The Getac X500, first introduced in June 2011, combines the best features of three other Getac products into one machine. It is a full-size, full-featured rugged notebook computer that offers up-to-date technology, excellent connectivity, resistive multi-touch, superior performance, and optional PCI/PCIe expansion.

**The Getac X500**

To understand the importance of the Getac X500, one needs to take a broader look at rugged notebook computers where longevity, reliability, compatibility generally mandate backward compatibility with peripherals, mounting hardware, and certain software and applications. However, technology doesn’t stand still, and eventually platforms must move forward. With the full-size and completely modern X500, Getac has made that step into the future, breaking with the old 13.3-inch 4:3 aspect ratio formula that has been the rugged notebook standard for well over a decade. With an extremely bright 15.6-inch LCD display with Getac’s unique resistive multi-touch and wide-format 1366 x 768 pixel resolution, the X500 has a larger display than any other machine in Getac’s lineup (or in rival Panasonic’s, for that matter). It also benefits from numerous technology advances, and has an attractive modern design. A fast Intel Core i7 processor provides excellent performance and optional NVidia GT330M discrete graphics are available as well. For those who need it, a PCI expansion unit provides access to conventional full-size expansion cards. Its availability means that special purpose functionality that is simply not available in standard notebooks can easily be integrated into the Getac X500.

**Performance and battery life**

Getac had an easy time deciding what sort of performance to give its top-of-the-line X500. That’s a) because big performance is expected from a marquee model, and b) because battery life probably matters a lot less in a big 12-pound machine that will likely be used in vehicles and on desks than in smaller and more portable designs that field personnel carry around. As a result, Getac went with a high-end Intel Core i7 dual core/quad thread processor running at 2.66GHz and able to operate at up to 3.33GHz in turbo mode (Intel’s turbo mode allows the chip to overclock itself if certain conditions are met).

We ran Passmark Software’s PerformanceTest 6.1 and also CrystalMark to quantify the X500’s performance and found that Getac’s processor decision paid off. The Getac X500 is the overall fastest rugged mobile computer we have tested to-date. Its benchmark performance was helped by the very high score of its Intel solid state disk. And the Getac X500 also aced the graphics benchmarks, aided by its NVIDIA GeForce GT330M 512MB discrete graphics controller.

A powerful processor and a big, bright display use a lot of power. The competition set the bar high in the older 13.3-inch rugged notebook class, with the Panasonic 31 and the GD-1nronix GDB8000 reaching over eight hours of theoretical battery life in our tests. And Getac’s own B300 having a theoretical battery life of 8 to 10 hours. The X500 does not quite reach those levels. It is too large and powerful for that. Running our BatteryMon benchmark with the X500 in ECO mode and the Windows Power Options set to Power Saver, we saw a minimum power draw of 16.5 watts, good for a theoretical battery life of about 5.5 hours. However, between the very good power management of the Intel Core i7, Windows 7’s power management, and the Getac X500’s power settings, the X500 can last a reasonably long time on a charge, and twice that via an optional second battery that goes into the media bay en lieu of the optical drive.

To engage full backlight power (which is considerably brighter than the maximum of the standard brightness range) you push a special button above the keyboard. When you don’t need it anymore, turn it off. That’s much easier with a button than via menus. And having that hardware button is also the key to keeping power draw in check: when you need the superbright backlight, switch it on.

**QuadraClear display technology**

Most rugged notebooks will be used outdoors and sometimes in bright, direct sunlight where standard transmissive LCD displays wash out. That’s why sunlight-readability has become a major selling point in the rugged notebook sector. For now, there are two practical methods of making a notebook screen readable outdoors: (a) crank up the brightness to the point where the light emitted by the screen is sufficiently greater than the ambient light reflected by the screen, or (b) treat the surface of the screen so it reflects much less light, which again allows the emitted light to exceed the reflected light.

All major rugged notebook makers have introduced their own sunlight-viewable technologies. Getac calls theirs “QuadraClear,” referring to the four elements that comprise the technology: a very bright backlight, anti-reflective coatings, linear polarizer, and circular polarizer. All the major players use those technologies, and the difference boils down to backlight brightness, and the extent to which the optical coatings are applied and how the various layers are bonded (the fewer reflective surfaces, the better). All else being equal, display backlight power then determines the effective contrast ratio which translates into the degree of real world outdoor readability.

And a super-bright 1,000 nits LED backlight is what sets the X500 apart (a standard notebook backlight is in the 170 to 200 nits luminance range). To engage full backlight power (which is considerably brighter than the maximum of the standard brightness range) you push a special button above the keyboard. When you don’t need it anymore, turn it off. That’s much easier with a button than via menus. And having that hardware button is also the key to keeping power draw in check: when you need the superbright backlight, switch it on.

How does it all work in real life? Well, the X500 screen is unusually bright, and its semi-matte surface and anti-glare treatment eliminate reflections that can make consumer notebook screens unreadable. You can adjust the backlight in 20 steps, and you can also totally turn it off the backlight via a function key combination. Where the display could stand...
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