



## Session: Tutorial 1A

# Introduction to Flash Memory



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Santa Clara, CA USA  
August 2007

Flash Memory Summit A/V Sponsor: **Seagate** 

# Introduction to Flash Memory

- ❖ **Flash Memory Trends & Perspectives**
- ❖ **Types of Flash & Their Applications**
- ❖ **Role of Flash in Consumer, Embedded, & Other Applications**
- ❖ **Flash Drives**
- ❖ **Memory Cards**
- ❖ **Flash Software**
- ❖ **Flash Programming**
- ❖ **Future of Flash**

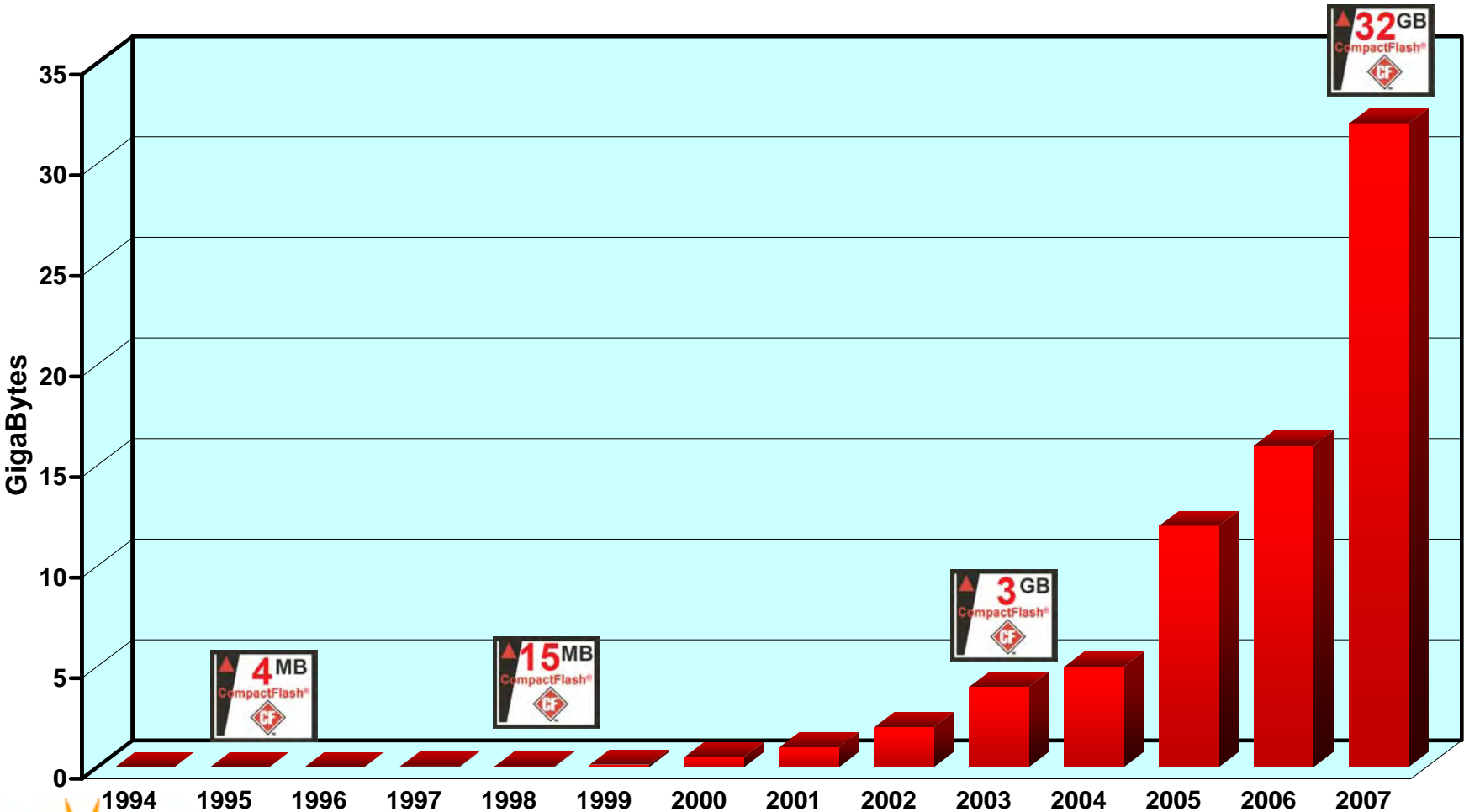


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# CF Card Capacity Shipping

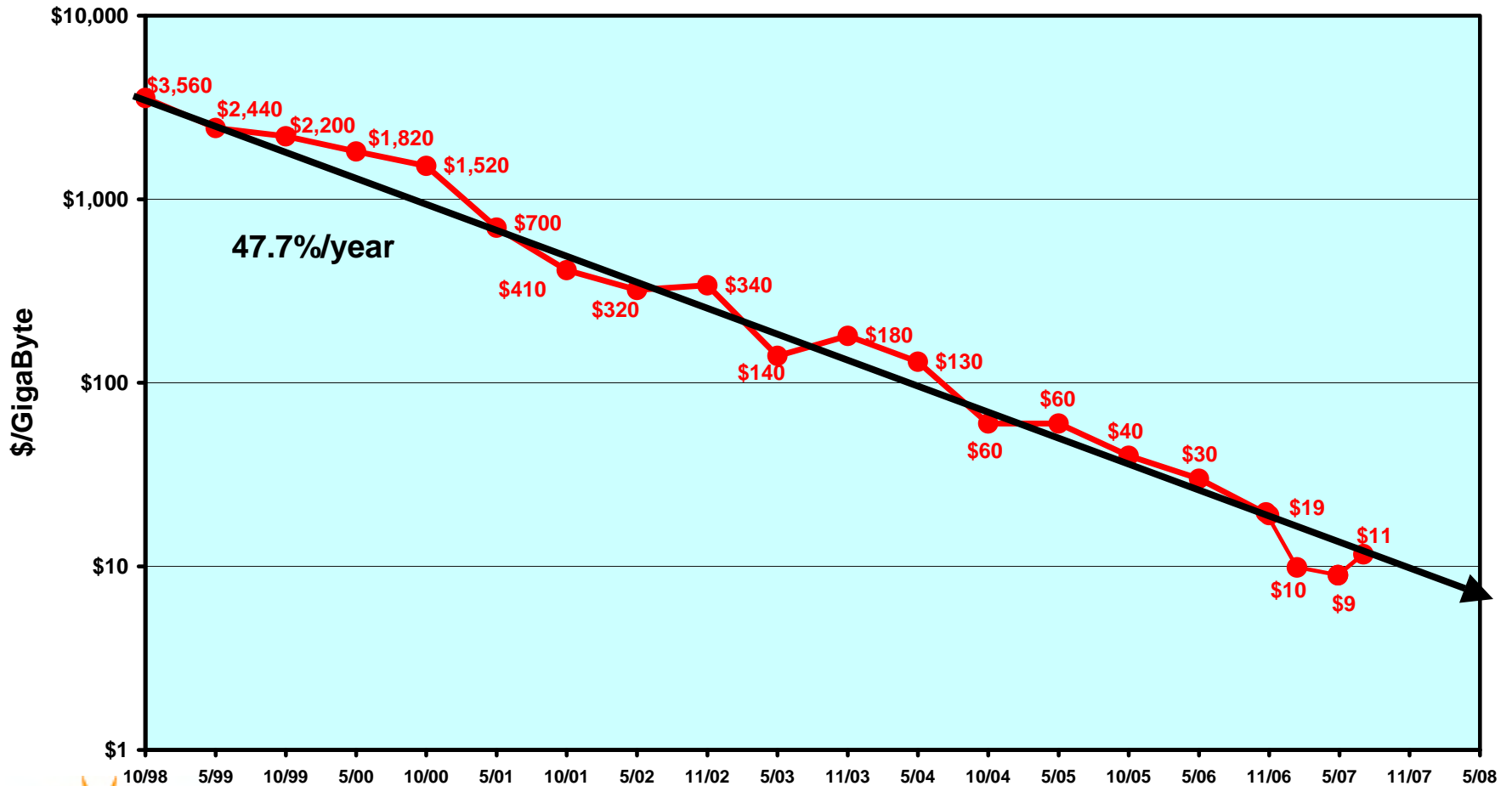


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# CompactFlash Lowest End User Street Price



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# CF Specification Rev. 4.1

## **133 MB/sec – Maximum Interface Data Rate**

- ❖ True IDE Interface Mode (PATA)
  - UDMA
- ❖ PC Card Interface Modes
  - Memory & I/O Interface Modes
  - UDMA
  - PCMCIA ATA PC Card Compatible (Plus)

## **Forward & Backward Compatible**

- ❖ Old Host & New Card
- ❖ Old Card & New Host



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# Non-Consumer Applications

## For Industrial Computers (SBC)

- ❖ PATA (IDE) Disk Drive Compatible
- ❖ Low Power
- ❖ Shock & Vibration Resistance
- ❖ MTBF
- ❖ Extended Operating Temperature Range
- ❖ High Capacity
- ❖ High Data Transfer Rate
- ❖ Bootable

## The First SSD ? ?



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# Non-Consumer Applications

## Embedded Systems

- ❖ Slot Machines
- ❖ Defibrillators



## Data Recording

### ❖ Civilian

- Locomotives
- Remote Site Data Recording



### ❖ Military

- B2 Bombers
- Helicopters



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# Blackhawk Office



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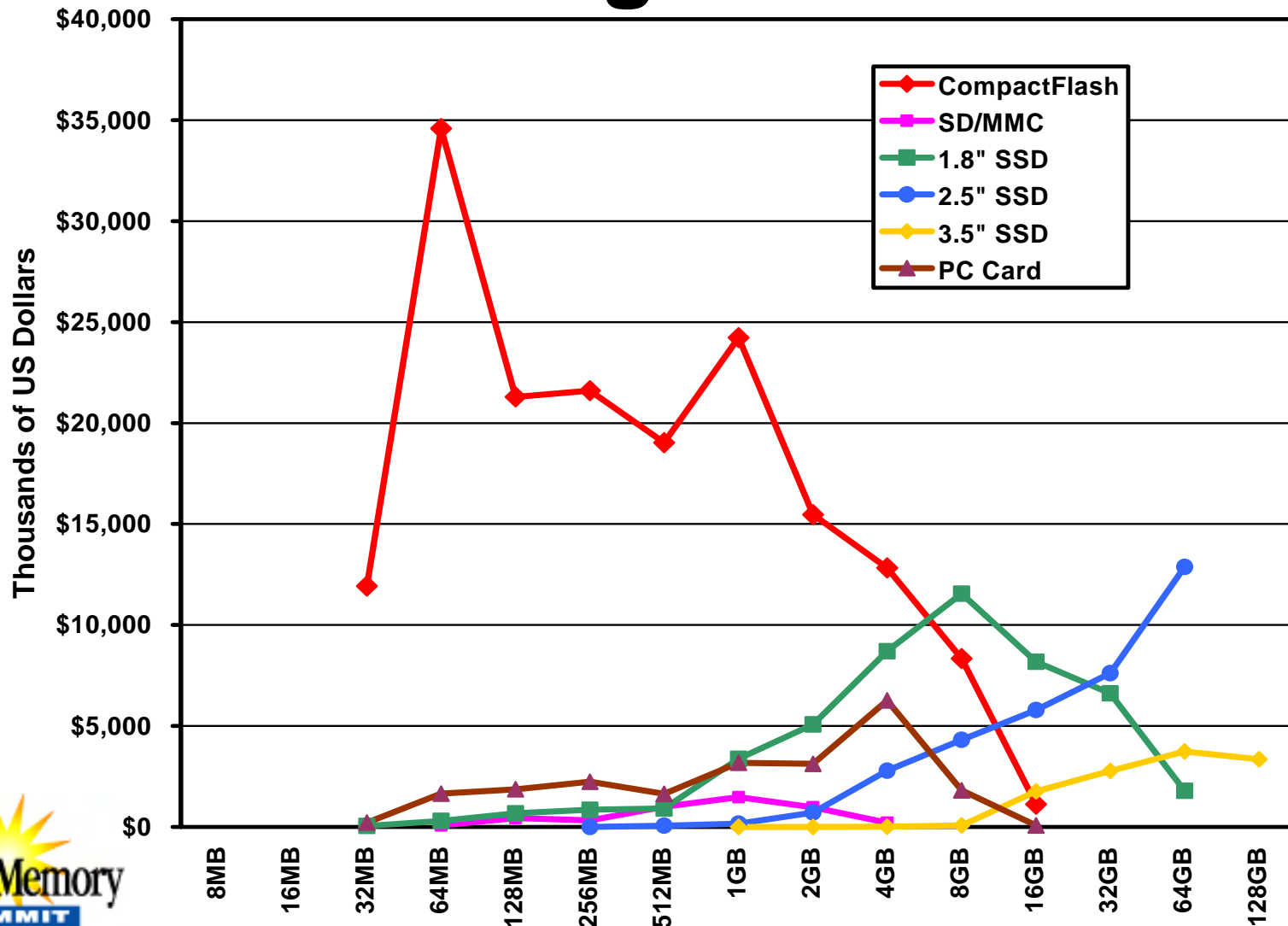
**Hi Grandpa, We use CompactFlash in my Office!!**

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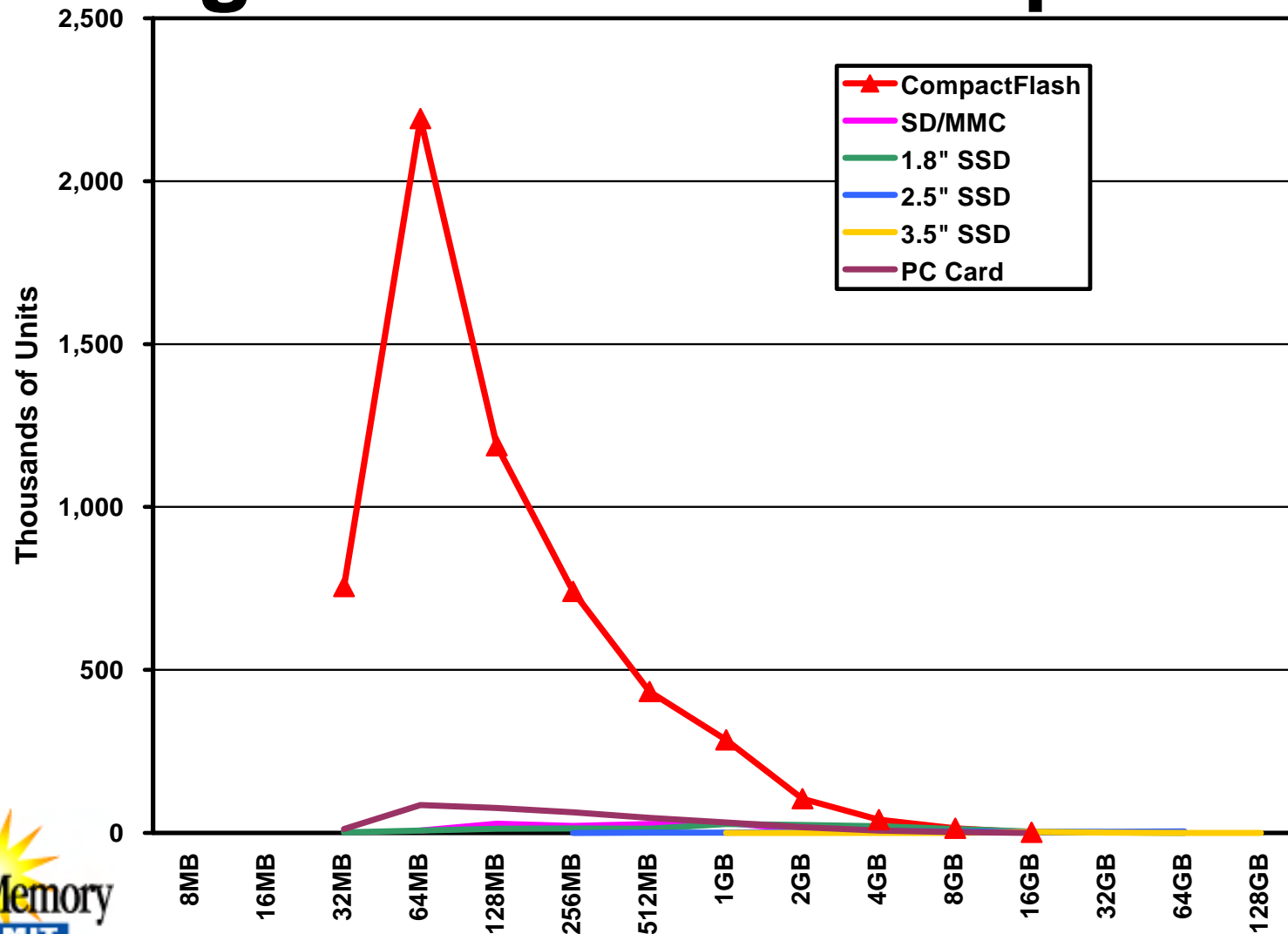
# 2006 WW Non-Consumer Solid-State Storage Format Revenue



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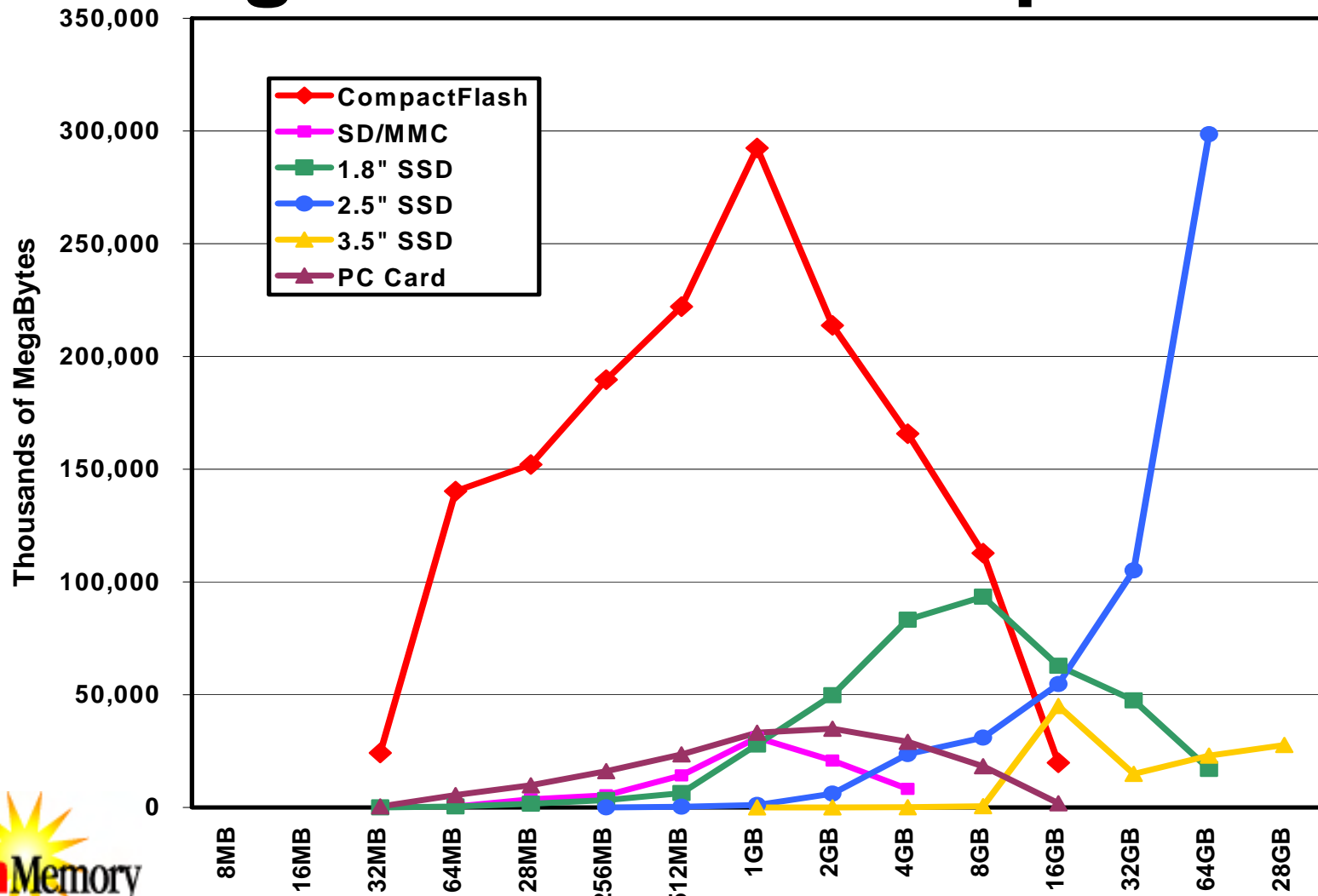
# 2006 WW Non-Consumer Solid-State Storage Format Unit Shipments



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# 2006 WW Non-Consumer Solid-State Storage Format MB Shipments



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# CF-SATA - New CF Specification

## Targeting Non-Consumer Applications

- ❖ Embedded Systems
- ❖ Single Board Computers
- ❖ Data Recording

## 3.3mm & 5mm Thick Form Factors

## Proposal Presented At June CFA Meeting

## Technical Working Group Formed

## Specification Available To CFA Members While It Is Being Developed



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