



# Faster, Simpler Development of Secure, High Performance Medical Systems



Intel supports an open software and hardware architecture that lets you develop new products and deliver them to market quickly and cost-effectively.

Unprecedented global forces are transforming healthcare. This means that device manufacturers must contend with a rapidly evolving industry driven by intense competition, which is also subject to increasing demands for security. To succeed in this environment, you need an architectural approach to technology that helps you meet new growth opportunities while achieving quicker time-to-market.

## Intel provides the computing foundation that drives healthcare innovation:

- Industry-leading vector and graphics processing for CT, MRI, and other high-end imaging devices.
- Advanced processing performance for high-resolution, real-time ultrasound scanning, with the software portability across multiple devices.
- Energy-efficient multi-core processors for diagnostic and therapeutic devices, with hardware-based security technologies built-in.
- End-to-end healthcare IT solutions, providing secure, high volume data capture, movement, and storage.
- Connected fitness equipment that harnesses the performance of Intel® processors to drive lifelike graphics, great multimedia experiences, with energy efficiency for self-powered operation.

From high-performance imaging and ultrasound products to networked diagnostics, therapeutic, and fitness systems, Intel supports an open software and hardware architecture that lets you develop new products and deliver them to market quickly and cost-effectively.

With nearly a half-century of experience in the delivery of trusted, industry-tested products, Intel offers you comprehensive solutions in medical device security, long-life scalability, and healthcare IT that today's development challenges demand, backed by Intel's signature customer support.

This means you can continue to innovate, differentiate your products, and promote the benefits of new medical and healthcare usage models without having to reinvent functionality.

The ability of Intel® architecture to span multiple product generations also helps you address the challenges of hardware obsolescence, rewriting software, and medical device validation and certification. As your needs change, Intel offers a processor roadmap designed to scale, keeping you on the leading edge as medical technologies refresh.

## MARKET OVERVIEW

### Intel® Embedded Design Center

#### Meeting the time-to-market challenge

Secure, high-bandwidth network connectivity, the mobile device revolution, and functional integration are some of the main drivers of change in medical technology. At the same time, regulatory compliance requirements and complicated integration hurdles can add cost and complexity to your product introduction effort.

In addition to processors, software, and a broad range of development tools available from Intel, our open architectural approach gives you access to a broad range of third-party medical solutions designed with Intel® technology.

Intel's many decades of healthcare IT expertise, proven products, and signature customer support all work together to help you get to market more quickly and grow your business.

#### Security: built-in, not added on

As healthcare environments become more connected, safe, secure medical devices and networks are essential. Intel is joining forces with leading companies throughout the medical technology ecosystem to provide comprehensive security solutions that address everything from the smallest bedside terminal to high-performance back-end servers. Intel believes reliable, leading-edge security should be built-in to every medical device from the hardware layer up.

The growing demand for access to electronic medical records is driving the requirement for devices to be connected and interoperable, and this makes security a more pervasive issue than ever before. With the creation of baseline Medical Device Innovation, Safety and Security (MDISS) standards, Intel and other industry leaders are working to address security and safety issues from IT perspective.

Intel has developed a platform approach based on the combination of Wind River Systems\* hypervisor software, security technologies built in to Intel® multicore architecture, and software solutions from McAfee Security\*. The result is a comprehensive approach to security at all levels, from the application layer to below the operating system and security technologies built into the hardware layer itself. This comprehensive approach provides anti-malware protection, comprehensive threat analysis, strong data encryption, streamlined device management, data loss prevention, and compliance with federal and industry regulations.

#### Performance, roadmap scalability, and support

Networked medical devices span the range of computational and I/O performance, from high-end 3-D imaging and real-time ultrasound systems, to monitoring, diagnostic, and therapeutic devices with their requirements for portability and fan-less, low-power operation.

Intel helps you meet the challenge with a processor roadmap that scales from the advanced Intel® Xeon Phi™ processor family for highly parallel, vectorized applications and fast data analysis, to the multicore performance and built-in security technologies of Intel® Core™ processors, to the energy-efficient performance of Intel® Atom™ processors.

All are based on consistent Intel architecture, enabling interoperability with software re-usability, combined with the development advantages of Intel's industry-leading software tools and libraries.

Through its advanced component design and manufacturing capabilities, Intel delivers reliable, high volume platforms optimized across multiple processor, chipset,

memory, and controller components. But Intel's platform-based approach to medical solutions goes beyond delivering world-class silicon products.

Intel makes continuous investments in intelligent systems, platform-level solutions, and a closely aligned third-party ecosystem, backed by a broad range of developer products and services. Intel software tools and developer support assist you in design and deployment of new platforms, and we work with an extensive ecosystem of operating system, hardware, and software providers to enhance the value of Intel platforms.

The Intel ecosystem is notable for its ability to let our customers choose from a variety of embedded processors to bring products to market more quickly—and with reduced risk.

Members of the Intel® Intelligent Systems Alliance share a common vision of the convergence of computing technologies and are committed to the development of modular standards based building blocks, platforms, and solutions based on Intel processors, products, and services.

#### Intel is your trusted supplier

By developing intelligent systems, medical device manufacturers have the opportunity to satisfy growing market demand and meet the challenges of an ever-changing industry.

Intel offers you a unique level of expertise to make it happen, honed over decades in our own manufacturing facilities. By providing proven technology, comprehensive security and trusted support, Intel equips you with the development and certification headroom you need to deliver validated, interoperable medical and healthcare solutions, today and in the future.

