adesto®
TECHNOLOGIES

EcoXiP™ Non-Volatile Memory
System Accelerating Memory for eXecute-in-Place

Adesto introduces EcoXiP, the ultimate memory solution for intelligent IoT devices. With the ability to more than double processor performance, lower system power consumption and reduce system cost, EcoXiP sets new standards for eXecute-in-Place devices.

Internet of things (IoT) and embedded devices such as wearables, medical monitors, POS controllers, and other connected embedded systems must be designed to handle more intelligent local data processing.

Higher levels of functionality, new wireless protocol stacks and advanced software mean these devices need more program memory than can be implemented economically on-chip using embedded Flash or SRAM memory, and less than what is offered by the smallest DRAM devices. To hit performance targets, system designers currently must invest in memory solutions that are expensive, power-hungry and performance limiting.

Adesto's new EcoXiP non-volatile memory replaces expensive, energy-inefficient architectures, making power and performance trade-offs unnecessary in a wide range of connected devices. EcoXiP more than doubles processor performance, lowers system power consumption and reduces system cost.

EcoXiP also offers users a range of power management features that provide the best standby power available in a XiP memory solution, and features enhanced security with One-Time Programmable security registers.

Designed from the ground-up to solve the challenges of XiP memory designs, EcoXiP is the ultimate solution for intelligent IoT systems.

System Accelerating Memory for XIP
2.4X CPU Performance (vs Quad Devices)
1.4X CPU Performance (vs Octal Devices)

EcoXiP: Features and Benefits

- **Optimized latency and throughput: high-speed, octal DDR interface with a proprietary pre-fetching scheme dramatically reduces latency and delivers superior CPU performance**

- **Concurrent Read/Write capability: reduces system cost by eliminating the need for additional Flash devices to handle over-the-air updates or data logging**

- **Memory size flexibility: optimized densities from 32Mb to 128Mb enable designers to change memory capacity without the expense of SOC redesign**

- **Process scalability: allows designers to use less embedded Flash or no embedded Flash – enables scaling to 28nm and finer geometries, leading to faster, lower-power, lower-cost SOCs**

- **Best standby power: configurable strength IO pins and a range of power management features lead to improved device and system power consumption**

- **Enhanced security with on-chip unique-ID One-Time Programmable (OTP) security registers**

For more information on EcoXiP Serial Flash, please visit: www.adestotech.com

Inventing Memory for Things™

Key Specifications

- Memory Array: 32, 64, 128Mbit of Serial Flash

- Interface: High-speed QPI (7 pin)/ Octal (11 pin), Single Data Rate and Dual Data Rate

- Read Bandwidth: 133MBs/266MBs

- Power Supply: 1.65V-1.95V

- Standby Supply Current: <35µA

- Deep Power Down Supply Current: <4µA

- Ultra Deep Power Down Supply Current: <200nA

- Program/Erase Supply Current: 15mA

- 8-pin DDR – 1.8V Supply Current: 1mA + 142µA/MHz*

- 4-pin DDR – 1.8V Supply Current: 1mA + 91µA/MHz*

- 4-pin SDR – 1.8V Supply Current: 1mA + 65µA/MHz*

KGD Read @ 1pf load

Description

The Adesto® ATXP Series is a family of high speed serial interface Flash memory devices designed for use in a wide variety of high-volume consumer based applications in which program code is executed directly from Flash memory (XiP) or shadowed from Flash memory into embedded or external RAM for execution. The products allow writing to the flash array at the same time as code is being fetched from a different part of the array. This enables firmware updates and data logging without the need for additional data storage devices in the system.

The ATXP family is optimized for eXecute-in-Place (XiP) operations. While being backwards compatible with existing XiP protocols, ATXP devices include additional improvements that significantly reduce the latency of fetching the next cache line(s). The improved command protocol can enable more than 40% faster execution than the standard XiP protocol running at the same clock frequency.

Adesto Technologies is a leading supplier of value-added semiconductor solutions for code and data storage. Its product portfolio includes DataFlash®, Fusion Serial Flash, EcoXiP, Mavriq™ and Moneta™ serial memory products. Adesto is based in Santa Clara, California (USA). For more information, visit http://www.adestotech.com.

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