Design for Quality & Manufacturing

A Case Study - NeoMagic

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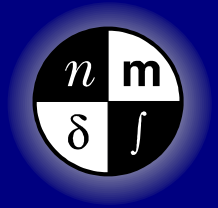
NeoMagic Corporation



March 21,2000

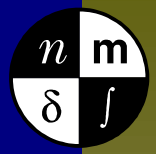
NeoMagic History

- Founded - Summer 1993
- First Production Shipment - 1Q96
- Leading Supplier of Notebook Multimedia Chips
- Publicly Held Since 1Q97

Outline

Need a Vision
Add Value
Use a Commercially Viable Method
Execute
Establish a Track Record
Enable Customer to Succeed
A Team That Stays Focused Builds on Success

What Was The Vision?



Emerging Trends - Mobilizing Multimedia

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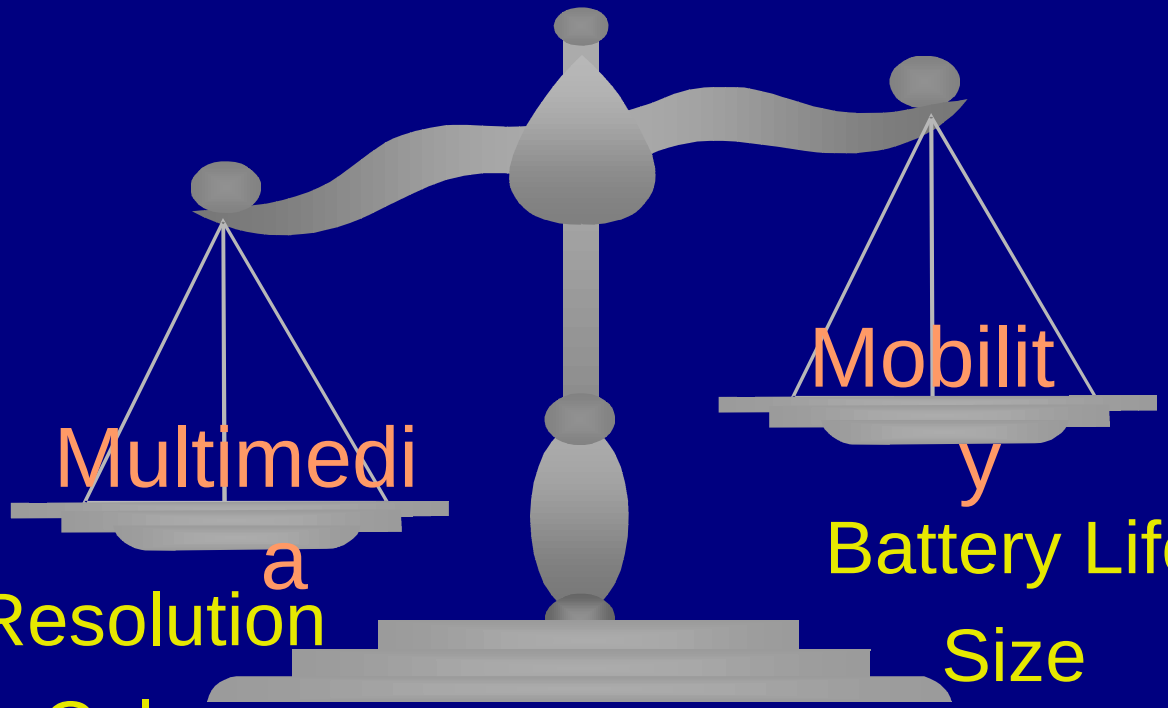
The Paradox was



Opportunity: Mobilize Multimedia

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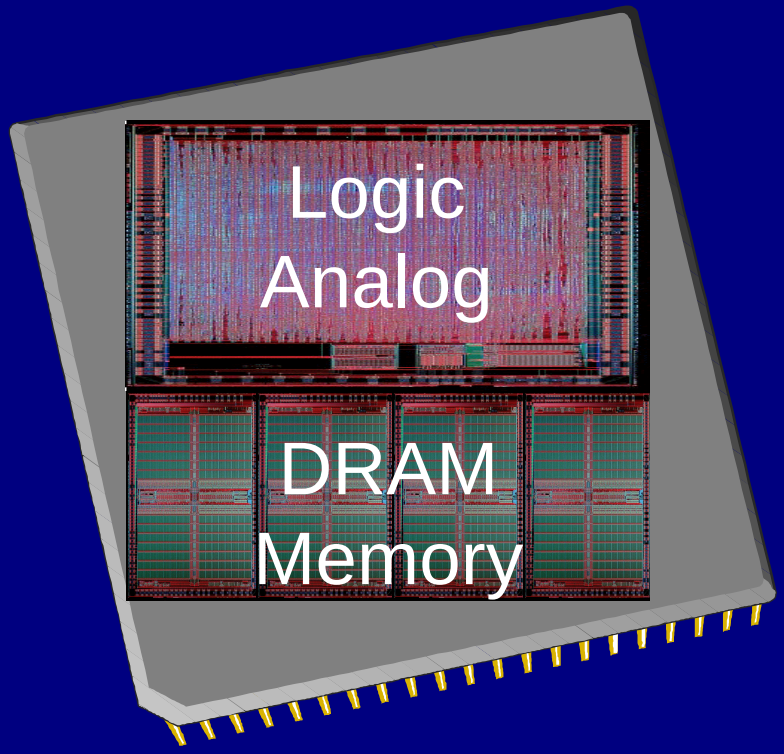
How Do You Add Value?

Compelling Product Proposition:

Differentiation Through Integration

Embedded DRAM Technology

Reduces Size & Power Consumption



Increases Performance & Reliability

MagicWare™: Pioneering eDRAM Technology

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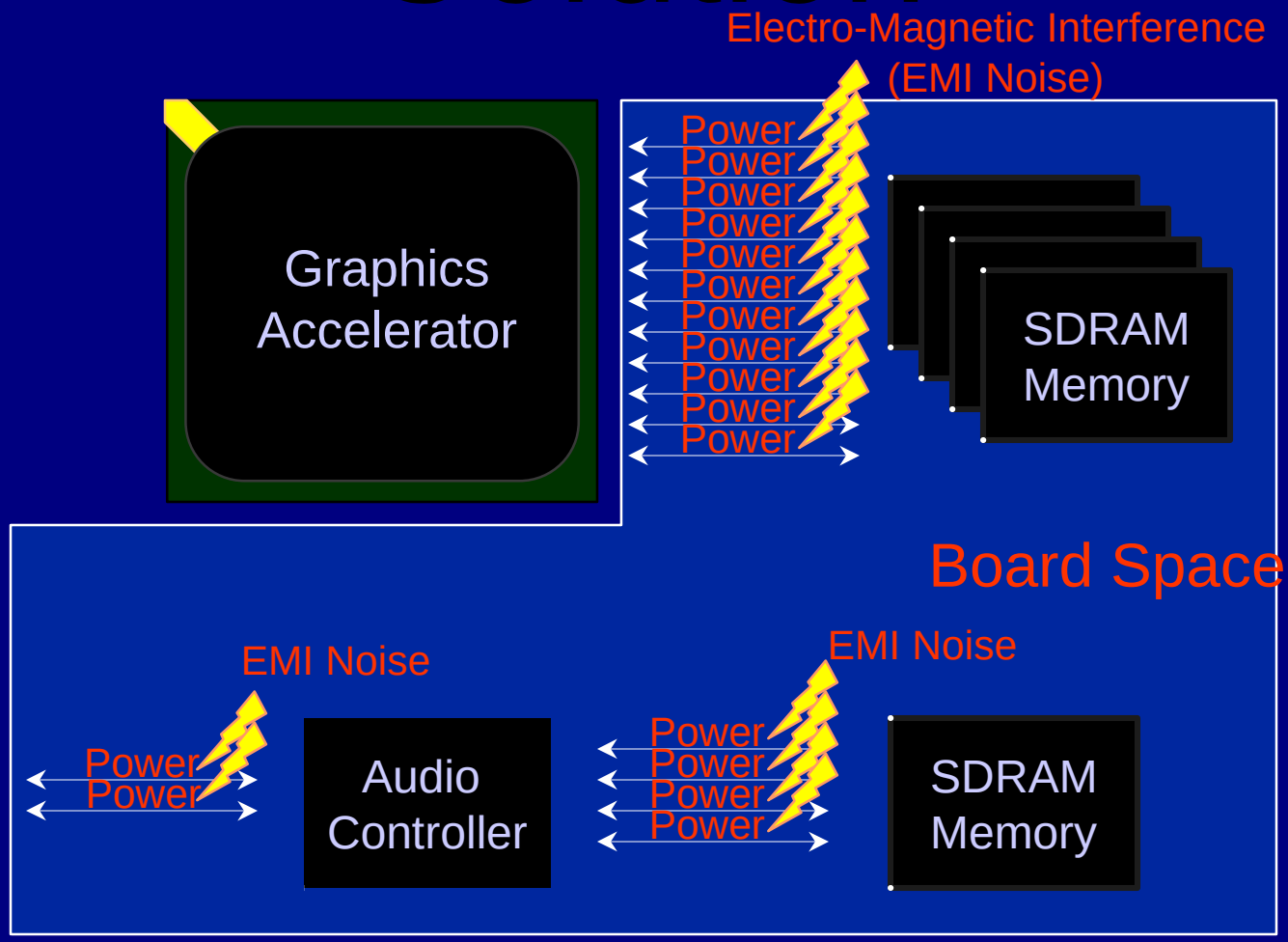
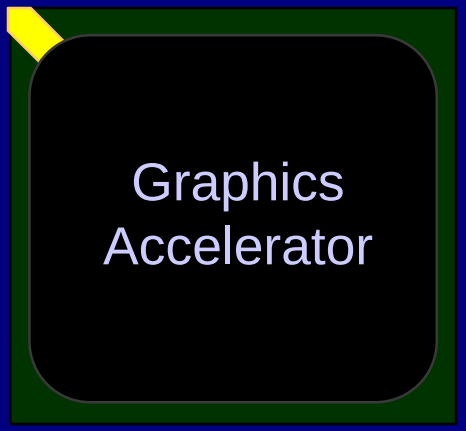
Your Method Must Be Commercially Viable

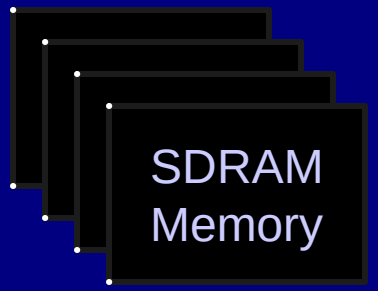
Economics of Embedded DRAM

Costs of Discrete Solution

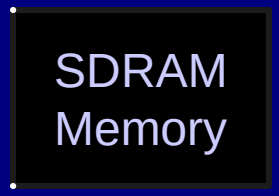


Hidden Cost of Discrete Solution

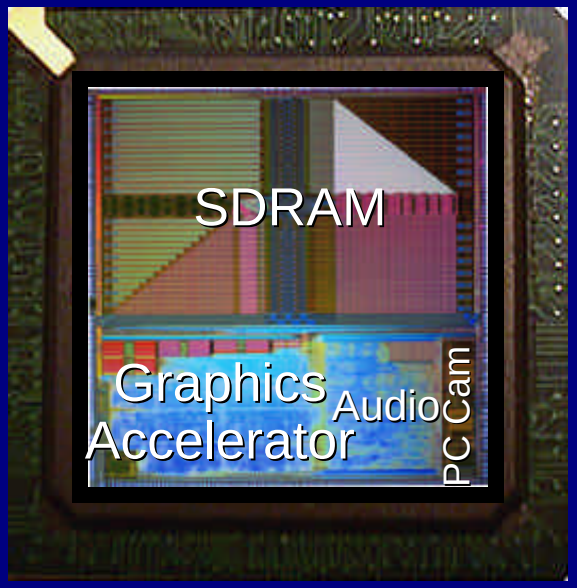




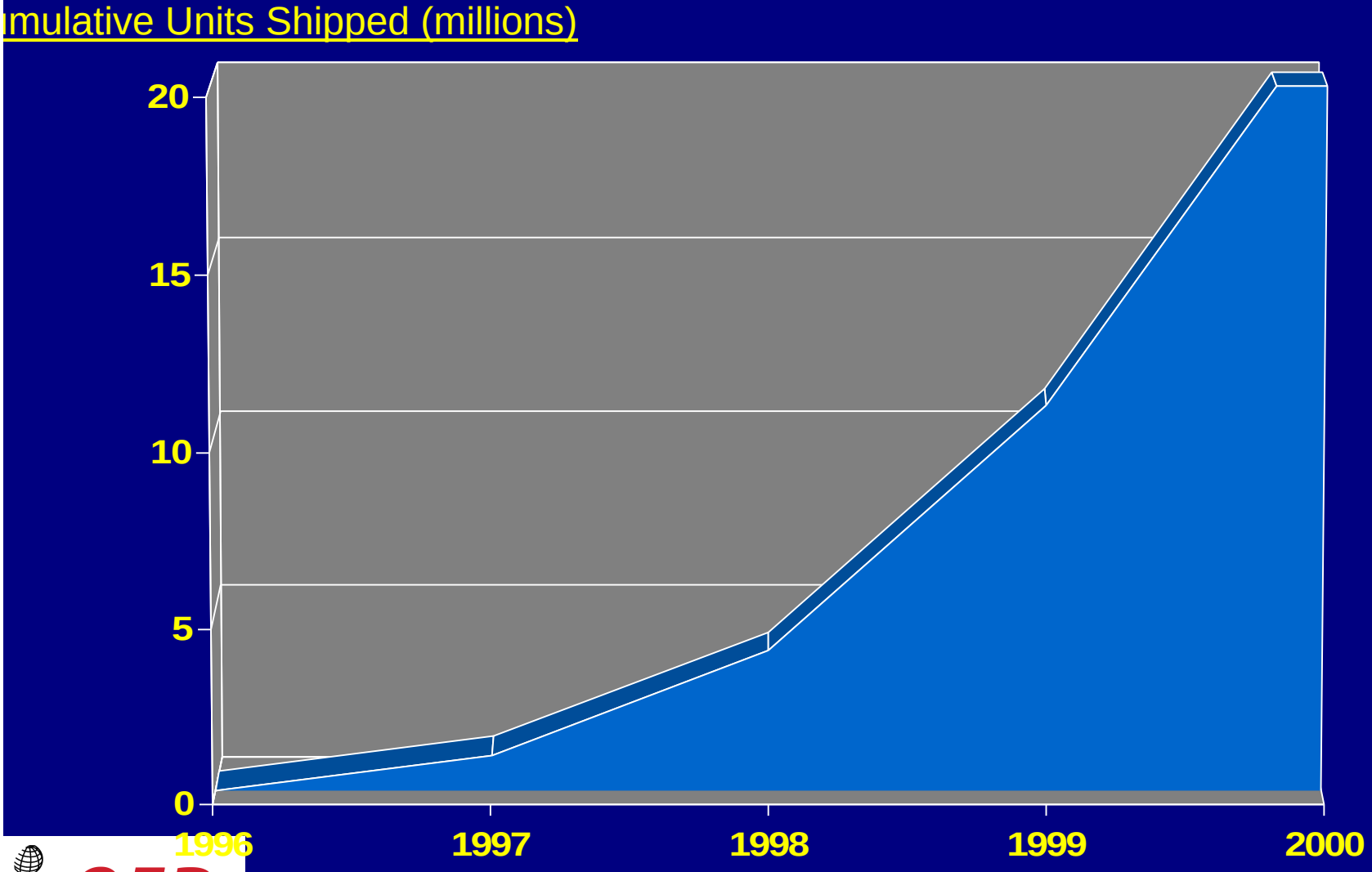
Defect Rate



NeoMagic Solution



NeoMagic eDRAM Volume Experience



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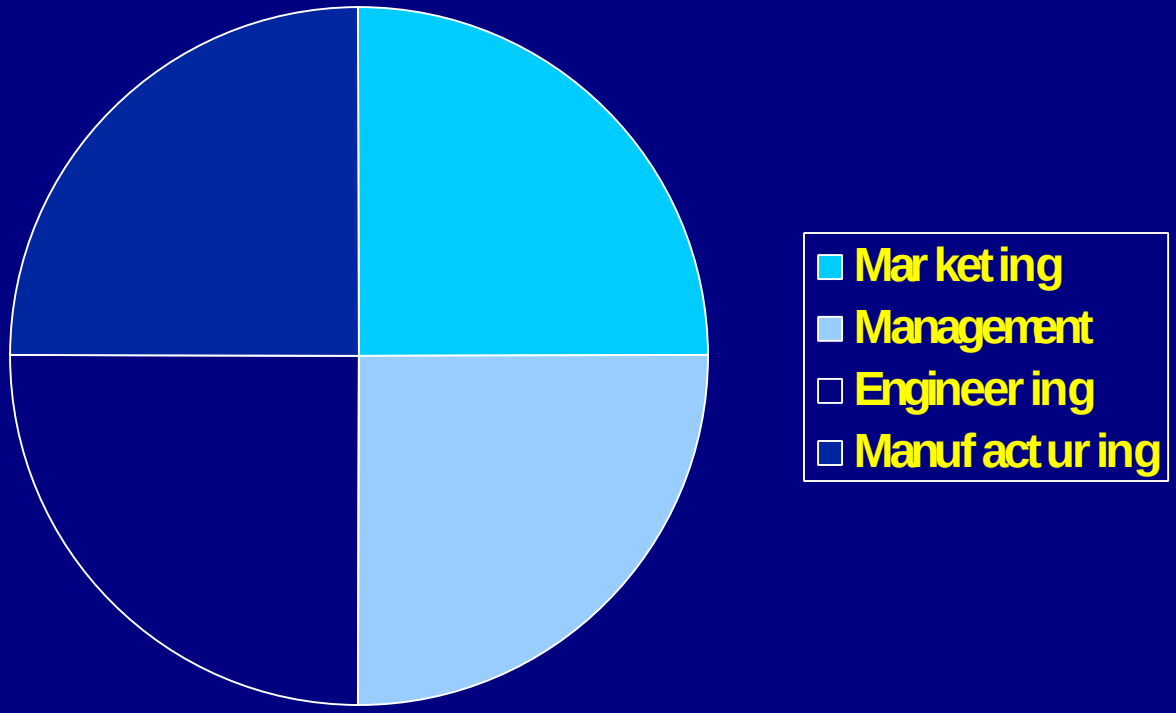
Execute

Build A Team That Stays Focused

Success Builds Up On Success

Entire Team Contributes to Design for Quality



Marketing

Analysis of Market Requirements

- Major customer product roadmaps
- Major customer feature requirements
- Competitive offerings and product roadmaps
- A well-defined product specification

Marketing
Evaluating the Market Size

- Research analysts' forecasts
- Competitive cost structures
- What is the window of opportunity for the product?

Management
Evaluating Internal Variables

- An accurate evaluation is important - Ask the tough questions!
- Does the new product fit with your technology roadmap?
- Does it fit with the capability of one or more of your strategic partners?
- Will the product add value at a competitive price?
- Match market requirements to your Company's capabilities.

Management
Analyzing Costs Versus ASPs

- What are the costs for design, development, production, testing cycles?
- What are the ASPs in the early market? In the later market?
- Can the product be cost reduced?
- What is the potential return on investment in each cycle?

Engineering

Three Phases of Design Development

- Phase I - Development
  - Well-defined specs , Choose correct technology, Right skills for every job, Right tools, Database management, Revision control, Design Reviews, simulations, emulation, Testability, fault grading etc. Develop processes, Create Cost reduction plan
- Phase II - Verification
  - Do you deliver what you promised?
  - Compatibility Lab Tests (e.g.WHQL)
  - Customer Qualification
- Phase III - Pre-Production
  - Customer line validation - Catch the problems early , get every line return from customer. Use bench testers, do Customer characterization

Manufacturing

- Identify fab partners with DRAM design capability & proven process technology
- Scrutinize their reliability and quality assurance procedures
- Develop tools for monitoring and increasing yields
- Keep consistent flow and controls
- Keep close ties with key customers
- Customer will succeed on system level only if integration leads to a lower defect rate

Execute

Stay Focused On Your Vision, Build on It

Manage Risk Prudently

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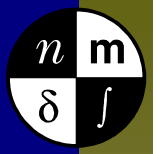
Vision For Future



Enabling Technologies For the Internet Age

Internet

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