1 Introduction

These are notes on how to upgrade the hardware and software to convert from a systran fiber optic link between the Monsoon MCB and a computer communicating with the MCB. There are two sections which describe the modification: hardware and software. Much more information about slink specific to DES applications can be found at http://ieg.ifae.es/DES/index_DES.html. The CERN slink page has lots of information and it can be found at http://hsi.web.cern.ch/HSI/s-link/.

2 Hardware

Changes to the hardware include modification of the MCB, removal of the systran mezzanine card from the MCB, installation of the slink mezzanine card (HOLA) and installation of slink FILAR card.

2.1 MCB Modification

1. Remove the MCB from the crate.

2. Remove the systran mezzanine card from the MCB.

3. Instructions for modifying the MCB are located at http://ieg.ifae.es/DES/Hardware%20modifications.doc. In summary the steps are:

   (a) Physically remove F2.
(b) Run a wire between TP6 and TP26 on the bottom of the board.
(c) Connect pins J6A-2 to J3A-35 and J6A-6 to J3A-37.
(d) Remove standoffs from the slink card, they seem to be too long.
(e) Protect newly exposed PCB lands (removal of the systran card causes this to happen).

See the accompanying photos of a modified MCB board to see how the modifications physically look.
Place the HOLA card on the MCB and secure it.

### 2.2 FILAR

The filar card uses a 3.3V 64 bit PCI bus so the computer in which you install it must have the appropriate PCI bus slots available. See [http://www94.web.cern.ch/hsi/s-link/devices/s32pci64/slottypes.html](http://www94.web.cern.ch/hsi/s-link/devices/s32pci64/slottypes.html) for information about how to identify the slots. Once the card is installed drivers must be installed on the computer to allow use of the device.

### 3 Software

#### 3.1 MCB Firmware


#### 3.2 FILAR Drivers

The FILAR drivers for the first installation done at U of I, were obtained by downloading them from decam-pan1 at FNAL. There under /opt a tarball named drivers.tar was found which contained three directories: filar_driver, himem_driver, and himem_lib. Instructions according to Marco Bonati for building the drivers:

1. himem_lib: compile it, and install it in some common place like /usr/lib or /usr/local/lib
2. himem_driver: compile it. Then you need to reserve high memory in order this driver to work. For this, you need to edit grub.conf, for example, like this:

```
title Fedora (2.6.25.14-108.fc9.i686)
  root (hd0,0)
  root=/dev/sda1 rhgb quiet *mem=2800M memmap=100M#2800M*
```

mem=YYYM memmap=XXX#YYYM, where YYY is the total memory you want available for Linux, and XXX is the amount you are reserving. After that you will need to reboot the machine, and verify -after rebooting- that it actually sees less memory available (cat /proc/meminfo). Now you can load the driver to the kernel.

3. filar_driver: compile and load it to the kernel (there is a script that loads it and creates the device for you).

4. compile panview: Now it is time to compile panview libraries for slink. Note that not all the ”makes” I will describe may be necessary, but it will be safer to do them all:

That’s it. Now:

```
% cd panview/PAN/Modules/MNSN/private/c/src/driver_api/slinkHdw/filar_api
% make
% cd ..
% make (for this you need to be root, because it will try to install libraries in the system)
% cd ..
% make (this creates a generic static library that can now use slink or systran)
% cd ..
% make (this creates the actual shared object that labview uses)
```

After that start panview.

NOTE: in the dhe.conf file of the fpa you are running, under the section [Device], there *may be* a key called ”link”, like link=<value>.
If this key is not present, it is equivalent to have it in "auto" link=auto.
which means that it will use whatever he find available (systran, slink, ot the old slink daemon). So, if the key is not there, it should work If
the key is there and says "systran", then you should either change it to "auto" (or "slink") or delete it.

Note that after installation of the drivers, if when running panview, you receive complaints about himemb library not being found, you may need set $LD_LIBRARY_PATH to point to the location where you placed libhimemb.so.

To automate the loading of the kernel modules, add the following lines to /etc/rc.local:

```
cd /opt/filar_driver_fc7
./load_filar
cd -
cd /opt/himem_driver
./load_himem
cd -
```

To check to see if the modules are loaded, do lsmod. The modules are named filar and himemb.