SPERT Board Installation Guide (Provisional)

David Johnson

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1 Installing the SPERT Board

1.1 Installing the SPERT SBus card

Instructions for installing the SPERT board in a workstation are provided on a VHS video cassette that is included with the board. If you do not regularly insert boards in workstations, please watch the video before attempting to install the SPERT board. For reference, a summary of the hardware installation procedure is included below.

1. Shut down the SPARC system and turn off power.
2. Remove the lid of the SPARC system. Modern pizza box SPARCs have their lid secured by two screws in the top corners of the back panel.
3. Locate two adjacent slots for the SPERT board, and remove the corresponding rear panel covers. On SPARC 1s, 2s and 5s, this will normally be slots one and two, with the "active" connector (the one with most PCB traces leading to it) being in slot 2.
4. *Using the supplied grounding strap, attach your wrist to the SPARC chassis.*
5. Align the SPERT boad back panel tabs with slot on the SPARC, and rotate the SPERT board down into position. Push down on the SBus connector until the SPERT board is properly seated.

6. Replace SPARC lid and two rear corner screws.
7. Reboot workstation.

1.2 Basic Installation Check

The SunOS operating system automatically identifies the SPERT board and includes it in the kernel's device tree. This can be examined to ensure the basic electrical operation of the SPERT board. The following command is used:

On SunOS 4 (version 4.1.3_U1 or later):

```
/usr/etc/devinfo | grep spert
```

On SunOS 5:

```
/usr/sbin/prtconf | grep spert
```

In both cases, a line containing `ICSI,spert` indicates that the board is intalled correctly.

1.3 Setting up the Device Driver

The intial version of the SPERT board does not require its own device driver, but instead uses the SBus driver included as standard with the SunOS operating system. However, access to the device is normally restricted and the permissions must be changed to make it publically accessible. Also, to make the various SPERT server programs independent of the specific SBus slot the SPERT is installed in, an alias is used for the SBus device driver. Consequently, a symoblic link must be made between the aliased name and the device for the specific slot.

Log in as root and perform the following:

On SunOS 4:

```
chmod a+rw /dev/sbus2
ln -s /dev/sbus2 /dev/spertsbus0
```

On SunOS 5:

```
chmod a+rw /devices/iommu@0,10000000/sbus@0,10001000/sbusmem@2,0:slot2
ln -s /devices/iommu@0,10000000/sbus@0,10001000/sbusmem@2,0:slot2 \
    /dev/spertsbus0
```

Note that if your SPERT board is not installed in slot 2, the above commands must be modified accordingly. Also, the exact name of the SBus device for SunOS 5 might be slightly different - just use whatever name addresses that appropriate SBus slot.

1.4 Verifying the SPERT Board Functionality

Some basic test utilities are include with the "spertdev" software distribution. After installing and setting up the "spertdev" package, run the following:

```
t0spert_temp -t
```

This will return the temperature of the SPERT board - it should be around 40 C.

```
t0spert_temp -gl
```

This will return the SPERT over temperature setting - it should be 55 C.

```
t0spertdietest
```

This will do a very simple test of the T0 chip. It should exit almost immediately and return nothing.

`t0spertboardtest`

This performs tests of the SPERT memory system. It will take a few minutes to complete, and will return nothing on success. If you get bored and want to see something happen, run it with the `-v` option.

2 Software Installation

For more information on the software installation, see the `INSTALL` file in the distribution.