intel **XEON**

BCM Delivers Fast, Extended Access to 4th Gen Intel® Xeon® Scalable Platform Innovations

BCM Advanced Research motherboard and server solutions enabled by 4th Gen Intel® Xeon® Scalable processors deliver AI acceleration, DDR5, PCIe 5.0, and CXL 1.1 over extended product life cycles for regulated industries

Many, if not all, industries are facing the challenge of constant data growth and increasing workload complexity and the need to embrace AI and machine learning to stay competitive. Innovations such as Intel® 7 process technology are leading to more-powerful CPUs with more cores than ever before, alongside blazing-fast interconnects over PCIe 5.0 and Compute Express Link (CXL). However, organizations in highly regulated industries are having to wait to embrace these new innovations because of lengthy certification cycles, putting them a step behind the market in meeting customer demands.

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—Tom Skibinski, senior vice president of Sales and Marketing at BCM

## Challenge: Navigating new product introductions (NPIs)

Regulated industries, including manufacturing, healthcare, digital safety, government, and avionics, each have their own set of certifications they must obtain prior to deploying new technology. Certification and approval can take two to three years on average, during which time an organization may exhaust a product cycle with a traditional supplier. These organizations need long-term access to technology solutions with five-to-seven-year life spans. To compound the challenge further, these industries must also abide by a stringent revision control policy that means, once they obtain regulatory approval for a solution, they cannot make changes to that solution's configuration without risking certification status.

Solution: 4th Gen Intel® Xeon® Scalable processor-enabled platforms from BCM

Working in close collaboration with Intel, BCM is simplifying the deployment path for customers to take advantage of 4th Gen Intel Xeon Scalable processors as early as possible in the product life cycle. BCM HPM-SRSUA/HPM-SRSDE motherboards and HPS-SRSUA/HPS-SRSDE server solutions give customers breakthrough performance with up to 52 processor cores per socket,[1] built-in AI acceleration and security capabilities, DDR5 memory, and PCIe 5.0 connectivity with CXL 1.1. "We've aligned with Intel on the 4th Gen Intel Xeon Scalable processor launch so that customers can maximize the life-cycle value of their deployments and avoid premature obsolescence," says Tom Skibinski, senior vice president of Sales and Marketing at BCM. Customers in regulated industries can drive the maximum value from their 4th Gen deployments, better manage their NPIs, and benefit from the latest technologies for a full five to seven years before the next certification cycle.

Example use cases for BCM solutions enabled by 4th Gen Intel® Xeon® Scalable processors
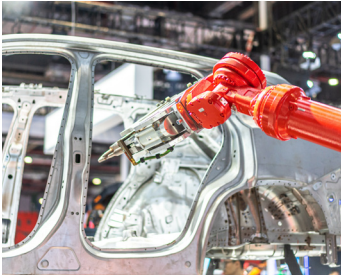
Manufacturing
Robotics, assembly line defect detection, and quality control

Healthcare
Ultrasound, medical diagnostics, AI-enabled pathology or radiology

Digital Safety
Smart facilities, entry control and monitoring, checkpoint systems

Government/Aviation
Onboard computers and ruggedized field equipment

How it works

BCM offers a selection of 4th Gen Intel Xeon Scalable processor-enabled offerings at various entry points. The HPM-SRSUA motherboard is a single-socket ATX board with up to six DDR5 4,800 MT/s slots and up to seven PCIe 5.0 slots (four 16-pin slots and three 4-pin slots). The HPM-SRSDE is a dual-socket EATX board, offering double the memory capacity of the single-socket version. Both offerings are available in fully built-out server rack variants: the single-socket HPS-SRSUA and dual-socket HPS-SRSUA, respectively.

Fewer surprises with product continuity and long-life availability[2]

This series of offerings is designed to deliver flexibility and server-class performance in industries that are accustomed to lengthy certification cycles. "Compute continuity is the highest priority for our customers, who need to minimize the impact of bringing in new products," Skibinski says. Businesses in regulated industries expend dramatic, multidepartmental efforts and numerous resources on NPIs or product revisions, making it costly and complicated to integrate new solutions or even make minor adjustments postdeployment.

Because businesses must wait two to three years for certification, often their suppliers will move on to future generations and leave them with a curtailed supply chain. That's the gap that BCM helps fill, by providing up to 10 years of product availability supported by Intel through long-life availability of 4th Gen IoT SKUs.[2] BCM worked in tandem with Intel to align their product launch with the launch of 4th Gen Intel Xeon Scalable processors. "With 4th Gen, we're here and we're early," Skibinski says. "Customers are going to get the earliest possible access to the latest tech while benefitting from the longest possible product life cycle. With Intel's help, we're making sure they don't fall behind the technology curve."
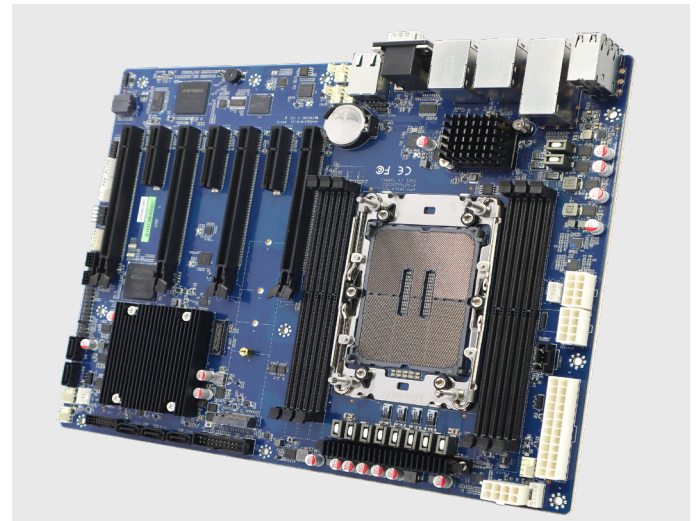

Figure 1: The BCM HPM-SRSUA motherboard enabled by 4th Gen Intel® Xeon® Scalable processors. BCM also offers a dual-socket EATX form factor board with double the memory capacity.
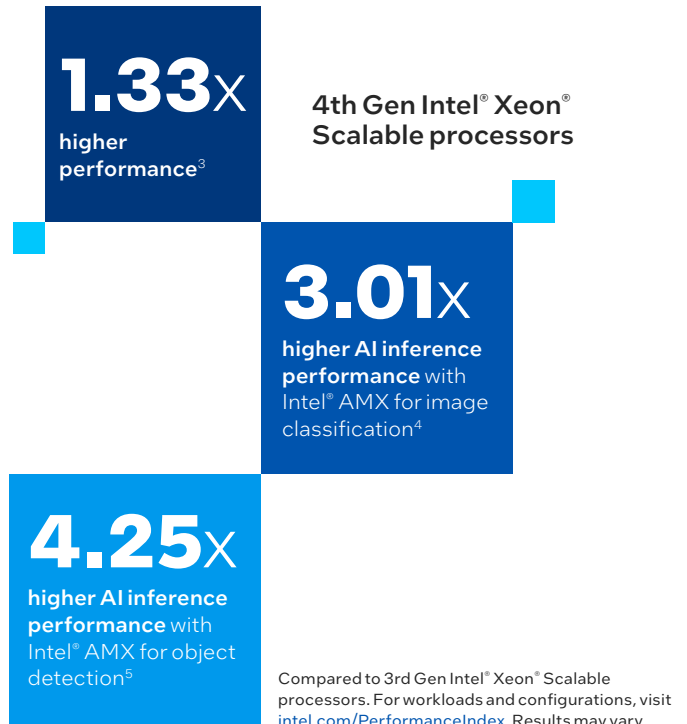
BCM HPM-SRSUA features:

- 4th Gen Intel® Xeon® Scalable processor
- 6x DDR5 4,800 MT/s RDIMM and LRDIMM support up to 384 GB system memory
- IPMI 2.0 via AST 2600 BMC controller onboard
- TPM 2.0 Nuvoton NPCT750AADYX
- 1x Intel® I225-V 2.5GbE Ethernet, optional 2x Intel® X550-AT2 10GbE Ethernet, 1x Intel® I210-AT GbE
- 4x 16-pin PCIe 5.0 slots, 3x 4-pin PCIe 5.0 slots
- 1x M.2 M-key slot to support 1x SATA or 1x PCIe 3.0 x4 NVMe SSD
- 5x SATA III RAID 0, 1, 5, 10
- 4x USB 3.0, 2x USB 2.0, 1x VGA
- EMC Certified (EMI+EMS), FCC Class B, PFOS, REACH

Easier innovation with built-in AI acceleration

AI and machine learning are major growth areas for IoT implementations such as medical diagnostics, robotics, and object recognition in computer vision use cases. 4th Gen Intel Xeon Scalable processors empower BCM solutions with built-in AI acceleration and Intel® Advanced Matrix Extensions (Intel® AMX)—a new AI engine for Intel® Deep Learning Boost (Intel® DL Boost). This engine integrates extensive hardware and software optimization as well as support for int8 and BF16 data types to drive fast AI inference performance. High performance for AI workloads in the CPU can also reduce the need for discrete GPUs, for potentially leaner configurations and lower hardware costs.

"The 4th Gen Intel® Xeon® Scalable platform is what we call a milestone generation. Higher core counts with the introduction of PCIe 5.0, DDR5, and CXL 1.1 check all the boxes for our customers."

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1.33x
higher performance[3]

4th Gen Intel® Xeon® Scalable processors

3.01x
higher AI inference performance with Intel® AMX for image classification[4]

4.25x
higher AI inference performance with Intel® AMX for object detection[5]

Compared to 3rd Gen Intel® Xeon® Scalable processors. For workloads and configurations, visit intel.com/PerformanceIndex. Results may vary.

More cores where performance is a priority

Designed with innovative Intel 7 process technology, 4th Gen Intel Xeon Scalable processors offer up to 52 cores[1] for exceptional performance. BCM motherboards enabled by 4th Gen introduce several key technologies that customers have been waiting for. Skibinski says, "The 4th Gen Intel Xeon Scalable platform is what we call a milestone generation. Higher core counts with the introduction of PCIe 5.0, DDR5, and CXL 1.1 check all the boxes for our customers."

More efficient multitasking, bigger data pipelines, and data coherency

Platforms can handle bigger workloads and move more data faster with the introduction of DDR5 memory, PCIe 5.0 with Intel® Data Streaming Accelerator (Intel® DSA), and CXL 1.1. The single-socket BCM HPM-SRSUA motherboard supports up to six DDR5 4,800 MT/s modules, while its dual-socket counterpart the HPM-SRSDE supports up to 12 DDR5 modules. PCIe 5.0 interconnects enhanced with Intel DSA offer high-bandwidth, low-latency expansion to add in customized FPGA accelerators, video capture cards, NVMe SSDs, and RAID controllers.

With all those add-in cards, CXL will help by boosting data flow efficiency and memory usage. CXL 1.1 is an open interconnect standard that enables memory pooling and cache coherency across the host and external devices connected over PCIe 5.0, enabling all CPUs and devices in a configuration to see and act on the same data pools for more-efficient memory allocation and fewer idle memory blocks. The introduction of CXL with this latest generation opens up new possibilities for system optimization and cost reduction.

The features and benefits of 4th Gen Intel® Xeon® Scalable processor-enabled BCM systems

Long-life availability[2]
Stabilize NPI refresh rates, maximize ROI for certification costs, and reduce the risk of unexpected changes.

More performance[3] with up to 52 cores[1]
Handle more-demanding workloads and consolidate many older systems into fewer, more-powerful systems.

Built-in AI acceleration
Deploy advanced AI more cost-efficiently, with the potential to reduce the need for discrete GPUs.

DDR5 memory, PCIe 5.0, and CXL 1.1
Move more data faster, run more simultaneous apps, and enable efficient memory sharing between CPUs and PCIe-connected devices.

Built-in security capabilities
Help protect vulnerable systems in the field or sensitive data that's leaving the network perimeter.

Robust platform hardening starts at the chip level

Data security is a major concern for IoT deployments where critical systems are out in the field and can be vulnerable to physical tampering. Security is also becoming more important for use cases where businesses capture data and send it elsewhere for processing and analysis, such as in medical environments where pathology scans are transferred to laboratories for research purposes. In these cases, hardware-enabled security in 4th Gen Intel Xeon Scalable processors helps harden BCM configurations with protection that starts below the operating system (OS).

- **Intel® Software Guard Extensions (Intel® SGX)** isolates workloads in trusted memory enclaves to help secure data at rest and data in flight.

- **Intel® Total Memory Encryption (Intel® TME)** fully encrypts all data in memory, including security keys, which helps prevent data breaches from physical DIMM removal.

- **Intel® Platform Firmware Resilience (Intel® PFR)** helps protect against below-the-OS attacks by monitoring system bus traffic, verifying platform integrity, and restoring corrupted firmware.

"We work with a lot of system integrators and OEMs that cater to government agencies and design and manufacture systems where cybersecurity is a top concern," Skibinski says. "The embedded security features in Intel® processors make it easier for us to provide the assurance these customers need, and without it they might go somewhere else."

Conclusion: The latest technologies made available sooner and for longer life cycles

"We've long served customers in regulated industries that deal with life-cycle access issues, so we have a deep understanding of the challenges they face. Because 4th Gen is such a momentous launch, we've worked hard to make sure this product is available as early as possible," Skibinski says. The BCM HPM-SRSUA and HPM-SRSDE motherboards and the complete HPS-SRSUA and HPS-SRSDE server solutions give customers access to 4th Gen Intel Xeon Scalable processors and numerous milestone technologies like DDR5, PCIe 5.0, and CXL. However, most importantly, BCM delivers these solutions with Intel-supported extended life cycles, helping regulated industries thrive despite the many difficulties and delays involved with certification.

Learn more

Explore BCM HPM-SRSUA and HPM-SRSDE solutions on **the BCM website**.

Learn more about 4th Gen Intel Xeon Scalable processors at **intel.com/4thgenxeon-iot**.

About BCM

BCM is a global technology provider and Intel® Partner Alliance Titanium member offering a wide range of industrial motherboard and system products paired with custom design services for ODM/OEM partners.

www.bcmcom.com