Embedded Technology

VLSI Technology

ARM810/710

High-Performance Low-Cost 32-Bit RISC Processors

Preliminary

OVERVIEW

The ARM810 is capable of sustaining 132 Dhrystone 2.1 MIPS at 113 MHz from a 3.3V supply, making it ideal for high performance applications.

The power consumption at 3.3V is just 170 mW (equivalent to 776 MIPS/Watt), which makes the ARM810 by far the best choice for high performance low power applications.

The ARM710 is capable of sustaining 48 Dhrystone 2.1 MIPS at 53 MHz from a 3.3V power supply (while the 5V port achieves 66 MIPS at 73MHz).

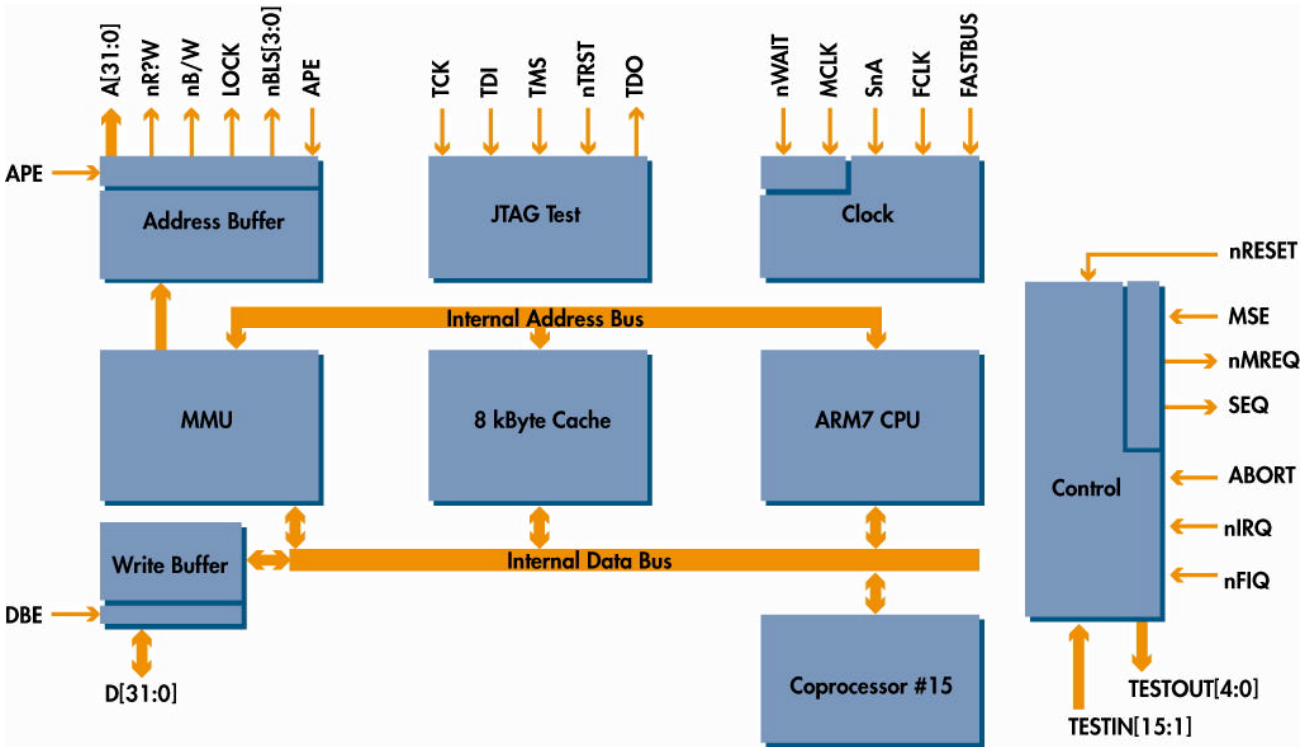
The ARM710 is ideal for cost-sensitive applications. The power consumption at 3.3V is just 105 mW (equivalent to 457 MIPS/Watt), which makes the ARM710 the best choice for high performance on a tight power budget.

To help the processor mainatin high data throughput from inexpensive memory, the ARMX10 processors have a cache and a write buffer. A comprehensive Memory Management Unit (MMU) offers full memory protection facilities, including caching and write buffer control for different areas of memory.

FEATURES

- High performance processor 32-bit RISC
- Very low power consumption
- 3.3V operation gives even higher performance per watt
- Fully-static design clock can be stopped to save power
- Flexible Memory Management Unit
- Big or little endian addressing
- Unified cache architecture
- Write buffer, so the processor doesn't have to wait for slow memory
- Fast interrupt response time for real-time applications
- Independent processor and memory clocking to accommodate inexpensive memory
- JTAG Boundary Scan Test Interface

ARM710 Block Diagram



APPLICATIONS

The ARM810 and ARM710 are ideal whenever high performance is required within tight cost and power constraints.

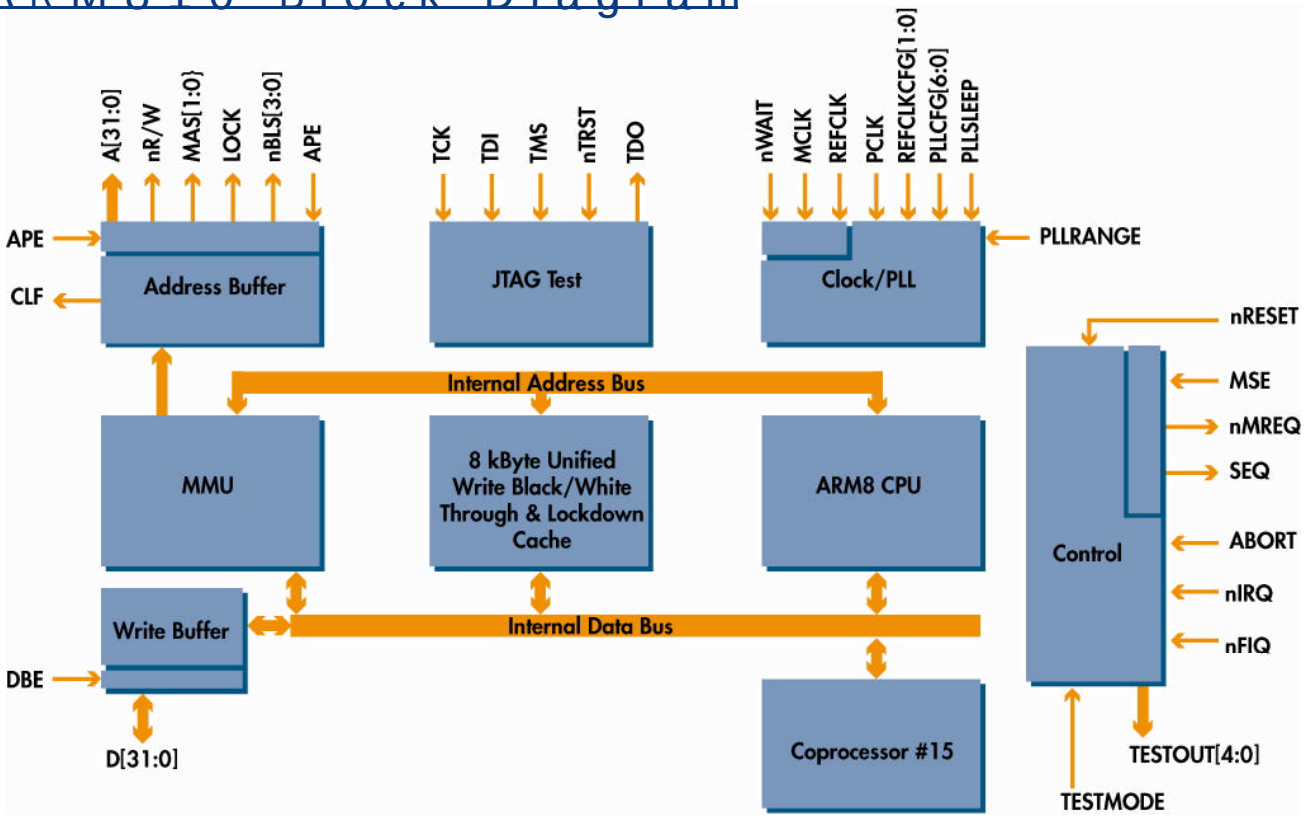
- Powerful real-time control
- Hand-held computing
- Portable telecom
- Data communications
- Consumer multi-media
- Automotive control
- Dual-Mode DSS/DBV-S receivers
- Direct Broadcast Satellite (DBS)

SPECIFICATIONS ARM810 ARM710A

Part Number	VY86C810	VY86C710A-2	VY86C710A
Technology	0.5 mM	0.6 mM	0.6 mM
Clock Frequency	0 to 50 MHz	0 to 28 MHz	0 to 40 MHz
Voltage	3.3 ± 10%	3.3 ± 10%	5.0 ± 10%
Power Consumption	500 mW	105 mW	425 mW
MIPS (Dhrystone 2.1)	94	23	36
MIPS per Watt	187	219	85
Pipeline Stages	5	3	3
Cache	8K	8K	8K
Write Buffers	8 word, 4 address	8 word, 4 address	8 word, 4 address
Package	144pin TQFP	144 pin TQFP	144 pin TQFP

*WC = Worst Case = 3.0V, Slow Silicon, 125∞Cj **TYP = Typical = 3.3V, Typical Silicon, 25∞Cj

ARM810 Block Diagram



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