Hardware Review
Take Your Workstation with You
By Donald Jenner

Generally, serious graphics users have not been accommodated by
notebook-computer makers. Most off-the-shelf notebooks are just not up to
serious CAD and other graphics applications. This has been true pretty much
across the board. For several reasons, that is changing and the pace should
pick up. The result is a range of portable workstation products based on
popular RISC processors (Sun's UltraSPARC and HP's PA family) now, and Intel
processors "real soon now."

The whys first: Most notebook computer users don't need all the notebook they
carry. They do some wordprocessing, some data entry, e-mail and web-browsing
and other fairly simple things. Most of what these people do is done better on
a sub-notebook or even a palm-top computer. Even heavy-computing pros often
need no more than that when not in the lab or office. For most of us, most of
the time, carrying a notebook computer is in the same league as using a cannon
to swat flies-neither convenient nor safe.

So the palm-top and subnotebook makers are set to take a large chunk of the
notebook computing market, providing less costly and quite powerful
appliances. 3Com's PalmPilot and Toshiba's Libretto-hot products, especially
the former-are excellent examples. [And isn't it interesting; this is another
market Microsoft missed, and is now scrambling to catch up in?]
Notebook-computer makers will get this point-eventually. If some of their
present market disappears, those who want to continue playing will look for
users whose needs require full-fledged computer power in a portable format.
RDI Computer Corp., in Carlsbad, CA, shows what the outcome can be. This
company offers competitively priced RISC-based portable workstations based on
Sun and Hewlett-Packard processors, delivering similar-to-desktop performance
in an eight and a half pound package.

The basics for both machines are the same: A 2.5"x12"x13" case opens to show a
14" active-matrix display delivering 1024x768 true-color capability (a
smaller, less costly 12" model is available; it offers comparable specs by
using a smaller dot-pitch). Both models have built-in ethernet, SCSI
connection (the Ultra-SPARC with Fast/Wide SCSI; the HP-PA has SCSI-II - more
or less reflecting HP inclinations), and connectors for a standard mouse, a
second monitor on a pass-through, a printer and sound. Both have an AC adapter
and battery-charger that features automatic voltage and frequency sensing, and
can handle most main power anywhere in the world. A recent improvement: RDI
now ships 4gb hard disks, up from 3gb disks in the original specification.

Both systems can accommodate up to three drives internally.
Like Sun workstations, the UltraSPARC-based Ultrabook sports a Sun-type
keyboard and a three-button trackpad. Included operating system software
includes Solaris with OpenWindows and a Java browser, as well as
notebook-specific power management software. RDI offers three graphics
controller options: In addition to Sun's own Creator 2D single-buffered and 3D
double-buffered graphics, the company offers ATI's RAGE LT. Choose between a
200MHz or 167MHz UltraSPARC1, either supplied with a secondary half-megabyte
cache and driving between 32mb and 512mb RAM.

The HP-PA based Precisionbook comes with a standard PC-type keyboard and

three-button trackpad. The operating system is HP-UX, Hewlett-Packard's proprietary flavor of Unix with OSF/Motif and X11 Windows. The graphics controller is HP's Visualize-EG, with an optional 2mb frame buffer. Choose between 160MHz and 132MHz HP-PA7300LC processors, with an optional 1mb secondary cache and driving 32mb to 512mb RAM.

Side by side, the two machines appear to deliver comparable front-of-screen performance. Since both notebooks are using the same processors as their desktop counterparts, heat dissipation is an issue. These are not laptop computers; they get too hot. On the other hand, RDI seems to have done a pretty good job of compensating for the smaller space and inherent differences in cooling; machines were not crashing during the company's demonstration. Because RDI pays careful attention to creating a system as much as possible like the desktop original, users should be able to install the same software as they would use on their desktop machines. The advantages are obvious: Have a custom software piece needed in the field? A notebook workstation lets you carry it to the site, then bring it back. Need to show a client what you are doing? Take the notebook workstation fitted out with the same applications and data; plug in a local monitor to the pass-through and run the demo live and in real time. Don't want to have two systems? These RDI systems have a docking option; use this machine on the desktop as well as in the field.

The only obvious downside element is the price: Starting around US$12,000, these machines cost as much as their desktop counterparts. There is a rapidly increasing shift to Wintel-based systems for this reason.

On the other hand, comparable Wintel systems have yet to emerge. In a quick survey of three major suppliers of Wintel notebooks (Acer-owner of the Texas Instruments branded machines and producer under contract of many other brands; Compaq; IBM), it became obvious that none of them were willing to discuss serious high-end notebook machines, able to match the kinds of performance of Intergraph, Compaq or Hewlett-Packard Wintel-workstation systems.

The line from one such conversation-"We track Intel"-pretty much sums up the general view of these notebook makers. However, though Intel has indicated openly its intention to discontinue development of Pentium processors in 1998, in favor of later-generation P6 designs like Pentium II, no notebook maker is willing to indicate any development of any Pentium II product. Most are still announcing new Pentium designs. These machines are adequate, even over-kill for the older notebook market; they range from barely adequate to unsatisfactory for sophisticated CAD and other graphics software shipping now.

This will change. At least one smaller company has indicated that it is moving toward high-end Wintel-workstation class notebooks. The implementation of thinner silicon, and the latest novelty-using copper with its superior conductivity, instead of poorly conducting aluminum-should make for not only faster, but lower power (hence, cooler) chips. As to when the change will occur-stay tuned.