

\$SPAD/src/lib xdither.c

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July 29, 2014

**Abstract**

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# 1 License

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*/
```

— \* —

```
#ifndef MSYSplatform

#include <stdio.h>
#include <stdlib.h>
#if !defined(BSDplatform)
#include <malloc.h>
#endif

#include <X11/Xlib.h>
#include <X11/Xutil.h>
#include <X11/Xos.h>
```

```

#include <X11/Intrinsic.h>
#include <X11/StringDefs.h>
#include <X11/cursorfont.h>

#define XDitherWidth 3
#define XDitherMax 10

char XDitherBits[] = {
    0x00, 0x00, 0x00,
    0x00, 0x02, 0x00,
    0x00, 0x03, 0x00,
    0x00, 0x03, 0x02,
    0x00, 0x07, 0x02,
    0x04, 0x07, 0x02,
    0x04, 0x07, 0x03,
    0x05, 0x07, 0x03,
    0x05, 0x07, 0x07,
    0x07, 0x07, 0x07 };

#include "xdither.h1"

Pixmap XDither[XDitherMax];
unsigned int DITHERINIT = 0;

/*
 * This routine has the function of returning the number of characters needed
 * to store a bitmap. It first calculates the number of bits needed per line.
 * Then it finds the closest multiple of 8 which is bigger than the number of
 * bits. Once that is done, it multiplies this number by the number of bits
 * high the bitmap is.
 */
int
dither_char_bitmap(void)
{
    int bits_line;
    int total_chars;

    for (bits_line = 8, total_chars = 1; bits_line < XDitherWidth; total_chars++)
        bits_line += 8;

    total_chars = total_chars * XDitherWidth;

    return total_chars;
}

int
XInitDither(Display *display, int screen, GC gc, unsigned long fg,
            unsigned long bg)

```

```

{

    char *bits;
    int count;
    int chars_bitmap = dither_char_bitmap();
    int bit;
    XGCValues xgcv;

    DITHERINIT = 1;

    /*
     * First thing I should do is load in the Pixmaps
     */
    bits = (char *) malloc(chars_bitmap * sizeof(char));

    for (count = 0; count < XDitherMax; count++) {

        /*
         * Load in the next bitmap
         */
        for (bit = 0; bit < chars_bitmap; bit++)
            bits[bit] = XDitherBits[count * chars_bitmap + bit];

        /*
         * Create it and put it into the Pixmap array
         */
        XDither[count] = XCreatePixmapFromBitmapData(display,
                                                    RootWindow(display, screen),
                                                    bits,
                                                    XDitherWidth, XDitherWidth,
                                                    BlackPixel(display, screen),
                                                    WhitePixel(display, screen),
                                                    1);
    }

    /*
     * Now reset the gc values to be as I need them
     */
    xgcv.background = bg;
    xgcv.foreground = fg;
    xgcv.fill_style = FillOpaqueStippled;
    xgcv.stipple = XDither[4];

    XChangeGC(display, gc,
              GCForeground | GCBackground | GCFillStyle | GCStipple, &xgcv);

    return (XDitherMax);
}

```

```

int
XChangeDither(Display *display, GC gc, int dither)
{
    if (!DITHERINIT) {
        fprintf(stderr, "XChange Error: Init Not Called\n");
        exit(-1);
    }
    if (dither >= XDitherMax || dither < 0) {
        fprintf(stderr, "Dither %d, out of range\n", dither);
        return (-1);
    }
    XSetStipple(display, gc, XDither[dither]);
    return (1);
}

void
XDitherRectangle(Display *display, Drawable drawable, GC gc, int x,
                  int y, unsigned int width, unsigned int height)
{
    if (!DITHERINIT) {
        fprintf(stderr, "xdither Error: Tried to fill before INIT called\n");
        exit(-1);
    }
    XFillRectangle(display, drawable, gc, x, y, width, height);
}

void
XDitherRectangles(Display *display, Drawable drawable, GC gc,
                   XRectangle *rectangles, int nrectangles)
{
    if (!DITHERINIT) {
        fprintf(stderr, "xdither Error: Tried to fill before INIT called\n");
        exit(-1);
    }
    XFillRectangles(display, drawable, gc,
                    rectangles, nrectangles);
}

void
XDitherPolygon(Display * display, Drawable drawable, GC gc,

```

```

        XPoint *points, int npoints, int shape, int mode)
{
    if (!DITHERINIT) {
        fprintf(stderr, "xdither Error: Tried to fill before INIT called\n");
        exit(-1);
    }

    XFillPolygon(display, drawable, gc,
                  points, npoints, shape, mode);
}

void
XDitherArc(Display *display, Drawable drawable, GC gc, int x,int y,
            unsigned int width, unsigned int height, int angle1, int angle2)
{
    if (!DITHERINIT) {
        fprintf(stderr, "xdither Error: Tried to fill before INIT called\n");
        exit(-1);
    }
    XFillArc(display, drawable, gc, x, y, width,
              height, angle1, angle2);
}

void
XDitherArcs(Display *display,Drawable  drawable, GC gc, XArc *arcs,int narcs)
{
    if (!DITHERINIT) {
        fprintf(stderr, "xdither Error: Tried to fill before INIT called\n");
        exit(-1);
    }
    XFillArcs(display, drawable, gc, arcs, narcs);
}
#endif /* MSYSplatform */

```

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## References

- [1] nothing