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Application Note

Portwell, Inc.

PCOM-B800GT: A COM-HPC Server Type Size E Module with Intel® Xeon® D-2700 Processor that Adds a Dynamic Element to Empower “Smarter” Edge IoT



Situation

Because computing—visible or ambient—is everywhere, operating 24x7 nowadays, embedded computing design faces ever-increasing challenges, including but not limited to, high-performance multi-core processing with AI capabilities, wider temperature range support for critical environment deployments, and enhanced compute efficiency for real-time applications. The demand for edge computing enablers has been growing at a higher rate every single day. These use cases require high-performance computing and shortened processing time to enable real-time computing applications in, for example, real-time control systems and mission critical equipment. In addition, as software-defined computing technology is utilized on more and more networking applications to simplify management on system backup and failover operations, superior computing performance and enhanced network throughput have become essential requirements for regional and access edge data centers. And, while this industry-wide transformation is growing, various complex digital transformation challenges still need to be overcome. Whether it's connecting the industrial edge to enterprise networks or facilitating deterministic communications from industrial endpoints to IT edge computing servers, it must ensure effective real-time processing performance that does not impact the safe and secure operations of OT (Operational Technology) endpoints in any way.

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Solution

To fulfill the demand and requirements of edge server computing, in addition to software technologies and infrastructure, the fundamental enabler is application-specific computing hardware and architecture designed with powerful performance. In response, Portwell has designed and developed PCOM-B800GT, a COM-HPC Server Type Size E module (200mm x 160mm) featuring Intel® Xeon® D-2700 series processors providing server-grade computing power with extended temperature support in solder-down integration. Designed with support for AI workloads, low latency, and real-time computing and processing capabilities, Portwell's PCOM-B800GT empowers every IoT computing device from the edge to data center, and cloud, delivering AI capabilities and optimized real-time, high-performance computing power. Plus, PCOM-B800GT's modular design concept helps accelerate the development and deployment of your infrastructure and applications, now and in the future.

More specifically, by featuring the Intel Xeon D-2700 processors with highly integrated BGA package of server-grade performance and I/O interfaces, PCOM-B800GT delivers 4C/8T to 20C/40T computing power for a diverse range of multi-tasking compute-intensive workload consolidation applications. It also supports Intel Deep Learning Boost (Intel DL Boost) and Intel Advanced Vector Extensions 512 (Intel AVX-512) technologies, to bring enhanced performance to demanding AI workloads in data science, model training and machine/deep learning inference. In addition, on a compact 200mm x 160mm embedded x86 platform, PCOM-B800GT features 32x lanes of PCIe Gen 4 and 16x lanes of PCIe Gen 3 interfaces, which double the data transfer rate over PCIe Gen 3, delivering higher bandwidth, lower latency, and helping to extend bandwidth to external PCIe GPU/DPU cards for various AI and server applications.

Moreover, in addition to being designed to support Intel Xeon D-2700 processors up to 20 cores/40 threads, industrial use conditions, AI capabilities, Intel Time Coordinated Computing (Intel TCC), PCIe Gen 4, and up to 100Gb Ethernet, PCOM-B800GT also offers long life product support of 10+ years and supports up to 8-port 10G KR Ethernet interface and 8x DDR4 ECC DIMMs up to 1024GB memory capacity. PCOM-B800GT can deliver superior performance in various operating environments. Its fully integrated and flexible I/O expansion makes it the optimal choice for mission critical use conditions and AI edge computing applications in industrial automation, machine vision, communication, IoT, edge data center, medical equipment, transportation, and automated test equipment.

All in all, as an advanced COM-HPC module with server-grade Intel Xeon D-2700 processors integrating powerful edge AIoT-centric features and capabilities, Portwell's PCOM-B800GT is the transformational building block for computing solutions in mission critical, edge server and real-time system applications. Portwell believes it could very well be the new resolution for next-gen computing designs to sustain operations in the rugged edge conditions tackling challenges caused by abrupt climate changes, while at a concurrent pace, accelerate operational efficiency that separates your business from the competition.

PCOM-B800GT

COM-HPC Server Type Size E Module with Intel Xeon D-2700 Processor

- Intel Xeon D-2700 processors series in latest COM-HPC Server Type architecture to provide powerful I/O bandwidth and flexibility
- Enhancement of deep learning for AI workloads with Intel DL Boost support
- Intel TCC/TSN with 2.5GbE optimized for low latency real-time task and management
- Up to 20C/40T supporting industrial temperature range via selected SKUs
- Eight DDR4 ECC DIMMs up to 1024GB and Eight 10GbE or four 25GbE KR connection



PCOM-B800GT

PCOM-B800GT Featuring Intel® Xeon® D-2700 Family Processors, Powerful Element to Enable Smarter Edge IoT

About Portwell

Portwell, Inc., founded in 1993, has focused herself towards a high-technology scope that brings company value through the state-of-the-art. For the past years, continuous leading product development and revenue growth have made Portwell a major Mission-Critical Application Platform Provider in the world. The in-house design of industrial computers and application platforms by Portwell has also been targeted to meet our customer needs for flexibility. Portwell, Inc., an IoT Solutions Titanium Partner of the Intel® Partner Alliance, a community of communications and embedded developers and solution providers, designs and manufactures Communication Appliances along with a full range of Industrial Platform Service (Computer on Module, Embedded Computing, Industrial Computer), Communication Appliance Service (Software Defined Wide Area Network, ANS series, AnnA ANS Network Associate), Vertical Market Service (Advanced Network Solutions, Gaming, Medical, industrial Automation, Smart Transportation, Energy, Smart Manufacturing, Internet of Things(IoT), AI Solutions, Mobility & Barcoding Solutions, EMS/DMS), Panel Device Service (Panel PC, LEAD Series) . With streamline access to the latest Intel technology, we paved the way with the broadest array of building blocks, delivering cutting-edge solutions to meet and even exceed the demanding needs of the ever-changing telecommunication, medical electronics, industrial automation, defense and life automation markets. Committed to supplying customers with a one-stop shopping approach of full product selection, competence and sophisticated customer support, Portwell helps all our customers pave the royal road to success and stay ahead of competition.



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Portwell, Inc., an IoT Solutions Titanium Partner of the Intel Partner Alliance, designs and manufactures a full range of IPC products (SBC, backplane, redundant power supply, rack mount & node chassis), embedded architecture solutions, DVR system platforms, and communications appliances. We provide complete R&D and project management services to decrease customers' time to market and reduce project risk and cost. Portwell is also an ISO 13485, ISO 9001, and ISO 14001-certified company that deploys quality assurance through product design, verification, and manufacturing cycles.



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