

AI Creates a New Surge in Demand for Optical Transceivers

PHONONIC IS READY FOR AI. ARE YOU?



Best-in-class power consumption



Cost-effective solutions for multi-channel laser packages



Application-specific design

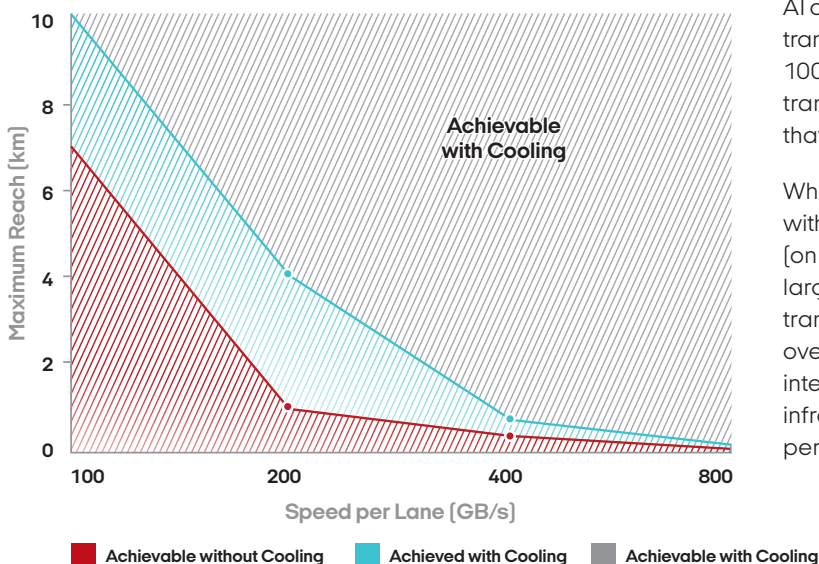
The AI Revolution Requires Cooling Solutions for High Performance

Data rate demands have skyrocketed with the growth of cloud computing for streaming movies, television and video games. Add to that the surge in remote work's use of meetings taking place over video chat platforms, and the toll on network bandwidth providers was massive. Smart planning and technology investments brought us through, but a recent technological innovation is threatening to push data center networks to a breaking point. We are entering the era of Artificial Intelligence [AI], and data centers must start proactively transitioning to cooled optical communications to keep up with the high data rate demands.

AI is Generating a Greatly Increased Demand for High-speed Optical Transceivers

The transceiver market has already seen demand starting for 800G modules for AI applications. There's a strong ramp up for 800G in 2024, and the adoption of 1.6T transceivers is expected to arrive in 2025 alongside the new generation AI chips/GPUs. With next-gen transceiver configuration of 16, 100G lanes or 8, 200G lanes, data centers can integrate fewer transceivers that have greater bandwidth over long distances that pull less power.

What's more, the move to upgrading optical transceivers comes with a financial incentive. Cost per lane and power consumption [on a unit-capacity basis] will drop when migrating to a larger bandwidth. Data center operators will need fewer 1.6T transceivers than 800G transceivers to deliver the same results over the same distances. This will enable networks to handle intense computing applications like AI training. When planning infrastructure upgrades, the return on investment for high-performance transceivers will be substantial.



Phononic TECs are the Ideal Solution for High Performance & Efficiency

Phononic's application-specific approach to TEC design, along with the hundreds of reference designs we've developed over the past decade, presents the ideal solution for cooling lasers used in high-speed optical components. Phononic offers cost-effective solutions for multichannel laser packages through powerful TECs that deliver best-in-class power consumption to achieve high yield and low cost. Our client partners have already seen this benefit in action — Phononic TECs can currently be found in tens of millions of devices across the globe. Plus, our powerful manufacturing partnership with Fabrinet, combined with our strong portfolio of global distribution partners, ensures you get the TECs you require on a timetable that matches your own manufacturing schedule. With application-specific TECs by Phononic, you'll see a lower cost per lane and a significant drop in power consumption, boosting your ROI while consistently meeting your customers' needs.

To stay ahead of AI's data demands, you have to meet current demands while keeping an eye on where the market is going. By partnering with Phononic, you're investing in a solution that meets today's market needs while setting yourself up for future success.

Powerful Partnerships for Full-Scale Manufacturing & Distribution

Phononic has a deep understanding of the optoelectronic market's past, present and future. We pay close attention to the trends and technology driving optoelectronics forward. In doing so, it quickly became clear that there would soon be explosive demand for high-powered transceivers — and the need for advanced TECs to optimize them. We were going to need trusted, high-volume manufacturing partners closer to our clients to meet this forecasted demand. That's why, in 2020, Phononic partnered with Fabrinet, a leading provider of advanced optical packaging and precision optical, electro-mechanical and electronic manufacturing services. This partnership swiftly demonstrated its purpose: In record time, we were fully qualified with customers as we scaled global production of high-performance thermoelectrics, all without disrupting our supply chain.

And to ensure regional and global supply meets the growing demands of the optical transceiver market, Phononic has brokered partnerships with distributors like Photonteck (China), Seikoh Giken (Japan), Gillanix (Korea) and El-GeV Electronics Ltd (Israel).

Learn more:



Consistent Delivery of Dependable, High-Quality and Proven Technology

At Phononic, we have imposed some of the most rigorous standards in the market upon ourselves, and we continuously invest in top-of-the-line methods to deliver the highest quality and reliability to maintain our status as an industry leader, and The International Organization for Standardization (ISO) has noticed. The ISO provides the world's most widely recognized certifications for Quality Management Systems (QMS) and Environmental Management Systems (EMS), and Phononic has earned certifications toward ISO 9001:2015 and 14001:2015 standard requirements.

In 2023, Phononic announced the first-ever thermoelectric strategic supplier agreement for high-performance TECs for cooling LiDAR optics with Luminar. By leveraging our proprietary TEC technology and scalable device architecture, we're uniquely positioned to reliably deliver high performance cooling that meets demanding automotive OEM standards unlike any other. In fact, we're already qualified in two major OEM vehicle platforms. Phononic is also the only TEC supplier certified toward the International Automotive Task Force (IATF) 16949 — a global quality management system standard for the automotive industry.