

# Sony Versus Wintel: Mortal Combat

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For years, the market for home and business PCs has been dominated by computers with Intel processors that run some flavor of Microsoft's Windows. Yet, considering that history teaches that no such empire is immortal, what will bring about Wintel's demise? Some think Intel will fall when Moore's law gives out and processing power stops doubling every 18 months. Others think the Linux operating system and commercial-grade open source applications will prove Microsoft's undoing.

We think the end will come from an entirely different quarter. Wintel will be blindsided by a challenger from outside the computer industry: Sony, a force in the entertainment field that, among its many endeavors, manufactures game consoles. According to Stephanie Strom ("Pushing the Envelope at Sony," *The New York Times*, May 4, 1999, p. C1), Sony president Nobuyuki Idei sees the company's next-generation game console, PlayStation 2, as a significant challenge to the Wintel empire. He may be right—over the next decade game

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Sony's new game console threatens to woo consumers away from their PCs.

machines could pose a lethal threat to Wintel by combining superior technology with a superior business model.

## SUPERIOR TECHNOLOGY

Designed to run on only one platform, console software is not subject to the compatibility and driver issues that cause so many PC problems. Further, because engineers optimize a console from the circuits up to play games, it can offer performance equal to or better than that of high-end PCs—for a fraction of the cost. Further, the console's cartridge- and CD-based heritage have enforced a more rigorous reliability standard upon its software: While software developers can fix a game-crashing PC bug at trivial expense with a patch, a console game afflicted by a similar bug requires a hideously expensive general recall.

## Now *that's* entertainment

If you still doubt that a mere game console could threaten Wintel, play *The Legend of Zelda: Ocarina of Time*. The Nintendo 64 game sells for \$60, 8 times the average movie ticket price, and offers an immersive role-playing experience that takes place in a detailed and sophisticated 3D environment. Appealing equally to both genders, *Zelda* sold more than 2.5 million copies and generated more than \$150 million between Thanksgiving and New Year's Eve, 1998. By comparison, the gross receipts of December 1998's most successful movie, Disney/Pixar's *A Bug's Life*, totaled only \$114 million (*National Post*, Jan. 25, 1999, Page C06).

## Untangling the Web

The appeal of console games will be turbocharged when it intersects with computing's other mass-market magnet du jour, the Web. Origin's PC-based *Ultima Online* (<http://www.origin.com>) offers a case in point. Nearly two years after a debut plagued by bugs and server lag, the online medieval fantasy world boasts 110,000 subscribers. According to executives at Electronic Arts, Origin's parent company, the game is gaining 10,000 players a month.

Although online gaming's potential has been oversold for years (Greg Costikyan, "The Adventure Continues," <http://www.salonmagazine.com/21st/feature/1998/10/21feature.html>), technology could soon give the market a boost. The general improvement in Internet infrastructure coupled with the spread of faster access technologies such as Asynchronous Digital Subscriber Line (ADSL) and cable modems, should do much to overcome the medium's technological limitations. Industry leader Microsoft's imminent release of *Asheron's Call*, targeted at the same market as *Ultima Online*, is further proof that Web-based games have arrived. Gaming consoles—with their ease of use, low price point, and mass-market visibility—need only Web connectivity to join the party.

## The next generation

Consider the power inherent in Sony's  
*Continued on page 109*

your vision open enough so that you don't lock your organization into a specific path to the future. For example, the Prudential Property & Casualty insurance company developed one of the first Web-based e-commerce solutions for issuing personal-automobile policies. Prudential injected the technology of the '90s into an industry commonly thought of as staid and slow to change.

### Nurturing creativity

Keep the creative process alive by avoiding linear, cause-and-effect approaches to decision making. An approach that thrives on ambiguity and unpredictability can actually be implemented with good discipline. Consider Brown and Eisenhardt's application of complexity theory to help evolve the complex organization with their "key signals." They recommend a coherent business vision, a variety of low-cost probes into new markets, and constant but "thin" attention to future market shifts. Thin attention requires that you limit yourself to frequent peeks at what the future may bring, rather than attempting a constant scrutiny of ever-changing markets.

If your organization is a market leader, you must remember to look beyond current customer needs. Keeping close tabs on customers' expressed needs may maximize profits, but it won't foster innovation. Because no one knows how the innovations will be used, you need to observe customers. For example, Netscape saw new potential when it discovered a customer using its browser not for Internet access but for navigating the customer's own intranet.

The analytical and decision-making processes learned in best-management practices require precise quantitative information, but none exists for innovative technology. According to Christensen, your organization must, instead of planning for results, plan for learning and plan to fail. The knowledge you gain from these failures gives you an advantage when creating new markets. Your experiences also let you resolve uncertainties before investing heavily in unproven technology, products, or processes.

Leading change through strategy and harnessing disruptive technology require the active participation of developers, investors, and management. The developer sees the possibilities and problems in finding new markets for innovative technologies, then identifies and develops the organization's capability for capitalizing on them. The venture capitalist who sponsors the new technology benefits from understanding how the disruptive technologies should be managed and marketed. Finally, the disruptive-technology implementer must continually sell the customer on the new technology's advantages so that it doesn't simply replace old technology but instead achieves its full potential. ❖

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### Binary Critic

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next-generation PlayStation 2. The P2's graphics rendering processor contains 43 million transistors and, as Figure 1 shows, boasts performance numbers comparable to the most expensive image generators available. In May, Sony demonstrated a prototype P2 at the Electronic Entertainment Expo in Los Angeles. The console's real-time, high-quality 3D graphics made the graphics on Pentium machines look antiquated.

Sony's 0.18- $\mu$ m geometry chip leaps over Moore's law. It threatens to make Intel's technology road map look like a snail's trail when Sony begins limited volume manufacturing of the P2 in Japan this year (Stephanie Strom, "Sony Takes Another Big Gamble on PlayStation," *The New York Times on the Web*, <http://www.nytimes.com>).

Sony's Ken Kutaragi, the engineer behind the P2, points out that the machine holds just 32 Mbytes of memory and insists that his brainchild is only a game console. It is entirely plausible that Sony is promoting the P2 by taking a page from Microsoft's marketing book: Sega's Dreamcast, whose specs outclass the current PlayStation, is set to debut in the US this September, while the technologically superior P2 won't reach the US market until late 2000.

Might Sony have a hidden and more ambitious agenda? Consider that P2 chipmaker Toshiba is one of the world's largest suppliers of memory chips and is shifting to the exclusive production of 128-Mbyte high-performance RAM (The Electronics Design, Technology & News network, "Toshiba to Reduce 64 Megabit DRAM Production by Nearly 90 Percent by Year-End," <http://www.edtn.com/scribe/reference/webscan/mn004dfa.htm>). Does it make sense for Toshiba to step backward into low-performance memory chip production just as it's gearing up to service the high-end market—especially when doing so would hobble the P2 with lower performance? According to Strom, LSI Logic's Elias Antoun doesn't think so. He observes that the P2 "has the power of the highest end computers masquerading as a game, an amazing example of what one can do when one pushes the envelope to the limits ... it could create opportunities that no one can foresee."

The P2 has the potential to be the core of a home video system, complete with DVD and stereo audio capabilities. It also has the same features included in the new cable TV specification for set-top boxes: Universal Serial Bus, IEEE Std 1394 (Firewire bus) and PC Card device interfaces, an MPEG-2

### Sony Comes to Hot Chips 11

Ken Kutaragi, president, Sony Computer Entertainment, will speak about a "New Millennium for Computer Entertainment" on Monday, 16 August. His keynote is part of Hot Chips, the Computer Society's annual conference at Stanford University in Palo Alto, California. Sony engineers will also share technical details about the new PlayStation chip in "GFLOPS Vector Units for Emotion Synthesis." For information, see <http://www.hotchips.org>.

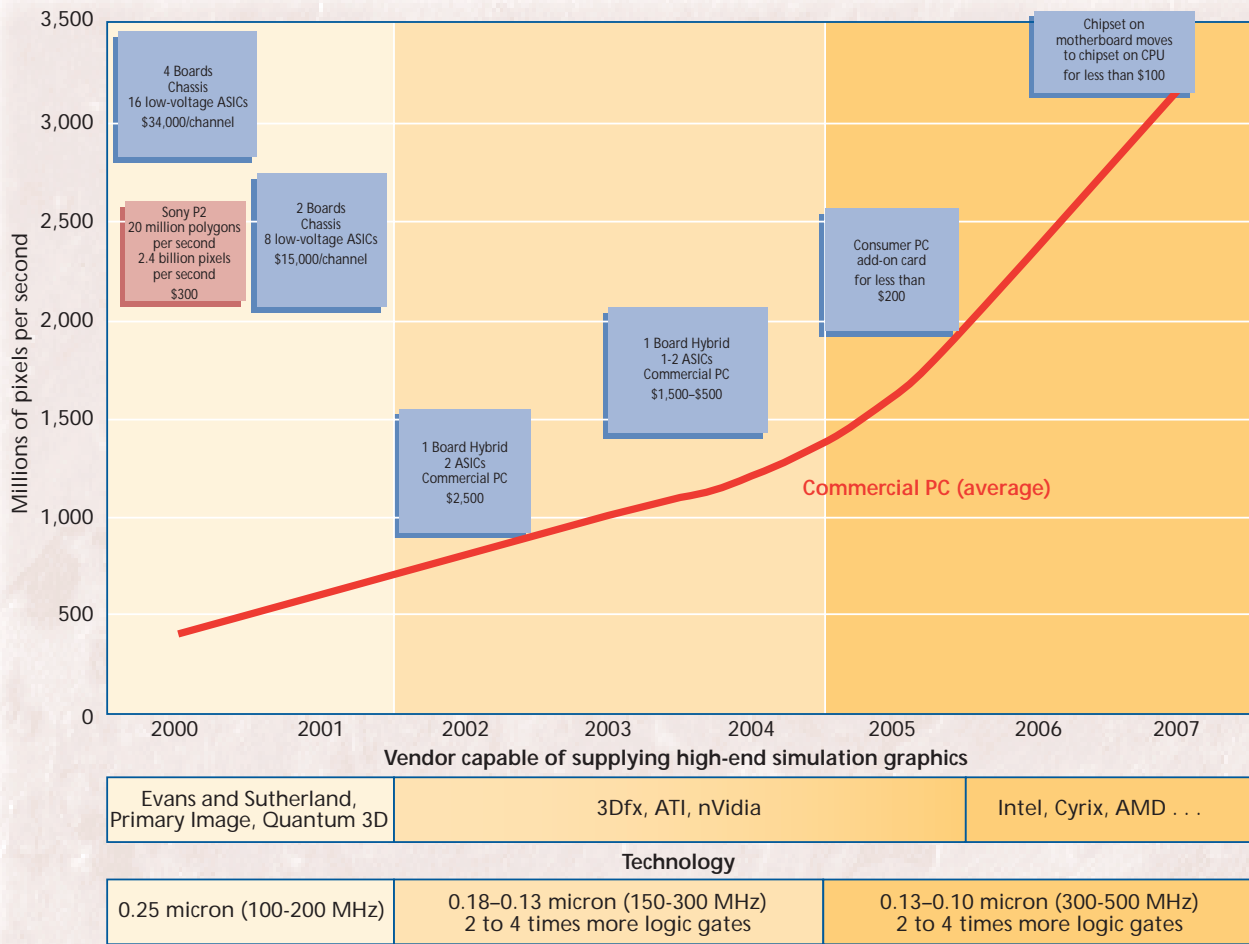


Figure 1. Comparative road maps of Wintel technology versus the Sony PlayStation 2 graphics processing technology. Courtesy Lockheed Martin Company.

decoder, and a 1,280 × 1,024 video display. The small P2 box will easily hook up to your digital TV and ADSL modem. Given these specs, why would any consumer need a PC?

**SUPERIOR BUSINESS MODEL**

Sony's consumer electronics profits declined 58 percent last year, music profits fell 29 percent, and its insurance business dropped 11 percent. Only movie and game profits increased, by 5 percent and 17 percent, respectively ("Pushing the Envelope at Sony," *The New York Times*). The trend is clear: Sony is a game company.

Sony has sold 50 million PlayStations since 1995. In contrast, number two Nintendo has sold only 20 million units of its third-generation game console since

1996. The PlayStation represents 40 percent of Sony's business (Nikko Securities Smith Barney (Japan) Ltd., *The New York Times on the Web*, <http://www.nytimes.com>). Clearly, Sony's future is aligned with the PlayStation 2's.

**Cutthroats and predators**

If Sony is serious about capturing the market currently held by consumer PCs, it will likely use a two-pronged attack: Cutthroat pricing will drive the P2's street price under \$300 (Simon Carless, *MGT Report*, [http://www.gamasutra.com/newswire/industry\\_analysis/mgt\\_report/19990312.htm](http://www.gamasutra.com/newswire/industry_analysis/mgt_report/19990312.htm)) while predatory marketing will monopolize software distribution. Sony will willingly lose money on every console it sells, content to profit from software sales. Sony can afford to

do this because it controls who can write software for its machines, which lets it charge game developers enormous fees for the privilege of writing P2 games.

The average teenager now spends 1.25 hours a day playing games (Phillip King and Jason Tester, "The Landscape of Persuasive Technologies," *Comm. ACM*, May 1999, p. 35). Given Sony's current console market share, that amounts to 75 million consumer-hours per day spent on Sony PlayStations. By making the P2 backward compatible with the PlayStation, Sony will build on its existing franchise. Game playing could easily devour 100 million consumer-hours per day by 2000, which means that this burgeoning market will need to be fed an endless supply of hit titles—and Sony will profit from every PlayStation game sold.

## Thinning the herd

Although software game sales grew 20 percent last year to over \$6 billion, there are already signs of consolidation—now that the market is big enough to attract major players, smaller developers can no longer compete. The P2 will accelerate this trend, boosting production costs for a new game from \$1 million to more than \$5 million. Only developers with deep pockets can afford the development costs of filling a 9-Gbyte DVD disk with game content. So the P2's secondary goal of locking in these third-party developers with profitable licensing agreements will likely become even more lucrative.

Ultima Online's success suggests that networked games—Web games—may offer a market so large it dwarfs the entire movie industry. Sony could probably eliminate independent competition in this arena by simply developing a P2-only game service, and offering it out of the box with every P2 sold. Sega's Dreamcast is already set to debut with such a service.

Fundamentally, Sony's business model is superior to that of the computer industry, which doggedly tries to profit from computers that become worthless at an ever-accelerating rate. Sony realizes that the profit is in Web- and CD-based content—not in the boxes themselves. Sony and other console manufacturers have known this for a decade, but most of the PC industry still doesn't get it.

## WILL SONY WRITE THE PC'S EPITAPH?

The dirty little secret of home PCs is that people buy them to play games (Loyd Case, "Pentium III: What's in it for the Gamer," <http://www.gamespot.com/features/p3/index.html>), something computers have become better at as their processor speed and graphics performance continue to improve.

Sony can kill this market virtually overnight by offering awesome games and Web content that a \$500 PC can't provide.

Not that the consumer PC market's top players won't fight back. According to *Forbes* (8 March 1999, p. 52), Gateway founder Theodore Waitt predicts that "Three years from now, the majority of our revenue will still come

from selling hardware products, but the majority of our earnings will come from service-based systems." This from a company with 1998 sales of \$7.5 billion.

Sega has already bet on Microsoft's Windows CE as its OS ("Microsoft Talks Dreamcast CE," <http://www.next-generation.com/jsmid/news/6123.html>). Wintel is trying to stay in the game, but who needs a full PC to do what most consumers do—play games and browse the Web? Given the choice, folks will buy the under-\$300 P2 rather than a \$500 Wintel box or a sluggish Windows CE game console. Apple's renewed focus on game support for both the low-end iMac and high-end G3 shows its willingness to plunge back into this already crowded market. Other players, such as Sun and SGI, have yet to make their plans public.

Sony's console competitors aren't standing still, either. Echoing Sega's alliance with Microsoft, Nintendo has signed a deal with IBM to produce a new console, based on the PowerPC, by Christmas 2000. If successful, this project would rejuvenate the PowerPC while leveraging Nintendo's expertise in producing hit 3D games for the N64.

It remains to be seen if Sony will deliver on the P2's promise. The company says it plans to release the P2 in Japan first, by March 2000, then in the US by December. But what if Sony stumbles? If

the company delivers the P2 late, fails to meet performance expectations, or debuts its console without a stellar games lineup, Sony's threat to Wintel could evaporate. Moreover, to really displace Wintel, Sony must expand its franchise beyond games to consumer electronics and other forms of media such as digital movies.

Don't be fooled by what's on your computer monitor or TV screen. The real game being played today is "Death to Wintel." The players are the game console vendors on one side and Microsoft and Intel on the other. It's unlikely that the outcome of this mortal combat will cause either Microsoft or Intel to collapse. But it will determine the shape of the computer industry and how large a role Wintel products will play in the lives—and pocketbooks—of consumers. ♦

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