HANDHELD ALGIZ XRW

HAVING GIVEN OUR FIRST IMPRESSIONS OF THIS LATEST ULTRA-RUGGED NOTEBOOK FROM SWEDEN'S HANDHELD GROUP IN AN EARLIER ISSUE[1], WE NOW SEE HOW IT MEASURES-UP ON THE TEST BENCH AND IN THE GREAT OUTDOORS

In its quest to deliver desktop performance in a field-proof portable, some might wonder if the XRW's Intel® ATOM™ Z550 processor is up to the task.

On the bench

This 2GHz chip gives it a theoretical 25 per cent speed advantage over the popular 1.6 GHz Intel ATOM™ Z530, as used in the Algiz 7 tablet, and this we verified by running PassMark Software's Performance Test 7.0.[2] This tool performs 28 standard routines to score CPU, graphics, memory and disk performance and our results (see table) are broadly in line with those from a similar test conducted on the XRW last year.[3] For comparison, we have included PassMark scores from users who had previously tested the Algiz7.

The technical challenges of 'on demand' Marine Mapping data delivery are similar to those faced for terrestrial data. Data bandwidth issues must be addressed; data must be optimised for efficient delivery; server infrastructure must be efficiently and robustly configured and, most importantly, data access and security must be assured.

While nimble enough for most tasks, the single core Z550 processor cannot – and was never intended – to rival the ubiquitous Intel Core duo that powers the majority of desktops. Where the Z550 does find its feet is in its fanless construction and frugal (under three watts) power usage. Graphics performance of the XRW is also surprisingly good, thanks to Intel's US15W System Controller Hub.

PERFORMANCE	Algiz XRW[1]	Algiz7[2]
CPU Mark	366	285
2D Graphics Mark	113	82
3D Graphics Mark	25	26
Memory Mark	269	212
Disk Mark	300	174
Overall score	**183**	**159**

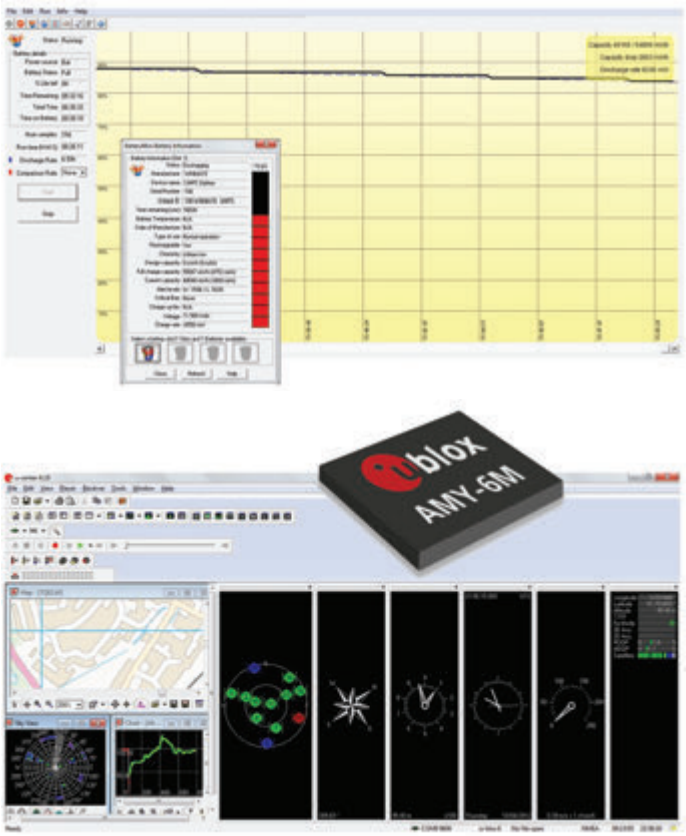
[1] Running 32-bit Windows 7 Ultimate with 2GB installed RAM
[2] Averaged & rounded baseline scores from four PassMark Software users who tested the Algiz7 running 32-bit Windows 7 with 2GB installed RaM

This integrates the Intel® Graphics Media Accelerator 500, memory controller, and I/O controller in a single chip and is purpose-built for advanced 3D performance in fanless embedded applications.

Transcend's compact 64GB Solid State Drive certainly gives system boot-up and application launch a useful turn of speed, but it's no dazzler in terms of raw read-write performance. SSD controllers are often the key here and upgraded SSDs, launched by Transcend earlier this year, employ a newer controller that boosts read-write speeds and fully supports the TRIM command to help maintain optimum write speeds.

High on the wish list for those running intensive mobile applications is good battery life. Handheld claims eight hours between charges for the XRW's 57.7-watt-hour rechargeable Li-ion battery. The battery capacity of our review unit was rated a little under this (at 54.5-watt-hour) but its discharge rate of 6.6 watts (based on a PassMark BatMon v2.1 test – see chart) still indicated a useful working time of more than 6.5 hours between charges.

For this test, Windows was set to Power Saver mode, screen brightness adjusted to 50% and radios disabled. The rate of discharge will, of course, vary depending on power conservation, screen brightness and video settings, as well as radio/GPS usage. Nevertheless, it gives the XRW a distinct edge over consumer grade



u-centre software provides exhaustive options for displaying, recording and analysing GNSS data

The XRW pictured on the Ordnance Survey benchmark with the Greenwich Meridian pillar in background

notebooks and netbooks. On this point it's worth noting that the US specification for the XRW says that a hot-swappable dual LiPol battery pack is provided as standard, giving a minimum of six hours operation.

For GPS positioning, the XRW employs the u-box 6 GNSS receiver module. This 50-channel WAAS/EGNOS-capable device is complemented by the Swiss company's equally capable u-centre software with its many and varied options for the display, logging, record/playback and analysis of GNSS data.

u-blox makes much of the SuperSense® Indoor GPS technology enshrined in the u-blox 6 module and which, it claims, delivers unmatched tracking performance in harsh signal environments such as car parks, and dense city environments. From an indoor location, but with a clear view of the southern sky, we achieved a coldstart Time to First Fix (TTFF) in around 10 seconds, the receiver locking-on to nine GPS satellites, while a warmstart or normal TTFF improved on this to achieve an accurate fix in under a second. No definitive test, admittedly, but some indication of the performance achievable from the industry's smallest but one of its most powerful and future-proof (e.g., Galileo-ready) GPS receiver modules.

In the field

While the choice of applications software will hinge on user preference and intended purpose, we loaded the XRW with an evaluation copy of Esri ArcPad 10 data capture software and OpenStreetMap in Esri Shape file format.

Taking to the field to get a fix on a known position, we made use of a granite obelisk, erected in 1824 on Pole Hill, a few miles north-east of London, to mark the Greenwich Meridian. 60 years later, and by international agreement, the line of zero longitude was shifted by a distance of 5.8 metres to the east. At this point, a smaller cement pillar can be found. This was installed, not to mark the revised position but, coincidentally, to serve as an Ordnance Survey benchmark to the elevation of Pole Hill at 91 metres above sea level.

We used the GPS window in ArcPad to check our position. Again, we achieved a warmstart TTFF in a matter of moments to obtain our WGS-84 coordinates at 51:38.08oN and 0:0.0oW. Spot-on, as was our calculated height above mean sea level. GPS accuracy is, of course, subject to many factors, but one commonly-used measure – Position Dilution of Precision or PDOP – provides a guide to the quality of the satellite geometry being received and its potential to deliver an accurate fix. The lower the PDOP the better, with a value of eight or less being deemed acceptable and a value of four or lower being considered excellent. With differential correction applied, we managed a remarkable 1.8. Enough said!

Using ArcPad's default QuickProject template, we captured obelisk and pillar as point features and linked them to georeferenced imagery, courtesy of ArcPad 10's new DirectShow-compatible camera module and the XRW's 2MP camera – the whole process taking just a few minutes.

Although the XRW's resistive touch screen will seem cumbersome compared to the capacitive panels found on contemporary smartphones and tablets, it nevertheless offers a useful alternative to the analogue keyboard and its fiddly touchpad buttons or its on-screen counterpart. For this reason, we were a little disappointed to find that, unlike the Algiz7, a built-in stylus has been omitted from the XRW's otherwise comprehensive specification. It would certainly add to its versatility for field mapping/data capture applications But the XRW is an extremely compact unit and, clearly, some compromises have had to be made.

Summary

For general outdoor computing in demanding conditions, there can be no question that the XRW fulfils its design brief with aplomb – a veritable workhorse that delivers good performance across a variety of applications, including mobile GIS. Its superb screen, exceptional battery life, optimal GPS performance and MIL-SPEC credentials will appeal to many and widen their choice in considering rugged, but often more expensive alternatives from Getac, Amrel, Panasonic and Dell.

Our verdict: Highly recommended for those seeking a compact but highly specified, ultra-rugged notebook at an attractive price point.

References

[1] GEOconnexion International June 2012 issue

[2] www.passmark.com

[3] www.ruggedpcreview.com/3_notebooks_handheldus_algiz_xrw_full.html

Getting our bearings on Pole Hill