



## Solution Brief

Intel® Multi-core Processors  
NCR RealPOS\* 70XRT

Retail Solutions

# NCR Retail Solution Advances Energy Efficiency

## Up to a 50 percent energy consumption reduction over previous-generation POS terminals

**“What a great story.  
NCR partnering with  
Walmart to make  
a change that is  
better for this  
world, better for  
the environment.”**

*Lee Scott, President and CEO,  
Walmart Stores, Inc.*

Energy and environmental concerns are growing rapidly worldwide. Consumers and corporations are making fundamental lifestyle and business changes in order to reduce energy consumption and environmental impact. Consumers want to buy resource-efficient products, such as fuel-saving vehicles, electricity-cutting compact fluorescent light (CFL) bulbs and water-conserving dishwashers and washing machines. “Less is the new more,” and customers are showing greater preference for manufacturers and retailers that take steps to protect the environment.

As customer loyalty is increasingly linked to companies practicing greater social responsibility, more corporations are investing in solutions that reduce their impact on the environment. In addition to positively impacting customer perception and satisfaction, resource conservation – through modifying operations, products and services – can also save money and improve the bottom line. This was the case with an innovative multi-pack carrier developed for NCR scanners:

*“What it took was one person asking one question, and that is, ‘What can we do in our packaging on these scanners that will reduce waste and help meet the company’s goal of cutting overall waste and packaging by 25 percent?’ Out of that question comes a reduction of more like 60 percent and 14 tons of waste eliminated, and let’s remember that’s 14 tons of cost that have been eliminated in the process,” says Lee Scott, President and CEO, Walmart Stores, Inc.*

Like Walmart, other retailers also face a challenging marketplace, where margins are constantly under pressure. Fortunately, there are point-of-sale (POS) solutions that lower the total cost of ownership (TCO) by using the latest energy-efficient technologies. This brief describes how the RealPOS\* 70XRT POS workstation, equipped with Intel® Core™2 Duo processors, can help meet environmental and long-term cost objectives.

## Energy-Efficient Technologies for POS Terminals

Retailers want POS terminals that save energy without sacrificing performance, because they need sufficient performance headroom in order to run the retail storefront services of tomorrow. Thanks to recent technological advances, it's possible to have both power savings and computing horsepower. For example, the NCR RealPOS 70xRT POS workstation, shown in Figure 1, reduces energy consumption by up to 50 percent over previous-generation POS terminals. It's equipped with Intel's next-generation low-power processor and chipset architecture and a high-efficiency power supply, which deliver a significant leap in performance.

Energy-efficient technologies are helping to drive down power consumption, which translates into lower utility bills. The RealPOS 70xRT can provide estimated cost savings of \$30.18 (USD) per unit per year compared to the previous-generation POS,<sup>1</sup> as shown in Figure 2. This equates to \$150.90 in energy cost savings over five years.<sup>2</sup>

A significant portion of this cost savings can be attributed to the power-saving technologies of the latest Intel® processors. The effectiveness of these technologies is demonstrated in Figure 3, where Intel Core 2 Duo processors in 70xRT POS workstations are compared to the prior-generation Intel® Pentium® 4 processors deployed in RealPOS 70 systems. The PassMark Performance benchmarks show the raw performance of the RealPOS 70xRT POS workstation is about 2.2 times greater than the previous RealPOS 70 system. And the energy efficiency of the Intel Core 2 Duo processor is approximately 3.6 times greater than the Intel Pentium 4 processor. Note: The benchmark data is normalized to the Intel Pentium 4 processor results.<sup>2</sup>



Figure 1. NCR RealPOS\* 70xRT POS workstation

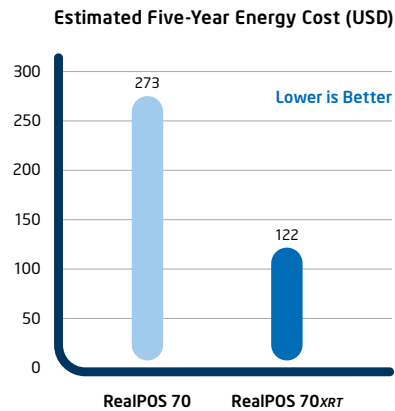


Figure 2. NCR RealPOS\* 70 and 70xRT five-year power consumption comparison<sup>2</sup>

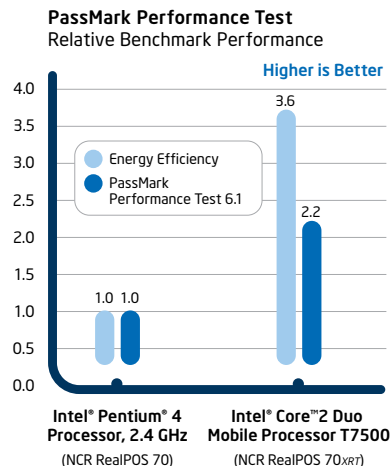


Figure 3. NCR RealPOS\* 70 and 70xRT processor comparison<sup>1</sup>

All results are normalized to the Intel Pentium 4 processor.

## Energy-Efficient Intel® Processors

Intel processors incorporate a number of technologies that contribute to a tremendous advance in energy efficiency.

- **Enhanced Intel SpeedStep® Technology:** The processor, when active, dynamically changes its frequency and voltage based on the processing needs of the POS terminal, which significantly reduces the average runtime power consumption.
- **Sleep Mode and Variable Sleep States:** The processor, when idle, keeps vital functionality active while parts of the CPU are in “Sleep Mode,” thereby reducing active power. There are several low-power processor states, called C-states, which allow the system to deliver optimal power management. The NCR RealPOS 70xRT POS Workstation implements Sleep Mode and C-states to ensure systems consume minimal power when they are idle.
- **Intel® Intelligent Power Capability:** Individual processor logic subsystems are turned on only when they are needed.
- **Intel® Enhanced Deeper Sleep:** The processor, when inactive, copies the contents of the cache to system memory, allowing the cache – the largest portion of the processor – to be turned off to save power.
- **Advanced Transistor Technology:** Intel manufacturing improvements are reducing the amount of current each transistor “leaks,” which dramatically lowers power consumption.

**“The market has quickly recognized the value of the new dual-core technology in providing enhanced power savings while still maximizing performance, scalability and investment protection for the future.”**

*Alan Chow, Chief Technology Officer, NCR*

NCR selects components from Intel’s Embedded Roadmap, which have a seven-year minimum lifespan. This processor consistency enables stable platforms that minimize hardware changes, reduce software image turns and extend product lifecycle support.

## Better Power Supplies

The NCR RealPOS 70xRT uses power-efficient 80 PLUS\* certified power supplies. The 80 PLUS performance specification requires power supplies in computers and servers to be 80 percent or greater energy-efficient, which ultimately improves computer stability and reduces utility costs.<sup>3</sup>

Today, many power supplies are only 50 to 60 percent efficient when the system is idle or lightly loaded, making 80 PLUS power supplies about 1.3 to 1.6 times more efficient. More efficient power supplies generate less heat output, which increases system reliability and minimizes the need for loud, high RPM cooling fans.

## Lower Total Cost of Ownership

By selecting power-efficient POS terminals that conserve energy, retailers can practice social and environmental responsibility by reducing their carbon footprint. This choice also provides economic benefits by reducing the TCO of retail solutions. Cutting power consumption lowers electrical bills and reduces heat dissipation, which helps improve overall system reliability because a cooler operating environment typically increases system stability and extends equipment lifetimes.

In addition to energy efficiency, the NCR RealPOS 70xRT addresses many other factors impacting TCO including manageability, reliability and serviceability.

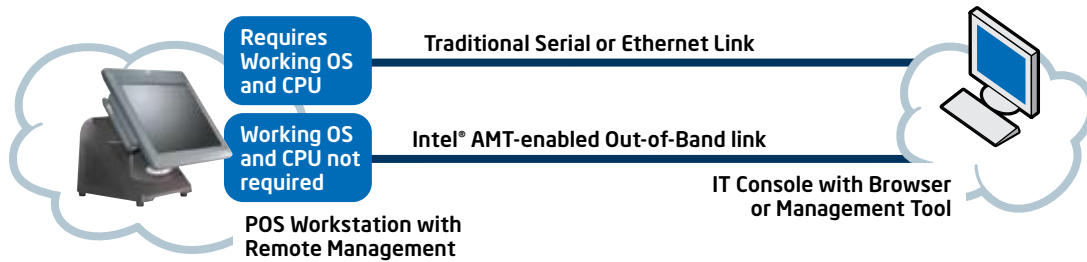
### Manageability

System management solutions can help keep systems up and running by accelerating local and remote problem isolation, which reduces downtime and maximizes system availability. When issues arise, proactive notification and accurate diagnosis speed time to recovery and enable technicians to get systems online more quickly.

## Benefits of Intel® Active Management Technology<sup>3</sup>

1. Save power when the IT console automatically turns off POS terminals at night and brings them back up in the morning.
2. Save time by performing hardware and software inventory remotely, as opposed to sending a technician on-site.
3. Reduce on-site service calls and associated energy (fuel) consumption by diagnosing and repairing software issues remotely.

## Why Out-of-Band Remote Management is Important



### Out-of-Band Link Benefits

- **Persistent Access:** Manage POS regardless of state (e.g., powered off or OS blue screen).
- **Secure Access:** Authenticate Intel AMT link using security certificates and keys.
- **Full Function:** Perform POS queries, cycle power, access event logs, etc., anytime.
- **Standard Interfaces:** Use standard management tools that run on a remote console.

Figure 4: Out-of-Band remote management

**“Intel helps NCR provide retailers with the optimum balance of powerful performance and energy efficiency with its new platform based on the Intel Core 2 Duo processor with Intel® vPro™ technology.”**

*Joe Jensen, General Manager, Embedded Computing Division, Intel*

The RealPOS 70xRT supports NCR Retail Systems Manager\* (RSM), a remote monitoring and management software solution with a “help desk friendly” interface. It uses Intel® Active Management Technology<sup>4</sup> (Intel® AMT), a feature of Intel® vPro™ technology, which includes advanced Out-of-Band remote management capabilities. This technology allows the help desk to manage the POS workstation even if the operating system is corrupted or the terminal is turned off, as shown in Figure 4. With Out-of-Band remote management, IT is able to perform diagnostics, updates and repairs even when the POS terminal stops working altogether because it’s not necessary to have a functioning operating system.

### Reliability

Reliable equipment has less downtime, which improves cashier productivity and lowers overall support costs. For the many retailers who typically hold onto a POS terminal for seven to ten years, high reliability pays dividends throughout the system’s lifetime. The NCR RealPOS 70xRT is retail hardened to survive harsh retail environments and is designed for long life and high reliability. NCR conducts comprehensive testing for water, dust, ESD, shock and vibration.

Backing up critical business and sales data, the RealPOS 70xRT provides improved performance and reliability for systems equipped with dual Serial ATA\* hard disk drives using Intel® Matrix Storage Technology 7.0. With hot-swappable dual-drive capabilities, the RealPOS 70xRT provides additional protection against data loss in the event of a hard drive failure.

### NCR Retail Systems Manager\* (RSM)

Precise and timely information is key to resolving an issue immediately and/or getting the right customer service engineer to the store with the right part. This information can be gathered remotely using NCR Retail Systems Manager (RSM), which monitors POS terminals and peripherals for potential trouble spots. RSM provides insight into the closed loop corrective action cycle by delivering alerts on conditions that require attention. These capabilities, supported via a standard web browser, provide the support team with a full range of tools – from informational messages to complete system control – to accurately diagnose and resolve issues in real time.

NCR integrated its RSM software with Intel® AMT, which continues NCR’s commitment to making NCR solutions the most supportable in the world. This remote management software solution increases store system availability and streamlines the support process.

## EZ-Glide Blade System Eases Component Replacement

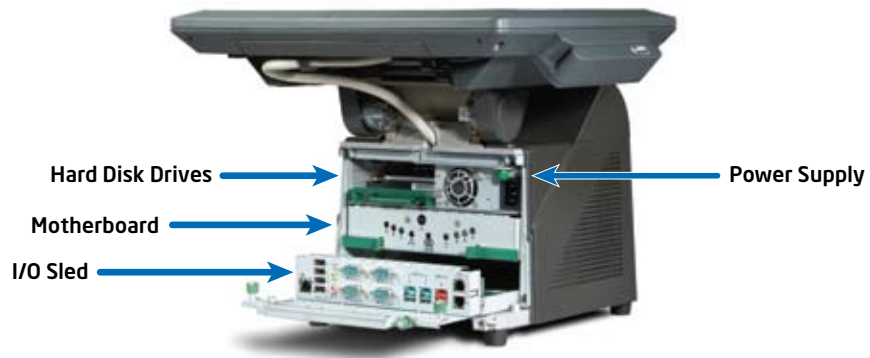


Figure 5. NCR EZ-Glide Blade System

### Serviceability

POS systems designed for easy serviceability can shorten upgrade and repair times and ensure that checkout lanes are up and running.

The innovative NCR EZ-Glide Blade System enables modules to literally slide out of the chassis, which improves configuration flexibility, system reliability and availability. The technology allows for quick tool-free access to internal modules, like hard disk drives, motherboard, I/O and power supply, as shown in Figure 5. This capability accelerates repair time and system upgrades and helps drive down service costs.

There's also a front LED dashboard that helps troubleshoot and isolate problems faster. The LED dashboard status indicators provide visibility to system health such as hard disk drive activity, LAN activity, power on/standby, boot errors, CPU temperature, CPU power and power supply.

## Profit From Energy Efficiency

An energy-efficient POS workstation saves money and benefits the environment. The NCR RealPOS 70<sub>XRT</sub> demonstrates how innovations from NCR and Intel technology can significantly reduce power consumption and cut operating costs. Retailers will also see benefits from remote management, which reduces the number of on-site technician visits, thereby saving time, transportation costs and related energy consumption. The enhanced reliability and TCO lowering features of the RealPOS 70<sub>XRT</sub> increase the return on investment over the POS terminal's entire lifetime. The world is focused on preserving the environment, and some of the latest POS solutions from NCR are helping by making great strides in energy conservation.

## NCR and the Environment

As a member of the global community, NCR recognizes that responsible product stewardship begins with product design. Innovative NCR applications enable companies to better handle the increasing volume and sophistication of retail and financial transactions while reducing the maintenance, material, energy and fuel costs associated with them. By enabling the reduction of energy and fuel consumption, NCR products and solutions, such as NCR RealPOS\* 70<sub>XRT</sub> and NCR Retail Systems Manager,\* play an important role in reducing adverse impacts on our planet.

Recognizing the increasing importance of greenhouse gas management, NCR joined the U.S. Environmental Protection Agency Climate Leaders program to demonstrate our commitment to environmental stewardship in this area. Climate Leaders is an EPA industry-government partnership that works with companies to develop comprehensive climate change strategies. Through Climate Leaders, NCR will further develop our greenhouse gas management strategy and reduce our carbon footprint.



<sup>1</sup> Energy cost savings based on the following assumptions: 1) Energy cost: 10.06 cents per kWh (Source: U.S. Dept. of Energy). 2) Comparison between RealPOS 70 (with Intel® Pentium® processor) and RealPOS 70XRT (with Intel® Core™2 Duo processor) models. 3) Usage: 16 hours Operational and 8 hours Standby. Actual results may vary based on configuration and usage.

<sup>2</sup> Performance tests and ratings are measured using specific computer systems and/or components and reflect approximate performance of Intel products as measured by those tests. Any difference in system hardware or software design or configuration may affect actual performance. Buyers should consult other sources of information to evaluate the performance of systems or components they are considering purchasing. For more information on performance tests and on the performance of Intel products, visit [http://www.intel.com/performance/resources/benchmark\\_limitations.htm](http://www.intel.com/performance/resources/benchmark_limitations.htm).

<sup>3</sup> Source: <http://www.80plus.org>.

<sup>4</sup> Intel® Active Management Technology (Intel® AMT) requires the computer system to have an Intel AMT-enabled chipset, network hardware and software, as well as connection with a power source and a corporate network connection. Setup requires configuration by the purchaser and may require scripting with the management console or further integration into existing security frameworks to enable certain functionality. It may also require modifications of implementation of new business processes. For more information, see [www.intel.com/technology/platform-technology/intel-amt/](http://www.intel.com/technology/platform-technology/intel-amt/).

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