ISSI's 4Gb DDR3 with On-chip ECC is now ASIL-B Certified

ISSI's 4Gb DDR3 with on-chip ECC has been ASIL-B certified by SGS corporation. After over 18 months of collaboration with SGS, ISSI has successfully completed the qualification. The 4Gb DDR3 with on-chip ECC is now in mass production.

ECC (Error Correcting Code) is the procedure of checking and making corrections to the memory cells. ISSI offers 4Gb DDR3 with on-chip ECC in x8 and x16 data widths. The x16 option is IS43TR16256EC (1.5V) or IS43TR16256ECL (1.35V/1.5V) for Industrial grade, and IS46TR16256EC (1.5V) or IS46TR16256ECL (1.35V/1.5V) for Automotive grade. The x8 option is IS43TR85120EC (1.5V) or IS43TR85120ECL (1.35V/1.5V) for Industrial grade, and IS46TR85120EC (1.5V) or IS46TR85120ECL (1.35V/1.5V) for Automotive grade. This 4Gb DDR3 SDRAM is compliant to the industry standard specification, JEDEC JESD79-3, and is compatible with a wide variety of Systems-on-Chip (SoC) and microprocessors (MPU), yet the key feature of this product is on-chip ECC, meaning that it can detect and correct bit errors on-the-fly.

The conventional solution in most applications that already implement ECC is to use an extra DRAM component to store the ECC bits, which is sometimes referred to as "sideband ECC", meaning that the data lines for the data and ECC are separate. This may cause the width of the data bus to be as large as 72-bits (i.e. 64 bits for standard data + 8 bits for ECC). The SoC or MPU in the application encodes ECC bits during each Write to the DRAM, and decodes ECC bits during each Read from the DRAM, and makes corrections as necessary. However, there are a variety of circumstances where the SoC/MPU does not support ECC, or where the data bus is too narrow, i.e. 8-bit or 16-bit in total, such that sideband ECC is not possible. With application requirements still calling for ECC, designers' choices may be limited. This is where ISSI's 4Gb DDR3 with on-chip ECC comes in. It provides advantages of greatly enhancing data robustness and quality, while simplifying system design, saving power, and reducing the memory footprint on the board. This product also includes a register with ECC event data. It is a great fit for a variety of hi-rel industrial and automotive systems. In the latter, safety is especially important, and by using ISSI memory with on-chip ECC, it helps automotive system designers to achieve the functional safety requirements defined by ISO 26262.

ISSI already offers 1Gb DDR3 with on-chip ECC (IS43TR16640ED for x16, and IS43/46TR81280ED for x8). ISSI also offers 2Gb, 4Gb, and 8Gb LPDDR4/4X with on-chip ECC. ISSI's portfolio of DRAM, SRAM, and Flash with on-chip ECC continues to grow.

ISSI offers a multitude of DRAMs including SDR, DDR2, DDR3, DDR4, and mobile SDR, LPDDR, LPDDR2, and LPDDR4/4X; a complete line of both asynchronous and synchronous SRAMs with densities from 64Kb to 72Mb; and a broad portfolio of SPI/QSPI NOR, SPI NAND and parallel NAND Flash, including eMMC. ISSI also has a range of Known Good Die (KGD) memories in its portfolio. ISSI has been supporting Automotive customers for the last twenty years successfully.

"This is a major milestone of ISSI's ISO26262 program", said Ted Chang, project leader for the ISO26262 program at ISSI, " It was a great collaboration with SGS and hard work from various team members at ISSI."

"4Gb DDR3 is the first of many products that we are working on for ASIL-B Certification", said ChinFu Huang, Safety Manager at ISSI, "ISSI has been investing in memory products to support Automotive Industry for more than 20 years and this certification shows our continuous commitment to the quality of our memory products being provided to our Automotive customers"

About Integrated Silicon Solution, Inc(ISSI)
ISSI is a fabless semiconductor company that designs, develops and markets high performance integrated circuits for the following key markets: (i) automotive, (ii) communications, (iii) industrial, and medical, and (iv) digital consumer. ISSI's primary products are SRAM, DRAM, Flash memory which includes NOR flash, NAND flash and managed NAND solutions (eMMC), and analog and mixed signal integrated circuits. ISSI provides high-quality semiconductor products and has been a committed long-term supplier of memory products. ISSI is headquartered in Silicon Valley with worldwide offices in Taiwan, Japan, Singapore, China, Europe, Hong Kong, India, and Korea. Visit our web site at http://www.issi.com/