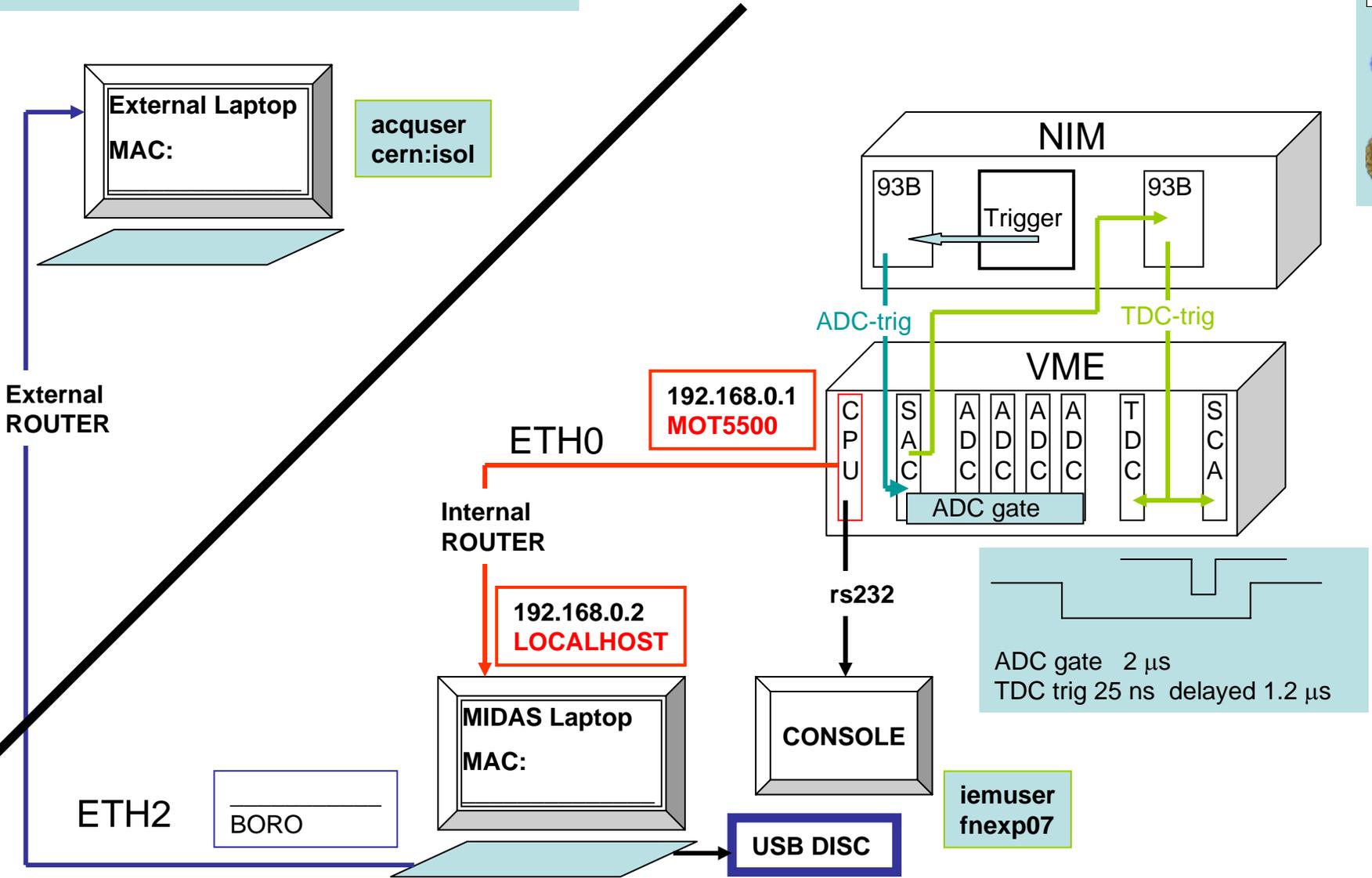


# Madrid DAQ set-up



# Start up connections



## Start Midas on laptop

```
161.111.23.7 - midas - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
Linux boro 2.6.20-16-generic #2 SMP Sun Sep 23 19:50:39 UTC 2007 i686
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.
Last login: Thu Nov 22 09:52:49 2007 from betanu.iem.csic.es
iemuser@boro:~$ cd /MIDAS
iemuser@boro:/MIDAS$ source setpath
iemuser@boro:/MIDAS$ MIDAS-session
```

**Midas Application Selection**

Select Application you require: **MIDAS Data Analysis**

- MIDAS Data Analysis TUD.
- MIDAS Data Acquisition TIAF
- MTsort megh
- Ultra TAS

## Minicom: VME console

```
espin.iem.csic.es - default - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
0
r
8
3
l
l
T
d
Welcome to TimeSys Linux v4.1
mot5500 login: TCP socket send buffer was 16384 - now 262142
TCP socket receive 2
2
5
t
p
Welcome to TimeSys Linux v4.1
mot5500 login:
Welcome to TimeSys Linux v4.1
mot5500 login: root
Last login: Tue Nov 20 16:18:50 on tts/0
Linux mot5500 2.4.21-timesys-4.1.171 #2 Tue Aug 3 10:48:05 BST 2004 ppc unknown
bash-2.05#
```

Connected to espin.iem.csic.es SSH2 - aes128-cbc - hmac-md5 - none 80x24

# Access to VME



MIDAS... [min] [max] [close]

- Access Control [min] ←
- Spectrum Viewer
- Experiment Control
- VME Module Control [min]
- Tape Control
- CAEN Amp Control
- Sorting [min]
- Diagnostics [min]
- Httpd Server
- Exception Monitor
- Preferences & Options [min]
- Hard Copy [min]
- Extras [min]
- Help [min]
- Quit

Session Log [min] [max] [close]

[Save] [Print] [Clear]

Session started on Thu Nov 22 10:52:32 CET 2007  
You are now working with experiment test-KVI

Accessing an Experiment [min] [max] [close]

Directory: /MIDAS/experiments

Experiment: test-KVI

Current Experiment: test-KVI

gadc  
7adc1d7c  
CMM1  
CMM2  
cmam5alt1s  
cmam7adc1d7c  
feb13

[Join] [Leave] [Create] [Delete] [Save as default]

[Inspect Resources] [Apparatus Control] [Help]

Resource Inspection for: test-KVI [close]

```
RPC resources
name      role      type      host/port  apparatus  status  capability
vme       VME       register  mot5500/10220  vme        0x3    0xa20a434700000000
MemSas    hist      spectrum  mot5500/10230  MemSas     0x3    0x47430b2a00000000
tapeserver  tape     tape     localhost/10205  tapeserver 0x3    0x0001e50e47430cce
SortSas   SortSas   spectrum  localhost/10233  SortSas    0x3    0x4743188a00000000

There are no SOAP/XML resources
```

# VME module control



ion & Control Frame

MIDAS...

- Access Control
- Spectrum Viewer
- Experiment Control
- VME Module Control
- Tape Control
- CAEN Amp Control
- Sorting
- Diagnostics
- Httpd Server
- Exception Monitor
- Preferences & Options
- Hard Copy
- Extras
- Help
- Quit

VME Server vme

Module Type	Module Name	Address Information	Module ID	Comment
S&C	sac#1	0x0400:0x0000000:0x00000000:0:0	1	S&C
CAEN V785	v785#1	0x0000:0x0000000:0x00200000:0:0	1	ADC0
CAEN V785	v785#2	0x0000:0x0000000:0x00210000:0:0	2	ADC1
CAEN V785	v785#3	0x0000:0x0000000:0x00220000:0:0	3	ADC2
CAEN V785	v785#4	0x0000:0x0000000:0x00230000:0:0	4	ADC3
CAEN V1190	v1190#1	0x0000:0x0000000:0x00300000:0:0	5	TDC0
CAEN V820	v820#1	0x0000:0x0000000:0x00400000:0:0	6	Scaler

Module Type: Silena S9418 Index: 1 Module ID: 1 Comment:

VME address: A16 0x0000 A24 0x000000 A32 0x00000000 VME Interrupt level 0 vector 0

Buttons: Add, Replace, Delete, Clear, Default Configuration, Load Configuration into Register Server, RESET electronics, GO electronics, HALT electronics, SETUP electronics, Save/Restore Setup, Save/Restore Configuration

Saving and Restoring VME Module Setup

Directory: /MIDAS/experiments/test-KVI/VMEconf

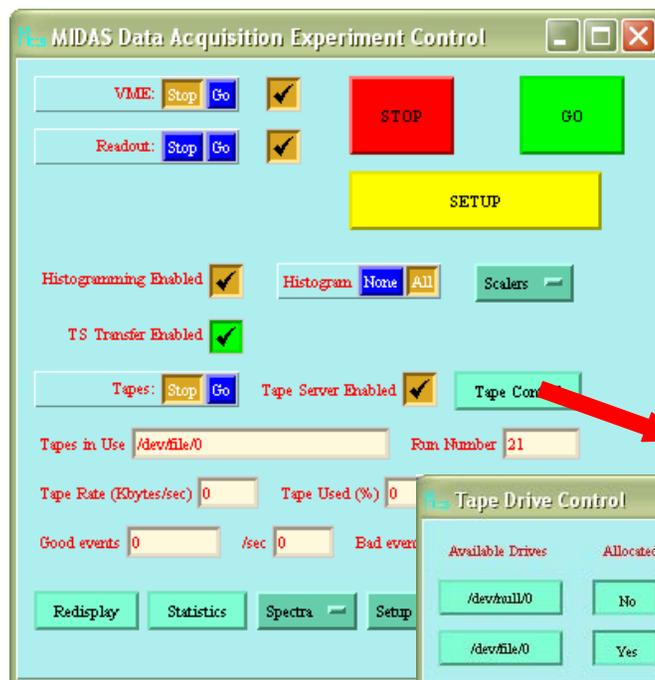
Buttons: Restore, Save, Time Stamp, Filename, Restore Current, Redisplay, Delete, Show, Help

Saving and Restoring VME Module Configurations

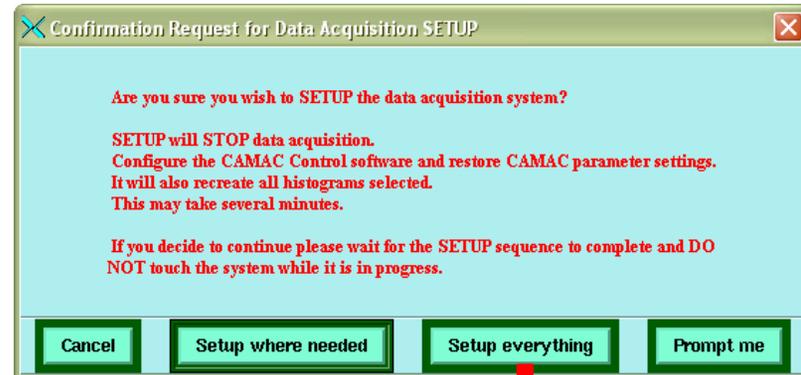
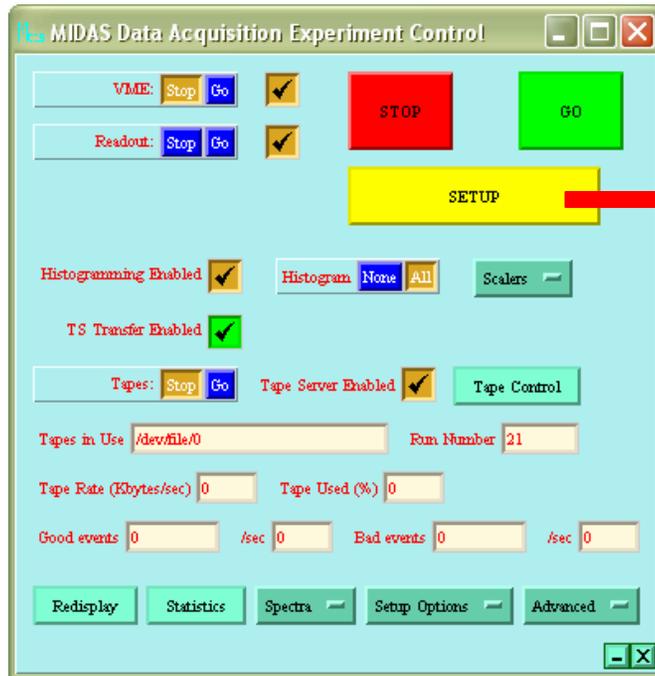
Directory: /MIDAS/experiments/test-KVI/VMEconfdir

Buttons: Restore, Save, Time Stamp, Filename, Restore Current, Redisplay, Delete, Show, Help

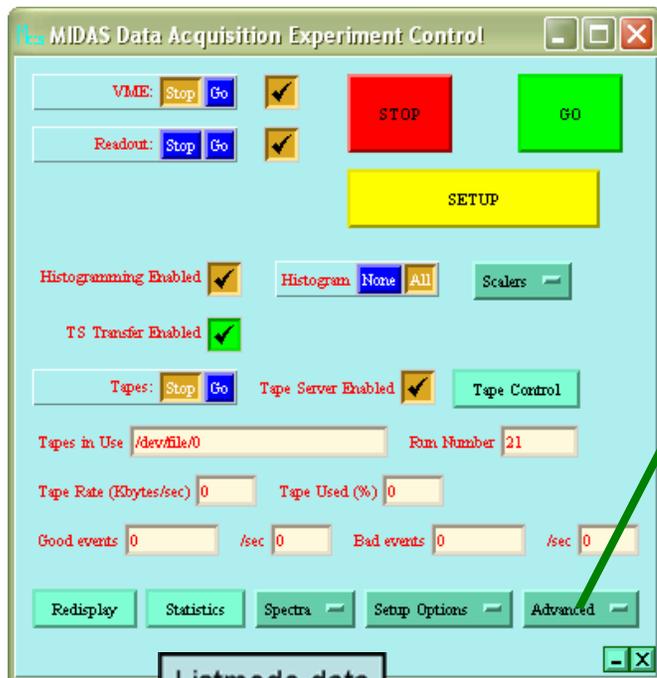
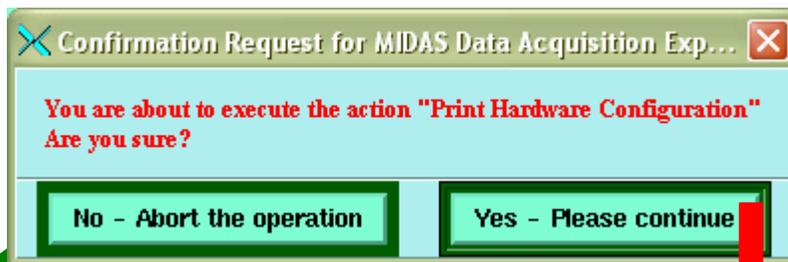
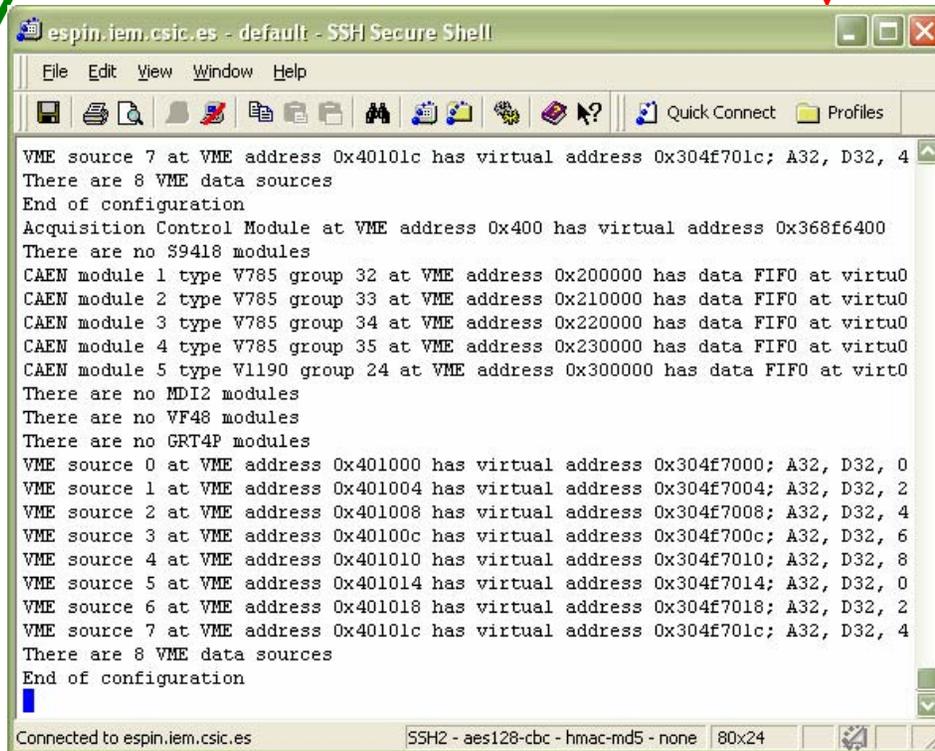
# Experiment control



# Set-up the VME-electronic (make it known to the system)



# Check that the modules are there

```

VME source 7 at VME address 0x40101c has virtual address 0x304f701c; A32, D32, 4
There are 8 VME data sources
End of configuration
Acquisition Control Module at VME address 0x400 has virtual address 0x368f6400
There are no S9418 modules
CAEN module 1 type V785 group 32 at VME address 0x200000 has data FIFO at virtu0
CAEN module 2 type V785 group 33 at VME address 0x210000 has data FIFO at virtu0
CAEN module 3 type V785 group 34 at VME address 0x220000 has data FIFO at virtu0
CAEN module 4 type V785 group 35 at VME address 0x230000 has data FIFO at virtu0
CAEN module 5 type V1190 group 24 at VME address 0x300000 has data FIFO at virt0
There are no MDI2 modules
There are no VF48 modules
There are no GRT4P modules
VME source 0 at VME address 0x401000 has virtual address 0x304f7000; A32, D32, 0
VME source 1 at VME address 0x401004 has virtual address 0x304f7004; A32, D32, 2
VME source 2 at VME address 0x401008 has virtual address 0x304f7008; A32, D32, 4
VME source 3 at VME address 0x40100c has virtual address 0x304f700c; A32, D32, 6
VME source 4 at VME address 0x401010 has virtual address 0x304f7010; A32, D32, 8
VME source 5 at VME address 0x401014 has virtual address 0x304f7014; A32, D32, 0
VME source 6 at VME address 0x401018 has virtual address 0x304f7018; A32, D32, 2
VME source 7 at VME address 0x40101c has virtual address 0x304f701c; A32, D32, 4
There are 8 VME data sources
End of configuration
    
```

Listmode data

group	Module type
2	scaler
24	TDC V1190 ch 0-63
25	TDC V1190 ch 64-127
32	ADC0
33	ADC1
34	ADC2
35	ADC3

# TDC set-up



MIDAS... [minimize] [maximize] [close]

- Access Control
- Spectrum Viewer
- Experiment Control
- VME Module Control
- Tape Control
- CAEN Amp Control
- Sorting
- Diagnostics

CAEN V1190 Acq... [close]

- Set Trigger Matching
- Set Continuous Storage
- Set keep token
- Clear keep token
- Load default configuration
- Save user configuration
- Load user configuration
- Set auto load user configuration
- set auto load default configuration
- Update

### CAEN V1190 TDC Setup & Monitor

Module number: 1 select: [dropdown] Trigger Counter: 279597 Events Stored: 0 Act on ALL modules?

Enable all channels Disable all channels Channel Enable Options Version: A GEO Address: 0x01

Acquisition Mode Options Trigger Options Edge Detection Options Readout Options Channel Adjust

Redisplay Save Setup Restore Setup Engineering [dropdown] read output buffer

### CAEN V1190 Triggering Options

Window Width (25ns): 84 [range: 1 to 4095]

Window Offset (25ns): -60 [range: -2048 to +40]

Extra Search Margin (25ns): 0 [range: 0 to 4095]

Reject Margin (25ns): 0 [range: 0 to 4095]

Enable Subtraction of Trigger Time

Disable Subtraction of Trigger Time

Update

### CAEN V1190 Edge Detection Options

Edge Detection Configuration: pair mode only leading only trailing trailing and leading

Set LSB of leading/trailing edge: 800 ps 200 ps 100 ps

Resolution of leading edge arrival time: 100 ps 200 ps 800 ps 1.6 ns 3.12 ns 6.25 ns 12.5 ns

Resolution of pulse width (pair detection): 100ps 200ps 800ps 1.6ns 3.12ns 6.25ns 12.5ns 25ns 50ns 100ns 200ns 400ns 800ns

Channel dead time: 5 ns 10 ns 30 ns 100 ns

Update

### CAEN V1190 Readout Options

Enable TDC Header and EOB

Disable TDC Header and EOB

Maximum hits per event: 0 1 2 4 8 16 32 64 128 no limit

Enable TDC error mark

Disable TDC error mark

Enable bypass TDC if error

Disable bypass TDC if error

Set readout FIFO size: 32 64 96 128 160 192 224 256

BERR enable

Write Empty Event

Update

# ADC set-up



CAEN V785 ADC Setup & Monitor

Module number: 1 select: GEO Address: 0x01 Event Counter: 587231 Act on ALL modules?

**Module Setup**

ADC controller: online offline Overflow suppression: enabled disabled Zero suppression: enabled disabled

Fast Clear Window: 0 0 1023 Zero Suppression Threshold Resolution: x16 x2

**ADC Enables and Thresholds** Act on ALL ADCs?

0	<input checked="" type="checkbox"/>	8	0	255	1	<input checked="" type="checkbox"/>	8	0	255	2	<input checked="" type="checkbox"/>	8	0	255	3	<input checked="" type="checkbox"/>	8	0	255
4	<input checked="" type="checkbox"/>	8	0	255	5	<input checked="" type="checkbox"/>	8	0	255	6	<input checked="" type="checkbox"/>	8	0	255	7	<input checked="" type="checkbox"/>	8	0	255
8	<input checked="" type="checkbox"/>	8	0	255	9	<input checked="" type="checkbox"/>	8	0	255	10	<input checked="" type="checkbox"/>	8	0	255	11	<input checked="" type="checkbox"/>	8	0	255
12	<input checked="" type="checkbox"/>	8	0	255	13	<input checked="" type="checkbox"/>	8	0	255	14	<input checked="" type="checkbox"/>	8	0	255	15	<input checked="" type="checkbox"/>	8	0	255
16	<input checked="" type="checkbox"/>	8	0	255	17	<input checked="" type="checkbox"/>	8	0	255	18	<input checked="" type="checkbox"/>	8	0	255	19	<input checked="" type="checkbox"/>	8	0	255
20	<input checked="" type="checkbox"/>	8	0	255	21	<input checked="" type="checkbox"/>	8	0	255	22	<input checked="" type="checkbox"/>	8	0	255	23	<input checked="" type="checkbox"/>	8	0	255
24	<input checked="" type="checkbox"/>	8	0	255	25	<input checked="" type="checkbox"/>	8	0	255	26	<input checked="" type="checkbox"/>	8	0	255	27	<input checked="" type="checkbox"/>	8	0	255
28	<input checked="" type="checkbox"/>	8	0	255	29	<input checked="" type="checkbox"/>	8	0	255	30	<input checked="" type="checkbox"/>	8	0	255	31	<input checked="" type="checkbox"/>	8	0	255

Redisplay Engineering read output buffer

# Scaler set-up for listmode data

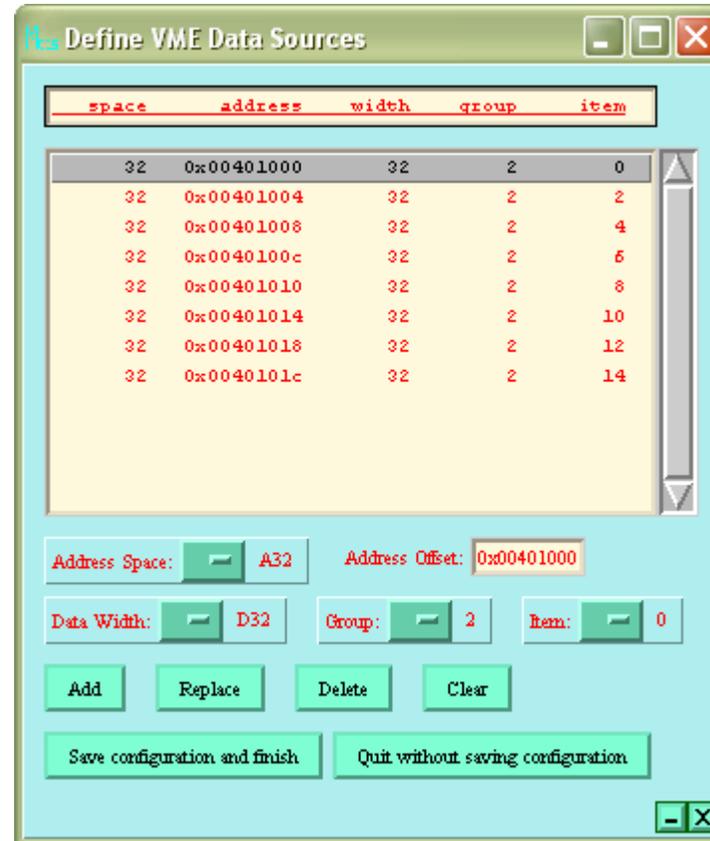
The **scaler** works in tow separate ways simultaneously!!

1) **On-line**

all channels having input are directly seen on the screen without start/stop controll

1) **Listmode**

To get the scaler data in the listmode datafile, one have to set-up the VME Data Sources :  
The scaler is 64 bit while evrything else is 32 bit so one need 2x32 bit for every channel in use.



# On-line SCALER



CAEN V820 Scaler Setup & Monitor

Counter Values

0: 660534	1: 656096	2: 0	3: 0	4: 0	5: 0	6: 0	7: 0
8: 0	9: 0	10: 0	11: 0	12: 0	13: 0	14: 0	15: 0
16: 0	17: 0	18: 0	19: 0	20: 0	21: 0	22: 0	23: 0
24: 0	25: 0	26: 0	27: 0	28: 0	29: 0	30: 0	31: 0

Rate Values

0: 947	1: 939	2: 0	3: 0	4: 0	5: 0	6: 0	7: 0
8: 0	9: 0	10: 0	11: 0	12: 0	13: 0	14: 0	15: 0
16: 0	17: 0	18: 0	19: 0	20: 0	21: 0	22: 0	23: 0
24: 0	25: 0	26: 0	27: 0	28: 0	29: 0	30: 0	31: 0

Update Counters    Clear All Counters    Enable Rates

Rates last updated Thu Nov 22 11:35:00 CET 2007

# Display spectra

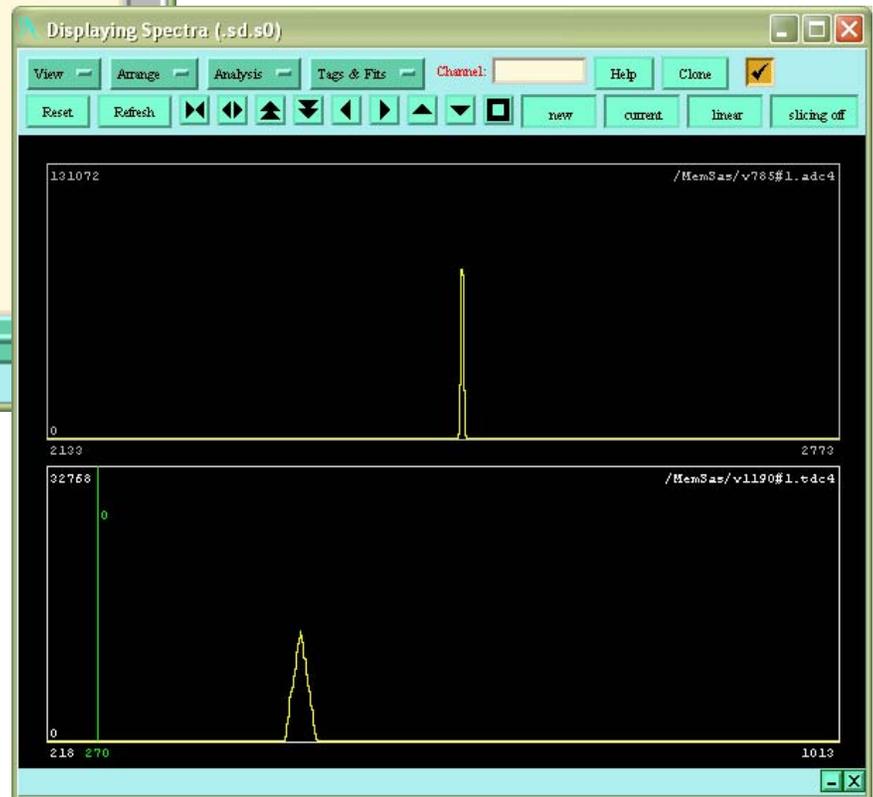
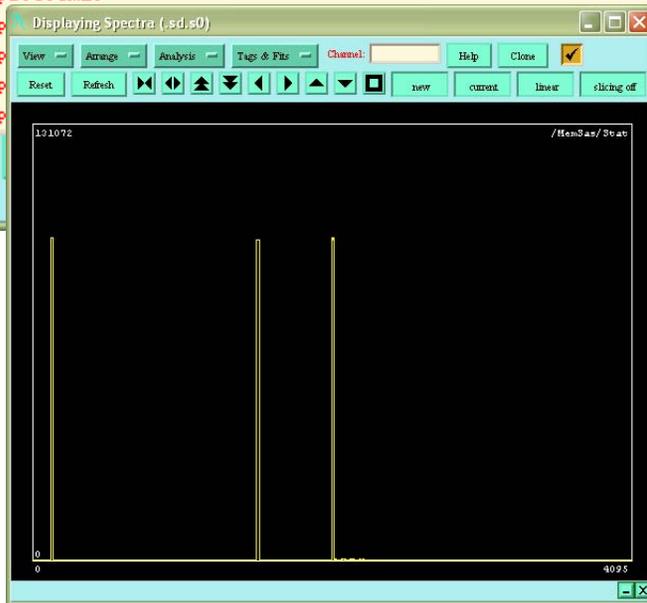
Spectrum Directory Browser (.sb0)

Resource: MemSas Directory

Selection: Scan for spectra Redisplay Help Clone

- group2.item0
- group2.item1
- group2.item2
- group2.item3
- group2.item4
- group2.item5
- group2.item6
- group2.item7
- group2.item8
- group2.item9
- group2.item10
- group
- group
- group
- group
- group

Show analysis



# Files are being stored



```
2:161.111.23.7 - midas* - SSH Secure Shell
File Edit View Window Help
Quick Connect Profiles
dia2020_0.gz dia205_0.gz dia2115_0.gz dia217_0.gz
iemuser@boro:/MIDAS/TapeData/NOV07$ ls -ahl
total 47M
drwxr-xr-x 2 root root 4.0K 2007-11-22 11:23 .
drwxr-xr-x 6 root root 4.0K 2007-11-20 14:49 ..
-rw-r--r-- 1 root root 1.8K 2007-11-20 15:19 dia2013_0.gz
-rw-r--r-- 1 root root 2.1K 2007-11-20 15:19 dia2015_0.gz
-rw-r--r-- 1 root root 171K 2007-11-20 15:28 dia2016_0.gz
-rw-r--r-- 1 root root 35K 2007-11-20 15:35 dia2020_0.gz
-rw-r--r-- 1 root root 238K 2007-11-20 15:43 dia2022_0.gz
-rw-r--r-- 1 root root 517K 2007-11-20 16:03 dia2024_0.gz
-rw-r--r-- 1 root root 64K 2007-11-20 17:53 dia203_0.gz
-rw-r--r-- 1 root root 959K 2007-11-20 18:27 dia205_0.gz
-rw-r--r-- 1 root root 135K 2007-11-21 12:21 dia2110_0.gz
-rw-r--r-- 1 root root 185K 2007-11-21 12:32 dia2111_0.gz
-rw-r--r-- 1 root root 58K 2007-11-21 12:36 dia2113_0.gz
-rw-r--r-- 1 root root 42K 2007-11-21 12:39 dia2115_0.gz
-rw-r--r-- 1 root root 162K 2007-11-21 12:45 dia2117_0.gz
-rw-r--r-- 1 root root 484K 2007-11-21 13:04 dia2120_0.gz
-rw-r--r-- 1 root root 43M 2007-11-22 11:37 dia2123_0.gz
-rw-r--r-- 1 root root 393K 2007-11-21 11:39 dia217_0.gz
-rw-r--r-- 1 root root 73K 2007-11-21 11:42 dia218_0.gz
-rw-r--r-- 1 root root 724K 2007-11-21 12:07 dia219_0.gz
iemuser@boro:/MIDAS/TapeData/NOV07$
Connected to 161.111.23.7 SSH2 - aes128-cbc - hmac-md5 - none 80x24
```

# On-line sorting



MIDAS... [minimize] [maximize] [close]

- Access Control
- Spectrum Viewer
- Experiment Control
- VME Module Control
- Tape Control
- CAEN Amp Control
- Sorting
- MTsort**
- MIDASort**
- Exception Monitor
- Preferences & Options
- Hard Copy
- Extras
- Help
- Quit

Sort Control Frame

**Sort Setup**

Sortfile: ase\_080806/sort/sev13.c [Browse] **State:** Compiled

[Edit Sortfile] [Compile Sortfile] [Settings] [Sort Options]

Input Media [Online] [Data Format: MIDAS] [Tape Info]

[Browse] **State:** Good Connection

Output Media [NULL] [Data Format: NULL]

Drive [Browse] **State:**

**Spectrum Control**

Overwrite Existing Spectra  [View 3]

Enable Histogramming

**Sort Control Halted**

[Start] [Stop]

```
gcc -O -I/MIDAS/MIDASort/include -I/home/midas/MIDAS_base_080806/sort-  
I/MIDAS/include -L/ -c sort-midas-user.c  
gcc -O -o /home/midas/MIDAS_base_080806/sort/sev13 sort-midas-user.o  
/MIDAS/MIDASort/Linux/lib/smf-sm.a -L/MIDAS/MIDASort/Linux/lib-  
L/MIDAS/lib_Linux -leg -lgetspecmem -netvcr -lglobals -lt -ldl
```

Make Successful

Sort Spectrum Directory Browser (.sb1)

Resource: SortSus Directory [Browse] [Refresh] [Close]

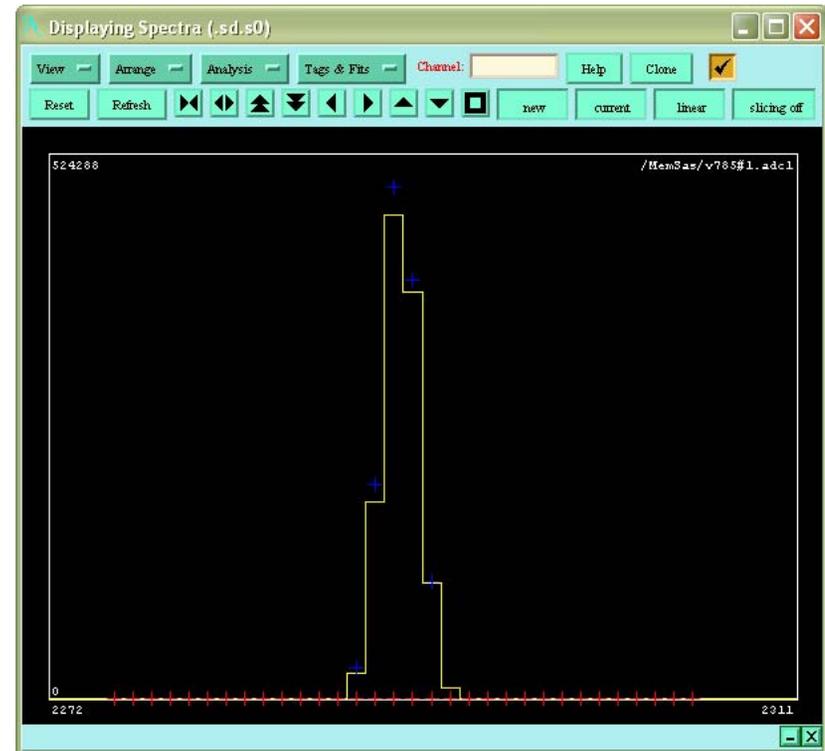
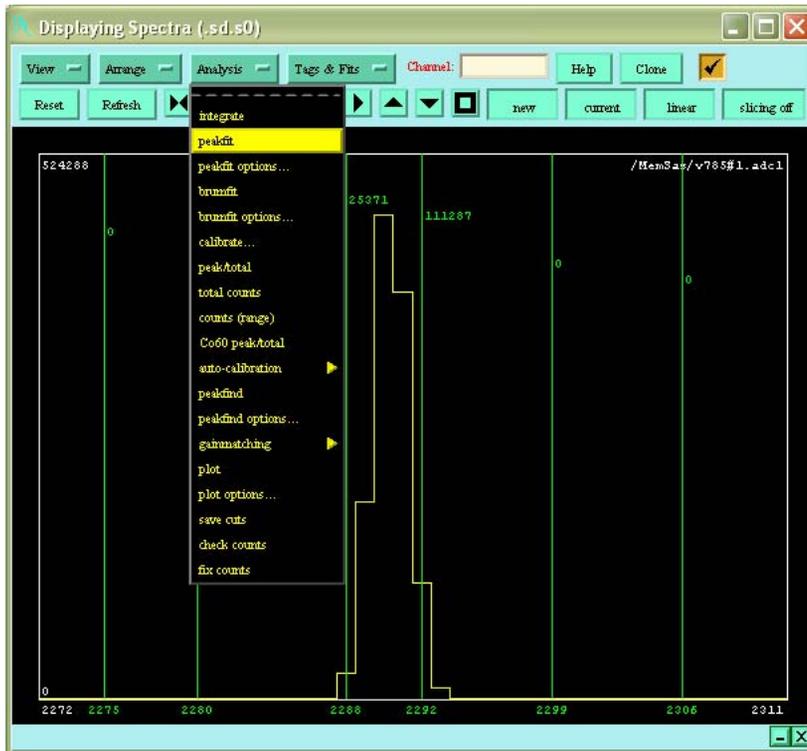
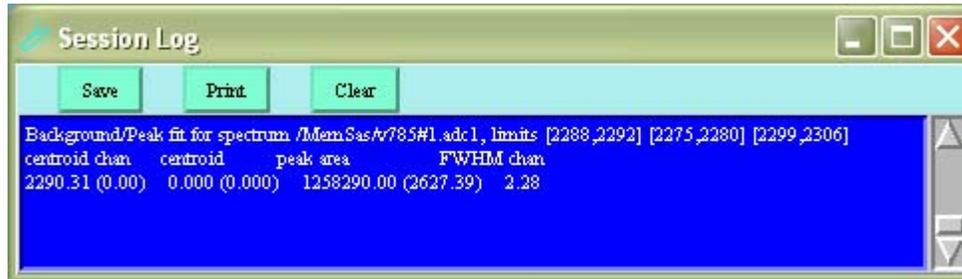
Selection: [Scan for spectra] [Redisplay] [Help]

- adc\_29
- adc\_30
- adc\_31
- adc\_32
- adc\_33
- adc\_34
- adc\_35
- adc\_36
- adc\_37
- adc\_38
- adc\_39
- adc\_40
- adc\_41
- adc\_42
- adc\_43

Show [Select all] [Deselect all] [Options] [Analysis] [Actions]

402 spectra/directories found

# Display and fit peak



# Quit MIDAS

