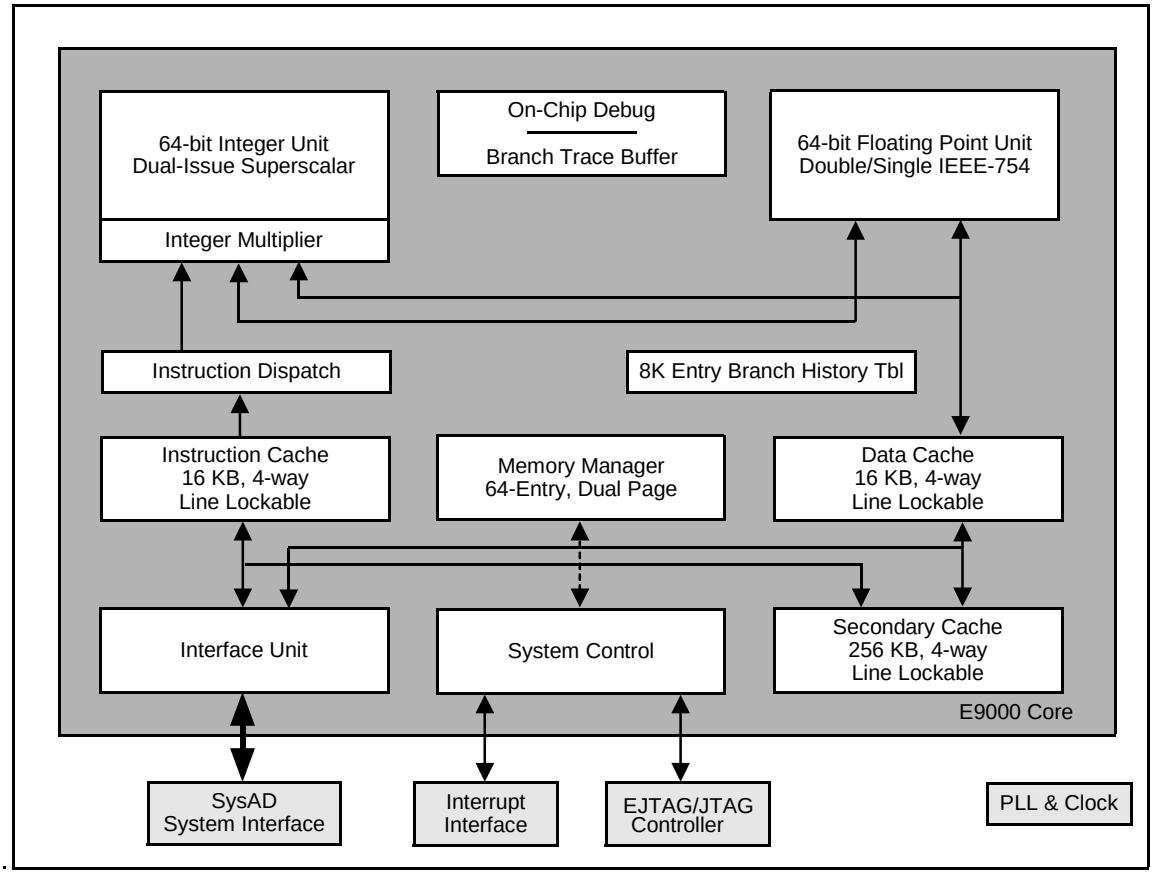
RM7900 64-bit MIPS RISC Microprocessor with Integrated L2 Cache and EJTAG

FEATURES

- New high performance MIPS64-compatible Instruction Set Architecture with integrated L2 cache and EJTAG.
  - 668, 750, 835, and 900 MHz operating frequency.
  - 1890 Dhrystone 2.1 MIPS @ 900 MHz.
  - Dual-issue superscalar 7-stage pipeline.
  - 16 Kbyte, 4-way set associative L1 Instruction cache.
  - 16 Kbyte, 4-way set associative L1 Data cache.
  - 256 Kbyte, 4-way set associative L2 cache with industry best 5-cycle access latency.
  - Fast Packet Cache to assists processing of packet data.
  - 8K entry branch prediction table.
  - Fully associative 64-entry TLB with dual pages.
  - High-performance Floating Point Unit (IEEE 754).
  - Fixed-point DSP instructions such as Multiply/Add, Multiply/Subtract, and 3 Operand Multiply.
- High-performance system interface:
  - 64-bit multiplexed address/data bus (SysAD) bus.
  - Multiple outstanding reads with out-of-order return.
  - 1600 Mbyte/s peak throughput.
  - 200 MHz maximum frequency using HSTL signaling on the SysAD bus.
  - SysAD bus supports 1.5 V, 2.5 V, 3.3 V I/O logic.
  - Processor clock multipliers 2, 3, 3.5, 4, 4.5, 5, 5.5, 6, 6.5, 7, 7.5, 8, 8.5, 9, 10, 11, 12, 13, 14, 15, 16, 17.
- Integrated external cache controller (up to 8 Mbytes).
- Integrated on-chip EJTAG capability.
- A 64-entry dynamic Trace Buffer for use in real-time trace and debug.
- Two 32-bit virtually-addressed Watch registers.
- Integrated performance counters:
  - 2 independent 32-bit counters.
  - Counts over 30 processor events including miss predicted branches.
  - Enables full characterization and analysis of application software.

BLOCK DIAGRAM



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PACKAGING

- Available in a 304-pin EPBGA package, 31 x 31 mm.
- Pin compatible with RM7000A, RM7000B, and RM7000C products.

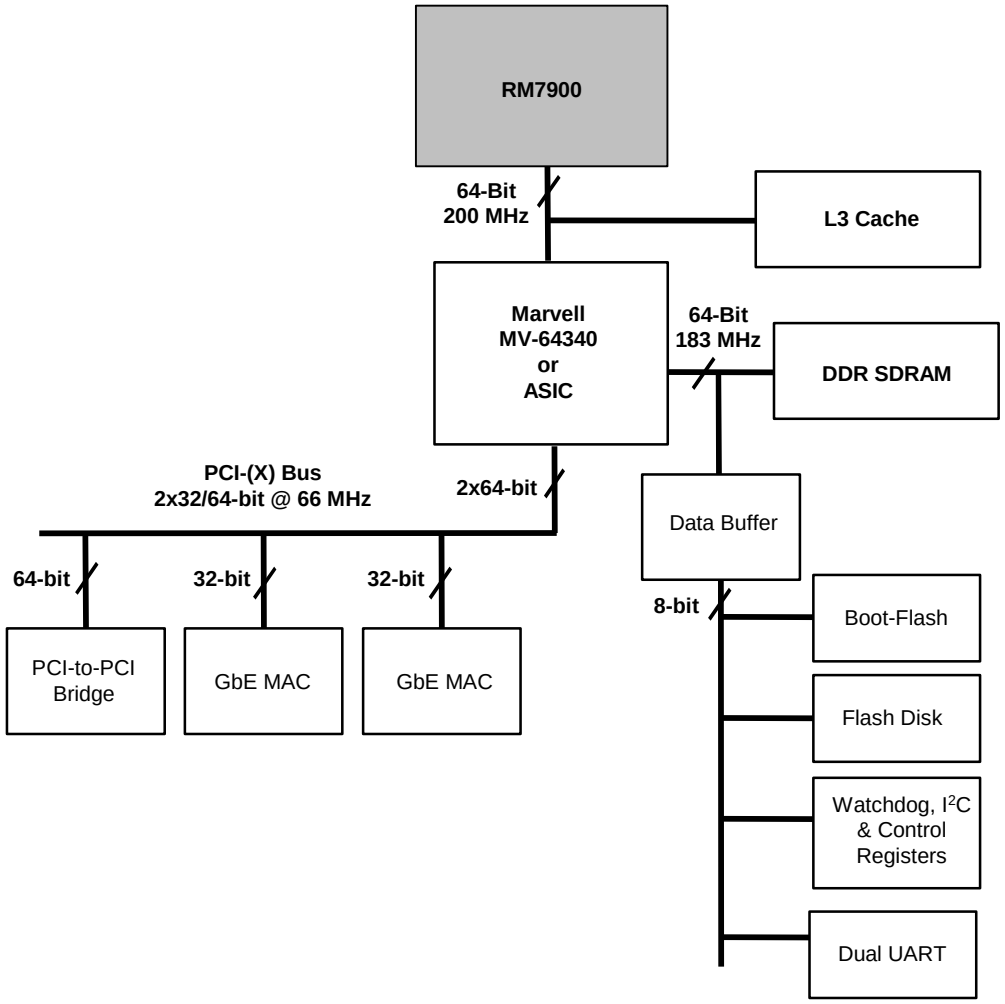
DEVELOPMENT TOOLS

- Operating Systems:
  - Linux
  - VxWorks
- EJTAG Emulators
  - Wind River
  - Corelis
- Evaluation Boards
  - Momentum Computer
  - Marvell Semiconductor
- Companion Chips
  - Marvell Semiconductor (MV-64340, GT-64240)

APPLICATIONS

- Voice Gateways
- Multi-Service Access Platforms
- DSLAMs/Access Concentrators
- Remote Access Switches
- Web Switches
- Layer 3 Switches
- Backbone Switches/Routers
- RAIDs
- Set Top Boxes
- Networked Printers
- Cellular Base Stations

TYPICAL APPLICATIONS



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