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The Ten Most Important Video Game Patents

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[EDITOR'S NOTE: While patents are still a controversial subject in the game industry, we still think it's important that Gamasutra covers them. If you have an opinion on any of the patents or ideas for both hardware and software described in this piece, please <u>submit a Letter</u> <u>To The Editor</u> with your points of view and we'll reprint them.]

Introduction



When the editors at Gamasutra asked us to prepare a list of the top ten video game patents, we initially thought "Hey, no problem, that will be easy." As we've dug into this in a little more detail, we realized that what we signed up for was no easy task, because there are quite a few issues that make it difficult to simply whip up a list of the top 10 video game patents.

First, what makes a patent a video game patent? Is it a video game patent if it describes video game play methods? What about hardware? Audio/video processing techniques? There are endless patents that may be utilized in some form or another when playing a video game.

Second, what determines whether a patent is a good patent or a bad patent? Its coolness factor? Financial worth? Something else entirely?

Third, how do you compare patents that cover completely disparate technologies from completely different times? How do you compare the original *Pong* patent with a patent for giving "kudos" based on driving style? The *coup de grace* then is this: how do you rank patents that each derive merit from a different one of these metrics?

The fact of the matter is you can't, because there are many ways in which patents can be valuable. Some patents are widely licensed and bring lots of licensing revenue to its owners; other patents introduce a key technological advance that becomes an industry standard; and other patents possess a certain *je ne sais quoi*, the "IT" factor of a really neat idea.

Needless to say, given these complexities, this list is fairly subjective, and we would be blown away if no one disagreed with us. Nonetheless, here goes...

The Metrics

We use very scientific methods in preparing this list: we sat around and asked each other "what do you think?"

Actually, we used a mix of the following in determining which patents make the list:

- **Relativity to Video Games:** We would not consider a patent on a high-speed DVD drive to be a video game patent, even though millions of video games load from one. On the other hand, we consider a patent describing a video game play method to be principally a video game patent.
- Financial Value: A good patent has financial value, period. That financial value can be realized in various forms, including licensing fees (voluntary or court-mandated), market share, and market leverage on secondary products (e.g., support products or accessories not necessarily covered by the patent), among other ways.
- Technological Importance: regardless of whether a patent issued in 1980 or 2007, each patent has an effect on the video game industry. Many, ok most, patents affect the industry exactly this much: nada. But a fundamental patent turns heads and the industry takes heed of the idea, incorporates the idea in video games, and develops new and ever better ideas and technologies on that foundation. When in doubt, and all other things being equal, we

consider any patent that has been litigated (or licensed) to be more important than one that has not.

• The It-Factor: Sometimes an idea has that *je ne sais quoi*, or "it factor," that makes it stand out in the crowd. While many value a patent only by its financial worth or market leverage, sometimes a patent stands out on its own, regardless of what the owner does with it. When reading a patent that has the It-Factor, as opposed to thinking "duh! I could have done that," you think to yourself "why didn't I think of that?"

The Patents

Politics aside, it's difficult to select the top 10 video game patents when multiple patents have accomplished similar stature. Thus, we provide our top 10 types of video game patents, with examples for each. And by "type," we refer to what the patent (or its owner) has accomplished in the industry based on the invention described in the patent (i.e., we gave preference to patents that were actually enforced at some time or another).

Also, we were asked to present the top ten video game patents--no one ever said we had to put them in order. So we didn't, except for the top video game patent. Now, without further ado:

10. Ones That Save the Day

A patent's primary purpose is to preserve an inventor's space; to let the inventor keep his/her invention, and to keep others from stealing it. So any patent that fulfills this purpose deserves to be listed.



Just ask Nintendo. In the early 1990's, Nintendo was riding a wave of popularity with its NES[™] console (a.k.a. the "Famicom," shorthand for Family Computer, the name used when it was originally released in Japan). To keep control over its business, Nintendo built a security program into its console. Nintendo's security program (referred to as the 10NES software) was a combination of "lock" software embedded into a chip in the NES gaming console, and "key" software in each Nintendo game cartridge.

The lock and key send synchronized encoded data streams back and forth which unlock the console when an authorized game is inserted. When an unauthorized game is inserted, the console remains locked, thus preventing game manufacturers for designing NES-compatible games without receiving keys from Nintendo.

Developers were upset that Nintendo was forcing them to pay money for a license to develop games for the NES console. Atari was so upset that it refused. Instead of paying, Atari simply copied the 10NES software from records in the U.S. Copyright Office. Litigation was soon to follow¹.

Irrespective of the fact that Atari lied in order to get the U.S. Copyright Office to release the records, Atari won the copyright infringement portion of the lawsuit. Nintendo, however, had the foresight to also get patent protection on its 10NES software--U.S. Pat. No. 4,799,635. The patent was determined to be valid, and a jury determined that Atari infringed the patent.

So, rather than having to sit by and watch an unlicensed competitor make and sell unauthorized games because its copyright claims fell, Nintendo was able to rely on its patent to preserve control over the NES. The parties eventually settled the case, and Nintendo has since become a dominant player in the U.S. console market. Who knows if Nintendo could have pulled this off if it lost control over the NES?

9. Ones That Pave the Way to the Next Generation



If the advertising is any indication, the "next generation" of console gaming is mostly defined by incredible graphics. Anyone who remembers playing games in the early console days, where a player character was represented by a simple block (remember *Adventure* on the Atari 2600?), can't help but be amazed by the graphics available in today's games. The Today's phenomenal graphics owe a debt of gratitude to the legions of innovators and inventions that gradually evolved and improved console gaming graphics. So as a tribute, we include a console gaming graphics patent that created waves with most of the heavyweights in the early console days - Atari, Mattel, Coleco and Nintendo.

U.S. Patent No. 4,026,555, filed in 1975, describes an early television display device that used bitmapped graphics to render a variety of types of images. This was described in the patent as an improvement over prior systems, which offered limited variety and actually relied on physical overlays stuck to the television screen for some of the visuals. The following figure from the patent shows an example of what was possible without the use of overlays:



The '555 patent's invention was commercialized by Atari, Mattel and Coleco, but Nintendo refused to take a license for its NES. The owners of the patent, Alpex Computer Corp., sued Nintendo, and in 1994, won a judgment of \$253,641,555.00 in damages and interest for infringement of their patent. That's a chunk of change.

On appeal, however, Nintendo was successful in arguing that the patent was narrow enough that it did not cover the particular graphic technique used in the NES. Specifically, the '555 patent described a RAM-based technique that mapped the entire screen, while Nintendo's system used a shift-register approach in which individual registers handled individual portions of the screen.

The appeals court looked at some statements that the '555 patent's inventors made to the Patent and Trademark Office in originally getting the patent, and concluded that the inventors had distinguished their invention over such shift register-based techniques².

1. Atari Games Corp. v. Nintendo of Am., Inc., 975 F.2d 832 (Fed. Cir. 1992).

2. Alpex Computer Corp. v. Nintendo Co., 102 F.3d 1214 (Fed. Cir. 1996)

8. The One That Makes a Fortune 500 Company Blink



Patents provide a "limited" monopoly to their owners, i.e., while a patent does not guarantee that the patentee itself can commercialize the invention, the patentee can stop others (i.e., infringers) from commercializing the invention, regardless of who that infringer is.³

It doesn't matter whether the infringer is an individual, a small business, or a Fortune 500 company with enough money to try to litigate the inventor into bankruptcy. A good patent is mightier than the largest coffers, and in true David versus Goliath fashion, Sony learned that the hard way.

Immersion Corporation owns various patents for haptic feedback technologies, including **U.S. Patent 6,275,213** and **U.S. Patent 6,424,333** covering vibration feedback in video game controllers. In February 2002, Immersion sued Sony and Microsoft for patent infringement of both patents because the PlayStation 2 and the Xbox both include vibration feedback in their respective controllers.⁴ Microsoft settled with Immersion in July 2003, ⁵ and continues to include haptic (vibration) feedback in its controllers to this day.

The Goliath that is Sony instead chose to continue litigation...to no avail. In March 2005 Sony was hit with a \$90.7M judgment and a *permanent injunction* against the manufacture, use, sale, or import into the United States of the infringing Sony PlayStation system including PlayStation consoles, Dual Shock controllers, and the forty-seven games found by the jury to infringe Immersion's patents.⁶

While Sony could begrudgingly pay the judgment, given the PlayStation's prominence in Sony's marketing and business efforts, the injunction is no laughing matter. The injunction was stayed pending appeal of the decision to the United States Federal Circuit, which hears all patent appeals. The oral arguments were heard October 3, 2006, and January 8, 2007; however, as of the date of this article, no decision has been issued.

Regardless of the final outcome of this case, Sony decided not to include vibration feedback in its controllers for the PlayStation 3 due to alleged incompatibilities between force feedback and the motion sensing technology used. However, given the still pending threat of a permanent injunction from the Immersion lawsuit, and a YouTube video questioning the basis of Sony's statement,⁷ the Immersion patents are proof that a good patent can alter the course of business of even the largest competitor, and have earned a spot on the list.

7. The One You Can't Live Without





From U.S. Patent 6,424,333

When a technology comes along that consumers instantly respond to, everyone begins to take that technology for granted. If someone has a patent on that technology, or just a patent on some aspect of it, that someone is going to have an important patent.

As an example, consider the wireless game controller. All three of the nextgeneration consoles (Xbox360, PS3 and Wii) offer wireless handheld controls, and from personal experience, we swear by the convenience and flexibility that the wireless control offers. **U.S. Patent no. 6,280,327** is entitled "Wireless Game Control Units," and has recently been in suit between its owner, Freedom Wave LLC, and Mad Catz Inc.

The patent deals with two features:

- 1. A sleep function to turn off a game controller after going unused for an amount of time, and
- 2. An "auto" function that sends game input signals at a continuous pace.

According to the patent, prior art game controls would have their sleep function interrupted by the automatic signals from the "auto" mode, so if users stopped playing while the "auto" function was turned on, the controller's sleep function would never kick in (it kept sending the signals, so it thought it was constantly in use). The patent claims a system that separates the sleep function from the "auto" function, so that the controller can go to sleep even if the "auto" function was turned on.



Another Freedom Wave patent, U.S. Patent No. 6,878,066, is related to the '327 patent described above, and also

relates to "Wireless Game Control Units." This one, however, deals with an adapter that can plug into a console's controller port to allow that port to work with a wireless controller.

Freedom Wave asserted both of these patents against controller maker Mad Catz Inc. in $2005^{\underline{8}}$. That case was dismissed in early 2006 by agreement of the parties, but the parties have continued their dispute in a new suit filed in late $2006^{\underline{9}}$.

3. Except the U.S. government, but that is beyond the province of this article.

4. http://immr.client.shareholder.com/ReleaseDetail.cfm?ReleaseID=111788.

5. http://immr.client.shareholder.com/ReleaseDetail.cfm?ReleaseID=114868.

6. Immersion Corp. v. Sony Computer Entm't Am., Inc., 2005 U.S. Dist. LEXIS 4781.

7. YouTube video demonstrates that force feedback and motion sensing technology can work together. http://www.ps3fanboy.com/2006/06/26/the-truth-will-set-you-free-old-vibes-and-new-tech/.

8. Freedom Wave LLC v. Mad Catz Inc. et al., CV 2:05-cv-02954 (C.D. Cal. 2005)

9. Freedom Wave LLC v. Mad Catz Inc. et al., CV 2:06-cv-07209 (C.D. Cal. filed Nov. 9, 2006)

6. The One That Never Was

Patents provide strong protections that are not provided by any other type of intellectual property. Unlike copyrights, which protects actual expression, or trademarks, which protect brand recognition and



business reputation, patents protect ideas. There is no substitute for the rights conferred by a patent, and there is nothing worse than realizing a day late that you did not seek the patent you should have.

In what is now literally a textbook case defining the scope of copyright protection with respect to reverse engineering, Sega Enterprises sued Accolade in the early 1990's for reverse engineering Sega's Genesis console.¹⁰ Instead of taking a license from Sega to develop games for the Genesis console (because the license would have required that Sega be the manufacturer of all Accolade games), Accolade reverse engineered the console in order to discover the requirements for a game to be compatible with the Genesis console.



After determining the necessary compatibility requirements, Accolade created a compatibility manual for its developers, and began selling games for the Genesis console including *Ishido, Star Control* (left), *Hardball!, Onslaught, Turrican,* and *Mike Ditka Power Football.* Sega Sued.

Sega attempted to rely on trademarks and copyrights to provide protections that only patents can provide. The court saw through Sega's arguments, stating that "[i]n order to enjoy a lawful monopoly over the idea or functional principle underlying a work, the creator of the work must satisfy the more stringent standards imposed by the patent laws....Sega does not hold a patent on the Genesis console," and "[a] trademark is misused if it serves to limit competition in the manufacture and sales of a product. That is the special province of the limited monopolies provided pursuant to the patent laws."

Ruling in Accolade's favor, the court laid the foundation for reverse engineering as a fair use of a copyright—where reverse engineering is the only way to gain access to the ideas and functional elements embodied in a copyrighted computer program and where there is a legitimate reason for seeking such access, reverse engineering is a fair use of the copyrighted work.

Reverse engineering would not have been a valid defense had Sega had a patent, and if Sega had a patent, it might have even made this list.

5. The One That Gets Blatantly Copied

Patents are all about protecting ideas, and whenever there's a dispute about patents, there's a dispute about whether someone is unlawfully using someone else's idea (or invention). Every once in a while, the similarities between the patent and the accused infringer's product are striking.

U.S. Patent No. 6,200,138 appears to have encountered just such a situation, and for that reason it's showing up on our list. The '138 patent deals with a video game concept in which the player drives a car around a map, and where a target destination is highlighted for the user. The following figure from the patent shows how an arrow can be used to point the way:





Sega's patent covered concepts it used in its hit game, Crazy Taxi:



Crazy Taxi

When Fox Entertainment and Electronic Arts released a game having a similar concept, Sega was not happy. Fox/EA's *The Simpsons: Road Rage* game seemed to use the same concept:



The Simpsons: Road Rage

Sega sued EA/Fox in 2003, and the case was settled not long after.

10. Sega Enterprises Ltd. v. Accolade Inc., 977 F2d 1510 (9th Cir. 1992).

4. The One That Goes Platinum

Patents are intended to further business objectives, whatever they may be. Patents can serve multiple purposes, including ensuring market share of a company's sales, helping to obtain venture capital,



and marketing, to name a few. While a patent might not guarantee that a game goes platinum, it does help stave off competitors from creating a game that has identical features which could chip away at your own sales.

Koei Company makes the *Dynasty Warriors* franchise of games, which have sold millions of copies. Koei sold 723,127 copies of *Dynasty Warriors 4* in just its first four days of release!_ Koei also is the owner of **U.S. Patent No. 6,729,954**, entitled "Battle method with attack power based on character group density," which protects the group battle methodology used in the *Dynasty Warrior* series of games.



Koei's Dynasty Warriors 4

Whatever people think of the gameplay and originality, Koei's patent serves as an example of the synergies gained by having both a platinum selling franchise and the patent to go with it!

3. The Patent Portfolio

The third entry on our list is not really a single patent, but the general notion of actively patenting your concepts as they come along. In many cases, it is difficult to predict which innovation will grab hold of the spotlight, and which features will end up getting copied.

Accordingly, the companies that take a broad approach to patenting their video games will stand the greater chance at truly protecting their territory, and their portfolios stand as effective as any single patent that actually gets litigated.

2. The One That Covers the Next Great Leap

Every so often, there is a sea change in an industry—a new feature or development that takes the industry by storm, creates media buzz, and gets the consuming public excited again.

Nintendo managed to do just that during the 2006 holiday season with the introduction of the Nintendo Wii[™] and its motion sensing controller technology._ Nintendo sold almost 2 million units of the Wii[™] by the end of 2006._ Given the hype, and the sales, it was only a matter of time before patent owners started looking for their due, which is why, given the proclivity of patent trolls to follow the money, software patents often get bad press. However, at the end of the day someone is commercializing innovative technology that may be covered by one or more patents belonging to others. And patent litigation is often the only way to sort it out.

Interlink Electronics has fired the first shot by suing Nintendo for infringement of **U.S. Patent No. 6,850,221** (right), which allegedly covers the motion sensing technology in Nintendo's Wii remote. Early commentary on the lawsuit questions its merits, but given the result in the Immersion v. Sony lawsuit (see #8), and the fact that litigation is inherently speculative, Nintendo is certainly taking it seriously. In addition, Interlink is not the only company that is trying to stake its claim in this new technology; Sony has patents pending on motion sensing controller technology, and it's a safe bet that Nintendo does as well.

Given that multiple parties are all trying to stake claims to different aspects of the same technology, it will take some time to see where the chips fall. If the same company doesn't end up with both the dominant technology as well as the patent that covers that technology, this could be a long and expensive chipfalling process. Regardless, whoever ends up with the dominant patent stands to make lots of licensing revenue, given the widespread excitement over this new technology, and that patent deserves to be on this list.

11. http://ps2.gamezone.com/news/03_07_03_08_53PM.htm.

12. http://www.timesonline.co.uk/article/0,,2095-2517214_1,00.html

13. http://www.cubed3.com/news/6530/1/Nintendo

14. http://www.engadget.com/2006/12/08/nintendo-finally-hit-with-wiimote-lawsuit/

15. See, e.g., U.S. Appl. Publ. No. 2006/0267935 ("Remote Input Device") and U.S. Appl. Publ. No. 2006/0282873 ("Hand Held Controller Having Detectable Elements For Tracking Purposes").

1. The One That BIRTHED the Industry Pong Patent



FIG. 1



As if any other patent could hold the number one spot on this list!

Back in 1969, a man named William Rusch filed a patent application for a "Television Gaming Apparatus" that used a paddle-type control to move onscreen objects that collided with other onscreen objects. The resulting patent, **RE28,507**¹⁶, was eventually licensed to Magnavox, who then used that technology to release the first video game console: the Magnavox Odyssey.



The Magnavox Odyssey made these 1970s advertising models happy! (Photo courtesy of David Winter, Pong Story)

When a rival upstart company, Atari, released their Atari 2600[™] home console that also sported paddle controls, Magnavox took notice and Atari took a license for its "PONG" game. In the decade after that, Magnavox successfully asserted its patent in multiple lawsuits against Seeburg, Bally-Midway, Mattel, Activision and Nintendo, demonstrating without a doubt that a strong patent is the perfect way to protect your intellectual territory. The Odyssey system and PONG game launched what has since become a multi-billion dollar industry, and the '507 patent rightfully deserves the title of the Number One Video Game Patent.

So video games have been around for about 30 years, or about two patent lifetimes. In that span, video games have gone from this:



An image from the PONG '507 patent. Users had to tape a plastic overlay to their televisions to add the lines for the table net and service lines.

To this:



Rockstar Present Table Tennis (Xbox 360)

It's certainly a great time to be a gamer, and we are eagerly looking forward to seeing what the top patents will be in another 10, 20, or 30 years. See you then!

16. The "RE" indicates that this is a "reissue" patent. Reissue is a process through which a patent owner can correct an error that occurred without deceptive intent. See 35 U.S.C. § 251. For example, the claims of the patent may be too narrow and, therefore, fail to provide the patentee with all of the protection to which he or she may be entitled. Alternatively, the patentee may determine that the claims are too broad and would otherwise be invalid. The patentee can narrow such claims through the reissue process to preserve validity. The original patent that RE28,507 is based on is 3,659,284, which was surrendered by the patentee when the reissue process was initiated.

Ross & Steve are partners at the law firm Banner & Witcoff, Ltd. in Washington, DC. The views expressed in this article are that of the authors personally, and should not be attributed to Banner & Witcoff or any of its clients. Nothing in this article should be construed as legal advice, and no attorney-client relationship exists between the authors and any reader. For more information, you may contact Ross Dannenberg at <u>rdannenberg@bannerwitcoff.com</u> (202-824-3153) or Steve Chang at <u>schang@bannerwitcoff.com</u> (202-824-3154).