

Spin-out hopes to be in black by seeing red

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Thermal imaging technology — the ability to generate visual images based on heat profiles rather than visible light — is a multibillion dollar industry. But because the technology is so cost prohibitive, it is a technology available only to government agencies and other organizations with seemingly bottomless pockets.

RedShift Systems Inc. wants to change all that. Officially launched this week, the Waltham-based spin-out of Aegis Semiconductor Inc. of Woburn is on a mission to bring affordable thermal imaging technology to the masses. According to the company, removing price constraints could allow the technology to prosper in a diverse group of applications, such as security and surveillance, municipal applications like fire fighting and even in the automotive industry. But, how much of a price reduction can **RedShift** make? “(Thermal imaging) modules today are in the order of about \$10,000 (per unit),” said Matthias Wagner, a co-founder of Aegis and current chief executive officer of **RedShift**. “We will be moving to \$1,000 and lower per module.”

The key to the cost reduction and, **RedShift** hopes, the proliferation of the technology to the general market is in part the fact that its platform can transform virtually any standard commercial camera into a thermal camera. This ability allows manufacturers to build on top of the hundreds of millions of commodity CMOS/CCD (complementary metal oxide semiconductor/charge-coupled device) sensors that are produced annually and to take advantage of the large, ongoing industry investments to improve these sensors' performance and reduce their cost. CMOS/CCD chips are already used in millions of devices, from facility security cameras to camera-enabled cell phones. The technology itself was originally developed at Aegis, as part of that company's telecommunications offering.

“During the development process at Aegis, they figured out that they could build a thermal imaging camera,” said Raj Alur, managing director at Vestbridge Partners, an investor in Aegis and **RedShift**. “Once it was deemed feasible, we decided to spin it out. Start-ups can't be working on two markets at the same time, so it was a logical step.”

As part of the spin out, Wagner left Aegis to become CEO of **RedShift**. Eugene Ma, chief technology officer, also left Aegis for the same position at **RedShift**. Alur will sit on the **RedShift** board of directors, and, while the company will be independent of Aegis, the same investors from Aegis will have an equity stake in **RedShift**. Alur puts the potential market for **RedShift**'s thermal imaging technology in the billions. According to Wagner, the current infrared market is about \$2 billion, where the slightly differentiated night-vision market approaches \$1 billion.

In the end, the potential applications will drive the market size. Initially, **RedShift** will focus on the security and surveillance market, where a cost-effective thermal imaging product would be applied to video surveillance and perimeter security. Because the unit is small and can sense temperature differences at the same range as a standard camera, the company expects additional applications to follow. The technology can penetrate most fog and smoke, making it idea for fire fighting applications, and could even be applied to the automotive industry for night driving scenarios, warning drivers of potential obstructions such as pedestrians or animals beyond the scope of ordinary headlights. According to Wagner, the company expects to have its first product fully developed by the end of the year, and begin shipping in early 2006. While the market may be large, Wagner intends to keep the company small, outsourcing as much of the manufacturing as possible.