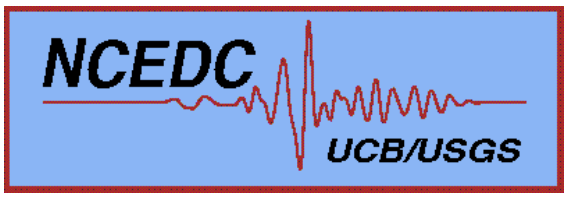
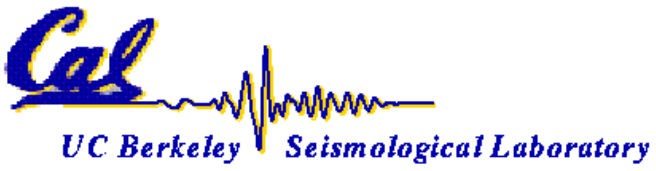


Hardware Tracking Schema v1.0



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Chapter 1

Inventory

1.1 Response information

1.1.1 High-pass filter

$Response_HP(hp_id, order)$

hp_id	int	Response identifier
filter_type	char(2)	Filter type (BW, DG, ND)
nb_pole	int	Number of poles
corner_freq	float	Corner frequency of filter
damping_value	float	Fraction of critical damping

1.1.2 Low-pass filter

$Response_LP(lp_id, order)$

lp_id	int	Response identifier
filter_type	char(2)	Filter type (BW, DG, ND)
nb_pole	int	Number of poles
corner_freq	float	Corner frequency of filter
damping_value	float	Fraction of critical damping

1.1.3 Poles and Zeros

Response_PZ(*pz_id*, *pz_data_id*)

pz_id	int	Response identifier
pz_data_id	int	Poles and Zeros data identifier

Response_PZ_Data(*pz_data_id*, *pz_number*, *type*)

pz_data_id	int	Poles and Zeros data identifier
pz_number	int	Pole/Zero number
type	char(1)	Pole or Zero
r_value	float	Real zero/pole
i_value	float	Imaginary zero/pole

1.1.4 Polynomial

Response_PN(*pn_id*, *pn_data_id*)

pn_id	int	Response identifier
pn_data_id	int	Polynom identifier
poly_type	char(1)	Type of polynomial approximation (C, L, M)
lower_bound	float	Polynomial lower bound
upper_bound	float	Polynomial upper bound
max_error	float	Maximum error of polynomial approximation
nb_coeff	int	Number of polynomial coefficients

Response_PN_Data(*pn_data_id*, *pn_number*)

pn_data_id	int	Polynom identifier
pn_number	int	Coefficient number
pn_value	float	Coefficient value

1.2 Sensor information

1.2.1 Sensor information

$Sensor(sensor_id, start_date)$

sensor_id	int	Sensor identifier
name	char(80)	Sensor name
serial_nb	char(80)	Sensor serial number
start_date	date	Start date
end_date	date	End date
nb_component	int	Number of components

1.2.2 Component information

$Sensor_Component(sensor_id, comp_nb)$

sensor_id	int	Sensor identifier
comp_nb	int	Component number
channel	char(1)	Channel
type	char(1)	Type
sensitivity	float	Sensitivity
frequency	float	Frequency
resp_id	int	Response identifier

1.3 Pre-amplifier information

1.3.1 Pre-amplifier information

$Preamp(preamp_id, start_date)$

preamp_id	int	Pre-amplifier identifier
name	char(80)	Pre-amplifier name
serial_nb	char(80)	Pre-amplifier serial number
start_date	date	Start date
end_date	date	End date
nb_channel	int	Number of channels

1.3.2 Channel information

$Preamp_Channel(preamp_id, channel_nb)$

preamp_id	int	Pre-amplifier identifier
channel_nb	int	Channel number
gain	float	Gain
resp_id	int	Response identifier

1.4 Datalogger information

1.4.1 Datalogger information

$Datalogger(data_id, start_date)$

data_id	int	Datalogger identifier
data_type	char(80)	Datalogger type
serial_nb	char(80)	Datalogger serial number
firmware_nb	char(80)	Datalogger firmware number
start_date	date	Start date
end_date	date	End date
nb_board	int	Number of boards

1.4.2 Board information

$Datalogger_Board(data_id, board_nb, start_date)$

data_id	int	Datalogger identifier
board_nb	int	Board number
serial_nb	char(80)	Board serial number
start_date	date	Start date
end_date	date	End date
nb_module	int	Number of modules

1.4.3 Module information

$Datalogger_Module(data_id, board_nb, module_nb, start_date)$

data_id	int	Datalogger identifier
board_nb	int	Board number
module_nb	int	Module number
serial_nb	char(80)	Module serial number
sensitivity	float	Sensitivity (counts/volt)
start_date	date	Start date
end_date	date	End date

1.5 Filter information

1.5.1 FIR Filter information

$Filter_FIR(fir_id, fir_data_id)$

fir_id	int	Response identifier
fir_data_id	int	FIR filter identifier
symmetry	char(1)	Filter symmetry (Even/None)
gain	float	Filter gain

$Filter_FIR_Data(fir_data_id, coeff_number)$

fir_data_id	int	FIR filter identifier
coeff_number	int	Numerator/Denominator number
type	char(1)	Numerator or Denominator
coeff	float	Numerator/Denominator coefficient

1.5.2 Filter information

$Filter(filter_id)$

filter_id	int	Filter identifier
name	char(80)	Filter name
gain	float	Filter gain
freq	float	Frequency for filter gain
rgain	float	Gain at the response frequency
rfreq	float	Frequency for response
in_sp_rate	float	Input sample rate
out_sp_rate	float	Output sample rate
sample	int	Sample selected during decimation
delay	float	Filter delay
timetag	float	Delay applied to timetag
resp_id	int	Response identifier

1.5.3 Filters sequence

$Filter_Sequence(seqfil_id)$

seqfil_id	int	Sequence identifier
nb_filter	int	Number of filters
overall_gain	float	Overall gain
freq	float	Frequency
rgain	float	Gain at the response frequency
rfreq	float	Frequency for response

$Filter_Sequence_Data(seqfil_id, order)$

seqfil_id	int	Sequence identifier
order	int	Order number
filter_id	int	Filter identifier

Chapter 2

Tracking

2.1 Station information

$Station(sta, net, start_date)$

sta	char(6)	Station call letters
net	char(8)	Network code
lat	float	Latitude
lon	float	Longitude
elevation	float	Elevation
name	char(80)	Station name
nb_sensor	int	Number of sensors
nb_preamp	int	Number of pre-amplifiers
nb_digi	int	Number of digitizers
nb_data	int	Number of dataloggers
start_date	date	Start date
end_date	date	End date

2.2 Sensor information

2.2.1 Sensor information

Station_Sensor(*sta*, *net*, *sensor_nb*, *start_date*)

sta	char(6)	Station call letters
net	char(8)	Network code
sensor_nb	int	Sensor number
sensor_id	int	Sensor identifier
depth	float	Depth
nb_channel	int	Number of channels
start_date	date	Start date
end_date	date	End date

2.2.2 Sensor-channel information

Station_Sensor_Channel(*sta*, *net*, *sensor_nb*, *channel_nb*, *start_date*)

sta	char(6)	Station call letters
net	char(8)	Network code
sensor_nb	int	Sensor number
channel_nb	int	Channel number
preamp_digi_nb	int	Pre-amplifier/Digitizer number
preamp_digi_channel	int	Pre-amplifier/Digitizer channel
azimuth	float	Azimuth
dip	float	Dip
start_date	date	Start date
end_date	date	End date

2.3 Pre-amplifier information

2.3.1 Pre-amplifier information

Station_Preamp(*sta*, *net*, *preamp_nb*, *start_date*)

sta	char(6)	Station call letters
net	char(8)	Network code
preamp_nb	int	Pre-amplifier number
preamp_id	int	Pre-ampifier identifier
nb_channel	int	Number of channels
start_date	date	Start date
end_date	date	End date

2.3.2 Pre-amplifier-channel information

Station_Preamp_Channel(*sta*, *net*, *preamp_nb*, *channel_nb*, *start_date*)

sta	char(6)	Station call letters
net	char(8)	Network code
preamp_nb	int	Pre-amplifier number
channel_nb	int	Channel number
digi_nb	int	Digitizer number
digi_channel	int	Digitizer channel
start_date	date	Start date
end_date	date	End date

2.4 Digitizer information

2.4.1 Digitizer information

$Station_Digitizer(sta, net, digi_nb, start_date)$

sta	char(6)	Station call letters
net	char(8)	Network code
digi_nb	int	Digitizer number
serial_nb	char(80)	Digitizer serial number
nb_pri_channel	int	Number of primary channels
nb_aux_channel	int	Number of auxiliary channels
start_date	date	Start date
end_date	date	End date

2.4.2 Digitizer-channel information

$Station_Digitizer_Channel(sta, net, digi_nb, channel_nb, start_date)$

sta	char(6)	Station call letters
net	char(8)	Network code
digi_nb	int	Digitizer number
channel_nb	int	Channel number
data_nb	int	Datalogger number
data_channel	int	Datalogger channel
digi_type	char(3)	Digitizer type (DSP, AUX)
digi_polarity	char(1)	Digitizer polarity (N, ...)
start_date	date	Start date
end_date	date	End date

2.5 Datalogger information

2.5.1 Datalogger information

$Station_Datalogger(sta, net, data_nb, start_date)$

sta	char(6)	Station call letters
net	char(8)	Network code
data_nb	int	Datalogger number
data_id	int	Datalogger identifier
nb_channel	int	Number of channels
start_date	date	Start date
end_date	date	End date

2.5.2 Datalogger-channel information

$Station_Datalogger_Channel(sta, net, data_nb, channel_nb, start_date)$

sta	char(6)	Station call letters
net	char(8)	Network code
data_nb	int	Datalogger number
channel_nb	int	Channel number
seed_io	char(2)	SEED instrument and orientation
nb_filter	int	Number of filters
start_date	date	Start date
end_date	date	End date

2.5.3 Datalogger-filter information

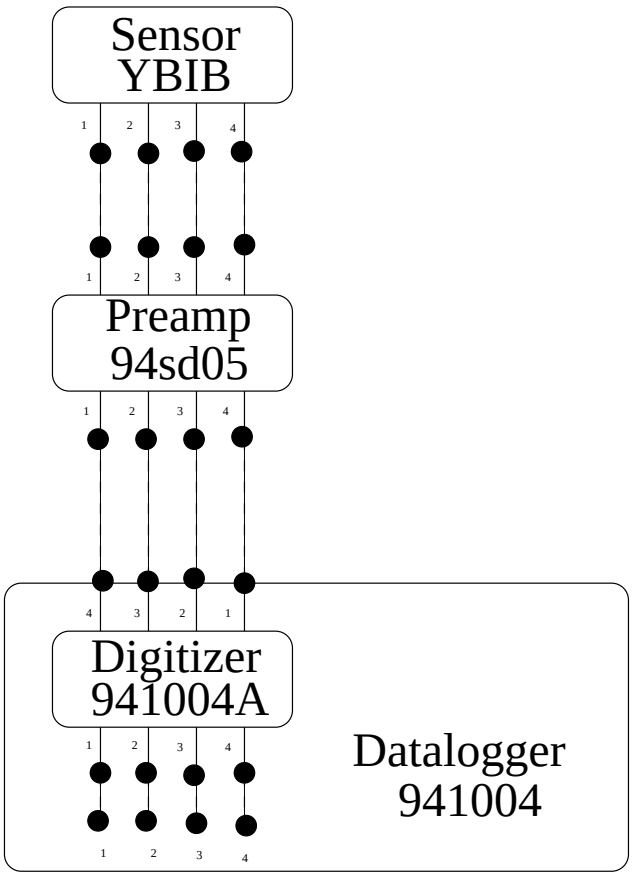
$Station_Datalogger_Filter(sta, net, data_nb, channel_nb, filter_nb, start_date)$

sta	char(6)	Station call letters
net	char(8)	Network code
data_nb	int	Datalogger number
channel_nb	int	Channel number
filter_nb	int	Filter number
seqfil_id	int	Sequence of filters identifier
seed	char(3)	SEED channel name
sample_rate	float	Sample rate
clock_tolerance	float	Clock tolerance
data_type	char(2)	Data type (TG/CG)
data_format	char(80)	Data format (SEED, ...)
comp_type	char(80)	Compression type (STEIM1, ...)
block_size	int	Block size (512, 4096, ...)
start_date	date	Start date
end_date	date	End date

Chapter 3

Example: YBIB

3.1 Overview



3.2 Inventory

3.2.1 Response_HP

hp_id	filter_type	nb_pole	corner_freq	damping_value
2	DG	2	4.5	0.62
3	DG	1	0.0796	1.

3.2.2 Response_LP

lp_id	filter_type	nb_pole	corner_freq	damping_value
1	DG	2	600.	0.7071

3.2.3 Sensor

sensor_id	name	serial_nb	start_date	end_date	nb_component
1	name	YBIB	1996/06/28 23:25	NULL	4

3.2.4 Sensor_Component

sensor_id	comp_nb	channel	type	sensitivity	frequency	resp_id
1	1	1	A	1.0204	10.	1
1	2	2	A	1.0204	10.	1
1	3	3	A	1.0204	10.	1
1	4	4	V	50.	30.	2

3.2.5 Preamp

preamp_id	name	serial_nb	start_date	end_date	nb_channel
1	Qpreamp	94sd05	1996/06/28 23:25	NULL	4

3.2.6 Preamp_Channel

preamp_id	channel_nb	gain	resp_id
1	1	10.	3
1	2	10.	3
1	3	10.	3
1	4	100.	NULL

3.2.7 Datalogger

data_id	data_type	serial_nb	firmware_nb	start_date	end_date	nb_board
1	Q4120	941004	0	1996/06/06 00:00	NULL	1

3.2.8 Datalogger_Board

data_id	board_nb	serial_nb	start_date	end_date	nb_module
1	1	941004A	1996/06/06 00:00	NULL	4

3.2.9 Datalogger_Module

data_id	board_nb	module_nb	serial_nb	sensitivity	start_date	end_date
1	1	1	NULL	428638.	NULL	NULL
1	1	2	NULL	431261.	NULL	NULL
1	1	3	NULL	425793.	NULL	NULL
1	1	4	NULL	413133.	NULL	NULL

3.2.10 Filter_Sequence

seqfil_id	nb_filter	overall_gain	freq	rgain	rfreq
1	3	0.	0.	0.	0.
2	4	0.	0.	0.	0.
3	5	0.	0.	0.	0.
4	7	0.	0.	0.	0.

3.2.11 Filter_Sequence_Data

Only the first sequence of filters is described.

seqfil_id	order	filter_id
1	1	1
1	2	2
1	3	3

3.2.12 Filter

filter_id	name	gain	freq	rgain	rfreq
1	FIR.AD32M	1.	0.	0.	0.
2	FIR.F96CM	1.	0.	0.	0.
3	FIR.F96CM	1.	0.	0.	0.

in_sp_rate	out_sp_rate	sample	delay	timetag	resp_id
32000.	2000.	0	0.	0.	4
2000.	1000.	0	0.	0.	5
1000.	500.	0	0.	0.	5

3.2.13 Filter_FIR

fir_id	fir_data_id	symmetry	gain
4	1	N	0.999904
5	2	N	0.999188

3.2.14 Filter_FIR_Data

This table is not described, due to the high amount of rows.

3.3 Tracking

3.3.1 Station

sta	net	lat	lon	elevation	name
YBIB	BK	37.81472	-122.35815	4.	Yerba Buena Island

nb_sensor	nb_preamp	nb_digi	nb_data	start_date	end_date
1	1	1	1	1996/06/28 23:25	NULL

3.3.2 Station_Sensor

sta	net	sensor_nb	sensor_id	depth	nb_channel	start_date	end_date
YBIB	BK	1	1	61.	4	1996/06/28 23:25	NULL

3.3.3 Station_Sensor_Channel

sta	net	sensor_nb	channel_nb	preamp_digi_nb
YBIB	BK	1	1	1
YBIB	BK	1	2	1
YBIB	BK	1	3	1
YBIB	BK	1	4	1

preamp_digi_channel	azimuth	dip	start_date	end_date
1	0.	-90.	1996/06/28 23:25	NULL
2	257.	0.	1996/06/28 23:25	NULL
3	347.	0.	1996/06/28 23:25	NULL
4	0.	-90.	1996/06/28 23:25	NULL

3.3.4 Station_Preamp

sta	net	preamp_nb	preamp_id	nb_channel	start_date	end_date
YBIB	BK	1	1	4	1996/06/28 23:25	NULL

3.3.5 Station_Preamp_Channel

sta	net	preamp_nb	channel_nb
YBIB	BK	1	1
YBIB	BK	1	2
YBIB	BK	1	3
YBIB	BK	1	4

digi_nb	digi_channel	start_date	end_date
1	4	1996/06/28 23:25	NULL
1	3	1996/06/28 23:25	NULL
1	2	1996/06/28 23:25	NULL
1	1	1996/06/28 23:25	NULL

3.3.6 Station_Digitizer

sta	net	digi_nb	serial_nb
YBIB	BK	1	941004A

nb_pri_channel	nb_aux_channel	start_date	end_date
4	0	1996/06/28 23:25	NULL

3.3.7 Station_Digitizer_Channel

sta	net	digi_nb	channel_nb	data_nb
YBIB	BK	1	1	1
YBIB	BK	1	2	1
YBIB	BK	1	3	1
YBIB	BK	1	4	1

data_channel	digi_type	digi_polarity	start_date	end_date
1	DSP	N	1996/06/28 23:25	NULL
2	DSP	N	1996/06/28 23:25	NULL
3	DSP	N	1996/06/28 23:25	NULL
4	DSP	N	1996/06/28 23:25	NULL

3.3.8 Station_Datalogger

sta	net	data_nb	data_id	nb_channel	start_date	end_date
YBIB	BK	1	1	4	1996/06/28 23:25	NULL

3.3.9 Station_Datalogger_Channel

sta	net	data_nb	channel_nb
YBIB	BK	1	1
YBIB	BK	1	2
YBIB	BK	1	3
YBIB	BK	1	4

seed_io	nb_filter	start_date	end_date
L1	4	1996/06/28 23:25	NULL
L2	4	1996/06/28 23:25	NULL
L3	4	1996/06/28 23:25	NULL
P1	4	1996/06/28 23:25	NULL

3.3.10 Station_Datalogger_Filter

The start_date and end_date fields are not described.

sta	net	data_nb	channel_nb	filter_nb	seqfil_id	seed	sample_rate
YBIB	BK	1	1	1	1	CL1	500
YBIB	BK	1	1	2	2	HL1	100
YBIB	BK	1	1	3	3	BL1	20
YBIB	BK	1	1	4	4	LL1	1
YBIB	BK	1	2	1	1	CL2	500
YBIB	BK	1	2	2	2	HL2	100
YBIB	BK	1	2	3	3	BL2	20
YBIB	BK	1	2	4	4	LL2	1
YBIB	BK	1	3	1	1	CL3	500
YBIB	BK	1	3	2	2	HL3	100
YBIB	BK	1	3	3	3	BL3	20
YBIB	BK	1	3	4	4	LL3	1
YBIB	BK	1	4	1	1	DP1	500
YBIB	BK	1	4	2	2	EP1	100
YBIB	BK	1	4	3	3	BP1	20
YBIB	BK	1	4	4	4	LP1	1

clock_tolerance	data_type	data_format	comp_type	block_size
5. d-2	TG	SEED	STEIM2	4096
1. d-2	TG	SEED	STEIM2	4096
2. d-3	TG	SEED	STEIM2	4096
1. d-4	TG	SEED	STEIM2	4096
5. d-2	TG	SEED	STEIM2	4096
1. d-2	TG	SEED	STEIM2	4096
2. d-3	TG	SEED	STEIM2	4096
1. d-4	TG	SEED	STEIM2	4096
5. d-2	TG	SEED	STEIM2	4096
1. d-2	TG	SEED	STEIM2	4096
2. d-3	TG	SEED	STEIM2	4096
1. d-4	TG	SEED	STEIM2	4096
5. d-2	TG	SEED	STEIM2	4096
1. d-2	TG	SEED	STEIM2	4096
2. d-3	TG	SEED	STEIM2	4096
1. d-4	TG	SEED	STEIM2	4096