Preliminary
ANX7451
Product Brief

10G Active Mux (4x4) with Integrated Re-timers for USB3.2/DisplayPort™

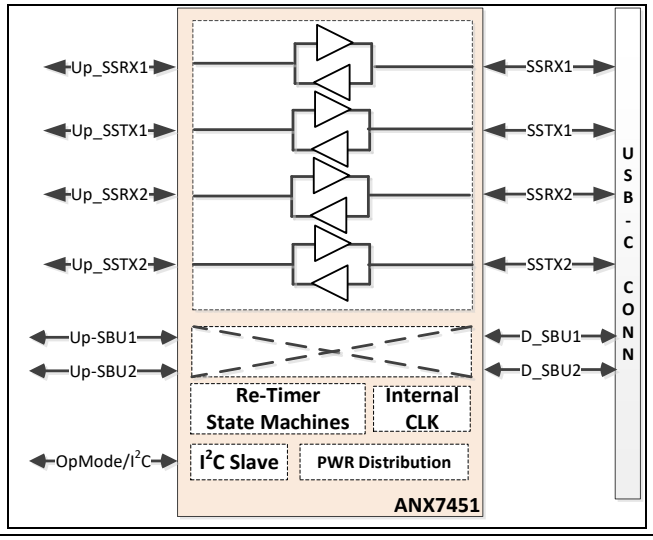
ANX7451 is a 4x4 re-timing mux capable of switching DisplayPort (DP) and USB3.2 Gen 2 10Gbps signals to support a single USB Type-C™ (USB-C™) port. ANX7451 has built-in re-timers to recover both the USB and DP signals with loss compensation of 23dB for USB and up to 27dB for DP. ANX7451 supports Separate Reference Clock Independent SSC (SRIS) and Bit-Level Re-timer (BLR) architectures for a hybrid implementation for Gen 1 and Gen 2. SRIS re-timers eliminate jitter transfer and guarantee Gen 2 high-speed operation. Host (source) and device (sink) applications are fully supported by ANX7451 with built-in intelligent switching. With the intelligent digital switching, ANX7451 ensures the enhanced signals from the re-timers are preserved and outputted over the USB-C connector. ANX7451 integrates the local reference clock and SBU/AUX mux for switching DP AUX signals and reducing overall system BOM cost.

Features

- Built-in re-timers
  - Integrated re-timers for USB3.2 up to Gen 2 @ 10Gbps
  - US3.2 Specification (Appendix-E) compliant re-timer
  - Supports both Separate Reference Clock Independent SSC (SRIS) and Bit-Level Re-timer (BLR) Architectures of USB3.2 Specification (Appendix-E)
  - Integrated re-timers (Link training-tunable PHY repeater) for DisplayPort up to HBR3 @ 8.1Gbps. Supports both transparent mode and non-transparent mode (transparent or LTTPR)
  - Supports both host (source) and device (sink) applications in USB-C subsystems
  - Loss compensation to recover up to 23dB channel loss (USB), up to 27dB (DP)
- Integrated mux
  - Integrated (4x4) mux switches USB and DP signals and preserves enhanced signal output over USB-C connector
  - Mux control input through I2C commands from external I2C master (or, optionally through GPIO of FLIP/USB_EN/DP_EN pins)
  - Integrated SBU/AUX mux for switching DisplayPort AUX +/- signals
- Integrated reference clock
- Serial and debug interfaces
  - I^2C Slave interface, up to 1MHz, for mux and re-timer configuration
- Industry standard compatibility
  - USB3.2 specification, Appendix E
  - DisplayPort 1.4a specification
  - USB Type-C r1.2 specification
  - Intel USB3.2 Repeater and Active Switch specification
- Low-power design
  - Analog power supply at 1.8V
  - I/O power supply at 1.8V
  - Core power supply at 1.2V
- Package
  - QFN-50, 4.7mm x 6.4mm, 0.90mm Z-height, 0.35mm pin-pitch
  - LGA-34, 3.3mm x 4.8mm, 0.71mm Z-height, 0.35mm pin-pitch
- Commercial temperature range of 0C to 70C

Applications

Notebooks, desktops, gaming PCs, workstations, servers, 2-in-1 PCs, active cables and accessories



Related Products

Part Number	Description
ANX7431	USB3.2 (10G) 1x2 Active Switch USB-C Re-timer
ANX7433	10G Active Mux (1x2) with Integrated Re-timer and CC Detection for USB 3.2
ANX7443	10G Active Mux (6x4) with Integrated Re-timers for USB3.2/DisplayPort
ANX7491	10G USB 3.2 Re-timer (1-Port)
ANX7497	DisplayPort 4-lane Re-timer

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