



Alphawave Semi is accelerating the connected world.

Alphawave Semi design industry-leading, high-speed connectivity solutions for customers in high-growth end markets including Data Center, AI, 5G wireless infrastructure, Data networking, Autonomous vehicles and Solid-state storage.

Our leading-edge technology advances push the boundaries of wired connectivity capabilities, enabling data to travel faster, more reliably, and using lower power.

Powering next generation technologies, we serve Tier-One customers in North America, Asia Pacific, Europe, and the UK. Our innovative solutions have repeatedly set industry benchmarks in terms of performance, power consumption, size, and flexibility.

ZeusCORE™ MSS IP

The Alphawave ZeusCORE™ is a Xtra-Long-Reach (XLR, LR, MR, VSR), ultra-low-power, Multi-Standard SerDes (MSS) IP. It is a highly configurable SerDes IP that supports all leading edge NRZ and PAM data center standards from 1Gbps to 112Gbps, optimized for 45+dB bump-bump lossy channel. This IP is proven in silicon in leading edge process nodes (7nm, 5nm, 3nm) and ready for customer tape outs.

Key Features:

- Support diverse protocols such as PCI-Express® 1.0 to 6.0 and 1G/10G/25G/50G/100Gbps Ethernet
- Maximum Likelihood Sequence Detector (MLSD) enables extra-long channels.
- Support 1/2/4/8 or 16 lane configurations, as well as both N/S and E/W orientations
- Sub-sampling Clock Multiplier (SSCM) enables independent rates on all Tx and Rx lanes
- Can extend raw BER by 2+ orders of magnitude for channels operating at high error rates
- The ZeusCORE™ Master Controller uses complex signal processing techniques to recover the signal, while optimizing both power and latency





OmegaCORE™ 1.6T Multi-protocol Controller

The OmegaCORE™ 1.6T Multi-protocol Controller from Alphawave IP is a multi-channel, multi-rate Ethernet aggregator that supports tributaries from 10GE to 800GE, utilizing the 112G/s, 56G/s, and 28G/s SerDes. The Core consists of Multi-channel and Multi-rate PCS and MAC Cores. The supported Ethernet protocols are 10G, 25G, 40G, 50G, 100G, 200G, 400G, 800G and 10GFC, 16GFC, 32GFC, 64GFC, 128GFC, 256GFC, and as well as FEC framing of FlexO-1/2/4-SR. It supports any legal combination of Ethernet/Fiberchannel/FlexO rate up to 2x 800G (1.6T). This Core supports up to a maximum of 16 or 32 Ethernet channel and works most effective and efficient with latest 112G/s SerDes. With Core clock frequency of 800MHz to 1.6GHz at 7nm or 5nm, this Core delivers smallest footprint among similar solution in the Ethernet/Fiberchannel/FlexO SOC market.

Key Features:

- Digital Crossbar among all SerDes lanes in both TX and RX direction in the SerDes Mux/Demux
- Combines Ethernet streams at a variety of rates to a single multi-channel interface at the MAC
- Allow access connections supporting 10GE, 25GE, 40GE, 50GE, 100GE, 200GE, 400GE and 800GE in any combination on any port or groups of ports to a maximum total bandwidth of 1.6Tbps
- Support IEEE 802.3 required FEC variances – LL FEC RS (272, 258), KR4 FEC RS (528,514), KP4 FEC RS (544,514), FC FEC (2112,2080)
- Support all IEEE802.3 PCS, FEC and MAC statistics and alarms and more
- Support HiGig, HiGig+ and HiGig-lite
- Dynamically change rate on any port without affecting existing traffic
- Standard ETC 800GE supports with bonded 2 x 400GE PCS and a single 800G MAC
- Fully utilize the advantages of 112G SerDes to get highest possible port density per 800G.
- Provide OTN, FlexE, FlexO, OTU25/50-RS, xGFC access ports (Optional add-on)
- Optional 10GFEC to 256GFC FC2 Monitoring

To find out more about Alphawave SEMI, please visit: www.awavesemi.com

