# MAX72463

# SAS-SATA Signal Conditioner

Eliminates Signal Integrity Risks

This product is Not Recommended for New Designs. Some versions may be No Longer Available or being discontinued and subject to Last Time Buy, after which new orders can not be placed.

*Description*

The MAX72463 signal conditioner cleans up intersymbol interference (ISI) and reduces jitter to extend the reach of 6Gbps SAS and SATA signals over FR4 or copper cables. Each of the eight PHYs includes a fully adaptive receiver, low-jitter clock and data recovery, and a highly configurable 400mV to 1600mV transmitter. The transmit amplitude, deemphasis, slew rate, and zero crossing are adjustable through I²C or UART, or can be loaded from an external flash memory. Transmit settings are automatically tuned during link initialization for SAS or SATA settings based on observed training sequences.

In addition to link conditioning, the MAX72463 provides proven OOB forwarding, eye mapping and monitoring, an interrupt output, and 10 GPIOs. The eye mapper allows viewing of the internal eye margin while the eye monitor detects channel degradation in real time. Support for optical SAS per the SAS 2.1 specification is also included.

1.5Gbps, 3.0Gbps, and 6Gbps signaling rates are supported with a 75MHz or 150MHz reference clock. The MAX72463 can recover XAUI, DDR-XAUI, and other high-speed signals with appropriate register settings and a suitable oscillator frequency.

*Key Features*

- Eight Independent PHYs to Support Four SAS or SATA Ports
- Adaptive Receiver with DFE
- Low-Jitter Clock and Data Recovery with Spread-Spectrum Clock Support
- 400mV to 1600mV Transmitter Amplitude with 0dB to 9dB Deemphasis and Slew Rate Control
- Proven OOB Forwarding
- 15mm x 15mm, 196-Pin BGA with 1mm Ball Pitch

*Applications/Uses*

- 6Gbps SAS or SATA Over Lossy, Jitter-Challenged Channels
- Cable I/O Cards for 15m or Greater Reach
- RAID and JBOD Enclosures
- Upgrading Legacy Backplanes/Midplanes to 6Gbps

Part Number

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|---|---|---|
| MAX72463# | Package | X196FH#1 |
| MAX72463B# | Package | FCCSP; 196Pin; 231mm$^2$ |
| MAX72463EKN | | |
| MAX72463B+ | Package | FCCSP; 196Pin; 231mm$^2$ |
| MAX72463B#W | Package | FCCSP; 196Pin; 231mm$^2$ |