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# PCIe Cards User's Manual

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PCIe-S118, PCIe-S148  
Linux Software Manual

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# 1. Linux Software Installation

The PCIe-S118 & PCIe-S148 can be used in linux kernel 2.6.32 to 3.6.0. For Linux O.S, the recommended installation and uninstall steps are given in Sec 1.1 ~ 1.2

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## 1.1 Linux Driver Installing Procedure

Step 1: Copy the linux driver “PCIe-S1x8-Series.tar.gz” in the directory “NAPDOS\MultiPort/Linux” of the companion CD or download the latest driver from our website to the linux host.

Step 2: You must use the ‘root’ identity to compile and install PCIe linux driver.

Step 3: Decompress the tarball “PCIe-S1X8-Series.tar.gz”. Please refer Fig-1.1

```
[root@localhost PCIe-S118_PCE-S148]# ls
PCIe-S1X8-Series.tar.gz
[root@localhost PCIe-S118_PCE-S148]# tar zxvf PCIe-S1X8-Series.tar.gz
async_multiport/
async_multiport/sb test.c
async_multiport/Makefile
Makefile
readme
xr17v35x.c
[root@localhost PCIe-S118_PCE-S148]# ls
async_multiport Makefile PCIe-S1X8-Series.tar.gz readme xr17v35x.c
[root@localhost PCIe-S118_PCE-S148]# █
```

Fig-1.1

Step 4: Execute the device file.

Please follow below steps to compile and install driver:

```
#make
```

```
#insmod xr17v35x.ko
```

Check xr17v35x.ko is installed.

```
#lsmod | grep xr17v35x
```

Please refer to Fig-1.2

```
[root@localhost PCIe-S118_PCIe-S148]# make
make -C /lib/modules/`uname -r`/build SUBDIRS=/root/PCIe-S118_PCIe-S148 modules
make[1]: Entering directory `/usr/src/kernels/linux-3.1'
  CC [M] /root/PCIe-S118_PCIe-S148/xr17v35x.o
/root/PCIe-S118_PCIe-S148/xr17v35x.c: In function `receive_chars':
/root/PCIe-S118_PCIe-S148/xr17v35x.c:577: warning: ISO C90 forbids mixed declara
/root/PCIe-S118_PCIe-S148/xr17v35x.c: In function `serialxr_startup':
/root/PCIe-S118_PCIe-S148/xr17v35x.c:1076: warning: suggest parentheses around a
value
  Building modules, stage 2.
  MODPOST 1 modules
  CC /root/PCIe-S118_PCIe-S148/xr17v35x.mod.o
  LD [M] /root/PCIe-S118_PCIe-S148/xr17v35x.ko
make[1]: Leaving directory `/usr/src/kernels/linux-3.1'
[root@localhost PCIe-S118_PCIe-S148]# insmod xr17v35x.ko
[root@localhost PCIe-S118_PCIe-S148]# lsmod | grep xr17v35x
xr17v35x          74763  16
[root@localhost PCIe-S118_PCIe-S148]# █
```

Fig-1.2

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## 1.2 Linux Driver Uninstalling Procedure

Step 1: Type “rmmod xr17v35x” to remove PCIe-S1x8 Series driver.

Step 2: Type ‘lsmod | grep xr17v35’ to check driver is removed. Please refer to Fig-1.3

```
[root@localhost PCIe-S118_PCIe-S148]# rmmod xr17v35x
[root@localhost PCIe-S118_PCIe-S148]# lsmod | grep xr17v35x
[root@localhost PCIe-S118_PCIe-S148]# █
```

Fig-1.3

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## 2. PCIe-S1x8 Series Linux Demo

Users can use demo “sb\_test” to test comport send & receive in sub directory “async\_multiport”. Please refer to Fig-2.1

```
[root@localhost PCIe-S118_PCIe-S148]# ls
async_multiport  modules.order  PCIe-S1X8-Series.tar.gz  xr17v35x.c
Makefile        Module.symvers  readme                  xr17v35x.ko
[root@localhost PCIe-S118_PCIe-S148]# cd async_multiport/
[root@localhost async_multiport]# ls
Makefile  sb_test  sb_test.c  sb_test.o
[root@localhost async_multiport]# █
```

Fig-2.1

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### 2.1 Demo sb\_test

This demo program has three mode to test: Loopback 、 Send 、 Receive, if you want to know how to use the sb\_test, you just type the name without any argument, and you can see the method of usage. Please refer Fig-2.2

```
Makefile  sb_test  sb_test.c  sb_test.o
[root@localhost async_multiport]# ./sb_test
Usage: ./sb_test [Port Name] [Baudrate] [TestMode]
Port Name : /dev/ttyXR0 ~ /dev/ttyXR32
Baudrate  : 9600, 19200, ...
TestMode  : 0(Loopback) 1(Send) 2(Recv)
[root@localhost async_multiport]# █
```

Fig-2.2

Example:

```
#!/sb_test /dev/ttyMP0 9600 0
```

After you connected a loopback connector to a port, you can test using loopback mode. The test pattern are “abcdefghijklmnopqrstuvwxyz” and the program generated increase one more character from ‘a’ to ‘z’ repeatedly. Please refer Fig-2.3

---

```
[root@localhost async_multiport]# ./sb_test /dev/ttyXR0 9600 0
Loopback Test Mode !
a
ab
abc
abcd
abcde
abcdef
abcdefg
abcdefgh
abcdefghi
abcdefghij
abcdefghijk
abcdefghijkl
abcdefghijklm
abcdefghijklmn
abcdefghijklmno
abcdefghijklmnop
abcdefghijklmnopq
abcdefghijklmnopqr
abcdefghijklmnopqrs
abcdefghijklmnopqrst
abcdefghijklmnopqrstu
abcdefghijklmnopqrstuv
abcdefghijklmnopqrstuvw
^C
[root@localhost async_multiport]# █
```

Fig-2.3