

Baltimore, MD

SUN

Baltimore
Met Area

Thursday

0 328,310

JAN 17, 2002



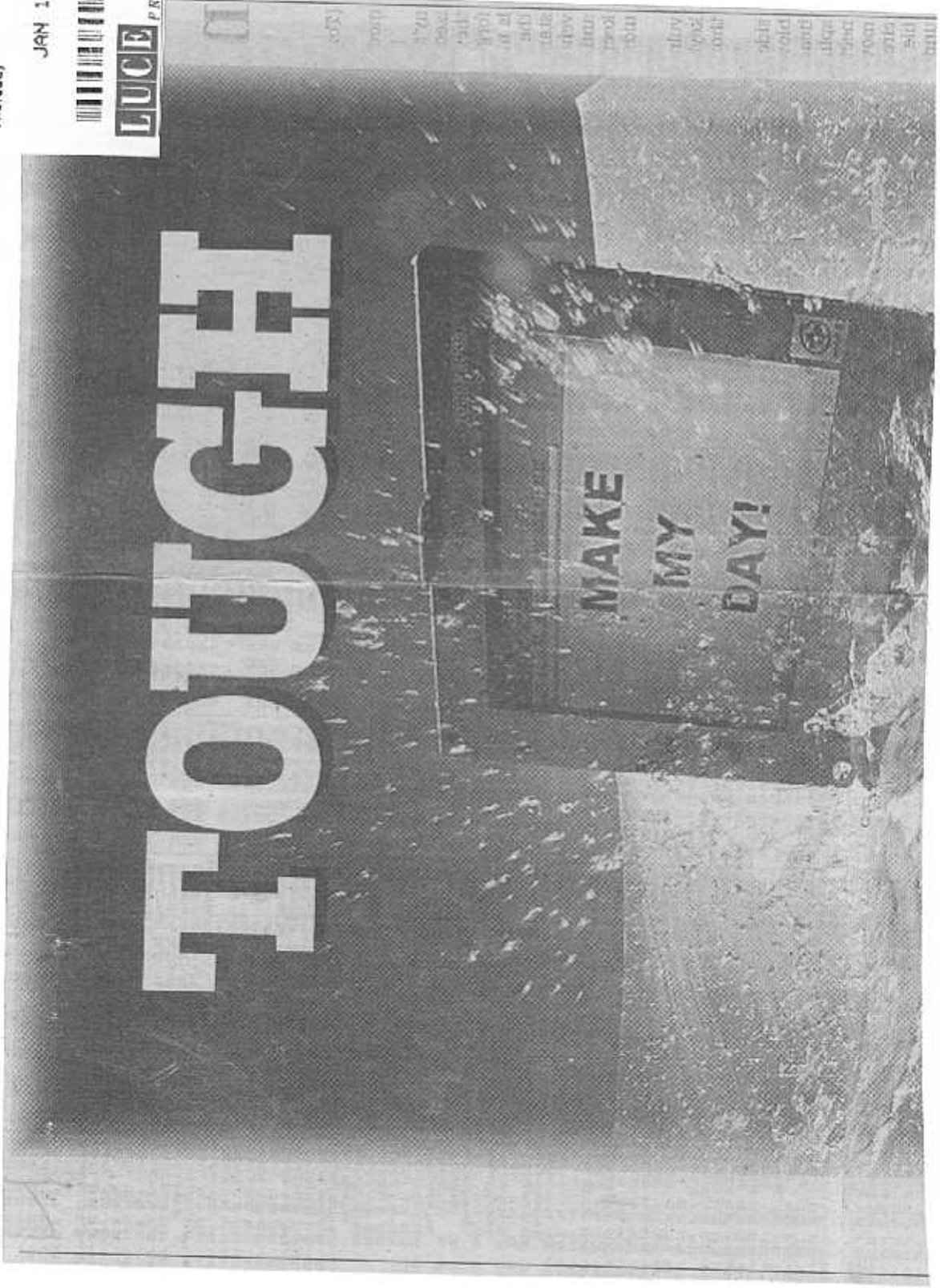
LUCE

PRESS CLIPPINGS

N3046

TODGEE

MAKE
MY
DAY!



■ **Durability:** Companies cater to workplaces requiring computers that can take a licking and keep on clicking.

By JOEL B. OBERMAYER
SPECIAL TO THE SUN

When the suspect he was questioning pulled a handgun, Sheriff's Deputy Van Hunt drew his own pistol and shot the man once in the arm. But the gunman made a beeline for Hunt's cruiser and jumped behind the wheel. The deputy fired two more shots through the stolen squad car's back window as it sped away.

They caught the guy later that morning, though not before he had wrecked the cruiser by smashing it into a concrete barrier.

It wasn't until the vehicle was towed back to the Cass County, Mo., sheriff's office on Nov. 17 that anyone remembered the laptop computer inside. Capt. Jeff Weber took a look. One of Hunt's .45-caliber slugs had blasted a hole in the case and lodged next to the keyboard.

Weber flicked a switch, and the computer came to life.

"I said, 'What the heck, I'll try it.' And lo and behold, it booted up," says Weber, who supervises technology for the sheriff's office in this rural county south of Kansas City. "It got in start-up mode, though it couldn't run Windows, because the bullet dented the hard disk. I was very impressed."

The laptop that won Weber's admiration is a specially designed "rugged" model from Panasonic. It's built to take punishment that would put ordinary laptops in the morgue. Rugged laptops are heavier than ordinary machines and usually encased in super-strong magnesium alloy. While many components, including the processor,

memory chips and motherboards, are the same as those in commercial models, they're protected against shock and thoroughly reinforced.

If you're a road warrior, you may be thinking that you'd like one of these. But you won't find it at Best Buy. The companies that make them don't sell directly to consumers as a rule, although it's possible to get one if you try hard enough.

The manufacturers originally developed the machines for the military, and the armed forces are still their best customers. In 2000, military forces worldwide bought \$183 million worth of rugged laptops and their even tougher brethren called "luggable" laptops, according to market research firm Venture Development Corp. Marines have been using them in Af-

ers.

Overall sales of rugged computer products, including laptops and handheld devices, totaled \$3.1 billion worldwide in 2000, according to Venture. The researchers expect the market to double by 2005.

Weber switched his department to rugged laptops a couple of years ago after he got tired of replacing computers that were damaged in the field. The new computers cost more than three times as much as the old ones, but he hasn't had a single casualty — aside from the computer that was shot.

"Let's be honest here. We're talking about cops," he says. "If it doesn't work, you hit it with your gun. Then there are back roads, gravel and dust. Keys fall off, networking cards would break. Now, aside from the one computer, the only maintenance problems we have are with the software."

Toughness does have its downside. Rugged laptops don't necessarily have the latest generation of technology. For example, Panasonic's top-of-the-line unit, the Toughbook 28, weighs in at a hefty 9 pounds. With a 600-megahertz Pentium III processor, a 20-gigabyte hard disk and a 13-inch screen, the computer sells for \$4,800 to \$5,800. Panasonic also makes a 3.8-pound model, which would be distinctly underpowered in the consumer world, with a 400-MHz Pentium III and an 8-inch screen, for about \$3,000.

A visit to a local laptop manufacturer shows where all that money goes. Promark Technology, based in Annapolis Junction, is a tiny manufacturer compared with Panasonic.

But its computers are true beasts. Weighing about 12 pounds, they have the solid feel of a battle tank. They're also easier to take apart than the smaller models. Partly that's so military people can take sensitive information with them by removing the hard drive. Users can also make other



GENE SWEENEY JR. / SUN STAFF PHOTO ILLUSTRATION
Panasonic's Toughbook (starting at \$4,800) is designed to withstand rain, dust and mishaps.

ghanistan, and next-generation Army units have been using them.

In the past decade, rugged laptops have also found their way into the civilian world. They're used anywhere computers are needed outdoors or in hazardous situations by police departments, utility companies, oil refineries and manufactur-

modifications on the fly.

Michael Anthony, the company's general manager for ruggedized computers, explains how they're put together. The body is forged of magnesium alloy, which is at least 20 times stronger than the plastic housings used for standard laptops. There are no vents, and all external connectors and ports are tightly covered to keep them from letting in dust, liquids or even bacteria.

"The three areas that are most vulnerable are the hard disk, the keyboard and the screen," Anthony said.

The hard drive is mounted inside rubber strips that absorb blows and prevent the read-write heads from banging against the spinning disks. All internal connectors are flexible, so they can move around without breaking any circuits. The keyboard uses a flexible membrane instead of springs under the keys to absorb shocks and is sealed. The screen is inside its own protective case of magnesium alloy.

The rugged laptops look imposing enough. But a true techie can't let the opportunity go by without testing them.

Panasonic offered to provide one of its own laptops for a round of abuse. So I recruited a pair of cousins who are expert at breaking things. Danny, 11, and Sara, 8, said they were up to the task.

Warning: Kids, don't try this with mom's laptop.

On a Sunday afternoon, they made up a list of tortures. They opened it up and held it under a spray of water. Then they dumped it on the asphalt driveway at their house. The fall scraped the finish, but that was about it.

Try harder, I said.

So they took turns tossing it on the driveway seven more times, opened and closed. They balanced on it sideways. They threw it against a concrete wall. Sara jumped up and down on the keyboard. Each time Danny said, "I bet it's broken now."

But each time they checked, it cheerfully booted up.

Danny took out his baseball bat. They had a bashing party. Danny whacked it. Sara whacked it. Danny whacked it harder. Little dents appeared on the lid. Danny hit it so hard he bent one of the hinges. But still the clamshell opened and the computer started. A little more bashing and tossing and jumping and it was time for the final test.

We laid it on the driveway. The kids directed while I ran over it with a four-door Saturn sedan. Not once, but four times.

"I thought it would go splat like a pancake," Sara said. "But it didn't."

Added Danny: "If it was my Dad's [computer], it would have broken the first time."

In fact, military specifications call for laptops that can take a lot more punishment than that. For example, the computers are supposed to survive being dropped a height of 3 feet onto a hard surface 26 straight times.

And there have been debates over whether that's tough enough. Itronix, a major manufacturer of rugged laptops based in Spokane, Wash., says it drops its \$4,995 Go-Book MAX computers 54 times to test them.

"That way you get to test all the corners and angles," says Itronix marketing manager Jeff Thomas.

The military specifications that govern laptop testing are 539 pages long and include tortures so inventive that even my cousins didn't think of them. The laptops are vibrated to simulate a 1,000-mile trip over rough terrain. They're baked in an oven for an hour at 200 degrees. They have to function in a freezer at 20 degrees below zero. Then they're frozen to -60 degrees and dumped straight into a 200-degree oven.

The manufacturers enjoy coming up with their own testing wrinkles. Panasonic has one particularly nasty test involving blowing a fine dust called silica flour over a machine at 30 mph for six hours while it bakes at 140 degrees.

At Itronix, Thomas says tests to meet military specifications are tough but added: "We try to exceed them whenever we can."

Information: For Itronix computers, 800-441-1309 or www.itronix.com; for Panasonic Toughbooks, 800-662-3537 or www.panasonic.com.