

# Agenda

## ◆ Introduction

- Market trend and application
  - 1394 Market Analysis Data
  - 1394 and industry
  - Applications

- 1394 Operation
- Bus Management
- Cable and Connection
- Architecture
- Topology

## ◆ Technology

- What is 1394?
- Why 1394?
- Applications
- 1394 Protocol
- PHY
- Link Layer
- Transaction Layer

## ◆ Other Technologies

- USB
- DVI

## ◆ 1394 In Home Networking

## ◆ Xilinx Value

## ◆ Alliances

## ◆ Summary

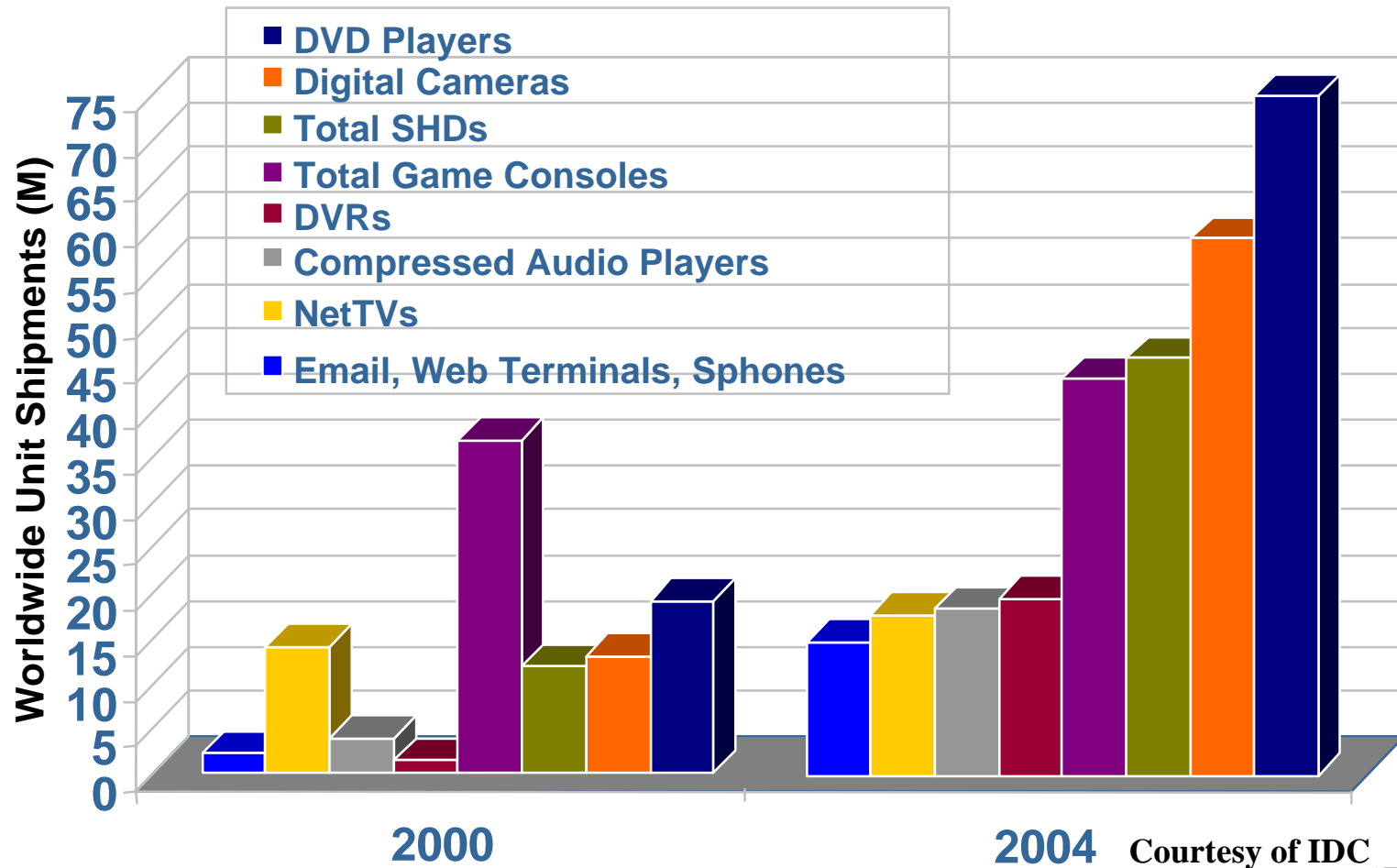
# Introduction

- ◆ Consumers Share Video, Audio, Images, and Data
- ◆ Faster and easier ways of sharing data is the ultimate goal
- ◆ This phenomenon is driving the convergence of computers, consumer equipment, and communications
- ◆ Convergence will happen when seamless, high-speed communication becomes readily available
  - The IEEE 1394 protocol appears to be a strong contender for the communications channel that will make this happen.

# Multimedia Bandwidth Requirements

- ◆ High Quality Video
  - Digital Data = (30 frames / second) (640 x 480 Pixels) (24-bit color / Pixel) = 221 Mbps
- ◆ Reduced Quality Video
  - Digital Data = (15 frames / second) (320 x 240 Pixels) (16-bit color / Pixel) = 18 Mbps
- ◆ High Quality Audio
  - Digital Data = (44,100 audio samples / sec) (16-bit audio samples) (2 audio channels for stereo) = 1.4 Mbps
- ◆ Reduced Quality Audio
  - Digital Data = (11,050 audio samples / sec) (8-bit audio samples) (1 audio channel for monaural) = 0.1 Mbps

# Consumer Devices Growth

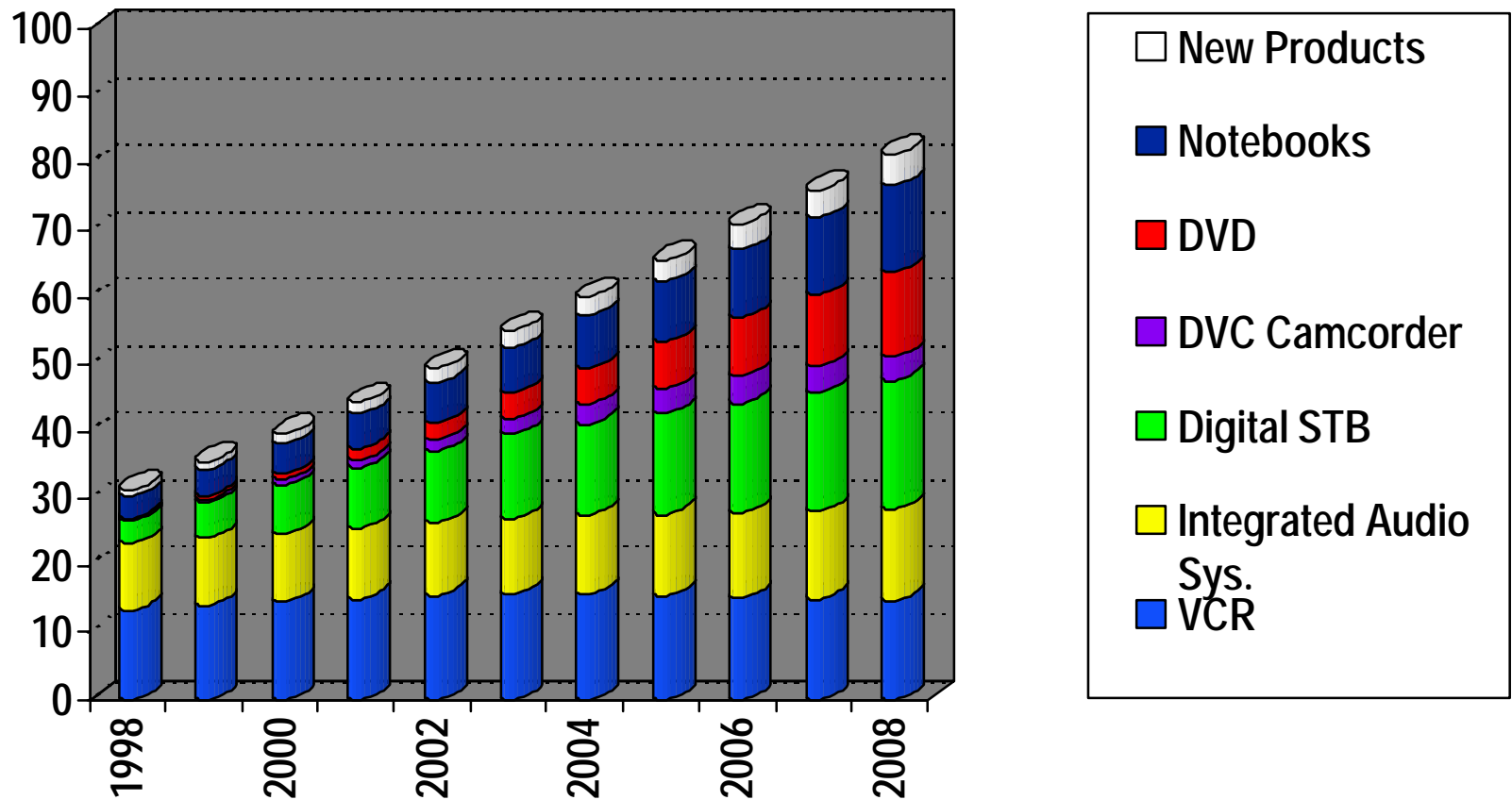


# Driving Forces For IEEE 1394

- ◆ Digital Broadcasting
- ◆ The Internet
- ◆ Digitalization Of Modern Homes
- ◆ Entertainment & Video Appliances
- ◆ Digital Home Networking
- ◆ High Bandwidth Requirements For Transmission of Audio and Video Signals

# IEEE 1394 Usage & Growth

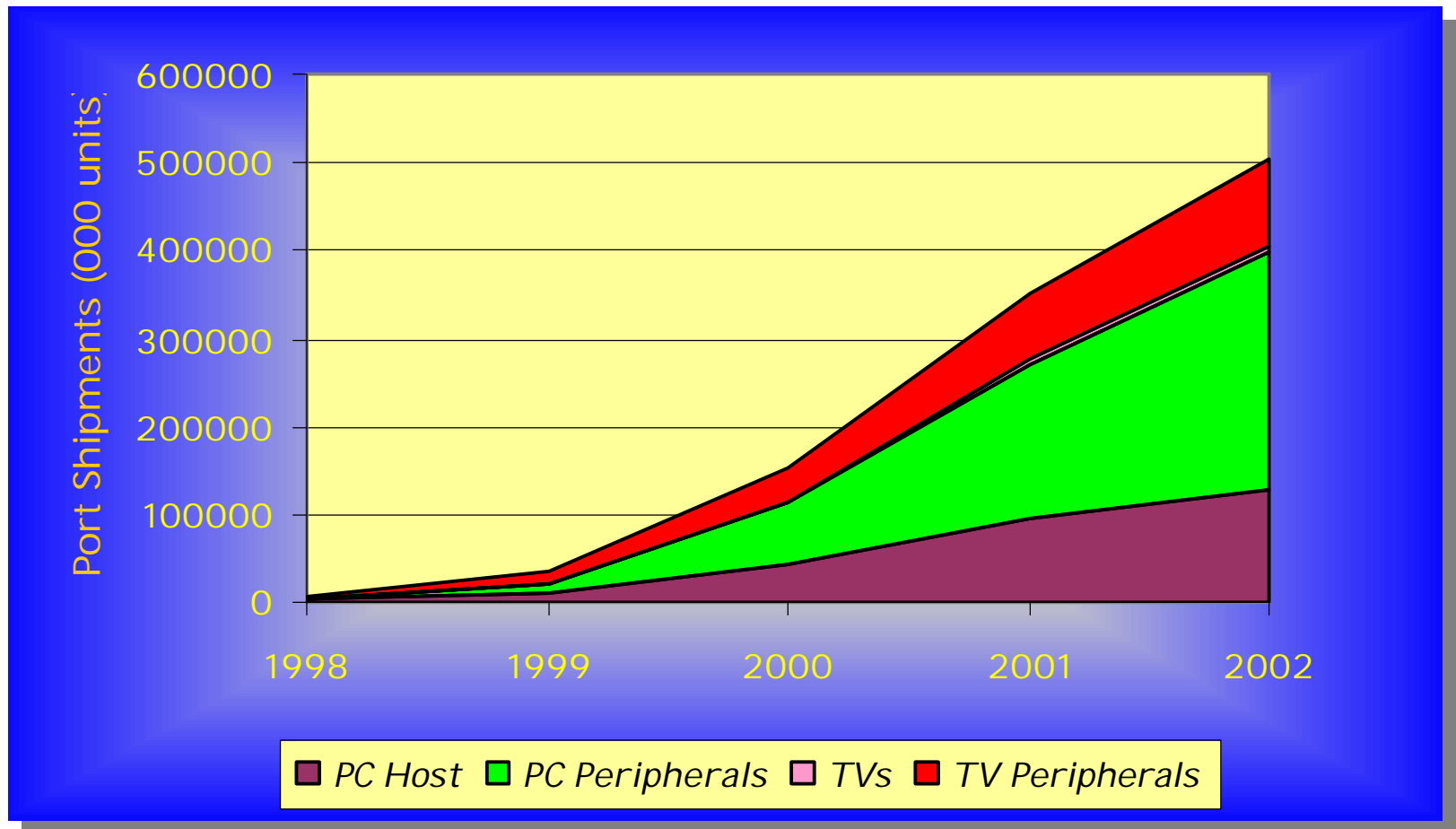
Million units



Source: In-stat



# 1394 Market Forecast



Source - In-Stat

# IEEE 1394 & Industry

- ◆ 1394 is a low cost audio/video digital interface
- ◆ New audio/video applications are the first market for IEEE1394
  - Digital Television (DTV)
  - Multimedia CDROM (MMCD)
  - Home Networks
- ◆ IEEE 1394 has been accepted as the standard digital interface by the Digital VCR Consortium



# IEEE 1394 & Industry

- ◆ The European Digital Video Broadcasters (DVB) have endorsed IEEE 1394 as their digital television interface as well
  - Several of these companies have proposed IEEE 1394 to the VESA (Video Experts Standards Association) for the digital home network media of choice
- ◆ The EIA 4.1 subcommittee has voted for IEEE 1394 as the point-to-point interface for digital TV as well as the multi-point interface for entertainment systems

# IEEE 1394 & Industry

- ◆ SCSI products would be enhanced by migrating to IEEE 1394
  - Scanners
  - CDROMs
  - Disk Drives
  - Printers
- ◆ The American National Standards Institute (ANSI) has defined Serial Bus Protocol (SBP) to encapsulate SCSI-3 for IEEE 1394