

Succeed with Flash technology leadership from AMD

Dramatic Speed Advantage

Industry Leading Reliability

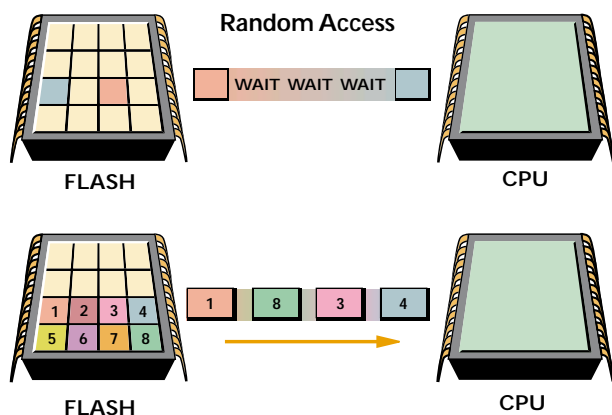
Overview

Since 1998, AMD's innovative family of Page mode Flash memory devices has delivered exceptional performance, low-power consumption, and unmatched reliability. With the introduction of its newest Page mode devices – MirrorBit™, Am29PDLI28, and Am29PDS322 – AMD continues to set the standard for high-performance Flash devices.

Utilizing AMD's award-winning Simultaneous Read/Write functionality and a configurable x16/x32 databus, AMD's newest Page mode devices deliver unmatched performance and reliability for cutting edge applications. At the same time, AMD's flagship Page mode devices continue to offer an unparalleled combination of performance and value. As a result, AMD's portfolio of Page mode devices offers an ideal solution for virtually any application – including printers, network interface cards, and automotive dashboard applications.

Page Mode Flash – Dramatic Speed Advantage

Page mode Flash memory provides asynchronous, non-clocked code and data storage for high-speed microprocessors. In particular, AMD's Page mode interface increases performance by storing eight words of data into a Page buffer during an initial random data access. Subsequent data reads from any of the eight words stored in the Page buffer are up to four times faster than the initial data read. By eliminating wait-states and increasing data throughput, AMD's Page mode devices significantly improve system performance. AMD's Page mode devices offer initial data access times as fast as 60 ns, and subsequent Page access times as low as 20 ns. In fact, the Page mode interface improves read transfer rates up to 38 percent when executing a four-word read cycle, when compared to standard asynchronous Flash with 90 ns random access.



Page Mode Flash

Key Features

Key features of AMD's Page Mode family include the following:

- Page reads as fast as 20 ns
- Configurable x16/x32 or x8/x16 databus
- Complete pinout and package compatibility with Page MROM devices (Am29PLI60)
- AMD's award-winning Simultaneous Read/Write functionality (Am29PDLI28, Am29PDS322)
- ZeroPower stand-by operation, ultra-low power consumption

Applications

The high performance, low power consumption, and industry-leading reliability make AMD Page mode Flash memory devices ideal for performance-driven applications:

- Printers
- Network interface cards and other networking applications
- Handheld Global Positioning Systems (GPS)
- Advanced automotive dashboard applications
- Two-way pagers and handheld PCs

In addition, AMD's newest Page mode devices also feature award-winning Simultaneous Read/Write functionality. Using this feature, customers can write in one memory bank while reading from another memory bank with no latency. As a result, the AMD Page mode family delivers exceptional performance for code execution and data storage on the same device.

Glueless Interfacing, Industry Leading Reliability

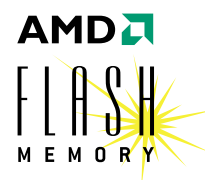
Many of today's system buses still operate with 5.0 V voltages, requiring voltage translators to lower system bus voltages to levels tolerated by the memory device. The Am29PLI60 is 5-Volt I/O and control signal tolerant, eliminating the need for DC-to-DC converters that drive up board space and system costs. In addition, all AMD Page mode devices are designed to interface directly with most standard microprocessors with little or no glue logic, enabling reduced design complexity and time-to-market.

As always, AMD delivers the highest reliability and data retention in Flash with the industry's only guarantees of at least 1 million program/erase cycles per sector and 20-year data retention at 125°C.

Maximum Design Flexibility for MROM-Based Systems

Because the AC characteristics, package, and pinout of the Am29PLI60 – AMD's first Page mode device – are compatible with industry-standard masked ROMs (MROMs), AMD's Page mode family also enables system designers to combine the flexibility of Flash reprogrammability with the cost-savings of masked ROM. During the design and initial production phases of a system, customers can use the Am29PLI60 while code is still in development. Consequently, designers can easily update system code or data as needed without negative cost or time impacts. Once the code has stabilized, a low-cost Page mode MROM may be dropped into the socket in place of the Page mode Flash.

Features	Benefits	Features	Benefits
<ul style="list-style-type: none"> High-performance random Page mode read access 	<ul style="list-style-type: none"> Removes performance bottlenecks for applications that demand the highest possible speed 	<ul style="list-style-type: none"> Single power-supply operation 	<ul style="list-style-type: none"> Single power-supply simplifies designs and reduces board space
<ul style="list-style-type: none"> Configurable x8/x16 or x16/x32 databus 	<ul style="list-style-type: none"> Compatible with a variety of microprocessors and microcontrollers to suit any application 	<ul style="list-style-type: none"> Glueless interface to leading microcontrollers 	<ul style="list-style-type: none"> Simplifies the design process and operates seamlessly with burst capable microprocessors
<ul style="list-style-type: none"> Simultaneous Read/Write with AMD FlexBank architecture (Am29PDLI28, Am29PDS322) 	<ul style="list-style-type: none"> Execute code while storing data with no latency 	<ul style="list-style-type: none"> Meets AMD's industry-leading standards for reliability 	<ul style="list-style-type: none"> Industry-leading reliability offers peace-of-mind for all applications
<ul style="list-style-type: none"> Industry-standard Page mode MROM compatibility (Am29PLI60) 	<ul style="list-style-type: none"> Reduces design costs and development time while allowing for low-cost system production 	<ul style="list-style-type: none"> AMD's award winning service and support 	<ul style="list-style-type: none"> Proven commitment, technology leadership, and service to help ensure customer success
<ul style="list-style-type: none"> Ultra-low power consumption, ZeroPower standby operation 	<ul style="list-style-type: none"> Extends system usage time between battery charges, automatic sleep mode during inactive periods 		



ORDERING INFORMATION

PRODUCT	DENSITY	DATA WIDTH	SPEED RATINGS (ns)	PACKAGE OPTIONS
1.8 Volt-only Page Mode, Simultaneous Read/Write				
Am29PDS322	32 Mb	x16	100, 120	48-ball Fine-pitch BGA
3.0 Volt-only Page Mode, Simultaneous Read/Write				
Am29PDLI28	128 Mb	x16/x32	70, 80, 90	80-ball Fortified BGA
3.0 Volt-only Page Mode				
Am29PL320	32 Mb	x16/x32	65, 70, 90, 120	84-ball Fine-pitch BGA
Am29PLI60	16 Mb	x8/x16	60, 70, 90	44-pin SO (MROM compatible), 48-pin TSOP

* AMD MirrorBit™ products also feature page mode functionality.

About AMD

AMD is a global supplier of integrated circuits for the personal and networked computer and communications markets with manufacturing facilities in the United States, Europe, Japan, and Asia. AMD, a Fortune 500 and Standard & Poor's 500 company, produces microprocessors, Flash memory devices, and support circuitry for communications and networking applications. Founded in 1969 and based in Sunnyvale, California, AMD had revenues of \$4.6 billion in 2000. (NYSE: AMD)



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