1 The soup of optical disc formats

CD-R, CD-RW, CD-MO, DVD-RAM, DVD-RW, DVD-R(A), DVD-R(G), PD, ML CD-RW, etc. There are so many of them. You have probably heard about most of them, but you probably are as confused as I am. Why do we need all of them?

2 Dealing with all of them

It is both fascinating and confusing to deal with so many formats, but we should not get rid of them anymore. There are millions of, for example, DD-CD-Rs in the world and many terabytes of data stored onto them. If we cannot read those discs in the future, we are going to lose very important data about our time! That is the nightmare scenario.

3 What should we do then?

The only way to preserve all the formats is to make combo drives that can read and write all of them. It is that simple. We have to tell to the manufacturers that they must produce all-in-one combo drives for consumers. One way is to collect a list of names, a petition, and send it to the manufacturers. They will notice that consumers need combo drives. No one would like to buy 5 or 6 different drives for one computer.

4 The petition

The petition can be found at `http://www.petitiononline.com/combo/petition.html`.

5 The all-in-one combo drive

- 2007–2009: Stage 1 all-in-one combo drives.
- 2010–2013: Stage 2 all-in-one combo drives.
- 2014–: Stage 3 all-in-one combo drives.

Here is a list of the most important features of the Stage 1 all-in-one combo drive:

- The drive must support (read and write) minor and/or obsolete disc formats like DD-CDs, PDs, CD-MOs, ML-CDs, GD-R(OM)s. See for example `http://en.wikipedia.org/wiki/DD-CD`, `http://en.wikipedia.org/wiki/Phase-change_Dual`, `http://en.wikipedia.org/wiki/CD-RW#CD-MO`, `http://en.wikipedia.org/wiki/MultiLevel_Recording`, `http://web.archive.org/web/20040707060331/http://www2.mozcom.com/~sknkwrks/gdcontroller.html` and `http://mc.pp.se/dc/gdrom.html`.
- The drive must support (read and write) all possible variations of CD, DVD, Blu-ray, and HD-DVD. This includes the support (read and write) for DVD-RW DLs and DVD+RW DLs. See for example `http://www.cdfreaks.com/news/12506`.

- The drive must support overburning for CD-R80, CD-R90 and CD-R99.
- The drive must be able to read Leadin, Leadout, CD Text and Subchannel Data from CDs.
- The drive must support CD+G, C2 Errors and Mount Rainier.
- The drive must support (read and write) HD-BURN-R and HD-BURN-RW.
- The drive must support (read and write) Gigarec. See for example `http://club.cdfreaks.com/showthread.php?t=72023`.
- The drive must have several different wavelength laser diods to cover all the formats. 780 nm laser diode for CDs, 650 nm laser diode for DVDs, 635 nm laser diode for DVD-R(A)s, 405 nm laser diode for Blu-ray Discs and HD-DVDs. See for example `http://www.nec.co.jp/press/en/0412/2002.html` and `http://www.cdrinfo.com/Sections/News/Details.aspx?NewsId=18470`.
- The drive's tray must support 120 mm, 80 mm and 60 mm discs.
- The drive's tray must support cartridge discs like type 1 DVD-RAMs, PDs and some Blu-ray Discs.
- The drive must support as many reading and writing speeds as possible not forgetting the slowest 1x and 2x speeds.
- The drive must support (emulate) as many buffer underrun protection technologies as possible.
- The drive must support Zen TrueX. See for example `http://www.cdrinfo.com/Sections/Reviews/Specific.aspx?ArticleId=6084`.
- The drive must support Disc-T@2, Labelflash and Lightscribe.
- The drive must support Solid Burn.
- The drive must support LayerJump Recording.
- The drive must support Test Write.
- The drive must support Defect Management.
- The drive must support DVD-RW Sequential and Restricted.
- The drive must support all possible modes: Packet, TAO, DAO, SAO, RAW SAO, RAW DAO, RAW SAO 16, RAW SAO 96, RAW DAO 16, RAW DAO 96.
- The drive must have large MTBF.
- The drive must have best-of-all reading and writing quality even with a low-quality media.

Here is a list of the features the all-in-one combo drive could also possibly have in the future (Stage 2 or Stage 3 all-in-one combo drives):

- Professional Disc for DATA -support. See for example `http://en.wikipedia.org/wiki/Professional_Disc_for_DATA`.
- UDO -support. See for example `http://en.wikipedia.org/wiki/Ultra_Density_Optical`.
- HVD -support. See for example `http://en.wikipedia.org/wiki/Holographic_Versatile_Disc`.
- DVD-RAM DL??

Here is a list of optional features the all-in-one combo drive could have:

- Play button,
- Large Eject button,
- "Disc in" LED,
- "Reading" LED,
- "Writing" LED,

- Volume control,
- Headphone jack,
- analogical and digital outputs for sound.