



Host Processor

MPC7447

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Building on NXP® Semiconductors's continued innovation and performance leadership in the high-performance host processor market, the MPC7447 achieves two major milestones in the embedded world: It delivers 1.3 GHz of performance—making it Our fastest processor available for embedded applications. It also dissipates less than 10W while running at 1GHz—a critical threshold for many power-sensitive embedded designs.

The MPC7447 host processor is a high-performance, low-power 32-bit implementation of the RISC architecture with a full 128-bit implementation of Our AltiVec®™ technology. Delivering a high level of performance with efficient power consumption across virtually all speeds, this innovative processor built on Power Architecture technology provides networking and computing product OEMs with an advanced solution for a wide range of host processor applications—including high-performance network infrastructure and telecommunications equipment, computing products and embedded systems.

Offered in a 360-pin CBGA package, the MPC7447 processor is footprint-compatible with Our MPC7445 processor, providing an easy migration path for OEMs seeking higher performance for their new or existing Power Architecture processor-based applications. The 360-pin MPC7447 is an ideal choice for space-constrained applications requiring a smaller embedded CPU footprint. The MPC7447 can reach speeds of 1.3 GHz with a core voltage of 1.3V and includes 512KB of on-chip L2 cache (a 2X increase over the MPC7445's L2 cache). A lower-power version of the MPC7447 is available, operating at speeds of up to 1 GHz with a core voltage of 1.0V.

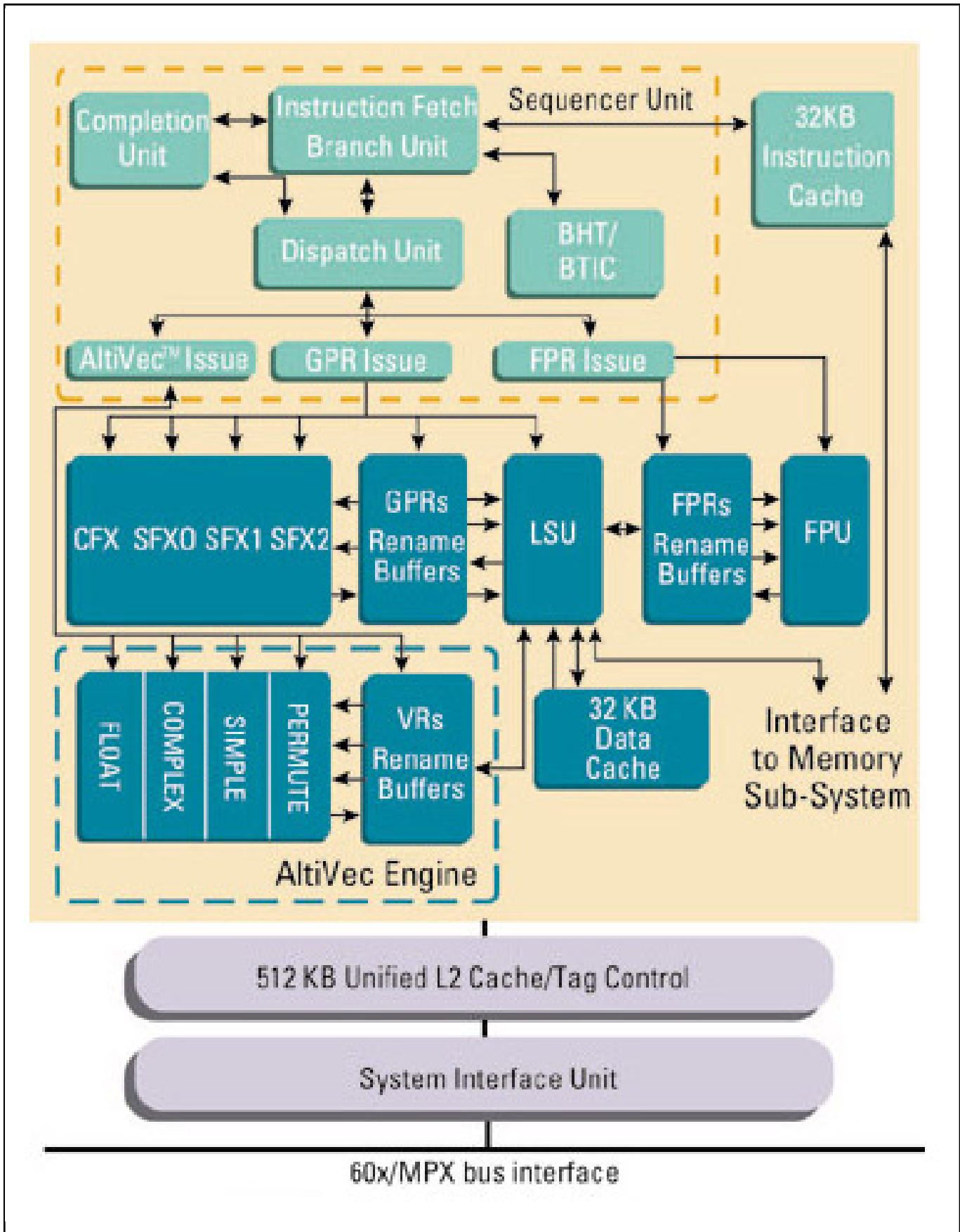
The MPC7447 is manufactured on Our 0.13-micron HiPerMOS silicon-on-insulator (SOI) copper interconnect process technology, enabling it to deliver superior performance over bulk CMOS technology. In addition to increased performance, SOI technology offers excellent low power capability, making the devices ideal for embedded applications in the wired and wireless telecommunications, networking and imaging arenas.

In addition to achieving a new clock speed milestone, the MPC7447 processor offers the following features designed to optimize performance and functionality in embedded applications:

- **AltiVec™ technology** — All members of Our G4 family of processors include a full 128-bit implementation of Our advanced AltiVec Single Instruction Multiple Data (SIMD) vector processing technology. AltiVec technology allows designers to leverage existing code and add AltiVec performance as market and customers' requirements change—helping speed time-to-market and increase system performance without upgrading hardware.
- **Block address translation (BAT) registers** — The MPC7447 offers 8 instruction BAT and data BAT registers to support efficient embedded operating systems through high-speed mapping of additional large blocks of data.

- **Cache locking** — The L1 cache supports cache way locking, allowing key performance algorithms and code to be locked in the L1 cache.
- **Full symmetric multiprocessing (SMP) support** — SMP capability enables customers to achieve significantly higher system performance by scaling their embedded system designs with multiple NXP processors.

MPC7447 Block Diagram Block Diagram



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