

OS/2 ATAPI Experiences

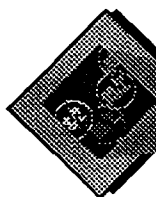
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OS/2 ATAPI Test Program

- ▶ **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

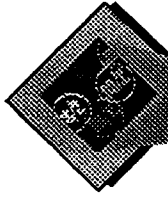
In order of frequency:

- ▶ **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



ATAPI H/W Problems

► Task file

- timely, correct response to reset, soft reset, POR
- consistent register shadowing (Spec. issue)

► Protocol

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

► Jumpers, Connectors

- Shrouds to prevent misplugging
- master/slave/Csel present and marked