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Product Review: All-In-One POS Terminals

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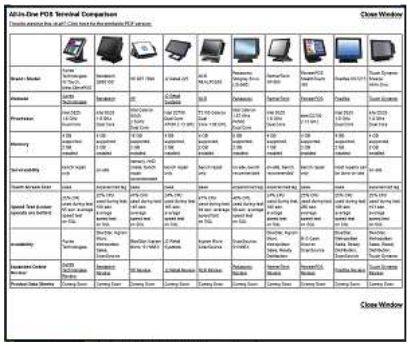
A VAR evaluates 10 all-in-one POS terminals and shares the pros and cons of each.

When it comes to retail, restaurant, and grocery IT, no system is as crucial as the point of sale. While margins have eroded over the years, and there's been outside pressure from tablets and similar mobile technologies, the timetested POS continues to stand as the primary customer payment and interaction device. With that importance in mind, Business Solutions teamed with Greg Nelson, VP and CTO of Genesis POS, to test 10 all-in-one units from a variety of leading manufacturers. The goal: to arm you with the information you need to either confirm your existing product line or shorten your time of evaluating new products.



Click To View The Full Comparison Chart

Utilizing our recent Best Channel Vendors survey results, we re-sorted the data to determine which manufacturers had the highest product-related scores in the survey. As a result, we had a field of 13 manufacturers with scores we felt were high enough for consideration. Among those companies, PAR Technology, Elo, and ToshibaTEC declined to participate in this round of testing. Of those willing to participate, we used input from readers and Nelson to establish our baseline target specs for the test units, which we felt represented a typical regular-duty terminal. We asked manufacturers to provide Nelson with their model that had (as closely as possible) a 1.8 GHz Intel Dual Core Atom Processor, 2 GB RAM, a mechanical hard drive, and POS Ready 9 as the OS. If you want more info on why we chose these specs, visit the extended article online (the link appears at the end of this article). Once the units began arriving, Nelson began his testing.

All-In-One Speed Test: More Than Just Hardware

One of the most significant ways you can help your customers is by enabling them to churn through patrons. That is, your customers need technology that's going to keep the checkout lines moving quickly and efficiently. Therefore, testing the processing capabilities of the POS units was something we definitely wanted to do. Of course, if every manufacturer was able to exactly meet our specs, this comparison test might produce exactly the same speeds and prove to be a wasted effort. As it would turn out, we received a variety of slightly different configurations (noted in the chart below), which yielded some surprising results.

To facilitate the test, Nelson took the time to craft a SQLbased VisualBasic application designed to equally stress the processors, hard drives, and Ethernet components of each system. The test included measuring the time it took for 5,000 PLUs to be added, updated, and deleted. Additionally, since many vendors use local database systems to contain offline transaction history in the event of power failure or a credit card gateway drop, Nelson crafted his test software to mimic this situation. You can see the speed test results in the chart below.

Note that despite our efforts to get units with 2 GB of memory installed, the PartnerTech came with just 1 GB. To see how big a factor memory was in the testing, Nelson added memory to the unit and removed memory from others. He found that in some cases the extra gigabyte of memory yielded a 50% increase in speed. Additionally — and less scientific — all units seemed to run just "smoother" with more memory. As you'll see later, memory also affected touch screen testing. Therefore, we concluded that extra RAM is a must and a great upsell opportunity.

While we'd like to declare a clear speed winner, there's more of a story behind the numbers. For as much as the hardware of the terminals affected the results, the software proved to be just as significant a factor.

POS Ready 7 and POS Ready 2009 are based on different core operating systems (Windows 7 and XP, respectively). The reason we initially wanted to test on POS Ready 2009 was because it's built on the more stable, established, and streamlined platform of XP.

One unit — PioneerPOS — had similar hardware specs to the other units, but arrived with POS Ready 7. As you can see, it was by far the slowest of the bunch. Nelson took the PioneerPOS system and spent about 90 minutes tweaking it, making registry changes, altering Windows settings, and adjusting drivers. After his changes, the unit's speed dropped to the sub-100 second time, putting it on the same level of the fastest units.

The lesson here is you can sell your customers the best hardware and software, but if the OS and drivers aren't properly configured, speeds will suffer. Ultimately, if manufacturers aren't going to fine-tune the systems, it's up to you as a VAR to step up on your customer's behalf and learn how to make such changes. Whether such fiddling should be your responsibility or the manufacturer's is another story.

Operating On Your All-In-One

The ability of VARs or even your customers to easily service the terminals also played a factor in our testing. As you can see in the chart, Nelson found the units to fall across a spectrum of serviceability ease. Indeed, many were classified as "bench repair only," which means that Nelson felt the units would be best serviced off-site by a bench technician. Others could be serviced on-site with minor considerations. For instance, Nelson noted that the location of the RAM on the Bematech unit is behind a heat sink. To swap memory, the heat sink needs to first be removed.

As your needs differ from those of other VARs, it's not really possible to declare a winner here. However, Nelson felt strongly enough about Bematech, Posiflex, and Touch Dynamic to say that they should "take a bow" for making the lives of VARs easier when it comes to onsite repairs.

Touch Screen Test Results

The part of the POS system your customers are going to experience most often is the touch screen. For that reason, we wanted to see how the screens responded to

the most basic of tests. Nelson opened Windows' Paint application on each unit and dragged his finger to create a line. Additionally, he performed a series of gestures where he tapped his finger around the screen. The results showed that the Bematech, Panasonic, PartnerTech, and Touch Dynamic models had issues keeping up with his finger's movements. Nelson speculated that the film thickness on the Bematech and Panasonic touch screens was to blame for the spotty results. He blamed low memory (1 GB) for the performance of the PartnerTech unit.

Apart from touch tests, there were some additional screen-related notes to share. For instance, Nelson absolutely gushed over the screen quality on the HP and J2 units, although he was puzzled over J2's widescreen 1368 x 768 format since most software isn't written for such a resolution. He also scratched his head at Posiflex' choice to ship units with video settings tweaked to a 125% scale. This, he said, could cause newbies, or customers getting replacement hard drives, some confusion.

Fit, Finish, And Other Considerations

Unfortunately, here's where testing gets a little less scientific, and where you really need to decide what's most important to you. For example, the Aures unit got high marks for outward appearance and customization through the use of colored bezels. Beyond that and the speed test, Nelson had little else to add concerning Aures.

He felt that the HP had the excellent build quality of a high-end PC, even including some significant RF shielding with the chassis. Additionally, he said the dual-joint tilt was a welcome plus. The NCR unit prompted similar comments. The above-average use of metal in the NCR construction helped dissipate heat. On numerous occasions Nelson positively referred to the NCR unit as a tank. That said, the NCR unit has an external power brick (literally the size of a brick), perhaps for the 24v-powered USB ports. Hiding this could cause issues for many stores.

Nelson loved the design of the J2 in that it was a "popup" setup (unfold and go). The terminal reminded him of a tablet stuck onto a base, which is the direction the industry could be headed. While we didn't weigh the units, the J2 was clearly lighter than the others. This might be good for some customers, but Nelson was concerned the unit might fail the time-tested needs of busier environments such as a grocery setting.

The Posiflex unit scored high marks across the board. He noted the great cable routing and management built into the unit and found during his temperature monitoring that the heat sink did a very good job of removing the heat. However, Nelson had a problem with the cover of the power switch, actually breaking it off in the course of his short testing. He felt that most customers would probably just remove the door permanently, exposing the buttons.

The Panasonic unit also received generally favorable comments in all areas, although, similar to the NCR unit, Nelson wasn't a fan of the giant power brick. Nelson also noted that the design of the Panasonic model is more directed at food services but could do very well in grocery and general retail.

Off topic, Nelson pointed to the great packaging of the PioneerPOS unit. While not a factor in the build and performance of an all-in-one test, he felt strongly enough to mention it as something above and beyond the competition and something most VARs who receive, ship, and transport terminals would appreciate.

In the end, Nelson had his overall favorites, but it's not possible to declare a clear winner. If speed is all you care about, the units running an Atom D525 processor and 2 GB of RAM get Nelson's votes. He liked the overall design of the J2 and Panasonic units and asserted that the HP and NCR units would last forever. Additionally, and as previously noted, Bematech, Posiflex, an Touch Dynamic got his tip of the hat for easy repairs.

Finally, not to be overlooked is each company's partner program. We advise you to check out last month's Best Channel Vendors report to see which companies get high marks for their programs. So, all things presented in this review considered, what's most important to you?

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