Intel’s portfolio of interconnect technologies spans microns to miles – moving data within a chip, to package, processor node, through the data center, to the edge, via long-distance wired or wireless networks – and back.

OUT IN THE WORLD

Machine-generated data is driving explosive growth and wireless interconnect technologies are the conduit to connect the massive amounts of data generated to the data center, and connecting billions of people and things to each other. 5G high-bandwidth, low-latency wireless connectivity will facilitate more useful applications of the data, allowing for smarter and more personalized experiences.

IN THE DATA CENTER

The growing demand for computing has been driving the trend towards hyperscale data centers, some of which have the footprint of several football fields. Today, there is five times more data transferred in the data center than overall internet traffic, resulting in accelerated growth in data center fabric speeds and smart processing capabilities. High-speed, long-distance interconnect technologies are critical in driving performance at large scale while computing at low latency.

BETWEEN PROCESSORS AND DEVICES

Data-centric computing involves massive scale and large numbers of processors. This involves a specialized set of high-bandwidth and low-latency interconnect technologies that are critical for moving data between different compute engines, memory and IO within a data center rack, enabling these technologies to come together as one.

AT THE PROCESSOR LEVEL

Data within the chip is where it all begins, whether it is within the silicon IP (IP interconnect) or on package (chip to chip); advancements in interconnect improve efficiencies and enable performance scaling. Intel’s portfolio approach to on-die interconnect allows us to create best-in-class interconnects across a wide range of SoCs.

Example technologies: Snow Ridge, N3000 FPGA.

Example technologies: Intel Ethernet 800 Series, Silicon Photonics, Omni-Path.

Example technologies: Thunderbolt 3/USB4, Compute Express Link (CXL).

Example technologies: NetSpeed fabric, Foveros 3D chip technology.