Intel Xeon 6 with E-cores: Mobile Operators, Ecosystem Partners Show 5G Core Momentum

Industry highlights Xeon 6 platform capability to deliver secure, cost-effective, and efficiency at scale

March 2, 2026 — For more than a decade, Intel has powered the world's most demanding commercial networks. Now, mobile operators are deploying Intel® Xeon® 6 processors with E-cores (Efficient-cores) in production across the 5G core, moving beyond trials to large-scale rollouts that deliver measurable gains in performance-per-watt, footprint reduction, security, and operational efficiency.

Intel's 5G Core ecosystem is realizing meaningful gains in core density and power efficiency via solutions built on Xeon 6 with E-cores. To meet the rising demands for Zero Trust security, AI inferencing, and power efficiency optimization, the ecosystem is deepening its collaboration with Intel—accelerating innovation across telecom equipment manufacturers and independent software vendors to deliver sustained, real-world impact at scale on Intel's E-core architecture.

Intel Xeon 6 with E-cores: The Proven Foundation of the 5G Core

Dell Technologies and Intel continue to work closely to advance the telco cloud ecosystem. Through this collaboration, Dell's PowerEdge servers powered by Intel® Xeon® 6 processors with E-cores are helping accelerate adoption and delivering footprint reduction and efficiency gains in 5G core networks.

Ericsson's deep partnership with Intel is already delivering commercial success—Ericsson's Cloud Native Infrastructure Solution and Packet Core solutions on Intel® Xeon® 6 E-cores are commercially available and gaining serious market traction. Now we're raising the bar. Ericsson will use Intel® Xeon® 6+ processors to power its next generation 400G fabric. With same core density, pre-validation shows a substantial 30% performance gain and over 60% performance-per-watt improvement[1] on Xeon 6+ processor configuration. This architectural shift boosts efficiency and delivers meaningful gains in performance per rack, unlocking breakthrough TCO savings for 5G core deployments for mobile operators.

"HPE ProLiant Compute Gen12 servers, powered by Intel Xeon 6 processors with E-cores, are becoming a foundational platform for modernizing 5G core infrastructure, enabling operators to consolidate server footprints and improve power efficiency across their networks. The platform provides a secure and trusted foundation for building a zero-trust 5G core, protecting sensitive information and strengthening the security posture of critical network functions."

Fernando Castro Cristin, VP and General Manager, Telco Infrastructure Business, HPE

NEC is advancing the commercial deployment of its AI driven 4G/5G Core and UPF solutions powered by Intel® Xeon® 6 E cores processors. This combination delivers outstanding performance per watt efficiency and high-density scalability, enabling operators to reduce power consumption while accommodating rapidly growing traffic demands. Commercial deployments are already progressing, and we expect adoption to further expand as network modernization and sustainability initiatives continue to accelerate. By applying AI, NEC is committed to contributing to a more eco-friendly and sustainable society while driving continuous innovation in close collaboration with Intel.

Nokia and Intel have successfully completed an industry-first production network trial of Intel Infrastructure Power Manager (IPM) in a live production 5G core environment at a Tier1 mobile operator, delivering average power savings of over 35% per server[2]. The trial marks an important milestone in the collaboration between Intel and Nokia, demonstrating that significant power reductions can be achieved without any impact to service levels or network performance.

Nokia has also adopted a security first mindset as telecommunications infrastructure evolves to address increasingly sophisticated cyber threats. Nokia is collaborating with Intel to adopt Intel's Zero Trust Packet Core architecture that integrates Intel Quick Assist Technology (QAT) and Intel Trust Domain Extensions (TDX) to deliver high performance, hardware assured protection across the 5G core. Optimization based on Intel QAT is planned for commercialization this year. For network encryption, the collaboration has achieved up to an 8x improvement in TLS handshake performance[3] using Intel QAT built into Intel silicon. Intel TDX offers a compelling solution to protect sensitive data and applications with robust attestation.

NTT DOCOMO has selected Intel Xeon 6 processors with E-cores for deployment in our 5G production network, recognizing their compelling performance-per-watt efficiency for telecommunications infrastructure. The Intel Xeon 6 E-cores platform aligns with our strategic priorities of maximizing subscriber density capabilities while optimizing power consumption and operational costs. Intel Xeon 6 E-cores enables us to handle increasing network demands with reduced datacenter footprint and enhanced energy efficiency. The platform integration supports our commitment to deploying advanced technology that delivers superior value while meeting our sustainability and operational excellence objectives.

"Rakuten Mobile's long-term partnership with Intel is a strategic advantage as we push the boundaries of 5G innovation. The upcoming integration of Intel Xeon 6 E-cores into our commercial 5G network is pivotal: it enables us to achieve unparalleled efficiency, significantly lowering power consumption across our cloud-native, containerized 5G core, and solidifying our commitment to sustainable, high-performance connectivity nationwide."

Hiroshi Takeshita, Managing Executive Officer and Vice CTO, Rakuten Mobile

"Samsung's Cloud-native Core is now powered by Intel Xeon 6 with E-cores, delivering superior performance, higher density, and strong market traction. Samsung's 5G Core is commercially available with advanced AI-driven autonomous network capabilities that use live network data for time sensitive operations on Intel Xeon 6 with E-cores. This AI-enabled core allows operators to scale AI inferencing on existing hardware platforms, enabling adoption of 5G Core AI use cases without major infrastructure overhaul."

Boyoung Yoon, VP and Head of Cloud Solution Business, Networks Business at Samsung Electronics

SK Telecom and Intel are driving mobile core evolution together, with Intel® Xeon® 6 E-core processors being prepared for deployment in SKT's network, targeting notable capacity and power efficiency gains. SK Telecom is also strategically prioritizing a security first approach and is currently evaluating the application of Intel® Xeon® advanced security capabilities to further protect sensitive core network data and ensure service integrity. Looking ahead, SK Telecom and Intel are deepening their collaboration to accelerate the shift toward AI-enabled, proactive, and simplified network operations, paving the path toward AI-driven 6G networks.

About Intel

Intel (Nasdaq: INTC) is an industry leader, creating world-changing technology that enables global progress and enriches lives. Inspired by Moore's Law, we continuously work to advance the design and manufacturing of semiconductors to help address our customers' greatest challenges. By embedding intelligence in the cloud, network, edge and every kind of computing device, we unleash the potential of data to transform business and society for the better. To learn more about Intel's innovations, go to newsroom.intel.com and intel.com.

The Small Print:

[1]Testing by Ericsson as of February 2026, versus Intel Xeon 6 Processors with E-cores. Results may vary.

[2] Measured in customer lab November 2024, validated by Intel

[3] Tested by Intel as of May 6th, 2024
Intel Beechnut City Server with 1 x Intel(R) Xeon(R) 6780E, 144 cores. RAM: 256GB (16x16GB DDR5 5600 MT/s [5600 MT/s]). BIOS version SE5C6200.86B.0020.P22.2103231313. OS: Ubuntu 22.04 LTS (kernel 5.15.0-27-generic); NGNIX v0.5.1; Open SSL openssl-3.1.3; QAT Engine v1.4.0; intel-ipsec-mb v1.4; ipp-crypto ipp-crypto_2021_8.