

GETAC V110

GETAC'S THINNER, LIGHTER RUGGED CONVERTIBLE WITH INTEL 4TH GENERATION CORE PROCESSOR PERFORMANCE AND FEATURES, A LARGE DISPLAY, MULTI-TOUCH, DUAL INPUT, 802.11AC AND 4G LTE

By Conrad H. Blickenstorfer

Getac's V110 is a thinner, lighter rugged convertible with Intel 4th generation Core processor performance. It also has a large display, multi-touch, dual input, speedy 802.11ac WiFi, and 4G LTE mobile broadband. The Getac V110 will hold great appeal for those who need the comprehensive features of a conventional notebook but also like the handiness and convenience of a tablet. But wasn't weight always an issue with this type of convertible design? Not with the V110, which is significantly lighter than its predecessors. Although fully rugged, it weighs less than a 13-inch Apple MacBook Pro.

The convertible notebook concept

The concept of a convertible notebook has been around for a while. How does it work? Simple. The LCD case of the notebook has a rotating hinge so that the laptop can be closed with the LCD facing up. This way it can be used both as a notebook and as a tablet. The sequence below shows how it works.



Getac V110 vs. the older V100 and V200

Compared to Getac's prior generation 10.4-inch V100 and 12.1-inch V200 convertibles, the V110's footprint is between the two older models, as is its display size. The V110, however, is considerably thinner and much lighter than either of the older models. That is, in part, made possible by replacing the massive battery of the predecessor models with two much smaller batteries. Despite its ruggedness and sturdy build, it's just an inch and a third thick and weighs only a bit over four pounds. And unlike earlier mobile computers in this class that often sacrificed performance in order to get acceptable battery life out in the field and away from electrical outlets, the V110's Intel 4th generation Core processor and related technology provide blistering performance *and* good battery life.

What general size class is it? Used as a tablet, the 11.6-inch display is larger than any of the currently popular consumer tablets, which usually measure between 7 and 10 inches diagonally. Used as a notebook, the 11.6-inch screen is fairly small, with standard notebook screens usually measuring between 13 and 16 inches. It is a good compromise.

Model	Getac V110	Getac V100	Getac V200
CPU	Core i7-4600U	Core i7-3520M	Core i7-3520M
CPU speed	2.1/3.3GHz	2.9/3.6GHz	2.9/3.6GHz
CPU TDP	15 watts	35 watts	35 watts
Graphics	HD 4400	HD 4000	HD 4000
RAM	4GB/8GB DDR3	4GB/8GB DDR3	4GB/8GB DDR3
Std. storage	128GB SSD	500GB HD	500GB HD
Opt. storage	256GB SSD up to 256GB SSD	up to 256GB SSD	up to 256GB SSD
LCD nits	800	1,200	1,200
Keyboard	100%-scale	94%-scale	100%-scale
Battery	46 watt-hours	96 watt-hours	96 watt-hours
Battery life	up to 13 hrs	8-9 hrs	8-9 hrs
USB	2 x 3.0, 1 x 2.0	2 x 3.0	2 x 3.0, 1 x 2.0
Cameras	cam + 5mp	2.0mp	2.0mp
Test weight	4.6 lbs.	6.2 lbs.	6.8 lbs.
Size	11.8x8.8x1.34	11.4x8.8x1.93	12.4x8.8x1.93
Display	11.6-inch	10.4-inch	12.1-inch
Resolution	1366 x 768	1024 x 768	1280 x 800



The screen offers Getac's capacitive 5-point multi-touch technology, and there's also an optional active digitizer with a small, very precise pen that does not need a battery.

Maximum brightness is 800 nits. That is less than the two older models, likely in the interest of extending battery life. 800 nits is still a lot; standard consumer laptops rarely have over 200.

Unlike the V100 (and the Panasonic CF-19!), the V110's QWERTY keyboard is 100%-scale, making typing easy and comfortable. The keys are black with white labeling. Shifted functions are imprinted next to the primary function in smaller inverted color, making the keyboard look a bit busy.

Despite its light weight, the V110 feels sturdy and substantial. It's almost all cast magnesium alloy, with a polymer bottom plate and rubberized polymer edge bumpers. Below is a look at the V110 from the top and from all four sides:



Unlike the V100 and V200 that used both hinged doors with latches, and simple hinged rubber plugs, the V110 uses more elaborate sealed snap-click protective doors. They consist of an inner seal with a rubber lip around it, and an outer polycarbonate door that is then pushed down for a very secure, tight seal and fit. You have to be careful to get them snap into place the proper way, but once you get the hang of it, it's a good, reliable solution.

For connectivity, there are two ultra-fast USB 3.0 ports, a single USB 2.0 port, HDMI, a RS232 serial

port for legacy purposes, audio in/out, and a gigabit LAN jack. No FireWire or VGA ports, and the legacy RJ11 modem port is gone as well; their functionality has been replaced by newer technology.

LumiBond indoor/outdoor display

Getac applies four core features to make the V110 display work well outdoors: a bright backlight, anti-reflective coatings, linear polarizer, and circular polarizer. In addition, Getac's "LumiBond" process fuses the various layers of the LCD assembly to reduce the number of reflective surfaces. That's important because the ratio between the backlight and the reflected incoming ambient light determines the effective contrast ratio, which is a measure of the real world outdoor readability of a display.

The two comparison pictures below highlight the outdoor display qualities of the V110 compared to a 3rd gen iPad's "retina" display.



The iPad screen is quite good and rather bright, but its super-glossy screen and lack of reflection control turn it into a virtual mirror outdoors. The Getac V110's semi-matte display shows no reflections and remains perfectly readable. This is one of the major differences between a vertical/industrial market device carefully designed for outdoor and sunlight use, and a consumer market tablet designed primarily for use indoors.

There is still some room for improvement. The anti-glare treatment of the display works very well,

but it tends to make the screen appear a bit milky when viewed from certain angles. And while the horizontal viewing angle is perfect, the vertical one has noticeable color and contrast shifts. We'd prefer to see an IPS or AFFS display with perfect viewing angles from all directions.



Multi-touch — a multi-faceted issue

Getac's implementation of multi-touch on the V110 is capacitive touch, and not the modified resistive dual-touch that was offered on the V100. That means any capacitive touch stylus works on it, and one comes with the V110. The flush-mounted display surface doesn't have a protruding bezel, making touch use of the V110 in tablet mode as easy as it can be. Do note that if you intend to use handwriting recognition on the V110 — and yes, that's still available through the Windows Input Panel, and Windows Journal is there as well — you'll need the active digitizer option as capacitive touch won't do.



Excellent (and economical) performance

Customers want maximum performance and great battery life but, up to recently, it was either one or the other. Intel's 4th generation of Core processors, codenamed "Haswell," has made major steps forward in combining excellent performance with remarkably frugal operation and greatly improved integrated graphics. And Haswell technology is what Getac based the V110 on.

We ran a variety of performance benchmarks, comparing the V110 to similar machines with different processors. The V110 performed very well, and perhaps the most telling comparison is that between the current V110 and a Getac V200 which we tested

PERFORMANCE	Getac V110	Getac V200
Intel Processor	Core i5-4300U	Core i7-620LM
Clock speed	1.9/2.9GHz	2.0/2.8GHz
TDP	15 watts	25 watts
CPU Mark	3,517.1	962.5
2D Graphics Mark	545.8	269.2
Memory Mark	1,000.4	646.0
Disk Mark	3,625.9	1,431.2
3D Graphics Mark	349.8	265.1
Overall PassMark	1,973.2	731.9
Min. observed draw	3 watts	10 watts
Max. observed draw	10 watts	30 watts

three years ago. The Haswell-powered V110 was overall almost three times as fast as the older V200 equipped with a first generation Intel Core processor. What's most amazing here is that the much faster new V110 drew only about one third as much power as the older model. That is very noticeable progress.

Communications

Comprehensive communications features are mandatory in today's mobile computers, and the V110 is well equipped.

For wired network connectivity there is gigabit Ethernet (10/100/1000base-T) and a serial port, which still comes in handy for use with legacy peripherals. WiFi is covered by an Intel Wireless-AC 7260 module that provides 802.11ac WiFi. 802.11ac is the latest WiFi standard, often called "5G WiFi," and it is up to three times faster than 802.11n (which 802.11ac routers also support). There is also Class 1 Bluetooth version 4.0. On the mobile broadband side of things, the V110 can be ordered with an optional 4G LTE module. A dedicated SiRFstarIV GPS module is also optionally available.

Fully rugged

Getac classifies the V110 as "fully rugged" and states it is "performing flawlessly under extreme working environments where weather conditions and physical abuse are unavoidable." Let's take a look at individual ruggedness testing categories:

The V110's IP65 rating means total protection against dust and protection against low pressure water jets from all directions.

The V110 can operate in temperatures of -6 to +140 degrees Fahrenheit. The computer also passed non-condensing humidity testing up to 95%, and can operate in altitudes up to 15,000 feet (and obviously in aircraft with pressurized cabins) per MIL-STD-810G, 500.5 Procedure II.

Shock, vibration, drop and ESD resistance are all tested according to MIL-STD-810G and other relevant regulatory procedures.

Worth mentioning is that Getac offers optional UL 1604 certification that allows safe, spark-free use of the V110 in potentially explosive environments typically found in the oil and gas, petrochemical, aviation and related industries.

Security

Data and access security is becoming an ever more important issue in mobile computing. The V110 offers TPM 1.2 functionality to store secured information. An optional contactless Smart Card reader provides additional access security. A Kensington-style lock slot can be used to secure the V110 via a steel cable. Both available processors support vPro, a set of Intel security and remote management technologies that offer multiple lines of built-in defenses.

Handy utilities

In the field, quick and easy access to often-used functions and applications is imperative. For that, Getac included a variety of useful utilities.

G-Manager provides a system overview, battery stats, ECO mode info and settings, light sensor configuration, ignition configuration for using vehicle power, status monitoring, and GPS info.

Getac OSD Control Panel, which stands for On Screen Display, provides quick access to the V110's major functions (brightness and sound, activate airplane mode, rotate the screen, setup Bluetooth, and launch the Mobility Center, camera, keyboard, and web browser).

The full-screen **Getac Utility** lets you turn wireless on and off, adjust brightness and sound, access major apps, and launch Windows control panels.

Getac Camera is a simple app that lets users control and configure the V110's integrated camera(s). You can also get GPS information, view stored images, etc.

Summary

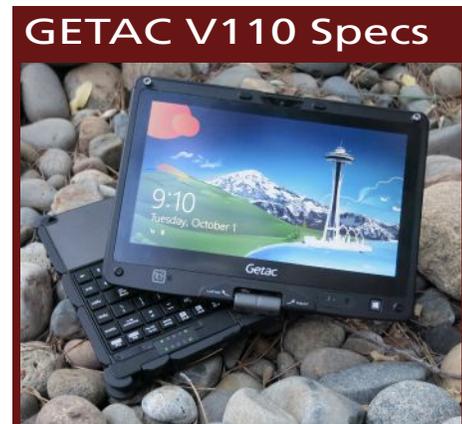
With the V110, Getac gives a vote of confidence to the concept of the convertible notebook that can also be used as a tablet. While that concept has been around for a long time, most earlier machines were too heavy to be useful as tablets. The V110, however, is thinner, lighter, and its 4th gen Intel Core processors can do more with less. The multi-touch screen is easy to operate, there's an optional active pen for precision operations, and the keyboard is full-scale.

Getac pared down weight and thickness by using the latest power-saving technologies and by making some design compromises in display brightness and battery capacity to arrive at a much svelter and more contemporary solution that will undoubtedly address the needs of many customers.

Apart from the sleeker look and lower weight, the Getac V110 convinces with excellent performance, fast graphics, very low power draw, and up-to-date communications (802.11ac, BT 4.0, Gobi 4G).

What it all adds up to with the Getac V110 is a fresh, new iteration of a time-proven design concept, and one that, for now, clearly leaves the competition behind.

— Conrad H Blickenstorfer, April 2014



GETAC V110 Specs

Type: Rugged convertible notebook PC
Housing: Magnesium alloy case, sealed ports
Processor: 2.1/3.3 GHz Intel Core i7-4600U with 4MB L3 cache or 1.9/2.9 GHz Core i5-4300U with 3MB L3 cache
Graphics: Intel HD Graphics 4400
OS: Windows 7 Professional or Windows 8 Professional
Memory: 4GB DDR3L 1,600Mhz, expandable to 8GB
Slots: 1 Express Card/54mm, 1 SIM; opt. Smart Card
Display: 11.6-inch/1366 x 768 pixel, 800 nits sunlight-readable display with Corning Gorilla Glass protection
Digitizer/Pens: Capacitive multi-touch; optional: auto-sensing dual mode capacitive touch and active digitizer
Keyboard: Integrated, 88-key full-scale waterproof membrane keyboard
Storage: 128GB or 256GB Solid State Disk
Size: 11.8 x 8.8 x 1.34 inches (300 x 223 x 34 mm)
Ruggedness: -6° to 140°F (-21° to 60°C); IP65 sealing; drop/shock and other criteria in accordance with MIL-STD-810G testing; ESD/EMC; optional UL1604 certification
Weight: 4.6 lbs. as tested, with battery
Power: Li-Ion (2 x 2,140mAh; 46 watt-hrs total), "up to 13 hrs"
Communication: Intel Dual Band Wireless-AC 7260; Bluetooth 4.0 Class 1, opt. Gobi 4G LTE, SiRFstarIV GPS
Interface: 2 x USB 3.0, USB 2.0, RJ45, RS232, dock, audio in/out, HDMI, HD webcam + 5mp rear camera
Price: Starting at high US\$3,000s
Contact: GETAC • us.getac.com • 1-949-681-2900