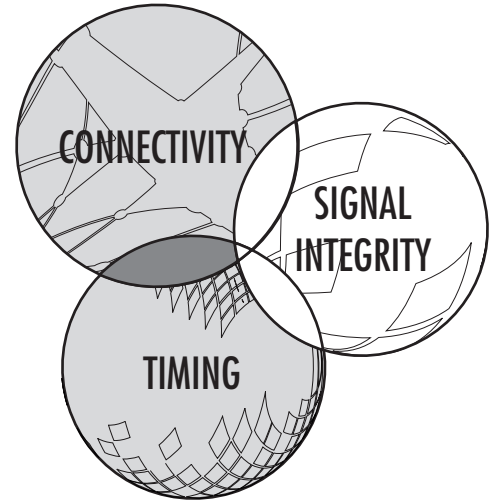




SIGNAL INTEGRITY



Signal Integrity Solutions from Pericom



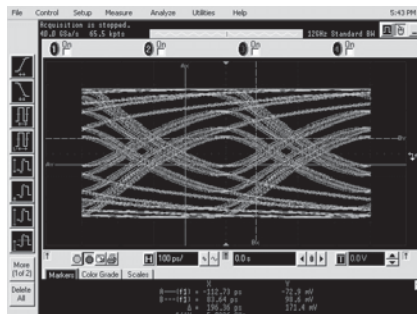
Poor signal quality can significantly impact system performance and reliability. Maintaining eye-pattern signal integrity at the receiver end-points in high-speed, serial-differential protocols, like PCI Express or SATA, is a big challenge for system designers today. At high transmission rates, signal integrity issues become increasingly restrictive on the length of PCB trace (or cable length), reducing flexibility and feature implementation. Pericom's ReDriver™ signal conditioning products* correct for signal level attenuation and noise (jitter) using equalization, pre-emphasis/de-emphasis techniques for low bit error rates with high-speed signal protocols including PCI Express®, and SATA/SAS standards.

*See the video on how Pericom ReDriver provides system stability at www.pericom.com/redriver

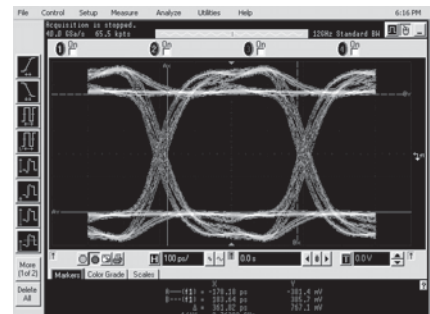
ReDriver™ Product Features:

- Protocol support for PCI Express®, SATA 3Gbps, SAS
- Data rates of 2.5Gbps (PCIe) and 3.0Gbps (SATA 3Gbps, SAS)
- Pin configured receiver equalization for each lane
- Pin configured transmitter de-emphasis & amplitude for each lane
- Input signal level detect & output squelch on all channels
- Electrical idle and OOB support
- Spread spectrum reference clock buffers available
- 100-Ω differential CML I/O's
- Low Power (100mW per channel)
- Standby mode – power down state
- Wide variety of package/feature options

High-speed Differential Signal Degradation

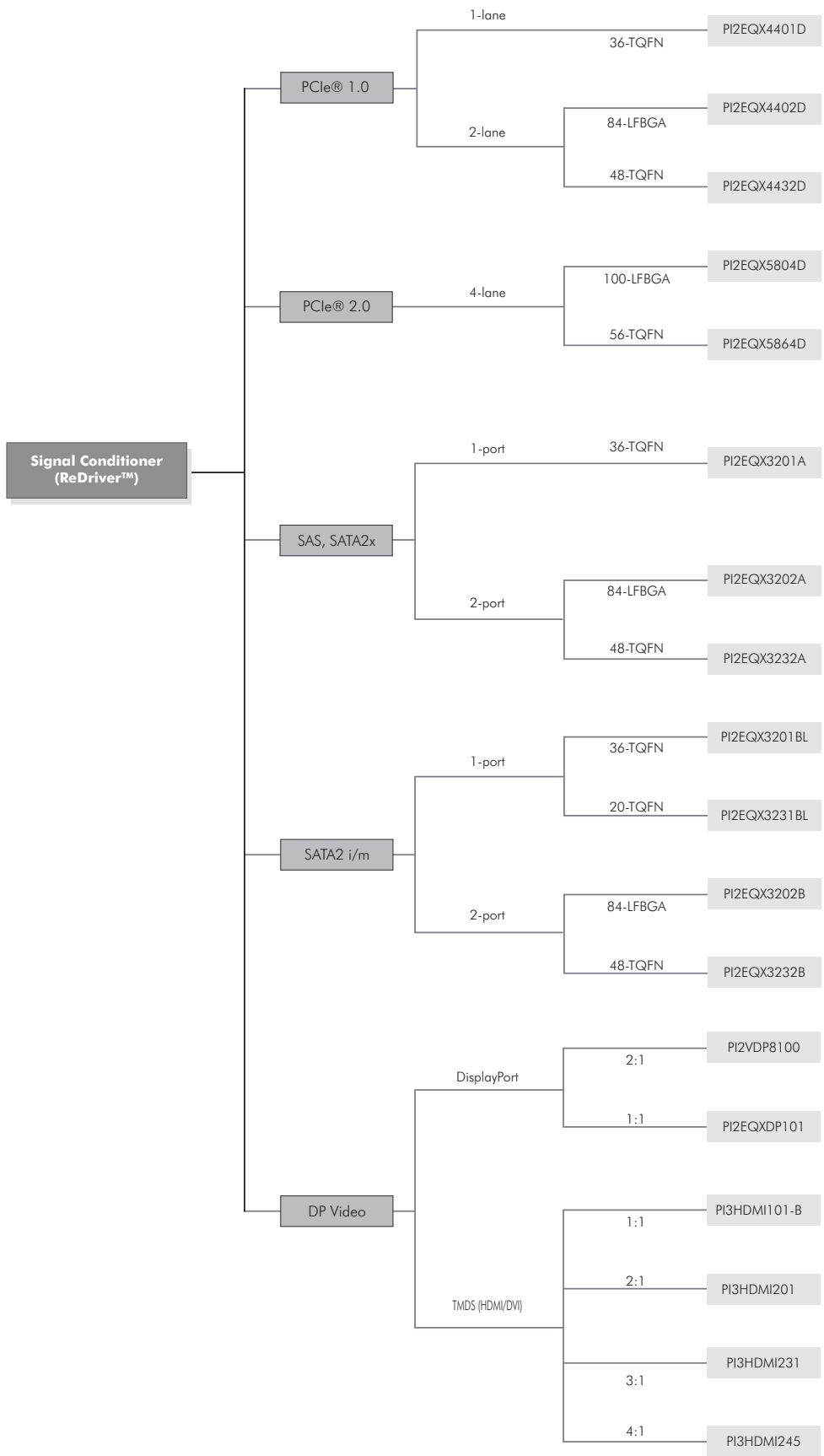


Receiver Input Before ReDriver



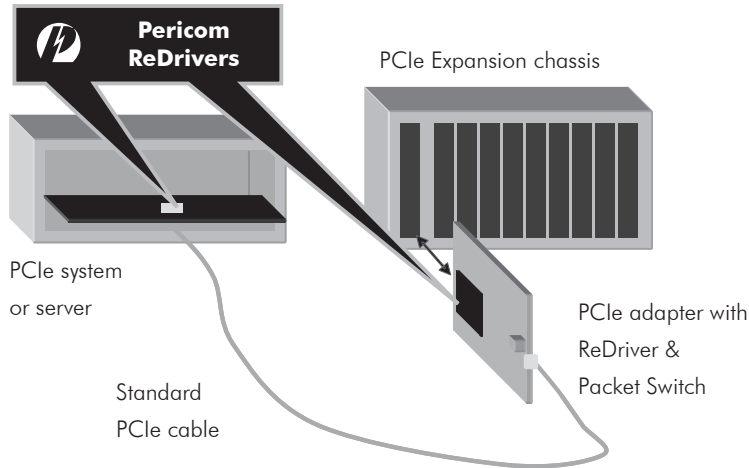
ReDriver Output

Signal Integrity Decision Tree



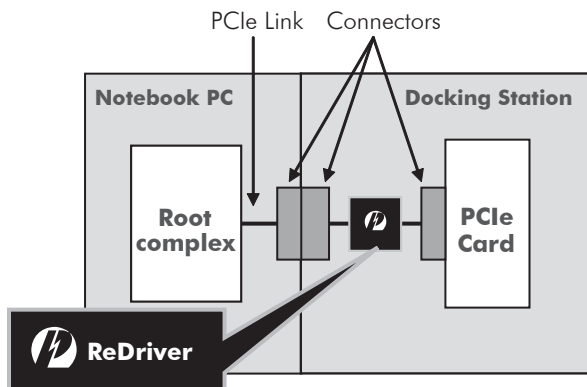
PCI Express® ReDriver Applications

PCIe Cable Extension:



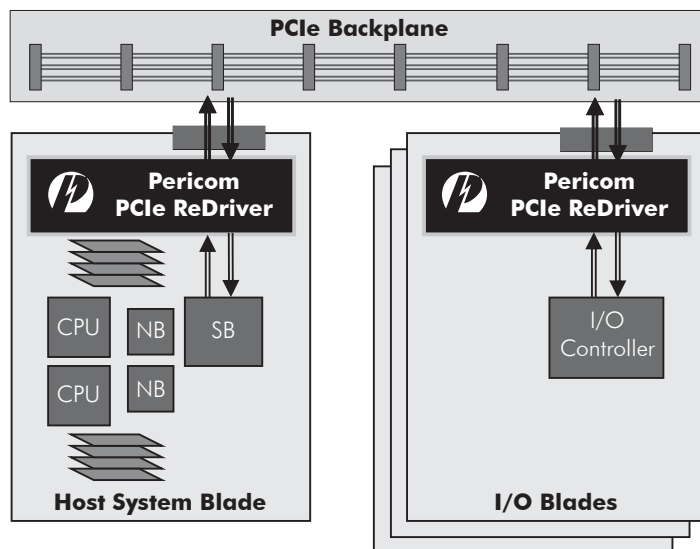
Cabled PCI Express® is widely used in servers for both internal and chassis-to-chassis connections, in consumer PCs and media systems, for instrumentation, medical equipment, video systems, industrial equipment, etc. Because of the PCIe Cable specification, PCIe direct-attached peripherals are certain to become a high-growth market segment.

Notebook Docking:



Signal conditioner assures signal integrity across multiple connectors and varying generations of hardware

Blade Server System:



PCIe ReDriver insures signal integrity across multiple connectors and varying trace lengths

SIGNAL INTEGRITY

ReDriver SAS/SATA2/XAUI Products

SAS/SATA2/XAUI ReDriver™

Part No.	Description	Protocol	Data Rate Gbps	Input Eqx Options, dB	Output Level Options	Output Swing, mV max	Output Emphasis, dB	Package
PI2EQX3201A	2-channel redriving equalizer with OOB	SATA2x, SAS, XAUI	3.0	0, 2.5, 4.5, 6.5	1.0x, 1.2x	1300	0, -3.5	36-TQFN (ZF36)
PI2EQX3202A	4-channel redriving equalizer with OOB	SATA2x, SAS, XAUI	3.0	0, 1.5, 2.5, 3.5, 4.5, 5.5, 6.5, 7.5	0.8x, .0x, 1.2x, 1.4x	1600	0, -2.5, -3.5, -4.5	84-LFBGA (NB84)
PI2EQX3232A	4-channel redriving equalizer with flow-through pinout	SATA2x, SAS, XAUI	3.0	3.5, 7.5	1.0x, 1.2x	1300	0, -3.5	48-TQFN (ZD48)
PI2EQX3201BL	2-channel redriving equalizer with OOB	SATA2 i/m	3.0	0, 2.5, 4.5, 6.5	1.0x, 1.2x	800	0, -3.5	36-TQFN (ZF36)
PI2EQX3202B	4-channel redriving equalizer with OOB	SATA2 i/m	3.0	0, 1.5, 2.5, 3.5, 4.5, 5.5, 6.5, 7.5	0.8x, .0x, 1.2x, 1.4x	1000	0, -2.5, -3.5, -4.5	84-LFBGA (NB84)
PI2EQX3231BL	2-channel redriving equalizer with flow-through pinout	SATA2 i/m	3.0	1.5, 5.5	1x	700	0, -3.5	20-TQFN (ZH20)
PI2EQX3232B	4-channel redriving equalizer with flow-through pinout	SATA2 i/m	3.0	3.5, 7.5	1.0x, 1.2x	800	0, -3.5	48-TQFN (ZD48)
PI2EQX3421	2-channel redriving equalizer port switch	SATA2, SAS, XAUI	3.2	1.5, 5.5	dual mode	750/1300	0	28-TQFN (ZH28)
PI2EQX6804**	4-lane redriving equalizer	SAS2, SATA, XAUI	6.5	1.2, 1.5, 2.6, 4.3, 5.8, 7.1, 9.0, 12.3	0.5, 0.7, 0.9, 1.0	1000	0, 2.5, 3.5, 4.5, 5.5, 6.5, 7.5, 8.5	100-LFBGA (NJ100)

Notes:

V_{DD}=1.8V for most ReDriver parts listed except for ** (V_{DD}=1.2V)

SATA2 = SATA 3Gbps

SATA/SAS ReDriver Evaluation Boards

Part Number ⁽¹⁾	Description	Ports	Data Rate Gbps	Configuration ⁽²⁾	Voltage ⁽³⁾
PI2EQX3202A-EVBx	SAS / SATAx ReDriver Evaluation Board	2	3	2:2 pass-through via cable, 2-channels with minimum trace, 2-channels with 48" trace (total)	1.8
PI2EQX3202B-EVBx	SATA i/m ReDriver Evaluation Board	2	3	2:2 pass-through via cable, 2-channels with minimum trace, 2-channels with 24" trace (total)	1.8

Notes

1. Contact Pericom Sales for the exact Evaluation Board part number, and for the correct product for your application since multiple versions may exist
2. Cables not supplied
3. Power must be provided to on board regulator

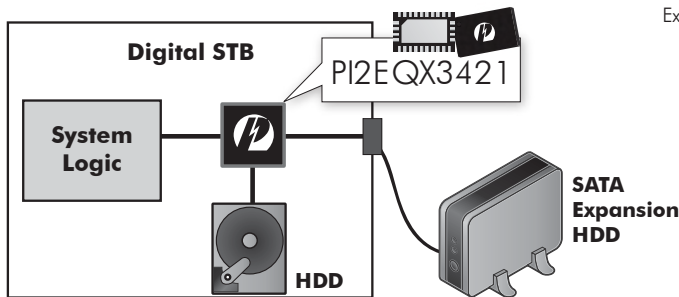
Digital Video Signal Conditioning Products

HDMI/DVI Video Switches

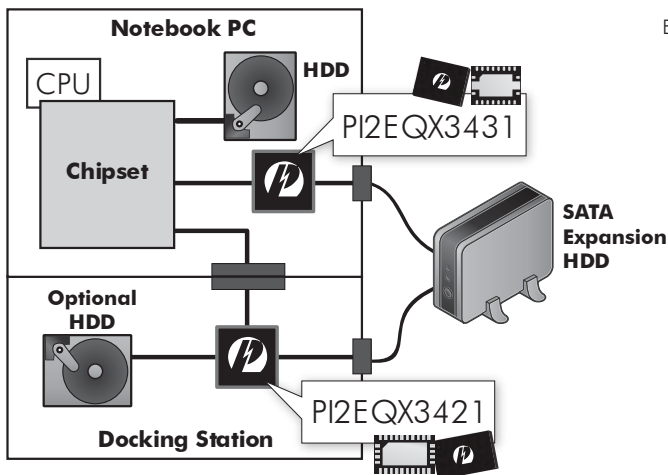
For More HDMI Solutions see page 34

Part Number	Description	Configuration	Package
PI3HDMI101	HDMI/DVI buffer + I2C buffer for source applications	4-differential channel 1:1 with DDC 1:1 path	TQFN (ZH42)
PI3HDMI101-A	HDMI/DVI buffer + I2C buffer w/ Rx Term support for receiver applications	4-differential channel 1:1 with DDC 1:1 path	TQFN (ZH42)
PI3HDMI101-B	HDMI/DVI buffer + I2C buffer w/ auto-Rx Term support for receiver applications	4-differential channel 1:1 with DDC 1:1 path	TQFN (ZH42)
PI3HDMI201	2:1 HDMI/DVI switch with ActiveEye™	4-differential channel 2:1 + DDC/HPD 2:1	TQFN (ZF56)
PI3HDMI231-A	3:1 HDMI/DVI switch with ActiveEye™ and squelch	4-differential channel 3:1 + DDC/HPD 3:1	TQFN (ZF56)
PI3HDMI301	3:1 HDMI/DVI switch with ActiveEye™	4-differential channel 3:1 + DDC/HPD 3:1	TQFN (ZL64), LQFP(FF80)
PI3HDMI412-B	4 Differential Channel 2:1, 3.3V DVI/HDMI Mux/DeMux	Mux: 4 Differential Channel, 2:1	TSSOP (A48)
PI3VDP411LS	Dual Mode Display Port to DVI/HDMI Translator	4-differential channel 1:1 with DDC/HPD 1:1 path	TQFN (ZD48)
PI3VDP411LST	Dual Mode Display Port to DVI/HDMI Translator with HPD inverting buffer	4-differential channel 1:1 with DDC/HPD 1:1 path	TQFN (ZD48)
PI3VDP612	DisplayPort Signal Switch (1:2 or 2:1)	2:1/1:2 for Main Link, AUX, and HPD	TQFN (ZF56)

Example of ReDriver Applications:



Example of PI2EQX3421 in STB



Example of PI2EQX3431 in Notebook