

## Best of CES 2009(2)



The [International Consumer Electronics Show 2009](#) [1] didn't exhibit a great deal of innovation. There were product announcements aplenty, as always at CES. But everything, from the keynotes to the exhibition floor, seemed very low-key



(another victim of our lousy economy). Nonetheless, with 2,700 exhibitors catering to over 130,000 attendees, some products and/or technologies are bound to distinguish themselves. Your faithful editor was there from January 7-11 to document this year's latest and greatest gadgets, gizmos, and electronic products. Thus, I present the best of CES 2009.

**by Jason Lomborg, Technical Editor**

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The [Nintendo Wii](#) [2] is the hottest game system on the market today. For its latest “next-gen” system, Nintendo chose to cater to the casual gaming crowd, mining a previously untouched market segment. One of the Wii’s greatest innovations was its unique controller, the [Wii Remote](#) [3] (or WiiMote), which used accelerometer and optical sensor technology to detect a user’s movements. Point and click, basically; a stark departure from old-school gamepads. The WiiMote was revolutionary, but intrinsically limited. A successor was inevitable—enter [Sixense](#) [4] with their TrueMotion controller.

Right off the bat, Sixense’s offering is technologically superior; one need look no further than its name (*Sixense*). Through its ADXL330 accelerometer, the WiiMote can detect acceleration along three axes. As the name implies, Sixense’s TrueMotion technology enables detection along *six* axes. This is akin to the difference between 2D and 3D graphics. The WiiMote operates through the Wii’s



[5]10 LED Sensor Bar. The Sensor Bar detects the WiiMote’s movement, but its capability is limited. The WiiMote must be pointed in the general direction as the Sensor Bar. Outside infrared sources, such as incandescents, can also interfere with the WiiMote’s operation.

Sixense’s TrueMotion technology takes an [entirely different approach](#) [6]. A base station generates a magnetic field one fiftieth the strength of the Earth’s magnetic field. This detects the controller’s position and orientation relative to the base

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station and conveys this data to the gaming hardware. Because TrueMotion uses a magnetic field, and not LED sensors to detect movement, the former has no line-of-sight restrictions.

The two key components of TrueMotion are Analog Devices' [SHARC DSP](#) [7] technology, which interprets the raw signals from the controller, and Nordic [2.4 GHz transceivers](#) [8], which link the wireless controllers (up to four) with the base station. The detection range is a 6 foot radius all around the base station (12 ft x 12 ft x 8 ft), plus accuracy of 1 mm position resolution and 1 degree orientation. There's a 10 ms delay between movement detection and transmission to the hardware. This equates to little or no lag time.

But never one to take marketing claims at face value, I received a demonstration of Sixense's TrueMotion technology at the ADI booth. The controller's capabilities are impressive. There seems little difference between your motions and the simulated on-screen representation. I was particularly impressed with its potential application in first-person shooters. TrueMotion is being marketed for PC games, including this editor's favorite FPS, [Call of Duty 4](#) [9]. The Sixense crew was sworn to secrecy regarding any console deals, but the application is obvious. The TrueMotion controller could potentially succeed the WiiMote or be a multi-console peripheral. Here's hoping the Sixense controller sees application in the forthcoming [Call of Duty 4: Modern Warfare 2](#) [10].

*Special thanks to Sixense CTO and Chief Architect Jeff Bellinghausen for demonstrating TrueMotion.*

NVIDIA GeForce 3D Vision



[11]Past attempts at commercializing 3D have been mostly dismal failures. 3D movies hit it big in the 50's, but were never more than a cheap gimmick. Modern attempts haven't fared much better. "Virtual Reality" is, and always has been, a cheap gimmick. And speaking of VR, who could forget Nintendo's infamous "[Virtual Boy](#) [12]," the impractical, mono-red, headache-inducing catastrophe? But unlike [Smell-O-Vision](#) [13], [Sensurround](#) [14], and [Percepto](#) [15], 3D is a fad that refuses to go away. All the major manufacturers were touting 3D at CES, and Nvidia stole the show with

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its [GeForce 3D Vision](#) [16].

3D Vision, as a technology, is nothing new, nor is the concept of using active glasses that, in the words of one reviewer, “‘turn off’ each eye in time with a display’s refresh rate.” In order to perceive depth perception (i.e. a 3D effect), each eye must view a slightly different version of the same image. But past 3D products used low frame rates, producing a false-looking image. 3D Vision distinguishes itself by using 120 Hz displays. This ensures two things: 1) The games will look fantastic, and 2) You’ll need the latest and greatest (read: *expensive*) monitor. The system operates similarly to the WiiMote. You plug a base infrared (IR) unit into your USB port, and this communicates with the glasses through IR.



[17]According to early reports, setup is quick and easy. Everything operates through the USB port, so it’s basically plug and play. 3D is compatible with existing software, so there’s no need to re-purchase special 3D versions of games (through your graphics card may need updating). But all games aren’t equal. Some work better than others. On its site, Nvidia provides a [compatibility list](#) [18], ranking games from “Excellent” to “Not Recommended.” I was pleased to see that “Call of Duty 4” was “Excellent,” while “Hyborian Adventures - Age of Conan” was the lone “Not Recommended.” I tested 3D Vision at CES, and was impressed--the 3D effect is thoroughly convincing.

For \$199, you’ll get the glasses and base IR unit. But, unless you’ve got a 100 Hz or higher CRT monitor (and who does these days?), a 120 Hz LCD display, a 1080p DLP HDTV, or a 3D HD Projector, expect to spend hundreds more on a compatible display. On its site, Nvidia [lists](#) [19] only two LCD desktop monitors: Samsung’s [SyncMaster 2233RZ](#) [20] and ViewSonic’s [FuHzion VX2265wm](#) [21]. More are coming, but either way, you may be looking at a hefty investment. I suppose, in an objective sense, you “get what you pay for.” The cheap plastic glasses handed out at your local theater won’t run you nearly as much (most are complimentary). But then, 3D Vision is hardly a cheap gimmick.

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I wrote about this at length in the [Efficiency Zone](#) [22]. Energizer's ZAP battery takes existing Zinc/Air technology and repackages it for the OEM market. Zinc/Air batteries are simple: oxidized zinc replaces the cathode, freeing up room for proportionally more anode. Energizer claims their ZAP battery "achieves 3X the runtime of an equivalent size alkaline or Lithium Ion rechargeable battery" (38 hours for ZAP in 50 mW devices). If true, this stat would overshadow the battery's main weakness—Zinc/Air batteries are inherently non-rechargeable. And the price is right--\$.50 for OEMs. Energizer's production model, the PP355, will hit the market in June of this year.

"Eccentric" Attendees



This is more of a booby prize than anything else. With more than 130,000 people, there's bound to be some interesting characters (and I'm not talking about "booth babes").

### TV Zombies



[23]Protestors from the "[Electronics TakeBack Coalition](#) [24]" wore Marilyn Manson makeup and TVs on their heads to protest the manufacturers' supposed failure to properly recycle old TVs. Why the zombie getup? Because the TVs' "toxic components continue to 'live on' in the ground soil and water supply, causing public health and environmental hazards." The

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“zombies” shuffled around outdoors, and blocked traffic indoors. With all the congestion in the main hall, annoying people isn’t the way to endear them to your cause. It’s no surprise that the unaccredited zombies were quickly booted from the show floor. Afterwards, they did the [“Thriller” dance](#) [25], which is good for a laugh.

### Rappers at the Steve Ballmer Keynote



Ok, I understand that Microsoft is trying to cultivate a younger, hipper image after Apple’s great success with the [“Mac vs. PC](#) [26]” commercials. But do they honestly think the vast majority of CES attendees enjoy rap music? These guys stood out like a sore thumb. Another musical act, the quirky trio [“Tripod](#) [27],” performed game-related music/satire. They seemed more appropriate.

### The First [“Fleet Admiral](#) [28]” Since WWII



[29]I ran into this fellow in the press room. He’s not a member of the US Navy (nor a commissioned officer), but the [“Lighthouse Navy](#) [30],” an organization which does charitable work for sick children. Through donations, the Lighthouse Navy arranges cruises (often with celebrities aboard) for sick kids. A noble cause, but did he need to wear a uniform that closely resembles that of a US Navy [Flag Officer](#) [31]? Some vets may take offense to that.

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- [2] <http://www.nintendo.com/wii>
- [3] [http://en.wikipedia.org/wiki/Wii\\_Remote](http://en.wikipedia.org/wiki/Wii_Remote)
- [4] <http://www.sixsense.com/>
- [5] <http://www.ecnmag.com/TrueMotion-Demonstration.aspx>
- [6] [http://www.analog.com/en/embedded-processing-dsp/sharc/processors/customer-case-studies/Sixsense\\_Entertainment\\_Video\\_Gamers\\_TrueMotion\\_/resources/fca.html](http://www.analog.com/en/embedded-processing-dsp/sharc/processors/customer-case-studies/Sixsense_Entertainment_Video_Gamers_TrueMotion_/resources/fca.html)
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- [10] <http://www.xbox360fanboy.com/2008/12/03/call-of-duty-modern-warfare-2-announced/>
- [11] <http://www.ecnmag.com/Nvidia-GeForce-3D-Vision.aspx>
- [12] [http://en.wikipedia.org/wiki/Virtual\\_Boy](http://en.wikipedia.org/wiki/Virtual_Boy)
- [13] <http://en.wikipedia.org/wiki/Smell-o-vision>
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