XSpin Development Kit Getting Started Guide

1 SYSTEM REQUIREMENTS

PC running Windows® 2000 or XP. (Windows® 95, 98, NT, or ME are **not** supported)	PC running Linux with 2.6 Kernel.

2 PACKING LIST

Part Number	Description
01-20271	XSpin USB IO Board 8 Way
01-20536	XSpin Development Kit CD
63-82240	USB Cable 2.0M
01-20619	XSpin Development Kit PSU
63-82256	Mains Cable

3 INSTALLING THE WINDOWS SOFTWARE

Place the CD in the CD-ROM drive of your PC. The Setup program should run automatically. If the installation does not start, open the CD drive by double-clicking the CD drive icon in 'My Computer', and then double-click the 'Setup' icon. Follow the on screen instructions to complete the installation. It is recommended that you choose the Complete Installation and accept the default install path. This will create a **C:\heber\XSpin** directory for the installation.

4 INSTALLING THE LINUX SOFTWARE

4.1.1 Extracting the Development Kit

First find a suitable location to install the XSpin Development Kit (/usr/src is recommended). Move to the required directory and then unzip the supplied tar archive:

- `cd /usr/src`
- `tar –xzvf xspin.tar.gz`

For the remainder of this guide it will be assumed that the XSpin Development Kit is placed in directory /usr/src.

*4.1.2 Building the kernel module under Linux Kernel Version 2.6.**

Ensure that the path `/usr/src/linux` contains the kernel sources for the kernel version you intend to use. These sources must be configured by issuing the following commands:

- `cd /usr/src/linux`

- `make config` (Note this can be replaced with “make menuconfig” or “make oldconfig”)
- `make`

To build the XSpin drivers under a 2.6.* kernel then follow these instructions:

- `cd /usr/src/xspin/driver`
- `make –C /usr/src/linux SUBDIRS=`pwd` modules`

If the build succeeds a file called Xline.ko will have been created in the local directory. To install this file issue the command:

- `make –C /usr/src/linux SUBDIRS=`pwd` modules_install`
- `depmod` (Note the depmod command may not be needed - see man depmod for details.)

This should copy the newly created X10.ko file to its correct place in the /lib/modules directory tree and make the module loader aware of the XSpin module.

4.1.3 Installing the Libxspin Shared Library

To access the XLine board a user library libxspin.so is supplied - this needs to be copied to a suitable library directory (e.g. /usr/lib or /usr/local/lib). A symbolic link should also be created:

- `cp –a libxspin.so /usr/lib`

This library must be linked with your code.

4.1.4 Adding XLine HotPlug Support

The kernel driver has been built to use the 2.6 sysfs file system. The driver creates a new sysfs class (in /sys/class) called Xline. When an XLine board is detected the driver adds a new entry to this class. The library uses this to detect whether an XSpin is connected and whether it is running in full or high speed.

Because the XLine driver adds entries to /sys, if udev is being used then udev can create /dev entries. To do this add the following rule to the udev rules file (i.e. /etc/udev/rules.d/50-udev.rules).

- `KERNEL="X10_*",NAME="%k",MODE="666"`

The /dev entry can be assigned to a group by adding a GROUP=”my group name” field to the line above.

4.1.5 Starting and closing the XLine Driver

If the XLine driver has been installed to the correct /lib/modules directory and the depmod command has been executed then the X10 kernel module can be loaded as follows:

- `modprobe X10`

Once the X10 driver is loaded and a board is plugged in, it takes a couple of seconds for the board to download the required firmware and initialise. In order to check that the board is ready to go you can look at the kernel log by using the command ‘dmesg’. One of the last entries should read “Heber X* Board ready.”

To remove the X10 driver, issue the following command:

- `rmmod X10`