HighPHY™ Family
88C5500 and 88C5520
PRML Read Channel
Physical Layer Devices

Data Rates Up to 1.2 Gb/s, Combined with Target-Morphing™ Digital Signal Processing Technology, Enable Next-Generation Storage Solutions

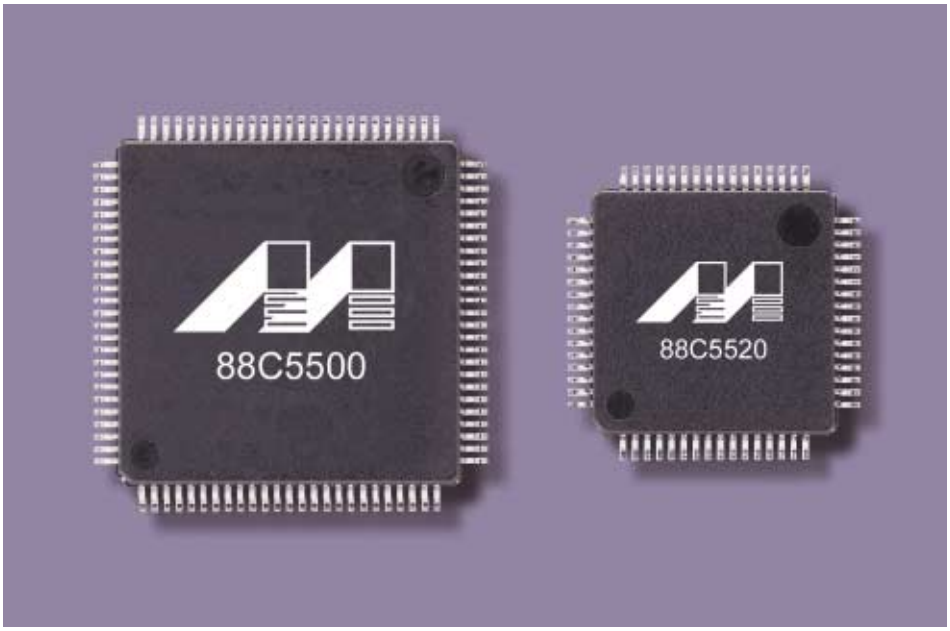
PRML Read Channel Physical Layer Devices

Marvell allows disk drive manufacturers to take advanced data storage systems to the next level of performance with the new HighPHY™ family of read channel physical layer devices. The 88C5500 and 88C5520 products boast a data transfer rate up to 1.2 Gb/s (Gigabits per second) to accommodate the high-performance requirements of enterprise, desktop and mobile systems.

The Marvell 88C5500 and 88C5520 HighPHY read channel physical layer devices, with Target-Morphing™ Digital Signal Processing (DSP) technology, can adapt across all storage platforms. While existing read channel products incorporate fixed and limited Viterbi targets, Marvell's HighPHY devices support any number of targets allowing for optimal performance with existing and future recording head and media technology. This allows customers to maximize storage capacity and manufacturing yields, resulting in lower overall system cost.

Additional new DSP features include a full 10-bit Finite Impulse Response (FIR) filter that accommodates a wide range of input pulse shapes. On-the-fly equalization of the readback signal directly to the noise-predictive Viterbi target results in improved error rates. Integrated into the HighPHY family is a fully synchronous digital servo detector with short servo wedge support.

The HighPHY products are implemented in 0.18 micron CMOS semiconductor device technology and are fully pin-compatible with the 88C5200 and 88C4200 read channel families, allowing for easy system development.



The Marvell Advantage

The Marvell HighPHY products of read channel physical layer devices are the next logical step in applying Marvell's innovations in mixed-signal DSP techniques to leading-edge storage subsystems. Our fifth generation integrated read channel products implemented in an all-CMOS design, Marvell's HighPHY family is the ideal choice for either a stand-alone solution or as a read channel core for use in an integrated hard disk drive electronics platform.

As with all Marvell read channel physical layer devices, the HighPHY family is accompanied by a complete set of hardware and software tools to assist drive engineers with optimizing their systems. Our worldwide field applications engineers work closely with manufacturing teams to deliver new products quickly. Marvell utilizes recognized world-leading semiconductor foundry and packaging services to reliably deliver high-volume solutions.

MARVELL™

MOVING FORWARD FASTER™

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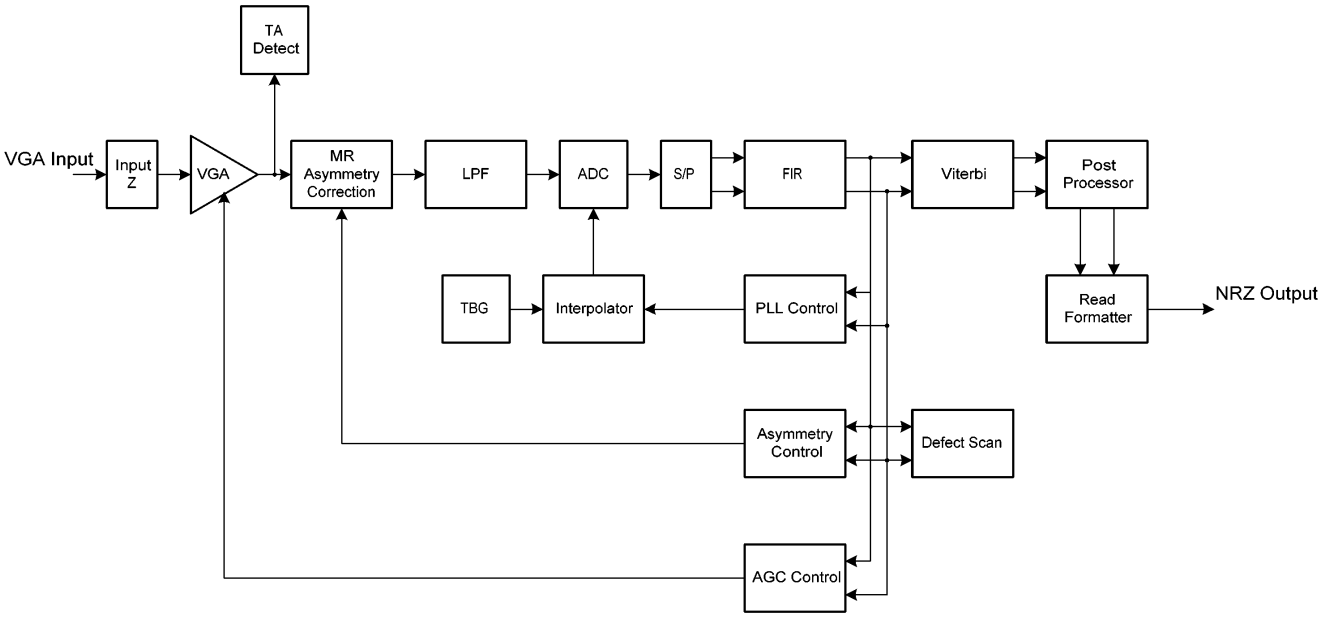

Features:

General

- Up to 1.2 Gb/s data transfer rate
- 0.18 micron CMOS technology
- 100-pin LQFP-Exposed Pad package (88C5500)
- 64-pin LQFP package (88C5520)

Power

- 3.3V supply with option of 1.8V internal regulator for digital blocks
- Register programmable power management for active, idle and deep sleep modes

Data

- 10-bit FIR filter with adaptive equalization
- Fully-programmable noise-predictive Viterbi target
- New sync byte encoding
- On-the-fly 2nd sync mark recovery
- Channel statistics for equalization, error rate detection and quality prediction
- Early Write Precompensation

Servo

- Up to 140 Mhz synchronous burst demodulation output
- Short Servo Wedge format

Benefits:

- Highest performance applications
- Standard semiconductor technology
- Enhanced reliability packaging

- 3.3V-only system design

- Efficient power consumption control

- Wide range of input pulse shapes
- Flexibility for all User Bit Density environments
- Improved error tolerance
- Robust sector detection
- Easy channel initialization and features for S.M.A.R.T. drive compliance
- 2nd Order Inter-Symbol Interference Correction

- Lower servo system overhead

MARVELL™

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