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Product Brief

Complete Custom System-on-Chip (SoC) Business Solution

Highlights

- Proven high-yield, high-volume manufacturing
- Flexible hand-off model starting from system block diagram to a traditional ASIC netlist
- Broad support for the ARM® series of microprocessor cores and peripherals including ARM7TDMI, ARM926EJ, ARM946ES, ARM1026EJ, ARM1176EJ, Cortex™ R4, R4F, A9, MP, UPCORE and CoreSight™ support included DK11, DKA9, DKR4 and primecells

Description

Toshiba, a world leader in semiconductors, works closely with top companies to deliver a complete business solution that mitigates design risk and ensures high-yield manufacturing of Custom SoCs.

Featured Custom SoC Capabilities

- 130, 90, 65 and 40 nanometer (nm) process, up to 11-layer copper CMOS technology
- Low-k dielectric and logic densities up to 1,500,000 gates/mm2
- Cost-effective, 4 Mb to 182 Mb embedded DRAM cores in 90/65 nm
- Input/output cells support high-performance SerDes chip-to-chip interfaces for 622 Mbps to 10-Gbit/s Ethernet and FCoE applications; also included are support for 1/2/4/8.5-Gbit/s Fibre Channel, 6.5Gbps Backplane, 1.5/3.0 Gbps SATA PCI Express Gen-1 and Gen-2 and 3/6 G SAS
- High-performance and low leakage ASIC libraries with multi-V_{DD}, multi-threshold and special multi-threshold CMOS low-leakage library elements
- High-performance and high pin-count packages include thermally-enhanced PBGA, FPBGA, FCBGA and System in Package (SiP)
- Commercial EDA design flow with signal integrity support and power analysis
- Three local design support centers

Custom SoC Technology Lead

Toshiba holds a significant technological lead in delivering production-volume, high-yield 40, 65, 90 and 130 nm Custom SoCs. Development of 32 nm process technologies is underway. With a strict design for manufacturing culture, the use of the latest yield prediction software, tools and manufacturing expertise, problems are solved early on. This enables quick ramp up to high-yield production volumes and low defect densities. Toshiba has consistently proven its ability to deliver high-yield 90 and 65 nm volume production.

Proven IP

Toshiba SoCs incorporate pre- and post-tested IP including MIPS and ARM processor (500+MHz) cores, memory, mixed-signal functions, high-speed serial interfaces, MPEG and more. Toshiba also holds a full-volume manufacturing lead in embedded DRAM technology for performance applications, or applications where availability of discrete DRAMs is uncertain.

Platform SoCs

To solve the challenge of engineering productivity, Toshiba's customers have cut their design cycles by months using the Toshiba custom chip Soft IP platform approach. Toshiba platform technology uses mix and match IP that is pre-verified, pre-tested and configurable to accelerate time-to-revenue.

Comprehensive Support

Toshiba's comprehensive engineering support helps customers meet their Custom SoC design specifications and development schedules at the lowest possible cost. Expert support is available from three U.S. Design Centers. However, in the case of extremely complex Custom SoC designs, customers can call upon expertise from Toshiba's world-wide engineering network and facilities, including Research and Development Centers.

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For each Custom SoC design program, a Toshiba engineering team is assembled to help customers create the best design based on system-chip architecture tradeoffs, silicon technology, cell libraries, IP, EDA tools, design flows, test, packaging, quality assurance and other criteria.

Depending on each customer's own resources and skills, Toshiba engineers can work as expert consultants or provide access to Toshiba's sophisticated design tools. Toshiba can also deliver turnkey engineering services to facilitate a new or derivative design.

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