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Macronix MXSMIO™ Products

Macronix has launched its Serial Multi-I/O MXSMIO™ family of Flash Memory Products with the Serial Peripheral Interface (SPI). These new MXSMIO™, “Macronix Serial Multi-I/O” Flash products offer the same ease of use and small packages as the standard Single I/O products but increase the throughput performance to meet or exceed Parallel NOR Flash.

MXSMIO™, “Macronix Serial Multi-I/O” Flash products offer higher performance compared to Single I/O products. They are ideally suited for use in Store-and-Download (SnD) applications where the code stored in this NOR Flash is downloaded into system RAM and the code is executed by the processor or controller out of the RAM. These products can also be utilized very effectively in XIP (Execute In Place) applications as well where the code is directly executed out of the flash memory.

These products are available from 8Mb up to 128Mb densities and the simplified interface used by these products provides for a smaller number of pins and hence smaller packages which typically reduce the price of the products compared to Parallel Flash. Whereas at these densities, the Parallel Flash products are offered in 48 pins or higher pin count packages, the Serial Flash is offered in either 8-pin for the lower densities or 16-pin packages for higher densities.

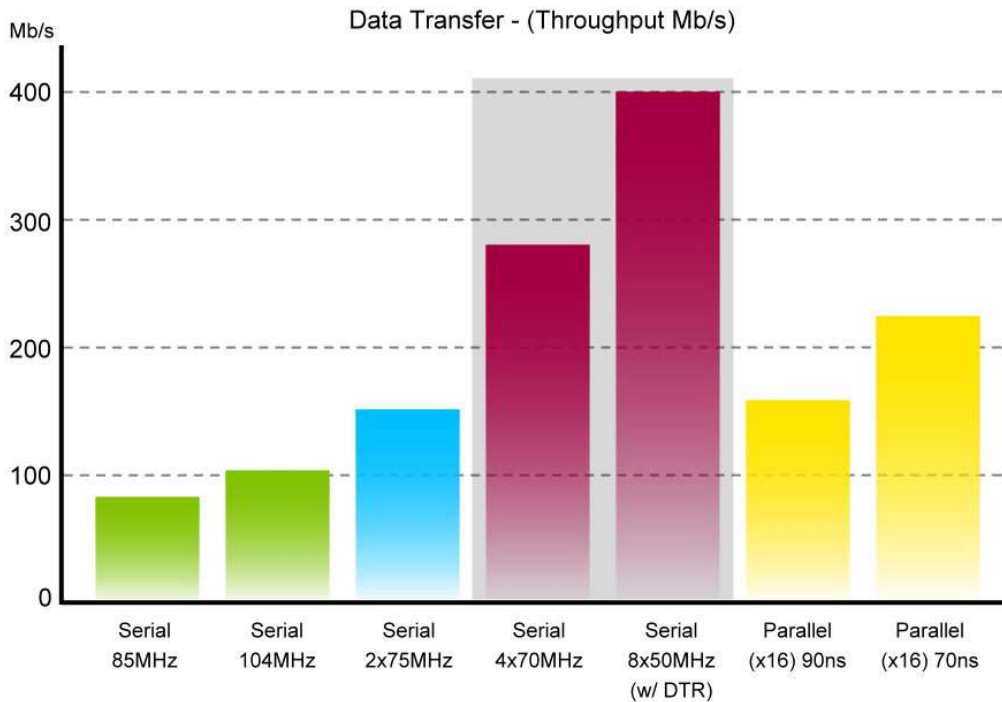
Benefits of Macronix MXSMIO™ Serial Flash

- Simplifies system PCB layout
- Easier board design
- Simplifies read interface
- Less number of pins and smaller package compared to Parallel Flash
- Reduces the pin-count of the controller chip interfaced to the NOR Flash as well
- Provides competitive performance compared to Parallel Flash
- Lowers the unit cost of Flash and the Bill of Material (BoM) cost compared to Parallel Flash



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Performance of Macronix MXSMIO™ Serial Flash



The bar chart shows a comparison of the different types of NOR Flash available in the industry today. The single I/O Macronix Serial Flash operates at 85MHz with 85Mb/s data throughput. And in comparison, the Parallel Flash device(70ns in x16 mode) delivers 228Mb/s data throughput. However, the MXSMIO™ Serial Flash shown 280Mb/s which is far better performance than the Parallel Flash. The Quad I/O with DTR (Double Transfer Rate), which outputs data on both rising edge and falling edge of a clock cycle, represents a doubling of data throughput compared with conventional Serial output at 400MHz which is better than the performance of the page mode Parallel Flash.

The MXSMIO™ Serial Flash products are backward compatible to the Single I/O Serial Flash offered by Macronix. Since the Multi I/O functionality in these products is command driven, they are very easy to use and the functions can be changed by changing the commands in software/firmware.



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The MXSMIO™ products are available in 8Mb through 128Mb densities today. All these products operate at 3V Vcc. A new family of low voltage Multi-I/O products in 4Mb and 8Mb densities are also sampling now.

Several customers have designed in the MXSMIO™ Serial Flash in their applications when they compared their performance against the Parallel Flash and realized the higher performance benefits. These applications include DVD, ODD, Blu-ray, Set-Top-Boxes, DTV, DECT phone, VoIP, Modem, Router, Home Gateway, Wireless LAN and LCD Monitor systems.

About Macronix International Co., Ltd.

Founded in 1989, Macronix International Co., Ltd. (TSE: 2337.TT) is a leading provider of innovative Non-Volatile Memory (NVM) solutions. Macronix is the largest worldwide manufacturer of ROM products, and also provides a wide range of Parallel and Serial NOR Flash products across various densities. These are used in embedded systems, consumer, computer, communications, networking and enterprise applications.

For more information, please visit the Company web site at www.macronix.com.

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