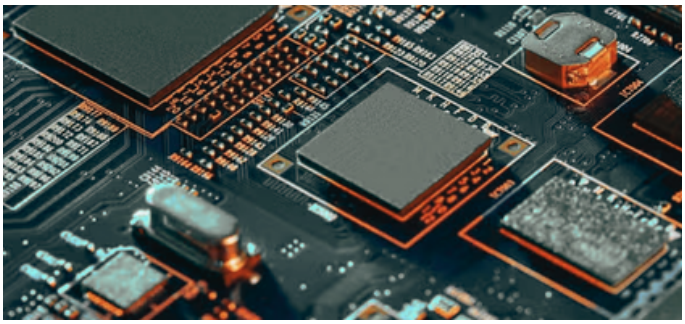
SILICON IP

Ethernet: 1G/40G/100G/200G/800G Ethernet Controller

Supports ultra-fast network speeds ranging from 1G to 800G, providing high-performance connectivity for modern data centers and enterprise networks.

For sales, please contact info@xtremesilica.com

OVERVIEW



Ethernet controllers for 1G, 40G, 100G, 200G, and 800G enable efficient data transmission across varying network speeds. While 1G is common in enterprise settings, 40G and 100G cater to high-performance computing and data centers. The latest 200G and 800G controllers drive ultra-fast communication in hyperscale data centers and AI workloads, supporting massive parallel transfers with low-latency, virtualization, and advanced offloading, ensuring scalability in modern networks.

KEY FEATURES

Scalable Bandwidth

- Supports varying speeds (1G, 40G, 100G, 200G, 800G) to meet different network demands, from enterprise to hyperscale data centers.

Low-Latency Packet Processing

- Optimized for minimal delay in data transmission, crucial for real-time applications.

Advanced Error Detection and Correction

- Ensures reliable data transfer through robust error correction mechanisms.

Network Virtualization Support

- Enables network function virtualization (NFV) and virtual LAN (VLAN) support for efficient resource allocation.

Offloading Capabilities

- Offloads CPU-intensive tasks like TCP segmentation and checksum calculations, improving overall system performance.

Energy Efficiency

- Implements power-saving techniques to reduce consumption during low network activity, crucial for large-scale deployments.

Jumbo Frame Support

- Accommodates larger packet sizes, improving throughput in high-performance networks.

Quality of Service (QoS)

- Manages network traffic priority, ensuring critical data receives bandwidth priority in high-demand environments

Enhanced Security Features

- Includes features like encrypted transmission, authentication protocols, and data integrity verification.

Support for RDMA

- Remote Direct Memory Access (RDMA) improves data transfer speed and reduces CPU usage in data-intensive environments.

Forward Error Correction (FEC)

- Ensures data integrity at higher speeds like 200G and 800G, reducing packet loss in long-distance transmissions.

Interoperability

- Compatible with various networks and legacy Ethernet systems for seamless upgrades.

1G/40G/100G/200G/800G ETHERNET CONTROLLER APPLICATIONS

Data Centers

- Enable high-speed connectivity between servers and storage systems, facilitating efficient data processing and storage management.

Cloud Computing

- Support scalable and flexible resource allocation, enhancing performance in cloud service delivery and virtualization.

High-Performance Computing (HPC)

- Provide the necessary bandwidth for data-intensive tasks, such as simulations and modeling in research and scientific applications

For sales, please contact info@xtremesilica.com

Telecommunications

- Improve network capacity and reliability for service providers, enabling better handling of voice, video, and data traffic.

Content Delivery Networks (CDNs)

- Enhance the distribution of multimedia content by enabling faster data transfers to end-users.

Enterprise Networking

- Support high-speed connections for internal networks, improving communication, collaboration, and data sharing within organizations.

AI and Machine Learning

- Facilitate rapid data transfer for processing large datasets, essential for training and deploying AI models.

Video Streaming

- Support high-definition video streaming services by ensuring sufficient bandwidth for seamless content delivery.

Financial Services

- Provide low-latency connections critical for trading platforms and financial transactions, where speed is essential for competitiveness.

Research Institutions

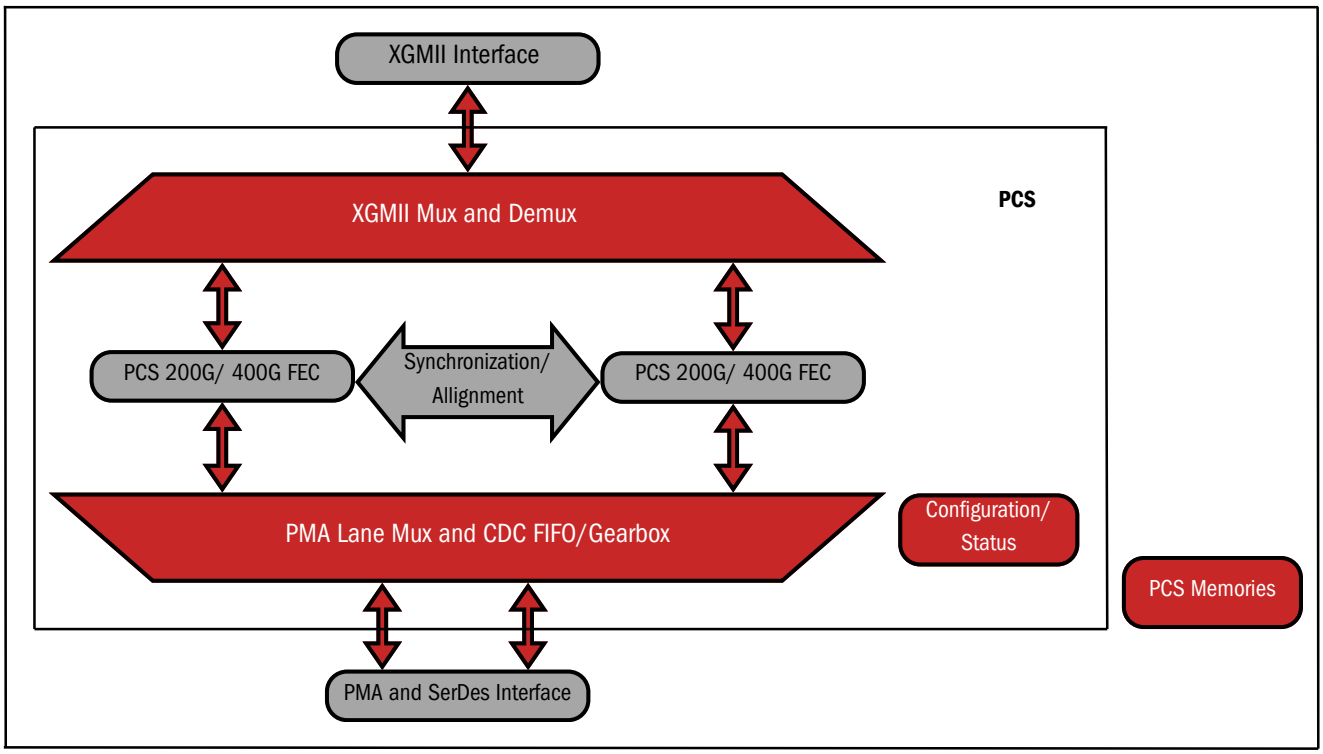
- Support data-heavy research activities, including genomics and big data analytics, requiring significant bandwidth and low latency

Government Networks

- Enhance secure and efficient communication for governmental operations, especially in defense and emergency response scenarios

1G/40G/100G/200G/800G ETHERNET CONTROLLER ARCHITECTURE

800G Ethernet Controller Architecture



For sales, please contact info@xtremesilica.com

XtremeSilica Technologies Private Limited
494, 2nd Floor, CMH Road, Indiranagar,
Bengaluru, Karnataka 560038 India
www.xtremesilica.com
info@xtremesilica.com
+91 79932 79934