



A breadth of 40-nm high-speed transceiver solutions

With the addition of two new product families, we now provide the industry's broadest portfolio of FPGAs and ASICs with integrated transceivers. From this portfolio—encompassing the market's first 40-nm custom logic devices—you'll find a diverse mix of power and performance, densities and speeds, price points, as well as memory, LVDS channels, and other resources for your unique design requirements.

Serial standards quick reference guide

Standard	Data rate (Gbps)	Period (ps)	Typical reference clock (MHz)	Reference clock (ppm)	Differential output voltage (mV)	Rise/fall (ps)	Total jitter (UI)	Total jitter (ps)	Differential input voltage (mV)
SATA (Gen 1)	1.5	666.667	–	5,350 (SSC included)	400 - 600	67 - 173	0.650	–	325 - 600
SATA (Gen 2)	3	333.333	–	5,350 (SSC included)	400 - 700	67 - 136	0.650	–	275 - 700
SATA (Gen 3)	6	166.667	–	5,350 (SSC included)	–	–	–	–	–
SAS (Gen 1)	3.0	333.333	–	5,350 (SSC included)	800 - 1,600	67 - 136	0.650	–	275 - 1,600
SAS (Gen 2)	6	166.667	–	5,350 (SSC included)	800 - 1,600	67 - 136	0.650	–	275 - 1,600
SAS (Gen 3)	12	83.333	–	5,350 (SSC included)	–	–	–	–	–
CEI-6G	6.375	157	159.38	+/- 100	800 - 1,200	>30	0.300	47	160 - 1200
Interlaken	3.125 - 6.375	–	–	–	Uses CEI-6G Electricals				
CPRI	0.614	1,628	61.44	+/- 100	800 - 1,600 (LV) 1,100 - 2,000 (HV)	>60 (LV) 85 - 327 (HV)	0.350 (LV) 0.279 (HV)	570 (LV) 454 (HV)	200 - 1,600 (LV) 400 - 2,000 (HV)
CPRI	1.229	814	122.88	+/- 100	800 - 1,600 (LV) 1,100 - 2,000 (HV)	>60 (LV) 85 - 327 (HV)	0.350 (LV) 0.279 (HV)	285 (LV) 279 (HV)	200 - 1,600 (LV) 400 - 2,000 (HV)
CPRI	2.458	407	122.88	+/- 100	800 - 1,600 (LV)	>60 (LV)	0.350 (LV)	143 (LV)	2,000
CPRI	3.072	325.521	122.88	+/- 100	800 - 1,600 (LV)	60 (LV)	0.35 (LV)	–	200 – 1,600 (LV)
CPRI	6.144	-	–	–	–	–	–	–	–
Gigabit Ethernet	1.25	800	125	+/- 100	1,100 - 2,000	>85	0.240	192	400 – 2,000
Ethernet-XAUI	4 x 3.1250	320	156.25	+/- 100	800 - 1,600	>60	0.350	112	–
Ethernet - 10 Gbit - SFI	10.3125	96.9	161.1328125	+/-100	360 - 770	24	0.30	29.07	110 - 1050
Ethernet - 10 Gbit - XFI	10.3125	96.9	161.1328125	+/-100	360 - 770	24	0.30	29.07	110 - 1050
Ethernet - 40G	10.3125	96.97	644.53	+/-100	760 (max)	24 (min)	0.32	31.03	90 - 850
Ethernet - 100G	10.3125	96.97	644.53	+/-100	760 (max)	24 (min)	0.32	31.03	90 - 850
SFI-5	9.95 - 11.1	100.5025 - 90.09	621.875 - 693.75	+/- 20	360 - 770	24 (min)	0.3	30.1507 - 27.027	110 - 1050
SFI-5.1	40 to 50	321 to 402	625/312.5/156.25 to 781.25/390.625/195	+/-100	500 to 1000	50	0.35	112 - 141	175 - 1000
GPON	1.244 Tx, 2.488 Rx	804 Tx, 402 Rx	155.52	Recovered clock is used	660 (1.244), 500 (2.488)	–	0.33 (4 kHz to 10 MHz) or 0.44	–	–
PCI Express Gen1	2.5	400	100	+/- 300	800 - 1,200	>60	0.250	100	–
PCI Express Gen2	5	200	100	–	800 - 1,200	25 - 30	–	–	120 – 1,200
PCI Express Gen3	8	–	–	–	–	–	–	–	–
PCI Express Cable	2.5	400	100	+/- 300	< 1,200	> 60	0.175	75	< 1,200
SD-SDI	0.27	3,703	54	+/- 100	720 - 880	>400	0.200	740	–
HD-SDI	1.485	673	74.25	+/- 100	720 - 880	>270	0.200	134	–
3G-SDI	2.97	336.700	74.25	+/- 100	720 - 880	>135	0.300	101	–
ASI	0.27	3,703	54	–	720 - 880	>400	0.200	740	–
SONET OC-12	0.622	1,600	77.76	+/- 20	–	–	0.100	160	–
SONET OC-48	2.488	400	155.52	+/- 20	–	–	0.100	40	–
SONET OC-192	9.95	100	622.08	+/- 20	–	–	0.100	10	175 - 1,600
SRIO	1.25	800	62.5	+/- 100	500 - 1,000	60	0.350	280	200 - 1,600
SRIO	2.5	400	125	+/- 100	500 - 1,000	60	0.350	140	200 - 1,600
SRIO	3.125	320	156.25	+/- 100	500 - 1,000	60	0.350	112	200 - 1,600
SRIO	5	200	–	–	OIF - CEI - 6G Short Reach Electricals				
SRIO	6.25	160	–	–	OIF - CEI - 6G Short Reach Electricals				

Genealogy of serial standards

