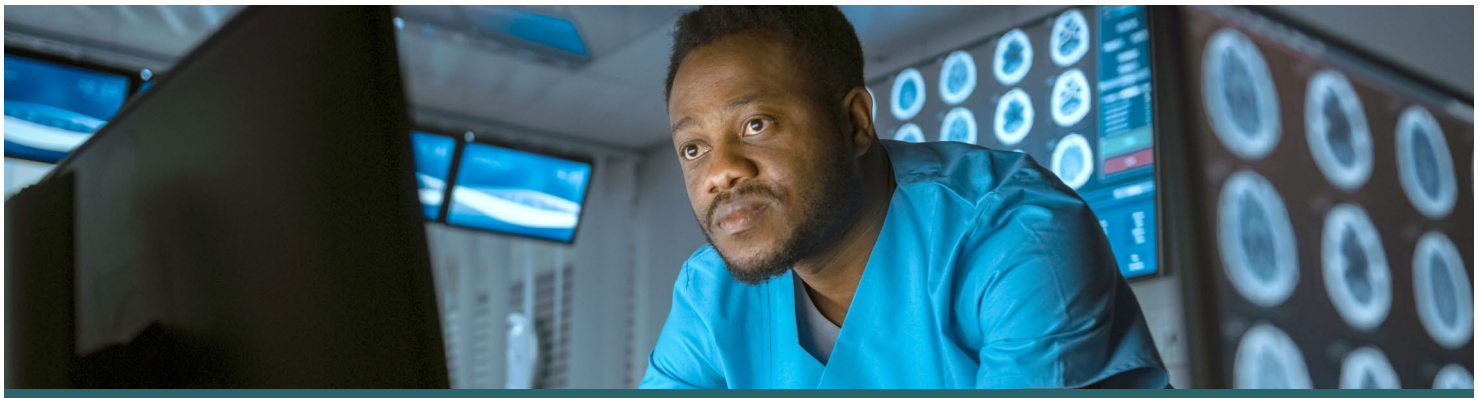

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TECHNOLOGY BRIEF

A Prescription for Medical Devices: Embedded Edge Computing

When the team at Dysis Medical wanted to develop smart medical devices that would help physicians detect cervical cancer more easily, they knew they needed a powerful computer to run the underlying software. While computing power was key, Dysis also needed a machine small enough to be wheeled into consulting rooms. The Intel® NUC (Next Unit of Computing) checked off both requirements perfectly, says Jonathan Smith, CEO of Simply NUC, Ltd., a company that customizes embedded mini-PC solutions for its clients.

Today, physicians use NUC-powered Dysis colposcopes, devices used for detailed cervical examinations, to thoroughly map the cervix. Cervical mapping highlights lesions that traditional manual examinations might miss, a critical factor in early detection of cancers. The imaging platforms—Dysis View and Dysis Ultra—help physicians determine treatment options with greater confidence.

Portable and Powerful Embedded Edge Computing

Dysis is not alone in its search for portable computing solutions. Most smart medical devices need some form of computing power to operate the machine and manage the generated data. "A tower PC is large and has to sit under a desk with long cables that need to extend to a monitor and peripherals. It's just not conducive to portability," Smith says.

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At four-by-four inches and less than two inches tall, the Intel NUC is truly a small form factor as compared to the traditional tower PC. It provides a much smaller footprint without compromising computing capability. Using the NUC, medical devices can be reduced in size. As a result, the devices can be easily moved around in hospitals and other healthcare settings.

Healthcare facilities also need smart medical devices to be reliable, given that patient diagnoses and well-being are on the line. "The equipment needs to do the job right at the precise time that the physician needs it to do it," Smith says. Another critical factor for such computers is security at the embedded edge. Personal health information (PHI) is sensitive, so the NUC has security built in. Technologies like Intel vPro® and Intel® Trusted Platform Module (TPM) help IT to encrypt sensitive data and manage and secure devices remotely, which gives businesses peace of mind.

Custom Embedded Solutions

Simply NUC functions as a systems integrator, working with clients like Dysis to develop custom solutions for the products they have in mind. Dysis, for example, needed embedded computing power, a custom system configuration, and to run their branded software under the hood.

"We have the ability to not only provide a wide variety of mini-PC models, but also the expertise to customize any hardware configurations and manage the software images our customers require," Smith says. "Customers value us as their one-stop shop. Each one has different needs, whether related to the operating system, specific I/O ports, or solution accessories. They trust us to carry the load on building the solution, allowing them more focus on delivery, installation, and support of the solution."

While much of Simply NUC's business is based on Intel® hardware and technology, the partnership is important in other ways, too. "It is critical to keep pace with changing technology," Smith says. "Knowing that Intel has a roadmap for next-generation technologies helps us stay ahead and guide our customers as to what is coming up and how they should be specifying and transitioning their solutions."

The Growth of Embedded Edge Devices

One of Simply NUC's key markets, embedded devices, is poised for global growth, and the company finds applications for portable embedded edge computing devices in a whole range of sectors—from education to transportation to digital signage, for a variety of use cases.

For example, Simply NUC works with a customer that provides check-in, bag tagging, and weighing solutions for airlines and airports. "We are involved in providing computing power for these automated solutions," Smith says. Automotive manufacturers also use Simply NUC to power robots. They need computing in a small and mobile form factor on a factory production line.

Smith also expects the demand for NUCs to grow with the advancements of artificial intelligence (AI)-driven devices, as AI algorithms need high-power data processing at the edge, without the bulk. "It's all about computing in a rugged mini-PC without compromising stability, reliability, and performance," Smith says.

"We work with our customers and deliver custom solutions. We're about providing processing power, compactness, and efficiency; these are things that can make a game-changing difference," Smith says, whether that difference leads to earlier detection of cancer, fewer hiccups at the airport, or a more intelligent factory floor.

Learn more about Simply NUC, Ltd. IoT solutions.