

# High-performance, low-power octal flash

## EcoXiP ATXP Series

New IoT device design ideas may outgrow the embedded flash in your current MCU. Instead of paying a premium to increase the embedded flash, designers are looking to low power, high data rate external flash to expand code and data storage. Dialog's EcoXiP™ flash uses an improved SPI protocol and high-speed bus to deliver a faster data rate and consume less power.



### Blazingly Fast

Dialog's EcoXiP octal flash delivers a 300 MB/s data rate for instant-on performance, UI graphics and data intense AI on the edge applications. Execute directly out of EcoXiP to reduce boot time and free the design from dependence on power hungry DRAM.

Up to  
**150MHZ**  
**300MB/s**

### Lowest Power

No need to sacrifice performance in power-conscious designs. Dialog's EcoXiP uses intelligent power management and a high-efficiency read operation to reduce latency and enable 40% higher CPU performance - all while cutting power consumption by up to 50% compared with other octal flash solutions.

**200nA**  
power down

### Improve System Performance with Read While Write (RWW)

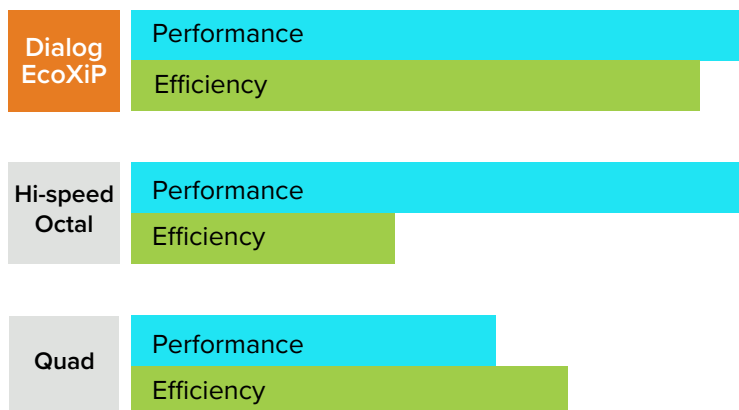
Program and erase times can choke system performance. EcoXiP employs Read While Write (RWW) to remove system bottlenecks by allowing read operations even while logging data or implementing system updates in the background.

Up to  
**128Mb**  
flash

### High Efficiency eXecute in Place (XiP)

System designs aiming to overcome the embedded memory hurdle are migrating to a flash-based XiP architecture. EcoXiP uses an improved SPI protocol for easier instruction fetches and better power efficiency than other quad and octal flash solutions. EcoXiP prevails over the prohibitive cost and power consumption drawbacks of volatile embedded SRAM and DRAM.

## EcoXip, Better CoreMark® score than quad and octal



**Performance**  
CoreMark® test on NXP's i.MXRT1050 with 8 instruction cache invalidations every ms to simulate task switching & interrupt handling.

**Efficiency**  
CoreMark® score / power consumption

## Technical Specifications

Superior xSPI protocol for easier instruction fetch	<ul style="list-style-type: none"> <li>• Reduces average latency</li> <li>• Enables 40% higher CPU performance</li> </ul>
Optimized for eExecute in Place (XIP)	<ul style="list-style-type: none"> <li>• Supports boot code applications</li> <li>• Instant-on performance</li> </ul>
Fast data rate; 150MHz frequency and Octal xSPI with DDR	<ul style="list-style-type: none"> <li>• Up to 300 MB/s data rate</li> </ul>
Power management and automatic ultra-deep power-down	<ul style="list-style-type: none"> <li>• 200nA typical</li> </ul>
Low read current	<ul style="list-style-type: none"> <li>• Up to 50% power savings versus standard octal</li> </ul>
Small page erase	<ul style="list-style-type: none"> <li>• Reduced system power and faster datalogging performance</li> </ul>
Active Status Interrupt	<ul style="list-style-type: none"> <li>• Reduce MCU overhead and save power associated with checking status during memory erase and programming cycles</li> </ul>
Read While Write (RWW)	<ul style="list-style-type: none"> <li>• Remove system bottlenecks</li> <li>• Eliminate multiple flash; reduce system cost</li> <li>• Continue normal system operations even while logging data or implementing system updates</li> </ul>
Security register	<ul style="list-style-type: none"> <li>• 256 byte OTP</li> </ul>
JESD251 and JESD2160	<ul style="list-style-type: none"> <li>• Full compatibility with SFDP and xSPI specifications</li> </ul>

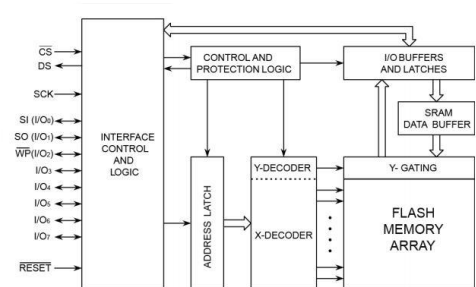
## Applications

- AI on the edge
- Instant-on modules
- Building automation datalogging
- Smart speakers
- UI graphics
- Virtual assistants
- Wearables
- OTA intensive applications
- Medical devices
- Audio subsystems

## EcoXiP Products

Density	Part Number	Speed	Ultra-Deep Power-Down	RWW	Datasheet
128Mbit	ATXP128	150MHz	•		<a href="#">Download</a>
64Mbit	ATXP064B	133MHz	•	•	<a href="#">Download</a>
32Mbit	ATXP032	150MHz	•		<a href="#">Download</a>

## EcoXiP Block Diagram



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