Optimized for Speed
EcoXiP provides a high-speed octal interface and RWW to enable blazingly fast system performance. Whether performing high-speed data transfer or executing code directly out of memory, EcoXiP is the optimal solution.

Execute in Place
With the need for greater processing performance at lower power, execute in place is quickly becoming the architecture of choice for IoT devices. EcoXiP’s fast performance and low power consumption allow even time-critical software to be executed directly out of non-volatile memory, reducing boot time and system cost.

Best Performance, Best Power

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Performance
CoreMark® test on NXP’s i.MX RT1050 with 8 instruction cache invalidations every ms to simulate task switching and interrupt handling

Efficiency
CoreMark® score / power consumption

Power Efficient
Power consumption is a critical consideration in any system, especially in battery powered designs. Typically this means sacrificing performance. EcoXiP achieves high-speed octal performance at half of the power of other memory solutions; it even consumes 25% less power than a comparable quad memory solution at the same data transfer rate.
**APPLIED TECHNOLOGIES**
- Artificial Intelligence (AI)
- Access Control/Security
- Smart Assistants
- Network Modules
- Building Automation
- Medical Devices
- Smart Appliances
- Home Automation
- Audio Subsystems
- Personal Mobile Radio
- Wearables
- Advanced Communications
- Industrial IoT
- Ambient Computing
- Smart Thermostats
- E-bikes
- Augmented Reality

### Performance for the real world
The continual evolution of Internet of Things (IoT) and smart devices is driving the need for increased intelligence at the edge as well as liquid-smooth graphical user interfaces (GUIs), all while keeping power consumption to a minimum. A key component of system design to meet these demands is the selection of the right non-volatile memory. EcoXiP is specifically targeted to help system designers attain more processing power and reduce system power consumption.

EcoXiP’s blazingly fast octal xSPI interface and low-power operation offer rapid data transfer which is ideal for fast boot, graphical user interface (GUI), artificial intelligence (AI), and execute in place applications. The power efficiency of EcoXiP is so exceptional that it can outperform traditional quad SPI devices for the same data throughput. This makes EcoXiP the perfect choice for power-conscious or battery-operated designs.

Unlike other octal devices, EcoXiP is specifically designed to work with cache controllers, dramatically reducing latency for cache misses. With its high performance, even time-critical code can execute directly out of flash, eliminating the need to add expensive and power-hungry external DRAM. EcoXiP’s high-speed and power-efficient design provides an ideal solution for memory expansion in systems that don’t have enough embedded flash or SRAM.

![Flash Memory Array Diagram](image-url)

### Technical Specifications
- Execute in place (XiP)
  - Instant-on capability
  - Lower system cost
- Reduced cache latency
  - Critical word first
  - Zero latency for additional cache lines
- Up to 300 MBytes/sec
  - Octal DDR xSPI interface
  - Full JESD251, JESD252, and JESD216D compatibility
- Low power consumption / high efficiency
  - Low read current
  - Variable strength I/O
  - Deep sleep / ultra-deep sleep modes
  - Read While Write (RWW)
- Flexible erase and program architecture
  - Block erase: 4, 32, and 64KBytes
  - Byte / page program (1-256 Bytes)
  - Suspend / resume, erase and program operations
- Hardware and software write protection
- 256 Byte OTP security register
- 100K erase / program cycles
- 20 years data retention
- Single 1.8V supply
- Industrial temp range: -40°C to +85°C
- Pb / Halide-free / RoHS compliant

### Applications
- Artificial Intelligence (AI)
- Access Control/Security
- Smart Assistants
- Network Modules
- Building Automation
- Medical Devices
- Smart Appliances
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**Density** | **Part Number** | **Speed** | **Voltage** | **Temperature** | **xSPI DDR** | **RWW**
--- | --- | --- | --- | --- | --- | ---
32Mbit | ATXP032 | 150MHz | 1.70V - 1.95V | -40°C to +85°C | -40°C to +85°C | •
 | ATXP032B | 150MHz | 1.70V - 1.95V | -40°C to +85°C | -40°C to +85°C | •
64Mbit | ATXP064 | 133MHz | 1.70V - 1.95V | -40°C to +85°C | -40°C to +85°C | •
 | ATXP064B | 133MHz | 1.70V - 1.95V | -40°C to +85°C | -40°C to +85°C | •
128Mbit | ATXP128 | 133MHz | 1.70V - 1.95V | -40°C to +85°C | -40°C to +85°C | •
 | ATXP128B | 133MHz | 1.70V - 1.95V | -40°C to +85°C | -40°C to +85°C | •

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3600 Peterson Way, Santa Clara, CA 95054 USA | Phone: +1 (408) 400-0578 | www.adestotech.com | e-mail: info@adestotech.com

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