

tools & toys



CAN MARIO MAKE THE LEAP?

Nintendo's new 3DS handheld game player may be the best of a dying breed

ON 27 March, Nintendo Co. launched arguably the most eye-catching handheld gaming device yet, the glasses-free 3DS. That's 3D as in "three-dimensional."

Early reviews and consumer preorders are impressive, which is just what we'd expect from Nintendo. The company has a track record of turning select technologies into well-designed systems, each of which carves

out a niche all its own. Last time around, while Sony and Microsoft were trying to outdo each other's high-def video gaming platforms, Nintendo went a different way, with the non-HD, marketplace-redefining, motion-capturing Wii. Yet the challenges Nintendo faces today would give even the Mario brothers pause.

The first is 3-D itself. In the past 18 months, consumers essentially yawned as the

electronics industry plied them with 3-D via televisions, Blu-ray players, and console games. Then there's archrival Sony, already previewing its successor to the PlayStation Portable.

But Sony and Nintendo might as well be best buddies, in an enemy-of-my-enemy-is-my-friend way, as they face the even bigger challenge of smartphones. Over 100 million of them were sold in just the last quarter of 2010. By comparison, the Nintendo DS took four years to reach a mere 91 million units sold. In an April report, IHS iSuppli, a research firm

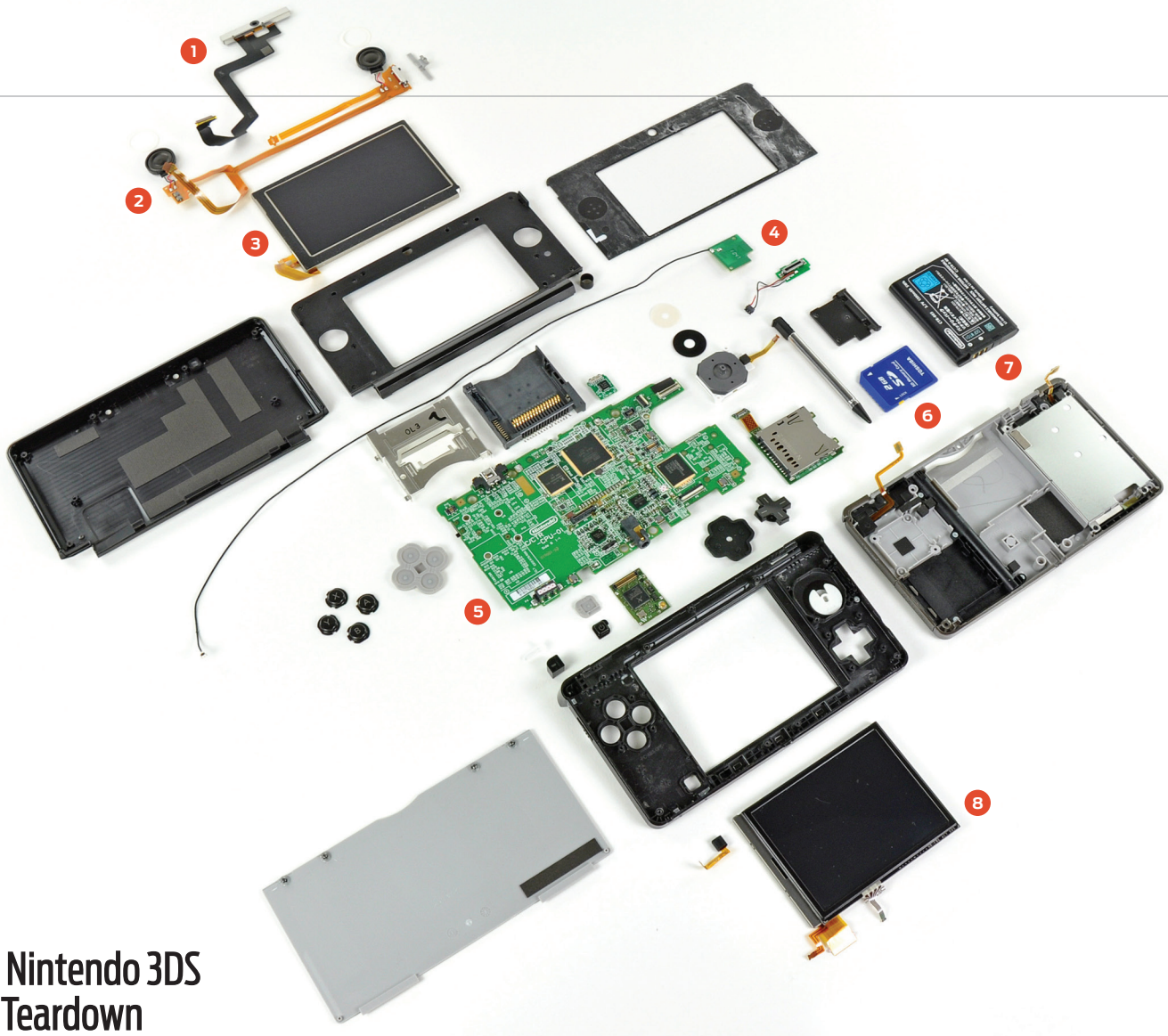
that specializes in consumer electronics, predicts 3DS sales of only 70 million over the same period of time: "Growing competition from the iPod, iPhone, and Android smartphone and tablets will prevent the 3DS from matching the sales of the previous-generation Nintendo handheld, the DS."

Today's smartphone would have been a portable gamer's Valhalla a few years ago: gigahertz-clocking processors with many of the same motion-sensing capabilities as a Wii, plus sparkling high-res displays and—in Apple's case—an App Store filled with over 50 000 games.

To be sure, neither Sony nor the iPhone has the 3DS's glasses-free 3-D. And they don't have Mario or the legendary Zelda. (Both iconic Nintendo franchises should be available for 3DS by the holiday season.) At the same time, 3DS doesn't have phone service, e-mail, AIM, Facebook, Twitter, Foursquare, Skype, Kindle, or Gmail—although both a Web browser and Netflix support are expected later in the year.

Yet perhaps the biggest competitor to 3DS is neither Sony nor the smartphone. "The important question for most people isn't 'Will I buy the 3DS or Sony's new handheld?'" says Kyle Wiens, CEO of tech tear-down website iFixit. "It's 'Will I buy this or the iPod Touch?'"

Wiens said Apple's latest version of the Touch, priced at US \$229 for 8 gigabytes, lacks only 3-D as it lures tech heads to do all their gaming as well as *Continued on page 26*



Nintendo 3DS Teardown

AS SOON as the first Nintendo 3DS models—made for Japanese customers—became available in late February, the techs at iFixit got their hands on one. Although unable to use it because both menus and manuals were in Japanese, iFixit CEO Kyle Wiens got out his heat gun, tiny screwdrivers, and antistatic “spudger” (a prying and wedging tool). Here’s what was left once all the fasteners were unfastened.

—Mark Anderson

- 1 THREE CAMERAS:** Of course, the Nintendo 3DS wouldn’t be much of a console if it didn’t also capture 3-D graphics. A single front-facing camera enables video chat, while a stereoscopic pair of 0.3-megapixel cameras point out, capturing screen-popping 3-D snaps of the baby pulling on the dog’s tail.
- 2 SPEAKERS:** They’re tiny. They’re tinny. You wanted handheld 5.1 surround? Set the DeLorean for 2025, Mr. McFly.

- 3 THE GLASSES-FREE 3-D SCREEN:** The 3DS’s “parallax barrier” consists of two layers of LCD screens that shield the left eye from the vertical strips of image meant for the right eye, and vice versa. The result: 400-by-240, 24-bit color graphics to each peeper.
- 4 WI-FI:** An IEEE 802.11g antenna-and-chip combo communicates with any nearby Wi-Fi base station and also any other nearby 3DS—the StreetPass feature that lets 3DS players’ consoles find one another, even when in sleep mode. And how about that superlong wire? “They needed the antenna in the top...to keep it farther away from your body, [which] gives it better wireless performance,” says Wiens. “But they needed to route it all the way through the hinge and down into where the board is at.”
- 5 MOTHERBOARD:** A Nintendo-branded ARM CPU is the beating heart of the 3DS. Nintendo doesn’t brag about its specs, so it clearly couldn’t go

- head-to-head with Sony’s forthcoming next-gen NGP, the quad-core Cortex A9. Do 3DS fans care? Surely not. Also on board is InvenSense’s MEMS gyroscope. “It opens up new types of game play,” Wiens says. “You’re basically getting a Wii Motion Plus for free with every 3DS.”
- 6** The flash memory is expandable via SD card, and you can start with the 2-gigabyte card that comes with the 3DS.
- 7** Nintendo’s website says 3DS plays for 3 to 5 hours on a charge—though playing non-3-D games extends battery life to as much as 8 hours. The iPod Touch’s battery rates 3.44 watt-hours, while 3DS is 5 Wh—and it’s swappable. Game, set, match to Nintendo.
- 8** **2-D DISPLAY:** Last but not least is 3DS’s other (2-D) display—with a PDA-throwback resistive touch screen that requires the telescoping

stylus (next to the SD card) for input. “You could use your fingernail,” Wiens says. “whereas with capacitive [touch screens] like on the iPod or iPad or Android portables, it’s measuring the electrical conductivity in your finger.”

IHS ISUPPLI PRODUCTION COST ESTIMATE:

Cameras	US \$4.70
Gyroscope, speakers, accelerometer	\$6.81
3-D screen, 2-D screen	\$33.80
Wi-Fi	\$5.00
Motherboard processors, timing components	\$18.98
Battery, power management PCBs and other mechanical/electromechanical components	\$20.81
Charger, cables, and other box contents	\$3.48
Manufacturing cost	\$2.54

TOTAL LIST PRICE **\$103.25**
\$250

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CONSOLE FEVER: First-day purchasers in Tokyo flaunt their new Nintendo 3DSs.

PHOTO: YOMIURI SHIMBUN/AP PHOTO

Continued from page 24
music, social networking, Net surfing, and movie and TV too. The 3DS, at \$250, has just 2 GB.

The stakes for Nintendo could hardly be higher. If the 3DS fails to score a hit, the company might become the next Sega—a former console maker relegated by the marketplace to serve as a software-only supplier.

But fortunately for Nintendo, the 3DS's biggest challenger is all but asleep at the switch, says games industry analyst Billy Pidgeon of M2 Research, based in Encinitas, Calif.

“Apple doesn’t get games at all,” Pidgeon says. “Everyone knows Steve Jobs doesn’t like games. He thinks it makes the computer more of a toy. To the extent that they have games [in the App Store], they don’t really curate it. They treat it like a commodity, just like they treat music.”

For Nintendo, the handheld gaming

device is anything but a commodity. And it shows the moment you pick it up.

“I can tell you all day that the 3DS is very cool, but you have to see it to believe it,” says Richard George, executive editor for the gaming website IGN. “Nintendo defies trends. They come up with innovative ways to play games that make you think you’ve never played games before.”

At 3DS’s March launch, the console’s marketplace consisted of just 18 cartridges—including its own *Nintendogs + Cats* (virtual pet training) and *Pilotwings Resort* (a stunt-flight simulator franchise first developed for the Nintendo NES in 1991). Probably the best of the initial offering, though, says *@Gamer Magazine* executive editor Andy Eddy, is Capcom’s *Street Fighter IV: 3D Edition*.

As you might expect of any 3-D title worth a thumbs-up, the game’s pugilistic graphics fly off the screen with every fierce uppercut

and roundhouse kick. But, crucially, it also takes clever advantage of a lesser-known 3DS feature called StreetPass.

“If you have it in your backpack or pocket, and it’s in a standby mode—where it’s powered up but you have the lid closed—there’s a limited handshaking that takes place,” Eddy says. “If you and another person [with a 3DS] pass each other, the *Street Fighter* game lets you have virtual battles with somebody, even though you’re not pushing buttons.”

Street Fighter’s passive rock-paper-scissors minicontests highlight what Pidgeon says could be the other innovation behind any great success 3DS enjoys. For a company like Nintendo to make money, it needs to sell software.

“3DS comes out, and the hard-core gamers will buy it,” Pidgeon says. “The trick is going to be to get each person who buys that machine to buy additional

software as much as possible.”

3DS’s *Street Fighter* helps move players through the ranks with every virtual match, which of course happens only if the players take the 3DS with them. Moreover, Nintendo has learned a lesson from its wildly popular Pokémon franchise, with an onboard 3DS pedometer that also advances a player a little with each step.

“They have this thing called a PokéWalker that you carry around, and it converts your steps into points you could use to buy Pokémon items,” Pidgeon says. “Now they put the thing right into the [3DS] and give you a point system right there that can be used for in-game items and other things that have not yet been defined.”

The Touch might be only the penultimate threat to Nintendo. “If in the gaming world the iPod Touch is the present, the iPad is the future,” Wiens says. While a tablet may not fit in your pocket, it is getting closer to delivering games like those you get from Wii or Xbox. The iPad 2 alone, with its tenfold GPU speed increase over the first-gen Apple tablet, already represents a threat to portable gaming.

“It is tougher to have a dedicated device business,” Pidgeon says, “because convergent devices are becoming good enough to have a great game on. It’s just that the great games aren’t there yet.” —MARK ANDERSON