

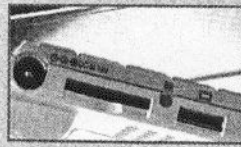


## Panasonic Toughbook R1

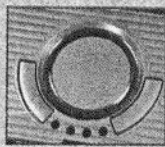
Panasonic Computer Solutions Company  
(800) 662-3537; [www.panasonic.com](http://www.panasonic.com)

\$1,850

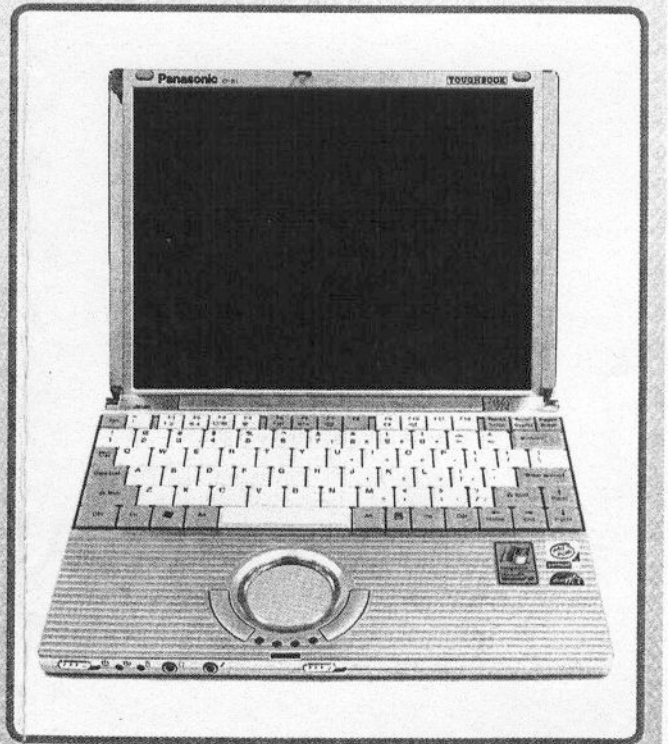
CPU	800-MHz Intel Pentium II
RAM	128MB SDRAM
Hard Drive	20GB 4,200-rpm
Optical Drives	None
Display	10.4-inch XGA
Graphics	Silicon Motion Lynx 3DM (4MB VRAM)
Wi-Fi	No
High-Speed Ports	None
Size	11.5 x 9.5 x 1.5 inches
Weight	2.2 pounds with battery installed
Battery Life	6 hours 3 minutes
Warranty	One-year parts and labor



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If you have forgotten about sub-notebooks, it's time to reacquaint yourself with one. Panasonic's Toughbook R1 is everything the busi-

ness traveler needs: a Windows XP laptop, super lightweight, and battery life that goes on and on and on.

This PC certainly has a unique look.

The case is made from magnesium alloy, which gives it a shiny, silver finish that not everyone will like. Open it up, and the inside panel looks vaguely corru-

gated, with a contoured, ribbed finish in front of the keyboard. Even the touchpad is different: it looks like the porthole on a submarine. It is perfectly round and bordered by a pair of curved mouse buttons and four status lights.

Regardless of the system's looks, it's what is inside that counts. Don't expect to see a beefy 2.8-GHz processor in this tiny frame; only 9 inches across and an inch thick, it's amazing that there's room in there for a processor at all. This computer is based on a quaint 800-MHz Pentium III processor—a CPU that most people upgraded away from a year ago. It's more than enough, however, for traditional business applications like Microsoft Word and Excel running in Windows XP.

We edited documents, crunched numbers, and generally worked the Toughbook to death. Bottom line? We didn't miss the Pentium 4, and would gladly trade the extra bit of performance for the four-to-six fewer pounds any day.

The system accepts as much as 256MB of SDRAM, and includes 128MB right out of the box. Here's where performance can bog down; we suggest that you avoid a lot of multitasking when using the Toughbook. With only 128MB of RAM available, there were situations where several open documents sent Windows off to the

hard disk for extra space, and that had a definite impact on the Toughbook's lowly MobileMark 2002 score of 74. You can add the other 128MB for about \$280, but that's a lot of money.

Do the math and you'll quickly realize that a lot of stuff must be left out of a 2.2-pound laptop. This system is a one-spindle design—that means it has a hard disk drive but no floppy or CD-ROM drive. If you plan to install additional software, you'll have to buy an external drive. Panasonic offers a USB-based floppy disk drive for \$179 and a CD-ROM drive for \$224. There's no DVD-ROM option.

The screen is surprisingly good. It measures a mere 10.4 inches diagonally—that's pretty small as laptops go—but it still manages to display a full 1024 x 768 pixels in 24-bit color. There's only 4MB of VRAM hiding in the Silicon Motion Lynx 3DM video chipset, so don't expect astounding 3D performance or even 32-bits of color. But it's more than able to hold its own when you run ordinary Windows apps.

The pixels may look a bit small, and that can be a problem for those with aging eyes. You won't find any solace in dropping the resolution, since the Toughbook's screen keeps all the pixels the same size and simply adds a border around the smaller desktop. No matter how much you try, you can't resample the lower-resolution screen to take up the whole display.

And then there's the sound. Don't expect to play any symphonies with the Toughbook R1. This little guy is designed for business and, well, more business. The single mono speaker (located near the screen hinge) generates quiet, trebly sound and can't compete with even an inexpensive portable MP3 player. If you're intent on using the system for music, plug a set of headphones in the jack up front.

## Goes Anywhere

What the system lacks in full-featured laptop comfort, it makes up for in ultra portability. Clocking in at 2.2 pounds, the Toughbook is as light as a feather and so small that it fits comfortably in almost any kind of backpack, carrying

case, briefcase, or lunch sack. It's only an inch thick in front, but the lithium-ion battery creates a wedge in back, elevating the thickness to 1.5 inches. (That's actually a benefit: the Toughbook sits at an angle to help make the cramped keyboard a bit more ergonomic.)

Unlike laptops that sacrifice battery life for multimedia gadgetry, the Toughbook never loses sight of the mobile prize. We were amazed to find that we could coax six hours and three minutes from the system. If we enabled some of the power management features, the Toughbook could easily have run another thirty minutes.

Considering its size and weight, the system is quite expandable. There is a pair of USB ports, an Ethernet port, and a modem jack, plus a single Type II PC Card that lets you add a Wi-Fi network adapter—though integrated Wi-Fi would have been better. There's also a VGA connector for pumping video to an external computer monitor or projector and a Secure Digital slot for transferring images from your digital camera, PDA, or other compatible device.

Panasonic is a bit stingy with its warranty. The system is only covered for a year, which is disappointing since this PC is designed for travel. On the plus side, technical support is offered toll-free for the life of the laptop.

Overall, this little gem is lightweight, has a tremendous battery life, and is surprisingly comfortable to use. It's not a putdown when we say the Toughbook is both tough and cute.

## Panasonic Toughbook R1

### PROS

- Extremely light
- Bright screen
- Outstanding battery life
- Integrated SD slot

### CONS

- CD drive not included
- Mono speaker
- Light on RAM

This featherweight is an indispensable travel partner.