OS/2 ATAPI Experiences

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OS/2 ATAPI Test Program

► **Started Late November 1994**

► **Proliferation of Deviations of ATAPI Spec**
- Warp Implemented Standard ATAPI Driver
- 40% Initial CDROM's were operable
- "Worked in DOS" not good enough

► **Program Highlights**
- Verification Test
- Feedback to Manufacturers
- Recommend Changes (OS/2 Driver or Firmware)
- Licensing of OS/2 Driver to Manufacturers
- NOT a verification of full ATAPI compliance
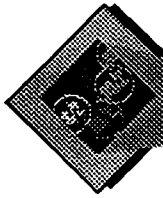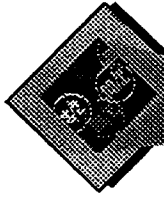
ATAPI Common Problems

In order of frequency:

- ► ReadTOC Command
  - Inherently Complex
  - Leads to Inconsistency of Implementations
  - Recommend using OS/2 Warp as standard test tool
- ► ReadSubchannel Command
- ► Mode Select Command
- ► ReadCD Command
- ► Read Command
- ► Disk Capacity Sensing
- ► Audio Playback
- ► Inquiry Command
- ► Task File Implementation

ATAPI Command Implementation Problems

- ► ReadTOC Command
  - Starting Track flexible
  - Caching of TOC, correct errors
  - all modes supported

- ► ReadSubchannel
  - Audio Status managed correctly
  - Mode Select should not affect

- ► Mode Select
  - allow during playback
  - assure capabilities page are aligned
  - with H/W
  - individual channel muting
  - page code bye of CDB
  - Not Ready errors
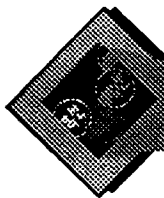
ATAPI Command Implementation Problems II

- ► **ReadCD Command**
  - ► complete implementation
  - ► all flag mandatory flag bits

- ► **Read Error handling**
  - ► Correct Errors for inappropriate reads
  - ► mode 2, F2, CD-DA at 2048 byte should generate
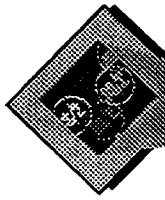 - ► 05/64/00 not 03/02/00, or 02/30/02

- ► **Capacity**
  - ► proper detection
  - ► boundary checking

ATAPI Command Implementation Problems III

- ► **Audio plays**
  - ► error on data
  - ► seeking accuracy

- ► **Inquiry**
  - ► ANSI version code
  - ► data length

- ► **Task file**
  - ► timely, correct response to reset. soft reset. POR
  - ► consistent register shdowing (Spec. issue)

- ► **Protocol**
  - ► generate interrupts in a timely manner according to ATAPI protocol
  - ► poll mode for dev drvr init + machine config code

- ► **Jumpers, Connectors**
  - ► Shrouds to prevent misplugging
  - ► master/slave/Csel prsent and marked