

## Overview:

This package contains a replacement graphics library for DJGPP, named "LIBGRX". It supports EGA, VGA, 8514/A compatible, and S3 based PC graphics adapters in 16, 256, and 32768 color modes. Support for mono EGA/VGA, Hercules (the "original" monochrome) should be coming soon. The library supports (among other things):

- an unlimited number of graphics drawing areas (called contexts) both in video and system RAM.
- adjustable clipping regions for contexts.
- a rich set of graphics primitives.
- a library of loadable bit-mapped fonts.
- user to screen coordinate transformations.

The library is upward compatible with the original 256 color DJGPP VGA graphics library. However, only the C functions are supported, the 'GrRegion' C++ class is not included in LIBGRX.

The library is distributed in the form of three archives:

CBGRX102.ZIP - the library files, sources, include files, drivers, documentation. For most users this archive should be sufficient.

CBGRD102.ZIP - the WordPerfect (tm) documentation of the library formatted for HP LaserJet and PostScript printers. Download this file only if (1) you have one of the above printers, and (2) you have no other way of dealing with WP files.

CBGRF102.ZIP - the full compliment of X11R4 fonts for LIBGRX. For most applications the subset included in CBGRX102.ZIP should be sufficient.

The LIBGRX graphics library is copyright: (c) 1992 Csaba Biegl, 820 Stirrup Dr, Nashville, TN 37221. Additionally, some modules were derived from DJGPP code copyright: (c) DJ Delorie, 24 Kirsten Ave, Rochester NH. 03867-2954. Most of the fonts included with the library originate from the MIT X11R4 distribution. Consult the appropriate copyright text (in the files "copying.cb", "copying.dj", and "copying.mit", respectively) for further information.

## Installation:

The library is distributed in the form of a 'ZIP' archive, it should be unarchived (use the '-d' option) in the directory where DJGPP was installed. This will place the files of the archive into a directory tree created under 'CONTRIB/LIBGRX'.

The 'makefile' in the base directory can be used to install the header and library files in the standard DJGPP include and library directories by issuing the "make install"

command. NOTE: this will work only if you unarchived the package in the directory where DJGPP is installed. Alternatively, you can use the header and library files in their original location, but then you have to supply 'gcc' with the proper include and library paths.

The same graphics driver you have been using for 256 color VGA modes can be used with LIBGRX. This means that (at least for now) you don't have to change your GO32 environment variable. The documentation describes how to use (or create -- if you have an unsupported card) the 16 color EGA/VGA drivers or the new, programmable drivers.

There is one more environment variable which has to be set: the directory where the fonts belonging to LIBGRX were installed. For example: if you installed DJGPP in "c:\djgpp" and unarchived the package in that directory, you would have to issue the command:

```
SET GRXFONT=c:\djgpp\contrib\libgrx\fonts
```

This completes the installation procedure. You can now rebuild your application(s) with the LIBGRX library. The changes to accomplish this are minimal:

(1) Change the "#include <graphics.h>" and "#include <mouse.h>" lines in your program to "#include <grx.h>" and "#include <mousex.h>", respectively.

(2) Link with "-lgrx" instead of "-lgr".

Your program should work exactly the same as before. Consult the documentation for the new features in the LIBGRX graphics library.

The LIBGRX graphics library can also be used in Turbo C programs. The Turbo C library is not included in this distribution, but you can build it by typing:

```
make turboc
```

in the directory where LIBGRX was installed. The Turbo C version uses the environment variable ("GRXDRV") for specifying the graphics driver, but the syntax is similar to the one used in DJGPP. (NOTE: there is no need for the "driver" keyword!!)

```
SET GRXDRV=<driver file> [gw <width>] [gh <height>] ...
```

The Turbo C version supports only those resolutions which do not require video RAM paging: 320x200 in 256 color mode, and up to 800x600 in 16 color modes.

## Directories:

Successful unarchiving of the package should create the following directories under the

base directory where LIBGRX was installed:

DOCS: documentation files. These are provided both in WordPerfect (tm) 5.1 and plain DOS text format.

DRIVERS: additional graphics drivers for DJGPP.

EVENTS: an interrupt-driven mouse and keyboard event queue library for both Turbo C and DJGPP.

FONTS: loadable bit-mapped fonts for LIBGRX.

INCLUDE: public (externally used functions, variables, etc..) include files.

LIB: pre-built libraries for DJGPP.

SRC: LIBGRX sources

TEST: test programs

UTILS: utilities for displaying fonts, etc...

## Documentation:

Some of the documentation files (mostly the user's manuals) in the DOCS directory were written using WordPerfect (tm) version 5.1. These files were formatted for HP Laserjet II (or better) printers. The remaining files (mostly the ones describing the internals of the library) are plain ASCII files.

The original WP files have the extension ".WP5".

The ASCII document files have the extension ".DOC".

The ".DOC" files for those documents where a ".WP5" file is also present were generated by converting the WP file to DOS text file format. No particular effort was made to try to align, break up nicely, etc.. the resulting text. These files should give acceptable printouts on 132 column printers, but they may have to be formatted for 80 column printers.

There is an additional archive named "cbgrd102.zip" which contains the WP documents formatted for LaserJet (extension: ".LJ2") or PostScript (extension: ".PS") printers. These files have not been included in the basic distribution because of archive size considerations. These files are suitable for printing on any Laserjet II (or better) or PostScript printer just by typing:

```
COPY /B <file>.lj2 prn
```

-- or --  
COPY /B <file>.ps prn

No font cartridges are needed for the LaserJet printers as the ".LJ2" files already contain the necessary downloadable fonts.

A brief overview of the contents of the documentation files included in the 'DOCS' sub-directory:

1ST\_READ.WP5: this file in WordPerfect (tm) format.

DRIVERS.WP5: guide to writing graphics drivers for unsupported adapters.

EVENTS.WP5: manual for the event queue library

INTERNAL.DOC: internal details of the library and recompiling instructions

LIBGRX.WP5: user's manual for the graphics library

MISSING.DOC: listing of features and functions not implemented in this beta release

TESTS.DOC: a brief description of the test programs