Nvidia Corporation
vs. ATI Technologies
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+ Frank Han

INDUSTRY
Transition to the Third Dimension

- Failure to keep up
  - Cirrus Logic
  - Trident
- Early adopters
  - Number Nine
  - Matrox
- Re-innovate and adapt
  - ATI Tech
- Birth of newcomers
  - 3dfx
  - Nvidia

Enthusiasts Dominate

- Gamers cornered the consumer 3D market
  - 3dfx
  - ATI
- Industrial developers need powerhouses
  - 3D Labs
  - SGI
Mainstream Becomes King

- An eye for the average consumer
  - Nvidia
  - ATI
  - *Not* 3dfx
- The forgotten markets
  - Macs
  - Laptops

Saturation to Consolidation

- Diamond Multimedia + S3 = SonicBlue
  - ATI buys SonicBlue’s FGL Graphics (workstation)
  - VIA buys SonicBlue’s consumer graphics unit
- Nvidia buys out 3dfx
  - Changing of the guards
- Matrox: “We quit!”
Status Quo

- Integrated Graphics Processors (IGP) has substantial market opportunity
  - Low cost
  - Mainstream
  - Currently 50% of total market
- Virtual tri-poly: Nvidia, Intel & ATI
  - Chipsets dictate card performance
- Where's the money?
  - OEM/IGP
  - Elsewhere?

Today and Tomorrow

- 2001: 174 million cards sold worldwide
- 2005: 261 million
- Market Segments
  - Enthusiast (Gaming)
  - Mainstream (OEM/IGP)
  - Professional (Workstation/CAD)
  - Portable (Laptops/PDA)
  - Consoles (Xbox/PS2/Gamecube)
  - Household (Set top boxes)
Current Market Leaders

- Nvidia: 32%
- Intel: 28%
- ATI: 19%
- Via: 11%
- SIS: 8%
- Matrox: 1%
- Trident: 1%
- SGI: 1%
- 3DLabs: 1%

Distribution Process

- Nvidia
- ATI
- TSMC
- OEM Distribution (Edom)
- OEM (Dell)
- AIB (MSI)
- Retail (Best Buy)
- In-House (ATI Only)
- End-User
- Retail (Best Buy)
Rise to Fame

- 1996: Market dominated by 3dfx Voodoo
- Riva 128 (1997)
  - First solid 2D/3D combo
- Riva TNT (1998)
  - Outdoes 3dfx Banshee
- Riva TNT2 (1999)
  - Beginning of the end of 3dfx
  - Nail in the coffin for 3dfx
Birth of the GPU

- GeForce 256 (1999)
  - World’s first “GPU”
  - Transform & Lighting (T&L) capabilities

Nvidia: Current Products

- GeForce FX (Enthusiast)
- GeForce 4 (Mainstream)
- nForce 2 (AMD Motherboard)
- GeForce 4 Go (Mobile)
- Quadro 4 / Quadro FX (Professional)
- Microsoft Xbox (Console)
Down & Out / Back Again

- **3D Rage (1995)**
  - Market still unclear
  - Number Nine, Verite, Matrox prevalent
- **3D Rage Series**
  - Solid partnership with Diamond Multimedia
  - OEM
  - Laptops
  - Macs
  - ATI’s first “VPU”
  - First step back from oblivion
Resurgence

- Evolved business strategy
  - Do-It-Yourself “white box”
  - OEM: IGPs
- Finally outsourcing board production
- Expanding into game consoles, DTVs, handheld devices, color cell phones

ATI: Current Products

- Radeon 9700 (Enthusiast)
- Radeon 9000 (Mainstream)
- Mobility Radeon 9000 / 7500 (Mobile)
- FireGL X1 (Workstation/CAD)
- Radeon IGP 340 (Intel Motherboard)
- Radeon IGP 320 (AMD Motherboard)
- Nintendo Gamecube’s “Flipper” (Console)

- Xilleon 220 (Household)
- NxtWave (Broadband)
- Imageon 100 (Handheld)
The Soap Opera Begins

- **2000**
  - Nvidia GeForce 2 vs. ATI Radeon 7500
  - Radeon delays, weak driver set
  - Nonetheless, ATI puts foot in door

- **2001**
  - Nvidia GeForce 3 vs. ATI Radeon 8500
  - Radeon delays, weak driver set
  - Nvidia stays dominant
The Proverbial Deathmatch

- Nvidia releases GeForce 4 (Feb 2002)
  - Takes lead in saturated, “modern” market
- ATI releases Radeon 9700 (July 2002)
  - No delay, strong drivers
  - Takes first lead in graphics market since 1995
- Nvidia “paper” launches GeForce FX (Jan 2003)
  - Fails to surpass expectations
  - Delays in production (TSMC)
  - *Still* not available on the market

Sustaining Momentum

- Nvidia has finally become vulnerable
  - Suddenly must play “catch up”
- Market Leadership
  - ATI product lines outvalue Nvidia
  - ATI product pipeline much more robust
- Nvidia’s strong points
  - Athlon motherboards (Nforce 2)
  - Workstation (Quadro 4 / FX)
Advantages/Disadvantages

- Nvidia’s primary advantage lies in cost
  - Half of ATI’s workforce
  - Mostly outsourced
- ATI’s primary advantage lies in coverage
  - Faster cards in the same price level
  - Much more diversified portfolio
Volatile Economics

- Highly cyclical market
  - Function driven
  - Acceptance of Doom III engine
- PC industry growth
  - Longer product cycles
- Highly competitive market
- Reliability of outsourcing
Net Income Trends

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The Good Stuff

**Nvidia Corporation (NVDA)**
- Cost of Equity: 14.46%
- HyperGrowth Rate: 16.80%
- Stable Growth Rate: 4.50%
- Intrinsic Value: $13.10
- Current Share Price: $12.57
- Upside Potential: 4.02%

**ATI Technologies (ATYT)**
- Cost of Equity: 11.38%
- HyperGrowth Rate: 19.00%
- Stable Growth Rate: 4.50%
- Intrinsic Value: $4.93
- Current Share Price: $3.88
- Upside Potential: 21.28%
Research & Development

- Capitalizing R&D for both firms affect FCF
- R&D capitalized intrinsic values
  - NVDA: $20.18
  - ATI: $11.28
- Issues with R&D
  - Market sentiment
  - Invalidity of R&D

Recommendation
The Splinter Cell

- Nvidia
  - ST Hold
  - LT Accumulate at $10
- ATI
  - ST Buy
  - LT Buy
  - Target Price at $6

Questions?