

LJ4Boost

Oliver Hitz

COLLABORATORS

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Chapter 1

LJ4Boost

1.1 Welcome to LJ4Boost Printer Driver Package

LJ4Boost

An Amiga printer driver especially designed for
Hewlett-Packard LaserJet 4(L) and compatibles.

Version 1.01
April 11, 1995

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Disclaimer
Copyright And Distribution

General

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1.2 Disclaimer

Disclaimer

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1.3 Copyright And Distribution

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The autor reserves the right to interdict distribution at any time if the distributor fails to obey to this license agreement.

1.4 Introduction

Introduction

The LaserJet4L from Hewlett-Packard® is a very great low-cost laser printer with many possibilities. This makes him an ideal home laser printer. In the

original package there are printer drivers for MS-Dos®, Windows® and Macintosh® systems. But nothing for Amiga.

This package is an attempt to provide such a software also for Amiga. It covers a standard AmigaDOS printer driver especially designed for HPLaserJet4L and a preferences editor, where printer related settings can be made, similar to the HP-Explorer software provided in the original distribution. This preferences editor is not meant to replace the existing Printer Preferences, but to extend it to have access to printer specific features.

This printer driver is especially designed for HP LaserJet 4L printers, but as all printers of the HP LaserJet 4 family support the PCL5 printer language, it is very likely that this driver also works on other than the HP LaserJet 4L.

1.5 Features

Features

This printer driver package offers a large palette of features:

- > highly optimized assembler-written Amiga printer driver
- > shorter than any other printer driver (< 4000 bytes!!!)
- > support of ANSI symbol sets
- > support of HP-GL/2 graphics
- > highly optimized compression routines for shorter graphics output
- > automatic/manual paperfeed switch
- > EconoMode switch
- > documentation in AmigaGuide format
- > style-guide compliant, font-sensitive and localized prefs editor
- > style-guide compliant registration program

1.6 Requirements

Requirements

Besides an Amiga Computer with at least OS 2.0 you will need a HP LaserJet 4L compatible printer.

1.7 Compatibility

Compatibility

The HP LaserJet 4L works like all printers of the LaserJet 4 family with the PCL5 printer's language. Although this printer driver was especially designed and tested on a LaserJet4L, it is very likely, that it will also work on other printers of the same family. If you test this driver on other than the 4L, and you discover any problems or things that haven't been important on the 4L, please contact the author.

In the graphics mode, density 7 is 600 dpi. This setting has been added to allow owners of laser printers other than the HP LaserJet 4L to test this driver on their printers.

1.8 Installation

Installation

The installation of this printer driver package is fully automatically using Commodore's installer program.

After the installation, start the Printer-Preferences and select LJ4Boost to activate it...

1.9 Installation Of The Printer Driver

Installation Of The Printer Driver

The printer driver is copied into the DEVS:Printers/ directory by the installation program. To activate it, load the Printer-Prefs and select the LJ4Boost printer driver. For more information on the Printer-Prefs, refer to your Workbench manual.

1.10 Using The Printer Driver

Using The Printer Driver

There is not much to say about using the printer driver. In general, you won't have much to do directly with the printer driver. It is used automatically when you tell your programs to print something.

The printer driver uses the "ISO 8859/1 Latin 1" built-in symbol set, when in Amiga (normal) mode. This makes it a lot shorter, because there is no need to include a table with character replacements.

In ANSI mode, the printer driver uses the "PC-8 Code Page 437" symbol set.

Graphics Printing

The density settings for graphics printings are as follows:

Density Number	1	2	3	4	5	6	7
Graphics Density	75dpi	100dpi	150dpi	300dpi	300dpi	300dpi	600dpi

The 600dpi setting (7) is not supported by the HP LaserJet 4L printer, but I added it here so that owners of other LaserJet 4 printers may also use this printer driver. (Or at least try to use it...)

When selected in the preferences editor, the printer driver tries to reduce

the amount of data to transfer by compressing it. This may result in speed improvements. (Compression And Speed)

Escape Sequences

For a detailed explanation of the escape sequences supported by this printer driver, see *Escape Sequences* .

Page Sizes

The AmigaDOS supports various pagesizes in its preferences that cannot be handled on the HPLaserJet 4L. But the HPLaserJet4L also offers page sizes that are not supported by AmigaDOS. The page size settings are as follows:

AmigaDOS	LJ4Boost	Dimensions	Printable Area
US_LETTER	Letter	8.5" x 11"	8.2" x 10.7"
US_LEGAL	Legal	8.5" x 14"	8.2" x 13.7"
N_TRACTOR	DIN A4	210mm x 297mm	201mm x 288mm
W_TRACTOR	DIN A4	210mm x 297mm	201mm x 288mm
CUSTOM	<margins set in the preferences>		
EURO_A0	Executive	7.25" x 10.5"	6.9" x 10.1"
EURO_A1	Monarch	3.87" x 7.5"	3.5" x 7.2"
EURO_A2	COM 10 Env.	4.12" x 9.5"	3.8" x 9.2"
EURO_A3	Intl. DL Env.	110mm x 220mm	101mm x 202mm
EURO_A4	DIN A4	210mm x 297mm	201mm x 288mm
EURO_A5	DIN A5	148mm x 210mm	140mm x 201mm
EURO_A6	DIN A6	105mm x 148mm	96mm x 140mm
EURO_A7	Intl. B5 Env.	176mm x 250mm	168mm x 242mm
EURO_A8	DIN A4	210mm x 297mm	201mm x 288mm

1.11 Escape Sequences

aRIS	ESCc Printer reset
aRIN	ESC#1 Printer reset, set settings from LJ4Boost-Prefs, set AMIGA symbol set, Courier typeface, line spacing and margins (as set in the prefs)
aIND	ESCD LF (without CR)
aNEL	ESCE LF and CR
aRI	ESCM Reverse LF and CR
aSGR0	ESC[0m Underline off, italic off, bold off
aSGR3	ESC[3m Italics on

aSGR23	ESC[23m Italics off
aSGR4	ESC[4m Underline on (floating)
aSGR24	ESC[24m Underline off
aSGR1	ESC[1m Boldface on
aSGR22	ESC[22m Boldface off
aSFC	ESC[nm (30<=n<40)
aSBC	ESC[nm (40<=n<50) no effect
aSHORP0	ESC[0w PICA (10 cpi)
aSHORP2	ESC[2w ELITE (12 cpi)
aSHORP1	ESC[1w PICA (10 cpi)
aSHORP4	ESC[4w FINE (16 cpi)
aSHORP3	ESC[3w PICA (10 cpi)
aSHORP6	ESC[6w 8 cpi
aSHORP5	ESC[5w 10 cpi
aDEN6	ESC[6"z
aDEN5	ESC[5"z
aDEN4	ESC[4"z
aDEN3	ESC[3"z
aDEN2	ESC[2"z
aDEN1	ESC[1"z no effect
aSUS2	ESC[2v
aSUS1	ESC[1v
aSUS4	ESC[4v
aSUS3	ESC[2v
aSUS0	ESC[0v no effect
aPLU	ESCL

	Half LF reverse (with CR)
aPLD	ESCK Half LF (with CR)
aFNT0	ESC(B Courier typeface
aFNT1	ESC(R Letter Gothic typeface
aFNT2	ESC(K
aFNT3	ESC(A
aFNT4	ESC(E
aFNT5	ESC(H
aFNT6	ESC(Y
aFNT7	ESC(Z
aFNT8	ESC(J
aFNT9	ESC(6
aFNT10	ESC(C no effect
aPROP2	ESC[2p
aPROP1	ESC[1p
aPROP0	ESC[0p
aTSS	ESC[n E no effect
aJFY5	ESC[5 F
aJFY7	ESC[7 F
aJFY6	ESC[6 F
aJFY0	ESC[0 F
aJFY2	ESC[2 F
aJFY3	ESC[3 F no effect
aVERP0	ESC[0z 8 lpi
aVERP1	ESC[1z 6 lpi
aSLPP	ESC[nt Set form length n
aPERF	ESC[nq
aPERF0	ESC[0q no effect
aIMS	ESC#9
aRMS	ESC#0
aTMS	ESC#8
aBMS	ESC#2 no effect
aSTBM	ESC[n1,n2r Set top and bottom margins

```

aSLRM          ESC[n1,n2s
                Set left and right margins

aCAM           ESC#3
                Clear margins (set as set in the preferences)

aHTS          ESC#H
aVTS          ESC#J
aTBC0         ESC[0g
aTBC3         ESC[3g
aTBC1         ESC[1g
aTBC4         ESC[4g
aTBCALL       ESC#4
aTBSALL       ESC#5
                no effect

aEXTEND        ESC[n"x
                Extended commands
                n:  1 Load ENV:LJ4Boost.prefs
                    (NOT set it - to set it, use aRIN command!)

                    2 AMIGA symbol set (ISO 8859/1 Latin 1)
                    3 ANSI symbol set (PC-8 Code Page 437)

                    10 Enter HP-GL/2 mode
                    11 Enter Normal (PCL) mode

aRAW           ESC[n"r
                Next n characters are RAW (e.g. for sending ESC sequences)

```

1.12 ANSI Mode

ANSI Mode

This printer driver also supports printing of ANSI characters. The ANSI mode is invoked by sending ESC[3"x to the printer driver. If you for example want to print a text from an MSDOS machine, simply put this sequence in front of your text and send it to PRT:.. (The only thing you have to pay attention is the line termination. In the current version, this printer driver adds a CR to each LF.)

When in ANSI mode, all characters are printable (except 0, 7-15, 27).

To quit the ANSI mode and return to the normal AMIGA mode, send ESC[2"x.

By default, the printer driver is in AMIGA mode when the printer.device is opened.

NOTE: When printing color ANSI texts, you may notice that some parts are printed bold. That's because ANSI offers 16 colors, but with escape sequences there are only 10 colors possible. So the bold flag is taken as additional bit for the color number. (By the way: It is not possible to print patterns for the different colors in the current version.)

1.13 HP/GL-2 Mode

The HP-GL/2 Mode

This printer driver supports the powerful HP-GL/2 (HP-Graphics Language) mode of the printer. If you send ESC[10"x, the printer will be in HP-GL/2 mode until ESC[11"x.

HP-GL/2 is a graphics language mainly designed for plotters. In HP-GL/2 mode graphics are no longer printed as raster images. Instead of drawing a whole picture in the memory of the computer and then sending this as a raster image, it is possible to tell the printer to draw the picture in its memory. Of course this doesn't work for pictures such as scanned photographs, but for other graphics, such as output of CAD programs, it will result in GREAT speed improvements.

If you have programs that offer HP-GL/2 output, simply tell it to print its output to a file and then insert ESC[10"x at the beginning and ESC[11"x at the end and send it to PRT:.

Maybe in future versions of this package there will be a custom-designable DOS-Handler that allows to switch into HP-GL/2 mode when e.g. printing a document to PLT:...

NOTE: When switching to HP-GL/2 mode and back, the cursor position is NOT changed.

1.14 Installation Of The Preferences Editor

Installing The Preferences Editor

The preferences editor is installed automatically with the installation script. It is copied to the SYS:Prefs-directory, where all the other preference editors are located.

1.15 Getting Started

Getting Started

The preferences editor may be started either from Shell or from Workbench by double clickin' on its icon.

It is localized, font-sensitive and exactly designed like the standard Workbench preference editors.

Workbench Startup

Supported tooltypes:

```
ACTION=( EDIT | USE | SAVE )
CREATEICONS=( YES | NO )
PUBSCREEN=<public screen name>
```

Shell Startup

The template for starting it from the Shell looks as follows:

```
FROM,  
EDIT/S,  
USE/S,  
SAVE/S,  
PUBSCREEN/K
```

1.16 FROM

Specifies that an saved settings file will be loaded into the editor. This file has to be generated by the menu item "Save As".

1.17 CREATEICONS YES

Specifies that an icon is saved when the configuration is saved. Default is OFF.

1.18 CREATEICONS NO

Specifies that no icon is saved when the configuration is saved. This is the default setting.

1.19 EDIT/S

Specifies that you want to open the editor window to edit a setting. This is the default setting.

1.20 USE/S

Loads in a configuration file and saves it as current setting. The editor window isn't opened.

1.21 SAVE/S

Loads a configuration file and saves it as default setting. The editor window isn't opened.

1.22 PUBSCREEN/K

This option lets you specify the screen the editor window opens on. Default is "Workbench".

1.23 Using The Preferences Editor

Using The Preferences Editor

The preference editor has been programmed according to the style-guide. It works exactly like any other Workbench preference editor, so it is very easy to handle.

Explanation of the buttons

- Copies
- Paperfeed
- EconoMode
- Auto Continue
- Density
- Image Adapt
- Page Protect
- REt

Compression

- Save
- Use
- Cancel

Explanation of the menus

- Project
 - Open...
 - Save As...
 - About
 - Quit

Presets

- Reset To Defaults
- Last Saved
- Restore

Settings

- Create Icons?

NOTE: The printer driver loads the configuration file every time the printer.device is opened, but the settings are only set if the driver receives the aRIN command. This is done always when the printer driver is loaded into memory (the first time you print). After that the printer driver remains in memory and the settings are only set if a program that wants to print sends an aRIN command. (See also Troubleshooting)

1.24 Copies

Here you can enter how many copies you want to print. This doesn't mean that the data has to pass multiple times from the computer into the printer, all it does is to tell the printer how many pages he should print.

1.25 Paper Feed

Automatic selects automatic paper feed, Manual selects manual paper feed. If you choose manual feed, the printer's data-led will blink requesting you for paper.

1.26 Econo Mode

This is a special feature of the HP LaserJet 4L. Selecting this will force the printer to reduce the used toner by 50%. This is a very useful switch if you don't need BLACK and SHARP images, e.g. for testing a printer driver... (The costs per page are also reduced by 50%)

1.27 Auto Continue

This option forces the printer to continue automatically after errors have occurred. If "Auto Continue" is disabled, the printer will wait for you to press the button before he continues.

1.28 Density

This lets you change the density settings. "1" is light (uses less toner) and "5" is dark (uses big amounts of toner). This option is useful when printing on folios, as sometimes they need to be very DARK.

1.29 Image Adapt

This option controls the printer's internal data compression mechanism. With 1MB of printer memory, you aren't able to hold one whole page in memory. With this switch set to "On", all data is compressed in the printer to fit into it's memory. The disadvantage of this is, that you loose details. That means, that the output won't look exactly like the input. (It will be less sharp.)

1.30 Page Protect

When printing very dense or complex images, the printer may be too slow to handle input and output at the same time. If you select "On", the printer will first save the whole page in it's memory before printing it. Choose "Auto" if you only have 1MB of printer memory, as you won't be able to hold a whole page in memory. Choosing "Off" gives you the best performance, but there can be errors from time to time, dependent from the complexity of your output.

1.31 REt

Resolution Enhancement technology (REt) is a feature that enhances the resolution of your printer. This is done by refining pixels with smaller pixels. To gain optimal quality, use this option together with Density.

1.32 Compression

This controls which compression methods will be used for graphics printing. "None" disables all compression, "Run-Length" enables run-length compression, a very simple algorithm. "TIFF" selects an algorithm similar to the one used when encoding IFF ILBM pictures, and "Run-Length & TIFF" selects both of them, where each line is compressed with both methods and the shorter one is sent to the printer.

For more about compression : Hints
Compression And Speed

1.33 Save

This button saves the current settings as your default setting and quits the editor.

1.34 Use

This button saves the current setting as your actual setting that remains active until you reset your computer. It quits the editor.

1.35 Cancel

This button quits the editor without changing anything in the active settings.

1.36 Open...

This menu item lets you load a setting that you have saved to disk some time before.

1.37 Save As...

This menu item lets you save a setting to disk. If you have activated the Create Icons? menu, then an icon will be added to your file.

1.38 About

Probably the most important menu point...

1.39 Quit

Quits the editor without changing anything.

1.40 Reset To Defaults

Resets the current settings to the default system settings. These settings cannot be modified.

1.41 Last Saved

This menu item loads in the last saved configuration settings saved with the Save button.

1.42 Restore

Loads the currently active settings.

1.43 Create Icons?

If this menu item is checked, then everytime you save a configuration using the Save menu item, the icon called "ENV:Sys/def_pref.info" is added to the file. Note that NO icon is saved if you just press the Save button.

By default this option is OFF unless you specify the CREATEICONS tootype when starting it from the Workbench.

1.44 Hints

Hints

Compression

The compression modes used by the HP LaserJet 4L are only very simple ones. Together with the compression routines in the printer driver, they can improve the time required to print graphics even on a normal 68000 based system. (Compression And Speed)

1.45 Compression And Speed

Compression And Speed

It is difficult to say whether compressing data results in big speed improvements or not. Everything depends on the data. The printer driver always cuts off all 0-bytes to the right of a line. This is done even if there is no compression selected, as this costs almost no time to do and the efforts can be great as often there are half-empty or even empty lines.

1.46 Known Problems

Known Problems

FinalWriter

Some versions of FinalWriter reset the printer a couple of times during a printout. This causes empty papers, especially when the printer driver is loaded into memory. (When it is loaded into memory for the first time, the printer is reset automatically.)

If you should encounter problems, please contact the author with a clear explanation of your problem and a short summary of your equipment. (Not because I'm curious, but because the problem could be caused by your equipment)

1.47 Troubleshooting

Troubleshooting

The settings from the LJ4Boost-Prefs have no effect.

The settings from the prefs are only set when the printer driver is loaded into memory or when the driver receives an aRIN command.

This has been made because when the the settings is set all pages still in

memory would be printed out, and sometimes this could cause problems e.g. when a program closes and re-opens the printer.device during one page (the contents of the page would be scattered over multiple pages).

This command can be sent manually using the "InitPrinter" program found on the Workbench disk, or from CLI via the following line: 1.> echo >PRT: "*E#1" noline

1.48 Registration

Registration

This printer driver package is SHAREWARE. This means you HAVE to pay for it if you use it.

The registration fee is SFr 20, DM 20 or US\$ 20 (The US\$ is very low at the moment...). No other currencies are accepted. Do only send cash. Otherwise there is no guarantee that you will receive an answer.

If you register, you will receive a labeled disk with the latest version of the "LJ4Boost Printer Driver Package", along with a personal keyfile that allows you to use future versions of this program. For more information on where and how to get updates, see Updates.

Please do ONLY register with the registration utility provided in the original distribution. (Let's hope it works on all Amigas...)

[Click here to start the registration utility NOW](#)

Please allow 2-4 weeks for delivery, depending on where you live.

1.49 Updates

Updates

It is not shure wheter there will be any updates of this package or not. The more registrations, the more likely it is that there will be any updates. Anyway, if there should be any updates, they will be available in the AmiNet and on the FriByte BBS.

For possible future features, see Future.

1.50 FriByte BBS located in Fribourg/Switzerland

```

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*
*  ----- PCBoard V15.21 *
*
*          CALL: +41 - 37 - 432 540   (24h - ZyXEL 19k2)   *
*
*  ----- AMIGA --- MSDOS --- HP48 ----- *

```

1.51 Feedback

Feedback

The author is very pleased about bugreports, ideas or anything else apart from letter-bombs...:-) Feel free to write the author what do you think about this package.

For the address, see How To Reach The Author.

1.52 How To Reach The Author

How To Reach The Author

E-mail: Oliver.Hitz@unifr.ch

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 Weiermattweg 13
 3186 Dürdingen
 Switzerland

...or simply call: FriByte BBS +41-37-432540

...and leave a message for Oliver Hitz!

- - - - - * Up The Irons! * - - - - -

So it shall be written - so it shall be done.

1.53 History

V1.01 (11.04.95)
 - LJ4Boost-Prefs V1.01
 - fixed bug in the tooltypes (didn't work properly)

- fixed enforcer hit

V1.0 (06.04.95)
- first public release

1.54 Future

Future

If there will be some future versions of this printer driver package, then the following features will probably be added:

- add features from HPLaserJet4L compatible printers (with YOUR help!)
- make use of the read-back possibility of the HPLaserJet4(L)
(I'd be very glad if anybody could tell me how to do this :-))
- delta-compression for graphics
- 68020+ optimized version
- foreground-/background-color patterns (great for ANSIs!)
- customizable DOS-Handler (to create ANSI: or PLT:...)
- multi-lingual documentation + registration utility
- MagicWB icons...

...and many more. You can be sure of it!