

NEC Electronics Introduces Two New Embedded DRAM Intelligent Buffer ICs for High-Resolution Mobile Graphics Applications

Help Reduce Power Consumption for Portable Devices While Supporting Very High Quality Images

KAWASAKI, Japan, DUESSELDORF, Germany, SANTA CLARA, Calif. (U.S.A.), February 12, 2010 – Extending its industry-leading embedded DRAM (eDRAM) technology to support designers of mobile phones, music players and other portable devices, NEC Electronics (TSE: 6723) today introduced two system-on-chip (SoC) solutions, the μ PD60800 and μ PD60801. The new SoC solutions integrate 16 megabits (μ PD60800) and 30 megabits (μ PD60801) of eDRAM memory with graphics processing logic and a high-speed MIPI®-DSI (Mobile Industry Processor Interface – Display Serial Interface) graphics data connection to the host processor. The intelligent buffer integrated circuits (ICs) enable lower power consumption with high resolution and convenient display panel configurations.

For mobile devices that can support consumer demand for higher-resolution graphics, the host digital baseband LSI or application processor must integrate more memory, increasing the size and cost of the chip. These processors also require a continuous supply of power and memory bandwidth in order to transfer data continuously to the display panel.

By inserting the new devices between the digital baseband LSI or application processor and the LCD driver IC, designers can implement new power- and cost-savings strategies while supporting quarter HD and WSVGA resolution displays. The new devices also address the customer demand for higher data transfer speeds by supporting the MIPI-DSI interface as well as the MDDI interface (μ PD60801 only).

Main features of NEC Electronics μ PD60800 and the μ PD60801 solutions

1) Image with higher resolution and compact DRAM based package

The devices are based on NEC Electronics' buffer IC design platform that enables efficient creation of eDRAM-based solutions for mobile graphics applications. With 16 megabits of eDRAM, the new devices enable the display of 24-bit full color image data on up to quarter HD (960 x 540 pixels) and WSVGA (wide super video graphics array, 1024 x 600 pixels) panels. Because the DRAM can be fabricated with a cell size about one-third the size of traditional SRAM, NEC Electronics is able to achieve 16 megabits of DRAM in a 5x5 millimeter (mm) FPBGA package and 30 megabits of DRAM in a 5.6x5.6 mm FPBGA package.

(2) Integrates graphics processing logic for higher image quality

The μ PD60801 integrates AGCPS-II (Auto Gamma Control & Power Saving) functionality, the backlight control technology developed by NEC Electronics. The AGCPS-II automatically recognizes image data and adjusts the backlight brightness accordingly, thereby contributing to low power consumption and high image quality at the same time. Window access (picture-in-picture) for both video and still images is supported. A tearing effect (TE) signal is available to manage the apparent "tearing" that can otherwise degrade a viewing impression, when not using double buffering architectures.

(3) Support MIPI-DSI interface

The new devices support MIPI-DSI, a high-speed serial data transfer interface that reduces the number of transmitter lines while suppressing electromagnetic interference (EMI). The μ PD60800 MIPI-DSI-compliant interface includes two data lanes, each capable of running at up to 500 Mbps to receive high-quality video and graphics from the host processor while enabling lower system power consumption. In addition to MIPI-DSI, the μ PD60801 device also supports the MDDI interface.

NEC Electronics' Intelligent Buffer ICs

	μ PD809400 (existing product)	μ PD60800 (NEW)	μ PD60801 (NEW)
Embedded DRAM Capacity	8 Mbit	16 Mbit	30 Mbit
Resolutions (single-buffering, double-buffering)	VGA (640x480) hVGA (320x480)	WSVGA(1024x600) qHD(960x540)	WSXGA (1260x854) WSVGA (1024x600)
Input Interface	CPU/RGB	MIPI-DSI	MIPI-DSI MDDI
Image Processing Functions	Double-buffering	Double-buffering	Double-buffering AGCPS-II
Package	5mm x 5mm 64-pin FPBGA	5mm x 5mm 97-pin FPBGA	5.6mm x 5.6mm 144-pin FPBGA

Pricing and Availability

Samples of NEC Electronics' new μ PD60800 and μ PD60801 SoCs are available now priced at US\$5 and US\$7.50, respectively. Volume production is expected to begin in May 2010, and reach approximately two million units per month. (Pricing and availability are subject to change.) More information can be found at <http://www.am.necel.com/ibic>.

Exhibition at MWC

NEC Electronics will exhibit the μ PD60800 and μ PD60801 devices in a demonstration in NEC's booth (Hall 8, Stand 8A125) at the Mobile World Congress 2010 (MWC 2010) to be held in Barcelona, Spain, from February 15 to 18.

About NEC Electronics Corporation

NEC Electronics Corporation (TSE: 6723) specializes in semiconductor products encompassing advanced technology solutions for the high-end computing and broadband networking markets; system solutions for the mobile handset, PC peripheral, automotive and digital consumer markets; and multi-market solutions for a wide range of customer applications. NEC Electronics Corporation has 24 subsidiaries worldwide including NEC Electronics America, Inc. (www.am.necel.com) and NEC Electronics (Europe) GmbH (www.eu.necel.com). More information about NEC Electronics worldwide can be found at www.necel.com.

#

All products and services mentioned in this release are trademarks or registered trademarks of their respective owners.