Microsemi’s Acquisition of Zarlink: A Prescription for Growth and Innovation

Stephen J. Swift

There is growing need in a wide variety of medical markets to solve difficult system challenges where power, performance, efficiency, security, and reliability are critically important. Microsemi’s recent acquisition of Zarlink brings key capabilities to a portfolio that already include some of the industry’s broadest ranges of products and technologies for implantable devices, diagnostic equipment, portable health monitoring systems, and other medical systems.

The acquisition is particularly important for addressing key challenges in the implantable device market, where there is increasing pressure to reduce size, increase functionality, and extend battery life while ensuring safety, reliability, and efficacy. Shrinking device size is one of the most critical challenges, and miniaturization has become the key growth driver for life-critical implantable devices such as cardioverter-defibrillators (IDCs) and cardiac rhythm management (CRM) products as the industry continues to explore new applications in therapies and diagnostics. The smaller the device, the less intimidating and invasive it is to implant. Compact devices also enable faster healing and are significantly less noticeable.

Zarlink has made considerable progress in these areas, with highly integrated, medical-grade radios that are used to wirelessly connect implanted medical devices with programming and monitoring equipment, and ultra-low-power radios that can extend battery life for ingested/sensor devices such as wireless endoscopy imaging capsules. Zarlink’s custom RF transceiver for the Given Imaging Pillcam™ capsule offers an ideal example. While conventional wisdom suggests that advanced packaging is the primary driver for shrinking implantable devices, power efficiency is also a huge factor. The less energy consumed by implantable devices, the smaller their batteries, which can represent a significant portion of the device footprint. Zarlink’s RF transceiver enables the Pillcam to operate with only two small batteries during its eight-hour journey through the digestive track as it takes more than 50,000 images and wirelessly transmits them to a portable recorder. The Pillcam

can relay up to 14 images per second while consuming less than 7.5 milliwatts of power.

The Zarlink acquisition also enables Microsemi to deliver solutions for wireless health monitoring applications, including ultra-low-power wearable devices that are connected within Body Area Networks, or “BodyNets.” These networks will enable users to track, monitor, and collect data about their health, and share this information with healthcare professionals and other third parties over wireless connections that could potentially include mobile handsets on cellular networks. Zarlink is a member of the IEEE802.15.6 standards body that is developing an international standard for this short-range, low-power, and highly reliable wireless communication technology that can be used in close proximity to, or inside, a human body.

Zarlink’s products join an already broad Microsemi portfolio that includes high-power FETs, IGBTs, and RF devices for MRI machines, plus power delivery-and-management solutions for implantable devices, and sense-and-control and power-management solutions for oncology-radiation treatment machines and portable patient monitoring systems. Microsemi also offers a family of flash-based field-programmable gate arrays (FPGAs) that squeeze greater functionality into smaller space while providing upgrade flexibility and robust security for portable medical devices. Ultra-low-power FPGAs, such as Microsemi’s flash-based IGLOO® devices, enable the implementation of a variety of storage and I/O functions that minimize power draw down for systems such as automated external defibrillators, which may be left unattended for weeks or months between tests. For equipment used in radiotherapy environments, Microsemi also has a complete portfolio of devices with high single event upset (SEU) immunity to unintended and unexpected configuration changes so that programmable logic can be used reliably. Additionally, the company’s flash-based FPGAs provide a live-at-power-up feature that gives users immediate access to control functions—key considerations for portable medical devices.

Microsemi’s acquisition of Zarlink offers a number of immediate benefits to the company. It strengthens Microsemi’s position in high-value medical markets with high barriers to entry, and it expands an already extensive mixed-signal product portfolio and associated design capabilities. It also is expected to drive revenue growth by building on existing product strategies and leveraging strong cross-selling potential across a shared base of overlapping customers. Microsemi also expects customers to realize significant benefits from its acquisition of Zarlink. The combined companies now have the opportunity to deliver additional value through new offerings as the company leverages its expanded portfolio to strengthen and extend its product roadmaps.

Stephen J. Swift is the sr. vice president and general manager of Microsemi Corp., Communications and Medical Products Group (CMPG).

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