Information for ISC Users

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1 X11R6/XFree86™ on Interactive Unix

This document provides some additional information about compiling and using X11R6 and XFree86 on your Interactive Unix, also referred to as ISC.

If you have any suggestions, comments, fixes or ideas regarding X11R6/XFree86 on Interactive Unix, send e-mail to

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Bug Reports should be sent to

XFree86@XFree86.Org

Questions or anything else should be posted to the NewsGroup

comp.windows.x.i386unix

There is currently no support for shared Libraries so it will be filespace consuming if you want to build X11-clients with X11R6. Best you mix X11R6 Server with X11R5 and X11R4 clients. And only compile clients who need the new facilities provided in the X11R6 Libraries against them.

2 Things needed for compiling the sources

gcc-2.6.x

Use the highest number for x you found. Fresco will only build 2.6.3 and later.

I'd tried gcc Version 2.5.8, 2.6.0, 2.6.2 and 2.6.3.

2.6.2 and 2.6.3 had some problems compiling 3.1. 2.6.3 builds since 3.1.0A (beta) without problem.

libg++-2.6.x

The needed g++ Libraries for use with g++ 2.6.x

binutils-2.5.2

You could use the assembler and linker the assembler is most preferred,and the linker is needed at least if you want to link libFresco.a within a Program. Don't use strip and ar/ranlib, the first generates buggy binaries when stripping (at least on my machines) and the last requires the use of ranlib after creating an archive, this is not configured.

3 Changes to the System Header Files

You have to change some of the standard header files supplied with your version of Interactive. You also need to change some of the include files in the gcc-lib/include directory.

Let us say the gcc-files are in directory

`/usr/local/lib/gcc-lib/i[345]86-isc[34].[0-9]/2.6.x`

referred to as "`gcc-lib`"

3.1 `/usr/include/sys/limits.h`

and `gcc-lib/include/sys/limits.h`

```
#ifndef OPEN_MAX
#ifdef ISC
```

```
#define OPEN_MAX        256
#else
#define OPEN_MAX        20
#endif
#endif
```

OPEN_MAX had to be increased to prevent Xlib Errors (max no. of clients reached).

3.2 /usr/include/sys/ioctl.h

surrounded by

```
#ifndef _IOCTL_H
#define _IOCTL_H
...
#endif
```

to prevent multiple includes.

3.3 /usr/include/errno.h

(and the corresponding gcc-include-file) add

```
#include <net/errno.h>
```

because of **EWOULDBLOCK** undefined in several places regarding lbx. Surround /usr/include/net/errno.h with

```
#ifndef _NET_ERRNO_H
#define _NET_ERRNO_H
...
#endif
```

to prevent multiple includes were <net/errno.h> is explicit included from the sources.

3.4 /usr/include/rpc/types.h

copy this file to gcc-lib/include/rpc/types.h and change the declaration of **malloc()** to

```
#if !defined(__cplusplus)
extern char *malloc();
#endif
```

Note that this is only necessary if you want to build Fresco

4 make World

```
BOOTSTRAPCFLAGS="-DISC [-DISC30 | -DISC40] -DSYSV [-Di386]"
```

-DISC -DISC30

these two defines are necessary to build the release I don't know if the build will succeed for ISC versions prior than 3.x

-DISC40

are only for getting the ISC version and therefore set the HasSymLinks to Yes ('cause symbolic linking were only supported from Version 4.x using the S5L Filesystem)

A build on ISC 4.x only needs -DISC40 defined in the BOOTSRAPCFLAGS – the -DISC30 will be included automatically.

-DSYSV [**-Di386**]

standard defines for SystemV Release3 on x86 platform. You don't need to explicitly define -Di386 because this is pre-defined in /lib/cpp.

```
You maybe got some warnings from makedepend regarding that it can
not find the file <sys/mman.h>.
Don't worry about it, the actual compile will be alright.
If you don't want to see this, generate an empty file sys/mman.h
under /usr/include
```

5 linear Addressing

- Compiling ... If you want to include support for linear addressing into the server binaries, you have to define

```
#define HasSVR3mmapDrv          YES
```

in xf86site.def. This is necessary to get the correct setup to be defined for the build.

You need the mmap-2.2.3 driver installed on your system. If you don't have the mmap-2.2.3 driver installed, you could use the driver source in the file

```
xc/programs/Xserver/hw/xfree86/etc/mmapSVR3.shar
```

Build and install the driver as instructed. You'll need the file /usr/include/sys/mmap.h for compiling the X11R6/XFree86 source tree, with linear addressing enabled.

- Using ...

  To use the linear address-mapping of the framebuffer you need the mmap Driver by Thomas Wolfram (Version 2.2.3) installed in your Kernel. If you have installed it, most servers will use linear addressing by default. Others may require setting the

  ```
  Option "linear"
  ```

  in your XF86Config. Check the appropriate manual pages for details. Maybe you need also the MemBase specified in XF86Config. Please refer to the appropriate README of your Card/Server, for **How to use...**. Note that the P9000 server will not work at all unless linear addressing is available.

  I could only test two cards against the linear addressing.

  - Spea/V7 Vega - clgd5428 - VLBwith 32MB MainMemory installed I couldn't use it. My tests with different mappings into the address space results in no Graphics displayed or a spontaneous reboot.
  - ATI GUP - mach32 - VLBwith 32MB MainMemory installed I could map the CardMemory at MemBase 0x06400000 100MB. I could work with all clients until I try to activate a Motif 1.1.1 InputField inside a Motif Client like Mosaic-2.4 or xplan. This results in a crash of the XServer.

6 Fresco

- Compiling ... If you want to include the build of the Fresco library, you have to setup

  ```
  #define BuildFresco              YES
  ```

  in either xf86site.def (just uncomment the appropriate definition.

- Using ...

  To use the library you need the gnu-ld installed. The standard ISC ld couldn't link libFresco.a inside a program.

  I could test the Lib. with the sample Fresco Application fdraw, which compiled without problem. It seems that Fresco applications has some problems running with display :0.0 on Interactive. (I test it only against standard XLOCAL transport mechanism, this could maybe improved by using another XLOCAL configuration). The fdraw window is closed with the following message:

  ```
  XIO:  fatal IO error 11 (Resource temporarily unavailable) on X server ":0.0"
  ```

  As a workaround you could specify local-machinename:0 to the -display Argument when starting the Fresco application. On TCP/IP transport you got a workable Fresco App.

7 Installation

After your **make World BOOTSTRAPCFLAGS="**... succeed,

```
make install
```

to install in /usr/X11R6. Make sure you have enough space, and /usr/X11R6 exists either as a directory or a symlink to another directory maybe in another filesystem.

```
make install.man
```

to install the compressed nroff versions of the manual pages into /usr/X11R6/man. This directory will by generated if it doesn't exist.

```
make install.linkkit
```

to install the server binary LinkKit into /usr/X11R6/lib/Server.

```
You could tune the Kernel using the command-file

/usr/X11R6/lib/X11/etc/xf86install

This will increase the available pseudo devices,
some Tunable Parameters and install some files
to use inside sysadm. You could also install
some additional Fonts and Terminal files.
```

---

8 Using ...

- Keyboard:You don't need any modmap-File to get your keyboard working with any iso-8859-1 Font. Simply enable
  - LeftAlt Meta
  - RightAlt ModeShift
  - RightCtl Compose

  in your XF86Config - Section "Keyboard"
- xpcterm: if you want to get the German 'Umlaut' inside your ISC X11R4 client xpcterm when you are using the ega/vga font. Set up the user's .Xdefaults to contain:

```
XEga*AT386.Translations: #override \
          Shift<Key>odiaeresis: string(0x99) \n\
               <Key>odiaeresis: string(0x94) \n\
```

```
Shift<Key>adiaeresis: string(0x8e) \n\
     <Key>adiaeresis: string(0x84) \n\
Shift<Key>udiaeresis: string(0x9a) \n\
     <Key>udiaeresis: string(0x81) \n\
Shift<Key>ssharp: string(0x3f) \n\
 Meta<Key>ssharp: string(0x5c)  \n\
     <Key>ssharp: string(0xe1)
```

The only disadvantage is that you have to use `Alt` instead of `AltGr` to get the \ Backslash (on a German Keyboard)

You have to call your xpcterm with the option `-name XEga -fn ega`

- Switching between X11R5 and X11R6 configurationto compile X11-Clients as either R6 or R5 clients, should be as easy as you only switch the PATH components so that either `/usr/X11R6/bin/xmkmf` or `/usr/X386/bin/xmkmf` would make the new Makefile.

9 Acknowledgements

All thanks should go to the members of the **XFree86 Team** for their great work and the **X Consortium** for their Public Release of X11R6, as to all who contribute to this excellent piece of free software.

`$XConsortium: isc.sgml,v 1.2 95/01/27 16:14:38 kaleb Exp $`
`$XFree86: xc/programs/Xserver/hw/xfree86/doc/sgml/isc.sgml,v 3.4 1995/01/28 16:03:10 dawes Exp $`