Rambus, Inc.
“The Diamond Lane for Your Computer”

By: Kalman Gabriel

What Kind Of Co. Is Rambus?

- Intellectual Property
- R & D, 80% employees should be engineers, as in Mission Statement
What Does Rambus Do?

- Develops and licenses high bandwidth chip connection technologies
- What makes their technological special to achieve critical mass?
  - Architecture accommodates future performance enhancements
  - System designs can be optimized to meet needs of broad range of platforms
- Rambus = ANY device w/ a bottleneck in memory = TONS of possibilities

Business Strategy

- License its technology to as many as possible
- Receive a royalty payment in return
  - RDRAM = 1.5%
  - All other logic devices = 3% – 10%

Future potential is in logic devices
Who Is A Licensee?

- All of the top 10 DRAM companies
  - Intel, AMD, and Via
  - Agilent, PMC-Sierra, EMC, Vitesse, Cisco, Motorola, Sony, Panasonic, etc.

Where is Rambus Used?

- Exclusively bundled with the P4 until earliest 2H01
- Sony PlayStation II, Nintendo 64
- HDTV’s
- Cable Set-Top Boxes
**Target #1: Gaming Market**

- PS II expected for 100 million w/in 5 years
  - PS I sold 75 million worldwide
- Increasing production to 500K/month now to 2.5 million/month by Spring 2001
- Each PS II has 2 Rambus 188mb chips & 1 controller
- Avg royalty rate on chip: 1.5% * 2 = 3%
- Avg royalty on controller: 3% * 1 = 3%
  - 6% = at least $2 on each PS II sold

**Target #2: DRAM Market**

- How is Rambus a viable solution?
  - By solving the bottleneck in computers today
- E.g.: 2 GHZ computer and memory that runs at 400 MHZ, what’s point?
  - Lag of 1.6 GHZ.
  - Like putting a Honda engine into a Corvette

*Rambus puts a Corvette into a Corvette*
What Are The Alternatives?

- If performance is required, a future standard will be fixed
- What’s the RDRAM alternative?
  - 1- SDRAM, in all of your computers
  - 2- DDR SDRAM, maxed out SDRAM
- Not as scalable
- No OEM standards, causing more confusion.
- Been delayed since 1997, four times.
- DDR “predicted for” 1H 2001

Superior Design

- Design:
  - Rambus = a fire hose
  - DDR = 2 garden hoses
The DRAM Market

- Already have 47% of market sewn up
- 23.1 billion in 1999
- Projected to be 30 billion in 2000
- 76 billion by 2002

Source: Dataquest, Semico and Instat ±15%

Three Ways Rambus Will OWN The DRAM Market

(Gaining 100% market share vs. 47% they have now)
(1) Performance Requirements

- Speed race Intel VS. AMD
  - If not enough, faster new QRSL technology. 4x faster than DDR
- Up to 3.2 GB/sec from two Rambus channels
- Up to 6.4 GB/sec from four Rambus channels
- Up to 12.8 GB/sec from 8 Rambus channels [That is fast!]
- Thesis of old computers becoming new. Rambus owns hi-end market
  - Even if DDR is out, future will happen. Ratchet Effect + Moore’s Law
    - Every improvement has a ratchet effect – once it is used we never go back and everyone expects that new level of performance. In 2003, we will have 12 GHZ computers based on Moore’s Law!
- Consumer, corporate needs for fast technology

Rambus (NASDAQ: RMBS)

(2) Price Premium Decreases

- Rambus right now has a 30% price premium
- Goal: Prices come down so consumers pick it when performance is not critical
- Gone down 300% this year already
- Samsung predicts by Q42001 Rambus will be +/- 10% SDRAM price
- P4 benefits Rambus from economies of scale
- DDR?
  - New product + inferior tech = too little too late

Rambus (NASDAQ: RMBS)
(3) Receive Royalties On Alternative Solutions

- Patents filed in 1990, granted in 1999
  - Asserts they own “fundamental aspects” of memory technology
- Legitimately *owns* 47% of market
  - 5 of top 10 DRAM co’s have signed up for royalties on all three types, agreeing to it’s patent claims
- Suing Micron, Infineon, and Hyundai

Rambus (NASDAQ: RMBS)

Why Rambus Will WIN Lawsuits

- 5 of top 10 have already sided with them
- Rambus has speed-tracked all 3 cases
- Only prove that 1 of 11 were infringed
- First RDRAM patent precedes SDRAM patent by 2 years
- **Trump Card**: CEO says Rambus will not license anyone they beat in court. Would shut all 3 out of business. Too big of a risk. Thus, forced to settle & on Rambus’ terms

Rambus (NASDAQ: RMBS)
**Worst-Case Scenario**

- Rambus loses all cases
  - Left w/ only 47% of pie
- Rambus will still win in long term:
  1. Rambus is proven – P4, PSII, N64 – DDR is not
  2. Technologically superior
  3. Prices are decreasing fast
  4. Value chain has formed. Not around DDR. Too much invested in ramp-up and transition.
  5. More markets to enter than PC

**What If Rambus Wins?**

- Where are they now?
  - They have 47% of the market
    - Toshiba, Hitachi, NEC, Oki, and Samsung have signed up for royalties on RDRAM, SDRAM, and DDR
- If they win?
  - Hamburgers, cheeseburgers, or hotdogs – Rambus wins
  - They get a royalty on whole memory market (40 billion)
Final Target #3: Communications

- The BIG guys
  - EMC, Cisco, Vitesse, PMCS, all supporters

Financials

- No Debt
- IBD Rating of 96
- Deferred revenue grew 40% last qtr
- Accounts receivable measly 68K last qtr
- 5-yr expected revenue growth of 90%
Valuation

- DRAM Market Size 2001 = 40 billion
- Average DRAM royalty rate = 1%
- Market share of Rambus = 45%
- Net profit margin = 55%

High School Math

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\begin{align*}
40 \text{ billion (DRAM market)} \\
\times 45\% \text{ (mkt share)} \\
\times 1\% \text{ (royalty rate)} \\
\times 55\% \text{ (net profit margin)} \\
= 100 \text{ million profits (NPAT)}
\end{align*}
\]

100 million outstanding shares = $1.00 EPS

Analyst expectations FY2001 = $0.55
Risks

- Slowing PC demand
- Memory is cyclical business
- Stock is volatile
- Anything can happen in courtroom

Recommendation

- Add to All-Star Portfolio @ $55
- Price target = $80
  - Conservative 45% upside potential
  - Recall next quarter revenue will double