

## FEATURES

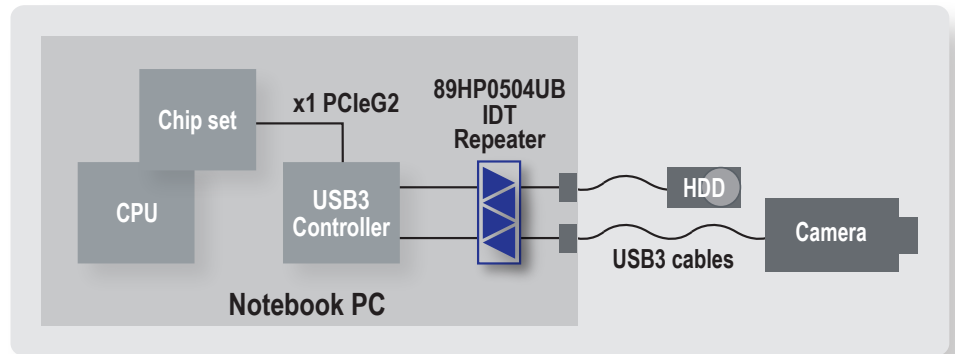
- Compensates for cable and PCB trace attenuation and ISI jitter
- Programmable receiver equalization up to 24dB
- Programmable transmitter swing and de-emphasis
- Recovers data stream even when the differential signal eye is completely closed due to trace attenuation and ISI jitter
- Full USB 3.0 protocol support
- Configurable via external pins
- Leading edge power minimization in active and shutdown modes
- No external bias resistors or reference clocks required
- Channel mux mode, demux mode, 1 to 2 channels multicast, and Z-switch function mode
- Available in a 36-pin QFN package (4.0 x 7.5mm with 0.5mm pitch)

## BENEFITS

- Extends maximum cable length to over 8 meters and trace length over 48 inches in USB 3.0 applications
- Minimizes BER

## APPLICATIONS

- Notebook PCs
- Desktop PCs and workstations
- USB3 peripherals
- USB3 host adapter cards
- Active cables and port dongles



## Device Overview

The IDT 89HP0504UB is a 5Gbps USB 3.0 Repeater device featuring IDT EyeBoost™ technology that compensates for cable and board trace attenuations and ISI jitter, thereby extending connection reach. The device is optimized for USB 3.0 high speed serial data streams and contains four data channels, each able to process 5Gbps transmission rates. Each channel consists of an input equalizer and amplifier, signal detection with glitch filter, as well as programmable output swing and de-emphasis. Allowing for application specific optimization, the 89HP0504UB, with its configurable receiver and transmitter features, is ideal for USB 3.0 applications using a wide combination of cables and board trace materials.

All modes of active data transfer are designed with minimized power consumption. In full shutdown mode, the part consumes less than 40mW in worst case environmental conditions.

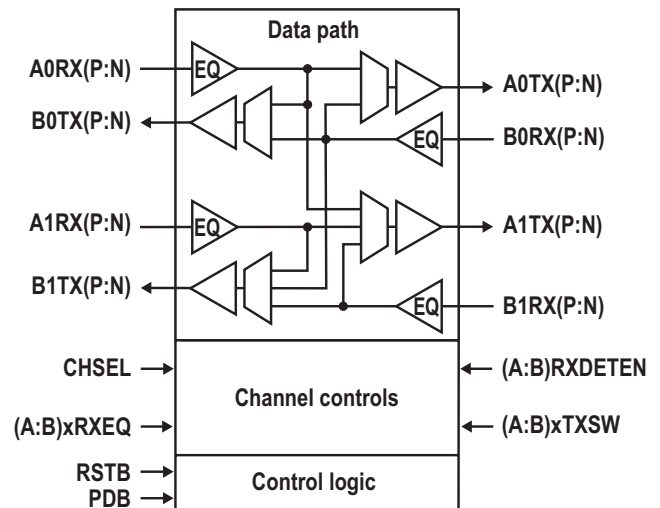
## USB3 Compliance

The device was designed to provide end users with features needed to comply with USB 3.0 system application requirements:

- Receiver Detection Support, USB 3.0 LFPS Support
- Receiver supports high impedance I/O for power reduction
- Jitter, eye opening, and all other key AC and DC specifications

## 89HP0504UB Block Diagram

The 89HP0504UB contains four high speed channels as shown. Each channel can be routed to different outputs. Depending on user configuration via mode selections, input traffic can be muxed or demuxed. Powerdown (PDB) and Receiver Detection Reset (RSTB) are provided for state and channel control.



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