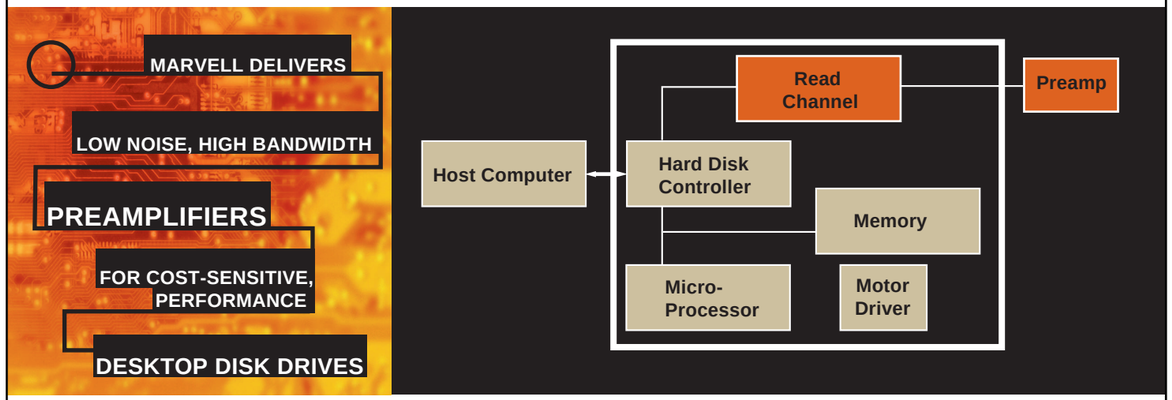
MARVELL

81G4000

GMR Preamplifier



GMR Preamplifier

Marvell's newest family of disk drive preampliers, the 81G4000, furthers their industry leadership in high-performance, cost effective solutions for mass storage product applications. The 81G4000 family supports data transfer rates up to 600 Mbps (Megabits per second), allowing drive manufacturers to keep pace with the ever-increasing performance requirements of today's high performance mainstream storage applications. This product family is available in 2, 4 and 8-channel configurations.

The Marvell 81G4000 products are preamplifer integrated circuits designed for use with both MR (Magneto-Resistive) and GMR (Giant Magneto-Resistive) recording heads, giving customers the most flexibility in their choice of head technology. In addition, the 81G4000 is manufactured in reliable, high-volume, cost effective 0.5 micron CMOS processes, allowing Marvell to meet the quality, supply and cost requirements of their customers.

The 81G4000 is the first family to incorporate Marvell's proprietary FAST-Writer™ Technolgy, providing very fast rise/fall times when used with low inductance write heads. The products feature a voltage sense/current bias architecture providing constant signal response independent of head resistance. The 81G4000 incorporates fully-programmable MR bias current, MR read gain, and write current, as well as a programmable damping resistor. The 81G4000's wide range of programmable features allow for optimal performance in all varieties of customer applications.

Proprietary ESD protection circuits can withstand static discharge events of 2,000 volts. Sensitive MR and GMR read elements are also protected by proprietary low-voltage ESD protection circuits. In addition, a Pinned Layer Reversal function restores original factory performance to read heads.

The Marvell Advantage

The 81G4000 is an all-CMOS implementation, utilizing unique analog circuit design techniques to maintain performance across process and environmental variations. The product family offers various pin-outs and packaging options to meet Marvell's customers' needs.

As with all Marvell preamplifier products, the 81G4000 family is accompanied by a complete set of hardware and software tools to assist drive engineers with optimizing their system configuration features. Marvell's worldwide field applications engineers work closely with manufacturing teams to meet and exceed time-to-market requirements.

Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume and low-cost solutions.

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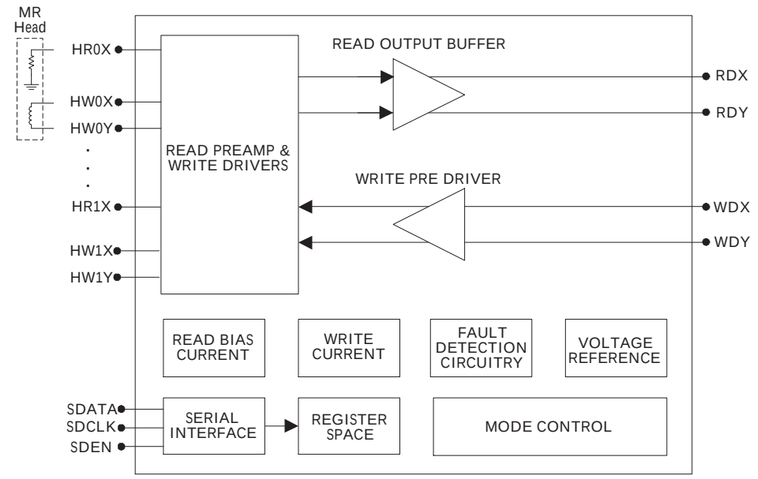
81G4000 GMR Preamplifer

81G4000 BLOCK DIAGRAM



Features

General
- 600 Mbs data transfer rate
- Fast write to read recovery time (175ns typical)
- Read/write fault detection
- Only 1 external component (resistor) required
- Pinned Layer Reversal Function
- ESD protection for GMR elements
- 3.3V and 5V compatible logic
- Multi-channel servo write function
- Serial progammable interface
- 2, 4, 8 channel configurations

Read
- High-bandwidth read amplifier (300MHz)
- Wide range of programmable MR bias currents
- Programmable MR read gain
- Thermal asperity detection and correction

Write
- Fast rise/fall time (<.7ns)
- Marvell F.A.S.T-Writer™ Technology
- Impedence matching on write data input

Benefits

- Supports high performance applications
- Fast system response time

- Improved data reliability
- Lower overall system cost
- Improved disk drive reliability

- Protects costly, highly sensitive components
- Flexibility in design
- Enhances factory productivity
- User friendly set up and control
- Cost-effective implementations

- High data throughput
- Supports MR and GMR applications

- Enables the use of a wide variety of heads
- Ensures data integrity

- High performance for today's advanced write heads.