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Application Note

Portwell, Inc.

PCOM-B883VG2 : A COM-HPC Client Type Size B Module with 13th Gen Intel® Core™ Processor for Medical Equipment and Industrial Control Solutions

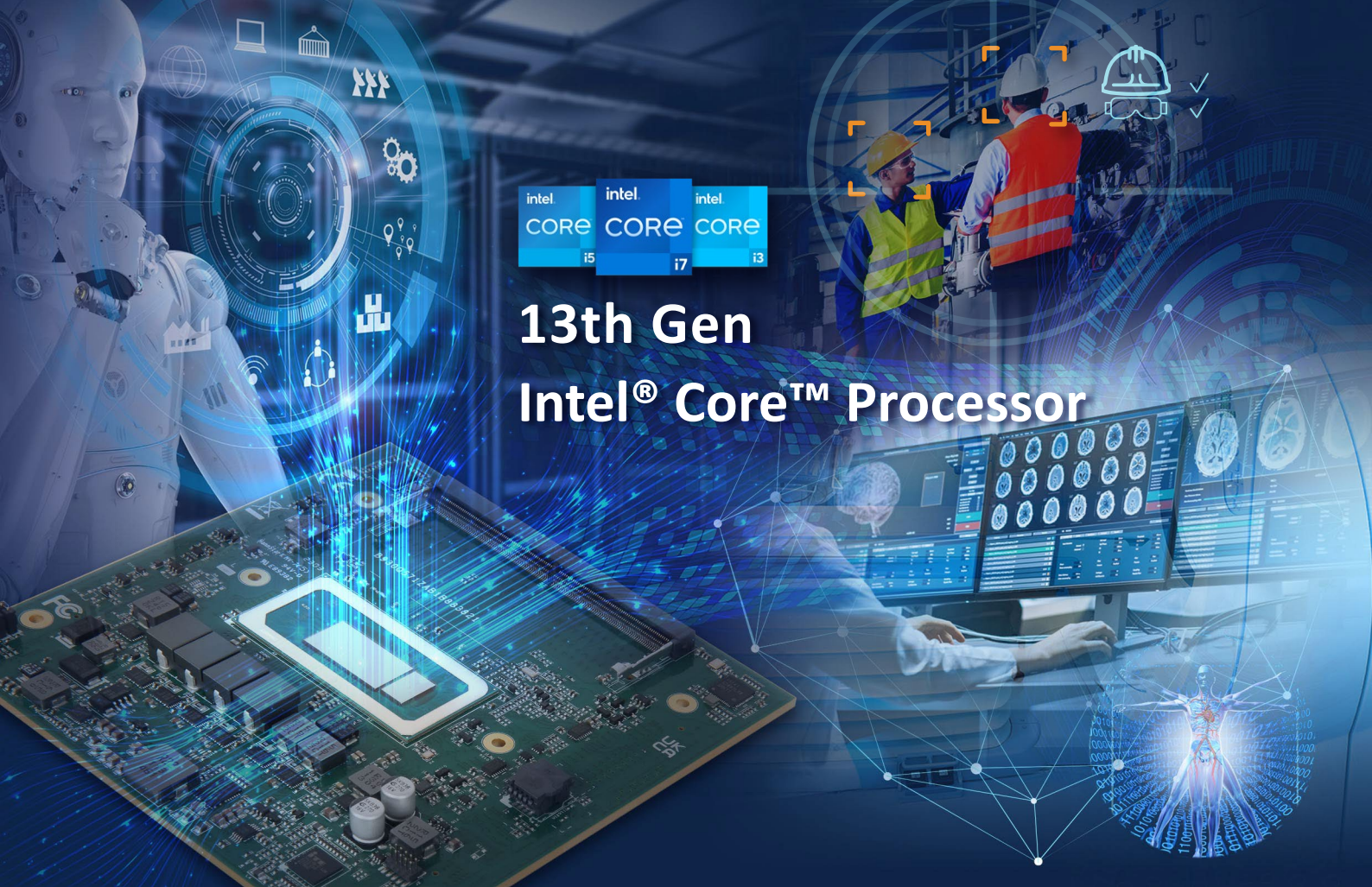


Situation

In recent years, as digital transformation has become increasingly prevalent for industry applications in medical equipment, industrial control and edge/network communication, the demand is growing for embedded computers to provide ever-accelerating high-performance computing and processing power while at the same time, to fulfill the strict reliability requirements. To enable these more advanced embedded computing solutions, limitless scalability is now determinedly expected to be a must have. As a result, the new COM-HPC (computer-on-module for high performance computing) specification emerged to complement the COM Express, extending the already highly scalable modular embedded computing design approach to facilitate a brand new portfolio of computer-on-module solutions that enable even greater upgradability and configurability with next-gen CPUs and high-speed I/O interfaces.

High-Performance Challenges Advancing Innovations

And in response, adding to its expanding COM-HPC computer-on-module product family, Portwell has developed the PCOM-B883VG2 COM-HPC Client Type Size B module (120mm x 120mm), based on the latest COM-HPC Revision 1.15 design specification, and powered by the 13th Gen Intel Core embedded processors.



13th Gen Intel® Core™ Processor

More specifically, based on the advanced COM-HPC computer-on-module architecture, the PCOM-B883VG2 is designed with the 13th Gen Intel Core mobile processor series which provides up to 14 cores combining 6 Performance-cores (P-cores) and 8 Efficient-cores (E-cores), and 20 threads compute capabilities, 24 MB Intel Smart Cache, integrated Intel Iris X^e graphics with up to 96 EUs (Execution Units) enhancing fast and dynamic visual processing and AI inference, as well as industrial-grade features accelerating real-time performance and intelligence in challenging IoT edge computing environments. Built upon the Intel 7 advanced lithography process, the 13th Gen Intel Core processor series also offers excellent energy efficiency, making it particularly suitable for designing fan-less and small-scale system solutions for edge computing.

One COM-HPC Solution Enabling Applications Across Industries

Built with high scalability and I/O performance, the Portwell PCOM-B883VG2 COM-HPC Client Type Size B module can be deployed in diverse use scenarios, not only as an enabler in edge servers, but also as a core computing component for an extensive array of compact yet high-performance embedded computers, delivering greater performance for medical equipment, industrial instrumentation, transportation systems, ruggedized field computers, defense systems, and many more.

The PCOM-B883VG2 delivers high-performance CPU/GPU capabilities for edge AI computing on a compact size, while ensures stable and reliable operations under limited cooling conditions. An example use case is at the manufacturing facilities, the PCOM-B883VG2 is designed in embedded systems combined with security cameras, and through utilizing AI technologies to identify and validate whether an individual has the authorized right to access the factory, as well as is compliant with properly using standard personal protective equipment.

In medical devices, the PCOM-B883VG2 supports a variety of high-speed I/O interfaces, including PCIe Gen5 x8 lanes, which are ideal for pairing with FPGA/accelerator chips to optimize high-performance connectivity for compute acceleration to empower an extensive variety of medical/healthcare devices deployed in placement/space constrained conditions, such as ultrasound, CT, MRI and so on.

Complete Product Design, Technical Expertise and Project Experience

As a dedicated industrial and embedded computing solution provider with more than 30 years of trusted experience, Portwell provides comprehensive project support for product design, design guidelines, circuit diagram reviews and technical expertise, as well as production and certification processes. Portwell also offers a latest product roadmap for customers' forward planning on the next-gen product upgrades and new projects.

Portwell's PCOM-B883VG2 COM-HPC Client Type Size B module is a high-performance and greatly reliable computer-on-module solution that provides highly-scalable embedded computing design options for a broad spectrum of applications in the fields of medical equipment, industrial control and edge/network communication.

PCOM-B883VG, COM-HPC Client Type Size B Module with 13th Gen Intel® Core™ on Intel 7 Process

- Up to 14 cores compute capabilities with 6 Performance-cores (P-cores) and 8 Efficient-cores (E-cores)
- Intel Iris X^e graphics with up to 96 EUs
- 2x DDR5-4800 non-ECC SO-DIMMs up to 64GB
- 1x PCIe Gen5 x8 (selected SKUs), 2x PCIe Gen4 x4, and 8x PCIe Gen3 x1
- 2x USB4, 2x USB3.2 Gen 2, 8x USB2.0, 2x SATAIII, 3x DDI, eDP
- 2.5GbE based on Intel Ethernet Controller I226 Series with Intel TCC/TSN



PCOM-B883VG2

COM-HPC with 13th Generation Intel® Core™ Processor
for Medical Equipment, Industrial Automation,
Edge Computing Applications



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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Solutions

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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