



Application Note

Portwell, Inc.

Vertical Market in
Medical Application



Portwell Medical Application Note on Intel® Solution

Situation

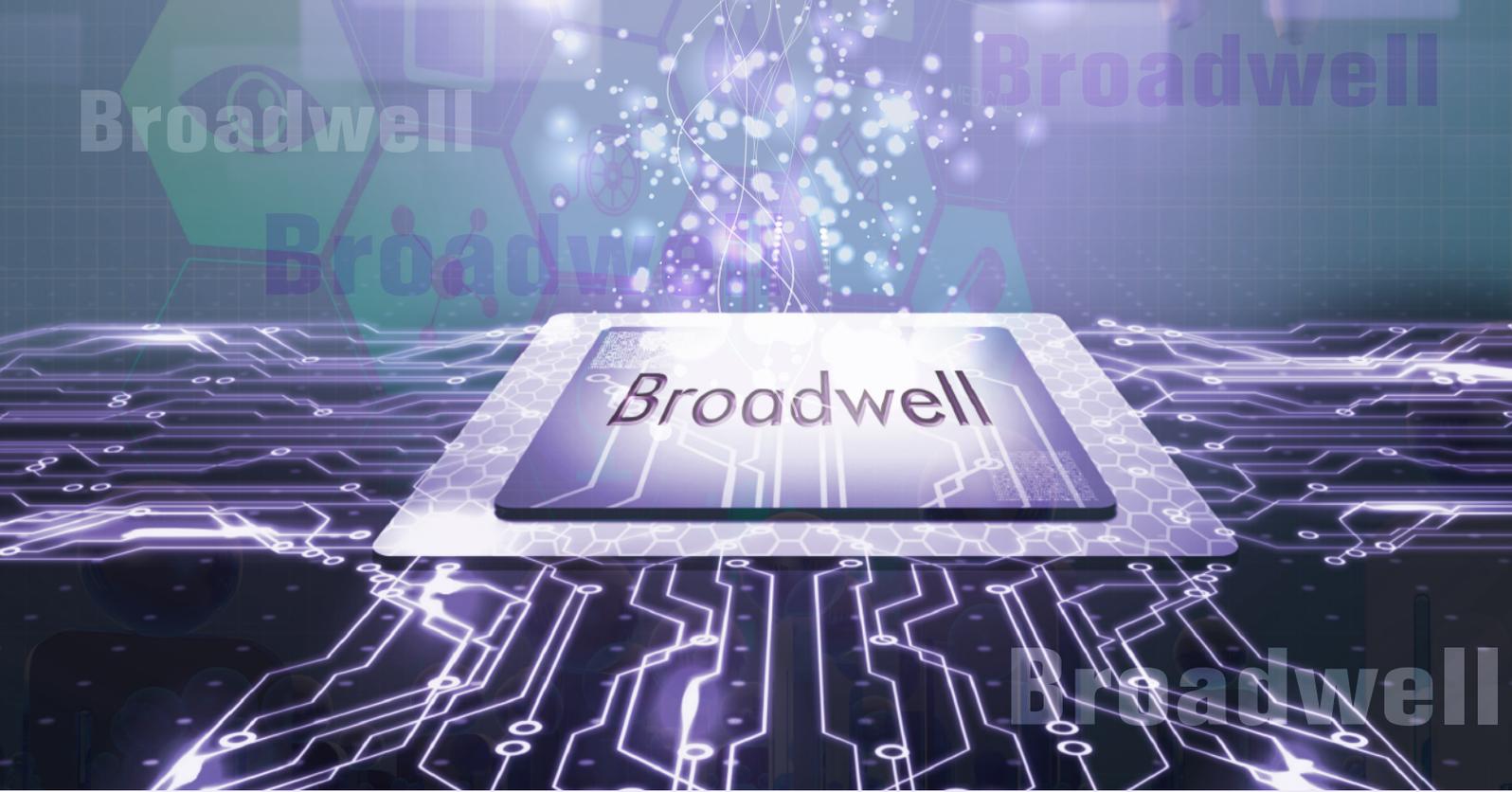
As one of the earliest specialized R&D enterprises in medical device area, Portwell Technology Group, a Premier member of intel, provides hardware solution for the development and production of the ultrasound including diagnostic ultrasound, advance piezoelectric and single-crystal transducer technology. Ultrasound devices are widely used for medical imaging, detection and measurement. Such applications require multi-channel data acquisition boards based on high-speed serial buses compliant with strict medical regulations

The COM Express modular solution delivers the core functionality while all of the application-specific features are designed into the baseboard creating a semi-custom embedded PC solution.

How to enable faster time-to-market and cost-effective customization alternatives? COM Express modular is the answer.

COM Express modular are not only highly integrated component that support system expansion and application-specific customizations but also improving form, fit and function, minimizing current and future design risks. As well as providing lower product lifecycle costs through module scalability and interchangeability.





Challenge

An ultrasound device includes a transducer, a central processing unit or computer connected to a display, imaging recorder, keyboard and power. The transducer sends sound waves which are reflected back to the transducer after they bounce off the structures that are the focus of the ultrasound. The central processing unit measures the echo intensities and speed and then converting them into electronic images that appears on the display.

For such application, it usually requires high-speed serial bus for the multi-channel data acquisition to form imaging. Otherwise, medical customer also needs higher computing power, but with low power consumption or well-dissipated design. It means that the thermal solution is considerably concerned. In order to help solve the customer end's system challenge, smart fan and well-design heat sink are being applied for the customer. In addition, long longevity support is also one of the main considerations for the medical customer in term of the material and service.

Solution and Benefit

PCOM-B635 in Type IV COM Express Basic form factor was adopted to assist the development of ultrasound devices. PCOM-B635 provides the following benefits:

High-Performance Processor:

PCOM-B635 incorporates the Intel Broadwell processor supporting Intel 5th Generation i7/i5/i3 CPU, featuring major upgrades in computing performance.

Outstanding Graphics Engine:

PCOM-B635 features Intel's Iris Pro graphics chips, which provides 20% more execution units than the previous platform and come with addition of a 128 MB embedded DRAM (eDRAM) cache to improve performance of bandwidth-limited workloads. Additionally, Intel Iris Pro Graphics 6200(GT3e) is an integrated graphics card and the fastest GPU of the Broadwell generation, It is built into several high-end CPUs specified at 47 W TDP and features a total of 48 execution units with support for DirectX 11.1, OpenGL 4.2, MSAA Support (2x, 4x)

Optimized Power Consumption:

lower power consumption is available for enhancing system reliability.

Pin-Out Type Upgrade:

PCOM-B635 supports PICMG COM 2.1 Type 6 Pin-Out, high-speed serial bus (PCIe, SATA III, USB3.0). Clients can customize HDMI, DP pin out to fulfill different application needs.

Multiple display support :

the module supports three independent displays, DP, HDMI or DVI and VGA with up to double greater 3D performance compared to its previous generation

Flexible Modular Design:

Product migration and replacement are easy to do thanks to the modular design concept on COM modules and boards. This can also accelerate product time-to-market.



About Portwell

Portwell, Inc. (www.portwell.com.tw), a world-leading innovator in the Industrial PC (IPC) market, provides a complete range of industrial products, including PICMG 1.0/1.3 single board computers, COM Express & Q7 modules, and Industrial M/B and system solutions—all delivered with advanced quality and service. Portwell serves customers in embedded markets such as military, automation, transportation, gaming, medical and digital security surveillance.



Portwell is a Premier member of the Intel® Internet of Things Solutions Alliance. From modular components to market-ready systems, Intel and the 250+ global member companies of the Intel Internet of Things Solutions Alliance provide scalable, interoperable solutions that accelerate deployment of intelligent devices and end-to-end analytics. Close collaboration with Intel and each other enables Alliance members to innovate with the latest technologies, helping developers deliver first-in-market solutions. Learn more at: intel.com/IoTSolutionsAlliance.

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