

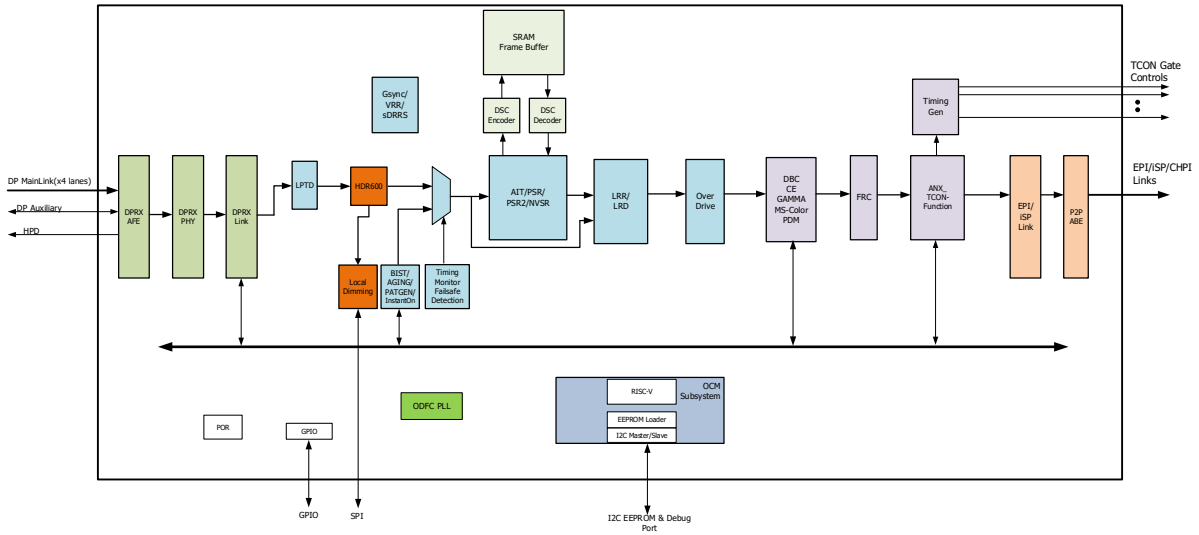
ANX2187 28nm UHD+ eDP1.4b TCON with In-cell Touch

ANX2187 is the world's lowest power four-lane embedded DisplayPort™ (eDP) 1.4b compliant TCON with Panel Self Refresh (PSR) and Selective update PSR (PSR2) functions, supporting up to 3840x2400 (UHD+) resolution. ANX2187 supports both finger and active stylus in-cell touch functions. It also supports VESA DisplayHDR, with 1D, 1.5D and 2D local dimming.

Features

- eDP receiver
 - Integrated high-speed DP-Rx compliant with DisplayPort standard eDP v1.4b
 - Up to 4 lanes @8.1Gbps, 5.4Gbps, 4.32Gbps, 2.7Gbps, 2.16Gbps, 2.43Gbps and 1.62Gbps
 - PSR/MBO/PSR2 function
- Source IC interface: CEDS/iSP/EPI/ATPI
 - Up to 24 pairs to support 12-channel 2D/1C or 24-channel 1D/1C configuration
 - CEDS/iSP/EPI/ATPI transmitter up to 2.0 Gbps configuration with Mux2 support
 - Various swap modes: inter-port swap, intra-port swap, p/n swap, RGB swap, odd/even pixel swap, etc.
 - Scan direction swap
 - Supports Z-inversion (column inversion), and N-line inversion
 - Dual gate mode combined with Z-inversion and non-Z inversion mode
 - CEDS/iSP/EPI/ATPI test pattern mode
- TCON functions
 - Max resolution: 3840x2400 @60Hz
 - Can support FullHD 240Hz
 - eDP TCON color depth: 18/24/30 bpp input, up to 8+2 FRC output
 - Programmable fail-safe mode control
 - Configurable BIST pattern
 - 10-bit Gamma correction table for each color
 - Advanced Color Block
 - Multiple FRC pattern configurations
 - 8bit->6bit, 9bit->6bit, 10bit->8bit and 10bit->6bit FRC modes
 - 0-D dimming control (DBC) function for backlight low power
 - Color-engine for hue and saturation control
 - Direct drive G-sync, Free sync, and Adaptive sync
 - eDP sDRRS power saving function
 - Splash-screen
 - In-cell Touch function combined with PSR/ PSR2
- On-chip SSCG
 - CEDS/EPI/iSP/ATPI $1.6G < F_{ceds} \leq 2.06G$ (Max. +/-0.5% with 0.25% step, 10/20/30/40KHz, center spreading)
 - CEDS/EPI/iSP/ATPI $F_{ceds} \leq 1.6G$ (Max. +/- 1% with 0.25% step, 10/20/30/40KHz, center spreading)
- VESA DisplayHDR
 - EOTF ST.2084 Decoder
 - BT.2020 to sRGB color space mapping
 - Tone Mapping (BT.2390-2)
 - 10-bit input with 8-bit output
 - DPCD handshake
 - 1D, 1.5D and 2D local dimming control
 - Up to 16x32 segment backlight control with 12-bit intensity
- I2C interface
- In-cell touch support for finger and active pen
- PWM generator, PWM pass-through and PWM product modes
- TSMC 28nm HPC+ process
- Lowest power, 200mW to 280mW @UHD (PSR on/off)
- Power supply: 1.8V/0.9V (internal 3.3V for HPD)
- Package:
 - ANX2187BN-AA-T: BGA144 (5.15x11x1mm), 0.5mm pitch
 - ANX2187VN-AA-T: BGA147 (5.15x14x1mm), 0.65mm pitch

- ANX2186 is identical without in-cell touch functions
 - ANX2186BN-AA-T: BGA112 (5.15x11x1mm), 0.5mm pitch



ANX2187 Block Diagram

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