

The background of the image is a collage of various items: a magnifying glass with an Apple logo on its handle, a green pen holder with several pens, a globe, and some papers. The text is overlaid on this background.

Worldwide

Developers

Conference



**Richard Schlein**

*Mac OS and Hardware  
Evangelism Manager*



# Desktop Roadmap

*Bruce Gee*

**Director, Desktop Product  
Marketing**

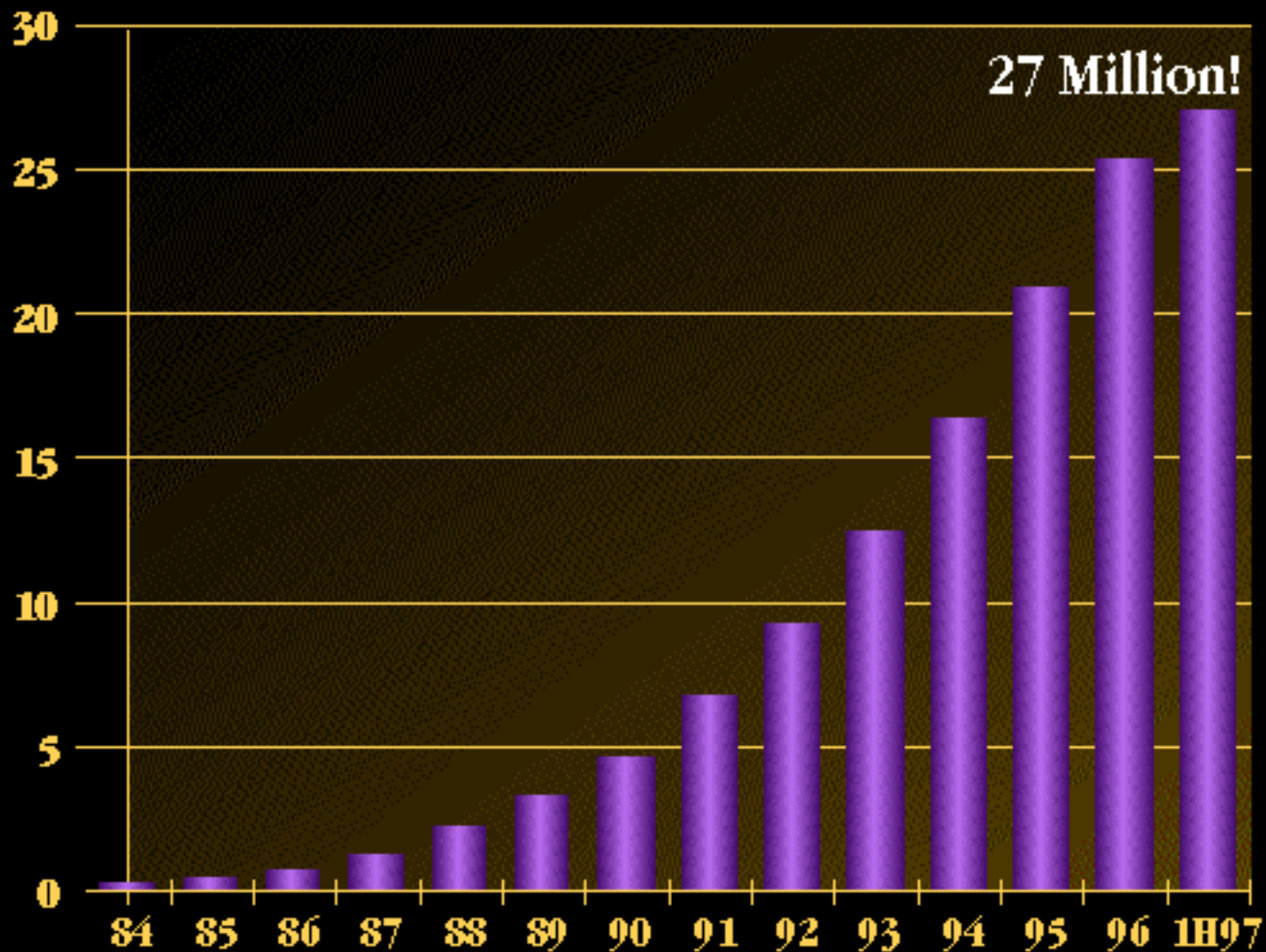
# Power Macintosh Goals

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- **Customer Focus**
- **Product Focus**
  - Performance
  - Multimedia
  - Industrial Design
  - Connectivity
- **Simplify product Line**
- **Deliver great products that exceed our customer expectations**



# Macintosh Installed Base



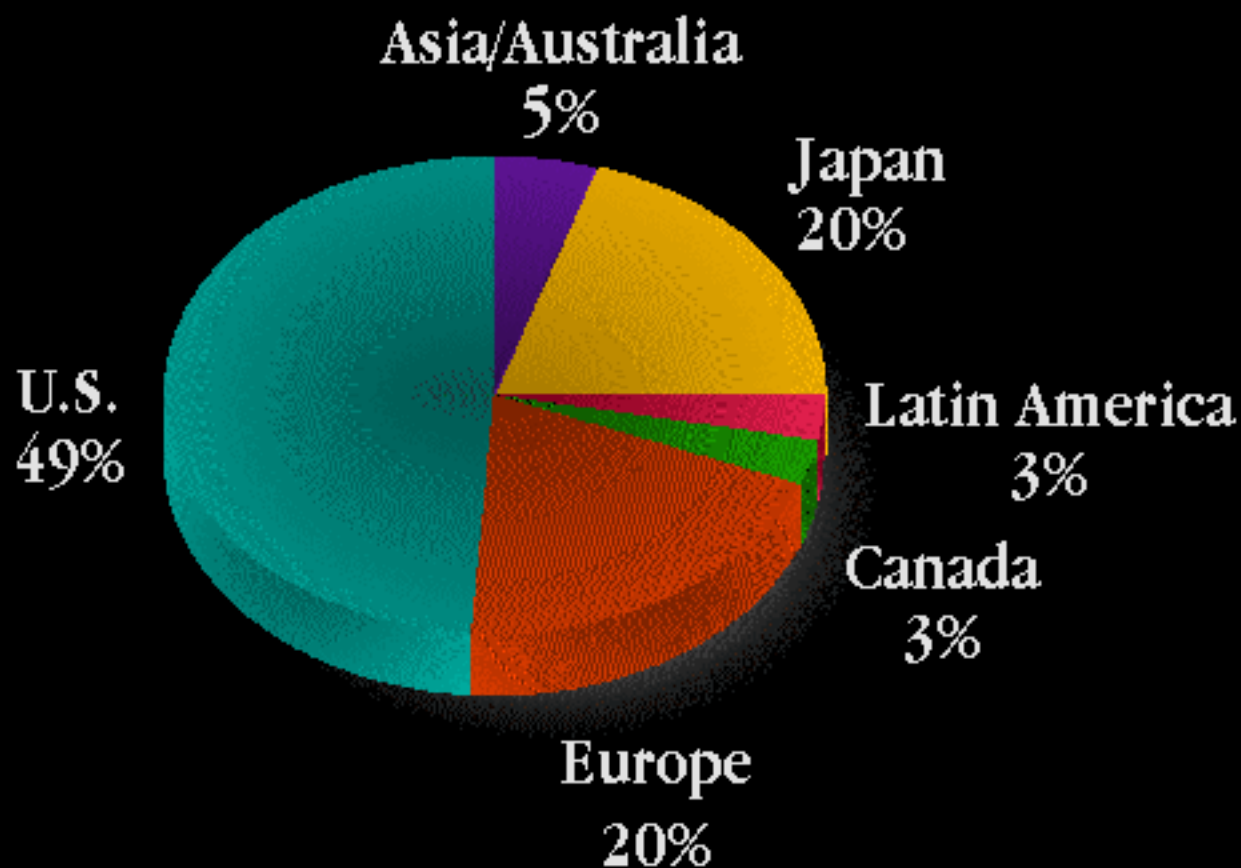
# People Prefer Mac over Windows 95

*“Dual users” rating 8–10 out of 10*

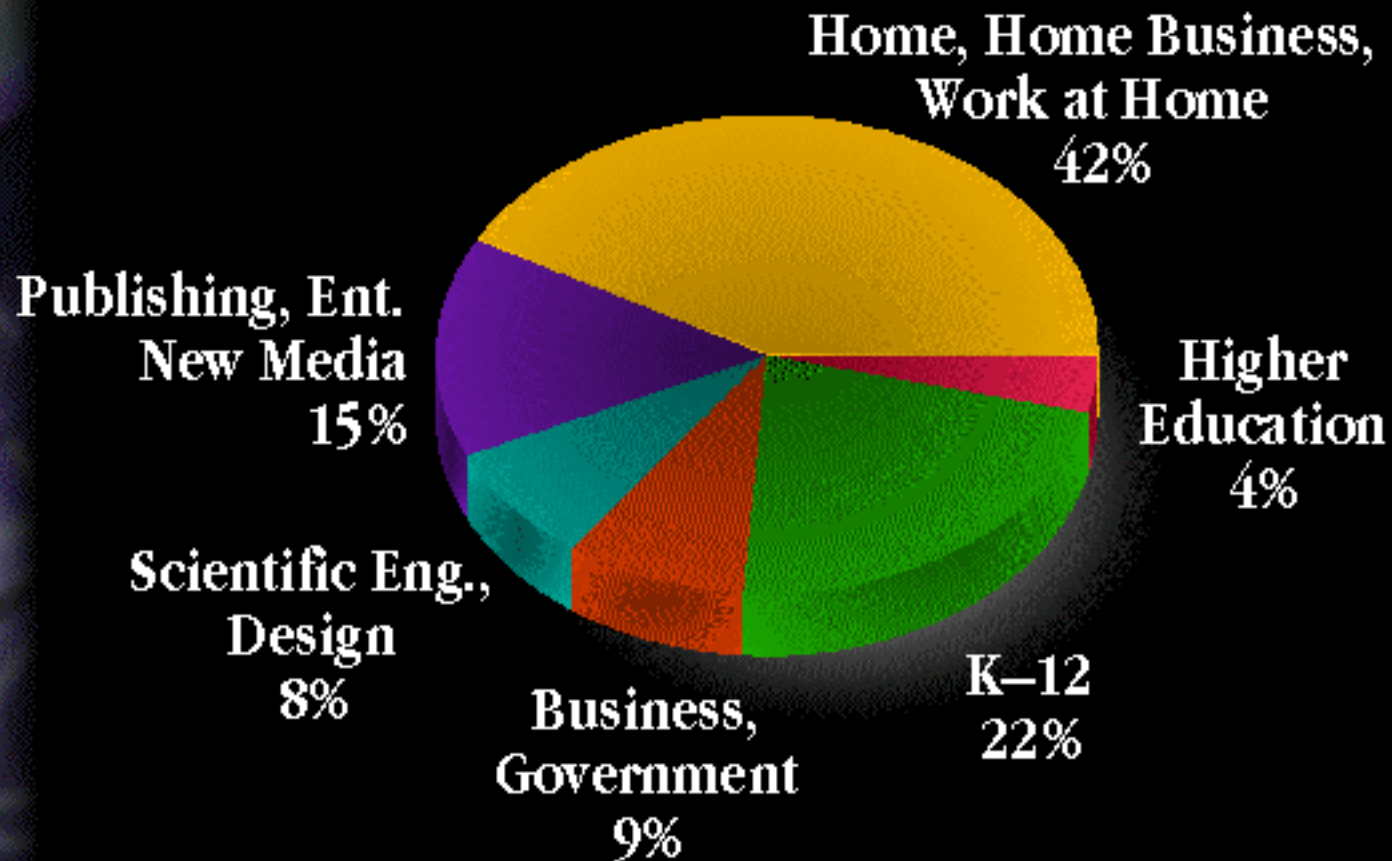
|                               | Mac | Win95 |
|-------------------------------|-----|-------|
| • Overall Satisfaction        | 60% | 41%   |
| • Overall Productivity        | 59% | 42%   |
| • Overall Ease of Use         | 78% | 37%   |
| • Graphics and Publishing     | 85% | 27%   |
| • Multimedia                  | 71% | 36%   |
| • Ease of Learning            | 78% | 29%   |
| • Ease of Setup, Installation | 69% | 33%   |



# Worldwide Shipments by Region

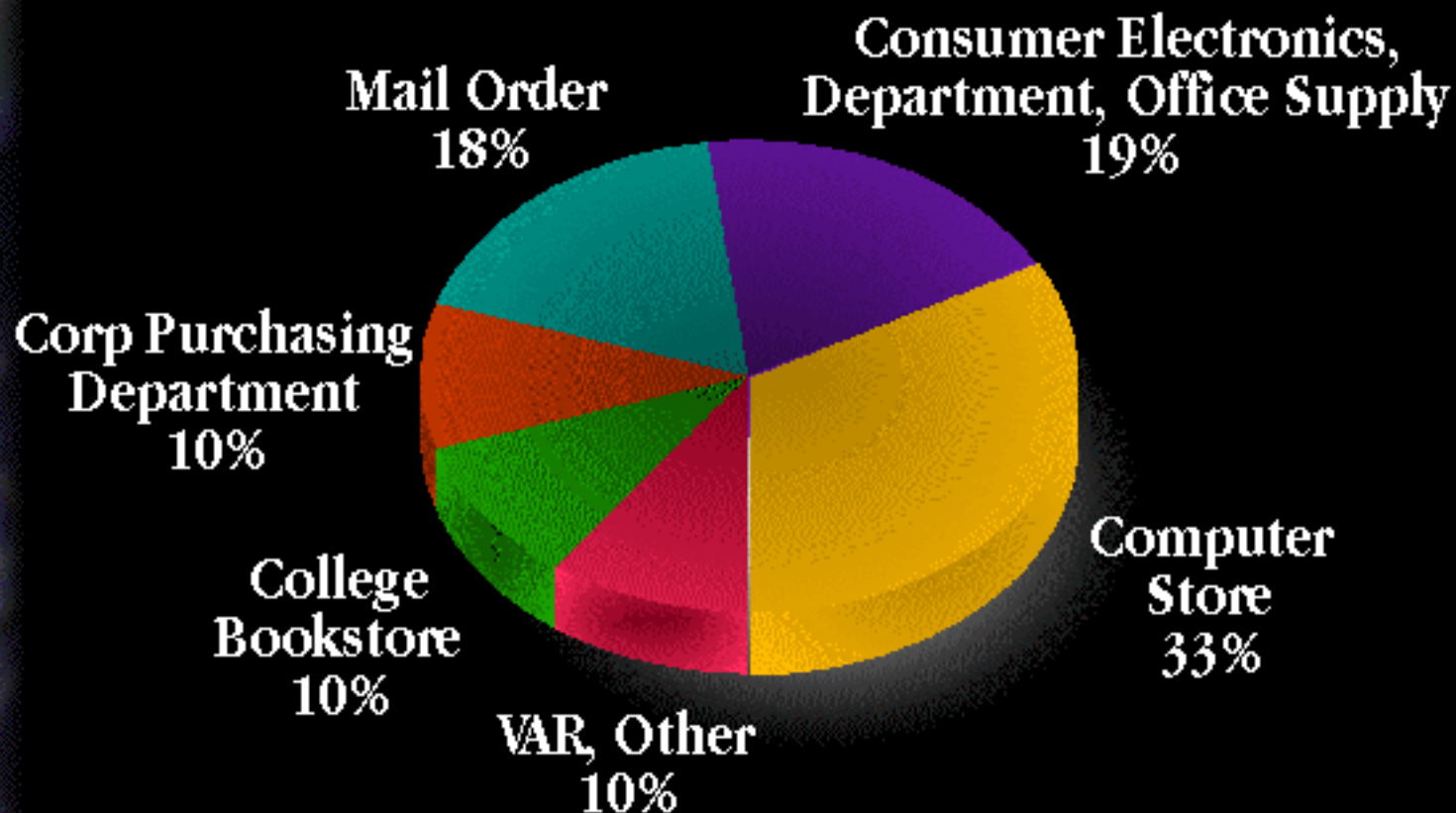


# Worldwide Shipments by Segments





# Power Mac Customers



Base: US new purchasers outside of K-12

# Power Mac Customers

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## *How is the machine used?*

- 1/3 used by single person, 2/3 shared
- 63% use another Mac
- 38% also use a PC



Base: US new purchasers outside of K-12

# Power Mac Customers

## *What about the Internet?*

- **70% outside of education, 52% in Education**
- **30% through ISP, 30% through online service, 40% through school/work**
- **88% send E-mail**
- **83% search for specific info about product, service and company**
- **68% download software**
- **51% get technical support**



Base: US new purchasers outside of K-12

# Power Mac Customer

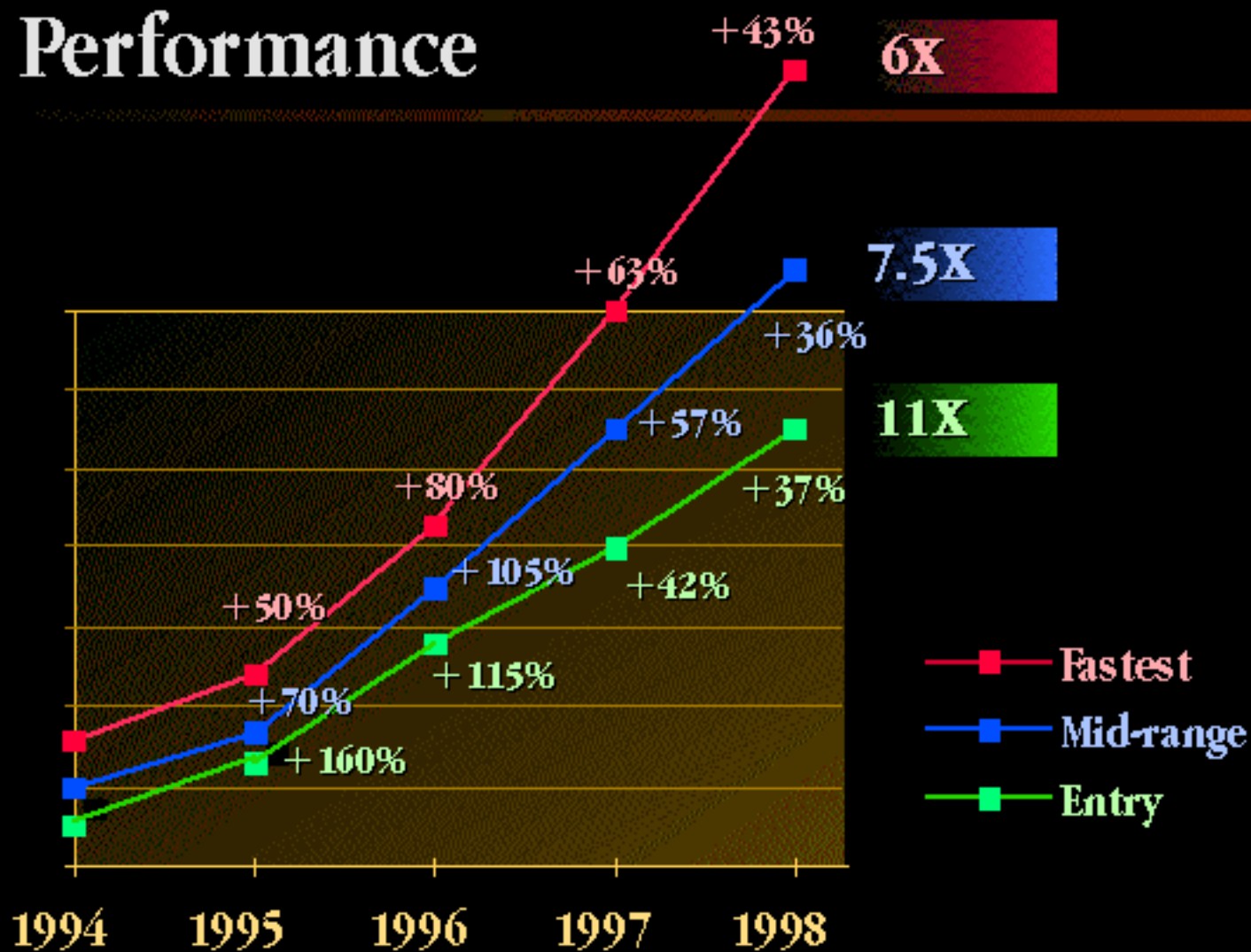
## *What is a typical system?*

- **2/3 add DRAM**
- **20% > 64MB**
- **Average 52MB**
- **39% added mass storage—  
HD or removable**
- **75% use  $\geq$  16-inch display**
- **36% use scanner**



Base: US new purchasers outside of Consumer and K-12

# Performance





# Desktop Roadmap

*Jack McHenry*

**Vice-President,  
Hardware Engineering**

# Enabling Platform—1984

## *Desktop Publishing*



LaserWriter

QuickDraw, PostScript

●  
1 MIP

Publishing Apps

Bit map graphics



# Enabling Platform—1998

## *Interactive Digital Media*



Video & Animation  
Images & Audio  
Digital Ink

Audio/Video I/O

AV Effects,  
Compositioning



550 MIPs

Real-time  
Interactivity

3D Animation





# Roadmap Core Components

## Industry Standard

RAM  
Disk Drives  
Power Supplies  
PCI  
Graphics  
Ethernet  
Modems  
USB  
I/O

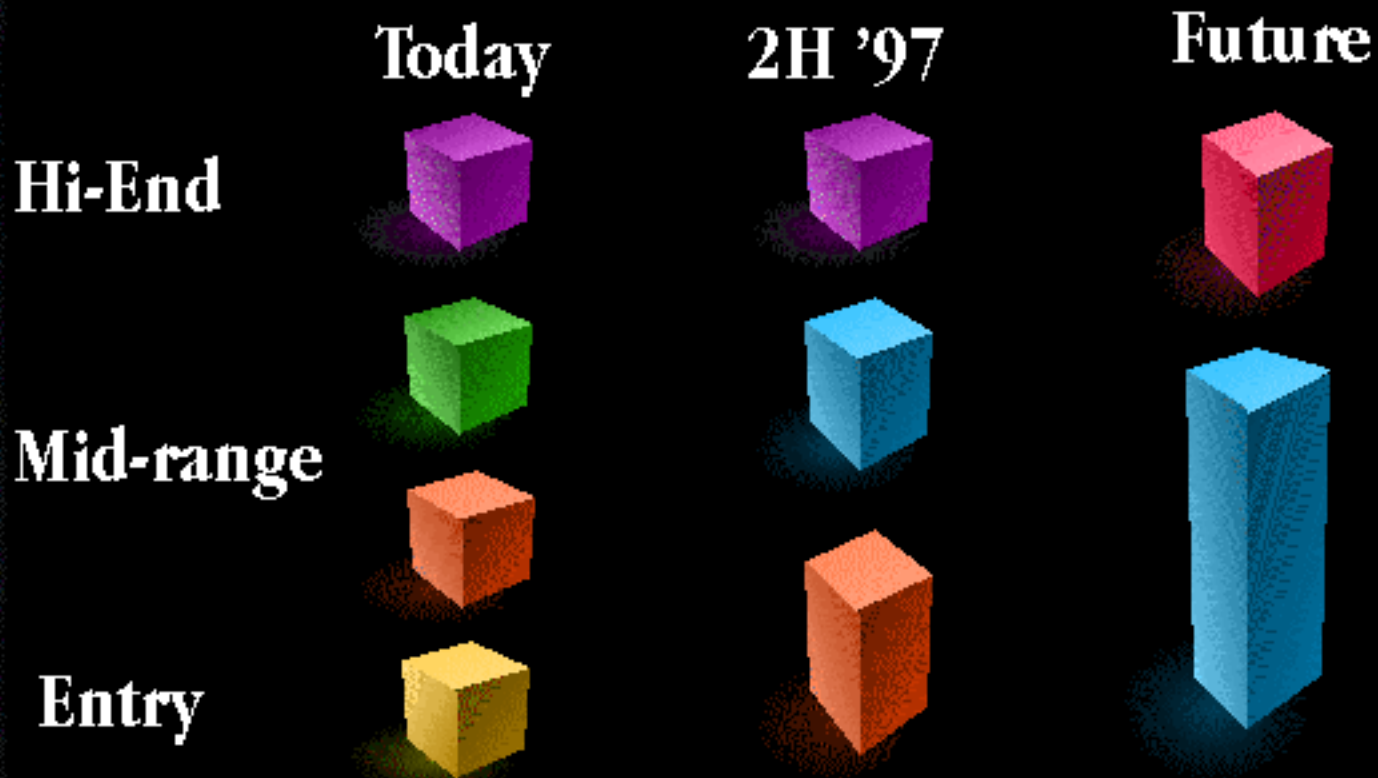
## Apple Value Added

Processors  
Memory Hierarchy  
Video/Graphics  
Audio  
FireWire  
Industrial Design  
Product Design



# Desktop Architectures

*Simplification!*



# Enclosure Roadmap

Today

Tower

Mini-tower

Desktop

Desktop

All-in-one

1H '98

Tower

Mini-tower

Desktop

All-in-one

Future

Tower

Mini-tower

Desktop

All-in-one





Demo

# The PowerPC Proposition

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- 1994—2x over Intel everywhere
- 1995—well, maybe not
- 1997—well, maybe so but 2X isn't enough
- 1998—capitalize on the real strengths of PowerPC



# The Advantage of PowerPC

## Arthur

6.5 M Transistors

1.5 M Core

5M Cache

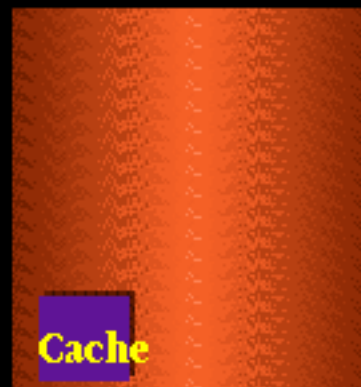


## Pentium II

7.5 M Transistors

5.5 M Core

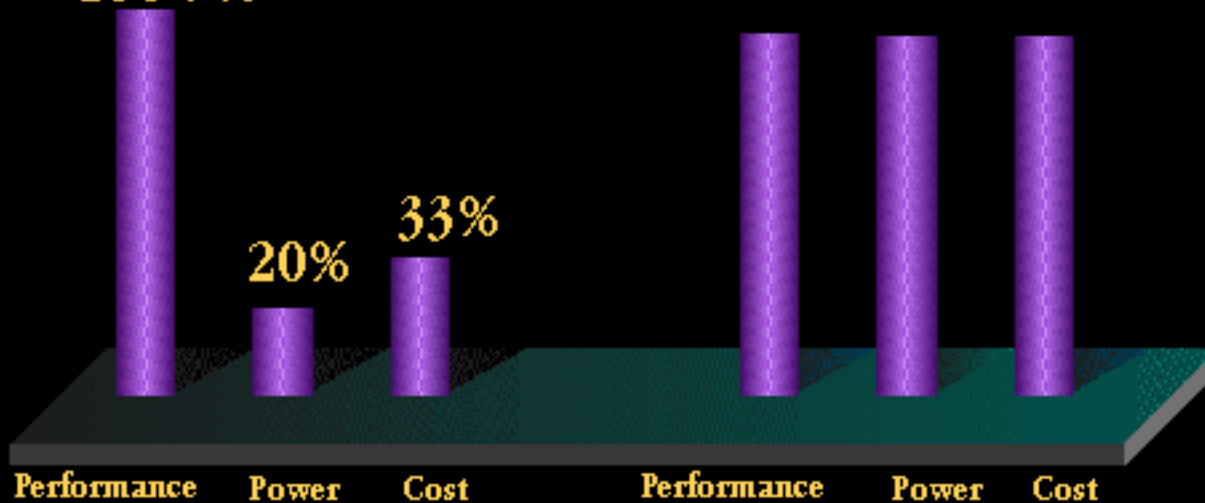
2M Cache



100+%

20%

33%

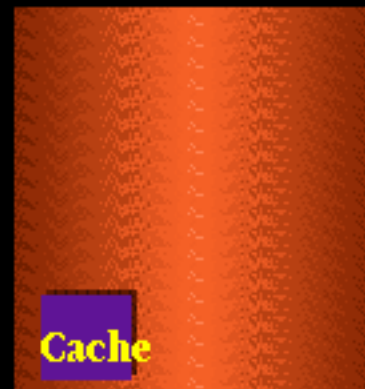


# The Advantage of PowerPC

**Mach 5**



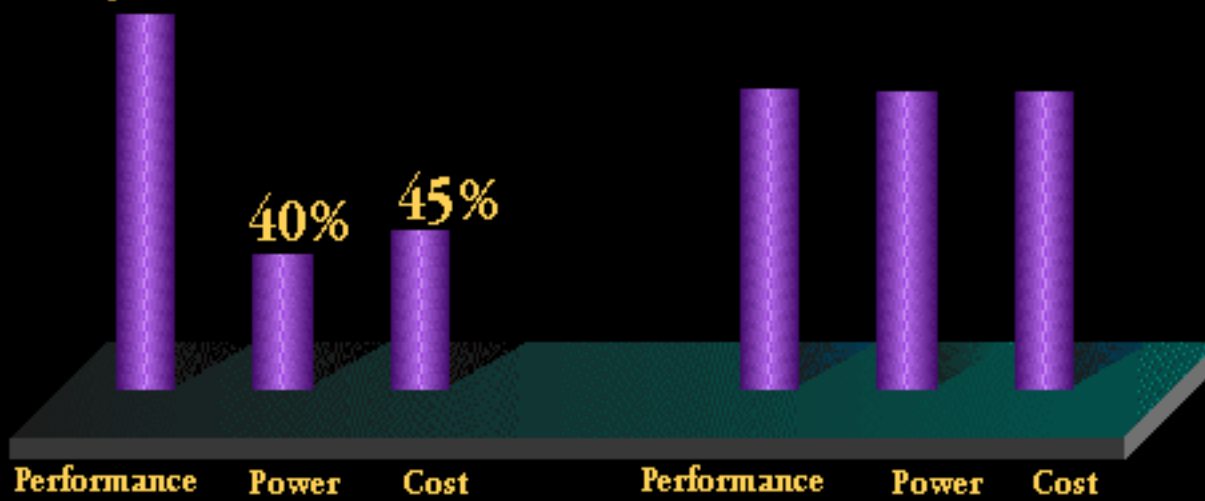
**Pentium II**



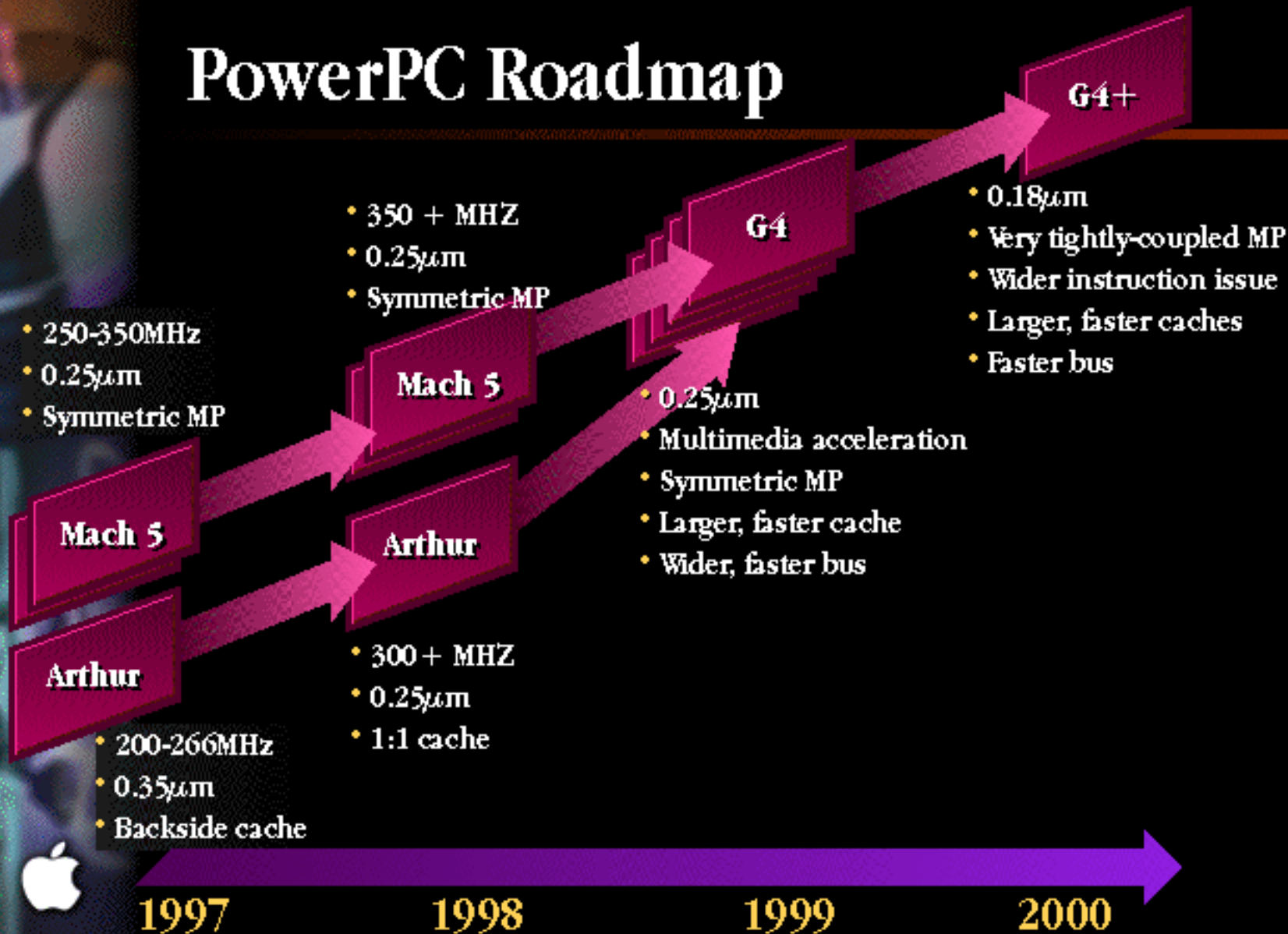
**136+%**

**40%**

**45%**



# PowerPC Roadmap

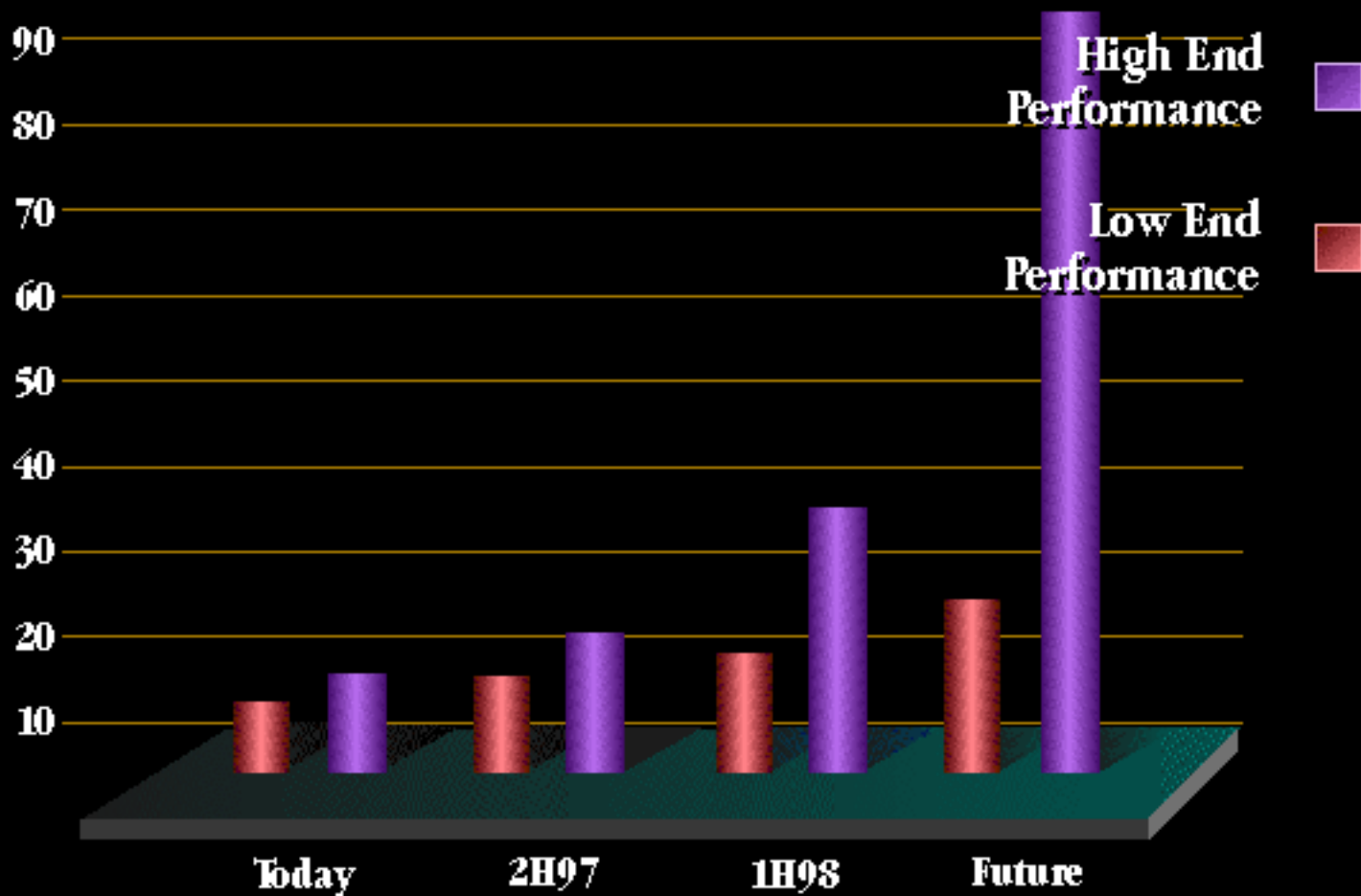






Demo

# Multi-Processing



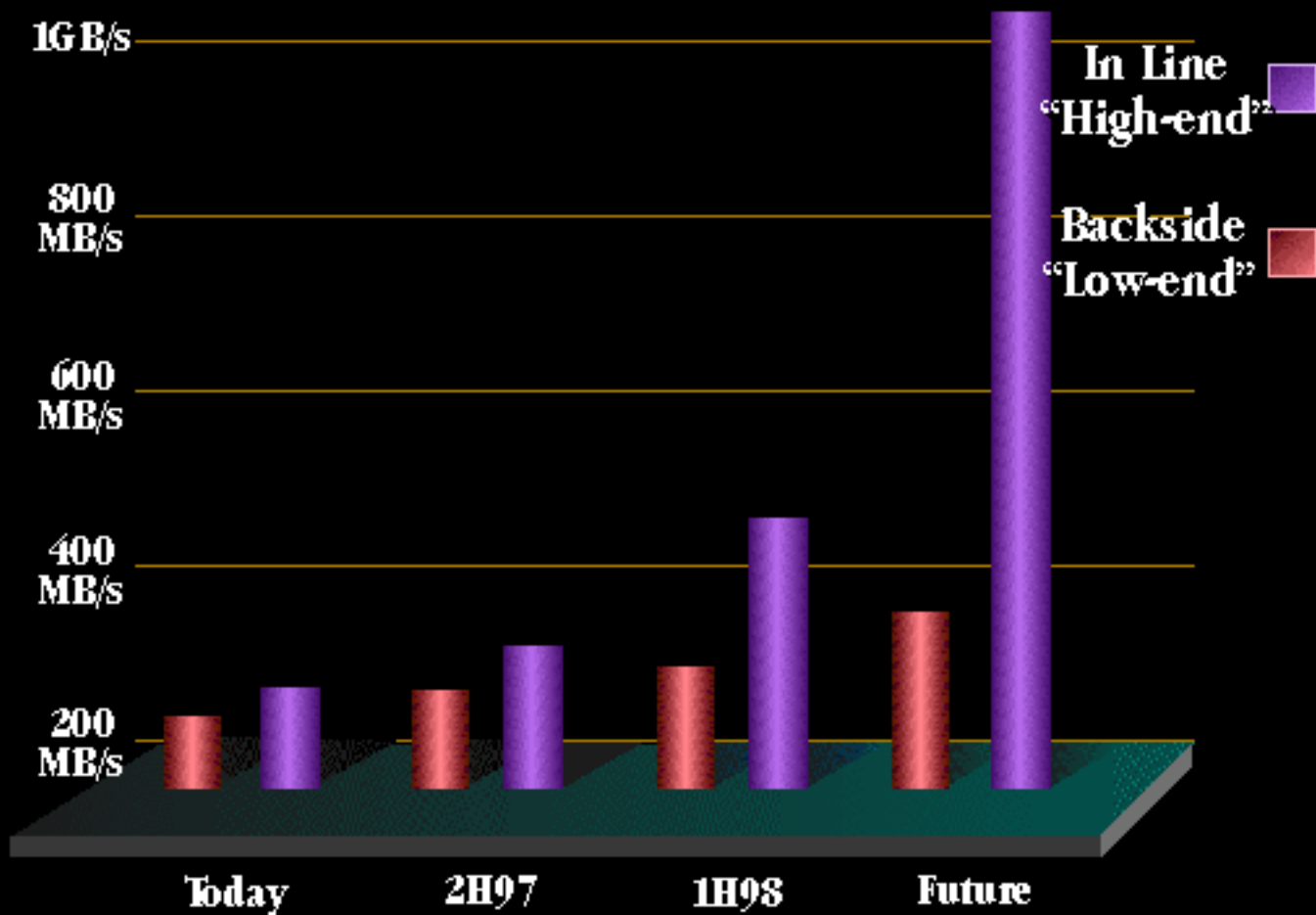
# Memory Hierarchy Design

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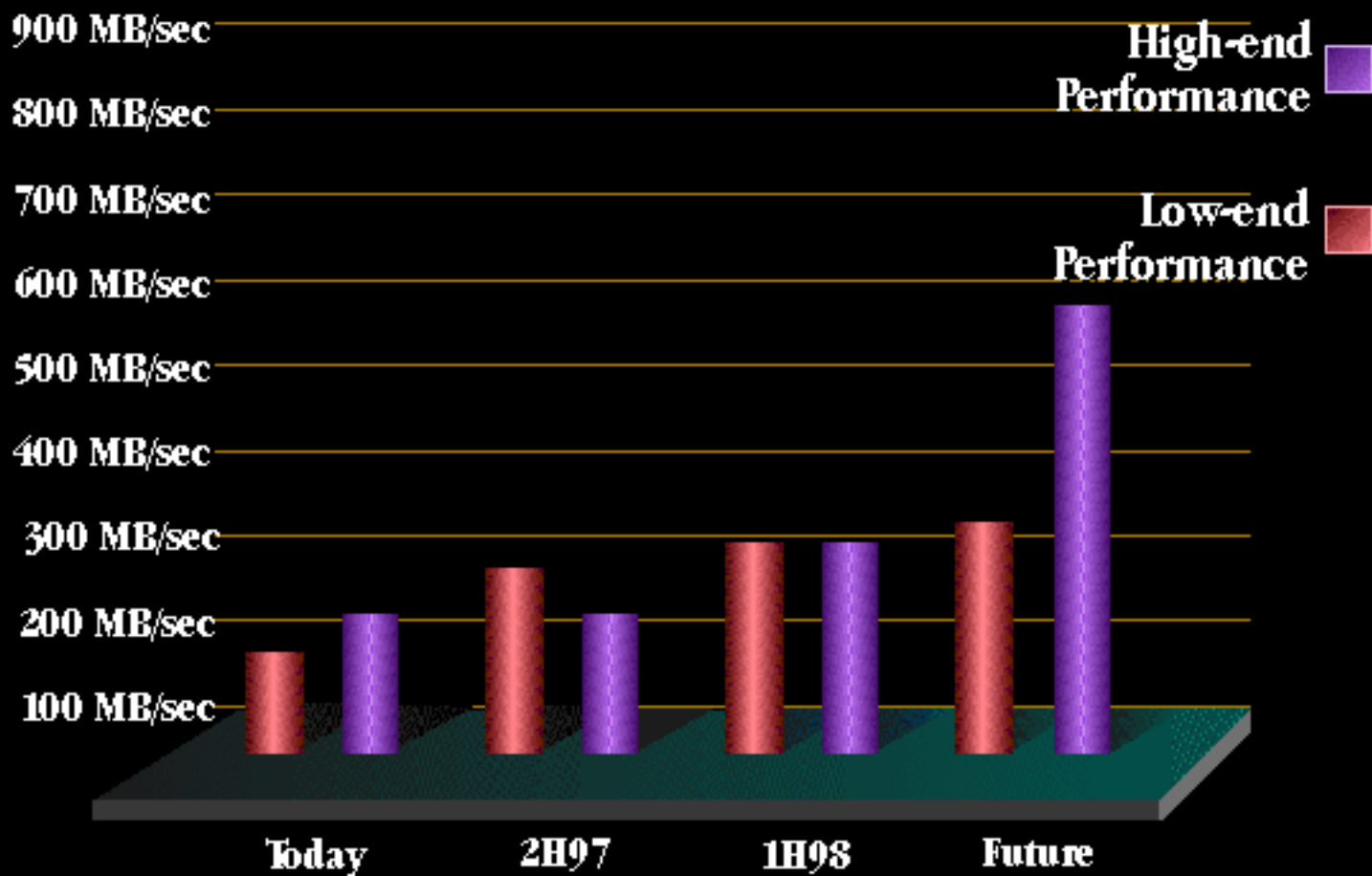
- **Fast Processors consume lots of memory bandwidth**
- **Drives improvements in both cache and DRAM performance**
- **In line cache for high end MP**
- **Backside cache for UP**
- **SDRAM enables faster main memory at low cost**



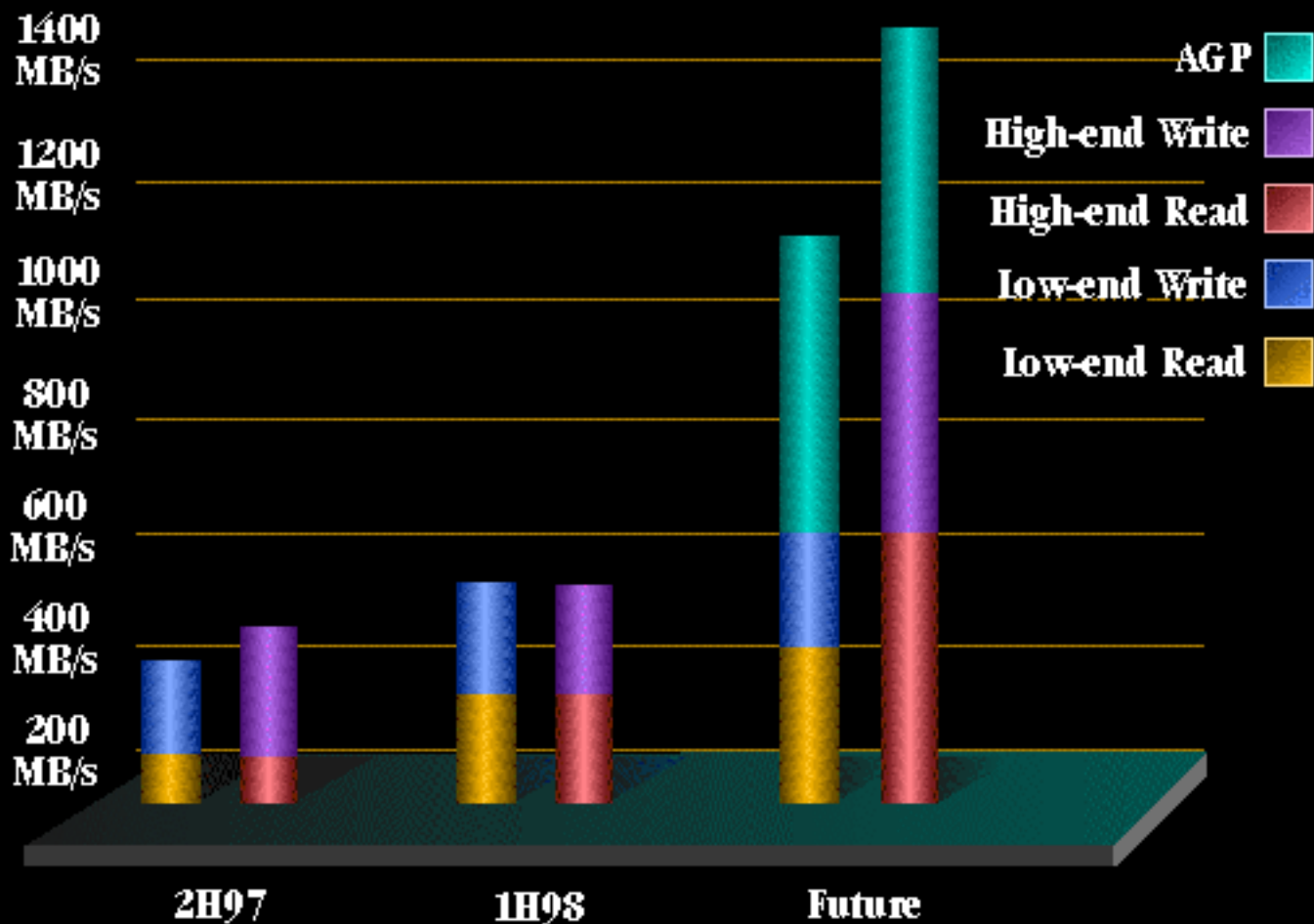
# Cache Memory Roadmap



# Main Memory Roadmap



# PCI Roadmap



# I/O and Peripherals Roadmap

- Move to industry standards wherever possible
  - ATAPI
  - USB
- Results in competitive performance and features
  - Hard Drive Size
  - CD transfer rate
  - DVD intro in 2H'97
  - Modem/Enet bit rate
- Focus on leadership in 1394 for multimedia





Demo



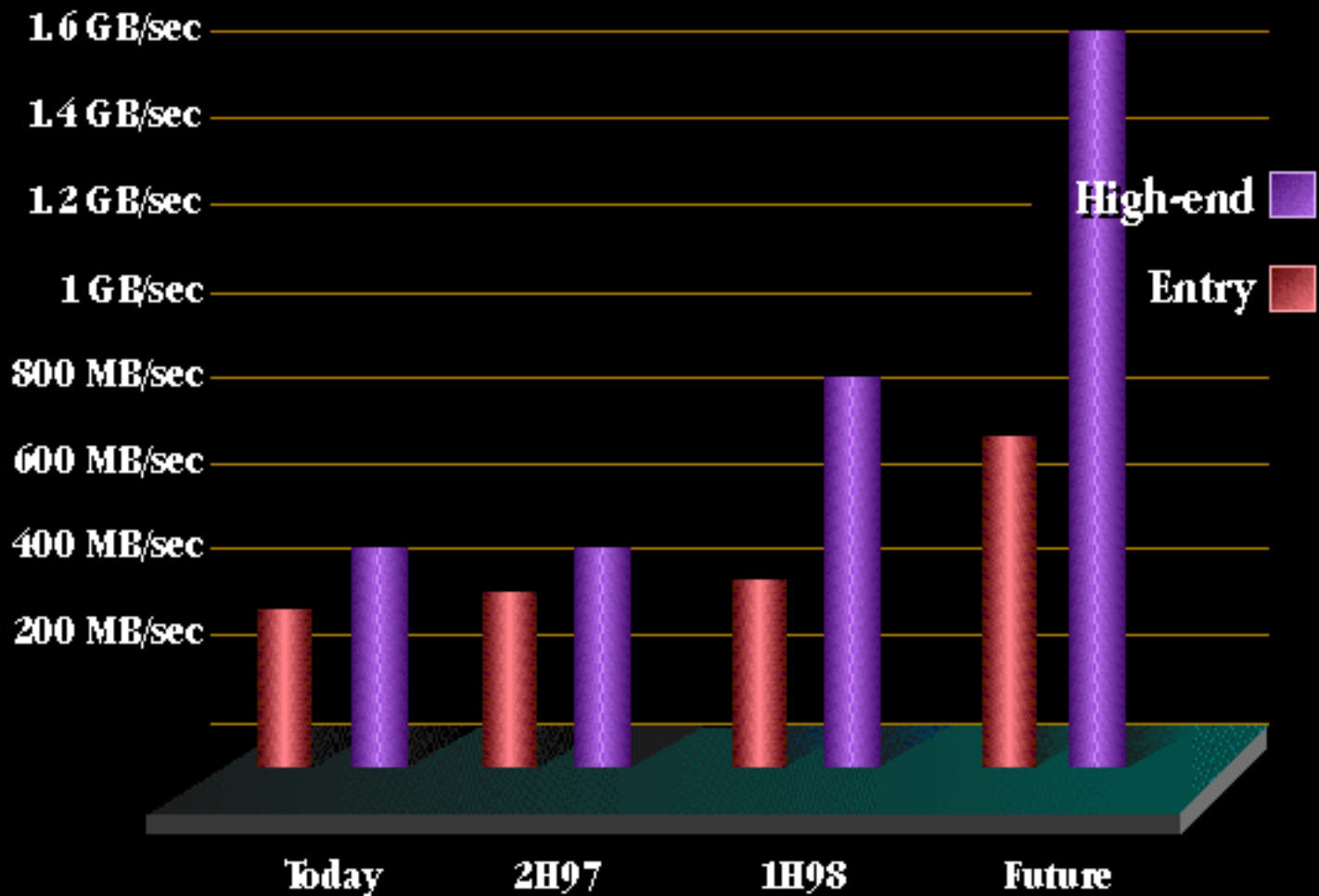
# Sound

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- **Signal to noise ratio improved to 85 db with next generation sound chip**
- **AC3 decode provided as part of DVD release**
- **AES/EBU supported in 1H98**
- **3rd generation codec is multi-channel**



# Graphics Bandwidth Roadmap



# Entry Graphics Systems

- **Using PCI and AGP permits entry systems to use industry-standard graphics controllers**
  - Power Mac 6500 is the first to ship a motherboard PCI graphics controller
- **At least 2 MB of graphics memory will be provided**
  - Enough for 640x480x16 3D and 200 Kbytes of textures
- **Next generation expandable to 6 MB**



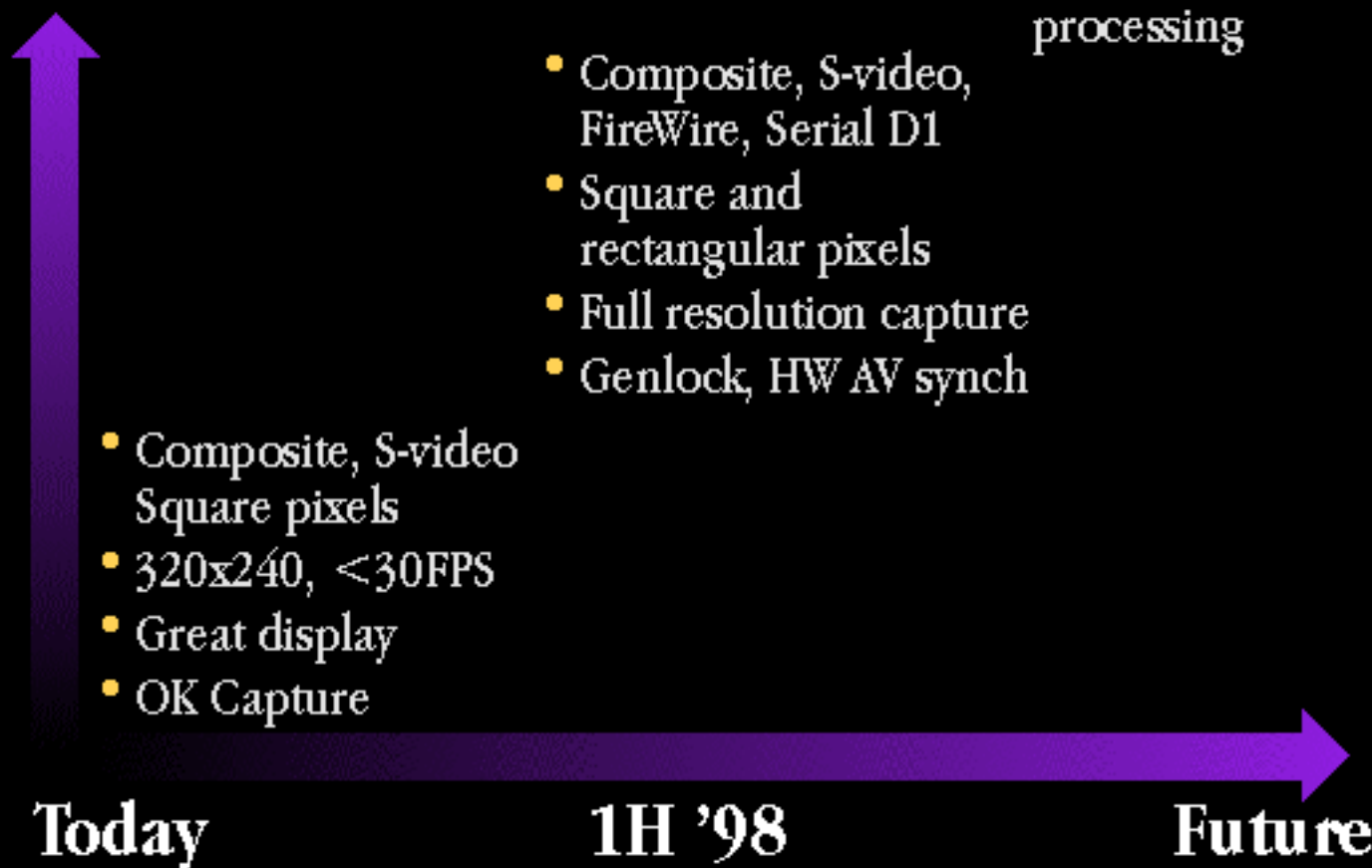
# High-end Graphics Systems

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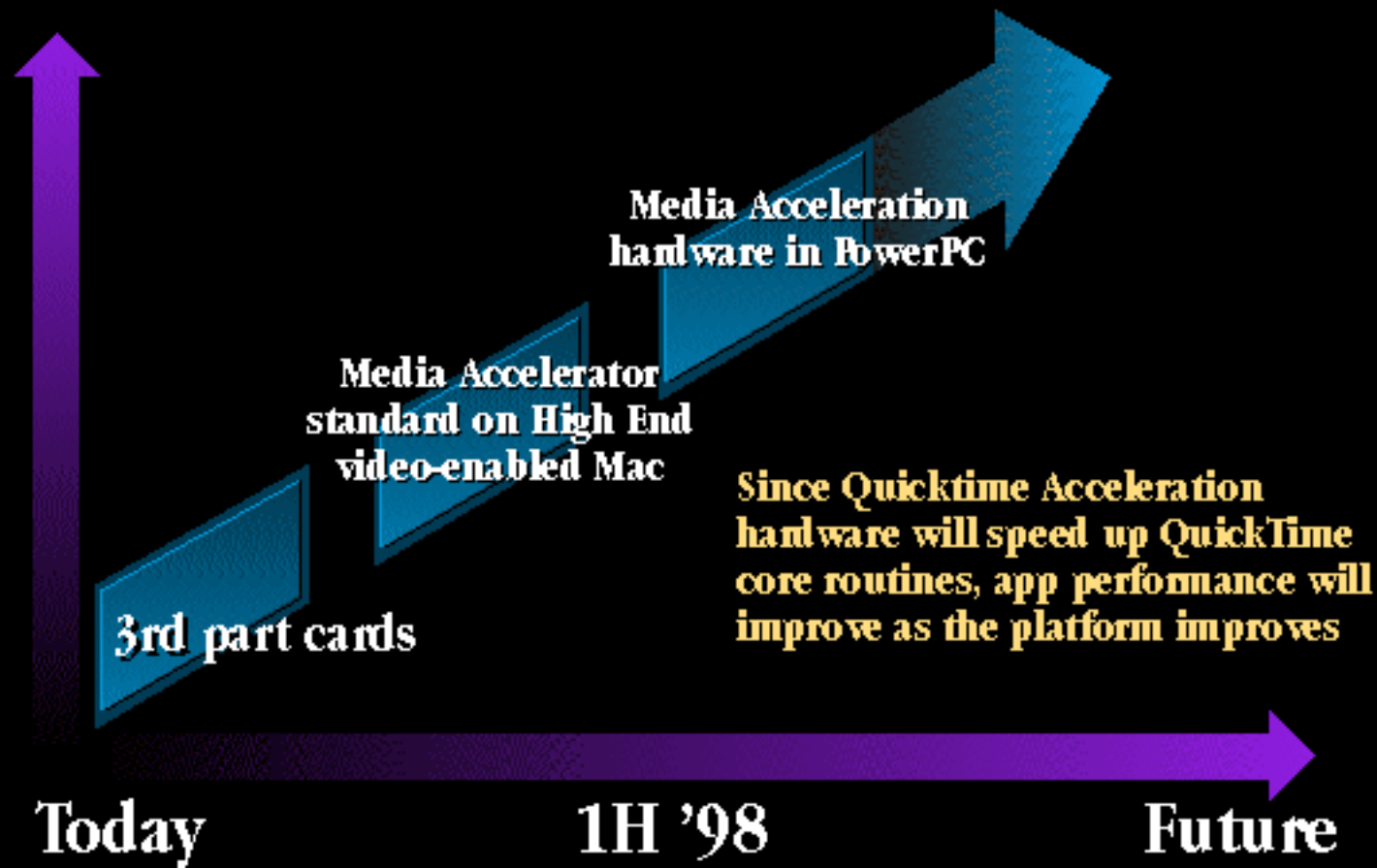
- **PCI plug-in graphics cards bundled with high-end systems**
- **On-board graphics controller used on video-enabled systems**
- **When AGP is available, all high end systems will use plug-in cards**



# Video-in Roadmap



# QuickTime Acceleration





Demo



# Desktop Roadmap

*Mark Oney*

**Director, Software  
Engineering**



# Developer Opportunities and Impact

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- Painless gains—it just works!
- Opportunities to differentiate
- Upcoming transitions
- Development not OS-specific



# OS Strategy

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- **Commitment to dual OS strategy**
- **Aligned with OS Roadmaps**
- **More aggressive OS roll-in**
- **Off-cycle rapid response releases**
- **More extensive developer and customer seeding**



# Related Sessions

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- |                                    | <b>Time</b> | <b>Room</b> |
|------------------------------------|-------------|-------------|
| <b>• Wednesday</b>                 |             |             |
| — 503 I/O Technologies             | 4:30        | A2          |
| — 504 AV Technologies              | 2:50        | A2          |
| — 505 Multiprocessing              | 5:50        | B           |
| <b>• Thursday</b>                  |             |             |
| — 590 Hardware<br>Feedback Forum   | 3:10        | J1          |
| — 591 I/O Technologies<br>Feedback | 4:30        | J1          |



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