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## The many forms of 'Rugged'

### Air Force BPAs reflect the diverse offerings in the ruggedized market

BY Brian Robinson

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The Air Force Standard Systems Group's recent selection of six vendors to provide system accessories and ruggedized devices was a recognition of the growing demand for better reliability in the burgeoning world of mobile computing.

The Information Technology Tool blanket purchase agreements, which include rugged notebooks and handheld and tablet computers, were awarded to GTSI Corp., Insight Public Sector, Intelligent Decision Systems Inc., Technology Integration Group, Westwood Computer Corp. and World Wide Technology Inc.

Though growing fast, ruggedization is still a small part of the overall market for mobile systems, said Tim Shea, a senior industry analyst with the Venture Development Corp.

Venture Development officials estimated the total market for fully rugged systems, the label for devices in the middle of the durability scale, at about \$700 million in 2002. This figure included sales of notebook and subnotebook computers, handhelds and personal digital assistants, tablet computers, and luggable and on-board fixed systems.

If the full range of reliability is considered — semirugged, fully rugged and ultrarugged — company officials believe the 2002 market was probably worth about \$3 billion, still only a fraction of the total mobile systems market.

Vendors fight a constant battle to convince customers of the value of the premium price for a ruggedized system, Shea said. A ruggedized laptop, for example, can raise the \$2,000 price tag of a regular commercial model an extra thousand dollars.

"But when you point out that regular systems in the field can break two or three times a year, and that the replacements push the total cost above that of a rugged system, and that the user can't do their job when the computer breaks, that's when rugged starts to make sense," Shea said.

Besides the military and federal agencies, Shea expects growing demand for rugged systems from hospitals and from state and local governments for homeland security and emergency response activities.

So, what is a rugged computer?

Mil-Std 810F, the industry standard, defines a rigorous set of tests for resistance to vibration, dust, water, temperature and repeated drops from various heights onto hard surfaces. Systems that pass these tests can qualify as fully rugged.

Another measure of ruggedness sometimes used with Mil-Std 810F is Ingress Protection, which rates a system's ability to withstand dust and water intrusion.

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Semirugged systems are the least expensive and most popular option, accounting for about two-thirds of the total rugged market. However, they don't conform to any particular standard. Vendors determine how to describe these systems' ruggedness.

"Semirugged systems come closer to the kind of performance you'd find in commercial systems," said Vince Menzione, vice president of the public sector for Itronix Corp., one of the suppliers for the Air Force BPAs.

For example, one reason semirugged systems are popular in Iraq, he said, is that soldiers can more easily view mapping software on the semirugged units' 15-inch screens, as opposed to the 12-inch screens typical of fully rugged systems.

In that case, he said, semirugged systems would provide protection against the kind of dust and dirt found in Iraq with performance similar to that of commercial systems, "but they wouldn't pass the [Mil-Std] drop test."

The Navy tends to buy a lot of semirugged notebooks because sailors can use them in tight spaces on ships and submarines, said Chris Pate, senior manager at GTSI. Because spare parts aren't always available, the Navy also likes the reliability of ruggedized systems.

"They don't need the fully rugged systems, and since price is still a consideration for laptops, semirugged is a good solution for them," he said. "Semirugged is not infallible, but it's better than nothing."

There's always a trade-off in moving from semirugged to fully rugged, said Jan O'Hara, federal director of sales at Panasonic Computer Solutions Co., another supplier on the Air Force BPAs.

The bigger screens on the semirugged systems are convenient but are also easier to crack and harder to protect. And the bigger hard drives that are more familiar to commercial buyers are also more fragile.

"Handling heat is also a big issue," she said, "since the [fully rugged] computer has to be completely sealed, and there can't be a fan that would suck in dirt and dust, so you have to figure out ingenious ways to do such things as heat sinking."

That can impact other areas such as processor performance. Intel Corp. builds an ultra-low-voltage chip that can help with heat issues, O'Hara said, but that also means that fully ruggedized systems tend to be a generation behind the best commercial machines in terms of processor speed.

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Unlike some years ago, when shock mounting a hard drive and slapping an enclosure around a commercial computer ranked as ruggedization, today's rugged computers are built with components such as screens, hard drives, boards, and CD and DVD drives that are all individually ruggedized. In fully ruggedized computers, the entire enclosure is made of magnesium alloy for its strength, light weight and resistance to corrosion.

The good news is that ruggedized computers can be custom built, much like commercial systems, instead of only being available in certain configurations. Pate said ruggedization is sold to government more as a service than as a range of systems.

Success for the Information Technology Tool BPAs would indicate growing government demand for ruggedized systems.

The BPAs reflect an expansion of the supply of rugged systems. A previous Air Force BPA had

Panasonic Toughbook computers as its only main offering, said Capt. Matthew Hartman, acquisition program manager with the Standard Systems Group.

"Obviously, the industry has moved on during that time, and now there are a number of devices out there that could satisfy our rugged requirements," he said.

In addition to Panasonic and Itronix, other suppliers of rugged systems through the BPAs' six vendors include Dolch Computer Systems Inc., Symbol Technologies Inc., Handheld PCs Ltd., Xplore Technologies Corp., Getac Inc. and LXE Inc.

Another reason for the BPAs was to be able to sell ruggedized products to customers at a better rate than they could get from the General Services Administration schedules, Hartman said. Because some resellers have exclusive relationships with some of the manufacturers supplying products through the BPAs, discounts of about 5 percent might be available, he said.

The BPAs are open to all Defense Department and federal agencies.

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