

Hypersonic:

The Meteoric Rise and Fall of Sega

by
Eddy Wu

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Stanford University
Professor Henry Lowood
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For young adults of a certain generation, two names immediately jump to mind when you mention the home video game console market: Nintendo and Sega. However, fast forward just a few years, to a slightly younger age group, and the names will be different. Sony's Playstation, launched in 1995 ("History of Video Games," Gamespot.com), managed to dislodge the two big names in consoles, at its peak holding over 50% of the market share (USA Today, 2/6/02). Nintendo's presence was still felt, with a 37% market share. However, Sega had become a marginal player, with the Dreamcast achieving 15% of the American market share at its peak (Sega.com), despite being technically far superior to its competition, the Playstation and N64. What happened to the company that brought the 16-bit revolution to consumers, the source of the first console RPG released in the United States, the mascot who at one point was more recognizable to children than Mickey Mouse (Sheff, 431)?

Like both Nintendo and Sony, Sega's roots are not originally in the home gaming market with which it is now inseparable from. The company that would come to be Sega was founded by David Rosen, an American who had moved to Japan after World War II. (PlanetDreamcast). In 1954, he formed Rosen Enterprises, an art exporter. The company's business grew to include the importation of instant photo booths and coin-op games from the United States, the root of the gaming enterprise that would grow to be Sega. At this time, Rosen's main competition in Japan was a company known as Nihon

Goraku Bussan, which provided vending machines to American servicemen stationed in Japan during the Korean War (SegaBase). Their business grew to include other coin-operated machines, such as pinball, jukeboxes, and eventually arcade games. However, the Japanese-produced games provided by Nihon Goraku Bussan couldn't compete with the more advanced games which Rosen was importing from America. The one advantage it had over Rosen Enterprises was the large local base of support and manufacturing capability. To overcome this deficiency, Rosen decided to merge with Nihon Goraku Bussan in 1965, staying on as president of the new firm, Sega Enterprises. The "Sega" name was an amalgam of "Service Games," the name that Nihon Goraku Bussan had marketed its products under in Japan.

With the creation of this new firm, Sega as we know it today began to take shape. In 1966, they released *Periscope*, a submarine simulation arcade game. It was wildly successful, and Sega released it in the United States a year later, the first arcade game to charge a quarter per play (Electric Playground). *Periscope*'s success drew the attention of Gulf & Western, which bought out Sega in 1970, making it a wholly-owned subsidiary.



Rosen again stayed on as president. Under new management, Sega continued to produce quality arcade titles such as *Frogger* (1981) and *Zaxxon* (1982). They also pioneered several technical innovations, including the *Space Fury*, the first color vector graphics game, and *Sub-Roc*, the first video game in 3D, which used principles similar

to that used in 3D glasses. In addition to its arcade offerings, Sega also started



making games for home consoles such as Atari and ColecoVision. Gulf and Western sold the American division of the company to Bally Manufacturing, one of the largest US video game makers. The games produced during this period were mostly ports of Sega and Bally arcade titles. In 1982, Sega's worldwide sales reached over \$214 million (System16).

The most significant event in the video games industry is arguably the “great crash” of 1983. Before the crash, the video game industry was grossing over \$3 billion in the United States alone, but by 1985 video game sales worldwide would only amount to \$100 million (Geekcomix.com). The generally accepted explanation for this disaster is to blame Atari, the dominant console maker at the time. Through some rather unsound business decisions, Atari overproduced their game cartridges, forcing them to slash prices to get rid of all the excess inventory (Sheff, 150). The rock-bottom game prices eroded the market, affecting video game sales worldwide. Sega, along with all other video game manufacturers, lost most of its presence in the West, and only through the actions of David Rosen managed to continue operations in Japan. In 1979, Rosen had acquired a distribution company founded by Hayao Nakayama, a Japanese entrepreneur. In 1984, Nakayama and a consortium of Japanese investors bought out the Japanese assets of Sega for \$38 million, forming Sega Enterprises, Ltd, with Nakayama as the president. Rosen became head of the American division, Sega of America.

Even before the crash, though, Sega embarked on a new venture. According to the Sega company website, the crash taught them not to “stick with one concept too long, realizing that each generation of technology has a life and death.” In July of 1983, Sega expanded out of the arcade market, producing the SG-1000, their first home console, a 4-



bit system. It was sold for about US\$125. About a year later, the SG-1000 Mark II was introduced, an 8-bit machine targeting the home computer niche. Sega also released the SG-3000, which was basically a repackaged Mark II (SegaBase). Unfortunately,

none of these systems achieved much success, due to technical limitations and the poor state of the industry at the time, and none of them were ever released in the United States. Eventually, they were all driven out of the Japanese market by Nintendo's Famicom.

The story of Sega cannot be told without mentioning its primary competitor, Hiroshi Yamauchi's company. Nintendo also had success in the early 80's with arcade hits like *Donkey Kong*. However, after the great crash, Yamauchi saw the opportunity to expand into home consoles in Japan, and rushed development of their own machine to compete with Sega and the other companies already in the business (SegaBase). In 1983, Nintendo released the Famicom ("Family Computer") in Japan, an 8-bit system. Because of the rushed production, the initial batch shipped with almost a 30% defect rate (Geekcomix.com), and initially was not a success. However, on the strength of its Nintendo arcade ports and low price point, the Famicom grew to become the dominant console system in Japan. When the system was released in America as the Nintendo Entertainment System (NES), it instantly displaced all other consoles as the entertainment system of choice. By 1986, Nintendo had captured almost 90% of the US gaming market (Geekcomix.com). Sega would not sit idly by while it was being relegated to second place in the console industry, but like so many other times in the company's history, it possessed a knack for bad timing. The SG-1000 Mark III, or just Mark III, was released in Japan in 1985 to compete with the Famicom. In almost all respects, the Mark III was a

superior system to Nintendo's, as you can see in Table 1. A more qualitative comparison can be seen in Figure 1, a where we can see screenshots of the same game ported to both

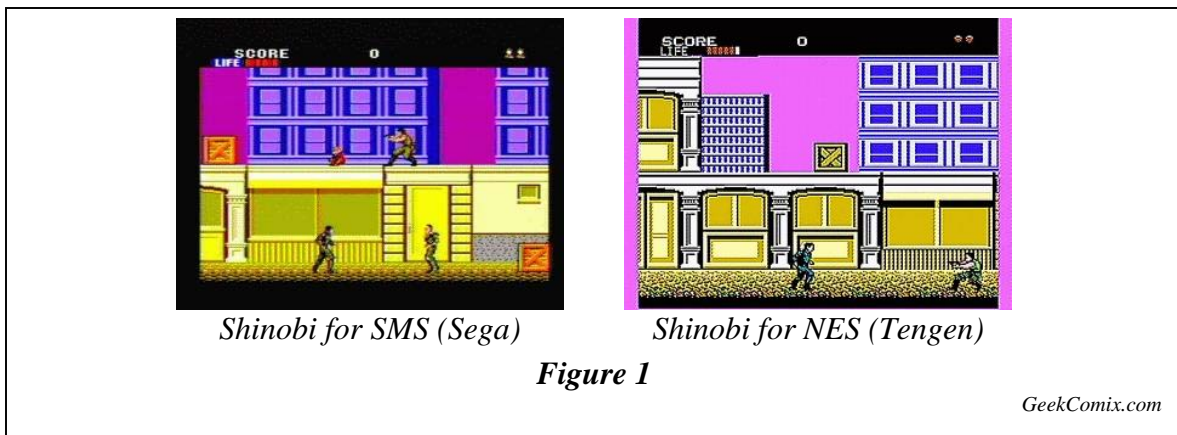
	<u>SMS</u>	<u>NES</u>
Speed	3.6 MHz	1.79 MHz
Resolution	256x220	160x192
Colors	512	52
Colors Onscreen	64	16
Max. Sprites	64	64
Sprite Size	32x32	8x16

Table 1

GeekComix.com

systems. The graphics in the Master System (the American version of the Mark III) are clearly more attractive than the NES shot, due to the larger color palette, which allows for more subtle color transitions, and the higher

resolution on the sprites, or the game characters. In addition, the Mark III included the



“Card Catcher” port, which accepted a type of disk in addition to the standard cartridge.

Cards held less data than cartridges, but were cheaper, and added versatility to the system. However, another lesson that is illustrated throughout the history of video games, and in all consumer industries, is that superior technology does not always guarantee success. By the time the Master System was released in the United States, in June 1986, the NES had become firmly entrenched in the market. Sega enjoyed some modest success, selling 125,000 units in the first four months, but in the same time period 2 million NES units were sold (SegaBase). The Master System really had no chance,

given that Nintendo used their virtual lock on the market to pressure developers into exclusivity deals, preventing them from making games for other systems if they wanted access to Nintendo's enormous user base. All told, the NES owned over 90% of the American console market. Fortunately for Sega, the Master System was not an unmitigated disaster. In 1987, the system was released in Europe, where it soon accomplished what it had failed to do in both Japan and America, become the dominant video game console. Nintendo's exclusivity contracts did not extend to Europe, so Sega was able to muster much more third-party support. An interesting question to ponder is what the console market would be like now if Sega had released the Master System in the United States before Nintendo. The research and development time on the Master System was not wasted either, as the technology was later adapted for the Sega Game Gear, a full-color handheld console. Game Gear never came close to the enduring popularity of Nintendo's technically inferior Game Boy, because Sega was not successful in recognizing what people wanted in a portable gaming system. The color screen allowed for prettier graphics, but at the cost of battery life. The reason the Game Boy has permeated to even casual gamers is its ease of use and non-intrusive nature – it can be carried around in a purse, and pulled out whenever there is some down time.

Despite the failure of the Master System to be a viable platform, Sega still had a few tricks up its sleeve. As it became apparent that Nintendo had won the 8-bit console war, Sega looked forward to the next generation of consoles. The Master System had been more powerful than the NES, but it had failed. However, Sega had plans for a console that would be an entire paradigm above Nintendo's system, one which would blow consumers away with graphics beyond anything they have seen before. Even while

the Master System was mired in poor sales, Sega's arcade division, its traditional stronghold, was still chugging away. Throughout the mid to late 80's, Sega released such arcade classics as *Out Run* (1986) and *Shinobi* (1987). So the company's arcade branch was successful, whereas the home console division was not. The solution was obvious to Sega executives. Bring the arcades into the home. To accomplish this, Sega development teams set out to convert Sega's System 16 arcade hardware into a console. The result was the most lucrative item in Sega history, the system which cemented Sega's place in video game lore, the peak of Sega's triumph, the



16-bit Genesis/MegaDrive. Because this system was derived from an arcade board, it allowed near-perfect ports of Sega arcade hits. The MegaDrive launched in Japan in October of 1988, with a launch lineup consisting of *Space Harrier 2* and *Super Thunder Blade*, two arcade ports (SegaBase). In the screenshot of the former

game, notice the use of perspective in the ground texture, as well as the shadows of the characters, and the faux-3D action. In terms of eye-candy, the NES could not hope to compete. Nonetheless, acceptance of the MegaDrive in Japan was slow in coming. Sega figured that it would just take some time to overcome the market inertia from years of Nintendo dominance, and went ahead with its plans for an American release. On September 15, 1989, the Sega Genesis was launched across the United States, selling for \$190 with *Altered Beast* bundled with the system (SegaBase). Sega made every effort to



distinguish their system from the NES. Unlike the gray-blah two-tone, boxy Nintendo, the Genesis was sexily black, and looked much sleeker. The Genesis advertising campaign was centered around the tag line “Sega Genesis

does what Nintendon’t.” Along with the ritzy graphics, all these factors contributed to a significant buzz about Sega’s new system. However, this did not translate to blockbuster sales. By the summer of 1990, the Genesis had passed the 1 million sold mark, which was encouraging, but still dwarfed by the 31.7 million installed NES base (SegaBase). One of the primary reasons for this is a reflection of a classic video gaming issue, the balance between graphics and gameplay. Clearly, the Genesis had amazing graphics.



But as it turns out, the decision to use arcade ports as the primary source of games for the system was a mistake. Arcade games are designed with short spurts of play in mind. The experience does not have to be particularly deep, because most people will only be playing for a short time, until they run out of quarters. However, home console games are a different matter. You don’t have to constantly feed quarters to the machine, and the setup lends itself to longer gaming sessions, where the only reason to stop is from other commitments or boredom. Unfortunately, the latter was often the case, as the arcade titles lacked staying power and replay value. To compound the problem, Nintendo’s own 16-bit system, the Super Famicom or SNES, was released in Japan in November of 1990. By the first quarter of 1991, Nintendo had sold 2 million Super Famicoms, cementing their lead in the Asian market (SegaBase). The planned US release date was September,

1991. Sega badly needed to reinforce their modest gains in American market share before then.

A fairly well accepted practice in the consumer electronics industry is that of the “killer-app.” This refers to accompanying the release of expensive new hardware with some great application for that hardware which would make it worthwhile for people to buy the hardware. An example of this outside of the video game industry is *The Matrix* and DVD players. The *Matrix* DVD adds enough value, like better sound quality and immersion, documentaries, and hidden features, over a VHS tape to provide that extra impetus to purchase a DVD player for the purpose of playing the disc. For Nintendo and the NES, the killer app was Mario Brothers. However, Sega had never really had a first-rate game with mass appeal. Nintendo’s Mario not only sold units, but also increased brand recognition of the company. Sega had no such character. This was all to change, though, due to the machinations of Hayao Nakayama, still CEO of Sega of Japan. He assigned Sega’s worldwide development teams to come up with a mascot and associated game which would embody the spirit of Sega. His call was answered by a lead programmer in AM8, one of Sega’s nine development teams.

Yuji Naka had been with Sega since 1984, working on such big name titles as *Space Harrier*, *Out Run*, and *Phantasy Star*, the first console RPG released in the United States. Naka came up with the idea for a blue, super-fast, spiky-haired rodent with attitude. Yuji, and his development squad, later renamed Sonic



Team, created Sonic the Hedgehog. Sonic was everything that Mario was not. He blazed through levels at hyperspeed, all of his many moves were finely animated, and if you

even thought about letting him stand still for too long, he would turn and glare at you. In short, Sonic was cool. When *Sonic the Hedgehog* was released to the American public in June 1991, it immediately struck a chord with rebellious youth everywhere, flying off the shelves. Sega's plan to steal the thunder from the SNES launch succeeded brilliantly. By the end of 1991, there were 2.3 million Genesis units sold, compared with 2 million SNES units, only half of Nintendo's projections. Even *Super Mario World*, the latest and greatest offering from Nintendo's resident guru, Shigeru Miyamoto, could not compete. In a survey of young gamers, 7 out of 10 preferred Sonic to Mario (SegaBase). Sega continued to stick it to Nintendo with a series of advertisements designed to give Sega the edgy reputation that appealed to American kids. "The frenetic ads .. captured the post-MTV mores of a culture hooked on visual images, an impatient culture that absorbs and processes information literally in four-frame riffs" (Wired). These were the Sega Scream ads, instantly recognizable to gamers who grew up in that era. Sega proved that its reputation was not all hype, with the release of an uncensored port of *Mortal Kombat* for Genesis. This version outsold the Nintendo port with the fatalities removed by a ratio of 4 to 1 (SegaBase). All of Sega's efforts paid off: by the end of 1993, Sega had captured 45% of the American video games market, to Nintendo's 44% (Wired). The tables had been turned, with Nintendo's more powerful system taking a backseat to Sega's established machine.

Times were good for Sega, but the company was conscious of its own advice, learned during the great crash, that one cannot stick with one concept for too long. By 1995, the Genesis was growing a little long in the tooth, and Nintendo was bringing a boatload of technically impressive, quality titles like *Chrono Trigger*, *Super Mario RPG*,

and *Starfox* to their console. By the end of 1994, Sega's market share had shrunk to 35% (SegaBase). In all, by 1998 the great 16-bit console war could be called a draw, with each system selling about 20 million units (Newsweek.com). Sega's drive for innovation resulted in several blunders. The Sega CD was released in 1992 as an upgrade for the Genesis, which would allow it to compete at the same level as the SNES, and introduce CD-based gaming to the mainstream. However, the \$300 price point was just too steep for most consumers, and the system never took off. Sega tried again with another Genesis, the 32X, in 1994. This add-on upgraded the Genesis to a 32-bit system, allowing for graphics beyond the capabilities of any current system. However, it was not particularly well-received either, and distracted Sega from the release of its true next-generation console, the Saturn.

The withdrawal of Sega from the console hardware market can be attributed, in part, to the failure of the Sega Saturn system. The system itself was launched in November of 1994 in Japan. Ironically, the Saturn was probably the most successful system that Sega had ever launched in Japan. Plans were made to launch the 32-bit CD-based system in the United States in September of 1995. However, a new competitor had entered the fray. Sony, the electronics giant, was announcing the launch of its Playstation system in at the same time as the US Saturn launch. In the latest of the series of bad business decisions by Sega, Hayao Nakayama ordered Sega of America to launch the Saturn as soon as possible, to get a head-start on Sony's system. Tom Kalinske, the head of the American division, objected strenuously, citing the high price point (\$400), and the lack of any software or advertising. However, Sega of Japan would not budge. At the Electronic Entertainment Expo (E3), the biggest video game industry convention, on May

11, 1995, Kalinske stunned the audience by announcing that Sega would start shipping the Saturn that day (SegaBase). However, Sony immediately stole Sega's thunder by announcing that the Playstation would retail at \$299, a full hundred dollars less than the Saturn. As Kalinske had feared, the Saturn launch was a disaster. With only one or two titles released for the system, most of them simply sat on retail shelves for months, negating any advantage Sega would have gained over Sony. The Saturn was hampered by several factors, including a dual-processor design that was difficult for third-party developers to master, especially compared to the Playstation. In late 1995, Sega of Japan decided to discontinue all of its systems besides the Saturn, in an effort to focus on revitalizing the system. This proved to be disastrous, as Sega basically put all its eggs in one basket, and sat on them. In March of 1998, Sega threw in the towel, and discontinued the Saturn in America. Their US market share dropped to around 1%. Sega posted net losses of \$389 million in 1997, and \$450 million in 1998 (SegaBase).

Sega would make one more attempt at the home console market. On 9/9/99, Sega introduced American homes to the Dreamcast, a 128-bit system. The Dreamcast was released with the most software support of any Sega system ever, and maybe even the most out of any console ever released. With titles like Namco's *Soul Calibur* and Visual Concepts' 2K sports series, along with countless others, the Dreamcast's eventual demise was not due to lack of quality software. In many ways, the Dreamcast launch could be considered a success. By mid-2000, over 2 million units had been sold in the US, and Sega was reporting a 27% increase in sales worldwide. However, the company still suffered a net loss of \$398 million for 1999. Like all console makers, Sega was taking a loss on each Dreamcast system sold, to the tune of around \$95 per unit. Usually, this loss

is recouped through software sales. Unfortunately, sales volume was not high enough to offset the loss. In large part, this was due to piracy. Hackers eventually figured out how to copy the proprietary GD-ROMs that Dreamcast games came on onto standard CD-ROMs, and then how to make the burned CDs play on the system. As developers witnessed Sega's poor financial situation, compounded with the upcoming release of the more powerful Playstation 2, they left the Dreamcast in droves. The writing was on the wall, and on January 31, 2001, Sega of America dropped the bombshell. Effective March 31, production of the Dreamcast would cease, and Sega would become a software development company for other consoles. The era of Sega hardware is over.

Sega's contribution to the video game industry cannot really be measured in financial data or sales statistics. Since the beginning, Sega has been a pioneer. First to bring a console RPG to the United States, first to release a 16-bit home console, first to try distributing games over cable lines (The Sega Channel), first to bundle a modem with a home console (Dreamcast), along with many other firsts. Sony's recent marketing strategy can be seen to be pretty derivative of Sega's Genesis campaign, appealing to a rebellious audience, even down to the brash mascot (Crash Bandicoot for Sony). Even now, Sega is entering new territory, reinventing itself as a content provider. The future of the company is unclear, but if Sega had learned some lessons from the console days, it is sure to prosper, and bring some of its incredible titles to other consoles. SEGA!

Bibliography

Battelle, John and Bob Johnstone. "The Next Level: Sega's Plans for World Domination." *Wired.com*.

<http://www.wired.com/wired/archive/1.06/sega.html>

"The Complete History of Sega RPGs." *SegaWeb.com*.

<http://www.segaweb.com/features/rpg/2.html>

Croal, N'Gai and Stephen Totilo. "Who's Got Game," *Newsweek.com*.

http://discuss.washingtonpost.com/nw-srv/issue/10_99b/printed/us/st/ty0110_1.htm

Davies, Ben and Miguel Lopez. "The History of Sega," *Gamespot.com*.

<http://gamespot.com/gamespot/features/video/sega/index.html>

Davis, Cameron. "The History of Sonic the Hedgehog." *Videogames.com*.

http://www.videogames.com/features/universal/hist_sonic/index.html

Hart, Sam. "A Brief History of Video Games", *Geekcomix.com*.

<http://www.geekcomix.com/vgh/main.shtml>

Herman, Leonard, Jer Horwitz, Steve Kent, and Skyler Miller. "The History of Video Games," *Gamespot.com*.

<http://gamespot.com/gamespot/features/video/hov/>

"The History of Sega Consoles." *SegaWeb.com*.

<http://www.segaweb.com/features/hsc.html>

Hopper, Ben. "Sega: From Genesis to Exodus." *Gamecritics.com*.

http://www.gamecritics.com/feature/sega_exodus_01.html

"IGNDC Interviews Sega's Peter Moore," *IGN Dreamcast*.

<http://dreamcast.ign.com/articles/079/079899p1.html>

"Interview with SEGA of America President, Peter Moore," *IGN Dreamcast*.

<http://dreamcast.ign.com/articles/089/089436p1.html>

"Interview with Sega's Boss: Shoichiro Irimajiri," *IGN Dreamcast*.

<http://dreamcast.ign.com/articles/060/060186p1.html>

James, Bonnie. "The Many Lives of Sega." *Electric Playground*.

<http://www.elecplay.com/feature.html?article=6633&page=1>

McCarthy, Michael. "Xbox marks the spot for launch of Microsoft's game." *USATODAY.com*.

<http://www.usatoday.com/life/cyber/tech/review/games/2001-04-23-xbox.htm>

Muldoon, Moira. "Can the Dreamcast save Sega?" *Salon.com*.
<http://www.salon.com/tech/feature/1999/08/16/dreamcast/index.html>

"Official Art." *The Sonic Foundation*.
<http://www.sonicfoundation.org/art/official/>

SegaBase
<http://www.atani-software.net/segabase/>

"Sega History," *PlanetDreamcast*.
<http://www.planetdreamcast.com/about/sega/>

"Sega History." *Sega.com*.
<http://www.sega.com/segascream/legacy/history.jhtml>

"Sega History." *Sega Museum*.
<http://www.system16.com/sega/history.htm>

"Sega IR Information." *Sega of Japan*.
<http://sega.jp/IR/en/>

Stevens, Tim. "The future of Sonic." *GamesDomain*.
<http://www.gamesdomain.com/articles/1179.html>

"SubRoc-3D," *KLOV.com*.
<http://www.klov.com/S/SubRoc-3D.html>

"WAR! – Nintendo Vs. Sega." *GameZero*.
<http://www.gamezero.com/team-0/articles/features/war/>

Williams, Jeff. "Sega," *Channel 3*.
<http://www.channel3games.com/sega.shtml>