![C*Core Technology Co. 苏州国芯科技有限公司]

RISC Core C306 Data Sheet

Summary

The C306 is a member of the C*Core™ High-Performance Low-Power 32-bit RISC core family. It has been designed for high-performance and cost- sensitive embedded applications, with particular emphasis on reduced size and system power consumption, making it suitable for cost-sensitive, battery-operated, portable products. The C306 is a scaled-down version of the C310 core, which extends the C210 instruction set and functionality by integrating an integer array multiplier, branch prediction and folding, improved pipelining of load and store operations, and a deeper instruction buffer to improve memory bandwidth utilization. The C306 shares most of the features of the C310 core, however, it has a much smaller area footprint and lower power consumption.
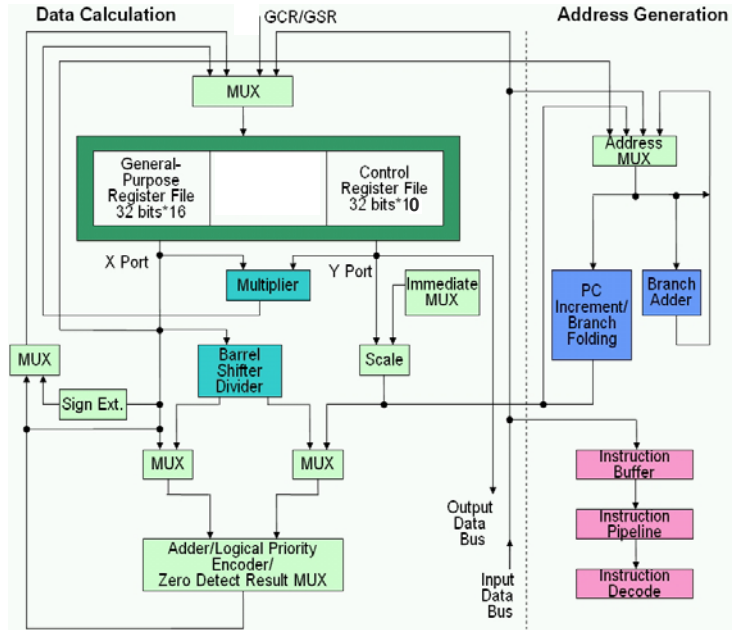
Core Features

- Low power RISC core
- 32-bit load/store architecture
- Highly optimized pipeline
- Single-cycle 32x16 multiplier
- Fixed-length 16-bit instructions
  - † Mostly single-cycle execution
  - † Two-cycle branch execution
- 16 32-bit general purpose registers
- 10 32-bit control registers
- C*Bus MLB bus architecture
  - † Support byte/halfword/word access
  - † Optional AMBA wrapper
- Fast interrupt support
  - † Vectored/auto-vectored interrupts
  - † 128 interrupt/exception vectors
- Debug support via JTAG-based OnCE™ Design

Differences compared to the C310

- No Alternate Register File (ATR) and AF bit
- No Vector Base Register (VBR)
- No Global Control/Status Registers (GCR/GSR)
- Un-used bits in control registers tied low
- Reduced pin count (essential signals only)
- No PC-FIFO function in the OnCE™ Design
- Reduced die size
- Reduced power consumption

Performance and Characteristics (Speed-Optimized)

Technology	WCS Frequency	Die Size	Typical Power Consumption	
			Dynamic	Static
HHNEC25 0.25µ 4/5M	90 MHz	TBD mm^2	TBD mW/MHz	TBD µW
SMIC18 0.18µ 4/5M	133 MHz	TBD mm^2	TBD mW/MHz	TBD µW
Hejian18 0.18µ 4/5M	125 MHz	0.528 mm^2	0.4 mW/MHz	135 µW

Application Examples

- Smart Cards
- Consumer Electronics
- Office Automation
- Communication/Network

Availability

- Q4, 2007

*To obtain more information about the C306 or other C*CORE™ products, please contact the C*Core Technology Co., Ltd. by phone: 0512-68091372, email: support@china-core.com or web: http://www.china-core.com.*

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