?PD720201 and ?PD720202 devices at the SuperSpeed USB Developers Conference in Amsterdam, Netherlands, on March 9 and 10, 2011.

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