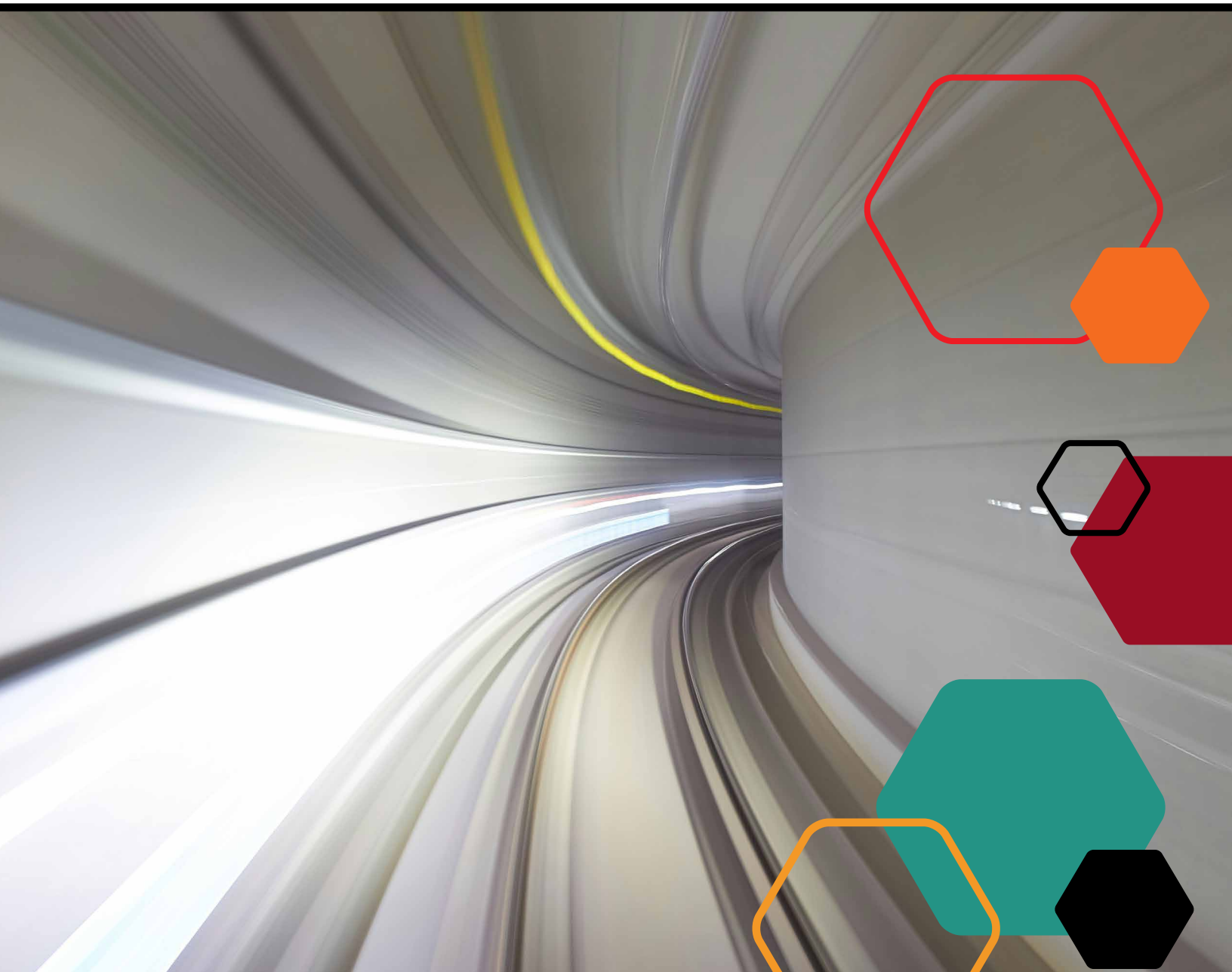
VITEX

The Future of Data Center Optics:

Revolutionizing for AI Demands



The floodgates have opened! A new generation of data centers is rising, built not just to handle the massive data influx of today but to anticipate the exponential needs of tomorrow. As the backbone of artificial intelligence (AI) applications, supporting everything from autonomous vehicles to advanced medical diagnostics, the demand for faster, lower latency, more powerful infrastructure is here. As the AI landscape evolves, current data center designs, especially regarding optical connectivity, are becoming increasingly inadequate.

Today's Data Center Limitations, Tomorrow's AI Needs

Both traditional data centers and high-performance computing (HPC) data centers are at a critical juncture due to the demands of AI.

Traditional data centers are typically designed around conventional workloads and struggle with the massive data throughput required by AI applications. Legacy connectivity infrastructure faces latency, bandwidth, and scalability issues, failing to provide the ultra-low latency and high bandwidth (200G, 400G and 800G) needed for real-time data processing. These hierarchical network architectures often create bottlenecks as data traffic increases, and the sophisticated nature of AI applications requiring parallel processing exacerbates these problems, hindering performance and scalability.

HPC data centers face a different set of challenges. Current InfiniBand, Nvidia, and Mellanox infrastructure, known for high bandwidth and low latency, must evolve to support next-generation AI applications that demand real-time data processing and massively parallel processing across thousands of nodes. While robust for traditional workloads, existing solutions need enhancements to meet the scalability, performance, and reliability required by AI workloads.

The moral of the story is, all data centers professionals must rethink their connectivity strategies by integrating advanced solutions that provide ultra-low latency, high bandwidth, and scalable architectures to manage exponential data growth to support AI's transformative potential.

It's Happening

AI models are growing in complexity

1000x / 3 years

A pace current Data Centers cannot scale to meet

Source: Spirent

Your investments today will pay off

58% CAGR

Data Center revenue from generative AI by 2028

Source: CBRE

AI business models can expect a

50X increase

in processing workloads

Tirias Research

Projected spend on data center upgrades

$1 Trillion

Vitex offers solutions that don't demand wholesale DCI change

Source: Nvidia

Accelerating Data Processing: The Critical Role of DACs, AOCs, Transceivers, and Fiber Cables

To bridge the gap between current capabilities and future requirements, data centers must adopt cutting-edge fiber optic connectivity solutions. This is where Vitex and our advanced DACs, AOCs, Transceivers and Fiber Cable come into play. These solutions permit substantial performance improvements without requiring wholesale changes in network infrastructure. Our product family underwent rigorous testing to ensure seamless integration to Nvidia platforms and high-speed computing and storage infrastructure.

Direct Attach Cables (DACs): High quality, low latency, and power consumption solutions for short-distance connections.

Active Optical Cables (AOCs): Flexible and reliable for bandwidth, performance, and low latency over longer distances than DACs.

Transceivers: Built for speed and low latency, from 100G to 800G in popular form factors.

Fiber Cables: Designed specifically to work with our High-performance optical transceivers for flawless transmission.

Off-the-shelf components will not cut it in the new world of AI. Vitex is eager to work with you to ensure your investments maximize performance, meet advanced requirements, and are available to speed your network transformation so your business can keep a competitive edge.
Vitex solutions are trusted for creating high-bandwidth, low-latency networks that next-generation, AI-driven data centers require. By leveraging these advanced connectivity solutions, your data center can significantly enhance its data processing capabilities and keep pace with the rapid evolution of AI technologies.

Choosing the appropriate data center connectivity solution involves understanding your unique network requirements and budget.

- For short-distance transmission, both AOCs and DACs are excellent options. AOC cables offer the advantage of longer transmission distances, while DAC cables are the most cost-effective choice.
- Transceivers, on the other hand, are versatile and suitable for various application scenarios, particularly when long-distance transmission is needed.

Vitex can assist you in selecting the best solution tailored to your needs and budget, ensuring your network is built efficiently and performatively.

Solution Advantages

AOCs & DACs

- Lower costs
- Ideal for distances less than 100m
- Easy to install
- Lower transmission loss
- Space & energy savings

Transceivers & fiber cables

- Long distances above 100m
- Customized distances
- Easier for MAC work

Innovation at Warp Speed: Creative and Custom Solutions

The rapid advancements in AI are outpacing the current data center technology. To keep up, you need a partner with the ability to create new and custom solutions specifically designed for your unique challenges, in the time frame you need them. And a partner that offers solutions that are seamlessly compatible with InfiniBand/Mellanox/Nvidia platforms.
That's Vitex.

Our proactive approach will ensure your next-generation data center is not just an incremental improvement but a revolutionary leap forward, capable of supporting the boundless possibilities of AI.

Turn to us for the AI-optimized optical solutions you need, when you need them!

Discover more at vitextech.com

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