

Graphics

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/* Engine.c - Execute me to compile me with SAS/C 5.10a
LC -Ofastq -v -y -j73 Engine.c
quit */

#include <exec/types.h>
#include <exec/memory.h>
#include <dos/dostags.h>
#include <dos/dos.h>
#include <diskfont/diskfonttag.h>
#include <diskfont/diskfont.h>
#include <diskfont/glyph.h>
#include <diskfont/oterrors.h>
#include <utilty/tagitem.h>
#include <string.h>

#include <clib/dos_protos.h>
#include <clib/exec_protos.h>
#include <clib/utilty_protos.h>
#include <clib/bullet_protos.h>

#define OTAG_ID 0x0f03 /* this really belongs in <diskfont/diskfont.h>,
                        */
                        /* but it's not there, yet.

extern UBYTE *librarystring; /* ".library", defined in BulletMain.c. */

struct TagItem *AllocTag(STRPTR);
void FreeTag(void *);
struct Library *OpenScalingLibrary(struct TagItem *);
void CloseScalingLibrary(struct Library *);
struct GlyphEngine *GetGlyphEngine(struct TagItem *, STRPTR);
void ReleaseGlyphEngine(struct GlyphEngine *);

#define BUFSIZE 256

extern struct Library *BulletBase, *UtiltyBase;

/*****
 * open the otag file, allocate a buffer, read the file into the buffer, verify that */
 * the file is OK, relocate all of the address relocation tags, close the otag file. */
/*****
 * struct TagItem *
 * AllocTag(STRPTR otagname)
 * {
 *     BPTR otfiler;
 *     struct TagItem *ti, *tip, *returnti;
 *     struct FileInFoblock *fib;
 *
 *     ti = NULL;
 *
 *     if (fib = AllocDosObject(DOS_FIB, NULL)) /* The FileInFoblock of the OTAG file */
 *     {
 *         if (otfiler = Open(otagname, MODE_OLDFILE)) /* contains the file's size.
 *         {
 *             if (ExamineFH(otfiler, fib))
 *             {
 *                 if (returnti = (struct TagItem *) AllocVec(fib->fib_Size, MEMF_CLEAR))
 *                 {
 *                     if (Read(otfiler, (UBYTE *) returnti, fib->fib_Size))
 *                     {
 *                         if ((returnti->ti_Tag == OT_FileIdent)
 *                             && (returnti->ti_Data == (ULONG) fib->fib_Size)) /* the OTAG file
 *                         {
 *                             tip = returnti;
 *                             while (ti = NextTagItem(&tip)) /* Step through and relocate tags */
 *                             {
 *                                 if (ti->ti_Tag & OT_Indirect)
 *                                 {
 *                                     ti->ti_Data = (ULONG) returnti + ti->ti_Data;
 *                                 }
 *                             }
 *                         }
 *                     }
 *                 }
 *             }
 *         }
 *         Close(otfiler);
 *     }
 *     FreeDosObject(DOS_FIB, fib);

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}
return (returnti);
}

/*****
 * Deallocation resources allocated by AllocTag(). *****/
/*****
 * void
 * FreeVec(void *vector)
 * {
 *     FreeVec(vector);
 * }

/*****
 * Scans through a TagList looking for an scaling engine name. *****/
/*****
 * If it finds one, it opens that library. *****/
/*****
 * struct Library *
 * OpenScalingLibrary(struct TagItem * ti)
 * {
 *     STRPTR engineName;
 *     UBYTE libNameBuffer[BUFSIZE];
 *
 *     if (engineName = (STRPTR) GetTagData(OT_Engine, NULL, ti))
 *     {
 *         strcpy(libNameBuffer, engineName);
 *         struct libNameBuffer, librarystring);
 *         return (OpenLibrary(libNameBuffer, 0L));
 *     }
 * }

/*****
 * Deallocation resources allocated by OpenScalingLibrary(). *****/
/*****
 * void
 * CloseScalingLibrary(struct Library * bbase)
 * {
 *     CloseLibrary(bbase);
 * }

/*****
 * Open the glyph engine, give it the tags from the otag file, and set up */
 * a default device dpi so it doesn't crash if someone forgets to set it. */
/*****
 * struct GlyphEngine *
 * GetGlyphEngine(struct TagItem * ti, STRPTR otagpath)
 * {
 *     struct GlyphEngine *ge = NULL;
 *     BOOL ok = TRUE;
 *
 *     if (ge = OpenEngine())
 *     {
 *         ok = FALSE;
 *         if (SetInfo(ge,
 *                     OT_OTAGList, ti,
 *                     OT_OTAGPath, otagpath,
 *                     TAG_END) == OTERR_Success)
 *         {
 *             if (SetInfo(ge,
 *                         OT_DeviceDPI, (ULONG) 77) << 16 | 75,
 *                         TAG_END) == OTERR_Success)
 *             {
 *                 ok = TRUE;
 *             }
 *         }
 *     }
 *     if (!ok)
 *     {
 *         CloseEngine(ge);
 *         ge = NULL;
 *     }
 *     return (ge);

```

Using Computational Typefaces with Bullet

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/***** Deallocates resources allocated by GetGlyphEngine(). *****/
/***** Deallocates resources allocated by GetGlyphEngine(). *****/
void
ReleaseGlyphEngine(struct GlyphEngine * ge)
{
    CloseEngine(ge);
}

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/* BulletMain.c - Execute me to compile me with SAS/C 5.10a
LC -cfistg -v -y -j73 BulletMain.c
quit ;*/

#include <exec/types.h>
#include <exec/memory.h>
#include <dos/rdargs.h>
#include <dos/dos.h>
#include <dos/var.h>
#include <diskfont/diskfonttag.h>
#include <diskfont/diskfont.h>
#include <diskfont/glyph.h>
#include <diskfont/oterrors.h>
#include <utility/tagitem.h>
#include <string.h>
#include <graphics/displayinfo.h>
#include <intuition/intuition.h>
#include <intuition/screens.h>

#include <clib/dos_protos.h>
#include <clib/graphics_protos.h>
#include <clib/exec_protos.h>
#include <clib/utility_protos.h>
#include <clib/bullet_protos.h>
#include <clib/intuition_protos.h>

#define OTAG_ID 0x0f03

#ifdef LATTICE
int CXBRK(void) { return (0); } /* Disable Lattice CTRL/C handling */
int chkabort(void) { return (0); }
#endif

UBYTE *readargsstring = "FontName,Size/N,XDPI/N,YDPI/N,CharCode/N,CharCode2/N\n";
UBYTE *librarystring = ".library";
UBYTE *fontstring = "fonts:cgtimes.font";
UBYTE *dpivarname = "XYDPI"; /* Name of an X/Y DPI environment variable. */
/* If this ENV: variable exists, this code */
/* will use the X and Y DPI stored there. */
/* This code will also save the X and Y DPI */
/* in XYDPI if the user supplies a DPI. */
/* XYDPI encodes the DPI just like the */
/* OT_DeviceDPI tag. */

extern struct TagItem *AllocOtag(STRPTR);
extern void FreeOtag(void *);
extern struct Library *OpenScalingLibrary(struct TagItem *);
extern void CloseScalingLibrary(struct Library *);
extern struct GlyphEngine *GetGlyphEngine(struct TagItem *, STRPTR);
extern void ReleaseGlyphEngine(struct GlyphEngine *);
extern void
BulletExample(struct GlyphEngine *,
              struct Window *,
              struct RastPort *, ULONG, ULONG, ULONG, ULONG, ULONG);

#define BUFSIZE 256

#define NUM_ARGS 6 /* Arguments for ReadArgs(). */
#define FONT_NAME 0
#define SIZE 1
#define XDPI 2
#define YDPI 3
#define CODE 4
#define CODE2 5
LONG args[NUM_ARGS];
struct RDargs *myrda;

struct Library *BulletBase, *UtilityBase, *GfxBase, *IntuitionBase;

UBYTE buf[BUFSIZE];
BPTR fontfile, dpifile;
UBYTE *otagname;
UWORD fchid;

struct GlyphEngine *ge;

struct DrawInfo *drawinfo;
struct RastPort rp;

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        WA_IDOMP, NULL,
        WA_DragBar, TRUE,
        WA_DepthGadget, TRUE,
        WA_Title, (ULONG) argv[0],
        TAG_END))
    }
    rp = *(w->RPort); /* Clone window's RastPort. The second */
                      /* Rastport is for rendering with the */
                      /* background color. */

    if (drawinfo = GetScreenDrawInfo(w->WScreen)) /* Get the */
    {
        SetAPen(w->RPort, drawinfo->dri.pens(TEXTPEN)); /* Set APEN */
        SetAPen(&rp, drawinfo->dri.pens(BACKGROUNDPEN)); /* Set APEN */
        FreeScreenDrawInfo(w->WScreen, drawinfo);
    }

    BulletExample(ge, w, &rp, *(ULONG *) args[SIZE],
                  *(ULONG *) args[XDPI],
                  *(ULONG *) args[YDPI],
                  *(ULONG *) args[CODE],
                  *(ULONG *) args[CODE2]);

}
CloseWindow(w);
ReleaseGLYPHEngine(ge);
}
CloseScalingLibrary(BulletBase);
FreeTag(t1);
}
CloseLibrary(UtilsBase);
}
}
}
Close(fontfile);
}
FreeArgs(myrda);
}
CloseLibrary(IntuitionBase);
}
CloseLibrary(GfxBase);
}

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/* * Rotate.c - Execute me to compile me with SAS/C 5.10a
LC -cfistq -v -y -j73 Rotate.c
Blink FROM LIB:c.o,BulletMain.o,engine.o,Rotate.o TO Rotate LIBRARY
LIB:LC.lib,LIB:Amiga.lib
quit ;*/

#include <exec/types.h>
#include <diskfont/diskfonttag.h>
#include <diskfont/diskfont.h>
#include <diskfont/glyph.h>
#include <diskfont/oterrors.h>
#include <graphics/gfx.h>
#include <graphics/regions.h>
#include <utility/tagitem.h>
#include <intuition/intuition.h>
#include <devices/timer.h>

#include <clib/alib_stdio_protos.h>
#include <clib/alib_protos.h>
#include <clib/bullet_protos.h>
#include <clib/exec_protos.h>
#include <clib/layers_protos.h>
#include <clib/graphics_protos.h>
#include <clib/intuition_protos.h>

extern struct Library *BulletBase, *UtilityBase, *GfxBase, *IntuitionBase;
struct Library *LayersBase;
void      BulletExample(struct GlyphEngine *,
                        struct Window *,
                        struct RastPort *,
                        ULONG, ULONG, ULONG, ULONG, ULONG);

UBYTE      *vers = "\e0$VER: Rotate 38.9";

#define TABLE_ENTRIES 24
#define SINE_INDEX      0
#define COSINE_INDEX    1

/* precalculated sine and cosine */
LONG      table[TABLE_ENTRIES][2] =
{
    {0x0, 0x10000}, /* 0 degrees */ /* Notice that the sine and cosine */
    {0x424e, 0xf747}, /* 15 degrees */ /* values have to correspond to the */
    {0x8000, 0xddb4}, /* 30 degrees */ /* same angle. The IntelliFont */
    {0xb505, 0xb505}, /* 45 degrees */ /* engine will have severe mental */
    {0xddb4, 0x8000}, /* 60 degrees */ /* problems if the values aren't */
    {0xf747, 0x424e}, /* 75 degrees */ /* close to representing the same */
    {0x10000, 0x0}, /* 90 degrees */ /* angle. */
    {0xf747, 0xffffbdbc}, /* 105 degrees */
    {0xddb4, 0xffff8000}, /* 120 degrees */
    {0xb505, 0xffff4afb}, /* 135 degrees */
    {0x8000, 0xffff224c}, /* 150 degrees */
    {0x424e, 0xffff08b9}, /* 165 degrees */
    {0x0, 0xffff0000}, /* 180 degrees */
    {0xffffbdbc, 0xffff08b9}, /* 195 degrees */
    {0xffff8000, 0xffff224c}, /* 210 degrees */
    {0xffff4afb, 0xffff4afb}, /* 225 degrees */
    {0xffff224c, 0xffff8000}, /* 240 degrees */
    {0xffff08b9, 0xffffbdbc}, /* 255 degrees */
    {0xffff0000, 0x0}, /* 270 degrees */
    {0xffff08b9, 0x424e}, /* 285 degrees */
    {0xffff224c, 0x8000}, /* 300 degrees */
    {0xffff4afb, 0xb505}, /* 315 degrees */
    {0xffff8000, 0xddb4}, /* 330 degrees */
    {0xffffbdbc, 0xf747}, /* 345 degrees */
};

struct Rectangle rectangle;
struct Region *region;

void
BulletExample(struct GlyphEngine * ge,
              struct Window * w, struct RastPort * rp,
              ULONG pointheight, ULONG xdpi, ULONG ydpi, ULONG unicode, ULONG unicode2)
{
    struct GlyphMap *gm;
    PLANEPTR      tempbitmap;

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ULONG      centerx, centery, x, y, dx, dy, sin, cos, oldx, oldy, olddx,
            olddy, emheight, emwidth;
ULONG      i = 0;

struct IntuiMessage *mymsg;
BOOL      done = FALSE;

if (pointheight > 180) pointheight = 180;

if (SetInfo(ge,
            OT_DeviceDPI, ((ULONG) xdpi) << 16 | ydpi,
            TAG_END) != OTERR_Success)
    return;

emheight = (pointheight * ydpi) / 72; /* Calculate the pixel dimensions */
emwidth = (pointheight * xdpi) / 72; /* of the EM square. */
centerx = w->BorderLeft + emheight;
centery = w->BorderTop + emwidth;

dx = (2 * emwidth) + w->BorderLeft + w->BorderRight; /* Calculate window size to */
dy = (2 * emheight) + w->BorderTop + w->BorderBottom; /* fit around glyph com- */
dx = (dx > 640) ? 640 : dx; /* a clipping */
dy = (dy > 200) ? 200 : dy; /* region to the */
dx = (dx < 80) ? 80 : dx; /* window to keep */
dy = (dy < 50) ? 50 : dy; /* the glyph within */

if (ModifyIDCMP(w, IDCMP_CHANGEWINDOW))
{
    ChangeWindowBox(w, w->LeftEdge, w->TopEdge, dx, dy); /* Set window size */
    WaitPort(w->UserPort); /* and wait for the */
    while (mymsg = (struct IntuiMessage *) GetMsg(w->UserPort)) /* dimension change */
        ReplyMsg((struct Message *) mymsg); /* to take place. */
    if (!(ModifyIDCMP(w, NULL))) return; /* Quit if there is a problem with IDCMP. */
}

x = centerx; /* calculate original rendering position. */
y = centery;
dx = 1; /* Since dx and dy are no longer necessary for figuring out the window */
dy = 1; /* dimensions, I use them to measure the full width and height of the */
        /* glyph bitmap supplied by bullet. I need this to erase the glyph. */

if (LayersBase = OpenLibrary("layers.library", 37L)) /* These lines are */
{
    rectangle.MinX = w->BorderLeft; /* here to install */
    rectangle.MinY = w->BorderTop; /* a clipping */
    rectangle.MaxX = w->Width - w->BorderRight - 1; /* region to the */
    rectangle.MaxY = w->Height - w->BorderBottom - 1; /* window to keep */
    /* the glyph within */
    /* window bounds. */
    if (region = NewRegion()) /* For more information, */
    {
        if (OrRectRegion(region, &rectangle)) /* see the "Layers" */
            /* chapter of the */
            /* RKRM: Libraries */
            /* Manual. */
            InstallClipRegion(w->WLayer, region);
    }

    if (SetInfo(ge,
                OT_GlyphCode, unicode, /* Set the glyph to */
                OT_PointHeight, (ULONG) pointheight << 16, /* rotate and its */
                TAG_END) == OTERR_Success) /* pointsize. */
    {
        SetDrMd(w->RPort, JAM1);
        if (tempbitmap = AllocRaster(640, 200))
        {
            if (ModifyIDCMP(w, IDCMP_CLOSEWINDOW)) /* Turn on close window reports */
            {
                for (i = 0; done == FALSE; i++) /* so the example can quit. */
                {
                    if (i == TABLE_ENTRIES)
                        i = 0;

                    sin = table[i][SINE_INDEX]; /* Step through the sine/cosine array */
                    cos = table[i][COSINE_INDEX]; /* 360 degrees @ 15 degree increments */

                    if (SetInfo(ge,
                                OT_RotateSin, sin, /* Set the current rotation angle. */
                                OT_RotateCos, cos,
                                TAG_END) == OTERR_Success)
                        {

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if ((ObtainInfo(ge, OT_GlyphMap, &gm, TAG_END)) == OTERR_Success)
{
    oldx = x;          /* Calculate the dimension and position */
    oldy = y;          /* of the new glyph's bitmap and save */
    olddx = dx;        /* the old values so we can erase the */
    olddy = dy;        /* glyph that is still on the screen. */
    x = centerx - gm->gim_x0;
    y = centery - gm->gim_y0;
    dx = gm->gim_BMModulo * 8;
    dy = gm->gim_BMRows;

    CopyMem(gm->gim_BitMap, /* Copy the glyph's bitmap into Chip RAM */
            tempbitmap, /* so we can blit it into a RasterPort. */
            gm->gim_BMModulo * gm->gim_BMRows);

    RectFill(rp, oldx, oldy, oldx + olddx, oldy + olddy); /* Erase the old glyph. */

    WaitBlit(); /* Wait for the old glyph to erase. */

    BltTemplate( /* Blt the new glyph into the */
                tempbitmap, /* window's RasterPort. */
                0, /* gm->gim_BMModulo, */
                w->RPort, /* w->RPort, */
                x, /* x, */
                y, /* y, */
                dx, /* dx, */
                dy); /* dy); */

    /* Running several instances of this */
    /* example simultaneously can really */
    /* slow the system, so we give other */
    /* tasks a chance to run. */
    ReleaseInfo(ge, OT_GlyphMap, gm, TAG_END);

    /* Check for a CLOSEWINDOW message. */
    while (mymsg = (struct IntuiMessage *) GetMsg(w->UserPort))
    {
        ReplyMsg((struct Message *) mymsg);
        done = TRUE;
    }
}
}
}
FreeRaster(tempbitmap, 640, 200);
}
}
}
DisposeRegion(region);
}
CloseLibrary(LayersBase);
}
}
}

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/* View.c - Execute me to compile me with SAS/C 5.10a
   LC -cfistg -v -y -j73 View.c
   Blink FROM LIB:c.o,BulletMainFile.o,engine.o,View.o TO View LIBRARY
   LIB:LC.lib,LIB:Amiga.lib
   quit */

#include <exec/types.h>
#include <exec/memory.h>
#include <diskfont/diskfonttag.h>
#include <diskfont/diskfont.h>
#include <diskfont/glyph.h>
#include <diskfont/cerrors.h>
#include <graphics/grfx.h>
#include <utility/tagitem.h>
#include <intuition/intuition.h>
#include <devices/rtimer.h>
#include <dos/dos.h>

#include <clib/alib_stdio_protos.h>
#include <clib/alib_protos.h>
#include <clib/bullet_protos.h>
#include <clib/exec_protos.h>
#include <clib/dos_protos.h>
#include <clib/graphics_protos.h>
#include <clib/intuition_protos.h>

UBYTE      *vers = "\e0$VER: View 38.6*";

extern struct Library *BulletBase, *UtilityBase, *GfxBase, *IntuitionBase;
void      BulletExample(struct GlyphEngine *,
                        struct Window *,
                        struct RasterPort *,
                        ULONG, ULONG, ULONG, STRPTR);

struct GlyphMap *gm;
struct PlanePTR tempbitmap;
struct IntuiMessage *mymsg;
UBYTE *viewfilebuf, *curchar;
ULONG curposition, emheight, emwidth, x, y;

BPTR viewfile;
LONG actual;
struct Task *mytask;
struct FileInfoBlock *fib;

void
BulletExample(struct GlyphEngine * ge,
               struct Window * w, struct RasterPort * rp,
               ULONG pointheight, ULONG xdpi, ULONG ydpi, STRPTR viewfilename)
{
    UWORD wlimitx, wlimity, newwidth;
    FIXED kern;

    wlimitx = w->Width - w->BorderRight - 2; /* The X and Y extent of the window */
    wlimity = w->Height - w->BorderBottom - 2; /* that we can draw into. */

    if (SetInfo(ge,
                OT_DeviceDPI, ((ULONG)xdpi) << 16 | ydpi, /* Set up the X and Y DPI of */
                OT_PointHeight, (ULONG)pointheight << 16, /* target raster. Neither */
                TAG_END) != OTERR_Success) /* of these can be zero! */
    {
        return; /* BulletMainFile.c checks */
        /* for zero. */
    }

    if (viewfile = Open(viewfilename, MODE_OLDFILE)) /* Open the ASCII file to display. */
    {
        if (fib = AllocObject(DOS_FIB, NULL)) /* Find out how big the display */
        {
            if (ExamineFH(viewfile, fib)) /* file is by looking at its */
            {
                /* FileInfoBlock. Allocate that */
                /* Much memory. */
                if (viewfilebuf = (UBYTE *) AllocVec(fib->fib_Size, MEMF_CLEAR))
                {
                    if (Read(viewfile, (UBYTE *) viewfilebuf, fib->fib_Size)) /* Read the */
                    {
                        /* whole file into its buffer. */
                        SetDrm(w->RPort, JAM1);
                        if (tempbitmap = AllocRaster(640, 200)) /* Allocate some Chip RAM space */
                        {
                            /* where we can temporarily store the glyph so we can blit it. */
                            if (ModifyIDCMP(w, IDCMP_CLOSEWINDOW)) /* Turn on the Close gadget. */

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/* junction with fractional width and kerning */
/* values. */
x += newwidth;
ReleaseInfo(ge, OT_GlyphMap, gm, TAG_END);
}
while (mymsg = (struct IntuiMessage *) GetMsg(w->UserPort))
{
    ReplyMsg((struct Message *) mymsg); /* Did the user hit the */
    currposition = fib->fib_Size + 1; /* Close Gadget? */
}
}
}
}
FreeRaster(tempbitmap, 640, 200);
}
}
FreeVec(viewfilebuf);
}
}
FreeDosObject(DOS_FIB, fib);
}
Close(viewfile);
}

```