

Compact serial SPI SLC NAND Flash IC for fast low-cost firmware bootload

Zentel Electronics Corp., a leading manufacturer from Taiwan of cost-optimized volatile and non-volatile memory IC solutions, unveils a new and more compact serial memory IC, the A5U12A21ASC. The device is available in a 16 lead SOIC package and stores up to half a Gigabit of program code and/or application data. Data retention holds at least for 10 years without refresh and endures more than 100,000 update cycles. This allows the content to be boot-read into the volatile random access main memory of any embedded system at advanced clock rates of up to 104 MHz during system start-up.

Serial NOR Flash also offers this kind of functionality, but requires a rather dedicated semiconductor process technology using up more chip real estate and is therefore not as write-performance, power-consumption and bottom line cost-effective as serial NAND Flash of comparable memory size, that in turn enables larger memory subsystems.

Zentel, originally a DRAM specialist, uses its mother company Powerchip Technology Corp. as exclusive wafer fab also for the floating gate process technology of non-volatile NAND Flash. This single-level cell (SLC) technology is different from the usual multi-level cell (MLC) approach as used in commercial USB memory sticks or SD memory cards which only allows for a few thousand erase cycles. The 40nm-SLC technology is far more robust and hence used for solid state drives (SSD) in enterprise-class servers, where a minimum endurance of one hundred thousand re-write cycles is mandatory.

The new A5U12A21ASC compact serial 512Mbit memory chip is encapsulated in a SOP16 package with 10.5 x 10.5mm footprint – close to the less cost-effective standard 9 x 11mm VFPGA63 package size but with a relaxed 1.27 mm lead pitch compared to a more assembly-challenging 0.8 mm ball pitch.

The A5U12A21ASC provides integrated error correction as well as wear level mapping functionality.

It reserves 60 kilobytes of only one-time-programmable memory space for manipulation-safe storage of sensitive data such as device type or serial numbers and other identification or branding code as well as authenticatable server addresses for remote firmware maintenance routines. This way it also enables support of future business models such as pay-per-use in an emerging Internet-of-Things era.

Zentel Electronics Corporation

Zentel Electronics Corporation was established in 2002 as a design center of memory ICs for the wafer manufacturer Powerchip Technology Corp. As of 2006, Zentel started its own manufacturing and sales operation and is listed on the Taiwan stock exchange since 2008. In 2009 Zentel received ISO9001:2008 / ISO14001:2004 certifications and is qualified since 2012 for automotive grades 2 and 3 as condition for the TS-16949 certification. Because of its privileged access to wafer capacities within the Powerchip group of companies Zentel is less affected by recent wafer capacity shortages compared to other fabless brands. Sales for the EMEA region is coordinated by the European headquarter from Belgium. More product information and sales channel contact information can be found on the European website: www.zentel-europe.com