

LASER3.TXT: From CompuServe Information Service, CDROM Forum

01/18/92 - Creation
01/23/92 - Revision 1
02/01/92 - Revision 2
03/09/92 - Revision 3
03/14/92 - Revision 3A
03/21/92 - Revision 3B
03/22/92 - Revision 3C
03/24/92 - Revision 3D
04/04/92 - Revision 3E
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04/18/92 - Revision 3G
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12/28/93 - Revision 3Q
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03/07/93 - Revision 3S
04/17/93 - Revision 3T
06/19/93 - Revision 3U
07/04/93 - Revision 3V
07/15/93 - Revision 3W
07/24/94 - Revision 3X

INTRODUCTION:

I thought some notes from the trenches on optimizing the Sony Laser Library (LL), Model #CDU-7205 (its companion, CDU-535, is an internal version of the same basic drive, usually minus the software bundles) -- or even getting it up and running -- on an AT clone might be helpful. I do not hold myself up as an expert; much of what I've picked up was discovered right here in the CDROM Forum thanks to helpful and knowledgeable folks with a willingness to share; this is largely a summary of their tips, rumors and suggestions (Thank you, all!). If you learn, please share. Much of this information is transportable to other drives and systems if care is exercised. Please let me know if you have something to add or correct or if you have specific questions, and I'll try to update this file to keep it current or help in whatever way I can.

The LL is a good, popular external drive and was sold with a bundle of 6 CDROM disks. The LL has been superceded by the new Desktop Library bundles, some of which are MPC compatible. The topics I'll cover here are pretty much limited to a 486/33 or 66 AT clone with DOS 5.0 and 8MB of RAM. Most of the discussion will apply to a 386SX processor or higher. Sorry, there's not a lot of Windows (defenestrate it!), network, or OS/2 info here (well... some snuck in, despite my best efforts -- if you can stand a few other condescending Windows comments). And I don't know anything about a Mac, I'm afraid.

Opinions are usually my own and are highly subjective!

REFERENCES/SOURCES:

At the end of this document is a database listing CDROM manufacturers, dealers and industry suppliers that is still in its infancy. Where you find gaps, please let me know so I can add new sources.

For information on multimedia there is a lot of knowledge on the Forum, also on the Multimedia Forum (GO MULTIMEDIA), the Multimedia Vendors Forum (GO MULTIVEN), the CDROM Vendors Forum (GO CDVEN) and elsewhere on CIS; and you might also want to review the 3/31/92 issue of PC Mag that has several articles on the subject.

There's also a lot of info at various, more obscure places on CIS, e.g. Photofor, DTP, and other Forums, etc.

If you'd like a concise (three pages) and relatively non-technical discussion of CD technology, hardware, software and industry standards, including all those various colored "books" -- red book, orange book, etc. -- you keep seeing mentions about, check "An overview of Optical Technology" by Roger Hutchison; it's an article in the CD ROM, Inc. catalog, available free by calling (800) 821-5245.

For a more comprehensive review of CDROM technology, definitions and future of the industry, you might find the article "CD-ROM Inside and Out" in the 3/93 issue of BYTE Magazine, page 197, interesting too. And don't overlook the CDROM Forum sources for that either!

For some additional background and discussion you might wish to review PC Magazine's review of CDROM drives in the 10/29/91 issue. It's not one of their better efforts, especially concerning this drive and the software quirks, but it's a start, albeit very dated now.

PC World also did a review of CDROM drives in its 5/92 edition and listed the LL as one of its three "Best Buys", albeit in third position. The two most-favored drives then were NEC's CDR-73M and Toshiba's TXM-3301E, with honorable mention to CD Technology's Porta-Drive T3301 for notebook users and Corel's Blockbuster CDROM Bundle for desktop publishers.

The PC World review also mentioned that the LL can be mounted on its side. Many other drives cannot be side-mounted, however. Check the PC World chart for information or contact the manufacturer of your drive before taking the plunge.

In the 12/92 issue, page 408, of PC Computing there's a good article on fast, higher-end CDROM's that are still moderately priced; the NEC InterSect CDR-74 got a nomination for their 1992 most valuable product award. Texcel's DM-5024 was the other drive selected for best multimedia performance.

The 12/22/92 issue of PC Mag (pg. 124) chose the NEC InterSect CDR-74 as its winner for technical excellence (and some big \$\$\$); in the same issue there is an extensive review of CDROM drives (pg. 293) and "27 Good Reasons To Buy a CD-ROM Player" (pg. 345), a review of several software titles and lists of many MPC titles and vendors. Pardon me whilst I drool...

If you want an additional resource for scavenging additional memory for UMB via the switches for EMM386.EXE, I enthusiastically recommend the brief, how-to, article on page 445 of the 11/10/92 issue of PC Magazine. Likewise, the 11/92 issue of PC World has a short piece on page 258 that provides a basic introduction to memory management and some simpler explanations of the use of EMM386.EXE.

For those of you that are installing a SCSI drive, or trying to troubleshoot one, I highly recommend Winn Rosch's informative article "SCSI Made Simple" in the September 1992 issue of PC/Computing. Almost all SCSI adapter, device numbering, terminating, and other potential minefields are simply and thoroughly explained therein. In addition, there is a brief but informative mention of the three basic SCSI standards on page 384 of the 11/92 issue of PC/Computing that also give you some clues about how to make the different standards cohabitate. There is also an excellent, even newer article on SCSI, including info on SCSI-2, and Fast/Wide/Fast-Wide SCSIs in the 6/29/93 PC Mag.

MPC:

OK, you're asking, what the heck does MPC mean? MPC, short for Multimedia Personal Computer, is a voluntary standard adopted the Multimedia PC Marketing Council, consisting of I forget who-all, but it included Microsoft, Tandy, IBM, Creative Labs and other big guns, I think. The idea was to define the minimum platform (total computer system) that could accommodate multimedia computing. Hopefully, then, the software developers would have a minimum standard to write software for, thus building demand for more hardware, thus creating more demand for software, and Bill and his friends get rich. Or something.

Anyhow, it did seem to help things and may be responsible for a lot of the CDROM growth. The earliest standard, now known unofficially as MPC1, was adopted in about 1990 or 1991 and said something to the effect that if your system, or components for it, was to be MPC compliant, then it had to look like a 386SX-16 with Windows 3.0, 2MB of RAM, 30MB hard disk, 150K/sec CDROM transfer rate, an 8-bit sound card with speakers. And those were minimums, remember.

MPC, Level 2 (MPC2) was adopted in about May 1993; and, as you might have guessed, it ups the ante rather considerably: 486SX-25 with Windows 3.1, 4MB of RAM (8MB strongly recommended!), 160MB hard disk, 300K/sec CDROM transfer with double speed, 16-bit sound and speakers, XA-ready and multisession-capable. Thanks, PC Mag! Still *minimums*. Later this year or early next, you'll probably start seeing CDROMs disks that will require these newer specs to run. Faster, better undoubtedly; expensive now but will have a longer life than MPC1 hardware -- like all our computer stuff.

And, be careful: A gizmo that claims to be "MPC compatible" may not be "MPC compliant." Higher-end manufacturers pay (a bunch) to display the MPC logo and are compliant. Others can claim to be compatible or compliant; you want the latter. "Compatible" might yield crashes, jerkier video, sound loss, etc.

Drives are available now, and MV recently announced two upgrade kits; Creative Labs will peddle an MPC2 package in about August '93.

THE BASICS:

To achieve anything with this tome, you **must** know how to edit your CONFIG.SYS and AUTOEXEC.BAT files and have a reasonable understanding of what they do. You **MUST** have at least Version 3.1 or higher of DOS to install the LL. DOS5 or above is **highly** recommended, and almost a requirement, because you will probably need some of its memory management features, etc. DOS5 requires SETVER, a DOS utility, to be functional; DOS6 may require Version 2.22 of MSCDEX, supplied with DOS6 and usually installed in the C:\DOS subdirectory; and, if LL won't install under DOS6, you may require a work-around available from files available in the Forum Library (search under keyword SONY).

Despite the LL's technical non-compliance with MPC specs, the LL has passed some reviewers' tests on currently-available (1992 and 1993) MPC software (See below for the Media Vision Pro Audio Spectrum Plus with Sony Interface board that will bring the LL into conformance with MPC specs, albeit for lots more \$\$\$). Nor is the LL CD-I compliant to my knowledge. The LL is XA, eXtended Architecture, compliant and may be Photo-CD compliant per the latest list in KODAK.TXT available in Library #7 here. That file lists all Kodak-tested drives, but note that it lists **specific** controller boards, etc. that it tested; mine wasn't listed, so I don't know where I stand. Thank you, Rich Bowers! If you're interested in Photo-CD, Kodak sells their Photo-CD software for about \$40 list (about \$30 or less at discount) with sample photos, and you can reach them at 800-242-2424. The same number, extension #53, should put you in touch with someone who can tell you if your drive is photo-CD compatible. Kodak also sells a higher-end, editable version of their software; it's available at discount for about \$100. Photo-CD compatibility with the Kodak software requires a CDROM-XA, Mode 2, Form 1 drive. The discontinued Trantor "fix" for the LL MPC compliance issue is supposed to be Photo-CD compliant, but only for single-session per Trantor, but Kodak hasn't tested it. One other participant here said he had it running and that it was working very well for Photo-CD, single session only; he also mentioned that the Trantor driver significantly improved the LL's speed as a bonus.

LL's hardware/software installation routines and instructions are generally adequate for plain vanilla systems; but if you have special needs -- a network, other complex drivers or initialization routines, etc. -- they will almost totally desert you. Being confined to only one system with CDROM, I'm light on info for hardware installation and would appreciate a contribution from anyone who's run the gamut. The factory material was adequate for me. As to installation software, there was a mention from Robert Hunter that you should not try and change Sony's default directory, \LASERLIB, as that will create problems.

The LL is reported to be fully-compatible with DR DOS 6, courtesy of Robert Kelsoe.

NOTE: Please see the CAUTION on about page ten of this file if you plan to install LL with Windows 3.1 for the first time.

Stacker/DoubleSpace users, please also note that installation of Stacker (a brand of software and/or hardware to increase disk capacity) or DoubleSpace

(DOS6's disk compression software) *after* the installation of a CDROM will probably alter your setup in such a way that your CDROM won't work without some tweaking. They create a second logical drive, usually D: if you have only a C: hard drive, and thus abscond with the D: drive letter that may have been used by your CDROM. Instructions for changing drive letter assignments are covered below in discussions on MSCDEX (MicroSoft CDrom EXtensions), especially the /L: switch. Depending on your CONFIG, you may also need to adjust your LASTDRIVE statement as well. Thanks, Luc DeBecker! Also, when changing drive assignments with Stacker or an equivalent program or when adding another hard disk drive, remember to change the various batch and installation files or menu calls for your CDROM programs to conform to the new drive letter assignment.

Sony is out of sync with the current industry practice in that their interface for this drive is proprietary, not SCSI (Small Computer System Interface). But there seem to be enough tweaks to the supposedly standard SCSI interface in use that indicate the standard has plenty of problems, especially, however, for those who want to daisy-chain dissimilar drives, etc. The Sony adapter will permit multiple LL drives (4) to be daisy-chained from it, but the procedure is not for the non-technical among you. And since the drive has been discontinued, at least the model number has, there may not be a practical way to accomplish that anymore.

Kim Bigelow and Kirkland Duckworth mentioned that, if you have SBPro card, you can find a 4' stereo patch cable at Radio Shack with 2 RCA phono plugs on one end (to plug into the rear output jacks of the LL) and a 1/8" mini stereo plug on the other, which can be plugged into the top input jack on the SBPro. Speakers are then plugged into the SBPro output jack above the sound control. Keith Meyers supplemented that with a mention that you'll need to go into the SBP-SET utility and increase the volume settings for the LINE input -- see your SBP manual.

LL is *not* Multimedia PC (MPC) compliant so if you're having difficulty with selected disks only, check that they do not require a complete PC system that meets those specifications. Many people on the Forum have reported that current CDROM titles that require MPC systems run fine on the LL, but there's no guarantee that this will continue. See below for how to make a LL MPC compliant.

Likewise, if you're having problems with a single title on a fast machine, particularly a 486/33 or faster, try slowing it down with the turbo switch, BIOS, or whatever may be appropriate to your system, and try that with a clean boot as below. A lot of software has not been properly tested on a large enough variety of 486's and may not be prepared to receive data back from the hardware as quickly as a 486 can deliver it. Amazingly, when I called a major vendor of hardware in early 1993 for help, I was told they hadn't tested one of their newest multimedia add-in cards in anything faster than a 486SX/25!

There seem to be some conflicts between the bundled disks and various common TSR programs such as Sidekick, etc. If you're having difficulty with only a few disks, try stripping down your CONFIG and AUTOEXEC files onto a diskette with only the bare minimum necessary to run and enable the CDROM drive; boot that; and then try the suspect CD. If the problem disappears, normal detective work -- adding back the lines to those two files one at a time until the problem reappears or changing the order of commands in the files --

may lead to a solution. Terminate and stay-resident programs (TSR's) are frequently the culprits.

There is no adequate Sony documentation of the critical software parameters, or any hints and tricks to load files high (under DOS 5.0 with 386 or above platform), for SONY_CDU.SYS and MSCDEX.EXE, the two principal files required to manage the drive.

Sony Tech Support (201) 368-3774 on the east coast -- the old west coast (714) number has been closed and a referral is given to the (201) number -- doesn't know anything about the LL and now refers people to (408) 955-4343 in CA where a recorder answers. That should give you some idea of what you're in for! They may be able to help with some problems, but they will primarily provide support for the hardware and installation-related software. Software support for the application disks supplied in the bundle is via a (900) phone number, (900) 884-1104, at \$2 per minute; the documentation supplied with the disks is some of the worst I've seen. Comments here in the Forum have been mixed about the quality of both, but it leans to the negative kinda strongly. A report from J. Allan Cahill had mentioned being subjected to a five-minute, intrusive questionnaire before just being referred to a Sony dealer for info on the best sound board to use with the LL.

Sony also has a BBS, (408) 955-5107; all Sony drivers, including MSCDEX v2.21 (as of 4/17/93) are posted there. Chuck Roman mentioned that they only have a single line and that they just moved (7/93) to a new facility and are having a lot of phone problems, so be persistent. FWIW, if you don't give them your fax number when registering, they'll disconnect you -- so remember to make one up. You'll get two or three chances.

Sony's Computer Peripheral Products, Optical Products Storage Division's CA office in San Jose, CA, (408) 432-0190, may provide another avenue for help or a place to holler. Also (408) 944-4326 and (408) 944-4225 at various times. I've had good and bad experiences with all those. Greg Hill, is new but knowledgeable and is one of the few people in the tech support group that I've talked to who seems interested and eager. He can be reached at the main (408) 432-0190 number. Literature on the LL and some other Sony products is supposed to be available from (800) 222-0878, but two requests brought nothing to my mailbox. I tried a third time recently, and at least I got part of what I asked for...

For the Laser Library only, and a couple of other non-CDROM Sony products, there is another tech support number that I found 7/93, (408) 372-9260. That number also provides some form of support for Sony Electronic Publishing, at least for the Mayo Clinic Family Health Book on CDROM.

Tracking down dealers from any of these sources, or their distributors, had been almost impossible through Sony: Most of the referrals were to dealers for other lines or to dealers that did not stock the product or were at the high end of the product spectrum. Here in Silicon Valley, that's a crime, or at least an attempted felonious no-no. A recent, 12/93, call to the (800) number above got me a quick referral to a stocking dealer, so maybe that's improving. For info, the LL cannot usually be found anymore but was available at deep discount hereabouts for about \$499 when last seen. There are other Sony drives, many of which are MPC compliant; and some of which are bundled with alternative CDROM titles by third parties at considerably reduced prices. The current bundles available from Sony are: The CDU7305,

and external kit complete with six CD's, speakers (batteries included, it says here!), 16 bit sound board, etc.; the logically-named CDU31A-LL/L (about \$750 on the street), an external version of the first; and the CDU31A-LL/N (about \$430 on the street), an internal "starter" kit with three CD's, no sound board or speakers.

A recent addition to the Forum, Rory Sellers (72110,3111), works for Sony and has volunteered to help with some questions and problems, mostly DOS and Windows-related. He disclaims any PS/2 hardware background, I understand.

In desperation, if you have not succeeded in getting anything to work, remove all your add-in boards, especially fax, modem, and others that use IRQ or DMA, that aren't absolutely necessary to get your system running. If that clears up the problem, you have some serious conflict-hunting to do. It sounds more daunting than it is; just use care in labelling your cables and note where the boards came from. Funny thing, you'll have to leave your disk drive controller board, video board, CDROM controller and possibly a memory expansion board; but nuke the rest while troubleshooting if they're not vital. And if you have a Windows system, try booting again from a floppy to remove the Windows overhead when testing the CDROM drive, just in case. Remember to try the drive with a CD that doesn't require Windows, though.

LL UPGRADE TO MPC:

The long-promised MPC upgrade, variously promised by Sony and Media Vision (MV) was finally shipped 10/92. The upgrade uses two slots and replaces the original Sony interface card, plus whatever sound board you may have been using. The basis board for this upgrade is the MV Pro Audio Spectrum Plus (PAS+), which is not MV's 16 bit top-of-the-line product, nor does MV have any plans to add the Sony interface to their Pro Audio Spectrum 16 in the future. But the PAS+ is a great improvement over my AdLib board and is both AdLib and Sound Blaster compatible. You can call (800) 356-7886 to order; \$239 per kit plus tax and S&H (about \$269 total in CA), and they have different models for either an internal or external Sony drive, presumably either the LL or the model 535. They won't charge your credit card until shipment. Sony is referring inquiries to MV.

Many of the earliest versions of the PAS+/Sony upgrade have a bug and will not display video. If you have the following situation, you probably have a defective bracket adapter that needs to be replaced: The unit does not display video (or does so on only a few CDROM's or is very unstable, but all the drivers, MSCDEX.EXE (v2.21 or higher only, please!), MVSOUND.SYS, and SONY_PFM.SYS loaded correctly (look for error messages when loading and check with the MEM command to see that they are loaded); AND the unit plays audio from both CDROM and normal audio CD disks correctly; AND you can copy a data file from a CDROM onto another disk and successfully use DOS's COMP command to compare them. If you bought your PAS+ with Sony Interface card directly from MV, MV will send you a new bracket adapter, available 11/92, without charge along with a CDROM of "Where in the World is Carmen San Diego, Deluxe Edition" for your trouble, a nice touch; and more than most companies would do under similar circumstances. Alternatively, they will also give you a refund if you don't want to wait for the replacement if you call 800-356-7886. I'm waited; I wanted MPC compliance and better sound. The revised bracket adapter has a "B" suffix on the part number. FWIW, the new bracket adapter alone didn't fix the problem for me after eight weeks of no video

from the CDROM. But, EUREKA, the new bracket adapter, followed by removal of the /I:15 switch from the SONY_PFM.SYS command line in CONFIG, did the trick! It's worth the wait!!

The installation process for the PAS+/Sony is NOT for the faint of heart, those who aren't familiar with the guts of a PC, or those who do not know how to manually edit AUTOEXEC and CONFIG and twiddle therewith. The three required drivers use about 33K of UMB on my system, plus oodles of expanded memory (extended memory can't be used), and there are switches galore in the software to set, but the manuals do a pretty decent job of explaining it all so I won't review them here. If you don't have expanded memory for the additional buffers it needs under DOS, don't bother buying the product. Without expanded memory, you aren't likely to have enough conventional memory available to run a program. But, if you don't have expanded memory to stash MSCDEX's normal buffers anyway, you are not going to be happy with almost any drive cuz almost all normal installations require MSCDEX. And if you don't have a 386/486 system with UMB available, that 33K of drivers alone may send you into a RAM-cram mode very quickly anyway; but, then, if you're concerned about MPC specs and performance, you already have such a platform, or you wouldn't be reading this, right? You can install the board to operate under DOS or Windows or both. There are some contradictions in the documentation; watch out for proper orientation of the two cables, both can be reversed very easily.

PLEASE NOTE: As of 7/93, the Media Vision upgrade to the LL to achieve MPC compliance is NOT Photo-CD compatible. But, ironically, the un-upgraded LL probably IS Photo-CD compatible. After discussions with Kodak, they felt that the MV driver needed to be updated to achieve Photo-CD compliance. MV's driver was supplied by Sony for the PAS+, and MV just wrapped the hardware around the driver and don't support the driver, SONY_PFM.SYS, 5/11/92, 11,088 bytes. No word from Sony on whether they intend to update the driver; but since they seem to be having trouble supporting NT and OS/2 for currently-marketed drives, I doubt they'll support this orphan combo anytime soon, if at all. The symptom of non-compatibility was a "CDR101: Not ready reading drive __ Abort, Retry, Fail?" message upon attempting to install the software or trying to read the disk via a DIR command. By the way, there is an error in the Photo-CD installation instructions: The instructions say to type "A:install" or "B:install" to start software installation; the correct command is "X:install", where X is your CDROM drive letter.

Media Vision is in Fremont, CA and can be reached at (800) 348-7116. As of April 16th, they expect to have a voicemail system that will explain their PAS-16 upgrade program at (800) 356-7886, not to be confused with the Sony-specific MPC upgrade product. Info on the latter can be obtained from MV Sales at (800) 845-5870.

If you have problems with MV drivers not functioning, C. Harrington mentioned that some installation disks of MV's -- not necessarily those for the upgrade -- had cross-linked files. The fix is to call their BBS (see below) and download PASFIX.ZIP that contains three replacement drivers which you should copy to your directory where the MV files are located.

For a place to start, here are the relevant lines of my CONFIG and AUTOEXEC files for use *only* with the PAS+/Sony board:

```
CONFIG: Devicehigh=c:\proaudio\mvsound.sys d:3 q:5 j:0
```

Devicehigh=c:\proaudio\sony_pfm.sys /d:mvcd001 /r /p:3 /s:32 /e

AUTOEXEC: Loadhigh c:\proaudio\mscdex.exe /d:mvcd001 /m:10 /v /l:e /e

[FWIW Dept.: Keith Myers had been doing some digging on the MPC compliance issue and said Sony wouldn't commit to any answers on the LL. (This was before MV released its product.) He reported that they've said they're working with MV to develop new boards that meet MPC and won't admit to developing their own standalone until/if it is actually in the distribution channels. One of Sony's people told him that Sony's policy is to keep distributing the non-MPC material until an MPC fix is available. The inference is that they'll deplete existing stock before bringing MPC adapters of their own into play, I guess. Customer-driven, they are not!]

Trantor was selling a software driver, along with a couple of jumpers, that made the LL MPC compliant, all for only about \$40. There were several folks here that reported varying degrees of functionality with it. I guess that's a polite way of saying it didn't work very well for them. As of 7/93 that package has been discontinued and is no longer available from Trantor.

THE SOFTWARE: (Sony material available from Sony BBS (408) 955-5107)

SONY_CDU.SYS is the device driver necessary to operate the drive. The version distributed with many LL's is 2.20(a), which is dated 6/11/91 and is 9,216 bytes. I've also seen a version on the Sun Moon Star BBS, mentioned below, that's dated 6/19/91 and which is 9,145 bytes, but I haven't tested it; I've also heard of a version (from Rich Bowers, I think) dated 1/10/91, 8,993 bytes but haven't seen a copy. Sony is currently (1/93) distributing the 9,145 byte version on its BBS. A statement must be present in your CONFIG.SYS file enabling this device driver. Other CDROM drive brands will have different file names but will require a similar proprietary driver. Carlyle Maw ran across an older version of SONY_CDU.SYS (8,993 bytes, dated 1/10/91) that ran on his Zenith 386-25, when the newer one wouldn't.

MSCDEX.EXE is the file containing the Microsoft CDROM Extensions, also necessary; this file written by Microsoft is used in virtually every CDROM installation, no matter who made the drive. It assigns the drive a drive number and tell DOS how to access the drive as though it were a conventional disk drive. The version distributed with the LL has been 2.20, dated 6/16/91 and is 25,600 bytes in size. This file and its code do not change from one brand of drive to another, and a statement must be present in your AUTOEXEC.BAT file enabling MSCDEX. There are slipstreamed versions of version 2.20, i.e. revisions have occurred; the file was modified; but the version number was not changed. I've seen three slightly different versions of 2.20. If you're upgrading from version 1.x of MSCDEX, check with the manufacturer of your drive; you probably will need an updated device driver to use MSCDEX version 2.x.

There is a later version of MSCDEX, version 2.21, that I (and Microsoft and most manufacturers of CDROM's) highly recommend. [See below for info on the newest MSCDEX, Ver 2.22, that was released with DOS6.] It does not require the use of DOS's SETVER command in your Config, as the earlier one does (but some of your other programs may need SETVER!). This file is 25,431 bytes and is dated 7/23/91. This newer version seems to load high easier, and I have

only heard one complaint here about it, out of hundreds of users. MS says, however, that they know of problems loading any version of MSCDEX high and will not support it in that mode. Their voice support line for CD and Multimedia Support Group is (206) 454-2030. Most manufacturers are now distributing version 2.21. MSCDEX.EXE is available on CompuServe (Go MSL, file CDEXT.EXE, a self-extracting file) and is 25,431 bytes long and dated 2/4/92 OR 7/23/91. There was a defective version of MSCDEX v2.21 being distributed by MS, including here on CIS, that was withdrawn and was indistinguishable from v2.21 that works, so don't nuke your current copy of MSCDEX until you're happy with the way v2.21 works.

The newest version, 2.22, of MSCDEX is included with DOS 6. It is also available on CI\$ in the Multimedia (GO MULTIMEDIA) Forum, per Jim Divoky, in Library #1 as MSCDEX.EXE. It is 25,377 bytes in size and dated 4/14/93. NB: I've seen two BBS listings that report use of MSCDEX v2.21 or earlier with DOS6 will throw an "Incorrect DOS version" error message. If you've recently swapped to DOS6 and now find that message, use version 2.22 of MSCDEX, which you should find in your DOS directory. So far, version 2.22 works on my system just fine, and I haven't switched to DOS6 yet. The only discernable difference I've noticed is that it uses 15,856 bytes, a whole 16 bytes more than v2.21, of UMB space when loaded high. Supposedly, this version will load high a little easier.

PLEASE NOTE: Almost all CDROM drives use a driver of some kind, for the LL it's SONY_CDU.SYS; some of these drivers may be version-specific for MSCDEX v2.21 or earlier. Save your old version of MSCDEX under a different name or relocate it or whatever so you don't accidentally over-write it with the new version and then discover that the new one doesn't work.

The version numbers of MSCDEX and SONY_CDU are reported to your screen when the respective files load, but you may have to read quickly or put a temporary PAUSE statement in your AUTOEXEC immediately after the MSCDEX call to catch it before it flies by.

MS legitimized MSCDEX v2.21 and now strongly suggests its use with Windows 3.1 under DOS5, but Dave Manzari reports that the Windows README.WRI file says you should remove the LANMAN... DEVICE statement, as below.

J. Fortney and J. Chwan noted that MSCDEX 2.21 ships with Windows 3.1 and the setup program will automatically load the driver (beware that you don't lose your copy of a functioning MSCDEX!); it also loaded high with QEMM 6.02. I didn't find it in my upgrade disks; three other denizens of our Forum have not been able to find this v2.21 in their W3.1 material. Paul Hixson found a mention of need for 2.21 in the W3.1 READ.ME file supplied with his upgrade kit.

And to further confound you Windows fans, Dave Manzari noted that the README.WRI file found in W3.1 strongly suggests the use of MSCDEX.EXE v2.21 and shows a patch to your SYSTEM.INI file that may be required to get it to run.

The latest SONY_CDU, but a 9,145 byte version I haven't tested, plus MSCDEX version 2.21, is available from the Sun-Moon-Star BBS at (408) 452-8281; the filename is SONY.ZIP.

Duncan Kruse found the Sony 2.20(a) driver, plus MSCDEX *v2.20*, on the

Phillips BBS (310) 532-6436 in file SONY220A.EXE. Tough to get on that board, he says.

Steve Williams ran into the only problem I've heard reported with old v2.21, an error message, "CDR103: CDROM not High Sierra or ISO-9660 Format". He'd just added a new copy of old v2.21 on a working system and suddenly got the error. When he copied v2.20 back into the directory, the system worked fine again. One out of hundreds isn't bad; but, again, rename your old v2.20 before copying the new one into your directory and overwriting the old version irrevocably. Steve subsequently reported that he was able to load v2.21 successfully by changing the loading order in his AUTOEXEC but then had problems getting Windows to run properly.

Steve Solomon tipped us that v2.21 is available on Creative Lab's BBS at 408-428-6660 (all speeds) or 408-428-6662 & -64 (9600 bps only); it's got a newer date but compares identically to the 7/23/91 one I have. Frequently busy on the main number. It's in Library #8; the file name is MSCD221.ZIP. Navigation and sloooooow prompts (I've waited as long as 30 seconds or more for a prompt and thought I'd locked up my system) on this board are a challenge. But worth what you paid for it!

MSCDEX is also available gratis (and with hairy license and indemnity stuff, as is the case here on CIS) directly from Microsoft's BBS at (206) 936-6735. Hey, use it; it may be the only freebie you'll ever get from Bill Gates.

There is a reported hack to v2.20 if you have a disassembler, like Norton's DISKEDIT to get it to run without SETVER, but we've had enough public debate over the Street Atlas hack of late, so I'm not going to post it here.

Matt Seitz said that his firm, Meridian Data, in CA at 800-76SALES (800-767-2537) or 408-438-3100, sells MSCDEX. Matt also has available, I'm told, thru CD-Net a version of MSCDEX called CDNETEX which is loadable/unloadable (unlike MSCDEX).

Matt also supplied some valuable info on technical MSCDEX material for the seriously code-inclined amongst you: 1) The book MS-DOS EXTENSIONS by Ray Duncan (Microsoft Press, ISBN #1-55615-212-4) contains the MSCDEX functions but not the device driver functions; 2) The book MS-DOS PROGRAMMER'S SOURCEBOOK (ibid) also contains the MSCDEX functions but not the device driver calls; 3) The book DOS INTERRUPTS by Ralf Brown and Jim Kyle (Addison-Wesley, ISBN #0-201-57797-6) contains the same as those above, but it also has MSCDEX 2.1 version of the Get Directory Entry call, which allows you to use the same data structure for both ISO-9660 and High Sierra volume formats; and 4) the MSCDEX Dev. Kit description, a text file in MS Forum on CIS and from Meridian's BBS at (408) 439-9509. This contains the MSCDEX functions and device driver functions. I hope, someday, I'm smart enough to understand what all that means!

Edward Mainzer reports that the NEC BBS, (508) 635-6328, includes a CDROM conference that has MSCDEX, version unknown, and other files, including a demo of a music player software title, available in a file named CD_T128.EXE.

If you have a penchant for some technical info, you can check file DR0498.ZIP in the MS Software Library (GO MSL), but it's not for the non-technical.

I understand, thanks to some dialogue between Jim Duke and Steve McKnelly,

that some applications actually look for the presence of MSCDEX and will not load without it. If you have a system (OS/2, non-DOS or a network?) that can't use MSCDEX, Jim (70414,1653) has developed MDICDEXT -- I think it's a part of SCSI Express for NetWare 386 -- which satisfies the need, without MSCDEX, for most, but not all, such apps.

Clarke Ferber, who has a beta release of Windows NT that is scheduled for release early in 1993, reports that NT does not require MSCDEX, but you will need a supported SCSI-2 CDROM and controller. That's the death knell for those of us with a proprietary Sony bus drive. The CDROM just appears as another drive letter available for use. NT does not, at this time, support non-SCSI CDROM's and it does need SCSI-2 for audio support. Check the WINNT forum, Library #1 for a file similar to 09HW.TXT for a list of supported hardware for NT -- if you live to plan in advance.

CAUTION: On April 12th Craig Frank reported a complete crash of his hard disk that he attributes to the older LL installation software not being Windows 3.1-aware. In the process, LL didn't create the LL Program Group, although it does say that if you have 3.0 installed, it will detect and set up the program appropriately. I guess if it's gonna tank your whole system, it's sorta academic whether it sets up the Program Group... Sorry, Craig!

Several others have reported problems trying to install LL with W3.1, and Sony says there WAS a compatibility problem with the installation routine and that they were working with Microsoft to resolve it. Bill Seymour checked in to tell us that Sony now has a fix available; they will send it to you gratis, apparently on a CD, so call their customer support phone number. Apparently the old install program in LL nukes an icon file, LASERLIB.IL, and the icon isn't available so it can't setup the program group. If you recopy that file from Windows disk #6 to its proper place and know how to manually add a program group and do other installation routines, it will run. For someone who knows his stuff on this problem, you might want to contact Greg Hill, above.

Craig Frank reported -- "after much heartbreak and no help from Sony..." -- that the only way he found to get W3.1 happening was to delete 3.1 from his disk completely. He reloaded 3.0 and installed LL, which successfully installed the program group and icons; and then he reloaded 3.1, which retained the 3.0 program group. A lot of work, but it did the job. I knew I didn't like Windows!

Carl Nelson found what may be a less painful way of doing it. He browsed thru the LLINSTAL.EXE file and found a list of Windows files, which he presumed were being used to validate the presence of Windows (3.0) on his hard disk. He found that one of these files, SYSTEM\KERNEL.EXE, no longer exists in W3.1; it has been replaced by KRNL1286.EXE and KRNL1386.EXE. He created a dummy replacement SYSTEM\KERNEL.EXE file, reran the LLINSTAL program, and everything functioned perfectly. Congrats, Carl!

A quick tutorial on how to create the dummy file in Windows 3.1 that Carl used follows, but DO NOT use this method under W3.0, or you will erase your existing KERNEL.EXE... and feel incredibly stupid and probably never get Windows 3.0 to run again:

At a DOS prompt, type COPY CON C:\WINDOWS\SYSTEM\KERNEL.EXE and press return. The cursor will advance to the next line with no

other discernable activity. Type any letter you choose on that line and press return. The cursor will advance to the next line. Press the F6 key, and a "^Z" will appear; then press return. You'll see the message "1 file(s) copied", and you're done!

Even tho' I swore I wouldn't turn this tome into a Windows tutorial, I guess I should also mention that MS (GO MSKB, Doc #Q82419, 4/16/92) says that in W3.1 LANMAN10.386 is always installed, even if you're using a version of MSCDEX greater than 2.1. You should remove the DEVICE=LANMAN10.386 from 386Enh section of SYSTEM.INI if you're using MSCDEX 2.2x. One less source of conflict and memory-mushing gone!

Likewise, MS also recommends that MSCDEX should not be loaded from the Windows DOS prompt, unless you're very careful. Apparently, folks are accidently loading multiple copies of MSCDEX on top of each other with less-than-productive results. Install MSCDEX in your AUTOEXEC file, before starting Windows. They still maintain that MSCDEX can't/shouldn't be loaded high, but we know that's usually googrum.

A lot of the messages here have centered around "What are all those switches in SONY_CDU and MSCDEX" and "Why can't I get those @#%\$#! files to load high?" Sony says, officially, that these files cannot be loaded high. Microsoft says MSCDEX *cannot* be loaded high because of some code in it that only acknowledges up to 640K; they're "looking into it" per an 11/91 mention in MSKB on CIS. They told me in early March '92 that they have no current plans to update MSCDEX, but they obviously had something in mind cuz v2.22 is available with DOS6 and from CIS, above. End of discussion from them, 'cept for the mention in the paragraph above. Real world: You can do it. It will either be ridiculously easy, or you will be up half the night cussing. If you have inexplicable problems that are not TSR conflicts, you can always reload it low and see if the problems evaporate, but there have been no reports of such problems here. Several people have reported complete failure in trying to load any version of MSCDEX high, however. Many of the easiest successes have been reported by users of QEMM, a memory manager program in widespread use, in lieu of using DOS' EMM386. FWIW, Qemm was a catastrophe for me; it choked on almost everything and obliterated parts of my AUTOEXEC. But, judging from the many very satisfied customers, I'm a distinct minority in that regard.

Addressing the question of loading high first, both these files can carry some pretty significant RAM overhead if loaded into conventional memory, 15K and up for MSCDEX and 8K for SONY_CDU. If you want your CDRom to play pretty music while you pound on your wordprocessor -- as I do -- making it the world's most expensive CD player, the LLTSR program, which lets you play audio CD's, gobbles another 27K of precious conventional memory. If you can't get some of this overhead into Upper Memory Blocks (UMB), you may find yourself restricted to running programs written in 1983, when 64K of RAM was heavy-duty computing. [If you want to cut down the memory requirements for LLTSR, AND if you're NOT going to use Sony's LLPLAY, download HCDPLAY.ZIP from the Sun Moon Star BBS above. It's a Hitachi CD player that seems to work fine with the LL. There's also a CD player on Hitachi's BBS at (516) 829-0212, but it's not a Hitachi product and didn't work with my Sony. Another source of free-ish CD audio drivers, per Bill Thomas, is right here in Library #7; browse on "Hitachi". Bill says that they support Amdek drives too and can be used with DOS, Windows, and OS/2 without any drivers since they go direct to the hardware.]

A failure of Sony drives (maybe not the LL) to play audio CDs, if computer programs are running OK, may mean that the SONY_CDU.SYS driver is not loading correctly from your CONFIG.SYS file. While your PC is booting, look for the message "Drive 0 = SONY CD-ROM CDU xxx Firmware Rev XXX"; if, instead, you see "Drive 0 = No CD-ROM Drive found," this is you! If so, per Sony, check the following:

1. Check that the device driver settings in CONFIG are the same as on your host adapter board (Base address, IRQ, DMA). Refer to your manual for the proper settings.
2. You may have a host adapter conflict with other devices in your system. Check the settings for other connected devices.
3. You are loading Version 2.2 of the SONY_CDU.SYS or FDCD.SYS.
4. Verify that termination power is turned on for Sony bus drives, and that a terminator is being used for SCSI bus drives.

Returning to MSCDEX after that aside, note that many reported problems with getting MSCDEX to load high may be caused by its propensity to want use as much as 65K of upper memory when loading (and oodles more if you've increased the buffers and aren't using the /E switch), which scales way back when it's actually running. One user reported 128K was needed on his system.

John Miriello, a glutton for punishment if ever there was one, has tried loading the drivers high on both 386/25 & 486/33 platforms, using DOS 5.0, 386MAX 6.0, and QEMM 6.0, and thinks 386MAX was the easiest.

OS/2:

Ah, a late-comer to the CDROM wars! Not too much traffic on the Forum yet that I begin to understand, but Frank Zirpolo did check in with the information that there has been debate and support on the IBM OS/2 Forum and that MSCDEX may not work under OS/2 (he says IBM says it won't); he suggests getting OS/2 drivers (if available!?) for your drive so you won't have to use MSCDEX at all. For those among you with a Sony CDU31A (a non-SCSI, proprietary interface), Les Inanchy of Sony advised 1/93 that there is an OS/2 driver under development that should be ready "within the next few months"; there are no plans for a Sony driver for the CDU531. He also mentioned that Adaptec, Future Domain or other parties may have SCSI drivers in the works.

Bill McHugh responds that OS/2 does not use MSCDEX; it is replaced by an installable file system. His advice that follows is for an NEC drive. Put the following line in your CONFIG for OS/2: IFS=C:\OS2\CDFS.IFS /Q. If there is another IFS= line, do not remove it, just add the above. He also mentioned that the built-in driver only covers IBM and Toshiba drives, so you will need to add that to CONFIG. The built-in device is
DEVICE=C:\OS2\CDROM.SYS /I /N:4.

A word of warning to OS/2 and/or NT users was given by John Dvorak in a 6/93 PC Mag column: If you try to use OS/2 in a dual-boot scheme with DOS6 and DoubleSpace, its Stacker-like disk doubler, you will create a compressed

partition that OS/2 won't be able to read.

Some 7/93 info: Sony's file SONY31.ZIP, available from their BBS includes an OS/2 driver for their CDU-31A and 7305 drives only, per Chuck Roman. Charles Lomicky reports that there is an OS/2 driver for the CDU-535 (maybe the -531 & -7205 also?) in America Online, under OS/2 Drivers, but notes that it does not support CD Audio yet.

Scott Rutherford noted that Mehran Ramezani, 71562,1147, has authored the only driver that works with OS/2 and the Sony CDU-536/6201 drives and notes that patience is necessary cuz he's working out the details with IBM.

CONFIG.SYS:

A reminder: Please have a bootable DOS diskette handy before you start twiddling with CONFIG.SYS. Also, print a copy of your MEM report for reference before you start; the command to do that is MEM/c>prn in DOS5 or above.

DEVICE #1 -- To begin with, there are some basics to getting your 386 or above beast to load these files high. In your CONFIG file the **very** first DEVICE statement should be DEVICE=C:\dos\himem.sys (or use the Drive:\Path appropriate to your system, here and elsewhere below). [N.B.: If you have a proprietary driver of some kind that you must use to enable extended or expanded memory on your system, you should load that as the very first driver.] I've also found that SET, FILES, BUFFERS, BREAK, and a few other commands can precede the HIMEM statement, if necessary. Use the HIMEM.SYS file that came with DOS 5.0 (unless you're using Windows 3.1, then use it's version of HIMEM)! Mine is dated 4/9/91 and is 11,552 bytes. Some previous versions of this file were supplied with applications, including Windows, and might be lurking on your systems; they are probably not compatible with loading files high. DOS 5.0's manual specifically says NOT to use the HIMEM that comes with Windows 3.0. In my file, the only lines that precede the above DEVICE statement are FILES, BUFFERS, STACKS, and BREAK commands. I used a /int15=1088 switch on HIMEM to allocate some extended memory in a strange way, but it's not critical to making the Sony files behave.

DEVICE #2 -- The very next line after the HIMEM line should be the DEVICE statement for EMM386, DOS's memory manager. My line originally read DEVICE=C:\dos\emm386.exe 1024 /I=E000-EFFF ram. This allocates 1,024K to expanded memory (the 1024 parameter), and the /I parameter reenables the E segment of memory and provides about 64K more UMB space (Bless you, PC Computing Magazine, for that one!). That particular /I parameter is **not** appropriate to an IBM PS/2 Microchannel machines, some IBM Value Line machines, or to many Compaq models. You may also be able to add additional /I parameters to that command line; I also have /I=B000-B7FF in mine for another 32K of UMB, but that is something you have to determine on a system-by-system basis. However, Windows 3.1 will not boot with /I=Bxxx.... Using a good memory manager will help identify areas of unused upper memory; Manifest, which is sometimes available bundled with QEMM but is also a standalone product, and ASQ (available on many BBSs) work well. If you have Windows 3.1 or DOS6 (the DOS6 version is newer), there is a good tool, MSD.EXE, that is undocumented that is located in your Windows, or DOS, directory on your hard disk that will also do the job (it erroneously reports some free RAM in my A & B segments that wasn't there, but it's free and you can always experiment a little). The "ram" parameter must be specified to

access UMB *and* expanded memory. If you don't use/want any expanded memory (caution!), substitute "noems" instead, without the quotation marks, and access to the UMB's is still provided. Without one of those last two parameters, not much is heading high. However, please note that MSCDEX, covered in the AUTOEXEC section below, will LOADHIGH easier on most systems if the /E switch is used; expanded memory can also be used by MSCDEX's buffers, so you may want to have some handy, otherwise you will pay a heavy RAM penalty.

You can also twiddle with the FRAME switch on EMM386.EXE to change the location of the EMS page frame to provide more contiguous UMB space for loading larger programs like MSCDEX. Mine now reads DEVICE=C:\dos\emm386.exe 1536 FRAME=E000 /I=B000-B7FF ram. Please note that Windows 3.1 will not load with the /I=B000-B7FF switch enabled, so you'll have to forego that additional RAM under Windows. And some systems, especially IBM PS/2s, will not tolerate the use of the E segment for the EMS page frame. Remember to have a bootable DOS diskette handy, just in case.

Bernie Bildman reports that by inserting the statement DEVICE=emm386.exe ram i=e000-efff i=b000-b7ff x=d800-d9ff he was able to load MSCDEX 2.2x high and return over 110K of RAM for use elsewhere. He was, however using an NEC CDR82 drive and the x= portion of the statement he says is relevant to that drive (CPU?) only. The i=B... portion recovered an additional 29.3K+ of UMB for me, at the expense of about 30K of expanded memory. I do understand, though, that if you have a VGA board connected to a color monitor, you should exercise care in allocating away much of the A or B memory segments as above as they are normally used for VGA buffers.

Speaking of which -- nice segue? -- PC Computing published (7/92 issue) a mini-guide on memory tricks to maximize UMB's, among other things. In addition to (I)ncluding the E segment above, except PS/2's & Compaq, they also provided other clues: For EGA board with monochrome monitor also add B800-BFFF; and for Hercules, CGA and mono display adapters they had even more segments to include.

DOS -- Next, you need the CONFIG statement that loads DOS high and enables the Upper Memory Area: DOS=HIGH,UMB. The order of the three previous lines is important.

LASTDRIVE= -- Sony's installation process has probably put a LASTDRIVE=Z statement in your CONFIG file somewhere. Get rid of it! It may be mislocated, and the statement wastes RAM by allocating RAM for drives all the way to #Z -- about 88 bytes for every drive letter assignment you don't need. Rather than test my system for compatibility with the complete absence of a LASTDRIVE statement, I inserted a LASTDRIVE=F statement immediately after the DOS line above. The actual letter used should be one higher than the letter of your highest drive letter (that should be DOS's default, but belt and suspenders won out at 4am one morning). Don't forget about RAM drives and/or network drives you may have. On my system, I have C: & D: hard disks; the CDROM is E:, hence LASTDRIVE=F. Remember the extra Stacker (or DoubleSpace, etc.) drive as noted at the beginning of this file, if you use that program. If you add an additional hard disk, repartition an existing one and add partitions, or add disk capacity increasing software, such as Stacker, that adds an additional partition, and you'll have to reset LASTDRIVE (and the CD drive assignment!) accordingly. I've also heard that some DAK CDROM's assign themselves as drive S: during installation, so you may need to examine that

situation if you have a DAK drive and reset the drive letter if possible as below. I'd recommend that you set your CDROM drive to about letter E: or a little higher in case you ever decide to add a hard drive or to disk-double the one(s) you have; having to tweak the software switch, which you won't remember by then, and reload or tweak all your CDROM menu calls or batch files, etc. will make you nuts someday.

SHELL -- Here, I inserted my SHELL statement, SHELL=C:\dos\command.com c:\dos\p /e:1024 /f (the /f switch is an undocumented DOS switch to select "Fail" when you access a floppy drive that doesn't have a diskette in it. Thanks, PC Magazine). Yours may vary, of course.

DEVICEHIGH #1 -- Laser Library time, finally.
DEVICEHIGH=C:\laserlib\sony_cdu.sys /D:SONY_001 /B:340 /Q:* /T:* /M:H does it for me. Most comments suggest that these defaults, or the one the install program generates for you, are OK. Explanations of the switches follow, to the extent I've seen discussion of them. Special thanks to Scott Welliver for filling in several blanks:

/D:device_name Switch: The /D: switch provides a name for the drive. This name *must* be the same as used in MSCDEX's /D: switch, covered below in the AUTOEXEC section, otherwise the two files will not cooperate. Sony's default was SONY_001 for me. Someone mentioned that these two /D: switches are case-sensitive; they are not case-sensitive on my PC.

/U:n Switch: There is a /U:n switch in which the n=number of CDROM drives. The default is n=1, so your installation may not provide it at all.

/B:nnn Switch: The /B: Switch is the I/O address or base address of the CDROM host adaptor. Default is nnn=340.

/M:n Switch: The transfer mode, where n=D for DMA; P for software; H for High speed software. Default is P for PC/XT and H for PC/AT.

/T:n Switch: The channel number of the CDROM host adapter, which only works with /M:D. The default drq is /T:* in which the "*" indicates not to use DMA requests.

/Q:n Switch: The IRQ channel number of CDROM host adapter. The default is /Q:* in which the "*" indicates not to use the interrupt.

The order of the switches was reported to be important, but Sony's install routine did not follow the above order in my case, so I'm not sure if order is important or if the above-listed order is correct.

Mary Kelbell found that if she did not DEVICEHIGH the driver in her CONFIG file, then MSCDEX, which is substantially larger, LOADHIGH'd easier in her AUTOEXEC.

DEVICEHIGH #2 -- Following the SONY_CDU statement, I inserted DEVICEHIGH's for my video driver, SETVER (Yes, I know I don't need it for MSCDEX v2.21, but I have one other troublemaking program that needs it.), and mouse. (Please see note below on LLTSR.EXE for additional comments on these device

drivers.)

DEVICEHIGH #2+ -- If you elected not to use MSCDEX version 2.2x, you will need a DEVICEHIGH=C:\dos\setver.exe statement in CONFIG to permit MSCDEX to load in your AUTOEXEC later. Absence of SETVER will produce the now-famous "Incorrect DOS Version" error message when AUTOEXEC tries to load MSCDEX. Please also remember that use of an MSCDEX driver older than v2.22 with DOS6 may also give you this message. (Please see note below on LLTSR.EXE for additional comments on these device drivers.)

These additional device drivers should usually be loaded in decreasing order of size, per MS's instructions, but you may have difficulty or conflicts. Try adding one at a time where possible, check with MEM/C\MORE often and read MS DOS5+ manual carefully, especially the sections on DEVICEHIGH, Customizing your system, Optimizing your system, etc. I know that violates the first rule of computing, "Never read the manual," but... Loading devices and programs high is an art and just changing the order of them makes a big difference!

AUTOEXEC.BAT:

Again, a reminder: Please have a bootable DOS diskette handy before you start twiddling with AUTOEXEC.BAT, and print yourself a copy of your memory report with MEM/c>prn.

Aside from providing some alterations to my environment with the SET command, I launched right into a PATH statement in my AUTOEXEC. The PATH must include C:\laserlib. A typical PATH might read as follows:
PATH=C:\;C:\dos;C:\laserlib;c:\sound

LOADHIGH #1 -- This line is the critical one.
Mine is LOADHIGH C:\laserlib\mscdex.exe /D:SONY_001 /L:E /M:8 /E /V.

A discussion of the switches for MSCDEX follows:

/D: Switch: This provides the name of the drive as above for SONY_CDU. It is imperative that the two /D: switches in MSCDEX and SONY_CDU use *exactly* the same name.

Matt Seitz reports that MSCDEX will recognize multiple device drivers. Just add multiple /D: switches to MSCDEX, e.g. MSCDEX /D:device_name1 /D:device_name2 that conform to the device drivers /D: switches loaded in your CONFIG. James Lubin did some checking and found that each additional CDROM drive assignment required more memory. Using only conventional memory -- he didn't have expanded memory to test with the /E switch -- he found the following: One drive, 27.3K; two, 31.6K; three, 39.9K; four, 48.1K; five, 56.4K; and six required 64.7K. He also mentioned that he knew of a different driver that will use one drive letter but you select which one drive will be active.

/L: Switch: This is the drive letter assigned to the CDROM drive. If you've setup a RAM disk, remember that its driver will load before MSCDEX and grab your next available drive letter. So

if you have a C: hard disk and enable a single RAM drive, the RAM drive will become D:. The CDROM will then have to be E: or above. The same principle applies if you have network or other device drivers present. The LL seems to be at least a little tolerant of boo-boos with the drive letter variable. Glen Chapman told me that if this switch is omitted, MSCDEX just uses the next available drive letter. As above, under LASTDRIVE, you must reset this switch if you add drives, increase the number of partitions or use a disk-doubling program such as Stacker after installing your CDROM.

/M: Switch: This switch specifies how much memory should be used as buffers for caching CD data. Installation procedure for the LL sets up 8; if the /M: switch is not specified, PC World says the MSCDEX default is 10. You can reserve /M:xx, where xx=number of sectors (1 sector = about 2K, so BEP says, for this). The /E switch below enables expanded memory for these; it's use is recommended since, otherwise, the default of 8 can require a significant amount of conventional or UMB memory (thanks, Jack!), while the driver alone lurks in high memory at about 15K. The total of these may exceed your high memory total, causing MSCDEX not to load high. You should also consider the use of a disk caching program with the use of a reasonable amount of memory for additional buffering capacity, especially one that can utilize extended or expanded memory.

/E Switch: See discussion for /M: Switch. If you have EMS or can provide it, its use is **highly** recommended, especially if you want to load drivers high. Don't forget to enable EMS in EMM386.EXE, covered above.

Lack of the /E switch, and the lack of -- or incorrect configuration of -- expanded memory it presumes you have, are the largest single causes of failure to load MSCDEX high.

/K Switch: Use of the /K Switch enables the use of the Kanji (Japanese) file structure if it is programmed into the CD you have in your drive.

/S Switch: Per BEP, this switch is used to patch DOS on MS-NET based networks to let the CDROM drive be shared by other nodes. Matt also reported, more clearly I hope to those of you that are network aware, that the /S Switch (Server) instructs MSCDEX to make the CDROM appear to networks as a local drive, rather than another network drive; you should then be able to share the CDROM drive using NET SHARE or the net menu. See also the info from Matt Seitz about a network-aware version of MSCDEX.

/V Switch: This switch displays some additional (Verbose) information when the file loads. It may include the total initial loading size of MSCDEX when loading it high. You will probably need to insert a temporary PAUSE in your AUTOEXEC immediately after the MSCDEX call so you can read it. Delete the PAUSE once the system is humming.

The order, above, of the switches may be important, but I have not tested the /K or /S switches.

If you are using a fast (33MHz+) system and are having problems with LOADHIGH for MSCDEX, try the poor-man's fix: Insert a PAUSE in the AUTOEXEC line just before calling MSCDEX. I almost kissed Rick Filisky for that one! When I later rearranged my LOADHIGH's, the need for it went away somehow.

After a successful load of MSCDEX, add additional AUTOEXEC lines as necessary, starting with all other LOADHIGH lines. Per MS, try descending order of size, one at a time, checking with MEM/C|MORE each time. Note that some files, even though there appears to be sufficient UMB available will balk. Sidekick would not load high at all until I put 4 other dinky TSR's in front of it. Work hard on the order and expect some odd surprises, e.g. my ancient Logitech mouse driver not only wouldn't load in UMB, but it wouldn't run at all with any programs in UMB. I ended up further enriching Bill Gates to get a new mouse driver for an old MS mouse I had gathering dust. Then it turned out that two programs wouldn't recognize Bill's latest mouse driver, 8.15, so I had to revert to 7.0. It's tedious, but it works.

Again, if you should encounter an "Incorrect DOS Version" error message when loading MSCDEX v2.20 or earlier in your AUTOEXEC file, be sure you have correctly invoked SETVER in your CONFIG file. If the message persists, change to the directory containing SETVER.EXE (probably where all your DOS 5.0 files are lurking) and enter the command SETVER|MORE at the DOS prompt; there should be a statement that looks like, MSCDEX.EXE 4.00 on the list that displays. If not, type SETVER MSCDEX.EXE 4.00 That will update your SETVER table to report to MSCDEX that it is running under DOS 4.0. Check it again with SETVER|MORE. See above for the MSCDEX/DOS6 problem that can also produce this same error message.

After all the LOADHIGH's, finish up with whatever additional instructions, TSR's, etc. you need or want in conventional memory.

For some additional background on optimizing RAM with CDROM drivers, etc., you might also want to read Harvey Summer's file, CDROM2.SET, in the library here in the CDROM Forum. Look for a newer version, tentatively to be called CDROM3.SET, in which he'll expand and update the material to provide more assistance.

Oh, if you want to play background music with LLTSR.EXE while crunching other data, I finally found the deep, dark secret (Thanks, Teddy!) to loading it high, at least on my system. Normally, when you try to load this high, you'll find that a small piece of it, only 0.1 - 0.5K, will go up; but the rest, about 27K, stays in conventional memory. Sony says LLTSR will not loadhigh, but that's what they said about SONY_CDU and MSCDEX too. Try clearing out CONFIG of all DEVICEHIGH statements, except SONY_CDU. Just reset them to DEVICE statements. I had been running an MS Mouse driver, a proprietary version of ANSI, and SETVER with DEVICEHIGH's and that was what prevented LLTSR from loading high in one configuration, at least. Since LLTSR is a whole lot bigger than the three others combined, it was an easy decision. I worked on that last 10K or so; and, in a later configuration, I was successful getting LLTSR to load high with devices also high; I suspect that LLTSR may require a larger amount of memory when loading than when running. One caveat: LLPLAY will not function on my system with LLTSR loaded

high; LLTSR works fine, however. More gremlins to ferret out, time permitting.... Well, I finally got LLTSR to load high with everything else, but I'll be damned if I know what finally did it! Incidentally, there is an audio CD player, CDPLAYER appropriately, in the 11/24/92 issue of PC Mag; Richard Mott spotted it, so I don't know if it's Windows only or DOS too. There are also several audio players in the Forum library here; search under the keyword "audio".

Speaking of LLTSR, Len Bilello observed that it does not work with, uhgg, Windows; but he was able to get it to load high under QEMM. Please also see the note on the Hitachi CD player way above if you need to reduce use of RAM. The Media Vision PAS+, and presumably the other MV sound boards, comes with a nice Windows CD player utility.

For those of true daring, Glen Chapman, 73517,2273, posted a message in late January '92 on the CDROM Forum with an EXPERIMENTAL way to tinker with MSCDEX, if you have EXMOD, a utility distributed with some compilers. It may let you adjust the loading/running size of MSCDEX. His message has scrolled into message never-never land by now, but he might be willing to discuss it with you directly.

Robert Hunter also reported that if MSCDEX is loaded more than once in a session, it increments the drive letter, e.g. if your CDROM was drive G:, it will become H:. On my system it can't be loaded more than once. That might be an idiosyncrasy of the system or the versions of MSCDEX we're using. Beware.

If you find that you have a variety of needs for differing CONFIG and AUTOEXEC statements for various applications, especially memory hogs, you might give serious consideration to MBOOT, a freeware utility graciously provided by PC Magazine and Douglas Boling (available in the library at PC MagNet, GO PCMAG. It takes some \$\$\$ to get at it cuz it's part of Ziffnet now) that lets you boot with any of four different combinations of CONFIG & AUTOEXEC files, including one for OS/2 if you want. The documentation supplied with the utility -- and in a companion file, BOOT.INF -- is a little light, but if you download a copy of the original article from the 2/26/91 issue of PC Mag (GO COMPDB) or Xerox a copy at the library, things will be a *lot* clearer. It's a great tool.

ANOTHER ERROR:

Per Sony, if you should receive the error message "CDPLAY.CTL file not found" when trying to run the CDPLAY utility, add the following parameters when executing the program: CDPLAY (x) (y), where (x) is the drive letter of your CDROM drive and where (y) is C for color monitor or M for monochrome. The .CTL is a temporary file created each time you execute the CDPLAY utility with the correct parameters.

APPLE/MAC SOFTWARE:

Bill Thomas mentioned that the reason Apple/Mac CDROMs won't run in IBM drives is that they use a different file format, Apple HFS, which isn't supported by the MS CD Extensions. A Mac can, I gather, read some CDROMs in IBM-style HSG or ISO9660 format. Dunno if that's easy or hard, however.

CABLES:

If you're having difficulty locating oddball cables, especially ones to connect CDROM's to audio boards, etc. George Crandall recommends Cables To Go at (800) 826-7904.

CACHES:

For those of you willing to tinker, there are a couple of caching products available that will/may speed up those lumbering CDROM drives or may at least delay your purchase of a double-speed unit. CD Speedway has been around for some time, but I haven't seen much about it recently; it was being touted here in the forum. The newest, Lightning CD, lists for about \$100 and is available from Lucid Corp., (800) 925-8243 or (214) 994-8100. It replaces SMARTDRV or any other caches you are using and can cache all your drives; it also supplies some other disk utilities. Part of its speed comes from a read-ahead feature that anticipates the next CD read operation and loads it into the cache while the PC is crunching something else.

CADDYS:

There've been lots of comments about caddys (caddies? Anyone know the proper version?), where to get them, and how much to pay. I've listed below some names and phone numbers and the prices I've heard here on the Forum, but they are obviously subject to change without notice or may be incomplete. Watch out for the shipping and handling charges! Some vendors charge the equivalent of several dollars per caddy for S&H, especially when their pricing is "each", rather than in lots of, say, ten. Also check MULTIMEDIA and MULTIVEN forums for additional sources and prices.

If you know of more recent or better info, please let me know.

Caddys are available in three styles (Thanks, Gary Nickell): Phillips, NEC CDR-77/80, and "everybody else" -- the most common -- which means Sony, Hitachi, Denon, Toshiba, new NEC, etc. Most of the info herein relates to the latter category. For identification purposes, courtesy of Jack Velte, the Sony-style caddy has a clear top and looks like a 3-1/2" diskette in a 5-1/4" package. It has a single metal shutter that slides back to expose the CD. The caddy opens by squeezing two tabs at one end; and the lid, hinged at the end closest to the end with the metal shutter, opens. The Phillips-style is clear smokey plastic; it opens by pressing two small tabs, but the CD rests in what looks like a large set of white plastic pinchers.

Bureau of Electronic Publishing, Parsippany, NJ, (800) 828-4766: \$12.00 each, 5 for \$50.00, plus \$1.00/caddy S&H. When I was young and stupid and ordered some, my biggest disappointment was that they didn't come with labels. USA made, at least they were last year.

CD ROM, Inc., Golden, CO, (800) 821-5245 or (303) 526-7600 or Compuserve 72007,544: \$6.00 each, no minimum per Phil Lyons. S&H \$5.00 for an order of 10. They did well with an order for me. Japanese-made caddys, too -- with labels. See below for raves on their catalog. They also have Philips Caddys for \$10, NEC (model 77 & 80) caddys for \$19, Pioneer 6-disk Magazine

cartridges for \$18 and Philips CD-I caddys for \$10.

Computerland, no phone number, caddys are part #CDTC-118606. List is \$60 for 5 caddys; they sell them, per Dan McDonald, for \$44, S&H unknown. Their source is CD Technology in Sunnyvale, CA, (408) 752-8500, but that may be a wholesaler.

DAK Industries, (800) 423-2866: \$7.90 each, plus \$3.00 _each_ S&H. Catalog #5853.

Educorp, (800) 843-9497: \$5.50 each, 10 for \$55.00 (ask for ten-pak price), plus about \$4.00 S&H. Alternate reports of 10 for \$59.00 and \$55.00. Recommended by Nelson Ford.

Egghead Software in the Silicon Valley area finally has caddys and titles now -- wouldn't want to be ahead of the wave, right? -- but the caddys I saw were \$12.99. Yes, each! Pretty bubble pack, though. Egg-citing... And the CDROM software was kinda steep too.

Fry's Electronics in Sunnyvale, CA carries the Sony branded caddys for those that live nearby in Silicon Valley, but they were \$13.95 each... and have a nice day. I recently saw some unbranded ones there at the checkout for \$9.95. In March, I saw some at \$8.99 at their Fremont store, so maybe they're coming down a little. Likewise, Access Computer Technology in Santa Clara stocked caddys at \$16.00 each, but that really runs counter to my Scotch soul -- and is, arguably, the highest price in the country. In May '93 they were advertising them on sale for \$6.95, so maybe they've finally awakened. They have reasonable prices on most of the rest of their hardware.

Marshall Industries, \$88 for 10 caddys in 1/92, including S&H. Check Yellow Pages or Information; it's supposedly a national firm, per Dave Lindbergh.

MLNC, 800-264-3799, M-F 8-5 Central time. Normally \$10 each, but \$8 to CIS Forum. Check with Doug Tremere (70714,3234).

NCA Computer Products (formerly NCA Peripherals), for the Silicon Valley set, is now selling caddys at \$6.99 each. Lawrence Expwy in Sunnyvale or Blossom Valley Road in San Jose... but you knew that.

REX Computers, (800) 489-9172: \$10 each. S&H unknown.

Softec Plus, Tuscon, AZ, (800) 779-1991, \$4.75 each. S&H unknown. Recommended by Robert Cauthorn.

Sony: I'm sure that they sell their caddys; I fear the price would be a catastrophe, like Fry's, above, that sells the Sony caddy, and haven't asked.

Walnut Creek CDROM, (800) 786-9907 or (510) 947-5996, sells caddys for \$4.95 in lots of 10 per Jack Velte. S&H are \$5 per order. He also accepts orders on CIS at 72147,3425 (please use e-mail, not the forum message area). Several good mentions about their service and prices have passed thru here.

Owen Mitz reported that he buys Sony-type caddys in lots of 10,000 and pays about \$3.80 each for them wholesale. He very strongly recommends purchasing only Japanese-made caddys, as opposed to US-made ones, from Opticord, which sell for about \$1.50 less (presumably at retail). He found that he had to

replace most of the USofA caddys he purchased. He thinks that a \$6.00 price is reasonable at retail, quantities of 10.

SOFTWARE THOUGHTS:

Robert also mentioned a "fix" for access time to bundled software, if you don't mind abandoning the LL front-end with its pretty windows, etc. Incorporate direct menu or batch file calls to the CDROM for each application. The LL and its bundled software scatter subdirectories all about your disk, e.g. C:\SIERRA for Mother Goose and C:\ATLAS for the atlas. Please note that you may, unless you write a prompt for CD insertion, face a horrible scrolling error message if you call a non-existent program from the CDROM drive (Ctrl-Break will kill it). Some specifics that he and others kindly supplied, assuming that your \LASERLIB is D: and that your HDD is C:...

ATLAS -- Move to C:\ATLAS and call WA, the Atlas-supplied batch file.

BOOKSHELF -- Call C:\LASERLIB\MSL. Rick LaBanca noted that there is a known bug with Bookshelf failing to load itself into Windows ("Fatal Error..." when running SETUP from Program Manager) if you're using MS Bookshelf with Windows 3.1; there is an update available free (Bill, are you slipping?) from MS.

COMPTON'S -- Call C:\CFE\CFE; but note that the CFE.BAT file calls PEDIA.EXE and needs to pass parameters, e.g. CFE [ROMDRIVE] [PEDIADRIVE], so he used CFE G: E:.

KING'S QUEST 5 -- Call C:\SIERRA\KQ5.BAT. If you have an early edition of this title and are using a Sound Source on a 486, it will not recognize the SS and will not load because of the high speed. There is a patch available from Sierra On-Line. Paul Hixson reported that the DOS version of KQ5 worked well under both Windows and DOS but the Windows version didn't work on his system under Windows 3.1.

LANGUAGES -- Same as Mammals, except the call is LANGS. Remember that Languages of the World is a TSR program -- and a HUGE memory hog -- that, after being loaded, is invoked by pressing ALT-SHIFT. Thanks for that reminder, Bryan at DAK.

MAMMALS -- Change to the CDROM drive (nothing special on your C: for it) by typing D:, or whatever your drive is, and then GO. Paul Zane Pilzer reported that Mammals has a known problem: If your PC is connected to a network, Netware Lite was mentioned, Mammals may not run, even if you're not trying to run the Mammals program itself on the network. There may be a patch for what Paul described as this IBM Linkway bug from Peter Schulz, 70216,174.

An alternative call for Mammals was supplied by John McCarvel as follows:

```
D:  
cd\mammals  
lwr.exe /b /n /w /x /s60 /r /l\wpath=mammals mintro /l\wpc=\mammals  
c:\laserlib\audreset.exe D:
```

MAYO CLINIC FAMILY HEALTH BOOK -- Nice reference; requires Windows/MPC; and you can't print anything but the Help index! According to Steve Shaffer of MicroDataware, this was produced using the Sony FTR engine which doesn't

really support export of either text or images. You can print screen images normally, he says, but you're getting a bit-mapped image that can't be edited or used in normal fashion. A sneaky form of copyright protection? When I wanted to give a copy of an article to my daughter about a new problem she developed, I couldn't do it cuz the bit-mapped image -- certainly not as useful as a conventional printout -- was too large for Windows-supplied utilities to import and print; and I don't have a Windows-based editor since I'm fundamentally a DOS person...

MIXED-UP MOTHER GOOSE -- Call C:\SIERRA\MGCD. Keith Myers left a note that, if you use this method - rather than accessing the disk thru the Laser Library menu system - you can better access all the languages and music thru your Soundblaster Pro. Ray Seely had problems with MG on a 486/33 until he slowed it down to 20MHz. Some Sony users report read-error problems with MUMG; Larry Schneider found out that there is a bug that you can fix with DEBUG. Call Sony at (408) 372-7141 for instructions on correcting the EXE file; they will also send you a corrected disk, I understand from Robin Smith.

MPC WIZARD -- John McCarvel mentioned this new (7/93) title as a good set of utility programs, including speed, MPC compatibility and some pretty pictures with music. Only \$10 from Egghead.

PDR -- If you want to load PDR under Windows with the LL, Alan "Bones" says the following batch file must be run, including the strange repetitions:

```
SET SONY_001=MSCD_001
dir d: (assumes the CD is D:, I think)
c:
cd\
cd pdr
pdr
SET CDXDRIVER=SONY_001
SET SONY_001=MSCD_001
dir d:
c:
cd\
cd pdr
pdr
SET CDXDRIVER=SONY_001
```

PUTT-PUTT JOINS THE PARADE -- Nothing sexy to report on getting it working; but if you're looking for a great CDROM for the 3-7+ year-old set with lots of animation, do check this out. Humongous Entertainment, Woodinville, WA, (206) 485-1212

SCIENTIFIC AMERICAN CONSULT: Alan also notes the odd way to get this program to behave. Start it with the following batch file that came from hours with the tech support gurus:

```
dir d:
set cdrom=SONY_001
SAM -CSONY_001
```

If you discover anything easier on the above two, Alan (73107,2440) would LOVE to hear about it.

SHERLOCK HOLMES: John Hays reports that this program requires some heavy resources to run, although he didn't specify what drive/platform he was using. He suggests booting clean, with only CD and mouse drivers and adding additional buffers to MSCDEX, preferably in expanded memory. ICOM support recommends about the same thing, stressing getting rid of TSR's and drivers.

STELLAR7 -- Call C:\DYNAMIX\STELLAR7. This assumes you have followed the INSTALL procedure for the CDROM; unfortunately, they're not in the manual but are hidden inside the label in the jewel box the CD comes in.

MISCELLANEOUS:

Many fast 486 systems overwhelm audio or other drivers supplied with software, especially when initializing, e.g. the initial problems I had getting MSCDEX to loadhigh when just a PAUSE statement in front of the command made it work. I also had problems with one of the early copies of King's Quest V failing to recognize the presence of a Disney Sound Source, just because the CPU wasn't waiting long enough to catch the response from the device that it was prepared to receive output (So said Sierra; they provided a patch very quickly). Check with your software vendors if you experience a problem on just one or two titles and have already tried booting with the minimum possible CONFIG & AUTOEXEC files; they may have already fixed your problem.

If you'd like a good listing/review of CDROM titles, call PsL, at 800-242-4PsL. Also check out the CDROM, Inc. catalog (see above, under "Caddys"); it's the longest and best listing of titles I've seen.

Jerry Isdale mentioned that a large, and expensive, listing of CDROM titles, CDROM's In Print, is available from Meckler at 800-635-5537. About \$95 on CDROM and \$65 on paper.

For the Silicon Valley crowd, both Fry's in Sunnyvale and CompUSA down the road have begun stocking CDROM titles in quantity (Have we finally mainstreamed?!?), and the prices aren't too bad. Fry's has most of them grouped together right near the front entrance, at the beginning of their IBM software section; their selection is growing. CompUSA has a section for CDROM only and has the capability to demo them, but nobody was around to confirm that. Both stores have most popular titles. Steve Katz mentioned that Walden's and the Electronic Boutique have CDROM titles also.

MPC disks that have been reported to run OK on the LL: Battle Chess, KQ5, Beethoven, Bookshelf, Sherlock Holmes.

MPC disks with compatibility problems reported (some may be speed or TSR conflicts!): Composer Quest

Oh, for those of you with a need for speed -- but not the budget -- you might be interested in Lightning CD, a CD caching program reviewed in the 7/93 issue of PC Magazine. Suggested retail is \$99.95 from Lucid Corp., (800) 925-8243, in Richardson, TX.

Another caching program available is Speedcache+ from Future Systems Solutions at (219) 447-8204. Norton also has a cache that supports CDROMs,

HDDs, and Bernoulli & Syquest drives per Patrick Kennedy of Symantec; it is not part of the Norton Utilities, whose cache does not support CDROMs, but is available as a separate product, Norton Speedcache.

A SCSI note from Robert D. Jones, 72163,1566: If your sound card uses the TMC-950 SCSI chip (maybe others?), which is memory-mapped, it may conflict with programs attempting to run in its memory area. The factory default settings are CB80-CBFF. Try using the exclude switch on this address range in the command line for EMM386.EXE in your CONFIG file to avoid the problem.

* * *

CDROM MANUFACTURERS AND MAJOR DEALERS OF SYSTEMS AND ACCESSORIES

This list was created in July, 1993 and will be updated as I notice changes or when changes are suggested to me. I regret that constant verification is beyond the time available to me. If you notice a change or have a suggestion for improvement, PLEASE let me know. And if I omitted your company or favorite major supplier, lemme know. Thanks!

Oh, please accept the usual disclaimer to the effect that I can't guarantee accuracy or the performance (or even the existence) of those listed here, etc.

There is excellent additional information -- esp. for international contacts, CDROM publishing, general reviews of drives, general questions, etc. -- in the file CDROMF.TXT in the Forum Library. There is also sources, info and prices on caddys in a section above.

Note: Several BBS numbers are 9600 bps only!

Adaptec, Inc.
Products/Services: scsi boards software
St. Address: 691 S. Milpitas Bl.
City/State,Prov/ZIP: Milpitas, CA 95035
Main Voice #: (408) 945-8600; (800) 934-2766
Tech Suppt. Voice #: (800) 959-7274
Fax #: (408) 262-2533
Fax-back #:
BBS #: (408) 945-7727
On-line Service/ID:
Other:
Last Updated: 7/93

Apple Computers, Inc.
Products/Services: drives
St. Address: 20555 Mariani Ave.
City/State,Prov/ZIP: Cupertino, CA 95014
Main Voice #: (408) 996-1010
Tech Suppt. Voice #:
Fax #: (408) 974-2403
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Bureau of Electronic Publishing

Products/Services: software drives bundles
St. Address: 141 New Road
City/State,Prov/ZIP: Parsippany, NJ 07054
Main Voice #: (201) 808-2700; (800) 828-4766
Tech Suppt. Voice #:
Fax #: (201) 808-2676
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Cables to Go

Products/Services: custom unusual cables
St. Address:
City/State,Prov/ZIP:
Main Voice #: (800) 826-7904
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

CD-ROM, Inc.

Products/Services: software drives bundles
St. Address: 1667 Cole Bl. #400
City/State,Prov/ZIP: Golden, CO 80401
Main Voice #: (303) 526-7600; (800) 821-5245
Tech Suppt. Voice #:
Fax #: (303) 231-9581
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Chinon

Products/Services: drives
St. Address: 615 Hawaii Ave.
City/State,Prov/ZIP: Torrance, CA 90503
Main Voice #: (310) 533-0274
Tech Suppt. Voice #:
Fax #: (310) 533-1727
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Corel Corp.

Products/Services: scsi software
St. Address: 1600 Carling Ave.

City/State,Prov/ZIP: Ottawa, Ontario, Canada K1Z8R7
Main Voice #: (613) 728-8200; (800) 836-7274
Tech Suppt. Voice #:
Fax #: (613) 728-9790
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Creative Labs
Products/Services: drives bundles sound boards Sound Blaster
St. Address:
City/State,Prov/ZIP:
Main Voice #:
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #: (408) 428-6660
On-line Service/ID:
Other:
Last Updated: 7/93

DAK Industries, Inc.
Products/Services: drives software bundles
St. Address: 8200 Remmet Dr.
City/State,Prov/ZIP: Canoga Park, CA 91304
Main Voice #: (818) 888-8220; Sales (800) 325-0800; Tech info
(800) 888-9818
Tech Suppt. Voice #:
Fax #: (818) 888-2837 (orders)
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Denon
Products/Services: drives
St. Address:
City/State,Prov/ZIP:
Main Voice #: (201) 575-7810
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Future Domain Corp.
Products/Services: sesi boards software
St. Address: 2801 McGaw Ave.
City/State,Prov/ZIP: Irvine, CA 92714
Main Voice #: (714) 253-0400; (800) 879-7599
Tech Suppt. Voice #:

Fax #: (714) 253-0913
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Hitachi Home Electronics, Inc., Multimedia Systems
Products/Services: drives
St. Address: 401 W. Artesia Blvd
City/State,Prov/ZIP: Compton, CA 90220
Main Voice #: (800)-HITACHI (referral to the two following);
(310) 537-8383; (415) 589-8300; (800) 369-0422
Tech Suppt. Voice #:
Fax #: (310) 515-6223
Fax-back #:
BBS #: (516) 829-0212
On-line Service/ID:
Other:
Last Updated: 7/93

IBM
Products/Services: drives software
St. Address:
City/State,Prov/ZIP:
Main Voice #:
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other: Sorry, no info yet!
Last Updated: 7/93

Kodak
Products/Services: photo-CD
St. Address:
City/State,Prov/ZIP:
Main Voice #: (800) 242-2424; x53 for CDROM compatibility
Tech Suppt. Voice #: (800) 242-2424 x51 (Photo-CD); (716) 724-1021
Fax #:
Fax-back #:
BBS #:
On-line Service/ID: CIS - several forums incl. multimedia, photo
Other: See file Kodak.txt in CDROM Forum Library #7
Last Updated: 7/93

Media Vision
Products/Services: drives bundles sound boards
St. Address: 47221 Fremont Bl.
City/State,Prov/ZIP: Fremont, CA 94538
Main Voice #: (510) 770-8600; (800) 348-7116; (800) 845-5870
sales
Tech Suppt. Voice #: (800) 638-2807
Fax #: (510) 770-8648; (510) 770-9592
Fax-back #:

BBS #: (510) 770-0527
On-line Service/ID: CIS: GO MULTIVEN
Other:
Last Updated: 7/93

Meridian Data
Products/Services: network recording software
St. Address:
City/State,Prov/ZIP:
Main Voice #: (800) 767-2537; (408) 438-3100
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Micro Design International, Inc.
Products/Services: software drives adapters
St. Address: 6985 University Blvd.
City/State,Prov/ZIP: Winter Park, FL 32792
Main Voice #: (800) 228-0891; (407) 677-8333
Tech Suppt. Voice #:
Fax #: (407) 677-8365
Fax-back #:
BBS #:
On-line Service/ID:
Other: self nominated
Last Updated: 7/93

Microsoft
Products/Services: software mscdex
St. Address:
City/State,Prov/ZIP: Redmond, WA
Main Voice #:
Tech Suppt. Voice #: CD/Multimedia Suppt (206) 454-2030
Fax #:
Fax-back #:
BBS #: MS Download, (206) 936-6735
On-line Service/ID: CIS - GO MSL, GO MSKB, or several others
Other:
Last Updated: 7/93

Mitsumi
Products/Services: drives
St. Address: 4655 Old Ironsides Dr., Suite #130
City/State,Prov/ZIP: Santa Clara, CA 95054
Main Voice #: (516) 752-7730 (HQ); (214) 550-7300; (408) 970-0700
Tech Suppt. Voice #:
Fax #: (214) 550-7424; (408) 727-5337
Fax-back #:
BBS #:
On-line Service/ID:
Other:

Last Updated: 7/93

NEC

Products/Services: drives bundles

St. Address: 1255 Michael Dr.

City/State,Prov/ZIP: Wood Dale, IL 60191

Main Voice #: (800) 366-3632; (508) 264-8000; (708) 860-9500

Tech Suppt. Voice #:

Fax #: (708) 860-7794

Fax-back #: (800) 366-0476

BBS #: (508) 635-4706; (508) 635-6328; Users' Group ((603)
878-2567

On-line Service/ID:

Other:

Last Updated: 7/93

Panasonic Communications and Systems

Products/Services: drives

St. Address: Two Panasonic Way

City/State,Prov/ZIP: Secaucus, NJ 07094

Main Voice #: (201) 348-7000; (800) 742-8086; (408) 262-2200

Tech Suppt. Voice #:

Fax #: (408) 946-3753

Fax-back #:

BBS #: (201) 863-7845

On-line Service/ID:

Other:

Last Updated: 7/93

Phillips Consumer Electronics, Inc.

Products/Services: drives

St. Address: One Phillips Drive, P.O. Box 14810

City/State,Prov/ZIP: Knoxville, TN 37914

Main Voice #: (800) 835-3506; (310) 217-1883; (615) 521-4499

Tech Suppt. Voice #:

Fax #:

Fax-back #:

BBS #:

On-line Service/ID:

Other:

Last Updated: 7/93

Pioneer

Products/Services: drives jukebox

St. Address: 3255-1 Scott Blvd., Suite #103

City/State,Prov/ZIP: Santa Clara, CA 95054

Main Voice #: (408) 748-2108

Tech Suppt. Voice #: (408) 988-1702

Fax #: (408) 988-1848

Fax-back #:

BBS #: (408) 748-2150

On-line Service/ID:

Other:

Last Updated: 7/93

PsL (Public software Library)

Products/Services: software drives bundles
St. Address: P.O. Box 35707; 5925 Kirby Dr. #209
City/State,Prov/ZIP: Houston, TX 77235-5705
Main Voice #: (713) 524-6394; (800) 242-4775 (orders)
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Sanyo
Products/Services: drives
St. Address:
City/State,Prov/ZIP:
Main Voice #: (801) 225-6888
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Sony Computer Peripheral Products, Optical Products Storage Division
Products/Services: drives bundles
St. Address: 655 River Oaks Pkwy.
City/State,Prov/ZIP: San Jose, CA 95134
Main Voice #: (408) 434-6644; -432-0190, -944-4326?, -944-4225?;
(800) 352-7669 (orders)
Tech Suppt. Voice #: (408) 955-4343; (408) 372-9260; also see additional
references in text above
Fax #: (408) 432-0253
Fax-back #:
BBS #: (408) 955-5107
On-line Service/ID:
Other:
Last Updated: 7/93

Sun Moon Star
Products/Services: drives Hitachi Sony
St. Address:
City/State,Prov/ZIP: San Jose, CA
Main Voice #:
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #: (408) 452-8281
On-line Service/ID:
Other:
Last Updated: 7/93

Talon
Products/Services: drives
St. Address:

City/State,Prov/ZIP:
Main Voice #:
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Tandy
Products/Services: PCs drives
St. Address: One Tandy Way
City/State,Prov/ZIP: Fort Worth, TX 76102
Main Voice #: (817) 390-3700; (817) 390-3011
Tech Suppt. Voice #:
Fax #:
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Texel America
Products/Services: drives
St. Address: 1605 Wyatt Dr.
City/State,Prov/ZIP: Santa Clara, CA 95054
Main Voice #: (800) 886-3935; (408)980-1838
Tech Suppt. Voice #:
Fax #: (408) 980-1840
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Toshiba America Information Systems, Inc., Disk Products Division
Products/Services: drives
St. Address: 9740 Irvine Bl.
City/State,Prov/ZIP: Irvine, CA 92718
Main Voice #: (800) 334-3445; (714) 583-3111; (714) 455-0407;
(714) 583-3084
Tech Suppt. Voice #:
Fax #: (714) 583-3133
Fax-back #:
BBS #:
On-line Service/ID:
Other:
Last Updated: 7/93

Trantor Systems Ltd. (wholly owned subsidiary of Adaptec, Inc.)
Products/Services: drives scsi software boards
St. Address:
City/State,Prov/ZIP:
Main Voice #: (800) 872-6867; (415) 770-1400
Tech Suppt. Voice #:

Fax #: (510) 770-9910
Fax-back #:
BBS #:
On-line Service/ID: CIS: GO CDVEN; or Jack, 71333,2450
Other:
Last Updated: 7/93

Please contribute if you have info to share!

Enjoy! Kevin Kelly -- 76650,351