

PARALLEL COMPUTER ON A CHIP

Rapport offers embedded application builders its unique Kilocore™ technology in the new KC256 chip. This advanced chip is available now. The KC256 offers massively parallel processing and great flexibility via dynamic reconfiguration of processing functions, while providing unprecedented *computing energy*—ultra high performance and very low power consumption as needed—for a wide range of compute-intensive applications.

This chip contains 256 independent processing elements that can be interconnected arbitrarily and clocked at up to 100 MHz to effectively perform a peak 25 billion (8 bit byte) operations per second while consuming less than 500 mW.

KILOCORE™ ARCHITECTURE DRIVES NEW CHIPS

Many systems and devices, ranging from cameras to servers, require compute-intensive features and robust security with low power consumption. Yet, as conventional chip companies have acknowledged, older approaches to power/performance improvement like Moore's Law are no longer sufficient due to scaling limitations on process technology and heat dissipation at higher clock speeds. What's needed is a new chip technology—Rapport's Kilocore Architecture.

Kilocore technology puts hundreds of computing units—processing elements—into a single chip that can run simultaneous applications at astounding speed. The processing elements operate in parallel, providing computation at a minimal clock rate while reducing energy consumption substantially.

Kilocore's unique flexibility—its ability to be reconfigured while in operation and behave like various chips—enables the KC256 to perform many kinds of tasks, from 802.11b functions in one instant to MPEG encoding in another.

Rapport released the KC256 chip, its 256-element chip, in 2006 and is developing additional versions of the Kilocore product line for release in 2007. Rapport's products offer the most computing capability with the least energy usage for a broad range of applications and devices.

BENCHMARKS SHOW UNMATCHED PERFORMANCE

Rapport's Kilocore technology offers orders of magnitude improvement over existing technologies. Measurements on standard systems conclusively prove Kilocore's performance advantages, while showcasing Rapport's exceptional expertise in programming parallel machines.

Specifically, the KC256 runs a well-known digital security decryption algorithm 4 times faster than a 1.8 GHz Pentium® while consuming less than 150 mW, compared to 75 W for the Pentium, for a 500x power/performance advantage. Compared to the ARM7®, the KC256 has a 40x power/performance advantage.

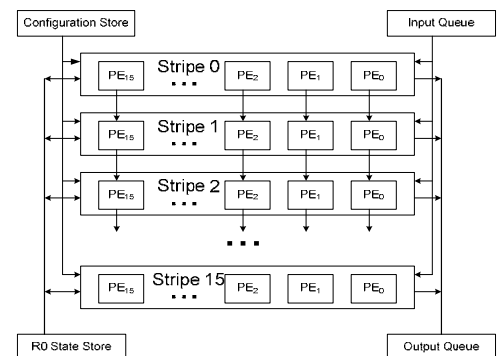
Rapport KC256 chip
Available Now



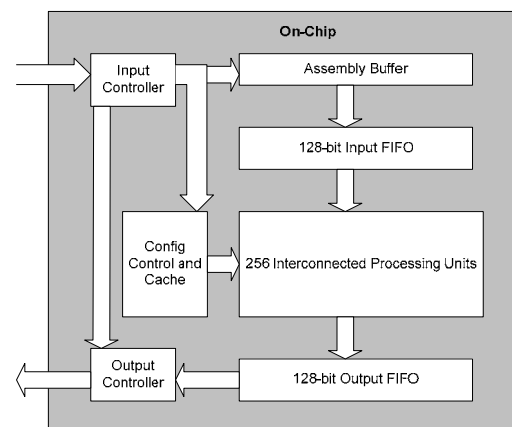
Kilocore Features

- High speed pipelined parallel design
- 256 processing elements in one chip
- Minimal power consumption
- Multi-function flexibility
- Multiple compute-intensive functions
- On-the-fly very low-level task switches
- High performance on battery power
- Field upgradeable
- Post-sales feature enhancements
- Decreased design time
- Extended system life
- Reduced part count
- Reduced maintenance costs

Dynamically Reconfigurable Computing with 256 Processing Elements



KC256 Block Diagram



SPECIFICATIONS

Highly parallelized processor

- 256 dynamically reconfigurable processing elements in a 16x16 array
- 25 GBOPS (byte operations)
- 256 instruction cache
- Multiple tasks at one time
- Task switch in a clock cycle
- Packet based chip interface to enhance DMA access, enable inter-chip routing to a specific KC256, enable intrachip routing to specific chips and handle streams of dynamic length

Clocking

- CPU clock up to 100 MHz
- Interface clock up to 60 MHz

Process

- CMOS 0.18 um, six-metal layer
- 3.65 million transistors

Power

- 1.8V core, 3.3V I/Os

Power Consumption

- About 500 mW @ 100 MHz

Package

- 144 pin Thin Quad Flat Pack

Interface

- PCI-like with DMA
- Local memory mapped bus

CONTACT

For more information, contact:

Rapport, Incorporated

2603 Broadway

Redwood City, CA 94063

650.568.5910

Sales@kilocore.com

Businessdevelopment@kilocore.com

www.kilocore.com

KILOCORE BENEFITS DEVICE MAKERS, ODMS & MANUFACTURERS

High performance at low power consumption makes the KC256 ideal for many types of power-sensitive applications including multifunctional mobile devices and servers. Kilocore technology prolongs battery life and/or overall compute power requirements, since it uses so little power that overall power consumption is dominated by the remaining components.

The KC256's flexible reconfigurability means that it can function in place of multiple chips. Kilocore's stripes can be reconfigured to perform a different operation in nanoseconds. Devices incorporating the KC256 require fewer parts and can be smaller, less expensive and more versatile than devices with traditional chips.

In addition, the KC256 is a universal co-processor, allowing compute-intensive tasks to be offloaded from the main processor. Thus, a less powerful main processor can be used, further lowering costs.

Devices utilizing the KC256 can be customized on the assembly line with low-level software for specific functions. After manufacturing, revised communication protocols and general purpose computing features can be added through field software upgrades, prolonging the life of product designs and creating new revenue opportunities.

TARGET USES

Kilocore chips can be utilized in numerous ways. Examples:

- Perform compute-intensive functions such as enhanced security, data compression and signal processing, e.g., TCP/IP offloading real-time communications, multimedia functions or advanced wireless protocols
- Perform baseband radio functions supporting multiple communication standards
- Generic processing resource, e.g., graphics rendering

CREATING PRODUCTS WITH KILOCORE TECHNOLOGY

The Kilocore Development Platform consists of a robust evaluation/development board, model implementations and a suite of development tools, as well as tutorial and reference materials. Available now, this package enables an embedded application developer to quickly leverage Kilocore-based parallel computing. In addition, Rapport offers customization services in partnership with application market leaders. Rapport's foundry partners manufacture its chips.

ABOUT RAPPORT, INCORPORATED

Rapport, Inc. is the technology leader in developing next-generation, low-cost massively parallel chips with its Kilocore™ Architecture Computing Fabric. These chips can be dynamically configured for the highest compute efficiency per watt available today. The Kilocore platform provides computing power for a wide range of applications from handheld devices to servers. Rapport, Inc. is also mobilizing and accelerating the PowerPC™ chip architecture in collaboration with IBM. Dr. Andrew Singer, CEO, and Frank Sinton, President, are experienced serial entrepreneurs who have previously worked together in the successful Think Technologies. Rapport's board of directors is headed by semiconductor pioneer Gordon Campbell.